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Royal Pine Homes

Natural Heritage Evaluation

14475 Highway 50, Bolton, ON

Project #: 26-3211

September 2026

Submitted by

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Executive Summary

This NHE was prepared for the proposed residential development located at 14475 Highway 50, Bolton, within the Town of Caledon. This NHE has been prepared due to the presence of natural heritage designations within the Study Area. The NHE will form part of an application package for submission to the Town of Caledon.

A review of background resources, including Land Information Ontario, the Town of Caledon Official Plan, and the Greenbelt Plan indicated that the Project Location is designated as "Urban Area", "Natural Heritage System", "New Community Area", and "Protected Countryside", with "Woodlands", "Provincially Significant Wetlands", and "Limit of Regulated Area - TRCA".

The most recent detailed field studies were conducted in 2021 and 2022 in support of the Bolton North Hill Secondary Plan and will be used for the NHE to confirm the presence/absence of SWH and/or SAR within the Project Location. The field study results were used to determine the potential ecological function of any natural features within the Study Area and to determine potential impacts on any natural features as a result of the proposed activities. The biophysical inventory confirmed the presence of candidate and confirmed SWH and potential SAR habitat within the Project Location. Potential direct and indirect impacts are proposed to be mitigated.

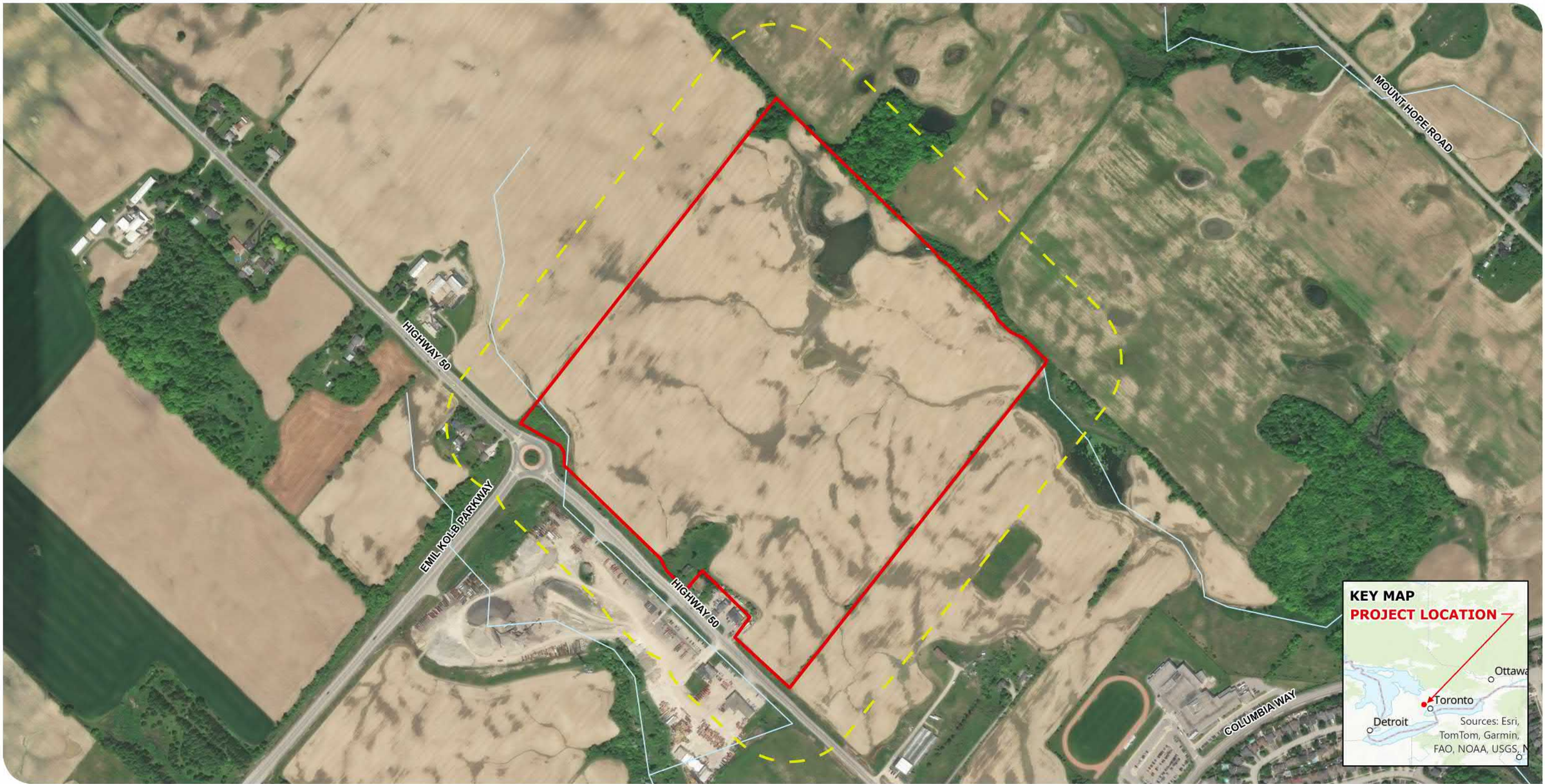
Appropriate agency correspondence is ongoing. Provided the mitigation measures and best management practices included in this NHE are followed, as well as advice from appropriate agencies, negative impacts on the natural features or their ecological function are not anticipated as a result of the proposed development.

1.0 Introduction

Dillon Consulting Limited (Dillon) was retained by Royal Pine Homes (the “client”) to conduct natural environment studies and prepare an Environmental Impact Assessment (NHE) for the proposed residential development located at 14475 Highway 50, Bolton (the “Project Location”), within the Town of Caledon, Ontario (the “Town”; **Figure 1**). For the purposes of documenting existing conditions of the natural environment, an area extending 120 metres (m) beyond the Project Location was used (the “Study Area”). The NHE will form part of an application package for submission to the Town.

The Project Location is 40.45 hectares (ha) in size and consists predominately of an agricultural field surrounded by further agricultural land to the east, west, and north. The Castlederg Wetland Complex, a Provincially Significant Wetland (PSW), is located along the northern border of the Project Location, with this same area also being part of the Greenbelt Protected Area. The purpose of the NHE is to document existing conditions of the natural environment; determine the potential limits of development; evaluate the potential for environmental impacts associated with the proposed development activities; and recommend mitigation, restoration, enhancement measures, and/or compensation measures, where necessary, to avoid impacts to the natural environment as a result of the proposed development.

The Terms of Reference (**Appendix A**) for this NHE is in keeping with the general policies of the Town, the Greenbelt Plan and the Toronto Region Conservation Authority (TRCA).



ROYAL PINE HOMES

14475 Highway 50

- Project Location (40.45 ha)
- Study Area (120m Buffer)
- Highway
- Major Road
- Minor Road
- Watercourse

NHE

FIGURE 1: PROJECT LOCATION



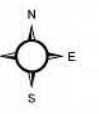
MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR, ONTARIO GEOHUB, ESRI

MAP CREATED BY: -EES
MAP CHECKED BY: -LG
MAP PROJECTION: NAD 1983 UTM Zone 17N

SCALE 1:6,000

0 0.05 0.1 0.2 km

PROJECT: 26-3211 STATUS: DRAFT DATE: 2026-09-02



2.0 Background and Policy Context

The following section has been prepared to identify the applicable land use planning policies related to the natural environment. Various regulatory agencies and legislative authorities have established policies with the purpose of protecting the ecological features and functions within the province of Ontario and within the Town of Caledon specifically. This section is not intended to constitute a complete land use planning assessment as it focuses on the relevant environmental policies and regulations. The documents referenced below can be read in their entirety for a more detailed understanding of the land use policy framework applicable to the Study Area (**Figure 1**).

2.1 Information Sources

Secondary source information was used to identify known environmental constraint areas and to map the significant natural heritage features such as watercourses, woodlands, and potential wildlife occurrences. **Table 1** lists the relevant policies and legislation applicable to the protection of natural heritage features within the Town, and more specifically, the Study Area; as well as supporting guidance documents and resources consulted respective to each policy. This table also includes additional background information sources used to help identify and define natural heritage features within the province of Ontario, and Eco-region 6E specifically.

Table 1: Policies, Legislation, and Background Resources Searched

Source	Record Reviewed/Requested
Government of Canada	
Environment and Climate Change Canada (ECCC)	Species at Risk Registry: Accessed to determine the at-risk status of wildlife species under Schedule 1 of the <i>Species at Risk Act</i> (SARA; 2002)
Fisheries and Oceans Canada (DFO)	Aquatic Species at Risk Map: Accessed to determine aquatic at-risk occurrences
Government of Ontario	
Provincial Planning Statement (2024)	- Policies within Section 4.1 related to natural heritage features - Policies within Section 4.2 related to water
Ministry of Environment, Conservation and Parks (MECP)	<i>Species Conservation Act</i> (SCA; 2025) - Protected Species in Ontario List (O. Reg. 60/26) - Client's Guide to Preliminary Screening for Species at Risk (2019)

Source	Record Reviewed/Requested
Ministry of Natural Resources and Forestry (MNRF)	- Natural Heritage Information Centre (NHIC) database (Squares within 2 km from the Project Location; MNRF, 2026) - MNRF Make a Map: Natural Heritage Areas (MNRF, 2026) - Natural Heritage Reference Manual, Second Edition (OMNR, 2010) - MNRF Significant Wildlife Habitat Technical Guide (OMNR, 2000) - Significant Wildlife Habitat Eco-region 6E Criterion Schedules (OMNRF, 2015)
Ontario Ministry of Municipal Affairs and Housing (MMAH)	<i>More Homes Built Faster Act</i> (MHBFA; 2022)
Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)	Agricultural Information Atlas (OMAFRA, 2026); reviewed area drains
Municipal Government(s)	
Town of Caledon	Official Plan (2025)
Additional Sources	
Wildlife Atlases and Distribution Data	Ontario Breeding Bird Atlas (OBBA; Cadman <i>et al.</i>, 2008). Second Atlas (2001-2005) – data for squares 17TNJ96 and 17TPJ06 – grid based on 10km² system.
	Christmas Bird Count (CBC; Birds Canada, 2026). Count circle Kleinburg (ONKL) – Historical Records from 2005 – 2025.
	Rare Vascular Plants of Ontario (Fourth Edition; Oldham and Brinker, 2009). Distribution data for rare vascular plants.
	Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature, 2026). List of reptile and amphibian species occurrences for squares 17TNJ96 and 17TPJ06.
	Ontario Butterfly Atlas (OBA; Toronto Entomologists Association, 2026). List of butterfly species occurrences for square 17TNJ96 and 17TPJ06.
	Atlas of the Mammals of Ontario (Dobbyn, 1994). Distribution data for mammals.
	Bumble Bees of North America (Williams <i>et al.</i>, 2014). Distribution data for bumble bees.
Toronto Region Conservation Authority (TRCA)	- Terrestrial Natural Heritage System Strategy (2007) - Environmental Impact Assessment Guidelines (TRCA, 2014)

Source	Record Reviewed/Requested
Bedrock Geology of Ontario, Southern Sheet	Reviewed bedrock geology of Ontario (Ontario Geological Survey, 1991)
Soil Survey of Peel County	Reviewed soil characterization (Hoffman and Richards, 1953)

2.1.1 Provincial Planning Statement

The Provincial Planning Statement (PPS; 2024), provides overall policy direction on matters of provincial interest related to land use planning and development in Ontario. The PPS sets forth a vision for Ontario's land use planning system by managing and directing land use to achieve efficient development and land use patterns, wise use and management of resources, and protecting public health and safety. This report deals specifically with Policy 4.1, Natural Heritage, and Policy 4.2, Water, which provides for the protection and management of natural heritage and water resources, which include the following:

- significant wetlands
- significant coastal wetlands
- significant woodlands
- significant valleylands
- significant wildlife habitat
- significant areas of natural and scientific interest (ANSI's)
- coastal wetlands
- fish habitat
- habitat of endangered species and threatened species
- sensitive surface water features
- sensitive ground water features

The PPS defines "significant" to mean:

- in regard to wetlands, coastal wetlands, and areas of natural and scientific interest, an area identified as provincially significant by the Province using evaluation procedures established by the province, as amended from time to time.
- in regard to woodlands, an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history. These are to be identified using criteria established by the Province.

- in regard to other features and areas in Policy in **Section 4.1**, ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system.

In regard to surface and ground water features, the PPS defines “sensitive” to mean:

- features that are particularly susceptible to impacts from activities or events including, but not limited to, water withdrawals, and additions of pollutants.

2.1.2 Greenbelt Plan, 2017

The Greenbelt Plan, 2017, which came into effect on December 16, 2004, builds upon the policy framework established in the PPS to protect a broad area of land and provide direction regarding where and how future growth should be accommodated. While providing permanent agricultural and environmental protection, the Greenbelt also contains important natural resources and supports a wide range of recreational and tourism uses, areas and opportunities together with a vibrant and evolving agricultural and rural economy (MMAH, 2017a).

The Greenbelt Plan identifies areas where urbanization is prohibited in order to provide permanent protection to the agricultural land base and the ecological features and functions occurring throughout the landscape. The Protected Countryside lands identified by the Greenbelt Plan are intended to enhance the spatial extent of agriculturally and environmentally protected lands while improving linkages between these areas and the surrounding major lake systems and watersheds. The settlement areas, identified as Towns/Villages and Hamlets, vary in size, diversity and intensity of uses and are found throughout the Protected Countryside (MMAH, 2017a).

Portions of the Study Area fall within Protected Countryside and Natural Heritage System of the Greenbelt Plan (**Figure 2**). As per Policy 4.2, where expansions to settlement areas are proposed in the Greenbelt, the *infrastructure* policies of the Greenbelt Plan apply, which include the following:

“For lands falling within the Protected Countryside, the following policies shall apply:

1. *All existing, expanded or new infrastructure subject to and approved under...the Planning Act... is permitted within the Protected Countryside, subject to the policies of this section and provided it meets one of the following two objectives:*
 - a. *It supports agriculture, recreation and tourism, Towns/Villages and Hamlets, resource use or the rural economic activity that exists and is permitted within the Greenbelt; or*
 - b) *It serves the significant growth and economic development expected in southern Ontario beyond the Greenbelt by providing for the appropriate infrastructure connections among urban centres and between these centres and Ontario’s borders.”*

Conformance to the policies of the Greenbelt is further addressed in **Section 10.0**.

2.1.3 *Species Conservation Act*

On March 30, 2026, the *Species Conservation Act, 2025* (SCA) and several implementing regulations came into force and the *Endangered Species Act, 2007* (ESA) was repealed. The SCA introduces new requirements for proceeding with activities that may adversely impact protected species and habitat and revises species that are protected: it no longer includes many migratory birds and fish and instead defers to SARA and the MBCA for the protection of these species. As well, the special concern designation is no longer a recognized status, provincially.

The SCA narrows the habitat definition for SAR to focus primarily on the immediate area of a species' dwelling or nesting place, such as a den or nest for animals or the critical root zone of vascular plants. In addition, the SCA introduced a new compliance framework in which activities that may impact SAR can generally proceed under a registration-first approach, with permits required only for specific, prescribed activities identified through regulation. The SCA is administered by the Ministry of Environment, Conservation and Parks (MECP). Occurrence records for several SAR protected under the SCA have been identified within the vicinity of the Study Area. These are discussed under the relevant sections of this EIS.

Preliminary screening for SAR was carried out using select sources from **Table 1**. After considering suitable habitat preferences and species ranges, our preliminary screening results show the potential for several SAR in the general area. For more information about the preliminary screening results for SAR, refer to **Section 3.2.7**.

2.1.4 *More Homes Built Faster Act*

In November 2022, the *More Homes Built Faster Act* (2022) came into effect in Ontario. The purpose of the MHBFA is to help build more homes and make life more affordable for Ontario Citizens. Specifically, as of January 1, 2023, the *Act* has set clear limits on what Conservation Authorities are permitted to comment on as part of the planning approvals process, keeping their focus on Natural Hazards and Flooding. Under the MHBFA Schedule 2, Section 16, the *Conservation Authorities Act* was amended, and O.Reg. 166/06 (Toronto and Region Conservation Authority) was revoked. Therefore, regulation of areas is now determined only under Section 28 of the *Conservation Authority Act*.

2.1.5 *Region of Peel Official Plan*

The Region of Peel Official Plan (ROP) was adopted by Regional Council on April 28, 2022. On November 4, 2022, the Minister of Municipal Affairs and Housing issued a decision to approve the RPOP with 44 modifications.

In Section 2 of the ROP, the Region directs the Town to provide policies in their OP for development related to key natural heritage features and key hydrologic features of the Greenbelt Plan, as well as natural heritage features within Urban boundaries.

2.1.6 Town of Caledon Official Plan

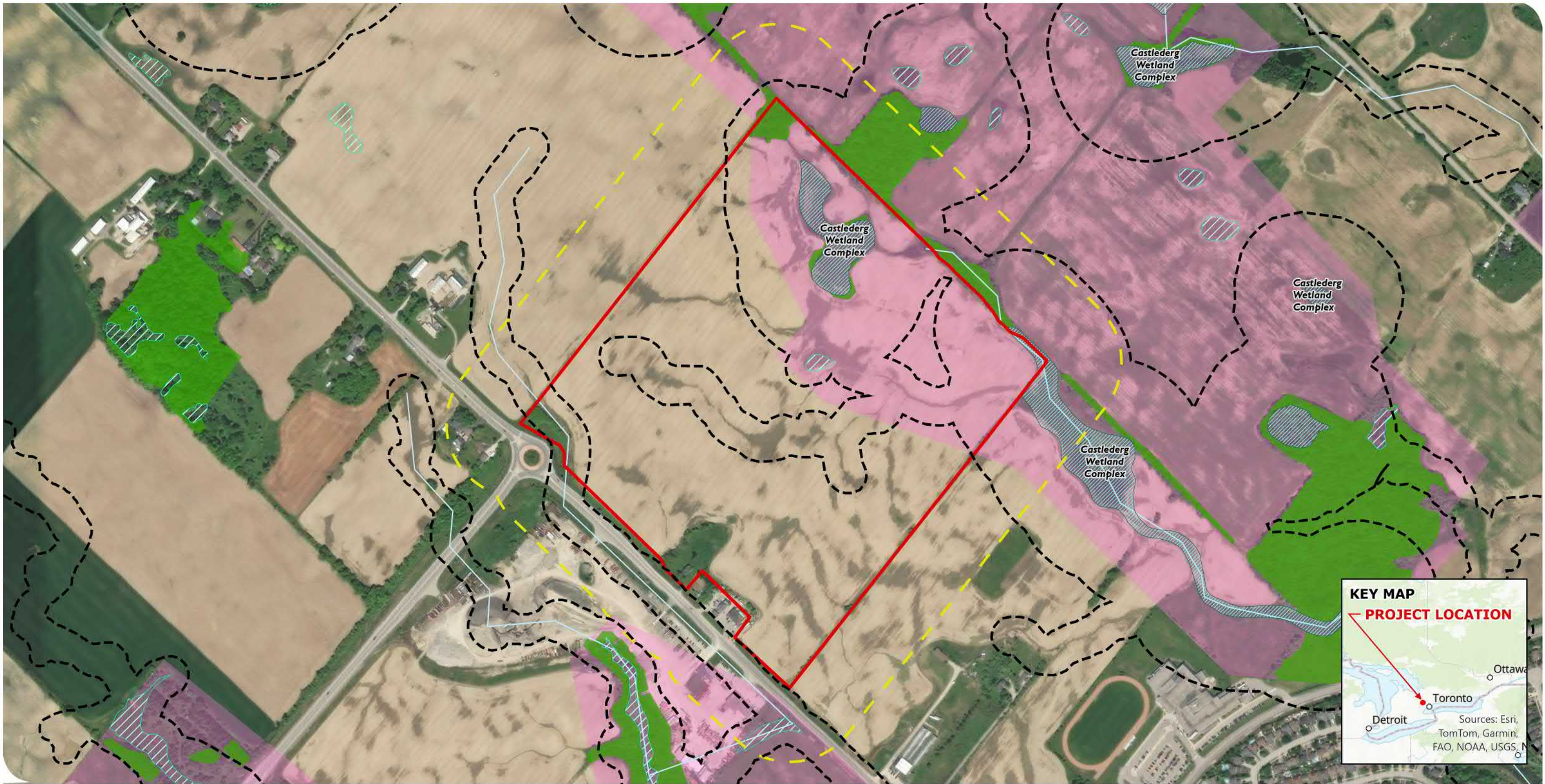
The original Town of Caledon Official Plan (OP) came into effect in 1979. Since that time the OP has been systematically reviewed and amended in order to ensure it reflects changing community needs and dynamics, address external influences, and to respond to new Regional and Provincial planning policies and legislation. Currently the original Town OP is being replaced in phases through ongoing review. As of October 2025, the Minister of Municipal Affairs and Housing has approved the future OP with modifications.

In accordance with the Town OP (2025), the Project Location is designated as “Greenbelt Plan Boundary - Protected Countryside” (Schedule A1), “Urban Area” (Schedule B1), “Natural Heritage System” (Schedule B3a), and “New Community Area” (Schedule B4). See **Appendix B** for relevant Schedule mapping.

2.1.7 Toronto Region Conservation Authority

In accordance with Section 28 of the *Conservation Authorities Act, 1990*, the TRCA is authorized to implement and enforce the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (Ontario Regulation 41/24). Section 2(1) of this Regulation lists areas within TRCA’s jurisdiction where development is prohibited without proper permissions from the TRCA. Such areas include, but are not limited to, river or stream valleys, hazardous lands, and wetlands.

In participating in the review of applications under the *Planning Act and Environmental Assessment Act(s)*, TRCA ensures that applicants and approval authorities are aware of any Section 28 Regulation requirements under the *Conservation Authorities Act*, where applicable. Further, TRCA assists in the coordination of these applications to avoid ambiguity, conflict and unnecessary delay or duplication in the process. The Study Area contains several areas located within TRCA’s Regulated Area (see **Figure 2**).



ROYAL PINE HOMES

14475 Highway 50

NHE

FIGURE 2: NATURAL HERITAGE
FEATURES

- | | | | |
|-----------------------------|---------------------------------------|----------------------------------|-------------|
| Study Area (120m Buffer) | Greenbelt Designation | Wetland | Watercourse |
| Project Location (40.45 ha) | Protected Countryside | Provincially Significant Wetland | |
| Regulated Area (TRCA) | Approximate Natural Features and Area | Unevaluated Wetland | |



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR, ONTARIO GEOHUB, ESRI

MAP CREATED BY: -EES
MAP CHECKED BY: -LG
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

SCALE 1:6,000

0 0.05 0.1 0.2 km

PROJECT: 26-3211 STATUS: DRAFT DATE: 2026-09-02



3.0 Results of Background Review

The Project Location is located along the eastern edge of Highway 50, between Columbia Way to the southeast and Emil Kolb Parkway to the northwest. The Project Location consists predominately agricultural land surrounded predominately by agriculture to the west, east and north, with residential and resource extraction areas to the south. The surrounding land uses are varied and are described as follows:

- **North, west, and east:** agriculture, PSW (Castlederg Wetland Complex) and woodlands; and
- **South:** resource extraction area.

The following sections provide a brief summary of the existing environmental conditions within the Study Area as identified through the background review. This information provides the basis upon which the biophysical inventory and overall NHE is based.

3.1 Aquatic Environment

The Study Area lies within the Main Humber River Subwatershed, forming part of the larger Humber River Watershed, flowing south into Lake Ontario. The Humber River is a Canadian Heritage River, as designated by the Canadian Heritage Rivers System in 1999. The Main Humber River Subwatershed covers 35,760 ha and the total Humber River Watershed encompasses 91,100 ha.

Background MNRF mapping indicates that there are multiple watercourses and waterbodies within the Study Area. Waterbodies within the Study Area include unevaluated wetlands, as well as the Castlederg Wetland Complex (PSW). Aquafor Beech Limited completed a headwater drainage feature (HDF) assessment in 2014 and labelled all of the features within the Option 1/2 for the Bolton North Hill Secondary Plan as headwater drainage features (refer to **Figure 2**). Therefore, an assessment of HDFs was completed for these features within the Study Area.

Significant Groundwater Recharge Areas are mapped throughout the Study Area, as well as a Highly Vulnerable Aquifer in the area just southwest of the Project Location (OMAFRA, 2026).

The aquatic environments present within the Study Area are discussed further in **Section 5.1**.

3.2 Terrestrial Environment

3.2.1 Landforms, Soils, and Geology

The Study Area lies just south of the Oak Ridges moraine and is located entirely within the South Slope physiographic region which lies at the base of the moraine. The South Slope is described as a drumlinized area, which consists of thin (~1 m thick) aeolian sand deposits underlain by glacial till. It is characterized as flat to gently sloping land consisting of low permeability red to brown silt to clay silt till belonging to the Halton Till sheet overlying shale bedrock of the Queenston Formation and Georgian Bay Formations (SABE, 2022). The topography within the Study Area consists of relatively flat agricultural lands with gentle rolling slopes. The natural topography of the site has been altered to accommodate existing agricultural lands within the Study Area.

A review of the Soil Survey of Peel County (Hoffman and Richards, 1953) indicates that the general area consists of irregular very gently sloping topography, comprised of coarse, stony till. The corridors of watercourses and wetlands however have smooth steeply sloping topography, comprised of medium textured till. Soils within the Study Area are mainly comprised of moderately stoney clay loam soils, typically imperfectly drained and exhibit moderate to slow permeability. These soils have high moisture holding capacities and moderate to rapid surface run off characteristics. Their fine and medium textured surface materials make these soils susceptible to water erosion. These soils are therefore moderately to highly productive for agriculture.

The bedrock geology underlying the region consists of Paleozoic sedimentary rocks, composed of limestone, dolostone, sandstone and shale. According to the *Quaternary Geology of the Bolton Area* report, the Study Area is grey shale, with thin beds of limestone and sandstone.

3.2.2 Significant Wetlands

Under the PPS, "wetlands" means *"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. Periodically soaked or wet lands being used for agricultural purposes which no longer exhibit wetland characteristics are not considered to be wetlands for the purposes of this definition."*

A review of background mapping and resources did identify wetlands within the Study Area. The Castlederg PSW Complex is located within the headwater reaches of the Humber River. The PSW consists of a diverse mix of wetland types including marshes, ponds, and swamps. Wetland units within

this PSW are linked by woodlands, riparian habitat, and open fields. Some unevaluated wetlands were also identified through background review within the Study Area (**Figure 2**).

As per the most recent Ontario Wetland Evaluation System (OWES) for Southern Ontario (MNRF, Dec 2022), complexing of wetland units within 750 m of a PSW is no longer recommended, rather, wetland units separated by more than 30 m are generally considered separate wetlands and subject to individual evaluation. As a result, because of the small size of the unevaluated wetlands in the Study Area (i.e., less than 2 ha) and dispersal (i.e., widely separated), they likely would not warrant consideration or meet the minimum criteria to be considered PSW.

The potential for PSW to be present within the Study Area is discussed further in **Section 5.2.5**.

3.2.3 Significant Woodlands

Under the PPS, "woodlands" means "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. Woodlands may be delineated according to the Forestry Act definition or the province's Ecological Land Classification system definition for forest."

A review of background mapping and resources did identify areas of forest/treed areas within the Study Area associated with the Castlederg PSW Complex and the Greenbelt Protected Countryside in the northwest parts of the Project Location and greater Study Area (**Figure 2**).

The potential for Significant Woodlands to be present within the Study Area is discussed further in **Section 5.2.6**.

3.2.4 Significant Valleylands

Under the PPS, "valleylands" means "a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year."

The potential for Significant Valleylands to be present within the Study Area is discussed further in **Section 5.2.7**.

3.2.5 Areas of Natural and Scientific Interests (ANSI's)

A review of background mapping and resources did not identify ANSI's within the Study Area.

3.2.6 Significant Wildlife Habitat

Under the PPS, "wildlife habitat" means *"areas where plants, animals and other organisms live, and find adequate amounts of food, water, shelter and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle; and areas which are important to migratory or non-migratory species."*

To assist planning authorities, the MNRF developed the Significant Wildlife Habitat (SWH) Technical Guide (OMNR, 2000) that provides information on the identification, description, and prioritization of SWH in Ontario. To account for the ecological diversity across the province, MNRF developed the SWH Ecoregional Criteria Schedules to support the SWH Technical Guide. These schedules are specific to each geographic area of each eco-region. The Study Area is located in Ecoregion 6E (Lake Simcoe-Rideau); under the Criteria Schedule for Ecoregion 6E (OMNRF, 2015), SWH has been divided into four broad categories consisting of:

Seasonal Concentration Areas of Animals

This category identifies habitat where wildlife species gather annually, at certain times of the year. This SWH category requires the presence of a given species, or several species, in specific densities based on approved survey protocol in order to meet the criteria for significance.

Rare Vegetation Communities or Specialized Habitat for Wildlife

The criterion for rare vegetation communities considers the provincial Sub-national rank (SRank) of a species or community type and includes SRanks of S1 (extremely rare and critically imperiled), S2 (very rare and imperiled), and S3 (rare to uncommon and vulnerable). The criteria for specialized habitat for wildlife captures sizeable habitat requirements for listed species to carry out key life processes.

Habitat for Species of Conservation Concern

The Significant Wildlife Habitat Technical Guide (OMNR, 2000) defines Species of Conservation Concern (SCC) as species that are globally, nationally, provincially, regionally, or locally rare (SRank of S1 to S3), and species listed as Special Concern, Endangered or Threatened federally. Provincial Special Concern designation is no longer considered under the SCA. This category identifies habitat for wildlife species that are listed as SC, rare (SRank of S1-S3), and/or declining.

Animal Movement Corridors

Animal movement corridors identify areas that wildlife move between habitats in order to carry out their life processes. Confirmed or candidate SWH are identified by the MNRF or the planning authority.

Through background review, several SCC listed in **Table 2** have been identified with the potential to occur within the vicinity of the Study Area and will help to determine the potential for SWH.

Table 2: Species of Conservation Concern with the potential to occur within the vicinity of the Study Area

Scientific Name	Common Name	SARA ¹	SCA ²	SRank ³	Info Source ⁴
Birds					
<i>Hirundo rustica</i>	Barn Swallow	THR	---	S4B	OBBA
<i>Chordeiles minor</i>	Common Nighthawk	THR	---	S4B	OBBA
Lepidoptera					
<i>Danaus plexippus</i>	Monarch	SC	---	S2N, S4B	OBA, TEA
Reptiles					
<i>Chelydra serpentina</i>	Snapping Turtle	SC	---	S3	ORAA, NHIC
<i>Lampropeltis triangulum</i>	Eastern Milksnake	SC	---	S3	ORAA, NHIC, TRCA, iNat
<i>Pseudacris triseriata</i> pop. 1	Western Chorus Frog (Great Lakes/ St. Lawrence- Canadian Shield Population)	THR	---	S3	ORAA
Plants					
<i>Monarda didyma</i>	Scarlet Beebalm	---	---	S3	NHIC

Note: ¹S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common.

²Information sources include: NHIC = Natural Heritage Information Centre; OBBA = Ontario Breeding Bird Atlas; ORAA = Ontario Nature: Ontario Reptile and Amphibian Atlas; SARA = Species at Risk Act; SCA = Species Conservation Act; TEA = Toronto Entomologists' Association; TRCA = TRCA records; iNat = iNaturalist; --- denotes no information or not applicable.

A review of the background data and satellite imagery suggests that the following SWH types may occur within the Study Area:

- Bat Maternity Colonies
- Turtle Wintering Areas
- Reptile Hibernaculum
- Waterfowl Nesting Area
- Woodland Raptor Nesting Habitat
- Seeps and Springs
- Woodland Area-Sensitive Bird Breeding Habitat

- Terrestrial Crayfish (records from TRCA (**Figure 2**) and iNaturalist within the Study Area)
- Amphibian Breeding Habitat (Woodland)
- Amphibian Breeding Habitat (Wetland)
- Habitat for Special Concern and Rare Wildlife Species
- Amphibian movement corridors

The potential for SWH to be present within the Study Area is discussed further in **Section 5.2.8**.

3.2.7 Species at Risk

Species at Risk are defined as those species that are listed as Threatened or Endangered under the SCA and aquatic species listed under Schedule 1 federally, as well as migratory birds listed under both Schedule 1 federally and the *Migratory Birds Convention Act*. The purpose of this section is not to acknowledge what species are listed within the Species at Risk in Ontario List (O. Reg. 230/08), but rather what the definition of SAR is as it pertains to this NHE (i.e. which SAR receive legislative protection under the SCA). Through background review, several SAR listed in **Table 3** have been identified with the potential to occur within the vicinity of the Study Area.

Table 3: Species at Risk with the potential to occur within the vicinity of the Study Area

Scientific Name	Common Name	SARA ¹	SCA ²	SRank ³	Info Source ⁴
Birds					
<i>Chaetura pelagica</i>	Chimney Swift	THR	---	S4B, S4N	OBBA
<i>Dolichonyx oryzivorus</i>	Bobolink	THR	---	S4B	NHIC, OBBA
<i>Riparia riparia</i>	Bank Swallow	THR	---	S4B	OBBA
<i>Sturnella magna</i>	Eastern Meadowlark	THR	---	S4B	NHIC, OBBA
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	THR	---	S4B	OBBA
<i>Hirundo rustica</i>	Barn Swallow	THR	---	S4B	OBBA
<i>Chordeiles minor</i>	Common Nighthawk	THR	---	S4B	OBBA
Reptiles					
<i>Ambystoma jeffersonianum</i>	Jefferson Salamander	END	END	S2	MNRF
<i>Emydoidea blandingii</i>	Blanding's Turtle	END	THR	S3	NHIC

Scientific Name	Common Name	SARA ¹	SCA ²	SRank ³	Info Source ⁴
Mammals					
<i>Myotis leibii</i>	Eastern Small-footed Myotis	---	END	S2S3	MWH
<i>Myotis lucifugus</i>	Little Brown Myotis	END	END	S4	MWH
<i>Myotis septentrionalis</i>	Northern Myotis	END	END	S3	MWH
<i>Pipistrellus subflavus</i>	Tri-colored Bat	END	END	S3?	MWH
<i>Lasiurus cinereus</i>	Hoary Bat	---	END	S4	MWH
<i>Lasionycteris noctivagans</i>	Silver-haired Bat	---	END	S4	MWH
<i>Lasiurus borealis</i>	Eastern Red Bat	---	END	S4	MWH
Plants					
<i>Fraxinus nigra</i>	Black Ash	---	END	S4	NHIC
<i>Juglans cinerea</i>	Butternut	END	END	S2?	NHIC

Note: ¹Status identified under the federal Species at Risk Act: END = Endangered, THR = Threatened;

²Status identified under the provincial Species Conservation Act: END = Endangered, THR = Threatened, SC = Special Concern;

³SRank is an indicator of commonness in the Province of Hemisphere, version 3.0, NHIC = MNRF Natural Heritage Information Centre, OBA = Ontario Butterfly Atlas, OBBA = Ontario Breeding Bird Atlas, ORAA = Ontario Reptile and Amphibian Atlas; --- denotes no information or not applicable.

The potential for SAR to be present within the Study Area is discussed further in **Section 5.2.8**.

4.0 Methodology of Biophysical Inventory

The results of the background review were used to assist in scoping the field program. Field work conducted for the NHE occurred within the Project Location in 2021 and 2022 as part of the field program for the Bolton North Hills Secondary Plan, and was conducted when weather conditions and timing were deemed suitable based on the survey protocols being implemented. Weather conditions are detailed below (**Table 4**). Fieldwork consisted of:

- HDF Assessment
- Amphibian breeding surveys
- Breeding bird surveys
- Ecological Land Classification (ELC) of vegetation communities
- Single-season botanical survey (summer)

The following sub-sections outline the survey methodologies used in the field.

Table 4: Survey Dates and Weather Conditions

Date	Weather Conditions	Air Temp (°C)	Purpose of Visit
2021			
March 23	30% cloud cover, light air ¹ , no precipitation	10	HDF Assessment #1
April 26	100% cloud cover, light air ¹ , drizzle	7	Amphibian Survey #1
May 20	80% cloud cover, light air ¹ , no precipitation	21-23	HDF Assessment #2, Amphibian Survey #2
June 10	10-30% cloud cover, light breeze ² , no precipitation	17-22	Breeding Bird Survey #1
June 17	10% cloud cover, light air ¹ , no precipitation	24	Amphibian Survey #3
June 25	100% cloud cover, light air ¹ , rain	21	Breeding Bird Survey #2
August 16	20% cloud cover, light breeze ² , no precipitation	24	ELC/Vegetation Inventory

Date	Weather Conditions	Air Temp (°C)	Purpose of Visit
2022			
June 8	Clear, no precipitation	N/A	Feature staking with Town and TRCA
July 28	Clear, no precipitation	N/A	Additional ELC confirmation (wetlands)

Note: ¹Light air = Beaufort Scale 1
²Light breeze = Beaufort Scale 2
³Gentle breeze = Beaufort Scale 3
⁴Moderate breeze = Beaufort Scale 4

Through agency consultation in 2023 following the 2022 field season, it was confirmed by the Town that given the nature of the lands (i.e., agricultural with few natural heritage features or natural vegetation communities), additional surveys would not be required.

4.1 Aquatic Environment

4.1.1 Headwater Drainage Feature Assessment

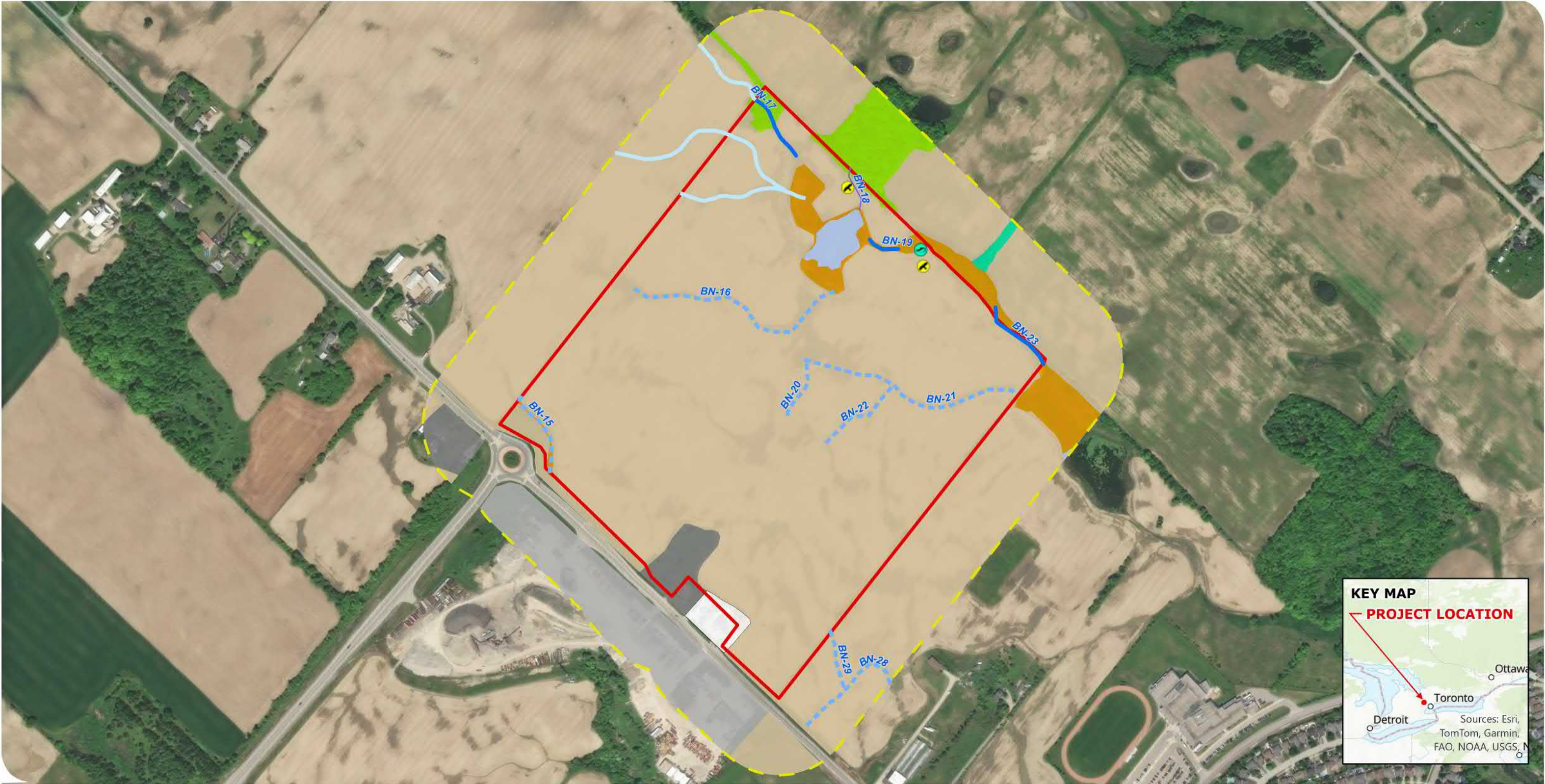
To confirm the presence/absence of HDFs associated with the Project Location and identify potential opportunities for refining or eliminating the HDF from regulation mapping, an HDF Assessment as per the "Evaluation, Classification and Management of headwater Drainage Features Guidelines" as developed by CVC and the TRCA was undertaken. Headwater evaluations comprised of a "Rapid Survey Type", including flow assessment (hydrology classification), channel form, aquatic habitat assessment, riparian habitat assessment and linkage assessment.

Two to three field visits are typically required to determine the flow classification:

- **Visit 1:** to occur during spring freshet or within 24 hours after a rainfall event (typically during April)
- **Visit 2:** Late April – May (to occur at least one week after a rain event).
- **Visit 3:** July - August (to occur at least one week after a rain event).

Results of the evaluation were used to classify the HDFs and make management recommendations for the feature including diversions, if required. Headwater features assessed are delineated and labelled on **Figure 3**.

Results of the aquatic assessments are discussed further in **Section 5.1**.



ROYAL PINE HOMES

14475 Highway 50

NHE

FIGURE 3: SURVEY LOCATIONS AND ELC

- Study Area (120m Buffer)
- Project Location (40.45 ha)

Ecological Land Classification

- 1. CVC_1: Business Sector (0.17 ha)

- 2. CVC_4: Extraction (0 ha)
- 4. CVR_4: Rural Residential (0.69 ha)

8. FODM: Mineral Deciduous Forest (0.34 ha)

- 11. MAMM1: Graminoid Mineral Meadow Marsh (0.98 ha)
- 15. OAGM1: Annual Row Crop (37.79 ha)

16. OAO: Open Aquatic (0.49 ha)

19. TAGM5: Fencerow (0 ha)

- Conservation
- Mitigation

- No Feature Observed
- No Management

- Breeding Bird Survey Location
- Amphibian Breeding Survey Location



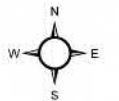
MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR, ONTARIO GEOHUB, ESRI

MAP CREATED BY: -EES
MAP CHECKED BY: -LG
MAP PROJECTION: NAD 1983 UTM Zone 17N

SCALE 1:5,800

0 0.05 0.1 0.2 km

PROJECT: 26-3211 STATUS: DRAFT DATE: 2026-09-02



4.2 Terrestrial Environment

4.2.1 Ecological Land Classification

During the site visit, vegetation was characterized using the ELC System for Southern Ontario protocol (Lee *et al.*, 1998) with 2008 updates (Lee, 2008) in order to classify and map ecological communities to the vegetation type level, where appropriate. The ecological community boundaries were determined through the review of aerial photography and then further refined through on-site vegetation surveys. Vegetation studies involved identifying the dominant species in each vegetation community type, based on visual estimates of species abundance and biomass. Species nomenclature is based on the species lists for Ontario maintained by the NHIC which uses international standards for taxonomy and nomenclature.

The ELC protocol recommends that a vegetation community be a minimum of 0.5 ha in size before it is defined. Based on the composition of vegetation communities within the Project Location, patches of vegetation less than 0.5 ha or disturbed/planted vegetation were described, provided they clearly fit within an ELC vegetation type.

Results of the ELC survey is discussed in **Section 5.2.1**.

4.2.2 Breeding Bird Surveys

Diurnal breeding bird surveys conducted within the Project Location followed the methods outlined in the Ontario Breeding Bird Atlas Guide for Participants (Cadman et al 2007).

Specifically, surveys consisted of point counts generally conducted between dawn and five hours after sunrise to establish quantitative estimates of bird abundance in suitable habitat types within the Study Area, which primarily includes areas around the periphery of the Project Location, associated with woodland and wetland features and natural vegetation communities. No areas within the agricultural fields were identified as having potential to provide habitat for breeding birds (i.e. no hayfields, all annual row crop). During the surveys evidence of breeding behaviour was recorded which generally includes, but is not limited to, males singing, nest building, egg incubation, territorial defence, carrying food, and feeding their young. Breeding evidence for each bird species was documented using Breeding Bird Atlas Evidence Codes.

To supplement the surveys, area searches of the habitat were completed using binoculars to observe species presence and breeding activity between point counts. Area searches involved noting all individual bird species and their corresponding breeding evidence while traversing the habitat on foot. Point count locations are displayed on **Figure 3**.

Results of the breeding bird surveys are discussed in **Section 5.2.2**.

4.2.3 Amphibian Surveys

Amphibian monitoring followed the Marsh Monitoring Program protocol (Birds Canada, 2008). In accordance with the protocol, three different surveys were conducted between April 1 and June 30, with at least two-weeks between each survey. Surveys were completed between one half hour after sunset and midnight during evenings with a minimum night temperature of 5 °C, 10 °C, and 17 °C for each of the three respective surveys.

The calling activity of individuals estimated to be within 100 m of the observation point were documented. All individuals beyond 100 m were recorded as outside the count circle and calling activity was not recorded. Calling activity was then ranked using one of the three abundance code categories:

- **Code 1:** Calls not simultaneous, number of individual can be accurately counted.
- **Code 2:** Some calls simultaneous, number of individuals can be reliably estimated.
- **Code 3:** Calls continuous and overlapping, number of individuals cannot be estimated.

Six amphibian monitoring stations were surveyed within and directly adjacent to the Project Location where property access permitted. Survey locations are displayed on **Figure 3**.

In areas where appropriate habitat exists, vernal pools were also visually examined for egg masses and amphibian larvae in conjunction with other field surveys. These searches occurred between April and June when amphibians were concentrated around suitable breeding habitat.

Results of amphibian breeding studies within the Project Location are included in **Section 5.2.3**.

4.2.4 Plant Surveys

A single-season (summer) vegetation survey was conducted during the appropriate seasonal blooming period. The survey consisted of wandering transects and/or area searches to determine the presence, richness and abundance of floral species within the Project Location as well as presence/absence of botanical SAR. Species nomenclature recorded is based on the Ontario Plant List (Newmaster *et al.*, 1998).

Given the nature of the Study Area lands (the developable area outside of the Greenbelt), a two-season vegetation survey as recommended in the Town's Terms of Reference for Local Subwatershed Studies (May 2024) was not required as the vegetation species recorded on site were all considered common and secure (S4 or S5) with an average Co-efficient of Conservatism (CC) of 3.5 indicating an altered landscape, and seasonal fluctuations in vegetation composition would not be anticipated given the agricultural nature of the landscape.

Results of the vegetation surveys are discussed in **Section 5.2.4**.

4.2.5 Wetlands

The boundaries of wetland units within the Project Location were delineated in conjunction with ELC surveys. Wetland feature staking with Town and TRCA occurred in June of 2022.

Results of the wetland investigations is discussed in **Section 5.2.5**.

4.2.6 Woodlands

Woodlands within the Project Location were investigated as part of the ELC and vegetation surveys. Woodland feature staking with Town and TRCA occurred in June of 2022.

Results of field studies relating to woodlands are discussed in **Section 5.2.6**.

4.2.7 Valleylands

Potential valleylands within the Project Location were investigated as part of the aquatic assessment.

Results of field surveys relating to valleylands are discussed in **Section 5.2.7**.

4.2.8 SAR Habitat Assessment

The Study Area was surveyed for Butternut during ELC and vegetation surveys. As Black Ash was added to the SAR in Ontario List following the field program, the presence of Black Ash was not specifically noted on site but was not incidentally observed during the vegetation surveys. With respect to SAR bats, the woodlands in the Study Area will be protected and no vegetation removal is expected to occur within those areas, specific snag/cavity trees density searches were not conducted.

With respect to barns/buildings and potential habitat for SAR bats, barns/buildings are present within the Project Location that should be searched for evidence of bats prior to demolition.

During the first round of bird surveys, the Study Area was investigated for suitable Eastern Meadowlark and Bobolink habitat. No suitable fields or large meadows were observed, therefore, targeted surveys for these two species were not conducted.

Results of the SAR Habitat surveys are discussed in **Section 5.2.8**.

4.2.9 Incidental Wildlife

During site visits conducted to date, incidental observations of wildlife were noted, as well as other wildlife evidence such as dens, tracks, and scat. For each observation, notes, and when possible, photos

were taken. These observations helped to determine potential ecological functions, linkages, etc. within the Study Area.

Results related to incidental wildlife are included in **Section 5.2.9**.

5.0 Results of Biophysical Inventory

A biophysical inventory of natural features within the Study Area was completed in accordance with the methods detailed in **Section 4.0**. The analysis of data collected from secondary source information and during the field studies was used to evaluate the significance of natural heritage features within the Study Area. It should be noted that the results are based on field studies performed within the limits of the Project Location only and the results pertaining to the Study Area (particularly the eastern portion within the Greenbelt) have been extrapolated from the results within the Project Location and through air photo interpretation.

5.1 Aquatic Environment

5.1.1 Headwater Drainage Feature Assessment

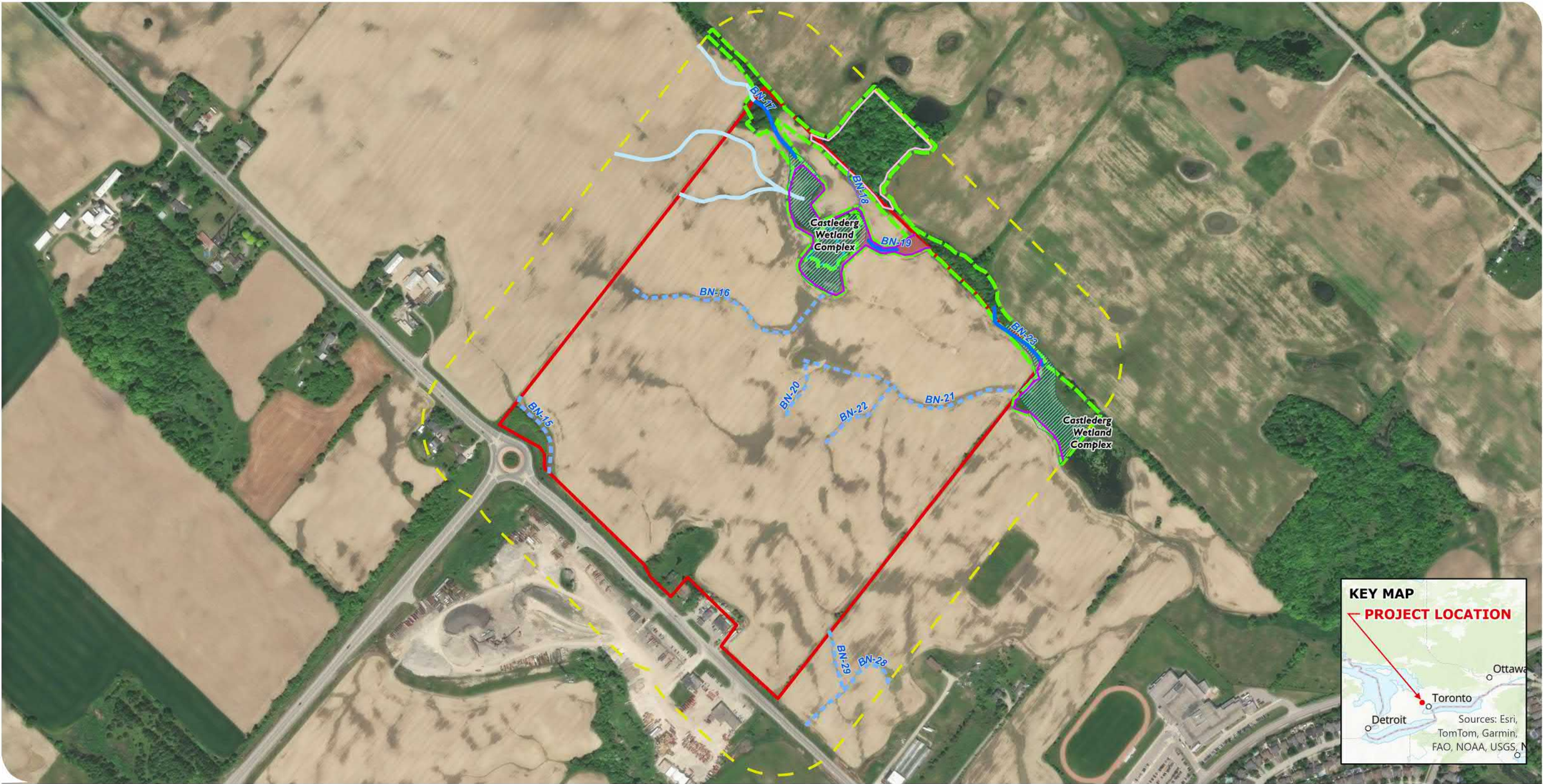
In accordance with the TRCA and CVC guidance document, HDFs within the Study Area were broken down into segments/branches based on the presence of modifiers within the channels (i.e., vegetation change, flow change, substrate change, culverts, etc.). Each of the segments was assessed individually in order to determine an overall management recommendation per feature or area.

The evaluation criteria within the guidance document are broken down into four categories:

- Hydrology Classification
- Riparian Classification
- Fish and Fish Habitat Classification
- Terrestrial Habitat Classification

Each classification listed above is further broken down into functions ranging from limited to important, which are used to determine an overall management recommendation for each feature. Management recommendations are shown on **Figure 4**. Survey data and photos for the HDF assessment is included in **Appendix C** and **Appendix D** respectively, including classification and management recommendations of each feature and area. The initial assessment occurred on March 23 and 24, 2021, followed by a second visit on May 20, 2021, and a third visit on August 12, 2021, in line with the timing windows identified in the HDF guidance document.

HDFs within the Study Area were walked by TRCA in June of 2022 during the feature staking exercise and none of the HDFs were identified as watercourses. Further, the TRCA had no comments regarding the classification of the HDFs. It should be noted that 2021 was a drier year. A review of weather



ROYAL PINE HOMES

14475 Highway 50

NHE

FIGURE 4: FIELD WORK RESULTS



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR, ONTARIO GEOHUB, ESRI

MAP CREATED BY: -EES
MAP CHECKED BY: -LG
MAP PROJECTION: NAD 1983 UTM Zone 17N



conditions during the month of March taken from Pearson International Airport (closest station to Caledon) indicated that there was almost no precipitation for the entire month of March leading up to the HDF assessment. HDF surveys were pushed to late March to wait for a precipitation event and scheduled based on weather forecasts. However, since there was little snow cover during freshet and dry conditions following, the first assessment had to be completed before it was too late in the season. As a result, the HDF assessments have also discussed the results of the Dougan & Associates' (Dougan) 2014 study as well as the Settlement Area Boundary Expansion (SABE; Wood, 2022) study, where applicable.

Management recommendations for the HDFs identified on site are defined based on the guidance document and SABE study and described below:

- Features within the Study Area that received a "protection" recommendation provide important functions such as amphibian breeding habitat, permanent fish habitat or are perennial HDFs. These features should be protected, enhanced and/or restored on the landscape with their hydroperiod maintained.
- Features within the Study Area that received a "conservation" recommendation provide valued functions as they provided or may potentially provide seasonal fish habitat. The function of these features and connection to downstream reaches should be maintained but these features may be relocated and/or enhanced on the landscape.
- Features within the Study Area that received a "mitigation" recommendation provide contributing functions as they provided flow to downstream fish habitat. These features may be removed from the landscape as long as their functions are replicated or enhanced through proper stormwater management (SWM) planning and infrastructure such as through LIDs, vegetated swales and/or other lot level conveyance measures.
- Features within the Study Area that received a "no management" recommendation generally characterized by lack of flow, evidence of cultivation, furrowing, presence of a seasonal crop, and lack of natural vegetation. No management recommendations required.

No Management

BN-18 was located within the Study Area, but was observed as dry throughout all site visits, and was deemed to not fit the criteria to be considered an HDF. As such, this feature was given a "no management" recommendation.

Mitigation

HDF BN-15, BN-16, BN-20, BN 21, BN-22, BN-28 and BN-29 were located within the Study Area (**Figure 4**). Feature BN-15 was a swale originating from a tile drain outlet and was located at the base of the Highway 50 roundabout. The feature flowed through a culvert into the roadside ditch along

Highway 50, potentially feeding into fish habitat downstream. It was identified as an HDF in the SABE study and described as a swale. Based on the location, its association with tile drainage and connectivity to the roadside ditch downstream, it has been given a “mitigation” management recommendation.

Features BN-16, BN-20, BN-21 and BN-22 had minimal flow during the first site visit but eventually dried out during the second or third site visit. Feature BN-16 was undefined, but a flow path was observed within the agricultural field that connected to a large pond. Features BN-20 and BN-21 were connected and received input from tile drainage. These two features flowed into a Reed Canary Grass meadow marsh which eventually outlet into another large pond. Since these features provided intermittent flows to wetlands, ponds and potential downstream fish habitat, they received a “mitigation” recommendation. These features were mapped as HDFs in the SABE study. In the Dougan study BN-21 was given a “mitigation” recommendation and BN-27 was given “no management” recommendations. Overall, the proposed management recommendation for these features aligned with or were greater than previous recommendations.

Feature BN-28 and BN-29 were observed to be swales or undefined features that contained standing water and no flow during the first visit. These features were dry during subsequent visits. These features were not mapped as part of the SABE study but were given a management recommendation of “maintain recharge” in the Dougan study. Due to their connectivity to a box culvert at Highway 50, they received a “mitigation” recommendation.

Due to the nature of the features discussed above (i.e. conveying tile drainage, no riparian cover etc.) replication of function through the SWM plan has been deemed appropriate to address pre- and post-surface water flows. This may include, but are not limited to, lot-level conveyance, vegetated swales, Low Impact Development (LID) measures, or a combination of those methods.

Conservation

Features within the Study Area with defined channels, intermittent flows and directly connected to the large ponds (BN-17, BN-19 and BN-23) were considered seasonal fish habitat (**Figure 4**). BN-17 originated from a tile drain outlet and flowed directly into the northern pond. BN-19 was connected the northern pond to a smaller pond while BN-23 formed the main connection between the two large ponds. Fish were observed in BN-23 during the second visit and as a result, the entire system is considered seasonal fish habitat. These features were mapped as a medium constraint in the SABE study, and the Dougan study recommended BN-17, BN-19 and BN-23 for “conservation”. Since these features were defined channels that provide or have the potential to provide seasonal fish habitat for fish from the ponds but lacked a riparian community, they all received a “conservation” recommendation. Features recommended for “conservation” may be re-aligned and/or enhanced with their functions maintained. This recommendation is in alignment with the SABE study’s medium

constraint ranking which allows for channel/corridor realignment where there has been disturbance through anthropogenic activity and subject to approval of appropriate authorities (Wood, 2022). The proposed development will not directly affect these features.

Potential impacts related to surface water flows are discussed in **Section 8.1**.

5.2 Terrestrial Environment

5.2.1 Ecological Land Classification

Seven ELC communities were identified within the Study Area (**Table 5**). The location, type, and boundaries of these communities are delineated on **Figure 3**. Reference photos for the plant communities observed can be found in **Appendix D**. None of the documented vegetation communities are considered rare in Ontario.

The Study Area consists of Extraction (CVC_4), Business Sector (CVC_1), Graminoid Mineral Meadow Marsh (MAMM1), Open Aquatic (OA), Rural Residential (CVR_4), Annual Row Crops (OAGM1), and Mineral Deciduous Forest (FODM). Communities within the Study Area are further described in **Table 5** and a full plant list is presented in **Appendix D**.

Potential impacts related to vegetation communities within the Project Location are included in **Sections 8.1** and **8.2**.

Table 5: Ecological Land Classification Communities within the Study Area

ELC Community	Location	Dominant Species (listed in approximate order of abundance)	Photos (Appendix C)
Natural Communities			
OA – Open Aquatic	This community is found within the center northeastern portion of the Project Location.	Found adjacent to the marsh communities, this community consist of a large open water pond.	31

ELC Community	Location	Dominant Species (listed in approximate order of abundance)	Photos (Appendix C)
MAMM1 – Graminoid Mineral Meadow Marsh	This community is found along the eastern portion of the Project Location associated with the open aquatic feature and continuing southwards along the eastern border of the property.	This wetland community was dominated by a mix of Broad-leaved Cattail (<i>Typha latifolia</i>) and Reed Canary Grass.	30
FODM – Mineral Deciduous Forest	This community is along the northern border of the property.	Access permission was not given for this area. ELC community is based on desktop (aerial) interpretation only.	---
Cultural Communities			
CVC_1 – Business Sector	This community is found along the western border and just west of the Project Location, along Highway 50.	This area consisted of small business.	33
CVC_4 – Extraction	This community is found south of the Project Location along the opposite side of Highway 50.	This area contained a gravel pit and construction yard	34
CVR_4 –Rural Residential	This community is found in the central southern area of the Project Location close to the Business Sector, and commercial buildings along the Highway 50.	This area contained a rural residence.	35
OAGM1: Annual Row	This community is found throughout the central part of the Project Location.	These areas consisted of an annual row crop that has been planted with crops such as soy beans and corn.	32

5.2.2 Breeding Bird Surveys

A total of 46 bird species were observed during breeding bird surveys (**Table 6**). Of the 46 species observed, one federal SAR, Barn Swallow (THR) and one SCC, Eastern Wood-pewee (SC) were observed. The remaining 44 birds observed are considered common and secure (S4) to very common (S5) in the province of Ontario based on the provincial conservation rankings assigned by the NHIC.

Eastern Wood-pewee was observed at survey locations on or adjacent to the Project Location during multiple survey days, utilizing the wooded areas in the eastern part of the Study Area. Barn Swallow was observed in the agricultural field northeast of the pond area and in the nearby property to the northwest, indicating they may be using the structures in the area to nest.

Table 6: Breeding Bird Survey Results

Scientific Name	Common Name	SARA ¹	SCA ²	Srank ³	Breeding Evidence
<i>Actitis macularius</i>	Spotted Sandpiper	---	---	S5	S, H, A, Flyover
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	---	---	S4	H, S, A, D, P, CF
<i>Aix sponsa</i>	Wood Duck	---	---	S5	S, X
<i>Anas platyrhynchos</i>	Mallard	---	---	S5	P, S, H, Flyover
<i>Ardea Herodias</i>	Great Blue Heron	---	---	S4	S, H
<i>Bombycilla cedrorum</i>	Cedar Waxwing	---	---	S5B	S
<i>Branta Canadensis</i>	Canada Goose	---	---	S5	X, S, P, FY
<i>Buteo jamaicensis</i>	Red-tailed Hawk	---	---	S5	S, H, A
<i>Cardinalis cardinalis</i>	Northern Cardinal	---	---	S5	H
<i>Carduelis tristis</i>	American Goldfinch	---	---	S5B	H, S, D, Flyover
<i>Cathartes aura</i>	Turkey Vulture	---	---	S5B, S3N	Flyover
<i>Charadrius vociferus</i>	Killdeer	---	---	S5B, S5N	H, S, A, Flyover
<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo	---	---	S5B	H
<i>Columba livia</i>	Rock Pigeon	---	---	SNA	X, Flyover
<i>Contopus virens</i>	Eastern Wood-pewee	SC	---	S4B	H, S
<i>Corvus brachyrhynchos</i>	American Crow	---	---	S5B	S, H, Flyover
<i>Corvus corax</i>	Common Raven	---	---	S5	H
<i>Cyanocitta cristata</i>	Blue Jay	---	---	S5	H, S
<i>Cygnus buccinator</i>	Trumpeter Swan	---	---	S4	X
<i>Dumetella carolinensis</i>	Gray Catbird	---	---	S4B	S, H

Scientific Name	Common Name	SARA ¹	SCA ²	Srank ³	Breeding Evidence
<i>Eremophila alpestris</i>	Horned Lark	---	---	S4	S, H
<i>Geothlypis philadelphia</i>	Mourning Warbler	---	---	S5B	S
<i>Hirundo rustica</i>	Barn Swallow	THR	--	S4B	S, H
<i>Icterus galbula</i>	Baltimore Oriole	---	---	S4B	S, H
<i>Larus delawarensis</i>	Ring-billed Gull	---	---	S5B,S4N	H, Flyover
<i>Lophodytes cucullatus</i>	Hooded Merganser	---	---	S5	FY
<i>Melospiza melodia</i>	Song Sparrow	---	---	S5B	H, S, A
<i>Molothrus ater</i>	Brown-headed Cowbird	---	---	S4B	S, H
<i>Myiarchus crinitus</i>	Great Crested Flycatcher	---	---	S4B	H
<i>Passerculus sandwichensis</i>	Savannah Sparrow	---	---	S4B	S
<i>Passerina cyanea</i>	Indigo Bunting	---	---	S4B	S, H
<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak	---	---	S5B	S, H
<i>Poecile atricapillus</i>	Black-capped Chickadee	---	---	S5	H, S
<i>Quiscalus quiscula</i>	Common Grackle	---	---	S5B	Flyover, S, H
<i>Sayornis phoebe</i>	Eastern Phoebe	---	---	S5B	S, H
<i>Setophaga petechia</i>	Yellow Warbler	---	---	S5B	S, H
<i>Setophaga ruticilla</i>	American Redstart	---	---	S4B	H
<i>Spizella passerina</i>	Chipping Sparrow	---	---	S4B	H, S
<i>Spizella pusilla</i>	Field Sparrow	---	---	S4B	H
<i>Sturnus vulgaris</i>	European Starling	---	---	SNA	Flyover, H, S
<i>Tachycineta bicolor</i>	Tree Swallow	---	---	S4B	X, S, H

Scientific Name	Common Name	SARA ¹	SCA ²	Srank ³	Breeding Evidence
<i>Troglodytes aedon</i>	House Wren	---	---	S5B	S, H
<i>Turdus migratorius</i>	American Robin	---	---	S5B	S, H
<i>Tyrannus tyrannus</i>	Eastern Kingbird	---	---	S4B	H, S, A
<i>Vireo olivaceus</i>	Red-eyed Vireo	---	---	S5B	H
<i>Zenaida macroura</i>	Mourning Dove	---	---	S5	H, S

Note: 1. Federal Species at Risk Act (SARA) Registry Status
 2. Ontario Species Conservation Act (SCA) Protected Species at Risk List Status
 3. Provincial Conservation Rank (Srank)
 THR = Threatened, SC= Special Concern; "----" denotes no information or not applicable.
 Breeding Bird Codes from Breeding Bird Atlas of Ontario (Cadman et al. 2007)

Observed

X Species observed in its breeding season (no breeding evidence)
 Possible
 H Species observed in its breeding season in suitable nesting habitat
 S Singing male(s) present, or breeding calls heard, in suitable nesting habitat in breeding season
 Probable
 P Pair observed in suitable nesting habitat in nesting season
 T Permanent territory presumed through registration of territorial song, or the occurrence of an adult bird, at the same place, in breeding habitat, on at least two days a week or more apart, during its breeding season.
 D Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation
 V Visiting probable nest site
 A Agitated behaviour or anxiety calls of an adult
 B Brood Patch on adult female or cloacal protuberance on adult male
 N Nest-building or excavation of nest hole, except by a wren or a woodpecker

Confirmed

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

5.2.3 Amphibian Surveys

In accordance with the SWH Criteria Schedules for Ecoregion 6E (MNRF 2015), the Study Area was considered for amphibian breeding habitat given the potential in association with the woodlands and wetlands present. Consistent with the criteria schedule, in order for amphibian breeding habitats to be significant, they must contain one or more of the listed newt/salamander species; at least two or more of the listed frog/toad species with at least 20 individuals (adults or egg masses) of each species; or at least two of the listed frog/toad species with Call Code 3.

The highest amphibian activity was recorded at AMPH2 along the northern boundary of the Project Location. At amphibian survey station AMPH2, Spring Peeper (*Pseudacris crucifer*) and Gray Treefrog (*Hyla versicolor*) were each heard in full chorus (assumed to be >20 individuals) within the adjacent woodland to the northwest, just outside of the Project Location. Given that both Gray Treefrog and Spring Peeper are species listed under Amphibian Breeding (Woodland) within the SWH Criterion Schedules for Ecoregion 6E (MNRF 2015), a call code of 3 was observed for both species and the woodland is adjacent to wetlands (Castlederg PSW), the woodland is considered SWH for Amphibian Breeding (Woodlands) (**Figure 4**).

Since SWH for Amphibian Breeding (Woodlands) were confirmed around AMPH2, the natural areas around AMPH2 were assessed as SWH for Amphibian Movement Corridors. Based on the existing conditions, candidate Amphibian Movement Corridors are present (**Figure 4**).

No egg masses or other evidence of amphibian breeding were observed within the property during field surveys in 2021.

Impacts to general wildlife are discussed further in **Section 8.1**.

5.2.4 Plant Surveys

A total of 83 plant species were documented during the 2021 field studies. All the plant species identified are considered to be common (S4) to very common (S5) in the province of Ontario or are listed as introduced species; therefore, a status ranking is not applicable as the species is not a suitable target for conservation activities (SRank of SE or SNA). No SAR or SCC plants were identified during vegetation surveys.

The CC value provides additional information on the nature of the vegetation communities within the Study Area. The CC values range from 0 to 10 and represent an estimated probability that a plant is likely to occur in a landscape that is relatively unaltered or is in a pre-settlement condition. For example, a CC of 0 is given to plants such as Manitoba Maple (*Acer negundo*) that demonstrate little fidelity to

any remnant natural community, i.e., may be found almost anywhere. Similarly, a CC of 10 is applied to plants like Shrubby Cinquefoil (*Potentilla fruticosa*) that are almost always restricted to a pre-settlement remnant, i.e., a high-quality natural area. Introduced plants were not part of the pre-settlement flora, so no CC values have been applied to these species.

Of the 83 species identified within the Study Area, the average CC value recorded is 3.5 which is typical of an altered landscape. This is typical of agricultural lands as compared to naturally occurring environments. Several species were recorded with CC values of seven or greater, including, but not limited to: Woodland Sunflower (*Helianthus divaricatus*), Common Wood-sorrel (*Oxalis montana*), Early Buttercup (*Ranunculus fascicularis*), and Daisy Fleabane (*Erigeron hyssopifolius*). No SAR vegetation was identified within the Study Area, although Black Ash was not considered at the time of the field surveys. A full list of the vegetation species observed within the Study Area has been included in **Appendix E**.

Potential impacts related to vegetation within the Study Area are included in **Section 8.1**.

5.2.5 Significant Wetlands

Portions of the Castlederg PSW Complex, as well as several small pockets of unevaluated wetland were identified within the Study Area (**Figure 2**). Within the Study Area, the Castlederg PSW Complex provides ecological and hydrological functions, providing habitat to several native plants, wildlife, and fish species.

The boundaries of wetland units within the Study Area were delineated in conjunction with ELC surveys on lands where access was permitted. Based on vegetation communities observed, the Castlederg PSW Complex boundary was refined and is comprised of a mix of Open Water Aquatic and Mixed Mineral Meadow Marsh Complex within the Study Area (**Figure 4**). As this wetland is considered a PSW, it is protected under the policies of the PPS and the Greenbelt Plan.

Any unevaluated wetlands, identified via background review, within 30 m of Castlederg PSW have been treated as PSW for the purpose of this NHE, though none within the Study Area fit these criteria.

Potential impacts related to wetlands within the Study Area are included in **Section 8.1**.

5.2.6 Significant Woodlands

In order to identify Significant Woodlands within the Natural Heritage System of the Protected Countryside, the Greenbelt Plan area was divided into two geographic regions based on forest cover. The Study Area falls within the South Area.

A woodland in the South Area is considered significant if it meets any one of the following criteria:

- Any woodlands 4 ha or more in size

- Any woodlands containing 1 hectare or more of naturally occurring (not planted) trees
- Any woodlands 1 hectare or more with either
 - 10 or more trees per ha that are either greater than 100 years old or 50 cm or more in diameter
 - containing a basal area of at least 8 square metres per hectare in native trees that are 40 cm or more in diameter.
- Any woodlands 1 hectare or more with wholly or partially within 30 m of a: significant wetland; significant habitat of an endangered or threatened species; Significant Woodland
- Any woodlands 0.5 hectare or more with a provincially rare treed vegetation community with an S1, S2 or S3 in its ranking by the MNR's NHIC; or habitat of a woodland plant species with an S1, S2 or S3 in its ranking or an 8, 9, or 10 in its Southern Ontario Coefficient of Conservatism by the NHIC, consisting of 10 or more individual stems or 100 or more square metres of leaf coverage.

No woodland areas within the Study Area meet the qualifications to be considered Significant Woodland.

5.2.7 Significant Valleylands

The Greenbelt Plan and the Natural Heritage Reference Manual define a valleyland as a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year.

TRCA defines a valleyland as land that has depressional features associated with a river or stream whether or not it contains a watercourse or a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year (TRCA 2014). Further, as stated in the TRCA and CVC Evaluation, Classification and Management of Headwater Drainage Features Guidelines (2014), HDFs are not typically associated with valleylands.

According to TRCA's Living City Policies (2014), *"Confined systems, regardless of whether or not they contain a watercourse, are those depressional features associated with a river or stream that are well defined valley walls."*

Note that potential valleylands could only be evaluated for presence and significance on lands where access was granted and aquatic and terrestrial features were investigated. The potential valleyland features that were accessible and investigated include:

- The feature associated with Castlederg PSW northeast of Highway 50
- The feature associated with Cold Creek tributary outside of the Study Area

Based on the above definitions of a valleyland and a Confined Valley System, the potential feature associated with Castlederg PSW is not a valleyland. This feature contains intermittent HDFs which at times connect the wetlands. The topography in the area gently slopes to the wetlands and HDFs but no well-defined valley morphology is present. This feature is not associated with a river or stream that has well defined valley walls and topography and therefore does not meet the criteria/definition for Confined Valley System or a valleyland.

5.2.8 Species at Risk and Significant Wildlife Habitat

Vegetation

No Butternut or Black Ash trees were identified during the vegetation survey. Regardless, the proposed development will not be directly impacting the wooded and wetland areas within the Study Area so if these trees are present, they will be retained within protected natural areas.

Bats

The woodlands within the Study Area are limited to the eastern borders and are not expected to be impacted based on the proposed development. However, bat species are known to roost in barns and other man-made structures, which may be impacted by future developments. Additional surveys would be required to confirm presence of SAR bats utilizing these structures.

No other SAR or SAR habitat was identified within the Study Area.

Based on the observations made during the site investigations, as well as the results of the ELC, the following candidate and confirmed SWH were observed within the Study Area.

Candidate Significant Wildlife Habitat

- **Bat Maternity Colonies:** woodland in (FODM) community in northern corner of Project Location and beyond into Study Area
- **Turtle Wintering Areas:** the open aquatic (OAO) community within the Study Area
- **Amphibian Movement Corridor:** connects to confirmed Amphibian Breeding Habitat (Woodland) in the northeastern part of the Study Area

Confirmed Significant Wildlife Habitat

- **Terrestrial Crayfish:** crayfish chimneys were observed within graminoid mineral meadow marsh (MAMM1) community
- **Amphibian Breeding Habitat (Woodland):** the woodland (FODM) community located along the northeastern border of the Project Location within the Study Area.

Potential impacts to SWH and SAR are addressed in **Sections 8.1** and **8.2**.

5.2.9 Incidental Wildlife

Incidental wildlife species observed within the Study Area are listed below in **Table 7**. One SAR (Barn Swallow) and one SCC (Eastern Wood-pewee) were incidentally observed during the 2021 field surveys.

Table 7: Incidental Wildlife Observations

Scientific Name	Common Name	SARA ¹	SCA ²	SRank ³
Birds				
<i>Actitis macularius</i>	Spotted Sandpiper	---	---	S5
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	---	---	S4
<i>Anas platyrhynchos</i>	Mallard	---	---	S5
<i>Archilochus colubris</i>	Ruby-throated Hummingbird	---	---	S5B
<i>Ardea alba</i>	Great Egret	---	---	S2B
<i>Ardea herodias</i>	Great Blue Heron	---	---	S4
<i>Branta canadensis</i>	Canada Goose	---	---	S5
<i>Buteo jamaicensis</i>	Red-tailed Hawk	---	---	S5
<i>Carduelis tristis</i>	American Goldfinch	---	---	S5B
<i>Cathartes aura</i>	Turkey Vulture	---	---	S5B
<i>Charadrius vociferus</i>	Killdeer	---	---	S5B,S5N
<i>Corvus brachyrhynchos</i>	American Crow	---	---	S5B
<i>Cyanocitta cristata</i>	Blue Jay	---	---	S5
<i>Eremophila alpestris</i>	Horned Lark	---	---	S5B
<i>Gallinago delicata</i>	Wilson's Snipe	---	---	S5B
<i>Meleagris gallopavo</i>	Wild Turkey	---	---	S5
<i>Mergus merganser</i>	Common Merganser	---	---	S5B,S5N
<i>Passer domesticus</i>	House Sparrow	---	---	SNA
<i>Poecile atricapillus</i>	Black-capped Chickadee	---	---	S5
<i>Sitta carolinensis</i>	White-breasted Nuthatch	---	---	S5
<i>Tachycineta bicolor</i>	Tree Swallow	---	---	S4B
<i>Turdus migratorius</i>	American Robin	---	---	S5B

Scientific Name	Common Name	SARA ¹	SCA ²	SRank ³
<i>Zenaida macroura</i>	Mourning Dove	---	---	S5
Mammals				
<i>Canis latrans</i>	Coyote	---	---	S5
<i>Odocoileus virginianus</i>	White-tailed Deer	---	---	S5
<i>Procyon lotor</i>	Northern Raccoon	---	---	S5
<i>Sciurus carolinensis</i>	Eastern Gray Squirrel	---	---	S5
<i>Sylvilagus floridanus</i>	Eastern Cottontail	---	---	S5
<i>Tamiasciurus hudsonicus</i>	Red Squirrel	---	---	S5

Note:

1. Federal Species at Risk Act (SARA) Registry Status
2. Ontario Species Conservation Act (SCA) Protected Species in Ontario List Status
3. Provincial Conservation Rank (Srank)

Potential impacts related to wildlife within the Study Area are included in **Sections 8.1** and **8.2**.

6.0 Ecological Function

Natural features within the Study Area were analyzed to determine their ecological function. At the larger landscape scale, the Study Area is primarily agricultural/rural surrounded by the Greenbelt Natural Heritage System to the east, consisting of woodlands and wetlands linked by fields.

The east portion of the Study Area primarily consists of the Castlederg PSW Complex which includes a diverse mix of wetland types. Wetlands within this PSW are linked by woodlands, riparian habitat, and open fields. The portion of the Castlederg PSW Complex within the Study Area provides ecological and hydrological function, through the Protected Countryside, providing habitat to a number of native plant and wildlife species.

General ecological functions of natural features within the Study Area include prevention of erosion and runoff (densely wooded valleylands), facilitating hydrological and nutrient cycling, and improving localized soil, water and air quality.

6.1 Aquatic and Terrestrial Habitat Function

Patches of marshes, swamps, forests, woodlands, plantations, thickets, meadows and HDFs are present in the greater area surrounding the Study Area, with each providing some form of habitat for local wildlife. Aquatic and terrestrial habitat functions within the Study Area, however, are limited due to current agricultural land uses as well as anthropogenic disturbances.

The Castlederg Wetland Complex is located within the Study Area and may provide important habitat for wildlife. Many species of amphibians utilize wetlands for mating, food sources, and protective cover. In addition to amphibians, many animals depend on wetlands for shelter and feeding. Reptiles, aquatic insects and certain mammals need wetlands as a place that supports growth and development of young. They also provide important nesting habitat for bird species. As swamps are treed by definition, they provide additional cover for larger animals and nesting sites for bird species. The wetlands also provide general habitat and protection and cover to common plants.

Woodland patches are located within the Study Area and may provide important habitat for wildlife. Many wildlife species utilize woodlands for mating, shelter, nesting, food sources, denning, roosting, etc. Woodlands within the Study Area have the potential to support SAR bats and confirmed Amphibian Breeding (Woodland) SWH.

6.2 Connectivity and Linkage Function

Roads, rural properties, agricultural fields and commercial businesses have resulted in the loss of natural connections between much of the natural features within the Study Area. Due to anthropogenic disturbance across much of the Study Area, many remaining natural features are quite fragmented and isolated. Emil Kolb Parkway, Highway 50 and Columbia Way may heavily restrict species movement throughout the Study Area.

The Castlederg PSW Complex provides some connection to nearby natural areas. This band of wetlands, fields, and forests provides connections to the Coventry Wetland Complex to the north, the Oak Ridges Moraine, and to headwater streams of the Humber River flowing south to Lake Ontario, and north to Lake Simcoe/Georgian Bay (MNRF, 2015). As a result, there are wildlife connections beyond the Castlederg PSW to wetlands and forests both upstream to the Caledon East PSW Complex, and downstream to the Humber River, a major north-south corridor from the ORM and the Niagara Escarpment to Lake Ontario.

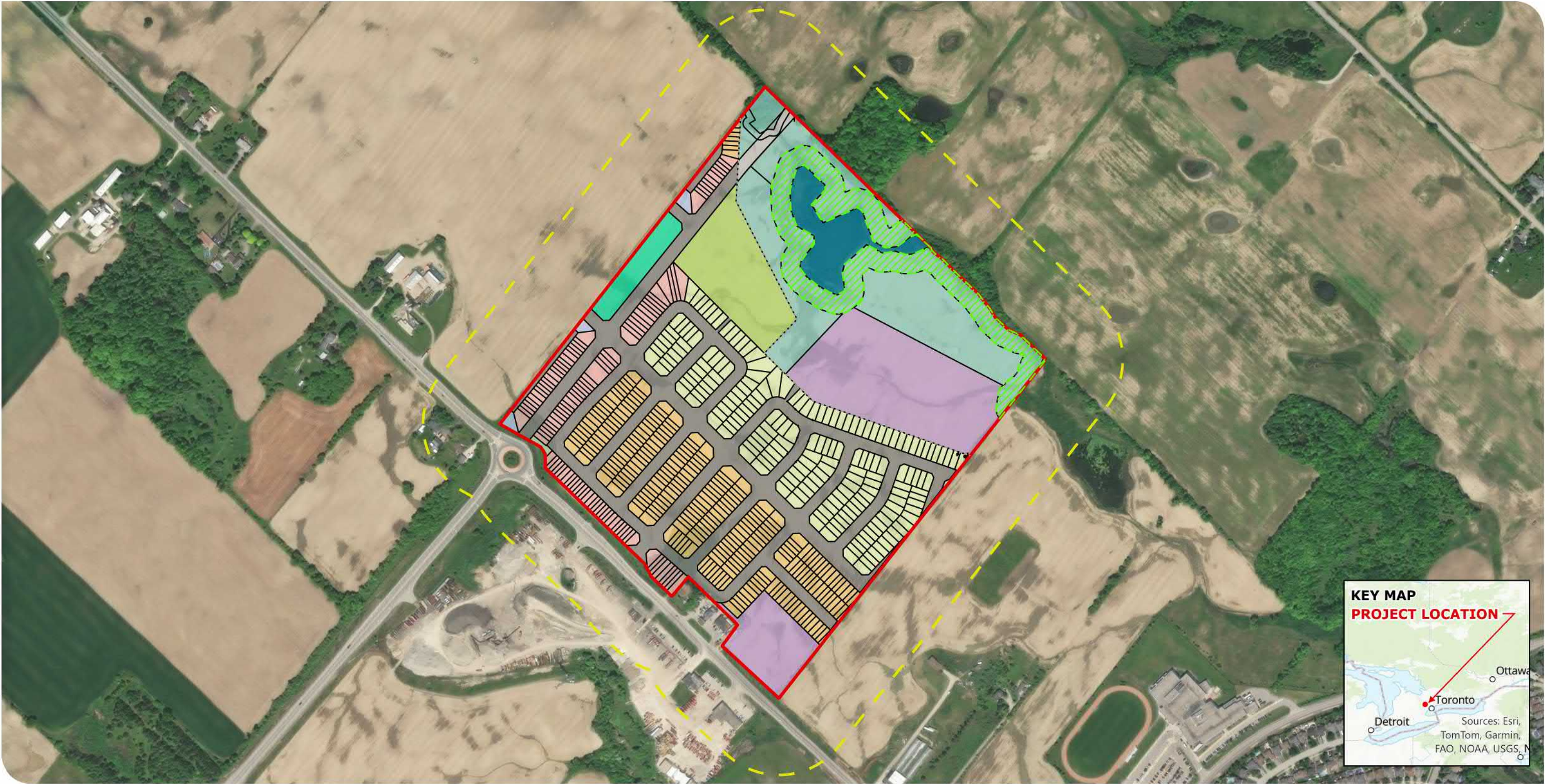
Potential impacts and recommended mitigation measures to prevent impacts to SCC/SAR and their habitats, as well as significant natural features are discussed in **Sections 8.0** and **9.0**.

7.0 Description of the Proposed Development

The overall proposed development is 40.7 ha and will consist of a mix of residential uses, including the following:

- 192 single detached residential dwellings
- 375.5 townhouse units
- new roadways to support residences
- elementary school block
- residential park; and
- SWM ponds

The proposed main access points to this development will be heading north from Highway 50 (**Figure 5**). Construction of the proposed development would include the development of agricultural land, rural residential, and business sector (**Figure 6**). Landscaping may include, but is not limited to, fencing, sod, and tree plantings. The associated impacts of the development and recommended mitigation measures will be discussed in **Sections 8.0** and **9.0**.



ROYAL PINE HOMES

14475 Highway 50

- | | | | | | | |
|-----------------------------|--|--------------------------|----------------------------------|-------------------------|-----------------------|---------|
| Study Area (120m Buffer) | Vegetation Protection Zone (30m Setback) | Road | Standard Townhouse Dwelling | Park | Stormwater Management | Wetland |
| Project Location (40.45 ha) | Greenbelt Limit | Future Road Connection* | Dual Frontage Townhouse Dwelling | Open Space | Elementary School | |
| | | Single Detached Dwelling | | Natural Heritage System | Future Development | |

NHE

FIGURE 5: PROPOSED DEVELOPMENT PLAN



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR, ONTARIO GEOHUB, ESRI

MAP CREATED BY: -EES/TAD
MAP CHECKED BY: -LG
MAP PROJECTION: NAD 1983 UTM Zone 17N

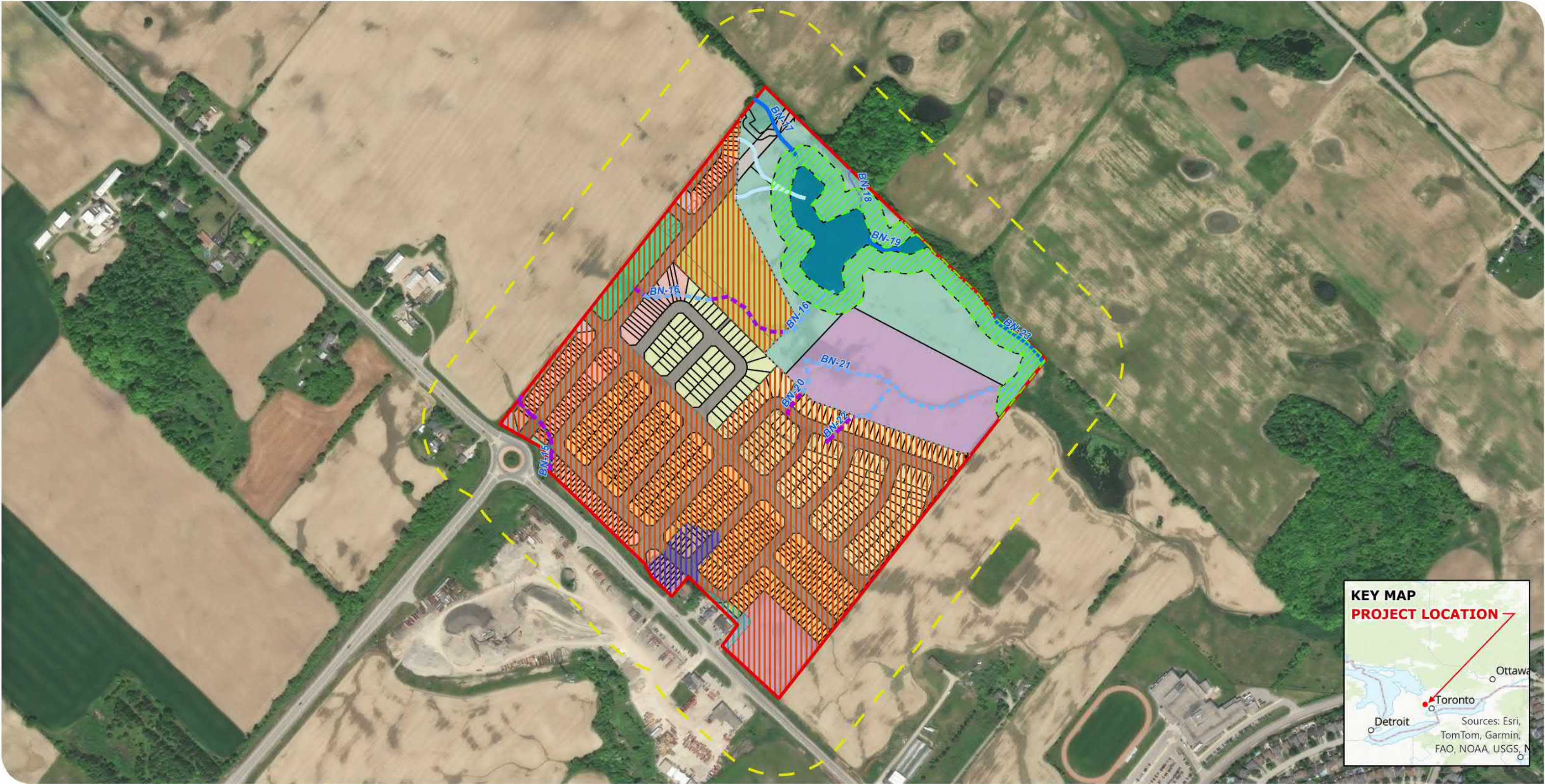
* To be initiated by the Town of Caledon and is not considered part of this development proposal.

SCALE 1:5,800

0 0.05 0.1 0.2 km



PROJECT: 26-3211 STATUS: DRAFT DATE: 2026-09-04



ROYAL PINE HOMES

14475 Highway 50

NHE

FIGURE 6: POTENTIAL IMPACTS



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR, ONTARIO GEOHUB, ESRI

MAP CREATED BY: -EES/TAD
MAP CHECKED BY: -LG
MAP PROJECTION: NAD 1983 UTM Zone 17N

SCALE 1:5,800

0 0.05 0.1 0.2 km



PROJECT: 26-3211 STATUS: DRAFT DATE: 2026-09-04

* To be initiated by the Town of Caledon and is not considered part of this development proposal.

8.0 Potential Impact Identification and Analysis

8.1 Potential Direct Impacts

Potential direct impacts are those that are immediately evident as a result of the development. Typically, the adverse effects of direct impacts are most evident during the site preparation and construction phase of a development. The potential direct impacts of the proposed development include the following:

- Loss of/disturbance to wildlife and wildlife habitat
- Tree removal
- Diversion of surface water flows and SWM
- Erosion and sedimentation into natural features

Each of these potential impacts are discussed in subsequent sections.

8.1.1 Loss of/Disturbance to Wildlife and Wildlife Habitat

In general, wildlife may be impacted due to vegetation clearing within the proposed development area. Wildlife habitat for fauna may be impacted by construction in the following ways:

- Displacement, injury, or death resulting from ignition, operation, and/or contact with heavy equipment during clearing and grading activities.
- Disturbance to wildlife as a result of noise associated with construction activities, particularly during breeding periods.

More specifically, candidate and confirmed SWH and potential SAR habitat is present within the Project Location. However, direct impacts are only proposed to the current agriculture and business/residential areas (no SWH or SAR habitat). Further, the habitat (associated with the wetland complex) is within the Greenbelt and there will be a prescribed Vegetation Protection Zone (VPZ) between the proposed development and the natural features, so impacts to wildlife as a result of the development are not anticipated with the implementation of mitigation measures outlined in **Section 9.0**.

Mitigation measures to avoid impacts to wildlife are discussed in **Section 9.3**.

8.1.2 Tree Removal

Proposed tree removal will be limited to individual trees around the existing gas station and residential property at Highway 50. Tree removal will result in a minimal reduction of tree and vegetation cover, minimal general wildlife habitat loss, and alteration of soil conditions. On a site level, the impacts of tree removal may include:

- Direct loss of trees
- Decreased floral species richness and abundance
- Loss of native seed banks
- Physical injury, root damage, and compaction of trees not intended for removal that may result from construction operations

Refer to **Sections 9.3** and **9.4** for mitigation measures related to tree removal.

8.1.3 Diversion of Surface Water Flows and Stormwater Management

The potential impacts of changes to land use and land cover on the health of a watershed have been well documented and can include changes to groundwater infiltration, run off, stream flow regime, water quality, stream channel erosion, and wildlife habitat (TRCA, 2008). More specifically, changes may include:

- Direct “footprint” effects such as the loss of natural land cover or destruction of built heritage features.
- Indirect “flow related” effects such as increased frequency of high stream flows, accelerated stream channel erosion and deterioration of water quality.
- Cumulative effects such as changes in aquatic community composition that may arise from a combination of changes affecting upstream areas (North-South Environmental, 2009).

Of the 11 HDF’s identified within the Study Area, the three that are recommended for conservation are within the Greenbelt and other key natural heritage and hydrologic features and will be retained. The remaining seven are recommended for mitigation and based on the function of these HDF’s (i.e., conveyance of surface flow only). Potential negative impacts as a result of their removal are not expected so long as mitigation measures are implemented. The function of these HDF’s will be maintained through the implementation of the SWM system.

Refer to **Section 9.1** for mitigation measures related to SWM.

8.1.4 Erosion and Sedimentation into Natural Features

Construction activity, especially operations involving the handling of earthen material, increases the availability of sediment for erosion and transport via surface drainage. Due to the anticipated reduction in infiltration rates post-development, there is the potential for natural features within the area to be impacted as a result of the development if construction best management practices are not implemented.

Potential impacts to these features may include, but are not limited to:

- Reduced water quality and degradation of nearby watercourses.
- Disturbance to or loss of additional vegetation due to the deposition of dust and/or overland mobilization of soil.

Due to the potential impacts, control measures must be selected that are appropriate for the erosion potential of the site and it is important that they be implemented and modified on a staged basis to reflect the site activities. Furthermore, their effectiveness decreases with sediment loading and therefore inspection and maintenance is required.

Refer to **Section 9.2** for mitigation measures related to erosion and sedimentation.

8.2 Potential Indirect Impacts

Potential indirect impacts are those that do not always manifest in the core development area, but in the lands adjacent to the development. Indirect impacts can begin in the construction phase; however, they can continue post-construction. Typical indirect impacts from the proposed development include increased anthropogenic disturbance and colonization of non-native and/or invasive species.

8.2.1 Anthropogenic Disturbance

Disturbance to local wildlife communities due to indirect impacts on the surrounding/adjacent lands to the proposed development could result if left unmitigated. Noise, light, vibration, and human presence are potential indirect impacts that can adversely influence the population size and breeding success of local wildlife. These effects are more pronounced when new development is introduced in non-urban areas. Although lands within the Study Area are already disturbed by anthropogenic land uses, mitigation measures that further address anthropogenic disturbance have been included in **Section 9.3**.

8.2.2 Colonization of Non-native and/or Invasive Species

Physical site disturbance may increase the likelihood that non-native and/or invasive flora species will be introduced to the surrounding vegetation communities. Non-native and invasive flora can establish

in disturbed sites more efficiently than native flora and can then encroach into adjacent undisturbed areas. This type of colonization is currently occurring within the Project Location. In order to maximize ecological function on adjacent lands, removal of invasive species paired with planting of native tree and shrub species is recommended.

9.0 Mitigation and Opportunities for Enhancement

Mitigation involves the avoidance or minimization of development impacts through good design, construction practices, or restoration and enhancement activities. The feasibility of mitigation options has been evaluated based on the natural features within and adjacent to the Project Location. The impact assessment highlighted four potential direct impacts, which include loss of/disturbance to wildlife and wildlife habitat, tree removal, diversion of surface water flows and SWM, and erosion and sedimentation into natural features.

A variety of mitigation techniques can be used to minimize or eliminate the potential impacts noted above. These measures include a Functional Servicing and Stormwater Management Plan, Erosion and Sediment Control (ESC) Plan, Wildlife Impact Mitigation Plan, Natural Feature Buffers, and Environmental Monitoring Plan. Each mitigation measure recommended for the proposed development is introduced below.

9.1 Stormwater Management Plan

A Functional Servicing and Stormwater Management Report (FSR) has been prepared by Schaeffers Consulting Engineers (Schaeffers, 2026) for the development. The proposed strategy for SWM includes a dual-drainage system in which the minor system will be conveyed via storm sewers, and the major system will be conveyed via overland flow to two SWM ponds. The proposed grading plan will maintain the overall drainage pattern identified within the Bolton North Hill studies and direct runoff towards the proposed SWM facilities and receiving tributaries (Schaeffers, 2026).

The proposed SWM facilities consist of dry pond facilities with associated sediment forebays and sediment drying areas to facilitate long-term operation and maintenance. The eastern pond is proposed within the Protected Countryside of the Greenbelt, outside of the prescribed 30 m VPZs of key natural heritage and hydrologic features. As per Policies 4.2.1 and 4.2.3 of the Greenbelt Plan, SWM infrastructure is a permitted use within the Protected Countryside so long as it is located outside of key natural heritage and key hydrologic features and their respective 30 m VPZs. The current land use within this entire area is active agriculture with HDFs throughout the field. With development of a SWM block in this area, the land use will represent an improvement in habitat and connectivity to the NHS along the eastern Property boundary, providing natural vegetation plantings.

Water quality, erosion control, quantity control, and regional SWM requirements will be provided in accordance with applicable MECP, Town of Caledon, and TRCA criteria. The proposed grading design will maintain safe overland flow routes and minimize potential impacts to adjacent lands. The final pond configurations, outlet structures, storage volumes, and associated drainage channels will be confirmed during detailed design (Schaeffers, 2026).

As the site lies within a Significant Groundwater Recharge Area, best efforts should be made to match the pre-development annual infiltration volume under post-development conditions, utilizing Low-Impact Development (LID) measures, to be confirmed through detailed design (Schaeffers, 2026). In addition, four HDFs are proposed for removal that have been identified as “mitigation”. These features will have their functions replicated through a combination of LIDs, SWM, and best management practices.

9.1.1 Water Balance

A site water balance analysis was completed as part of the FSR (Schaeffers, 2026). Under pre-development conditions, the site produces an average annual runoff of 70,539 m³/year, infiltration of 47,026 m³/year, and evapotranspiration of 232,283 m³/year. Under post-development conditions (without mitigation), average annual runoff increases to 191,551 m³/year, infiltration decreases to 23,734 m³/year, and evapotranspiration is 134,563 m³/year. This results in an average annual infiltration deficit of 23,292 m³/year (Schaeffers, 2026).

Because of the high groundwater table present across the site, subsurface LID measures within the municipal right-of-way (ROW) are not considered feasible; however, rear yard infiltration trenches are proposed to mitigate the infiltration deficit. The rear yard infiltration trenches have been sized to capture the single-event runoff volume required to satisfy the post-to-pre annual infiltration deficit of 23,292 m³/year. The retained volume will be approximately 672 m³, which satisfies the 665 m³ retention requirement. The exact locations, configuration, and detailed design of the rear yard infiltration trenches will be provided with subsequent submissions and will be coordinated with the project hydrogeologist (Schaeffers, 2026).

9.1.2 Wetland Water Balance Risk Assessment

A Wetland Water Balance Risk Assessment was completed by Croziers with input from Dillon, and the wetland within the Study Area has been identified as high risk.

As the wetland receives drainage from the Study Area, pre-development monitoring of wetland hydrology is required per Wetland Water Balance Monitoring Protocol (TRCA, 2016). Crozier has

completed a preliminary hydrogeological investigation for the Subject Lands (April 2022), under separate cover, and future updates will include wetland and stream monitoring.

It is recommended monitoring of the wetlands continue throughout construction and post – construction to observe local conditions and detect in real-time any impact to the wetland communities.

9.2 Erosion and Sediment Control Plan

In order to mitigate the effects of construction on site, a comprehensive ESC strategy following the Erosion and Sediment Control Guideline for Urban Construction by Sustainable Technologies has been prepared by for the project by Scaheffers, 2026. The measures outlined in the 2026 FSR are as follows:

Erosion Control Measures

- **Phasing:** It is advantageous to reduce the limit of construction during the topsoil stripping phase in order to limit areas with soil exposure.
- **Stabilization:** Grading for construction generally requires the removal of topsoil immediately. If piled or stored on site, it must be stabilized immediately. It is also recommended that areas left unworked for longer than 30 days be stabilized. Possible measures are as follows:
 - Mechanical Seeding/Hydroseeding
 - Terra Seeding
 - Growth Media Blankets
- **Cut-off Swales:** To be designed as per ESC guidelines and stabilized accordingly.

Sediment Control Measures

- Siltation control perimeter fencing
- Double Silt Fence with Straw Bales
- Siltation Control Fence
- **Cut-off Swales:** To be designed as per ESC guidelines and stabilized accordingly
- **Flow distributors:** Silt Socks have been proposed as they provide ponding opportunities and energy dissipation, helping to slow down flow velocity and promote sediment settling in swales.
- **Sediment Traps:** Have been sized in accordance with ESC guidelines.
- **Temporary Sediment Ponds:** Shall be sized as per MECP Quality control guidelines. A design drawdown time of 48 hours is required.

9.3 Wildlife Impact Mitigation Plan

Strategies to mitigate impacts to general wildlife prior to and during construction are proposed. These may include (but are not limited to):

- Clearing trees and vegetation outside the breeding bird season (April 1 to August 31). Should any clearing be required during the breeding bird season, nest searches conducted by a qualified person must be completed 48 hours prior to clearing activities. If nests are found, work within 10 m of the nest should cease until the nest has fledged. If no nests are present, clearing may occur. This is in accordance with the federal *Migratory Birds Convention Act*.
- Clearing trees outside of the active bat window (March 15 - November 30).
- Schedule vegetation clearing and grading activities to avoid disturbance to breeding amphibians and other sensitive wildlife species where possible.
- Visual monitoring for wildlife species and avoidance where encountered if possible.
- If necessary, have a qualified biologist monitor construction in the areas of potential wildlife habitat. If wildlife are found within the construction area they will be re-located to an area outside of the development into an area of appropriate habitat, as necessary.
- Construction crews working on site should be educated on local wildlife and take appropriate measures for avoiding wildlife.
- Should an animal be injured or found injured during construction they should be transported to an appropriate wildlife rehabilitation center.

9.4 Natural Feature Buffers

The role of a buffer (or VPZ as defined in the Greenbelt Plan) is to protect important natural features from the adverse effects of nearby development. To protect the retained Castlederg Wetland Complex, a 30 m VPZ is proposed from the mapped wetland dripline (**Figure 5**). The wetland complex including the 30 m VPZ falls within the Greenbelt area, and no development is proposed within this setback. Further, a 10 m VPZ from the staked dripline is proposed for the woodland area in the northern corner of the Project Location as part of this development application (**Figure 5**).

A planting plan will be required for the VPZ to establish robust native vegetation, increasing the quality of habitat within the VPZ and provide protection to plants and wildlife utilizing the wetland feature.

The planting plan may include, but is not limited to:

- A mix of native deciduous and coniferous trees and shrubs throughout the parks, open spaces and boulevards.
- A mix of native tree and wetland species within and adjacent to the stormwater pond.

- Native wetlands seed mix for wetland community VPZ.
- A mix of native deciduous and coniferous trees and shrubs for the woodland community VPZ.

The following monitoring and maintenance measures may also be recommended for within the vegetation protection zones and enhancement areas:

- Removal of invasive tree and shrubs, where applicable.
- Root, stem, seed or other parts of invasive species that are disturbed, removed or otherwise managed should be collected and properly disposed of in landfill offsite and such material may not be mulched, composted, slash-piled or in any other way reused or dispersed onsite or in nearby areas, especially natural areas to mitigate potential for invasive species propagation.
- Watering and weeding of newly planted areas as required for proper establishment of plantings.
- Replacement of dead material from previous year's planting.

9.5 Environmental Monitoring Plan

The Environmental Monitoring Plan (EMP) will be developed and carried out by the contractor through the duration of construction activities on-site to ensure that the erosion and sediment control measures operate effectively and to monitor the potential impact, if any, upon the natural environment. The duration of construction is defined as the period of time from the beginning of earthworks until the site is stabilized. Site stabilization is defined as the point in time when the roads have been paved, buildings have been built, lawns have been sodded and restoration plantings have been completed.

The EMP would consist of monitoring the erosion and sediment measures and the vegetation protection zone plantings. Erosion and sediment control measures would be regularly monitored, and they will require periodic cleaning (i.e., removal of accumulated silt), maintenance and/or re-construction. Inspections of all the erosion and sediment controls on the construction site should be undertaken by a certified sediment and erosion control monitor. If damaged control measures are found, they should be repaired and/or replaced promptly. Site inspection staff and construction managers should refer to the *Erosion and Sediment Control Inspection Guide* (2008) prepared by the Greater Golden Horseshoe Area Conservation Authorities. This guide provides information related to the inspection reporting, problem response and proper installation techniques.

The EMP will be implemented during active construction periods in the development area with the following frequency:

- On a bi-weekly basis
- After every 10 mm or greater rainfall event.

Restoration planting and protected vegetation areas will require periodic monitoring to ensure that they are not impacted by adjacent development. Should any impacts be observed, necessary steps will be taken to ensure that the impacted vegetation is either restored or replaced.

10.0 Policy Conformity

Based on the information presented in this report applicable provincial and municipal policies related to natural heritage features have been met. Each of the applicable policies outlined in **Section** Error! Reference source not found. have been summarized in **Table 8** below.

Table 8: Policy Conformity Table

Policy	Demonstrated	Required Actions
Provincial Planning Statement (2024): Natural Heritage 4.1: <i>"Development and site alteration shall not be permitted in:</i> <i>a) Significant wetlands in Ecoregions 5E, 6E and 7E1; and</i> <i>b) Significant coastal wetlands.</i> <i>Development and site alteration shall not be permitted in:</i> <i>a) Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E1;</i> <i>b) Significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)1;</i> <i>c) Significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)1;</i> <i>d) Significant wildlife habitat;</i> <i>e) Significant areas of natural and scientific interest; and</i> <i>f) Coastal wetlands in Ecoregions 5E, 6E and 7E1 that are not subject to policy 4.1.4(b)</i> <i>Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.</i> <i>Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with</i>	No encroachment within natural heritage features (i.e., Significant Woodlands, wetlands, watercourses) is proposed. Further, buffers will be added to protect features from adjacent impacts in accordance with applicable provincial and municipal policies outlined below.	No action required.

<i>provincial and federal requirements.</i> <i>Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 4.1.4, 4.1.5, and 4.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.</i> Water 4.2: <i>Development and site alteration shall be restricted in or near sensitive surface water features and sensitive ground water features such that these features and their related hydrologic functions will be protected, improved or restored, which may require mitigative measures and/or alternative development approaches.</i>		
<i>Species Conservation Act (2025):</i> The purpose of the SCA is to identify Species at Risk (SAR) based on the best available scientific information; to protect SAR and their habitats, to promote the recovery of SAR; and to promote stewardship activities to assist in the protection and recovery of SAR in Ontario.	The potential for SAR was considered through field work in 2021 and 2022. While no specific SAR were identified on-site, there is potential for SAR bats to be present within buildings proposed for removal.	The presence of SAR bats within structures will be confirmed and addressed prior to removal.
Greenbelt Plan (2017): The Greenbelt Plan defines key natural heritage features within the Natural Heritage System as: a) Habitat of endangered species and threatened species;	Features within the Study Area which include the Greenbelt Protected Countryside have been considered through this NHE and appropriate VPZs	No action required.

b) Fish habitat; c) Wetlands; d) Life science Areas of Natural and Scientific Interest (ANSIs); e) Significant valleylands; f) Significant woodlands; g) Significant wildlife habitat; h) Sand barrens, savannahs and tallgrass prairies; and i) Alvars. The Greenbelt Plan defines key hydrologic features within the Protected Countryside as: a) Permanent and intermittent streams; b) Lakes (and their littoral zones); c) Seepage areas and springs; and d) Wetlands. The ROP directs the Town of Caledon to include policies in their official plans to prohibit development and site alteration in key natural heritage features and key hydrologic features and in any associated vegetation protection zone in accordance with the policies of the Greenbelt Plan, including policies that require: a) The vegetation protection zone to be a minimum of 30 metres measured from the outside boundary of wetlands, seepage areas and springs, fish habitat, permanent and intermittent streams, lakes and significant woodlands; and b) That applications for new development or site alteration within 120 metres of a key natural heritage feature within the Natural	have been applied to demonstrate no negative impacts to key natural heritage and hydrologic features of the Greenbelt. Further, SWM infrastructure is proposed within the Protected Countryside, which is a permitted use, provided the VPZs are respected. There will be no encroachment into the 30 m VPZ of the natural features in this area and the establishment of a SWM pond will represent an enhancement in habitat and connectivity within the NHS, establishing a natural vegetation community in an area that is currently agricultural. A SWM report has been prepared by Schaeffers, 2026 to address the requirements outlined in 4.2.3, which include use of LIDs to address infiltration within the site.	
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Heritage System or a key hydrologic feature anywhere within the Protected Countryside Area include the submission of a natural heritage evaluation or hydrologic evaluation in accordance with the requirements of the Greenbelt Plan. <i>"4.2.1 For lands falling within the Protected Countryside, the following policies shall apply:</i> <i>1. All existing, expanded or new infrastructure subject to and approved under...the Planning Act... is permitted within the Protected Countryside, subject to the policies of this section and provided it meets one of the following two objectives:</i> <i>b) It serves the significant growth and economic development expected in southern Ontario beyond the Greenbelt by providing for the appropriate infrastructure connections among urban centres and between these centres and Ontario's borders.</i> <i>2. The location and construction of infrastructure and expansions, extensions, operations and maintenance of infrastructure in the Protected Countryside are subject to the following:</i> <i>a) Planning, design and construction practices shall minimize, wherever possible, the amount of the Greenbelt, and particularly the Natural Heritage System and Water Resource System, traversed and/or occupied by such infrastructure;</i> <i>b) Planning, design and construction practices shall minimize, wherever possible, the negative impacts on and disturbance of the existing landscape, including, but not limited to, impacts caused by light intrusion, noise and road salt;</i> <i>c) Where practicable, existing capacity and co-ordination with different infrastructure services shall be optimized so that the rural and existing character of the Protected Countryside and the overall hierarchy of areas where growth will be accommodated in the GGH established by</i>		
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<i>the Greenbelt Plan and the Growth Plan are supported and reinforced;</i> <i>d) New or expanding infrastructure shall avoid key natural heritage features, key hydrologic features or key hydrologic areas unless need has been demonstrated and it has been established that there is no reasonable alternative;...”</i> 4.2.3 Stormwater Management and Resilient Infrastructure Policies <i>“In addition to the policies of section 4.2.1, for stormwater management infrastructure in the Protected Countryside the following policies shall apply:</i> <i>1. Planning, design and construction of stormwater management infrastructure shall be carried out in accordance with the policies in subsection 3.2.7 of the Growth Plan.</i> <i>2. Municipalities shall assess infrastructure vulnerability within Towns/ Villages in accordance with policy 3.2.1.4 of the Growth Plan.</i> <i>3. Stormwater management systems are prohibited in key natural heritage features, key hydrologic features and their associated vegetation protection zones. The determination of appropriate vegetation protection zones shall be defined in accordance with sections 3.2.5.4 and 3.2.5.5 of this Plan, which consider the area and nature of the feature being protected and the nature of the proposed stormwater management system.</i> <i>4. Applications for development and site alteration in the Protected Countryside shall be accompanied by a stormwater management plan which demonstrates that:</i> <i>a) Planning, design and construction practices will minimize vegetation removal, grading and soil compaction, sediment erosion and impervious surfaces;</i> <i>b) An integrated treatment approach will be used to minimize</i>		
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<i>stormwater flows and mimic natural hydrology through lot level controls, low impact development and other conveyance techniques;</i> <i>c) Applicable recommendations, standards or targets within a subwatershed plan or equivalent and water budgets will be complied with; and</i> <i>d) Applicable objectives, targets, and any other requirements within a stormwater master plan will be met in accordance with the policies in subsection 3.2.7 of the Growth Plan.</i> <i>5. The objectives of a stormwater management plan are to avoid, or if avoidance is not possible, minimize and mitigate stormwater volume, contaminant loads and impacts to receiving water courses in order to:</i> <i>a) Maintain groundwater quality and flow and stream baseflow;</i> <i>b) Protect water quality;</i> <i>c) Minimize the disruption of pre-existing (natural) drainage patterns wherever possible;</i> <i>d) Prevent increases in stream channel erosion;</i> <i>e) Prevent any increase in flood risk; and</i> <i>f) Protect aquatic species and their habitat."</i>		
Peel Region OP: Based on the 2022 ROP, and relating specifically to the environment, the Project Location and Study Area is designated as containing watercourses (permanent or intermittent streams)(Schedule A-1), Highly Vulnerable Aquifers (Schedule A-2), Significant Groundwater Recharge Areas (Schedule A-3), Urban and Rural System Outside ORMCPA (Schedule B-3), Natural Linkage Area (Schedule B-3),	The NHE considers and addresses all natural heritage features within the Study Area and had provided mitigation recommendations based on the Greenbelt or Town of Caledon OP, which also	No action required.

Protected Countryside (Natural Heritage System) of the Greenbelt (Schedule B-5) and Greenlands System Overlay (Schedule C-1). In Section 2 of the ROP, the Region directs the Town of Caledon to provide policies in their OP for development related to key natural heritage features and key hydrologic features of both the ORMCP and Greenbelt Plan, as well as natural heritage features within Urban boundaries.	address the requirements of the ROP.	
Future Caledon OP: The Project Location and Study Area have been designated as New Community Area, Rural Lands and Natural Features and Areas in the Land Use Designation Schedule (B4). There are also designations of Natural Heritage System of the Protected Countryside of the Greenbelt, Agricultural Area and Rural Lands, and Natural Linkage Areas of the ORM in various other schedules. Schedule D1 (Natural Environment System) also suggests the presence of Permanent and Intermittent Streams and Supporting Features and Areas within the Study Area (Appendix B). Schedule D2b, New Urban Area Preliminary Natural Environment System shows Permanent and Intermittent Streams within the Study Area. In accordance with Section 13.3.1 of the Future Caledon OP, the Natural Features and Areas designation includes the following: a) <i>PSW;</i> b) <i>Woodlands meeting one or more criteria for Core Area woodland on Table 1 of the ROP;</i>	All natural heritage features within the Study Area have been considered and addressed in accordance with the Future Caledon OP. There is no development proposed within significant natural heritage features or their buffers. Encroachment into HDFs will be mitigated through the SWM strategy to replicate current functions.	No action required.

c) <i>Significant valleylands;</i> d) <i>Environmentally Sensitive or Significant Areas;</i> e) <i>Provincial Life Science Areas of Natural and Scientific Interest;</i> f) <i>The Escarpment Natural Area designation of the Niagara Escarpment Plan; and,</i> g) <i>Valley and stream corridors meeting one of more of the criteria for Core Area valley and stream corridors in Table 2 of the ROP.</i> Development and site alteration within the Natural Features and Areas designation is not permitted except for: a) Forest, fish and wildlife management; b) Conservation and flood erosion control project, but only if they have been demonstrated to be necessary in the public interest and after all reasonable alternatives have been considered; c) Essential infrastructure exempted, pre-approved or authorized under and environmental assessment process; d) Passive recreation; e) Minor development and minor site alteration f) Existing uses, buildings or structures; g) Expansions or alterations to existing buildings or structures; h) Accessory, uses, buildings, structures; and, i) A new single residential dwelling on an existing lot of record... As per Section 13.3.5. of the Future Caledon OP, a proposal for new development or site alteration adjacent to a feature in the Natural Features and Areas designation outside of the Greenbelt Natural Heritage System and outside of the ORMCP and Niagara Escarpment		
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Plan areas will require an environmental impact study and/or hydrologic evaluation to determine that there will be no negative impacts on the feature, ecological function and/or hydrologic function in accordance with the adjacent lands distances outlined in Table 13-1 and prepared to the satisfaction of the Town. Supporting Features and Areas overlay designation includes the following: a) <i>Evaluated non-PSW wetlands;</i> b) <i>Unevaluated wetlands;</i> c) <i>Woodlands meeting one of more of the criteria for a Natural Areas and Corridors woodland in Table 1 of the ROP;</i> d) <i>Cultural woodlands and cultural savannahs within the Urban System meeting one or more of the criteria for a Potential Natural Area and Corridor woodlands in Table 1 of the ROP;</i> e) <i>Any other woodland greater than 0.5 hectares that does not meet the criteria for a Natural Area and Corridors woodland in Table 1 of the ROP;</i> f) <i>Significant wildlife habitat meeting one or more of the criteria in the MNRF significant wildlife habitat technical guide, but located outside of a provincial plan area;</i> g) <i>Fish habitat;</i> h) <i>Habitat of aquatic SAR;</i> i) <i>Habitat of endangered and threatened species;</i> j) <i>Regionally significant Life Science Areas of Natural and Scientific Interest;</i>		
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k) <i>Provincially significant Earth Science Areas of Natural and Scientific Interest;</i> l) <i>Regionally significant Earth Science Areas of Natural and Scientific Interest;</i> m) <i>The Escarpment Protection Area designation of the Niagara Escarpment Plan;</i> n) <i>Any other valley and stream corridor that have not been defined as meeting one or more of the criteria for Core Area valley and stream corridors in Table 2 of the Region of Peel Official Plan;</i> o) <i>Sensitive head water areas and sensitive groundwater discharge areas;</i> p) <i>Sensitive groundwater recharge areas;</i> q) <i>Enhancement areas;</i> r) <i>Linkages;</i> s) <i>Vegetation protection zones identified in Provincial plans and buffers outside of Provincial plan areas;</i> t) <i>Savannahs; and,</i> u) <i>Alvars.</i> No development or site alteration will be permitted within the Supporting Features and Areas overlay designation unless it has been demonstrated to the satisfaction of the Town that there will be no negative impacts on the feature or their ecological functions and/or hydrological functions.		
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A proposal for new development within these areas will require an environmental impact study to be confirmed through consultation with the Town. Section 13.8 of Future Caledon includes requirements for minimum buffers to natural heritage features on lands not subject to Sections 13.5, 13.6, 13.7, and 13.9, as follows: • Life Science Areas of Natural and Scientific Interest 15 metres • Valleyland (significant) 15 metres • Wetland 30 metres • Wildlife habitat (significant) 15 metres • Woodland (significant) 20 metres • Woodlands meeting one or more of the criteria for a Natural Areas and Corridors woodland in Table 1 of the Region of Peel Official Plan 15 metres • Other woodlands 10 metres Section 13.9.4 of Future Caledon states that <i>buffers in the New Community Areas and New Employment Areas shown on Schedule F1, Urban System, are to be informed by both existing conditions and sensitivities, and the anticipated impacts that a buffer is being used to mitigate. Where possible, opportunities to address impacts (avoid, minimize) 'at-source' through siting and design for land uses should be considered as part of a layered approach to mitigation.</i> <i>This approach will reduce the overall impact of developments, encourage sustainable design and support development of resilient system(s) and communities.</i>		
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<i>13.9.5 Based on the above, minimum buffer widths will be established in local subwatershed or equivalent studies prepared to the satisfaction of the Town to support secondary planning and development in New Community Areas and New Employment Areas. The minimum buffer widths will be established as part of an initial assessment of the general land uses contemplated adjacent to the Natural Environment System and the significance of any of the components of the Natural Environment System being studied.</i> <i>13.9.6 The final buffer width within New Community Areas and New Employment Areas will be determined through an environmental impact study, prepared to the satisfaction of the Town, at the development stage when additional information is available to determine the nature of adjacent uses and related impacts on the Natural Environment System and may include increases or decreases to the buffer widths identified through the secondary planning process. When determining the final buffer width, consideration will be given to the following matters:</i> <i>a) Enhancement and mitigation opportunities such as vegetative planting within the buffers or fencing on abutting lands;</i> <i>b) Achieving adequate buffers to stormwater management components, which may necessitate wider buffer widths;</i> <i>c) The intensity of the abutting land uses as illustrated through specific plans for such uses (i.e., grading, setbacks, maintenance, servicing, built form including height, location of buildings and structures and other activities); and,</i> <i>d) The ecological functions, characteristics, significance and sensitivity of the feature the buffer is required from.</i>		
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TRCA: In accordance with Section 28 of the <i>Conservation Authorities Act, 1990</i>, the Toronto and Region Conservation Authority (TRCA) is authorized to implement and enforce the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (Ontario Regulation 41/24). Section 2(1) of this Regulation lists areas within TRCA's jurisdiction where development is prohibited without proper permissions from the TRCA. Such areas include, but are not limited to, river or stream valleys, hazardous lands, and wetlands.	The Study Area for the proposed development falls within the regulated limits of the TRCA.	Permit will be required from TRCA.
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11.0 Summary

This NHE was prepared to support a Draft Plan Application to the Town of Caledon for the property located at 14475 Highway 50. The NHE was required due to the presence of natural heritage features designated by the Town of Caledon, Region of Peel and the Greenbelt Plan within the Study Area boundaries, and therefore, potential to be impacted by development activities. The findings of the biophysical inventory, which consisted of secondary source reviews supported by multiple field studies completed in 2021 and 2022 as part of the BNHSP study, are presented in this NHE.

The majority of lands within the Study Area consist of agricultural lands and rural residential. There are PSWs and Significant Woodlands within the Greenbelt which will be protected from development, with establishment of a 30 m VPZ as per the policies of the Greenbelt Plan, and the Town, along with enhancement through planting of native species within VPZ. There are also several HDFs that will be retained or mitigated through the SWM plan.

Potential ecological impacts of development may include loss of/disturbance to wildlife habitat, tree and vegetation removal, diversion of surface water flows, and erosion and sedimentation into natural features. These impacts will be avoided or minimized by implementing the mitigation, restoration, and management measures described in this report.

Appendix A

Terms of Reference

Memo

To: Planning Department, Toronto and Region Conservation Authority
Eric Lucic, Commissioner of Planning and Development Services, Town of Caledon

From: Luc Goulet, Dillon Consulting Limited
Whitney Moore, Dillon Consulting Limited

cc: Marco Marcante, Royal Pine Homes

Date: April 20, 2026

Subject: Natural Heritage Evaluation (NHE) Terms of Reference for the Proposed Development located at 14475 Highway 50, Bolton, Town of Caledon, Ontario

Our File: 26-3211

Introduction

Dillon Consulting Limited (Dillon) has been retained by Royal Pine Homes (the Client), to undertake environmental studies to support the proposed development for the parcel located at 14475 Highway 50, Bolton (the Property), in the Town of Caledon, Ontario (the Town). The Property and adjacent lands within 120 metres (m) of its boundary are considered the “Study Area” (**Figure 1**). The Property primarily consists of agricultural land use. Natural communities present to the south and east include a watercourse associated with Castlederg Wetland Complex, a Provincially Significant Wetland (PSW) and the Humber River. These natural heritage features are mapped as part of the Town’s Natural Heritage System under Schedule D1 of the Town Official Plan (OP; 2025) and as part of the Protected Countryside of the Greenbelt Plan. The watercourse is also within the regulated area of Toronto Region Conservation Authority (TRCA).

Due to the presence of these natural features adjacent to the Property, a Natural Heritage Evaluation (NHE) is required as outlined in the Town OP. In order to meet regulatory requirements while maximizing developable area, it is necessary to provide site-specific information according to the current standards of the Town and TRCA for the purposes of assessing development impacts. Please note that field data collection was conducted in 2021 and 2022 for these areas in support of the Bolton North Hill Secondary Plan for the Town and will be used to inform the NHE for the Property.

We present the Terms of Reference (TOR) in a checklist format that will clearly define the scope of work and align expectations for the NHE with the Town and TRCA prior to the commencement of work, to facilitate a stream-lined and timely review process.

Thank you in advance for establishing these TOR with the project team. Please do not hesitate to contact me with any questions.

Yours sincerely,

DILLON CONSULTING LIMITED

Luc Goulet

Luc Goulet, MSc.

Biologist



ROYAL PINE HOMES

14475 Highway 50

NHE ToR
FIGURE 1: PROJECT LOCATION

Project Location (40.45 ha)

Study Area (120m Buffer)

Highway

Major Road

Minor Road



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR, ONTARIO GEOHUB, ESRI

MAP CREATED BY: -EES
MAP CHECKED BY: -LG
MAP PROJECTION: NAD 1983 UTM Zone 17N

SCALE 1:6,000

0 0.05 0.1 0.2 km

PROJECT: 26-3211 STATUS: DRAFT DATE: 2026-04-14



Terms of Reference

General Policies

- ☒ The proposed work plan described below must be undertaken by a qualified professional in environmental or related sciences to provincial standards and/or the satisfaction of the Town and/or TRCA.
- ☒ A visit to the site may be required by the Town and/or TRCA prior to, during, or upon receipt of the NHE.
- ☒ The NHE will describe and illustrate the boundaries of the Study Area, along with existing land use and details regarding the type of development.
- ☐ The staking of significant natural features (i.e., woodlands, wetlands etc.) by the Town and/or TRCA may be required. Staking will generally occur between the end of May and the end of October. Any staking that occurs outside of this time may require a confirmatory visit between May and October.

Note: Staking of natural features including wetlands and woodlands was completed on June 8, 2022.

Municipal and Agency Requirements

- ☒ The NHE will include the zoning and the designations of the Official Plan(s) pertaining to the Property. This includes any land use designations from other municipal planning and/or policy documents, such as Secondary Plans.
- ☒ Land use designations from any other applicable planning documents (i.e., Oak Ridges Moraine, Greenbelt Plan, etc.) will be clearly described and the limits identified in the report mapping.
- ☒ The NHE will outline relevant federal, provincial, municipal and agency legislation and policies related to the natural areas and designations that will be applied to the development, including but not limited to, the Provincial Policy Statement (PPS), TRCA Policies and Regulations, subwatershed studies, etc. that may be relevant to the Study Area.
- ☒ The NHE will describe relevant municipal and agency issues that must be addressed by this development (i.e., lot layout, grading, servicing etc.) that may negatively impact the natural features and functions of a site including but not limited to, stormwater management, barriers, municipal or private sanitary and water services, etc., based on information available from other disciplines.
- ☒ The NHE will describe the development proposal in relation to the existing natural features and functions on the Property and adjacent lands.

Existing Conditions

- ☒ The existing conditions of the Property must be clearly described and clearly mapped on aerial photographs.
- ☒ The description must include the zoning and all designations of all Official Plan(s) (OP) on the Property. This includes any land use designations from other municipal planning documents, such as Secondary Plans.
- ☒ Land use designations from any other applicable planning documents (i.e., Greenbelt Plan) must be clearly described and the limits identified in the mapping.
- ☒ The NHE shall identify the presence or absence of Natural Heritage System (NHS) features. The boundaries of features (if any) shall be confirmed in the field by the proponent, mapped on a figure in the report and approved by the Town.
- ☒ The presence or absence of designated environmental features (i.e., natural features identified in the OPs) must be identified in the mapping and described in the report.
- ☒ A description of the soils, landforms, and surficial geology based on a review of readily available mapping and literature must be described in the report. Available topographical information will be provided on constraints mapping and will include any staking done to date as well as the calculated hazard limits, if applicable.
- ☒ Hydrological and hydrogeological resources and issues, including wellhead protection areas, surface water features, recharge/discharge zones, meander belts, groundwater quality and quantity, groundwater elevations and flow directions, and connections between groundwater and surface water features will be identified in the report based on data from the consulting team, if it is available.

Biophysical Inventory

- ☒ The NHE will identify the extent of natural heritage features, should they be located within or adjacent to the Property (within 120 metres). Boundaries of natural heritage features will be confirmed in the field and mapped on a figure in the report as required.
Note: A site reconnaissance visit will be conducted to confirm that site conditions have not changed since the field work completed in 2021-2022.
- ☐ The extent of vegetation communities within the Study Area will be identified using the Ecological Land Classification (ELC) system to vegetation type, where possible. The communities will be identified in the mapping, using the appropriate ELC codes, as well as described in the text. As a component of the ELC, a plant list will be included in the report. The list will include an analysis for the presence of federal or provincial threatened or endangered species. This should include information from the NHIC.

Note: Vegetation communities for the Property and Study Area were previously defined in 2021 for the Bolton North Hill Secondary Plan. The existing conditions and ELC boundaries will be confirmed during a site visit conducted by Dillon as such additional ELC surveys are not proposed.

- ☐ In conjunction with the ELC, one summer botanical survey will be conducted to document vegetation within the Property. Vegetation species present will be noted and described in the report. The list must include an analysis for the presence of federal or provincial threatened or endangered species.

Note: A botanical inventory for the Property and Study Area was previously defined in 2021 for the Bolton North Hill Secondary Plan. The existing conditions will be confirmed during a site visit conducted by Dillon. Species identified will be compiled in the NHE and as such additional botanical surveys are not proposed for the field program.

- ☐ The NHE requires breeding bird surveys following the Ontario Breeding Bird Atlas protocols. The surveys must be conducted during the breeding bird season at an appropriate time of day in appropriate weather conditions and by a qualified professional. A minimum of two surveys are required, one in spring followed by one in summer, ensuring each follow generally accepted scientific protocols. A list of the breeding birds identified within the Study Area is to be included within the report. The list must include an indication of the presence of federal or provincial rare, threatened, or endangered species.

Note: Breeding bird surveys for the Property and Study Area were previously conducted in 2021 for the Bolton North Hill Secondary Plan. The existing conditions will be confirmed during a site visit conducted by Dillon, and incidental bird observations will be included into the NHE. It was determined that Significant Wildlife Habitat (SWH), and potential Species at Risk (SAR) habitat for bird species is not likely to exist within the Property due to the current land uses (agricultural field). Woodland and wetland (and potential SAR habitat and candidate SWH) are located off Property within the Study Area but are not anticipated to be directly impacted by the proposed development. As such no breeding bird surveys are proposed to occur for the field program.

- ☐ The NHE requires breeding amphibian surveys following the Marsh Monitoring Protocol. The survey must be conducted during the breeding amphibian season and by a qualified professional. For calling amphibians, a minimum of three surveys are required. These surveys must span the full amphibian breeding season to ensure that the peak periods of activity for early and late breeding species are accounted for. A list of the breeding amphibians present within the Study Area is required. The list must include an indication of the presence of federal, provincial, threatened, or endangered species.

Note: Amphibian surveys for the Property and Study Area were previously conducted in 2021 for the Bolton North Hill Secondary Plan. The existing conditions will be confirmed during a site visit conducted by Dillon, and incidental amphibian observations will be included into the NHE. It was determined that SWH and potential SAR habitat for amphibian species is not likely to exist within the Property due to the current land uses (agricultural field).

Woodland and wetland (and potential SAR habitat and candidate SWH) are located off Property within the Study Area but are not anticipated to be directly impacted by the proposed development. As such no amphibian surveys are proposed to occur for the field program.

- ☐ The NHE requires Headwater Drainage Feature (HDF) assessments consisting of two site visits generally following 'standard methods' outlined in the Evaluation, Classification, and Management of Headwater Drainage Features (Toronto Region Conservation Authority [TRCA] & Credit Valley Conservation [CVC]) (2014). During the first visit, the properties will be walked to inventory and assess any potential HDF's present within the Property boundaries, specifically focussing on areas identified in the desktop review. During the second site visit, data collection will be more focused on presence/absence as typically HDF's are dry or starting to dry up during these periods. If flow is present, the same field data will be collected as the first assessment to further inform hydroperiod as well as aquatic and terrestrial habitat potential, associated with HDFs within the Properties.

Note: HDF Surveys for the Property and Study Area were previously conducted in 2021 for the Bolton North Hill Secondary Plan. It is unlikely that these features have undergone any significant changes since the 2021 assessment. No additional HDF surveys are proposed.

- ☐ The NHE requires a snake survey. The survey will be completed based on our experience with requirements related to SAR in the area, where applicable, and conducted in accordance with generally accepted protocols described within Survey Protocol for Ontario's Species at Risk Snakes (OMNRF 2016).

Note: Snake habitat is not present within the Property (agricultural field). While suitable habitat may exist within the Study Area, there are no anticipated direct impacts to these areas due to the project, and so no designated snake surveys are proposed.

- ☐ An aquatic assessment will include a description of watercourses or other fish habitat within the Study Area.

Note: No watercourse present.

- ☐ The fisheries assessment will include community sampling through electrofishing and/or netting during the appropriate season, under a collection permit issued by the Ministry of Natural Resources and Forestry.

Note: No watercourse present.

- ☒ Incidental wildlife observed will be reported on and included in the report. The list will include an analysis for the presence of SAR and Species of Conservation Concern.
- ☒ Species at Risk habitat and Significant Wildlife Habitat assessment will be completed in tandem with the other surveys discussed above and included in the NHE report.
- ☒ All records of federally, or provincially rare, Threatened, or Endangered species observed during formal surveys or incidentally, will be submitted to the NHIC using the most up to date version of the Ontario Species at Risk Observation Reporting Form.

Biophysical Analysis

- ☒ A biophysical analysis of the Study Area describing the ecology of the natural heritage features and functions (including components of the natural heritage system) within and adjacent to the Study Area should be provided. The analysis may include ecological function, natural heritage features and landscapes, benefits of importance to humans, and corridors and linkages, as required. A figure is to be provided which clearly shows the limits of all features (including hazards), as well as their proposed setbacks and rationales.
- ☒ The biophysical analysis will address current policy, technical documents and legislation including but not limited to, the PPS (2024), Natural Heritage Reference Manual (2010), Significant Wildlife Habitat Technical Guide (2000), Significant Wildlife Habitat Ecoregion 6E Criteria Schedules (2015), etc.
- ☒ Mapping (at a minimum) shall consist of the following:
 - All mapping must have a title, figure number, north arrow, legend and scale or scale bar.
 - A site location map that provides the regional or watershed context of the Properties.
 - The extent of the Natural Heritage System and its components must be clearly demarcated on an air photo base, if applicable.
 - The locations of all watercourses and waterbodies if applicable.
 - The location of any rare, threatened, or endangered species and/or populations shall be identified, if appropriate.
 - Vegetation communities must be delineated and identified using ELC.
 - The location of any important wildlife features (i.e., hibernacula, den, stick nest, etc.) shall be identified.
 - The site plan and potential impacts.

Evaluation of the Ecological Impacts

- ☒ An assessment of the potential impacts to the features and functions of natural areas and natural heritage features (including the NHS and Linkages areas etc.) shall be identified and discussed.
- ☒ The NHE will meet the requirements of the PPS (2024) and the Caledon Official Plan (2025) in regard to no negative impacts on the NHS features and ecological functions.
- ☒ In the case of significant natural heritage features and other significant natural features (as confirmed through field studies), the NHE should demonstrate that there is no development or site alteration within the feature with the exception of uses as specified in the Official Plan and/or prior approvals. Any proposed development or site alteration within the feature(s) will be clearly identified and discussed in the NHE. The NHE should determine appropriate buffers from significant natural features.

- ☒ The NHE should include one or more figures which overlays the proposed development on the ecological constraints of the site. The analyses should determine the area(s) and type(s) of natural features and function that may be directly and/or indirectly impacted by the proposed development. Proposed buffers which will protect natural features and functions should be clearly shown on figures, and rationale for buffer distances provided.
- ☒ Relevant information from geotechnical and stormwater studies will be included, as necessary, to determine the potential impacts to the Properties natural features. Where hydrologically sensitive features may be impacted, a hydrological evaluation should be conducted to determine the pre and post-development water balance to ensure protection of these features through appropriate design of the proposed development including the use of low impact development approaches and appropriate stormwater management.
- ☒ An assessment of the potential impact on wildlife at a local, watershed and provincial (if applicable) level shall be provided using the Ecoregion 6E criterion schedules.
- ☒ If applicable, where natural features or natural vegetation communities are proposed for removal, the quantity of removal shall also be included.

Recommendations and Mitigation Measures

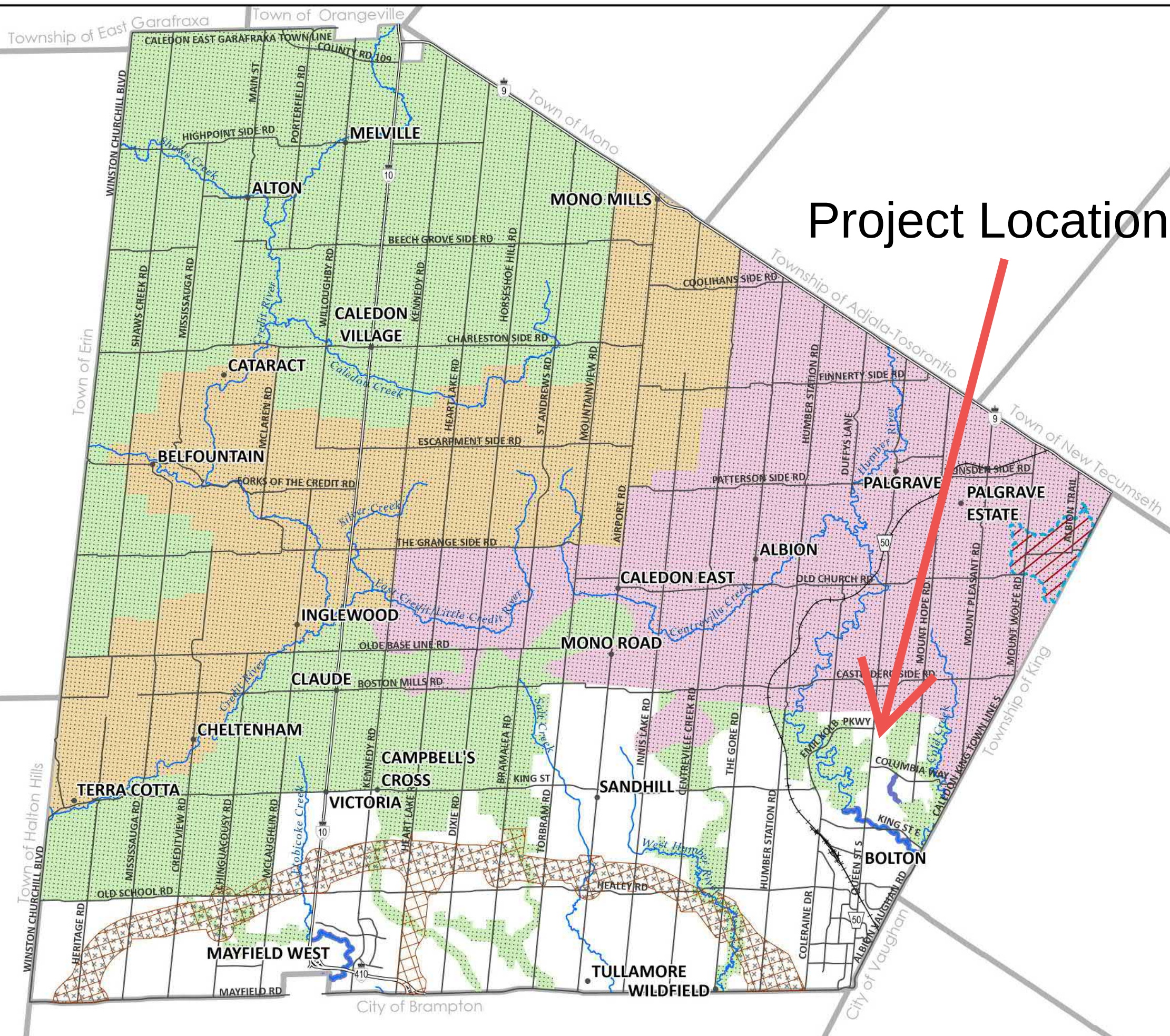
- ☒ Avoidance of NHS feature is the preferred approach to mitigation unless otherwise specified in the OP and/or prior approvals.
- ☒ The NHE will list and describe mitigation measures to eliminate or reduce negative impacts to the natural areas features and functions, including but not limited to, edge management plans, buffer plantings, sediment control, low impact designs (LID), etc.
- ☒ Recommendations for Best Management Practices during construction should be provided. This may include silt fencing, tree protection, fencing, identification of timing or seasonal constraints to construction or restoration, etc.
- ☒ The NHE will include a description of proposed compensation for impacts that cannot be avoided or mitigated, and propose restoration efforts for disturbed areas, if applicable.
- ☒ The NHE will include recommendations outlining how the proposed development will maintain or enhance the ecological functions of the natural area.
- ☒ Mitigation for negative impacts on the natural features or their ecological functions (or to achieve no net negative impact) may include, at the discretion of the Town/TRCA, approaches to replace lost areas or functions. If acceptable, replacement will, to the extent possible, occur within the same subwatershed as the proposed development or site alteration.
- ☒ If monitoring is required, the details of a monitoring program must be agreed to in writing by the Town and other relevant parties.

Conclusions

- ☒ The NHE will summarize the key finding of the report including the biophysical inventory and analysis, assessment of potential impacts, impact avoidance measures, mitigation measures, and opportunities for environmental enhancement. The conclusion will include a final recommendation to approve/not approve the development proposal based on the results of the study and identify conditions of approval required to achieve no negative impact.
- ☒ The NHE will address conformity with the policies and requirements of the Town of Caledon and the Region of Peel OPs, the TRCA, and of any other relevant and applicable planning documents (i.e., PPS, Natural Heritage Reference Manual, Greenbelt Plan etc.)

Appendix B

Background Mapping



Project Location

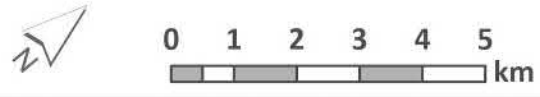


TOWN OF CALEDON
OFFICIAL PLAN

Schedule **A1**

Provincial Plan Areas

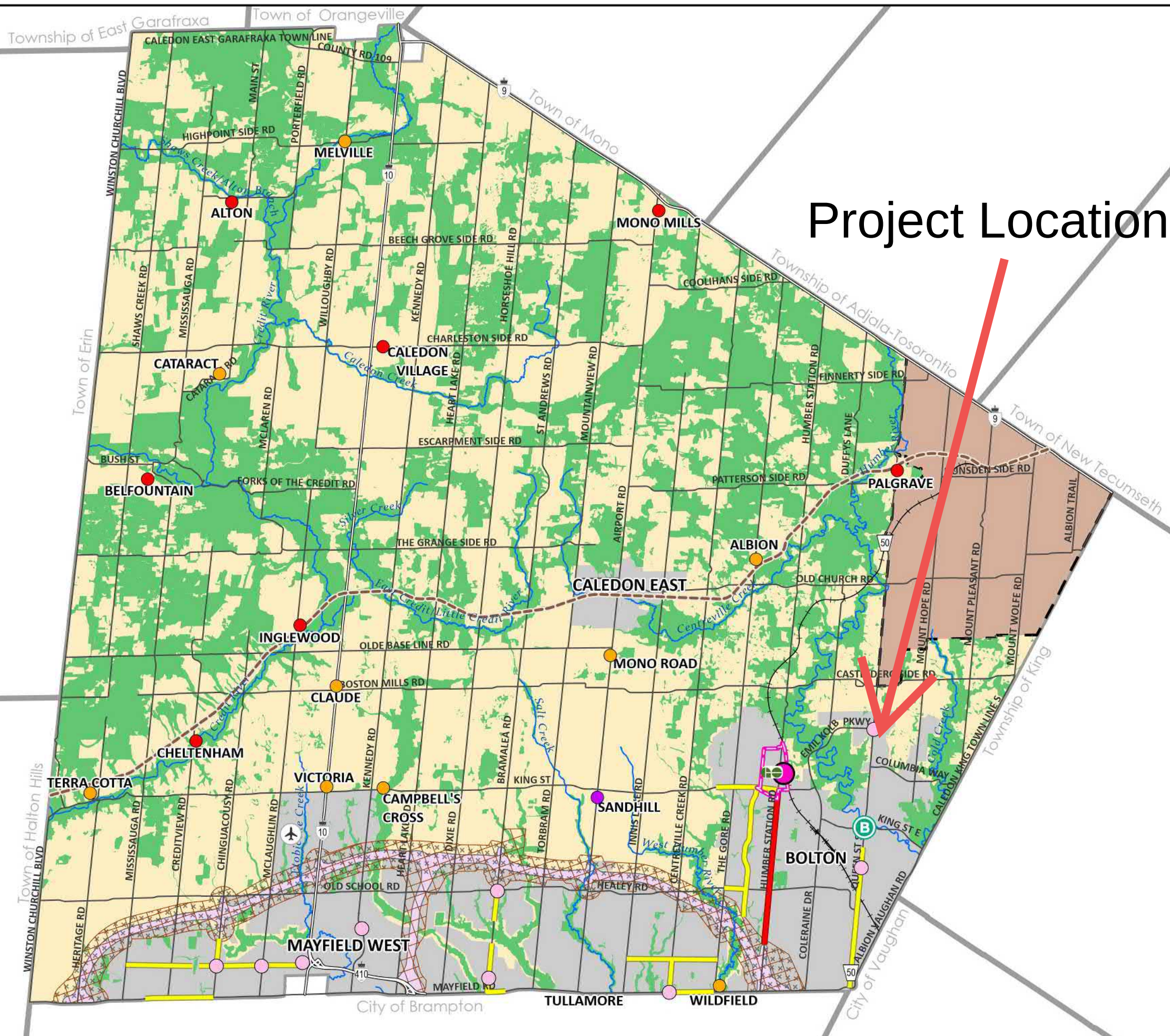
- Greenbelt Plan Boundary
- Urban River Valleys
- Protected Countryside
- Oak Ridges Moraine Conservation Plan Area
- Niagara Escarpment Plan Area
- Lake Simcoe Protection Plan Area
- Highway 413 Focused Analysis Area
(Source: Connecting the GGH: A Transportation Plan for the Greater Golden Horseshoe)
- NWGTA Transmission Corridor Narrowed Area of Interest



Date of print: 10/6/2025
Sources: Town of Caledon, Regional Municipality of Peel
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October 2025

This map forms part of the Future Caledon Official Plan of the Town of Caledon and must be read in conjunction with the text, other schedules and secondary plans. The boundaries/alignments of designations on this schedule are approximate and are not intended to be scaled.

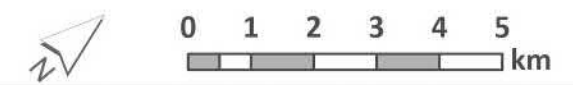


Project Location

Schedule B1

Town Structure

- Urban System**
- Brampton-Caledon Airport
 - Future Caledon GO Station
 - Downtown Bolton
 - Urban Centre
 - Neighbourhood Centre
 - Urban Corridor
 - Knowledge and Innovation Corridor
 - Primary Major Transit Station Area
 - Urban Area
- Rural System**
- Village
 - Hamlet
 - Rural Employment Centre
 - Palgrave Estate Residential Community
 - Agricultural Area and Rural Lands
- Natural Environment System**
- Natural Features and Areas
- Other Map Elements**
- Caledon Trailway
 - Planned Highway 413 Transportation Corridor
 - Highway 413 Focused Analysis Area
 - NWGTA Transmission Corridor
 - Narrowed Area of Interest



Schedule B3a

Land Use Designations Greenbelt Plan and Natural Heritage System

Project Location

 Natural Heritage System

Greenbelt Plan

 Greenbelt Plan Area

 Hamlet

 Towns and Villages

 Urban River Valleys

 Natural Heritage System (a component of Protected Countryside)

 Protected Countryside of the Greenbelt Plan

 Oak Ridges Moraine Conservation Plan

 Niagara Escarpment Plan

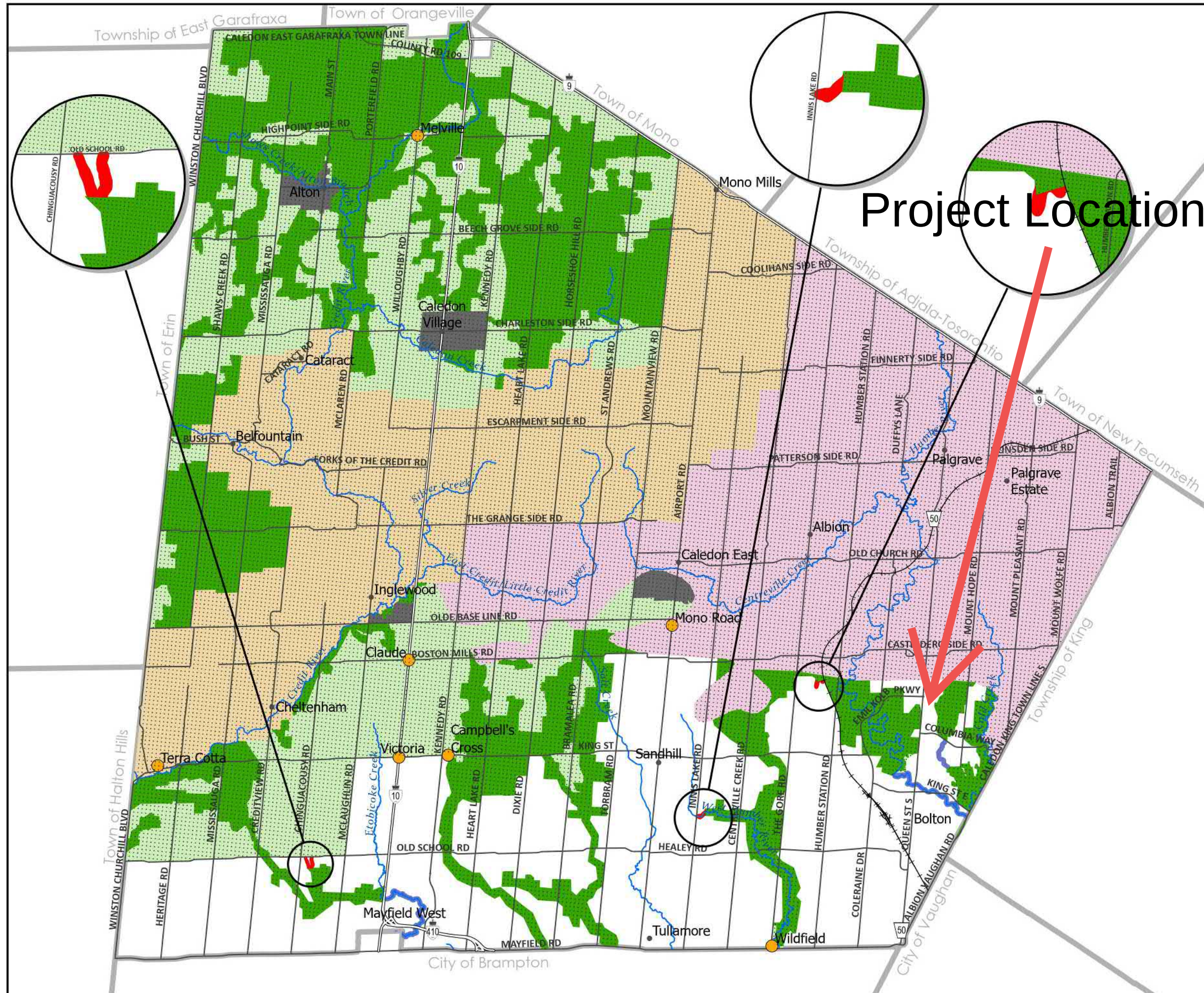


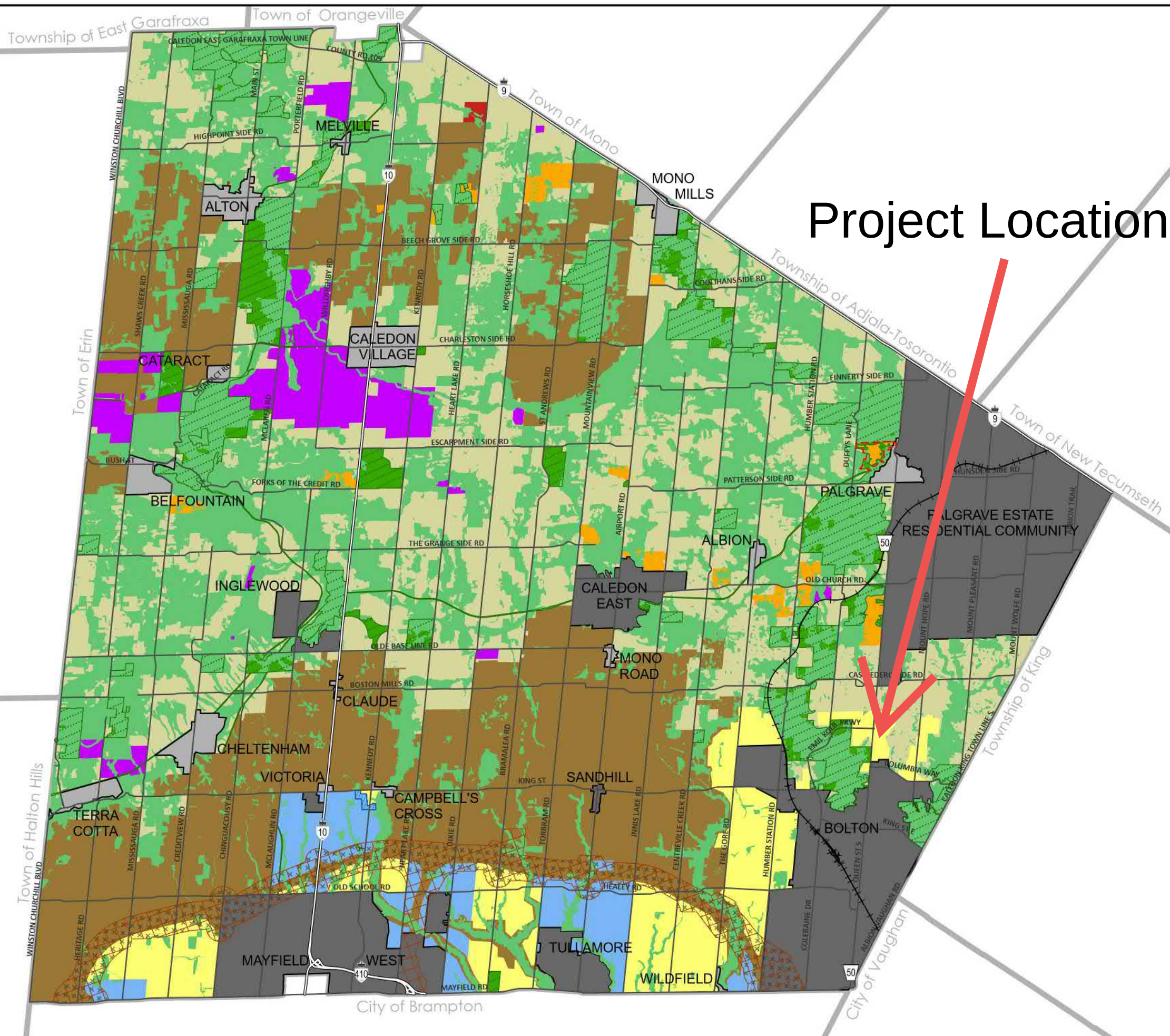
0 1 2 3 4 5
km

Date of print: 10/6/2025

Sources: Town of Caledon, Regional Municipality of Peel
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This map forms part of the Future Caledon Official Plan of the Town of Caledon and must be read in conjunction with the text, other schedules and secondary plans. The boundaries/alignments of designations on this schedule are approximate and are not intended to be scaled.





Project Location

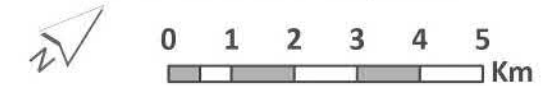
Schedule B4

Land Use Designations

- Land Use**
- Extractive Industrial Area
 - Rural Economic Development Area
 - Estate Residential Area
 - New Community Area
 - New Employment Area
 - Prime Agricultural Area
 - Rural Lands
 - Parks and Open Space
 - Natural Features and Areas
 - Campbell's Cross Transition Area

- Other Map Elements**
- Highway 413 Focused Analysis Area
 - NWGTa Transmission Corridor Narrowed Area of Interest
 - Reddington Retirement Community
 - See Schedules E2 to E11 for Land Use Designations
 - Refer to Part A, Section 1.2

Schedule B4 shall be read in conjunction with Schedule E1 and Policy 17.2.7 where Prime Agricultural Areas are also subject to the Natural Features and Areas Designation.



Appendix C

HDF Results

TABLE 1: RESULTS OF HDF ASSESSMENTS

DRAINAGE FEATURE	SITE VISIT	DATE OF FIELD WORK	FLOW ASSESSMENT	VEGETATION ASSESSMENT		CHANNEL FORM				SEDIMENT TRANSPORT		COMMENTS
			FLOW INFLUENCE (FI) / CONDITION (FC) / TYPE (FT)	RIPARIAN	TERRESTRIAL	AVERAGE BANKFULL WIDTH (m)	AVERAGE DEPTH (m)	AVERAGE WETTED WIDTH (m)	SUBSTRATE	SEDIMENT TRANS.	SEDIMENT DEP.	
BN-15	1	24-Mar-21	FI: Spring Freshet FC: Minimal Flow FT: Swale	Scrubland/ Meadow	Scrubland/ Cropped	2.0	0.20	1.0	Sa, Si	None	None	- Swale with flow originating from tile drain outlet - Follows along edge of agricultural field - Crosses Highway 50 through box culvert downstream into roadside ditch - Iron staining present - Photos 24-26
	2	20-May-21	FI: Baseflow FC: Minimal Flow FT: Swale	Scrubland/ Meadow	Scrubland/ Cropped	2.0	0.20	0.50	Sa, Si	None	None	- Dense Cattails (<i>Typha</i> sp.) in feature - Flow still present - Photo 27
	3	12-Aug-21	FI: Baseflow FC: Standing Water FT: Swale	Scrubland/ Meadow	Scrubland/ Cropped	2.0	0.20	0.30	Sa, Si	None	None	- No flow present - Feature contained standing water or was surface damp - Photo 28
BN-16	1	24-Mar-21	FI: Spring Freshet FC: Minimal Flow FT: No Defined Feature	Cropped	Cropped	2.0	0.05	2.0	Si, Sa	None	None	- Poorly defined feature within agricultural field - Outlets into large downstream pond - Photos 29-30
	2	20-May-21	Dry during 2 nd assessment									N/A
BN-17	1	24-Mar-21	FI: Spring Freshet FC: Substantial Flow FT: Defined Natural Channel	Forest/ Cropped	Forest/ Cropped	1.5	0.24	0.85	Sa, Si	Sheet erosion, Instream bank erosion	Minimal	- Flow originates from tile drain outlet - Flows into downstream wetland, connected to large pond - Photos 31-33
	2	20-May-21	FI: Baseflow FC: Minimal Flow FT: Defined Natural Channel	Forest/ Cropped	Forest/ Cropped	1.5	0.24	0.50	Sa, Si	Sheet erosion, Instream bank erosion	Minimal	- Minimal flow still present originating from tile drain outlet - Photo 34
	3	12-Aug-21	FI: Baseflow FC: Standing Water FT: Defined Natural Channel	Forest/ Cropped	Forest/ Cropped	1.5	0.24	0.60	Sa, Si	None	None	- Mostly dry channel with areas of standing water immediately downstream of tile drain outlet - Photo 35
BN-18	1	24-Mar-21	Not an HDF									- Low area in topography - No flow or feature observed - Photo 36

DRAINAGE FEATURE	SITE VISIT	DATE OF FIELD WORK	FLOW ASSESSMENT	VEGETATION ASSESSMENT		CHANNEL FORM				SEDIMENT TRANSPORT		COMMENTS
			FLOW INFLUENCE (FI) / CONDITION (FC) / TYPE (FT)	RIPARIAN	TERRESTRIAL	AVERAGE BANKFULL WIDTH (m)	AVERAGE DEPTH (m)	AVERAGE WETTED WIDTH (m)	SUBSTRATE	SEDIMENT TRANS.	SEDIMENT DEP.	
BN-19	1	24-Mar-21	FI: Spring Freshet FC: Minimal Flow FT: Channelized or Constrained	Cropped	Cropped	4.0	1.2	1.8	Si, Sa	Sheet erosion, Instream bank erosion	Minimal	- Channelized feature connecting large pond and small pond - Small pond outlets through mapped watercourse off accessible property - Photo 37
	2	20-May-21	FI: Baseflow FC: Minimal Flow FT: Channelized or Constrained	Cropped	Cropped	4.0	1.2	1.8	Si, Sa	Sheet erosion, Instream bank erosion	Minimal	- Minimal flow was observed - Photo 38
	3	12-Aug-21	FI: Baseflow FC: Dry FT: Channelized or Constrained	Cropped	Cropped	4.0	1.2	---	Si, Sa	None	None	- Channel was dry, water remains in ponds - Photo 39
BN-20	1	24-Mar-21	FI: Spring Freshet FC: Minimal Flow FT: Channelized or Constrained	Cropped	Cropped	2.0	0.8	0.2	Sa, Si	Sheet erosion, Instream bank erosion	Minimal	- Channelized feature formed due to tile drain outlets - Flowed into ponded area in agricultural field - Photo 40
	2	20-May-21	Mostly dry during 2 nd assessment with standing water downstream									- Mostly dry with standing water at tile drainage inlet and at ponded area - Photo 41
BN-21	1	24-Mar-21	FI: Spring Freshet FC: Minimal flow FT: No Defined Feature	Cropped	Cropped	1.5	0.05	1.5	Sa, Si	Sheet erosion	None	- Undefined feature that originates from ponded area in agricultural field - Continues into Reed Canary Grass (<i>Phalaria arundinacea</i>) wetland downstream but remains undefined - Photos 42-43
	2	20-May-21	Mostly dry during 2 nd assessment with standing water downstream									- Mostly dry with pockets of standing water - N/A
BN-22	1	24-Mar-21	FI: Spring Freshet FC: Standing Water FT: No Defined Feature	Cropped	Cropped	0.5	0.05	0.5	Sa, Si	Sheet erosion	None	- Undefined feature with standing water - Connects with BN-21 at downstream end - Photo 44
	2	20-May-21	Dry during 2 nd assessment									N/A
BN-23	1	24-Mar-21	FI: Spring Freshet FC: Minimal Flow FT: Channelized or Constrained	Cropped	Cropped	2.3	0.15	2.0	Sa, Si	Sheet erosion, Instream bank erosion	Minimal	- Channelized feature, likely continuation of pond outlet to the northwest - Continues into Reed Canary Grass wetland downstream where definition is lost - Photos 45-46

DRAINAGE FEATURE	SITE VISIT	DATE OF FIELD WORK	FLOW ASSESSMENT	VEGETATION ASSESSMENT		CHANNEL FORM				SEDIMENT TRANSPORT		COMMENTS
			FLOW INFLUENCE (FI) / CONDITION (FC) / TYPE (FT)	RIPARIAN	TERRESTRIAL	AVERAGE BANKFULL WIDTH (m)	AVERAGE DEPTH (m)	AVERAGE WETTED WIDTH (m)	SUBSTRATE	SEDIMENT TRANS.	SEDIMENT DEP.	
	2	20-May-21	FI: Baseflow FC: Minimal Flow FT: Channelized or Constrained	Cropped	Cropped	2.3	0.15	1.0	Sa, Si	Sheet erosion, Instream bank erosion	Minimal	- Minimal flow was observed at upstream point but feature dries out with areas of standing water downstream - School of minnows observed in sections of flowing water - Photo 47
	3	12-Aug-21	Dry during 3 rd assessment									Photo 48
BN-27	1	24-Mar-21	FI: Spring Freshet FC: Minimal Flow FT: No Defined Feature	Cropped/ Meadow	Cropped/ Meadow	3.0	0.20	0.10	Sa, Si	Rill	Minimal	- Undefined feature directing overland flow from Reed Canary Grass meadow behind residential property, through agricultural field into BN-25 - Photos 57-58
	2	20-May-21	Dry or surface damp during 2 nd assessment									Photo 59
BN-28	1	24-Mar-21	FI: Spring Freshet FC: Standing Water FT: No Defined Feature	Cropped	Cropped	0.50	0.10	0.50	Sa, Si	Sheet erosion	Minimal	- Undefined feature within agricultural field - Continues into box culvert under Highway 50 downstream - Photo 60
	2	20-May-21	Dry during 2 nd assessment									N/A
BN-29	1	24-Mar-21	FI: Spring Freshet FC: Standing Water FT: No Defined Feature	Cropped	Cropped	0.50	0.10	0.50	Sa, Si	Rill	Minimal	- Undefined feature directing agricultural field - Confluences with BN-28 downstream - Photo 60
	2	20-May-21	Dry during 2 nd assessment									N/A

TABLE 2: MANAGEMENT RECOMMENDATIONS

Feature and Segment	STEP 1		STEP 2	STEP 3	STEP 4	Results per Segment	Overall Management Recommendation
	Hydrology	Modifiers	Riparian	Fish Habitat	Terrestrial Habitat		
BN-15	Contributing function: Intermittent	Nutrient input from agricultural fields, tile drainage	Valued function: Meadow/ Scrubland	Contributing functions: Allochthonus transport to potential downstream fish bearing reaches	Contributing Function: Meadow/ Scrubland	Mitigation: Contributing Functions	Mitigation

Feature and Segment	STEP 1		STEP 2	STEP 3	STEP 4	Results per Segment	Overall Management Recommendation
	Hydrology	Modifiers	Riparian	Fish Habitat	Terrestrial Habitat		
BN-16	Contributing function: Intermittent	Nutrient input from agricultural fields	Limited function: Cropped	Contributing functions: Allochthonus transport to potential downstream fish bearing reaches	Limited Function: No terrestrial habitat	Mitigation: Contributing Functions	Mitigation
BN-17	Contributing function: Intermittent	Nutrient input from agricultural fields, tile drainage	Important function: Forest	Valued functions: Suitable fish habitat during high flows	Contributing Function: Forest	Conservation: Valued Fish Habitat	Conservation
BN-18	Contributing function: Intermittent	Nutrient input from agricultural fields	Limited function: Cropped	Not an HDF	Limited function: No terrestrial habitat	Conservation: Valued Fish Habitat	No Management
BN-19				Valued functions: Suitable fish habitat during high flows			Conservation
BN-20	Contributing function: Intermittent	Nutrient input from agricultural fields, tile drainage	Limited function: Cropped	Contributing functions: Allochthonus transport to potential downstream fish bearing reaches	Limited Function: No terrestrial habitat	Mitigation: Contributing Functions	Mitigation
BN-21	Contributing function: Intermittent	Nutrient input from agricultural fields	Limited function: Cropped	Contributing functions: Allochthonus transport to potential downstream fish bearing reaches	Limited Function: No terrestrial habitat	Mitigation: Contributing Functions	Mitigation
BN-22	Contributing function: Ephemeral	Nutrient input from agricultural fields	Limited function: Cropped	Contributing functions: Allochthonus transport to potential downstream fish bearing reaches	Limited function: No terrestrial habitat	Mitigation: Contributing Functions	Mitigation
BN-23	Contributing function: Intermittent	Nutrient input from agricultural fields	Limited function: Cropped	Valued functions: Suitable fish habitat during high flows	Limited function: No terrestrial habitat	Conservation: Valued Fish Habitat	Conservation
BN-27	Contributing function: Intermittent	Nutrient input from agricultural fields	Valued function: Meadow	Contributing functions: Allochthonus transport to potential downstream fish bearing reaches	Limited function: Meadow	Mitigation: Contributing Functions	Mitigation
BN-28	Contributing function: Ephemeral	Nutrient input from agricultural fields	Limited function: Cropped	No direct downstream connections	Limited function: No terrestrial habitat	Mitigation: Contributing Functions	Mitigation
BN-29	Contributing function: Ephemeral	Nutrient input from agricultural fields	Limited function: Cropped	No direct downstream connections	Limited function: No terrestrial habitat	Mitigation: Contributing Functions	Mitigation

Appendix D

Site Photographs

HEADWATER ASSESSMENT PHOTOS**Photograph 1****March 24, 2021****BN-15****Tile drain outlet.****Photograph 2****March 24, 2021****BN-15****Facing downstream.**

Photograph 3**March 24, 2021****BN-15****Facing downstream at
road crossing.****Photograph 4****May 20, 21****BN-15****Facing downstream,
flow still present.**

Photograph 5**August 12, 2021****BN-15****Facing downstream,
dry.****Photograph 6****March 24, 2021****BN-16****Facing downstream
into large pond.**

Photograph 7

March 24, 2021

BN-16

Facing upstream.



Photograph 8

March 24, 2021

BN-17

**Tile drain outlet and
source of flow.**



Photograph 9**March 24, 2021****BN-17****Facing upstream at
woodland and
agricultural field
transition.****Photograph 10****March 24, 2021****BN-17****Facing downstream
into wetland area
adjacent to large pond.**

Photograph 11

May 20, 2021

BN-17

Facing downstream.

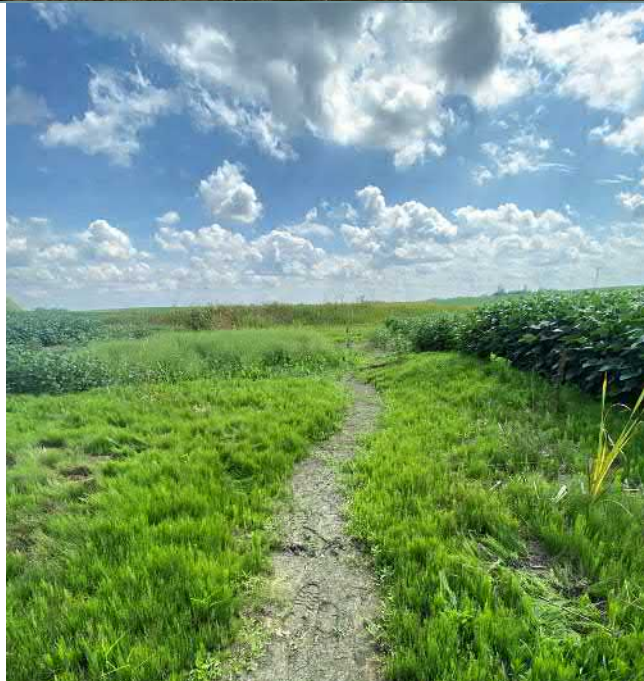


Photograph 12

August 12, 2021

BN-17

**Facing downstream,
dry.**



Photograph 13

March 24, 2021

BN-18

**Facing upstream, no
feature present.**



Photograph 14

March 24, 2021

BN-19

Facing upstream.



Photograph 15

May 20, 2021

BN-19

Facing downstream.



Photograph 16

August 12, 2021

BN-19

**Facing downstream,
dry.**



Photograph 17

March 24, 2021

BN-20

Facing downstream.



Photograph 18

May 20, 2021

BN-20

**Facing downstream,
standing water.**



Photograph 19

March 24, 2021

BN-21

Facing upstream.



Photograph 20

March 24, 2021

BN-21

**Facing downstream
into Reed Canary Grass
meadow marsh.**



Photograph 21

March 24, 2021

BN-22

Facing upstream, dry.



Photograph 22

March 24, 2021

BN-23

Facing downstream.



Photograph 23**March 24, 2021****BN-23****Facing downstream
into Reed Canary Grass
meadow marsh.****Photograph 24****May 20, 2021****BN-23****Facing upstream,
standing water.**

Photograph 25**August 12, 2021****BN-23****Facing downstream,
dry.****Photograph 26****March 24, 2021****BN-27****Facing upstream.**

Photograph 27**March 24, 2021****BN-27****Facing upstream.****Photograph 28****May 20, 2021****BN-27****Facing downstream,
dry.**

Photograph 29**March 24, 2021****BN-28 and BN-29****Facing upstream, dry
at confluence between
BN-28 and BN-29.****ECOLOGICAL LAND CLASSIFICATION PHOTOS****Photo 30****August 16, 2021****MAMM1: Graminoid
Mineral Meadow
Marsh**

Photo 31**August 16, 2021****OAO: Open Aquatic****Photo 32****August 16, 2021****OAGM1: Annual Row
Crop**

Photo 33**August 16, 2021****CVC-1: Business Sector****Photo 34****August 16, 2021****CVC-4: Extraction**

Photo 35

August 16, 2021

CVR-4: Rural Property



Appendix E

Plant List

Plant Species List

Scientific Name	Common Name	SARA ¹	SCA ²	SRank ³	CC ⁴	TRCA LRank ⁵
<i>Acer negundo</i>	Manitoba Maple	---	---	S5	0	-2
<i>Acer saccharum</i>	Sugar Maple	---	---	S5	4	3
<i>Achillea millefolium</i>	Common Yarrow	---	---	SE	---	3
<i>Agrimonia gryposepala</i>	Hooked Agrimony	---	---	S5	2	2
<i>Alliaria petiolata</i>	Garlic Mustard	---	---	SNA	---	0
<i>Arctium minus</i>	Common Burdock	---	---	SNA	---	5
<i>Artemisia absinthium</i>	Common Wormwood	---	---	SNA	---	5
<i>Asclepias syriaca</i>	Common Milkweed	---	---	S5	0	5
<i>Bromus inermis</i>	Awnless Brome	---	---	SNA	---	5
<i>Chenopodium album</i>	White Goosefoot	---	---	SNA	---	1
<i>Cichorium intybus</i>	Chicory	---	---	SNA	---	5
<i>Circaea canadensis</i>	Broad-leaved Enchanter's Nightshade	---	---	S5	3	3
<i>Cornus alternifolia</i>	Alternate-leaved Dogwood	---	---	S5	6	5
<i>Cornus obliqua</i>	Silky Dogwood	---	---	S5	5	-4
<i>Crataegus monogyna</i>	English Hawthorn	---	---	SNA	---	5
<i>Crataegus spp.</i>	Hawthorn species	---	---	---	---	---
<i>Daucus carota</i>	Wild Carrot	---	---	SNA	---	5
<i>Dipsacus fullonum</i>	Fuller's Teasel	---	---	SE5	---	5
<i>Dryopteris carthusiana</i>	Spinulose Wood Fern	---	---	S5	5	-2
<i>Echinocystis lobata</i>	Wild Mock-cucumber	---	---	S5	3	-2
<i>Elymus virginicus var. intermedius</i>	Intermediate Virginia Wild rye	---	---	S4?	---	---
<i>Epilobium coloratum</i>	Purple-veined Willowherb	---	---	S5	3	-5
<i>Equisetum arvense</i>	Field Horsetail	---	---	S5	0	0

Scientific Name	Common Name	SARA ¹	SCA ²	SRank ³	CC ⁴	TRCA LRank ⁵
<i>Erigeron canadensis</i>	Canada Horseweed	---	---	S5	0	1
<i>Erigeron hyssopifolius</i>	Daisy Fleabane	---	---	S5	10	-3
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	---	---	S5	2	-2
<i>Fragaria virginiana</i>	Wild Strawberry	---	---	S5	2	1
<i>Fraxinus americana</i>	White Ash	---	---	S4	4	3
<i>Fraxinus pennsylvanica</i>	Green Ash	---	---	S4	3	-3
<i>Galium triflorum</i>	Three-flowered Bedstraw	---	---	S5	4	2
<i>Geranium robertianum</i>	Herb-Robert	---	---	S5	---	5
<i>Geum aleppicum</i>	Yellow Avens	---	---	S5	2	-1
<i>Helianthus divaricatus</i>	Woodland Sunflower	---	---	S5	7	5
<i>Hydrophyllum virginianum</i>	Virginia Waterleaf	---	---	S5	6	-2
<i>Hypericum perforatum</i>	Common St. John's-wort	---	---	SNA	---	5
<i>Impatiens capensis</i>	Spotted Jewelweed	---	---	S5	4	-3
<i>Juglans nigra</i>	Black Walnut	---	---	S4	5	3
<i>Juniperus virginiana</i>	Eastern Red Cedar	---	---	S5	4	3
<i>Lemna minor</i>	Lesser Duckweed	---	---	S5	2	-5
<i>Lonicera tatarica</i>	Tartarian Honeysuckle	---	---	SNA	---	3
<i>Lotus corniculatus</i>	Garden Bird's-foot Trefoil	---	---	SNA	---	1
<i>Lythrum salicaria</i>	Purple Loosestrife	---	---	SNA	---	-5
<i>Maianthemum racemosum</i>	False Solomon's-seal	---	---	S5	4	3
<i>Malus spp.</i>	Apple species	---	---	---	---	---
<i>Matricaria chamomilla</i>	German Mayweed or Wild Chamomile	---	---	SNA	---	5
<i>Melilotus albus</i>	White Sweet-clover	---	---	SNA	---	3
<i>Oenothera biennis</i>	Common Evening Primrose	---	---	S5	0	3

Scientific Name	Common Name	SARA ¹	SCA ²	SRank ³	CC ⁴	TRCA LRank ⁵
<i>Oxalis montana</i>	Common Wood-sorrell	---	---	S5	8	3
<i>Parthenocissus inserta</i>	Thicket Creeper	---	---	S5	3	3
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	---	---	S4?	6	1
<i>Persicaria maculosa</i>	Spotted Lady's-thumb	---	---	SNA	---	-3
<i>Phalaris arundinacea</i>	Reed Canary Grass	---	---	S5	0	-4
<i>Phragmites australis ssp. americanus</i>	Common Reed	---	---	S4?	---	---
<i>Picea glauca</i>	White Spruce	---	---	S5	6	3
<i>Populus tremuloides</i>	Trembling Aspen	---	---	S5	2	0
<i>Prunella vulgaris ssp. vulgaris</i>	Self-heal	---	---	SNA	---	0
<i>Prunus serotina</i>	Wild Black Cherry	---	---	S5	3	3
<i>Prunus virginiana</i>	Choke Cherry	---	---	S5	2	1
<i>Ranunculus fascicularis</i>	Early Buttercup	---	---	S4	9	3
<i>Rhamnus cathartica</i>	Common Buckthorn	---	---	SNA	---	3
<i>Robinia pseudoacacia</i>	Black Locust	---	---	SNA	---	4
<i>Rosa multiflora</i>	Multiflora Rose	---	---	SNA	---	3
<i>Rubus sachalinensis var. sachalinensis</i>	Wild Red Raspberry	---	---	S5	0	-2
<i>Rumex crispus</i>	Curly Dock	---	---	SNA	---	-1
<i>Solidago canadensis var. canadensis</i>	Canada Goldenrod	---	---	S5	1	3
<i>Solidago flexicaulis</i>	Zigzag Goldenrod	---	---	S5	6	3
<i>Sonchus arvensis ssp. arvensis</i>	Field Sow-thistle	---	---	SNA	---	1
<i>Symphyotrichum cordifolium</i>	Heart-leaved Aster	---	---	S5	5	5
<i>Symphyotrichum ericoides var. ericoides</i>	White Heath Aster	---	---	S5	4	4

Scientific Name	Common Name	SARA ¹	SCA ²	SRank ³	CC ⁴	TRCA LRank ⁵
<i>Symphyotrichum lateriflorum</i>	Starved Aster	---	---	S5	3	-2
<i>Symphyotrichum novae-angliae</i>	New England Aster	---	---	S5	2	-3
<i>Symphyotrichum puniceum</i> var. <i>puniceum</i>	Swamp Aster	---	---	S5	6	-5
<i>Syringa vulgaris</i>	Common Lilac	---	---	SNA	---	5
<i>Thalictrum dioicum</i>	Early Meadow-rue	---	---	S5	5	2
<i>Thuja occidentalis</i>	Eastern White Cedar	---	---	S5	4	-3
<i>Tilia americana</i>	American Basswood	---	---	S5	4	3
<i>Trifolium pratense</i>	Red Clover	---	---	SNA	---	2
<i>Tussilago farfara</i>	Colt's-foot	---	---	SNA	---	3
<i>Typha latifolia</i>	Broad-leaved Cattail	---	---	S5	3	-5
<i>Ulmus americana</i>	American Elm	---	---	S5	3	-2
<i>Verbascum thapsus</i>	Common Mullein	---	---	SNA	---	5
<i>Vicia cracca</i>	Tufted Vetch	---	---	SNA	---	5
<i>Vitis riparia</i>	Riverbank Grape	---	---	S5	0	-2

¹Federal Species at Risk Act, 2002 ²Provincial Species Conservation Act, 2025 ³Provincial Conservation ranking where SNA= Not Applicable, SE= Non-Native species, S1= Extremely Rare, S2= Very Rare, S3= Rare, S4= Apparently Secure and S5= Secure,

⁴Coefficient of Conservatism. ⁵Toronto Region Conservation Authority LRanking.

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