GEI Consultants Canada

Natural Heritage Evaluation

5061 Stouffville Road: Mixed-use High-rise Block

Whitchurch-Stouffville, ON

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AS/SL:tw

1. Introduction

GEI Consultants Canada Ltd. (GEI) has been retained by Times 4750 Inc., to complete a Natural Heritage Evaluation (NHE) for the proposed development of their property located at 5061 Stouffville Road in the Town of Whitchurch-Stouffville, York Region, Ontario (hereafter referred to as the "Subject Lands"). The Subject Lands are 83.6 ha in size and are located southwest of the intersection of Stouffville Road and Highway 48 (**Figure 1**, **Appendix A**).

The Subject Lands are located within the Rouge River watershed and fall under the jurisdiction of the Toronto and Region Conservation Authority (TRCA). The lands are predominantly agricultural, with natural vegetation limited to the northern corner, where a small, treed area and a meadow marsh community are present. Willowgrove Creek, a tributary of Little Rouge Creek, flows through the adjacent 120 m lands to the west of the Subject Lands. To the east, across Highway 48, a unit of the Little Rouge Creek at Stouffville Provincially Significant Wetland (PSW) complex is mapped within 120 m of the Subject Lands, with Ringwood Brook, another tributary of Little Rouge Creek, flowing through this PSW.

1.1. Project Overview

Times 4750 Inc. is proposing a 7.2 ha mixed-use development comprising the West Phase, which includes three residential towers, and the East Phase, which includes two residential towers and one daycare facility. The proposed development also includes the construction of two new municipal rights-of-way.

The Subject Lands are primarily designated as "Agricultural System" on *Map 1: Regional Structure* and "Agricultural Area" on *Map 1A: Land Use Designations* of the York Region Official Plan (2024 Office Consolidation). Most of the Subject Lands are also identified as "ORM Countryside Area" on *Schedule B: Land Use and Transportation Plan* of the Town of Whitchurch-Stouffville Official Plan (2023 Office Consolidation).

An NHE is required to support applications for an Official Plan Amendment and Zoning By-law Amendment to facilitate the proposed development.

1.2. Purpose of the Report

The purpose of the Natural Heritage Evaluation (NHE) is to assess the potential impacts of the proposed development on the natural heritage features and ecological functions of the Subject Lands and the adjacent 120 m. The NHE has been prepared to address the applicable policies and provisions of the Provincial Planning Statement (PPS; MMAH 2024) and the associated provincial implementation guidance outlined in the *Natural Heritage Reference Manual* (NHRM; MNR 2010).

In addition, the NHE considers the relevant policies and provisions of the Greenbelt Plan (MMA 2017a), the Oak Ridges Moraine Conservation Plan (ORMCP; MMA 2017b), the York Region Official Plan (2024 Office Consolidation), the Town of Whitchurch-Stouffville Official Plan (2023 Office Consolidation), and the TRCA.

1.3. Scope of the Report

The NHE relies on ecological data collected by Stantec Consulting Ltd. (Stantec) on behalf of Ages Consulting Ltd. (Ages Consulting) in 2020, supplemented with additional field data collected by GEI in 2023 and 2024. The NHE addresses the following key components:

- Review of natural heritage background information, legislation, regulations, and policies relevant to the Subject Lands and the adjacent 120 m;
- Ecological field investigations, including targeted species surveys, to identify and delineate natural heritage features and assess species presence on the Subject Lands and the adjacent 120 m;
- Biophysical characterization of the Subject Lands and the adjacent 120 m, including an analysis of the sensitivity of the natural heritage features and species known to be present;
- Evaluation of the significance of the natural heritage features, as defined by the PPS;
- Description of the proposed development;
- Analysis of potential direct, indirect, and induced impacts of the proposed development on the natural heritage features, ecological functions, and species known to be present within the Subject Lands and the adjacent 120 m;
- Recommendations for mitigation measures to avoid or minimize impacts during and after development; and
- Overview of proposed restoration and enhancement measures.

In accordance with ORMCP requirements, the need for a Hydrological Evaluation and a Landform Conservation Plan was assessed as part of the NHE. While a Hydrological Evaluation was deemed necessary and is included within this report (see **Section 8**), it was determined that a Landform Conservation Plan was not required (**see Section 2.3**).

2. Natural Heritage Planning Context and Legislative Framework

The Subject Lands and the adjacent 120 m are subject to the policies and provisions of the following legislative, regulatory, and planning documents, along with any related guidance materials that support their implementation:

- PPS under the *Planning Act*, 1990 (MMAH 2024);
- Greenbelt Plan (MMA 2017a);
- ORMCP (MMA 2017b);
- York Region Official Plan (2024 Office Consolidation);
- Town of Whitchurch-Stouffville Official Plan (2023 Office Consolidation);
- Ontario Regulation (O. Reg.) 41/24 under the *Conservation Authorities Act*, 1990 and other relevant TRCA policy documents;
- Provincial *Endangered Species Act*, 2007;
- Federal *Fisheries Act*, 1985;
- Federal *Migratory Birds Convention Act*, 1994.

2.1. Provincial Planning Statement

The new PPS (MMAH 2024) came into effect on October 20, 2024. This document replaces the previous Provincial Policy Statement (2020) and *A Place to Grow: Growth Plan for the Greater Golden Horseshoe* (2020). Many of the Natural Heritage considerations remain the same. In general, the PPS provides policy direction on matters of provincial interest related to land use planning and development. It "supports a comprehensive, integrated and long-term approach to planning." The PPS is to be read in its entirety, and land use planners and decision-makers need to consider all relevant policies and how they work together.

This report addresses those policies that are specific to Natural Heritage (Section 4.1). Eight types of significant natural heritage features are defined in the PPS, as follows:

- Significant wetlands;
- Significant coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat (SWH);
- Fish habitat;
- Habitat of Endangered and Threatened species; and
- Significant Areas of Natural and Scientific Interest (ANSIs).

The PPS states that development and site alteration shall not be permitted in significant wetlands within Ecoregions 5E, 6E, and 7E, or in significant coastal wetlands. Development and site alteration are also not permitted in fish habitat or in the habitat of Endangered and Threatened species, except in accordance with provincial and federal requirements.

Development and site alteration shall not be permitted in significant wetlands on the Canadian Shield north of Ecoregions 5E, 6E, and 7E; non-significant coastal wetlands in Ecoregions 5E, 6E, and 7E; significant woodlands in Ecoregions 6E and 7E; significant valleylands in Ecoregions 6E and 7E; SWH; significant ANSIs; or on adjacent lands to any of the previously noted natural heritage features and areas (except for the habitat of Endangered and Threatened species), unless it is demonstrated that there will be no negative impacts on the natural features or their ecological functions.

Of note, adjacent lands are defined in the PPS as "those lands contiguous to a specific natural heritage feature or area where it is likely that development or site alteration would have a negative impact on the feature or area. The extent of the adjacent lands may be recommended by the Province or based on municipal approaches which achieve the same objectives."

2.2. Greenbelt Plan

The Greenbelt Plan (MMA 2017a) was created to provide permanent protections for the agricultural land base and the ecological and hydrological features, areas, and functions within the Greater Golden Horseshoe. The Greenbelt Plan, together with other provincial plans, builds on the PPS to establish a land use planning framework for the Greater Golden Horseshoe that supports a thriving economy, a clean and healthy environment, and social equity.

As described within Section 2 of the Greenbelt Plan (MMA 2017a), the Greenbelt Area includes lands within the Oak Ridges Moraine Area, the Niagara Escarpment Plan Area, the Parkway Belt West Plan Area, and lands designated as Protected Countryside and as Urban River Valley.

According to *Schedule 1: Greenbelt Area* and as shown in **Figure 2** (**Appendix A**), a small portion at the western end of the Subject Lands, surrounding Willowgrove Creek and extending into the adjacent 120 m, is designated as Protected Countryside. Per *Schedule 4: Greenbelt Natural Heritage System*, these lands are also located within the Greenbelt Plan Natural Heritage System (NHS). The NHS is not a land use designation; rather, it is an overlay on top of the prime agricultural area.

The majority of the Subject Lands and the adjacent 120 m fall within the Oak Ridges Moraine Area. A detailed breakdown of the land use designations within the Oak Ridges Moraine Area is provided in **Section 2.3**.

The Greenbelt Plan sets out policies to protect key natural heritage features (KNHFs) and key hydrologic features (KHFs).

The Greenbelt Plan identifies the following as **KNHFs**:

- Habitat of Endangered and Threatened species;
- Fish habitat;
- Wetlands;

- Life Science ANSIs;
- Significant valleylands;
- Significant woodlands;
- SWH (including habitat of Special Concern species);
- Sand barrens, savannahs, and tallgrass prairies; and
- Alvars.

The Greenbelt Plan identifies the following as **KHFs**:

- Permanent and intermittent streams;
- Lakes (and their littoral zones);
- Seepage areas and springs; and
- Wetlands.

Per Section 3.2.5 of the Greenbelt Plan, development and site alteration are prohibited within KNHFs, KHFs, and their associated Vegetation Protection Zones (VPZs), except for uses such as infrastructure, conservation, or flood control projects that meet the criteria set out in the plan. For proposals within 120 m of KNHFs or KHFs, an NHE or Hydrological Evaluation must demonstrate that there will be no negative impacts on their ecological or hydrological functions and must also identify VPZs that are sufficient to protect the features and are maintained as natural, self-sustaining vegetation.

2.3. Oak Ridges Moraine Conservation Plan

The ORMCP (MMA 2017b) was created to provide a land use and resource management planning framework to protect the Oak Ridges Moraine's natural heritage and hydrological features and functions. The lands identified as part of the ORMCP are also subject to the Greenbelt Plan (MMA 2017a). The ORMCP and the Greenbelt Plan, together with other provincial plans, build upon the PPS to provide a land use planning framework that protects the environment while supporting the provincial economy.

The following land use designations are recognized under the ORMCP:

- **Natural Core Areas:** areas with high concentrations of KNHFs and KHFs, ecological functions, or landform conservation areas;
- **Natural Linkage Areas:** areas that form part of a central corridor that support or have the potential to support movement of plants and animals between Natural Core Areas, Natural Linkage Areas, river valleys, and stream corridors;
- **Countryside Areas:** rural lands; and
- **Settlement Areas:** urban development.

As shown in **Figure 2** (**Appendix A**), the Subject Lands are primarily designated as Countryside Area. Countryside Areas provide an agricultural and rural transition and buffer between the Natural Core Areas and Natural Linkage Areas and the urbanized Settlement Areas. A small portion of the 120 m adjacent lands to the northwest of the Subject Lands is designated as Natural Linkage Area, while lands to the east of the Subject Lands are designated as Settlement Area.

The ORMCP identifies the following as **KNHFs**:

- Wetlands;
- Habitat of Endangered and Threatened species;
- Fish habitat;
- Life Science ANSIs;
- Significant valleylands;
- Significant woodlands;
- SWH (including habitat of Special Concern species); and
- Sand barrens, savannahs, and tallgrass prairies.

The ORMCP identifies the following as **KHFs**:

- Permanent and intermittent streams;
- Wetlands;
- Kettle lakes; and
- Seepage areas and springs.

Per Sections 22, 23, and 26 of the ORMCP, development and site alteration are prohibited within KNHFs, KHFs, and their associated VPZs, except for uses such as infrastructure, conservation, or flood control projects that meet the criteria set out in the plan.

For proposals within the minimum area of influence (typically 120 m) of KNHFs or KHFs, an NHE is required for KNHFs, and a Hydrological Evaluation is required for KHFs. These evaluations must demonstrate that there will be no negative impacts on the ecological or hydrological functions or the connectivity of these features. They must also identify VPZs that are sufficient to protect the features and are maintained as natural, self-sustaining vegetation.

A Hydrological Evaluation is included as part of this NHE, in **Section 8**. There are no Landform Conservation Areas (per O. Reg. 140/02 under the *Oak Ridges Moraine Conservation Act*, 2001) or Earth Science ANSIs mapped within the Subject Lands or the adjacent 120 m (MNR 2024a), and as such, a Landform Conservation Plan is not required as part of this NHE.

2.4. York Region Official Plan

The York Region Official Plan (2024 Office Consolidation) provides a long-term vision for the Region's physical form and community structure. It sets goals and objectives, describes a regional structure for accommodating growth, states the policies to be followed, and provides guidance on implementing policies. The Region's Official Plan provides a framework for coordinated planning with local municipalities on how to approach environmental, economic, and community issues for creating sustainable communities.

As per Ontario Bill 23 *(More Homes Built Faster Act*, 2022*)* and Bill 185 *(Cutting Red Tape to Build More Homes Act*, 2024*)*, the York Region Official Plan is, as of July 1, 2024, deemed to constitute an official plan of York's lower-tier municipalities, including the Town of Whitchurch-Stouffville.

The Subject Lands are designated primarily as "Agricultural System" on *Map 1: Regional Structure* and "Agricultural Area" on *Map 1A: Land Use Designations*. The portions of the Subject Lands and the adjacent 120 m to the west that are within the Greenbelt Plan Protected Countryside are also mapped as part of the "Regional Greenlands System" on both *Map 1: Regional Structure* and *Map 2: Regional Greenlands System*. Regional Greenlands System areas are also mapped to the east of the Subject Lands.

The Regional Greenlands System is defined within the Region's Official Plan as the "Oak Ridges Moraine Conservation Plan's Natural Core Area and Natural Linkage Area designations, the NHS within the Protected Countryside of the Greenbelt Plan, approved local NHSs, key natural heritage features, key hydrologic features and functions, and the lands necessary to maintain these features within a system." The Greenlands System Vision within the Region's Official Plan generally identifies locations of major linkages on the regional scale to be further assessed in the planning process.

As stated in Sections 3.2.3 and 2.3.4 of the York Region Official Plan, development and site alteration are prohibited within the Regional Greenlands System. Furthermore, any development or site alteration applications within 120 m of the Regional Greenlands System must be accompanied by an environmental impact study, in accordance with applicable Provincial Plans and the requirements of the local municipality.

In addition to the Regional Greenlands System, other maps within the Official Plan provide further natural heritage context for the Subject Lands. For example, *Map 4: Key Hydrologic Features* identifies the area surrounding Willowgrove Creek as "Seepage Areas and Springs (Toronto and Region Conservation Authority)." This map also identifies a PSW unit located in the northern corner of the Subject Lands and another unit across Highway 48 to the east. Additionally, the Subject Lands are mapped as "Area of High Aquifer Vulnerability (Oak Ridges Moraine Conservation Plan)" and include areas classified as "Highly Vulnerable Aquifers," as shown on *Map 7: Vulnerable Aquifers Within ORMCP & CWA.*

The policies of Section 3.4 outline York Region's natural features policies, including protections for KNHFs and KHFs, which serve as the building blocks of the Region's natural systems. These features may exist both within and outside the Regional Greenlands System.

The Region's Official Plan identifies the following as **KNHFs**:

- Habitat of Endangered and Threatened, species;
- Fish habitat;
- Wetlands;
- Life Science ANSIs;
- Significant valleylands;

- Significant woodlands;
- SWH (including habitat of Special Concern species); and
- Sand barrens, savannahs and tallgrass prairies.

The Region's Official Plan identifies the following as **KHFs**:

- Wetlands;
- Lakes and their littoral zones;
- Permanent and intermittent streams;
- Kettle lakes;
- Seepage areas and springs; and
- Lake Simcoe shoreline.

2.5. Town of Whitchurch-Stouffville Official Plan

The Town of Whitchurch-Stouffville Official Plan (2023 Office Consolidation) establishes a general framework for the future planning of the municipality with respect to the natural environment, land use, community services, social and cultural matters, and development review.

Most of the Subject Lands are identified as "ORM Countryside Area" in *Schedule B: Land Use and Transportation Plan* of the Town's Official Plan, with small areas in the western portion identified as "Agricultural Area". The portions of the Subject Lands and the adjacent 120 m to the west that are within the Greenbelt Plan Protected Countryside are also mapped as part of the "Greenland System" in *Schedule A: Greenland System*. The natural heritage features on the adjacent lands to the east, located within the Community of Stouffville Secondary Plan, are also mapped as part of the Greenland System in *Schedule F-3: Greenland System*.

Per Sections 1.3.2 and 3.4 of the Town's Official Plan, the Greenland System is a network of environmental features, including wetlands, Environmentally Significant Areas, ANSIs, forested areas, cold and warm water fisheries, and major groundwater recharge and headwater areas.

Section 3.4 states that the Town's Greenland System is intended to support and build on the NHS of the ORMCP (2017b) and the Regional Greenlands System. Within the Oak Ridges Moraine, the Greenland System aligns with the ORMCP. Outside the Oak Ridges Moraine, the Greenland System is defined by the Town's policies and *Schedule A: Greenland System* of the Official Plan, supported by Section 3.4. Per Section 3.4.1.3, the Whitchurch-Stouffville Greenland System is intended to complement and align with York Region's Greenlands System and strategy. However, in the event of a conflict, the Town's provisions take precedence over the Regional Official Plan.

The Town's Official Plan outlines clear requirements for an Environmental Impact Study (EIS) or an NHE when development or site alteration is proposed near environmentally sensitive areas. These studies support the protection of natural features and ecological functions by assessing potential impacts and determining appropriate mitigation or compensation measures.

In addition to the Greenlands System, other schedules within the Official Plan provide further natural heritage context for the Subject Lands. The areas along Willowgrove Creek and Ringwood Brook are mapped as "Floodplain Area" on *Schedule A2: Greenlands System Floodplain Areas*. *Schedule H: Oak Ridges Moraine Plan Area Key Natural Heritage and Hydrologically Sensitive Features* identifies Willowgrove Creek and Ringwood Brook, their 30 m VPZs, and their 120 m areas of influence. Lastly, *Schedule I: Oak Ridges Moraine Plan Area Areas of High Aquifer Vulnerability* maps most of the Subject Lands as "Areas of High Aquifer Vulnerability."

2.6. Toronto and Region Conservation Authority

Effective April 1, 2024, Ontario Regulation (O. Reg.) 41/24: Prohibited Activities, Exemptions and Permits has come into force, replacing the former O.Reg. 166/06: Toronto and Region Conservation Authority: Development, Interference with Wetlands, Alterations to Shorelines and Watercourses Regulation. O. Reg. 41/24 allows Conservation Authorities to implement Section 28 of the *Conservation Authorities Act, 1990* (amended 2024), which states under Section 28(1) that:

> 28 (1) *No person shall carry on the following activities, or permit another person to carry on the following activities, in the area of jurisdiction of an authority:*
>
> > *1. Activities to straighten, change, divert or interfere in any way with the existing channel of a river, creek, stream or watercourse or to change or interfere in any way with a wetland.*
> >
> > *2. Development activities in areas that are within the authority's area of jurisdiction and are,*
> >
> > > *i. hazardous lands,*
> > >
> > > *ii. wetlands,*
> > >
> > > *iii. river or stream valleys the limits of which shall be determined in accordance with the regulations,*
> > >
> > > *iv. areas that are adjacent or close to the shoreline of the Great Lakes-St. Lawrence River System or to an inland lake and that may be affected by flooding, erosion or dynamic beach hazards, such areas to be further determined or specified in accordance with the regulations, or*
> > >
> > > *v. other areas in which development should be prohibited or regulated, as may be determined by the regulations. 2017, c. 23, Sched. 4, s. 25.*

Pursuant to O. Reg. 41/24, any interference with or development in or on areas stated in the *Conservation Authorities Act* (e.g., hazardous lands, wetlands, river or stream valleys) requires permission from the Conservation Authority. The Conservation Authority may issue permits under Section 28.1 and may attach conditions on the permits per Section 9(1) of the Regulation.

The TRCA Regulation Mapping (2023) identifies both Willowgrove Creek and Ringwood Brook as regulated watercourses, with associated meander belts, crests-of-slope, and engineered flood hazards. An unevaluated wetland with an area of interference is mapped along Willowgrove Creek. Additionally, the wetland in the northern corner of the Subject Lands and the wetland along Ringwood Brook, located across Highway 48 to the east, are mapped as units of a PSW, with identified areas of interference. TRCA regulation limits are illustrated in **Figure 2** (**Appendix A**).

The TRCA's *The Living City* (2014) outlines the principles, goals, objectives, and policies approved by the TRCA to guide their planning and development approvals process. This document includes policies for determining the Natural System and provides recommendations for buffer widths to protect natural heritage features such as woodlands, wetlands, and valley and stream corridors.

2.7. *Endangered Species Act*, 2007

The Ministry of the Environment, Conservation and Parks (MECP) administers the provincial *Endangered Species Act*, 2007 (amended 2021), which was developed to:

- Identify Species at Risk (SAR), based upon best available science;
- Protect SAR and their habitats and to promote the recovery of SAR; and
- Promote stewardship activities that would support those protection and recovery efforts.

The *Endangered Species Act* protects all Threatened, Endangered, and Extirpated species listed on the Species at Risk in Ontario List (SARO; Ontario Regulation 230/08). These species are legally protected from harm or harassment, and their habitats are legally protected from damage or destruction, as defined under the *Endangered Species Act*.

2.8. Fisheries Act, 1985

Fisheries and Oceans Canada (DFO) administers the federal *Fisheries Act*, 1985, which defines fish habitat as "spawning grounds and other areas, including nursery, rearing, food supply, and migration areas, on which fish depend directly or indirectly in order to carry out their life processes" (subsection (2)1). The *Fisheries Act* prohibits the death of fish by means other than fishing (subsection 34.4 (1)) and the harmful alteration, disruption, or destruction of fish habitat (HADD; subsection 35. (1)). A HADD is defined as "any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat's capacity to support one or more life processes" (DFO 2019a).

Some projects may be eligible for exemption from the DFO review process, as specified under Step 3 of the DFO Fish and Fish Habitat Protection Program review process (DFO 2019b). Examples of exemptions include clear-span bridges and bridge maintenance projects where DFO mitigation measures are applied, artificial waterbodies with no hydrological connection to occupied fish habitat, and projects that follow the Standards and Codes of Practice defined by DFO.

All other projects or activities that have the potential to impact fish or fish habitat should be submitted to DFO through the "Request for Review" process. DFO will review the proposed project to determine whether there is potential to:

i. Impact an aquatic SAR;
ii. Cause the death of fish; or
iii. Result in HADD of fish habitat.

The death of fish by means other than fishing or a HADD of fish habitat can be authorized by DFO under paragraphs 34.4(2)(b) or 35(2)(b) of the *Fisheries Act*. Authorizations require the preparation and submission of an application package identifying the impacts on fish and fish habitat; the avoidance, mitigation, and offsetting measures that will be implemented; and any monitoring that is proposed.

2.9. *Migratory Birds Convention Act*, 1994

Environment and Climate Change Canada (ECCC) administers the *Migratory Birds Convention Act*, 1994 (amended 2017), which protects the nests of migratory bird species from destruction, including incidental take (i.e., the unintentional destruction of a nest), as well as from disturbance. The *Migratory Birds Convention Act* does not provide a set date when activities, such as tree removal, can be completed without the risk of incidental harm to the nests of birds. The requirement to ensure that there are no active bird nests present within the work area rests with the proponent of the activity.

3. Data Collection Approach and Methods

GEI used two levels of investigation to obtain information about the natural heritage features and functions of the Subject Lands. This included a background review of existing information sources and detailed field surveys and assessments. The following sections describe each level of investigation in further detail.

3.1. Background Review

GEI reviewed the following background materials to identify existing natural heritage information and assess potential species presence for the Subject Lands:

- *The Physiography of Southern Ontario*, 3rd Edition. (Chapman & Putnam 1984);
- Aerial imagery (e.g., First Base Solutions, Google);
- Ministry of Natural Resources (MNR) Geospatial Ontario: Ontario GeoHub platform and related *Make a Map: Natural Heritage Areas* (2024a) mapping tool;
- MNR Natural Heritage Information Centre (NHIC): database accessed via the *Make a Map: Natural Heritage Areas* (2024a) mapping tool;
- MECP guidance on bat SAR (2022);
- Birds Canada's Ontario Breeding Bird Atlas (Cadman *et al.* 2007);
- Ontario Nature's Ontario Reptile and Amphibian Atlas (2024);
- Toronto Entomologists' Association's Ontario Butterfly and Moth Atlases (2024a, 2024b);
- DFO's "Canadian Aquatic Species at Risk" distribution mapping (2024);
- *Rouge River Watershed Plan* (TRCA 2007); and
- Citizen science databases (i.e., iNaturalist [2024] and eBird [2024]).

In addition to the background sources listed above, this NHE also references reports prepared by other consultants as part of the current development application, which have been submitted under separate cover. The results of the background review are presented in **Sections 4.1 to 4.5**.

3.2. Ecological Field Surveys

An ecological field survey program was conducted in 2020 by Stantec on behalf of Ages Consulting. These field surveys were supplemented with additional field data collected by GEI in 2022 to 2024. The field survey program gathered data necessary for assessing the significance and sensitivity of natural heritage features, identifying potential ecological constraints to development, and exploring opportunities for restoration and enhancement within the Subject Lands and the adjacent 120 m. The following ecological field surveys were undertaken to identify and delineate natural heritage features and assess species presence within the Subject Lands:

- Ecological Land Classification (ELC) in 2020, 2022, 2023, and 2024;

- Single-season (i.e., summer) botanical inventory in 2020, 2022, and 2023;
- Wetland boundary delineation in 2023 and 2024;
- Wildlife habitat assessment in 2020 and 2024;
- Breeding bird surveys (two rounds) in 2020; and
- Amphibian call count surveys (two rounds) in 2020.

The following subsections provide an overview of these ecological field surveys. Additional details on timing and weather conditions are provided in **Table 1** (**Appendix B**). The results of the ecological field surveys are presented in **Sections 4.6 and 4.7**.

3.2.1. Vegetation and Landscape Surveys

Stantec conducted ELC and a single-season (i.e., summer) botanical inventory within the Subject Lands on June 8 and 22, 2020. The ELC and botanical memorandum prepared by Stantec, including a discussion of the survey methodology and results, is provided in **Appendix C**.

GEI verified and updated Stantec's ELC mapping on October 2, 2024, including completing detailed mapping of the wetland boundary along Willowgrove Creek using a sub-meter GPS, with coordinates recorded at 25–55 cm accuracy.

In addition, GEI conducted detailed surveys of the wetland located in the northern corner of the Subject Lands to support a wetland re-evaluation using the Ontario Wetland Evaluation System (OWES) protocol (MNRF 2022). Specifically, GEI completed ELC and a botanical inventory for this wetland on August 30, 2022, followed by another botanical inventory and detailed wetland boundary mapping using a sub-meter GPS unit on July 31, 2023, with coordinates recorded at 30–50 cm accuracy.

3.2.2. Wildlife Surveys

Stantec conducted a wildlife habitat assessment within the Subject Lands on June 8 and 22, 2020, as summarized in the ELC memorandum provided in **Appendix C**. Targeted wildlife surveys for breeding birds and calling amphibians were also completed by Stantec in 2020, as discussed in the following subsections.

GEI verified and updated the wildlife habitat assessment during the site reconnaissance conducted on October 2, 2024. Furthermore, incidental wildlife observations were documented during GEI's site visits on August 30, 2022 and July 31, 2023.

3.2.2.1. Breeding Bird Surveys

Stantec conducted breeding bird surveys, including targeted surveys for grassland birds, within and adjacent to the Subject Lands on June 8 and 22, 2020. The breeding birds memorandum prepared by Stantec, including a discussion of the survey methodology and results, is provided in **Appendix D**.

General breeding bird surveys were conducted by walking the Subject Lands and recording bird species that were heard or seen. A conservative approach to determining breeding status was taken, where all birds seen or heard in appropriate habitat during the breeding season were assumed to be breeding. Targeted grassland bird surveys were completed by walking a single transect in suitable grassland habitat and at a single point count station (PC1), located off-site along Willowgrove Creek (**Figure 3**, **Appendix A**).

3.2.2.2. Calling Amphibian Surveys

Stantec conducted amphibian call count surveys within and adjacent to the Subject Lands on May 28 and June 25, 2020. Surveys were not conducted in April 2020. The calling amphibians memorandum prepared by Stantec, including a discussion of the survey methodology and results, is provided in **Appendix E**.

Three amphibian survey stations were established on and within 120 m of the Subject Lands (**Figure 3**, **Appendix A**). Each survey station encompassed a 100 m radius semi-circle, where surveyors listened for and recorded calling toads and frogs over a three-minute period. Surveys were conducted 30 minutes after sunset and concluded by midnight. Call levels were classified into three categories:

- **Level 1**: Individual calls are not simultaneous, and individuals can be easily counted.
- **Level 2**: Some simultaneous calling occurs, but individual calls remain distinguishable.
- **Level 3**: A full chorus, with continuous and overlapping calls.

Additionally, calling toad or frog species detected outside of the survey stations, or heard off-property, were also recorded.

4. Biophysical Characterization

This section provides an overview of the physical and ecological characteristics of the Subject Lands and the adjacent 120 m. It describes the physiographic context, regional landscape ecology, and natural heritage features, including vegetation communities, wildlife, and aquatic habitats. Background reviews and results of targeted surveys are presented to identify and assess species presence, habitat conditions, and ecological functions within the study area.

4.1. Physiography

The Subject Lands are located in the South Slope physiographic region, which forms the southern slope of the Oak Ridges Moraine and extends from the Niagara Escarpment to the Trent River. This sloping plain covers approximately 2,432 km² and rises to the line of contact with the moraine at elevations of 240 to 305 m above sea level. This represents an increase of up to 120 m over a distance of approximately 11 km. The region is underlain by limestones, grey shales, and reddish shales, which influence its soil composition and hydrology.

Soils on the South Slope are diverse and have supported agriculture for over a century. Key soil series include the sandy Dundonald series in the east and the clay loams of the Chinguacousy and Oneida series in the west. The landscape is characterized by drumlinized terrain, fluted till plains, and steep valleys carved by fast-flowing streams. Intermittent drainage patterns have contributed to gully erosion, particularly in areas with steep slopes, where agricultural lands face challenges from soil loss.

Prominent natural features in this physiographic region include the steep valleys of tributaries to the Rouge, Don, and Humber river systems, which contribute to the region's ecological and hydrological functions. Historically, the South Slope was dominated by oak, hickory, and white pine forests, much of which has been converted to agriculture and urban development (Chapman & Putnam 1984).

4.2. Landscape Ecology

The Subject Lands occur within the Lake Simcoe-Rideau Ecoregion 6E, which extends from Lake Huron to the Ottawa River and includes most of the northern Lake Ontario shoreline and the St. Lawrence River Valley. Ecoregion 6E falls within the Great Lakes–St. Lawrence forest region, an area of moderate climate where natural succession leads to forests dominated by shade-tolerant hardwood species, such as Sugar Maple (*Acer saccharum*) and American Beech (*Fagus grandifolia*), and hardwood species with intermediate shade tolerance, such as Red Oak (*Quercus rubra*) and Yellow Birch (*Betula alleghaniensis*). These forests also often include associations of White Pine (*Pinus strobus*) and Red Pine (*Pinus resinosa*).

Consideration of the larger ecological matrix or landscape provides insight into potential interactions between abiotic and biotic flows. The primary ecological linkage on the local landscape is the naturally vegetated corridor of Willowgrove Creek, located to the west of the Subject Lands, which offers the greatest opportunity for the movement of organisms, matter, and energy across the surrounding landscape. The agricultural lands within the Subject Lands and surrounding areas also provide opportunities for wildlife movement, though these are more limited due to agricultural land management practices.

The surrounding landscape is characterized by a mix of agricultural uses to the west and south, recreational uses (i.e., a golf course) to the north, and urbanized development to the east, where the Community of Stouffville comprises residential, commercial, and industrial areas. While major roads and highways to the east (Highway 48), north (Stouffville Road), and west (McCowan Road) of the Subject Lands act as significant barriers to wildlife movement, occasional successful road crossings by wildlife are still expected to occur.

4.3. Natural Heritage Areas Mapping

The MNR Geospatial Ontario's *Make a Map: Natural Heritage Areas* (2024a) mapping tool the following natural heritage features were identified within the Subject Lands and the adjacent 120 m (**Figure 2**, **Appendix A**):

- Willowgrove Creek, which flows through the adjacent 120 m lands to the west of the Subject Lands;
- Ringwood Brook, which flows through the adjacent 120 m lands to the east of the Subject Lands;
- A non-PSW mapped in the northern corner of the Subject Lands;
- A unit of the Little Rouge Creek at Stouffville PSW complex mapped within 120 m to the east of the Subject Lands, across Highway 48; and
- Two wooded areas mapped within 120 m to the east of the Subject Lands.

No additional natural heritage features were identified within or adjacent to the Subject Lands through this mapping tool. Data from the NHIC database, while accessed via *Make a Map: Natural Heritage Areas*, are presented separately in **Section 4.5.1**.

4.4. Aquatic Environment

The Subject Lands are located within the northern portion of the Little Rouge River subwatershed, which forms part of the larger Rouge River watershed. This subwatershed drains into the Lower Rouge Subwatershed, which ultimately outlets into Lake Ontario (TRCA 2007). No watercourses or drainage features are identified within the Subject Lands; however, Willowgrove Creek and Ringwood Brook, both tributaries of Little Rouge Creek, flow from north to south through the adjacent 120 m lands to the west and east of the Subject Lands, respectively.

The upper reaches of the Little Rouge Creek, including Willowgrove Creek and Ringwood Brook, are recognized as providing cold and cool water fish habitat due to significant groundwater inputs. As a result, these watercourses support habitat for species of conservation interest, such as the Endangered Redside Dace (*Clinostomus elongatus*) and the declining Brook Trout (*Salvelinus fontinalis*) (TRCA 2007).

Beacon Environmental Ltd. (Beacon) conducted a geomorphic assessment for Willowgrove Creek, submitted under separate cover (2024). The assessment concluded that the segment of Willowgrove Creek flowing west of the Subject Lands qualifies as a confined valley corridor, with erosion hazard limits governed by geotechnical considerations, including the stable slope allowance and toe erosion allowance. Beacon also delineated the meander belt for Willowgrove Creek, as shown in **Figure 7** (**Appendix A**). A staked top-of-bank for Willowgrove Creek was established by Ages Consultants Ltd., and TRCA on October 7, 2020, and subsequently surveyed by R. Avis Surveying. The staked top-of-bank, which defines the regulatory valley corridor boundary, is illustrated in **Figure 4** (**Appendix A**).

SCS Consulting Group Ltd. completed a floodplain analysis for both Willowgrove Creek and Ringwood Brook in 2024, as shown in **Figure 7** (**Appendix A**).

4.5. Wildlife Background Review

The following subsections present the results of the wildlife background information review for the Subject Lands.

4.5.1. Natural Heritage Information Centre

The MNR Natural Heritage Information Centre (NHIC) database was accessed via the *Make a Map: Natural Heritage Areas* (2024a) mapping tool, and searched for records of provincially significant plants, vegetation communities, and wildlife within the Subject Lands and the surrounding areas. The database provides occurrence data in 1 km x 1 km (1 km^2) area squares, with three squares overlapping the Subject Lands (17PJ3769, 17PJ3768, and 17PJ3668). All species identified within the NHIC squares may not be found within the Subject Lands. Habitat type, availability, and size are all contributing factors in species presence and use.

The following four species of interest were noted:

- Species listed as Threatened or Endangered on the SARO List:
    - Redside Dace – Endangered;
    - Bobolink (*Dolichonyx oryzivorus*) – Threatened; and
    - Eastern Meadowlark (*Sturnella magna*) – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO List or identified as an S1–S3 species):
    - Eastern Wood-pewee (*Contopus virens*) – Special Concern.

4.5.2. Bat Species at Risk

Seven out of Ontario's eight bat species are listed on the Species at Risk in Ontario (SARO) list as Endangered:

- Eastern Red Bat (*Lasiurus borealis*);

- Eastern Small-footed Myotis (*Myotis leibii*);
- Hoary Bat (*Lasiurus cinereus*);
- Little Brown Myotis (*Myotis lucifugus*);
- Northern Myotis (*Myotis septentrionalis*);
- Silver-haired Bat (*Lasionycteris noctivagans*); and
- Tri-colored Bat (*Perimyotis subflavus*).

These SAR bat species roost within deciduous and mixed wooded areas, individual trees, as well as anthropogenic structures such as barns, houses, garages, and sheds (MECP 2022).

There is a small deciduous treed area located in the northern corner of the Subject Lands as well as within a hedgerow bordering the residential area located along the eastern boundary of the Subject Lands as well as within the residential area itself. These areas all have the potential to provide SAR bat habitat. The coniferous area located to the east of the Subject Lands is unlikely to provide suitable habitat for SAR bats.

4.5.3. Ontario Breeding Bird Atlas

The Ontario Breeding Bird Atlas (OBBA) Data Summary: 2001–2005 (Cadman *et al.* 2007) contains detailed information on the population and distribution status of birds in Ontario. The database provides occurrence data in 10 km x 10 km (100 km^2) area squares, with one square overlapping the Subject Lands (17PJ36). The Subject Lands are a small component of the overall atlas square, and therefore it is unlikely that all the listed bird species are found within the Subject Lands. Habitat type, availability, and size are all contributing factors to bird species presence and use.

A total of 93 bird species were recorded in the atlas square that overlaps with the Subject Lands, with the following species of interest noted:

- Species listed as Threatened or Endangered on the SARO List:
    - Bank Swallow (*Riparia riparia*) – Threatened;
    - Bobolink – Threatened;
    - Chimney Swift (*Chaetura pelagica*) – Threatened; and
    - Eastern Meadowlark – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO List or identified as an S1–S3 species):
    - Barn Swallow (*Hirundo rustica*) – Special Concern;
    - Eastern Wood-pewee – Special Concern;
    - Wood Thrush – Special Concern; and
    - Blue-winged Teal (*Spatula discors*) – S3B,S4M.

4.5.4. Ontario Reptile and Amphibian Atlas

The Ontario Reptile and Amphibian Atlas (Ontario Nature 2024) contains detailed information on the population and distribution status of herpetofauna in Ontario. The database provides occurrence data in 10 km x 10 km (100 km^2) area squares, with one square overlapping the Subject Lands (17PJ36). The Subject Lands are a small component of the overall atlas square, and therefore it is unlikely that all the listed herpetofauna species are found within the Subject Lands. Habitat type, availability, and size are all contributing factors to herpetofauna species presence and use.

A total of 15 herpetofauna species were recorded in the atlas square that overlaps with the Subject Lands, of which one is a salamander species, seven are frog and toad species, three are snake species, and four are turtle species. Of these species, the following species of interest was noted:

- Species listed as Threatened or Endangered on the SARO List:
    - Blanding's Turtle (*Emydoidea blandingii*) – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO List or identified as an S1–S3 species):
    - Snapping Turtle (*Chelydra serpentina*) – Special Concern.

4.5.5. Ontario Butterfly and Moth Atlases

The Ontario Butterfly and Moth Atlases (Toronto Entomologists' Association 2024a, 2024b) contain detailed information on the population and distribution status of butterflies and moths in Ontario. The database provides occurrence data in 10 km x 10 km (100 km^2) area squares, with one square overlapping the Subject Lands (17PJ36). The Subject Lands are a small component of the overall atlas square, and therefore it is unlikely that all the listed butterfly and moth species are found within the Subject Lands. Habitat type, availability, and size are all contributing factors to butterfly and moth species presence and use.

A total of 38 species, including 30 butterfly species and 8 moth species, were recorded in the atlas square that overlaps with the Subject Lands. Of these species, the following species of interest was noted:

- Species of Conservation Concern (i.e., listed as Special Concern on the SARO List or identified as an S1–S3 species):
    - Monarch (*Danaus plexippus*) – Special Concern; and
    - Walnut Caterpillar Moth (*Datana integerrima*) – S3S4.

4.5.6. Aquatic Species at Risk Distribution Mapping

The DFO "Canadian Aquatic Species at Risk" (2024) distribution mapping tool was used to identify any known occurrences of aquatic SAR, including fish and mussels, within Willowgrove Creek and Ringwood Brook, as well as their upstream and downstream reaches relative to the Subject Lands.

Critical habitat for Redside Dace (Endangered) was identified within Ringwood Brook. Additionally, critical habitat for Redside Dace was identified within Little Rouge Creek, located over 2.5 km downstream of Willowgrove Creek. Between Willowgrove Creek and the occupied Redside Dace habitat, a large online pond with a dam at its southern end acts as a barrier to fish movement. Given the absence of Redside Dace records in Willowgrove Creek and the presence of fish movement barriers, Willowgrove Creek is considered contributing habitat for Redside Dace.

4.5.7. Aquatic Resource Area Survey Points

The MNR *Aquatic Resource Area Survey Points* (2024) dataset, accessed via the Ontario GeoHub platform, was reviewed for Willowgrove Creek and Ringwood Brook.

For Willowgrove Creek, data points from upstream (north) and downstream (south) reaches relative to the Subject Lands were analyzed. The most recent data include one sampling location from 2016 (by the MNR) and four sampling locations from 2021 (surveyor not listed), spanning the reaches downstream from the Subject Lands to 19th Avenue. Fish species recorded at these five stations were as follows:

- Blacknose Shiner (*Notropis heterolepis*);
- Brook Stickleback (*Culaea inconstans*);
- Creek Chub (*Semotilus atromaculatus*);
- Johnny Darter (*Etheostoma nigrum*);
- Largemouth Bass (*Micropterus salmoides*);
- Longnose Dace (*Rhinichthys cataractae*);
- Pumpkinseed (*Lepomis gibbosus*);
- Rainbow Darter (*Etheostoma caeruleum*);
- Stonecat (*Noturus flavus*); and
- White Sucker (*Catostomus commersonii*).

None of the fish species observed within Willowgrove Creek are SAR. Water temperature was recorded at the MNR station on August 15, 2016, at 21°C (MNRF 2024). Historical data from 1954 to 2016 indicate a temperature range consistent with a cool water thermal regime (19–25°C; MNRF 2019). This classification is further supported by the presence of the recorded fish species, which are typically associated with cool water conditions.

For Ringwood Brook, data points from upstream (north) and downstream (south) reaches relative to the Subject Lands were reviewed; however, all data points were historical at over 25 years old and lacked fish records. Historical water temperatures recorded by the MNR ranged from 21°C to 25°C, also consistent with a cool water thermal regime (MNRF 2019). As noted in **Section 4.5.6**, Redside Dace records are present in Ringwood Brook, and therefore it is considered direct fish habitat.

4.5.8. Citizen Science Databases (iNaturalist and eBird)

The iNaturalist (2024) database is a large citizen science-based project that aims to collect, archive, and share sightings of flora and fauna species. Users can submit observations to be reviewed and identified by naturalists and scientists to help provide accurate species observations. As the observations can be submitted by anyone, and the records are not officially vetted, the data obtained from this tool should not be used as a clear indicator of species presence. It should be noted that only "research grade" observations will be referenced.

This online database was examined to identify observations made within the Subject Lands or the adjacent 120 m; however, no significant species were identified in this area.

The eBird (2024) database is a large citizen science-based project that aims to gather bird diversity information in the form of checklists of birds, archive it, and share it to power new data-driven approaches to science, conservation, and education. As the observations can be submitted by anyone, and the records are not officially vetted, the data obtained from this tool should not be used as a clear indicator of species presence, and species may be filtered out based on habitat and target survey efforts.

This online database was examined to identify observations made within the Subject Lands or the adjacent 120 m; however, no significant bird species were identified in this area.

4.6. Vegetation and Landscape Survey Results

The following subsections present the results of the vegetation and landscape surveys conducted by Stantec and GEI within the Subject Lands and the adjacent 120 m.

4.6.1. Ecological Land Classification

The Subject Lands primarily consist of agricultural fields, with naturally vegetated areas limited to the northern corner. This area includes a small, treed community that was mapped by Stantec as a lowland deciduous forest (FOD7), dominated by Manitoba Maple (*Acer negundo*), and a mineral meadow marsh (MAM2) community, dominated by Reed-canary Grass (*Phalaris arundinacea*) with pockets of European Reed (*Phragmites australis* ssp. *australis*) and Red-osier Dogwood (*Cornus sericea*).

Additionally, natural communities bordering Willowgrove Creek include meadow marsh (MAM2) and cultural meadow (CUM1) areas. A cultural plantation (CUP3), dominated by Norway Spruce (*Picea abies*) and bordered by a deciduous hedgerow along the north, is located off-site along the eastern boundary of the Subject Lands. To the east, across Highway 48, the unit of the Little Rouge Creek at Stouffville PSW complex surrounding Ringwood Brook is identified as a thicket swamp (SWT) community.

GEI mapped the boundaries of the two MAM2 communities using a sub-meter GPS unit. ELC mapping, including detailed mapping of the wetland boundaries, is provided in **Figure 4** (**Appendix A**), and descriptions of the vegetation communities are presented in **Table 2** (**Appendix B**).

No rare vegetation communities were identified within the Subject Lands or the adjacent 120 m.

4.6.2. Botanical Inventory

Stantec identified 72 vascular plant species (taxa inclusive of subspecies, varieties, and hybrids) within the Subject Lands and the adjacent property at 4721 Stouffville Road. Two species were identified only to genus but were unique and therefore counted as one species each. Of the 72 species, 46% (33) are native to Ontario, while 54% (39) are exotic. Among the native species, 88% (29) are ranked S5 (secure in Ontario) and 12% (4) are ranked S4 (apparently secure in Ontario). A complete list of vascular plant species identified by Stantec is provided in **Appendix C**.

GEI identified 33 vascular plant species (taxa inclusive of subspecies, varieties, and hybrids) within and immediately adjacent to the MAM2 community at the northern corner of the Subject Lands, supporting an OWES re-evaluation of this community. Of these, 64% (21) are native to Ontario, while 36% (12) are exotic. Among the native species, 95% (20) are ranked S5 and 5% (1) are ranked S4. A complete list of vascular plant species from the MAM2 and adjacent areas is provided in **Table 3** (**Appendix B**).

The total combined number of vascular plant species identified by Stantec and GEI within the Subject Lands is 92, as 20 species recorded by GEI were not previously noted by Stantec. Of these, 52% (48) are native to Ontario and 48% (44) are exotic. Among the native species, 90% (43) are ranked S5, and 10% (5) are ranked S4.

4.6.2.1. Plant Species of Conservation Concern

No plant species identified within the Subject Lands are classified as SAR or as provincially rare (S1–S3). Additionally, no locally rare species were identified within the Subject Lands based on *The Distribution and Status of the Vascular Plants of the Greater Toronto Area* (Varga et al. 2005).

4.6.2.2. Potentially Sensitive Plant Species

The sensitivity of native plant species was assessed using Coefficient of Conservatism (CC) values (Oldham et al., 1995), which range from 0 (low sensitivity) to 10 (high sensitivity). Species with low CC values are generalists, tolerant of disturbance, and often found in both natural and anthropogenic habitats. In contrast, species with CC values of 9 or 10 demonstrate strong fidelity to high-quality or unique natural ecosystems and are considered potentially sensitive. No species with a CC value of 9 or 10 were identified within the Subject Lands.

4.6.2.3. Invasive Plant Species

Invasive plant species can pose significant ecological threats by reproducing and spreading aggressively, outcompeting native plants, reducing biodiversity, and impairing the ecological function of natural areas. The severity of their impact depends on site conditions; however, under favorable conditions, these species can dominate and outcompete all others.

Urban Forest Associates (2002) developed a categorical ranking system to classify invasive plants in southern Ontario based on their ecological threat. Category 1 plants are considered the most invasive, capable of dominating a site indefinitely due to their highly efficient reproduction and dispersal mechanisms.

Of the 44 exotic plant species identified within the Subject Lands, eight are classified as Category 1 invasive species by Urban Forest Associates:

- Canada Thistle (*Cirsium arvense*)*;
- Dame's Rocket (*Hesperis matronalis*);
- European Buckthorn (*Rhamnus cathartica*)*;
- Garlic Mustard (*Alliaria petiolata*);
- Goutweed (*Aegopodium podagraria*);
- Purple Loosestrife (*Lythrum salicaria*)*;
- Tartarian Honeysuckle (*Lonicera tatarica*); and
- White Mulberry (*Morus alba*).

Species marked with an asterisk (*) were observed by GEI within the MAM2 community but may also be present elsewhere on the Subject Lands.

4.7. Wildlife Survey Results

The following subsections present the results of the wildlife habitat surveys (conducted by Stantec and GEI) and the targeted wildlife surveys (conducted by Stantec), conducted within the Subject Lands and the adjacent 120 m.

4.7.1. Terrestrial Wildlife Habitat

At the time of GEI's site reconnaissance on October 2, 2024, no residential structures were present within the Subject Lands; therefore, potential habitat associated with anthropogenic structures is not present.

Candidate SAR bat habitat was identified within the Subject Lands and the adjacent 120 m, including deciduous hedgerows, the small area mapped as deciduous forest (FOD7), and the residential area with deciduous trees located east of the Subject Lands.

Suitable overwintering turtle habitat may be present within Willowgrove Creek and Ringwood Brook; however, no suitable nesting habitat was identified along Willowgrove Creek during field surveys. Ringwood Brook, located on neighbouring lands not owned by the proponent, could not be accessed.

Additional information regarding Stantec's terrestrial wildlife habitat assessment is provided in the ELC memorandum in **Appendix C**.

4.7.2. Breeding Birds

Stantec observed a total of 32 bird species within the Subject Lands and the adjacent 120 m, of which 29 species exhibited evidence of breeding, and three species were identified as flyovers. All observed bird species are provincially ranked S5 (common and secure), S4 (apparently secure), or SNA (species not native to Ontario).

Four of the species showing evidence of breeding were confirmed to be breeding within the Subject Lands. These are European Starling (*Sturnus vulgaris*), Savannah Sparrow (*Passerculus sandwichensis*), Song Sparrow (*Melospiza melodia*), and Red-winged Blackbird (*Agelaius phoeniceus*). The three flyover species were Barn Swallow, Ring-billed Gull (*Larus delawarensis*), and Great Blue Heron (*Ardea herodias*).

Within the MAM2 wetland in the northern corner of the Subject Lands, four bird species were observed as breeding or potentially breeding: Song Sparrow (*Melospiza melodia*), Red-winged Blackbird (*Agelaius phoeniceus*), Blue Jay (*Cyanocitta cristata*), and Black-capped Chickadee (*Poecile atricapillus*).

Two SAR, Barn Swallow and Bobolink, were documented during breeding bird surveys. Barn Swallow, provincially listed as Special Concern, was observed foraging over the Subject Lands but was not considered to be breeding on site as there were no suitable nesting sites.

Both male and female Bobolink, provincially listed as Threatened, were observed within the cultural meadow (CUM1) communities to the west of the Subject Lands, as shown in **Figure 5** (**Appendix A**). Bobolink are grassland breeding birds, and both the meadow marsh (MAM2) and cultural meadow (CUM1) vegetation communities were found to provide suitable grass-dominated habitat capable of supporting Bobolink breeding. Therefore, these areas are considered protected habitat under the *Endangered Species Act*.

4.7.3. Calling Amphibians

No calling amphibians were observed within the Subject Lands or the adjacent 120 m during the two survey rounds conducted by Stantec.

5. Analysis of Ecological and Natural Heritage Significance

This section evaluates the presence, significance, and regulatory considerations of natural heritage features within the Subject Lands and the adjacent 120 m, as defined by the PPS (MMAH 2024). In addition to significant natural heritage features identified in the PPS, this section evaluates KNHFs and KHFs per the Greenbelt Plan (MMA 2017a) and the ORMCP (MMA 2017b), the Greenlands Systems of the York Region Official Plan (2024 Office Consolidation) and the Town of Whitchurch-Stouffville Official Plan (2023 Office Consolidation), as well as TRCA-regulated features under O. Reg. 41/24. Additional context regarding these documents is provided in **Section 2**.

5.1. Provincial Planning Statement

Eight types of significant natural heritage features are defined in the PPS (MMAH 2024), as follows:

- Significant wetlands;
- Significant coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- SWH;
- Fish habitat;
- Habitat of Endangered and Threatened species; and
- Significant ANSIs.

The presence or absence of these features within the Subject Lands and the adjacent 120 m is discussed in the following subsections. Guidance in the NHRM (MNR 2010) was used to assess the potential significance of natural heritage features and their associated functions.

5.1.1. Significant Wetlands

Within Ontario, PSWs are identified by the MNR or by their designates. Other evaluated or unevaluated wetlands may be identified by the Town of Whitchurch-Stouffville, TRCA, or by GEI during site-specific ecological surveys. Wetlands are defined in the NHRM (MNR 2010) as:

> *"…lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs and fens."*

Where there are differences between GEI's ELC mapping and existing wetland mapping, GEI's mapping is considered more accurate as it reflects current site conditions based on detailed field surveys. Based on ecological surveys completed by Stantec in 2020 and GEI in 2022 to 2024, the following wetland features are currently present within the Subject Lands and the adjacent 120 m (see **Figure 5, Appendix A**):

- A unit of the Little Rouge Creek at Stouffville PSW complex is located along Ringwood Brook within 120 m to the east of the Subject Lands, across Highway 48, and identified as a thicket swamp (SWT) in GEI's ELC mapping;
- An evaluated, non-PSW wetland is located in the northern corner of the Subject Lands, identified as a meadow marsh (MAM2) in GEI's ELC mapping; and
- An unevaluated wetland is located along Willowgrove Creek, within 120 m to the west of the Subject Lands, identified as a meadow marsh (MAM2) in GEI's ELC mapping.

The meadow marsh (MAM2) community in the northern corner of the Subject Lands was previously identified as part of the Little Rouge Creek at Stouffville PSW complex. As this wetland unit is physically separated from the rest of the PSW by Highway 48, GEI re-evaluated it under the OWES (MNRF 2022), which included a refinement of the wetland boundary to reflect current conditions. A copy of this wetland re-evaluation memorandum, dated November 6, 2023, is provided in **Appendix G**. The wetland re-evaluation was completed by James Leslie, Senior Vegetation Ecologist at GEI, who has been certified under the OWES and has actively applied the practice since July 2009.

Based on ground-verified field data, the wetland re-evaluation determined that this wetland unit does not meet the OWES criteria for significance, receiving a score of 346 overall, 69 for the biological component, and 80 for the special features component. As a result, this wetland was removed from the Little Rouge Creek at Stouffville PSW complex.

To formalize this re-designation, GEI submitted the re-evaluation memorandum to York Region on November 20, 2023. A copy of the revised wetland classification and delineation was forwarded to the MNR on January 22, 2024, with confirmation of receipt from the MNR received on January 23, 2024. A copy of the confirmation is included in **Appendix G**. The MNR has since updated their provincial mapping to reflect the wetland's non-PSW status and updated boundary.

5.1.2. Significant Costal Wetlands

Within Ontario, Significant Coastal Wetlands are identified by the MNR or by their designates. Coastal wetlands are defined in the NHRM (MNR 2010) as:

> *a) "any wetland that is located on one of the Great Lakes or their connecting channels (Lake St. Clair, St. Mary's, St. Clair, Detroit, Niagara and St. Lawrence Rivers); or*
> *b) Any other wetlands that is on a tributary to any of the above-specified water bodies and lies, either wholly or in part, downstream of a line located two km upstream of the 1:100-year floodplain (plus wave run-up) of the large water body to which the tributary is connected."*

There are no Significant Coastal Wetlands located within the Subject Lands or the adjacent 120 m.

5.1.3. Significant Woodlands

Significant woodlands are identified by the planning authority using criteria established by the MNR in the NHRM (2010), applicable provincial plans, and any additional criteria set by the planning authority. Woodlands are defined in the NHRM (MNR 2010) as:

> *"…treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include treed areas, woodlots or forested areas and vary in their level of significance at the local, regional and provincial levels."*

One small, treed community was mapped as a deciduous forest community (FOD7) by Stantec, located in the northern corner of the Subject Lands. Additionally, a coniferous cultural plantation (CUP3) community is located outside the Subject Lands, along its eastern property boundary.

Criteria for designating significant woodlands include size, shape, proximity to other woodlands or natural features, linkages, species diversity, uncommon characteristics, and economic and social value. The woodland size criterion considers the scarcity of forest cover within the landscape, as defined at the municipal level, while accounting for variations in woodland coverage across physical sub-units (e.g., watersheds, biophysical regions).

The Greenbelt Plan (MMA 2017a), ORMCP (MMA 2017b), and York Region Official Plan (2024 Office Consolidation) all provide detailed criteria for identifying significant woodlands. As the woodlands identified within the Subject Lands and the adjacent 120 m are located within the Oak Ridges Moraine Area, the more detailed policies of the ORMCP (MMA 2017b) take precedence for assessments related to significant woodlands.

Criteria for the identification of significant woodlands is provided in the *ORMCP Technical Paper 7: Identification and Protection of Significant Woodlands* (MNR 2011). Significant woodlands defined as areas which have:

> *(a) a tree crown cover of over 60% of the ground, determinable from aerial photography ("forest" of Lee et al. 1998); or*
>
> *(b) a tree crown cover of over 10% of the ground, determinable from aerial photography ("treed community" of Lee et al. 1998), together with on-ground stem estimates of:*
>
> - *1,000 trees of any size per hectare, or*
> - *750 trees measuring over five centimetres in diametre, per hectare, or*
> - *500 trees measuring over 12 centimetres in diametre, per hectare, or*
> - *250 trees measuring over 20 centimetres in diametre, per hectare (based on the Forestry Act of Ontario, 1998).*

And, which have a minimum average width of 40 metres or more measured to crown edges.

And, which are:

(c) 4 hectares or larger in size located in the Countryside or Settlement Areas of the ORMCP; or

(d) 0.5 hectare or larger in size located in the Natural Core or Natural Linkage Areas of the ORMCP; or

(e) 0.5 hectare or larger located within or intersecting with a key natural heritage feature or hydrologically sensitive feature or their vegetation protection zone.

The FOD7 community in the northern corner of the Subject Lands does not meet the minimum size criteria of 0.5 ha to be considered significant. The larger CUP3 community is not located within or intersecting the VPZ of a KNHF or hydrologically sensitive feature (HSF) and is located within the Countryside Area but does not meet the minimum size criteria of 4 ha to be considered significant.

As such, there are no significant woodlands located within the Subject Lands or the adjacent 120 m.

5.1.4. Significant Valleylands

Significant valleylands should be defined and designated by the planning authority. General guidelines for determining significance of these features are presented in the NHRM (MNR 2010). Recommended criteria for designating significant valleylands include prominence as a distinctive landform, degree of naturalness, and importance of its ecological functions, restoration potential, and historical and cultural values.

Additional detailed criteria for identifying significant valleylands are provided in the *Greenbelt Plan Technical Paper 1: Technical Definitions and Criteria for Key Natural Heritage Features in the Natural Heritage System of the Protected Countryside Area* (MNR 2012) and the *ORMCP Technical Paper 1: Identification of Key Natural Heritage Features* (MNR 2011). These criteria include features such as well-defined valley morphology and an average width of 25 m or more.

There are no valleylands within the Subject Lands. Willowgrove Creek, located within 120 m to the west of the Subject Lands, was identified through field studies as a valley corridor with a defined top-of-bank. Ringwood Brook, located within 120 m to the east of the Subject Lands, is identified in TRCA (2023) mapping as a valley corridor with a mapped crest-of-slope. Based on the criteria outlined in the NHRM (MNR 2010), Greenbelt Plan (MMA 2017a), and ORMCP (MMA 2017b), the Willowgrove Creek and Ringwood Brook valleylands meet the criteria for significance due to the following:

- Large, well-defined valleylands with an average width of 25 m or more, confirmed for Willowgrove Creek through a top-of-bank staking and inferred from crest-of-slope mapping from TRCA (2023);
- High degree of naturalness, including extensive riparian wetland and meadow areas;
- High native fish species diversity with a cool water thermal regime;

- High habitat value, including occupied habitat (Ringwood Brook) and contributing habitat (Willowgrove Creek) for the Endangered fish species, Redside Dace; and
- Important linkage function across the landscape.

5.1.5. Significant Wildlife Habitat

SWH is one of the more complex natural heritage features to identify and evaluate. There are several provincial documents that discuss identifying and evaluating SWH including the NHRM (MNR 2010), the *Significant Wildlife Habitat Technical Guide* (MNR 2000), and the SWH Ecoregion Criteria Schedules (MNRF 2015). The Subject Lands are located in Ecoregion 6E and were therefore assessed using the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (MNRF 2015).

There are four broad categories of SWH types: seasonal concentration areas, rare vegetation communities and specialized wildlife habitat, habitats of species of conservation concern, and animal movement corridors. The following subsections discuss each of these broad categories in relation to the Subject Lands. **Table 4** (**Appendix B**) provides more detail on the SWH analysis.

5.1.5.1. Seasonal Concentration Areas

Seasonal concentration areas are those sites where large numbers of a species gather at one time of the year, or where several species congregate. Seasonal concentration areas include deer yards; wintering sites for snakes, bats, raptors, and turtles; waterfowl staging and molting areas; bird nesting colonies; shorebird staging areas; and migratory stopover areas for passerines or butterflies. Only the best examples of these concentration areas are designated as SWH. Areas that support Special Concern species or provincially vulnerable to imperiled species (S1–S3) or that support a large proportion of the population are examples of seasonal concentration areas that should be designated as significant.

Candidate Turtle Wintering Areas SWH was identified along Willowgrove Creek and its riparian meadow marsh (MAM2) community as well as in Ringwood Brook and its riparian thicket swamp (SWT) community, as described in **Table 4** (**Appendix B**).

5.1.5.2. Rare or Specialized Habitats

Rare habitats are those with vegetation communities considered rare in the province. S-Ranks are rarity rankings applied to species at the provincial level and are part of a system developed by the Nature Conservancy (Arlington, VA). Generally, community types with S-Ranks of S1–S3 (extremely rare to rare/uncommon in Ontario), as defined by the NHIC, could qualify. These habitats are assumed to be at risk and likely support significant wildlife species.

No rare vegetation communities were identified within the Subject Lands or the adjacent 120 m.

Specialized habitats are microhabitats that are critical to some wildlife species. The NHRM (MNR 2010) defines specialized habitats as those that provide for species with highly specific habitat requirements, areas with exceptionally high species diversity or community diversity, and areas that provide habitat that greatly enhances species' survival. Only habitats identified as exceptional examples, such as supporting a great diversity of species or large number of individuals, are typically designated as significant.

No candidate or confirmed Specialized Wildlife SWH types are present within the Subject Lands or the adjacent 120 m.

5.1.5.3. Habitat for Species of Conservation Concern

Species of conservation concern include those that are Special Concern and provincially rare (S1–S3, SH). Several specialized wildlife habitats are also included in this SWH category, such as terrestrial crayfish habitat and significant breeding bird habitats for marsh, open country, and early successional bird species. Habitats of species of conservation concern do not include habitats of Endangered or Threatened species as identified by the *Endangered Species Act*. **Section 5.1.7** discusses Endangered and Threatened species.

Candidate Marsh Bird Breeding Habitat SWH for Green Heron as well as Candidate Terrestrial Crayfish SWH were identified in the thicket swamp (SWT) community to the east of the Subject Lands, as described in **Table 4** (**Appendix B**).

Candidate Special Concern and Rare Wildlife Species SWH for Snapping Turtle was identified along Willowgrove Creek and its riparian meadow marsh (MAM2) community as well as in Ringwood Brook and its riparian thicket swamp (SWT) community, as described in **Table 4** (**Appendix B**).

5.1.5.4. Animal Movement Corridors

Animal movement corridors are areas traditionally used by wildlife to move from one habitat to another. This is usually in response to different seasonal habitat requirements. Animal movement corridors are only identified as SWH where a confirmed or candidate SWH has been identified by MNR or the planning authority.

For ecoregion 6E, animal movement corridors include Amphibian Movement Corridors (a required component of Wetland Amphibian Breeding Habitats SWH) and Deer Movement Corridors (a required component of Deer Yarding Areas and Deer Winter Congregation Areas). As none of these SWH types exist within the Subject Lands or the adjacent 120 m, animal movement corridors are also absent.

5.1.6. Fish Habitat

"Fish habitat" is defined in the federal *Fisheries Act*, 1985 as "water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas." The definition for "fish" includes "(a) parts of fish, (b) shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and (c) the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals."

No watercourses or drainage features are identified within the Subject Lands; however, Willowgrove Creek and Ringwood Brook, both tributaries of Little Rouge Creek, flow within 120 m to the west and east of the Subject Lands, respectively, and were identified through background review to provide direct fish habitat.

5.1.7. Habitat of Endangered and Threatened Species

Endangered and Threatened species are those identified on the SARO list (O. Reg. 230/08). GEI reviewed existing background information and identified known SAR records from the broader landscape surrounding the Subject Lands, as summarized in **Section 4.5**. Furthermore, Stantec and GEI completed targeted ecological field surveys, the results of which are summarized in **Sections 4.6 and 4.7**.

No confirmed Threatened or Endangered species or their habitat were identified within the Subject Lands. The confirmed Endangered and Threatened species identified within 120 m of the Subject Lands through background review and the results of ecological field surveys are the following:

- **Redside Dace (Endangered) habitat:** Ringwood Brook was identified as occupied habitat for Redside Dace. Furthermore, Willowgrove Creek was identified as contributing habitat for Redside Dace. The nearest record of Redside Dace habitat is within Little Rouge Creek, located over 2.5 km downstream, with at least one large online pond and a dam situated between the Subject Lands and the occupied Redside Dace habitat. The wetlands contiguous with these watercourses (i.e., MAM2 contiguous with Willowgrove Creek and SWT contiguous with Ringwood Brook) are also considered contributing habitat. Redside Dace occupied and contributing habitat are both protected under the *Endangered Species Act*.
- **Bobolink (Threatened) habitat:** Both male and female individuals of Bobolink were observed within the cultural meadow (CUM1) communities to the west of the Subject Lands (**Figure 5**, **Appendix A**). The meadow marsh (MAM2) and cultural meadow (CUM1) vegetation communities were found to provide suitable grass-dominated habitat capable of supporting Bobolink breeding. As a result, these areas are considered protected habitat under the *Endangered Species Act*.

The following potential habitat for Endangered and Threatened species was identified within the Subject Lands and the adjacent 120 m through background review:

- **Bats (Endangered) candidate habitat:** Seven bat species listed as Endangered on the SARO list may roost in deciduous wooded areas, individual deciduous trees, and anthropogenic structures such as barns, houses, garages, and sheds. Deciduous trees are present within the Subject Lands and the adjacent 120 m, including deciduous hedgerows, the small area mapped as deciduous forest (FOD7), and the residential area with deciduous trees located east of the Subject Lands.
- **Eastern Meadowlark (Threatened) candidate habitat:** Background review identified Eastern Meadowlark, a Threatened species. The grass-dominated meadow marsh (MAM2) and cultural meadow (CUM1) vegetation communities could provide suitable habitat for Eastern Meadowlark. This species was not observed within the Subject Lands or the adjacent 120 m during breeding bird surveys or incidentally during other surveys.

5.1.8. Significant Areas of Natural and Scientific Interest

ANSIs are identified by the MNR as areas with provincially or regionally significant and representative geological or ecological features that provide life science or earth science values related to protection, scientific study, or education.

No ANSIs were identified on or within 120 m of the Subject Lands.

5.2. Greenbelt Plan

A small portion at the western end of the Subject Lands, surrounding Willowgrove Creek, is designated as Protected Countryside. Most of the Subject Lands are part of the Oak Ridges Moraine Area and are discussed in **Section 5.3**, below. The Greenbelt Plan (2017a) sets out policies to protect KNHFs and KHFs, as described in **Section 2.2**.

The following KNHFs and KHFs were identified within the Greenbelt Plan, located within 120 m to the west of the Subject Lands:

- Identified **KNHFs** include the following:
    - Habitat of Endangered and Threatened species (see **Section 5.1.7**);
    - Fish habitat (see **Section 5.1.6**);
    - Wetlands (see **Section 5.1.1**);
    - Significant valleylands (see **Section 5.1.4**); and
    - SWH (see **Section 5.1.5**).
- Identified **KHFs** include the following:
    - Permanent and intermittent streams (Willowgrove Creek); and
    - Wetlands (see **Section 5.1.1**).

5.3. Oak Ridges Moraine Conservation Plan

The Subject Lands are primarily designated as Countryside Area. A small portion of the 120 m adjacent lands to the northwest of the Subject Lands is designated as Natural Linkage Area, while lands to the east of the Subject Lands are designated as Settlement Area. The ORMCP (2017b) sets out policies to protect KNHFs and KHFs, as described in **Section 2.3**.

Within the Subject Lands, the northern meadow marsh (MAM2) community is identified as a KNHF and a KHF. The following additional KNHFs and KHFs were identified within the ORMCP, located within 120 m to the east of the Subject Lands:

- Identified **KNHFs** include the following:
    - Wetlands (see **Section 5.1.1**);
    - Habitat of Endangered and Threatened species (see **Section 5.1.7**);
    - Fish habitat (see **Section 5.1.6**);
    - Significant valleylands (see **Section 5.1.4**); and
    - SWH (see **Section 5.1.5**).

- Identified **KHFs** include the following:
    - Permanent and intermittent streams (Ringwood Brook); and
    - Wetlands (see **Section 5.1.1**).

5.4. Official Plans of York Region and the Town of Whitchurch-Stouffville

Areas within 120 m to the west and to the east of the Subject lands are mapped within the Regional Greenlands System and the Town's Greenland System. The York Region Official Plan (2024 Office Consolidation) and the Town of Whitchurch-Stouffville Official Plan (2023 Office Consolidation) set out policies to protect KNHFs and KHFs, as described in **Sections 2.4 and 2.5**.

Within the Subject Lands, the northern meadow marsh (MAM2) community is identified as a KNHF and a KHF. The following additional KNHFs and KHFs were identified within 120 m to the west and to the east of the Subject Lands:

- Identified **KNHFs** include the following:
    - Habitat of Endangered and Threatened species (see **Section 5.1.7**);
    - Fish habitat (see **Section 5.1.6**);
    - Wetlands (see **Section 5.1.1**);
    - Significant valleylands (see **Section 5.1.4**); and
    - SWH (see **Section 5.1.5**).
- Identified **KHFs** include the following:
    - Permanent and intermittent streams (Willowgrove Creek and Ringwood Brook); and
    - Wetlands (see **Section 5.1.1**).

5.5. Toronto and Region Conservation Authority Regulated Features

Willowgrove Creek and Ringwood Brook are regulated watercourses, with associated meander belts, crests-of-slope, and engineered flood hazards. For Willowgrove Creek, meander belt limits, as determined by Beacon (2024), and the staked top-of-bank, as established by Ages Consultants Ltd. and TRCA in 2020, are shown in **Figure 7** (**Appendix A**). The regional flood lines for both Willowgrove Creek and Ringwood Brook, as determined by SCS Consulting in 2024, are also shown in **Figure 7** (**Appendix A**).

The unevaluated meadow marsh (MAM2) along Willowgrove Creek, the evaluated non-PSW meadow marsh (MAM2) in the northern corner of the Subject Lands, and the thicket swamp (SWT) unit of the Little Rouge Creek at Stouffville PSW complex are also TRCA-regulated features, along with their 30 m areas of interference.

5.6. Summary of Ecological and Natural Heritage Significance

An analysis of existing natural heritage features on the Subject Lands and the adjacent 120 m was completed, followed by an evaluation of their significance against provincial and municipal criteria. The results of this analysis determined that the following significant natural heritage features will require impact assessment in **Section 7**:

- Wetlands (Subject Lands and adjacent 120 m):
    - A thicket swamp (SWT), identified as a unit of the Little Rouge Creek at Stouffville PSW complex, located to the east across Highway 48;
    - A non-PSW meadow marsh (MAM2) community in the northern corner of the Subject Lands; and
    - An unevaluated meadow marsh (MAM2) community along Willowgrove Creek.
- Significant valleylands associated with Willowgrove Creek and Ringwood Brook (adjacent 120 m only);
- SWH (adjacent 120 m only):
    - Candidate Turtle Wintering Areas (Willowgrove Creek and associated MAM2; Ringwood Brook and associated SWT);
    - Candidate Marsh Bird Breeding for Green Heron (SWT community);
    - Candidate Terrestrial Crayfish (SWT community); and
    - Candidate Special Concern and Rare Wildlife Species for Snapping Turtle (Willowgrove Creek and associated MAM2; Ringwood Brook and associated SWT).
- Direct fish habitat within Willowgrove Creek and Ringwood Brook (adjacent 120 m only);
- Habitat of Endangered and Threatened Species (Subject Lands and adjacent 120 m):
    - Redside Dace (Endangered) occupied habitat within Ringwood Brook and contributing habitat within Willowgrove Creek as well as within the wetlands contiguous with these watercourses (MAM2 and SWT);
    - Bobolink (Threatened) habitat within the meadow marsh (MAM2) and cultural meadow (CUM1) communities along Willowgrove Creek;
    - Candidate SAR bat (Endangered) habitat within deciduous treed areas (HR and FOD7) in the northern corner of the Subject Lands and bordering the residential area located along the eastern boundary of the Subject Lands; and
    - Candidate Eastern Meadowlark (Threatened) habitat within the meadow marsh (MAM2) and cultural meadow (CUM1) communities along Willowgrove Creek.

The locations of these significant natural heritage features are shown in **Figure 5** (**Appendix A**).

Additional natural heritage features not evaluated in the significance analysis but identified in the biophysical characterization, as well as those deemed relevant based on regulatory requirements or site-specific conditions, will also be addressed in the impact assessment in **Section 7**.

6. Description of Proposed Development

The proposed development, located at the southwest corner of the intersection of Stouffville Road and Highway 48, will convert a 2.67 ha predominantly agricultural area into a mixed-use high-rise residential community (**Figure 6**, **Appendix A**).

The project comprises two phases: the West Phase, including three residential towers (Buildings A, B, and C), and the East Phase, including two residential towers (Buildings D and E) and a daycare facility (Building F). The proposed development will include two levels of underground parking.

The proposed development will be accessed from Stouffville Road via a new municipal road network, including Streets A and B, which run along the south and west sides of the development, respectively. Street A will consist of an urbanized section east of Street B and a rural section west of Street B, while Street B will consist of an urbanized section.

The *Functional Servicing and Stormwater Management Report* (FSSR) prepared by SCS Consulting (2025) has been submitted under separate cover and provides a more detailed overview of the proposed development. This includes considerations for site grading, stormwater management, sanitary and water servicing, as well as environmental and construction aspects. A summary of these components is provided in the subsections below.

6.1. Site Grading

The proposed development will be graded to align with the Town's grading criteria, supporting functionality for drainage and servicing. The grading design minimizes the need for rear lot catchbasins and balances cut-and-fill volumes to reduce earthworks. Slopes across the site will range from 2% to 5%, roads will meet grade limits of 0.5% to 6%, and driveways will meet grade limits of 2% to 8%. A retaining wall is proposed along the north and east property boundaries, with a maximum height of 3.81 m at the northeast corner.

Specific goals of the grading plan include supporting stormwater management (SWM) objectives by directing runoff toward SWM facilities and achieving efficient earthworks to minimize construction impacts. Details of the grading plan will be refined during the detailed design and Site Plan Application stage of the proposed development.

6.2. Stormwater Management

SWM for the development will be provided through a dual-facility approach designed to meet quantity, quality, erosion, and water balance requirements:

- SWM Facility 1 (Dry Pond): Located at the southwest corner of the site, SWM Facility 1 will manage runoff from the rural portion of Street A and adjacent areas (Catchments 201 and 202) via overland flow through roadside ditches. A 75 mm orifice plate will regulate discharge to the west outlet. The facility provides quantity control for the 2 through 100-year storm events, with 158 m^3 of required active storage for the 100-year event and a total capacity of 574 m^3. Erosion control is addressed through an extended detention volume of 81 m^3, with a drawdown time of approximately 4.0 hours.

- SWM Facility 2 (Wet Pond): Located at the southeast corner of the site, SWM Facility 2 will manage runoff from the majority of the development (Catchments 301 to 307) via overland flow and storm sewers. A combination of 80 mm and 300 mm orifice controls will regulate discharge to the east outlet. The facility provides quantity control for the 2 through 100-year storm events, with 3,207 m^3 of required active storage for the 100-year event and a total capacity of 5,054 m^3. A permanent pool of 1,397 m^3 is included to meet MECP Enhanced Level Protection standards (80% TSS removal). Erosion control is addressed through an extended detention volume of 769 m^3, with a drawdown time of approximately 51.7 hours.

To meet water quality targets, the plan achieves MECP Enhanced Level Protection (80% total suspended solids removal) through treatment trains that include grassed swales, a wet pond with a permanent pool sized at 1,397 m^3, and other best management practices. These controls will treat runoff from developed areas before discharging flows to the receiving watercourses.

Erosion control requirements will be met through on-site retention of 15 mm of rainfall over impervious areas. The east side of the development will retain 433.9 m^3 of runoff, slightly exceeding the required 432.2 m^3. This is accomplished through a mix of green roofs, underground storage tanks, and a bioretention facility located within the proposed flood compensation area. Both the dry and wet ponds are also sized to provide extended detention for the 25 mm storm event, helping to mitigate erosive flows, with drawdown times of approximately 4 hours (dry pond) and 52 hours (wet pond).

To support water balance, pre-development infiltration was estimated at 5,122 m^3/year and is expected to decline to 1,366 m^3/year post-development, resulting in a deficit of 3,756 m^3/year. This shortfall will be mitigated through LID features designed to promote infiltration and reuse, including green roofs, bioretention, and storage tanks. The final LID strategy and detailed water balance will be confirmed at the detailed design and Site Plan Application stage of the proposed development, with consideration of high groundwater constraints and site-specific feasibility.

6.3. Sanitary and Water Servicing

Sanitary servicing for the proposed development will require upgrading the existing 200 mm PVC sewer along Stouffville Road to a 600 mm sewer to accommodate projected flows. Internally, 300 mm sanitary sewers will be constructed beneath Streets A and B, connecting to the upgraded sewer at Stouffville Road. Sewer slopes will range from approximately 0.5% to 2%, and separate service connections will be provided for each development phase.

Water servicing will be supplied from the existing 400 mm watermain on Stouffville Road. A new 300 mm PVC watermain will extend along Streets A and B, with a 200 mm watermain installed in the Street A cul-de-sac. A secondary fire connection from Street B will be included to meet fire flow requirements for high-rise buildings, to be constructed during the West Phase. Hydraulic analysis confirms that the existing municipal system can support the proposed development.

6.4. Erosion and Sediment Control During Construction

The proposed development incorporates strategies to protect natural heritage features and minimize environmental impacts during construction. Erosion and sediment control (ESC) measures, such as sediment fencing, check dams, construction access control, and temporary sediment control facilities will be implemented throughout construction to reduce sedimentation and protect adjacent natural features. The ESC Plan will be developed in accordance with TRCA's *Erosion and Sediment Control Guide for Urban Construction* (2019), and will include phasing, inspection, and monitoring requirements. Details of the ESC plan will be refined during the detailed design and Site Plan Application stages of the proposed development.

6.5. Groundwater Management

A Hydrogeological Investigation prepared by DS Consultants Ltd. (2025), submitted under separate cover, addresses both temporary and permanent groundwater discharge associated with the proposed development. Temporary construction dewatering is estimated at 126,000 L/day, while long-term discharge is estimated at 49,000 L/day (22,800 L/day from P2 and 26,400 L/day from P3). As the total short-term discharge is expected to remain below 400,000 L/day, a Permit to Take Water is not required; however, an Environmental Activity and Sector Registry registration will be required prior to construction. Groundwater will be discharged to the proposed municipal storm sewer on Street A, with temporary flows directed to SWM Facility 2.

Further discussion of the hydrogeological findings is provided in the Hydrological Evaluation in **Section 8**.

7. Impact Assessment, Mitigation, and Compensation Measures

This section evaluates the potential impacts of the proposed development on the natural heritage features of the Subject Lands and the adjacent 120 m, as identified in the biophysical characterization and significance analysis. Potential impacts are assessed for both short- and long-term effects on natural heritage features and their ecological functions. Where appropriate, measures are identified to avoid or mitigate negative impacts, along with opportunities to restore and enhance features to improve their health, diversity, and size.

Ecological impacts are generally categorized into three types:

1. **Direct impacts**: Typically associated with the physical removal or alteration of natural features resulting from development activities.

2. **Indirect impacts**: Changes to less visible functions or pathways that could degrade natural heritage features over time.

3. **Induced impacts**: Post-development effects that may result in increased demand on natural resources, leading to cumulative environmental stress.

Figure 7 (**Appendix A**) provides a visual overview of the natural heritage constraints identified within the Subject Lands and the adjacent 120 m, which are discussed in the following subsections.

7.1. Wetlands

The following wetlands are present within Subject Lands and adjacent 120 m:

- A thicket swamp (SWT), identified as a unit of the Little Rouge Creek at Stouffville PSW complex, located to the east across Highway 48;
- A non-PSW meadow marsh (MAM2) community in the northern corner of the Subject Lands; and
- An unevaluated meadow marsh (MAM2) community along Willowgrove Creek.

7.1.1. Direct Impacts

The proposed development includes the removal of the meadow marsh (MAM2) community located in the northern corner of the Subject Lands. GEI previously assessed the quality of this wetland in a memorandum dated August 31, 2022 (see **Appendix F**), which was submitted to the Town of Whitchurch-Stouffville. As outlined in the memorandum, this wetland did not exist on the landscape prior to the realignment of Highway 48, having instead formed as a result of anthropogenic changes to local drainage following the highway's construction. Additionally, the wetland does not currently provide high-quality habitat for wetland plants or wildlife, nor does it support SWH or SAR habitat. Proposed compensation for this wetland removal is discussed in **Section 7.1.3.4**, below.

7.1.2. Potential Indirect Impacts

Potential indirect impacts to wetlands within 120 m of the Subject Lands include alterations to drainage and water balance, increased erosion and sedimentation, and various edge effects.

Development can significantly alter local hydrology by affecting surface runoff, infiltration, and groundwater flow, potentially changing both the quantity and direction of water movement. These potential impacts are discussed further in the Hydrological Evaluation provided in **Section 8**.

Construction activities also pose risks by increasing erosion and sedimentation through the exposure of bare soil during grading, excavation, and vegetation removal. Without effective ESC measures, sediment-laden runoff can carry nutrients and pollutants into wetlands, degrading water quality and causing vegetation community shifts. These impacts are particularly pronounced in areas with steep slopes or near sensitive ecological features (MNR 2010).

Edge effects from development can exacerbate impacts to wetlands and adjacent habitats. Dust generated by heavy machinery can settle on vegetation and aquatic features, potentially interfering with photosynthesis and harming wetland ecosystems. Improperly secured construction waste, such as plastics and packaging, can be carried by wind into surrounding natural areas, degrading habitat quality. Additionally, soil and water contamination risks are heightened during construction due to accidental spills of fuels, oils, or other hazardous substances during equipment maintenance and refueling activities (MNR 2010).

Other potential indirect impacts include noise disturbance, which may disrupt sensitive wildlife species, potentially altering their behavior or causing temporary displacement from wetland habitats. Invasive species introduction is another concern, as equipment and materials entering the site could inadvertently transport seeds or plant fragments of invasive species, which may establish themselves and compete with native vegetation in the wetlands (MNR 2010).

7.1.3. Mitigation and Compensation Measures

7.1.3.1. Vegetation Protection Zones

The establishment of setbacks from wetlands, referred to as VPZs, helps to protect the form and function from potential development impacts. The Greenbelt Plan (2017a) and ORMCP (2017b) prescribe a minimum 30 m VPZ from the outer limits of wetlands, as shown in **Figure 7** (**Appendix A**).

The proposed development is situated more than 800 m from the meadow marsh (MAM2) community along Willowgrove Creek and over 30 m away, across Highway 48, from the thicket swamp (SWT) community along Ringwood Brook.

7.1.3.2. Hydrology

Mitigation measures for potential hydrological impacts to retained wetlands on adjacent lands are discussed in the Hydrological Evaluation provided in **Section 8**.

7.1.3.3. Construction Management Practices

ESC measures, such as sediment fencing, check dams, construction access control, and temporary sediment control facilities, will be implemented throughout construction to prevent sediment-laden runoff from entering sensitive features during construction. Regular monitoring of ESC measures by a qualified inspector during construction is also required to ensure effectiveness.

To further reduce potential impacts on retained natural features, construction equipment and materials should be stored as far as possible from wetlands. Vehicle refueling and maintenance should occur off-site or in designated areas well away from wetlands to prevent accidental spills of fuels, oils, or other hazardous materials from entering these features. Additionally, all vehicles and equipment should arrive at the construction site clean and free of any soil or vegetation to prevent the introduction of invasive species. Before leaving the site, in line with best management practices, vehicles and equipment should be cleaned again to prevent the spread of invasive species to other areas.

7.1.3.4. Compensation Through Ecological Restoration and Enhancement Measures

To address the proposed removal of the meadow marsh (MAM2) in the northern corner of the Subject Lands, Times 4750 Inc. proposes replicating the wetland within the Willowgrove Creek corridor. The compensation wetland is designed to improve both the quality and extent of wetland habitat, providing a net increase in overall wetland area—twice the size of the existing feature. Key enhancements include connection to an established water source, planting of native wetland plants, and the addition of wildlife habitat features, such as basking logs, sand shoals, and boulder clusters.

The proposed compensation wetland will be protected from future development impacts, in contrast to the existing wetland, which is expected to degrade further due to ongoing urbanization along Highway 48, as well as exposure to road salts and pollutants. Furthermore, the compensation wetland will include a trail system connecting to the future Applewood Cidery, thereby enhancing recreational opportunities and delivering a social benefit to the community.

In GEI's opinion, the relocation and enhancement of the wetland will provide net benefits for the hydrological, biological, and social environments. A copy of the Landscape Plan prepared by Schollen & Company Inc. showing the proposed wetland compensation is provided in **Appendix H**.

7.2. Significant Valleylands

Significant valleylands were identified within 120 m to the west and to the east of the Subject Lands, associated with Willowgrove Creek and Ringwood Brook. There are no direct impacts to significant valleylands from the proposed development.

7.2.1. Potential Indirect Impacts

Potential indirect impacts to significant valleylands within 120 m of the Subject Lands include various edge effects. Dust generated by heavy machinery may settle on vegetation, potentially interfering with photosynthesis and reducing plant health. Improperly secured construction waste, such as plastics and packaging, may be carried by wind into surrounding natural areas, degrading habitat quality.

Additionally, soil and water contamination risks are heightened during construction due to the potential for accidental spills of fuels, oils, or other hazardous substances during equipment maintenance and refueling activities (MNR 2010).

Other potential indirect impacts during construction include noise disturbance and light pollution, which may disrupt sensitive wildlife species, potentially altering their behavior or causing temporary displacement from habitats in the valleylands. Invasive species introduction is another concern, as equipment and materials entering the site could inadvertently transport seeds or plant fragments of invasive species, which may establish themselves and compete with native vegetation in the valleylands (MNR 2010).

7.2.2. Mitigation Measures

7.2.2.1. Vegetation Protection Zones

The establishment of VPZs from significant valleylands helps to protect the form and function of retained natural areas from potential development impacts. The Greenbelt Plan (2017a) and ORMCP (2017b) prescribe a minimum 30 m VPZ from the staked top-of-bank limits, as shown in **Figure 7** (**Appendix A**).

The proposed development is situated more than 800 m from the staked top-of-bank of Willowgrove Creek. The mapped (TRCA 2023) crest-of-slope for Ringwood Brook, which extends to the edge of the Subject Lands, includes Highway 48 as part of the valley feature. Therefore, the proposed development is located within its 30 m VPZ as identified in TRCA (2023) mapping. However, the valleylands associated with Ringwood Brook are across Highway 48 and are already physically separated from the development by the existing highway infrastructure. As a result, the proposed development is not anticipated to result in impacts to significant valleylands.

7.2.2.2. Construction Management Practices

ESC measures, such as sediment fencing, check dams, construction access control, and temporary sediment control facilities, will be implemented throughout construction to prevent sediment-laden runoff from entering sensitive features during construction. Regular monitoring of ESC measures by a qualified inspector during construction is also required to ensure effectiveness.

To further reduce potential impacts on retained natural features, construction equipment and materials should be stored as far as possible from significant valleylands. Vehicle refueling and maintenance should occur off-site or in designated areas well away from the identified valleylands, to prevent accidental spills of fuels, oils, or other hazardous materials from entering these features. Additionally, all vehicles and equipment should arrive at the construction site clean and free of any soil or vegetation to prevent the introduction of invasive species. Before leaving the site, in line with best management practices, vehicles and equipment should be cleaned again to prevent the spread of invasive species to other areas.

7.3. Significant Wildlife Habitat

The following Candidate SWH areas are present within 120 m of the Subject Lands:

- Candidate Turtle Wintering Areas (Willowgrove Creek and associated MAM2; Ringwood Brook and associated SWT);
- Candidate Marsh Bird Breeding for Green Heron (SWT community);
- Candidate Terrestrial Crayfish (SWT community); and
- Candidate Special Concern and Rare Wildlife Species for Snapping Turtle (Willowgrove Creek and associated MAM2; Ringwood Brook and associated SWT).

The Candidate SWH areas are all associated with Willowgrove Creek and Ringwood Brook and their riparian wetland areas. Potential impacts and recommended mitigation measures for the wetland areas, as outlined in **Sections 7.1**, would also apply to protect the Candidate SWH areas identified within 120 m of the Subject Lands.

7.4. Fish Habitat

Direct fish habitat was identified within Willowgrove Creek and Ringwood Brook. There are no direct impacts to fish habitat from the proposed development.

7.4.1. Potential Indirect Impacts

Potential indirect impacts to fish habitat within the Subject Lands and the adjacent 120 m include alterations to drainage and water balance, increased erosion and sedimentation, and various edge effects.

Development can significantly alter local hydrology by affecting surface runoff, infiltration, and groundwater flow, potentially changing both the quantity and direction of water movement. These potential impacts are discussed further in the Hydrological Evaluation provided in **Section 8**.

Construction activities also pose risks by increasing erosion and sedimentation through the exposure of bare soil during grading, excavation, and vegetation removal. Without effective ESC measures, sediment-laden runoff can carry nutrients and pollutants into aquatic habitats, degrading water quality and potentially impairing fish habitat. These impacts are particularly pronounced in areas with steep slopes or near sensitive ecological features (MNR 2010).

Edge effects from development can also degrade fish habitat. Dust generated by heavy machinery can settle on aquatic features, potentially blocking light and interfering with ecosystem functions. Improperly secured construction waste, such as plastics and packaging, can be carried by wind into surrounding aquatic habitats. Additionally, sediment and water contamination risks are heightened during construction due to accidental spills of fuels, oils, or other hazardous substances during equipment maintenance and refueling activities (MNR 2010).

7.4.2. Mitigation Measures

7.4.2.1. Ecological Setbacks

The establishment of VPZs from fish habitat helps to protect the form and function from potential development impacts. The Greenbelt Plan (2017a) and ORMCP (2017b) prescribe a minimum 30 m VPZ from fish habitat, measured from the top-of-bank as shown in **Figure 7** (**Appendix A**).

The proposed development is situated more than 800 m from the staked top-of-bank of Willowgrove Creek. The mapped (TRCA 2023) crest-of-slope for Ringwood Brook extends to the edge of the Subject Lands, and therefore the proposed development is located within its 30 m VPZ as identified in TRCA (2023) mapping. However, Ringwood Brook already passes through a culvert beneath Highway 48. Given this existing infrastructure, the proposed development is not anticipated to result in additional impacts to fish habitat, provided the recommended mitigation measures discussed in **Section 7.4.2.3**, below, are implemented.

7.4.2.2. Hydrology

Mitigation measures for potential hydrological impacts to fish habitat on adjacent lands are discussed in the Hydrological Evaluation provided in **Section 8**.

7.4.2.3. Construction Management Practices

ESC measures, such as sediment fencing, check dams, construction access control, and temporary sediment control facilities, will be implemented throughout construction to prevent sediment-laden runoff from entering sensitive features during construction. Regular monitoring of ESC measures by a qualified inspector during construction is also recommended to ensure effectiveness.

To further reduce potential impacts on retained natural features, construction equipment and materials should be stored as far as possible from fish habitat. Vehicle refueling and maintenance should occur off-site or in designated areas well away from fish habitat to prevent accidental spills of fuels, oils, or other hazardous materials from entering these features.

7.5. Habitat of Endangered and Threatened Species

No confirmed Threatened or Endangered species or their habitats were identified within the Subject Lands. The confirmed Endangered and Threatened species identified within 120 m of the Subject Lands through background review and the results of ecological field surveys are the following:

- Redside Dace (Endangered) occupied habitat within Ringwood Brook and contributing habitat within Willowgrove Creek as well as within the wetlands contiguous with these watercourses (MAM2 and SWT); and
- Bobolink (Threatened) habitat within the meadow marsh (MAM2) and cultural meadow (CUM1) communities along Willowgrove Creek.

The following candidate habitat for Endangered and Threatened species was identified within the Subject Lands and the adjacent 120 m through background review:

- Candidate SAR bat (Endangered) habitat within deciduous treed areas (HR and FOD7) in the northern corner of the Subject Lands and bordering the residential area located along the eastern boundary of the Subject Lands; and
- Candidate Eastern Meadowlark (Threatened) habitat within the meadow marsh (MAM2) and cultural meadow (CUM1) communities along Willowgrove Creek.

7.5.1. Redside Dace

There are no direct impacts to Redside Dace occupied or contributing habitat from the proposed development. Potential indirect impacts are discussed as part of fish habitat, in **Section 7.4.1**. In addition to the required VPZ for wetlands discussed in **Section 7.1.3.1** and for fish habitat discussed in **Section 7.4.2.1**, a 30 m setback from the meander belt limits is required for occupied Redside Dace habitat (see **Figure 7**, **Appendix A**), and a 10 m setback from the meander belt limits is required for contributing Redside Dace habitat (see **Figure 7**, **Appendix A**).

The proposed development is situated more than 800 m from the meander belt limits of Willowgrove Creek as well as the VPZs for the associated wetlands and fish habitat. The mapped (TRCA 2023) meander belt and crest-of-slope limits for Ringwood Brook extend to the edge of the Subject Lands, and therefore the proposed development is located within their 30 m setbacks as mapped. However, Ringwood Brook already passes through a culvert beneath Highway 48. Given this existing infrastructure, the proposed development is not anticipated to disturb Redside Dace occupied habitat, and as such, consultation with MECP or DFO is not required. At the detailed design stage, the proposed SWM strategy will be reviewed to confirm that there are no impacts to Redside Dace habitat (e.g., in-water works or activities below the high-water mark) and to evaluate whether consultation with MECP or DFO is necessary.

With the implementation of the recommended mitigation measures for fish habitat (including ESC measures and construction management practices) as outlined in **Section 7.4.2.3**, no additional impacts to occupied Redside Dace habitat are anticipated.

7.5.2. Bobolink and Eastern Meadowlark

The proposed development is located over 800 m from the meadow marsh (MAM2) and cultural meadow (CUM1) communities identified as confirmed Bobolink and candidate Eastern Meadowlark breeding habitat (see **Figure 7**, **Appendix A**), and as such, there are no direct or potential indirect impacts anticipated to grassland bird SAR from the proposed development.

7.5.3. Bat Species at Risk

The proposed development requires the removal of the deciduous trees located in the northern corner of the Subject Lands, within the hedgerow (HR) and the deciduous forest (FOD7). Before removal, additional surveys are required to confirm the presence of suitable bat roosting trees, SAR bats, and the need for mitigation, compensation, or consultation with the MECP.

Due to the potential presence of SAR bats, it is recommended that tree removals occur outside the SAR bat timing window (March 15 to November 30). If tree removal is proposed within that window, a qualified ecologist should complete a bat exit survey no more than 24 hours before tree removal to confirm whether these removals can proceed without impacting roosting SAR bats.

7.6. Migratory Birds

Stantec observed a total of 29 bird species exhibiting evidence of breeding within the Subject Lands, including four species observed as breeding or potentially breeding within the northern meadow marsh (MAM2) community.

Per the *Migratory Birds Convention Act*, the requirement to ensure that there are no bird nests present within the work area rests with the proponent of the activity. Thus, any tree removals within the Subject Lands and any vegetation removal within the northern meadow marsh (MAM2) must occur outside of the breeding bird timing window (March 30 to August 30). If tree or vegetation removal is proposed within that window, a qualified ecologist should complete a nest sweep survey a maximum of 48 hours before tree removal to confirm whether these removals may proceed without impacting migratory birds.

7.7. Potential Induced Impacts

Human occupancy introduces the potential for long-term indirect impacts on adjacent retained natural areas. These impacts include encroachment, recreational use, artificial light, and noise, each of which can affect ecological integrity if not managed appropriately.

However, the proposed development is situated within a highly urbanized context at the intersection of Stouffville Road and Highway 48, surrounded by existing infrastructure and ongoing development. The existing urban environment has already influenced local ecological conditions, with major roadways acting as barriers to additional encroachment. The following subsections provide a detailed assessment of potential impacts and their context within the urbanized setting.

7.7.1. Encroachment

Encroachment impacts may result from activities such as the collection of firewood, clearing of natural vegetation, disposal of yard waste or litter, and the use of fertilizers, pesticides, road salt, and oil. Free-ranging domestic animals can also disturb the small vertebrate fauna of retained natural areas through predation or general disturbance. Cats, in particular, are known to have serious impacts on small mammal and bird populations (Blancher 2013, Loss et al. 2013).

The urbanized context of the Subject Lands reduces the likelihood of significant encroachment impacts, as existing roadways act as physical barriers, limiting direct human access to retained natural areas.

7.7.2. Recreational Use

Recreational use of retained natural areas by residents may lead to the trampling of vegetation, soil compaction, erosion, and the destruction of habitat. This activity could also result in the introduction and spread of invasive non-native plant species, which may outcompete and displace native species (Saunders et al. 1991). Non-native plant introductions can occur through the intentional planting of decorative species in landscaped areas, as well as through seeds carried on residents' shoes or domestic animal fur (Foxcroft et al. 2013).

Given the location of the proposed development at the intersection of two major roads, recreational access to adjacent natural areas is expected to be limited. Existing infrastructure further discourages such use, reducing potential impacts.

7.7.3. Artificial Light

Artificial light associated with residential development can disrupt wildlife activity patterns, particularly for nocturnal species and migratory birds, which are sensitive to the disorienting effects of light (Longcore & Rich 2004). Artificial light can also reduce nocturnal pollination, negatively affecting plant reproductive success (Knop et al. 2017).

T The highly urbanized setting already features significant artificial lighting from roadways and surrounding developments, minimizing the incremental impact of additional lighting. Nevertheless, GEI encourages the use of shielded light fixtures designed to direct light downward and away from sensitive natural features. This approach aligns with guidelines such as the DarkSky International's recommendations for outdoor lighting and the City of Toronto's Green Standard (Version 4) for High-rise Residential (2022). Implementing these measures will minimize light spill and reduce its potential impacts on adjacent habitats.

7.7.4. Noise Pollution

Noise pollution, particularly from post-development sources such as traffic, HVAC systems, and general human activity, has the potential to disrupt wildlife activity patterns. Songbirds are especially vulnerable to noise interference, as their communication relies on acoustic signals, which can be masked by low-frequency urban sounds (Proppe et al. 2013).

Given the proximity of the Subject Lands to existing major roadways and urban infrastructure, baseline noise levels are already elevated. Additional noise contributions from the proposed development are expected to be minimal in this context.

7.7.5. Cumulative Impacts

The cumulative impacts of post-development activities, such as artificial light, noise, increased human presence, and potential encroachment, can gradually degrade the ecological integrity of retained natural features. Furthermore, incremental changes in hydrology caused by impervious surfaces and increased runoff can contribute to long-term changes in wetland and riparian ecosystem health. While individual impacts may appear minor, their combined effects can create lasting changes to the structure and function of natural areas, emphasizing the importance of proactive mitigation strategies and ongoing monitoring to minimize cumulative impacts.

The proposed development includes several measures to mitigate cumulative impacts, as outlined throughout **Sections 7 and 8**.

8. Hydrological Evaluation

This Hydrological Evaluation has been prepared in accordance with the requirements outlined in the ORMCP (MMA 2017b) and associated *Technical Paper 12: Hydrological Evaluations for Hydrologically Sensitive Features* (MMA 2017c). The ORMCP aims to protect KHFs, referred to in the Technical Paper as HSFs, and their associated functions, with a particular focus on maintaining ecological and hydrological integrity. As specified under Section 26 of the ORMCP, Hydrological Evaluations are required for proposed developments within the minimum area of influence (typically 120 m) of KHFs or their associated VPZs. The ORMCP identifies the following KHFs:

- Permanent and intermittent streams;
- Wetlands;
- Kettle lakes; and
- Seepage areas and springs.

This section assesses the potential impacts of the proposed development on permanent and intermittent streams (Willowgrove Creek and Ringwood Brook) and three identified wetland features: a meadow marsh (MAM2) associated with Willowgrove Creek, a meadow marsh (MAM2) in the northern corner of the Subject Lands, and a thicket swamp (SWT) associated with Ringwood Brook that is also part of the Little Rouge Creek at Stouffville PSW complex.

8.1. Hydrogeological Context

The Subject Lands are located in the South Slope physiographic region, bordering the Oak Ridges Moraine physiographic region to the north. The Oak Ridges Moraine is characterized by its high-elevation ridge, hummocky topography, and significant role in regional groundwater systems, including the Oak Ridges Aquifer Complex (ORAC). The ORAC consists of silt and fine sands with gravel seams and occasional clay layers, forming an unconfined to semi-confined aquifer in certain areas. It provides a critical source of groundwater, feeding tributaries and wetlands throughout the region.

Subsurface conditions within the area of the Subject Lands proposed for development include clayey silt and silty clay till overlying a confined sand and gravel aquifer, consistent with the ORAC's composition in the vicinity. This confined aquifer, identified through borehole investigations and MECP well records, extends to depths of approximately 30 m below ground surface, with the potential to extend beyond this approximated depth.

Groundwater levels, measured by DS Consultants in monitoring wells in 2021, 2024, and 2025, ranged from 252.7 to 254.8 m above sea level in wells screened within the overlying till, and from 252.8 to 256.5 m above sea level in wells screened within the underlying cohesionless deposits. Groundwater flow is inferred to be southeast toward a drainage ditch, Ringwood Brook, and the associated PSW thicket swamp community. Seasonal fluctuations and climate variability may influence groundwater levels, potentially altering shallow groundwater flow patterns over time.

Hydraulic conductivity (k-values) measured at the site indicates low to medium permeability in the upper clayey silt material (1.9×10^{-9} to 7.5×10^{-7} m/s) and medium to high permeability in the lower cohesionless unit (3.1×10^{-7} to 4.9×10^{-6} m/s). The site is within a Highly Vulnerable Aquifer and a Significant Groundwater Recharge Area. While the Significant Groundwater Recharge Area designation highlights the area's importance for groundwater replenishment, the low permeability of the till limits recharge within the area of the Subject Lands proposed for development. Furthermore, since construction is anticipated within the overlying till, construction is not anticipated to impact the underlying aquifer.

Without mitigation, the proposed development is anticipated to affect the site's water balance, reducing infiltration by 3,756 m³/year and increasing runoff by 12,763 m³/year due to added impervious surfaces. Mitigation measures, including LID features, are proposed in order to address these changes and maintain pre-development hydrological conditions. Continuous groundwater level monitoring over one year is being conducted by DS Consultants to further refine the hydrogeological understanding of the site.

Additional details are provided in the Hydrogeological Investigation report by DS Consultants (2025), submitted under separate cover.

8.2. Permanent and Intermittent Streams

Two watercourses are present within 120 m of the Subject Lands: Willowgrove Creek, located to the west, and Ringwood Brook, situated to the east. These tributaries of the Little Rouge River are hydrologically connected to the surrounding area through surface runoff and shallow groundwater flow (DS Consultants 2025).

Development can significantly alter local hydrology, which plays a key role in sustaining the ecological and physical functions of watercourses. Changes to surface runoff, infiltration, and groundwater flow can affect both the quantity and direction of water movement, which in turn influences stream baseflow, seasonal variability, and habitat availability for aquatic and riparian species. Modifying the grade of an area may redirect flows and disrupt the balance between infiltration and runoff. The introduction of impermeable surfaces, such as paved roads and buildings, reduces infiltration and increases surface runoff, which can lead to reduced stream baseflow and more pronounced flow variability. These changes can exacerbate erosion, degrade water quality, and disrupt the drainage patterns that support watercourses (MNR 2010).

The following subsections discuss potential hydrological impacts to each watercourse as well as proposed and recommended mitigation measures.

8.2.1. Potential Impacts to Willowgrove Creek

The FSSR (SCS Consulting 2025) indicates that runoff from portions of the Subject Lands flows southwest toward Willowgrove Creek. Shallow groundwater inputs may also contribute to the creek's baseflow, as is typical within this physiographic region (see **Section 8.1**), although this was not explicitly confirmed through the Hydrogeological Investigation. While the creek lies outside the direct zone of influence for construction dewatering, grading and the introduction of impermeable surfaces may alter surface drainage patterns, increase surface runoff, and reduce infiltration, potentially affecting flow volumes and seasonal variability within the watercourse.

8.2.2. Potential Impacts to Ringwood Brook

The FSSR (SCS Consulting 2025) indicates that runoff from portions of the Subject Lands flows east toward the Highway 48 ditch and is subsequently conveyed under Highway 48 to Ringwood Brook through two existing corrugated steel culverts, located approximately 90 m and 220 m south of Stouffville Road. Additionally, the Hydrogeological Investigation (DS Consultants 2025) infers that groundwater flow is directed southeast toward Ringwood Brook, suggesting that both surface water and groundwater contributions sustain its hydrological functions. As Ringwood Brook is within the direct zone of influence for construction dewatering, there is potential for temporary alterations to flow patterns and water availability in this watercourse.

8.2.3. Mitigation Measures

To minimize potential impacts on Willowgrove Creek and Ringwood Brook, the proposed development incorporates several engineering and design strategies as outlined in the FSSR (SCS Consulting 2025) and Hydrogeological Investigation (DS Consultants 2025):

1. **Grading Design**:
    - The site will be graded to meet the Town's criteria while supporting effective drainage and stormwater management, with runoff directed to proposed SWM facilities.
2. **SWM**:
    - SWM Facility 1 (Dry Pond): Located in the southwest corner, this facility manages runoff from the rural road section and adjacent areas. It provides quantity and erosion control through extended detention.
    - SWM Facility 2 (Wet Pond): Located in the southeast corner, this facility manages runoff from the majority of the site. It provides quantity, erosion, and water quality control in accordance with MECP Enhanced Level Protection standards.
3. **Water Balance Maintenance**:
    - Per the Hydrogeological Investigation (DS Consultants 2025), the post-development infiltration deficit is calculated at 3,756 m^3/year. This will be mitigated through LID measures such as storage tanks, green roofs, and bioretention, designed to retain rainfall and promote infiltration.
4. **Monitoring and Adaptive Management**:
    - Groundwater level monitoring during construction will help identify and address potential changes in hydrological conditions.
    - Baseline surface water quality sampling is also recommended, to support adaptive management.
    - Adjustments to construction dewatering practices and SWM facility operations may be required to ensure that flow volumes and patterns remain consistent with pre-development conditions.

Since construction is anticipated within the overlying till, no impacts to the underlying aquifer are expected. The grading and SWM plans are designed to balance site hydrology, mitigate surface runoff, and preserve downstream flow conditions for Willowgrove Creek and Ringwood Brook.

8.3. Wetlands

Three wetland features are present within the Subject Lands and the adjacent 120 m, including two meadow marshes (MAM2) and one thicket swamp (SWT). The following subsections describe these features, potential impacts, and mitigation strategies.

Development can significantly alter local hydrology, impacting the ecological and physical functions of wetlands, which are highly sensitive to variations in water levels and hydroperiods. Changes to surface runoff, infiltration, and groundwater flow can affect the quantity, direction, and timing of water movement, which are essential for maintaining wetland hydrology, seasonal water levels, and habitat availability for wetland species. Modifying the grade of an area may redirect flows and disrupt the balance between infiltration and runoff. The introduction of impermeable surfaces, such as paved roads and buildings, reduces infiltration and increases surface runoff, potentially leading to changes in wetland water levels and hydroperiods (MNR 2010).

The degree of sensitivity to hydrological changes varies by wetland type, but substantial alterations—whether increasing or decreasing water inputs—can drive vegetation community shifts, alter wetland structure and function, or even result in the loss of the wetland feature if water availability becomes excessive or insufficient (MNR 2010).

The following subsections discuss potential hydrological impacts to each wetland as well as proposed and recommended mitigation measures.

8.3.1. Potential Impacts to the Meadow Marsh Associated with Willowgrove Creek

The FSSR (SCS Consulting 2025) indicates that runoff from portions of the Subject Lands flows southwest toward the meadow marsh (MAM2) wetland system associated with Willowgrove Creek. Shallow groundwater inputs may also contribute to sustaining the hydrology of this wetland, as is typical within this physiographic region (see **Section 8.1**), although this was not explicitly confirmed through the Hydrogeological Investigation. While the riparian wetland lies outside the direct zone of influence for construction dewatering, grading and the introduction of impermeable surfaces may alter surface drainage patterns, increase surface runoff, and reduce infiltration, potentially affecting water levels, hydroperiods, and the ecological functions of the wetland.

8.3.2. Potential Impacts to the Northern Meadow Marsh

The northern meadow marsh (MAM2), located within the Subject Lands, will be removed to accommodate the proposed development. This wetland, formed by anthropogenic changes to drainage patterns, is of low ecological quality and does not meet criteria for provincial significance. Compensation for the removal of this wetland is outlined in **Section 7.1.3.4**. This compensation wetland will be designed to enhance ecological value and hydrological functions through native plantings, wildlife habitat features, and connection to an established water source.

8.3.3. Potential Impacts to the Eastern Thicket Swamp Wetland Associated with Ringwood Brook

The FSSR (SCS Consulting 2025) indicates that runoff from portions of the Subject Lands flows east toward the Highway 48 ditch and is subsequently conveyed under Highway 48 towards the thicket swamp (SWT) wetland associated with Ringwood Brook. The Hydrogeological Investigation (DS Consultants 2025) infers that groundwater flow is directed southeast, contributing to the hydrology of this wetland, alongside surface water inputs. As the thicket swamp lies within the direct zone of influence for construction dewatering, there is potential for temporary alterations to water levels and availability in this wetland. Further evaluation is required at later stages to confirm that post-development conditions will continue to support this wetland's hydrological function.

8.3.4. Mitigation Measures

To minimize potential impacts to the wetland features associated with Willowgrove Creek and Ringwood Brook, the proposed development incorporates several engineering and design strategies as outlined in the FSSR (SCS Consulting 2025) and Hydrogeological Investigation (DS Consultants 2025). These are discussed in **Section 8.2.3**.

Furthermore, GEI recommends that a Wetland Water Balance Risk Evaluation, in accordance with the TRCA's 2017 guidance document, be completed for the retained wetlands at the detailed design and Site Plan Application stages of the proposed development. TRCA's risk evaluation protocol consists of determining the potential magnitude of post-development hydrological change without mitigation as well as assessing the ecological sensitivity of the wetland to that hydrological change. The magnitude of hydrological change and the ecological sensitivity of the wetland are then used in the wetland risk evaluation decision tree, which categorizes wetlands at no, low, medium, or high risk for hydrological impacts. Each risk category has recommended measures for wetland water balance study protocols and water balance modeling requirements (e.g., hydroperiod resolution), to determine whether additional mitigation measures or adaptive management strategies are required.

8.4. Summary

The Hydrological Evaluation has identified potential impacts to KHFs, including Willowgrove Creek, Ringwood Brook, and the wetland features associated with these watercourses.

The proposed development incorporates various engineering and design strategies to mitigate these impacts, as outlined in the FSSR (SCS Consulting 2025) and Hydrogeological Investigation (DS Consultants 2025). These measures include grading to preserve natural drainage patterns, SWM facilities to control runoff and enhance water quality, and LID features to address infiltration deficits and maintain pre-development water balance. Additional monitoring and adaptive management strategies may be required to manage hydrological changes both during and after construction.

A Wetland Water Balance Risk Evaluation, prepared in accordance with the TRCA's 2017 guidance document, is recommended for the retained wetlands at the detailed design and Site Plan Application stages of the proposed development, to develop a monitoring and adaptive management plan that supports their hydrological functionality. The results of this risk evaluation would guide additional monitoring and mitigation measures to further protect these wetland features.

9. Conclusions and Recommendations

GEI prepared this NHE to support applications for an Official Plan Amendment and Zoning By-law Amendment to facilitate the proposed development of the property located at 5061 Stouffville Road in the Town of Whitchurch-Stouffville, Ontario.

Through desktop review and ecological field investigations, GEI identified several significant natural heritage features within the Subject Lands and the adjacent 120 m:

- Wetlands (Subject Lands and adjacent 120 m):
    - A thicket swamp (SWT), identified as a unit of the Little Rouge Creek at Stouffville PSW complex, located to the east across Highway 48
    - A non-PSW meadow marsh (MAM2) community in the northern corner of the Subject Lands
    - An unevaluated meadow marsh (MAM2) community along Willowgrove Creek
- Significant valleylands associated with Willowgrove Creek and Ringwood Brook (adjacent 120 m only)
- SWH (adjacent 120 m only):
    - Candidate Turtle Wintering Areas (Willowgrove Creek and associated MAM2; Ringwood Brook and associated SWT)
    - Candidate Marsh Bird Breeding for Green Heron (SWT community)
    - Candidate Terrestrial Crayfish (SWT community)
    - Candidate Special Concern and Rare Wildlife Species for Snapping Turtle (Willowgrove Creek and associated MAM2; Ringwood Brook and associated SWT)
- Direct fish habitat within Willowgrove Creek and Ringwood Brook (adjacent 120 m only)
- Habitat of Endangered and Threatened Species (Subject Lands and adjacent 120 m):
    - Redside Dace (Endangered) occupied habitat within Ringwood Brook and contributing habitat within Willowgrove Creek as well as within the wetlands contiguous with these watercourses (MAM2 and SWT)
    - Bobolink (Threatened) habitat within the meadow marsh (MAM2) and cultural meadow (CUM1) communities along Willowgrove Creek
    - Candidate SAR bat (Endangered) habitat within deciduous treed areas (HR and FOD7) in the northern corner of the Subject Lands and bordering the residential area located along the eastern boundary of the Subject Lands
    - Candidate Eastern Meadowlark (Threatened) habitat within the meadow marsh (MAM2) and cultural meadow (CUM1) communities along Willowgrove Creek

The locations of these significant natural heritage features are shown in **Figure 5** (**Appendix A**).

The proposed development has been evaluated for its potential direct, indirect, and induced impacts on the natural heritage features within the Subject Lands and the adjacent 120 m, and comprehensive mitigation and compensation measures were proposed to address these impacts. Key findings and recommendations are summarized as follows:

- **Wetlands:**
    - **Northern Non-PSW Meadow Marsh:** The northern meadow marsh (MAM2), located within the Subject Lands, will be removed to accommodate the proposed development. This wetland, formed by anthropogenic changes to drainage patterns, was determined to be of low ecological quality and does not meet criteria for provincial significance. Compensation through the creation of a new wetland within the Willowgrove Creek corridor is expected to deliver a net ecological benefit, doubling the wetland area and enhancing habitat quality.
    - **Retained Wetlands along Willowgrove Creek and Ringwood Brook:** Potential indirect impacts, such as altered hydrology, erosion, sedimentation, and edge effects, will be mitigated through the implementation of VPZs, ESC measures, construction management practices, engineering design, and further hydrological study (e.g., Wetland Water Balance Risk Evaluation per TRCA's 2017 guidance document). Additional monitoring and adaptive management strategies may be required to manage hydrological changes during and after construction, as discussed in the Hydrological Evaluation in **Section 8**.
- **Significant Valleylands:** The development is located over 800 m from the significant valleylands associated with Willowgrove Creek and is separated by Highway 48 from the significant valleylands associated with Ringwood Brook. No direct impacts were identified. Potential indirect impacts will be mitigated through the implementation of VPZs and construction management practices.
- **Candidate SWH:** The Candidate SWH areas are associated with Willowgrove Creek and Ringwood Brook and their riparian wetland areas. No direct impacts to Candidate SWH were identified. Potential indirect impacts will be mitigated through adherence to wetland protection measures.
- **Fish Habitat:** Fish habitat is associated with Willowgrove Creek and Ringwood Brook. No direct impacts to fish habitat were identified. Potential indirect impacts, particularly for Ringwood Brook, include altered hydrology, increased sedimentation, and edge effects. These will be mitigated through the implementation of VPZs, ESC measures, construction management practices, engineering design, and further hydrological study. Additional monitoring and adaptive management strategies may be required to manage hydrological changes during and after construction, as discussed in the Hydrological Evaluation in **Section 8**.

- **Habitat of Endangered and Threatened Species:**

    - **Redside Dace (Endangered):** The development is located over 800 m from the meander belt limits of Willowgrove Creek. The mapped (TRCA 2023) meander belt limits for Ringwood Brook extend to the edge of the Subject Lands, and therefore the development is located within its 30 m setback as mapped. However, Ringwood Brook already passes through a culvert beneath Highway 48. Potential indirect impacts to Redside Dace habitat will be mitigated through adherence to fish habitat protection measures.

    - **Bobolink and Eastern Meadowlark (Threatened):** The development is over 800 m from confirmed Bobolink and candidate Eastern Meadowlark breeding habitats, with no direct or indirect impacts anticipated.

    - **Bat SAR (Endangered):** Tree removal in the northern corner of the Subject Lands has the potential to affect SAR bat habitat. Additional surveys are required to confirm the presence of suitable bat roosting trees, SAR bats, and the need for mitigation, compensation, or consultation with the MECP. Tree removals are recommended to occur outside the SAR bat timing window (March 15 to November 30). Alternatively, bat exit surveys may be conducted by a qualified ecologist a maximum of 24 hours before removal to confirm whether tree removals can proceed without impacting SAR bats.

- **Migratory Birds:** Tree removals within the Subject Lands and any vegetation removal within the northern meadow marsh (MAM2) must occur outside the breeding bird timing window (March 30 to August 30). If tree or vegetation removal is proposed within that window, a qualified ecologist must complete a nest sweep survey a maximum of 48 hours before removal to confirm whether these activities can proceed without impacting migratory birds.

- **Potential Induced Impacts:** Long-term indirect stressors such as encroachment, recreational use, artificial light, and noise have the potential to affect the ecological integrity of retained natural areas. However, the highly urbanized context of the Subject Lands—located at the intersection of Stouffville Road and Highway 48 and surrounded by ongoing development—minimizes the likelihood of significant incremental impacts. Major roadways serve as physical barriers, limiting access to natural areas, and baseline conditions already include elevated noise and light levels. Adherence to the proposed mitigation measures outlined in this NHE, including the use of dark-sky compliant lighting, will further reduce potential impacts.

By implementing the proposed mitigation and compensation measures and completing additional hydrological study (e.g., Wetland Water Balance Risk Evaluation per TRCA's 2017 guidance document) to determine additional monitoring and adaptive management strategy requirements for the retained wetlands, the proposed development is expected to maintain and, in some cases, enhance the ecological integrity of the retained natural heritage features within 120 m of the Subject Lands. The project balances environmental protection with land use objectives, and as such, no net negative impacts are anticipated from the proposed development.

References

Beacon. 2024. DRAFT: Geomorphic Assessment, 4721 & 5061 Stouffville Road. Beacon Environmental Ltd. 28 pp.

Blancher, P. 2013. Estimated number of birds killed by house cats (Felis catus) in Canada. Avian Conservation and Ecology, 8(2): 3.

Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier (Eds.). 2007. Atlas of the Breeding Birds of Ontario, 2001–2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature. xxii + 706 pp.

California Academy of Sciences and National Geographic Society. 2024. iNaturalist [Database]. Available online: https://www.inaturalist.org.

Chapman, L.J. and D.F. Putnam. 1984. The Physiography of Southern Ontario, 3rd Edition. Geological Survey of Ontario. 270 pp.

City of Toronto. 2022. Green Standard, Version 4. Mid to High-Rise Residential & Non-Residential Version 4: Ecology & Biodiversity. Available online: https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/toronto-green-standard/toronto-green-standard-version-4/mid-to-high-rise-residential-non-residential-version-4/ecology-biodiversity/

DFO. 2019a. Fish and Fish Habitat Protection Policy Statement, August 2019. Fisheries and Oceans Canada. 36 pp.

DFO. 2019b. Fish and Fish Habitat Protection Program, August 2019. Request a Review of Your Project Near Water: Step 3. Check if Your Project Needs A Review. Fisheries and Oceans Canada. Available online: http://www.dfo-mpo.gc.ca/pnw-ppe/reviews-revues/request-review-demande-d-examen-003-eng.html

DFO. 2024. Aquatic Species at Risk Map [Database]. Fisheries and Oceans Canada. Available online: http://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html

DS Consultants. 2025. Hydrogeological Investigation: 4721 & 5061 Stouffville Rd, Hwy 48 & Stouffville Road Development, Whitchurch-Stouffville, Ontario. 20 pp + Appendices.

eBird. 2024. eBird: An online database of bird distribution and abundance [Database]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Available online: http://www.ebird.org

Foxcroft, L.C., P. Pysek, D.M. Richardson, and P. Genovesi (Eds.). 2013. Plant Invasions in Protected Areas. Springer Series in Invasion Ecology, Vol. 7. xxii + 656 pp.

Government of Canada. 1985. *Fisheries Act,* R.S.C., 1985, c. F-14 (Amended 2019).

Government of Canada. 1994. *Migratory Birds Convention Act*, S.C. 1994, c. 22 (Amended 2017).

Government of Ontario. 1990. *Conservation Authorities Act*, R.S.O. 1990, c. C.27 (Consolidated 2024).

Government of Ontario. 1990. *Planning Act*, R.S.O. 1990, c. P.13. (Consolidated 2024).

Government of Ontario. 2007. *Endangered Species Act*, S.O. 2007, c. 6 (Consolidated 2024).

Government of Ontario. 2008. Ontario Regulation 230/08: Species at Risk in Ontario List. Under *Endangered Species Act*, S.O. 2007, c. 6 (Consolidated 2025).

Government of Ontario. 2024. Ontario Regulation 41/24: Prohibited Activities, Exemptions and Permits. Under *Conservation Authorities Act*, R.S.O. 1990, c. C.27 (Consolidated 2024).

Knop, E., L. Zoller, R. Ryser, C. Gerpe, M. Horler, and C. Fontaine. 2017. Artificial lighting at night as a new threat to pollination. Nature, 548(1): 206–209 pp.

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig, and S. McMurray. 1998. Ecological Land Classification for Southern Ontario: First Approximation and Its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02. 225 pp.

Longcore, T. and C. Rich. 2004. Ecological light pollution. Frontiers in Ecology and the Environment, 2(4): 191–198 pp.

Loss, S.R., T. Will, and P.P. Marra. 2013. The impact of free-ranging domestic cats on wildlife of the United States. Nature Communications, 4(1396): 1–7 pp.

MECP. 2022. Maternity Roost Surveys (Forests/Woodlands). Ministry of Environment, Conservation and Parks. 3 pp.

MMA. 2017a. Greenbelt Plan. Ministry of Municipal Affairs. Queen's Printer for Ontario. 98 pp. Available online: https://files.ontario.ca/greenbelt-plan-2017-en.pdf

MMA. 2017b. Oak Ridges Moraine Conservation Plan. Ministry of Municipal Affairs. Queen's Printer for Ontario. 88 pp. Available online: https://files.ontario.ca/oak-ridges-moraine-conservation-plan-2017.pdf

MMAH. 2020a. Provincial Policy Statement, 2020: Under the Planning Act. Ministry of Municipal Affairs and Housing. Queen's Printer for Ontario. 57 pp. Available online: https://files.ontario.ca/mmah-provincial-policy-statement-2020-accessible-final-en-2020-02-14.pdf

MMAH. 2020b. A Place to Grow: Growth Plan for the Greater Golden Horseshoe. Ministry of Municipal Affairs. Queen's Printer for Ontario. Available online: https://files.ontario.ca/mmah-place-to-grow-office-consolidation-en-2020-08-28.pdf

MMAH. 2024. Provincial Planning Statement, 2024: Under the *Planning Act*. Ministry of Municipal Affairs and Housing. Queen's Printer for Ontario. 60 pp. Available online: https://www.ontario.ca/files/2024-10/mmah-provincial-planning-statement-en-2024-10-23.pdf

MNR. 2000. Significant Wildlife Habitat Technical Guide. Ministry of Natural Resources, Fish and Wildlife Branch, Wildlife Section, Science Development and Transfer Branch, Southcentral Sciences Section. 151 pp. Available online: https://www.ontario.ca/document/significant-wildlife-habitat-technical-guide

MNR. 2010. Natural Heritage Reference Manual for Natural Heritage Polices of the Provincial Policy Statement, 2005. Second Edition. Ministry of Natural Resources. Queen's Printer for Ontario. 248 pp. Available online: https://docs.ontario.ca/documents/3270/natural-heritage-reference-manual-for-natural.pdf

MNR 2011. Oak Ridges Moraine Technical Paper Series. Ministry of Municipal Affairs. Queen's Printer for Ontario. Available online: https://www.oakridgesmoraine.org/educational-resources/

MNR. 2012. Greenbelt Plan 2005: Technical Definitions and Criteria for Key Natural Heritage Features in the Natural Heritage System of the Protected Countryside Area, Technical Paper 1. Ministry of Natural Resources. Queen's Printer for Ontario. 248 pp. Available online: https://files.ontario.ca/mnrf-greenbelt-technical-paper-en-2021-08-16.pdf

MNR. 2024a. Make A Map: Natural Heritage Areas [Database]. Ministry of Natural Resources and Forestry. Available online: https://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritageandviewer=NaturalHeritageandlocale=en-US

MNR. 2024b. Geospatial Ontario [Database]. Ministry of Natural Resources and Forestry. Available online: https://geohub.lio.gov.on.ca/datasets

MNRF. 2015. Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E. Ministry of Natural Resources and Forestry. Available online: https://dr6j45jk9xcmk.cloudfront.net/documents/4775/schedule-6e-jan-2015-access-ver-final-s.pdf

MNRF. 2019. Thermal Habitat: Understanding Stream Temperature and Thermal Classifications. Ministry of Natural Resources and Forestry. Available online: https://www.publicdocs.mnr.gov.on.ca/mirb/Jones-Schmidt-2019-understanding-thermal-habitat-streams.pdf

MNRF. 2022. Ontario Wetland Evaluation System, Southern Manual: 4th Edition. Ministry of Natural Resources and Forestry. King's Printer for Ontario. 247 pp. Available online: https://www.ontario.ca/files/2023-02/mnrf-pd-rpdpb-ontario-wetlands-evaluation-system-southern-manual-2022-en-2023-02-02.pdf

NHIC. 2021. Plant Communities List. Natural Heritage Information Centre, Ministry of Natural Resources and Forestry [Excel Spreadsheet]. Available online: https://www.ontario.ca/page/get-natural-heritage-information

NHIC. 2024. Ontario Species List: All Species. Natural Heritage Information Centre, Ministry of Natural Resources and Forestry [Excel Spreadsheet]. Available online: https://www.ontario.ca/page/get-natural-heritage-information

Oldham, M.J., W.D. Bakowsky, and D.A. Sutherland. 1995. Floristic quality assessment for southern Ontario. OMNR, Natural Heritage Information Centre, Peterborough. 68 pp.

Ontario Nature. 2024. Ontario Reptile and Amphibian Atlas [Database]. Available online: https://www.ontarioinsects.org/herp/

Proppe, D.S., C.B. Sturdy, and C.C. St. Clair. 2013. Anthropogenic noise decreases urban songbird diversity and may contribute to homogenization. Global Change Biology, 19(4): 1075–1084 pp.

Regional Municipality of York. 2022. York Region Official Plan. June 2024 Office Consolidation. Available online: https://www.york.ca/york-region/regional-official-plan

Saunders, D.A., R.J. Hobbs, and C.R. Margules. 1991. Biological Consequences of Ecosystem Fragmentation: A Review. Conservation Biology, 5(1): 18–32 pp.

SCS Consulting. 2025. South West Stouffville Expansion Area: 5061 Stouffville Road, Functional Servicing and Stormwater Management Report. 22 pp + Appendices.

Toronto Entomologists' Association 2024a. Ontario Butterfly Atlas [Database]. Available online: https://www.ontarioinsects.org/atlas/index.html.

Toronto Entomologists' Association. 2024b. Ontario Moth Atlas [Database]. Available online: http://www.ontarioinsects.org/moth/

Town of Whitchurch-Stouffville. 2000. The Town of Whitchurch-Stouffville Official Plan. January 2023 Office Consolidation. Available online: https://www.townofws.ca/media/gekiaihu/stouffville_official-plan_consolidation_combined.pdf

TRCA. 2007. Rouge River State of the Watershed Report. Toronto and Region Conservation Authority. Available online: https://trca.ca/conservation/watershed-management/rouge-river/resources/

TRCA. 2014. The Living City: Policies for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority. 204 pp. Available online: https://trcaca.s3.ca-central-1.amazonaws.com/app/uploads/2021/10/20155211/2329_TheLivingCityPolicies_rev19_forWeb.pdf

TRCA. 2017. Wetland Water Balance Risk Evaluation. Toronto and Region Conservation Authority. 52 pp. Available online:
https://trca.ca/app/uploads/2017/12/WetlandWaterBalanceRiskEvaluation_Nov2017.pdf

TRCA. 2019. Erosion and Sediment Control Guide for Urban Construction. 236 pp. Toronto and Region Conservation Authority. Available online: https://sustainabletechnologies.ca/app/uploads/2020/01/ESC-Guide-for-Urban-Construction_FINAL.pdf

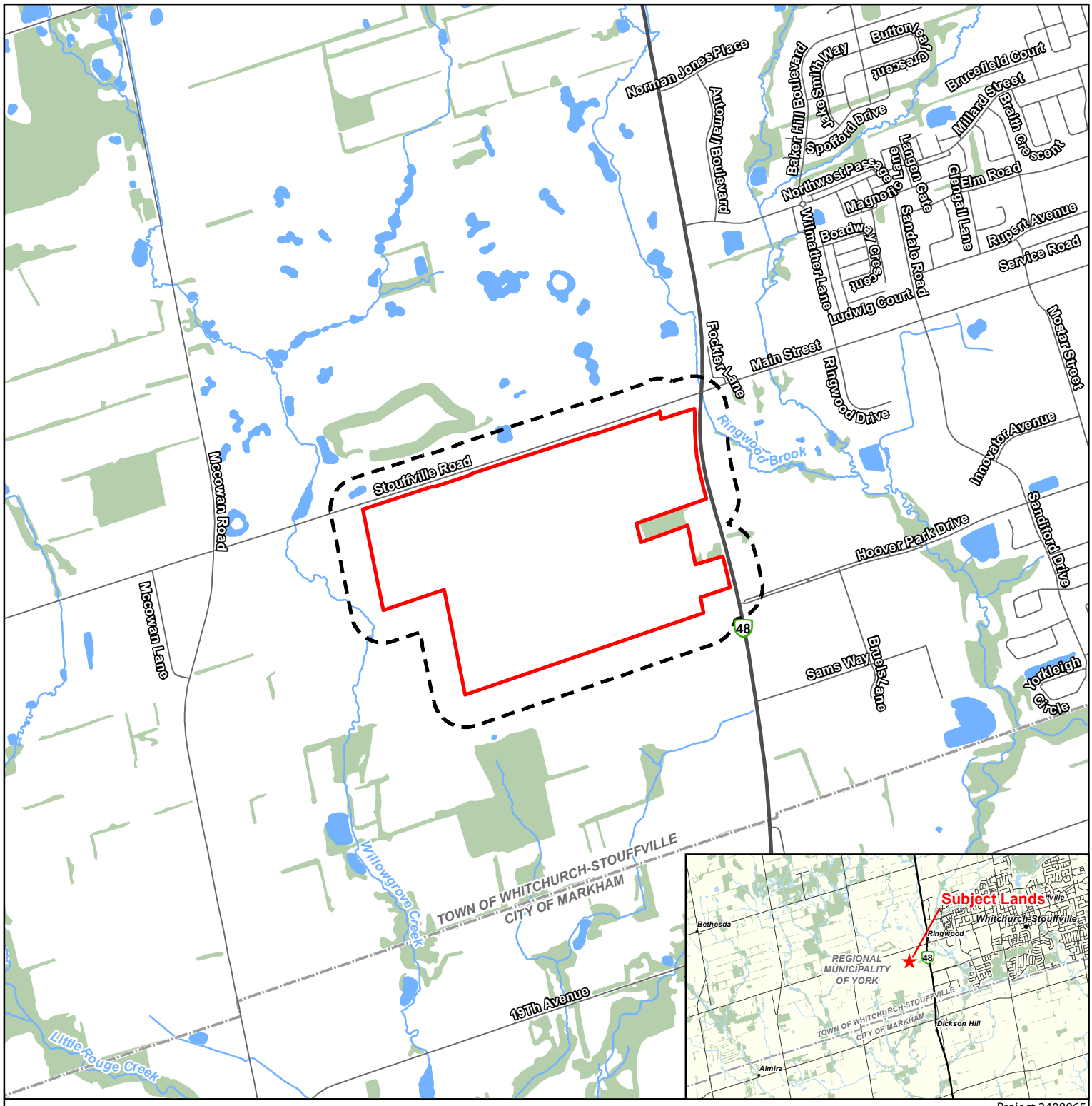
TRCA. 2024. TRCA Regulation Mapping [Database]. Toronto and Region Conservation Authority. Available online:
https://www.arcgis.com/apps/webappviewer/index.html?id=c11f5a41e3cc4ebab6909b1e0831b1d8

Urban Forest Associates Inc. 2002. Invasive Exotic Species Ranking for Southern Ontario. 7pp.

Varga, S., D. Leadbeater, J. Webber, J. Kaiser, B. Crins, J. Kamstra, D. Banville, E. Ashley, G. Miller, C.

Kingsley, C. Jacobsen, K. Mewa, L. Tebby, E. Mosley, and E. Zajc. 2005. Distribution and Status of the Vascular Plants of the Greater Toronto Area. Ontario Ministry of Natural Resources, Aurora District. 96 pp.

Appendix A Figures



Project 2408065

NOTES:
1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2025.

Legend

- Subject Lands
- Subject Lands + 120m
- Municipal Boundary, Lower/Single Tier
- Watercourse
- Waterbody
- Wooded Area

Natural Heritage Evaluation
5061 Stouffville Road
Times 4750 Inc.

Figure 1
Location of Subject Lands

0 200 m
1:20,000

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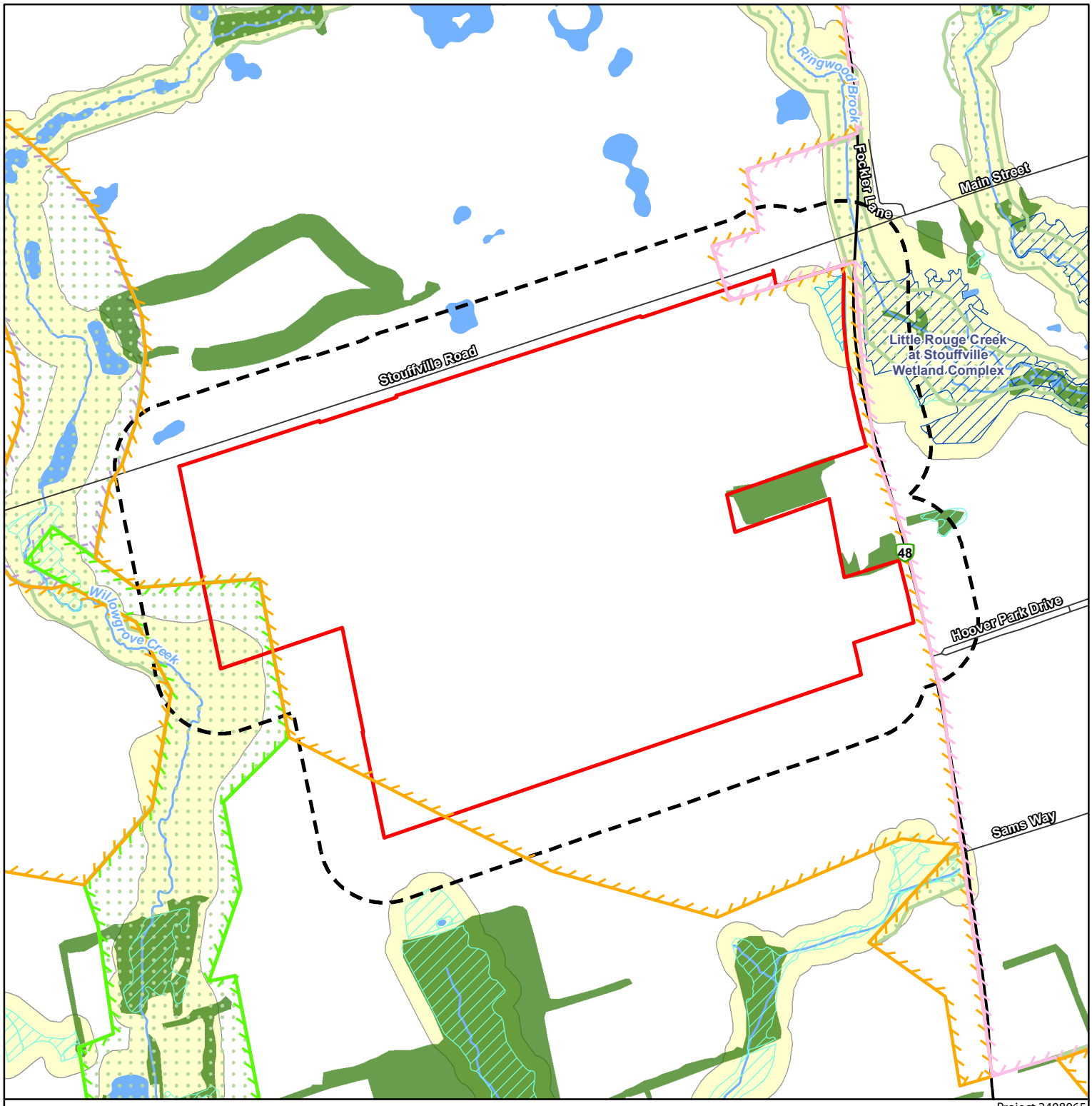
GEI Consultants Canada



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Legend

- Subject Lands
- Subject Lands + 120m
- TRCA Regulation Limits
- Provincially Significant Wetland (LIO)
- Unevaluated Wetland (LIO)
- Non-Provincially Significant Wetland (LIO)
- Wooded Area (LIO)
- Waterbody (LIO)
- Watercourse (LIO)
- Highway
- Road

Greenbelt Plan
- Protected Countryside

Oak Ridges Moraine Conservation Plan
- Countryside Area
- Natural Linkage Area
- Settlement Area

York Region Official Plan (2024)
- Regional Greenlands System

Natural Heritage Evaluation
5061 Stouffville Road
Times 4750 Inc.

Figure 2
Landscape Setting

0 200 m
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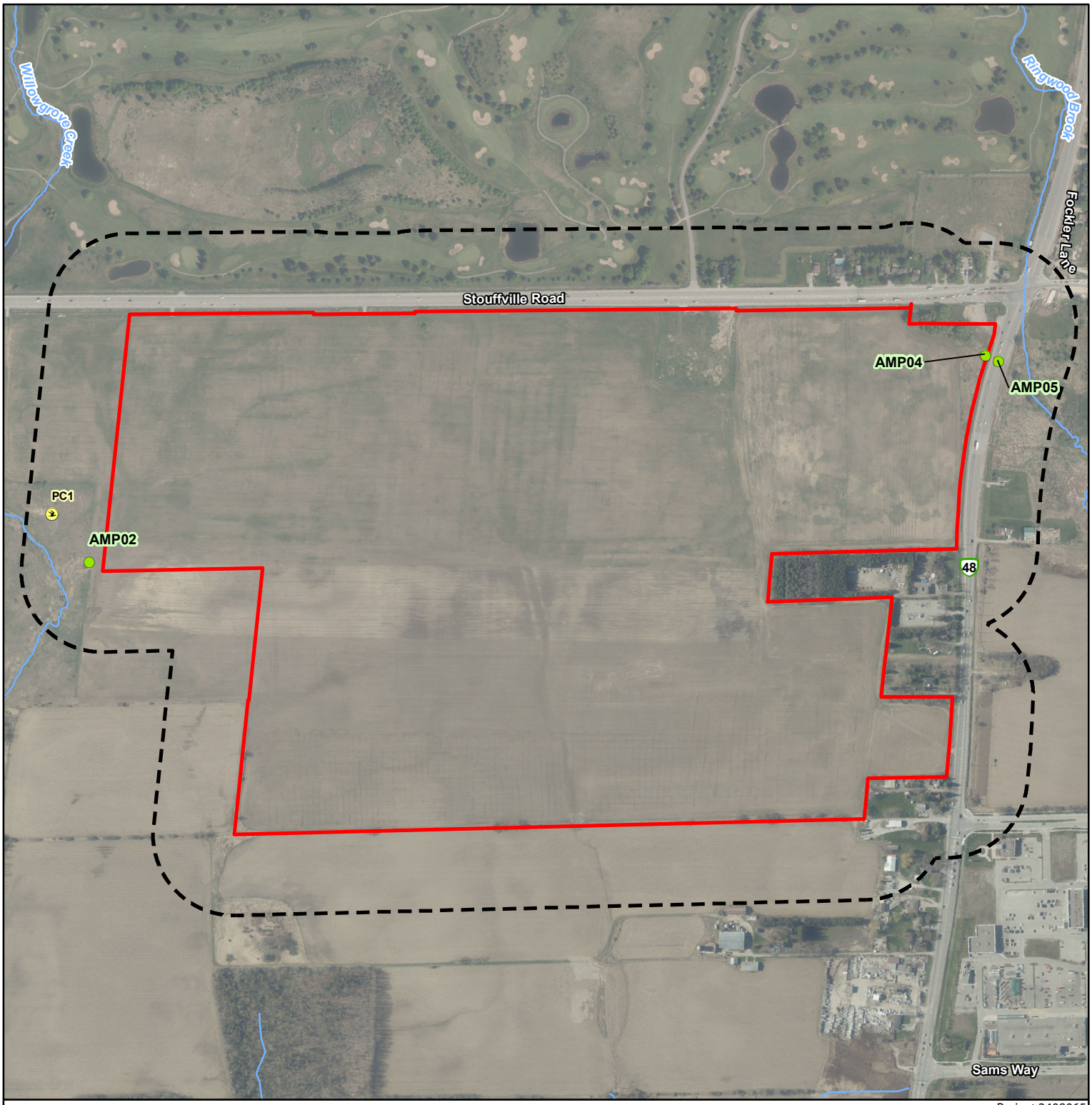
GEI Consultants Canada



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Legend

- Subject Lands
- Subject Lands + 120m
- Watercourse
- Amphibian Call Count Station (Stantec 2021)
- Breeding Bird Point Count Station (Stantec 2021)

Natural Heritage Evaluation
5061 Stouffville Road
Times 4750 Inc.

Figure 3 Ecological Field Survey Station Locations

0 100 m
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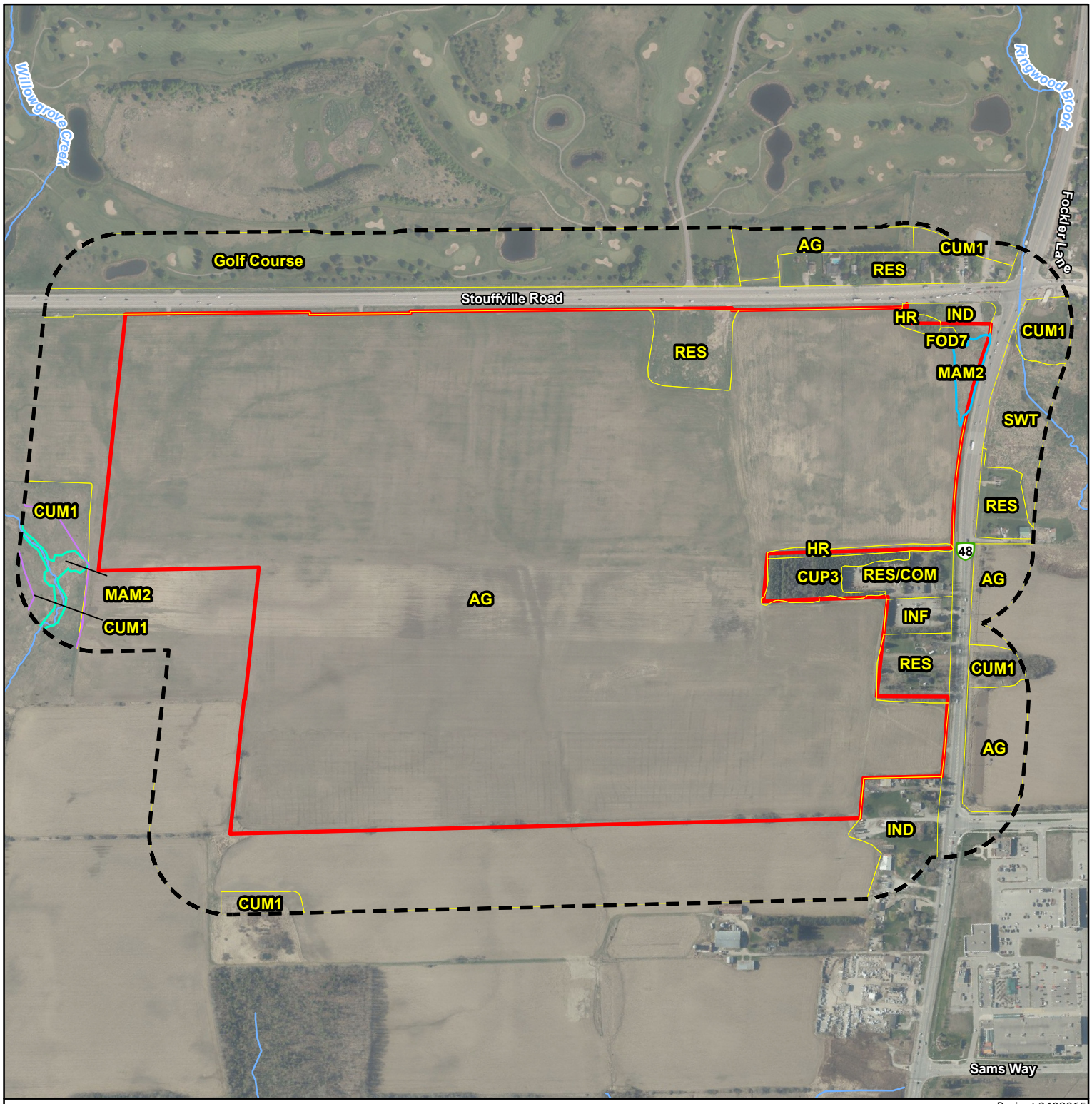
GEI Consultants Canada



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3. Orthoimagery © First Base Solutions, 2025. Imagery taken in 2024.

Legend

- Subject Lands
- Subject Lands + 120m
- Ecological Land Classification
- Watercourse
- Wetland Boundary (Mapped by GEI with Sub-meter GPS on July 31, 2023)
- Wetland Boundary (Mapped by GEI with Sub-meter GPS on October 2, 2024)
- Staked Top of Bank (R Avis Surveying 2020)

ELC LEGEND

AG, Agricultural
COM, Commercial
CUM1, Mineral Cultural Meadow
CUP3, Coniferous Plantation
FOD7, Fresh-Moist Lowland Deciduous Forest
HR, Hedgerow
IND, Industrial
INF, Infrastructure
MAM2, Mineral Meadow Marsh
RES, Residential
SWT, Thicket Swamp

Natural Heritage Evaluation
5061 Stouffville Road
Times 4750 Inc.

Figure 4
Ecological Land Classification (ELC) and Feature Dealineation

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1:8,000

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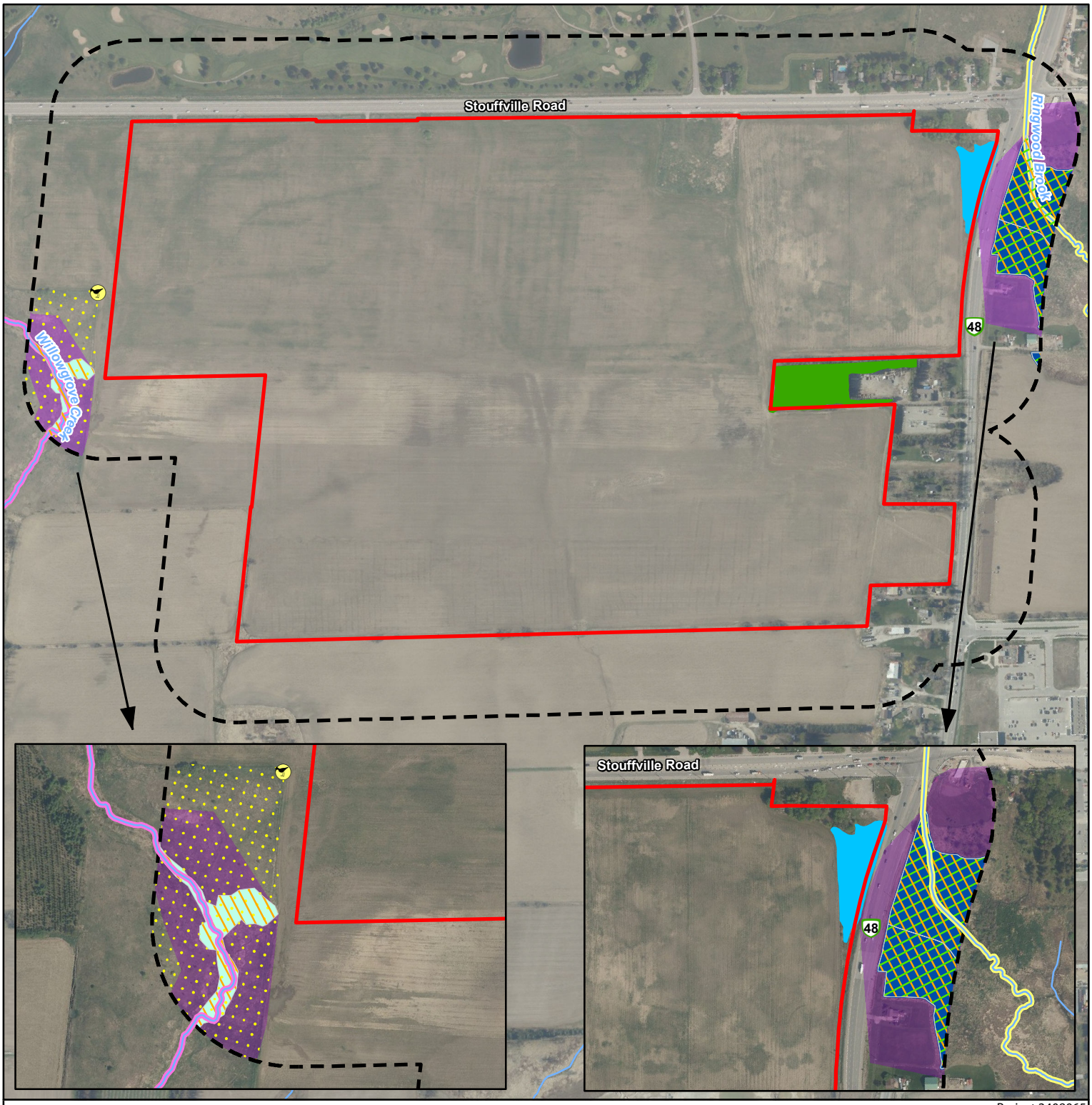
GEI Consultants Canada



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Legend

- Subject Lands
- Subject Lands + 120m
- Watercourse
- Direct Fish Habitat & Redside Dace Contributing Habitat
- Direct Fish Habitat & Redside Dace Occupied Habitat
- Significant Valleylands
- Provincially Significant Wetland (LIO)
- Non-Provincially Significant Wetland
- Unevaluated Wetland
- Non-Significant Woodland
- Female Bobolink Observation (Stantec 2020)
- Habitat of Endangered and Threatened Species
- Candidate SWH: Turtle Wintering Areas & Special Concern and Rare Wildlife Species
- Candidate SWH: Marsh Bird Breeding & Terrestrial Crayfish

Natural Heritage Evaluation
5061 Stouffville Road
Times 4750 Inc.

Figure 5
Significant Natural Heritage Features

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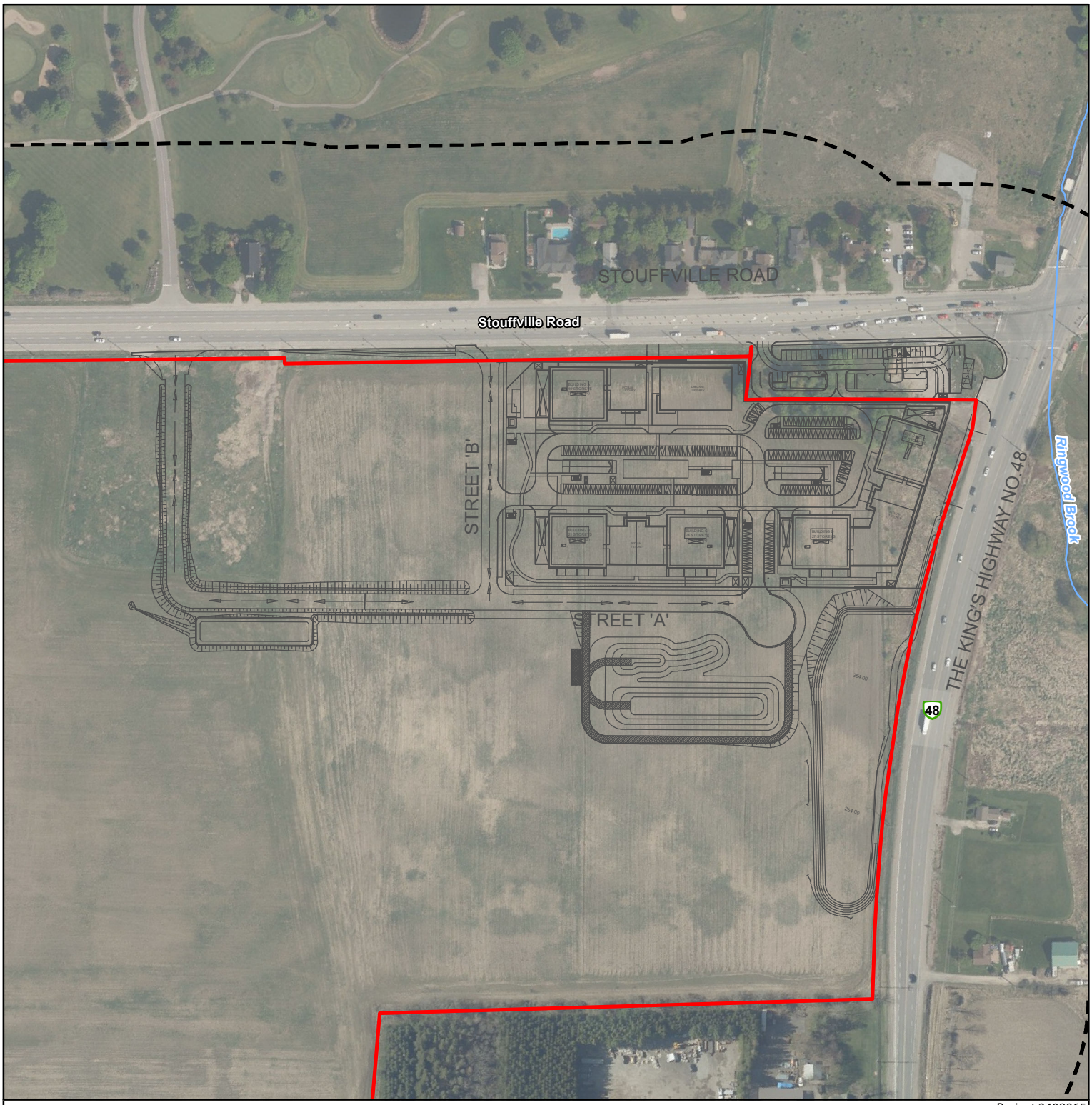

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Legend
- Subject Lands
- Subject Lands + 120m
- Watercourse
- Site Plan

Natural Heritage Evaluation
5061 Stouffville Road
Times 4750 Inc.

Figure 6
Site Plan

0 50 m
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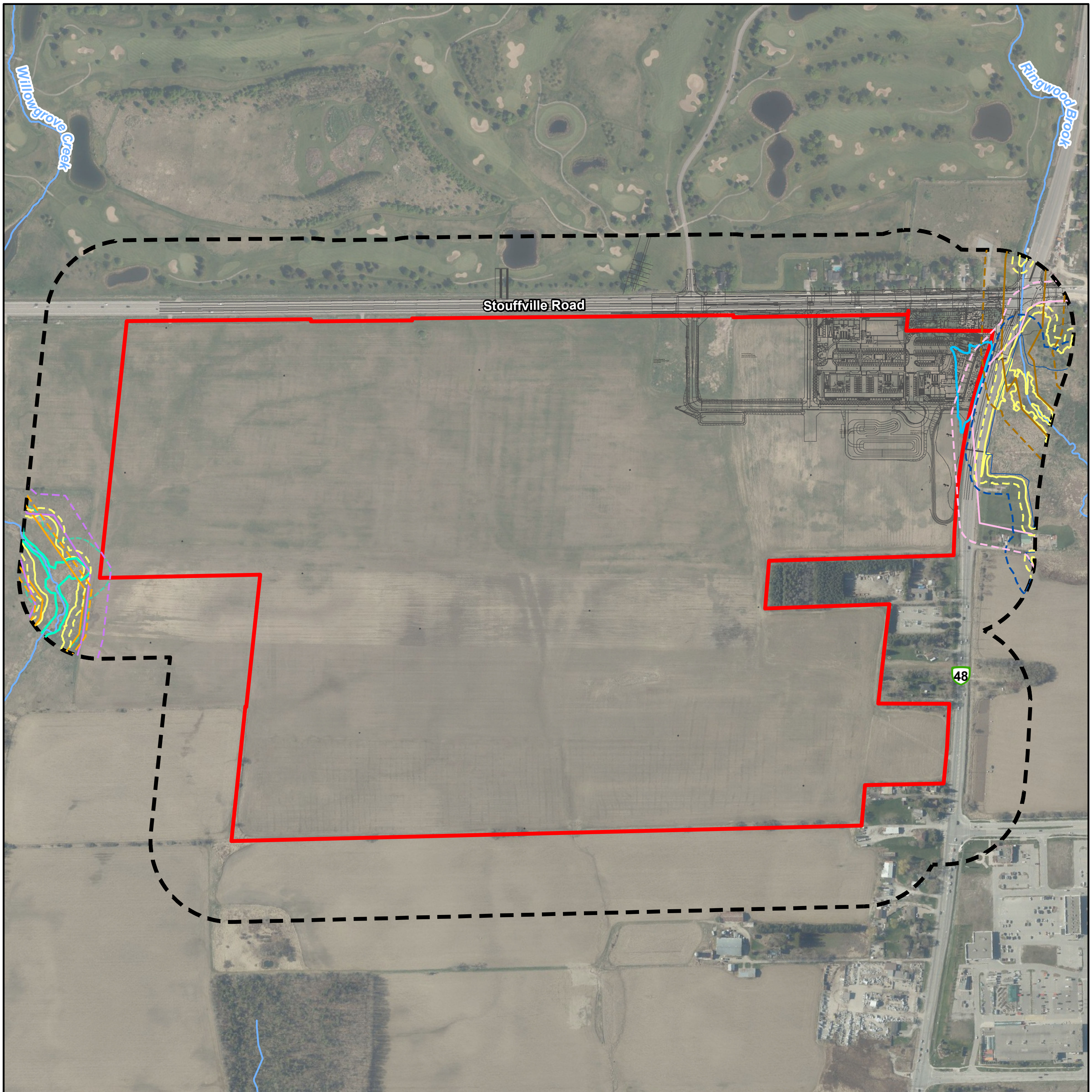
GEI Consultants Canada



Project 2408065

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Legend
- Subject Lands
- Subject Lands + 120m
- Watercourse
- Site Plan
- Provincially Significant Wetland (LIO)
- Wetland Boundary (Mapped by GEI with Sub-meter GPS on July 31, 2023)
- Wetland Boundary (Mapped by GEI with Sub-meter GPS on October 2, 2024)
- Wetland + 30 m
- Floodplain (SCS Consulting Group 2024)
- Meander Belt (Beacon 2024)
- Meander Belt (TRCA)
- Staked Top of Bank (R Avis Surveying 2020)
- Crest of Slope (TRCA)

Natural Heritage Evaluation
5061 Stouffville Road
Times 4750 Inc.

Figure 7
Natural Heritage Constraints to Development

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GEI Consultants

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Appendix B Tables

Table 1: Field Studies and Natural Inventories (2020–2024)

SURVEYORS (SURNAME, INTL)	SURVEY ROUND	SURVEY TYPE	DATE	TIME		AIR TEMP (C°)	HUMIDITY (%)	CLOUD COVER (%)	BEAUFORT WIND SPEED	PRECIPITATION COMMENTS
				START	END					
2020										
M. Straus J. Brooks (Stantec Consulting)	2	Amphibian Call Count Surveys	28-MA	21:20	23:31	20		100	2	None
M. Straus (Stantec Consulting)	1	Summer Botanical Inventory, ELC, Wildlife Habitat Assessment (Breeding Bird Survey)	08-JN	08:00	15:00	21		10	1	None
M. Straus (Stantec Consulting)	2	Summer Botanical Inventory, ELC and Wildlife Habitat Assessment (Breeding Bird Survey)	22-JN	07:30	14:30	28		95	0	None
M. Straus, T. Cooke-Brown (Stantec Consulting)	3	Amphibian Call Count Surveys	25-JN	21:48	23:33	17		0	0	None
2022										
J. Snow	1	Wetland Assessment	30-AU	08:30	12:00	22	100	85	3	None
2023										
A. Szabo	1	Wetland GPS and Assessment	31-JL	09:00	11:30	21	67	100	4	None
2024										
S. Martin	1	Wetland GPS and Site Reconnaissance	02-OC	08:30	13:45	17	82	70	1	None

LEGEND:

BEAUFORT WIND SPEED SCALE	
0	Calm (<1 km/hr)
1	Light Air (1-5 km/hr)
2	Light Breeze (6-11 km/hr)
3	Gentle Breeze (12-19
4	km/hr)
	Moderate Breeze (20-28 km/hr)

MONTH (CODE)	
JA	January
FB	February
MR	March
AP	April
MA	May
JN	June
JL	July
AU	August
SE	September
OC	October
NO	November
DE	December

Table 2: Ecological Land Classification (ELC) Community Descriptions

ELC TYPE	COMMUNITY DESCRIPTION	S-RANK (NHIC 2021)
FOREST		
Deciduous Forest		
FOD7 Fresh-Moist Lowland Deciduous Forest	Small, treed area mapped as a lowland deciduous forest, located in the northeast corner of the Subject Lands. The canopy and sub-canopy were dominated exclusively by Manitoba Maple (*Acer negundo*). Common herbaceous species in the groundcover layer included Riverbank Grape (*Vitis riparia*) and Virginia Creeper (*Parthenocissus quinquefolia*).	S4S5
CULTURAL		
Cultural Plantation		
CUP3 Coniferous Plantation	Associated with the industrial operation to the east of the Subject Lands, dominated by mature Norway Spruce (*Picea abies*) as observed from the Subject Lands boundary.	N/A
Cultural Meadow		
CUM1 Mineral Cultural Meadow	Grassy mid-slope area bordering the Willowgrove Creek riparian wetland. Dominated by Awnless Brome (*Bromus inermis*), with associations of Goldenrod (*Solidago* spp.) and Canada Anemone (*Anemone canadensis*). Sporadic White Elms (*Ulmus americana*; < 10% cover) were noted with a sparse understory (< 25% cover) of European Buckthorn (*Rhamnus cathartica*).	N/A
MARSH		
Meadow Marsh		
MAM2-2 Reed-canary Grass Mineral Meadow Marsh	This wetland located along Highway 48 is dominated by Reed Canarygrass (*Phalaris arundinacea*), with pockets of European Reed (*Phragmites australis* ssp. *australis*) and Red-osier Dogwood (*Cornus sericea*). The riparian meadow marsh associated with Willowgrove Creek is dominated by Reed Canarygrass, with associations of Yellow Iris (*Iris pseudacorus*) and Spotted Joe Pye Weed (*Eutrochium maculatum*). The sparse shrub layer consists of Willows (*Salix* spp.) and Red-osier Dogwood.	S5

FAMILY	LATIN NAME	COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	OWES WETLAND SPECIES	WEEDINESS INDEX	INVASIVE EXOTIC RANK (Urban Forest Associates 2002)	PROVINCIAL STATUS (S-RANK)	GLOBAL STATUS (G-RANK)	COSSARO (MNRF)	COSEWIC STATUS	YORK (Varga 2005)	AUTHORITY
Apiaceae	Daucus carota	Wild Carrot		5		-2		SNA	GNR			X	L.
Asteraceae	Cirsium arvense	Canada Thistle		3		-1	1	SNA	G5			X	(L.) Scop.
Asteraceae	Euthamia graminifolia	Grass-Leaved Goldenrod	2	0				S5	G5			X	(L.) Nutt.
Asteraceae	Solidago altissima var. altissima	Tall Goldenrod	1	3				S5	G5			X	L.
Asteraceae	Solidago canadensis	Canada Goldenrod	1	3				S5	G5			X	L.
Asteraceae	Sonchus arvensis ssp. arvensis	Field Sow-Thistle		3				SNA	GNRTNR			X	L.
Asteraceae	Symphyotrichum ericoides var. ericoides	White Heath Aster	4	3				S5	G5T5			X	(L.) G.L. Nesom
Asteraceae	Symphyotrichum lanceolatum	Panicled Aster	3	-3	I			S5	G5			X	(Willd.) G.L. Nesom
Asteraceae	Symphyotrichum novae-angliae	New England Aster	2	-3				S5	G5			X	(L.) G.L. Nesom
Asteraceae	Tanacetum vulgare	Common Tansy		5		-1	3	SNA	GNR			X	L.
Asteraceae	Taraxacum officinale	Common Dandelion		3		-2		SNA	G5			X	F.H. Wiggers
Balsaminaceae	Impatiens capensis	Spotted Jewelweed	4	-3	I			S5	G5			X	Meerburgh
Convolvulaceae	Convolvulus arvensis	Field Bindweed		5		-1	3	SNA	GNR			X	L.
Cornaceae	Cornus sericea	Red-Osier Dogwood	2	-3	I*			S5	G5			X	L.
Cyperaceae	Carex bebbii	Bebb's Sedge	3	-5	I			S5	G5			X	(L.H. Bailey) Olney ex Fern.
Cyperaceae	Carex stipata var. stipata	Awl-Fruited Sedge	3	-5	I			S5	G5T5			X	Muhlenb. ex Willdenow
Cyperaceae	Carex vulpinoidea	Fox Sedge	3	-5	I			S5	G5			X	Michaux
Equisetaceae	Equisetum arvense	Field Horsetail	0	0	T			S5	G5			X	L.
Fabaceae	Vicia cracca	Tufted Vetch		5		-1	2	SNA	GNR			X	L.
Hypericaceae	Hypericum punctatum	Spotted St. John's-Wort	5	0	T			S5	G5			R2	Lamarck
Lythraceae	Lythrum salicaria	Purple Loosestrife		-5	I	-3	1	SNA	G5			X	L.
Oleaceae	Fraxinus americana	White Ash	4	3				S4	G4			X	L.
Poaceae	Agrostis gigantea	Redtop		-3		-2		SNA	G4G5			X	Roth
Poaceae	Phalaris arundinacea var. arundinacea	Reed Canary Grass	0	-3	T		P	S5	GNR			X	L.
Poaceae	Phragmites australis ssp. australis	European Reed		-3	T		1	SNA	G5T5			X	(Cav.) Trinius ex Steudel
Polygonaceae	Persicaria amphibia	Water Smartweed	5	-5	I			S5	G5			X	L.
Rhamnaceae	Rhamnus cathartica	European Buckthorn		0	T	-3	1	SNA	GNR			X	L.
Salicaceae	Salix bebbiana	Bebb's Willow	4	-3	I			S5	G5			X	Sargent
Salicaceae	Salix discolor	Pussy Willow	3	-3	I			S5	G5			X	Muhlenberg
Salicaceae	Salix eriocephala	Cottony Willow	4	-3	T			S5	G5			X	Michaux
Typhaceae	Typha angustifolia	Narrow-Leaved Cattail		-5	I		P	SNA	G5			X	L.
Typhaceae	Typha latifolia	Broad-Leaved Cattail	1	-5	I			S5	G5			X	L.
Vitaceae	Vitis riparia	Riverbank Grape	0	0				S5	G5			X	Michaux

STATISTICS		
Species Diversity		
Total Number of Species:	33	
Native Species:	21	64%
Exotic Species:	12	36%
S1-S3 Species:	0	0%
S4 Species:	1	5%
S5 Species:	20	95%
Floristic Quality Assessment (FQA)		
Mean Co-efficient of Conservatism (CC)	2.6	
CC 0 - 3 = lowest sensitivity	14	67%
CC 4 - 6 = moderate sensitivity	7	33%
CC 7 - 8 = high sensitivity	0	0%
CC 9 - 10 = highest sensitivity	0	0%
Floristic Quality Index (FQI)	12	
Weedy & Invasive Species		
Mean Weediness Index (Oldham et al):	-1.8	
-1 = low potential invasiveness	4	33%
-2 = moderate potential invasiveness	3	25%
-3 = high potential invasivenss	2	17%
Mean Exotic Rank (Urban Forest Associates):	2	
Category 1	4	33%
Category 2	1	8%
Category 3	2	17%
Category 4	0	0%
Potentially Invasive (P)	2	17%
Wetland Species		
Mean Wetness Index	-0.7	
Upland	4	12%
Facultative upland	7	21%
Facultative	5	15%
Facultative wetland	10	30%
Obligate wetland	7	21%

EXPLANATION OF TERMINOLOGY *(See the following pages for addition detailed information on terms.)*

Botanical and Common Name: From Newmaster et. al, 1998. Species requiring confirmation noted (cf).

Co-efficient of Conservatism: This value, ranging from 0 (low) to 10 (high), is based on a species tolerance of disturbance and fidelity to a specific habitat integrity.

Wetness Index: This value, ranging from -5 (obligate wetland) to 5 (upland) provides the probability of a species occurring in wetland or upland habitats. Each wetland category has been assigned a numerical value to facilitate the quantification of the wetness index. The wetland categories and their corresponding values are as follows:

OBL : -5

FACW+: -4

FACW: -3

FACW-: -2

FAC+: -1

FAC: 0

FAC-: 1

FACU+: 2

FACU: 3

FACU-: 4

UPL: 5

FACW (Facultative Wetland): usually occurs in wetlands, but occasionally found in non-wetlands (estimated 67-99% probability)

FAC (Facultative): equally likely to occur in wetlands or non-wetlands (estimated 34-66% probability)

FACU (Facultative Upland): occasionally occurs in wetlands, but usually occurs in non-wetlands (estimated 1-33% probability)

UPL (Upland): occurs almost never in wetlands under natural conditions (estimated <1% probability)

Further refinement of the Facultative categories are denoted by a "+" or "-" to express exaggerated tendencies for those species. The "+" denotes a greater estimated probability occurring in wetlands than species in the general indicator category, but a lesser probability than species occurring in the next higher category. The "-" denotes a lesser estimated probability of occurring in wetlands than species in the general indicator category, but a greater probability than species occurring in the next lower general category.

Weediness Index: This value, ranging from -1 (low) to -3 (high) quantifies the potential invasiveness of non-native plants. In combination with the percentage of non-native plants, it can be used as an indicator of disturbance.

Invasive Exotic Rank (Urban Forest Associates 2002)
Category 1: Aggressive invasive exotic species that can dominate a site to exclude all other species and remain dominant on the site indefinitely.
Categroy 2: Exotic species that are highly invasive but tend to only dominate certain niches or do not spread rapidly from major concentrations.
Category 3: Exotic species that are moderately invasive but can become locally dominant when the proper conditions exist.
Categroy 4: Exotic species that do not pose a serious threat to natural areas unless they are competing directly with more desirable vegetation.
Potentially Invasive (P): Have potential to become invasive. Some of these species have the potential to become invasive exotics in Ontario. They can reproduce aggressively on occasion but have not been shown to be a serious threat to natural areas in Ontario.

FAMILY	LATIN NAME	COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	OWES WETLAND SPECIES	WEEDINESS INDEX	INVASIVE EXOTIC RANK (Urban Forest Associates 2002)	PROVINCIAL STATUS (S-RANK)	GLOBAL STATUS (G-RANK)	COSSARO (MNRF)	COSEWIC STATUS	YORK (Varga 2005)	AUTHORITY

Provincial Status: Provincial ranks are used by the NHIC to set protection priorities for rare species and natural communities. These ranks are not legal designations. S4 and S5 species are generally uncommon to common in the province. Species ranked S1-S3 are considered to be rare in Ontario. These rankings are based on the total number of extant Ontario populations and the degree to which they are potentially or actively threatened with destruction. The ranks are:

S1: Critically Imperiled - Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
S2: Imperiled - Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.

S3: Vulnerable - Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4: Apparently Secure - Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5: Secure - Common, widespread, and abundant in the nation or state/province.

SH: Possibly Extirpated (Historical)—Species or community occurred historically in the nation or state/province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become NH or SH without such a 20-40 year delay if the only known occurrences in a nation or state/province were destroyed or if it had been extensively and unsuccessfully looked for. The NH or SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from

SR: Reported in Ontario, but without persuasive documentation.

SX: Presumed Extirpated—Species or community is believed to be extirpated from the nation or state/province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.

SNA: Unranked — Status not assigned.

HYB: Hybrid — Equivalent to "SNA". "n" suffix indicates native; "e" suffix indicates exotic.

SU: Unranked — Nation or state/province conservation status not yet assessed.

Rank ranges, e.g. S2S3, indicate that the rank is either S2 or S3, but that current information is insufficient to differentiate.

"?" following a rank indicates uncertainty about the assigned rank.

Q: Questionable taxonomy —Taxonomic distinctiveness of this entity is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or the inclusion of this taxon in another taxon, with the resulting taxon having a lower-priority conservation status.

REFERENCES

Nomenclature based on:

Brouillet, L., F. Coursol, S.J. Meades, M. Favreau, M. Anions, P. Bélisle & P. Desmet. 2010+. VASCAN, the Database of Vascular Plants of Canada. http://data.canadensys.net/vascan/

Co-efficient of Conservatism, Wetness & Weediness:

Oldham, M.J., W.D. Bakowsky and D.A. Sutherland. 1995. Floristic quality assessment for southern Ontario. OMNR, Natural Heritage Information Centre, Peterborough. 68 pp.

Invasive Exotic Species Ranks:

Urban Forest Associates Inc. 2002. Invasive Exotic Species Ranking for Southern Ontario. 7pp.

Provincial (Ontario) Status:

Natural Heritage Information Centre (NHIC). 2000. Provincial status of plants, wildlife and vegetation communities database. http://www.mnr.gov.on.ca/MNR/nhic/nhic.html. OMNR, Peterborough.

Local Status:

Varga, S., editor. 2005. Distribution and status of the vascular plants of the Greater Toronto Area. Ontario Ministry of Natural Resources, Aurora District. 96 pp.

Table 4: Ecoregion 6E Significant Wildlife Habitat Assessment

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
1. SEASONAL CONCENTRATION AREAS OF ANIMALS					
Waterfowl Stopover and Staging Areas (Terrestrial)	Yes – While suitable ecosites are not present within the Subject Lands, CUM1 vegetation communities are present adjacent to the Subject Lands.	No – Feature is not large enough to attract or support significant numbers. This area does not have historical waterfowl stopover use and is not an area known for sheet water use.	No	N/A	Not Present
Waterfowl Stopover and Staging Areas (Aquatic)	No – Suitable ecosites are not present within the Subject Lands	No	No	N/A	Not Present
Shorebird Migratory Stopover Areas	Yes – MAM vegetation communities are present within and adjacent to the Subject Lands.	No – Feature within and adjacent to the Subject Lands is not large enough to attract or support significant numbers. This area does not have historical waterfowl stopover use.	No	N/A	Not Present
Raptor Wintering Areas	No – Suitable ecosites are not present within the Subject Lands.	No	No	N/A	Not Present
Bat Hibernacula	No – Suitable ecosites are not present within the Subject Lands.	No	No	N/A	Not Present
Bat Maternity Colonies	Yes – One small (< 0.5 ha) FOD vegetation community is present within the Subject Lands. Hedgerows and cultural plantations do not qualify as SWH.	No – As this feature is isolated, small (< 0.5 ha), and disturbed from surrounding land uses such as being located near a major intersection, it is unlikely to provide suitable roosting habitat for bat maternity colonies.	No	N/A	Not Present
Turtle Wintering Areas	Yes – SW and MA vegetation communities are present within and adjacent to the Subject Lands. Willowgrove Creek is identified west of the Subject Lands.	Yes – Willowgrove Creek and its associated riparian MAM2 are located west of the Subject Lands and Ringwood Brook and its associated riparian SWT community are located east of the Subject Lands. These areas may provide suitable overwintering conditions. The MAM2 in the northern corner of the Subject Lands is isolated and degraded, including being invaded by European Reed. Based on its location along a major highway, lack of sufficient water depth, and invasive species presence, this feature is not considered to provide suitable overwintering habitat.	No – Willowgrove Creek and Ringwood Brook will be retained on the landscape. Habitat features will be protected via a setback from the development. Therefore, no additional ecological surveys were warranted.	N/A	Candidate SWH Present (Adjacent Lands)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
Reptile Hibernacula	Yes – Suitable ecosites may be present within the Subject Lands.	No – No natural/naturalized or anthropogenic features, no rock piles, or other features that may provide subsurface access below the frost line were identified within the Subject Lands during ecological investigations.	No	N/A	Not Present
Colonial Bird Nesting Sites (Bank/Cliff)	Yes – While suitable ecosites are not present within the Subject Lands, CUM1 vegetation communities are present adjacent to the Subject Lands	No – Exposed or eroding banks, hills, steep slopes and sand piles are not present within or adjacent to the Subject Lands.	No	N/A	Not Present
Colonial Bird Nesting Sites (Tree/Shrub)	No – Suitable ecosites are not present within the Subject Lands	No	No	N/A	Not Present
Colonial Bird Nesting Sites (Ground)	No – No rocky islands or peninsulas are present within the Subject Lands.	No	No	N/A	Not Present
Migratory Butterfly Stopover Areas	No –Suitable ecosites are not present within the Subject Lands. Note: Subject Lands are also not within 5 km of Lake Ontario.	No	No	N/A	Not Present
Landbird Migratory Stopover Areas	Yes – FOD vegetation community is present within the Subject Lands.	No – The FOD vegetation community does not meet size criteria (> 5 ha), and the site is not within 5 km of Lake Ontario.	No	N/A	Not Present
Deer Yarding Areas	Yes – FOD vegetation community is present within to the Subject Lands. CUP3 vegetation community is present adjacent to the Subject Lands.	No – Features do not meet size criteria (> 100 ha).	No – Mapping from LIO database does not identify Deer Yarding Areas within the Subject Lands or adjacent lands.	N/A	Not Present
Deer Winter Congregation Areas	Yes – FOD vegetation community is present within to the Subject Lands. CUP3 vegetation community is present adjacent to the Subject Lands.	No – Features do not meet size criteria (> 100 ha).	No – Mapping from LIO database does not identify Deer Wintering Areas within the Subject Lands or adjacent lands.	N/A	Not Present
2. RARE VEGETATION COMMUNITIES OR SPECIALIZED HABITAT FOR WILDLIFE					
2a. Rare Vegetation Communities					

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
Rare Vegetation Types (cliffs, talus slopes, sand barrens, alvars, old-growth forests, savannahs, and tallgrass prairies)	No – Rare vegetation types are not present within the Subject Lands.	No	No	N/A	Not Present
Other Rare Vegetation Types (S1 to S3 communities)	No – Other rare vegetation types are not present within the Subject Lands.	No	No	N/A	Not Present
2b. Specialized Wildlife Habitat					
Waterfowl Nesting Area	Yes – MAM vegetation communities are present within and adjacent to the Subject Lands. Willowgrove Creek is identified west of the Subject Lands.	Yes – A permanent river, Willowgrove Creek and its associated riparian MAM2 are located west of the Subject Lands and may provide suitable nesting habitat. The MAM2 in the northern corner of the Subject Lands is isolated and degraded. This wetland is too small (i.e., 0.4 ha) and isolated (i.e., no other wetland clusters in proximity) to meet the criteria.	Yes	No – Breeding Bird surveys completed on the Subject Lands in 2020 did not identify any of the listed species (PC1) despite survey effort (**Appendix D**).	Not Present
Bald Eagle and Osprey Habitats	No – Suitable ecosites are not present within the Subject Lands.	No – Feature is not adjacent to a river, lake, pond or wetlands that contain water. The tributaries present within the Subject Lands are too small and shallow to provide the necessary habitat to support either species.	No	N/A	Not Present
Woodland Raptor Nesting Habitat	Yes – FOD vegetation community is present within the Subject Lands. CUP3 vegetation community is present adjacent to the Subject Lands.	No – Features do not meet size criteria (> 30 ha with > 10 ha of interior habitat).	No	N/A	Not Present
Turtle Nesting Areas	No – Suitable ecosites with exposed mineral soils are not present within the Subject Lands or observed adjacent to Willowgrove Creek.	No – Suitable nesting habitat with sand or gravel were not observed during field investigations.	No	N/A	Not Present
Seeps and Springs	Yes – FOD vegetation community is present within the Subject Lands.	No – FOD is not located within any headwaters of a stream or river system (per the catchment data collected as part of the OWES Re-evaluation, **Appendix G**)	No	N/A	Not Present

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
Woodland Amphibian Breeding Habitats (Within or < 120 m from Woodland)	Yes – FOD vegetation community is present within the Subject Lands.	Yes – A wetland (MAM2) is within 120 m of the FOD vegetation community.	Yes	No – Amphibian Call Count surveys completed on the Subject Lands in 2020 did not identify any calling amphibians at this location (AMP04, AMP05), despite survey effort (**Appendix C**).	Not Present
Wetland Amphibian Breeding Habitats (Wetland > 120 m from Woodland)	Yes – SWT and MAM vegetation communities are present within and adjacent to the Subject Lands.	Yes – Wetland communities are over 120 m from woodlands, or isolated by the presence of a major highway.	Yes	No – Amphibian Call Count surveys completed on the Subject Lands in 2020 documented low numbers of calling amphibians (Gray Treefrog and Green Frog) associated with the Golf Course (north) and offsite farm (south). Otherwise, despite survey effort, amphibian breeding habitat thresholds were not met (**Appendix C**).	Not Present
Woodland Area-Sensitive Bird Breeding Habitat	Yes – FOD vegetation community is present within the Subject Lands.	No – Feature does not meet the size criteria of large mature (> 60 yrs old) forest stands or woodlots that are > 30 ha in size.	No	N/A	Not Present
3. SPECIES OF CONSERVATION CONCERN					
Marsh Bird Breeding Habitat	Yes – MAM vegetation communities and SW and CUM1 vegetation communities preferred by Green Heron are present within and adjacent to the Subject Lands.	Yes – Wetland habitat with shallow water and emergent aquatic vegetation is present within and adjacent to the Subject Lands.	Yes	No – Breeding Bird surveys completed on the Subject Lands in 2020 did not identify any of the listed species (PC1) despite survey effort (**Appendix D**). However, breeding bird surveys were not completed to the east of the Subject Lands, and therefore the off-site SWT could offer suitable habitat.	Candidate SWH Present (Adjacent Lands)
Open Country Bird Breeding Habitat	Yes – CUM1 vegetation communities are present within and adjacent to the Subject Lands.	No – Meadow communities do not meet the size criteria (> 30 ha).	No	N/A	Not Present
Shrub/Early Successional Bird Breeding Habitat	No – Suitable ecosites are not present within the Subject Lands.	No	No	N/A	Not Present
Terrestrial Crayfish	Yes – SWT, MAM and CUM vegetation communities are present within and adjacent to the Subject Lands.	Yes – Wet meadows and edges of shallow marshes are present.	Yes	No – No terrestrial crayfish chimneys were observed during ecological investigations. However, surveys were not completed to the east of the Subject Lands, and therefore the off-site SWT could offer suitable habitat.	Candidate SWH Present (Adjacent Lands)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
Special Concern and Rare Wildlife Species					
ii) Barn Swallow (*Hirundo rustica*)	N/A	No – Anthropogenic structures (barns, shed, bridges) used for nesting are not present within or adjacent to the Subject Lands.	No	N/A	Not Present
iii) Blue-winged Teal (*Spatula discors*)	N/A	Yes – A permanent river, Willowgrove Creek and it's associated riparian MAM2 are located west of the Subject Lands and may provide suitable habitat. The MAM2 in the northern corner of the Subject Lands is isolated and degraded, including being invaded by European Reed. Based on its location along a major highway, lack of sufficient water depth, and invasive species presence, this feature is not considered to provide suitable waterfowl habitat.	Yes	No – Breeding Bird surveys completed on the Subject Lands in 2020 did not identify any of the listed species (PC1) despite survey effort (**Appendix D**).	Not Present
iv) Eastern Wood-Pewee (*Contopus virens)*	N/A	No – Large forested vegetation communities are not present within or adjacent to the Subject Lands, the FOD present is not large enough to support Eastern Wood-Pewee.	No	N/A	Not Present
v) Wood Thrush (*Hylocichla mustelina)*	N/A	No – Large forested vegetation communities are not present within or adjacent to the Subject Lands. The FOD present is not large enough to support Wood Thrush.	No	N/A	Not Present
vi) Snapping Turtle (*Chelydra serptentina)*	N/A	Yes – Willowgrove Creek and its associated riparian MAM2 are located west of the Subject Lands and Ringwood Brook and its associated riparian SWT community are located east of the Subject Lands. These areas may provide suitable overwintering conditions.	No – Willowgrove Creek and Ringwood Brook will be retained on the landscape. Habitat features will be protected via a setback from the development. Therefore, no additional ecological surveys were warranted.	N/A	Candidate SWH Present (Adjacent Lands)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
vii) Monarch Butterfly (*Danaus plexippus*)	N/A	No – Although CUM1 communities are present adjacent to the Subject Lands, no large congregations of Milkweed (*Asclepias* spp.) were observed, therefore breeding habitat is unlikely to be present (refer to Butterfly Stopover Habitat for further discussion on non-breeding Monarch habitat).	No	N/A	Not Present
viii) Walnut Caterpillar Moth (*Datana integerrima*)	N/A	No – Large forested vegetation communities are not present within or adjacent to the Subject Lands, additionally, the FOD is characterized by Manitoba Maple and does not contain the host plant for this species (*Juglandaceae*).	No	N/A	Not Present
4. ANIMAL MOVEMENT CORRIDORS					
Amphibian Movement Corridors	No – Wetland Amphibian Breeding SWH is not present within the Subject Lands or the adjacent 120 m.	N/A	N/A	N/A	Not Present
Deer Movement Corridors	No – Deer wintering habitat was not identified on or within 120 m of the Subject Lands.	N/A	N/A	N/A	Not Present

Appendix C ELC Memo from Stantec

Stantec

Memo

To:	Dr. Derek Coleman	From:	Melissa Straus
	Ages Consultants Limited		Stantec Consulting Ltd.
File:	160961008	Date:	August 20, 2021

Reference: Ecological Land Classification and Botanical Inventory of Times Group Stouffville

This memo has been prepared to provide a summary of the vegetation and habitat field investigations conducted on two properties southwest of the York Regional Road 14 and Highway 48 intersection, located near Whitchurch-Stouffville, Ontario. Survey details are listed below in **Table 1**.

Table 1: Survey Details and Summary

Survey Date	Surveyor	Weather Conditions
June 8, 2020	M. Straus	Temperature: 21˚C; Wind (Beaufort Scale): 1; Cloud Cover: 10%; Precipitation: None; Precipitation 24h: None.
June 22, 2020	M. Straus	Temperature: 28; Wind: 0; Cloud Cover: 95%; Precipitation: None; Precipitation 24h: None.

The purpose of these surveys was to identify natural and anthropogenic vegetation and wildlife habitat features to support a general assessment of their significance. The work included:

1. Ecological Land Classification (ELC) of vegetation communities based on the ELC system for Southern Ontario (Lee et al. 1998);
2. a floristic survey of the Subject Property; and
3. identification of wildlife habitat features that may support candidate significant wildlife habitat as defined by (MNRF 2015), including reptile hibernacula, bat roosts, stick nests, seeps, springs, vernal pools, and potential turtle overwintering/nesting areas.

ELC mapping was completed to the finest level of resolution (Vegetation Type) where possible. Vegetation communities were first identified on aerial imagery and then checked in the field. Provincial significance of vegetation communities was based on the rankings assigned by the Natural Heritage Information Centre (OMNRF, 2020).

The provincial status of all plant species was based on Natural Heritage Information Centre (OMNRF, 2020). Identification of potentially sensitive native plant species was based on their assigned coefficient of conservatism (CC) value, as determined by Oldham et al. (1995). This CC value, ranging from 0 (low) to 10 (high), is based on a species' tolerance of disturbance and fidelity to a specific natural habitat. Species with a CC value of 9 or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters.

VEGETATION COMMUNITIES

Results of the background Land Information Ontario review identified Provincially Significant Wetlands (Little Rouge Creek at Stouffville Wetland Complex) on the northeast corner of Subject Property and in the Study Area east of Highway 48, as shown on **Figure 1 (attached)**.

Reference: Ecological Land Classification and Botanical Inventory of Times Group Stouffville

The Subject Property comprised of the following habitat types: a central open agricultural area, lowland deciduous forest, thicket swamp (Provincially Significant Wetland (PSW)) and pine plantation along the eastern boundaries of the Subject Property, and cultural woodland, cultural meadow, and shallow marsh communities situated along the western boundary of the Subject Property. Built communities surround the perminiter of Subject Property and include: a golf course, residential lots, hedgerows, and commercial and industrial lots. Vegetation mapping using ELC of the Subject Property is shown on **Figure 1** with community types described in **Table 2** (below).

Table 2: Ecological Land Classification (ELC) Vegetation Types

ELC TYPE	Community Description
Forest (FO)	
Deciduous Forest (FOD)	
FOD3-1 Dry - Fresh Poplar Deciduous Forest	This small deciduous forest occurs south of the Subject Property and is associated with the riparian zone for Willowgrove Creek. The canopy was dominated by planted white poplar with riverbank grape visible in the ground layer.
FOD7 Fresh-Moist Lowland Deciduous Forest Ecosite	Lowland deciduous forest located in the northeast corner of the Subject Property, associated with the Little Rouge Creek at Stouffville Wetland Complex. The canopy and sub-canopy were dominated exclusively by Manitoba maple. Common herbaceous species in the ground layer included riverbank grape and Virginia creeper.
Cultural (CU)	
Cultural Plantation (CUP)	
CUP3 Cultural Plantation Meadow Ecosite	Two cultural plantation units are located in the Study Area. One is associated with an adjacent property west of Willowgrove Creek and is comprised of young planted white cedar and tamarack (or larch). The second is associated with the industrial operation to the east of the Subject Property, predominantly mature Norway Spruce as observed from the Subject Property boundary.
Cultural Meadow (CUM)	
CUM1 Mineral Cultural Meadow Ecosite	Onsite grassy mid-slope area dominated by awnless brome, with goldenrod and Canada anemone, located along Willowgrove Creek. Sporadic white elms (<10% cover) were noted with a sparse understory (<25% cover) of European buckthorn Offsite meadows are located northeast of the intersection of Highway 48 and Stouffville Road, southwest corner of McCowan Road and Stouffville Road, surrounding a property on McCowan Road, and associated with an unevaluated wetland to the south of the Subject Property.
Cultural Woodland (CUW)	
CUW1 Mineral Cultural Woodland Ecosite	This unit is located on the northwester corner of the Subject Property, immediately south of Stouffville Road and within the riparian zone for Willowgrove Creek. The canopy was dominated by Manitoba Maple with black walnut in the sub-canopy and understorey. Avens and spotted touch-me-nots were the dominant species in the ground layer.

Reference: **Ecological Land Classification and Botanical Inventory of Times Group Stouffville**

Table 2: Ecological Land Classification (ELC) Vegetation Types

ELC TYPE	Community Description
Swamp (SW)	
Thicket Swamp (SWT)	
SWT Thicket Swamp	East of Highway 48, Little Rouge Creek at Stouffville Wetland Complex, appears to be a thicket swamp as assessed from Highway 48.
Marsh (MA)	
Shallow Marsh (MAS)	
MAS2-1 Cattail Mineral Shallow Marsh	Cattail dominated shallow marsh located along Highway 48.
Meadow Marsh (MAM)	
MAM2-2 Reed-canary Grass Mineral Meadow Marsh	This unit occurs in two areas on the Subject Property, the first associated with Willowgrove Creek and the second with Little Rouge Creek at Stouffville Wetland Complex. The riparian meadow marsh is dominated by reed-canary grass with yellow iris and spotted joe pye weed as associates. The sparse shrub layer consists of willow and red-osier dogwood. An organic marsh inclusion comprised of an area of cattails occurs near Stouffville Road as well as some water pooling and a pocket of willow trees. The second meadow marsh, located along Highway 48, is dominated by reed-canary grass with pockets of common reed and red-osier dogwood.
Other Communities*	
Golf Course Gold Course	Golf course located north of Stouffville Road.
HR Hedgerow	Two hedgerows located on the Subject Property, one associated with the western parcel boundary (Norway Spruce) and one associated with the eastern parcel boundary (Manitoba maple).
IND Industrial or Commercial	Light industry or commercial uses in the Study Area.
Res Residence	Rural residences within the Study Area, including two historical farmstead areas on the Subject Property.

*Not included in the First Approximation for ELC

None of the vegetation communities listed above are considered rare in the province.

VASCULAR PLANT SPECIES

A total of 72 species of vascular plants were recorded from the Study Area, of which 46% were native. Eighty-eight percent of these native plants have a rank of S5, indicating they are common and secure within Ontario. 4 species (12%) have a rank of S4 (apparently secure), while the remaining species are ranked as other or not defined.

Reference: **Ecological Land Classification and Botanical Inventory of Times Group Stouffville**

None of the species observed had a CC value of 9 or 10.

No species were deemed to be rare (L1-L3) in York Region.

No nationally or provincially endangered, threatened, or special concern species were found.

HABITAT ASSESSMENT

Woodland and wildlife habitat assessments were completed for each vegetation community.

Candidate bat maternity roost trees were observed within the onsite woodlands and hedgerows. These trees, as well as the onsite abandoned residence, may provide suitable habitat for bat species at risk (e.g., Little Brown Myotis, Northern Myotis, Tri-coloured Bat, Eastern Small-footed Myotis) that are protected by the *Endangered Species Act* (ESA 2007). Bat exit/acoustic surveys are recommended prior to demolition of the onsite abandoned residence.

Overwintering habitat for turtles may occur within the Willowgrove Creek, particularly where ponding water occurs near Stouffville Road. Turtles may also overwinter north of Stouffville Road in the ponds associated with the Golf Course, particularly near McCowan Road. Summer turtle habitat may occur within Willowgrove Creek but nesting habitat was not identified (i.e., areas of exposed, sandy soil).

Remnants of a historical barn documented on the western property (Res, **Figure 1**, attached) and the onsite abandoned residence (Res, eastern property, **Figure 1**, attached) did not appear to have suitable cracks/crevices that extended below the frostline, required to support overwintering snakes.

No stick nests, candidate reptile hibernacula, seeps, springs, or vernal pools were observed during site investigations.

Stantec Consulting Ltd.

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Melissa Straus M.Sc.
Terrestrial Ecologist
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Fax: 519 836 2493
Melissa.Straus@stantec.com

Attachments: Figure 1: Ecological Land Classification
Vascular Plant List

Reference: Ecological Land Classification and Botanical Inventory of Times Group Stouffville

REFERENCES

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. Ecological land classification for Southern Ontario: first approximation and its application. Ontario Ministry of Natural Resources, South Central Region, Science Development and Transfer Branch. Technical Manual ELC-005.

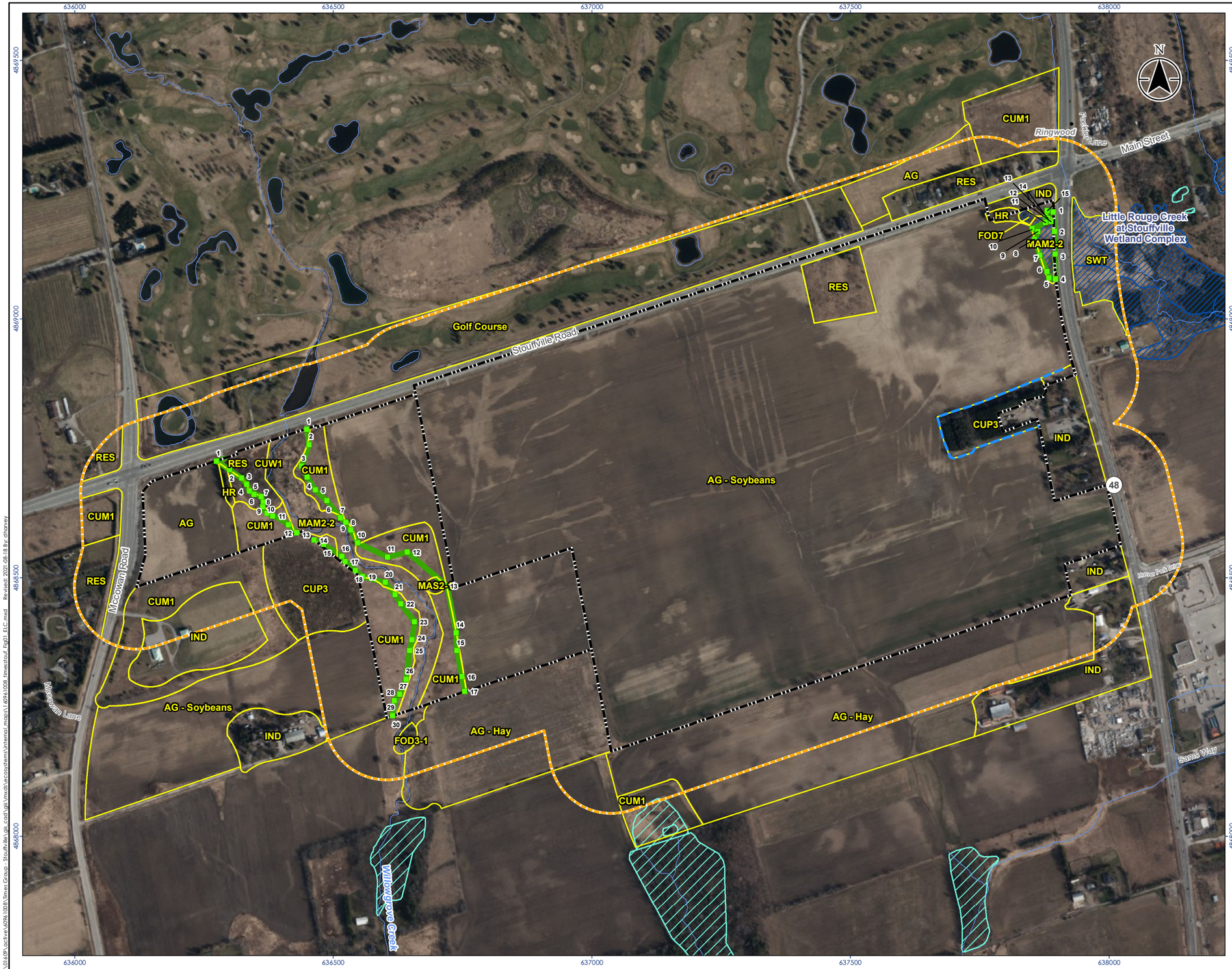
Michigan Flora Online. A.A. Reznicek, E.G. Voss, and B.S. Walters. February 2011. University of Michigan. http://michiganflora.net/acknowledgments.aspx

Newmaster, S.G., A. Lehela, P.W.C Uhlig, S. McMurray and M.J. Oldham. 1998. Ontario plant list. Ontario Ministry of Natural Resources, Ontario Forest Research Institute, Sault Ste. Marie, ON, Forest Research Information Paper No. 123. 550 pp. + appendices.

Oldham, M.J., W.D. Bakowsky and D.A. Sutherland. 1995. Floristic quality assessment for southern Ontario. OMNR, Natural Heritage Information Centre, Peterborough. 68 pp.

[OMNRF] Ontario Ministry of Natural Resources and Forestry. 2020. Natural Heritage Information Centre Species Lists. Online at from https://www.ontario.ca/page/get-natural-heritage-information. Accessed on December 11, 2020.

[OMNRF] Distribution and Status of the Vascular Plants of the Greater Toronto Area, Varga, S. et. al.



Ages Consultants Limited

Legend

- Ecological Land Classification
- Study Area (120 m)
- Site Location
- Feature Dripline Indicated but not Staked
- Natural Feature Limits - Valleylands and Significant Communities (Staked or Confirmed October 7, 2020)
- Staked Location
- Watercourse (Permanent)
- Waterbody
- Wetland, Provincially Significant
- Wetland, Not evaluated per OWES

ELC Legend

AG - Agriculture
CUM1 - Mineral Cultural Meadow Ecosite
CUP3 - Cultural Plantation Meadow Ecosite
CUW1 - Mineral Cultural Woodland Ecosite
FOD3-1 - Dry – Fresh Poplar Deciduous Forest Type
FOD7 - Fresh - Moist Lowland Deciduous Forest Ecosite
Golf Course - Golf Course
HR - Hedgerow
IND - Industrial or Commercial
MAM2-2 - Reed-canary Grass Mineral Meadow Marsh
MAS2-1 - Cattail Mineral Shallow Marsh
RES - Residence
SWT - Thicket Swamp

0 100 200 m

1:7,500 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2021.
3. Orthoimagery © First Base Solutions, 2021. Imagery Date, 2020.

Project Location
Regional Municipality of York

160961008-Time Stouffville REV4
Prepared by SW on 2021-08-18
Technical Review by DH on 2021-06-11

Client/Project
TIME GROUP - STOUFFVILLE

Figure No.
1

Title
Ecological Land Classification

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VASCULAR PLANT LIST - Times Group Stouffville - Whitchurch-Stouffville, Ontario

Plant Species Observed on June 8 and 22, 2020

SCIENTIFIC NAME	COMMON NAME	PROVINCIAL STATUS (S-RANK)	COEFFICIENT OF CONSERVATISM	COEFFICIENT OF WETNESS
GYMNOSPERMS (Conifers)				
Picea abies	Norway Spruce	SNA		5
Pinus strobus	Eastern White Pine	S5	4	3
Thuja occidentalis	Eastern White Cedar	S5	4	-3
ANGIOSPERMS (Dicots)				
Acer negundo	Manitoba Maple	S5	0	0
Acer platanoides	Norway Maple	SNA		5
Acer x freemanii	(Acer rubrum X Acer saccharinum)	SNA	6	-5
Aegopodium podagraria	Goutweed	SNA		0
Alliaria petiolata	Garlic Mustard	SNA		0
Anemonastrum canadense	Canada Anemone	S5	3	-3
Arctium minus	Common Burdock	SNA		3
Asclepias syriaca	Common Milkweed	S5	0	5
Betula papyrifera	Paper Birch	S5	2	3
Chelidonium majus	Greater Celandine	SNA		5
Circaea canadensis	Broad-leaved Enchanter's Nightshade	S5	2	3
Cirsium arvense	Canada Thistle	SNA		3
Cornus sericea	Red-osier Dogwood	S5	2	-3
Daucus carota	Wild Carrot	SNA		5
Echinocystis lobata	Wild Cucumber	S5	3	-3
Eutrochium maculatum	Spotted Joe Pye Weed	S5	3	-5
Fraxinus pennsylvanica	Red Ash	S4	3	-3
Geranium pratense	Meadow Geranium	SNA		5
Geum aleppicum	Yellow Avens	S5	2	0
Geum canadense	Canada Avens	S5	3	0
Glechoma hederacea	Ground-ivy	SNA		3
Hesperis matronalis	Dame's Rocket	SNA		3
Impatiens capensis	Spotted Jewelweed	S5	4	-3
Juglans nigra	Black Walnut	S4?	5	3
Laportea canadensis	Canada Wood Nettle	S5	6	-3
Leonurus cardiaca	Common Motherwort	SNA		5
Ligustrum vulgare	European Privet	SNA		3
Lonicera tatarica	Tatarian Honeysuckle	SNA		3
Medicago lupulina	Black Medick	SNA		3
Medicago sativa ssp. sativa	Alfalfa	SNA		5
Melilotus officinalis	Yellow Sweet-clover	SNA		3
Morus alba	White Mulberry	SNA		0

VASCULAR PLANT LIST - Times Group Stouffville - Whitchurch-Stouffville, Ontario

Plant Species Observed on June 8 and 22, 2020

SCIENTIFIC NAME	COMMON NAME	PROVINCIAL STATUS (S-RANK)	COEFFICIENT OF CONSERVATISM	COEFFICIENT OF WETNESS
Paeonia lactiflora	Chinese Peony	SNA		
Parthenocissus quinquefolia	Virginia Creeper	S4?	6	3
Philadelphus coronarius	European Mock-orange	SNA		5
Populus alba	White Poplar	SNA		5
Populus grandidentata	Large-toothed Aspen	S5	5	5
Populus tremuloides	Trembling Aspen	S5	2	0
Prunus virginiana	Chokecherry	S5	2	3
Ranunculus acris	Common Buttercup	SNA		0
Rhamnus cathartica	European Buckthorn	SNA		0
Rhus typhina	Staghorn Sumac	S5	1	3
Ribes americanum	American Black Currant	S5	4	-3
Robinia pseudoacacia	Black Locust	SNA		3
Rosa sp.	Rose species	SNA		
Rubus idaeus ssp. idaeus	European Red Raspberry	SNA		3
Salix Sp.	Willow species	SNA		
Solidago canadensis	Canada Goldenrod	S5	1	3
Spiraea alba	White Meadowsweet	S5	3	-3
Syringa vulgaris	Common Lilac	SNA		5
Tanacetum vulgare	Common Tansy	SNA		5
Taraxacum officinale	Common Dandelion	SNA		3
Tussilago farfara	Coltsfoot	SNA		3
Ulmus americana	White Elm	S5	3	-3
Urtica dioica	Stinging Nettle	S5	2	0
Viburnum lentago	Nannyberry	S5	4	0
Viburnum opulus ssp. opulus	Cranberry Viburnum	SNA		-3
Vicia cracca	Tufted Vetch	SNA		5
Vitis riparia	Riverbank Grape	S5	0	0
ANGIOSPERMS (Monocots)				
Allium schoenoprasum var. schoenoprasum	European Chives	SNA		0
Bromus inermis	Smooth Brome	SNA		5
Dactylis glomerata	Orchard Grass	SNA		3
Hemerocallis lilioasphodelus	Yellow Daylily	SNA		5
Iris pseudacorus	Yellow Iris	SNA		-5
Phalaris arundinacea var. arundinacea	Reed Canarygrass	S5	0	-3
Phragmites australis ssp. americanus	American Reed	S4?	5	-3
Polygonatum pubescens	Hairy Solomon's Seal	S5	5	5
Typha latifolia	Broad-leaved Cattail	S5	1	-5

VASCULAR PLANT LIST - Times Group Stouffville - Whitchurch-Stouffville, Ontario

Plant Species Observed on June 8 and 22, 2020

SCIENTIFIC NAME	COMMON NAME	PROVINCIAL STATUS (S-RANK)	COEFFICIENT OF CONSERVATISM	COEFFICIENT OF WETNESS
PTERIDOPHYTES				
Equisetum arvense	Field Horsetail	S5	0	0

FLORISTIC SUMMARY	TOTAL
Total Species	72
Native Species	33
Introduced (exotic) species	39
Species at Risk in Ontario (END, THR or SC)	0
Rare in Ontario (S1, S2 or S3)	0
Uncommon to common in Ontario (S4)	4
Common to very common in Ontario (S5)	29
Highly sensitive plant species with C value greater than 7	0
Wetland Plant Species (-5, -4 or -3)	17

Appendix D Breeding Birds Memo from Stantec

Stantec

Memo

To:	Dr. Derek Coleman	From:	Melissa Straus
	Ages Consultants Limited		Stantec Consulting Ltd.
File:	160961008	Date:	August 20, 2021

Reference: **Times Group Stouffville**
Breeding Bird Survey 2020

INTRODUCTION

Breeding bird surveys, including targeted surveys for grassland birds, took place at two Times Group properties (i.e., Subject Property) southwest of the York Regional Road 14 and Highway 48 intersection, located in Whitchurch-Stouffville, Ontario. Surveys were conducted on June 8 between 8:00 am and 10:00 am and on June 22 between 7:30 am and 10:00 am. Weather conditions of the June 8 survey had approximate temperatures of 21°C, with a wind of 7 km/hour (hr) (Beaufort scale: 1), and 10% cloud cover and no rain within the last 24 hours. The June 22 survey had approximate temperatures of 22°C, with a wind of 5 km/hr (Beaufort scale: 1), and 95% cloud cover and had rain within the previous 24 hours.

METHODS

General breeding bird surveys were conducted by traversing the subject property on foot, recording species of birds that were heard or seen. A conservative approach to determining breeding status was taken; all birds seen or heard in appropriate habitat during the breeding season were assumed to be breeding. Grassland breeding bird surveys included species-specific surveys comprised of walking a single transect and conducting a single point count (Figure 1, attached). Habitat assessments were also conducted, including a review of the abandoned onsite residence for structure-dependent species (e.g., Barn Swallow, Chimney Swift).

RESULTS

A complete list of birds observed (including scientific names) is appended (**Breeding Bird List, Attachment A**). In total, 32 species of birds were observed and 29 of which were likely to be breeding. Four species (European Starling, Savannah Sparrow, Song Sparrow, and Red-winged Blackbird) were confirmed breeding on the Subject Property and three are not expected to be breeding on the Subject Property, including Barn Swallow, Ring-billed Gull and Great Blue Heron (all flyovers).

Four (4) species of birds were observed breeding or potentially breeding in the onsite Provincially Significant Wetland adjacent to and west of Highway 48. These were Song Sparrow, Red-winged Blackbird, Blue Jay and Black-capped Chickadee.

Two Species at Risk (SAR), Bobolink and Barn Swallow, were documented during breeding bird surveys. SAR include those designated as Threatened or Endangered and are protected by the *Endangered Species Act* (ESA) (2007). Bobolink occurrences are identified on the associated map (**Figure 1, Attachment B)**. Barn Swallow are not considered to be breeding on site, only evidence of foraging was documented. Bobolink are discussed below.

Reference: **Times Group Stouffville**
Breeding Bird Survey 2020

BOBOLINK

The Bobolink is ranked as S4B provincially (apparently secure) and is a provincially and federally Threatened species. This species is defined as a SAR and afforded general habitat protection under the ESA. The Bobolink is generally referred to as a "grassland species". It nests primarily in forage crops with a mixture of grasses and broad-leaved forbs, predominantly hayfields and pastures. Preferred ground cover species include grasses such as Timothy (*Phleum pratense*) and Kentucky Bluegrass (*Poa pratensis*) and forbs such as clover (*Medicago* and *Trifolium* species) and dandelion (*Taraxacum officinale*) (COSEWIC 2010). Bobolink is an area-sensitive species, with reported lower reproductive success in small habitat fragments (Kuehl and Clark 2002; Winter et al. 2004).

Bobolink occurrences were noted within the western portion of the property, associated with Willowgrove Creek. The results of the vegetation survey in this area documented a low-lying meadow marsh dominated by reed-canary grass (*Phalaris arundinacea*) along Willowgrove Creek adjacent to a mid-slope cultural meadow dominated by awnless brome (*Bormus inermis*) with goldenrods (*Solidago* spp.) and Canada anemone (*Anemonastrum canadense*). The habitat assessment documented 85% coverage of tall grasses and 15% of forbs. Alteration to the meadow or meadow marsh grassy habitat, determined to be supporting breeding Bobolinks, is not permitted under the ESA without additional consideration.

CLOSING

Breeding bird and grassland breeding bird surveys were conducted on the Times Group Stouffville properties, located at the corner of York Regional Road 14 and Highway 48 intersection in Stouffville – Whitchurch, Ontario. Surveys documented one protected species, Bobolink, nesting within the meadow marsh and cultural meadow associated with Willowgrove Creek, within the western portion of the Subject Property. It is our understanding that the onsite Bobolink habitat will be protected, in accordance with the *Endangered Species Act* (2007).

Stantec Consulting Ltd.

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Attachments: Attachment A - Breeding Bird List
Attachment B - Figure 1: Breeding Bird Surveys

Reference: **Times Group Stouffville**
Breeding Bird Survey 2020

REFERENCES

Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage and A.R. Couturier (eds). 2007. Atlas of the Breeding Birds of Ontario 2001- 2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto. 706 pp.

COSEWIC. 2010. COSEWIC assessment and status report on the Bobolink *Dolichonyx oryzivorus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. Vi + 42pp.

Kuehl, A.K., and W.R.Clark. 2002. Predator activity related to landscape features in northern Iowa. Journal of Wildlife Management 66: 1224-1234.

Ministry of Natural Resources (MNR). 2012. Bobolink Survey Methodology. Guelph MNR District.

Winter, M., D.H. Johnson, J.A. Shaffer, and W.D. Svedarsky. 2004. Nesting biology of three grassland passerines in the northern tallgrass prairie. Wilson Bulletin 116:211-223.

Attachment A

Breeding Bird List

Wildlife List

COMMON NAME	*SCIENTIFIC NAME*	ONTARIO STATUS	GLOBAL STATUS	SARO	SARA
BIRDS					
Mourning Dove	*Zenaida macroura*	S5	G5		
Killdeer	*Charadrius vociferus*	S5B, S5N	G5		
Spotted Sandpiper	*Actitis macularia*	S5	G5		
Ring-billed Gull	*Larus delawarensis*	S5B,S4N	G5		
Great Blue Heron	*Ardea herodias*	S5	G5		
Red-tailed Hawk	*Buteo jamaicensis*	S5	G5	NAR	NAR
Willow Flycatcher	*Empidonax traillii*	S5B	G5		
Eastern Kingbird	*Tyrannus tyrannus*	S4B	G5		
Warbling Vireo	*Vireo gilvus*	S5B	G5		
Red-eyed Vireo	*Vireo olivaceus*	S5B	G5		
Blue Jay	*Cyanocitta cristata*	S5	G5		
American Crow	*Corvus brachyrhynchos*	S5B	G5		
Horned Lark	*Eremophila alpestris*	S5B	G5		
Barn Swallow	*Hirundo rustica*	S4B	G5	THR	THR
Black-capped Chickadee	*Poecile atricapillus*	S5	G5		
American Robin	*Turdus migratorius*	S5B	G5		
Gray Catbird	*Dumetella carolinensis*	S4B	G5		
European Starling	*Sturnus vulgaris*	SNA	G5		
Cedar Waxwing	*Bombycilla cedrorum*	S5B	G5		
American Goldfinch	*Spinus tristis*	S5B	G5		
Chipping Sparrow	*Spizella passerina*	S5B	G5		
Clay-colored Sparrow	*Spizella pallida*	S4B	G5		
Field Sparrow	*Spizella pusilla*	S4B	G5		
Savannah Sparrow	*Passerculus sandwichensis*	S4B	G5		
Song Sparrow	*Melospiza melodia*	S5B	G5		
Bobolink	*Dolichonyx oryzivorus*	S4B	G5	THR	THR
Baltimore Oriole	*Icterus galbula*	S4B	G5		
Red-winged Blackbird	*Agelaius phoeniceus*	S4	G5		
Brown-headed Cowbird	*Molothrus ater*	S4B	G5		
Common Yellowthroat	*Geothlypis trichas*	S5B	G5		
Yellow Warbler	*Setophaga petechia*	S5B	G5		
Northern Cardinal	*Cardinalis cardinalis*	S5	G5		

SUMMARY

Total number of Birds: 32
Total Breeding Birds: 29

Explanation of Status and Acronymns

COSSARO: Committee on the Status of Species at Risk in Ontario
COSEWIC: Committee on the Status of Endangered Wildlife in Canada
REGION: Rare in a Site Region
S1: Critically Imperiled—Critically imperiled in the province (often 5 or fewer occurrences)
S2: Imperiled—Imperiled in the province, very few populations (often 20 or fewer),
S3: Vulnerable—Vulnerable in the province, relatively few populations (often 80 or fewer)
S4: Apparently Secure—Uncommon but not rare
S5: Secure—Common, widespread, and abundant in the province
SX: Presumed extirpated
SH: Possibly Extirpated (Historical)
SNR: Unranked
SU: Unrankable—Currently unrankable due to lack of information
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
S#B- Breeding status rank
S#N- Non Breeding status rank
?: Indicates uncertainty in the assigned rank
G1: Extremely rare globally; usually fewer than 5 occurrences in the overall range
G1G2: Extremely rare to very rare globally
G2: Very rare globally; usually between 5-10 occurrences in the overall range
G2G3: Very rare to uncommon globally
G3: Rare to uncommon globally; usually between 20-100 occurrences
G3G4: Rare to common globally
G4: Common globally; usually more than 100 occurrences in the overall range
G4G5: Common to very common globally
G5: Very common globally; demonstrably secure
GU: Status uncertain, often because of low search effort or cryptic nature of the species; more data needed.
GNR: Unranked—Global rank not yet assessed.
T: Denotes that the rank applies to a subspecies or variety
Q: Denotes that the taxonomic status of the species, subspecies, or variety is **questionable**.
END: Endangered
THR: Threatened
SC: Special Concern
NAR: Not At Risk

Attachment B

Figure 1: Breeding Bird Surveys

Legend

- Study Area (120 m)
- Study Area
- Breeding Bird Point Count Station
- Clay-colored Sparrow, 6/8/2020
- Clay-colored Sparrow, 6/22/2020
- Grassland Breeding Bird Transect

Bobolink Observations

- Male, 6/8/2020
- Male, 6/22/2020
- Female, 6/22/2020

0 100 200 m

1:7,500 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
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3. Imagery Source: © First Base Solutions, 2020. Imagery Date: 2019.

Ages Consultants Limited

February, 2021
160961008 - Stouffville

Client/Project

Time Group - Stouffville

Figure No.

1

Title

Breeding Bird Surveys

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Revised: 2021-02-18 By: swen

Appendix E Calling Amphibians Memo from Stantec

Stantec

Memo

To:	Dr. Derek Coleman Ages Consultants Limited	From:	Melissa Straus Stantec Consulting Ltd.
File:	160961008	Date:	August 18, 2021

Reference: Times Group Stouffville, Amphibian Surveys

INTRODUCTION

Amphibian call count surveys were conducted at two Times Group properties southwest of the York Regional Road 14 and Highway 48 intersection, located near Whitchurch-Stouffville, Ontario.

METHODS

Surveys were conducted in accordance with the Marsh Monitoring Program (Bird Studies Canada, 2009) and consisted of five call stations as shown on **Figure 1 (attached)**. Each survey station area is a 100 m radius semicircle with each survey consisting of a surveyor standing at the edge of the station and listening, recording calling toads and frogs over a three-minute time period. Surveys are conducted 30 minutes after sunset and conclude by midnight. Call levels are described using values of 1, 2, or 3. Level 1 indicates that individuals can be counted, and calls are not simultaneous. Level 2 indicates that calls are distinguishable with some simultaneous calling. Level 3 indicates a full chorus where calls are continuous and overlapping (Bird Studies Canada, 2009). Calling toad or frog species from outside of the survey station, or those heard off property, are also recorded.

Although calling amphibian surveys are typically completed once in each of the months of April, May, and June to cover the full range of calling amphibians, surveys on the Subject Property were not conducted in April. However, surveys were completed on May 28 and June 25, 2020.

RESULTS

Weather conditions for the surveys conducted in 2020 are provided in Table 1.

Table 1: Survey Timing and Weather Parameters of Amphibian Surveys conducted at Times Group Stouffville

SURVEY	DATE/TIME	WEATHER				SURVEYORS
		Temp. °C	Wind (Beaufort Scale)	Cloud %	PPT / PPT last 24 hours	
1	May 28 21:20 – 23:31	20	2	100	None / Rain	M. Straus J. Brooks
2	June 25 21:48 – 23:33	17	0	0	None / None	M. Straus T. Cooke-Brown

Reference: Times Group Stouffville, Amphibian Surveys

Calling amphibians were documented only at Station 3 during the May visit, all recorded outside the Subject Property. Two Gray Treefrogs were observed to the north within the Golf Course pond, and one Green Frog to the south, on the adjacent farm property. Stations 4 and 5 had poor audibility due to traffic, which may have hindered observations.

CLOSING

Amphibian call counts were conducted in May and June 2020 on the Times Group Stouffville Subject Property. One station, Station 3, located along Willowgrove Creek, identified calling amphibians to the north and to the south, both outside of the Subject Property.

Stantec Consulting Ltd.

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Attachment: Figure 1: Amphibian Stations

REFERENCES

Bird Studies Canada. 2009. Marsh Monitoring Program Participant's Handbook for Surveying Amphibians. 2009 Edition. 13 pages. Published by Bird Studies Canada in cooperation with Environment Canada and the U.S. Environmental Protection Agency. February 2009.

636000 637000 638000

4869000

4868000

Mccowan Road

Mccowan Lane

Stouffville Road

Fockler Lane

Main Street

Highway 48

Hoover Park Drive

Sams Way

AMP01

AMP02

AMP03

AMP04

AMP05

0 50 100 m

1:7,500

Legend

- Amphibian Call Count Station
- Study Area (120 m)
- Study Area

0 100 200 m

1:7,500 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
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February, 2021
160961008 - Stouffville

Client/Project

Time Group - Stouffville

Figure No.

1

Title

Amphibian Stations

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Revised: 2021-02-12 By: swen

Appendix F Wetland Quality Consultation

DRAFT - TECHNICAL MEMORANDUM

To:	Times 4750 Inc.	From:	Julie Snow
Cc:	Shelley Lohnes	Date:	August 31, 2022
File:	2303093		

Re: Wetland Quality Consultation, 5061 Stouffville Road, Town of Whitchurch-Stouffville, On

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GEI Consultants (GEI) has been retained by Times 4750 Inc. to review previously collected materials and provide an independent assessment of the quality of the wetland feature located in the northeastern corner of their property at 5061 Stouffville Road, Town of Whitchurch-Stouffville, Ontario (Henceforth referred to as the wetland of interest). This wetland is currently designated by the Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF) as a small component of the Little Rouge Creek at Stouffville Provincially Significant Wetland (PSW) Complex. Typically, PSW's are protected from development and a 30m buffer to development is applied.

GEI reviewed the previously prepared ecological technical memos (Stantec 2021a, 2021b & 2021c) and completed an independent background information review and field investigation of the wetland of interest. The results of these reviews and field investigation are presented herein as well as GEI's assessment of the overall quality of this feature.

In addition, GEI has considered the merits of the proposed removal and replication of this wetland and offer a professional opinion in this regard within the Conclusions section of this letter.

METHODS

Background Information Review

The following resources were reviewed for information relating to natural features and species that may be found within the wetland of interest:

- Aerial imagery;
- Land Information Ontario (LIO) database (2022);
- Natural Heritage Information Centre (NHIC) database;
- Ontario Breeding Bird Atlas (2006);
- Ontario Reptile and Amphibian Atlas (2019)
- Ontario Butterfly and Moth Atlases (2022a, 2022b)
- eBird (2022);
- iNaturalist (2022); and,
- Aquatic SAR distribution maps (2022).

Field Investigations

GEI completed a site visit on August 30, 2022, in order to confirm the conditions onsite. Ecological Land Classification (ELC) and a botanical inventory were undertaken. Vegetation communities were first identified via the Ecological Land Classification and Botanical Inventory Memorandum (Stantec 2021a) then verified in the field. Vegetation community types were confirmed, sampled and revised, if necessary, using the sampling protocol of the ELC for Southern Ontario (Lee at al. 1998). Species names generally follow nomenclature from the Database of Vascular Plants of Canada (Brouillet et al. 2010+).

The provincial status of all plant species and vegetation communities is based on NHIC (2022). Identification of potentially sensitive native plant species is based on their assigned coefficient of conservatism (CC) value, as determined by Oldham et al. (1995). This CC value, ranging from 0 (low) to 10 (high), is based on a species tolerance of disturbance and fidelity to a specific natural habitat. Species with a low CC value tend to have little or no fidelity to pristine or unique natural ecosystems and can be found in a variety of natural or anthropogenic habitats. Species with a CC value of 9 or 10 are potentially sensitive as they tend to have a consistent fidelity to high-quality or unique ecosystems.

RESULTS

Background Information Review

The background information review identified records of eight amphibians, 94 birds, 26 butterflies, one fish, eight moths and seven reptiles. The wildlife atlases utilize 100 km^2 area squares with one square overlapping the wetland of interest (17PJ36). While the NHIC database provides occurrence data utilizing 1 km^2 area squares, with a single square overlapping the wetland of interest (i.e., 17PJ3769). Since the wetland of interest represents only a small component of the overall atlas square; it is unlikely that all species identified would be found within the Subject Lands. Habitat type, availability and size are all contributing factors in species presence and use.

A total of 144 species were recorded from background sources in the vicinity of the wetland of interest, with the following species of interest noted:

Species listed as Threatened or Endangered on the SARO list:

- Bank Swallow (*Riparia riparia*) – Designated as Threatened in Ontario;
- Barn Swallow (*Hirundo rustica*) – Designated as Threatened in Ontario;
- Bobolink (*Dolichonyx oryzivorus*) – Designated as Threatened in Ontario;
- Chimney Swift (*Chaetura pelagica*) – Designated as Threatened in Ontario;
- Eastern Meadowlark (*Sturnella magna*) – Designated as Threatened in Ontario;
- Redside Dace (*Clinostomus elongatus*) – Designated as Endangered in Ontario; and,
- Blanding's Turtle (*Emydoidea blandingi*) – Designated as Threatened in Ontario.

Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):

- Blue-winged Teal (*Anas discors*) – Listed as S3B, S4M;
- Eastern Wood-Pewee (*Contopus virens*) – Designated as Special Concern in Ontario;

- Wood Thrush (*Hylocichla mustelina*) – Designated as Special Concern in Ontario;
- Monarch (*Danaus plexippus*) – Designated as Special Concern in Ontario;
- Walnut Caterpillar Moth (*Datana integerrima*) – Listed as S3S4;
- White-lined Sphinx (*Hyles lineata*) – Listed as S2B,S4M; and,
- Snapping Turtle (*Chelydra serpentina*) – Designated as Special Concern in Ontario.

Field Investigations: Ecological Land Classification

The wetland of interest is a small flattened bottomland feature that is located immediately west of Highway 48, south of Stouffville Road and east of an exisiting agricultural field. A well-defined drainage ditch runs parallel to Highway 48 (i.e., north-south) along the eastern edge of the feature; however, this was dry at the time of field investigation. Another more poorly defined drainage feature ran east-west, along the top of the feature; most of this feature was also dry with the exception of one small, ponded area. Within the wetland, no culverts were noted which would convey flows between the wetland of interest to the larger PSW present on the east side of Highway 48. Furthermore, no visual evidence of groundwater flows (i.e., seeps or springs) were noted. Overall, the wetland was dry and its only apparent source of water would be overland flows from highway 48 and from the disturbed feature immediately north of the wetland.

GEI confirmed that Reed Canary Mineral Meadow Marsh (MAM2-2) is an appropriate vegetation type for the feature. Though it was noted that small patches of Cattails (*Typha sp.*) and Common Reed (*Phragmites australis ssp. australis*) were also present. The community lacked a defined canopy and subcanopy, though a few scattered shrubs were present in the understory. Shrubs present included Red-osier Dogwood (*Cornus sericea*), Cottony Willow (*Salix eriocephala*), Pussy Willow (*Salix discolor*). The ground layer was the dominant vegetation form within the community and consisted of Reed Canary Grass (*Phalaris arundinacea var. arundinacea*) with Tall Goldenrod (*Solidago altissima var. altissima*) Canada Goldenrod (*Solidago canadensis*) and Purple Loosestrife (*Lythrum salicaria*).

No provincially rare vegetation communities were present (NHIC, 2022).

Field Investigations: Botanical Inventory

Botanical inventory completed within the wetland of interest identified a total of 27 species of vascular plants. Of that number, 16 (59%) are native and 11 (41%) are exotic. A full species list is included in **Table 1** (**Appendix A**)**.**

The native species observed are ranked as either S5 (secure in Ontario) or S4 (apparently secure in Ontario; NHIC, 2021). No SAR plants or provincially rare species (i.e., ranked S1-S3) were present. A single regionally rare plant, Spotted St. John's-wort (*Hypericum punctatum*) was observed. This species is considered regionally rare as per the York Region rarity rankings (Varga et al. 2005); however, it is not considered rare in Ontario. Furthermore, none of the species recorded from the Subject Lands had a co-efficient of conservatism value of 9 or 10.

Field Investigations: Invasive Species

Invasive species are those that can become (or presently are) a serious problem within a defined location. These species reproduce and spread aggressively, reducing the local biodiversity and threatening ecological function. Depending on existing conditions, some invasive species can outcompete all other species.

Urban Forest Associates (2002) provides a categorical ranking system for species known to be invasive in southern Ontario. Of the 27 species observed on the Subject Lands, four are ranked as Category 1 by Urban Forest Associates.

Category 1 species are deemed to be the most invasive and can dominate a site to exclude all other species, remaining dominant on the site indefinitely. These are a threat to natural areas wherever they occur because they have very effective reproduction and dispersal mechanisms, allowing them to move long distances. These are regarded as a top priority for control, where eradication and follow-up monitoring are often necessary to ensure its effective removal, where sought. The four Category 1 species observed on the Subject Lands are:

- Canada Thistle (*Cirsium arvense*);
- Purple Loosestrife (*Lythrum salic*aria);
- European Buckthorn (*Rhamnus cathartica*); and,
- Common Reed.

Field Investigations: Incidental Wildlife Observations

Only a single species, Yellow Garden Orbweaver (*Argiope aurantia*), was observed incidentally during GEI's field investigation. This species is ranked a S5 (secure) in Ontario.

Results of Field Investigations Completed by Others

Stantec completed amphibian calling surveys, ELC and made incidental observations of birds within the wetland of interest during surveys in 2020. No amphibians were heard calling within the wetland; though it is acknowledged that the early spring (i.e., April) amphibian calling survey was not completed. Regardless, these results support the conclusion that the feature does not provide amphibian wetland breeding habitat. Four species of birds were observed potentially breeding within the wetland of interest. These included Song Sparrow (*Melospiza melodia*), Red-winged Blackbird (*Agelaius phoeniceus*), Blue Jay (*Cyanocitta cristata*) and Black-capped Chickadee (*Poecile atricapillus*). All of which are ranked a S5 (secure) in Ontario. No SAR were identified by Stantec within the wetland of interest.

ANALYSIS

Aerial Imagery

Aerial images of the wetland of interest and surrounding area are available through the York Region Land Information Portal. Prior to 1970, Highway 48 was straight and formed a standard "T" intersection with Stouffville Road. At this time, Highway 48, a paved area, and active agricultural fields were in place over and around the area where the wetland of interest is now present (Refer to **Figure 1**). Following

realignment of Highway 48, these formerly disturbed areas became the wetland of interest. It is assumed that this wetland formed due to anthropogenic changes to local drainage (i.e., associated with the highway realignment) as well as changes in land use (stopped being actively farmed).

Figure 1: Aerial Imagery (1954) from York Region Land Information Portal

Habitat for Endangered and Threatened Species

No habitat for Endangered and/or Threatened Species is present within the wetland of interest. **Table 1** (below) discusses the potential for endangered and threatened SAR and SAR habitat, based on the species identified through the background information review.

Table 1: Preliminary Species at Risk Habitat Assessment

Species Name	SARO Ranking	Habitat Preferences	Habitat Potential within the wetland of interest
Bank Swallow	Threatened	Vertical cliffs or banks along natural bluffs or eroding streamside banks	No – suitable habitat is not present.
Barn Swallow	Threatened	Nests in anthropogenic structures (barns, sheds, bridges etc.).	No – suitable habitat is not present.
Bobolink	Threatened	Tall grasslands, undercut pastures, overgrown fields and meadows.	No – suitable habitat is not present.

Species Name	SARO Ranking	Habitat Preferences	Habitat Potential within the wetland of interest
Chimney Swift	Threatened	Nest within chimneys and on other vertical surfaces.	No – suitable habitat is not present.
Eastern Meadowlark	Threatened	Tall grasslands, undercut pastures, overgrown fields and meadows.	No – suitable habitat is not present.
Redside Dace	Endangered	Redside Dace are found in pools and slow-moving areas of small streams and headwaters with gravel substrates.	No – suitable habitat is not present within the wetland of interest. The watercourse that bisects the Highway 48 and Stouffville Road intersection from the Golf course (northwest) to the larger PSW complex (Southeast) is the mapped habitat of Redside Dace.
Blanding's Turtle	Threatened	Large wetlands and shallow lakes with abundant aquatic vegetation.	No – suitable habitat is not present as the wetland lacks open water.

Significant Wildlife Habitat
Due to its small size, lack of open water, and lack of connection to other watercourses or the larger PSW east of Highway 48, the wetland of interest has limited capacity to support wildlife and was not found to provide any confirmed or candidate SWH.

Comparison to OWES Characteristics
The wetland of interest is considered a PSW, likely due to its proximity of other PSW features (i.e., the larger PSW on the eastside of Highway 48). However, the wetland of interest appears to lack the high-quality features typical of a PSW. Generally speaking, wetlands are evaluated considering a number of factors and are assigned an overall score, wherein higher scores are indicative of a better or higher quality wetlands.

A high-level comparison of the wetland of interest's characteristics to the Wetland Evaluation Data and Scoring Record in the Ontario Wetland Evaluation System Southern Manual (MNRF 2013) was undertaken. Characteristics of the wetland of interest that indicated low quality (i.e., low score) are noted below.

Section 1.0 Biological Component

- Section 1.1.2, 1.1.3, 1.2.1, 1.2.2 and 1.2.3: The wetland of interest is an isolated wetland, composed of a single wetland type and single site type. As well, it has an overall low biodiversity of vegetation communities and surrounding vegetation habitat.

- Section 1.2.4: The wetland of interest does not appear to be hydrologically connected to other wetlands by a surface water connection
- Section 1.2.5: Based on the lack of adjacently to other wetland types, the wetland of interest is expected have a low number of interspersions.
- Section 1.2.6: The wetland of interest exhibits no open water

Section 2.0 Social Component

- Section 2.1.1, 2.1.2, 2.1.3, 2.1.4: The wetland of interest would not provide wood products, wild rice, or commercial fish, or furbearers.
- Section 2.2: The wetland of interest does not appear to provide opportunities for recreational use (i.e., hunting fishing, or nature enjoyment).
- Section 2.3.1: The wetland of interest is not distinct on the landscape.
- Section 2.3.2: The wetland of interest exhibits high level of human disturbance.
- Section 2.4.1, 2.4.2: The wetland of interest is considered unlikely to support educational uses nor is it associated with facilities or programs.
- Section 2.6: The wetland of interest is under private ownership.

Section 3.0 Hydrological Component

- Section 3.2.1: As an isolated wetland, the wetland of interest would score low in the short-term water quality improvement category.
- Section 3.2.2: The wetland of interest would score low in the long-term nutrient trap category.
- Section 3.2.2: The wetland of interest would score low in the potential for groundwater discharge category.
- Section 3.3: The wetland of interest would score low in the carbon sink category.

Section 4.0 Special Features Components

- Section 4.1.1: Based on wetland type, the wetland of interest is not considered rare in the ecodistrict.
- Section 4.1.2: The wetland of interest does not provide habitat for threatened, endangered, or provincially significant species.
- Section 4.2: The wetland of interest does not provide significant features and habitats.
- Section 4.3: Based on wetland type, the wetland of interest would not score highly in the ecosystem age category.

CONCLUIONS

The wetland of interest is considered to be of low quality and provides little function as wetland in its current condition. It is also noted by have been created by anthropogenic disturbance, as note via aerial imagery analyses.

Based on field investigations completed within and around the wetland of interest, it does not provide

habitat for high quality habitat wetland plants or wildlife; nor is currently capable of supporting SWH or SAR habitats. It does not appear to provide the typical ecosystem services expected of a wetland (i.e., water retention, water quality improvements, nutrient trapping, carbon sinks or groundwater recharge/discharge functions). Nor is the wetland providing a social benefit to the local community in its current condition.

GEI has considered the proposal by Times 4750 Inc. to remove and replicate this wetland within the proposed Willow Grove Creek Corridor. The proposed compensation wetland is expected to both increase overall wetland cover and improve the quality of available wetlands on the landscape, in comparison to the existing feature proposed for removal.

The proposed compensation wetland is twice the size of the existing feature which will result in a net increase in overall wetland area. As well, it will be constructed in a manner that will improve its function and quality. These improvements are expected to include:

- improved capacity to retain water;
- connection to an established water source (ie., stormwater management pond);
- installation of native wetland plants; and,
- installation of habitat feature (i.e., basking logs, sand shoals and boulder clusters) which will support use by wildlife.

These factors are expected to result in a net increase in overall wetland quality. As well, the proposed compensation wetland has included a proposed trail system. This trail system will provide a key linkage to the future Applewood Cidery, which is envisioned to be a major destination within the Town. As such, the proposed compensation wetland will provide a social benefit to the community by providing opportunities for recreational use and appreciation.

Finally, the proposed compensation wetland would be protected from future developments. For example, the existing wetland is expected to be impacted by the future urbanization of Highway 48 (i.e., with curbs, bike lanes, sidewalks, etc.). These improvements are considered likely to encroach on the existing wetland, further impacting both its size and viability.

It is GEI's opinion that relocation of the wetland will result in net overall benefits for the hydrological, biological and social environments.

REFERENCES

Brouillet, L., F. Coursol, S.J. Meades, M. Favreau, M. Anions, P. Bélisle & P. Desmet 2010+. VASCAN, the Database of Vascular Plants of Canada. http://data.canadensys.net/vascan/

Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Courturier (eds.) 2007. Atlas of the breeding birds of Ontario, 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706 pp.

Department of Fisheries and Oceans (DFO). 2022 Aquatic species at risk mapping https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html

eBird. 2022. Explore Hotspots. Available online at: https://ebird.org/explore

iNaturalist. 2022. Explore Observations. Available Online at https://www.inaturalist.org/observations

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray 1998. Ecological land classification for Southern Ontario: first approximation and its application. Ontario Ministry of Natural Resources, South Central Region, Science Development and Transfer Branch. Technical Manual ELC-005.

Ministry of Natural Resources and Forestery (MNRF). 2013. Ontario Wetland Evaluation System Southern Manual. 3rd Edition, Version 3.2.

Natural History Information Centre (NHIC) 2022. Database. https://www.ontario.ca/page/get-natural-heritage-information.

Oldham, M.J., W.D. Bakowsky and D.A. Sutherland. 1995. Floristic quality assessment for southern Ontario. OMNR, Natural Heritage Information Centre, Peterborough. 68 pp.

Ontario Nature. 2019. Ontario Reptile and Amphibian Atlas. Available Online: https://www.ontarioinsects.org/herp/

Stantec. 2021a. Ecological Land Classification and Botanical Inventory of Time Group Stouffville. Prepared for Ages Consultants Ltd. August 20, 2021

Stantec. 2021b. Time Group Stouffville, Breeding Bird Survey 2020. Prepared for Ages Consultants Ltd. August 20, 2021

Stantec. 2021c. Time Group Stouffville, Amphibian Surveys. Prepared for Ages Consultants Ltd. August 20, 2021

Toronto Entomologists' Association (TEA). 2022. Ontairo Butterfly Atlas. Available Online at: https://www.ontarioinsects.org/atlas/

Toronto Entomologists' Association (TEA). 2022. Ontario Moth Atlas. Available Online at: https://www.ontarioinsects.org/moth/

Urban Forest Associates Inc. 2002. Invasive Exotic Species Ranking for Southern Ontario. 7pp.

Varga, S., editor. 2005. Distribution and status of the vascular plants of the Greater Toronto Area. Ontario Ministry of Natural Resources, Aurora District. 96 pp.

York Region. No Date. Land Information Portal. Available online: https://maps.york.ca/Html5ViewerPublic/Index.html?viewer=LandInformation.YorkMaps. Accessed August 30, 2022.

Appendix A

Plant List

GEI

Table 1: Master Plant List

ORDER	FAMILY	LATIN NAME	COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	OWES WETLAND SPECIES	WEEDINESS INDEX	INVASIVE EXOTIC RANK (Urban Forest Associates 2002)	PROVINCIAL STATUS (S-RANK)	GLOBAL STATUS (G-RANK)	COSSARO (MNRF)	COSEWIC STATUS		TRCA (TRCA April 2016)	YORK (Varga 2005)	MAM2-2
DICOTYLEDONS	Apiaceae	Daucus carota	Wild Carrot		5		-2		SNA	GNR				L+	X	x
DICOTYLEDONS	Asteraceae	Cirsium arvense	Canada Thistle		3		-1	1	SNA	GNR				L+	X	x
DICOTYLEDONS	Asteraceae	Euthamia graminifolia	Grass-Leaved Goldenrod	2	0				S5	G5				L5	X	x
DICOTYLEDONS	Asteraceae	Solidago altissima var. altissima	Tall Goldenrod	1	3				S5	GNR				L5	X	x
DICOTYLEDONS	Asteraceae	Solidago canadensis	Canada Goldenrod	1	3				S5	G5T5					X	x
DICOTYLEDONS	Asteraceae	Sonchus arvensis ssp. arvensis	Field Sow-Thistle		3				SNA	GNR				L+	X	x
DICOTYLEDONS	Asteraceae	Symphyotrichum ericoides var. ericoides	White Heath Aster	4	3				S5	G5T5				L5	X	x
DICOTYLEDONS	Asteraceae	Symphyotrichum lanceolatum	Panicled Aster	3	-3	I			S5	G5				L5	X	x
DICOTYLEDONS	Asteraceae	Symphyotrichum novae-angliae	New England Aster	2	-3				S5	G5				L5	X	x
DICOTYLEDONS	Asteraceae	Tanacetum vulgare	Common Tansy		5		-1	3	SNA	GNR				L+	X	x
DICOTYLEDONS	Asteraceae	Taraxacum officinale	Common Dandelion		3		-2		SNA	G5				L+	X	x
DICOTYLEDONS	Cornaceae	Cornus sericea	Red-Osier Dogwood	2	-3	I*			S5	G5				L5	X	x
DICOTYLEDONS	Fabaceae	Vicia cracca	Tufted Vetch		5		-1	2	SNA	GNR				L+	X	x
DICOTYLEDONS	Hypericaceae	Hypericum punctatum	Spotted St. John's-Wort	5	0	T			S5	G5				L3	R2	x
DICOTYLEDONS	Lythraceae	Lythrum salicaria	Purple Loosestrife		-5	I	-3	1	SNA	G5				L+	X	x
DICOTYLEDONS	Oleaceae	Fraxinus americana	White Ash	4	3				S4	G5				L5	X	x
DICOTYLEDONS	Rhamnaceae	Rhamnus cathartica	European Buckthorn		0	T	-3	1	SNA	GNR				L+	X	x
DICOTYLEDONS	Salicaceae	Salix bebbiana	Bebb's Willow	4	-3	I			S5	G5				L4	X	x
DICOTYLEDONS	Salicaceae	Salix discolor	Pussy Willow	3	-3	I			S5	G5				L4	X	x
DICOTYLEDONS	Salicaceae	Salix eriocephala	Cottony Willow	4	-3	T			S5	G5				L5	X	x
MONOCOTYLEDONS	Cyperaceae	Carex vulpinoidea	Fox Sedge	3	-5	I			S5	G5				L5	X	x
MONOCOTYLEDONS	Poaceae	Phalaris arundinacea var. arundinacea	Reed Canary Grass	0	-3	T		P	S5	GNR				L+?	X	x
MONOCOTYLEDONS	Poaceae	Phragmites australis ssp. australis	European Reed		-3	T		1	SNA	G5T5				L+	X	x
MONOCOTYLEDONS	Typhaceae	Typha angustifolia	Narrow-Leaved Cattail		-5	I		P	SNA	G5				L+	X	x
MONOCOTYLEDONS	Typhaceae	Typha latifolia	Broad-Leaved Cattail	1	-5	I			S5	G5				L4	X	x
MONOCOTYLEDONS	Typhaceae	Typha x glauca	Blue Cattail		-5	I		P	SNA	GNA				L+	X	x
PTERIDOPHYTES	Equisetaceae	Equisetum arvense	Field Horsetail	0	0	T			S5	G5				L5	X	x

STATISTICS		
Species Diversity		
Total Number of Species:	27	
Native Species:	16	59%
Exotic Species:	11	41%
S1-S3 Species:	0	0%
S4 Species:	1	6%
S5 Species:	15	94%
Floristic Quality Assessment (FQA)		
Mean Co-efficient of Conservatism (CC)	2.4	
CC 0 - 3 = lowest sensitivity	11	69%
CC 4 - 6 = moderate sensitivity	5	31%
CC 7 - 8 = high sensitivity	0	0%
CC 9 - 10 = highest sensitivity	0	0%
Floristic Quality Index (FQI)	10	
Weedy & Invasive Species		
Mean Weediness Index (Oldham et al):	-1.9	
-1 = low potential invasiveness	3	27%
-2 = moderate potential invasiveness	2	18%
-3 = high potential invasivenss	2	18%
Mean Exotic Rank (Urban Forest Associates):	2	
Category 1	4	36%
Category 2	1	9%
Category 3	1	9%
Category 4	0	0%
Potentially Invasive (P)	3	27%
Wetland Species		
Mean Wetness Index	-0.5	
Upland	3	11%
Facultative upland	7	26%
Facultative	4	15%
Facultative wetland	8	30%
Obligate wetland	5	19%

Appendix G OWES Re-evaluation

Szabo, Agneta

From: Wetlands (MNRF) <Wetlands@ontario.ca>
Sent: January 23, 2024 1:47 PM
To: Szabo, Agneta
Subject: [EXT] RE: Little Rouge Creek at Stouffville Wetland Complex - OWES Mapping & Wetland Status Update

EXTERNAL EMAIL

This email is to acknowledge receipt of the wetland evaluation information you have forwarded to the Ministry.

If there is an issue with the integrity of the file, the Ministry will follow-up with you. Otherwise, the information will be included into the provincial wetland data class which can be accessed at https://geohub.lio.gov.on.ca/datasets/mnrf::wetlands/about.

Please Note: As part of providing accessible customer service please let me know if you have any accommodation needs or require communication supports or alternate formats

From: Szabo, Agneta <aszabo@geiconsultants.com>
Sent: January 22, 2024 4:28 PM
To: Wetlands (MNRF) <Wetlands@ontario.ca>
Cc: Leslie, James <jleslie@geiconsultants.com>; Lohnes, Shelley <slohnes@geiconsultants.com>
Subject: Little Rouge Creek at Stouffville Wetland Complex - OWES Mapping & Wetland Status Update

Good afternoon.

Per the 2022 OWES guidelines, I have attached a GIS shapefile relating to the re-evaluation of a standalone wetland unit (identified as Unit 14, neM1-A) within the Little Rouge Creek at Stouffville Wetland Complex, located in Stouffville. The re-evaluation showed that this wetland unit is not significant, and therefore it was reclassified as "Evaluated-Other", per MNRF terminology. This re-evaluation included ground verification of the wetland boundary, which is provided in the attached GIS shapefile.

A copy of this re-evaluation was submitted to Dwayne Tapp (Director of Development) and Hena Kabir (Manager Development Planning) at the Town of Whitchurch-Stouffville as well as to Jason Ezer (Senior Planner) at York Region.

It would be appreciated if you could please provide confirmation of receipt of this email.

Please let me know if you have any questions.

Kind regards,

Agneta

GEI
AGNETA SZABO, M.Env.Sc. (she/her)
Ecologist
647.242.6492
650 Woodlawn Road West, Block C, Unit 2, Guelph, ON N1K 1B8

November 6, 2023

Times 4750 Inc.
3985 Highway 7 East
Suite 202
Markham, ON L3R 2A2

Attention: Hamid Ghadaki

Dear Mr. Ghadaki,

RE: Highway 48 Wetland Ontario Wetland Evaluation System (OWES) Re-evaluation
5061 Stouffville Road, Town of Whitchurch-Stouffville, Ontario

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1. CONTEXT

GEI Consultants Ltd., was retained by Times 4750 Inc. to re-assess the significance of a wetland unit using current Ontario Wetland Evaluation System (OWES) protocol (MNRF 2022). This wetland unit, herein referred to as the Highway 48 wetland, is located in the northeastern corner of the property at 5061 Stouffville Road, Town of Whitchurch-Stouffville, Ontario (**Figure 1, Appendix A**). More specifically, this wetland is located southwest of the intersection of Stouffville Road and Highway 48.

This wetland unit is currently mapped as part of the Little Rouge Creek at Stouffville Wetland Complex, which is a Provincially Significant Wetland (PSW) based on the Ministry of Natural Resources and Forestry (MNRF) evaluation completed in September 2018. In that evaluation, the Highway 48 wetland was identified as Unit 14 (neM1-A).

The boundary for the Highway 48 wetland was previously staked by Ages Consultants Limited with the Toronto and Region Conservation Authority (TRCA) on October 7, 2020, and integrated into MNRF mapping (shown on **Figure 1**, **Appendix A**); however, since that time, the Ministry of Transportation of Ontario (MTO) replaced and lowered a Highway 48 culvert that is located approximately 50 m south of the Highway 48 wetland, potentially altering its size and shape.

GEI's review of this wetland had two objectives:

1. Review the existing wetland boundary through on-site investigations to better represent present day conditions; and
2. Complete a re-evaluation of the significance of the Highway 48 wetland.

2. FIELD SURVEYS

Technical field data used in this evaluation consisted of multi-year field data from GEI, as well as data specific to the Highway 48 wetland unit pulled from the original MNRF evaluation. Consideration was also given to field data collected by Stantec Consulting (2021a, 2021b and 2021c) in June 2020. GEI completed a botanical survey and Ecological Land Classification (ELC) and on August 30, 2022, and a botanical survey and wetland boundary delineation using a sub-meter capable GPS unit on July 31, 2023. Incidental wildlife observations were also documented during these surveys.

3. SUPPORTING RATIONALE

3.1 Rationale for Re-evaluating the Highway 48 Wetland as an Independent Unit

The revised OWES manual now excludes the term “wetland complex” and allows standalone wetland units to be evaluated or re-evaluated independently. The work completed by GEI shows that the Highway 48 wetland is independent of the Little Rouge Creek at Stouffville PSW Complex as it is separated from the overall complex by Highway 48. GEI recognizes that the revised OWES manual provides two scenarios where wetlands that are separated on the landscape can be treated as one functional unit. These scenarios are as follows:

1. areas comprised of very closely spaced small wetland ponds/pools (e.g., within 30 m from each other) interspersed with small pockets of upland forest (e.g., a ‘mosaic wetland’ or a ‘slough wetland’);” or
2. “wetlands along a river or lake that are separated by [30 m] or less.”

The first scenario is intended to capture closely spaced vernal pools as well as slough wetlands, whereas the second scenario is intended to capture closely spaced wetlands that are hydrologically connected by surface water features. The Highway 48 wetland does not meet either of these criteria, as it is separated from the adjacent complex by Highway 48 and is located approximately 35 m from the nearest wetland. Furthermore, it is not hydrologically connected by a watercourse based on GEI’s field observations, supported by MNRF PSW mapping.

Therefore, the Highway 48 wetland (i.e., Unit 14 of the Little Rouge Creek at Stouffville Wetland Complex) was re-evaluated as a standalone wetland unit in this report.

3.2 Rationale for the Evaluation of Wetland Units under 2 ha in Size

Per the OWES manual, wetland units smaller than 2 ha are generally not evaluated. However, the manual further recognizes that small wetlands can provide habitat for wildlife or can serve other ecological, hydrological, hydrogeological, or social functions. The OWES manual indicates that a wetland unit that is smaller than 2 ha can be evaluated provided that the rationale for doing is provided.

The Highway 48 wetland is 0.4 ha in size and was re-evaluated primarily because it was previously considered to be part of the Little Rouge Creek at Stouffville PSW Complex. This re-evaluation was completed in order to confirm the significance of this wetland unit as a standalone feature, per the provisions of the OWES manual.

3.3 Rationale for the including Vegetation Forms under 0.5 ha in Size

Per the OWES manual, the minimum size of a vegetation form to be recognized for mapping purposes is typically 0.5 ha. Exceptions to this rule can be made in cases where a highly specialized plant community occurs within a much larger wetland. Examples of exceptions include a floating fen, rare remnant communities, or small congregations of floating (rooted) plants that provide specialized habitat.

The Highway 43 wetland is 0.4 ha in size and consists of a single dominant vegetation form that is a marsh community composed of common native and exotic species, and it is not considered a specialized plant community. Despite not meeting the minimum vegetation form size, it was re-evaluated because it constitutes the entire area of the wetland unit of interest.

4. SPATIAL ANALYSIS OF DRAINAGE

Wetland evaluations are required to show drainage patterns and a catchment basin for the wetland under review. GEI prepared this mapping using ESRI ArcHydro GIS spatial analysis tools, which relied on a LiDAR-derived Digital Terrain Model (DTM) obtained from Land Information Ontario (LIO; MNRF 2023). From this, flow lines and a catchment area were identified and mapped. Flow lines represent generalized surface water drainage patterns within the landscape, while catchment areas illustrate the "upstream" land that collectively receives surface water input from any specified point (a.k.a. pour points) along a flow line. A pour point was positioned "downstream" of the Highway 48 wetland far enough to ensure that the catchment boundary fully encompassed the wetland. **Figure 2** (**Appendix A**) illustrates the resulting catchment area and flow lines in relation to the Highway 48 wetland.

Within the catchment area, detention areas must also be identified and factored into the hydrological component of the evaluation. Detention areas can consist of open water areas (e.g., lakes, large rivers, reservoirs, ponds, flooded pits, or quarries) or other wetlands. Detention areas were identified through field surveys, imagery interpretation, as well as other sources such as LIO and Conservation Authority Ecological Land Classification (ELC) data layers, where available.

5. SUMMARY OF FIELD OBSERVATIONS

The Highway 48 wetland is a 0.4 ha marsh with a 21.9 ha catchment area. The wetland boundary was modified slightly from the original MNRF delineation based on GEI field observations; that modification was likely the result (in part) of MTO culvert work that occurred in close proximity to the Highway 48 wetland, as well as natural fluctuations to wetland boundaries.

GEI identified 33 vascular plants within this wetland, none of which are provincially significant species, and one being locally significant: Spotted St. John's-Wort (*Hypericum punctatum*). A vascular plant list is provided in **Table 2** (**Appendix B**).

Two incidental wildlife observations were also documented during surveys:

- Twelve-spotted Skimmer (*Libellula pulchella*; S5); and
- Monarch (*Danaus plexippus*; S2N,S4B).

Since the observation of the Monarch was within a 0.4 ha marsh situated over 20 km away from Lake Ontario (i.e., the closest of the Great Lakes), it is not considered a provincially significant observation.

6. FINAL SCORE

The overall final score for the Highway 48 wetland is 346 points, with the following scores for the four OWES components:

- Biological – 69
- Social – 49
- Hydrological – 148
- Special Features – 80

A minimum overall score of 600 is required for a wetland to be identified as provincially significant. A minimum score of 200 for either the biological or special features component also triggers significance, regardless of the overall score.

This evaluation demonstrates that the Highway 48 wetland is not provincially significant as per the OWES criteria.

A copy of the completed MNRF OWES scoring sheets is provided in **Appendix C**.

7. CONCLUSION

The Highway 48 wetland was removed from the Little Rouge Creek at Stouffville PSW Complex based on ground-verified field data. As a standalone wetland unit, the Highway 48 wetland was re-evaluated using the updated version of the OWES manual published in 2022, which showed that this wetland is not provincially significant, having received a score of 346 overall, a score of 69 for the biological component, and score of 80 for the special features component.

This OWES evaluation was completed by James Leslie, Senior Vegetation Ecologist with GEI. James has been certified under OWES and actively applying the practice since July 2009.

Yours truly,
GEI Consultants

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REFERENCES

Brouillet, L., F. Coursol, S.J. Meades, M. Favreau, M. Anions, P. Bélisle & P. Desmet 2010+. VASCAN, the Database of Vascular Plants of Canada. http://data.canadensys.net/vascan/

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray 1998. Ecological land classification for Southern Ontario: first approximation and its application. Ontario Ministry of Natural Resources, South Central Region, Science Development and Transfer Branch. Technical Manual ELC-005.

Ministry of Natural Resources and Forestery (MNRF). 2022. Ontario Wetland Evaluation System Southern Manual. 4th Edition. 247 pp.

Ministry of Natural Resources and Forestery (MNRF). 2023. Make A Map: Natural Heritage Areas [Database]. Available online: https://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US.

Natural History Information Centre (NHIC). 2023. Database. https://www.ontario.ca/page/get-natural-heritage-information.

Oldham, M.J., W.D. Bakowsky and D.A. Sutherland. 1995. Floristic quality assessment for southern Ontario. OMNR, Natural Heritage Information Centre, Peterborough. 68 pp.

Stantec Consulting. 2021a. Times Group Stouffville, Amphibian Surveys. [Memorandum] 3pp.

Stantec Consulting. 2021b. Times Group Stouffville, Breeding Bird Survey 2020. [Memorandum] 7pp.

Stantec Consulting. 2021c. Ecological Land Classification and Botanical Inventory of Times Group Stouffville. [Memorandum] 9pp.

Varga, S., editor. 2005. Distribution and status of the vascular plants of the Greater Toronto Area. Ontario Ministry of Natural Resources, Aurora District. 96 pp.

APPENDICES

Appendix A – Figures

Appendix B – Tables

Appendix C – OWES Wetland Evaluation Scoring

APPENDIX A

Figures

Project 2303480

NOTES:
1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.
3. Orthoimagery © First Base Solutions, 2023. Imagery taken in 2022.

Legend

- Delineated Wetland (GEI)
- Provincially Significant Wetland (PSW; LIO 2023)
- Watercourse

5061 Stouffville Road
Times 4750 Inc.

Figure 1
Wetland Boundary

0 20 m
1:1,500

N

GEI Consultants

Project 2203480

NOTES:
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2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.
3. Orthoimagery © First Base Solutions, 2023. Imagery taken in 2022.

Legend

- Delineated Wetland (GEI)
- Detention Area
- Catchment Area
- Pour Point
- Watercourse
- Waterbody

Flow Accumulation

- High
- Moderate

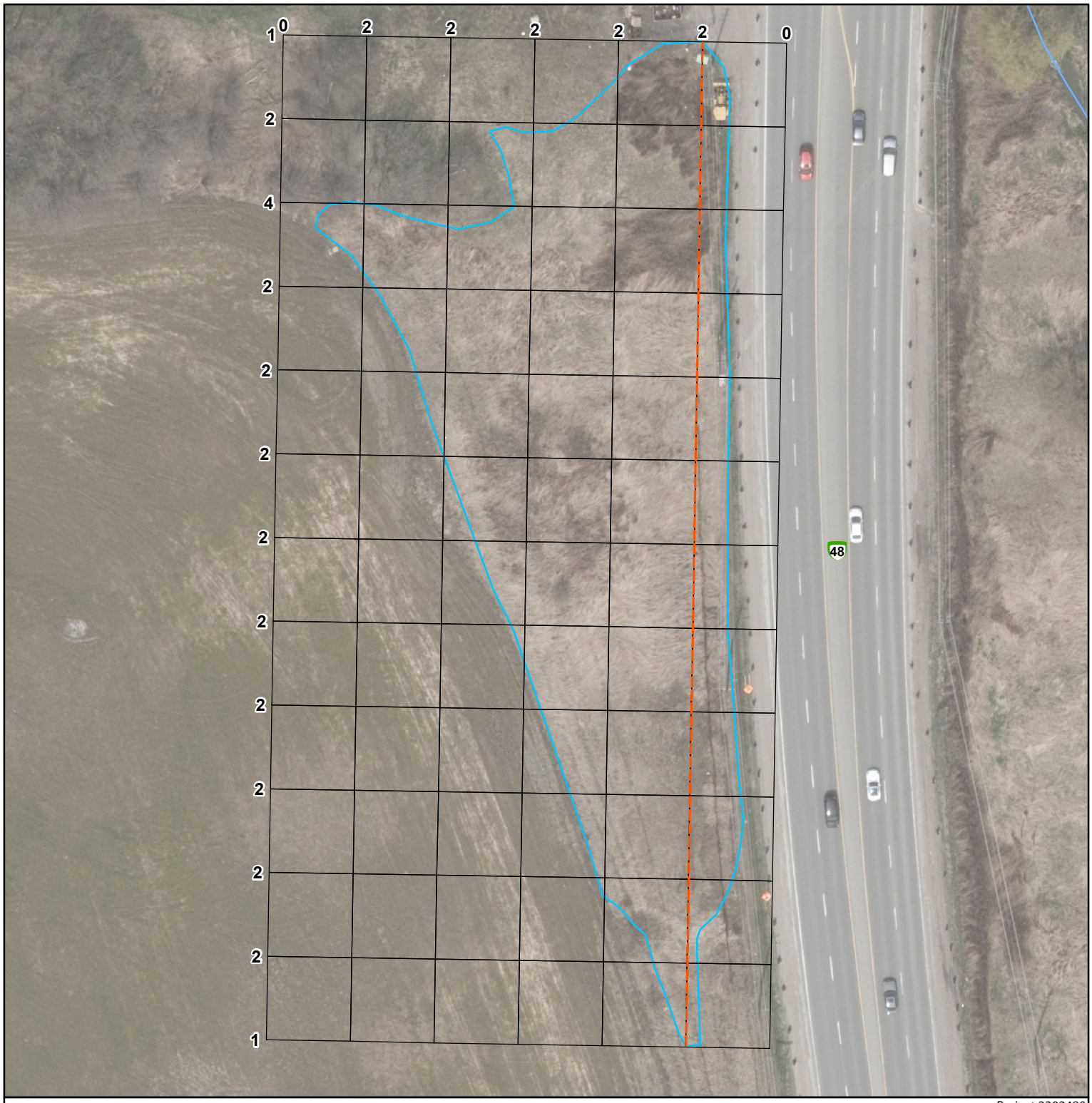
5061 Stouffville Road
Times 4750 Inc.

Figure 2
Catchment Area

0 100 m
1:4,500

N

GEI Consultants



Project 2303480

NOTES:
1. Coordinate System: NAD 1983 UTM Zone 17N.
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3. Orthoimagery © First Base Solutions, 2023. Imagery taken in 2022.

Legend

- Delineated Wetland (GEI)
- Line A
- Grid
- Watercourse

5061 Stouffville Road
Times 4750 Inc.

Figure 3
Interspersion Grid

0 10 m
1:750

N

GEI Consultants

APPENDIX B

Tables

Table 1: Little Rouge Creek at Stouffville PSW Complex Unit 14 Wetland Data Summary Form

Wetland Name:	Little Rouge Creek at Stouffville Wetland Complex

Wetland Number	Map Code	GPS	Dominant Form	Forms	# Forms	Dominant Species	Area (ha)	Notable Features (e.g., seeps)	% Permanent Open Water			Open Water (ha)	Soil	Site Type	Fish Habitat				
									Low	High (est.)	Mean (est.)				% Fish Habitat	Area (ha)	Habitat Type	Key Veg Group	Notes
14	neM1-A	Refer to GIS data	ne	ne,gc	2	Persicaria amphibia, Symphyotrichum lanceolatum, Symphyotrichum puniceum, Euthamia graminifolia, Solidago altissima, Phalaris arundinacea	0.43	none	0%	0%	0%	0.00	sandy loam	palustrine	0%	0.00	-	-	N/A

FAMILY	LATIN NAME	COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	OWES WETLAND SPECIES	WEEDINESS INDEX	INVASIVE EXOTIC RANK (Urban Forest Associates 2002)	PROVINCIAL STATUS (S-RANK)	GLOBAL STATUS (G-RANK)	COSSARO (MNRF)	COSEWIC STATUS	YORK (Varga 2005)	AUTHORITY
Apiaceae	Daucus carota	Wild Carrot		5		-2		SNA	GNR			X	L.
Asteraceae	Cirsium arvense	Canada Thistle		3		-1	1	SNA	G5			X	(L.) Scop.
Asteraceae	Euthamia graminifolia	Grass-Leaved Goldenrod	2	0				S5	G5			X	(L.) Nutt.
Asteraceae	Solidago altissima var. altissima	Tall Goldenrod	1	3				S5	G5			X	L.
Asteraceae	Solidago canadensis	Canada Goldenrod	1	3				S5	G5			X	L.
Asteraceae	Sonchus arvensis ssp. arvensis	Field Sow-Thistle		3				SNA	GNRTNR			X	L.
Asteraceae	Symphyotrichum ericoides var. ericoide	White Heath Aster	4	3				S5	G5T5			X	(L.) G.L. Nesom
Asteraceae	Symphyotrichum lanceolatum	Panicled Aster	3	-3	I			S5	G5			X	(Willd.) G.L. Nesom
Asteraceae	Symphyotrichum novae-angliae	New England Aster	2	-3				S5	G5			X	(L.) G.L. Nesom
Asteraceae	Tanacetum vulgare	Common Tansy		5		-1	3	SNA	GNR			X	L.
Asteraceae	Taraxacum officinale	Common Dandelion		3		-2		SNA	G5			X	F.H. Wiggers
Balsaminaceae	Impatiens capensis	Spotted Jewelweed	4	-3	I			S5	G5			X	Meerburgh
Convolvulaceae	Convolvulus arvensis	Field Bindweed		5		-1	3	SNA	GNR			X	L.
Cornaceae	Cornus sericea	Red-Osier Dogwood	2	-3	I*			S5	G5			X	L.
Cyperaceae	Carex bebbii	Bebb's Sedge	3	-5	I			S5	G5			X	(L.H. Bailey) Olney ex Fern.
Cyperaceae	Carex stipata var. stipata	Awl-Fruited Sedge	3	-5	I			S5	G5T5			X	Muhlenb. ex Willdenow
Cyperaceae	Carex vulpinoidea	Fox Sedge	3	-5	I			S5	G5			X	Michaux
Equisetaceae	Equisetum arvense	Field Horsetail	0	0	T			S5	G5			X	L.
Fabaceae	Vicia cracca	Tufted Vetch		5		-1	2	SNA	GNR			X	L.
Hypericaceae	Hypericum punctatum	Spotted St. John's-Wort	5	0	T			S5	G5			R2	Lamarck
Lythraceae	Lythrum salicaria	Purple Loosestrife		-5	I	-3	1	SNA	G5			X	L.
Oleaceae	Fraxinus americana	White Ash	4	3				S4	G4			X	L.
Poaceae	Agrostis gigantea	Redtop		-3		-2		SNA	G4G5			X	Roth
Poaceae	Phalaris arundinacea var. arundinacea	Reed Canary Grass	0	-3	T		P	S5	GNR			X	L.
Poaceae	Phragmites australis ssp. australis	European Reed		-3	T		1	SNA	G5T5			X	(Cav.) Trinius ex Steudel
Polygonaceae	Persicaria amphibia	Water Smartweed	5	-5	I			S5	G5			X	L.
Rhamnaceae	Rhamnus cathartica	European Buckthorn		0	T	-3	1	SNA	GNR			X	L.
Salicaceae	Salix bebbiana	Bebb's Willow	4	-3	I			S5	G5			X	Sargent
Salicaceae	Salix discolor	Pussy Willow	3	-3	I			S5	G5			X	Muhlenberg
Salicaceae	Salix eriocephala	Cottony Willow	4	-3	T			S5	G5			X	Michaux
Typhaceae	Typha angustifolia	Narrow-Leaved Cattail		-5	I		P	SNA	G5			X	L.
Typhaceae	Typha latifolia	Broad-Leaved Cattail	1	-5	I			S5	G5			X	L.
Vitaceae	Vitis riparia	Riverbank Grape	0	0				S5	G5			X	Michaux

STATISTICS		
Species Diversity		
Total Number of Species:	33	
Native Species:	21	64%
Exotic Species:	12	36%
S1-S3 Species:	0	0%
S4 Species:	1	5%
S5 Species:	20	95%
Floristic Quality Assessment (FQA)		
Mean Co-efficient of Conservatism (CC)	2.6	
CC 0 - 3 = lowest sensitivity	14	67%
CC 4 - 6 = moderate sensitivity	7	33%
CC 7 - 8 = high sensitivity	0	0%
CC 9 - 10 = highest sensitivity	0	0%
Floristic Quality Index (FQI)	12	
Weedy & Invasive Species		
Mean Weediness Index (Oldham et al):	-1.8	
-1 = low potential invasiveness	4	33%
-2 = moderate potential invasiveness	3	25%
-3 = high potential invasivenss	2	17%
Mean Exotic Rank (Urban Forest Associates):	2	
Category 1	4	33%
Category 2	1	8%
Category 3	2	17%
Category 4	0	0%
Potentially Invasive (P)	2	17%
Wetland Species		
Mean Wetness Index	-0.7	
Upland	4	12%
Facultative upland	7	21%
Facultative	5	15%
Facultative wetland	10	30%
Obligate wetland	7	21%

APPENDIX C

OWES Wetland Evaluation Scoring

Highway 48 Wetland

Wetland Evaluation 2022, 4th Edition

Comments

Documents included in this evaluation:

1) Wetland Evaluation Data and Scoring Record and scoring summary
2) Rationale for identifying multiple wetlands as one unit, for evaluating wetland units < 2 ha, and for including vegetation communities < 0.5
3) Map(s) of the wetland boundary and vegetation communities within the wetland
4) Map of interspersion
5) Map of catchment area (including all applicable detention areas)
6) Map showing other natural features adjacent or near the wetland (e.g., ELC)
7) Overivew list of significant species in the Wetland
8) List of vascular plant species in the Wetland

Additional Information

Include relevant information that can not be entered in the wetland data record (Ex. Sections that have not been completed.)

Official Name:	Highway 48 Wetland					
Evaluation Edition: 2022	4th 2022	Class:	\	\		
Wetland Significance: Not Significant	Year/Month Last Evaluated			2022/10		
	Year/Month Last Updated					
Special Planning Considerations				**Scores**		
Wetland Area:	0.40			Biological:	71	
Other Detention Areas:	0.73			Social:	49	
Catchment Area:	21.91			Hydrological:	148	
Coastal Unit Area:	0.00			Special Features:	80	
				Overall:	348	
Submitted by:	GEI Consultants			Date	13-Oct-23	

General Information

Wetland Evaluator(s)

Name: James Leslie Affiliation: GEI Consultants

Signature: 

(by signing, I confirm that this evaluation has been undertaken and completed in accordance with the Ontario Wetland Evaluation System Southern Manual 4th Edition / Northern Manual 2nd Edition)

Name: Affiliation:

Name: Affiliation:

Name: Affiliation:

Name: Affiliation:

Date(s) wetland visited (in field): **Aug. 30, 2022; July 31, 2023**

Date evaluation completed: **12-Oct-23**

Estimated time devoted to completing the field survey in person hours: 3.5

Weather Conditions

i) at time of field work:

ii) summer conditions in general:

WETLAND EVALUATION DATA

AND SCORING RECORD

i) Wetland Name: Highway 48 Wetland

ii) MNR District: Aurora District MNRF

iii) Conservation Authority Jurisdiction: Toronto and Region Conservation Authority

iv) County of Regional Municipality: REGIONAL MUNICIPALITY OF YORK

v) Township/Geographic Twp and/or Local Municipality:

vi) Ecodistrict/Ecoregion: 6E7

vii) b) UTM centroid:

Zone: 17 E: 637876 N: 4869146

Wetland Area
0.40

Site Type	Area	%
Isolated	0.00	0.00
Palustrine (permanent or intermittent flow)	0.40	1.00
Riverine	0.00	0.00
Riverine (at rivermouth)	0.00	0.00
Lacustrine (at rivermouth)	0.00	0.00
Lacustrine (on enclosed bay, with barrier beach)	0.00	0.00
Lacustrine (exposed to lake)	0.00	0.00
Lacustrine (at lake inflow or outflow)	0.00	0.00
	0.40	1.00

Palustrine with inflow	0.00	0
Palustrine with no inflow	0.40	1
		0.40

Determination of watershed improvement factor (WIF)	Area Sum
Lacustrine (at rivermouth) & Lacustrine (exposed to lake)	0.00

Soil Type	Area	%
clay/loam	0.40	1.00
silt/marl	0.00	0.00
limestone	0.00	0.00
sand	0.00	0.00
humic/mesic	0.00	0.00
fibric	0.00	0.00
granite	0.00	0.00
	0.40	1.00

Dominant Vegetation	Area	%
h	0.00	0.00
c	0.00	0.00
dh	0.00	0.00
dc	0.00	0.00
ts	0.00	0.00
ls	0.00	0.00
ds	0.00	0.00
gc	0.40	1.00
m	0.00	0.00
ne	0.00	0.00
be	0.00	0.00
re	0.00	0.00
ff	0.00	0.00
f	0.00	0.00
su	0.00	0.00
u (unvegetated)	0.00	0.00
	0.40	1.00

Wetland Type	Area	%
Swamp	0.00	0.00
Marsh	0.40	1.00
Fen	0.00	0.00
Bog	0.00	0.00
	0.40	1.00

Open Water Area	%
0.00	0.00

1.0 BIOLOGICAL COMPONENT

1.1 PRODUCTIVITY

1.1.1 Growing Degree-Days/Soils (max: 30 pts)

Refer to page 43 of manual for further explanation.

1. Determine the correct GDD value for your wetland (use Figure 5).
2. Circle the appropriate GDD value from the evaluation table below.
3. Determine the Fractional Area (FA) of the wetland for each soil type.
4. Multiply the fractional area of each soil type by the applicable score-factor in the evaluation table.
5. Sum the scores for each soil type to obtain the final score (maximum score is 30 points).

Growing Degree- Days	Clay- Loam	Silt- Marl	Lime- stone	Sand	Humic- Mesic	Fibric	Granite
<2800	15	13	11	9	8	7	5
2800-3200	18	15	13	11	9	8	7
3200-3600	22	18	15	13	11	9	7
3600-4000	26	21	18	15	13	10	8
>4000	30	25	20	18	15	12	8

Soil Type	FA of wetland in soil type	Enter appropriate score-factor from above table			
clay/loam:	1.00	X	22	=	22.0
silt/marl:	0.00	X		=	0.0
limestone:	0.00	X		=	0.0
sand:	0.00	X		=	0.0
humic/mesic:	0.00	X		=	0.0
fibric:	0.00	X		=	0.0
granite:	0.00	X		=	0.0
Total					22.0

(0.40 ha)
(0.00 ha)
(0.00 ha)
(0.00 ha)
(0.00 ha)
(0.00 ha)
(0.00 ha)

GDD/Soils score (maximum 30 points) **22**

1.1.2 Wetland Type

(Fractional Area = area of wetland type/total wetland area)

	Fractional Area			Score	
Bog	0.00	X	3 =	**0.0**	(0.00 ha)
Fen	0.00	X	6 =	**0.0**	(0.00 ha)
Swamp	0.00	X	8 =	**0.0**	(0.00 ha)
Marsh	1.00	X	15 =	**15.0**	(0.40 ha)
Total			=	**15.0**	

Wetland type score **15**
(maximum 15 points)

1.1.3 Site Type

(Fractional Area = area of site type/total wetland area)

	Fractional Area		Score	
Isolated	0.00	x 1 =	**0.00**	(0.00 ha)
Palustrine (permanent or intermittent flow)	1.00	x 2 =	**2.00**	(0.40 ha)
Riverine	0.00	x 4 =	**0.00**	(0.00 ha)
Riverine (at rivermouth)	0.00	x 5 =	**0.00**	(0.00 ha)
Lacustrine (at rivermouth)	0.00	x 5 =	**0.00**	(0.00 ha)
Lacustrine (on enclosed bay,with barrier beach)	0.00	x 3 =	**0.00**	(0.00 ha)
Lacustrine (exposed to lake)	0.00	x 2 =	**0.00**	(0.00 ha)
		Sub Total:	**2.00**	

Site Type Score **2**
(maximum 5 points)

1.2 Biodiversity

1.2.1 Number of Wetland Types

(Check only one)

9	one	=	9	points
	two	=	13	
	three	=	20	
	four	=	30	

Number of Wetland Types Score (maximum 30 points) **9**

1.2.2. Vegetation Communities

Use the data sheet provided in Appendix 4 to record and score vegetation communities (the completed form must be attached to this data record)

Scoring (circle only one option for each of the columns below):

Total # of communities with 1-3 forms	
1 =	1.5 pts
2 =	2.5
3 =	3.5
4 =	4.5
5 =	5
6 =	5.5
7 =	6
8 =	6.5
9 =	7
10 =	7.5
11 =	8
+ 0.5 for each additional community	
=	1.5
Total of 1 Communities	

Total # of communities with 4 -5 forms	
1 =	2 pts
2 =	3.5
3 =	5
4 =	6.5
5 =	7.5
6 =	8.5
7 =	9.5
8 =	10.5
9 =	11.5
10 =	12.5
11 =	13
+ 0.5 for each additional community	
=	
Total of 0 Communities	

Total # of communities with 6 or more forms	
1 =	3 pts
2 =	5
3 =	7
4 =	9
5 =	10.5
6 =	12
7 =	13.5
8 =	15
9 =	16.5
10 =	18
11 =	19
+ 0.5 for each additional community	
=	
Total of 0 Communities	

Subtotal: **2**

Vegetation Communities Score (maximum 45 points) **2**

Wetland Name: **Stouffville 48**

Wetland Size (ha): 0.401975771

Vegetation Form	% area in which form is dominant	
h	0.00	(0.00 ha)
c	0.00	(0.00 ha)
dh	0.00	(0.00 ha)
dc	0.00	(0.00 ha)
ts	0.00	(0.00 ha)
ls	0.00	(0.00 ha)
ds	0.00	(0.00 ha)
gc	100.00	(0.40 ha)
m	0.00	(0.00 ha)
ne	0.00	(0.00 ha)
be	0.00	(0.00 ha)
re	0.00	(0.00 ha)
ff	0.00	(0.00 ha)
f	0.00	(0.00 ha)
su	0.00	(0.00 ha)
u (unvegetated)	0.00	(0.00 ha)
Total = 100%	100.00	

1.2.3 Diversity of Surrounding Habitat

Check all appropriate items. Only habitat within 1.5 km of the wetland boundary and at least 0.5 ha in size are to be scored.

1	row crop
1	pasture
	abandoned agricultural land
1	deciduous forest
1	coniferous forest
1	mixed forest*
	abandoned pits and quarries
	open lake or deep river
1	fence rows with cover, or shelterbelts
	terrain appreciably undulating,hilly,or with ravines
1	creek flood plain
7	Subtotal

** "Mixed forest" is defined as either 25% coniferous trees distributed singly or in clumps in deciduous forest, or 25% deciduous treesdistributed singly or in clumps in coniferous forest. Note that Forest Resource Inventory (FRI) maps can be misleading since 25%conifer within a unit could be entirely concentrated around a lake.*

Score 1 point for each feature checked, up to a maximum of 7 points.

Diversity of Surrounding Habitat Score (maximum 7 points) **7**

1.2.4 Proximity to Other Wetlands

Check highest appropriate category. (Note: if the wetland is lacustrine, score option #1 at 8 points).

		points
	Hydrologically connected by surface water to other wetlands (different dominant wetlaI1d type) or to open lake or deep river within 1.5 km	8
	Hydrologically connected by surface water to other wetlands (same dominant wetland type) within 0.5 km	8
	Hydrologica11y connected by surface water to other wetlands (different dominant wetland type),or to open lake or deep river from 1.5 to 4 km away	5
	Hydrologically connected by surface water to other wetlands (same dominant wetland type) from 0.5 to 1.5 km away	5
5	Within 0.75 km of other wetlands (different dominant wetland type) or open water body, but not hydrologically connected by surface water	5
	Within 1 km of other wetlands, but not hydrologically connected by surface water	2
	No wetland within 1 km	0

Name and distance (from wetland) of wetlands/water bodies scored above:

Approximately 380m west of a swamp, per LIO wetland mapping. There is a culvert south of this wetland that extends under Hwy 48 and connects to the Little Rouge Creek at Stouffville Wetland Complex; however, there is no mappable watercourse that connects Highway 48 wetland to the culvert - any hydrological connection is ephemeral.

Proximity to other Wetlands Score (maximum 8 points) **5**

1.2.5 Interspersion

Number of Intersections = 36

	Number of Intersections *(Check only one)*		Points
	26 or less	=	3
6	27 to 40	=	6
	41 to 60	=	9
	61 to 80	=	12
	81 to l00	=	15
	101 to 125	=	18
	126 to 150	=	21
	151 to 175	=	24
	176 to 200	=	27
	>200	=	30

Interspersion Score 6
(maximum 30 points)

1.2.6 Open Water Types

Note: this attribute is only to be scored for permanently flooded open water within the wetland (adjacent lakes do not count). Check one option only.

	Open Water Type	Characteristic	Points
	type 1	Open water occupies < 5 % of wetland area	8
	type 2	Open water occupies 5-25% of wetland (occurring in central area)	8
	type 3	Open water occupies 5-25% (occurring in various-sized ponds, dense patches of vegetation or vegetation in diffuse stands)	14
	type 4	Open water occupies 26-75% of wetland (occurring in a central area)	20
	type 5	Open water occupies 26-75% of wetlands (small ponds and embayments are common)	30
	type 6	Open water occupies 76%-95% of wetland (occurring in large central area; vegetation is peripheral)	8
	type 7	Open water occupies 76-95% of wetland (vegetation in patches or diffuse open stands)	14
	type 8	Open water occupies more than 95% of wetland area	3
0	no open water		0

Open water occupies **0.00 % (0.00 ha) of wetland complex.**

Open Water Type Score 0
(maximum 30 points)

1.3 Size (Biological Component)

Total Size of Wetland = **0.40** ha

Sum of scores from Biodiversity Subcomponent

1.2.1
+1.2.2
+1.2.3
+1.2.4
+1.2.5
+1.2.6

31

Wetland size (ha)	Total Score for Biodiversity Subcomponent									
	<37	37-48	49-60	61-72	73-84	85-96	97- 108	109-120	121- 132	>132
<20 ha	1	5	7	8	9	17	25	34	43	50
20-40	5	7	8	9	10	19	28	37	46	50
41-60	6	8	9	10	11	21	31	40	49	50
61-80	7	9	10	11	13	23	34	43	50	50
81-100	8	10	11	13	15	25	37	46	50	50
101-120	9	11	13	15	18	28	40	49	50	50
121-140	10	13	15	17	21	31	43	50	50	50
141-160	11	15	17	19	23	34	46	50	50	50
161-180	13	17	19	21	25	37	49	50	50	50
181-200	15	19	21	23	28	40	50	50	50	50
201-400	17	21	23	25	31	43	50	50	50	50
401-600	19	23	25	28	34	46	50	50	50	50
601-800	21	25	28	31	37	49	50	50	50	50
801-1000	23	28	31	34	40	50	50	50	50	50
1001-1200	25	31	34	37	43	50	50	50	50	50
1201-1400	28	34	37	40	46	50	50	50	50	50
1401-1600	31	37	40	43	49	50	50	50	50	50
1601-1800	34	40	43	46	50	50	50	50	50	50
1801-2000	37	43	47	49	50	50	50	50	50	50
>2000	40	46	50	50	50	50	50	50	50	50

Size Score (Biological Component) **1**
(maximum 5O points)

2.0 SOCIAL COMPONENT

2.1 Economically Valuable Products

2.1.1 Wood Products

Check the option that best reflects the total area (ha) of forested wetland (i.e., areas where the dominant vegetation form is h or c). Note that this is the area of all the forested vegetation communities, not total wetland size. Do not ***include areas where harvest is not permitted. Check only one option.***

Area of wetland used for scoring 2.1.1:

h:	0.00	c:	0.00

0	<5 ha	=	0
	5 -25 ha	=	3
	26 -50 ha	=	6
	51- 100 ha	=	9
	101-200 ha	=	12
	>200 ha	=	18

Source of information:

GEI field data; MNRF

Wood Products Score (maximum 18 points) **0**

2.1.2 Wild Rice

Check only one.

	Present (minimum size 0.5 ha)	=	6 pts
0	Absent	=	0
	Harvest not permitted	=	0

Source of information:

GEI field data; MNRF

Wild Rice Score (maximum 6 points) **0**

2.1.3 Commercial Bait Fish

Check only one.

	Present	=	12 pts
0	Absent	=	0
	Fishing not permitted	=	0

Source of information:
GEI field data; MNRF

Commercial Fish Score (maximum 12 points) **0**

2.1.4 Furbearers

Only species recognized as furbearers under the Fish & Wildlife Conservation Act may be scored here. Score 3 points for each furbearer species listed, up to a maximum of 12 points.

		Name of furbearer	Source of information
1	0		Trapping not permitted; scores 0
2			0
3			0
4			0
5			0
6			0
	0	Subtotal	

Source of information:
MNRF

Furbearer Score (maximum 12 points) **0**

2.2 Recreational Activities

Sources of information and reasons for scoring a wetland under high or moderate use below, must be included below.

Circle one score for each of the activities listed. Score is cumulative – add score for hunting, nature enjoyment and fishing together for final score.

Intensity of Use	Type of Wetland-Associated Use					
	Hunting		Nature Enjoyment/ Ecosystem Study		Fishing	
High	40 points		40 points		40 points	
Moderate	20		20		20	
Low	8		8	**8**	8	
Not possible/NotKnown	0	**0**	0		0	**0**
Totals		**0**		**8**		**0**
						8

Sources of information (include evidence/criteria forming basis for score and any relevant reference used to obtain that information):
- e.g., Hunting scored at 20 points: 5 hunting blinds observed; hunters using area frequently monitored for compliance (source: D. Black, MNR Conservation Officer)

Hunting: Private property, no hunting permitted

Nature: Wetland within view of public from County Rd 48 and Stouffville Road

Fishing: Private property. Fish habitat absent

Recreational Activities Score (maximum 80 points) **8**

2.3 Landscape Aesthetics

2.3.1 Distinctness

Check only one.

	Clearly distinct	=	3	pts
0	Indistinct	=	0	

Landscape Distinctness Score (maximum 3 points) **0**

2.3.2 Absence of Human Disturbance

Check only one.

	Human disturbances absent or nearly so	=	7	pts
4	One or several localized disturbances	=	4	
	Moderate disturbance; localized water pollution	=	2	
	Wetland intact but impairment of ecosystem quality intense in some areas	=	1	
	Extreme ecological degradation, or water pollution severe and widespread	=	0	

Details regarding type, extent and location of disturbance scored:

Bordered by active agricultural field, County Rd 48, and Stouffville Road

Source of information:

GEI

Absence of Human Disturbance Score (maximum 7 points) **4**

2.4 Education and Public Awareness

2.4.1 Educational Uses

Check highest appropriate category.

	Frequent	=	20	pts
	Infrequent	=	12	
0	No visits	=	0	

Details regarding the type and frequency of education uses scored above:

Private property; no education use

Source of information:

GEI correspondene with landowner

Educational Uses Score (maximum 20 points) **0**

2.4.2 Facilities and Programs

Check all appropriate options, score highest category checked.

	Staffed interpretation centre	=	8	pts
	No interpretation centre or staff but a system of self-guiding trails or brochures available	=	4	
	Facilities such as maintained paths (e.g., woodchips) boardwalks, boat launches or observation towers but no brochures or other interpretation	=	2	
0	No facilities or programs	=	0	

Additional Notes/Comments:

Private property; no programs/facilities

Source of information:

GEI correspondene with landowner

Facilities and Programs Score (maximum 8 points) **0**

2.4.3 Research and Studies

Check all that apply; score highest category checked.

	Long term research has been done	=	12	pts
	Research papers published in refereed scientific journal or as a thesis	=	10	
5	One or more (non-research) reports have been written on some aspect of the wetland's flora, fauna,hydrology etc.	=	5	
	No research or reports	=	0	
5	Subtotal:			

List of reports, publications, research studies etc. scored above:

Little Rouge Creek at Stouffville Wetland Complex, MNRF Wetland Evaluation. Sept 2018

Research and Studies Score (maximum 12 points) **5**

2.5 Proximity to Areas of Human Settlement

Name of Settlement: Whitchurch- Stouffville

Distance of wetland from settlement: 515m west

Population of settlement: 49864 (Source: statcan.gc.ca (2021))

Circle only the highest score applicable

Distance of wetland to settlement	population >10,000		population 2,500-10,000		population <2,500 or cottage community	
Within or adjoining settlement	40 points		26 points		16 points	
0.5 to 10 km from settlement	26	**26**	16		10	
10 to 60 km from settlement	12		8		4	
>60 km from settlement	5		2		0	
		26		**0**		**0**

Proximity to Human Settlement Score (maximum 40 points) **26**

2.6 Ownership

FA of wetland held by or held under a legal contract by a conservation body (as defined by the Conservation Land Act) for wetland protection		x	10	=	0.00
FA of wetland occurring in provincially or nationally protected areas (e.g., parks and conservation reserves)		x	10	=	0.00
FA of wetland area in Crown/public ownership, not as above		x	8	=	0.00
FA of wetland area in private ownership, not as above	1.00	x	4	=	4.00

Source of information:
GEI correspondence with landowner

Ownership Score (maximum 10 points) **4**

2.7 Size (Social Component)

Total Size of Wetland = **0.40** ha

Sum of scores from Subcomponents 2.1, 2.2, and 2.5 = **34**

Circle the appropriate score from the table below.

	Total for Size Dependent Score									
	<31	31-45	46-60	61-75	76-90	91-105	106-120	121-135	136-150	>150
<2 ha	1	2	4	8	10	12	14	14	14	15
2 - 4ha	1	2	4	8	12	13	14	14	15	16
5 - 8ha	2	2	5	9	13	14	15	15	16	16
9 - 12ha	3	3	6	10	14	15	15	16	17	17
13-17	3	4	7	10	14	15	16	16	17	17
18-28	4	5	8	11	15	16	16	17	17	18
29-37	5	7	10	13	16	17	18	18	19	19
38-49	5	7	10	13	16	17	18	18	19	20
50-62	5	8	11	14	17	17	18	19	20	20
63-81	5	8	11	15	17	18	19	20	20	20
82-105	6	9	11	15	18	18	19	20	20	20
106-137	6	9	12	16	18	19	20	20	20	20
138-178	6	9	13	16	18	19	20	20	20	20
179-233	6	9	13	16	18	20	20	20	20	20
234-302	7	9	13	16	18	20	20	20	20	20
303-393	7	9	14	17	18	20	20	20	20	20
394-511	7	10	14	17	18	20	20	20	20	20
512-665	7	10	14	17	18	20	20	20	20	20
666-863	7	10	14	17	19	20	20	20	20	20
864-1123	8	12	15	17	19	20	20	20	20	20
1124-1460	8	12	15	17	19	20	20	20	20	20
1461-1898	8	13	15	18	19	20	20	20	20	20
1899-2467	8	14	16	18	20	20	20	20	20	20
>2467	8	14	16	18	20	20	20	20	20	20

Total Size Score (Social Component) **2**

2.8 Aboriginal Values and Cultural Heritage

Either or both Aboriginal or Cultural Values may be scored. However, the maximum score permitted for 2.8 is 30 points.

Full documentation of sources must be attached to the data record.

2.8.1 Aboriginal Values

	Significant	=	30 pts
	Not Significant	=	0
0	Unknown	=	0
0	Total:		

Additional Comments/Notes:

Values unknown

2.8.2 Cultural Heritage

	Significant	=	30 pts
	Not Significant	=	0
	Unknown	=	0
0	Total:		

Additional Comments/Notes:

No indications of cultural value

Aboriginal Values/Cultural Heritage Score (maximum 30 points) **0**

3.0 HYDROLOGICAL COMPONENT

3.1 Flood Attenuation

Check one of the following four options.

	If wetland is a single contiguous coastal wetland, [a] score 0 points for this section.
	If wetland is entirely isolated in site type, [a] score 100 points automatically.
x	Wetland not as above – proceed through 'steps' A through L below.

x

(A)	Total wetland area	=	0.4019758	ha		
(B)	Size of wetland's catchment	=	21.91	ha		
(C)	Size of other detention areas in catchment	=	0.73	ha		
(D)	Size of 'isolated' portions of wetland	=	0.00	(FA =	0.00	)
(E)	Size of coastal units of wetland complex	=	0.00	(FA =	0.00	)

Points for Isolated Portion of Wetland (If not applicable, enter '0'):

(F)	(FA of D) x 100 pts	=	0	pts

Points for Coastal Portion(s) of Wetland (if not applicable, enter '0')

(G)	(FA of E) x 100 pts	=	0.00	pts

(H)	Size of wetland minus the isolated and coastal portions	=	{A – D – E}	=	0.40	ha
(I)	Number of points available to score 'rest' of wetland	=	{100 – F – G}	=	100.00	pts
(J)	Total area of upstream detention areas	=	{A + C }	=	1.13	ha

(K)	Upstream Detention Factor	{(H/J) x 2}	=	0.71	=	0.71	(maximum 1.0)
(L)	Attenuation Factor	{(H/B) x 10}	=	0.18	=	0.18	(maximum 1.0)

Flood Attenuation Final Score = {[((K + L) /2) x I] + F} = 44.80

Flood Attenuation Score (maximum l00 points) 45

3.2 Water Quality

Improvement

Step 1: Determination of maximum initial score

	Wetland on one of the 5 defined large lakes or 5 major rivers (Go to Step 5A)
x	All other wetlands (Go through Steps 2, 3, 4, and 5B)

Step 2: Determination of watershed improvement factor (WIF)

Calculation of WIF is based on the fractional area (FA) of each site type that makes up the total area of the wetland.

(FA= area of site type/total area of wetland)			Fractional Area				
FA of isolated wetland	=	0.00	x	0.5	=	0.00	(0.00 ha)
FA of riverine wetland	=	0.00	x	1	=	0.00	(0.00 ha)
FA of palustrine wetland with no inflow	=	1.00	x	0.7	=	0.70	(0.40 ha)
FA of palustrine wetland with inflows	=	0.00	x	1	=	0.00	(0.00 ha)
FA of lacustrine on lake shoreline	=	0.00	x	0.2	=	0.00	(0.00 ha)
FA of lacustrine at lake inflow or outflow	=	0.00	x	1	=	0.00	(0.00 ha)
				Sub Total:		0.70	

Sum (WIF cannot exceed 1.0) **0.70**

Step 3: Determination of catchment land use factor (LUF)

(Choose the first category that fits upstream landuse in the catchment.)

1.0	Over 50% agricultural and/or urban	=	1.0
	Between 30 and 50% agricultural and/or urban	=	0.8
	Over 50% forested or other natural vegetation	=	0.6

LUF (maximum 1.0) **1.00**

Step 4: Determination of pollutant uptake factor (PUT)

Calculation of PUT is based on the fractional area (FA) of each vegetation type that makes up the total area of the wetland. Base assessment on the dominant vegetation form for each community except where dead trees or shrubs dominate. In that case base assessment on the domininant live vegetation. (FA = area of vegetation type/total area of wetland)

FA of wetland with live trees, shrubs, herbs or mosses (c,h,ts,ls,gc,m)	1.00	x	0.75	=	0.75
FA of wetland with emergent,submergent or floating vegetation (re,be,ne,su,f,ff)	0.00	x	1	=	0.00
FA of wetland with little or no vegetation (u)	0.00	x	0.5	=	0.00
			Subtotal:		0.75

Sum (PUT cannot exceed 1.0) **0.75**

Step 5: Calculation of final score

	Wetland on large lakes or major rivers	0
x	All other wetlands -calculate as follows	
	Initial score	60
	Water quality improvement factor (WIF)	**0.70**
	Land use factor (LUF)	**1.00**
	Pollutant uptake factor (PUT)	**0.75**
	Final score: 60 x WIF x LUF x PUT =	**31.50**

Short Term Water Quality Improvement Score (maximum 60 points) **32**

3.2.2 LONG TERM NUTRIENT TRAP

Step 1:

	Wetland on large lakes or 5 major rivers	=	0 points
x	All other wetlands (proceed to Step 2)		

Step 2:

Choose only one of the following settings that best describes the wetland being evaluated

	Wetland located in a river mouth	=	10 pts
	Wetland is a bog, fen or swamp with more than 50% of the wetland being covered with organic soil	=	10
	Wetland is a bog, fen or swamp with less than 50% of the wetland being covered with organic soil	=	3
	Wetland is a marsh with more than 50% of the wetland covered with organic soil	=	3
0	None of the above	=	0

Long Term Nutrient Trap Score (maximum 10 points) **0**

3.2.3 Groundwater Discharge

Circle the characteristics that best describe the wetland being evaluated and then sum the scores. If the sum exceeds 30 points, assign the maximum score of 30). Note: for wetland type, wetland type scored does not have to the dominant type in the wetland.

Percentage of Wetland Area: **0.02** %

	Potential for Discharge						
		None to Little		Some		High	
Wetland Characteristics	Wetland type	Bog = 0		Swamp/Marsh = 2	**2**	Fen = 5	
	Topography	Flat/rolling = 0	**0**	Hilly = 2		Steep = 5	
	Wetland Area: Upslope Catchment Area	Large (>50%) = 0		Moderate (5-50%) = 2		Small <(5%) = 5	**5**
	Lagg Development	None found = 0	**0**	Minor = 2		Extensive = 5	
	Seeps	None = 0	**0**	= or < 3 seeps = 2		> 3 seeps = 5	
	Surface marl deposits	None = 0	**0**	= or < 3 sites = 2		> 3 sites = 5	
	Iron precipitates	None = 0	**0**	= or < 3 sites = 2		> 3 sites = 5	
	Located within 1 km of a major aquifer	N/A = 0		N/A = 0		Yes = 10	**10**
	Totals		**0**		**2**		**15**

Additional Comments/Notes:
Oak Ridges Moraine Aquifer

Groundwater Discharge Score (maximum 30 points) **17**

3.3 Carbon Sink

Check only one of the following:

	Bog, fen or swamp with more than 50% coverage by organic soil	=	5 pts
	Bog, fen or swamp with between 10 to 49% coverage by organic soil	=	2
	Marsh with more than 50% coverage by organic soil	=	3
0	Wetlands not in one of the above categories	=	0

Carbon Sink Score (maximum 5 points) **0**

3.4 Shoreline Erosion Control

Step 1:

0	Wetland entirely isolated or palustrine	=	0 pts
	Any part of the Wetland riverine or lacustrine	=	Go to step 2

Step 2: *Choose the one characteristic that best describes the shoreline vegetation see page 109 for description of "shoreline".)*

	Trees and shrubs	=	15 pts
	Emergent vegetation	=	8
	Submergent vegetation	=	6
	Other shoreline vegetation	=	3
	No vegetation	=	0

Shoreline Erosion Control Score (maximum 15 points) **0**

3.5 Groundwater Recharge

3.5.1 Site Type

Wetland > 50% lacustrine (by area) or located on one of the five major rivers				=	0	pts	
Wetland not as above. Calculate final score as follows:							
=	FA of isolated or palustrine wetland	=	1.00	x	50	=	50.0
=	FA of riverine wetland	=	0.00	x	20	=	0.0
=	FA of lacustrine wetland (wetland <50% lacustrine)	=	0.00	x	0	=	0.0
					Subtotal:		50.0

Groundwater Recharge/Wetland Site Type Score (maximum 50 points) **50**

3.5.2 Soil Recharge Potential

Circle only one choice that best describes the soils in the area surrounding the wetland being evaluated (the soils within the wetland are not scored here).

		Group A, B, C (sands, gravels, loams)		Group D (clays, substrates in high water tables, shallow substrates over impervious materials such as bedrock)	
Dominant Wetland Type	Lacustrine or major river	0		0	
	Isolated	10		5	
	Palustrine	7		4	4
	Riverine (not on a major river)	5		2	
	Totals		0		4

Groundwater Recharge/Wetland Soil Recharge Potential Score (maximum 10 points) **4**

4.0 SPECIAL FEATURES

COMPONENT

4.1 Rarity

4.1.1 Wetland Types

Ecodistrict	Rarity within the Landscape (4.1.1.1)	Rarity of Wetland Type (4.1.1.2)			
		Marsh	Swamp	Fen	Bog
6E-1	60	40	0	80	80
6E-2	60	40	0	80	80
6E-3	40	10	0	40	80
6E-4	60	40	0	80	80
6E-5	20	40	0	80	80
6E-6	40	20	0	80	80
6E-7	60	10	0	80	80
6E-8	20	20	0	80	80
6E-9	0	20	0	80	80
6E-10	20	0	20	80	80
6E-11	0	30	0	80	80
6E-12	0	30	0	60	80
6E-13	60	10	0	80	80
6E-14	40	20	0	40	80
6E-15	40	0	0	80	80
7E-1	60	0	60	80	80
7E-2	60	0	0	80	80
7E-3	60	0	0	80	80
7E-4	80	0	0	80	80
7E-5	60	20	0	80	80
7E-6	80	30	0	80	80

4.1.1.1 Rarity within the Landscape

Choose appropriate score from 2nd column above.

Score (maximum 80 points) **60**

4.1.1.2 Rarity of Wetland Type

Score is cumulative, based on presence/absence. Circle all appropriate scores from above table and sum.

Score (maximum 80 points) **10**

4.1.2.1 Provincially Significant Animal Species

	Common Name	Scientific Name	Activity	Date Observed	Info Source
	No species				
	Total				

Additional Notes/Comments:

One	species	=	50 pts	9	species	=	140	17 species = 160
2	species	=	80	10	species	=	143	18 species = 162
3	species	=	95	11	species	=	146	19 species = 164
4	species	=	105	12	species	=	149	20 species = 166
5	species	=	115	13	species	=	152	21 species = 168
6	species	=	125	14	species	=	154	22 species = 170
7	species	=	130	15	species	=	156	23 species = 172
8	species	=	135	16	species	=	158	24 species = 174
								25 species = 176

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Plant Species (no maximum) **0**

4.1.2.2 Provincially Significant Plant Species

Common Name	Scientific Name	Activity	Date Observed	Info Source
No species				

Additional Notes/Comments:

One	species	=	50 pts	9	species	=	140	17 species = 160
2	species	=	80	10	species	=	143	18 species = 162
3	species	=	95	11	species	=	146	19 species = 164
4	species	=	105	12	species	=	149	20 species = 166
5	species	=	115	13	species	=	152	21 species = 168
6	species	=	125	14	species	=	154	22 species = 170
7	species	=	130	15	species	=	156	23 species = 172
8	species	=	135	16	species	=	158	24 species = 174
								25 species = 176

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Plant Species (no maximum) **0**

4.1.2.3 Regionally Significant Species

Common Name	Scientific Name	Activity	Date Observed	Info Source
No species				

One	species	=	20 pts	4	species	=	45	7 species = 58 pts
2	species	=	30	5	species	=	50	8 species = 61
3	species	=	40	6	species	=	55	9 species = 64
								10 species = 67

For each significant species over 10 in wetland, add 1 point.

Regionally Significant Species Score (no maximum score) **0**

4.1.2.4 Locally Significant Species

Common Name	Scientific Name	Activity	Date Observed	Info Source
Spotted St. John's-Wort	Hypericum punctatum	present	30-Aug-22	J.Snow (GEI)

One	species	=	10 pts	4	species	=	31 pts	7 species = 43 pts
2	species	=	17	5	species	=	38	8 species = 45
3	species	=	24	6	species	=	41	9 species = 47
								10 species = 49

For each significant species over 10 in wetland, add 1 point.

Locally Significant Species Score (no maximum score) **10**

Note:
Species listed as rare in southwestern Ontario are considered regionally signifcant. Species listed as rare in a county or regional municipality are considered locally signifcant. Note that, in some counties, the designation is only present or absent. Where no designation of 'rare' is made local signifcance cannot be scored.

4.2 Significant Features and Habitats

4.2.1 Colonial Waterbirds

Record all available information. Score the highest applicable category. Include additional information as possible (e.g., nest locations, etc).

Activity	Species	Info Source	Points	
Currently nesting			= 50	
Known to have nested within the past 5 years			= 25	
Active feeding area (great blue heron excluded)			= 15	
None known	No colonial waterbirds	GEI; MNRF	= 0	0
Total:				0

Additional Notes/Comments:

Colonial Waterbird Nesting Score (maximum 50 points) **0**

4.2.2 Winter Cover for Wildlife

Score highest appropriate category. Include rationale/sources of information.

	Provincially significant	=	l00 pts
	Significant in Ecoregion	=	50
	Significant in Ecodistrict	=	25
	Locally significant	=	10
0	Little or poor winter cover	=	0
0			

Species/habitat/vegetation community scored (e.g., winter deer cover in hemlock swamp, S3 and S4b):
Habitat unsuitable

Source of information:
GEI field data; MNRF LIO

Winter Cover for Wildlife Score (maximum 100 points) **0**

4.2.3 Waterfowl Staging and/or Moulting Areas

Check highest level of significance for both staging and moulting; add scores for staging and for moulting together for final score. However, maximum score for evaluation under this section is 150 points.

	Staging			Moulting		
Nationally/internationally significant	=	150	pts	=	150	pts
Provincially significant	=	100		=	100	
Significant in the Ecoregion	=	50		=	50	
Significant in Ecodistrict	=	25		=	25	
Known to occur	=	10		=	10	
Not possible/Unknown	=	0	0	=	0	0
Subtotal:			0			0
Subtotal:			0			

Species/habitat/vegetation community scored (e.g., approx 20 mallards in W3):

No observations

Source of information:

GEI; MNRF

Waterfowl Staging/Moulting Score (maximum 150 points) **0**

4.2.4 Waterfowl Breeding

Check highest level of significance.

	Nationally/internationally significant	=	150 pts
	Provincially significant	=	100
	Significant in the Ecoregion	=	50
	Significant in Ecodistrict	=	25
	Habitat Suitable	=	10
0	Habitat not suitable	=	0

Species/habitat/vegetation community scored (e.g., mallard in W3):

No open water, habitat not suitable

Source of information:

GEI; MNRF

Waterfowl Breeding Score (maximum 100 points) **0**

4.2.5 Migratory Passerine, Shorebird or Raptor Stopover Area

Check highest level of significance.

	Nationally / internationally significant	=	150 pts
	Provincially significant	=	100
	Significant in Ecoregion	=	50
	Significant in Ecodistrict	=	25
	Known to occur	=	10
0	Not possible / Unknown	=	0

Species/habitat/vegetation community scored:

Unknown; targeted migratory surveys not conducted.

Source of information:

Passerine, Shorebird or Raptor Stopover Score (maximum 100 points) **0**

4.2.6 Fish Habitat

4.2.6.1 Spawning and Nursery Habitat

Area Factors for Low Marsh, High Marsh and Swamp Communities.

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5- 4.9	0.2
5.0- 9.9	0.4
10.0- 14.9	0.6
15.0 -19.9	0.8
20.0+ ha	1.0

Step 1:

0	Fish habitat is not present within the wetland	Go to Step 7, Score 0 points
	Fish habitat is present within the wetland	Go to Step 2

Step 2: Choose only one option

	Significance of the spawning and nursery habitat within the wetland is known	Go to Step 3
	Significance of the spawning and nursery habitat within the wetland is not known	Go through Steps 4, 5 and 6

Step 3: Select the highest appropriate category below, attach documentation:

	Significant in Ecoregion	Go to Step 7,	l00 points
	Significant in Ecodistrict	Go to Step 7,	50
	Locally Significant Habitat (5.0+ ha)	Go to Step 7,	25
	Locally Significant Habitat (<5.0 ha)	Go to Step 7,	15

Subtotal: 0

Source of information:

Step 4: Low Marsh = the 'permanent' marsh area, from the existing water line out to the outer boundary of the wetland.

	Low marsh not present	Go to Step 5
	Low marsh present	Continue through Step 4, scoring as noted below

Scoring of Low Marsh:

1. Check the appropriate **Vegetation Group** (see Appendix 7) for each Low Marsh community. (Based on the one most clearly dominant plant species of the dominant form in each Low Marsh vegetation community.)
2. Sum the areas (ha) of the vegetation communities assigned to each **Vegetation Group.**
3. Use these areas to assign an **Area Factor** for each checked **Vegetation Group**.
4. Multiply the **Area Factor** by the **Multiplication Factor** for each row to calculate Score.
5. Sum all numbers in Score column to get **Total Score for Low Marsh**.

Scoring for Presence of Key Vegetation Groups – Low Marsh						
Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (from Table 8)	Multiplication Factor	Score
1	Tallgrass				6	**0.0**
2	Shortgrass-Sedge				11	**0.0**
3	Cattail-Bulrush-Burreed				5	**0.0**
4	Arrowhead-Pickerelweed				5	**0.0**
5	Duckweed				2	**0.0**
6	Smartweed-Waterwillow				6	**0.0**
7	Waterlily-Lotus				11	**0.0**
8	Waterweed-Watercress				9	**0.0**
9	Ribbongrass				10	**0.0**
10	Coontail-Naiad-Watermilfoil				13	**0.0**
11	Narrowleaf Pondweed				5	**0.0**
12	Broadleaf Pondweed				8	**0.0**
				Sub Total Score		**0.0**
				Total Score (maximum 75 points)		**0.0**

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5- 4.9	0.2
5.0- 9.9	0.4
10.0- 14.9	0.6
15.0 -19.9	0.8
20.0+ ha	1.0

Step 5: High Marsh = the 'seasonal' marsh area, from the water line to the inland boundary of marsh wetland type. This is essentially what is commonly referred to as a wet meadow, in that there is insufficient standing water to provide fisheries habitat except during flood or high water conditions.

☐ High marsh not present — Go to Step 6

☐ High marsh present — Continue through Step 5, scoring as noted below

Scoring of High Marsh:

1. Check the appropriate **Vegetation Group** (see Appendix 7) for each High Marsh community. (Based on the one most clearly dominant plant species of the dominant form in each High Marsh vegetation community.)
2. Sum the areas (ha) of the vegetation communities assigned to each **Vegetation Group.**
3. Use these areas to assign an **Area Factor** (from Table 8) for each checked **Vegetation Group**.
4. Multiply the **Area Factor** by the **Multiplication Factor** for each row to calculate Score.
5. Sum all numbers in Score column to get **Total Score for High Marsh**.

Scoring for Presence of Key Vegetation Groups – High Marsh

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (from Table 8)	Multiplication Factor	Score
1	Tallgrass				6	**0.0**
2	Shortgrass-Sedge				11	**0.0**
3	Cattail-Bulrush-Burreed				5	**0.0**
4	Arrowhead-Pickerelweed				5	**0.0**
				Sub Total Score		**0.0**
				Total Score for High Marsh (maximum 25 points)		**0.0**

Continue to Step 6

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5- 4.9	0.2
5.0- 9.9	0.4
10.0- 14.9	0.6
15.0 -19.9	0.8
20.0+ ha	1.0

Step 6:

Scoring of Swamp:

1. Determine the total area (ha) of seasonally flooded swamp communities within the wetland containing fish habitat and record below.
2. Determine the total area (ha) of permanently flooded swamp communities within the wetland containing fish habitat and record below.
3. Use these areas to assign an **Area Factor** (from Table 8).
4. Multiply the Area Factor by the **Multiplication Factor** for each row to calculate Score.
5. Sum all numbers in Score column to get **Total Score for Swamp**.

Scoring Swamps for Fish Habitat (Seasonally flooded; Permanently flooded)					
Swamp Containing Fish Habitat	Present (check)	Total Area (ha)	Area Factor (from Table 8)	Multiplication Factor	Score
Seasonally Flooded Swamp				10	0.0
Permanently Flooded Swamp				10	0.0
	Sub Total Score				0.0
	Total Score for Swamp (maximum 20 points)				0.0

Continue to Step 7

Step 7: CALCULATION OF FINAL SCORE

NOTE: Scores for Steps 4, 5 and 6 are only recorded if Steps 1 and 3 have not been scored.

A. Score from Step 1 (fish habitat not present)	=	0
B. Score from Step 3 (significance known)	=	0
C. Score from Step 4 (Low Marsh)	=	0.0
D. Score from Step 5 (High Marsh)	=	0.0
E. Score from Step 6 (Swamp)	=	0.0
Subtotal:		0.0

Calculation of Final Score for Spawning and Nursery Habitat = A or B or Sum of C, D, and E

Score for Spawning and Nursery Habitat (maximum 100 points)	0

4.2.6.2 Migration and Staging Habitat

Step 1:

0	Staging or Migration Habitat is not present in the wetland	Go to Step 4, Score 0 points
	Staging or Migration Habitat is present in the wetland significance of the habitat is known	Go to Step 2
	Staging or Migration Habitat is present in the wetland significance of the habitat is not known	Go to Step 3

Step 2: Select the highest appropriate category below. Ensure that documentation is attached to the data record.

	Significant in Ecoregion	Score 25 points in Step 4
	Significant in Ecodistrict	Score 15 points in Step 4
	Locally Significant	Score 10 points in Step 4
	Fish staging and/or migration habitat present, but not as above	Score 5 points in Step 4

Source of information:

Step 3: Select the highest appropriate category below based on presence of the designated site type (i.e. does not have to bethe dominant site type). Refer to Site Types recorded earlier (section 1.1.3). Attach documentation.

	Wetland is riverine at rivermouth or lacustrine at rivermouth	Score 25 points in Step 4
	Wetland is riverine,within 0.75 km of rivermouth	Score 15 points in Step 4
	Wetland is lacustrine,within 0.75 km of rivermouth	Score 10 points in Step 4
	Fish staging and/or migration habitat present, but not as above	Score 5 points in Step 4

Step 4: Enter a score from only one of the three above Steps.

Score for Staging and Migration Habitat (maximum 25 points)	0

4.3 Ecosystem Age

		Fractional Area			Scoring
Bog	=	0.00	x	25 =	0.0
Fen, on deeper soils; floating mats or marl	=	0.00	x	20 =	0.0
Fen, on limestone rock	=	0.00	x	5 =	0.0
Swamp	=	0.00	x	3 =	0.0
Marsh	=	1.00	x	0 =	0.0
				Sub Total:	0.0

Ecosystem Age Score (maximum 25 points) **0**

4.4 Great Lakes Coastal Wetlands

Choose one only. Only coastal wetland units may be scored.

	wetland < 10 ha	=	10 pts
	wetland 10 - 50 ha	=	25
	wetland 51 - 100 ha	=	50
	wetland > 100 ha	=	75

Great Lakes Coastal Wetland Score (maximum 75 points) **0**

WETLAND EVALUATION SCORING

RECORD

Wetland Name: 0

1.0 BIOLOGICAL COMPONENT

1.1 PRODUCTIVITY

22	1.1.1	Growing Degree-Days/Soils
15	1.1.2	Wetland Type
2	1.1.3	Site Type

1.2 BIODIVERSITY

9	1.2.1	Number of Wetland Types
4	1.2.2	Vegetation Communities
7	1.2.3	Diversity of Surrounding Habitat
5	1.2.4	Proximinty to Other Wetlands
6	1.2.5	Interspersion
0	1.2.6	Open Water Type

1	1.3 SIZE (Biological Component)
71	Subtotal
71	TOTAL (Biological Component)

2.0 SOCIAL COMPONENT

2.1 ECONOMICALLY VALUABLE PRODUCTS

0	2.1.1 Wood Products
0	2.1.2 Wild Rice
0	2.1.3 Commerical Fish (Bait Fish and/or Coarse Fish)
0	2.1.4 Furbearers

8	2.2 RECREATIONAL ACTIVITIES

2.3 LANDSCAPE AESTHETICS

0	2.3.1 Distinctness
4	2.3.2 Absence of Human Disturbance

2.4 EDUCATION AND PUBLIC AWARENESS

0	2.4.1 Educational Uses
0	2.4.2 Facilities and Programs
5	2.4.3 Research and Studies

26	2.5 PROXIMITY TO AREAS OF HUMAN SETTLEMENT
4	2.6 OWNERSH1P
2	2.7 SIZE (Social Component)
0	2.8 ABORIGINAL AND CULTURAL VALUES

2.8.1 Aboriginal Values

2.8.2 Cultural Heritage

49	Subtotal
49	TOTAL (Social Component)

3.0 HYDROLOGICAL COMPONENT

45	3.1 FLOOD ATTENUATION
	3.2 WATER QUALITY IMPROVEMENT
32	3.2.1 Short Term Water Quality Improvement
0	3.2.2 Long Term Nutrient Trap
17	3.2.3 Groundwater Discharge
0	3.3 CARBON SINK
0	3.4 SHORELINE EROSION CONTROL
	3.5 GROUNDWATER RECHARGE
50	3.5.1 Site Type
4	3.5.2 Soils
148	Subtotal
148	TOTAL (Hydrological Component)

4.0 SPECIAL FEATURES COMPONENT

4.1 RARITY

4.1.1 Wetland Types

60	4.1.1.1 Rarity within the Landscape
10	4.1.1.2 Rarirty of Wetland Type

4.1.2 Species

0	4.1.2.1	Provincially Significant Animal Species
0	4.1.2.2	Provincially Significant Plant Species
0	4.1.2.3	Regionally Significant Species
10	4.1.2.4	Locally Significant Species

4.2 SIGNIFICANT FEATURES OR HABITATS

0	4.2.1 Colonial Waterbirds
0	4.2.2 Winter Cover for Wildlife
0	4.2.3 Waterfowl Staging and/or Moulting Areas
0	4.2.4 Waterfowl Breeding
0	4.2.5 Migratory Passerine, Shorebird or Raptor Stopover Area
	4.2.6 Fish Habitat
0	4.2.6.1 Spawning and Nursery Habitat
0	4.2.6.2 Migration and Staging Habitat

0	4.3 ECOSYSTEM AGE
0	4.4 GREAT LAKES COASTAL WETLANDS

80	Subtotal
80	TOTAL (Special Features Component)

SUMMARY OF EVALUATION RESULT

71	1.0	TOTAL FOR BIOLOGICAL COMPONENT
49	2.0	TOTAL FOR SOCIAL COMPONENT
148	3.0	TOTAL FOR HYDROLOGICAL COMPONENT
80	4.0	TOTAL FOR SPECIAL FEATURES COMPONENT
348		TOTAL WETLAND SCORE

Appendix H Landscape Plans

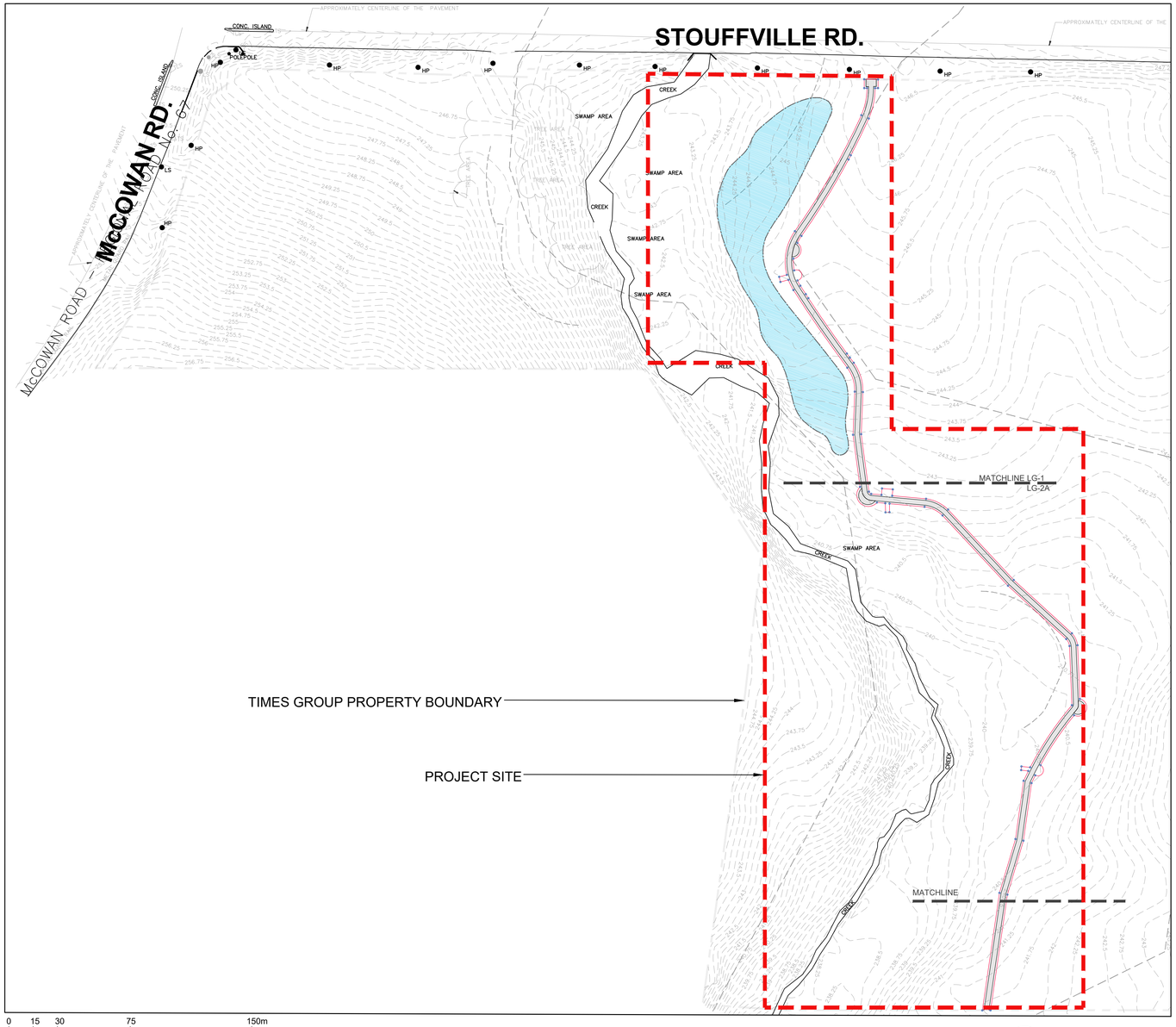
Times Group Corporation

Highway 48 Stouffville Road Property Compensation Wetland and Trail Construction

Town of Whitchurch-Stouffville

Regional Municipality of York

Drwg. No:	List of Drawings
L-0	Cover Sheet
SP-1	Site Preparation Staging Plan
ESC-1	Erosion and Sediment Control Plan
ESC-2	Erosion and Sediment Control Plan
LG-1	Layout and Grading Plan for Wetland
LG-2	Layout and Grading Plan for Trail
LP-1	Landscape Planting Plan for Trail
LP-2	Landscape Planting Plan for Trail
S-1	Seeding and Site Restoration Plan
S-2	Seeding and Site Restoration Plan for Trail
LD-1	Landscape Works Details
LD-2	Trail Head and Node Details
LD-3	Habitat Details
LD-4	Planting Details



Key Plan

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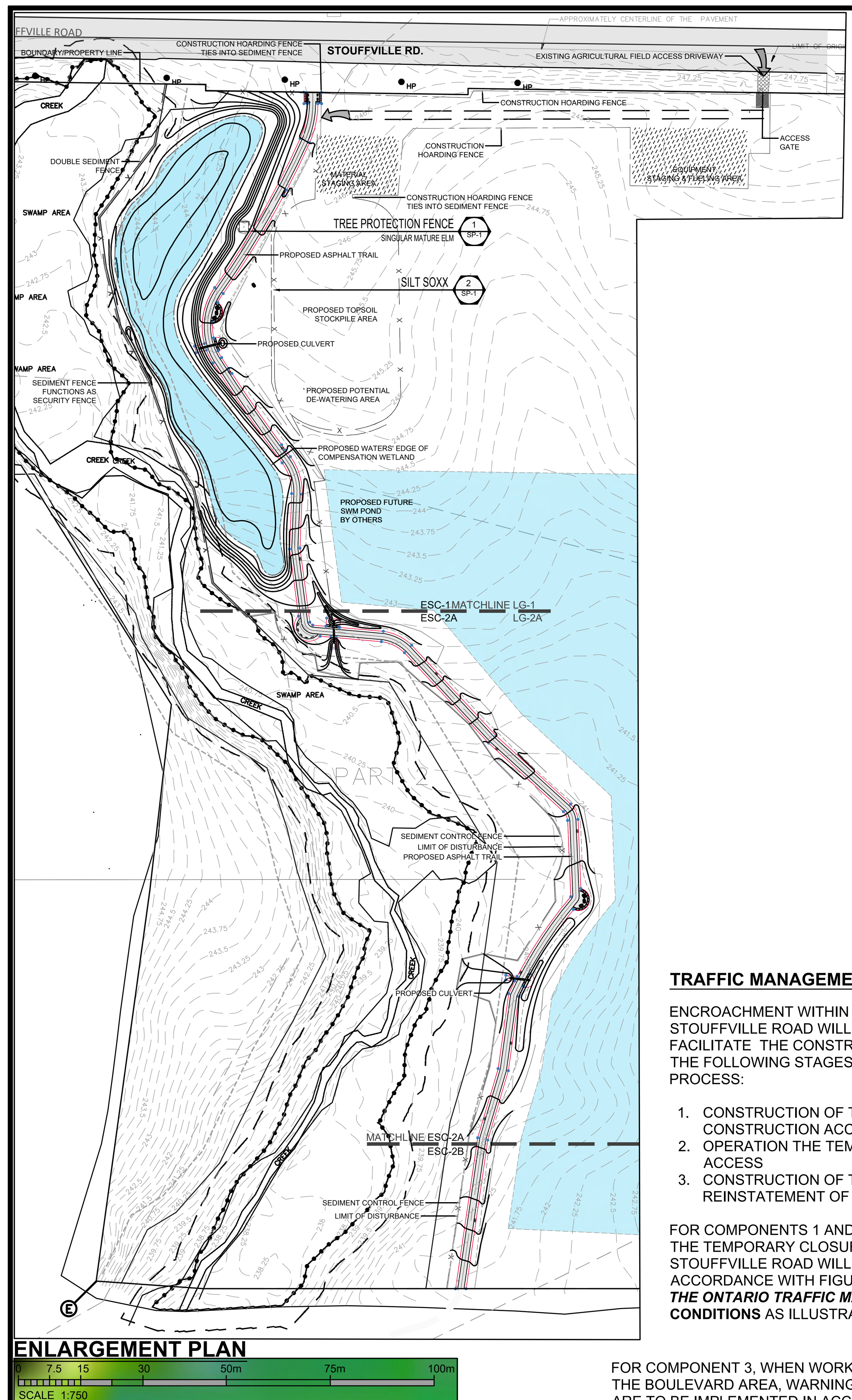


ENLARGEMENT PLAN

SITE PREPARATION:

STRIPPING, CLEARING AND GRUBBING / IMPORTANT - EXISTING HERBACEOUS VEGETATION WITHIN THE REGRADED AREAS OF THE WETLAND AND TRAIL IS TO BE REMOVED. REFER TO **SITE PREPARATION PLAN FOR INVENTORY LIST OF EXISTING TREES TO BE PROTECTED.**

ONCE SEDIMENT AND TREE PROTECTION CONTROLS ARE IN PLACE, STRIP TOPSOIL AND STOCKPILE IN AREAS INDICATED ON PLAN, BLADING AWAY FROM THE CREEK. TAKE CARE TO MITIGATE COMPACTION OF TOPSOIL DURING STRIPPING AND STOCKPILING. UPON COMPLETION OF GRADING, SPREAD TOPSOIL BACK OVER REGRADED WETLAND AREA AS NOTED AND RESTORE SITE, TOPSOIL STOCKPILE AND CONSTRUCTION ACCESS ROUTE BY SEEDING ALL DISTURBED AREAS IN ACCORDANCE WITH SPECIFICATIONS.

NOTE: EXCESS TOPSOIL TO BE UTILIZED AND SPREAD AT STOCKPILE LOCATION.

CONSTRUCTION STAGING:

STAGE 1: CONSTRUCTION AREA

CONSTRUCT WETLAND AND GRADE PERIMETER AREAS TO EXISTING GRADE AT CREEK BANK TO ISOLATE THE WETLAND SITE FROM THE CREEK.
THE WORKS TAKE PLACE WITHIN THE GROWING SEASON AND REDSIDE DACE TIMING WINDOW (JULY 1 TO SEPTEMBER 15).

STAGE 2:

CONSTRUCTION OF PLANTING AND SITE RESTORATION WORKS

IMPLEMENTATION AND CONSTRUCTION IMPACT MITIGATION:

1. EARTHWORK OPERATIONS WILL CEASE DURING PERIODS OF PRECIPITATION.

2. ALL SEDIMENT CONTROL MEASURES WILL BE INSPECTED ON A DAILY BASIS, REPORT TO CITY AND REPAIRED AS REQUIRED WHERE EVIDENCE OF FAILURE OR WEAKNESS IS OBSERVED.

3. ADDITIONAL SEDIMENT CONTROL INITIATIVES WILL BE IMPLEMENTED AS REQUIRED TO MITIGATE THE MIGRATION OF SEDIMENT LADEN RUNOFF INTO THE WATERCOURSE.

4. ALL CONSTRUCTION MATERIAL AND EQUIPMENT USED FOR THE PURPOSES OF SITE PREPARATION AND PROJECT COMPLETION SHALL BE OPERATED AND STORED IN A MANNER THAT PREVENTS ANY DELETERIOUS SUBSTANCES FROM ENTERING THE WATER COURSE.

5. THE DESIGNATED REFUELING AREA WILL BE LOCATED AT A DISTANCE OF MORE THAN 45M FROM THE EDGE OF THE WATERCOURSE.
THE PROVISION AND USE OF DUST CONTROL AND MUD CONTROL MEASURES SHALL BE IMPLEMENTED AT THE ACCESS TO PUBLIC ROAD.

GENERAL NOTES FOR WETLAND WORK ADJACENT CREEK CORRIDOR:

DOUBLE SILT CONTROLS ARE TO BE PLACED PRIOR TO THE START OF SITE WORKS AND ARE TO BE MAINTAINED FOR THE DURATION OF THE CONSTRUCTION.

BLEND PROPOSED GRADES AT EXTENT OF WORK WITH EXISTING CREEK BANK.

CONSTRUCTION STAGING GENERAL NOTES:

LOCATION OF UPSTREAM AND DOWNSTREAM CONSTRUCTION LIMITS TO BE LAID OUT AND INSPECTED BY CONSULTANT BEFORE CONSTRUCTION WORKS BEGIN.

TO FACILITATE THE IMPLEMENTATION OF THE REHABILITATION PLAN, TEMPORARY DISTURBANCE NEAR THE RIVER BANK WILL BE REQUIRED.

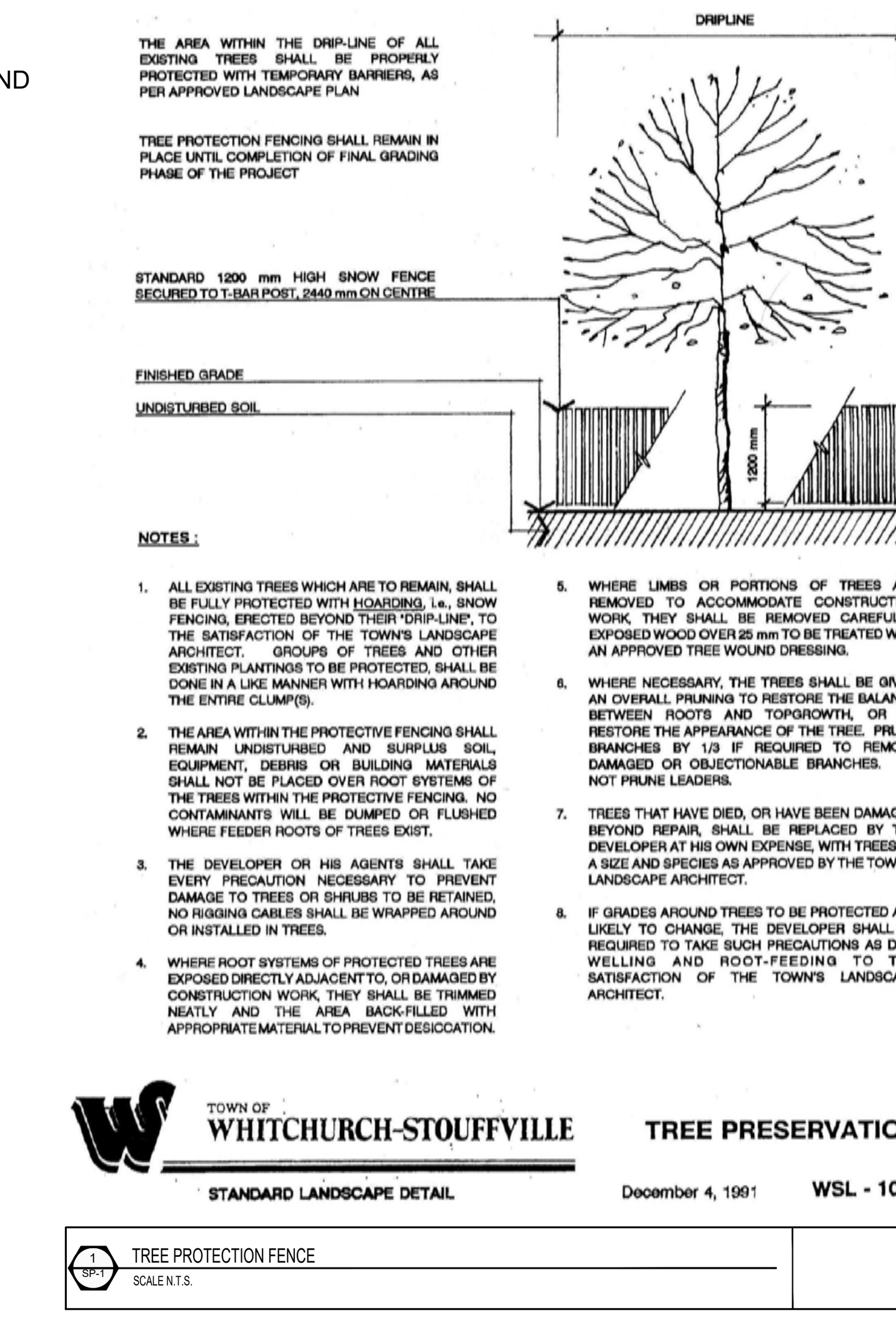
WHERE EXCAVATION AND EARTHWORKS OCCUR OFF LINE, WORK AREAS WILL BE ISOLATED FROM THE RIVER BY MAINTAINING INTACT A 3.0m WIDE SECTION OF EXISTING RIVER BANK WITH SEDIMENT CONTROL / SILT CURTAIN.

CONSTRUCTION WILL BE STAGED FROM ACCESS ROUTE SHOWN IN THIS PLAN.
CONSTRUCTION EQUIPMENT IS LIMITED TO THE ACCESS ROUTE SHOWN IN THIS PLAN.

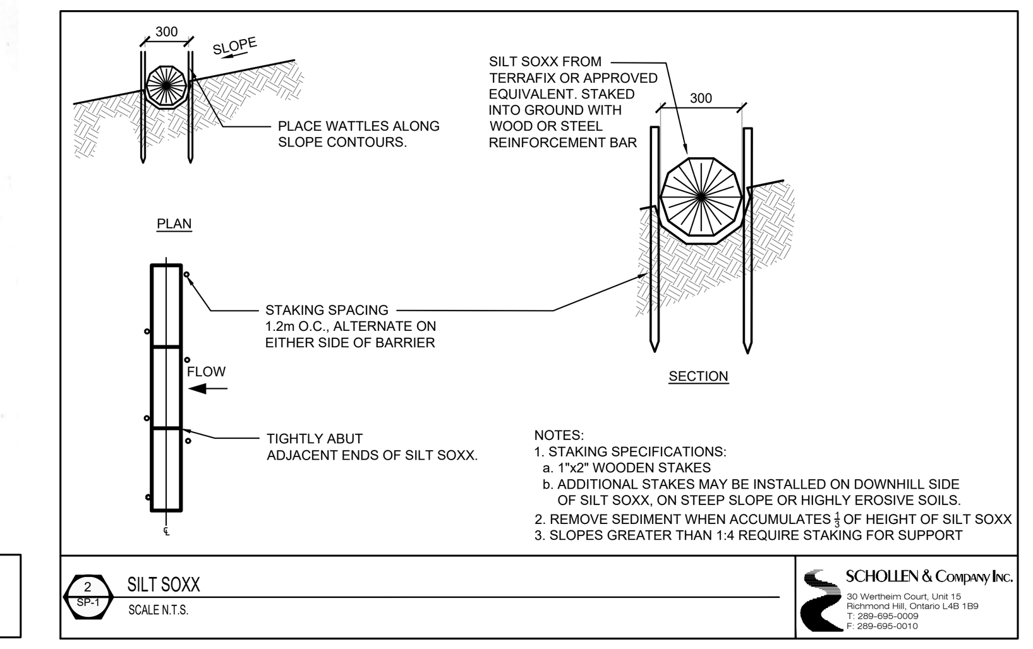
MANAGEMENT PLAN FOR ACCUMULATED WATER:

ACCUMULATED WATER BEHIND THE PROPOSED WETLAND SHALL BE CONTROLLED VIA PUMPING TO THE DISCHARGE LOCATION INDICATED ON THE DRAWING A MINIMUM OF 30 m FROM THE STREAM BANK, UTILIZING THE EXISTING VEGETATED AREA. DISCHARGE SHALL BE PASSED THROUGH A FILTER BAG AND DIRECTED THROUGH A FLOW DISPERSAL DAM.
CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE SPECIFIC DE-WATERING METHOD / INSTALLATION.CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING DE-WATERING AND ESC THROUGHOUT THE DURATION OF CONSTRUCTION.

CONTINGENCY PLAN:
SHOULD MONITORING OF THE ABOVE MANAGEMENT PLAN SHOW POOR PERFORMANCE AS DIRECTED BY THE ENGINEER, DIRECTOR OF ENGINEERING, OR TRCA, ALL DISCHARGE TO THE WATERCOURSE VIA THE ABOVE MEASURES SHALL CEASE IMMEDIATELY. A SUITABLE ALTERNATIVE SHALL BE SELECTED IN CONSULTATION WITH THE CITY AND TRCA, THAT MAY INCLUDE (BUT IS NOT LIMITED TO) AN ALTERNATE DISCHARGE LOCATION; PRODUCT SUBSTITUTION; OR THE USE OF ENVIRO-TANKS (WEIR TANKS).



1 SP-1 TREE PROTECTION FENCE
SCALE N.T.S.



2 SP-1 SILT SOXX
SCALE N.T.S.

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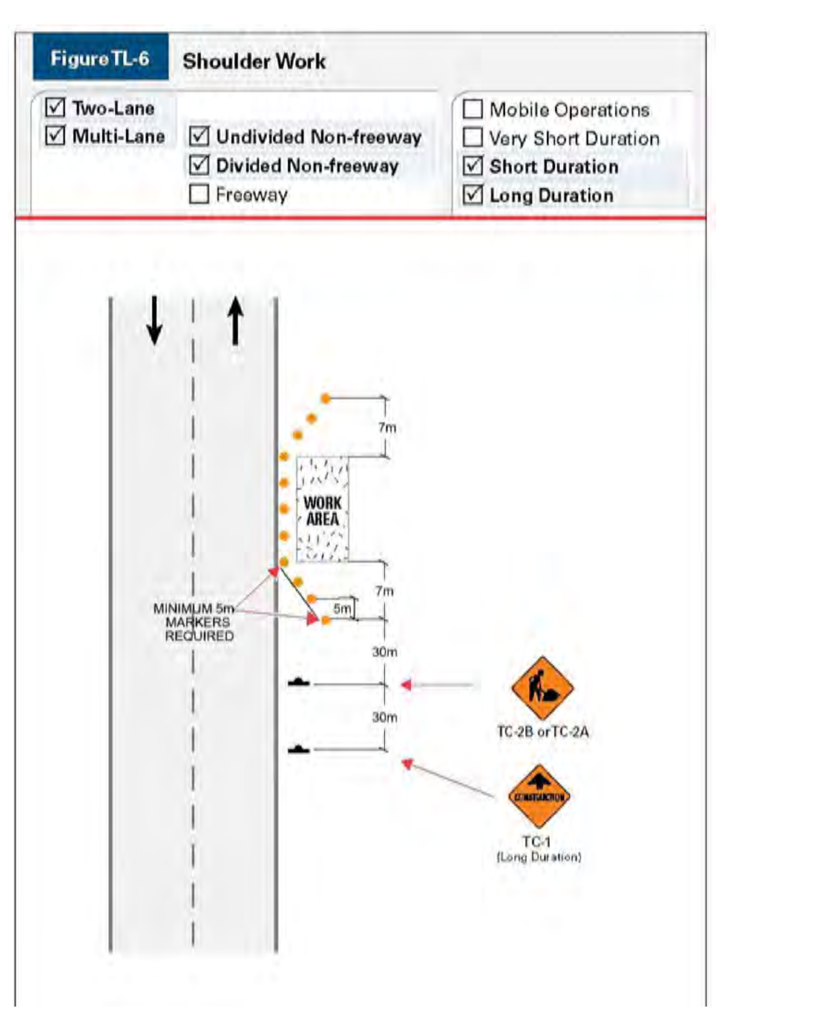
TRAFFIC MANAGEMENT PLAN

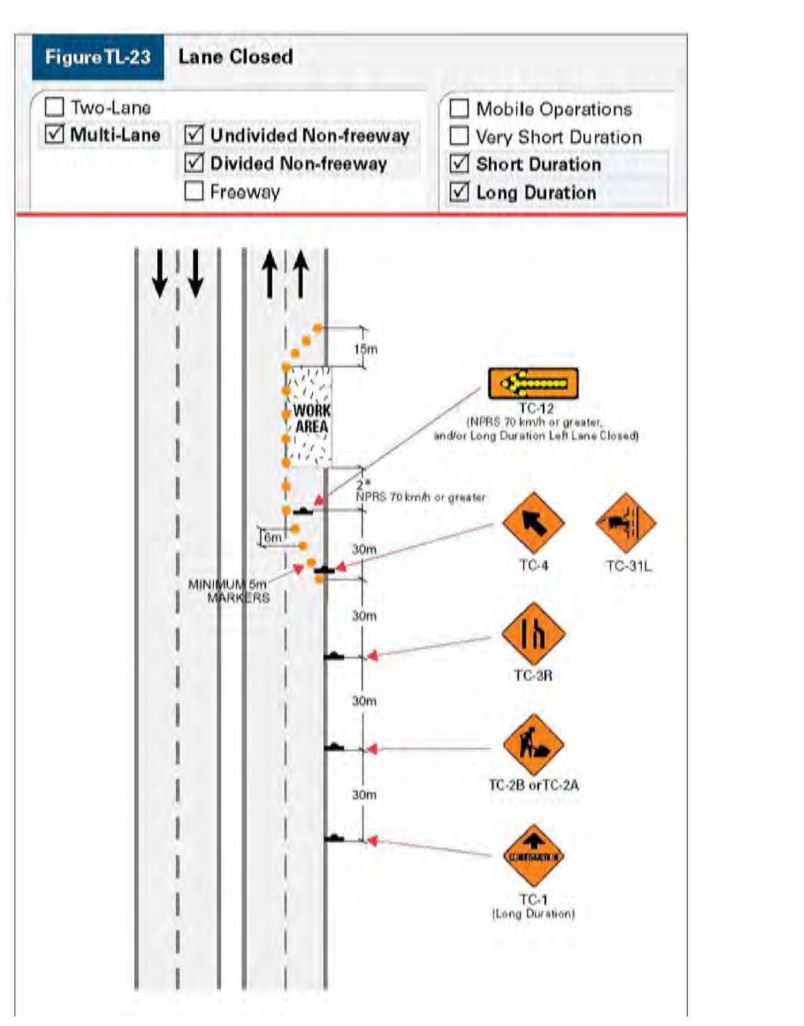
ENCROACHMENT WITHIN THE RIGHT-OF-WAY OF STOUFFVILLE ROAD WILL BE NECESSARY TO FACILITATE THE CONSTRUCTION OF THE TRAIL AT THE FOLLOWING STAGES IN THE CONSTRUCTION PROCESS:

1. CONSTRUCTION OF THE TEMPORARY CONSTRUCTION ACCESS.
2. OPERATION THE TEMPORARY CONSTRUCTION ACCESS
3. CONSTRUCTION OF THE PROPOSED WORKS AND REINSTATEMENT OF THE BOULEVARD AREAS

FOR COMPONENTS 1 AND 3 AS PRESENTED ABOVE, THE TEMPORARY CLOSURE OF THE RIGHT LANE OF STOUFFVILLE ROAD WILL BE IMPLEMENTED IN ACCORDANCE WITH FIGURE TL-23 OF BOOK 7 OF ***THE ONTARIO TRAFFIC MANUAL* - TEMPORARY CONDITIONS** AS ILLUSTRATED BELOW:

FOR COMPONENT 3, WHEN WORKS ARE CONFINE TO THE BOULEVARD AREA, WARNINGS ARE TO BE IMPLEMENTED IN ACCORDANCE WITH FIGURE TL-6 AS ILLUSTRATED BELOW:





CONSTRUCTION MARKERS SHALL BE TC-54 FLEXIBLE DRUM TUBE MARKERS AS SPECIFIED IN BOOK 7.

FOR COMPONENT 2, WHEN THE TEMPORARY CONSTRUCTION ACCESS IS IN OPERATION, ENTRANCE SIGN TC-31L ' TRUCK ENTRANCE' WILL BE INSTALLED 30m AHEAD OF THE ENTRANCE.

ALL SIGNS AND MARKERS MUST REMAIN IN POSITION AND VISIBLE THROUGHOUT THE DURATION OF CONSTRUCTION OF COMPONENTS 1, 2 AND 3. THE CONTRACTOR IS TO INSPECT ALL SIGNS AND MARKERS DAILY TO ENSURE THAT THEY ARE INTACT AND OPERATIONAL.

OTHER NOTES:
1. ACCESS SHALL BE MAINTAINED AT ALL TIMES TO ALL BUSINESSES AND RESIDENCES PRESENTLY HAVING ACCESS TO THE ROAD.
2. PLEASE ENSURE THAT SIDEWALK BE MAINTAINED AT ALL TIMES, OR HAVE PEDESTRIAN TRAFFIC REDIRECTED IF SIDEWALKS WILL BE IMPACTED BY CONSTRUCTION.
3. ALL YRT BUS PADS MUST REMAIN OPEN OR BE ACCOMMODATED FOR IN COORDINATION WITH YRT.
4. LANE CLOSURES MUST ONLY BE IN EFFECT FROM 9:30 A.M. TO 3:30 P.M. IF ADDITIONAL WORKING HOURS ARE REQUIRED, EVENING LANE CLOSURE HOURS 9:00 PM TO 5:00 AM AND WEEKENDS WITH NOISE BYLAW PERMIT FROM LOCAL MUNICIPALITY MAY ALSO BE ACCEPTED.
5. CONTRACTOR MUST ENSURE THAT THE LAYOUT FOR THE SIGNAGE REFLECTS APPROPRIATE POSTED SPEED LIMITS AND SHOULD INCORPORATE THE WORK ZONE COMPONENT DIMENSIONS OF TABLE A OR TABLE B, DEPENDING ON THE DURATION OF WORK.
6. CONTRACTOR MUST MAINTAIN A MINIMUM WIDTH OF 3 METERS IN THE THROUGH LANE DURING CONSTRUCTION.

METRIC

NOTES

1. IT IS THE RESPONSIBILITY OF THE OWNER/DEVELOPER OR HIS CONSULTANT RESPONSIBLE FOR ADMINISTERING THE CONTRACT TO NOTIFY THEIR CONTRACTOR(S) TO BE FAMILIAR WITH AND UNDERSTAND THE FOREGOING CONDITIONS BELOW. CONTRACTORS ARE EXPECTED TO HAVE SUFFICIENT KNOWLEDGE, EXPERIENCE AND EQUIPMENT FOR WORKING ON REGIONAL ROADS.

2. NO START-UP OF ROAD CONSTRUCTION PROJECTS WILL BE PERMITTED AFTER NOVEMBER 15TH OR PRIOR TO MARCH 31ST WITHOUT SPECIAL EXEMPTION AND PERMISSION FROM YORK REGION'S DEVELOPMENT ENGINEERING SECTION. PLACING OF HOT MIX ASPHALT MUST ADHERE TO OPSS-310.07.06.02 OPERATIONAL CONSTRAINTS.

3. WINTER WORK: ANY APPROVED DEVELOPMENT CONSTRUCTION WITHIN THE REGIONAL ROAD ALLOWANCE, BETWEEN NOVEMBER 15TH AND MARCH 31ST IN ANY GIVEN YEAR, WILL BE CONSIDERED WINTER WORK. ANY WORK (NEW OR ONGOING) IN THE ROAD ALLOWANCE BETWEEN THESE DATES MAY NOT COMMENCE OR CONTINUE WITHOUT THE WRITTEN CONSENT OF THE REGION'S SUPERVISOR OF DEVELOPMENT CONSTRUCTION. THIS WRITTEN CONSENT MAY BE REVOKED BY THE REGION AT ANY TIME. ANY NON-CONFORMING WORK, IN ACCORDANCE WITH PROVINCIAL AND REGIONAL SPECIFICATIONS, SHALL BE REMOVED AND REPLACED AT THE DEVELOPER'S EXPENSE.

PRIOR TO DEMOBILIZING FOR THE WINTER (THE "WINTER SHUT-DOWN"), THE FOLLOWING REQUIREMENTS MUST BE MET:

(a) ALL EXCAVATIONS MUST BE BACKFILLED;
(b) THE SITE MUST BE LEFT CLEAN, TIDY AND SAFE;
(c) ROAD SUBGRADE AND/OR ROAD GRANULARS SHALL NOT BE EXPOSED DURING THE WINTER SHUT-DOWN, UNLESS APPROVED IN ADVANCE BY THE REGION UPON WRITTEN REQUEST FROM THE CONTRACTOR. THE WORK SHALL BE SCHEDULED SUCH THAT THE ASPHALT BASE COURSE IS COMPLETED ON ANY COMPLETED ROAD GRANULAR BASE PRIOR TO THE WINTER SHUT-DOWN. GRAVEL OR MILLED PAVEMENT SURFACES WILL NOT BE PERMITTED FOR THE TRAVELED ROADWAY DURING THE WINTER SHUT-DOWN PERIOD;
(d) ROADWAYS MUST HAVE TEMPORARY OR PERMANENT PAVEMENT MARKINGS AND APPROPRIATE TRAFFIC SIGNAGE INSTALLED IN ACCORDANCE WITH THE ONTARIO TRAFFIC MANUAL (OTM), AND ALL CONSTRUCTION WORK AREAS SHALL BE PROPERLY PROTECTED FROM THE TRAVELED LANES;
(e) CUT OR FILL SLOPES LEFT WITHOUT VEGETATIVE COVER OR EROSION CONTROL BLANKETS SHALL BE TREATED BEFORE THE ON-SET OF WINTER WITH HYDRAULIC MULCH GROUND COVER;
(f) POSITIVE FLOW FOR ALL STORM CULVERTS SHALL BE MAINTAINED. IF THE CONTRACTOR IS UNABLE TO COMPLETE THE CONSTRUCTION OF THE STORM SYSTEM WITHIN THE ALLOTTED CONSTRUCTION WINDOW, THEN ADDITIONAL MEASURES TO ALLOW FOR POSITIVE DRAINAGE WILL BE IMPLEMENTED BY THE CONTRACTOR. THIS INCLUDES THE PROVISION OF ADDITIONAL CREEK CHANNELIZATION AND/OR SAND BAGS AS NEEDED TO DIVERT THE FLOW TO EXISTING CULVERTS OR CHANNELS AND MAINTAIN FLOW; AND
(g) CATCH BASINS AND MAINTENANCE HOLE GRATES SHALL BE ADJUSTED TO MATCH THE GRADE OF ASPHALT, ENSURING POSITIVE DRAINAGE AND LIMITING SNOW REMOVAL HAZARDS.

REPAIRS TO THE ROADWAY, INTERIM DRAINAGE CONDITIONS, EROSION CONTROL, SIGNAGE AND DELINEATION SHALL BE PERFORMED BY THE CONTRACTOR, AS REQUIRED, THROUGHOUT THE WINTER SHUT-DOWN PERIOD AS REQUIRED AT THE SOLE DISCRETION OF THE REGION.
THE REGION WILL PERFORM SNOW CLEARING AND DE-ICING OPERATIONS FOR ROADS WHICH ARE OPEN TO THE PUBLIC DURING THE WINTER SHUT-DOWN PERIOD.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR SNOW CLEARING, SNOW REMOVAL, AND DE-ICING OF ANY AREAS IN WHICH THEY HAVE ELECTED TO PERFORM WORK DURING THE WINTER SHUT-DOWN PERIOD. SNOW IN THESE AREAS SHALL BE REMOVED FROM THE RIGHT-OF-WAY, AND MUST NOT IMPEDE WITH REGIONAL EFFORTS TO KEEP TRAVELED LANES CLEAR OF SNOW/WINTER DEBRIS.

ALL TRAFFIC CONTROL DEVICES AND SIGNAGE MUST BE MAINTAINED IN THEIR PROPER LOCATIONS, CLEANED, WEIGHTED DOWN BY SANDBAGS ONLY, AND MAINTAINED THROUGHOUT THE DURATION OF THE CONTRACT. REGIONAL FORCES WILL NOT REINSTATE TEMPORARY SIGNAGE DISPLACED BY WINTER MAINTENANCE OPERATIONS. THE CONTRACTOR SHALL ENSURE THAT ALL CONSTRUCTION SIGNS AFFECTED BY WINTER MAINTENANCE OPERATIONS ARE IMMEDIATELY CLEANED AND REINSTATED OR REPLACED. A SAFETY LOG SHALL BE KEPT TO ENSURE THAT ALL TEMPORARY SAFETY MEASURES HAVE BEEN INSPECTED REGULARLY AND ARE IN GOOD WORKING CONDITION. THE REGION MAY REQUEST THIS LOG AT ANY TIME.

4. UNLESS OTHERWISE SPECIFIED, ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS AND YORK REGION DESIGN STANDARD DRAWINGS SHALL BE ADHERED TO.

5. A COPY OF THE "NOTICE OF PROJECT" SHALL BE SUBMITTED TO THE DEVELOPMENT CONSTRUCTION COORDINATOR AT THE PRE-CONSTRUCTION MEETING.

6. THE OWNER/ DEVELOPER WILL ENSURE THAT THE REGIONAL ROAD SURFACES, DITCHES AND BOULEVARDS ARE KEPT CLEAR OF DUST, MUD AND BUILDING DEBRIS UNTIL THE LANDS REPRESENTED BY THIS APPROVAL ARE FULLY DEVELOPED AND ASSUMED BY YORK REGION ROAD OPERATIONS. THE OWNER/DEVELOPER ACKNOWLEDGES THAT THE REGION WILL CARRY OUT ANY WORK DEEMED NECESSARY AT THE OWNER'S EXPENSE IF SUCH REQUIREMENTS ARE NOT CARRIED OUT WITHIN 24 HOURS OF NOTICE BEING GIVEN TO THE APPLICANT, CONSULTING ENGINEER, OWNER OR WITHOUT ANY NOTICE IF, IN THE OPINION OF THE COMMISSIONER OF CORPORATE SERVICES DEPARTMENT OR THE DESIGNATE, IT IS REQUIRED IMMEDIATELY. REPEAT INFRACTIONS WILL BE CONSIDERED A SAFETY VIOLATION AND MAY BE SUBJECT TO INVOKING A STOP WORK ORDER, REVOKING OF THE ROAD OCCUPANCY PERMIT AND/OR THE REQUIRED REAPPLICATION OF THE CONSTRUCTION ACCESS APPROVAL INCLUDING A SAFETY INSPECTION FEE OF $1,400.00, AS OUTLINED IN SCHEDULE "A" TO BY-LAW NO. 2010-15.

THE REGION RESERVES THE RIGHT TO REQUIRE A TIRE WASH STATION IF IT IS DEEMED NECESSARY FOR THE SAFETY OF THE PUBLIC.

IN THE EVENT THAT THE REGION MUST RECTIFY ANY DEFICIENCIES, MAKE ANY REMEDIES OR MUST CARRY OUT THE CLEANUP OF ROADS FROM MUD, DUST, REFUSE OR DEBRIS, THE OWNER ACKNOWLEDGES THAT THE REGION SHALL CHARGE THE OWNER, FOR EACH OCCURRENCE, A MINIMUM OF $1,400.00 OR TWICE THE ACTUAL COST TO PERFORM THE WORK, WHICHEVER IS GREATER.

7. PRIOR TO STARTING ANY DEVELOPMENT CONSTRUCTION WORK WITHIN THE REGIONAL ROAD ALLOWANCE, PLEASE CONTACT THE FOLLOWING DEVELOPMENT CONSTRUCTION COORDINATOR, 1-877-464-9675 OR EMAIL TO ARRANGE FOR A PRE-CONSTRUCTION MEETING PRIOR TO CONSTRUCTION:

- IVAN GONZALEZ; 1-877-464-9675 EXT. 75759;
  EMAIL: IVAN.GONZALEZ@YORK.CA
  MUNICIPALITY AREA: CITY OF VAUGHAN, TOWNSHIP OF KING
- ROBERT BAILEY; 1-877-464-9675 EXT. 73114;
  EMAIL: ROBERT.BAILEY@YORK.CA
  MUNICIPALITY AREA: TOWN OF RICHMOND HILL, CITY OF MARKHAM, TOWN OF WHITCHURCH- STOUFFVILLE, TOWN OF AURORA
- NASIR MAHMOOD; 1-877-464-9675 EXT. 76929;
  EMAIL: NASIR.MAHMOOD@YORK.CA
  MUNICIPALITY AREA: TOWN OF NEWMARKET, TOWN OF EAST GWILLIMBURY, TOWN OF GEORGINA

8. IT IS THE RESPONSIBILITY OF THE OWNER/DEVELOPER OR HIS CONSULTANT FOR INSPECTIONS TO ENSURE THAT THE CONTRACTOR'S LOCATES ARE STAKED OUT PRIOR TO ANY CONSTRUCTION AND ALL UTILITIES ARE RELOCATED TO THE APPROVED DESIGN GRADES AND LOCATION.

9. PRIOR TO ANY RELATED DEVELOPMENT CONSTRUCTION ACTIVITY ON THE REGION ROAD ALLOWANCE, THE OWNER/DEVELOPER OR DESIGNATE SHALL APPLY TO THE REGION TO OBTAIN A ROAD OCCUPANCY PERMIT (ROP). THE ROAD OCCUPANCY PERMIT APPLICATION CAN BE OBTAINED AT WWW.YORK.CA UNDER ROAD PERMITS. THE COMPLETED PERMIT IS TO BE RETURNED TO THE TRAFFIC MANAGEMENT & ITS PERMITS SECTION. THE COMPLETED FORM IS TO BE EMAILED TO PERMITS@YORK.CA . FOR GENERAL INQUIRES PLEASE CONTACT 1-877-464-9675, X75700.

10. IF THE REGION DEEMS NECESSARY, PORTABLE VARIABLE MESSAGING SIGNS (PVMS) SHALL BE PROVIDED AT LEAST 1 WEEK PRIOR TO START OF DEVELOPMENT RELATED ROAD WIDENINGS AND ANY OTHER ROAD WORKS IN THE REGION RIGHT OF WAY IN ORDER TO WARN THE PUBLIC OF POTENTIAL TRAFFIC DELAYS.

11. CONSTRUCTION ACCESSES ONTO REGIONAL ROADS ARE NOT PERMITTED UNLESS WRITTEN APPROVAL IS GRANTED BY THE REGION, PROVIDED THE OWNER/DEVELOPER APPLY FOR APPROVAL TO THE YORK REGION DEVELOPMENT ENGINEERING DIVISION. TEMPORARY "TRUCK ENTRANCE" SIGNS MUST BE INSTALLED ON THE SHOULDER OF THE REGIONAL RIGHT-OF-WAY AND VISIBLE FROM ALL APPROACHES. REFERENCE SHALL BE MADE TO THE BOOK 7, ONTARIO TRAFFIC MANUAL: TEMPORARY CONDITIONS FOR DETAILS ON THE USE AND PLACEMENT OF SIGNS. THE OWNER SHALL BE RESPONSIBLE FOR THE COSTS OF OBTAINING, ERECTING AND MAINTAINING THESE SIGNS UNTIL THE CONSTRUCTION ACCESS IS DECOMMISSIONED. CONSTRUCTION ACCESSES SHALL BE CONSTRUCTED AS PER YORK REGION DRAWING NO. DS-217. THE MUD MAT AND TRUCK ROUTE IS TO BE MONITORED AND CLEANED BY THE CONTRACTOR/CONSULTANT/BUILDER/DEVELOPER AS REQUIRED AND NON-COMPLIANCE WILL RESULT IN THE WORK BEING COMPLETED BY YORK REGION'S FORCES AND/OR FULL CLOSURE OF THE ACCESS AND REVOKING OF THE ROAD OCCUPANCY PERMIT AT THE FULL EXPENSE OF THE OWNER/DEVELOPER AS PER ITEM #6. AFTER COMPLETION OF THE WORKS, THE ACCESS SHALL BE REMOVED AND THE ROAD AND BOULEVARD RESTORED TO THE SATISFACTION OF THE DEVELOPMENT CONSTRUCTION COORDINATOR OR DESIGNATE.

ANY EXISTING ACCESS TO THE REGIONAL ROAD CANNOT BE USED AS A CONSTRUCTION ACCESS WITHOUT EXPRESSED APPROVAL BY THE REGION.

12. ONE LANE OF TRAFFIC IN EACH DIRECTION ON REGIONAL ROADS MUST BE KEPT OPEN BETWEEN THE HOURS OF 9:30 A.M. AND 3:30 P.M. OR AS OTHERWISE PERMITTED BY THE ROP PERMIT CONDITIONS. THIS IS PROVIDED THAT THE PROPER SIGNAGE AND FLAG PERSONS ARE PRESENT TO PROTECT THE WORKERS AND DIRECT TRAFFIC SAFELY THROUGH THE WORK ZONE AS PER OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS AND BOOK 7 ONTARIO TRAFFIC MANUAL TEMPORARY CONDITIONS. AT ALL OTHER TIMES, ALL EXISTING LANES OF TRAFFIC SHALL BE KEPT OPEN.

LOADING AND UNLOADING OF MATERIALS AND EQUIPMENT SHALL TAKE PLACE OFF THE TRAVELLED PORTION OF ROAD WHEREVER POSSIBLE. OTHERWISE, LOADING AND UNLOADING OF MATERIAL AND EQUIPMENT SHALL ONLY TAKE PLACE BETWEEN THE HOURS OF 9:30 A.M. AND 3:30 P.M. PROVIDED THAT PROPER SIGNAGE AND WARNING SIGNS ARE PRESENT TO PROTECT THE WORKERS AND DIRECT TRAFFIC SAFELY. ALL STEEL TRACK EQUIPMENT OR OTHER EQUIPMENT THAT MAY CAUSE DAMAGE TO THE ROAD SURFACE IS NOT PERMITTED FOR UNLOADING OFF A REGIONAL ROAD. ANY DAMAGES TO THE EXISTING REGIONAL ROAD SURFACE DUE TO UNLOADING ACTIVITIES SHALL BE REINSTATED IN ITS ENTIRETY AT THE OWNERS COST AND AT THE SOLE DISCRETION OF THE REGION.

13. ALL DRAINAGE WORKS REQUIRE SEDIMENT AND EROSION CONTROLS SATISFACTORY TO THE APPROVAL AGENCIES DURING CONSTRUCTION PERIODS. PRIOR TO CONSTRUCTION, PROCEDURES NEED TO BE IN PLACE FOR THE MINIMIZATION OF EROSION AND CONTROL OF ANY EROSION WHICH MIGHT OCCUR DURING CONSTRUCTION. THE OWNER/ DEVELOPER SHALL ENSURE ROUTINE INSPECTIONS, AS WELL AS AFTER EVERY MAJOR STORM EVENT, FOR THE SEDIMENT AND EROSION CONTROL DEVICES TO MAINTAIN THEIR EFFICIENCY AS PER DESIGN AND FIELD CONDITIONS. THE OWNER/DEVELOPER OR HIS CONSULTANT RESPONSIBLE FOR INSPECTIONS IS TO ENSURE THE CONTRACTOR ADHERES TO BEST CONSTRUCTION PRACTICES AND THE TRCA/LSRCA'S "EROSION & SEDIMENT CONTROL GUIDELINE FOR URBAN CONSTRUCTION" (CURRENT VERSION).

14. IT IS THE RESPONSIBILITY OF THE OWNER/ DEVELOPER OR HIS CONSULTANT RESPONSIBLE FOR INSPECTIONS TO ENSURE THAT AN ELEVATION DETAIL OF THE EXISTING AERIAL PLANT IS SUBMITTED WHEN OVERHEAD CABLING IS PRESENT. CABLES SHALL NOT BE LESS THAN 5.0M CLEARANCE FROM THE PROPOSED FINISHED GRADE TO THE LOWEST POINT OF THE AERIAL CABLE AS PER 3.2.5.6.-ACCESS ROUTE DESIGN, ONTARIO BUILDING CODE STANDARDS.

15. ALL PIPES INSTALLED WITHIN THE REGIONAL RIGHTS-OF-WAY REQUIRE A PRE-CONSTRUCTION VIDEO INSPECTION REPORT OF EXISTING INFRASTRUCTURE TO ASSESS THE EXISTING INFRASTRUCTURE'S CONDITION AND A POST CONSTRUCTION VIDEO OF EXISTING AND NEW INFRASTRUCTURE SUBMITTED TO THE REGION, ATTENTION: DEVELOPMENT CONSTRUCTION COORDINATOR PRIOR TO ANY SECURITY REDUCTIONS. THIS INCLUDES ANY EXTENSION TO EXISTING INFRASTRUCTURE (IE: ROAD CULVERT AND SEWER EXTENSIONS)

16. ANY DEWATERING DISCHARGE ACTIVITY REQUIRES AN APPROVED APPLICATION. APPLICATIONS ARE AVAILABLE ONLINE BY COMPLETING THE FORM AT WWW.YORK.CA/SEWERUSE OR CONTACTING 1-877-464-9675 EXTENSION 75067 AT THE ENVIRONMENTAL SERVICES DEPARTMENT.

17. TUNNEL SHAFTS AND AUGER PITS SHALL BE LOCATED AT THE BOTTOM OF THE DITCH LINE AND BACK SLOPE OF THE DITCH, OR BEYOND THE TOE OF SLOPE IN A FILL AREA. ALL OPEN EXCAVATIONS SHALL BE PROTECTED WITH BARRICADES WITH PROPER CRASH ATTENUATION MEASURES IN PLACE WITHIN THE REGIONAL ROAD ALLOWANCE. NO TORPEDO IS TO BE USED UNDER ANY OF THE REGIONAL PAVED ROAD AT ANY TIME UNLESS WRITTEN APPROVAL IS GRANTED.

18. TRENCHES PROPOSED ACROSS REGIONAL ROADS SHALL BE BACKFILLED WITH UNSHRINKABLE FILL AS PER OPSS 1359 MATERIAL SPECIFICATION FOR UNSHRINKABLE BACKFILL UP TO ROAD SUBGRADE. PLACEMENT SHALL BE A MINIMUM OF 1.0 METRE BEYOND THE EXISTING EDGE OF PAVEMENT OR BACK OF CURB. THE TRENCH SHALL BE COVERED FOR A MINIMUM OF 24 HOURS WITH STEEL PLATES OF SUFFICIENT STRENGTH TO SUPPORT TRAFFIC, PRIOR TO RESTORATION OF GRANULAR AND ASPHALT MAKE UP. THE STEEL PLATES SHALL BE RECESSED INTO A 300MM WIDE BY 50MM DEEP STEP JOINT PROVIDED IN THE EXISTING PAVEMENT. IF THE SEWER OR WATERMAIN WITHIN THE REGIONAL RIGHT-OF-WAY IS LESS THAN 2M IN DEPTH, INSULATION SHALL BE INSTALLED WITH 50MM OF SM INSULATION OR APPROVED EQUAL, IN ACCORDANCE WITH OPSD 1109.030 & OPSS MUNI 1605, AND SELF-COMPACTING 19MM (¾") CRUSHED GRANULAR MATERIAL IN LIEU OF UNSHRINKABLE FILL SHALL BE PLACED. THE USE OF HIGH PERFORMANCE OR OTHER ROUNDED GRANULAR STONE IS NOT PERMITTED. NO TRAFFIC IS PERMITTED ON THE GRANULAR BACKFILL UNLESS IT IS PROTECTED BY APPROVED ROAD PLATES OR ASPHALT PAVEMENT AS SPECIFIED.

19. WHERE THE STABILITY, SAFETY OR FUNCTION OF THE EXISTING ROADWAY OR UNDERGROUND FACILITIES MAY BE IMPAIRED DUE TO THE CONTRACTOR'S METHOD OF OPERATIONS, THE CONTRACTOR SHALL PROVIDE SUCH PROTECTION AS MAY BE REQUIRED. THIS PROTECTION MAY INCLUDE SHEATHING, SHORING AND THE DRIVING OF PILES WHERE NECESSARY, TO PREVENT DAMAGE TO EXISTING SERVICES OR PROPOSED WORKS. CONSTRUCTION FOR SHORING, BRACING AND PROTECTION SCHEMES SHALL CONFORM TO THE SPECIFICATIONS OF OPSS MUNI 538 AND OPSS MUNI 539 CURRENT VERSION. ADDITIONALLY, ALL WORKS SHALL BE CARRIED OUT IN CONFORMITY WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS. THE CONSULTING ENGINEER RESPONSIBLE FOR INSPECTIONS AND/OR YORK REGION DEVELOPMENT ENGINEERING DIVISION STAFF SHALL NOTIFY THE MINISTRY OF LABOUR, IF IN THEIR OPINION, UNSAFE CONDITIONS EXIST ON SITE IN ACCORDANCE WITH ONTARIO REGULATION FOR CONSTRUCTION PROJECTS AND THE OWNER FAILS TO RECTIFY SAID UNSAFE CONDITIONS.

20. IN URBAN SECTIONS, ALL SUBDRAINS SHALL BE 150MM DIAMETER PERFORATED PIPE (OPSS 405) WRAPPED IN NONWOVEN GEOTEXTILE (OPSS 1860). IN RURAL SECTIONS, SUBDRAINS WILL BE REQUIRED WHERE GRANULAR BASE DOES NOT CONNECT WITH THE DITCH INVERT. DITCH INVERTS SHALL BE AT A LOWER ELEVATION THE GRANULAR BASE TO ENSURE POSITIVE DRAINAGE. ALL RURAL SUBDRAINS SHALL BE 150MM DIAMETER PERFORATED PIPE (OPSS 405) WRAPPED IN NONWOVEN GEOTEXTILE (OPSS 1860) WITH RODENT GATES INSTALLED AT ALL OUTLETS SPACED AT 50 TO 70 METRE INTERVALS.

21. ALL CURB RETURNS TO REGIONAL CURB AND GUTTER TO BE CONSTRUCTED IN ACCORDANCE WITH THE REGIONAL STANDARD CURB RETURN DRAWING NUMBER DS-216, OPSS MUNI 353 AND OPSS MUNI 1350 CURRENT VERSIONS FOR ALL STANDARD ENTRANCES UNLESS OTHERWISE STATED. CURB RETURNS IN RURAL SECTIONS SHALL BE OFFSET 0.5M FROM THE EDGE OF TRAVELED PORTION OF THE ROAD.

22. WHEN DETERMINED BY THE REGION, CATCH BASIN LIDS ON EXISTING MAINTENANCE HOLES SHALL BE REPLACED WITH A MAINTENANCE HOLE COVER OPSD 401.01 AND THE NEW CATCH BASIN WITH FRAME & GRATE SHALL BE OPSD 400.110.

23. GRANULAR ROAD BASE ON REGIONAL ROADS SHALL BE INSTALLED AS PER OPSS 314 AND MUNI 1010 AND SHALL BE A MINIMUM OF 450 MM GRANULAR B TYPE 1 AND 150 MM GRANULAR 'A' OR MATCH EXISTING DEPTHS, WHICHEVER IS GREATER, OR AS APPROVED BY THE REGION. ALL GRANULAR MATERIAL PLACED UNDER PAVEMENT SHALL BE COMPACTED TO 100% OF THE MAXIMUM DRY DENSITY. ALL OTHER NATIVE MATERIALS SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY. THE RESULTS OF THE COMPACTION TESTS AND ANALYSIS SHALL BE MONITORED BY THE GEOTECHNICAL CONSULTANT ON A FULL TIME BASIS, AND REPORTS SHALL BE SUBMITTED TO THE YORK REGION, DEVELOPMENT ENGINEERING DIVISION, AND ATTENTION: DEVELOPMENT CONSTRUCTION COORDINATOR.

23. ALL NEW ASPHALT SHALL BE:
- BASE COURSE – SUPERPAVE 19.0 PGAC 64-28 CATEGORY 'D' ROADWAY, COMPACTED TO BETWEEN 91.0% TO 96.5% OF MRD
  - o THE MAXIMUM RAP CONTENT ALLOWED IN SP 19.0 HOT-MIX ASPHALT IS 15%.
  - o THE USE OF RECYCLED SHINGLE TABS IN ANY MIX IS NOT PERMITTED.
  - o 5.0% PGAC CONTENT IS TO BE USED INSTEAD OF 4.8% WHEN THE BASE COURSE ASPHALT WILL BE EXPOSED OVER ONE OR MORE WINTER PERIODS.
- TOP COURSE – SUPERPAVE 12.5 FC-1 PGAC 64-28 CATEGORY 'D' ROADWAY. COMPACTED TO BETWEEN 92.0% TO 97.5% OF MRD
  - o NO RAP TO BE USED IN SP 12.5 TOP COURSE ASPHALT
  - o 5.0% PGAC CONTENT
- TACK COAT REQUIRED BETWEEN LIFTS, ON EXISTING ASPHALT, AT STEP JOINTS AND ON AREAS SPECIFIED BY THE DEVELOPMENT CONSTRUCTION COORDINATOR IN ACCORDANCE WITH OPSS 310
- THE CONTRACTOR SHALL USE A MATERIAL TRANSFER VEHICLE THAT HAS ON-BOARD MIXING CAPABILITIES, AND A MINIMUM STORAGE CAPACITY OF 25 TONNES. A MATERIAL TRANSFER SYSTEM SUCH AS A SHUTTLE BUGGY (ROADTEC SB-2500C SHUTTLE BUGGY® OR APPROVED EQUIVALENT) SHALL BE USED (NOTE: DELETE THIS REQUIREMENT IF SCOPE OF WORK IS RELATIVELY SMALL I.E. PAVING SMALL AREAS)
- JOINT HEATERS SHALL BE USED IN THE CONSTRUCTION OF LONGITUDINAL JOINTS IN ORDER TO ELIMINATE THE OCCURRENCE OF COLD JOINTS.
- LONGITUDINAL AND TRANSVERSE STEP JOINTS BETWEEN THE NEW HOT MIX ASPHALT (HMA) PAVEMENT AND THE PREVIOUSLY PAVED PAVEMENT SHALL BE CONSTRUCTED BY TRIMMING THE PREVIOUSLY PAVED PAVEMENT EDGE TO A STRAIGHT, CLEAN, VERTICAL SURFACE OF AT LEAST 50 MM.
- ALL MIXED DESIGNS TO BE SUBMITTED TO YORK REGION'S DEVELOPMENT CONSTRUCTION COORDINATOR AT LEAST 48HRS PRIOR TO COMMENCING PAVING OPERATIONS.
- A PRE-PAVING MEETING SHALL BE SCHEDULED BY THE OWNER/ CONSULTANT AT THE DISCRETION OF YORK REGION'S DEVELOPMENT CONSTRUCTION COORDINATOR
- THE RESULTS OF THE COMPACTION TESTS AND ANALYSIS SHALL BE SUBMITTED TO THE YORK REGION, DEVELOPMENT ENGINEERING DIVISION, ATTENTION: DEVELOPMENT CONSTRUCTION COORDINATOR. THE REGION MAY REQUEST COPIES OF ORIGINAL ASPHALT MATERIAL TICKETS AND SUMMARIES TO VERIFY MATERIAL TYPE AND QUANTITIES.
- ALL ASPHALT PLACED SHALL BE IN ACCORDANCE WITH OPSS 310, MUNI 1101, MUNI 1151 CURRENT VERSIONS.

24.
SINGLE UNIT RESIDENTIAL DRIVEWAY CONSTRUCTION MAKEUP:
MIN. 50 MM HL-3 TOP ASPHALT
MIN. 300 MM OF GRANULAR 'A'

MULTIPLE UNIT RESIDENTIAL/CONDOMINIUM/COMMERCIAL/INDUSTRIAL DRIVEWAY CONSTRUCTION MAKEUP:
MIN. 50 MM HL-3 HS TOP ASPHALT
MIN. 100 MM HL-8 BASE ASPHALT
MIN. 450 MM OF GRANULAR 'A'

25. ALL ASPHALT TAPERS AND ROAD WIDENING(S) REQUIRE A FULLY PAVED SHOULDER WITH FULL DEPTH ASPHALT FOR ALL RURAL CROSS SECTIONS. TYPICAL PAVED SHOULDER WIDTH IS 2.5M, FOLLOWED BY A GRANULAR ROUNDING TO THE EDGE OF TOP OF SLOPE.

26. ALL ASPHALT JOINTS SHALL INCLUDE A MINIMUM 300MM WIDE BY 50MM DEPTH STEP JOINT INTO THE EXISTING TOP COURSE ASPHALT. DEPENDING ON SPECIFIC SITE CONDITIONS, THE WIDTH OF THE STEP JOINT MAY BE REQUIRED TO BE INCREASED AT THE REGION'S DISCRETION BEYOND 300MM TO ENSURE PROPER CROSS-FALL FROM THE EXISTING ROAD CROSS-SECTION AND ENSURE A STABLE JOINT INTO THE EXISTING PAVEMENT. IN ANY CASE, THE DEVELOPMENT CONSTRUCTION COORDINATOR SHALL BE CONTACTED IN ADVANCE FOR AN ON-SITE FIELD INSPECTION AND CONSULTATION PRIOR TO ANY PAVING. ALL JOINTS WILL REQUIRE ROUT AND SEAL AS PER MATERIAL SPECIFICATION OPSS-1212 AND CONSTRUCTION SPECIFICATION OPSS-341, DENSO TAPE OR APPROVED EQUIVALENT.

27. ALL PERMANENT DURABLE PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH REGIONAL SPECIFICATIONS AND CONFORM TO OPSS 710, OPSS 1712-1714 & OPSS 1750

28. ALL NEW CURB DROPS TO FOLLOW OPSD 600.040 CONCRETE BARRIER CURB AND GUTTER STANDARD. CONCRETE SIDEWALK RAMPS AT INTERSECTIONS TO BE AODA COMPLIANT IN ACCORDANCE TO STANDARD DRAWING DS-119 AND/OR 120 & 121 AS SHOWN IN THE APPROVED ELECTRICAL DRAWINGS

29. ANY EXISTING DRIVEWAYS CURB DROPS OR RAMPS THAT ARE NOT PROPOSED OR NOT IN USE SHALL BE REMOVED AND REPLACED WITH FULL CURB AS PER OPSD 600.040.

30. NO LANDSCAPING, HOARDING, FENCING, SIGNS, STEPS, STAIRS, CANOPY, SPRINKLER SYSTEMS, TEMPORARY ACCESSES OR ANY OTHER ENCROACHING STRUCTURES ARE TO BE PERMITTED WITHIN THE REGIONAL ROAD ALLOWANCE WITHOUT WRITTEN APPROVAL FROM YORK REGION DEVELOPMENT ENGINEERING DIVISION.

31. ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION ON THE REGIONAL ROAD RIGHTS-OF-WAY SHALL BE RESTORED WITH 150 MM OF TOPSOIL AND SOD PLACED (STAKED ON SLOPES AND DITCHES) TO THE BOTTOM OF THE GRANULAR 'A' SHOULDER ROUNDING OR AS REQUIRED BY THE DEVELOPMENT CONSTRUCTION COORDINATOR, IN ACCORDANCE WITH OPSS 803 CURRENT VERSION. ALL REVEGETATED AREAS TO BE MAINTAINED (GRASS WATERING, CUTTING AND BOULEVARD MAINTENANCE) BY THE APPLICANT UNTIL ASSUMPTION BY THE REGION.

32. FINAL RESTORATION WORKS ARE TO BE COMPLETED WITHIN 6 MONTHS OF ASPHALT PLACEMENT AND NON- COMPLIANCE MAY RESULT IN WORK COMPLETED BY YORK REGION FORCES AT THE EXPENSE OF THE OWNER WITH THE PROJECT APPLICATION SECURITIES USED OR WITHHELD TO ENSURE PAYMENT AND FINAL WORK.

33. APPROVED DRAWINGS, INCLUDING ENGINEERING, UNDERGROUND, LANDSCAPING, ELECTRICAL AND DETAILED TRAFFIC MANAGEMENT PLANS MUST BE ADHERED TO AT ALL TIMES UNLESS OTHERWISE DIRECTED BY THE DEVELOPMENT CONSTRUCTION COORDINATOR. ALL WORKS ON REGIONAL RIGHTS-OF-WAY SHALL BE CARRIED OUT AS PER THE APPROVED DRAWINGS AND REGIONAL STANDARDS/GUIDELINES, OPSS & OPSD DRAWINGS & SPECIFICATIONS, POLICIES AND/OR AS REQUIRED BY THE REGION'S DEVELOPMENT CONSTRUCTION COORDINATOR OR DESIGNATE.

34. NEW INTERSECTIONS AND/OR NEW LEGS OF AN EXISTING INTERSECTION ARE NOT TO BE OPENED TO ANY USE UNTIL ALL CONTROL MEASURES ARE INSTALLED, INCLUDING ALL ILLUMINATION, SIGNALIZATION, PAVEMENT MARKINGS, AND SIGNAGE. FOR NEW SIGNALIZED INTERSECTIONS, A SIGNAL INSPECTION SHALL BE SCHEDULED BY THE REGION PRIOR TO ENERGIZATION. FINAL APPROVAL FOR OPENING SHALL BE DETERMINED BY YORK REGION ELECTRICAL CONSTRUCTION COORDINATORS AND TRAFFIC OPERATIONS TECHNOLOGISTS. NEW INTERSECTIONS ARE TO BE BARRICADED TO PREVENT ACCESS UNTIL SPECIFIC PERMISSION HAS BEEN GIVEN BY THE REGIONAL MUNICIPALITY OF YORK.

35. REGULATORY AND HAZARD WARNINGS SIGNS AS PER OTM BOOK 5 AND BOOK 6 SHALL BE SHOWN ON THE APPROVED DRAWINGS AND/OR AS REQUIRED BY THE DEVELOPMENT CONSTRUCTION COORDINATOR AND/OR THE ELECTRICAL CONSTRUCTION COORDINATOR.

36. THE APPROACH ENDS OF A RAISED MEDIAN ON THE REGIONAL ROAD SHALL HAVE THE TYPICAL "KEEP RIGHT" SIGN AND OBJECT MARKER AS PER THE REGION SPECIFICATION E-7.01, INSTALLED IMMEDIATELY AFTER THE MEDIAN CONSTRUCTION. RIGHT IN/RIGHT OUT ACCESS CONTROLLED BY A RAISED MEDIAN REQUIRES A "ONE WAY" REGULATORY CONTROL SIGN AS PER BOOK 5, WHICH MUST BE INSTALLED PRIOR TO THE OPENING OF THE ACCESS.

37. APPROVED EMERGENCY ACCESSES TO REGIONAL ROADS ARE TO BE IN PLACE PRIOR TO ANY BUILDING PERMITS BEING ISSUED FOR THE SUBDIVISION. ALL GATES, BOLLARDS ETC. SHALL BE LOCATED ON PRIVATE PROPERTY/LOCAL MUNICIPAL LANDS. TEMPORARY CONSTRUCTION ACCESS SHALL BE CLOSED OFF PERMANENTLY ON THE REGIONAL ROAD PRIOR TO THE FIRST RESIDENTIAL OCCUPANCY OR IF THE OWNER/ DEVELOPER CAN DEMONSTRATE TO THE REGION THAT THERE IS NO RESIDENTIAL USE. TEMPORARY SALES ACCESS USE SHALL BE FOR SALES ACCESS ONLY AND BE RELOCATED TO THE NEW ADJACENT ROAD ONCE CONSTRUCTED AND OPEN TO PUBLIC TRAFFIC.

38. IT IS THE RESPONSIBILITY OF THE OWNER/DEVELOPER TO PROTECT ALL EXISTING SURVEY MONUMENTATION ON OR ADJACENT TO THE SITE THAT MAY BE DESTROYED/ DISTURBED DURING CONSTRUCTION. SHOULD THIS MONUMENT BE DAMAGED IN ANY WAY, THE OWNER SHALL HAVE THE SURVEY MONUMENTS REPLACED BY AN ONTARIO LAND SURVEYOR PRIOR TO THE REDUCTION OF ANY SECURITY.

39. ALL LANDSCAPE FEATURES INCLUDING: RETAINING WALLS, STEPS/STAIRS, FOOTINGS AND COLUMNS, FENCING, SPRINKLER SYSTEMS AND LANDSCAPING FEATURES TO BE LOCATED ON THE PRIVATE PROPERTY AND/OR BEHIND 0.3M RESERVE, WILL REQUIRE AN ONTARIO LAND SURVEYOR'S CERTIFICATE AND COPY OF THE SURVEY SUBMITTED PRIOR TO REDUCTION OF ANY SECURITY.

40. INTERLOCKING CONCRETE PAVING STONES MUST BE SUPPORTED ON 125MM CONCRETE BASE AS PER YORK REGION STANDARD SS-100.

41. THE OWNER/DEVELOPER OR HIS CONSULTING ENGINEER RESPONSIBLE FOR INSPECTIONS SHALL ADVISE THE CONTRACTOR THAT THE INTEGRITY OF THE ABOVE AND BELOW GROUND REGIONAL ROAD FACILITIES SHALL BE PROPERLY LOCATED AND MAINTAINED. ANY FACILITY DAMAGED DURING CONSTRUCTION IS TO BE REPORTED TO THE APPROPRIATE REGIONAL DEVELOPMENT CONSTRUCTION COORDINATOR, AND THE REPAIR MAY REQUIRE THE WORK TO BE COMPLETED BY THE REGIONAL CONTRACTOR AT THE OWNER'S EXPENSE.

42. ALL CONSTRUCTION CORRESPONDENCE IS TO BE DIRECTED TO THE YORK REGION CONSTRUCTION COORDINATOR, DEVELOPMENT ENGINEERING DIVISION, AND MUST REFLECT THE APPROPRIATE REGIONAL APPROVAL AND FILE NUMBERS.

43. PRIOR TO ANY SECURITY RELEASE OR REDUCTION OF THE DEVELOPMENT SECURITY DEPOSIT ALL APPLICABLE REQUIREMENTS LISTED IN THE "YORK REGION SECURITY RELEASE AND REDUCTION LIST OF REQUIREMENTS" (CURRENT VERSION) SHALL BE SUBMITTED TO THE ATTENTION OF THE APPROPRIATE DEVELOPMENT CONSTRUCTION COORDINATOR FOR REGIONAL CLEARANCE. THE APPLICANT IS ADVISED TO FORWARD THE DOCUMENTATION TO THE DEVELOPMENT CONSTRUCTION COORDINATOR, DEVELOPMENT ENGINEERING DIVISION.

44. THE OWNER/DEVELOPER AGREES TO INDEMNIFY THE REGION, AND ITS EMPLOYEES, ELECTED OFFICIALS, CONTRACTORS AND AGENTS AGAINST ANY AND ALL ACTIONS, CAUSES OF ACTION, SUITES, CLAIMS AND DEMANDS WHATSOEVER WHICH MAY ARISE EITHER DIRECTLY OR INDIRECTLY BY REASON OF UNDERTAKING ANY OF THE OWNER/ DEVELOPER'S WORK WITH RESPECT TO THE DEVELOPMENT APPROVALS AND CONSTRUCTION.

45. THE OWNER/DEVELOPER MUST RETAIN A CONSULTING ENGINEER OR CONSULTANT TO ENSURE COMPLIANCE OF ALL WORK WITHIN THE REGION'S RIGHT-OF-WAY. THE REGION AT ANY TIME MAY REQUEST A COPY OF THE DAILY CONSTRUCTION REPORTS.

46. IT IS A CONDITION OF REGIONAL APPROVAL THAT THE OWNER/ DEVELOPER OR HIS CONSULTANT RESPONSIBLE FOR INSPECTIONS AND COMPLIANCE IS LIABLE WITH RESPECT TO ALL WORK DONE ON REGIONAL PROPERTY. THIS LIABILITY SHALL EXTEND TO SUCH TIME AS THE WORKS HAVE BEEN GRANTED FINAL COMPLIANCE, INCLUDING ALL INVOICES PAID LAND CONVEYANCES AND LISTED REGION REQUIREMENTS ARE COMPLETED TO THE REGION'S SATISFACTION PRIOR TO REDUCTION OF ANY SECURITY.

NOTE:
IT IS THE RESPONSIBILITY OF THE OWNER/DEVELOPER OR HIS CONSULTANT RESPONSIBLE FOR CONSTRUCTION ADMININISTRATION AND INSPECTIONS TO NOTIFY THE CONTRACTOR(S) TO BE FAMILIAR WITH AND UNDERSTAND THE FOREGOING ABOVE CONDITIONS.

No.	DATE	REVISIONS	BY
1	19/06/18	UPDATES	F.L
2	04/17/19	UPDATES	D.J

York Region
Corporate Services Department
Development Engineering

DESIGN F.L | DRAWN D.J | CHECKED F.L

STANDARD DEVELOPMENT
CONSTRUCTION PRACTICES FOR WORK ON REGIONAL ROADS

DWG. NO. | CONT. NO. | SHEET NO. 1

No.	Revision	Date	By
1	Issued for Coordination	2024/06/20	RMS
2	Issued for TRCA Approval	2024/08/07	RMS
3	Issued for Town Approval	2024/11/05	RMS

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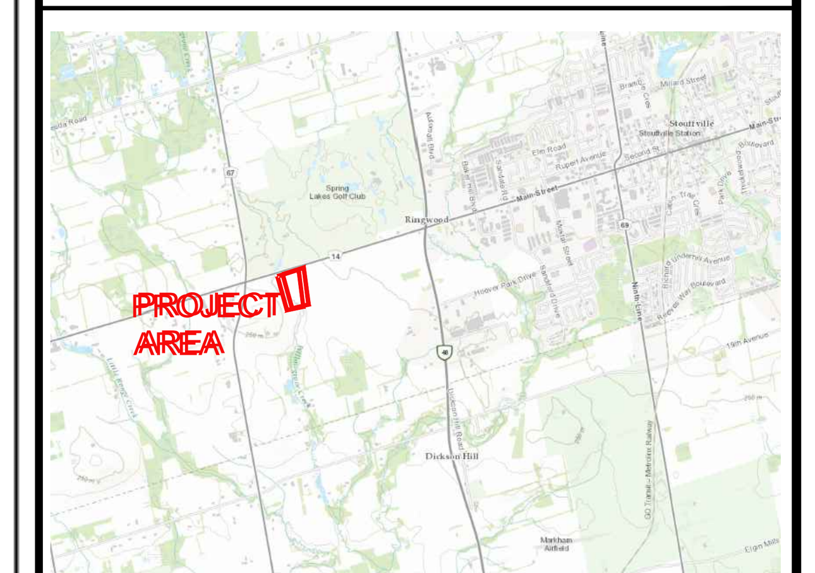

KEYPLAN
N.T.S.

ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS
RICHARD MARK SCHOLLEN
OALA
MEMBER

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Client:
TIMES GROUP CORPORATION

Project Name:
Highway 48 Stouffville Property Compensation Wetland and Trail Construction
Whitchurch-Stouffville, ON

Drawing Title:
SITE PREPARATION AND STAGING PLAN

Scale: 1:1000	Project No.: 2020006	Drawing No.: SP-1
Drawn: CT	Checked: RMS	
Date: April 2023	Plot Date: 07/11/2024	

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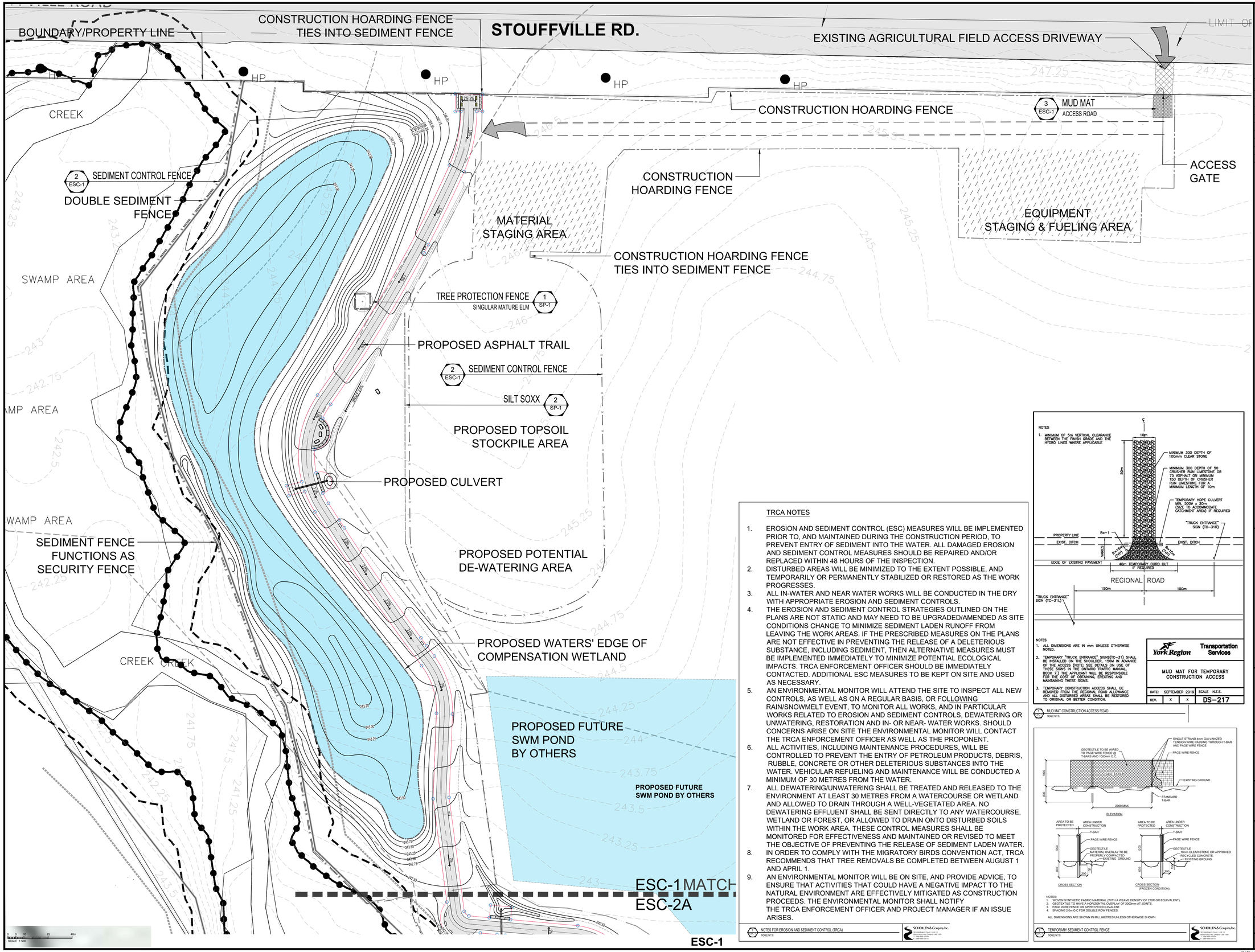

TRCA NOTES

1. EROSION AND SEDIMENT CONTROL (ESC) MEASURES WILL BE IMPLEMENTED PRIOR TO, AND MAINTAINED DURING THE CONSTRUCTION PERIOD, TO PREVENT ENTRY OF SEDIMENT INTO THE WATER. ALL DAMAGED EROSION AND SEDIMENT CONTROL MEASURES SHOULD BE REPAIRED AND/OR REPLACED WITHIN 48 HOURS OF THE INSPECTION.
2. DISTURBED AREAS WILL BE MINIMIZED TO THE EXTENT POSSIBLE, AND TEMPORARILY OR PERMANENTLY STABILIZED OR RESTORED AS THE WORK PROGRESSES.
3. ALL IN-WATER AND NEAR WATER WORKS WILL BE CONDUCTED IN THE DRY WITH APPROPRIATE EROSION AND SEDIMENT CONTROLS.
4. THE EROSION AND SEDIMENT CONTROL STRATEGIES OUTLINED ON THE PLANS ARE NOT STATIC AND MAY NEED TO BE UPGRADED/AMENDED AS SITE CONDITIONS CHANGE TO MINIMIZE SEDIMENT LADEN RUNOFF FROM LEAVING THE WORK AREAS. IF THE PRESCRIBED MEASURES ON THE PLANS ARE NOT EFFECTIVE IN PREVENTING THE RELEASE OF A DELETERIOUS SUBSTANCE, INCLUDING SEDIMENT, THEN ALTERNATIVE MEASURES MUST BE IMPLEMENTED IMMEDIATELY TO MINIMIZE POTENTIAL ECOLOGICAL IMPACTS. TRCA ENFORCEMENT OFFICER SHOULD BE IMMEDIATELY CONTACTED. ADDITIONAL ESC MEASURES TO BE KEPT ON SITE AND USED AS NECESSARY.
5. AN ENVIRONMENTAL MONITOR WILL ATTEND THE SITE TO INSPECT ALL NEW CONTROLS, AS WELL AS ON A REGULAR BASIS, OR FOLLOWING RAIN/SNOWMELT EVENT, TO MONITOR ALL WORKS, AND IN PARTICULAR WORKS RELATED TO EROSION AND SEDIMENT CONTROLS, DEWATERING OR UNWATERING, RESTORATION AND IN- OR NEAR- WATER WORKS. SHOULD CONCERNS ARISE ON SITE THE ENVIRONMENTAL MONITOR WILL CONTACT THE TRCA ENFORCEMENT OFFICER AS WELL AS THE PROPONENT.
6. ALL ACTIVITIES, INCLUDING MAINTENANCE PROCEDURES, WILL BE CONTROLLED TO PREVENT THE ENTRY OF PETROLEUM PRODUCTS, DEBRIS, RUBBLE, CONCRETE OR OTHER DELETERIOUS SUBSTANCES INTO THE WATER. VEHICULAR REFUELING AND MAINTENANCE WILL BE CONDUCTED A MINIMUM OF 30 METRES FROM THE WATER.
7. ALL DEWATERING/UNWATERING SHALL BE TREATED AND RELEASED TO THE ENVIRONMENT AT LEAST 30 METRES FROM A WATERCOURSE OR WETLAND AND ALLOWED TO DRAIN THROUGH A WELL-VEGETATED AREA. NO DEWATERING EFFLUENT SHALL BE SENT DIRECTLY TO ANY WATERCOURSE, WETLAND OR FOREST, OR ALLOWED TO DRAIN ONTO DISTURBED SOILS WITHIN THE WORK AREA. THESE CONTROL MEASURES SHALL BE MONITORED FOR EFFECTIVENESS AND MAINTAINED OR REVISED TO MEET THE OBJECTIVE OF PREVENTING THE RELEASE OF SEDIMENT LADEN WATER.
8. IN ORDER TO COMPLY WITH THE MIGRATORY BIRDS CONVENTION ACT, TRCA RECOMMENDS THAT TREE REMOVALS BE COMPLETED BETWEEN AUGUST 1 AND APRIL 1.
9. AN ENVIRONMENTAL MONITOR WILL BE ON SITE, AND PROVIDE ADVICE, TO ENSURE THAT ACTIVITIES THAT COULD HAVE A NEGATIVE IMPACT TO THE NATURAL ENVIRONMENT ARE EFFECTIVELY MITIGATED AS CONSTRUCTION PROCEEDS. THE ENVIRONMENTAL MONITOR SHALL NOTIFY THE TRCA ENFORCEMENT OFFICER AND PROJECT MANAGER IF AN ISSUE ARISES.

NOTES FOR EROSION AND SEDIMENT CONTROL (TRCA) — SCALE N.T.S.

MUD MAT CONSTRUCTION ACCESS ROAD — SCALE N.T.S.

TEMPORARY SEDIMENT CONTROL FENCE — SCALE N.T.S.

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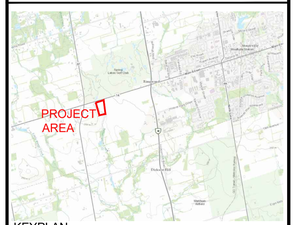

KEYPLAN
N.T.S.

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Client:
TIMES GROUP CORPORATION

Project Name:
Highway 48 Stouffville Property Compensation Wetland and Trail Construction
Whitchurch-Stouffville, ON

Drawing Title:
EROSION SEDIMENT CONTROL PLAN

Scale:	Project No.:	Drawing No.:
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Date: April 2023	Plot Date: 07/11/2024	

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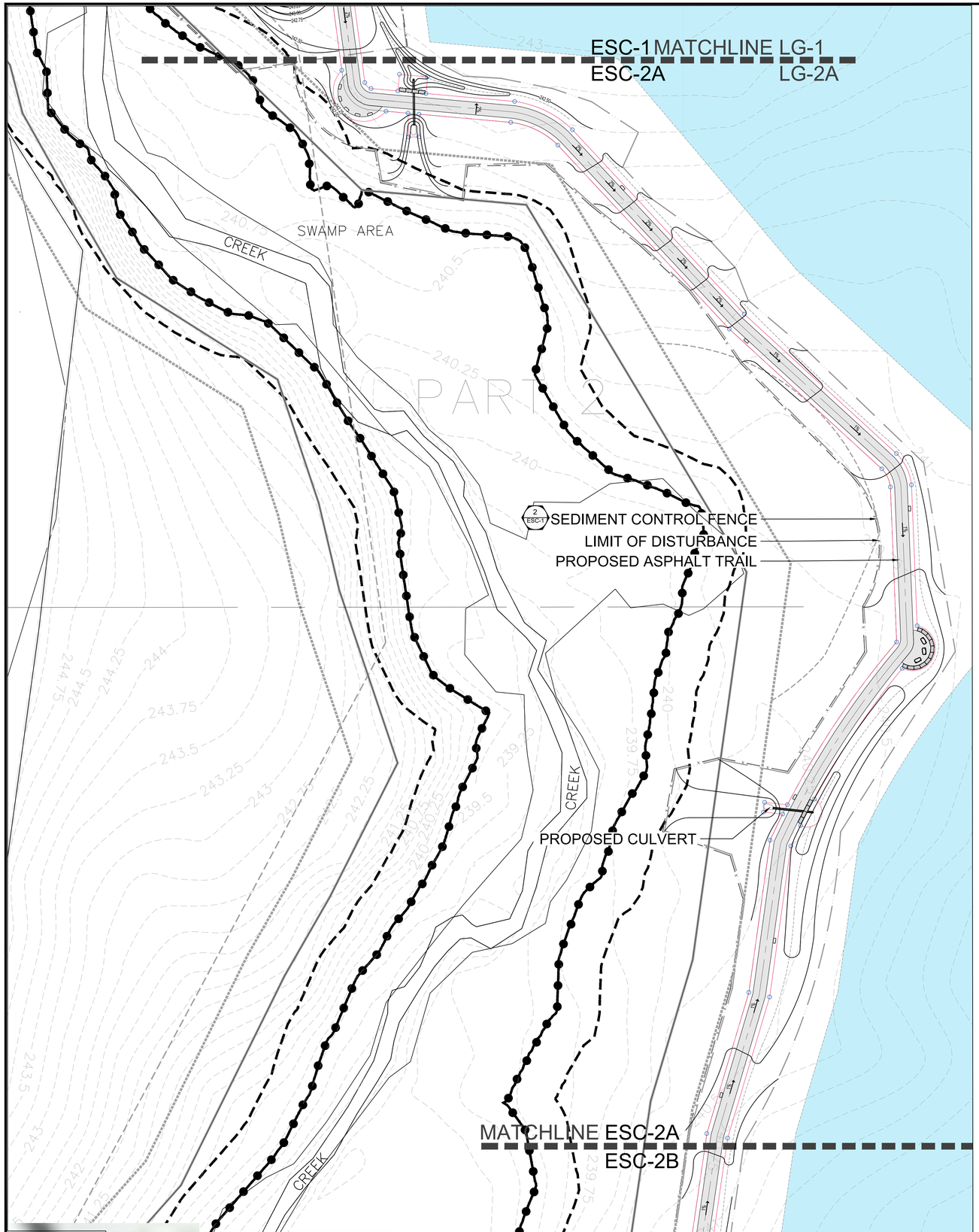

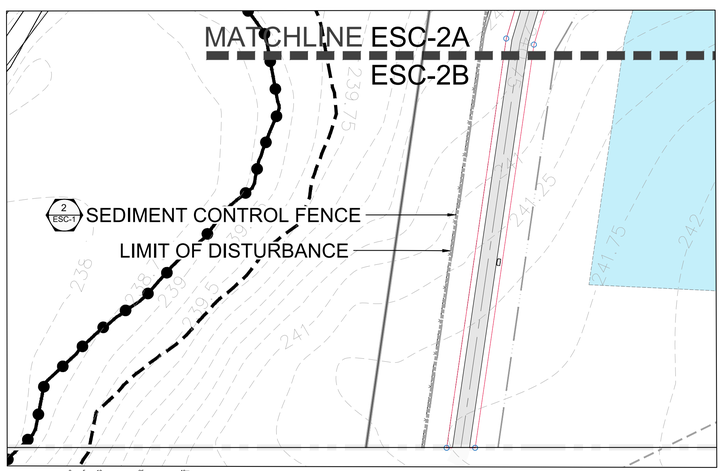

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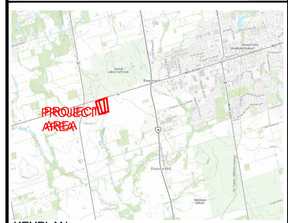

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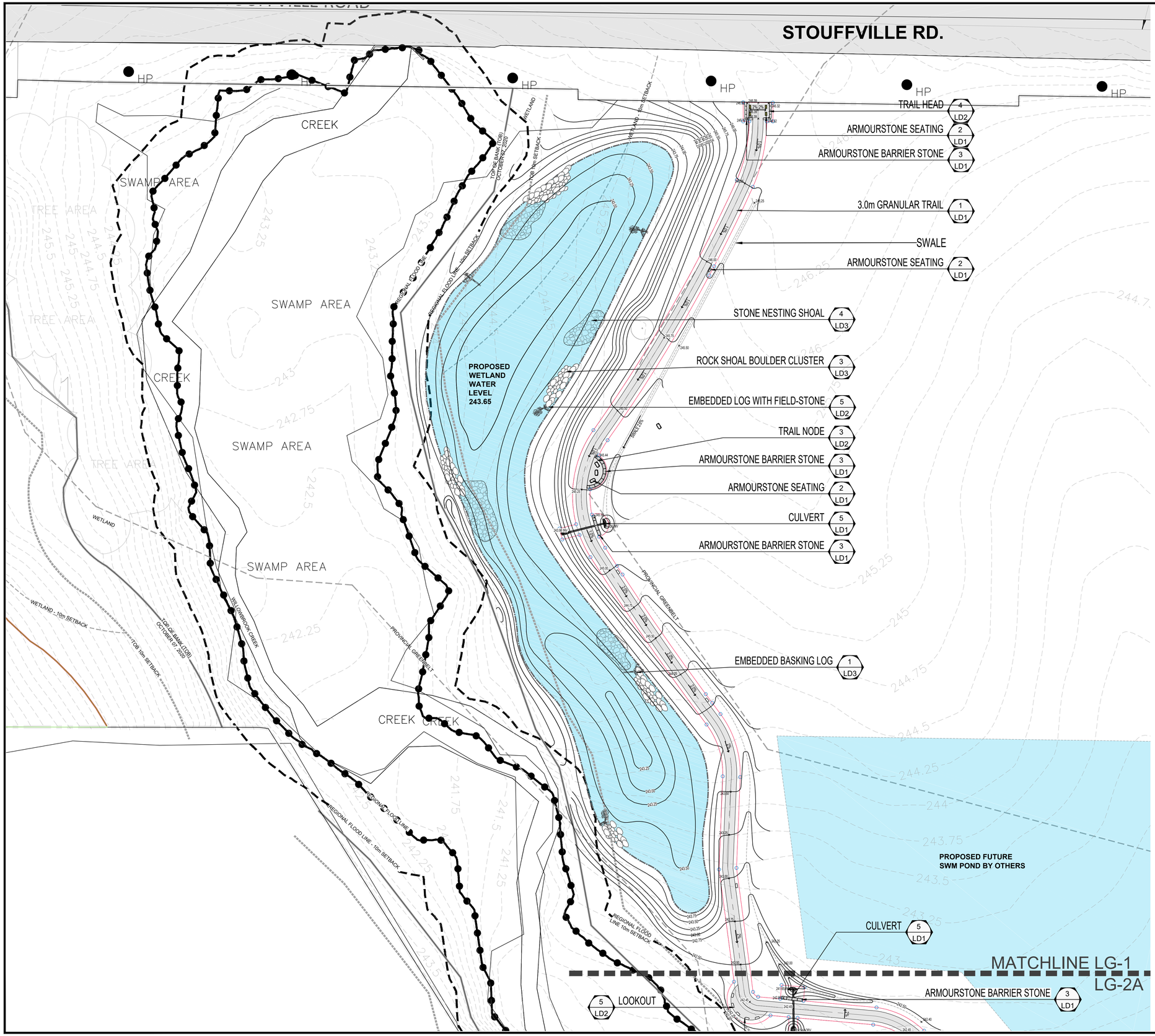

GENERAL NOTES

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ALL WORKS ARE TO LAID OUT AND STAKED FOR REVIEW AND APROVAL BY THE LANDSCAPE ARCHITECT BEFORE PROCEEDING WITH CONSTRUCTION.

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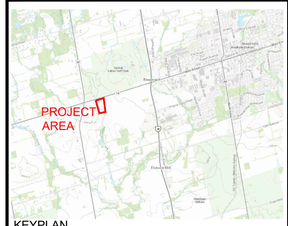

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Drawing Title:
LAYOUT AND GRADING PLAN

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Date: April 2023	Plot Date: 05/11/2024	

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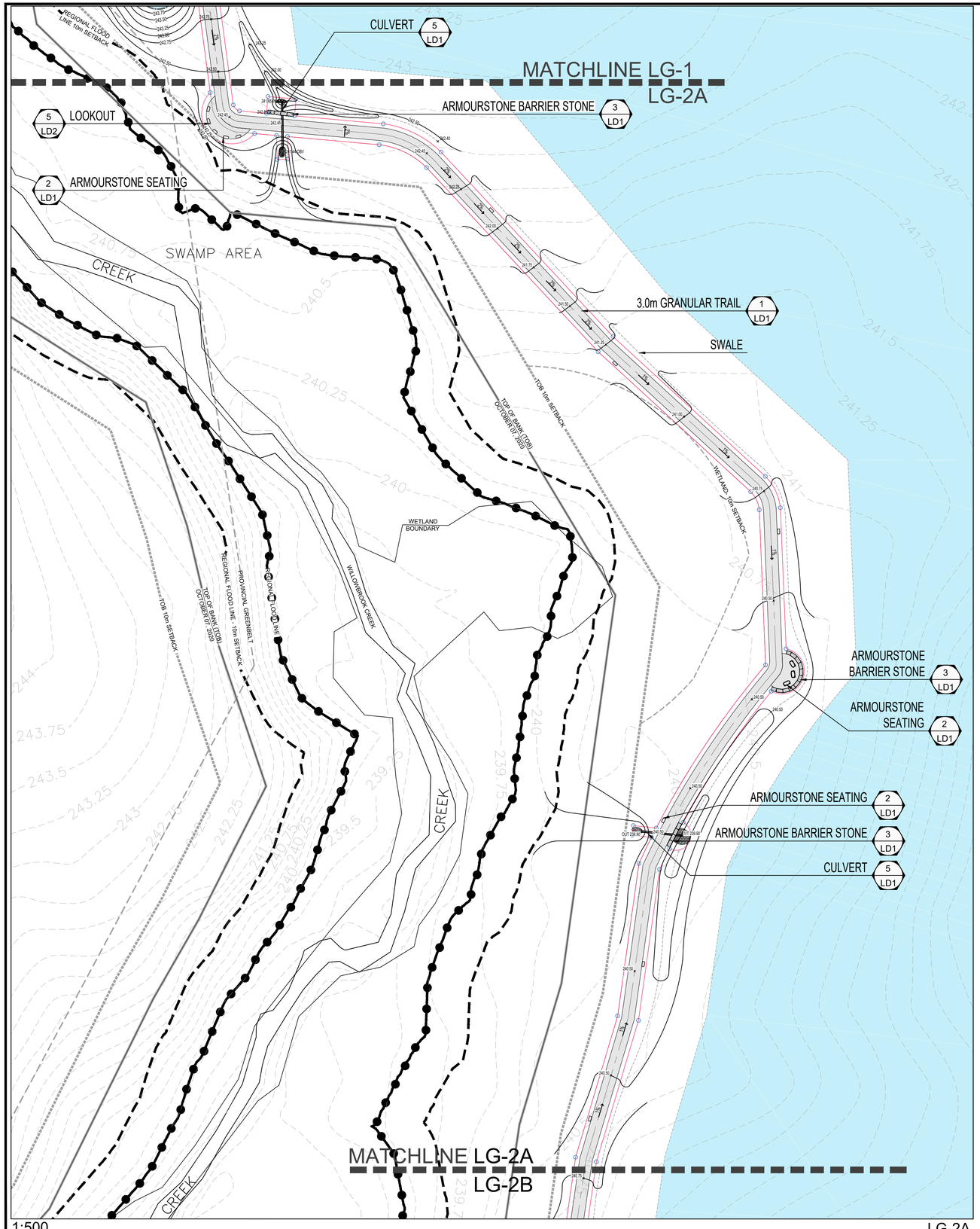

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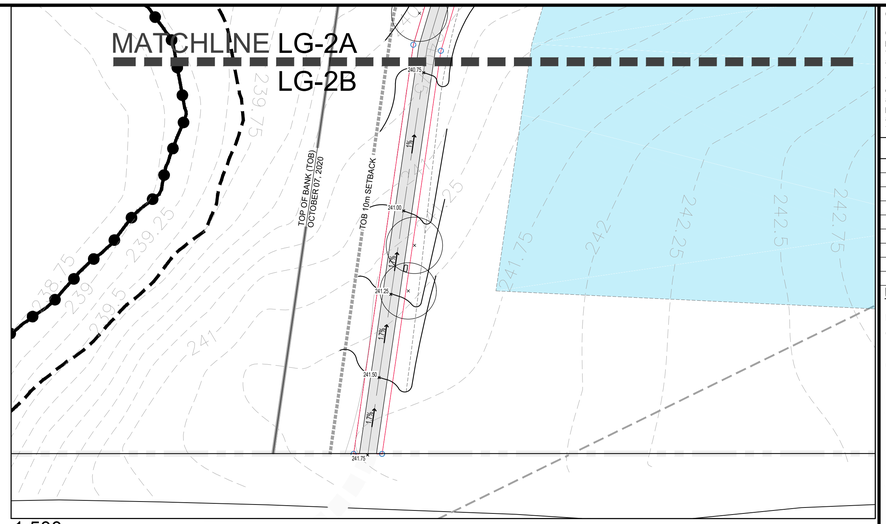

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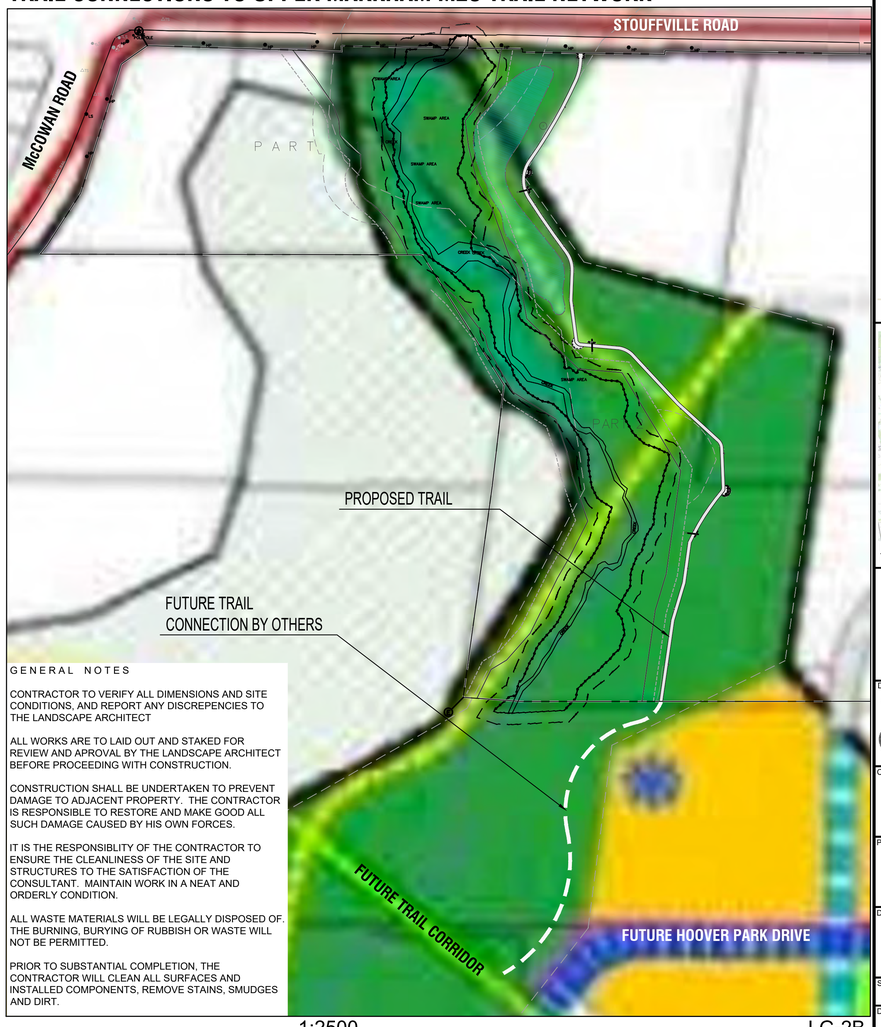
TRAIL CONNECTIONS TO UPPER MARKHAM MZO TRAIL NETWORK



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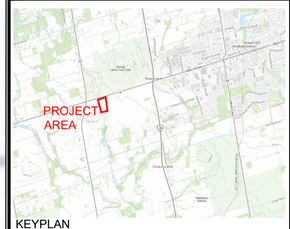

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1:500	2020006	G-2
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Date: April 2023	Plot Date: 05/11/2024	

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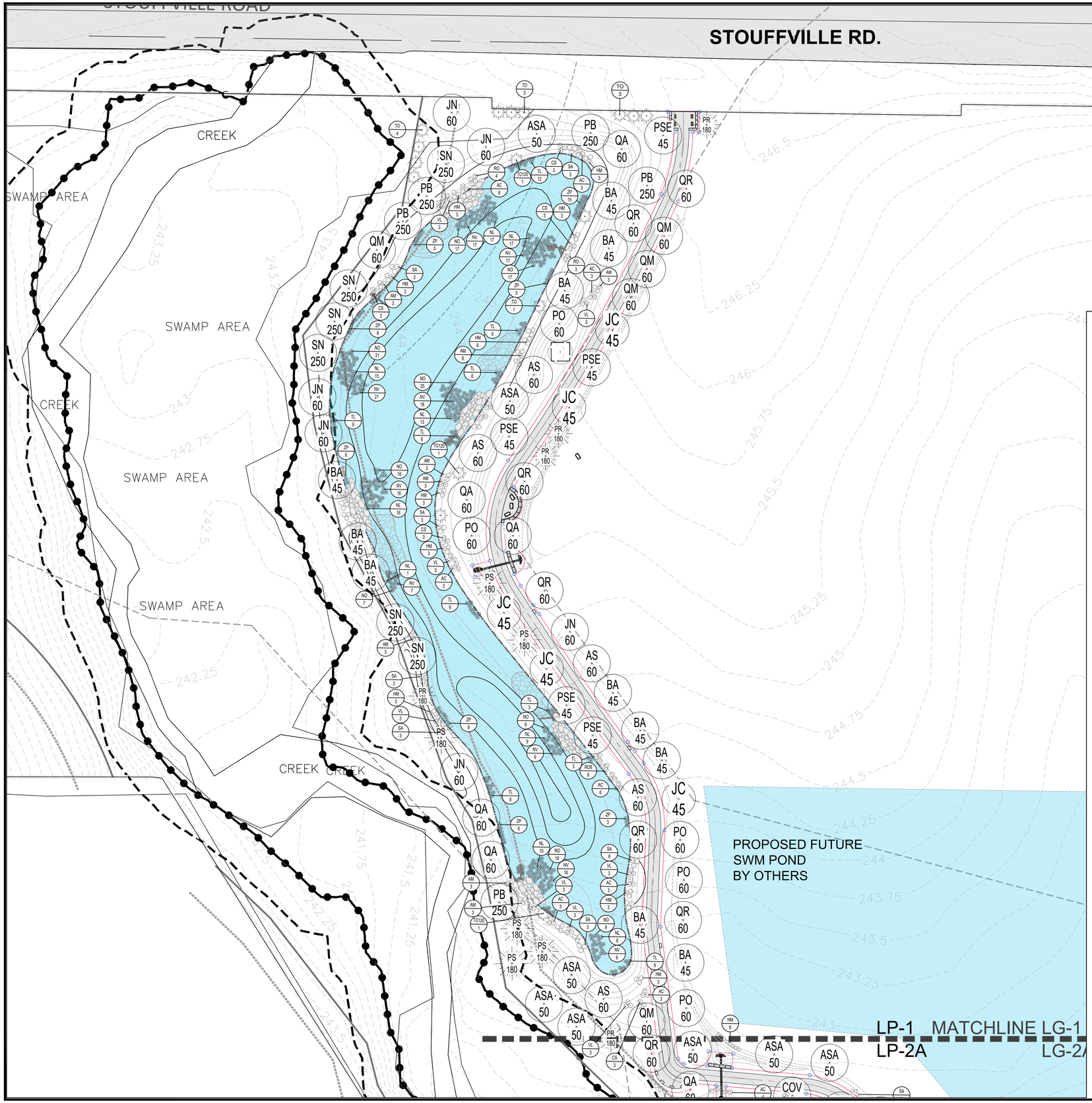

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- EMBEDDED ROOT FAN
- ASA 50 DECIDUOUS TREE
- CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- SHRUB PLANTING
- AQUATIC PLANTING

DECIDUOUS TREES

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOTS	REMARKS
ASA50 *	9	Acer saccharum	Sugar Maple	50mm cal	W.B.	6-8m o/c
AS60 *	5	Acer saccharinum	Silver Maple	40mm cal	W.B.	6-8m o/c
BA45 *	19	Betula alleghaniensis	Yellow Birch	45mm cal	W.B.	-
COV45 *	8	Carya ovata	Shagbark Hickory	45mm cal	W.B.	-
JC45 *	5	Juglans cinerea	Butternut	45mm cal	W.B.	-
JN60 *	6	Juglans nigra	Black Walnut	60mm cal	W.B.	-
PO60	5	Platanus occidentalis	Sycamore	60mm cal	W.B.	6-8m o/c
PB250 *	5	Populus balsamifera	Balsam Poplar	250cm ht	B.R.	-
PSE45 *	5	Prunus serotina	Black Cherry	45mm cal	W.B.	-
QA60 *	9	Quercus alba	White Oak	60mm cal	W.B.	10m o/c
QM60 *	5	Quercus macrocarpa	Burr Oak	60mm cal	W.B.	Specimen
QR60 *	12	Quercus rubra	Red Oak	60mm cal	W.B.	-
SN250 *	6	Salix nigra	Black Willow	250cm ht	W.B.	-

CONIFEROUS TREES

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOTS	REMARKS
PR180 *	5	Pinus resinosa	Red Pine	180cm ht	W.B.	1-2m o/c
PS180	6	Pinus strobus	Eastern White Pine	180cm ht	W.B.	-
TO120 *	16	Thuja occidentalis	Eastern White Cedar	120cm ht	W.B.	1-2m o/c

DECIDUOUS SHRUBS

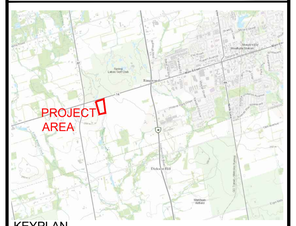
KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOTS	REMARKS
AC	57	Amelanchier canadensis	Serviceberry	150cm ht	B&B / W.B.	Clump
AM	54	Aronia melanocarpa	Black Chokeberry	80cm ht	3 gal pot	-
CS *	57	Cornus sericea	Red Osier Dogwood	100cm ht	5 gal pot	-
HM	62	Hibiscus moscheutos	Rose Mallow	60cm ht	2 gal pot	0.7m o/c
SA	54	Spirea alba	Meadowsweet	40cm ht	2 gal pot	1m o/c
RO	46	Rubus odoratus	Flowering Raspberry	60cm ht	2 gal pot	1.2m o/c
VL *	50	Viburnum lentago	Nanny Berry	60cm ht	W.B.	

SUBMERGENT FLOATING AQUATICS

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOTS	REMARKS
NL	104	Nelumbo lutea	Yellow Lotus	-	1 gal pot	-
NV	122	Nuphar variegatum	Yellow Waterlily	-	1 gal pot	-
NO	140	Nymphea odorata	White Waterlily	-	1 gal pot	-

EMERGENT AQUATIC

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOTS	REMARKS
TL	78	Typha latifolia	Common Cattail	-	1 gal pot	Set crown 15cm below water line
ZP	53	Zizania palustris	Northern Wild Rice	-	Bare Root	-



KEYPLAN
N.T.S.

Drawing Prepared By:
SCHOLLEN & COMPANY INC.
30 Wertheim Court, Unit 15
Richmond Hill, Ontario L4B 1B9
T: 289-695-0009
F: 289-695-0010

Client:
TIMES GROUP CORPORATION

Project Name:
Highway 48 Stouffville Property Compensation Wetland and Trail Construction
Whitchurch-Stouffville, ON

Drawing Title:
LANDSCAPE & PLANTING PLAN

Scale:	Project No.:	Drawing No.:
1:500	2020006	LP-1
Drawn: CT	Checked: RMS	
Date: April 2023	Plot Date: 08/11/2024	

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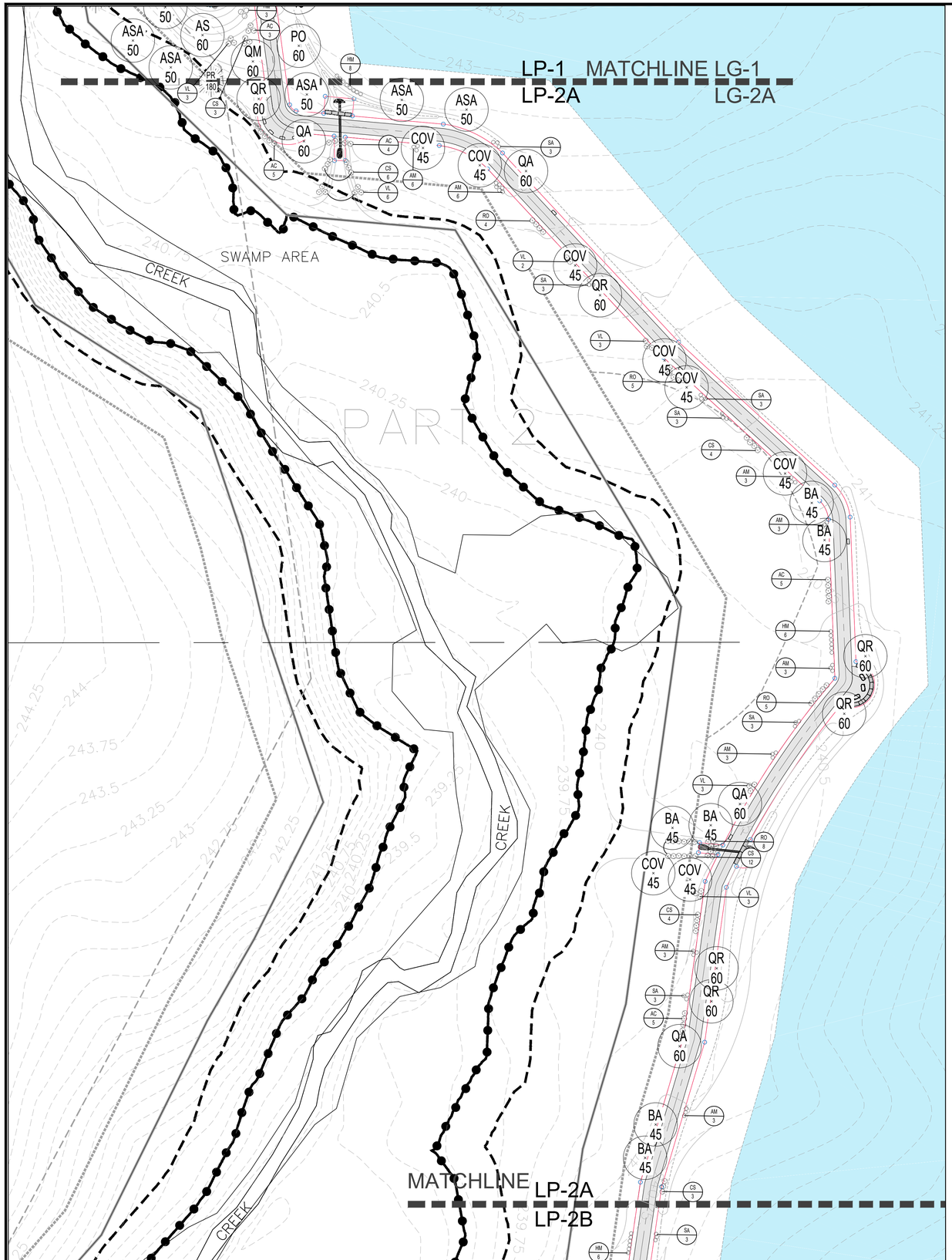

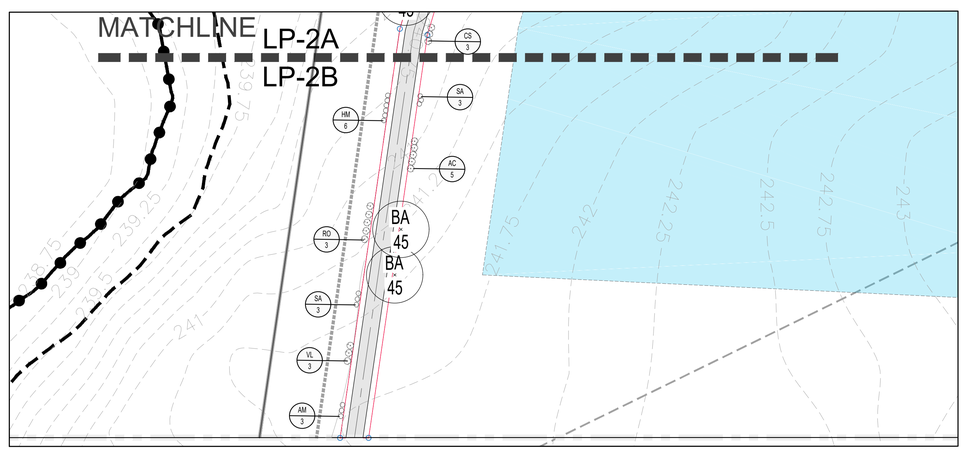

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JC45 *	5	Juglans cinerea	Butternut	45mm cal	W.B.	-
JN60 *	6	Juglans nigra	Black Walnut	60mm cal	W.B.	-
PO60	5	Platanus occidentalis	Sycamore	60mm cal	W.B.	6-8m o/c
PB250 *	5	Populus balsamifera	Balsam Poplar	250cm ht	B.R.	-
PSE45 *	5	Prunus serotina	Black Cherry	45mm cal	W.B.	-
QA60 *	9	Quercus alba	White Oak	60mm cal	W.B.	10m o/c
QM60 *	5	Quercus macrocarpa	Burr Oak	60mm cal	W.B.	Specimen
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CONIFEROUS TREES

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOTS	REMARKS
PR180 *	5	Pinus resinosa	Red Pine	180cm ht	W.B.	1-2m o/c
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TO120 *	16	Thuja occidentalis	Eastern White Cedar	120cm ht	W.B.	1-2m o/c

DECIDUOUS SHRUBS

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOTS	REMARKS
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SA	54	Spirea alba	Meadowsweet	40cm ht	2 gal pot	1m o/c
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KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOTS	REMARKS
NL	104	Nelumbo lutea	Yellow Lotus	-	1 gal pot	-
NV	122	Nuphar variegatum	Yellow Waterlily	-	1 gal pot	-
NO	140	Nymphea odorata	White Waterlily	-	1 gal pot	-

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KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOTS	REMARKS
TL	78	Typha latifolia	Common Cattail	-	1 gal pot	Set crown 15cm below water line
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No.	Revision	Date	By
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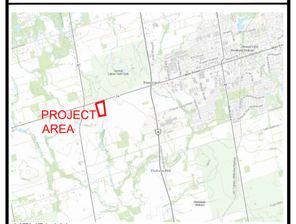
2	Issued for TRCA Approval	2024/08/07	RMS
3	Issued for Town Approval	2024/11/05	RMS

LEGEND

- PROPERTY BOUNDARY
- GREENBELT REGULATORY LINE
- REGIONAL FLOOD LINE
- REGIONAL FLOOD LINE - 10m SETBA
- TOP OF BANK - OCTOBER 07, 2020
- TOP OF BANK - 10m SETBACK
- CREEK EDGE
- 000.00 EXISTING CONTOURS
- 000.00 PROPOSED CONTOUR
- TRAIL CENTERLINE
- EDGE OF ROAD PAVEMENT
- GRAVEL ROCK SHOAL / BOULDER CLUSTER
- EMBEDDED BASKING LOG
- EMBEDDED ROOT FAN
- ASA 50 DECIDUOUS TREE
- CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- SHRUB PLANTING
- AQUATIC PLANTING



KEYPLAN
N.T.S.

Drawing Prepared By:
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30 Wertheim Court, Unit 15
Richmond Hill, Ontario L4B 1B9
T: 289-695-0009
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Client:
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Project Name:
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Whitchurch-Stouffville, ON

Drawing Title:
LANDSCAPE & PLANTING PLAN

Scale:	Project No.:	Drawing No.:
1:500	2020006	LP-2
Drawn: CT	Checked: RMS	
Date: April 2023	Plot Date: 08/11/2024	

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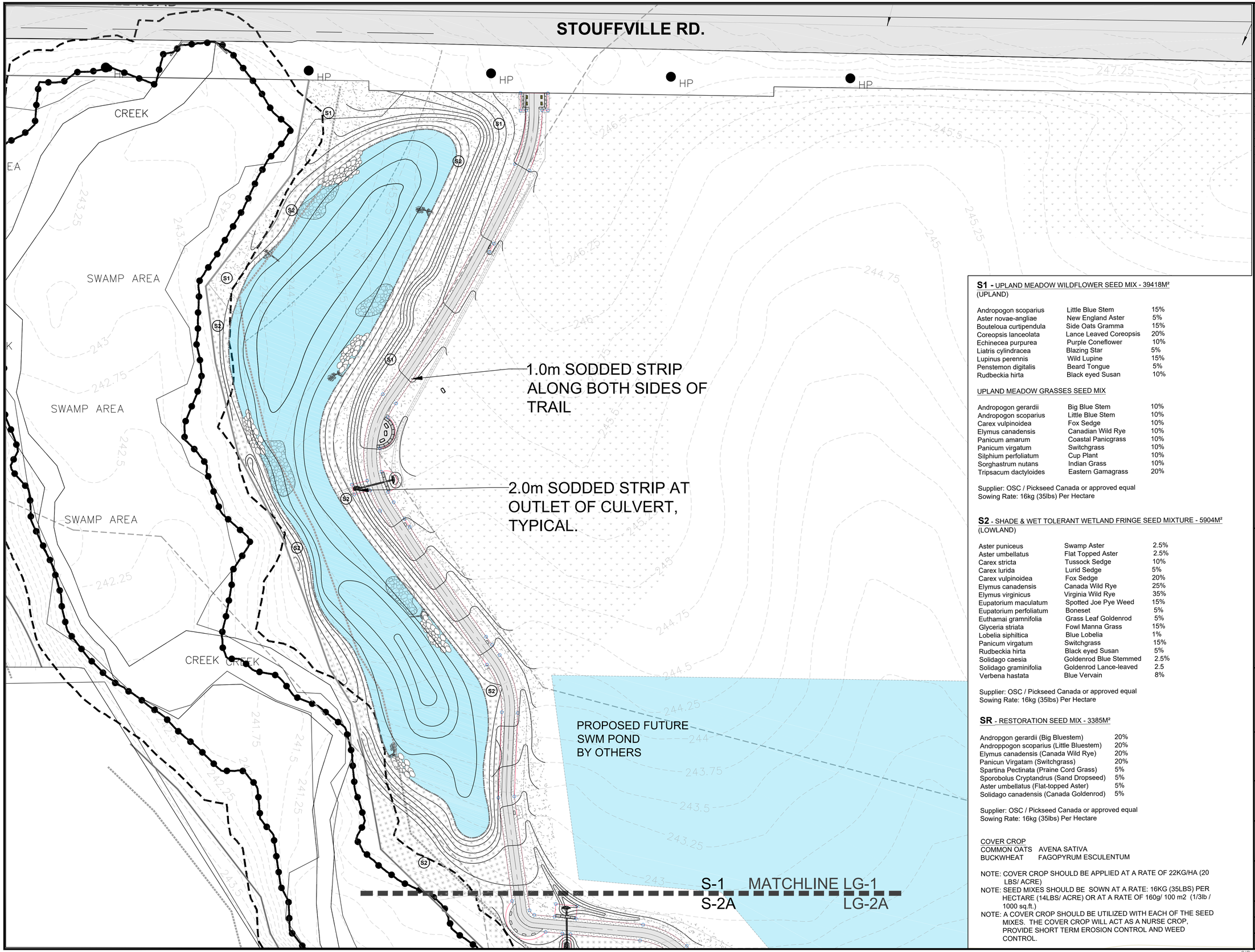

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- EDGE OF ROAD PAVEMENT
- S2 LOWLAND SEED MIX+ PERENNIALS
- S1 UPLAND SEED MIX+ PERENNIALS
- SR RESTORATION SEED
- SOD
- ANNUAL RYE GRASS FOR RETURN TO CULTIVATION

S1 - UPLAND MEADOW WILDFLOWER SEED MIX - 39418M²
(UPLAND)

Andropogon scoparius	Little Blue Stem	15%
Aster novae-angliae	New England Aster	5%
Bouteloua curtipendula	Side Oats Gramma	15%
Coreopsis lanceolata	Lance Leaved Coreopsis	20%
Echinecea purpurea	Purple Coneflower	10%
Liatris cylindracea	Blazing Star	5%
Lupinus perennis	Wild Lupine	15%
Penstemon digitalis	Beard Tongue	5%
Rudbeckia hirta	Black eyed Susan	10%

UPLAND MEADOW GRASSES SEED MIX

Andropogon gerardii	Big Blue Stem	10%
Andropogon scoparius	Little Blue Stem	10%
Carex vulpinoidea	Fox Sedge	10%
Elymus canadensis	Canadian Wild Rye	10%
Panicum amarum	Coastal Panicgrass	10%
Panicum virgatum	Switchgrass	10%
Silphium perfoliatum	Cup Plant	10%
Sorghastrum nutans	Indian Grass	10%
Tripsacum dactyloides	Eastern Gamagrass	20%

Supplier: OSC / Pickseed Canada or approved equal
Sowing Rate: 16kg (35lbs) Per Hectare

S2 - SHADE & WET TOLERANT WETLAND FRINGE SEED MIXTURE - 5904M²
(LOWLAND)

Aster puniceus	Swamp Aster	2.5%
Aster umbellatus	Flat Topped Aster	2.5%
Carex stricta	Tussock Sedge	10%
Carex lurida	Lurid Sedge	5%
Carex vulpinoidea	Fox Sedge	20%
Elymus canadensis	Canada Wild Rye	25%
Elymus virginicus	Virginia Wild Rye	35%
Eupatorium maculatum	Spotted Joe Pye Weed	15%
Eupatorium perfoliatum	Boneset	5%
Euthamai gramnifolia	Grass Leaf Goldenrod	5%
Glyceria striata	Fowl Manna Grass	15%
Lobelia siphiltica	Blue Lobelia	1%
Panicum virgatum	Switchgrass	15%
Rudbeckia hirta	Black eyed Susan	5%
Solidago caesia	Goldenrod Blue Stemmed	2.5%
Solidago graminifolia	Goldenrod Lance-leaved	2.5
Verbena hastata	Blue Vervain	8%

Supplier: OSC / Pickseed Canada or approved equal
Sowing Rate: 16kg (35lbs) Per Hectare

SR - RESTORATION SEED MIX - 3385M²

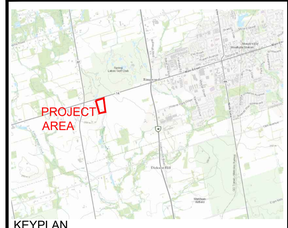
Andropgon gerardii (Big Bluestem)	20%
Androppogon scoparius (Little Bluestem)	20%
Elymus canadensis (Canada Wild Rye)	20%
Panicun Virgatam (Switchgrass)	20%
Spartina Pectinata (Praine Cord Grass)	5%
Sporobolus Cryptandrus (Sand Dropseed)	5%
Aster umbellatus (Flat-topped Aster)	5%
Solidago canadensis (Canada Goldenrod)	5%

Supplier: OSC / Pickseed Canada or approved equal
Sowing Rate: 16kg (35lbs) Per Hectare

COVER CROP

COMMON OATS	AVENA SATIVA
BUCKWHEAT	FAGOPYRUM ESCULENTUM

NOTE: COVER CROP SHOULD BE APPLIED AT A RATE OF 22KG/HA (20 LBS/ ACRE)
NOTE: SEED MIXES SHOULD BE SOWN AT A RATE: 16KG (35LBS) PER HECTARE (14LBS/ ACRE) OR AT A RATE OF 160g/ 100 m2 (1/3lb / 1000 sq.ft.)
NOTE: A COVER CROP SHOULD BE UTILIZED WITH EACH OF THE SEED MIXES. THE COVER CROP WILL ACT AS A NURSE CROP, PROVIDE SHORT TERM EROSION CONTROL AND WEED CONTROL.



KEYPLAN
N.T.S.

ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS MEMBER OALA

Drawing Prepared By:
SCHOLLEN & COMPANY INC.
30 Wertheim Court, Unit 15
Richmond Hill, Ontario L4B 1B9
T: 289-695-0009
F: 289-695-0010

Client:
TIMES GROUP CORPORATION

Project Name:
Highway 48 Stouffville Property Compensation Wetland and Trail Construction
Whitchurch-Stouffville, ON

Drawing Title:
SEEDING AND SITE RESTORATION PLAN

Scale: 1:500	Project No.: 2020006	Drawing No.: S-1
Drawn: CT	Checked: RMS	
Date: April 2023	Plot Date: 08/11/2024	

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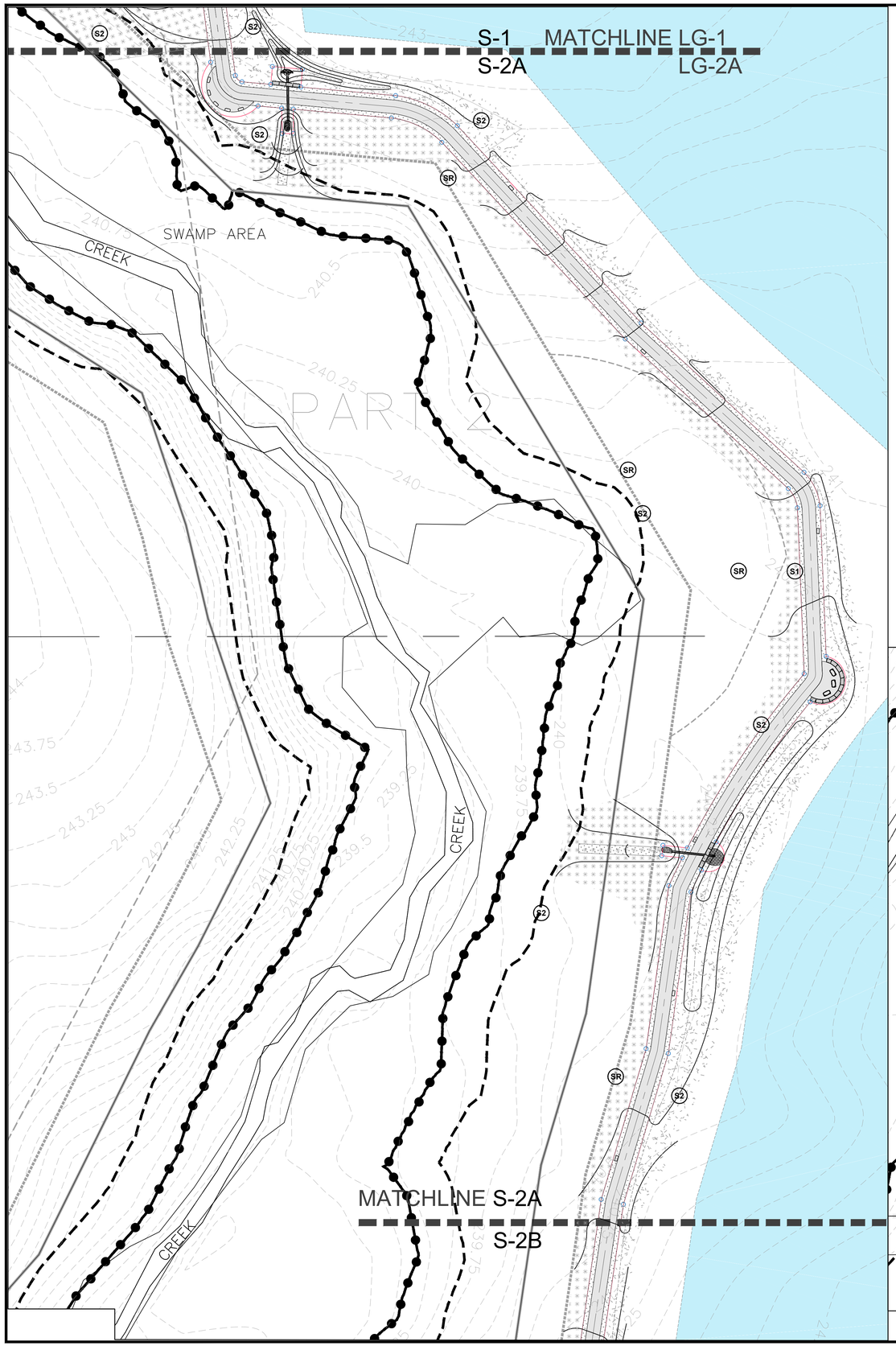

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Supplier: OSC / Pickseed Canada or approved equal
Sowing Rate: 16kg (35lbs) Per Hectare

COVER CROP
COMMON OATS AVENA SATIVA
BUCKWHEAT FAGOPYRUM ESCULENTUM

NOTE: COVER CROP SHOULD BE APPLIED AT A RATE OF 22KG/HA (20 LBS/ ACRE)
NOTE: SEED MIXES SHOULD BE SOWN AT A RATE: 16KG (35LBS) PER HECTARE (14LBS/ ACRE) OR AT A RATE OF 160g/ 100 m2 (1/3lb / 1000 sq.ft.)
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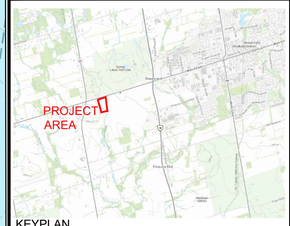

KEYPLAN
N.T.S.

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T: 289-695-0009
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Client:
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Project Name:
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Drawing Title:
SEEDING AND SITE RESTORATION PLAN

Scale: 1:500	Project No.: 2020006	Drawing No.: S-2
Drawn: CT	Checked: RMS	
Date: April 2023	Plot Date: 08/11/2024	

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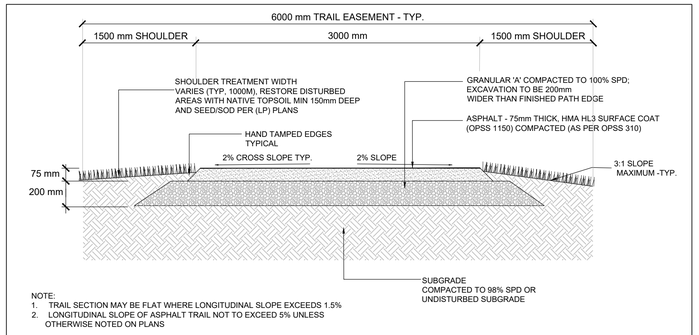

1 LD1 TYPICAL MEDIUM DUTY ASPHALT TRAIL
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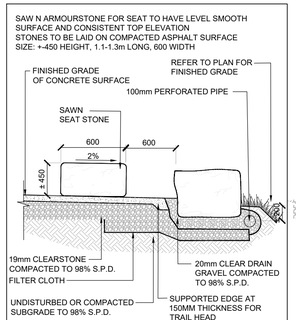

2 LD1 SAWN ARMOURSTONE SEAT ROCK
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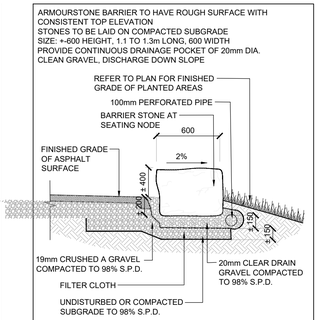

3 LD1 ARMOURSTONE BARRIER ROCK
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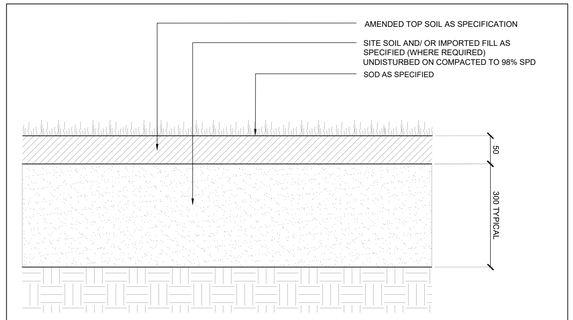

4 LD1 SOD INSTALLATION / TRAIL SHOULDER
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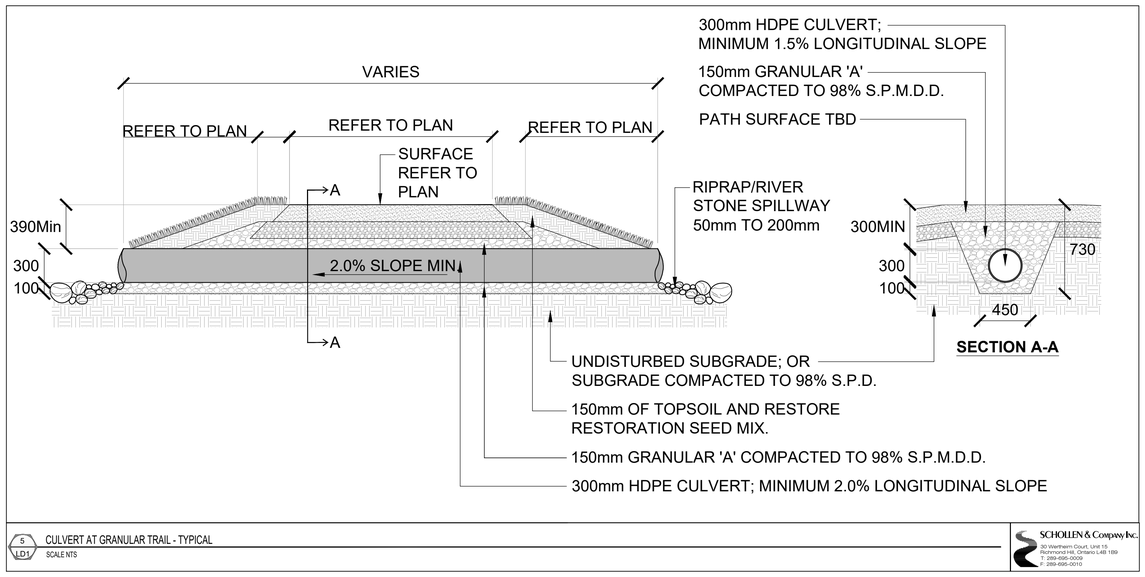

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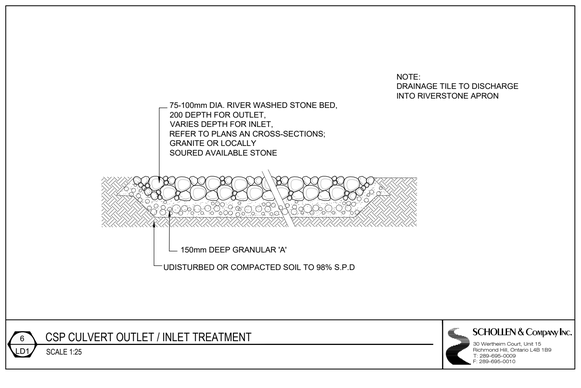

6 LD1 CSP CULVERT OUTLET / INLET TREATMENT
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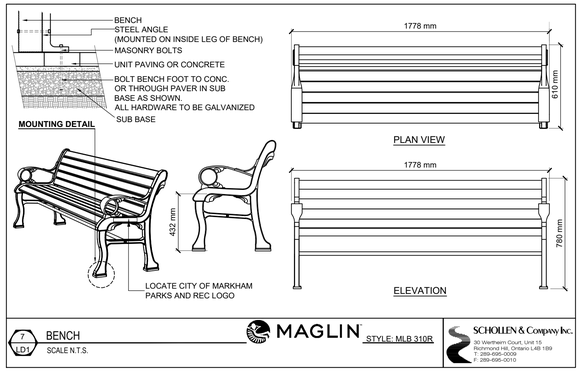

7 LD1 BENCH
MAGLIN STYLE: MLB 310R
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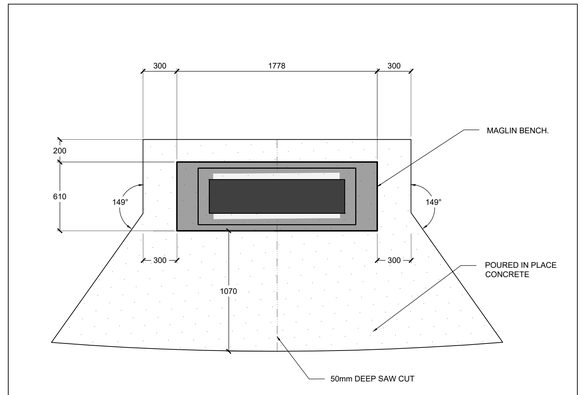
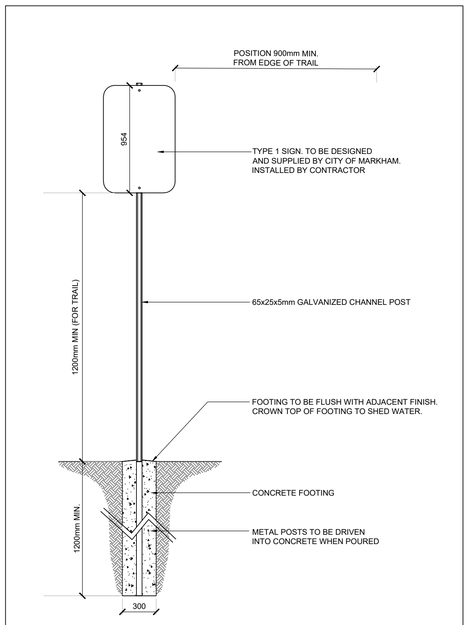
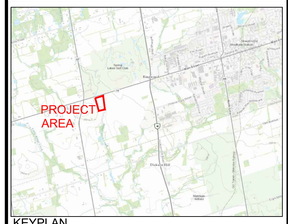


8 LD1 CONCRETE PAD FOR BENCH
SCALE N.T.S.



9 LD1 TRAILHEAD SIGN
SCALE 1:25

No.	Revision	Date	By
1	Issued for Coordination	2024/06/20	RMS
2	Issued for TRCA Approval	2024/08/07	RMS
3	Issued for Town Approval	2024/11/05	RMS



KEYPLAN
N.T.S.

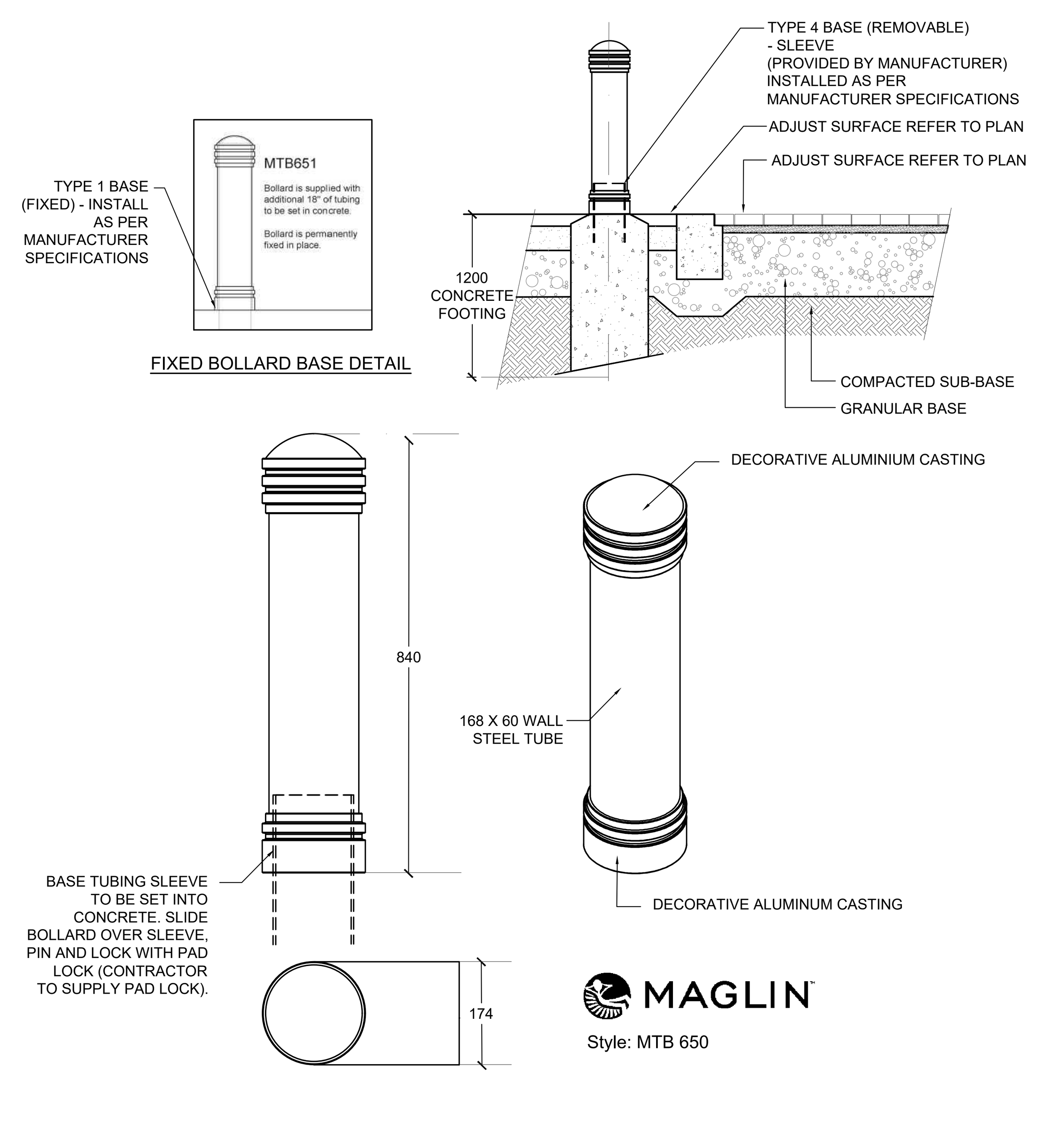
Drawing Prepared By:
SCHOLLEN & Company Inc.
30 Wertheim Court, Unit 15
Richmond Hill, Ontario L4B 1B9
T: 289-695-0009
F: 289-695-0010

Client:
TIMES GROUP CORPORATION

Project Name:
Highway 48 Stouffville Property Compensation Wetland and Trail Construction
Whitchurch-Stouffville, ON

Drawing Title:
LANDSCAPE WORKS DETAILS

Scale:	Project No.:	Drawing No.:
AS SHOWN	2020006	LD1
Drawn: CT	Checked: RMS	
Date: April 2023	Plot Date: 08/11/2024	



1 LD2 BOLLARD (TYPICAL)
SCALE N.T.S.

SCHOLLEN & Company Inc.
30 Wertheim Court, Unit 15
Richmond Hill, Ontario L4B 1B9
T: 289-695-0009
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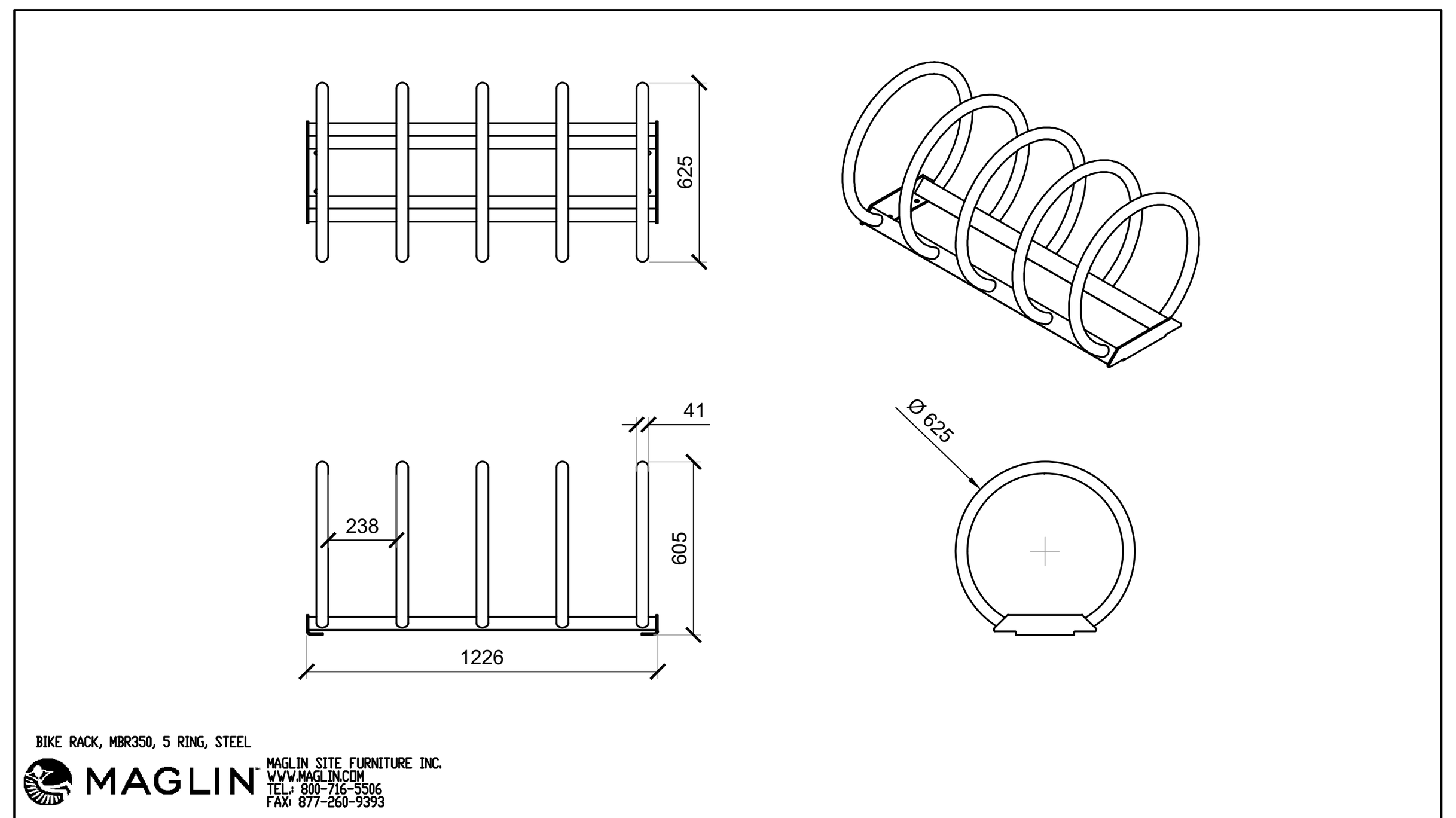
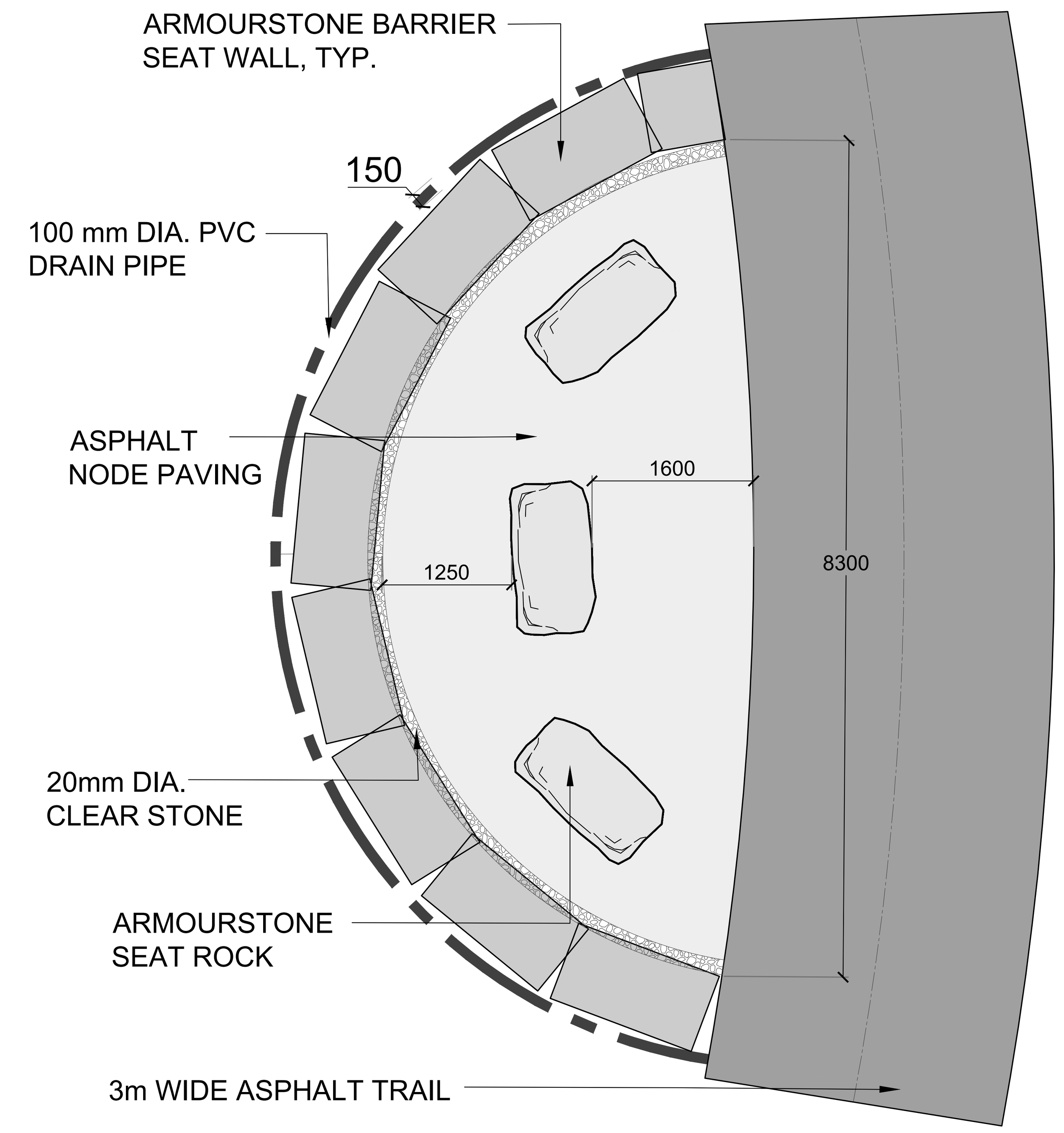


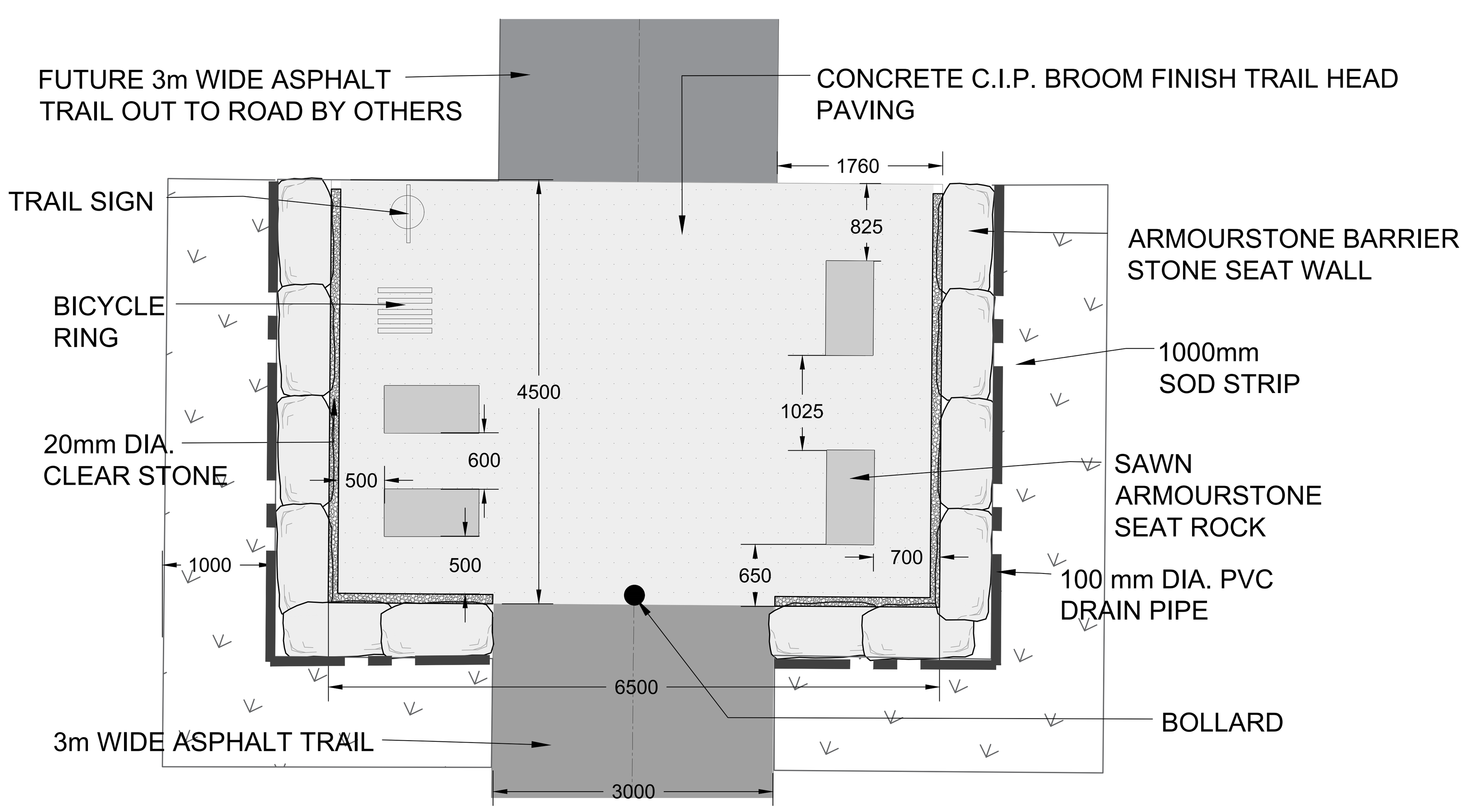
2 LD2 BIKE RACK
SCALE 1:25

SCHOLLEN & Company Inc.
30 Wertheim Court, Unit 15
Richmond Hill, Ontario L4B 1B9
T: 289-695-0009
F: 289-695-0010



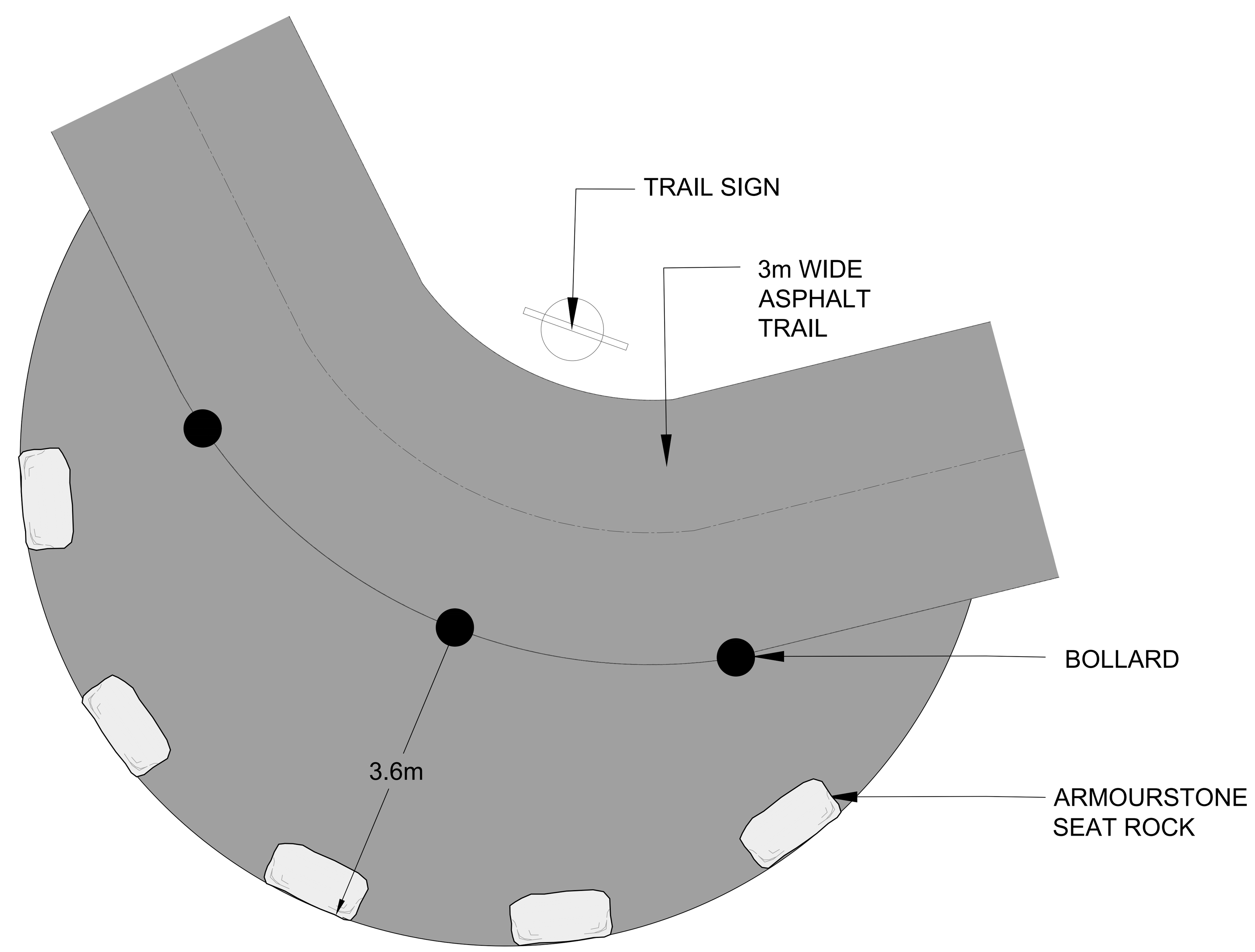
3 LD2 SEATING NODE
SCALE NTS

SCHOLLEN & Company Inc.
30 Wertheim Court, Unit 15
Richmond Hill, Ontario L4B 1B9
T: 289-695-0009
F: 289-695-0010



4 LD2 TRAIL-HEAD
SCALE-NTS

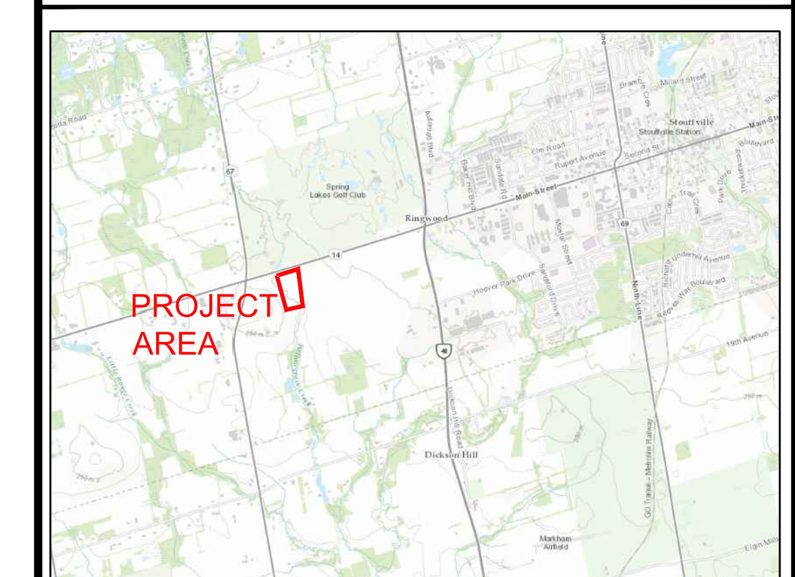
SCHOLLEN & Company Inc.
30 Wertheim Court, Unit 15
Richmond Hill, Ontario L4B 1B9
T: 289-695-0009
F: 289-695-0010



LOOKOUT
SCALE NTS

SCHOLLEN & Company Inc.
30 Wertheim Court, Unit 15
Richmond Hill, Ontario L4B 1B9
T: 289-695-0009
F: 289-695-0010

No.	Revision	Date	By
1	Issued for Coordination	2024/06/20	RMS
2	Issued for TRCA Approval	2024/08/07	RMS
3	Issued for Town Approval	2024/11/05	RMS



KEYPLAN
N.T.S.

Drawing Prepared By:
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T: 289-695-0009
F: 289-695-0010

Client:
TIMES GROUP CORPORATION

Project Name:
Highway 48 Stouffville Property Compensation Wetland and Trail Construction
Whitchurch-Stouffville, ON

Drawing Title:
TRAIL HEAD AND NODE DETAILS

Scale: AS SHOWN	Project No.: 2020006	Drawing No.: LD2
Drawn: CT	Checked: RMS	
Date: April 2023	Plot Date: 08/11/2024	

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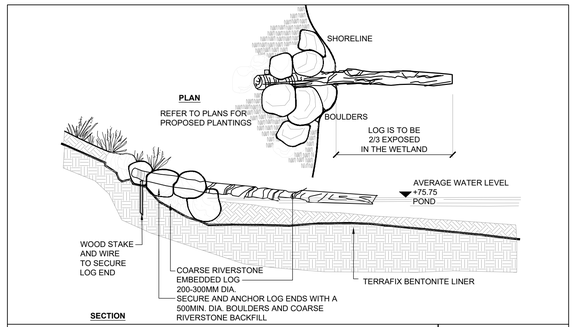
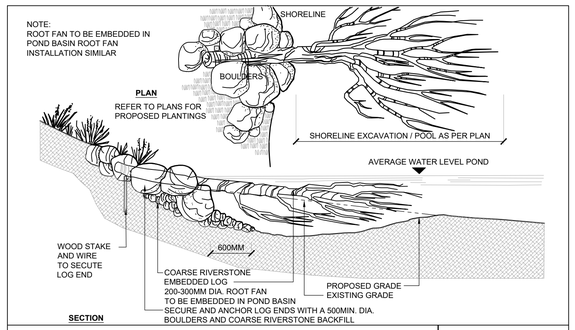


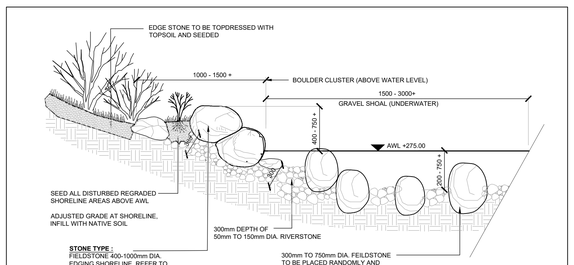
1 LD3 EMBEDDED BASKING LOG
SCALE N.T.S.

SCHOLLEN & Company Inc.
30 Wertheim Court, Unit 15
Richmond Hill, Ontario L4B 1B9
T: 289-695-0009
F: 289-695-0010



2 LD3 EMBEDDED LOG WITH FIELDSTONE
SCALE 1:25

SCHOLLEN & Company Inc.
30 Wertheim Court, Unit 15
Richmond Hill, Ontario L4B 1B9
T: 289-695-0009
F: 289-695-0010



NOTE:
1. RANDOMLY PLACE THE FIELDSTONE REFER TO LAYOUT PLAN FOR LOCATIONS OF SPAWNING BED
2. ROCK AND GRAVEL USED FOR SHORELINE EDGING AND SHOAL CREATION TO BE LOCALLY OBTAINABLE MATERIAL. PREFERABLY ROUNDED AND VARYING SIZE.
3. BOULDERS TO BE 200mm TO 600mm IN DEPTH AND 400mm TO 1000mm LENGTH AND WIDTH. PROVIDE SAMPLE FOR APPROVAL.

3 LD3 ROCK SHOAL BOULDER CLUSTER
SCALE N.T.S.

SCHOLLEN & Company Inc.
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Richmond Hill, Ontario L4B 1B9
T: 289-695-0009
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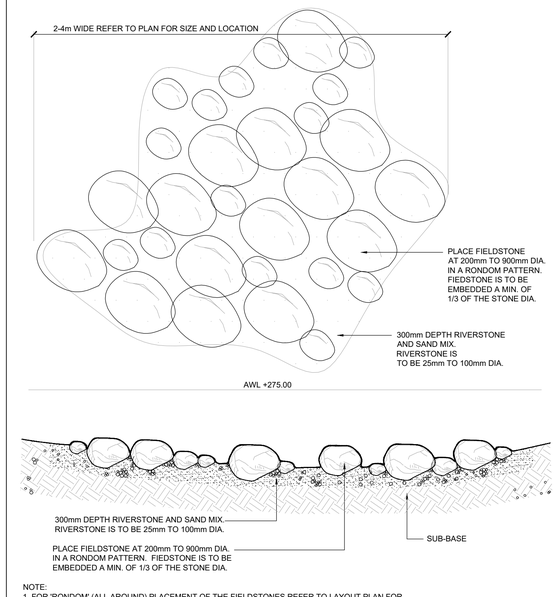

NOTE:
1. FOR 'RONDOM' (ALL AROUND) PLACEMENT OF THE FIELDSTONES REFER TO LAYOUT PLAN FOR LOCATIONS OF SPAWNING BED
2. ROCK AND GRAVEL USED FOR SHORELINE EDGING AND SHOAL CREATION TO BE LOCALLY OBTAINABLE MATERIAL, PREFERABLY ROUNDED AND VARYING SIZE.
3. BOULDERS TO BE 200mm TO 900mm IN Ø DIA. PROVIDE SAMPLE FOR APPROVAL.

4 LD3 RONDOM STONE NESTING SHOAL
SCALE N.T.S.

SCHOLLEN & Company Inc.
30 Wertheim Court, Unit 15
Richmond Hill, Ontario L4B 1B9
T: 289-695-0009
F: 289-695-0010

GENERAL SITE PREPARATION AND CONSTRUCTION NOTES

1. **THE OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY APPROVALS FROM THE TOWN AND EXTERNAL AGENCIES PRIOR TO ANY SITE ALTERATION ACTIVITY.**
2. **THE CONTRACTOR IS RESPONSIBLE TO IMPLEMENT DUST CONTROL MEASURES AND CONSTRUCTION PRACTICE GUIDELINES AS APPROVED BY THE TOWN.**
3. **ALL CONSTRUCTION VEHICLES MUST ENTER AND EXIT THE SITE ONLY FROM DESIGNATED ACCESS POINTS (TO BE CONFIRMED ON SITE).**
4. **ALL DISTURBED GROUND LEFT INACTIVE FOR OVER 30 DAYS SHALL BE VEGETATED, SUBJECT TO WEATHER CONDITIONS, BY SEEDING OR APPROVED EQUIVALENT TO THE SATISFACTION OF THE LANDSCAPE ARCHITECTS REPRESENTATIVE.**
5. **EXCAVATE GROUND TO 200 MINIMUM DEPTH OR AS DIRECTED BY GEOTECHNICAL ENGINEER. THE TOPSOIL IS TO BE PLACED AND GRADED OUT ON EITHER SIDE OF TRAIL. SHOULD DEEPER TOPSOIL EXIST THE LANDSCAPE ARCHITECT MUST BE CONTACTED IMMEDIATELY FOR AN INSPECTION OF THE SITE TO DETERMINE COURSE OF ACTION. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF ANY UNSUITABLE MATERIAL SUCH AS TOPSOIL AND ORGANIC MATTER. THE DUFF AND REMOVED TREES / BRANCHES WILL BE DISTRIBUTED IN THE WOODLAND ADJACENT TO THE TRAIL. MATERIAL WILL BE LEFT TO DECOMPOSE ON SITE.**
6. **THE EDGE OF THE SUB-BASE AND PAVING SURFACING TO BE AT 45 DEGREE SLOPE AND WELL TAMPED TO FORM UNIFORMLY SMOOTH CLEAN EDGES WITHOUT LATERAL DEVIATIONS. ADJACENT DISTURBED AREAS TO BE FLUSH WITH PAVING SURFACE AND SEEDED WITH NATIVE SEED MIX.**

GENERAL NOTES

1. **CONTRACTOR TO VERIFY ALL DIMENSIONS AND SITE CONDITIONS, AND REPORT ANY DISCREPANCIES TO THE LANDSCAPE ARCHTIECT.**
2. **ALL WORKS ARE TO BE LAID OUT AND STAKED FOR REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT BEFORE PROCEEDING WITH CONSTRUCTION.**
3. **CONSTRUCTION SHALL BE UNDERTAKEN TO PREVENT DAMAGE TO ADJACENT PROPERTY. THE CONTRACTOR IS RESPONSIBLE TO RESTORE AND MAKE GOOD ALL SUCH DAMAGES CAUSED BY HIS OWN FORCES.**
4. **DRAWINGS ARE NOT TO BE SCALED.**
1. **IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THE CLEANLINESS OF THE SITE AND STRUCTURES TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT AND TO MAINTAIN WORK IN A NEAT AND ORDERLY CONDITION.**
2. **PRIOR TO SUBSTANTIAL COMPLETION, THE CONTRACTOR WILL CLEAN ALL SURFACES AND INSTALLED COMPONENTS, REMOVE STAINS, SMUDGES AND DIRT.**
7. **MINIMUM SLOPE TO PROVIDE POSITIVE DRAINAGE ON ALL HARD SURFACE PAVED AREAS TO BE 1.5% MINIMUM.**
8. **LOCATES FOR ALL UNDERGROUND SERVICES ARE TO BE ARRANGED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.**
9. **KEEP HEAVY EQUIPMENT AND LOADS AWAY FROM WATERCOURSE TOP OF BANK AND SLOPES (MINIMUM 5.0 M SETBACK FROM TOP OF BANK)**
10. **MINIMIZE DISTURBANCE TO VEGETATIVE COVER OUTSIDE OF THE WORK ZONE. DAMAGE IS THE CONTRACTOR'S RESPONSIBILITY.**
11. **TAKE MEASURE TO IMMEDIATELY STABILIZE AREAS SUBJECT TO EROSION SUCH AS SWALES AND SLOPES WITH EROSION CONTROL MEASURES (EG. COIR MATS AND VEGETATION)**
12. **MIGRATORY BIRDS CONVENTION ACT - FEDERAL LEGISLATION PROHIBITS THE DESTRUCTION OF NESTS, EGGS AND YOUNG BIRDS DURING THE MIGRATORY BIRD NESTING PERIOD BETWEEN MAY 1ST AND AUGUST 31ST.**
13. **IN-WATER/NEAR WATER WORKS ARE PERMITTED TO PROCEED BETWEEN JULY 1ST OF ANY GIVEN YEAR THROUGH TO MARCH 31ST OF THE FOLLOWING YEAR AS DEFINED BY THE WARM WATER TIMING WINDOW.**

WARNING TO CONTRACTOR

LOCATES FOR ALL UNDERGROUND SERVICES ARE TO BE ARRANGED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

5 LD3 GENERAL CONSTRUCTION NOTES
SCALE 1:25

SCHOLLEN & Company Inc.
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Richmond Hill, Ontario L4B 1B9
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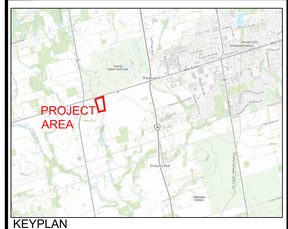
No.	Revision	Date	By
1	Issued for Coordination	2024/06/20	RMS
2	Issued for TRCA Approval	2024/08/07	RMS
3	Issued for Town Approval	2024/11/05	RMS



KEYPLAN
N.T.S.

Drawing Prepared By:
SCHOLLEN & Company Inc.
30 Wertheim Court, Unit 15
Richmond Hill, Ontario L4B 1B9
T: 289-695-0009
F: 289-695-0010

Client:
TIMES GROUP CORPORATION

Project Name:
Highway 48 Stouffville Property Compensation Wetland and Trail Construction
Whitchurch-Stouffville, ON

Drawing Title:
HABITAT DETAILS

Scale:	Project No.:	Drawing No.:
AS SHOWN	2020006	LD3
Drawn: CT	Checked: RMS	
Date: April 2023	Plot Date: 08/11/2024	

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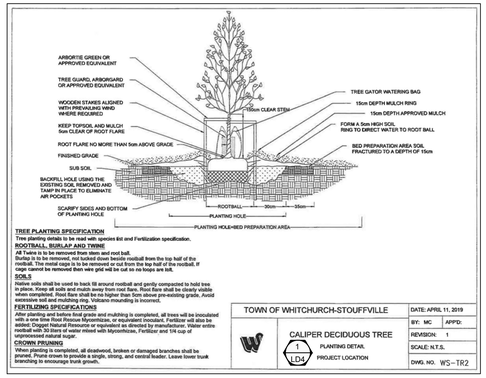


TREE PLANTING SPECIFICATION
Tree planting details to be read with species list and Fertilization specification.

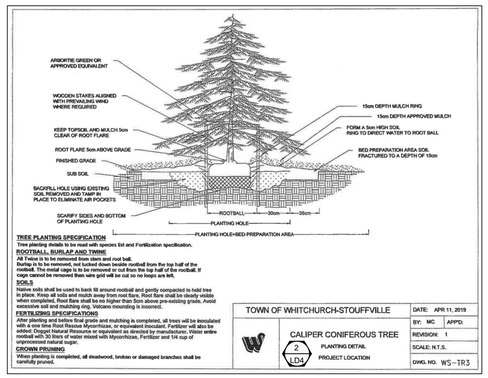
ROOTBALL, BURLAP AND TWINE
All Twine is to be removed from stem and root ball.
Burlap is to be removed, not tucked down beside rootball from the top half of the rootball. The metal cage is to be removed or cut from the top half of the rootball. If cage cannot be removed then wire grid will be cut so no loops are left.

SOILS
Native soils shall be used to back fill around rootball and gently compacted to hold tree in place. Keep all soils and mulch away from root flare. Root flare shall be clearly visible when completed. Root flare shall be no higher than 5cm above pre-existing grade. Avoid excessive soil and mulching ring. Volcano mounding is incorrect.

FERTILIZING SPECIFICATIONS
After planting and before final grade and mulching is completed, all trees will be inoculated with a one time Root Rescue Mycorrhizae, or equivalent inoculant. Fertilizer will also be added: Doggett Natural Resource or equivalent as directed by manufacturer. Water entire rootball with 30 liters of water mixed with Mycorrhizae, Fertilizer and 1/4 cup of unprocessed natural sugar.

CROWN PRUNING
When planting is completed, all deadwood, broken or damaged branches shall be pruned. Prune crown to provide a single, strong, and central leader. Leave lower trunk branching to encourage trunk growth.

TOWN OF WHITCHURCH-STOUFFVILLE	DATE: APRIL 11, 2019
	BY: MC APP'D:
CALIPER DECIDUOUS TREE	REVISION: 1
1 / LD4 PROJECT LOCATION	SCALE: N.T.S.
	DWG. NO. WS-TR2



TREE PLANTING SPECIFICATION
Tree planting details to be read with species list and Fertilization specification.

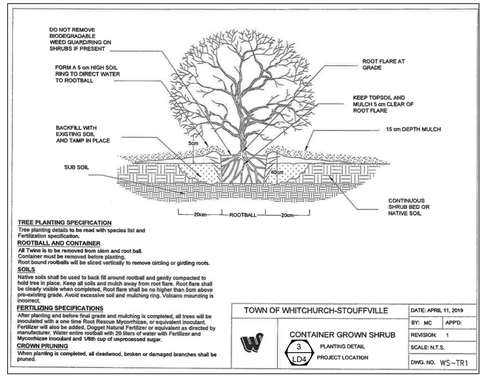
ROOTBALL, BURLAP AND TWINE
All Twine is to be removed from stem and root ball.
Burlap is to be removed, not tucked down beside rootball from the top half of the rootball. The metal cage is to be removed or cut from the top half of the rootball. If cage cannot be removed then wire grid will be cut so no loops are left.

SOILS
Native soils shall be used to back fill around rootball and gently compacted to hold tree in place. Keep all soils and mulch away from root flare. Root flare shall be clearly visible when completed. Root flare shall be no higher than 5cm above pre-existing grade. Avoid excessive soil and mulching ring. Volcano mounding is incorrect.

FERTILIZING SPECIFICATIONS
After planting and before final grade and mulching is completed, all trees will be inoculated with a one time Root Rescue Mycorrhizae, or equivalent inoculant. Fertilizer will also be added: Doggett Natural Resource or equivalent as directed by manufacturer. Water entire rootball with 30 liters of water mixed with Mycorrhizae, Fertilizer and 1/4 cup of unprocessed natural sugar.

CROWN PRUNING
When planting is completed, all deadwood, broken or damaged branches shall be carefully pruned.

TOWN OF WHITCHURCH-STOUFFVILLE	DATE: APR 11, 2019
	BY: MC APP'D:
CALIPER CONIFEROUS TREE	REVISION: 1
2 / LD4 PLANTING DETAIL, PROJECT LOCATION	SCALE: N.T.S.
	DWG. NO. WS-TR3



TREE PLANTING SPECIFICATION
Tree planting details to be read with species list and Fertilization specification.

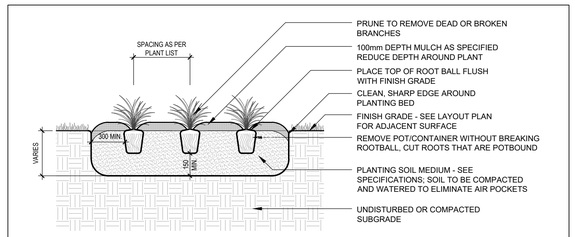
ROOTBALL AND CONTAINER
All Twine is to be removed from stem and root ball.
Container is to be removed before planting.
Root bound rootballs will be sliced vertically to remove circling or girdling roots.

SOILS
Native soils shall be used to back fill around rootball and gently compacted to hold tree in place. Keep all soils and mulch away from root flare. Root flare shall be clearly visible when completed. Root flare shall be no higher than 5cm above pre-existing grade. Avoid excessive soil and mulching ring. Volcano mounding is incorrect.

FERTILIZING SPECIFICATIONS
After planting and before final grade and mulching is completed, all trees will be inoculated with a one time Root Rescue Mycorrhizae, or equivalent inoculant. Fertilizer will also be added: Doggett Natural Resource or equivalent as directed by manufacturer. Water entire rootball with 20 liters of water with Fertilizer and Mycorrhizae inoculant and 1/4th cup of unprocessed sugar.

CROWN PRUNING
When planting is completed, all deadwood, broken or damaged branches shall be pruned.

TOWN OF WHITCHURCH-STOUFFVILLE	DATE: APRIL 11, 2019
	BY: MC APP'D:
CONTAINER GROWN SHRUB	REVISION: 1
3 / LD4 PLANTING DETAIL, PROJECT LOCATION	SCALE: N.T.S.
	DWG. NO. WS-TR1



NOTES:

1. ALL DIMENSIONS SHOWN IN MILLIMETRES
2. THE ABOVE DETAIL DOES NOT REPRESENT ANY PARTICULAR SPECIES
3. PLANT IN CONTINUOUS PLANTING BED, EXCEPT WHERE NOTED OTHERWISE
4. WATER THOROUGHLY AFTER INSTALLATION

4 / LD4 PERENNIAL PLANTING DETAIL - WITH PLANTING MIX
SCALE N.T.S.

SCHOLLEN & Company Inc.
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Richmond Hill, Ontario L4B 1B9
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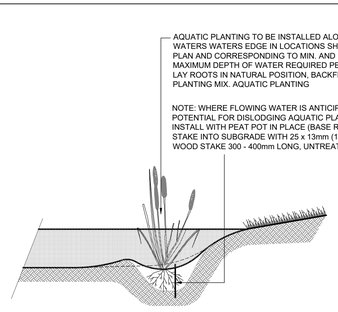

5 / LD4 AQUATIC PLANTING DETAIL - WITH PLANTING MIX
SCALE N.T.S.

SCHOLLEN & Company Inc.
30 Wertheim Court, Unit 15
Richmond Hill, Ontario L4B 1B9
T: 289-695-0009
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GENERAL:
1. ALL PLANT MATERIAL SHALL BE NURSERY STOCK CONFORMING TO THE LATEST EDITION OF THE CANADIAN STANDARDS FOR NURSERY STOCK AS PUBLISHED BY THE CANADIAN NURSERY LANDSCAPE ASSOCIATION.
2. ALL PLANTS SHALL BE HEALTHY, VIGOUROUS PLANTS, FREE FROM DEFECTS, DECAY, DISFIGURING ROOTS, SUN-SCALD INJURIES, BARK ABRASIONS, PLANT DISEASES AND PESTS AND ALL FORMS OF INFESTATIONS OR OBJECTIONABLE DISFIGUREMENTS.
3. ALL PLANTS SHALL BE TRUE TO NAME, SIZE, CONDITION AND QUANTITY AS PER PLAN AND PLANT LIST SPECIFICATIONS.
4. ALL PLANT MATERIAL SHALL BE UNWRAPPED PRIOR TO INSPECTION. THE TOWN RESERVES THE RIGHT TO INSPECT ALL PLANT MATERIAL AND REJECT ALL MATERIAL THAT DOES NOT MEET THE STANDARDS LISTED HEREIN.
5. SUBSTITUTIONS WILL NOT BE ACCEPTED WITHOUT PRIOR WRITTEN REQUEST BY THE CONSULTING LANDSCAPE ARCHITECT AND WRITTEN APPROVAL BY THE TOWN OF SPRINGWATER. ADDITIONAL PLANT QUANTITIES WILL BE REQUIRED TO COMPENSATE FOR APPROVED REDUCTION IN SIZE DUE TO UNAVAILABILITY OF MATERIALS, TO THE SATISFACTION OF THE TOWN.
6. ALL LANDSCAPING SHALL BE INSTALLED IN ACCORDANCE WITH THE TOWN LANDSCAPING AND SERVICING STANDARDS.
7. THE OWNER AGREES TO RETAIN THE CONSULTING LANDSCAPE ARCHITECT TO ADMINISTER AND INSPECT LANDSCAPE INSTALLATIONS, AND TO CERTIFY THE LANDSCAPE WORKS IN CONFORMANCE TO THE APPROVED PLANS UPON COMPLETION AND AGAIN UPON MUNICIPAL ACCEPTANCE OF THE WORKS AT THE EXPIRY OF THE MAINTENANCE GUARANTEE PERIOD.
8. NO HERBICIDES SHALL BE APPLIED WITHIN OR ADJACENT TO AREAS SUBJECT TO PLANTING.
9. REMOVE ALL EXISTING MAN-MADE AND DUMPED WOODY AND HERBACEOUS DEBRIS BY HAND FROM ALL PLANTING ZONES.
10. FINAL PLANTING LOCATIONS TO BE VERIFIED AND APPROVED BY THE LANDSCAPE ARCHITECT AND TOWN OF WHITCHURCH-STOUFFVILLE PRIOR TO PLANTING SEASON.
11. AT TIME OF INSPECTION FOR ACCEPTANCE ALL PLANTING AREAS SHALL BE CULTIVATED, FREE OF WEEDS, AND MAN-MADE DEBRIS.
12. ALL PLANT MATERIAL SHALL BE LOCALLY GROWN FROM SEED ORIGINATED IN SOUTHERN ONTARIO WITHIN A 200KM RADIUS OF THE SIT OR FROM OTHER APPROPRIATE SEED ZONES TO THE APPROVAL OF THE TRCA.
13. ALL PLANT MATERIAL SHALL BE STOCKPILED IN SHADE AND KEPT WELL-WATERED UNTIL PLANTING. ALL PLANTINGS TO BE WATERED ONCE A WEEK FOR THREE WEEKS FOLLOWING PLANTING.
14. FOR SLOPE PLANTING TAMP TOPSOIL MIX AROUND ROOT SYSTEM IN 150mm LAYERS.
15. ALL PLANT MATERIAL SHALL BE SHADED WITH COOL TARP PRIOR TO PLANTING.
16. NO TREES PITS SHALL BE LEFT OPEN OVERNIGHT.

TREES:
17. ALL TREES SHALL BE OPEN-GROWN FOR WIND-FIRMNESS. TREES SHALL NOT BE LEANING OR HAVE SIGNIFICANT SWEEP, CROOK OR BEND. DECIDUOUS TREES SHALL HAVE APPROXIMATELY TWO-THIRDS OF THEIR TOTAL HEIGHT IN LIVING BRANCHES. ALL TREES SHALL HAVE GOOD CROWN SHAPE AND COLOUR (EVERGREENS) CHARACTERISTIC OF THEIR SPECIES. TREES SHALL HAVE A SINGLE DOMINANT LEADER WITH NO SIDE BRANCHES TALLER / LONGER THAN THE MAIN LEADER.
18. IF REQUIRED, TREES SHALL BE PROPERLY TARGET PRUNED (NEVER FLUSH CUT, TRIMMED, ROUNDED-OVER, HEDGED, TIPPED OR TOPPED) AND DEAD / DAMAGED BRANCHES SHALL BE REMOVED. BRANCHES THAT CROSS-OVER EACH OTHER OR RUB AGAINST EACH OTHER, CO-DOMINANT LEADERS, AND BRANCHES GROWING UPWARD INSIDE THE CROWN SHALL BE PROPERLY PRUNED. TREES SHALL NOT BE TREATED AT ANY TIME WITH WOUND PAINT.
19. ALL TREES SHALL HAVE ROOT BALL SIZES THAT MEET OR EXCEED NURSERY STANDARDS. ROOT BALLS SHALL BE FIRM AND STRUCTURALLY INTEGRAL WITH THE TRUNK.

SHRUBS AND GROUND COVERS:
20. SHRUBS AND GROUND COVERS SHALL HAVE FULL, WELL BRANCHED CROWNS TYPICAL OF SPECIES OR VARIETY. ROOT SYSTEMS SHALL BE AMPLE, WELL-BALANCED AND FIBROUS, CAPABLE OF SUSTAINING VIGOROUS GROWTH. PLANTS THAT ARE WEAK OR THIN, UNDERSIZED, OR HAVE BEEN CUT BACK FROM LARGER GRADES TO MEET SPECIFICATIONS SHALL BE REJECTED.

SOD & SEED:
21. ALL SOD SHALL BE TURF GRASS NURSERY SOD CONFORMING TO THE LATEST SPECIFICATIONS OF THE ONTARIO SOD ASSOCIATION AND THE THE NURSERY SOD GROWERS ASSOCIATION.
22. ALL SEED SHALL BE CANADA CERTIFIED NO. 1 GRADE SEED CONFORMING TO THE GOVERNMENT OF CANADA SEEDS ACT AND REGULATIONS AND TO THE CANADIAN SEED GROWERS ASSOCIATION FOR PURITY AND GERMINATION.

TOPSOIL REQUIREMENTS:
23. TOPSOIL SHALL BE A FERTILE, NATURAL LOAM, CAPABLE OF SUSTAINING HEALTHY GROWTH; CONTAINING A MINIMUM OF 4% ORGANIC MATTER FOR CLAY LOAMS AND 2% ORGANIC MATTER FOR SANDY LOAM, TO A MAXIMUM OF 25% BY VOLUME. TOPSOIL SHALL BE LOOSE AND FRIABLE, FREE OF SUBSOIL, CLAY LUMPS, STONES, ROOTS OR ANY OTHER DELETERIOUS MATERIAL GREATER THAN 50MM DIAMETER. TOPSOIL SHALL BE FREE OF ALL LITTER AND TOXIC MATERIALS THAT MAY BE HARMFUL TO PLANT GROWTH. TOPSOIL CONTAINING SOD CLUMPS, CRABGRASS, COUCHGRASS OR OTHER NOXIOUS WEEDS IS NOT ACCEPTABLE. TOPSOIL SHALL NOT BE DELIVERED OR PLACED IN A FROZEN OR EXCESSIVELY WET CONDITION. TOPSOIL ACIDITY / ALKALINITY SHALL BE IN THE RANGE OF 6.0PH TO 7.5PH.
24. WHERE REQUIRED, AT THE DISCRETION OF THE TOWN, THE OWNER SHALL BE REQUIRED TO PROVIDE TOPSOIL TEST RECOMMENDATIONS TO THE TOWN CONFIRMING TOPSOIL TYPE (I.E. PERCENTAGE OF SAND, SILT, CLAY AND ORGANIC CONTENT), MACRO AND MICRONUTRIENT CONTENT AND PH LEVELS. THE OWNER SHALL ENSURE FERTILIZERS AND SOIL AMENDMENTS ARE INCORPORATED INTO THE TOPSOIL IN ACCORDANCE WITH TOPSOIL TEST RECOMMENDATIONS.
25. TOPSOIL DEPTH REQUIREMENTS ARE AS FOLLOWS:
- BOULEVARDS (STREET TREE LOCATIONS): 300MM MINIMUM CONTINUOUS DEPTH.
- SHRUB PLANTING BEDS: 500MM MINIMUM CONTINUOUS DEPTH.
- TREE PLANTING BEDS: 600MM MINIMUM CONTINUOUS DEPTH
- SODDED / SEEDED AREAS: 200MM MINIMUM CONTINUOUS DEPTH.

BED PREPARATION PLANT MIXTURE:
26. TREE PITS AND PLANTING BEDS SHALL BE BACKFILLED TO THE SPECIFIED DEPTHS WITH:
- PARTS OF NATIVE TOPSOIL - SCREENED THROUGH 25MM SIEVE
- PARTS OF SANDY LOAM
- PART OF WELL-ROTTED FARM MANURE AND APPLY "AGRIFORM" 20-10-5 TABLETS (OR APPROVED EQUAL).

SERVICES, STAKEOUTS & PLANTING ADJUSTMENTS
27. CONTRACTORS SHALL OBTAIN STAKEOUTS FROM ALL UTILITIES PRIOR TO LANDSCAPE INSTALLATIONS. TREE AND SHRUB PITS SHALL NOT BE PERMITTED WITHIN THREE (3) METRES OF ANY PAD-MOUNTED TRANSFORMER, OR WITHIN ONE (1) METRE OF ANY UNDERGROUND HYDRO ROAD CROSSING LOCATION, DRIVEWAY, SIDEWALK, BELL/CABLE PEDESTAL, CURB, OR WATER SERVICE. ALL EXCAVATIONS WITHIN ONE (1) METRE OF ANY BURIED HYDRO OR GAS UTILITY SHALL BE HAND-DUG. TREE OR SHRUB PITS SHALL NOT BE PERMITTED WITHIN ONE (1) METRE OF A FIRE HYDRANT. PLANTINGS WILL NOT BE PERMITTED WITHIN A SWITCHGEAR FACILITY EASEMENT.
28. FINAL STREET TREE LOCATIONS (ON MUNICIPAL RIGHT-OF-WAYS) MAY REQUIRE ADJUSTMENT FROM PLAN LOCATIONS SUBJECT TO AS-BUILT UTILITIES, SERVICES, AND DRIVEWAY LOCATIONS.

MAINTENANCE DURING GUARANTEE PERIOD:
THE GUARANTEE PERIOD FOR ALL LANDSCAPE WORKS SHALL BE A MINIMUM OF TWO (2) YEARS INCLUDING TWO (2) FULL GROWTH SEASONS FOR ALL PLANT MATERIALS.

MAINTENANCE ACTIVITIES SHALL COMMENCE UPON COMPLETION (SUBSTANTIAL PERFORMANCE) OF THE LANDSCAPE WORKS, OR PORTIONS THEREOF AS CERTIFIED BY THE CONSULTING LANDSCAPE ARCHITECT AND APPROVED BY THE TOWN OF WHITCHRUCH-STOUFFVILLE, AND SHALL CONTINUE UNTIL CERTIFICATION OF ACCEPTANCE OF LANDSCAPE WORKS IN ACCORDANCE WITH THE EXECUTED SITE PLAN AGREEMENT.

GENERAL MAINTENANCE ACTIVITIES:
GENERAL MAINTENANCE REQUIREMENTS FOR TREES, SHRUBS AND GROUNDCOVERS SHALL BE PERFORMED A MINIMUM OF ONCE PER GROWING SEASON AND SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING ACTIVITIES:
1. WATERING (IN ADDITION TO WATERING AT TIME OF PLANTING / SODDING / SEEDING) TO ENSURE AND MAINTAIN CONTINUOUS HEALTHY GROWTH THROUGHOUT THE MAINTENANCE PERIOD.
2. WEED CONTROL: CULTIVATION / HAND REMOVAL OF WEEDS IN TREE PITS AND SHRUB BEDS.
3. DISEASE AND INSECT CONTROL: METHOD AND APPLICATION TO APPROVAL OF TOWN PARKS DIVISION.
4. TOPPING / RESTORING MULCH TO ENSURE 75MM DEPTH; CLEARING MULCH FROM TRUNK FLARE.
5. PRUNING OF DEAD AND DAMAGED BRANCHES. WOUND DRESSING AS REQUIRED.
6. FERTILIZING (WHEN REQUIRED) BASED ON TOPSOIL TEST RECOMMENDATIONS. DO NOT FERTILIZE SPRING PLANTED TREES AT TIME OF PLANTING; FERTILIZE IN FALL AFTER LEAF ABSCISSION.
7. REPLACEMENT OF UNACCEPTABLE OR DEAD MATERIAL.
8. STRAIGHTENING OF TREES THAT LEAN, ADJUSTMENTS OF SUPPORTS AND STAKES.
9. RAISING / ADJUSTING TREES THAT SETTLE OR ARE PLANTED TOO LOW.
10. BURLAP WRAPPING OF ALL CONIFERS PRIOR TO WINTER FREEZE-UP.
11. ANY OTHER PROCEDURE CONSISTENT WITH GOOD HORTICULTURAL PRACTICE NECASSARY TO ENSURE NORMAL, HEALTHY GROWTH OF PLANTED MATERIAL.

GENERAL MAINTENANCE OF SOD AND SEEDED AREAS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
RESEEDING / RESODDING DEAD & BARE AREAS AND AREAS OF POOR SEED / SOD PERFORMANCE.

MAINTENANCE INSPECTION OF HARD LANDSCAPE COMPONENTS (I.E. UNIT PAVING, FENCES, WALLS ETC.) SHALL BE PERFORMED A MINIMUM OF ONCE PER YEAR TO ENSURE THE INTEGRITY AND SAFE, INTENDED USE OF THE LANDSCAPE COMPONENT. DEFICIENCIES OBSERVED SHALL BE DOCUMENTED AND REMEDIED IN A TIMELY MANNER.

WATERING REQUIREMENTS:
WATERING (IN ADDITION TO WATERING AT TIME OF PLANTING/ SOD/ SEEDING) 1S REQUIRED TO ENSURE GERMINATION AND/ OR TO MAINTAIN CONTINUOUS HEALTHY GROWTH THROUGHOUT THE MAINTENANCE PERIOD:
1. SOD AND SEEDED AREAS: APPLY SUFFICIENT WATER TO PENETRATE THE SOIL TO 100MM DEPTH.
2. PLANTING BEDS: APPLY SUFFICIENT WATER TO PENETRATE SOIL TO 200MM DEPTH.
3. INDIVIDUAL TREES: APPLY 20 LITRES PER TREE, MINIMUM, PER WATERING.
4. APPLY WATER AT A RATE THAT WILL PREVENT SATURATION AND RUN-OFF.
5. WATERING DURING PERIODS OF EXCESSIVE DROUGHT SHALL BE COMPLETED AT A MINIMUM RATE OF ONE (1) APPLICATION PER WEEK, UNTIL WEATHER PERMITS OTHERWISE.
6. WATERING SHALL BE COMPLETED IN LATE FALL FOR ALL CONIFERS TO ENSURE SUFFICIENT SOIL MOISTURE PRIOR TO FREEZE-UP.

5 / LD4 GENERAL PLANTING NOTES
SCALE 1:25

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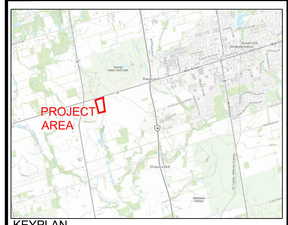
No.	Revision	Date	By
1	Issued for Coordination	2024/06/20	RMS
2	Issued for TRCA Approval	2024/08/07	RMS
3	Issued for Town Approval	2024/11/05	RMS



KEYPLAN
N.T.S.

ONTARIO ASSOCIATION OF LANDSCAPE CONTRACTORS MEMBER OALA

Drawing Prepared By:
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Client:
TIMES GROUP CORPORATION

Project Name:
Highway 48 Stouffville Property Compensation Wetland and Trail Construction
Whitchurch-Stouffville, ON

Drawing Title:
PLANTING DETAILS

Scale: AS SHOWN	Project No.: 2020006	Drawing No.: LD4
Drawn: CT	Checked: RMS	
Date: April 2023	Plot Date: 08/11/2024	

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