REPORT

Environmental Impact Assessment

205 Elmwood Drive, Gananoque, Ontario

Submitted to:

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c/o RW Tomlinson Limited

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1 INTRODUCTION

WSP Canada Inc. (WSP) was retained by 1000989284 Ontario Inc. (The Client) to conduct an Environmental Impact Assessment (EIA; the Study) for the proposed residential development at 205 Elmwood Drive, Town of Gananoque, Ontario (the Site; Figure 1). The proposed development includes a residential subdivision. For the purposes of this report, the area within 120 m of the Site is considered the Study Area.

This Study has been prepared to meet the Town of Gananoque requirements for an EIA, and includes: the results of the background review, a description of methods used to collect Site-specific natural heritage information, and a summary of field investigations conducted on the Site and in the Study Area. Information has been compiled to characterize the existing form and function of natural heritage features on the Site and in the Study Area and provide an evaluation of the significance and sensitivity of those features. Furthermore, an assessment of potential for impacts to these features that may result from the proposed development is provided, along with recommended mitigation measures. Data was interpreted in accordance with federal, provincial and municipal policies and regulations to determine potential constraints to development, to guide the decision-making process and address approval authority requirements.

1.1 Consultation

Consultation with the Town of Gananoque has been conducted. A formal pre-consultation meeting occurred on December 17, 2024 with follow up meetings in May and August 2025.

1.2 Site Context and Summary of Proposed Development

The Site is approximately 11.59 hectares (ha) in size and consists of forest, wetland, open areas, a small watercourse (Stream 1), and fronts on the St. Lawrence River. The Site abuts residential subdivisions to the north and west, with some natural areas to the east. Adjacent land use consists of residential dwellings and natural areas.

The proposed development is a residential subdivision, consisting of 77 single-detached lots. The subdivision will include the extension of Elmwood Drive and John Street, construction of two new streets and areas of parkland and open space. As part of the proposed development, alterations, improvements, and enhancements are proposed to Stream 1 and the non-significant Elmwood Drive Wetland. For more details on the proposed enhancements refer to Section 7.1 and the Stormwater Management Report (Forefront 2025a). When completed, the development will provide much needed housing. Refer to Appendix F for the draft plan of subdivision.

1.2.1 Servicing and Stormwater Management

Details of the stormwater management plan for the proposed development are presented in the Stormwater Management Report (Forefront 2025a). That report recommends that storm sewer and storm sewer services be installed along the proposed streets. The proposed development will increase impervious surface coverage at the Site, which has the potential to affect both the quantity and quality of stormwater runoff leaving the Site. To mitigate potential adverse impacts downstream, the installation of oil grit separators is recommended at the outlet. In addition, an enhanced swale is proposed at the discharge point, to provide erosion and sediment control (ESC). Stormwater will be discharged into Stream 1 and the enhanced Elmwood Drive Wetland before flowing downstream into the St. Lawrence. As part of the stormwater management plan, improvements to Stream 1 and the Elmwood Drive Wetland are proposed (see below). The proposed development will be serviced by linking to the existing municipal water and sewer systems.

1.2.2 Stream 1 and Elmwood Drive Wetland Enhancements

The general alignment of Stream 1 will be maintained as a dedicated open space block within the proposed development. This block will be conveyed to the municipality. The proposed improvements outlined in the Stormwater Management Report (Forefront 2025a) will mitigate erosion and ensure a predictable hydraulic response over time. As part of the design of the improved watercourse, aquatic habitat features such as woody debris, cobbles and boulders will be installed. In addition, invasive species, which are currently widespread along the watercourse, will be removed and the riparian zone will be planted with desirable native trees, shrubs and other plants.

To improve ecological function, increase wildlife habitat and use, and to off-set the proposed encroachment into the Elmwood Drive Wetland, an enhanced wetland design is proposed. Initially, invasive species removal will be undertaken. Areas of deeper water will be interspersed with shallow marsh to create more of a hemi-marsh than currently occurs. Within the deeper water areas, plugs with a variety of both emergent and submergent native plants will be installed. Shallower marsh areas will be seeded with an approved native meadow marsh mixture. The littoral zone and adjacent riparian areas within the setback will be planted with a variety of native trees and shrubs and seeded with an approved native bank seed mixture. In addition, various wildlife habitat features will be installed, including cobbles and boulders, logs and other woody debris, as well as turtle nesting areas, duck boxes, bat roosting structures, and an osprey platform immediately adjacent within the setback area. For a conceptual design with some examples of species to be planted, refer to Appendix G.

The enhancement designs for Stream 1 and the Elmwood Drive Wetland will be finalized with input and applicable permits and authorizations from relevant agencies such as the Cataraqui Region Conservation Authority (CRCA), the Town of Gananoque, and Fisheries and Oceans Canada (DFO).

2 NATURAL HERITAGE POLICY CONTEXT

The evaluation of the form and function of natural heritage features present on the Site and in the Study Area was undertaken to meet the requirements of the following legislation, plans, standards and policies:

- Provincial Planning Statement (MMAH, 2024)
- *Fisheries Act* (Canada, 1985)
- *Migratory Birds Convention Act* (Canada, 1994)
- *Species at Risk Act* (Canada, 2002)
- *Endangered Species Act* (Ontario, 2007)
- Town of Gananoque Official Plan (Gananoque, 2009)
- *Conservation Authorities Act* (Ontario, 1990a)

2.1 Provincial Planning Statement (PPS)

The Provincial Planning Statement [PPS; (MMAH, 2024)] was issued under Section 3 of the *Planning Act* (Ontario, 1990b). The natural heritage policies of the PPS (Policy 4.1 – Natural Heritage) indicate that:

4.1.4 Development and site alteration shall not be permitted in:

a) Significant wetlands in Ecoregions 5E, 6E and 7E.

b) Significant coastal wetlands.

4.1.5. Unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions, development and site alteration shall not be permitted in:

a) Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E.

b) Significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River).

c) Significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River).

d) Significant wildlife habitat.

e) Significant areas of natural and scientific interest.

f) Coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 4.1.4(b).

4.1.6. Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.

4.1.7. Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.

4.1.8. 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 or 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.

4.1.9. Nothing in policy 4.1 is intended to limit the ability of agricultural uses to continue.

Section 4.2 of the PPS protects the quality and quantity of water, including the form and hydrologic function of sensitive surface water features and sensitive ground water features. Focus is given to maintaining hydrologic linkages and functions at the watershed scale to minimize potential negative impacts, including cross-jurisdictional and cross-watershed impacts of development.

The PPS defines "development" as the creation of a new lot, a change in land use, or the construction of buildings and structures requiring approval under the *Planning Act* (Ontario, 1990b). "Site alteration" means activities, such as grading, excavation and the placement of fill that would change the landform and natural vegetative characteristics of a Site.

2.2 Fisheries Act

The purpose of the federal *Fisheries Act* (Canada, 1985) provides a framework for the proper management and control of fisheries, and the conservation and protection of fish and fish habitat. The *Fisheries Act* prohibits causing the death of fish, or the harmful alteration, disruption, or destruction (HADD) of fish habitat, which is defined as "*any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat's capacity to support one or more life processes*".

As a result of amendments to the *Fisheries Act* in 2019 (DFO, 2019), projects near water that could potentially impact fish or fish habitat may require a project review by DFO. The primary purpose of the review is to determine whether the death of fish and/or HADD of fish habitat, as defined by the Act, can be avoided. If potential impacts can be avoided, project approval is not required (DFO, 2025). However, if it is determined that the project will

result in death of fish or HADD of fish habitat, an authorization is required which may include a requirement for a habitat offsetting plan. Proponents also have a duty to notify DFO of any unforeseen activities during the project that cause harm to fish or fish habitat.

2.3 Migratory Birds Convention Act (MBCA)

The *Migratory Birds Convention Act* [MBCA; (Canada, 1994)] prohibits the killing or capturing of migratory birds, as well as any damage, destruction, removal or disturbance of active nests. While Environment and Climate Change Canada (ECCC) can issue permits allowing the destruction of nests for certain activities or for protection of property, it does not typically issue permits in the case of industrial or construction activities.

In 2022, new Migratory Birds Regulations (MBR) were adopted that afford year-round protection to the nests of sixteen migratory species, until the nest is deemed to be abandoned. Nest abandonment must be reported through the Abandoned Nest Registry, administered by ECCC, if there is a need to damage, disturb, destroy, or remove a nest of a species listed in Schedule 1 of the MBR. The time period to confirm nest abandonment varies by species, and ranges from 12 to 36 months.

2.4 Species at Risk

2.4.1 Species at Risk Act (SARA)

The purpose of the federal *Species at Risk Act* [SARA; (Canada, 2002)] is to prevent endangered or threatened species from becoming extinct or extirpated, to help in the recovery of endangered, threatened, and extirpated species, and to manage species of special concern to help prevent them from becoming endangered or threatened. At a federal level, species at risk (SAR) designations are initially determined by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). If approved by the federal Minister of the Environment and Climate Change, species are added to the federal List of Wildlife Species at Risk. Species that are included on Schedule 1 of the List as endangered or threatened are afforded protection of their defined critical habitat on federal lands under the Act.

On private or provincially owned lands, only aquatic species and migratory birds listed as endangered, threatened or extirpated or Schedule 1 are protected under the SARA, unless ordered by the Governor in Council.

2.4.2 Endangered Species Act (ESA)

The purpose of the provincial *Endangered Species Act* [ESA (Ontario, 2007)] is to identify provincial SAR, protect those species and their habitats, promote the recovery of those species, and promote stewardship activities to assist in the protection and recovery of SAR. SAR designations for species in Ontario are initially determined by the Committee on the Status of Species at Risk in Ontario (COSSARO), and if approved by the provincial Minister of Environment, Conservation and Parks, species are added to the Species at Risk Ontario (SARO) list, contained in O. Reg. 230/08 (MECP, 2025a).

The *Protecting Ontario by Unleashing Our Economy Act* [“Bill 5” (Ontario 2025)], received royal assent and became law on June 5, 2025. This Act made amendments to several other pieces of provincial legislation, including the ESA. Noted amendments include narrowing the definition of “habitat”, removal of the prohibition against harassment, and removing portions related to recovery strategies and management plans.

Subsection 9(1) of the ESA prohibits the killing or harming of species identified as endangered or threatened under the Act. Subsection 10(1)(a) prohibits the damage or destruction of the habitat of species identified as

endangered or threatened. The definition of “habitat” was updated in the ESA following the royal assent of Bill 5, to mean:

- In respect to animals, a dwelling-place (nests, dens, etc.) that is occupied or habitually occupied by one or more members of a species for breeding, rearing, staging, wintering, or hibernating, and the immediate surrounding area necessary for breeding, rearing, staging, or hibernation.
- In respect to vascular plant species, the critical root zone surrounding a member of the species.
- In respect of all other species, an area on which any member of a species directly depends in order to carry on its life processes.
- Certain exceptions to the above apply, for example, the existing habitat regulation for black ash remains in force.

The ESA has a permitting process to allow activities to occur that would affect protected species and/or their habitats as well as a registration process for certain activities and species.

2.5 Town of Gananoque

The Site is designated Residential on Schedules B and I of the Town of Gananoque Official Plan (Gananoque 2009). Schedule F of the Official Plan identifies small areas of Unstable Slopes within the wetland at the Site, as well as fish spawning areas in the small inlet at the eastern edge of the Site, and along the St. Lawrence Shoreline at the south edge of the Site. Schedule G of the Official Plan notes an area of Floodplain in the eastern portion of the wetland on the Site, adjacent to the small inlet. Because there are natural features on and adjacent to the Site, the Official Plan requires that an EIA be completed to assess any negative impacts from the proposed development on the natural features and the ecological functions of the area.

2.6 Conservation Authorities Act

Ontario’s Conservation Authorities are “community-based watershed management agencies, whose mandate is to undertake watershed-based programs to protect people and property from flooding, and other natural hazards” (Conservation Ontario, 2022). The CRCA regulates hazard features under O.Reg. 41/24: Prohibited Activities, Exemptions and Permits under the *Conservation Authorities Act* (Ontario, 1990a). The Conservation Authority’s role relates to hazards such as flooding, erosion, dynamic beaches or unstable soil or bedrock, but they are not mandated to review ecological features or functions (e.g., flora, fauna, habitat, etc).

3 METHODS

3.1 Background Review

The investigation of existing conditions on the Site and in the Study Area included a background information search and literature review to gather data about the local area and provide context for the evaluation of the natural features. This included review of the following resources:

- Make-a-Map Natural Heritage Areas geographic explorer for species at risk (SAR) or rare species (S1 to S3 provincial rankings) reported in the vicinity of the Site by the Natural Heritage Information Centre (NHIC), and natural areas information queries (MNR, 2025a)
- Ministry of the Environment, Conservation and Parks (MECP) list of SAR in Ontario (O.Reg. 230/08) (MECP, 2025a) including COSSARO species assessment reports where applicable

- ECCC SAR Public Registry (ECCC, 2025) including COSEWIC status reports, assessments, and recovery strategies where applicable
- DFO Aquatic Species at Risk Maps (DFO, 2025a)
- Ministry of Natural Resources (MNR) Land Information Ontario Aquatic Resources Area Layer (MNR, 2025b)
- Town of Gananoque Official Plan (Gananoque, 2009)
- Breeding Bird Atlas of Ontario [OBBA; (Cadman, Sutherland, Beck, Lepage, & Couturier, 2007)]
- Atlas of the Mammals of Ontario (Dobbyn, 1994)
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019)
- Bat Conservation International (BCI) range maps (BCI, 2025)
- Ontario Butterfly Atlas (Jones, Layberry, & Macnaughton, 2025)
- eBird species maps (Cornell Lab of Ornithology, 2025)
- iNaturalist records of SAR and rare species in the Study Area (iNaturalist, 2025)
- Vascular Plants at Risk (Leslie, 2018)
- Information contained in natural heritage related map layers from Land Information Ontario (Land Information Ontario, 2025b) and the Ontario Land Cover Compilation (MNR, 2025c)
- Stormwater Management Report (Forefront, 2025)
- Geotechnical Investigation Report (Malroz, 2025)
- Existing high-resolution aerial imagery and mapping

To gain an initial understanding of the existing conditions at the Site and within the Study Area, including presence of wetlands, watercourses, ANSI, and other known or potential natural features, MNR Land Information Ontario data were used to create base layer mapping for the Site and Study Area.

3.1.1 Species at Risk Screening

A SAR screening was completed for the Site and Study Area, focusing on the review of records and ranges of species that are designated as threatened, endangered or special concern under the ESA, and species that are protected under Schedule 1 of the SARA. Species with ranges overlapping the Site or Study Area, or recent occurrence records in the vicinity, were screened by comparing their habitat requirements to habitat conditions at the Site and Study Area.

The potential for the species to occur was determined through a probability of occurrence based on the desktop study and the results of field surveys. The rankings used for this assessment are described below:

- Nil – indicates no potential for the species to occur on Site, even incidentally
- Low - indicates no suitable habitat for life processes for that species (such as breeding, foraging, over-wintering, etc.) but incidental occurrences are possible; or suitable habitat is present, but none were observed during targeted surveys, and surveys are sufficient to dismiss presence.

- Moderate - indicates suitable habitat for life processes appeared to be present and targeted surveys were not completed; or standard surveys are not sufficient to dismiss presence (e.g., very cryptic species); or records are lacking information and/or cannot be tied to the Site itself (e.g., in the vicinity but precise location is unknown); or records are historic.
- High - indicates an accurate and recent species record (including observations made during field surveys or through background data review) that can be directly tied to the habitats on the Site.

The above rankings were used as guidelines for applying probability rankings; the ultimate determination was based on professional judgement. Any habitat identified during ground-truthing or other field surveys with potential to provide suitable conditions for additional SAR not already identified through the desktop screening was also assessed and noted.

3.2 Field Surveys

The wildlife, habitats, plants and plant communities on the Site and in the Study Area were characterized through multiple targeted field surveys. Habitats off-Site within the Study Area were characterized through review of aerial imagery, and through visual assessment from accessible lands (e.g., roadside, edge of the Site, public lands, and lands owned by the Client). The open waters of the St. Lawrence were not directly accessed. The following sections outline the methods used for each of the field surveys.

Surveys on the Site were conducted by different consulting companies depending on the year. In 2020, Ecological Services conducted a suite of targeted surveys on the Site. A summary of survey methodology and results of these surveys were provided to WSP by the client, although there were some gaps in the available information and raw data was not available. Weather data for these surveys was not reported; however, the summary did indicate that surveys were completed under appropriate conditions as per standard protocols. In 2024, additional surveys were conducted by Cambium Inc, and all raw data, results, and methodology used were provided to WSP by the client. In 2025, WSP conducted additional site visits as noted below.

A summary of the field surveys completed for this Study is presented in Table 1. Survey stations are shown on Figure 1.

Table 1: Summary of Field Surveys

Date	Survey(s)	Conditions
2020 Ecological Services		
12 May	Herptile Visual Encounter Surveys (VES)	Not reported
14 May	Breeding Bird Survey, Herptile VES	Not reported
20 May	Herptile VES, Wildlife VES	Not reported
21 May	Breeding Bird Survey, Wildlife VES	Not reported
24 May	Herptile VES	Not reported
27, 28 May, 9 June	Breeding Bird Survey, Herptile VES	Not reported
19, 21, 23 June	Bat Habitat and Acoustic Monitoring, Herptile VES, overall ecology	Not reported
28 June	Herptile VES, Fish Habitat Survey	Not reported
29 June	Crepuscular and Nocturnal Bird Survey	Not reported
12 October	Herptile VES, Plant Community Survey (ELC)	Not reported

Date	Survey(s)	Conditions
2024 Cambium Inc.		
9 April	Reconnaissance, Aquatic Habitat Survey, Turtle Survey, Bat Habitat Survey, Nocturnal Amphibian Survey	6 to 16°C, Clear to Mostly Cloudy, Light Winds
2 May	Turtle Survey, Wildlife VES	15 to 17°C, Mostly Cloudy, Light Winds
17 May	Turtle Survey, VES, Plant Community Survey (ELC), Nocturnal Amphibian Survey	13 to 20°C, Partly Cloudy, Light to No Winds
12 June	Breeding Bird Survey, Turtle Survey, Wildlife VES, Set up Bat Detectors	14 to 18°C, Mostly Clear, Light to Moderate Winds
15 June	Turtle Survey, Wildlife VES, Nocturnal Amphibian Survey	18 to 19°C, Mostly Clear, Moderate Winds
2 July	Breeding Bird Survey, Plant Community Survey, Wildlife VES, Take Down Bat Detectors	12 to 19°C, Clear to Partly Cloudy, Light to Moderate Winds
28 August	Plant Community Survey, Wildlife VES	19 to 21°C, Mostly Cloudy, Moderate Winds
2025 WSP Inc.		
17 May	Plant Community Survey, Wildlife VES, Nocturnal Amphibian Survey	10 to 13°C, Mostly Cloudy, Moderate Winds
9 June	Aquatic Habitat Survey, Fish Community Sampling	15 to 17°C, Mostly Cloudy, Moderate Winds
16 August	Plant Community Survey, Aquatic Survey	27°C, Clear, Moderate Winds.

3.2.1 Plant Community, Botanical Inventory, and Wetland Evaluation

Ecological land classification (ELC) mapping and data on the Site were gathered according to standard protocols (Lee, et al., 1998). Wetlands, if present, were delineated using methods outlined in the Ontario Wetland Evaluation System [OWES; (MNRF, 2022)] by a provincially certified evaluator. Soil characteristics were assessed following ELC and OWES protocols, as well as the field manual *Characterizing Sites, Soils & Substrates in Ontario: Volume 1, Field Description Manual* (Heck, Kroestch, Leadbeater, Wilson, & Winstone , 2017). Soil sampling locations are shown on Figure 1.

3.2.1.1 Botanical Inventory

A botanical inventory was completed concurrent with the plant community assessments, with a running list compiled of all plants encountered on the Site. Searches were conducted for SAR plants such as butternut (*Juglans cinerea)* and black ash (*Fraxinus nigra*), provincially rare plants (ranked as S1 to S3 by NHIC), as well as food plants for any potentially present SAR insects. The running list of plants observed was augmented, as needed, during all field surveys. Locations of any rare or SAR plant species encountered, if any, were mapped using a hand-held GPS.

Butternut health assessments were conducted on any butternut trees that occurred on Site, or immediately adjacent to the Site (if access was obtained), following procedures outlined in the Butternut Assessment Guidelines (MECP, 2021), by a Butternut Health Expert (BHE), as described in the guidelines. The assessments were carried out during the butternut growing season (May 15 to August 31).

During the assessment, a BHE determined the health category of each tree:

- Category 1: affected by butternut canker to such an advanced degree that retaining the tree would not support the protection or recovery of Butternut trees in the area in which the tree is located.
- Category 2: not affected by butternut canker or affected by butternut canker but the degree to which it is affected is not as advanced as Category 1 and retaining the tree could support the protection or recovery of butternut trees in the area in which the tree is located.
- Category 3: could be useful in determining how to prevent or resist butternut canker.

Hybrids between butternut and non-native walnut trees are different species from butternut, are not native to Ontario, and are not protected under the ESA. To determine if a tree is a hybrid, the BHE used the Key for Field Identification of Butternut Hybrids as detailed in the ministry guidelines (MECP 2021), as well as expertise of the BHE. Should the field assessment results be inconclusive, genetic testing may be pursued but this was unnecessary during this Study. Determination of hybrids may occur over multiple seasons.

3.2.1.2 Wetland Evaluation

Wetlands that overlap the Site were surveyed, mapped, and classified according to the protocols of the OWES (MNRF 2022) by provincially certified wetland evaluators. A formal wetland evaluation was conducted in 2025 on the on-Site wetland to determine whether the feature qualifies as provincially significant, and to help inform the assessment of function and the impact assessment. This wetland has been named Elmwood Drive Wetland and is shown on Figure 1. The evaluation will be submitted by to the Town of Gananoque around the same time as the draft plan of approval application package, and the outcome of the evaluations and associated mapping will be provided digitally to the MNR within 30 days.

3.2.2 Aquatic Surveys

3.2.2.1 Aquatic Habitat Assessment

Presence, location, boundary, and direction of flow were confirmed for all surface water features on and adjacent to the Site (where accessible) through visual investigation. A habitat assessment to characterize aquatic features and potential fish habitat within the Site was completed over the course of several visits over two years (early spring/freshet and early summer). The focus of these surveys was to characterize watercourses and other waterbodies on Site, or within the Study Area. WSP has developed standardized technical procedures for measuring and characterizing fish habitat in watercourses and waterbodies. These surveys were also used to determine if there is a direct connection, with no fish migration barriers, between surface water features at the Site and the St. Lawrence River.

Examples of habitat features that were assessed are:

- channel unit type (riffle, run, pool, flat, etc.)
- location of potential obstacles and barriers to fish passage
- representative bankful widths, wetted widths and water depths
- evidence of groundwater seeps
- dominant substrate type
- in-stream cover, overhead cover
- aquatic macrophyte growth

- riparian cover and surrounding land use

Habitat characteristics were documented through digital photographs of both typical and sensitive features. In-situ field water quality information was collected at the Site. This included water temperature, conductivity, dissolved oxygen, and pH.

3.2.2.2 Fish Community Surveys

The fish community surveys were conducted by WSP using a Smith-Root LR-24 portable backpack electro-fisher. If any fish were caught, the first 20 of each species captured were processed for fork length (millimetres) and total weight (grams) and live released at the capture site.

Electrofishing occurred along the entire length of Stream 1 and Stream 2 where it overlapped with the Site; however, given the shallow depths encountered, and abundance of debris and vegetation, some sections could not effectively be fished. Approximately 65% of the watercourse had enough water to be fished. The Elmwood Drive Wetland had very few areas of open water; however, small pools and channels near the eastern edge of the wetland were fished where possible. This included a small intermittent channel at the northeastern portion of the wetland, that was fed from a residential stormwater system outflow, as well as a few deeper pools at the eastern edge of the Site, immediately upstream of the outflow to the inlet of the St. Lawrence River. No fishing was completed in the St. Lawrence River or the associated inlet, as sufficient background data were available to adequately characterize the fish community in those features.

3.2.3 Wildlife and Wildlife Habitat

3.2.3.1 Herptile Surveys

To document use of wetlands on the Site and in the Study Area by breeding anurans (i.e., frogs and toads), nocturnal amphibian point-count surveys were conducted. Marsh Monitoring Program (MMP) protocols (Bird Studies Canada, 2003) were used for guidance. These surveys were conducted in April, May, and in June, at least 15 days apart, to span the breeding seasons of all species that may be present in an area. At each survey station, calls from all species were aurally surveyed for three minutes and described using call intensity codes established by the protocol:

- Code 0: No calls heard
- Code 1: Calls can be counted individually (calls do not overlap)
- Code 2: Calls overlap, but numbers of individuals can be estimated
- Code 3: Calls overlap and are continuous (full chorus); a count estimate is unreliable

Surveys were focused on specific features (e.g., individual wetlands), but all anurans heard were noted.

Basking turtle visual surveys were conducted at the Site, and in suitable habitat in the Study Area. Using the Occurrence Survey Protocol for Blanding's Turtle in Ontario (MNRF 2015) as guidance, in 2024 five survey rounds were conducted when water temperatures reached 10°C (late April through to June 15). Supplemental surveys were conducted in 2020 and again in 2025. These protocols are appropriate for searching for a range of turtle species, since most turtle species have similar ecologies. Surveys were conducted by scanning (i.e., with binoculars or spotting scope) suitable habitat on sunny days, from mid-morning to mid-afternoon. Area searches of shallow aquatic and wetland habitats were also conducted, as well as searching for potential nesting areas.

During all field surveys, visual encounter surveys (VES) for herptiles on the Site were conducted following the methods described in Section 3.2.3.4 This included area searches for snakes, turtles, and anurans, as well as searches in any flooded areas for evidence of eggs, larva, or breeding adult salamanders and frogs.

3.2.3.2 Breeding Bird Surveys

Two rounds of breeding bird point counts were completed on the Site within the dates of May 25 to July 10, 2024, each separated by at least one week. Protocols from the Atlas of the Breeding Birds of Ontario (Cadman, et al., 2007) were used as guidance for these surveys. The surveys began as early as 30 minutes before sunrise and ended no later than 10:00 am. Each survey location consisted of a 50 and 100 metre (m) radius circular-plot, although all birds observed were noted regardless of distance to the observer. Surveys were only conducted during suitable weather conditions (not during steady rain or strong wind). A list of all species observed was compiled, and the locations of any SAR were noted.

During all field surveys, VES for all bird species, including for those not well covered by point counts, such as raptors and raptor nests, were completed, and all bird observations were documented. Attention was paid to searching for nests of birds that are protected year-round by special provisions of the MBR 2022 [e.g., pileated woodpecker (*Dryocopus pileatus*)], and breeding evidence of all bird species observed was noted.

3.2.3.3 Mammal Surveys

General observations of mammals were collected during VES surveys using the methods described in Section 3.2.3.4.

Bats

Targeted bat surveys were conducted on the Site and included a habitat assessment and the use of acoustic bat detectors. A survey of suitable roost trees was performed during leaf off and leaf on, and included searching for trees with suitable cavities, cracks, peeling bark, presence of squirrel nests or dead, retained leaf clusters, rock piles and related habitats. Particular attention was paid to cavity trees over 25 centimetres (cm) diameter at breast height (DBH).

In 2024, two bat detectors were deployed at the Site (Figure 2) and programmed to record bat calls for at least 10 consecutive nights, as per MECP guidance. Bat acoustic monitoring was completed to determine, with reasonable certainty, the bat species present in the immediate area of the Site. Bat species were identified using analysis of sonographic characteristics from recordings of ultrasonic calls emitted by bats for echolocation. Survey methods were developed based on the MNR survey guidelines outlined in Bat and Bat Habitats: Guidelines for Wind Power Projects (MNR, 2011) and current guidance provided by MECP for surveying SAR bats in Ontario. Surveys were conducted using broadband bat detectors (Wildlife Acoustics Song Meter Minis) appropriately placed in target habitats. Passive acoustic recorders were programmed to begin recording 30 minutes before sunset continuing for five hours.

Additional bat acoustic monitoring was conducted at four locations on the Site in 2020 by Ecological Services; however, details on the methodology used are unknown. This data was considered supplementary by WSP.

Bat Data Analysis

The Bat data analysis of the 2024 data was completed by Cambium Inc. and provided to the client and WSP for inclusion in this report. The analysis used the automatic species identification feature of the Wildlife Acoustics Kaleidoscope Pro Version 5.6.8 software package to analyse all ultrasonic recordings. The data was analysed

using the Auto ID for Bats of North America 5.4.0 Ontario feature, and the batch processing option. Auto ID feature settings were selected as follows:

- Bats of North America 5.4.0 (Ontario Region)
- Minimum to Maximum Frequency Range = 8-120 kHz
- Minimum and Maximum length of detected pulses = 2-500 ms
- Maximum inter-syllable gap = 500 ms
- Minimum number of pulse = 2

The Kaleidoscope Pro Auto ID feature assigns p-values to each group of species-assigned recording events. These p-values provide a measure of the likelihood that a specific bat species was present in the recording area. A p-value <0.05 indicates a high probability of species presence. A p-value >0.05 and <0.1 indicates a medium probability of species presence. According to the software developer/publisher, a p-value >0.1 is indicative of a false positive and not considered a record of a species presence. False positives are not included in the results in this report.

3.2.3.4 General Visual Encounter Surveys

Visual encounter surveys included track and sign surveys, area searches, and incidental observations, concurrent with all other field surveys. These surveys followed recommended protocols (MNRF, 2013a; MNRF, 2016; Bookhout, 1994; McDiarmid, 2012). During these surveys, the full range of habitats across the Site and in accessible parts of the Study Area were searched, with special attention paid to edge habitats and other areas where mammals might be active. Any areas of exposed substrate such as sand or mud were examined for any visible tracks. Any wildlife (including mammals, reptiles, amphibians, birds, butterflies, bumble bees and dragonflies) seen and identified were recorded. When encountered, tracks and other signs (e.g., stick or cavity nests, tracks, scats, hair, tree scrapes, etc.) were identified to a species, if possible, and recorded.

3.2.4 Approach to Assessment of Significance and Impact Assessment

An assessment was conducted to determine the significance of natural features as well as significant species observed or determined to have the potential to exist on the Site or in the Study Area. The assessment was completed by analysing natural environment data collected through the background material described in Section 3.1 and field surveys, using the methods and criteria outlined in the following reference materials:

- Natural Heritage Reference Manual [NHRM; (MNRF, 2010)]
- Significant Wildlife Habitat Technical Guide [SWHTG; (MNRF, 2000)]
- Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E [SWHCS; (MNRF, 2015b)]

An assessment was then conducted to determine how the proposed project may negatively impact significant natural features or SAR. Preventative, mitigative, and remedial measures were considered in assessing the net effects of the proposed project on the surrounding ecosystem. Where impacts to significant wildlife habitat were determined to be possible, mitigation was determined using the guidance provided in the Significant Wildlife Habitat Mitigation Support Tool [SWHMiST; (MNRF, 2014a)].

In addition, aquatic features and associated potential impacts were assessed in relation to considerations predominantly under the following legal instruments:

- *Fisheries Act* (using the standardized Pathways of Effects)
- *Species at Risk Act* and *Endangered Species Act*

Mapped watercourses and waterbodies were identified, including their primary characteristics (permanency, thermal regime, fish community) in support of sensitivity and impact analysis. All water features with documented fish habitat or the potential to support fish habitat were carried forward to the impact assessment. Similar to the terrestrial environment approach, an assessment was conducted to determine any potential impacts of the proposed project on the aquatic environment (positively and / or negatively) and identify suitable mitigation measures to reduce the risk of negative net effects

4 EXISTING CONDITIONS

Data acquired through the background review and field surveys is summarized in the following sections. A photographic inventory of the Site is presented in Appendix A.

4.1 Landscape Position and Topography

The Site is located within the Mixedwood Plains Ecozone: Lake Simcoe Rideau Ecoregion 6E, which extends southward from a line connecting Lake Huron in the west to the Ottawa River in the east, including Ottawa, Kingston, Peterborough, Barrie, Tobermory, Kitchener, and Toronto. This Ecoregion is characterized by a mixed geology that includes both shallow soil areas such as alvar and bedrock plains, as well as deep soil areas such as the Oak Ridges Moraine. It falls within the Great-Lakes St. Lawrence Forest Region, including deciduous and mixed forests; however, over 50% of the landscape in this Ecoregion is currently in use as agricultural land (Crins, Gray, Uhlig, & Wester, 2009).

The topography at the Site is relatively flat, sloping gently towards the St. Lawrence River. There are also a few relatively steep bedrock outcrops on the Site that stand above the rest of the Site, and a shallow basin wetland. The Study Area in general has a similar topography, except that some areas have been graded for residential development.

4.2 Plant Communities and Flora

4.2.1 Ecological Land Classification

Overall, the Site consists of meadows/hayfields, thickets, marsh, cultural woodland and disturbed deciduous forest. Additional wetlands, forests, residential areas, and the St. Lawrence River, occur in the Study Area. Fields and portions of the wetlands on the Site have been used for agriculture in recent years, and based on a review of historic imagery, additional areas may have been used for agricultural in the past. Most of the Site has a disturbance history and is heavily influenced by historic land use, and current adjacent urban influences.

During the field surveys, six upland plant communities and five wetland plant communities were identified on the Site based on the ELC system (Lee, et al., 1998), as well as anthropogenic areas. Plant communities are shown on Figure 1 and described below in Table 2.

Table 2: Plant Communities

PLANT COMMUNITIES		
Plant Community	**Description**	**SRANK[a]**
Upland Communities		
CUM1-1 Mixed Meadow	This community consists of two meadows near the core of the Site, a small meadow along the watercourse at the western edge of the Site, as well as a small meadow northeast of the Site, in the Study Area. The two meadows in the middle of the Site have been farmed as hayfields in recent years, but are currently fallow and occasionally mowed (approximately once per year). The smaller meadows show some evidence of historic disturbance. The largest meadow in the southern portion of the Site has a moisture regime of 1 (moderately fresh), on silty loam soils. It is dominated by a mixture of grasses and forbs such as smooth brome (*Bromus inermis*), orchard grass (*Dactylis glomerata*), Canada goldenrod (*Solidago canadensis*), and wild carrot (*Daucus carota*). The other three meadows are on silty clay soils with a moisture regime of 2-4 (fresh to moderately moist), dominated by reed canary grass (*Phalaris arundinacea*) and Canada goldenrod, with other forbs and grass such as smooth brome, and Canada thistle (*Cirsium arvense*). Scattered individual and/or small patches of shrubs and sapling trees occur throughout this community.	N/A
CUP3-2/FOM White Pine Coniferous Plantation/Mixed Forest	This community is a semi-mature white pine (*Pinus strobus*) plantation east of the Site, within the Study Area, that was only partially accessed during studies. It is dominated by white pine, but with naturalized patches of other trees along the outer edge, and in scattered locations throughout, forming a mosaic of plantation and natural forest.	N/A
CUT1 Fresh Grey Dogwood-Buckthorn Deciduous Thicket	This community is a small, slightly elevated thicket at the northern edge of the Site. It is dominated by grey dogwood (*Cornus racemosa*) overall but includes several other species of shrubs and trees such as common buckthorn (*Rhamnus cathartica*), nannyberry (*Viburnum lentago*), bur oak (*Quercus macrocarpa*), and white pine. The understory is fairly sparse due to dense shading, with groundcover such as wild strawberry (*Fragaria virginiana),* yellow avens (*Geum aleppicum*), common dandelion (*Taraxacum officinale*), lesser periwinkle (*Vinca minor*), and graceful sedge (*Carex gracillima*). The substrate is silty clay loam, with a moisture regime of 2 (fresh).	N/A
CUW/CUT1 Open Woodland/Honeysuckle Thicket	This community is near the easter edge of the Site. It is a mosaic of open treed woodland, interspersed with very dense thickets. It is overwhelmingly dominated by the invasive Tatarian honeysuckle (*Lonicera tatarica*), with other trees and shrubs such as white ash (*Fraxinus americana*), Manitoba maple (*Acer negundo*), black cherry (*Prunus serotina*), common buckthorn, and red raspberry (*Rubus idaeus*). Understory and groundcover are sparse, although the outer edges have some denser patches of vegetation, including mats of creeping Jenny (*Lysimachia nummularia*). Most trees are immature, except for a small cluster of very large mature trees [e.g., red oak (*Quercus rubra*), walnut (*Juglans nigra*)], in the southeastern portion of this community, closer to the inlet. The substrate is rocky and shallow in the northern half, with some areas of exposed bedrock, with deeper soils in the southern half. Soil is silty clay to silty loam with a moisture regime of 0-1 (moderately dry to moderately fresh). Snags present are primarily smaller dead or dying ash trees, but the larger trees noted above have potential to be cavity trees. Downed woody debris is lacking overall.	N/A
FOD/CUW1 Open Woodland/Deciduous Forest	This community consists of two woodlots at the western portion of the Site and the Study Area. It appears to originate from an unknown disturbance history, with heavy anthropogenic influence, making it hard to classify. Dominant tree species vary depending on the location, but examples include black walnut, red maple (*Acer rubrum*), red oak, sugar maple (*Acer saccharum*), Manitoba maple, white elm (*Ulmus americana*), and green ash (*Fraxinus pensylvanica*).	N/A

PLANT COMMUNITIES		
Plant Community	**Description**	**SRANK[a]**
	Some parts of the northern portion of this community are like the FOD5-3 discussed below. Understory varies from very dense, where tree cover is lacking, to moderate, dominated by non-native shrubs such as Tatarian honeysuckle, and common buckthorn. The groundcover is moderate, with a relatively low diversity of species such as garlic mustard (*Alliaria petiolata*), and Virginia creeper (*Parthenocissus inserta*). Overall, the trees in this community are immature, but there is a semi-mature component, and scattered individual larger trees in the northern community. Substrate is silty loam to silty clay loam, with some steep bedrock outcrops present in the northern portion. Moisture regime ranges from 0 to 2 (moderately dry to fresh) Snags and downed woody debris are occasional, with scattered cavity trees present.	
FOD5-3 Dry to Fresh Sugar Maple-Oak Deciduous Forest	This community is a woodlot in the middle of the Site, primarily associated with a bedrock ridge. It is dominated in the partially closed canopy by sugar maple, with associates such as white oak (*Quercus alba*), red oak, bitternut hickory (*Carya cordiformis*), and black walnut. The understory is primarily sparse to moderate, with some dense areas along the edges and where openings occur. Understory and groundcover species include seedling trees, as well as Canada mayflower (*Maianthemum canadense*), May-apple (*Podophyllum peltatum*), Tatarian honeysuckle, riverbank grape (*Vitis riparia*), wild strawberry, and Eurasian woodland bluegrass (*Poa nemoralis*). Overall, the trees are semi-mature to immature, with some larger more mature trees. The substrate is silty loam, and very rocky with exposed bedrock present. Moisture regime is 1 (moderately fresh). Snags are rare, and downed woody debris is occasional. There is the occasional larger cavity or potential cavity tree present, primarily sugar maple and oaks.	S5
Wetland Communities		
MAM2-2 Reed Canary Grass Mineral Meadow Marsh	This community consists of three separate areas that are part of the core wetland basin in the middle of the Site (Elmwood Drive Wetland). It is dominated by a very thick and dense, almost pure stand of reed canary grass. Other plant species do occur in smaller numbers, including narrow-leaved cattail (*Typha angustifolia*), sedges (*Carex* spp.), purple loosestrife (*Lythrum salicaria*), fowl bluegrass (*Poa palustris*), and spotted touch-me-not (*Impatiens capensis*). Open water is lacking throughout most of the community, the exception being small channels and some areas of flooding that occur only during periods of high water, and a portion of Stream 1 that flows through this community. Water inputs appear to primarily come from an adjacent residential stormwater system that feeds Stream 1 and other flooded areas and generally flows east across the wetland. By mid-summer, most of this community is dry, and based on historical imagery, some of it has been mowed in the recent past, likely harvested for hay. Substrate is very shallow to moderate organics over silty clay, with some evidence of historic compaction (e.g. agriculture). Moisture regime is 5-6 (moist to very moist).	S5
MAM2/MAS2 Meadow Marsh/Shallow Marsh Complex	This community is a mosaic of relatively dry dense meadow marsh interspersed with wetter shallow marsh east of the Site, within the Study Area. It is associated with a small stream and the inlet of the St. Lawrence. It is dominated by emergent plants such as cattails, sedges and bulrushes, with various other plants present. There are also patches of trees and shrubs scattered throughout such as red osier dogwood (*Cornus stolonifera*), and willows *(Salix* spp.). Most of this community floods during periods of high water, with some areas of more permanent water closer to the inlet. Substrate is shallow to deep organics over clay and silty clay.	S5
MAS3-1 Narrow-leaved Cattail Organic Shallow Marsh	This community forms the same wetland basin as the MAM2-2 above but occurs in the middle and eastern side. It is dominated by a dense stand of narrow-leaved cattail with various other species such as broad-leaved cattail	S5

PLANT COMMUNITIES		
Plant Community	**Description**	**SRANK[a]**
	(*Typha latifolia*), reed canary grass, purple loosestrife, lake sedge (*Carex lacustris*), and marsh bedstraw (*Galium palustris*). Most of this community is very dense with minimal to no open water, except where small channels form and interstitial flooding occurs during periods of high water. Water does pool for most of the year along the eastern edge of this community, before flowing down a short watercourse to the inlet of the St. Lawrence River. These pools are relatively deep during periods of high water, ranging from 0.25 to 0.4 m, depending on the location and time of year. These pool areas have slightly more diversity than the rest of the community, with species such as European frogbit (*Hydrocharis morsus-ranae*), American sweetflag (*Acorus americanus*), and common bladderwort (*Utricularia vulgaris*). Substrate is dominated by moderate to deep organics over clay, although some portions of this community are mineral soil dominated, especially near the western edges. Moisture regime is 5 to 9 (moist to very wet), increasing from west to east.	
SAS Submerged Shallow Aquatic	This open water wetland community includes the inlet and the shallow nearshore portions of the St. Lawrence River. Information on this community is limited, as it could only be accessed from the shoreline. However, it appears to be relatively shallow (<2m), with shallow to moderate organics over mineral soil. Submerged vegetation is abundant throughout and includes species such as American eelgrass (*Vallisneria americana),* Canada waterweed (*Elodea canadensis*), and pondweeds (*Potomogeton* spp.). Logs and other natural debris are abundant along the edges of this community, closer to the shoreline.	S5
SWD2-2 Green Ash Mineral Swamp	This community occurs east of the Site, within the Study Area, and is associated with a small stream that flows into the inlet of the St. Lawrence. It is dominated by green ash, with associates such as willows, red maple, and white elm. Understory is lacking, but the groundcover is moderate to dense, with a variety of species such as sedges, spotted touch-me-not, and fowl manna grass (*Glyceria striata*). Large portions of this swamp flood during periods of highwater, but during drier periods water appears to be restricted to the stream itself. The substrate is silty clay and clay with a thin layer of organics. Moisture regime is 6 (moderately moist).	S5
Anthropogenic		
RES Residential	This includes the portions of the Town of Gananoque that overlap the Study Area. There is a large variety of trees, shrubs, and other vegetation including natural and landscaped species.	N/A

4.2.2 Botanical Inventory

A total of 170 vascular plants were identified on the Site and in the Study Area during field surveys. For a list of plants identified, refer to Appendix C. A notable portion of the plant communities on the Site, particularly in the cultural ecosites and the wetland, is dominated by non-native species, including several highly invasive species and garden escapees. A single plant SAR, butternut, was identified during surveys. Butternut is designated as endangered under the ESA and the SARA. Butternut is discussed further in Section 5.7. No other SAR, regionally significant, or provincially rare plants were observed during the surveys.

4.2.3 Soil Characterization

Soils were characterized for each ELC unit, as presented in Table 2. As noted in the methods, wetland boundaries were determined following OWES protocols, using the 50% plant rule, supported by soil assessments when needed. Soil assessments varied from rapid to more detailed, depending on the circumstance and plant community. Detailed soil data was collected just outside of the wetland boundaries, in areas incorrectly mapped

on provincial mapping as wetland, and/or any other areas that required further supporting evidence are presented in Table 3.

Table 3: Soil Data at Targeted Locations

Station	Soil Description[1]	Effective Texture (Pore Pattern)	Moisture Regime
Station 1	Organics <3 cm. Silty Clay to at least 120 cm. Gleyed throughout, no mottles. No water table found.	Silty Clay (5)	2 - Fresh
Station 2	Organics <2 cm. Silty Clay to at least 120 cm. Mottles and gleys observed at 85cm. No water table found.	Silty Clay (5)	3 - Very Fresh
Station 3	Organics <4 cm. Silty Clay to at least 120 cm. Mottles observed at 50. No water table found.	Silty Clay (5)	4 - Moderately Moist
Station 4	Organics <2 cm. Silty Clay to at least 120 cm. Mottles observed at 63. No water table found.	Silty Clay (5)	3 - Very Fresh
Station 5	Organics <2 cm. Silty Clay to at least 120 cm. Gleyed throughout, no mottles. No water table found.	Silty Clay (5)	2 - Fresh

4.3 Wildlife and Wildlife Habitat

A list of all wildlife or wildlife signs encountered on the Site during field surveys is provided in Appendix D.

4.3.1 Herptiles

A total of nine herptile species were identified on the Site and the Study Area during all surveys. This included five anuran species identified during nocturnal amphibian surveys. Refer to Table 4 for the collected data. Almost all of the anurans observed during surveys were in the inlet and the adjacent Meadow Marsh/Shallow Marsh Complex (ELC code: MAM2/MAS2), in the Study Area but outside of the Site. In addition to those anurans observed during nocturnal surveys, over 20 American toads (*Anaxyrus americanus*) were observed breeding in the inlet during the day on May 17, 2025. For more discussion on anurans and related significant wildlife habitat refer to Section 5.4.

During turtle VES surveys, several northern map turtles (*Graptemys geographica*) were observed in the inlet and nearshore waters of the St. Lawrence River on several occasions from April through June 2024. A maximum of eight northern map turtles were observed during a single survey. Two painted turtles (*Chrysemys picta marginata*) and a snapping turtle (*Chelydra serpentina*) were also observed in the inlet during turtle surveys. Northern map turtle and snapping turtle are designated as special concern under both the ESA and the SARA. For more information on northern map turtle and snapping turtle, refer to Section 5.4. Midland painted turtle is designated as special concern under the SARA only. No turtles were observed in or around the Elmwood Drive Wetland in the middle of the Site, and no evidence of nesting was identified on the Site. A single eastern garter snake (*Thamnophis sirtalis*) was observed at the western edge of the Site during surveys in May 2024.

No other SAR or provincially rare herptiles were observed during surveys on the Site or within the Study Area.

Table 4: Nocturnal Amphibian Survey Results

Year of Surveys	Station #	Date	Species	Call Code*	# Individuals	Inside/Outside Target Feature
2020	01	14 May 2020	No calls	0	0	N/A
		24 May 2020	Green frog	1	1	Inside
		9 June 2020	No calls	0	0	N/A
2024	01	9 April 2024	No calls	0	0	N/A
		17 May 2024	No calls	0	0	N/A
		15 June 2024	No calls	0	0	N/A
2020	02	14 May 2020	No calls	0	0	N/A
		24 May 2020	Green frog	2	N/A**	Inside
			American toad	2	N/A**	Inside
		9 June 2020	Green frog	2	N/A**	Inside
			Bullfrog	1	N/A**	Inside
2024	02	9 April 2024	Spring peeper	3	Full Chorus	Inside
		17 May 2024	Grey tree frog	2	~10	Inside
			American toad	2	~8	Inside
		15 June 2024	Green Frog	2	~6	Inside
			Bullfrog	1	2	Inside

*Call codes:1 - Calls do not overlap; 2 – Calls sometimes overlap, estimate of individuals possible; 3 – Full Chorus, estimate of individuals not possible.

**Abundance not available for 2020

4.3.2 Birds

A total of 39 bird species were identified in the Study Area. This includes a mix of open habitat, forest, and edge species such as warbling vireo (*Vireo gilvus*), song sparrow (*Melospiza melodia*), northern cardinal (*Cardinalis cardinalis*), and red-winged blackbird (*Agelaius phoeniceus*).

Two to three individual chimney swifts (*Chaetura pelagica*) were observed foraging in the sky above the edge of Site and in the Study Area in June 2020 and 2025. Chimney swift is designated as threatened under the ESA and the SARA. For more information on chimney swift, refer to Section 5.7.

No other SAR, or rare bird species were observed during surveys. Of note was a pair of ospreys (*Pandion haliaetus*), observed nesting on a nesting platform in the middle of the Elmwood Drive Wetland on the Site. No individuals or nests of the bird species listed as having year-round protection per the MBR 2022 were observed on the Site or in the Study Area.

4.3.3 Mammals

A total of 10 species of mammals were identified in the Study Area. This included common species such as grey squirrel (*Sciurus carolinensis*), eastern cottontail (*Sylvilagus floridanus*), and white-tailed deer (*Odocoileus virginianus).* No evidence of unusual mammal concentrations, movement corridors, or other notable habitat features for mammals were observed during field surveys.

No SAR or provincially rare mammals were identified during surveys, except for the three bat species discussed below.

Bats

No evidence of potential bat hibernacula was observed during surveys. Overall, there was a low to moderate level of bat activity recorded on Site during 2024 surveys. Four species of bats had passes recorded on the Site, most commonly big brown bat (*Eptesicus fuscus*), hoary bat (*Lasiurus cinereus*), and little brown myotis (*Myotis lucifugus*), followed by a very small number of tri-colored bat (*Perimyotis subflavus*) passes. A summary of the species and number of passes recorded during the 2024 acoustic study is presented in Table 5. During the 2020 surveys, small numbers of passes of northern myotis (*Myotis septentrionalis*), and silver-haired bat (*Lasionycteris noctivagans)* were also identified, as well as a single pass by small-footed bat (*Myotis leibii*). However, the methodology used to collect and analyse the data is unknown, and these three species were not identified again in 2024 during the targeted surveys. Therefore, these three species are not considered currently present on the Site for the purposes of this report.

Table 5*:* 2024 Bat Acoustic Survey Results

Recorded Passes by Species (Total for 13 Nights)				
Station	**Hoary Bat**	**Little Brown Myotis**	**Tri-colored Bat**	**Big Brown Bat**
BAT01	77	161	0	95
BAT02	496	377	10	654

Little brown myotis and tri-colored bat are designated as endangered under the ESA and the SARA. Hoary bat is designated as endangered under the ESA only. For more discussion on these three species refer to Section 5.7.

4.3.4 Bumblebees, Dragonflies, and Butterflies

A total of 13 insect species were identified in the Study Area. This included common species such as common eastern bumblebee (*Bombus impatiens*), eastern pondhawk (*Erythemis simplicicollis)*, and viceroy (*Limenitis archippus*). No unusual concentrations, SAR, or provincially rare insects were identified. Common milkweed (*Asclepius syriaca*) was present, but in small numbers and no monarchs (*Danaus plexippus*) were observed.

4.4 Aquatic Habitat and Fish Community

There are four surface water features that overlap the Site. Stream 1, which a small unnamed intermittent stream that flows into the Elmwood Drive Wetland; the Elmwood Drive Wetland itself; Stream 2, which is a small watercourse that flows out of the Elmwood Drive Wetland and in to the inlet; and a very small sliver of an inlet of the St. Lawrence River. Within the Study Area is the remainder of the inlet; Stream 3, which a small unnamed permanent stream that flows into the inlet from the north, a wetland this stream flows through, and the nearshore portion of the St. Lawrence River. More details on these features are presented below.

4.4.1 Stream 1

Stream 1 is an intermittent watercourse that is sourced from a stormwater outflow culvert just south of Elizabeth Street. It flows south then east onto the Site before dispersing into the Elmwood Drive Wetland. The portion that overlaps the Site has an average wetted width during periods of high water of 0.5 m, average depths ranging from 0.03 to 0.12 m. Bankful width is similar to the wetted width for the most part, as notably defined banks are lacking along much of this reach. This stream gets shallower and narrower as it flows east. It is comprised primarily of runs and flats with the odd shallow pool present. The sediment is fines (silts and clays) and organic/muck. This stream flows under the ground in a few locations, especially during periods of lower water. It eventually dissipates into the Elmwood Drive Wetland basin. A channel connecting Stream 1 through the wetland into Stream 2 was

not obvious on any field surveys, and it appears that water primarily flows under the dense wetland vegetation and interstitially. In spring the flow rate is slow to moderate. In August 2024, there was no visible flow within this stream, and in August 2025 it was completely dry. It appears that during dry periods it may flow during rain events, fed by run-off from the upstream stormwater system. There is small to large woody debris throughout this stream, and overhanging vegetation covers more than 50%. Overhanging vegetation includes grasses and forbs as well as trees and shrubs where the stream flows close to the forest edge. Riparian vegetation is meadow, emergent marsh, as well as shrubs and trees where it flows close to the adjacent forest and woodland. The Town of Gananoque Official Plan identifies unstable slopes along this stream, which is discussed in more detail in the Stormwater Management Report (Forefront 2025a).

Although this stream appears to have little to no direct connection for most of the year that would allow the migration of fish, to be conservative, the entire reach was fished with the backpack electro-fisher in June 2025, where depths allowed. No fish were observed or captured in Stream 1, and it is very unlikely to support fish for any notable period of time, if at all. No SAR or critical habitat have been identified for this stream. Refer to Table 6 below for water quality parameters.

4.4.2 Elmwood Drive Wetland

The Elmwood Drive Wetland is a densely vegetated basin marsh that is fed by Stream 1, as well as another stormwater outflow south of Elmwood Drive. There is a single outflow of this wetland, Stream 2, discussed in Section 4.4.3 below. Most of this wetland is lacking open water for most of the year, with some channelling occurring in the immediate vicinity of the inflows. Relatively shallow flooding occurs, especially in the eastern half of the wetland, primarily in periods of high water (spring). The flooding is interspersed amongst the very dense emergent vegetation. A few small but relatively deep and more permanent pools do occur at the eastern and southeastern edge of this wetland. Substrate in the pooled areas was primarily deep organics.

The dense vegetation and minimal water in most of this wetland would limit or even prevent migration of fish through this wetland. However, to be conservative, pools and channels that had enough water were fished with the backpack electro-fisher in June 2025. No fish were observed or captured in the Elmwood Drive Wetland. No SAR or critical habitat have been identified for this wetland. Refer to Table 6 below for water quality parameters.

4.4.3 Stream 2

Stream 2 is a short uniform reach that flows out of the Elmwood Drive Wetland into the inlet of the St. Lawrence River. It has a wetted width of 0.7 m during periods of high water. The depth ranges from 0.06 to 0.10 m, and the substrate is almost 100% cobbles and boulders. This stream is comprised primarily of a single run, with <5% riffles and small pools. During spring, flow conditions are moderate to fast, but in August 2024 no visible flow was observed, and in August 2025 the stream was dry. Riparian and overhanging vegetation is dense thickets, primarily invasive species such as Tartarian honeysuckle.

The presence of boulders and cobbles limits potential for fish migration through this watercourse, although it could not be ruled out completely. It is possible that some connectivity occurs in and around the cobbles in periods of high water. Electrofishing occurred in a few small pools in this stream, wherever depth allowed it. No fish were observed or captured in Stream 2. No SAR or critical habitat have been identified for this stream. Refer to Table 6 below for water quality parameters.

4.4.4 Stream 3

Stream 3 is off-Site and was not surveyed in detail. It appeared to start off as a series of runs, riffles and pools as it drops down towards the inlet. The last reach of this stream flows through the Meadow Marsh/Shallow Marsh

Complex (ELC code: MAM2/MAS2), where it slows down and is primarily a long slow run before flowing into the inlet of the St. Lawrence River.

Fishing was not completed within this stream; however, data available on LIO (MNR 2025a) collected in 2009 identified the presence of Banded Killifish (*Fundulus diaphanus*), Bluegill (*Lepomis macrochirus*), Bluntnose Minnow (*Pimephales notatus*), Brook Silverside (*Labidesthes sicculus*), Brown Bullhead (*Ameiurus nebulosus*), Golden Shiner (*Notemigonus crysoleucas*), Pumpkinseed (*Lepomis gibbosus*), Spotfin Shiner (*Cyprinella spiloptera*), and Yellow Perch (*Perca flavescens*). No SAR or critical habitat have been identified for this stream.

4.4.5 St. Lawrence River

East and south of the Site, within the Study Area, is an inlet and nearshore areas of the St. Lawrence River.

The inlet is east of the Site, a tiny sliver of which is on the Site, but outside of the proposed development footprint. The exact depth of the inlet is unknown, but it appears to range from 0.1 to 0.5 m. The substrate appeared to be primarily muck and silt/clay, and the inlet is heavily vegetated (~100%) with submergent vegetation and thick algae during the summer months. Riparian vegetation includes forbs such as cattails, and Joe Pye-weed (*Eutrochium maculatum*). There was no visible flow observed, and the water was very turbid on most visits. Instream habitat includes the vegetation as well as logs and other woody debris and the occasional boulder. Several small-bodied fish (Cyprinids), and unidentified sunfish (*Lepomis* sp.) were observed in the inlet during surveys.

The nearshore portion of the St. Lawrence River within the Study Area is immediately south of the Site. Depth of the entire area is unknown but topographical mapping shows it as less than 2 m deep. It is shallow at the shoreline with a very gradual slope out into the river. Visible portions appeared to be 70% cobble, with the rest being a mixture of sand, silt, gravel, and boulders. Submergent and floating vegetation appeared to have less than 50% cover, with exposed sediment visible throughout. There is a man-made shore wall along the entire edge of the Site and the St. Lawrence. Riparian vegetation is lacking, because of the presence of the shore wall, except for a few trees and shrubs.

The portion of the St. Lawrence River within the Study Area is within the Upper St. Lawrence River where many different fish species occur. Some examples of fish that occur are Alewife (*Alosa pseudoharengus*), Black Crappie, Bluntnose Minnow, Bluegill, Brown Bullhead, Common Carp (*Cyprinus carpio*), Largemouth Bass (*Micropterus salmoides*), Northern Pike (*Esox lucius*), Smallmouth Bass (*Micropterus dolomieu*), and Yellow Perch (MNR 2025a). Upstream and downstream of the Study Area, surveys conducted by the Royal Ontario Museum, identified Banded Killifish, Bluntnose Minnow, Pumpkinseed, and Spottail Shiner (*Notropis hudsonius*), and Yellow Perch (MNR 2025a).

The Town of Gananoque Official Plan identifies the littoral zone of the St. Lawrence River where it overlaps the Study Area, including the inlet, as a Fish Spawning Area (Figure 2). DFO Aquatic Species at Risk Mapping (DFO 2025a) identifies the potential presence of Pugnose Shiner (*Notropis anogenus*), and Grass Pickerel (*Esox americanus*) in this portion of the St. Lawrence River, including the inlet, although critical habitat is not identified. Pugnose shiner is designated as threatened under the ESA and the SARA, and Grass Pickerel is designated as Special concern under the ESA and the SARA. For more discussion on Pugnose Shiner, refer to Section 5.7. For more discussion on Grass Pickerel refer to Section 5.4.3.

Table 6: Water Quality Parameters May 2025

Location	Temp (°C)	Dissolved Oxygen (mg/L)	pH	Conductivity (µs/cm)
Stream1	12.4	4.9	7.9	1065
Elmwood Drive Wetland	17.2	2.6	8.1	1584
Stream2	14.1	5.8	8.4	850
Inlet of the St. Lawrence River	16.1	6.7	8.7	1190

5 ASSESSMENT OF SIGNIFICANCE AND IMPACT ASSESSMENT

This section assesses the significance of natural features and functions observed on the Site or in the Study Area, as well as the potential impacts to those features that may result from the proposed development, in consideration of the recommended mitigation measures.

5.1 Significant Wetlands and Coastal Wetlands

Significant wetlands are areas identified as provincially significant by the MNR using evaluation procedures established by the province. In Ontario, the province has established the OWES (MNRF, 2022) which assesses wetlands based on a range of criteria, including biology, hydrology, societal value and special features.

There are no PSWs on the Site or in the Study Area. The Elmwood Drive Wetland, located on the Site, was evaluated as part of the studies completed for this EIA and found to be non-PSW (Figure 1, Appendix H). This evaluation was prepared by provincially certified wetland evaluators in accordance with OWES and will be submitted to the Town of Gananoque at the same time of the draft plan approval application, then submitted to MNR within 30 days.

Coastal wetlands are those wetlands located on the shores of the five great lakes, their connecting channels, or on a direct tributary of the lakes or their connecting channels within 2 kilometres (km) of the lake or connecting channel shoreline. The Elmwood Drive Wetland is located on a small tributary of the St. Lawrence River, very close to the river itself, within 2 km of the 1:100-year flood line and is therefore considered a coastal wetland (non-PSW).

There is another unevaluated coastal wetland east and south of the Site that includes the shallow portions of the adjacent St. Lawrence River. An attempt was made to map the extent of this primarily off-Site wetland, but access was limited, especially in the open waters of the St. Lawrence, so the boundary should be used for information purposes only (Figure 1).

According to the PPS, development within non-PSW coastal wetlands can be permitted if it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions. Each of these two wetlands are discussed further below, as it relates to the proposed development.

5.1.1 Elmwood Drive Wetland

The Elmwood Drive Wetland is a shallow basin marsh located in the approximate centre of the Site. It is comprised of two plant communities: Reed Canary Grass Mineral Meadow Marsh (ELC code: MAM2-2) and

Narrow-leaved Cattail Organic Shallow Marsh (ELC code: MAS3-1). This wetland is primarily dominated by reed canary grass, narrow-leaved cattail as well as what's likely to be hybrid cattail (*Typha x glauca*). These species are considered aggressive invasive species, out-competing other plant species. Although there is no way to visually differentiate native reed-canary grass from non-native reed canary grass, based on the growth form, location, and density, it is likely that the non-native phenotype is dominant in the Elmwood Drive Wetland. For more details on the plant community of the Elmwood Drive Wetland refer to Table 2.

While it is generally recognized that wetlands can be sensitive and valuable ecosystems, the classification of a wetland does not consider its function, and not all wetlands are equal in significance or importance. Wetlands are simply "*Lands that are seasonally or permanently flooded by shallow water as well as lands where the water table is close to 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 or water tolerant plants*" (MNRF 2022). The presence of a high-water table and hydrophytic plants does not necessarily equate to ecological function or value. Some wetlands are very large, highly diverse and provide complex ecological function. Some wetlands are relatively small, simple, with limited ecological value, such as the Elmwood Drive Wetland. Many wetlands fall somewhere in the middle.

There are various definitions of ecological function, but generally "*wetland ecological functions are the natural processes (physical, chemical, biological) that are associated with wetlands independent of the considerations of the benefits of those processes to humans"* (Hanson *et al*. 2008). There are various methods for assessing ecological function, including the OWES in Ontario. The OWES assesses biological, hydrological, and social functions and values of a given wetland. For a copy of the OWES evaluation of the Elmwood Drive Wetland, refer to Appendix H. A summary of the findings of the OWES evaluation are provided below.

5.1.1.1 Hydrological and Biogeochemical Function

From an ecological perspective the main hydrological and biogeochemical functions that a wetland performs primarily relate to its influence on downstream ecosystems and habitats. This includes shoreline erosion protection, flood attenuation, water conveyance, as well as the export and/or storage of nutrients, carbon, and sediment (Government of Canada 1991, Hanson et al. 2008, MNRF 2022).

According to the OWES evaluation, the Elmwood Drive Wetland has minimal to no erosion protection and flood attenuation function. Its primary hydrological function is conveyance of water and nutrients, although its main hydrological source is a residential stormwater system, with no apparent natural upstream sources of nutrients or water. As noted in the OWES evaluation (Appendix H), it provides a short-term nutrient trap function as well but has a minimal long-term nutrient trap function. It had a moderate score on the hydrological component of the OWES.

5.1.1.2 Biological and Habitat Function

The Elmwood Drive Wetland is dominated by invasive species, and although it does contain some desirable plants, they are relatively sparse, outcompeted by invasives, and overall plant biodiversity is limited. For more information on the plant community in the Elmwood Drive Wetland, refer to Table 2. The wildlife community is also very low in diversity, with very little areas of open water, and no frogs or turtles were identified using the wetland during surveys. A small number of bird species, such as red-winged blackbird and swamp sparrow (*Melospiza georgiana*) were observed possibly breeding within the wetland; however, overall activity was low. There was no evidence of marsh birds, waterfowl, or any other waterbirds utilizing the wetland. There was no evidence of beavers or other mammals utilizing the wetland. No SAR, SAR habitat, potential SAR habitat, provincially or

regionally rare species or habitats were identified within the Elmwood Drive Wetland. There was a pair of ospreys nesting on a man-made platform within the wetland; however, this was because of the presence of the osprey platform and not directly related to the wetland itself. In fact, the osprey pair was not observed fishing within the Elmwood Drive Wetland and were seen several times bringing in fish from adjacent areas. The wetland primarily receives water from an adjacent residential stormwater management system. Water flows through the wetland, with limited pooling of water at the far eastern edge of the wetland. Flooding occurs during periods of highwater and immediately following rain events, but most of the wetland is dry, with limited to no flow by mid to late summer, except during a notable rain event when it receives flows from the upstream stormwater system.

The history of the Elmwood Drive Wetland is unknown, but based on a review of historically imagery, and the soils, it appears a notable portion was historically agricultural field. The easternmost portion, where deeper organic soils occur, has been a wetland for a long time, but other portions were possibly converted to wetland when the adjacent subdivision was built, and stormwater flow was directed into it.

The wetland provides little to no direct fish habitat, primarily due to a lack of permanent open water and the intermittent water that does occur is limited by obstructions to fish passage throughout this stream and downstream, as well as by relatively low oxygen levels in the wetland itself. No fish were observed or captured in the Elmwood Drive Wetland during surveys. For more information of fish and fish habitat refer to Sections 4.4 and 5.6. In general, the most biologically diverse portions of the Elmwood Drive Wetland are at the far eastern portion, closer to where it outflows into the inlet of the St. Lawrence River, although this area was still relatively low in diversity and dominated by invasive species.

Impact to Ecological Function

As part of the proposed development, a portion of the Elmwood Drive Wetland is proposed to be removed (Appendix F). This is primarily limited to the relatively dry, monoculture, areas of cattails and reed canary grass in the western half of the wetland. Water and nutrient conveyance will be maintained, as described in the Stormwater Management Report (Forefront 2025a). To off-set the loss of the proposed removal of wetland habitat, the remaining portions of the Elmwood Drive Wetland will be protected and enhanced, improving the overall ecological function (see Section 1.2.2). In addition, Stream 1 (Figure 1) that flows through the wetland will be protected and improved as described in the Stormwater Management Report, and Section 1.2.2. The Stormwater Management Report demonstrates that adequate stormwater management controls are available for the proposed subdivision and will ensure no adverse effects to water quality or quantity leaving the Site, or to downstream features.

Although the overall size of the Elmwood Drive Wetland will be reduced, it is WSP's opinion that there will not be a loss of ecological function. The enhancement of the Elmwood Drive Wetland will include the removal of invasive species, increased habitat structure and areas of open water, installation of wildlife habitat features, and increased biodiversity by planting desirable native plants and improving its attractiveness to wildlife. For more details on the proposed enhancement refer to Sections 1.2.2 and 7.1. The implementation of this enhancement, as well as the application of mitigations and other recommendations provided in Section 7.0 and the Stormwater Management Report (Forefront 2025a), will at a minimum off-set the minimal loss of ecological form, and will likely increase ecological function of the wetland over time.

5.1.2 Other Coastal Wetlands

As noted, there is an additional unnamed, unevaluated coastal wetland that occurs east and south of the Site, with a tiny sliver of it overlapping the Site, but outside of the proposed development footprint. This wetland is

comprised of at least three plant communities: Meadow Marsh/Shallow Marsh Complex (ELC code: MAM2/MAS2), Submerged Shallow Aquatic (ELC code: SAS), and Green Ash Mineral Swamp (ELC code: SWD2-2). This wetland is outside of the proposed development footprint, and there are no anticipated impacts, providing setbacks and recommendations in Section 7 and the Stormwater Management Report are implemented.

5.2 Significant Woodlands

According to the PPS, significant woodlands are to be identified within Ecoregions 6E and 7E using criteria established by the MNR in the NHRM (MNRF, 2010), and the local planning authority is to refine and apply the NHRM criteria within their jurisdiction to identify significant woodlands (MNRF, 2010).

Schedule F of the Official Plan maps significant woodlands but does not map any on the Site. Significant woodlands are mapped immediately east of the Site within the Study Area. The significant woodland is buffered from the proposed development by the inlet of the St. Lawrence, wetland, and related setbacks where no disturbance related to the proposed development will occur. Therefore, no impacts to the significant woodlands off-Site are anticipated and no mitigation is required.

5.3 Significant Valleylands

Significant valleylands should be defined and designated by the planning authority in Ecoregions 6E and 7E. General guidelines for determining significance of these features are presented in the NHRM (MNRF, 2010). Recommended criteria for designating significant valleylands include prominence as a distinctive landform, degree of naturalness, importance of its ecological functions, restoration potential, and historical and cultural values.

There are no significant valleylands identified at the Site or in the Study Area.

5.4 Significant Wildlife Habitat

The NHRM includes high level guidance for identifying SWH, which is further refined in the Significant Wildlife Habitat Technical Guide (SWHTG) and the Significant Wildlife Habitat Criteria Schedules (SWHCS) (MNRF, 2000; MNRF, 2015a). These documents are the basis for identifying areas and features that are considered SWH by the province and were used in this Study to determine SWH at the Site and in the Study Area.

There are four general categories of significant wildlife habitat: seasonal concentration areas, rare vegetation communities or specialized habitats for wildlife, species of conservation concern, and animal movement corridors. Each category includes several different types of SWH.

The province's guidance for identifying SWH consists of two factors: presence of suitable habitat and evidence of use that meets certain thresholds (e.g., presence of certain species, presence of certain numbers of individuals, etc.). For an area to qualify as SWH, both factors must be present. The table provided in Appendix E outlines all the types of SWH that are to be considered in Ecoregion 6E according to the SWHCS and includes an assessment of whether or not the criteria for 'candidate' SWH is present at the Site for each type (i.e., the first factor: habitat). Where 'candidate' SWH is present at the Site, the table goes on to compare the habitats and results of field surveys at the Site to the defining criteria as listed in the SWHCS to determine presence/absence of 'confirmed' SWH (i.e., the second factor: use). Where 'confirmed' SWH is identified through the analysis presented in Appendix E, those types of SWH are discussed below in the context of the proposed development. Where presence of 'confirmed' SWH cannot be ruled out, a conservative approach has been implemented by identifying 'candidate' SWH. Where only 'candidate' SWH is identified, but the defining criteria for 'confirmed'

SWH are not present, those types of SWH are absent (i.e., there is suitable habitat, but the habitat is not being used; therefore, no SWH is present).

5.4.1 Seasonal Concentration Areas

Seasonal concentration areas are areas where wildlife occur in aggregations at certain times of year. Examples include concentrations of wildlife during migration, hibernation, wintering areas or specialized breeding areas for colonial species.

The SWHCS for Ecoregion 6E identifies the following types of seasonal concentrations of animals that may be considered significant wildlife habitat:

- Waterfowl stopover and staging areas (aquatic and/or terrestrial)
- Shorebird migratory stopover areas
- Raptor wintering areas
- Bat hibernacula
- Bat maternity roost colonies
- Turtle wintering areas
- Reptile hibernaculum
- Colonially nesting bird breeding habitat (bank / cliff)
- Colonially nesting bird breeding habitat (tree / shrub)
- Colonially nesting bird breeding habitat (ground)
- Migratory butterfly stopover areas
- Landbird migratory stopover areas
- Deer yarding and winter congregation areas

Based on the analysis presented Appendix E, the Site contains confirmed SWH seasonal concentration areas in the form of turtle overwintering associated with the inlet at the eastern edge of the Site (Figure 2). Most of the inlet is off-site but within the Study Area. The very narrow portion of the inlet on-site lies outside of the proposed development footprint and is not expected to be directly or indirectly impacted by the proposed development as detailed in Sections 5.1 and 5.6 and provided the mitigation measures presented in Section 7 are implemented.

Based on the analysis in Appendix E, no confirmed SWH seasonal concentration areas are present within the Study Area; however, several types of candidate SWH seasonal concentration areas have conservatively been identified based on the habitats present (see Appendix E). None of the off-Site habitats are expected to be impacted as a result of the proposed development, therefore no impacts to any SWH seasonal concentration areas are anticipated. Mitigation measures to protect individual wildlife, as well as standard best management practices, are discussed in Section 7.

5.4.2 Rare Vegetation Communities or Specialized Habitats for Wildlife

5.4.2.1 Rare Vegetation Communities

Rare vegetation communities are those that are considered rare in the province [communities assigned an SRANK of S1 to S3 (extremely rare to rare-uncommon) by the NHIC] as well as vegetation communities that may be rare in a planning area. Such habitats are considered more likely to support rare species of plants or wildlife. Rare vegetation communities to be considered in Ecoregion 6E are:

- Cliffs and talus slopes
- Sand barren
- Alvar
- Savannah
- Tallgrass prairie
- Other communities considered provincially rare
- Old growth forests

No types of rare vegetation community SWH from the above list have been identified at the Site or in the Study Area based on the analysis presented in Appendix E and the ELC presented in Section 4.

5.4.2.2 Specialized Habitats for Wildlife

Specialized habitats are those habitats that support wildlife during a critical part of the life processes, primarily during breeding, but also includes specific features or micro-habitats, such as seeps. Specialized habitats that are to be considered in Ecoregion 6E are:

- Waterfowl nesting areas
- Bald eagle (*Haliaeetus leucocephalus*) and osprey (*Pandion haliaetus*) nesting, foraging and perching habitat
- Woodland raptor nesting habitat
- Turtle nesting areas
- Seeps and springs
- Amphibian breeding habitat (woodland / wetland)
- Woodland area sensitive bird breeding habitat

Based on the analysis presented Appendix E, the Site contains confirmed SWH specialized habitats in the form of amphibian breeding habitat (woodland) associated with the inlet and wetlands at the eastern edge of the Site (Figure 2). This SWH includes forested habitats within 230 m of the wetland habitat (see Figure 2). The inlet and eastern wetlands are primarily off-Site in the Study Area. The narrow portion of these features that are on the Site lie outside of the proposed development footprint and are not expected to be directly or indirectly impacted by the proposed development as detailed in Sections 5.1 and 5.6 and provided the mitigation measures presented in Section 7 are implemented. The forested portion of this SWH is further off-site, and as noted in Section 5.2, there are no anticipated effects to these woodlands from the proposed development.

Based on the analysis in Appendix E, confirmed SWH specialized habitat is present within the Study Area in the form of amphibian breeding habitat (woodland) associated primarily with off-Site portions of the inlet. In addition, several types of candidate SWH specialized habitat have conservatively been identified in the Study Area, outside of the Site, based on the habitats present (see Appendix E). None of the off-Site habitats are expected to be impacted as a result of the proposed development, therefore no impacts to any SWH specialized habitats are anticipated. Mitigation measures to protect individual wildlife, as well as standard best management practices, are discussed in Section 7.

5.4.3 Habitat for Species of Conservation Concern

Habitat for species of conservation concern (SCC) includes certain habitats for groups of species that are declining provincially, as well as individual species that are considered rare. The types of habitats for SCC to be considered in Ecoregion 6E are:

- Marsh bird breeding habitat
- Open country bird breeding habitat
- Shrub / early successional bird breeding habitat
- Terrestrial crayfish
- Special concern or rare wildlife species, including:
  - Species that are ranked S1-S3 by the NHIC and/or are provincially tracked (excluding those species designated as threatened or endangered under the ESA)
  - Species with populations that are significantly declining or have a high percentage of their global population in Ontario
  - Species listed as special concern under the ESA
  - Species listed as threatened or endangered under SARA only
  - Regionally or locally rare species, where lists are available

Based on the analysis present in Appendix E and Appendix B, the only confirmed SWH for species of conservation concern on the Site is the presence of special concern wildlife. The Site is known to provide habitat for snapping turtle and map turtle (both listed as special concern under the ESA), both of which were observed within the inlet east of the Site (Figure 2). Although these observations were off-Site, a small portion of the inlet overlaps with the Site, but is outside of the proposed development footprint. The inlet and nearshore areas of the St. Lawrence River may also provide habitat for grass pickerel (*Esox americanus*); listed as special concern under the ESA). The inlet and nearshore areas of the St. Lawrence River lie outside of the proposed development footprint and are not expected to be directly or indirectly impacted by the proposed development as detailed in Sections 5.1 and 5.6 and provided the mitigation measures presented in Section 7 are implemented.

Additional candidate SWH for species of conservation concern, including species of special concern, are potentially present in Study Area (see Appendix B). None of the off-Site habitats are expected to be impacted as a result of the proposed development, therefore no impacts to any SWH for species of conservation concern are anticipated. Mitigation measures to protect individual wildlife, as well as standard best management practices, are discussed in Section 7.

5.4.4 Animal Movement Corridors

Animal movement corridors are naturally vegetated parts of the landscape used by animals to move from one habitat to another, typically in response to different seasonal habitat requirements. The SWHCS indicates that movement corridors are to be identified only where certain types of SWH have been identified according to the SWHCS, including:

- Amphibian movement corridors: to be identified when significant amphibian breeding habitat (wetland) is present.
- Deer movement corridors: to be identified when deer wintering habitat is present.

Significant wildlife habitat in the form of amphibian breeding habitat (wetland) or deer wintering habitat has not been confirmed at the Site or in the Study Area, therefore no animal movement corridors are to be identified. The Site is surrounded on the west and north sides by dense residential development, and by the St. Lawrence River to the south, and cannot provide a significant corridor for wildlife.

5.5 Significant Areas of Natural and Scientific Interest

Significant Areas of Natural and Scientific Interest (ANSIs) are areas identified as provincially significant by the MNR using evaluation procedures established by the province.

There are no provincially significant ANSI identified on the Site or in the Study Area.

5.6 Fish Habitat

5.6.1 Direct Impacts Fish Habitat

No fish were observed or captured within Stream 1 or the Elmwood Drive Wetland during surveys. In addition, fish passage from the St. Lawrence River into these features is obstructed for most if not all of the year due to dense vegetation, rocky debris, and low to absent water levels. These features originate from upstream residential stormwater systems and are not connected upstream to any other potential fish habitat. It is unlikely that these features provide direct fish habitat, but mitigation will be implemented to be conservative.

As part of the proposed development, a single road crossing is proposed across Stream 1. This is proposed at approximately the same location as an existing dirt track that crosses the stream over 3 x 500 mm diameter culverts. These culverts will be upgraded to a single 1800 x 1200 mm (span/rise) concrete box culvert, as discussed in the Stormwater Management Report (Forefront 2025a). In addition, improvements and modifications are proposed to Stream 1, a portion of the Elmwood Drive Wetland will be removed, and the rest of the Elmwood Drive Wetland will be enhanced, as discussed in Sections 1.2.2 and 7.1. This will require instream work, as well as isolation of portions of the stream and Elmwood Drive Wetland, which will temporarily directly impact these features and any potential fish habitat they provide, in the short-term. In addition, the temporary removal of vegetation may reduce shading and organic inputs to Stream 1 and the Elmwood Drive Wetland, in the short term.

Immediately downstream of the proposed development is the inlet and nearshore waters of the St. Lawrence River, which are confirmed fish habitat for many species. These features will be isolated from the proposed development by setbacks and mitigation measures, as discussed in Section 7, and the only potential direct impact to these features is the alteration of water inputs from the upstream proposed development (discussed in the Stormwater Management Report), as well as the potential temporary reduction of organic inputs from vegetation removal along Stream 1 and the Elmwood Drive Wetland.

It is anticipated that these impacts and potential impacts to fish and fish habitat features can be managed through the stormwater management plan, as well as implementation of mitigation measures and recommendations outlined in Sections 1.2.2 and 7.0. The Stormwater Management Report demonstrates that adequate stormwater management controls are available for the proposed subdivision, and will ensure no adverse effects to water quality or quantity leaving the Site, or to downstream features. In fact, the overall quality and quantity of the fish habitat present is likely to be improved through proposed modifications to Stream 1 and the Elmwood Drive Wetland. To be certain no negative impacts will occur, submission of a request for project review to DFO is recommended.

5.6.2 Indirect Impacts Fish Habitat

There is potential for indirect impacts to fish and fish habitat, resulting from the ongoing use and maintenance of new roads. These impacts include but are not limited to the following:

1) The removal of vegetation and hardening of the surrounding and adjacent to the watercourse may impact,
    - Shading within the waterways, leading to temporary water temperature increases,
    - Quality and quantity of in-water cover, foraging habitat, and food supply, and/or
    - Erosion of banks leading to a change in substrate and channel morphology in downstream habitat.
2) Alteration of water quality from roadway maintenance such as salting / sanding, structure or culvert repairs or ditch clean-outs, and spills of contaminants, fuels and other materials that may reach natural areas.

During the construction process there is potential for temporary impacts to fish and fish habitat. These impacts include but are not limited to the following:

- Release of construction-generated sediment into the associated watercourses and into the St. Lawrence River.
- Spills of contaminants, fuels and other materials that may reach natural areas.
- Localized impacts to the watercourse including interruption of fish passage, disturbance of channel bed and banks, and removal of an area of fish habitat within the work area during construction dewatering.

It is anticipated that these impacts and potential impacts to fish and fish habitat features can be managed through the stormwater management plan, as well as the implementation of mitigation measures and recommendations outlined in Sections 1.2.2 and 7.0. This includes setbacks, habitat enhancements, fish protection mitigation, ESC measures, and construction best management practices. To be certain no impacts will occur, a request for review to DFO is recommended.

5.7 Habitat of Endangered and Threatened Species

Based on the background review and field surveys, provincially threatened and endangered species identified on the Site include butternut, pugnose shiner, little brown myotis, tri-colored bat, and hoary bat.

5.7.1 Butternut

A single butternut (endangered under the ESA) was identified on the Site and, based on the health assessment completed per provincial guidelines by a qualified individual, the tree is Category 1 (non-retainable). Based on the current ESA guidance, removal of Category 1 trees, works within the critical root zone, or any activities that may

harm the tree do not require registration or permitting under the ESA. This tree will likely be harmed or removed as part of the proposed development.

5.7.2 Chimney Swift

Chimney swift (threatened under the ESA and the SARA), was observed in 2020 and 2024 foraging over the edge of the Site and the Study Area, and beyond the Study Area. There are no suitable nesting structures on the Site, and no activity was observed associated with cavity trees on the Site during surveys. Suitable structures occur within the Study Area, and beyond within the Town of Gananoque. It is likely that this species is nesting off-Site, and there are no anticipated impacts because of the proposed development.

5.7.3 Pugnose Shiner

Pugnose shiner (threatened under the ESA) is known to occur in the St. Lawrence River in the vicinity of the Site. The nearshore portion of the St. Lawrence and to a lesser degree, the inlet, may provide suitable habitat for this species. The inlet appears to be less suitable, as it was very densely vegetated and very turbid during most surveys. As noted throughout Sections 5.1 and 5.6, no impacts to the inlet or the habitat it provides are anticipated to result from the proposed development. Based on this, no impacts to this species or its habitat are anticipated and no permitting under the ESA will be required.

5.7.4 Bats

Little brown myotis and tri-colored bat are designated as endangered under the ESA and the SARA. Hoary bat is designated as endangered under the ESA only. These species were recorded on the Site during acoustic surveys and have a high potential to be present in the Study Area; however, there are no regulated habitats for these species under the ESA, and there is no General Habitat Description for them. See below for further discussion of each species.

Cavity Roosting Bats – Little Brown Myotis

In natural habitats, little brown myotis show preference for roosting in hollow trees and under peeling bark. The greatest threat to little brown myotis is white-nose syndrome, which affects bats in their hibernacula (COSEWIC 2013). Based on this, loss of roosting habitat is only a small contributing factor in the decline of this species, with the loss of anthropogenic structure roosting habitat, and mature forests being the greatest concern (COSEWIC 2013).

Suitable cavity tree habitat occurs, but is limited on the Site, with most trees being immature, less than 25 cm DBH, and lacking suitable cavities. However, small clusters of larger mature maples and oaks do occur, in the area around stations BAT01 and BAT02, with BAT02 having the best potential overall.

The highest habitat potential for little brown myotis on the Site is a clump of mature oaks and other trees in the vicinity of BAT02, along the inlet of the St. Lawrence River. At BAT02, there was a moderate number of passes of little brown myotis (n=377), an average of 29 passes a night. The highest activity was within the first hour after sunset, and the last hour before sunrise. This timing and number of passes suggests that there is likely a roost in the vicinity of BAT02. At BAT01, there were less passes of little brown myotis (n=161), an average of 12 passes per night. The activity was more sporadic throughout the night but still showed highest activity closer to sunset and sunrise. Given the relatively low numbers of passes, it is unknown if a roost occurs in the vicinity of BAT01.

Opportunities for bat maternity roosting for this species occurs in the forests east and west of the Site, as well as large numbers of large older trees and older structures in the Town of Gananoque, and expansive forested areas north of the town; habitat is not a limiting factor for little brown myotis in the local landscape.

Foliage Roosting Bats - Tri-coloured Bat, and Hoary Bat

In natural habitats, hoary bat typically roosts in the foliage of trees (COSEWIC 2023). Although less is known about summer roosts of tri-colored bat, studies have shown that they roost in dense foliage as well as clumps of dead leaves, lichens, squirrel nests and other similar features in trees (MECP 2019). They also occasional roost in buildings and other suitable structures, although it is considered rare. According to COSSARO (COSSARO, 2025), declines in eastern hoary bat are suspected to be a cumulative result of “wind energy development, decline in prey availability, pollution, loss of roosting habitat and climate change. Wind energy development is identified as the greatest threat to migratory bat species”. The greatest threat to tri-coloured bat is white-nose syndrome, which affects bats in their hibernacula (COSEWIC 2013). Based on this, loss of roosting habitat is only a small contributing factor in the decline of these species.

At Station BAT01 there was a low number of passes of hoary bat (n=77), and no passes of tricolored bat (n=0). Bat activity was sporadic throughout the night, with no distinct activity near dusk or dawn. At BAT02 there was a moderate to high number of passes of hoary bat (n=496), and a very small number of passes of tricolored bat. Bat activity of hoary bat was fairly consistent and regular throughout the night, possibly related to the close proximity of the inlet. It is possible that a hoary bat roost occurs within the vicinity of BAT02, but very unlikely for tri-colored bat given the very low number of passes (less than 1 per night).

Hoary bat tends utilize tall, larger diameter, more mature trees, reaching or exceeding the height of the canopy (COSEWIC, 2023). Several large diameter mature trees that meet this description occur in the vicinity of BAT02, further supporting the possibility of a hoary bat roost.

Opportunities for bat maternity roosting for these species occurs in the large forests east and west of the Site, as well as large numbers of large older trees and older structures in the Town of Gananoque, and expansive forested areas north of the town; habitat is not a limiting factor for these species in the local landscape.

SAR Bat Summary

Based on the results of this Study, there is potential roosts for SAR bats on Site, especially the eastern portion of the Site, adjacent to the inlet of the St. Lawrence River where the best potential habitat occurs, and acoustic data showed the highest use. This area is also very close to suitable foraging habitat over the inlet of the St. Lawrence River. This highest quality potential habitat is shown on Figure 2 and is within a park block on the proposed development. Although detailed design has not yet been completed for the proposed development, as many large trees as possible in this area will be protected within the park block, with a focus on the largest trees and those closest to the inlet. In addition, artificial bat roosts (e.g., bat boxes and/or roost tree structures) will be installed as recommended in Sections 7.1 and 7.3.

As noted, no suitable hibernacula for bats were observed at the Site, and no known, inferred or potential karst topography is mapped at the Site or in the Study Area (Brunton, F.R. and Dodge, J.E., 2008).

Mitigation measures to protect individual bats during site preparation are provided in Section 7.3.

Based on this, it is WSP’s opinion that the reduction in tree cover at the Site is not expected to impact the ability of these species to use the landscape. Further, post development, trees planted as part of the landscape plan may provide suitable roosting habitat for these species over time. The Site and Study Area, including the Elmwood Drive Wetland, adjacent wetlands, and the St. Lawrence River and inlet, will also continue to act as foraging and commuting habitat for these species. Based on this, it is WSP’s opinion that no permits or authorizations under

the ESA are required for SAR bats at the Site provided the mitigation measures to protect individual bats during site preparation presented in Section 7 are implemented.

6 POTENTIAL INDIRECT IMPACTS

In addition to the physical impacts associated with the footprint of the proposed development discussed in the section above, there is also potential for indirect impacts associated specifically with the construction and operational phases of the proposed development, as discussed below.

6.1 Construction Impacts

Activities related to Site preparation and development such as grading, filling, and presence of heavy machinery can cause soil erosion and compaction, while machinery can destroy over-hanging vegetation. Encroachment into the natural areas adjacent to the proposed project can also occur by machinery, foot traffic, and discarding or storage of construction materials outside the development envelope. Standard construction best management practices will be employed to mitigate potential damage to the adjacentt natural features, as outlined in Section 7.

Generally, construction noise represents a short-term disturbance to wildlife using the adjacent natural areas. It is expected that with the completion of construction, wildlife will quickly return to their normal use patterns within the natural areas adjacent to the development.

6.2 Human Impacts

Many of the chronic impacts that can occur in adjacent natural areas are not a result of degradation of the edge, but an increase in human use through the entire system. The proposed development may result in a marginal increase in potential disturbance to the adjacent natural features through the following potential impacts:

- Light pollution
- Increased noise
- Introduction of exotic species
- Increased human influence (stray waste, edge encroachment, ad-hoc trails)
- Mortality of wildlife from pets and vehicles

Mitigation to address the above potential impacts is presented in Section 7.3.

7 MITIGATION, BEST PRACTICES, AND RECOMMENDATIONS

The mitigation measures and best management practices outlined below should be implemented on the Site to minimize the potential for adverse impacts to significant natural heritage features and functions on and adjacent to the Site.

7.1 Setbacks and Enhancements

To protect natural and hydrological features adjacent to and within the proposed development the following setbacks will apply. For more information on these setbacks and how they relate to applicable CRCA and provincial requirements for natural hazards, refer to *Memorandum: Elmwood Subdivision Floodplain Elevation and Setbacks* (Forefront 2025b) that is included in the draft plan of approval application package.

- A 15 m naturalized setback will be applied to the enhanced Elmwood Drive Wetland. This setback will undergo invasive species removal, and planting of native plants as shown in Appendix G and discussed below.
- A 6 m naturalized setback will be applied to the proposed highwater mark of the improved Stream 1. This area will undergo invasive species removal, and planting of native plants discussed below.
- A 15 m setback will be applied to the portions of the adjacent coastal wetland that are not directly associated with the St. Lawrence River (i.e., shallow marsh and meadow marsh communities at the eastern edge of the Site).
- A minimum 10 m setback will be applied between the proposed development and the adjacent significant woodland.
- Lots along the St. Lawrence River are within a Waterfront Overlay in the Development Permit By-law. Permitted uses include all uses permitted in the underlying development permit designation, in this case Residential. The Development Permit By-Law proposes a site-specific regulation that includes a required 15 m setback from the floodplain. Enhancements by natural landscaping and additional native planting are recommended to create a vegetative buffer area to protect sensitive environments. In accordance with CRCA requirements, a 10 m horizontal setback from buildings and structures to the floodplain elevation is to be applied along these lots (Forefront 2025b).

As described in Section 1.2.2, enhancements to Stream 1 and Elmwood Drive Wetland are proposed. Stream 1 will be enhanced to reduce erosion and ensure a predictable hydraulic response over time, additional fish habitat features will be added, invasive species removal will be undertaken, and native species will be planted in the riparian area. Elmwood Drive Wetland will be improved by undertaking invasive species removal, depths will be made more variable to increase habitat heterogeneity, native plantings will be installed and a wide range of wildlife habitat features will be added (e.g., turtle nesting areas, duck boxes, bat roosting structures, and an osprey nesting platform). Designs will be finalized with input from relevant agencies such as CRCA, the Town of Gananoque, and DFO.

In addition to those installed along the enhanced wetland, additional bat roosting structures should be considered for installation in parkland and other setbacks throughout the Site.

7.2 Fish and Fish Habitat Mitigation

The mitigation measures outlined below encompass a series of general measures to minimize impacts to fish and fish habitat associated with Stream 1, Stream 2, the Elmwood Drive Wetland, and the St. Lawrence River. These standard mitigation measures have been adapted from DFO's "Measures to Protect Fish and Fish Habitat" (DFO 2025a).

- Submit a Request for Review to DFO to ensure compliance with the federal *Fisheries Act*. This should be done with at least 66% design, but DFO may require full detailed design.
- All in-stream works will be isolated from the watercourse flow to avoid the introduction of potential contaminants into the watercourse. Standard containment and temporary flow management measures will also be implemented for water crossing and any other works.
- During construction all excavated material will be disposed of above the high-water mark or top of bank of nearby waterbodies and ensuring sediment re-entry to the watercourse is prevented.

- Heed weather advisories and scheduling work to avoid wet, windy, and rainy periods that may result in high flow volumes and/ or increase erosion and sedimentation.
- Appropriate ESC measures will be implemented.
- ESC measures will be monitored regularly, and any issues addressed immediately. All non-biodegradable materials will be removed at the completion of construction. The need for extended retention of biodegradable materials until full vegetation establishment will be reviewed at the detail design stage to avoid impacts to natural features.
- All materials used for in-stream isolation will be clean and free of any particulate matter.
- Recommendations in the Stormwater Management Report (Forefront 2025a) will be followed.
- Standards and other recommendations, developed in consultation with DFO through the request for review, will be implemented (e.g., DFO's Interim Standards such as "Interim standard: in-water site isolation", "Interim code of practice: End-of-pipe fish protection screens for small water intakes in freshwater").

7.2.1 Fish Protection

- Complete work during the appropriate timing windows to protect fish, as well as their eggs, juveniles, spawning adults, the organisms upon which they feed, and migration. No in-water works will be completed from March 15th to July 15th.
- Isolation measures and in-water works will be conducted, if possible, during the period when Stream 1 and the Elmwood Drive Wetland are dry, or as low water levels as possible.
- If water occurs, or may occur, isolation measures will be installed at the watercourse and wetland to remove fish from harm.
- A fish rescue / relocation will be undertaken in the isolated areas, prior to construction to ensure any entrapped fish and other wildlife are safely removed and released, unharmed in appropriate habitat beyond the construction limits. Additionally, if at any point the isolation area is overtopped by flows, additional fish rescues/ relocations will take place as needed. Fish rescues will be carried out by a qualified environmental professional to ensure appropriate protocols are applied and appropriate permits are obtained prior to construction.

7.3 Best Management Practices

In addition to the proposed setbacks, enhancements, and fish mitigation recommendations, the following best management practices should be applied.

- If needed, the installation of temporary Vegetation Protection Fencing prior to any grading to delineate the work zone and prevent direct damage to adjacent retained vegetation (i.e., mechanical damage, root damage, soil compaction). This fencing is to remain until construction is complete.
- Erosion and Sediment Control (ESC)

    i) Includes installation of ESC fencing at grading limits and along surface water features. Details to be provided with final Site plan as a condition of approval.

ii) Erosion and sediment controls will be inspected regularly to ensure protection measures are functioning as intended, maintained and repaired and remedial measures are initiated where warranted.

- Construction best management practices to minimize ecological impacts, including:
  - i) Refueling and equipment washing to occur at least 30 m from wetlands and watercourses.
  - ii) Preparation of a Spills Management Plan – to be kept on-Site.
  - iii) No stockpiling or storage of construction materials or soils outside the delineated work zone.
  - iv) Ensure all equipment is cleaned prior to transportation and use on the Site to avoid the spread or introduction of invasive species on the Site in accordance with the Clean Equipment Protocol for Industry (Halloran et al. 2016).
- Construction timing will have consideration for the following:
  - i) Any timing windows required for compliance with permits and approvals obtained for the project (e.g., ESA, DFO, etc.).
  - ii) For compliance with MBCA and to minimize adverse impacts to bird species, vegetation removal will be avoided during the active season for breeding birds (April 1 – August 31) (ECCC 2023). Should vegetation removal be unavoidable during the active season, any construction disturbance will be preceded by nesting survey conducted by a qualified biologist. If any active nests are found during the nesting survey, a buffer will be installed around the nest to protect against disturbance. Vegetation within the protection buffer cannot be removed until the young have fledged the nest or the nest is no longer active, as confirmed by a qualified biologist. Note: Nesting surveys are only recommended for simple habitat (e.g., urban parks, vacant lots, previous cleared sites, structures, etc.) (ECCC 2023).
  - iii) For compliance with the ESA and to avoid impacts to roosting bats, no tree removal will occur during the active bat season. MECP recommends avoidance of clearing activities during April 1 – November 30; however, bats are more likely to be encountered during the core of this period. If clearing needs to occur within the April, October or November, or any other time within this period, it should be done under direction of a qualified biologist.
  - iv) Culvert or watercourse crossing structure installation will occur during a period where the watercourse is completely dry or by isolating the work area (e.g., coffer dam) and utilizing pumps to bypass the construction area and maintain flow.
- The following measures are recommended for the protection of wildlife in general:
  - i) To avoid turtles and amphibians from entering the construction disturbance area, exclusion fencing should be erected between the construction disturbance area and any surface water features in accordance with MECP guidelines for reptile and amphibian exclusion fencing (MECP 2021).
  - ii) In the event that an animal is encountered on-Site during construction, does not move from the work zone, and construction activities are such that continuing construction in the area would result in harm to the animal, all activities that could potentially harm the animal will cease immediately and the Contract Administrator / Site Manager will be notified.

iii) Prior to any works within Stream 1, and the Elmwood Drive Wetland, a wildlife rescue program should be implemented to protect reptiles and amphibians, alongside the fish rescue recommended in Section 7.2.

iv) If a threatened or endangered species is found in the construction area, all activities that could potentially harm the animal will cease immediately and the Contract Administrator / Site Manager or Project Ecologist will be notified. They will then contact the MECP SAR Biologist for direction, as needed.

v) Prior to starting work each day, inspect the work area and vehicles (including staging areas and beneath equipment) to search for wildlife.

7.4 Human Impacts

To mitigate potential human impacts on adjacent natural features, the following measures could be implemented where feasible:

- Preparation and distribution of a Homeowner's Manual to new residents, highlighting the importance of the adjacent natural features and ways residents can lessen their impact on those features (e.g., gardening with native species; responsible pet ownership; proper garden and pet waste disposal, sensitivities of storm sewers, etc.).
- Signage in any public spaces indicating pets should remain on a leash.

Potential sensory disturbance from lighting to wildlife residing in the adjacent natural features can be further mitigated through the following:

- Avoid direct glare into adjacent natural features by installing low intensity and downward pointing lights.
- Turn off outdoor lighting when not in use, except where used for security and safety.
- Consider the use of motion sensors on all safety and security lighting.

7.5 Stormwater Management

To protect the on-Site and downstream surface water features, as well as to maintain conveyance of water through the Site, a stormwater management plan has been proposed in the Stormwater Management Report (Forefront 2025a). All recommendations related to surface water features, water quality and water quantity within this report should be followed.

8 PERMITS AND APPROVALS

No ecology-related permits are anticipated to be required for this proposed project, provided the proposed mitigations are followed; however, the requirements for an authorization under the *Fisheries Act* will be determined with the DFO through the request for review process.

In addition, encroachment within 30 m of the off-Site wetland, works adjacent to the St. Lawrence River, as well as the proposed works within and adjacent to Stream 1 and the Elmwood Drive Wetland will likely require a permit from the CRCA under O.Reg. 41/24 as it relates to flooding, erosion, dynamic beaches or unstable soil or bedrock.

9 MONITORING

Monitoring programs are developed to assess the effectiveness of mitigation measures implemented at a project location. The following monitoring is recommended.

- Isolation and in-water works within Stream 1 and the Elmwood Drive Wetland should be monitored by a qualified biologist. The timing and effort will be established with input from relevant agencies, when a more detailed plan is prepared.
- Post-construction monitoring of the enhancements to the Elmwood Drive Wetland and Stream 1 are recommended to ensure the features are functioning as intended. The timing and effort will be established with input from relevant agencies when a more detailed plan is prepared.
- Additional monitoring requirements, if any, will be established with the DFO through the request for review.
- Standard construction and ESC monitoring should be implemented.

10 CUMULATIVE EFFECTS

Cumulative effects assessment considers the potential for additive impacts to the local landscape due to existing and future development. The Site is in the heart of the urban area of the Town of Gananoque and is zoned Residential. If the proposed mitigations are implemented, including the enhancements of Stream 1 and the Elmwood Drive Wetland, and the proposed setbacks, there are no expected cumulative effects because of this proposed development.

11 CONCLUSIONS

In conclusion, potential negative impacts associated with the proposed development can be appropriately mitigated, provided that the recommended setbacks and enhancements, mitigation, and best management practices, as described in this report are implemented. The information presented herein demonstrates that the proposed development can be carried out in a way that will not adversely impact significant natural heritage features and functions identified on or adjacent to the Site. Furthermore, the proposed development complies with applicable federal, provincial and municipal policies if these recommendations are followed.

12 LIMITATIONS

This report was prepared for the exclusive use of 1000989284 Ontario Inc., and RW Tomlinson Ltd. The report, which specifically includes all tables, figures and attachments, is based on data and information collected by WSP Canada Inc., and is based solely on the conditions of the properties at the time of the work, supplemented by historical information and data obtained by WSP Canada Inc. as described in this report. WSP is not responsible for the accuracy of data collected by other consultants and provided to WSP Canada Inc. by the client.

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WSP Canada Inc. has relied in good faith on all information provided and does not accept responsibility for any deficiency, misstatements, or inaccuracies contained in the report as a result of omissions, misinterpretation, or fraudulent acts of the persons contacted or errors or omissions in the reviewed documentation.

The services performed, as described in this report, were conducted in a manner consistent with that level of care and skill normally exercised by other members of the engineering and science professions currently practicing under similar conditions, subject to the time limits and financial and physical constraints applicable to the services.

Any use which a third party makes of this report, or any reliance on, or decisions to be made based on it, are the responsibilities of such third parties. WSP Canada Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The findings and conclusions of this report are valid only as of the date of this report. If new information is discovered in future work, including excavations, borings, or other studies, WSP Canada Inc. should be requested to re-evaluate the conclusions of this report, and to provide amendments as required.

13 CLOSURE

We trust this report meets your current needs. If you have any further questions regarding this report, please contact the undersigned.

Signature Page

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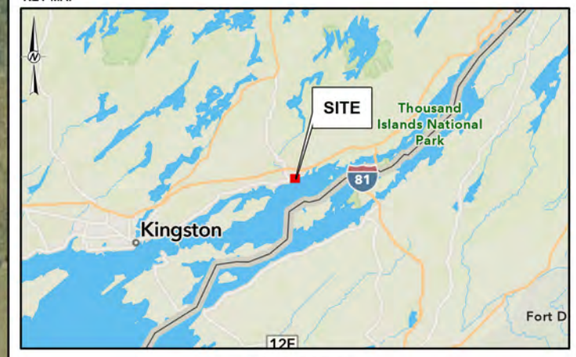
FIGURES

KEY MAP



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LEGEND

- 2024 BAT DETECTOR STATIONS
- 2000 BAT DETECTOR STATIONS
- BREEDING BIRD SURVEY STATIONS
- AMPHIBIAN CALL-COUNT STATIONS
- SOIL/SEDIMENT SAMPLING
- ROADWAY
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ECOLOGICAL LAND CLASSIFICATION (ELC)

  CUM1-1 Mixed Meadow
  CUP3-2/FOM White Pine Coniferous Plantation/Mixed Forest
  CUT1 Fresh Grey Dogwood-Buckthorn Deciduous Thicket
  CUW/CUT1 Open Woodland/Honeysuckle Thicket
  FOD/CUW1 Open Woodland/Deciduous Forest
  FOD5-3 Dry-Fresh Sugar Maple-Oak Deciduous Forest
  MAM2-2 Reed Canary Grass Mineral Meadow Marsh
  MAM2/MAS2 Meadow Marsh/Shallow Marsh Complex
  MAS3-1 Cattail Organic Shallow Marsh
  RES Residential
  SAS Submerged Shallow Aquatic
  SWD2-2 Green Ash Mineral Swamp
- STUDY AREA
- SITE PROPERTY BOUNDARY
- COASTAL WETLAND EVALUATED NOT SIGNIFICANT
- UNEVALUATED COASTAL WETLAND

0 25 50 100

1:3,000 METRES

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. BASE MAP: MAXAR, MICROSOFT, SOURCES: ESRI, TOMTOM, GARMIN, FAO, NOAA, USGS, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
3. COORDINATE SYSTEM: NAD 1983 CSRS UTM ZONE 18N

CLIENT
1000989284 ONTARIO INC

PROJECT
ELMWOOD SUBDIVISION – ENVIRONMENTAL IMPACT ASSESSMENT

TITLE
ECOLOGICAL LAND CLASSIFICATION AND SURVEY LOCATIONS

CONSULTANT
wsp

YYYY-MM-DD	2025-08-29
DESIGNED	FN
PREPARED	BR/MC
REVIEWED	FN
APPROVED	GW

PROJECT NO.	CONTROL	REV.	FIGURE
CA0053084.9335	0001	1	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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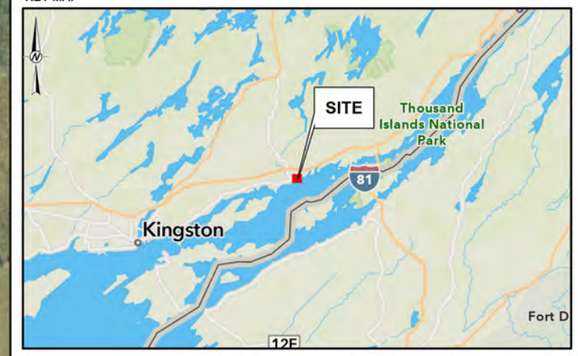
PINE STREET EAST
ELIZABETH DRIVE
CHURCHILL DRIVE
ELMWOOD DRIVE
MAPLECROFT COURT
MACDONALD DRIVE
THOMAS STREET
CONNER DRIVE
ARTHUR STREET
KING STREET EAST
LONEYS LANE
Elmwood Drive Wetland
Stream 2
Stream 1
CATEGORY 1 BUTTERNUT
ARTHUR STREET
WILLIAM STREET SOUTH
JOHN STREET
SOUTH ALLEY
SOUTH STREET
St. Lawrence River

KEY MAP



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LEGEND

- CATEGORY 1 BUTTERNUT
- ROADWAY
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- FISH SPAWNING HABITAT – GANANOQUE OFFICIAL PLAN
- POTENTIAL SAR BAT MATERNITY ROOST HABITAT
- SWH – TURTLE WINTERING
- SWH – WOODLAND AMPHIBIAN BREEDING
- SITE PROPERTY BOUNDARY
- STUDY AREA
- COASTAL WETLAND EVALUATED NOT SIGNIFICANT
- UNEVALUATED COASTAL WETLAND

0 25 50 100
1:3,000 METRES

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. BASE MAP: SOURCES: ESRI, TOMTOM, GARMIN, FAO, NOAA, USGS, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY, MAXAR
3. COORDINATE SYSTEM: NAD 1983 CSRS UTM ZONE 18N

CLIENT
1000989284 ONTARIO INC

PROJECT
ELMWOOD SUBDIVISION – ENVIRONMENTAL IMPACT ASSESSMENT

TITLE
SIGNIFICANT NATURAL FEATURES

CONSULTANT
wsp

YYYY-MM-DD	2025-08-29
DESIGNED	FN
PREPARED	BR/MC
REVIEWED	FN
APPROVED	GW

PROJECT NO.	CONTROL	REV.	FIGURE
CA0053084.9335	0001	1	2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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APPENDIX A

Photographic Inventory

Photo 1: CUM1-1 Cultural Meadow North of Elmwood Wetland, May 2025

Photo 2: CUT1 Fresh Grey Dogwood-Buckthorn Deciduous Thicket, May 2025

Photo 3: CUW/CUT1 Open Woodland/Honeysuckle Thicket, June 2024

Photo 4: FOD/CUW1 Open Woodland/Deciduous Forest, June 2024

Photo 5: FOD5-3 Dry-Fresh Sugar Maple-Oak Deciduous Forest, June 2024

Photo 6: MAM2-2 Reed Canary Grass Mineral Meadow Marsh, June 2024

Photo 7: MAS3-1 Cattail Organic Shallow Marsh, June 2025

Photo 8: Inlet of the St. Lawrence River, and Adjacent Marsh, June 2024

Photo 9: Nearshore St. Lawrence River/SAS Submerged Shallow Aquatic, June 2024

Photo 10: Stream 1, April 2024

Photo 11: Stream 1, August 2025

Photo 12: Stream 2, June 2025

Photo 13: Stream 1 flowing underground, April 2024

Photo 14: Stream 3, May 2025

Photo 15: Soil Station 1 (CUM1-1), May 2025

Photo 16: Soil Station 3 (CUM1-1), June 2025

Photo 16: Soil Station 5 (CUT1), May 2025

APPENDIX B

Species at Risk Screening

Taxon	Common Name	Scientific Name	[a]S-rank	[b]ESA Status	[c]SARA Status	Source(s)	Habitat Requirements	Probability to occur on the Site	Probability to Occur in the Study Area
Amphibians	Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield population	*Pseudacris triseriata pop. 1*	S4		THR	NHIC	In Ontario, Western Chorus Frogs breed in temporary or shallow permanent wetlands including ponds, basins, marshes, swamps, and drainage ditches. They are known to forage in terrestrial habitats including pastures, clearings, meadows, and shrublands. Hibernation occurs in terrestrial lowlands with vegetation, soft substrate, dead leaves, woody debris, or burrows (Environment Canada 2014).	Low - None were observed during targeted surveys.	Low - Habitat is limited and none were observed during targeted surveys.
Birds	Bank Swallow	*Riparia riparia*	S4B	THR	THR	OBBA, eBird	In Ontario, bank swallow breeds in a variety of natural and anthropogenic habitats, including lake bluffs, stream and riverbanks, sand and gravel pits, and roadcuts. Nests are generally built in a vertical or near-vertical bank. Breeding sites are typically located near open foraging sites such as rivers, lakes, grasslands, agricultural fields, wetlands and riparian woods. Forested areas are generally avoided (Garrison 1999).	Low - No suitable bank habitat occurs and none were observed during targeted surveys.	Low - No suitable bank habitat occurs and none were observed during targeted surveys.
Birds	Barn Swallow	*Hirundo rustica*	S4B	SC	THR	OBBA, eBird	In Ontario, barn swallow breeds in areas that contain a suitable nesting structure, open areas for foraging, and a body of water. This species nests in human made structures including barns, buildings, sheds, bridges, and culverts. Preferred foraging habitat includes grassy fields, pastures, agricultural cropland, lake and river shorelines, cleared rights-of-way, and wetlands (COSEWIC 2011). Mud nests are fastened to vertical walls or built on a ledge underneath an overhang. Suitable nests from previous years are reused (Brown and Brown 2019).	Low - No suitable nesting structures occur and none were observed during targeted surveys.	Moderate - Structures in the Study Area may be suitable for nesting.
Birds	Black Tern	*Chlidonias niger*	S3B,S4M	SC		OBBA	In Ontario, Black Tern breeds in freshwater marshlands where it forms small colonies. It prefers marshes or marsh complexes > 20 ha which are not surrounded by wooded area. Black Tern is sensitive to the presence of agricultural activities. The Black Tern nests in wetlands with an even combination of open water and emergent vegetation, and still waters of 0.5-1.2 m deep. Preferred nest sites have short dense vegetation or tall sparse vegetation often consisting of cattails, bulrushes and occasionally burreed or other marshland plants. Black Tern also requires posts or snags for perching (Weseloh 2007).	Low - No suitable large marshlands occur.	Low - No suitable large marshlands occur.
Birds	Bobolink	*Dolichonyx oryzivorus*	S4B	THR	THR	OBBA	In Ontario, bobolink breeds in grasslands or graminoid dominated hayfields with tall vegetation (Gabhauer 2007). Bobolink prefers grassland habitat with a forb component and a moderate litter layer. They have low tolerance for presence of woody vegetation and are sensitive to frequent mowing within the breeding season. They are most abundant in established, but regularly maintained, hayfields, but also breed in lightly grazed pastures, old or fallow fields, cultural meadows and newly planted hayfields. Their nest is woven from grasses and forbs. It is built on the ground, in dense vegetation, usually under the cover of one or more forbs (Renfrew et al. 2015).	Low - Meadows on the Site are manicured and not suitable, and none were observed during targeted surveys.	Low - No suitable grassland habitat occurs.
Birds	Canada Warbler	*Cardellina canadensis*	S5B	SC	THR	NHIC, OBBA	In Ontario, breeding habitat for Canada warbler consists of moist mixed forests with a well-developed shrubby understory. This includes low-lying areas such as cedar and alder swamps, and riparian thickets (McLaren 2007). It is also found in densely vegetated regenerating forest openings. Suitable habitat often contains a developed moss layer and an uneven forest floor. Nests are well concealed on or near the ground in dense shrub or fern cover, often in stumps, fallen logs, overhanging stream banks or mossy hummocks (Reitsma et al. 2010).	Low - Suitable habitat is limited, and none were observed during targeted surveys.	Low - Suitable habitat is limited.

Taxon	Common Name	Scientific Name	[a]S-rank	[b]ESA Status	[c]SARA Status	Source(s)	Habitat Requirements	Probability to occur on the Site	Probability to Occur in the Study Area
Birds	Cerulean Warbler	*Setophaga cerulea*	S2B	THR	END	OBBA	In Ontario, breeding habitat of cerulean warbler consists of second-growth or mature deciduous forest with a tall canopy of uneven vertical structure and a sparse understory. This habitat occurs in both wet bottomland forests and upland areas, and often contains large hickory and oak trees. This species may be attracted to gaps or openings in the upper canopy. The cerulean warbler is associated with large forest tracks but may occur in woodlots as small as 10 ha (COSEWIC 2010). Nests are usually built on a horizontal limb in the mid-story or canopy of a large deciduous tree (Buehler et al. 2013).	Low - Suitable habitat is limited, and none were observed during targeted surveys.	Low - Suitable habitat is limited.
Birds	Chimney Swift	*Chaetura pelagica*	S3B	THR	THR	OBBA, eBird, iNaturalist	In Ontario, chimney swift breeding habitat is varied and includes urban, suburban, rural and wooded sites. They are most commonly associated with towns and cities with large concentrations of chimneys. Preferred nesting sites are dark, sheltered spots with a vertical surface to which the bird can grip. Unused chimneys are the primary nesting and roosting structure, but other anthropogenic structures and large diameter cavity trees are also used (COSEWIC 2007).	High - two to three individuals were observed foraging over the edge of the Site and Study Area, but no evidence of nesting on Site was found, and no suitable structures occur.	High - two to three individuals were observed foraging over the edge of the Site and Study Area. Suitable nesting structures may occur outside the Site in the Study Area.
Birds	Common Nighthawk	*Chordeiles minor*	S4B	SC	SC	OBBA, eBird	In Ontario, these aerial foragers require areas with large open habitat. This includes farmland, open woodlands, clearcuts, burns, rock outcrops, alvars, bogs, fens, prairies, gravel pits and gravel rooftops in cities (Sandilands 2007)	Low - None were observed during targeted surveys.	Moderate - Suitable nesting habitat and records occur.
Birds	Eastern Meadowlark	*Sturnella magna*	S4B,S3N	THR	THR	OBBA, eBird	In Ontario, eastern meadowlark breeds in pastures, hayfields, meadows and old fields. Eastern meadowlark prefers moderately tall grasslands with abundant litter cover, high grass proportion, and a forb component (Hull 2019). They prefer well drained sites or slopes, and sites with different cover layers (Roseberry and Klimstra 1970).	Low - Meadows on the Site are manicured and not suitable, and none were observed during targeted surveys.	Low - No suitable grassland habitat occurs.
Birds	Eastern Whip-poor-will	*Antrostomus vociferus*	S4B	SC	THR	OBBA	In Ontario, whip-poor-will breeds in semi-open forests with little ground cover. Breeding habitat is dependent on forest structure rather than species composition, and is found on rock and sand barrens, open conifer plantations and post-disturbance regenerating forest. Territory size ranges from 3 to 11 ha (COSEWIC 2009). No nest is constructed, and eggs are laid directly on the leaf litter (Mills 2007).	Low - Suitable habitat is limited, and none were observed in targeted surveys.	Low - Suitable habitat is limited.
Birds	Eastern Wood-pewee	*Contopus virens*	S4B	SC	SC	NHIC, OBBA	In Ontario, eastern wood-pewee inhabits a wide variety of wooded upland and lowland habitats, including deciduous, coniferous, or mixed forests. It occurs most frequently in forests with some degree of openness. Intermediate-aged forests with a relatively sparse midstory are preferred. In younger forests with a relatively dense midstory, it tends to inhabit the edges. Also occurs in anthropogenic habitats providing an open forested aspect such as parks and suburban neighborhoods. Nest is constructed atop a horizontal branch, 1-2 m above the ground, in a wide variety of deciduous and coniferous trees (COSEWIC 2012).	Low - None were observed during targeted surveys.	Moderate - Forests in the Study Area may be suitable.
Birds	Golden-winged Warbler	*Vermivora chrysoptera*	S3B	SC	THR	NHIC, OBBA	In Ontario, golden-winged warbler breeds in regenerating scrub habitat with dense ground cover and a patchwork of shrubs, usually surrounded by forest. Their preferred habitat is characteristic of a successional landscape associated with natural or anthropogenic disturbance such as rights-of-way, and field edges or openings resulting from logging or burning. The nest of the golden-winged warbler is built on the ground at the base of a shrub or leafy plant, often at the shaded edge of the forest or at the edge of a forest opening (Confer et al. 2011).	Low - Although some suitable habitat occurs, none were observed during targeted surveys.	Low - Suitable habitat is limited.
Birds	Grasshopper Sparrow	*Ammodramus savannarum*	S4B	SC	SC	OBBA	In Ontario, grasshopper sparrow is found in medium to large grasslands with low herbaceous cover and few shrubs. It also uses a wide variety of agricultural fields, including cereal crops and pastures. Close-grazed pastures and limestone plains (e.g. Carden and Napanee Plains) support highest density of this bird in the province (COSEWIC 2013).	Low - Meadows on the Site are manicured and not suitable, and none were observed during targeted surveys.	Low - No suitable grassland habitat occurs.

Taxon	Common Name	Scientific Name	[a]S-rank	[b]ESA Status	[c]SARA Status	Source(s)	Habitat Requirements	Probability to occur on the Site	Probability to Occur in the Study Area
Birds	Least Bittern	*Ixobrychus exilis*	S4B	THR	THR	OBBA	In Ontario, least bittern breeds in marshes, usually greater than 5 ha, with emergent vegetation, relatively stable water levels and areas of open water. Preferred habitat has water less than 1 m deep (usually 10 – 50 cm). Nests are built in tall stands of dense emergent or woody vegetation (Woodliffe 2007). Clarity of water is important as siltation, turbidity, or excessive eutrophication hinders foraging efficiency (COSEWIC 2009).	Low - No suitable large marshlands occur.	Low - No suitable large marshlands occur.
Birds	Peregrine Falcon	*Falco peregrinus*	S4	SC	NAR	eBird, iNaturalist	In Ontario, peregrine falcon breeds in areas containing suitable nesting locations and sufficient prey resources. Such habitat includes both natural locations containing cliff faces (heights of 50 - 200 m preferred) and anthropogenic landscapes including urban centres containing tall buildings, open pit mines and quarries, and road cuts. Peregrine falcons nest on cliff ledges and crevices and building ledges. Nests consist of a simple scrape in the substrate (COSEWIC 2017).	Low - No suitable nesting habitat occurs.	Moderate - Buildings in the Study Area may be suitable, and some records occur.
Birds	Red-headed Woodpecker	*Melanerpes erythrocephalus*	S3	END	END	eBird	In Ontario, red-headed woodpecker breeds in open, deciduous woodlands or woodland edges and are often found in parks, cemeteries, golf courses, orchards and savannahs (Woodliffe 2007). They may also breed in forest clearings or open agricultural areas provided that large trees are available for nesting. They prefer forests with little or no understory vegetation. They are often associated with beech or oak forests, beaver ponds and swamp forests where snags are numerous. Nests are excavated in the trunks of large dead trees (Frei et al. 2017).	Low - None were observed during targeted surveys.	Moderate - Treed areas in the Study Area may be suitable.
Birds	Short-eared Owl	*Asio flammeus*	S4?B,S2S3N	THR	SC		In Ontario, short-eared owl breeds in a variety of open habitats including grasslands, tundra, bogs, marshes, clear-cuts, burns, pastures and occasionally agricultural fields. The primary factor in determining breeding habitat is proximity to small mammal prey resources (COSEWIC 2008). Nests are built on the ground at a dry site and usually adjacent to a clump of tall vegetation used for cover and concealment (Gahbauer 2007).	Low - Suitable habitat is limited and none were observed during targeted surveys.	Low - No suitable open habitats occur.
Birds	Wood Thrush	*Hylocichla mustelina*	S4B	SC	THR	NHIC, OBBA	In Ontario, wood thrush breeds in moist, deciduous hardwood or mixed stands that are often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches. This species selects nesting sites with the following characteristics: lower elevations with trees less than 16 m in height, a closed canopy cover (>70 %), a high variety of deciduous tree species, moderate subcanopy and shrub density, shade, fairly open forest floor, moist soil, and decaying leaf litter (COSEWIC 2012).	Low - None were observed during targeted surveys.	Moderate - Forests in the Study Area may be suitable.
Fish	Grass Pickerel	*Esox americanus*	S3	SC	SC	NHIC, DFO SAR	In Ontario, grass pickerel is found in Lake Huron, Lake St. Clair, Lake Erie, Niagara River, Lake Ontario and St. Lawrence River and their tributaries, and an isolated population occurs in the Severn River system. This fish species is found in warm, slow moving streams and shallow bays of lakes. It prefers clear to tea-coloured water and dense aquatic vegetation. The grass pickerel typically occurs over mud substrates but has also been found over rock and gravel. Spawning occurs in vegetated areas of streams and lakes (COSEWIC 2005).	Moderate - A small portion of the Site overlaps the inlet which may be suitable habitat. Records in the vicinity.	Moderate to High - Suitable habitat occurs, and there are records in the vicinity.
Fish	Lake Sturgeon (Great Lakes - Upper St. Lawrence River population)	*Acipenser fulvescens pop. 3*	S2	END		NHIC	In Ontario, lake sturgeon, a large prehistoric freshwater fish, is found in all the Great Lakes and in all drainages of the Great Lakes and of Hudson Bay. This species typically inhabits highly productive shoal areas of large lakes and rivers. They are bottom dwellers and prefer depths between 5-10 m and mud or gravel substrates. Small sturgeons are often found on gravelly shoals near the mouths of rivers. They spawn in depths of 0.5 to 4.5 m in areas of swift water or rapids. Where suitable spawning rivers are not available, such as in the lower Great Lakes, they are known to spawn in wave action over rocky ledges or around rocky islands (Golder 2011).	Low - No suitable aquatic habitat occurs.	Low - Although present in the St. Lawrence River, it is unlikely that the portion that overlaps the Study Area is suitable for this species.

Taxon	Common Name	Scientific Name	[a]S-rank	[b]ESA Status	[c]SARA Status	Source(s)	Habitat Requirements	Probability to occur on the Site	Probability to Occur in the Study Area
Fish	Pugnose Shiner	*Notropis anogenus*	S2	THR	THR	NHIC, DFO SAR	In Ontario, pugnose shiner is present at five sites: three sites in southwestern Ontario and two sites in the St. Lawrence River. The species has a limited distribution and it is often absent from apparently suitable habitat within its range. They require areas of quiet, clear water with abundant vegetation and sand, silt, or clay bottoms. Habitat includes large lakes, stagnant channels, and large rivers — primarily on sand bottoms with decomposing organic matter. It is found in the marshy bays of lakes, ponds and in slow-moving streams where the water is clear (COSEWIC 2013).	Moderate - A small portion of the Site overlaps the inlet which may be suitable habitat, although less suitable than the adjacent shallow open waters of the St. Lawrence River.	Moderate to High - Suitable habitat occurs in the St. Lawrence River, and there are records in the vicinity.
Insects	Monarch	*Danaus plexippus*	S2N,S4B	SC	END	OBA	In Ontario, monarch is found throughout the northern and southern regions of the province. This butterfly is found wherever there is milkweed (*Asclepias* spp.) plants for its caterpillars and wildflowers that supply a nectar source for adults. It is often found on abandoned farmland, meadows, open wetlands, prairies and roadsides, but also in city gardens and parks. Important staging areas during migration occur along the north shores of the Great Lakes (COSEWIC 2010).	Low - Suitable habitat occurs, but none were observed during targeted surveys.	Moderate - Suitable habitat may occur.
Mammals	Eastern Red Bat	*Lasiurus borealis*	S2S3	END		BCI, Mammal Atlas	Eastern Red Bats occupy a wide diversity of habitats across their geographic range. They use both deciduous and coniferous forests, of any age class. Trees used as maternity roosts tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. They typically roost among the foliage of trees and occasionally shrubs. Male Eastern Red Bats in particular have been observed to use saplings as roosts, which is rarely reported for reproductive females. They forage in both forested and non-forested habitats. Heavily disturbed habitats are generally avoided. Eastern Red Bats migrate to overwintering areas in the southern United States but their migration routes are not known.	Low - None were recorded during acoustic surveys.	Moderate - Suitable habitat may occur.
Mammals	Eastern Small-footed Myotis	*Myotis leibii*	S2S3	END		BCI, Mammal Atlas	In Ontario, eastern small-footed myotis is not known to roost in trees, but there is very little known about its roosting habits. The species generally roosts on the ground under rocks, in rock crevices, talus slopes and rock piles, but it occasionally inhabits buildings. Entrances of caves or abandoned mines where humidity is low, and temperatures are cool and sometimes subfreezing may be used as hibernacula (Humphrey 2017).	Low - None were recorded during acoustic surveys.	Moderate - Suitable habitat may occur.
Mammals	Little Brown Myotis	*Myotis lucifugus*	S3	END	END	BCI, Mammal Atlas	In Ontario, this species' range is extensive and covers much of the province. It will roost in both natural and man-made structures. Roosting colonies require a number of large dead trees, in specific stages of decay and that project above the canopy in relatively open areas. May form nursery colonies in the attics of buildings within 1 km of water. Caves or abandoned mines may be used as hibernacula, but high humidity and stable above freezing temperatures are required (ECCC 2018).	High - This species was recorded during acoustic surveys.	Moderate - Suitable habitat may occur.
Mammals	Northern Hoary Bat	*Lasiurus cinereus*	S2S3	END		BCI, Mammal Atlas	Hoary Bats occupy a wide diversity of habitats across their geographic range. They use both deciduous and coniferous forests, of any age class. Trees used as maternity roosts tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. They typically roost among the foliage of trees and occasionally shrubs. They forage in the open, and suitable habitats may include wetlands, grasslands and open fields with patchily distributed trees. Heavily disturbed habitats are generally avoided. Hoary Bats migrate to overwintering areas in the southern United States but their migration routes are not known.	High - This species was recorded during acoustic surveys.	Moderate - Suitable habitat may occur.

Taxon	Common Name	Scientific Name	[a]S-rank	[b]ESA Status	[c]SARA Status	Source(s)	Habitat Requirements	Probability to occur on the Site	Probability to Occur in the Study Area
Mammals	Northern Myotis	*Myotis septentrionalis*	S3	END	END	BCI, Mammal Atlas	In Ontario, this species' range is extensive and covers much of the province. It will usually roost in hollows, crevices, and under loose bark of mature trees. Roosts may be established in the main trunk or a large branch of either living or dead trees. Caves or abandoned mines may be used as hibernacula, but high humidity and stable above freezing temperatures are required (ECCC 2018).	Low - None were recorded during acoustic surveys.	Moderate - Suitable habitat may occur.
Mammals	Silver-haired Bat	*Lasionycteris noctivagans*	S2S3	END		BCI, Mammal Atlas	Silver-haired Bats occupy a wide diversity of habitats across their geographic range. They roost in a variety of large diameter coniferous and deciduous trees. Roosting occurs primarily under bark and in the cavities of trees, and occasionally buildings. They forage in young and old forest, as well as forest openings (canopy gaps), but are concentrated along forest edges and intact forest. Silver-haired Bats overwinter in the United States, southeastern British Columbia and sometimes the Great Lakes region. In British Columbia, they have been documented hibernating in mines, rock crevices, trees, and snags. Little else is known about their winter ecology.	Low - None were recorded during acoustic surveys.	Moderate - Suitable habitat may occur.
Mammals	Tricolored Bat	*Perimyotis subflavus*	S3?	END	END	BCI	In Ontario, tri-colored bat may roost in foliage, in clumps of old leaves, hanging moss or squirrel nests. They are occasionally found in buildings although there are no records of this in Canada. They typically feed over aquatic areas with an affinity to large-bodied water and will likely roost in close proximity to these. Hibernation sites are found deep within caves or mines in areas of relatively warm temperatures. These bats have strong roost fidelity to their winter hibernation sites and may choose the exact same spot in a cave or mine from year to year (ECCC 2018).	High - This species was recorded during acoustic surveys.	Moderate - Suitable habitat may occur.
Reptiles	Blanding's Turtle	*Emydoidea blandingii*	S3	THR	END	NHIC, ORAA	In Ontario, Blanding's turtle will use a range of aquatic habitats, but favor those with shallow, standing or slow-moving water, rich nutrient levels, organic substrates and abundant aquatic vegetation. They will use rivers but prefer slow-moving currents and are likely only transients in this type of habitat. This species is known to travel great distances over land in the spring in order to reach nesting sites, which can include dry conifer or mixed forests, partially vegetated fields, and roadsides. Suitable nesting substrates include organic soils, sands, gravel and cobble. They hibernate underwater and infrequently under debris close to water bodies (COSEWIC 2016).	Low - None were observed during targeted surveys, and records in the area are old and/or questionable.	Low - None were observed during targeted surveys, and records in the area are old and/or questionable .
Reptiles	Common Five-lined Skink (Southern Shield population)	*Plestiodon fasciatus pop. 2*	S3	SC	SC	iNaturalist	In Ontario, this population of five-lined skink is limited to the southern edge of the Canadian shield. Individuals from this population prefer large rocky outcrops in an area of mixed forests with the presence of loose rocks or other debris for cover. This species also requires abundant basking habitat in the form of stumps, logs, rocky outcrops and brush/wood piles. Nesting takes place under rocks or logs. Hibernation takes place under tree trunks or rocks, below the frost line (Seburn 2010).	Low - Suitable habitat is limited and none were observed during targeted surveys.	Low - Suitable habitat is limited.
Reptiles	Eastern Musk Turtle	*Sternotherus odoratus*	S3	SC	THR	ORAA	In Ontario, eastern musk turtle is very rarely out of water and prefers permanent bodies of water that are shallow and clear, with little or no current and soft substrates with abundant organic materials. Abundant floating and submerged vegetation is preferred. Hibernation occurs in soft substrates under water. Eggs are sometimes laid on open ground, or in shallow nests in decaying vegetation, shallow gravel or rock crevices (COSEWIC 2012).	Low - Suitable habitat is limited and none were observed during targeted surveys.	Moderate - Suitable habitat may occur.
Reptiles	Eastern Ribbonsnake	*Thamnophis saurita*	S4	SC	SC	ORAA	In Ontario, eastern ribbonsnake is semi-aquatic, and is rarely found far from shallow ponds, marshes, bogs, streams or swamps bordered by dense vegetation. They prefer sunny locations and bask in low shrub branches. Hibernation occurs in mammal burrows, rock fissures or even ant mounds (COSEWIC 2012).	Low - Suitable habitat is limited and none were observed during targeted surveys.	Low - Suitable habitat is limited.

Taxon	Common Name	Scientific Name	[a]S-rank	[b]ESA Status	[c]SARA Status	Source(s)	Habitat Requirements	Probability to occur on the Site	Probability to Occur in the Study Area
Reptiles	Gray Ratsnake (Frontenac Axis population)	*Pantherophis spiloides pop. 1*	S3	THR	THR	ORAA, iNaturalist	In Ontario, gray ratsnakes of the Frontenac Axis population require a mosaic of habitats, showing a preference for a mixture of forest and open habitats with a strong preference for edge habitats. Microhabitats such as snags, hollow logs, rock crevices and rocks provide shelter. Communal hibernation takes place in underground sites, such as rock fissures, mammal burrows and root systems, often on south-facing, rocky slopes (Kraus et al. 2010).	Low - Suitable habitat is limited, and the Site occurs in the heart of the City of Gananoque. Records are limited to areas well outside of the urban portions of the City. In addition, none were observed during 2025 surveys, or surveys conducted by others on the Site.	Low - Suitable habitat is limited, and the Site occurs in the heart of the City of Gananoque. Records are limited to areas well outside of the urban portions of the City.
Reptiles	Midland Painted Turtle	*Chrysemys picta marginata*	S4		SC	ORAA, iNaturalist	In Ontario, painted turtles use waterbodies, such as ponds, marshes, lakes and slow-moving creeks, with a soft bottom and abundant basking sites and aquatic vegetation. This species hibernates on the bottom of waterbodies (Ontario Nature 2018).	Moderate - The majority of wetlands on Site are not suitable, and none were observed except within the inlet outside of the Site. However a small portion of the inlet overlaps with the Site.	High - This species was observed within the inlet within the Study Area.
Reptiles	Northern Map Turtle	*Graptemys geographica*	S3	SC	SC	ORAA	In Ontario, northern map turtle prefers large waterbodies with slow-moving currents, soft substrates, and abundant aquatic vegetation. Ideal stretches of shoreline contain suitable basking sites, such as rocks and logs. Along Lakes Erie and Ontario, this species occurs in marsh habitat and undeveloped shorelines. It is also found in small to large rivers with slow to moderate flow. Hibernation takes place in soft substrates under deep water (COSEWIC 2012).	Moderate - The majority of wetlands on Site are not suitable, and none were observed except within the inlet outside of the Site. However a small portion of the inlet overlaps with the Site.	High - Many individuals were observed in the inlet and shallow portions of the St. Lawrence River that overlap the Study Area.
Reptiles	Snapping Turtle	*Chelydra serpentina*	S4	SC	SC	NHIC, ORAA, iNaturalist	In Ontario, snapping turtle uses a wide range of waterbodies, but shows preference for areas with shallow, slow-moving water, soft substrates and dense aquatic vegetation. Hibernation takes place in soft substrates under water. Nesting sites consist of sand or gravel banks along waterways or roadways (COSEWIC 2008).	Moderate - The majority of wetlands on Site are not suitable, and none were observed except within the inlet outside of the Site. However a small portion of the inlet overlaps with the Site.	High - Individuals were observed within portions of the inlet that overlap the Study Area.
Reptiles	Spiny Softshell	*Apalone spinifera*	S2	END	END	NHIC	In Ontario, spiny softshell will typically inhabit rivers with soft bottoms but occasionally lakes, impoundments, bays, marshy lagoons, as well as ditches and ponds near rivers. Soft sandy or muddy substrates with aquatic vegetation are essential habitat features. Hibernation takes place in deep pools with soft substrates. Nesting areas consist of sandy or gravelly areas, relatively free of vegetation and close to water (COSEWIC 2016).	Low - Suitable habitat is limited and none were observed during targeted surveys.	Moderate - Shallow portions of the St. Lawrence and associated inlet may be suitable habitat.
Vascular Plants	American Ginseng	*Panax quinquefolius*	S2	THR	END	Vascular Plant Atlas	In Ontario, American ginseng is found in moist, undisturbed and relatively mature deciduous woods often dominated by sugar maple. It is commonly found on well-drained, south-facing slopes. American ginseng grows under closed canopies in well-drained soils of glacier origin that have a neutral pH (ECCC 2018).	Low - None were observed during targeted surveys.	Low - Suitable habitat is limited.
Vascular Plants	Black Ash	*Fraxinus nigra*	S4	END		Range	Found throughout Ontario in moist ecosystems; commonly found in northern swampy woodlands (MNRF 2018). This species typically grows on mucky or peaty soils and is considered a facultative wetland species (Reznicek et al. 2011).	Low - None were observed during targeted surveys.	Moderate - Suitable habitat may occur.
Vascular Plants	Blunt-lobed Woodsia	*Woodsia obtusa*	S1	END	THR	Vascular Plant Atlas	In Ontario, blunt-lobed woodsia occurs on rocky limestone outcrops and rocky slopes that are dry, have a southern aspect and are highly shaded. Ontario populations grow on calcareous rock and are associated with species such as sugar maple, red and white oak and white ash (COSEWIC 2006).	Low - No suitable habitat occurs, and none were observed during targeted surveys.	None - No suitable habitat occurs.
Vascular Plants	Broad Beech Fern	*Phegopteris hexagonoptera*	S3	SC		Vascular Plant Atlas	In Ontario, broad beech fern inhabits rich, undisturbed mature deciduous forest dominated by beech and maple. It typically grows in moist to wet, sandy soils of lower valley slopes and occasionally swamps (van Overbeeke et al. 2013).	Low - Suitable habitat is limited and none were observed during targeted surveys.	Low - No suitable habitat occurs.
Vascular Plants	Butternut	*Juglans cinerea*	S2?	END	END	Vascular Plant Atlas	In Ontario, butternut is found along stream banks, on wooded valley slopes, and in deciduous and mixed forests. It is commonly associated with beech, maple, oak and hickory (Voss and Reznicek 2012). Butternut prefers moist, fertile, well-drained soils, but can also be found in rocky limestone soils. This species is shade intolerant (Farrar 1995).	High - A single butternut (Category 1) was identified on the Site.	Moderate - Suitable habitat may occur.

Taxon	Common Name	Scientific Name	[a]S-rank	[b]ESA Status	[c]SARA Status	Source(s)	Habitat Requirements	Probability to occur on the Site	Probability to Occur in the Study Area
Vascular Plants	Deerberry	*Vaccinium stamineum*	S1	THR	THR	Vascular Plant Atlas	In Ontario, deerberry inhabits open deciduous woodlands, especially oak, as well as rock barrens on both steep slopes and flat ground. It is currently found only in the Niagara Region and St. Lawrence Thousand Islands area. Deerberry grows in dry, acidic, sandy soils (NDRT 2010).	Low - Suitable habitat is limited and none were observed during targeted surveys.	Low - No suitable habitat occurs.
Vascular Plants	Eastern Prairie Fringed Orchid	*Platanthera leucophaea*	S2	END	END	Vascular Plant Atlas	In Ontario, eastern prairie fringed-orchid grows in wet prairies, fens, bogs, wet meadows, and wet successional fields. It grows in full sun in neutral to mildly calcareous substrates, and occasionally grows along roadsides or lake margins (Eastern Prairie Fringed-orchid Recovery Team 2010). This species is found only in southern Ontario, and only two locations are currently known on sand spits along the shore of Lake Erie.	Low - Suitable habitat is limited and none were observed during targeted surveys.	Low - No suitable habitat occurs.

[a] Provincial Ranks (SRANK) are Rarity Ranks assigned by the Natural Heritage Information Centre (NHIC). These ranks are not legal designations. S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure), SNA (Not Applicable), S#S# (Range Rank), S? (Not ranked yet)

APPENDIX C

Plant Species List

Scientific Name	Common Name	Origin[a]	Global Rarity Status[b]	Ontario Rarity Status[b]	SARA[c]	ESA[d]
Abies balsamea	Balsam fir	N	G5	S5	–	–
Acer rubrum	Red maple	N	G5	S5	–	–
Acer saccharinum	Silver maple	N	G5	S5	–	–
Acer saccharum	Sugar maple	N	G5	S5	–	–
Achillea millefolium	Common yarrow	I	G5T5?	SNA	–	–
Acorus americanus	American sweetflag	N	G5	S4	–	–
Actaea pachypoda	Doll's-eyes	N	G5	S5	–	–
Actaea rubra	Red baneberry	N	G5	S5	–	–
Ageratina altissima	White snakeroot	N	G5T5	S5	–	–
Agrimonia gryposepala	Agrimony	N	G5	S5	–	–
Amaranthus retroflexus	Redroot pigweed	I	GNR	SNA	–	–
Ambrosia artemisiifolia	ragweed	N	G5	S5	–	–
Amphicarpaea bracteata	Hog-peanut	N	G5	S5	–	–
Anemone acutiloba	Sharp-lobed hepatica	N	G5	S5	–	–
Anemone virginiana	Tall thimbleweed	N	G5	S5	–	–
Apocynum androsaemifolium	Spreading dogbane	N	G5	S5	–	–
Apocynum cannabinum	Indian hemp	N	GNR	S5	–	–
Aralia nudicaulis	Wild sarsaparilla	N	G5	S5	–	–
Arisaema triphyllum	Jack-in-the-pulpit	N	G5	S5	–	–
Asclepias incarnata	Swamp milkweed	N	G5	S5	–	–
Asclepias syriaca	Common milkweed	N	G5	S5	–	–
Athyrium filix-femina	Lady fern	N	G5T5	S5	–	–
Atriplex patula	Halbred-leaved orache	N	G5	S5	–	–
Barbarea vulgaris	Winter cress	I	GNR	SNA	–	–
Betula papyrifera	White birch	N	G5	S5	–	–
Bidens frondosa	Beggar-ticks	N	G5	S5	–	–
Bromus inermis	Smooth brome	I	GNR	SNA	–	–
Calamagrostis canadensis	Canada blue-joint	N	G5	S5	–	–
Carex bebbii	Bebb's sedge	N	G5	S5	–	–
Carex communis	Common sedge	N	G5	S5	–	–
Carex intumescens	Bladder sedge	N	G5	S5	–	–
Carex lupulina	Hop sedge	N	G5	S5	–	–
Carex plantaginea	Plantain-like sedge	N	G5	S5	–	–
Carex projecta	Necklace sedge	N	G5	S5	–	–
Acer negundo	Manitoba maple	N	G5	S5	–	–
Acer rubrum	Red maple	N	G5	S5	–	–
Acer saccharinum	Silver maple	N	G5	S5	–	–
Acer saccharum	Sugar maple	N	G5	S5	–	–
Achillea millefolium	Common yarrow	N	G5	S5	–	–
Acorus americanus	American sweetflag	N	G5	S4	–	–
Alliaria petiolata	Garlic mustard	I	GNR	SNA	–	–
Amaranthus retroflexus	Redroot amaranth	I	G5	SNA	–	–
Anemonastrum canadense	Canada anemone	N	G5	S5	–	–
Anemone virginiana	Tall anemone	N	G5	S5	–	–
Arctium minus	Common burdock	I	GNR	SNA	–	–
Arisaema triphyllum	Jack-in-the-pulpit	N	G5	S5	–	–
Ambrosia artemisiifolia	Common ragweed	N	G5	S5	–	–
Asclepias syriaca	Common milkweed	N	G5	S5	–	–
Barbarea vulgaris	Bitter wintercress	I	GNR	SNA	–	–
Bidens cernua	Nodding beggarticks	N	G5	S5	–	–
Bidens frondosa	Beggar-ticks	N	G5	S5	–	–
Boehmeria cylindrica	Small-spike false nettle	N	G5	S5	–	–
Bromus inermis	Smooth brome	I	G5T5	SNA	–	–
Carex communis	Common sedge	N	G5	S5	–	–
Carex gracillima	Graceful sedge	N	G5	S5	–	–
Carex hystericina	Porcupine sedge	N	G5	S5	–	–
Carex interior	Inland sedge	N	G5	S5	–	–
Carex lacustris	Lake sedge	N	G5	S5	–	–
Carex pseudocyperus	Cyperus-like sedge	N	G5	S5	–	–
Carex stipata	Awl-fruited sedge	N	G5	S5	–	–
Carex vulpinoidea	Fox sedge	N	G5	S5	–	–
Carya cordiformis	Bitternut hickory	N	G5	S5	–	–
Carya ovata	Shagbark hickory	N	G5	S5	–	–
Centaurea stoebe	Spotted knapweed	I	GNR	SNA	–	–
Cerastium fontanum	Common mouse-ear chickweed	I	GNR	SNA	–	–
Chenopodium album	Common lamb's-quarters	I	G5	SNA	–	–

Scientific Name	Common Name	Origin[a]	Global Rarity Status[b]	Ontario Rarity Status[b]	SARA[c]	ESA[d]
Cichorium intybus	Wild chicory	I	GNR	SNA	–	–
Cicuta bulbifera	Bulbous water-hemlock	N	G5	S5	–	–
Cirsium arvense	Canada thistle	I	G5	SNA	–	–
Convallaria majalis	European lily-of-the-valley	I	G5	SNA	–	–
Cornus racemosa	Grey dogwood	N	G5	S5	–	–
Cornus stolonifera	Red osier dogwood	N	G5	S5	–	–
Dactylis glomerata	Orchard grass	I	GNR	SNA	–	–
Daucus carota	Wild carrot	I	GNR	SNA	–	–
Digitaria sanguinalis	Hairy crabgrass	I	G5	SNA	–	–
Doellingeria umbellata	Flat-top white aster	N	G5	S5	–	–
Dryopteris marginalis	Marginal wood fern	N	G5	S5	–	–
Echinocystis lobata	Wild cucumber	N	G5	S5	–	–
Eleocharis sp.	Spikerush	N	G5	?	–	–
Elodea canadensis	Canada waterweed	N	G5	S5	–	–
Elymus repens	Quackgrass	I	GNR	SNA	–	–
Erythronium americanum	Yellow trout-lily	N	G5	S5	–	–
Euthamia graminifolia	Grass-leaved goldenrod	N	G5	S5	–	–
Eutrochium maculatum var. macu	Spotted joe pye weed	N	G5T5	S5	–	–
Fallopia convolvulus	Eurasian black bindweed	I	GNR	SNA	–	–
Fragaria virginiana	Wild strawberry	N	G5	S5	–	–
Fraxinus americana	White ash	N	G4	S4	–	–
Fraxinus pennsylvanica	Green ash	N	G4	S4	–	–
Galium palustre	Marsh bedstraw	N	G5	S5	–	–
Geranium maculatum	Spotted geranium	N	G5	S5	–	–
Geum aleppicum	Yellow avens	N	G5	S5	–	–
Glyceria striata	Fowl manna grass	N	G5	S5	–	–
Hydrocharis morsus-ranae	European frogbit	N	G5	S5	–	–
Impatiens capensis	Spotted jewelweed	N	G5	S5	–	–
Juglans cinerea	**Butternut**	**N**	**G3**	**S2?**	**Endangered**	**Endangered**
Juglans nigra	Black walnut	N	G5	S4?	–	–
Juniperus virginiana	Eastern red cedar	N	G5	S5	–	–
Lemna minor	Small duckweed	N	G5	S5	–	–
Leucanthemum vulgare	Oxeye daisy	I	GNR	SNA	–	–
Lonicera tatarica	Tatarian honeysuckle	I	GNR	SNA	–	–
Lycopus uniflorus	Northern water-horehound	N	G5	S5	–	–
Lysimachia nummularia	Creeping Jenny	I	GNR	SNA		
Lythrum salicaria	Purple loosestrife	I	G5	SNA	–	–
Maianthemum racemosum	Large false solomon's seal	N	G5T5	S5	–	–
Matricaria discoidea	Pineappleweed	I	G5	SNA	–	–
Micranthes virginiensis	Early saxifrage	N	G5	S5	–	–
Origanum vulgare	Wild marjoram	I	GNR	SNA	–	–
Parthenocissus inserta	Virgina creeper	N	G5	S5	–	–
Persicaria maculosa	Spotted lady's-thumb	I	G3G5	SNA	–	–
Phalaris arundinacea var. arundir	European reed canarygrass	I	G5TNR	SNA	–	–
Phleum pratense	Common Timothy	I	SNA	GNR	–	–
Phragmites australis ssp. australi	European reed	I	G5T5	SNA	–	–
Pinus strobus	Eastern white pine	N	G5	S5	–	–
Poa nemoralis	Eurasian woodland bluegrass	I	G5TU	SNA	–	–
Poa palustris	Fowl bluegrass	N	G5	S5	–	–
Poa pratensis	Kentucky bluegrass	I	G5T5	SNA	–	–
Podophyllum peltatum	May-apple	N	G5	S5	–	–
Polygonatum pubescens	Hairy Solomon's seal	N	G5	S5	–	–
Populus tremuloides	Trembling aspen	N	G5	S5	–	–
Potentilla norvegica	Rough cinquefoil	N	G5	S5	–	–
Potomogeton spp.	Pondweeds	N	G5	S5	–	–
Prunella vulgaris	Common self-heal	N	G5	S5	–	–
Prunus serotina	Black cherry	N	G5	S5	–	–
Pteridium aquilinum	Bracken fern	N	G5	S5	–	–
Quercus alba	White oak	N	G5	S5	–	–
Quercus macrocarpa	Bur oak	N	G5	S5	–	–
Quercus rubra	Northern red oak	N	G5	S5	–	–
Ranunculus acris	Common buttercup	I	G5	SNA	–	–
Rhamnus cathartica	European buckthorn	I	GNR	SNA	–	–
Rhus radicans	Poison-ivy	N	G5	S5	–	–
Robinia pseudoacacia	Black locust	I	G5	SNA	–	–
Rosa multiflora	Multiflora rose	I	GNR	SNA	–	–

Scientific Name	Common Name	Origin[a]	Global Rarity Status[b]	Ontario Rarity Status[b]	SARA[c]	ESA[d]
Rubus idaeus	Red raspberry	N	G5	S5	–	–
Rudbeckia hirta	Black-eyed susan	N	G5	S5	–	–
Salix discolor	Pussy willow	N	G5	S5	–	–
Salix petiolaris	Meadow willow	N	G5	S5	–	–
Sanguinaria canadensis	Bloodroot	N	G5	S5	–	–
Silene vulgaris	Bladder campion	I	GNR	SNA	–	–
Sinapis arvensis	Corn mustard	I	GNR	SNA	–	–
Sium suave	Common water-parsnip	N	G5	S5	–	–
Solanum dulcamara	Bittersweet nightshade	I	GNR	SNA	–	–
Solanum ptychanthum	Eastern black nightshade	N	G5	S5	–	–
Solidago caesia	Blue-stemmed goldenrod	N	G5	S5	–	–
Solidago canadensis var. canade	Canada goldenrod	N	G5T5	S5	–	–
Solidago rugosa	Rough-stemmed goldenrod	N	G5	S5	–	–
Sparganium eurycarpum	Broad-fruited burreed	N	G5	S5	–	–
Symphyotrichum cordifolium	Heart-leaved aster	N	G5	S5	–	–
Symphyotrichum ericoides	White heath aster	N	G5	S5	–	–
Symphyotrichum lateriflorum	Calico aster	N	G5	S5	–	–
Symphyotrichum novae-angliae	New england aster	N	G5	S5	–	–
Symphyotrichum pilosum	Frost aster	N	G5	S5	–	–
Symphyotrichum puniceum	Purple-stemmed aster	N	G5	S5	–	–
Taraxacum officinale	Common dandelion	I	G5	SNA	–	–
Thelypteris palustris	Marsh fern	N	G5	S5	–	–
Thuja occidentalis	Eastern white cedar	N	G5	S5	–	–
Tilia americana	Basswood	N	G5	S5	–	–
Trifolium pratense	Red clover	I	GNR	SNA	–	–
Trifolium repens	White clover	I	GNR	SNA	–	–
Trillium grandiflorum	White trillium	N	G5	S5	–	–
Tussilago farfara	Coltsfoot	I	GNR	SNA	–	–
Typha angustifolia	Narrow-leaved cattail	I	G5	SNA	–	–
Typha latifolia	Broad-leaved cattail	N	G5	S5	–	–
Ulmus americana	White elm	N	G4	S5	–	–
Urtica dioica	Slender stinging nettle	N	G5T5	S5	–	–
Utricularia vulgaris	Common bladderwort	N	G5	S5	–	–
Veronica officinalis	Common speedwell	N	G5	SNA	–	–
Viburnum lentago	Nannyberry	N	G5	S5	–	–
Vicia cracca	Cow vetch	I	GNR	SNA	–	–
Vinca minor	Lesser periwinkle	I	GNR	SNA	–	–
Vitis riparia	Riverbank grape	N	G5	S5	–	–

Notes:

[a] Origin: N = Native; (N) = Native but not in study area region; I = Introduced.

[b] Ranks based upon determinations made by the Ontario Natural Heritage Information Centre.
G = Global; S = Provincial; Ranks 1-3 are considered imperiled or rare; Ranks 4 and 5 are considered secure.
SNA = Not applicable for Ontario Ranking (e.g. Exotic species)

[c] Canada Species at Risk Act (Schedule 1)

[d] Ontario Endangered Species Act (O.Reg.230/08)

APPENDIX D

Wildlife Species List

Common Name	Scientific Name	Origin[a]	G-Rank[b]	S-Rank[b]	SARA[c]	ESA[d]
Mammals						
Big brown bat	*Eptesicus fuscus*	N	G5	S5	–	–
Eastern chipmunk	*Tamias striatus*	N	G5	S5	–	–
Eastern cottontail	*Sylvilagus floridanus*	N	G5	S5	–	–
Grey squirrel	*Sciurus carolinensis*	N	G5	S5	–	–
Hoary bat	***Lasiurus cinereus***	**N**	**G5**	**S4**	–	**Endangered**
Little brown myotis	***Myotis lucifugus***	**N**	**G5**	**S4**	**Endangered**	**Endangered**
Racoon	*Procyon lotor*	N	G5	S5	–	–
Red squirrel	*Tamiasciurus hudsonicus*	N	G5	S5	–	–
Tri-colored bat	***Perimyotis subflavus***	**N**	**G3G4**	**S3?**	**Endangered**	**Endangered**
White-tailed deer	*Odocoileus virginianus*	N	G5	S5	–	–
Birds						
American Crow	*Corvus brachyrhynchos*	N	G5	S5B	–	–
American Goldfinch	*Spinus tristis*	N	G5	S5B	–	–
American Redstart	*Setophaga ruticilla*	N	G5	S5B	–	–
American Robin	*Turdus migratorius*	N	G5	S5B	–	–
Baltimore Oriole	*Icterus galbula*	N	G5	S4B	–	–
Black-capped Chickadee	*Poecile atricapillus*	N	G5	S5	–	–
Blue Jay	*Cyanocitta cristata*	N	G5	S5	–	–
Brown-headed Cowbird	*Molothrus ater*	N	G5	S4B	–	–
Canada goose	*Branta canadensis*	N	G5	S5	–	–
Cedar Waxwing	*Bombycilla cedrorum*	N	G5	S5B	–	–
Chimney Swift	***Chaetura pelagica***	**N**	**G5**	**S4B,S4N**	**Threatened**	**Threatened**
Chipping Sparrow	*Spizella passerina*	N	G5	S5B	–	–
Common Grackle	*Quiscalus quiscula*	N	G5	S5B	–	–
Common Merganser	*Mergus merganser*	N	G5	S5B,S5N	–	–
Common Yellowthroat	*Geothlypis trichas*	N	G5	S5B	–	–
Double-crested Cormorant	*Phalacrocorax auritus*	N	G5	S5B	–	–
Downy Woodpecker	*Picoides pubescens*	N	G5	S5	–	–
European Starling	*Sturnus vulgaris*	I	G5	SNA	–	–
Gray Catbird	*Dumetella carolinensis*	N	G5	S4B	–	–
Great Blue Heron	*Ardea herodias*	N	G5	S4	–	–
Great Crested Flycatcher	*Myiarchus crinitus*	N	G5	S4B	–	–
Hairy Woodpecker	*Picoides villosus*	N	G5	S5	–	–
House Wren	*Troglodytes aedon*	N	G5	S5B	–	–
Mallard	*Anas platyrhynchos*	N	G5	S5	–	–
Mourning Dove	*Zenaida macroura*	N	G5	S5	–	–
Northern Cardinal	*Cardinalis cardinalis*	N	G5	S5	–	–
Northern Flicker	*Colaptes auratus*	N	G5	S4B	–	–
Osprey	*Pandion haliaetus*	N	G5	S5B	–	–
Red-eyed Vireo	*Vireo olivaceus*	N	G5	S5B	–	–
Red-winged Blackbird	*Agelaius phoeniceus*	N	G5	S4	–	–
Ring-billed Gull	*Larus delawarensis*	N	G5	S5B,SZN	–	–
Ruby-throated Hummingbird	*Archilochus colubris*	N	G5	S5B	–	–
Song Sparrow	*Melospiza melodia*	N	G5	S5B	–	–
Spotted Sandpiper	*Actitis macularius*	N	G5	S5	–	–
Swamp Sparrow	*Melospiza georgiana*	N	G5	S5B	–	–
Tree Swallow	*Tachycineta bicolor*	N	G5	S4B	–	–
Turkey Vulture	*Cathartes aura*	N	G5	S5B	–	–
Warbling Vireo	*Vireo gilvus*	N	G5	S5B	–	–
White-breasted Nuthatch	*Sitta carolinensis*	N	G5	S5	–	–
Herptiles						
American Toad	*Anaxyrus americanus*	N	G5	S5	–	–
American Bullfrog	*Lithobates catesbeianus*	N	G5	S4	–	–
Common Snapping Turtle	***Chelydra serpentina***	**N**	**G5**	**S4**	**Special Concern**	**Special Concern**
Eastern Gartersnake	*Thamnophis sirtalis*	N	G5T5	S5	–	–
Gray Tree Frog	*Dryophytes versicolor*	N	G5	S5	–	–

Common Name	Scientific Name	Origin[a]	G-Rank[b]	S-Rank[b]	SARA[c]	ESA[d]
Green Frog	*Lithobates clamitans*	N	G5	S5	–	–
Midland Painted Turtle	***Chrysemys picta marginata***	**N**	**G5T5**	**S4**	**Special Concern**	**–**
Northern Map Turtle	***Graptemys geographica***	**N**	**G5**	**S3?**	**Special Concern**	**Special Concern**
Spring Peeper	*Pseudacris crucifer*	N	G5	S5	–	–
Butterflies and Dragonflies						
Aphrodite fritillary	*Speyeria aphrodite*	N	G5	S5	–	–
Black swallowtail	*Papilio polyxenes*	N	G5	S5	–	–
Cabbage white	*Pieris rapae*	I	G5	SNA	–	–
Canada darner	*Aeshna canadensis*	N	G5	S5	–	–
Clouded sulphur	*Colias philodice*	N	G5	S5	–	–
Common eastern bumblebee	*Bombus impatiens*	N	G5	S4S5	–	–
Eastern pondhawk	*Erythemis simplicicollis*	N	G5	S5	–	–
Dot-tailed whiteface	*Leucorrhinia intacta*	N	G5	S5	–	–
European skipper	*Thymelicus lineola*	N	G5	SNA	–	–
Twelve-spotted skimmer	*Libellula pulchella*	N	G5	S5	–	–
Viceroy	*Limenitis archippus*	N	G5	S5	–	–
White admiral	*Limenitis arthemis*	N	G5	S5	–	–
White-faced meadowhawk	*Sympetrum obtrusum*	N	G5	S5	–	–

Notes:

[a] Origin: N = Native; (N) = Native but not in study area region; I = Introduced.

[b] Ranks based upon determinations made by the Ontario Natural Heritage Information Centre.
G = Global; S = Provincial; Ranks 1-3 are considered imperiled or rare; Ranks 4 and 5 are considered secure.
SNA = Not applicable for Ontario Ranking (e.g. Exotic species)

[c] Canada Species at Risk Act (Schedule 1)

[d] Ontario Endangered Species Act (O.Reg.230/08)

APPENDIX E

Significant Wildlife Habitat Assessment

Seasonal Concentration Areas of Animals

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Confirmed or Candidate?	
		ELC Ecosite Codes	Habitat Criteria and Information Sources		Defining Criteria		Site	Study Area
1. Waterfowl Stopover and Staging Areas (Terrestrial) **<u>Rationale:</u>** Habitat important to migrating waterfowl.	American Black Duck American Wigeon Blue-winged Teal Gadwall Green-winged Teal Mallard Northern Pintail Northern Shoveler Wood Duck	CUM1 CUT1 Plus evidence of annual spring flooding from melt water or run-off within these Ecosites.	Fields with sheet water during Spring (mid-March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available [cxlviii]. <u>Information Sources</u> • Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. • Reports and other information available from Conservation Authorities • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Field Naturalist Clubs • Ducks Unlimited Canada • Natural Heritage Information Centre (NHIC)Waterfowl Concentration Area	No - spring sheetwater absent in fields	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”[ccxi] • Any mixed species aggregations of 100© or more individuals required. • The flooded field ecosite habitat plus a 100-300m radius, dependant on local site conditions and adjacent land use is the significant wildlife habitat. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • SWH MiST Index #7 provides development effects and mitigation measures.	N/A	Absent	Absent
2. Waterfowl Stopover and Staging Areas (Aquatic) **<u>Rationale:</u>** Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	American Black Duck American Wigeon Black Scoter Blue-winged Teal Brant Bufflehead Cackling Goose Canada Goose Canvasback Common Goldeneye Common Merganser Gadwall Greater Scaup Green-winged Teal Hooded Merganser Lesser Scaup Long-tailed Duck Northern Pintail Northern Shoveler Red-breasted Merganser Redhead Ring-necked duck Ruddy Duck Ruddy Duck Snow Goose Surf Scoter White-winged Scoter	MAS1 MAS2 MAS3 SAF1 SAM1 SAS1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water) <u>Information Sources</u> • Environment Canada • Naturalist clubs often are aware of staging/stopover areas. • OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Yes – suitable wetlands present	Studies carried out and verified presence of: • Aggregations of 100© or more of listed species for 7 days©, results in > 700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH[cxlix] • The combined area of the ELC ecosites and a 100m radius area is the SWH[cxlviii] • Wetland area and shorelines associated with sites identified within the SWHTG[cxlviii] Appendix K[cxlix] are significant wildlife habitat. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”[ccxi] • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • SWH MIST[cxlix] Index #7 provides development effects and mitigation measures.	No – required numbers not observed and wetlands on-Site too small to provide habitat for required numbers	Absent	Candidate – Associated with St. Lawrence River

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Confirmed or Candidate?	
		ELC Ecosite Codes	Habitat Criteria and Information Sources		Defining Criteria		Site	Study Area
3. Shorebird Migratory Stopover Area **Rationale:** High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	American Golden-Plover Baird's Sandpiper Black-bellied Plover Dunlin Greater Yellowlegs Hudsonian Godwit Least Sandpiper Lesser Yellowlegs Marbled Godwit Pectoral Sandpiper Purple Sandpiper Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Semipalmated Plover Semipalmated Sandpiper Short-billed Dowitcher Solitary Sandpiper Spotted Sandpiper Stilt Sandpiper White-rumped Sandpiper	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 MAM1 MAM2 MAM3 MAM4 MAM5 SDO1 SDS2 SDT1	• Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. • Sewage treatment ponds and storm water ponds do not qualify as a SWH. Information Sources • Western hemisphere shorebird reserve network. • Canadian Wildlife Service (CWS) Ontario Shorebird Survey. • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Centre (NHIC) Shorebird Migratory Concentration Area	No - suitable habitat not present	Studies confirming: • Presence of 3 or more of listed species and > 1000[Í] shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100[Í] Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area [cxlviii] • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWH MiST[cxlix] Index #8 provides development effects and mitigation measures.	N/A	Absent	Absent
4. Raptor Wintering Area **Rationale:** Sites used by multiple species, a high number of individuals and used annually are most significant	American Kestrel Northern Harrier Red-tailed Hawk Rough-legged Hawk Snowy Owl **Special Concern:** Bald Eagle Short-eared Owl	Hawks/Owls: Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM; CUT; CUS; CUW. Bald Eagle: Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	• The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Raptor wintering (hawk/owl) sites need to be > 20 ha [cxlviii, cxlix] with a combination of forest and upland.[xvi, xvii, xviii, xix, xx, xxi]. • Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands [cxlix] • Field area of the habitat is to be wind swept with limited snow depth or accumulation. • Eagle sites have open water and large trees and snags available for roosting[cxlix] Information Sources: • OMNRF Ecologist or Biologist • Naturalist clubs • Natural Heritage Information Centre (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Results of Christmas Bird Counts • Reports and other information available from Conservation Authorities.	No - no large open, lightly grazed pastures or fields	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One of more Bald Eagles or; At least10 individuals and two of the listed hawk/owl species[Ê] • To be significant a site must be used regularly (3 in 5 years)[cxlix] for a minimum of 20 days by the above number of birds[Ê]. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area[Ê] • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWH MiST[cxlix] Index #10 and #11 provides development effects and mitigation measures.	N/A	Absent	Absent

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Confirmed or Candidate?	
		ELC Ecosite Codes	Habitat Criteria and Information Sources		Defining Criteria		Site	Study Area
5. Bat Hibernacula **Rationale:** Bat hibernacula are rare habitats in all Ontario landscapes.	Big Brown Bat Tri-coloured Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	• Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. • Active mine sites should not be considered as SWH • The locations of bat hibernacula are relatively poorly known. Information Sources • OMNRF for possible locations and contact for local experts • Natural Heritage Information Centre (NHIC) Bat Hibernaculum • Ministry of Northern Development and Mines for location of mine shafts. • Clubs that explore caves (e.g., Sierra Club) • University Biology Departments with bat experts.	No – caves, karst, etc. absent	• All sites with confirmed hibernating bats are SWH Ⓔ. • The area includes 200m radius around the entrance of the hibernaculum , , Ⓔ for most development types and 1000m for wind farms[ccv]. • Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects"[ccv]. • SWHMiST[cxlix] Index #1 provides development effects and mitigation measures.	N/A	Absent	Absent
6. Bat Maternity Colonies **Rationale:** Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	• Maternity colonies can be found in tree cavities, vegetation and often in buildings[xxii, xxv, xxvi, xxvii, xxxi] (buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario[xxii]. • Maternity colonies located in Mature deciduous or mixed forest stands[ccix, ccx] with >10/ha large diameter (>25cm dbh) wildlife trees[ccvii] • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 [ccxiv] or class 1 or 2 [ccxii]. • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred[ccx] Information Sources • OMNRF for possible locations and contact for local experts • University Biology Departments with bat experts.	No - no portion of the forested areas on the Site contain the required snag densities of listed sizes and preferred decay classes	• Maternity Colonies with confirmed use by; >10 Big Brown Bats Ⓔ >5 Adult Female Silver-haired Bats Ⓔ • The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies Ⓔ. • Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects"[ccv]. • SWHMiST[cxlix] Index #12 provides development effects and mitigation measures.	N/A	Absent	Absent
7. Turtle Wintering Areas **Rationale:** Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Midland Painted Turtle **Special Concern:** Northern Map Turtle Snapping Turtle	Snapping and Midland Painted turtles, ELC Community Classes; SW, MA, OA and SA, ELC Community Series; FEO and BOO Northern Map Turtle - Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	• For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. [cix, cx, cxi, cxviii] • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. Information Sources • EIS studies carried out by Conservation Authorities. • Local field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. • OMNRF Ecologist or Biologist • Field Naturalist clubs • Natural Heritage Information Center (NHIC)	Yes – portions of eastern wetlands and inlet on the eastern part of the Site contain sufficient water for over-wintering	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May) [cvii]. Congregation of turtles is more common where wintering areas are limited and therefore significant [cix, cx, cxi, cxii]. • Congregation of turtles is more common where wintering areas are limited and therefore significant [cix, cx, cxi,cxii]. • SWH MiST[cxlix] Index #28 provides development effects and mitigation measures for turtle wintering habitat.	Yes – inlet and shallow marsh wetland at the eastern edge of the Site have sufficient water and were seen to contain turtles	**Confirmed** – conservatively assumed present based on conditions and turtle observations	**Confirmed** – conservatively assumed present based on conditions and turtle observations

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Confirmed or Candidate?	
		ELC Ecosite Codes	Habitat Criteria and Information Sources		Defining Criteria		Site	Study Area
8. Reptile Hibernaculum **Rationale;** Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	**Snakes:** Eastern Gartersnake Northern Brownsnake Northern Red-bellied Snake Northern Ring-necked Snake Northern Watersnake Smooth Green Snake **Special Concern:** Eastern Ribbonsnake Milksnake **Lizard:** **Special Concern** (Southern Shield population): Five-lined Skink	For all snakes, habitat may be found in any ecosite in central Ontario other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations of congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. • Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures. Information Sources • In spring, local residents or landowners may have observed the emergence of snakes on their property (e.g., old dug wells). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs • University herpetologists • Natural Heritage Information Centre (NHIC) • OMNRF ecologist or biologist may be aware of locations of wintering skinks	Yes - assumed presence of occasional mammal burrows or cracks in bedrock; no other features below frost line observed	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct)[I] . • Note: If there are Special Concern Species present, then site is SWH • Note: Sites for hibernation possess specific habitat parameters (e.g. temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population (i.e. strong hibernation site fidelity). Other critical life processes (e.g. mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30 m buffer is the SWH[I] • SWHMiST[cxlix] Index #13 provides development effects and mitigation measures for snake hibernacula. • Presence of any active hibernaculum for skink is significant. • SWHMiST [cxlix] Index #37 provides development effects and mitigation measures for five-lined skink wintering habitat.	No - no snake congregations noted during surveys	Absent	Candidate
9. Colonially -Nesting Bird Breeding Habitat (Bank and Cliff) **Rationale;** Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario [cxcix].	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles Cliff faces, bridge abutments, silos, barns. Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation. Information Sources • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas • Bird Studies Canada; NatureCounts http://www.birdscanada.org/birdmon/ • Field Naturalist Clubs.	No - no suitable bank or cliff habitat present	Studies confirming: • Presence of 1 or more nesting sites with 8or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests • Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”[ccxi] • SWHMiST[cxlix] Index #4 provides development effects and mitigation measures	N/A	Absent	Absent

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Confirmed or Candidate?	
		ELC Ecosite Codes	Habitat Criteria and Information Sources		Defining Criteria		Site	Study Area
10. Colonially -Nesting Bird Breeding Habitat (Tree/Shrubs) **<u>Rationale:</u>** Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Black-crowned Night-Heron Great Blue Heron Great Egret Green Heron	SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1 SWM2 SWM3 SWM5 SWM6	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15 m from ground, near the top of the tree. <u>Information Sources</u> • Ontario Breeding Bird Atlas [ccv], colonial nest records. • Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNRF). • Natural Heritage Information Centre (NHIC) Mixed Wader Nesting Colony • Aerial photographs can help identify large heronries. • Reports and other information available from Conservation Authorities. • MNRF District Offices. • Field Naturalist Clubs	Yes - suitable swamp present	Studies confirming: • Presence of 5[i] or more active nests of Great Blue Heron or other listed species. • The edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH [cc, ccvii] • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells • SWHMiST[cxlix] Index #5 provides development effects and mitigation measures.	No - no nesting of any of the listed species observed during targeted surveys	Absent	Candidate
11. Colonially -Nesting Bird Breeding Habitat (Ground) **<u>Rationale:</u>** Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Brewer's Blackbird Caspian Tern Common Tern Great Black-backed Gull Herring Gull Little Gull Ring-billed Gull	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) CUM CUT CUS MAS1-3; MAM1-6;	• Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands. <u>Information Sources</u> • Ontario Breeding Bird Atlas, rare/colonial species records. • Canadian Wildlife Service. • Reports and other information available from Conservation Authorities. • Natural Heritage Information Centre (NHIC) Colonial Waterbird Nesting Area • MNRF District Offices. • Field Naturalist Clubs.	No - suitable habitat not present	Studies confirming: • Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern©. • Presence of 5 or more pairs for Brewer's Blackbird©. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant©. • The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH [cc,cvii] • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMiST[cxiix]Index #6 provides development effects and mitigation measures.	N/A	Absent	Absent

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Confirmed or Candidate?	
		ELC Ecosite Codes	Habitat Criteria and Information Sources		Defining Criteria		Site	Study Area
12. Migratory Butterfly Stopover Areas **Rationale:** Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Painted Lady Red Admiral Special Concern Monarch	Combination of ELC Community Series; need to have present one Community Series from each land class: Field: CUM CUT CUS Forest: FOC FOD FOM CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario [cxlix]. • The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south [xxxii, xxxiii, xxxiv, xxxv, xxxvi]. • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat [cxlviii, cxlix]. • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes [xxxvii, xxxviii, xxxix, xl, xli]. Information Sources • OMNRF (NHIC) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs • Toronto Entomologists Association • Conservation Authorities	No - not within 5 km of Lake Ontario	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)[xliii]. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day[xxxvii], significant variation can occur between years and multiple years of sampling should occur [xl, xlii]. • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. • MUD of >5000 **or** >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant.Í • SWHMiST [cxlix] Index #16 provides development effects and mitigation measures.	N/A	Absent	Absent
13. Landbird Migratory Stopover Areas **Rationale:** Sites with a high diversity of species as well as high numbers are most significant.	All migratory songbirds. Canadian Wildlife Service Ontario website: http://www.ec.gc.ca/nature/default.asp?lang=En&n=421B7A9D-1 All migrant raptors species: Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	• Woodlots need to be >10 haÍ in size and within 5 km [iv, v, vi, vii, viii, ix, x, xi, xii, xiii, xiv, xv] of Lake Ontario. • If multiple woodlands are located along the shoreline those Woodlands <2km from Lake Ontario are more significant[cxlix]. • Sites have a variety of habitats; forest, grassland and wetland complexes [cxlix]. • The largest sites are more significant [cxlix] • Woodlots and forest fragments are important habitats to migrating birds[ccxviii], these features located along the shore and located within 5km of Lake Ontario are Candidate SWH [cxlviii]. Information Sources • Bird Studies Canada • Ontario Nature • Local birders and field naturalist club • Ontario Important Bird Areas (IBA) Program	No - not within 5 km of Lake Ontario	Studies confirm: • Use of the woodlot by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey datesÍ. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (Apr./May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMiST [cxlix] Index #9 provides development effects and mitigation measures.	N/A	Absent	Absent

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Confirmed or Candidate?	
		ELC Ecosite Codes	Habitat Criteria and Information Sources		Defining Criteria		Site	Study Area
14. Deer Yarding Areas **Rationale:** Winter habitat for deer is considered to be the main limiting factor for northern deer populations. In winter, deer congregate in "yards" to survive severe winter conditions. Deer yards typically have a long history of annual use by deer, yards typically represent 10-15% of an areas summer range.	White-tailed Deer	Note: OMNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include; FOM, FOC, SWM and SWC. Or these ELC Ecosites; CUP2 CUP3 FOD3 CUT	• Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60% [cxciv]. • OMNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual" [cxcv] • Woodlots with high densities of deer due to artificial feeding are not significant. Information Sources • MNRF District Offices • LIO/NRVIS	No - none mapped by MNR at the Site	No Studies Required: • Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. [lvi,lvii,lviii,lix,lx, ©] • Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local MNRF offices or via Land Information Ontario (LIO). • Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations. [cxcv] • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST [cxlix] Index #2 provides development effects and mitigation measures.	N/A	Absent	Absent
15. Deer Winter Congregation Areas **Rationale:** Deer movement during winter in the southern areas of Eco-region 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions [cxlviii].	White-tailed Deer	All Forested Ecosites with these ELC Community Series; FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.	• Woodlots will typically be >100 ha in size©. Woodlots <100ha may be considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands. • If deer are constrained by snow depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule. • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. • Woodlots with high densities of deer due to artificial feeding are not significant©. • Information Sources • MNRF District Offices. • LIO/NRVIS	No - none mapped by MNR at the Site	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF [cxlviii]. • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF Í.. • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques[ccxxiv] , ground or road surveys. or a pellet count deer density survey[ccxxv]. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST [cxlix] Index #2 provides development effects and mitigation measures.	N/A	Absent	Absent

Rare Vegetation Communities

Rare Vegetation Community	CANDIDATE SWH			Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Candidate or Confirmed?	
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources		Defining Criteria		Site	Study Area
16. Cliffs and Talus Slopes **Rationale:** Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO CLO TAS CLS TAT CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris	Most cliff and talus slopes occur along the Niagara Escarpment. Information Sources • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF Districts • Natural Heritage Information Centre (NHIC) has location information available on their website. • Field Naturalist Clubs • Conservation Authorities	No - none present	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes [lxxviii] • SWHMiST[cxlix] Index #21 provides development effects and mitigation measures.	N/A	Absent	Absent
17. Sand Barren **Rationale:** Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry	ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%.	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%.	A sand barren area >0.5ha in size©. Information Sources • OMNRF Districts. • Natural Heritage Information Centre (NHIC) has location information available on their website. • Field Naturalist Clubs • Conservation Authorities	No - none present	• Confirm any ELC Vegetation Type for Sand Barrens [lxxviii] • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics)[Í]. • SWHMiST[cxlix] Index #20 provides development effects and mitigation measures.	N/A	Absent	Absent
18. Alvar **Rationale:** Alvars are extremely rare habitats in Ecoregion 6E. Most alvars in Ontario are in Ecoregions 6E and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic-Precambrian contact.	ALO1 ALS1 ALT1 CUM2 CUS2 CUT2-1 CUW2 FOC1 FOC2 **Five Alvar Indicator Species:** 1) Carex crawei 2) Panicum philadelphicum 3) Eleocharis compressa 4) Scutellaria parvula 5) Trichostema brachiatum These indicator species are very specific to Alvars within Ecoregion 6E©[cxlix]	An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plant. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover [lxxviii].	An Alvar site > 0.5 ha in size [lxxv]. Information Sources • Alvars of Ontario (2000), Federation of Ontario Naturalists. • Ontario Nature – Conserving Great Lakes Alvars. • Natural Heritage Information Centre (NHIC) has location information available on their website. • OMNRF Districts. • Field Naturalist Clubs. • Conservation Authorities.	No - none present	• Field studies that identify four of the five© Alvar Indicator Species [lxxv,cxlix] at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses [lxxv] • SWHMiST[cxlix] Index #17 provides development effects and mitigation measures.	N/A	Absent	Absent

Rare Vegetation Community	CANDIDATE SWH			Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Candidate or Confirmed?	
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources		Defining Criteria		Site	Study Area
19. Old Growth Forest **Rationale:** Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by many wildlife species.	Forest Community Series: FOD FOC FOM SWD SWC SWM	Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest Ê. Information Sources • OMNRF Forest Resource Inventory mapping • OMNRF Districts. • Field Naturalist Clubs • Conservation Authorities • Sustainable Forestry Licence (SFL) companies will possibly know locations through field operations. • Municipal forestry departments	No - none present	Field Studies will determine: • If dominant trees species of the ecosite are >140 years old, then the area containing these trees is Significant Wildlife Habitat [cxlviii] • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities [cxlviii] (cut stumps will not be present) • The area of forest ecosites combined or an eco-element within an ecosite that contains the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest area containing the old growth characteristics [lxxviii] • SWHMiST[cxlix] Index #23 provides development effects and mitigation measures.	N/A	Absent	Absent
20. Savannah **Rationale:** Savannahs are extremely rare habitats in Ontario.	CUS2 TPS1 TPS2 TPW1 TPW2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60% [lxxix, lxxx, lxxxi, lxxxii, lxxxiii]	No minimum size to site Í Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • Natural Heritage Information Centre (NHIC) has location data available on their website. • OMNRF Districts. • Field Naturalists Clubs. • Conservation Authorities.	No - none present	Field studies confirm one or more of the Savannah indicator species listed in [lxxv] Appendix N should be present Í. Note: Savannah plant spp. list from Ecoregion 6E should be used[cxlviii]. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • SWHMiST[cxlix] Index #18 provides development effects and mitigation measures.	N/A	Absent	Absent

Rare Vegetation Community	CANDIDATE SWH			Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Candidate or Confirmed?	
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources		Defining Criteria		Site	Study Area
21. Tallgrass Prairie **Rationale:** Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover. [lxxix, lxxx, lxxxi, lxxxii, lxxxiii]	No minimum size to site [í]. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • OMNRF Districts. • Natural Heritage Information Centre (NHIC) has location information available on their website. • Field Naturalists Clubs. • Conservation Authorities.	No - none present	Field studies confirm one or more of the Prairie indicator species listed in [lxxv] Appendix N should be present [í]. Note: Prairie plant spp. list from Ecoregion 6E should be used[cxlviii] • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • SWHMiST[cxlix] Index #19 provides development effects and mitigation measures.	N/A	Absent	Absent
22. Other Rare Vegetation Communities **Rationale:** Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG[cxlviii]. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M [cxlviii] The OMNRF/NHIC will have up to date listing for rare vegetation communities. Information Sources • Natural Heritage Information Centre (NHIC) has location information available on their website. • OMNRF Districts. • Field Naturalists Clubs. • Conservation Authorities.	No - none present	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG[cxlviii] • Area of the ELC Vegetation Type polygon is the SWH. • SWHMiST [cxlix] Index #37 provides development effects and mitigation measures.	N/A	Absent	Absent

Specialized Habitats of Wildlife

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Candidate or Confirmed?	
		ELC Ecosite Codes	Habitat Criteria and Information Sources		Defining Criteria		Site	Study Area
23. Waterfowl Nesting Area **<u>Rationale:</u>** Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Blue-winged Teal Gadwall Green-winged Teal Hooded Merganser Mallard Northern Pintail Northern Shoveler Wood Duck	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 **Note: includes adjacency to Provincially Significant Wetlands**	A waterfowl nesting area extends 120 m [cxlix] from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur [cxlix]. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. <u>Information Sources</u> • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from Conservation Authorities.	Yes - suitable wetlands occur	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards[f], or; • Presence of 10 or more nesting pairs for listed species including Mallards[f]. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”[ccxi] • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m [cxlviii] from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWHMiST[cxlix] Index #25 provides development effects and mitigation measures.	No - no nesting or breeding evidence of any of the listed species observed during targeted surveys except single pair of mallards	Absent	Candidate

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Candidate or Confirmed?	
		ELC Ecosite Codes	Habitat Criteria and Information Sources		Defining Criteria		Site	Study Area
24. Bald Eagle and Osprey Nesting, Foraging and Perching Habitat **<u>Rationale;</u>** Nest sites are fairly uncommon in Eco-region 6E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey **<u>Special Concern:</u>** Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. • Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms). <u>Information Sources</u> • Natural Heritage Information Centre (NHIC) compiles all known nesting sites for Bald Eagles in Ontario. • MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat. • Nature Counts, Ontario Nest Records Scheme data. • OMNRF Districts. • Check the Ontario Breeding Bird Atlas [ccv] or Rare Breeding Birds in Ontario for species documented • Reports and other information available from Conservation Authorities. • Field Naturalists clubs	Yes – suitable forested shoreline habitat present	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area[cxlviii]. • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH [ccvii], maintaining undisturbed shorelines with large trees within this area is important [cxlviii]. • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. [cvi, ccvii] Area of the habitat from 400-800m is dependant on sight lines from the nest to the development and inclusion of perching and foraging habitat [cvi] • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for <u>≥</u> 3 years or suspected of not being used for >5 years before being considered not significant. [ccvii] • Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid March to mid August. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMiST[cxlix] Index #26 provides development effects and mitigation measures	No – an osprey is nesting on a man-made platform which is excluded from SWH	Absent	Candidate

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Candidate or Confirmed?	
		ELC Ecosite Codes	Habitat Criteria and Information Sources		Defining Criteria		Site	Study Area
25. Woodland Raptor Nesting Habitat **<u>Rationale:</u>** Nests sites for these species are rarely identified; these area sensitive habitats are often used annually by these species.	Barred Owl Broad-winged Hawk Cooper's Hawk Northern Goshawk Red-shouldered Hawk Sharp-shinned Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3	All natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat [lxxxviiii, lxxxix, xc, xci, xciii, xciv, xcv,xcvi, cxxxiii]. Interior habitat determined with a 200m buffer[cxlviii] • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. <u>Information Sources</u> • OMNRF Districts. • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada. • Reports and other information available from Conservation Authorities.	No - no areas 200 m from forest edge present	Studies confirm: • Presence of 1 or more active nests from species list is considered significant[cxlviii]. • Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha of suitable habitat is the SWH [ccvii]. (the 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest) • Barred Owl – A 200m radius around the nest is the SWH [ccvii]. • Broad-winged Hawk and Coopers Hawk,– A 100m radius around the nest is the SWH[ccvii]. • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH[ccvii]. • Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • SWHMiST [cxlix] Index #27 provides development effects and mitigation measures.	N/A	Absent	Absent
26. Turtle Nesting Areas **<u>Rationale:</u>** These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle **<u>Special Concern Species:</u>** Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) [cxlviii] or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. <u>Information Sources</u> • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Centre (NHIC) • Field Naturalist Clubs	No - no exposed sands or gravels present	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles[i] • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH[i]. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH.[cxlviii] • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • SWHMiST Index #28 provides development effects and mitigation measures for turtle nesting habitat.	N/A	Absent	Candidate

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Candidate or Confirmed?	
		ELC Ecosite Codes	Habitat Criteria and Information Sources		Defining Criteria		Site	Study Area
27. Seeps and Springs **<u>Rationale:</u>** Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Ruffed Grouse Salamander spp. Spruce Grouse White-tailed Deer Wild Turkey	Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system [cxvii, cxlix]. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species [cxix, cxx, cxxi, cxxii, cxiii, cxiv]. <u>Information Sources</u> • Topographical Map. • Thermography. • Hydrological surveys conducted by Conservation Authorities and MOE. • Field Naturalists Clubs and landowners. • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped.	No - none observed	Field Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of a ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation of the habitat. • SWHMiST Index #30 provides development effects and mitigation measures	N/A	Absent	Candidate
28. Amphibian Breeding Habitat (Woodland) **<u>Rationale:</u>** These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations	Blue-spotted Salamander Eastern Newt Gray Treefrog Spotted Salamander Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians	• Presence of a wetland, pond or woodland pool (including vernal pools) >500m^2 (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat[cxlviii] <u>Information Sources</u> • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF Districts • OMNRF wetland evaluations • Field Naturalist clubs • Canadian Wildlife Service Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org	Yes - the wetlands on the Site meet the size criteria and are located in or within 120 m of forest	Studies confirm; • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3©. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the wetland area plus a 230m radius of woodland area [lxiii, lxv, lxvi, lxvii, lxviii, lxix, lxx, lxxi]. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. • SWHMiST [cxlix] Index #14 provides development effects and mitigation measures.	Yes - based on targeted surveys, the inlet and the wetland on the eastern edge of the Site was seen to contain amphibians meeting the required diversity and numbers.	**Confirmed** – Associated with the wetlands and inlet on the eastern edge of the Site, and associated forested habitat within 230m	**Confirmed –** Associated with the features described for the Site

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Candidate or Confirmed?	
		ELC Ecosite Codes	Habitat Criteria and Information Sources		Defining Criteria		Site	Study Area
29. Amphibian Breeding Habitat (Wetlands) **Rationale;** Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	American Toad Blue-spotted Salamander Bullfrog Eastern Newt Four-toed Salamander Gray Treefrog Green Frog Mink Frog Northern Leopard Frog Pickerel Frog Spotted Salamander Western Chorus Frog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands	• Wetlands>500m^2 (about 25m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation. Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) • Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. • OMNRF Districts and wetland evaluations. • Reports and other information available from Conservation Authorities.	No – the shallow wetland communities associated with the St. Lawrence are off-Site	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3Ⓒ. or; Wetland with confirmed breeding Bullfrogs are significant. • The ELC ecosite wetland area and the shoreline are the SWH. • A combination of observational study and call count surveys [cviii] will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST [cxlix] Index #15 provides development effects and mitigation measures.	N/A	Absent	Candidate – associated with the shallow wetland communities of the St. Lawrence
30. Woodland Area-Sensitive Bird Breeding Habitat **Rationale:** Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Blackburnian Warbler Black-throated Blue Warbler Black-throated Green Warbler Blue-headed Vireo Northern Parula Ovenbird Red-breasted Nuthatch Scarlet Tanager Veery Winter Wren Yellow-bellied Sapsucker **Special Concern:** Canada Warbler Cerulean Warbler	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	• Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. [cv, cxxxi, cxxxii, cxxxiii, cxxxiv, cxxxv, cxxxvi, cxxxvii, cxxxviii, cxxxix, cxl, cxli, cxlii, cxliii, cxliv, cxlv, cxlvi, cl, cli, clii, cliii, cliv, clv, clvi, clvii, clviii, clix] • Interior forest habitat is at least 200 m from forest edge habitat. [clxiv] Information Sources • Local birder clubs. • Canadian Wildlife Service (CWS) for the location of forest bird monitoring. • Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species • Reports and other information available from Conservation Authorities.	No – no forests meeting the size requirements are present	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. Ⓔ • Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH.Ⓔ • Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” [ccxi] • SWHMiST [cxlix] Index #34 provides development effects and mitigation measures.	N/A	Absent	Absent

Habitats of Species of Conservation Concern

Wildlife	Species	CANDIDATE SWH		Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Candidate or Confirmed?	
		ELC Ecosite	Habitat Criteria and Information Sources		Defining Criteria		Site	Study Area
31. Marsh Breeding Bird Habitat **Rationale;** Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern American Coot Common Loon Common Moorhen Green Heron Marsh Wren Pied-billed Grebe Sandhill Crane Sedge Wren Sora Trumpeter Swan Virginia Rail **Special Concern:** Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites.	• Nesting occurs in wetlands. • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present [cxxiv]. • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water. Information Sources • OMNRF District and wetland evaluations. • Field Naturalist clubs • Natural Heritage Information Centre (NHIC) Records. • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas.	Yes – suitable wetland communities present	Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes; or breeding by any combination of 5 or more of the listed species Ⓔ. • Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH Ⓔ. • Area of the ELC ecosite is the SWH. • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • SWHMiST Index #35 provides development effects and mitigation measures	No – no evidence of breeding by the listed species during targeted surveys	Absent	Candidate
32. Open Country Bird Breeding Habitat **Rationale;** This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly in the past 40 years based on CWS (2004) trend records.	Grasshopper Sparrow Northern Harrier Savannah Sparrow Upland Sandpiper Vesper Sparrow **Special Concern:** Short-eared Owl	CUM1 CUM2	• Large grassland areas (includes natural and cultural fields and meadows) >30 ha [clx, clxi, clxii, clxiii, clxiv, clxv, clxvi, clxvii, clxviii, clxix]. Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years) [Í]. • Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. • The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species. Information Sources • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • EIS Reports and other information available from Conservation Authorities.	No - no meadows or hayfields large enough are present	Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species.[Í] • A field with 1 or more breeding Short-eared Owls is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMiST [cxlix] Index #32 provides development effects and mitigation measures	N/A	Absent	Absent
33. Shrub/Early Successional Bird Breeding Habitat **Rationale;** This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based	**Indicator Spp:** Brown Thrasher Clay-coloured Sparrow **Common Spp.:** Black-billed Cuckoo Eastern Towhee Field Sparrow Willow Flycatcher **Special Concern:** Golden-winged	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird	Large field areas succeeding to shrub and thicket habitats>10ha[clxiv] in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years) [Í]. • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species [clxxiii]. • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands.	No – no suitable communities meeting the required size criteria	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species.[Í] • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. [Í] • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories	N/A	N/A	Absent

Wildlife	Species	CANDIDATE SWH		Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Candidate or Confirmed?	
		ELC Ecosite	Habitat Criteria and Information Sources		Defining Criteria		Site	Study Area
on CWS (2004) trend records [cxcix].	Warbler Yellow-breasted Chat	species	Information Sources • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • Reports and other information available from Conservation Authorities.		• Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMiST [cxlix] Index #33 provides development effects and mitigation measures.			
34. Terrestrial Crayfish **Rationale:** Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare. [ccii]	Chimney or Digger Crayfish; (*Fallicambarus fodiens*) Devil Crawfish or Meadow Crayfish; (*Cambarus Diogenes*)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh ecosites can be used by terrestrial crayfish.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. Information Sources • Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF March 1998	No - outside range	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or terrestrial sites [cci] • Area of ELC Ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. • Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult • SWHMiST [cxlix] Index #36 provides development effects and mitigation measures.	N/A	Absent	Absent
35. Special Concern and Rare Wildlife Species **Rationale:** These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre (NHIC).	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites [lxxviii] Information Sources • Natural Heritage Information Centre (NHIC) will have Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. • NHIC Website "Get Information": http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas • Expert advice should be sought as many of the rare spp. have little information available about their requirements.	Yes – Species of Conservation Concern observed on the Site	Studies Confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat. • SWHMiST [cxlix] Index #37 provides development effects and mitigation measures.	Yes - snapping turtle and map turtle observed in the inlet	**Confirmed –** observed within the inlet	**Confirmed -** observed within the inlet and St. Lawrence River

Animal Movement Corridors

Habitat	SPECIES	CANDIDATE SWH		Habitat Criteria Present on Site?	CONFIRMED SWH	Defining Criteria Present on Site?	SWH Absent, Candidate or Confirmed?	
		ELC Eco-sites	Habitat Criteria and Information Sources		Defining Criteria		Site	Study Area
36. Amphibian Movement Corridors **<u>Rationale:</u>** Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	American Toad Blue-spotted Salamander Bullfrog Eastern Newt Four-toed Salamander Gray Treefrog Green Frog Mink Frog Northern Leopard Frog Pickeral Frog Spotted Salamander Western Chorus Frog	Corridors may be found in all ecosites associated with water. • Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1	Movement corridors between breeding habitat and summer habitat [clxxiv, clxxv, clxxvi, clxxvii, clxxviii, clxxix, clxxx, clxxxi]. Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (**Amphibian Breeding Habitat – Wetland)** of this Schedule Í. <u>Information Sources</u> • MNRF District Office. • Natural Heritage Information Centre (NHIC). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs.	No - as no Amphibian Breeding (Woodland) SWH is present, no corridors are to be identified	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant [cxlix] • Corridors should have at least 15m of vegetation on both sides of waterway [cxlix] or be up to 200m wide [cxlix] of woodland habitat and with gaps <20m [cxlix] . • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat [cxlix]. • SWHMiST [cxlix] Index #40 provides development effects and mitigation measures	N/A	Absent	Candidate
37. Deer Movement Corridors **<u>Rationale:</u>** Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	White-tailed Deer	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH from Table 1.1 of this schedule. Ê • A deer wintering habitat identified by the OMNRF as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring dispersion [clxxxii, clxxxiii, cxlix, cxciv.] • Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges). <u>Information Sources</u> • MNRF District Office. • Natural Heritage Information Centre (NHIC). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs.	No - as no Deer Wintering areas are mapped, no corridors are to be identified	• Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas. • Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas. • Corridors should be at least 200m wide [cxlix] with gaps <20m [cxlix] and if following riparian area with at least 15m of vegetation on both sides of waterway [cxlix]. Shorter corridors are more significant than longer corridors, [cxlix]. • SWHMiST [cxlix] Index #39 provides development effects and mitigation measures	N/A	Absent	Absent

Significant Wildlife Habitat Exceptions for Ecodistricts within EcoRegion 6E

EcoDistrict	Wildlife Habitat and Species	Candidate SWH			Habitat Criteria Present on Site?	Confirmed SWH	Defining Criteria Present on Site?	SWH Absent, Candidate or Confirmed?	
		Ecosites	Habitat Description	Habitat Criteria and Information		Defining Criteria		Site	Study Area
6E-14 **Rationale:** The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracts with mast-producing tree species is important for bears. clxxxvi, ccxvii	**Mast Producing Areas** Black Bear	All forested habitat represented by ELC Community Series: FOM FOD	• Black bears require forested habitat that provides cover, winter hibernation sites, and mast producing tree species. Clxxxv, clxxxvii, clxxxviii, clxxxix, cxc, cxci, cxcii, cxciii, ccxvii	Woodland ecosites >30 ha with mast-producing tree species, either soft (cherry) or hard (oak and beech). Information Sources • Important forest habitat for black bears may be identified by OMNRF.	N/A - Site not located in 6E-14	• All woodlands > 30ha with a 50%composition of these ELC Vegetation© Types are considered significant: FOM1-1, FOM2-1, FOM3-1, FOD1-1, FOD1-2, FOD2-1, FOD2-2, FOD2-3, FOD2-4, FOD4-1, FOD5-2, FOD5-3, FOD5-7, FOD6-5 • SWHMiST cxlix Index #3 provides development effects and mitigation measures.	N/A	Absent	Absent
6E- 17 **Rationale:** Sharp-tailed grouse only occur on Manitoulin Island in Eco-region 6E, Leks are an important habitat to maintain their population	**Lek** **Sharp-tailed Grouse**	CUM CUS CUT	• The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography ccxix. • Leks are typically a grassy field/meadow >15ha with adjacent shrublands and >30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated ccxix.	Grasslands (field/meadow) are to be >15ha when adjacent to shrubland and >30ha when adjacent to deciduous woodland ccxix. • Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying) • Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting ccxix. Information Sources • OMNRF District Office • Bird watching clubs • Local landowners • Ontario Breeding Bird Atlas	N/A - Site not located in 6E-17	Studies confirming lek habitat are to be completed from late March to June. • Any site confirmed with sharp-tailed grouse courtship activities is considered significant. • The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitat • SWHMist cxlix Index #32 provides development effects and mitigation measures.	N/A	Absent	Absent

APPENDIX F

Draft Plan of Subdivision

DRAFT PLAN OF SUBDIVISION

LEGAL DESCRIPTION

PART OF LOT 16, CONCESSION 1,
GEOGRAPHIC TOWNSHIP OF LEEDS
TOWN OF GANANOQUE
COUNTY OF LEEDS

OWNER'S CERTIFICATE

I HEREBY AUTHORIZE MACNAUGHTON HERMSEN BRITTON CLARKSON PLANNING LIMITED TO SUBMIT THIS PLAN FOR APPROVAL.

Date: _____

_____
ROB PIERCE
1000989284 ONTARIO INC.

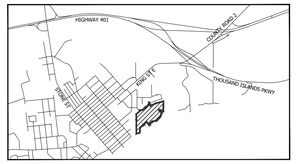
SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

Date: _____

_____
SHAWN LEROUX, O.L.S., O.L.I.P., A.L.S.
J.D BARNES LIMITED

KEY PLAN



Subject Lands

Scale: 1:45,000

ADDITIONAL INFORMATION

Required Under Section 51 (17) of the Planning Act, R.S.O., 1990, c.P.13 as Amended

(a) As Shown	Development	(i) Unknown
(b) As Shown	(e) As Shown	(j) As Shown
(c) As Shown	(f) As Shown	(k) Services As Required
(d) Residential, Park, Open Space, Servicing, Future	(g) As Shown	(l) As Shown
	(h) Municipal Water Supply	

AREA SCHEDULE

DESCRIPTION	LOTS/BLOCKS	UNITS	AREA
Low Density Residential	1-77	77	5.608 ha
Residential Lot Addition	78		0.955 ha
Parks	79-80		0.596 ha
Open Space	81-85		2.038 ha
Servicing	86-87		0.274 ha
Servicing/Emergency Access	88		0.041 ha
Servicing/Trail Connection	89		0.039 ha
Future Development	90-93		0.270 ha
Roads			1.764 ha
Total	**93**	**77**	**11.586 ha**

NOTES

1. All dimensions are in metres unless otherwise shown.
2. Environmental features provided by WSP, 2025-05-23, & FFE, August 2025
3. Survey prepared by Hopkins Chitty Land Surveyors Inc, 2022-03
4. Contains information licensed under the Open Government Licence - Ontario.

Revision No.	Date	Issued / Revision	By

Stamp

Date August 19, 2025

File No. 9137BK

Plan Scale 1:1000 (Arch D)

Drawn By JB/CT

Checked By EE

Project

205 Elmwood Drive, Gananoque
R.W. Tomlinson Limited
100 CitiGate Drive, Ottawa ON

File Name DRAFT PLAN OF SUBDIVISION

Dwg No. 1 of 1

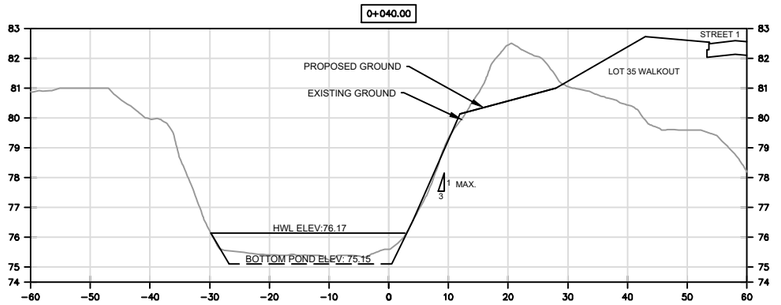
Scale Bar 0 10 25 50 100m

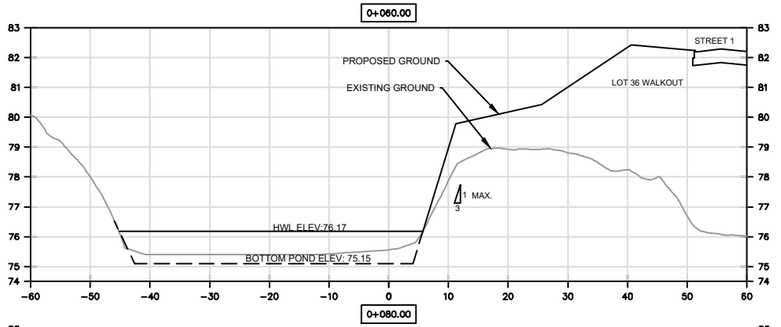
K:\9137BK - 205 Elmwood Drive, Gananoque\DPOP_19Aug2025.dwg

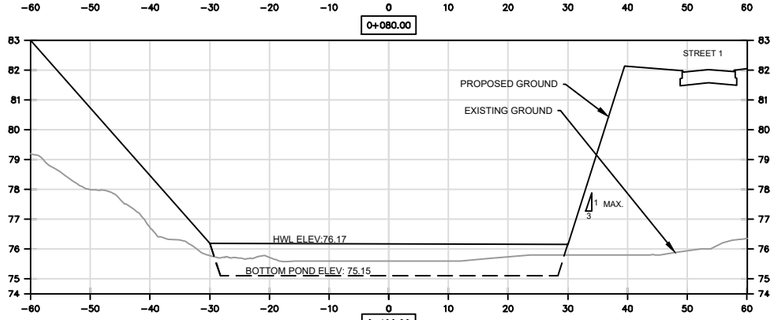
MHBC | PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE

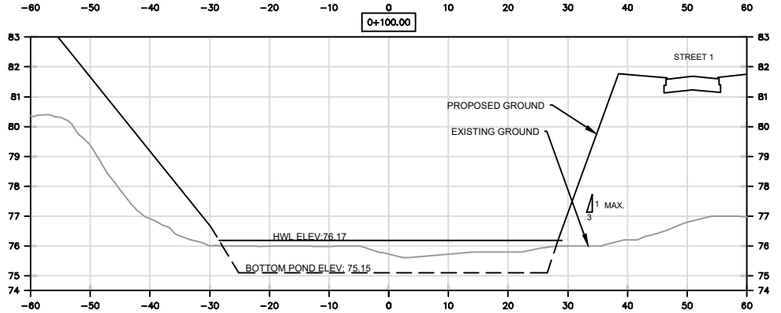
APPENDIX G

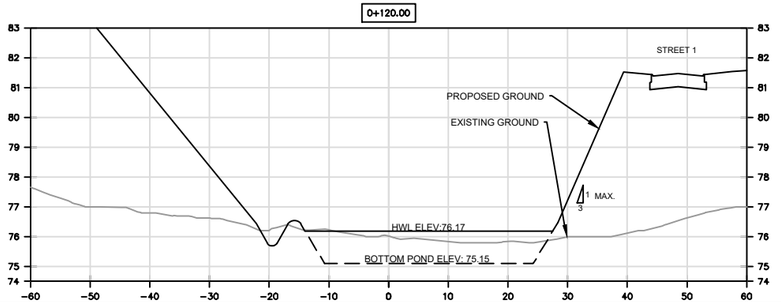
Wetland Enhancement Concept Plan





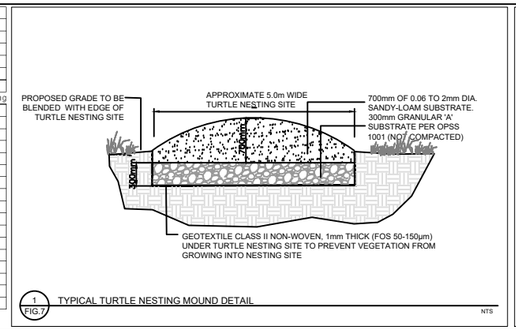




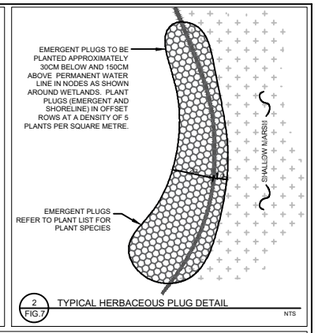


PLANT MATERIAL SCHEDULE - ELMWOOD SUBDIVISION

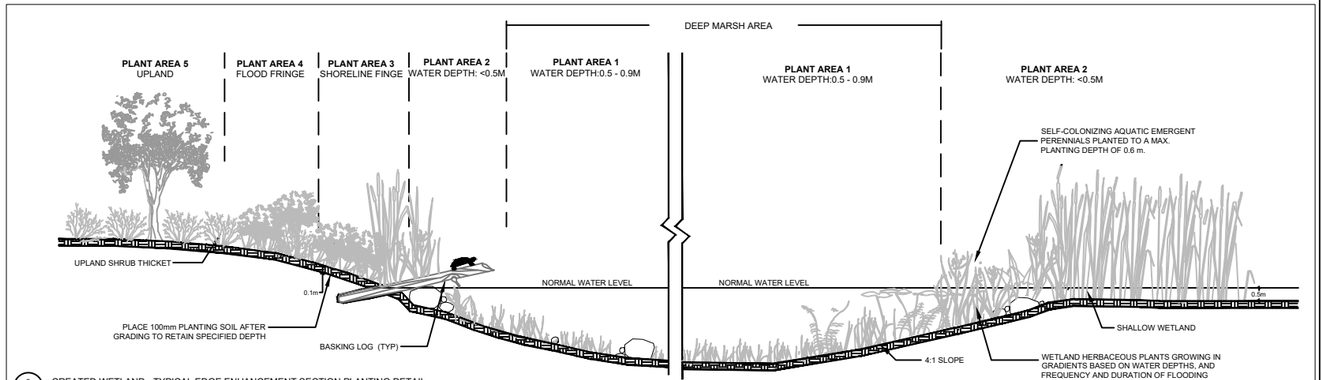
SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE CAL(mm)/HT(cm)	ROOT	REMARKS
TREES						
Alr	2	Alnus rugosa	Speckled Alder	200cm	WB	min.3 stems, full crown
Ar	3	Acer rubrum	Red Maple	60mm	WB	straight trunk, full crown
As	7	Acer saccharinum	Silver Maple Clump	200cm	WB	min.3 stems, full crown
Sn	3	Salix Nigra	Black Willow Clump	200cm	WB	min.3 stems, full crown
Ps	4	Pinus strobus	White Pine	100cm	BB	full upper & lower branching
SHRUBS						
Co	14	Cephalanthus occidentalis	Buttonbush	60cm	WB	min. 3 stems
Cr	2	Cornus racemosa	Gray Dogwood	60cm	WB	min. 3 stems
Cs	10	Cornus sericea	Red Osier Dogwood	60cm	WB	min. 3 stems
Mg	4	Myrica gale	Sweet Gale	60cm	WB	min. 3 stems
Sc	4	Salix Cordata	Heart-Leaved Willow	60cm	WB	min. 3 stems
Sd	8	Salix discolor	Pussy Willow	60cm	WB	min. 3 stems
Vd	5	Viburnum trilobum	Highbush Cranberry	60cm	WB	min. 3 stems
EMERGENT(EM)/SUBMERGENT(SB) HERBACEOUS PLUGS						
EM	125	Acorus americanus	Sweet Flag		Plug	5 per square metre
EM	125	Sagittaria latifolia	Broadleaf Arrowhead		Plug	5 per square metre
EM	125	Schoenoplectus pungens	Three-square bulrush		Plug	5 per square metre
EM	125	Schoenoplectus tabernaemontani	Soft-stemmed bulrush		Plug	5 per square metre
SB	150	Typha latifolia	Common Cattail		Plug	5 per square metre
SB	200	Alisma plantago-aquatica	Water Plantain		Plug	5 per square metre
SB	200	Nuphar variegata	Yellow Pond Lily		Plug	5 per square metre
SB	313	Potamogeton natans	Floating Pondweed		Plug	5 per square metre



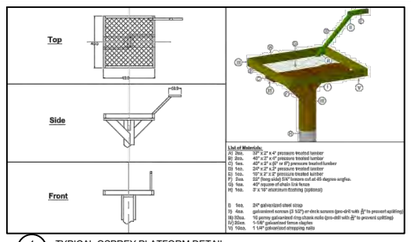
1 FIG.7 TYPICAL TURTLE NESTING MOUND DETAIL NTS



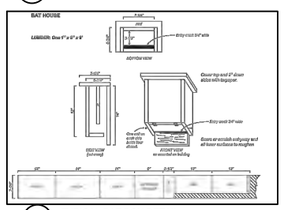
2 FIG.7 TYPICAL HERBACEOUS PLUG DETAIL NTS



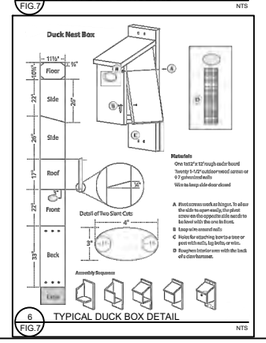
3 FIG.7 CREATED WETLAND - TYPICAL EDGE ENHANCEMENT SECTION PLANTING DETAIL NTS



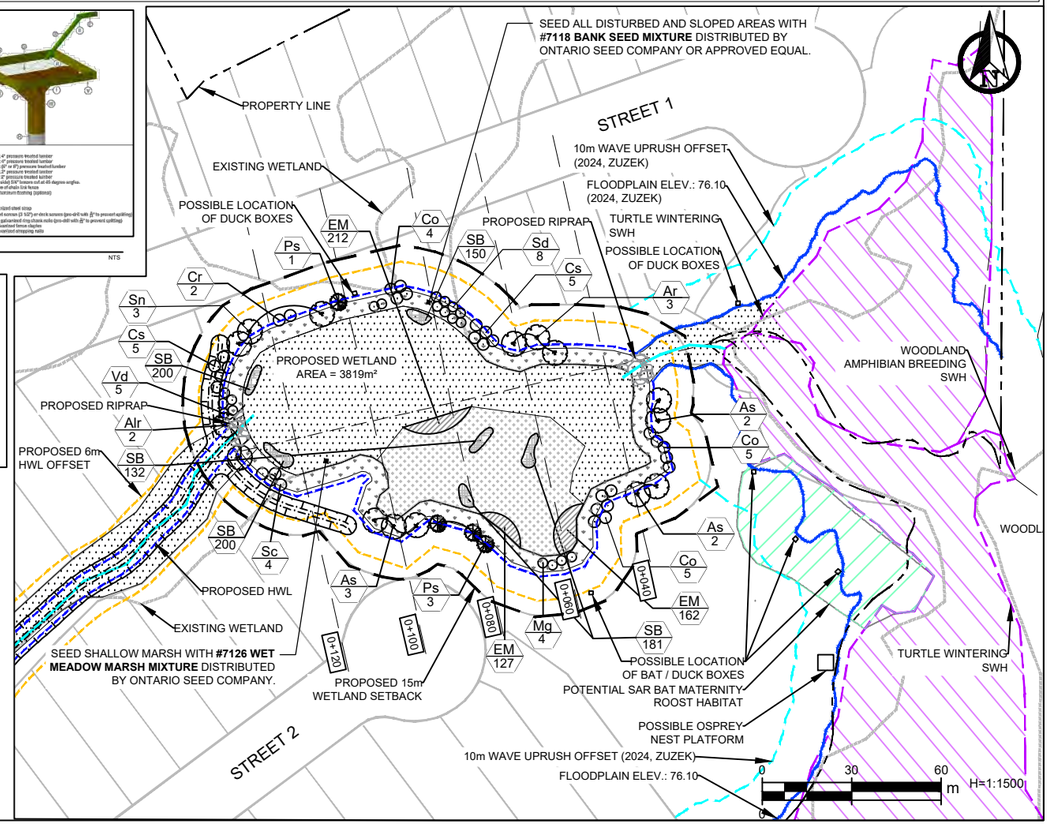
4 FIG.7 TYPICAL OSPREY PLATFORM DETAIL NTS



5 FIG.7 TYPICAL BAT BOX DETAIL NTS



6 FIG.7 TYPICAL DUCK BOX DETAIL NTS



LEGEND

- 15m PROPOSED WETLAND SETBACK
- EXISTING WETLAND LIMIT
- EXISTING FLOODPLAIN
- PROPOSED 6m HWL OFFSET
- PROPOSED HWL
- 10m WAVE UPRUSH
- POTENTIAL SAR BAT MATERNITY ROOST
- TURTLE WINTERING SWH
- OSC#7126 CUSTOM WET MEADOW MARSH MIX
- DEEP MARSH TO NATURALIZE
- OSC#7118 CUSTOM BANK SEED MIXTURE
- PROPOSED SHRUBS
- PROPOSED TREES
- PLANT KEY — SPECIES / QUANTITY

Benchmark

No.	Revision/Issue	Date

Forefront Engineering Inc
1329 Gardiners Road, Suite 210
Kingston, ON, Canada K7P 0L8
613.634.9009 tel.
1.866.884.9392 fax.

Client: 1000989284 ONTARIO INC.

Project: ELMWOOD SUBDIVISION

Drawing: PROPOSED ENHANCED WETLAND

Drawn by:	Checked by:	Project No.
EP	JH	
Designed by:	Approved by:	Drawing No.
KMN	KMN	FIG.7
Date: AUGUST 2025		
Scale: 1:1500 ANSI B (11x17)		

APPENDIX H

Ontario Wetland Evaluation
Elmwood Drive Wetland

TECHNICAL MEMORANDUM

DATE 28 August 2025 CA0053084.9335

TO Brenda Guy
Town of Gananoque

CC Jennifer Ailey, Tomlinson
Erin Greenaway, WSP
Emily Elliot, MHBC

FROM Fergus Nicoll, Gwendolyn Weeks **EMAIL Fergus.Nicoll@wsp.com**

2025 SUBMISSION OF ONTARIO WETLAND EVALUATION – "ELMWOOD DRIVE WETLAND", TOWN OF GANANOQUE, ONTARIO

Dear Brenda Guy,

For your records, please find attached an evaluation for a single wetland (Elmwood Drive Wetland), located on lands owned by 1000989284 Ontario Inc, located at Part Lots 13 and 14, Concession 8 in the Town of Gananoque, Ontario. This wetland has been evaluated by provincially certified wetland evaluators (Fergus Nicoll, Gwendolyn Weeks), according to the most recent Ontario Wetland Evaluation System (OWES) for Southern Ontario manual (MNR 2022). The results of this evaluation value the Elmwood Wetland with a total score of 319.5, and a special features score of 51, which means this wetland does not meet the threshold to be considered provincially significant in Ontario. This evaluation package will also be forwarded to the Ministry of Natural Resources.

Should you have any questions, do not hesitate to reach out to the undersigned.

Best regards,

WSP Canada Inc.

Fergus Nicoll, Dip.T.
Senior Ecologist, Wetland Evaluator

Gwendolyn Weeks, H.B.Sc.Env.
Lead Ecologist, Wetland Evaluator

FIN/GAW/EG/ld

Distribution: Jennifer Ailey, R.W Tomlinson Ltd.
Emily Elliot MHBC Planning

Attachments: Wetland Evaluation Scoring Record
Plant Species List
Figure 1 - Sixth Concession Wetland Plant Communities
Figure 2 - Sixth Concession Wetland Catchment Area

https://wsponlinecan.sharepoint.com/sites/ca-ca0053084.9335/shared documents/06. deliverables/owes/elmwood owes coverletter 2025.docx

Wetland Evaluation Scoring Record

WETLAND EVALUATION DATA AND SCORING RECORD

Wetland Name: Elmwood Drive Wetland

Geographic Location (municipality, lot/concession, etc):
205 Elmwood drive, Gananoque, Ontario

Map / Photo Locational Reference (e.g., latitude/longitude, NTS map, UTM):
NAD 83 18T 408311E 4909245N

Eco-District: 6E-10

Wetland Size (hectares): 1.74

Vegetation Form	FA
h	
c	
dh	
dc	
ts	
ls	
ds	
gc	
m	
ne	0.63
be	
re	0.37
ff	
f	
su	
u	

1.0 BIOLOGICAL COMPONENT

1.1 PRODUCTIVITY

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

Refer to page 36 of manual for further explanation.

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

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

Soil Type	FA of wetland in soil type		Enter appropriate score-factor from above table		
Clay/Loam	0.63	x	22	=	14
Silt/Marl:	0.	x		=	
Limestone:		x		=	
Sand:		x		=	
Humic/Mesic:	0.37	x	11	=	4
Fibric:		x		=	
Granite:		x		=	
Total					17

GDD/Soils Score *(maximum 30 points)* 18

1.1.2 Wetland Type

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

	Fractional Area		Score
Bog		x 3 =	
Fen		x 6 =	
Swamp		x 8 =	
Marsh	1.0	x 15 =	15
Total		=	15

Wetland Type Score *(maximum 15 points)* 15

1.1.3 Site Type

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

	Fractional Area		Score
Isolated		x 1 =	
Palustrine (permanent or intermittent flow)	1.0	x 2 =	2
Riverine		x 4 =	
Riverine (at rivermouth)		x 5 =	
Lacustrine (at rivermouth)		x 5 =	
Lacustrine (with barrier beach)		x 3 =	
Lacustrine (exposed to lake)		x 2 =	
Total		=	

Site Type Score *(maximum 5 points)* 2

1.2 BIODIVERSITY

1.2.1 Number of Wetland Types

(Check only one)

✓	One	=	9 points
	Two	=	13
	Three	=	20
	Four	=	30

- Marsh

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

1.2.2. Vegetation Communities

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

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

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

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

Total # of communities with 6 or more forms	
1 =	3 pts
2 =	5
3 =	7
4 =	9
5 =	10.5
6 =	12
7 =	13.5
8 =	15
9 =	16.5
10 =	18
11 =	19
+ 1.0 for each additional community =	

Vegetation Communities Score *(maximum 45 points)* 2.5

1.2.3 Diversity of Surrounding Habitat

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

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

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

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

Diversity of Surrounding Habitat Score
(maximum 7 points) 6

1.2.4 Proximity to Other Wetlands

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

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

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

~20m to inlet of the St. Lawrence River

Proximity to other Wetlands Score
(maximum 8 points) 8

1.2.5 Interspersion

Number of Intersections = 49

✓	Number of Intersections *(Check one only)*	Points
	26 or less	= 3
	27 to 40	= 6
✓	41 to 60	= 9
	61 to 80	= 12
	81 to 100	= 15
	101 to 125	= 18
	126 to 150	= 21
	151 to 175	= 24
	176 to 200	= 27
	>200	= 30

Interspersion Score *(maximum 30 points)* 9

1.2.6 Open Water Types

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

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

Open Water Type Score *(maximum 30 points)* 8

1.3 SIZE (BIOLOGICAL COMPONENT)

Total Size of Wetland = 1.74 ha

Sum of scores from Biodiversity Subcomponent

1.2.1 9
+ 1.2.2 2.5
+ 1.2.3 6
+ 1.2.4 8
+ 1.2.5 9
+ 1.2.6 8

42.5

Circle the appropriate score from the table below.

Total Score for Biodiversity Subcomponent

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

Size Score (Biological Component)
(maximum 50 points) 5

2.0 SOCIAL COMPONENT

2.1 ECONOMICALLY VALUABLE PRODUCTS

2.1.1 Wood Products

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

Area of wetland used for scoring 2.1.1: 0

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

Source of information: surveys - no forested wetland

Wood Products Score *(maximum 18 points)* 0

2.1.2 Wild Rice

Check only one.

✓	Present (min. size 0.5 ha)	=	6 pts
	Absent	=	0
	Harvest not permitted	=	0

Source of information: Field survey

Wild Rice Score *(maximum 6 points)* 0

2.1.3 Commercial Baitfish

Check only one.

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

Source of information:
surveys, owner

Commercial Fish Score *(maximum 12 points)* 0

2.1.4 Furbearers

Only species recognized as furbearers under the Fish & Wildlife Conservation Act may be scored here. Score 3 *points for each furbearer species listed, up to a maximum of 12 points. Score 0 points if trapping is prohibited.*

Name of furbearer	Source of information
1.	
2.	
3.	Not permitted - owner
4.	
5.	
6.	

Furbearer Score *(maximum 12 points)* 0

2.2 RECREATIONAL ACTIVITIES

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

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

Intensity of Use	Type of Wetland-Associated Use: Hunting	Nature Enjoyment/ Ecosystem Study	Fishing
High	40 points	40 points	40 points
Moderate	20	20	20
Low	8	(8)	8
Not Possible/ No evidence	0	0	0

Sources of information (include evidence/criteria forming basis for score and any relevant reference used to obtain that information):

Hunting: Not permitted

Nature: - neighbours observe nesting osprey from adjacent.

Fishing: Not permitted

Recreational Activities Score
(maximum 80 points) 8

2.3 LANDSCAPE AESTHETICS

2.3.1 Distinctness

Check only one.

	Clearly Distinct	=	3 pts
✓	Indistinct	=	0

Landscape Distinctness Score
(maximum 3 points) 0

2.3.2 Absence of Human Disturbance

Check only one.

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

Details regarding type, extent and location of disturbance scored:

Signs of farming in recent years, invasive garden waste / spacing

Source of information: Field survey

Absence of Human Disturbance Score
(maximum 7 points) 4

2.4 EDUCATION AND PUBLIC AWARENESS

2.4.1 Educational Uses

Check highest appropriate category.

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

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

Not public accessible

Source of information:

owner

Educational Uses Score *(maximum 20 points)* 0

2.4.2 Facilities and Programs

Check all appropriate options, score highest category checked.

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

Additional Notes/Comments:

None

Source of information:

Owner

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

2.4.3 Research and Studies

Check all that apply; score highest category checked.

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

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

NE EIS completed in 2024/2025
see attached for surveys & dates

Research and Studies Score
(maximum 12 points) 5

2.5 PROXIMITY TO AREAS OF HUMAN SETTLEMENT

Name of Settlement: Gananoque

Distance of wetland from settlement: 0 (within)

Population of settlement: 5 383 (Source: wikipedia)

Circle only the highest score applicable

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

Proximity to Human Settlement Score
(maximum 40 points) 26

2.6 OWNERSHIP

FA of wetland held by or held under a legal contract by a conservation body (as defined by the *Conservation Land Act*) for wetland protection	____ x 10 = ____
FA of wetland occurring in provincially or nationally protected areas (e.g., parks and conservation reserves)	____ x 10 = ____
FA of wetland area in Crown/public ownership, not as above	____ x 8 = ____
FA of wetland area in private ownership, not as above	1.0 x 4 = 4

Source of information: owner / # town

Ownership Score *(maximum 10 points)* 4

2.7 SIZE (SOCIAL COMPONENT)

Total Size of Wetland = 1.7+ ha Sum of scores from Subcomponents 2.1, 2.2, and 2.5 = 34

Circle the appropriate score from the table below. 0 8 26

Total for Size Dependent Social Features

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

Total Size Score (Social Component) 2

2.8 ABORIGINAL VALUES AND CULTURAL HERITAGE

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

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

2.8.1 Aboriginal Values

Significant		=	30 pts
Not Significant		=	0
Unknown	✓	=	0

Additional Comments/Notes:

not found but possible

2.8.2 Cultural Heritage

	Significant	=	30 pts
✓	Not Significant	=	0
	Unknown	=	0

Additional Comments/Notes: Archeology Report from client

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

3.0 HYDROLOGICAL COMPONENT

3.1 FLOOD ATTENUATION

Check one of the following options.

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

(A) Total wetland area = _____ ha

(B) Size of wetland's catchment = 3 ha

(C) Size of other detention areas in catchment = _____ ha

(D) Total area of upstream detention areas = {A + C } = _____ha

(E) Upstream Detention Factor = {(A/D) x 2} = _____ (maximum 1.0)

(F) Attenuation Factor = {(A/B) x 10} = _____ (maximum 1.0)

Flood Attenuation Final Score = {(E + F) /2} x 100 = _____

Flood Attenuation Score *(maximum 100 points)*	0

3.2 WATER QUALITY IMPROVEMENT

3.2.1 Short Term Water Quality Improvement

Step 1: Determination of maximum initial score

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

Step 2: Determination of Watershed Improvement Factor (WIF)

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

(FA = area of site type/total area of wetland)

FA of isolated wetland	=	x 0.5 =	
FA of riverine wetland	=	x 1.0 =	
FA of palustrine wetland with no inflow	=	x 0.7 =	
FA of palustrine wetland with inflows	=	x 1.0 =	1.0
FA of lacustrine on lake shoreline	=	x 0.2 =	
FA of lacustrine at lake inflow or outflow	=	x 1.0 =	

Sum (*WIF cannot exceed 1.0*) 1.0

Step 3: Determination of Catchment Land Use Factor (LUF)

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

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

LUF *(maximum 1.0)* 1.0

Step 4: Determination of Pollutant Uptake Factor (PUF)

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

(FA = area of vegetation type/total area of wetland)

FA of wetland with live trees, shrubs, herbs or mosses (c, h, ts, ls, gc, m)	= x 0.75 =	
FA of wetland with emergent, submergent or floating vegetation (re, be, ne, su, f, ff)	= x 1.0 =	1.0
FA of wetland with little or no vegetation (u)	= x 0.5 =	

Sum *(PUF cannot exceed 1.0)* 1.0

Step 5: Calculation of final score

☑	Wetland on defined 5 major lakes or 5 major rivers	0
	All other wetlands – calculate as follows	
	Initial score	60
	Watershed Improvement Factor (WIF)	1.0
	Land Use Factor (LUF)	1.0
	Pollutant Uptake Factor (PUF)	1.0
	Final score: 60 x WIF x LUF x PUF =	60

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

3.2.2 Long Term Nutrient Trap

Step 1:

☑ Wetland on defined 5 major lakes or 5 major rivers = 0 points
☐ All other wetlands (Proceed to Step 2)

Step 2: Choose only one of the following settings that best describes the wetland being evaluated

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

Long Term Nutrient Trap Score *(maximum 10 points)*	3

3.2.3 Groundwater Discharge

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

Wetland Characteristics	Potential for Discharge		
	None to Little	Some	High
Wetland type	Bog = 0	Swamp/Marsh = 2	Fen = 5
Topography	Flat/rolling = 0	Hilly = 2	Steep = 5
Wetland area: Upslope catchment area	Large (>50%) = 0	Moderate (5-50%) = 2	Small (<5%) = 5
Lagg development	None found = 0	Minor = 2	Extensive = 5
Seeps	None = 0	≤ 3 seeps = 2	> 3 seeps = 5
Surface marl deposits	None = 0	≤ 3 sites = 2	> 3 sites = 5
Iron precipitates	None = 0	≤ 3 sites = 2	> 3 sites = 5
Located within 1 km of a major aquifer	N/A = 0	N/A = 0	Yes = 10 No = 0

Additional Comments/Notes:

Groundwater Discharge Score
(maximum 30 points) 9

3.3 CARBON SINK

Check only one of the following:

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

Source of information: Field surveys - Elsete

Carbon Sink Score
(maximum 5 points) 3

3.4 SHORELINE EROSION CONTROL

From the wetland vegetation map determine the dominant vegetatino type within the erosion zone for lacustrine and riverine site type areas only. Score according to the factors listed below.

Step 1:

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

Step 2: *Choose the one characteristic that best describes the shoreline vegetation (see page 109 for description of "shoreline".)*

✓	Trees and shrubs	=	15 pts
	Emergent vegetation	=	8
	Submergent vegetation	=	6
	Other shoreline vegetation	=	3
	No vegetation	=	0

Shoreline Erosion Control Score
(maximum 15 points) 8

3.5 GROUNDWATER RECHARGE

3.5.1 Site Type

Wetland > 50% lacustrine (by area) or located on one of the five major rivers		0 pts	
Wetland not as above. Calculate final score as follows:			
■ FA of isolated or palustrine wetland	= 1.0	x 50 =	✓
■ FA of riverine wetland	=	x 20 =	
■ FA of lacustrine wetland (not dominant site type)	=	x 0 =	

Groundwater Recharge/Wetland Site Type Score *(maximum 50 points)* 50

3.5.2 Soil Recharge Potential

*Circle only one choice that **best** describes the soils in **the area surrounding the wetland** being evaluated (the soils within the wetland are not scored here).*

Dominant Wetland Type	Group A, B, C (sands, gravels, loams)	Group D (clays, substrates in high water tables, shallow substrates over impervious materials such as bedrock)
Lacustrine or major river	0	0
Isolated	10	5
Palustrine	7	4
Riverine (not on a major river)	5	2

Groundwater Recharge/Wetland Soil Recharge Potential Score *(maximum 10 points)* 4

4.0 SPECIAL FEATURES COMPONENT

4.1 RARITY

4.1.1 Wetland Types

Ecodistrict	Rarity within the Landscape (4.1.1.1)	Rarity of Wetland Type (4.1.1.2)			
		Marsh	Swamp	Fen	Bog
6E-1	60	40	0	80	80
6E -2	60	40	0	80	80
6E-4	60	40	0	80	80
6E-5	20	40	0	80	80
6E-6	40	20	0	80	80
6E-7	60	10	0	80	80
6E-8	20	20	0	80	80
6E-9	0	20	0	80	80
6E-10	20	0	20	80	80
6E-11	0	30	0	80	80
6E-12	0	30	0	60	80
6E-13	60	10	0	80	80
6E-14	40	20	0	40	80
6E-15	40	0	0	80	80
6E-16	60	20	0	80	60
6E-17	40	10	0	30	80
7E-1	60	0	60	80	80
7E-2	60	0	0	80	80
7E-3	60	00	0	80	80
7E-4	80	0	0	80	80
7E-5	60	20	0	80	80
7E-6	80	30	0	80	80

4.1.1.1 Rarity within the Landscape

Choose appropriate score from 2nd column above.

Score *(maximum 80 points)* 20

4.1.1.2 Rarity of Wetland Type

Score is cumulative, based on presence/absence. Circle all appropriate scores from above table and sum.

Score *(maximum 80 points)* 0

4.1.2 Species

4.1.2.1 Provincially Significant Animal Species

Common Name	Scientific Name	Activity	Dates Observed	Info Source
	None			

Additional Notes/Comments:

None during Surveys.

One species = 50 pts	9 species = 140 pts	17 species = 160 pts
2 species = 80	10 species = 143	18 species = 162
3 species = 95	11 species = 146	19 species = 164
4 species = 105	12 species = 149	20 species = 166
5 species = 115	13 species = 152	21 species = 168
6 species = 125	14 species = 154	22 species = 170
7 species = 130	15 species = 156	23 species = 172
8 species = 135	16 species = 158	24 species = 174
		25 species = 176

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Animal Species
(no maximum) 0

4.1.2.2 Provincially Significant Plant Species

Common Name	Scientific Name	Activity	Dates Observed	Info Source
	None			

Additional Notes/Comments: None during surveys

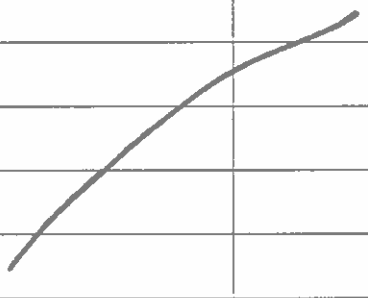
One species =	50 pts	9 species =	140 pts	17 species =	160 pts
2 species =	80	10 species =	143	18 species =	162
3 species =	95	11 species =	146	19 species =	164
4 species =	105	12 species =	149	20 species =	166
5 species =	115	13 species =	152	21 species =	168
6 species =	125	14 species =	154	22 species =	170
7 species =	130	15 species =	156	23 species =	172
8 species =	135	16 species =	158	24 species =	174
				25 species =	176

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Plant Species
(no maximum) 0

4.1.2.3 Regionally Significant Species

Common Name	Scientific Name	Activity	Dates Observed	Info Source



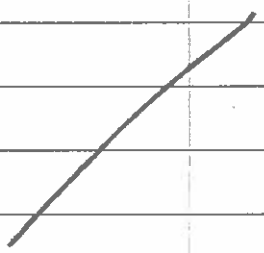
One species= 20 pts	4 species = 45 pts	7 species = 58 pts
2 species = 30	5 species = 50	8 species = 61
3 species = 40	6 species = 55	9 species = 64
		10 species = 67

For each significant species over 10 in wetland, add 1 point.

Regionally Significant Species Score
(no maximum score) 0

4.1.2.4 Locally Significant Species

Common Name	Scientific Name	Activity	Dates Observed	Info Source



One species= 10 pts	4 species = 31 pts	7 species = 43 pts
2 species = 17	5 species = 38	8 species = 45
3 species = 24	6 species = 41	9 species = 47
		10 species = 49

For each significant species over 10 in wetland, add 1 point.

Locally Significant Species Score
(no maximum score) 0

4.2 SIGNIFICANT FEATURES AND HABITATS

4.2.1 Colonial Waterbirds

Record all available information. Score the highest applicable category. Include additional information as possible (e.g., nest locations, etc).

Activity	Species	Info Source	Points
Currently nesting			= 50
Known to have nested within the past 5 years			= 25
Active feeding area (great blue heron excluded)			= 15
None known ✓			= 0

Additional Notes/Comments: Surveys complete / L10

Colonial Waterbird Nesting Score
(maximum 50 points) 0

4.2.2 Winter Cover for Wildlife

Score highest appropriate category. Include rationale/sources of information.

	Provincially significant	= 100 pts
	Significant in Ecoregion	= 50
	Significant in Ecodistrict	= 25
	Locally significant	= 10
✓	Little or poor winter cover	= 0

Species/habitat/vegetation community scored *(e.g., winter deer cover in hemlock swamp, S3 and S4b)*:

~~SE~~ marsh not good winter cover.

Source of information: surveys / L10

Winter Cover for Wildlife Score
(maximum 100 points) 0

4.2.3 Waterfowl Staging and/or Moulting Areas

Check highest level of significance for both staging and moulting; add scores for staging and for moulting together for final score. However, maximum score for evaluation under this section is 150 points.

	Staging	Moulting
Nationally/internationally significant	= 150 pts	= 150 pts
Provincially significant	= 100	= 100
Significant in the Ecoregion	= 50	= 50
Significant in Ecodistrict	= 25	= 25
Known to occur	= 10	= 10
✓ Not possible/Unknown	= 0	= 0

Species/habitat/vegetation community scored *(e.g., approx 20 mallards in W3)*:

Source of information: Surveys/LIO

Waterfowl Staging/Moulting Score
(maximum 150 points) 0

4.2.4 Waterfowl Breeding

Check highest level of significance.

	Nationally/internationally significant	= 150 pts
	Provincially significant	= 100
	Significant in the Ecoregion	= 50
	Significant in Ecodistrict	= 25
✓	Habitat Suitable	= 10
	Habitat not suitable	= 0

Species/habitat/vegetation community scored *(e.g., mallard in W3)*: All suitable

Source of information: Surveys

Waterfowl Breeding Score
(maximum 150 points) 10

4.2.5 Migratory Passerine, Shorebird or Raptor Stopover Area

Check highest level of significance.

	Nationally / internationally significant	= 150 pts
	Provincially significant	= 100
	Significant in Ecoregion	= 50
	Significant in Ecodistrict	= 25
✓	Known to occur	= 10
	Not possible / Unknown	= 0

Species/habitat/vegetation community scored: All possible.

Source of information: surveys/desktop

Passerine, Shorebird or Raptor Stopover Score
(maximum 100 points) 10

4.2.6 Fish Habitat

4.2.6.1 Spawning and Nursery Habitat

Area Factors for Low Marsh, High Marsh and Swamp Communities.

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5 – 4.9	0.2
5.0 – 9.9	0.4
10.0 – 14.9	0.6
15.0 – 19.9	0.8
20.0 +	1.0

Step 1:

☐	Fish habitat is not present within the wetland	Go to Step 7, Score 0 points
☑	Fish habitat is present within the wetland – potential	Go to Step 2

Step 2: *Choose only one option*

☑	Significance of the spawning and nursery habitat within the wetland is known	Go to Step 3
☑	Significance of the spawning and nursery habitat within the wetland is not known	Go through Steps 4, 5 and 6

Step 3: *Select the highest appropriate category below, attach documentation:*

Significant in Ecoregion	Go to Step 7, Score 100 points
Significant in Ecodistrict	Go to Step 7, Score 50 points
Locally Significant Habitat (5.0+ ha)	Go to Step 7, Score 25 points
Locally Significant Habitat (<5.0 ha)	Go to Step 7, Score 15 points

Source of information: Surveys / desktop / WSP fisheries experts.

Step 4: Low Marsh = the 'permanent' marsh area, from the existing water line out to the outer boundary of the wetland.

☑	Low marsh not present	Go to Step 5
☐	Low marsh present	Continue through Step 4, scoring as noted below

Scoring of Low Marsh:

1. Check the appropriate **Vegetation Group** (see Appendix 7) for each Low Marsh community. (Based on the one most clearly dominant plant species of the dominant form in each Low Marsh vegetation community.)
2. Sum the areas (ha) of the vegetation communities assigned to each **Vegetation Group**.
3. Use these areas to assign an **Area Factor** (from Table 7) for each checked **Vegetation Group**.
4. Multiply the **Area Factor** by the **Multiplication Factor** for each row to calculate **Score**.
5. Sum all numbers in Score column to get **Total Score for Low Marsh**.

Scoring for Presence of Key Vegetation Groups – Low Marsh

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (from Table 7)	Multiplication Factor	Score
1	Tallgrass				6	
2	Shortgrass-Sedge				11	
3	Cattail-Bulrush-Burreed				5	
4	Arrowhead-Pickerelweed				5	
5	Duckweed				2	
6	Smartweed-Waterwillow				6	
7	Waterlily-Lotus				11	
8	Waterweed-Watercress				9	
9	Ribbongrass				10	
10	Coontail-Naiad-Watermilfoil				13	
11	Narrowleaf Pondweed				5	
12	Broadleaf Pondweed				8	

Total Score for Low Marsh (*maximum 75 points*)

Continue to Step 5

Step 5: High Marsh = the 'seasonal' marsh area, from the water line to the inland boundary of marsh wetland type. This is essentially what is commonly referred to as a wet meadow, in that there is insufficient standing water to provide fisheries habitat except during flood or high water conditions.

	High marsh not present	Go to Step 6
✓	High marsh present	Continue through Step 5, scoring as noted below

Scoring of High Marsh:

1. Check the appropriate **Vegetation Group** (see Appendix 7) for each High Marsh community. (Based on the one most clearly dominant plant species of the dominant form in each High Marsh vegetation community.)
2. Sum the areas (ha) of the vegetation communities assigned to each **Vegetation Group**.
3. Use these areas to assign an **Area Factor** (from Table 7) for each checked **Vegetation Group**.
4. Multiply the **Area Factor** by the **Multiplication Factor** for each row to calculate **Score**.
5. Sum all numbers in Score column to get **Total Score for High Marsh**.

Scoring for Presence of Key Vegetation Groups – High Marsh

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (from Table 7)	Multiplication Factor	Score
1	Tallgrass	✓	0.63	0.1	6	0.6
2	Shortgrass-Sedge				11	
3	Cattail-Bulrush-Burreed	✓	0.37	0.1	5	0.5
4	Arrowhead-Pickerelweed				5	
	Total Score for High Marsh (*maximum 25 points*)					1

Continue to Step 6

Step 6:

☑	Swamp containing fish habitat not present	Go to Step 7
☐	Swamp containing fish habitat present	Continue through Step 6, scoring as follows

Scoring of Swamp:

1. Determine the total area (ha) of seasonally flooded swamp communities within the wetland containing fish habitat and record below.
2. Determine the total area (ha) of permanently flooded swamp communities within the wetland containing fish habitat and record below.
3. Use these areas to assign an **Area Factor** (from Table 7).
4. Multiply the Area Factor by the **Multiplication Factor** for each row to calculate **Score**.
5. Sum all numbers in Score column to get **Total Score for Swamp**.

Scoring Swamps for Fish Habitat (Seasonally flooded; Permanently flooded)

Swamp Containing Fish Habitat	Present (check)	Total Area (ha)	Area Factor (from Table 7)	Multiplication Factor	Score
Seasonally Flooded Swamp				10	
Permanently Flooded Swamp				10	
			Total Score for Swamp (*maximum 20 points*)		

Continue to Step 7

Step 7: CALCULATION OF FINAL SCORE

NOTE: Scores for Steps 4, 5 and 6 are only recorded if Steps 1 and 3 have not been scored.

A. Score from Step 1 (fish habitat not present) = ✓
B. Score from Step 3 (significance known) = ____
C. Score from Step 4 (Low Marsh) = ✓
D. Score from Step 5 (High Marsh) = 1
E. Score from Step 6 (Swamp) = ✓

Calculation of Final Score for Spawning and Nursery Habitat = A or B or Sum of C, D, and E

Score for Spawning and Nursery Habitat *(maximum 100 points)* 1

4.2.6.2 Migration and Staging Habitat

Step 1:

✓	Staging or Migration Habitat is not present in the wetland	Go to Step 4, Score 0 points
	Staging or Migration Habitat is present in the wetland, significance of the habitat is known	Go to Step 2
	Staging or Migration Habitat is present in the wetland, significance of the habitat is not known	Go to Step 3

Step 2: Select the highest appropriate category below. Ensure that documentation is attached to the data record.

	Significant in Ecoregion	Score 25 points in Step 4
	Significant in Ecodistrict	Score 15 points in Step 4
	Locally Significant	Score 10 points in Step 4
	Fish staging and/or migration habitat present, but not as above	Score 5 points in Step 4

Source of information: Surveys - wetland does not lead anywhere

Step 3: Select the highest appropriate category below based on presence of the designated site type (i.e. does not have to be the dominant site type). Refer to Site Types recorded earlier (section 1.1.3). Attach documentation.

	Wetland is riverine at rivermouth or lacustrine at rivermouth	Score 25 points in Step 4
	Wetland is riverine, within 0.75 km of rivermouth	Score 15 points in Step 4
	Wetland is lacustrine, within 0.75 km of rivermouth	Score 10 points in Step 4
	Fish staging and/or migration habitat present, but not as above	Score 5 points in Step 4

Step 4: Enter a score from only one of the three above Steps.

Score for Staging and Migration Habitat
(maximum 25 points) 0

4.3 ECOSYSTEM AGE

		Fractional Area		Score
Bog	=		x 25 =	
Fen, on deeper soils; floating mats or marl	=		x 20 =	
Fen, on limestone rock	=		x 5 =	
Swamp	=		x 3 =	
Marsh	=	1.0	x 0 =	8
	Total		=	8

Ecosystem Age Score *(maximum 25 points)* 8

4.4 GREAT LAKES COASTAL WETLANDS

Choose one only.

✓	Wetland < 10 ha	=	10 pts
	Wetland 10-50 ha	=	25
	Wetland 51-100 ha	=	50
	Wetland > 100 ha	=	75

1.74ha

Great Lakes Coastal Wetland Score
(maximum 75 points) 10

GENERAL INFORMATION

Wetland Evaluator(s)

Name: Fergus Nicoll Affiliation: WSP Inc - certified Ow

Signature: [signature]

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

Name: Gwendolyn Weeks Affiliation: WSP Inc - certified Ow

Signature: ______

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

Name: ______ Affiliation: ______

Signature: ______

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

Name: ______ Affiliation: ______

Signature: ______

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

Name: ______ Affiliation: ______

Signature: ______

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

Date(s) wetland visited (in field): See attached

Date evaluation completed: July 2025

Estimated time devoted to completing the field survey in person hours: ~25

Weather Conditions

i) at time of field work: various but suitable for survey types

ii) summer conditions in general: variable – 2024 very wet late summer.

WETLAND EVALUATION SCORING RECORD

WETLAND NAME: Elmwood Drive Wetland.

1.0 BIOLOGICAL COMPONENT

1.1 PRODUCTIVITY

18 — 1.1.1 Growing Degree-Days/Soils
15 — 1.1.2 Wetland Type
2 — 1.1.3 Site Type
(35)

1.2 BIODIVERSITY

9 — 1.2.1 Number of Wetland Types
2.5 — 1.2.2 Vegetation Communities
6 — 1.2.3 Diversity of Surrounding Habitat
8 — 1.2.4 Proximity to Other Wetlands
9 — 1.2.5 Interspersion
8 — 1.2.6 Open Water Type
42.5

5 — 1.3 SIZE (Biological Component)

82.5 — TOTAL (Biological Component)

2.0 SOCIAL COMPONENT

0
0
0
0
(0)

2.1 ECONOMICALLY VALUABLE PRODUCTS

- 2.1.1 Wood Products
- 2.1.2 Wild Rice
- 2.1.3 Commerical Baitfish
- 2.1.4 Furbearers

Total for Economically Valuable Products

(8)

2.2 RECREATIONAL ACTIVITIES

0
4
(4)

2.3 LANDSCAPE AESTHETICS

- 2.3.1 Distinctness
- 2.3.2 Absence of Human Disturbance

Total for Landscape Aesthetics

0
0
5
(5)

2.4 EDUCATION AND PUBLIC AWARENESS

- 2.4.1 Educational Uses
- 2.4.2 Facilities and Programs
- 2.4.3 Research and Studies

Total for Education and Public Awareness

26

2.5 PROXIMITY TO AREAS OF HUMAN SETTLEMENT

4

2.6 OWNERSHIP

2

2.7 SIZE (Social Component)

0
0

2.8 ABORIGINAL VALUES AND CULTURAL HERITAGE

- 2.8.1 Aboriginal Values
- 2.8.2 Cultural Heritage

49

TOTAL (Social Component)

3.0 HYDROLOGICAL COMPONENT

0 3.1 FLOOD ATTENUATION

3.2 WATER QUALITY IMPROVEMENT

60 3.2.1 Short Term Water Quality Improvement

9 3.2.2 Long Term Nutrient Trap

3.2.3 Groundwater Discharge

72 Total for Water Quality Improvement

(3) 3.3 CARBON SINK

8 3.4 SHORELINE EROSION CONTROL

3.5 GROUNDWATER RECHARGE

50 3.5.1 Site Type

4 3.5.2 Soil Recharge Potential

54 Total for Groundwater Recharge

137 TOTAL (Hydrological Component)

4.0 SPECIAL FEATURES COMPONENT

4.1 RARITY

28
8
20

4.1.1 Wetlands

- 4.1.1.1 Rarity within the Landscape
- 4.1.1.2 Rarity of Wetland Type

Total for Wetland Rarity

0
0
0
0
0

4.1.2 Species

- 4.1.2.1 Provincially Significant Animals
- 4.1.2.2 Provincially Significant Plants
- 4.1.2.3 Regionally Significant Species
- 4.1.2.4 Locally Significant Species

Total for Species Rarity

4.2 SIGNIFICANT FEATURES AND HABITATS

6
8
8
10
10

- 4.2.1 Colonial Waterbirds
- 4.2.2 Winter Cover for Wildlife
- 4.2.3 Waterfowl Staging and/or Moulting Areas
- 4.2.4 Waterfowl Breeding
- 4.2.5 Migratory Passerine, Shorebird or Raptor Stopover Area

1
8
21

- 4.2.6 Fish Habitat
  - 4.2.6.1 Spawning and Nursery Habitat
  - 4.2.6.2 Migration and Staging Habitat

Total for Significant Features and Habitats

8

4.3 ECOSYSTEM AGE

10

4.4 GREAT LAKES COASTAL WETLANDS

51

TOTAL FOR SPECIAL FEATURES COMPONENT (*not to exceed 250*)

SUMMARY OF EVALUATION RESULT

Wetland Elmwood drive wetland.

82.5 1.0 TOTAL FOR BIOLOGICAL COMPONENT

49 2.0 TOTAL FOR SOCIAL COMPONENT

137 3.0 TOTAL FOR HYDROLOGICAL COMPONENT

51 4.0 TOTAL FOR SPECIAL FEATURES COMPONENT

319.5 TOTAL WETLAND SCORE

APPENDIX 4 – WETLAND DATA SUMMARY FORM

Complete versions of the data form in this appendix should be attached to the wetland data record and included within the wetland evaluation file.

Wetland Name Elmwood Wetland Page 1 of 1

Map Code	Field Code	GPS Coordinate	Dominant Form	Forms	# Forms	Dominant Species	Area (ha)	% Open Water			Open Water	Soil ~~(ha)~~	Site Type	Fish Habitat			
								Low (ha)	High Est.	Mean Est.				% Fish Habitat	Area (ha)	Habitat Type	Key Veg Group
						See Attached											
reM1	E1	EW01	ts,gc,ne	✓	3	↓	1.1	0	<5%	0	Type1	LC	P	25%	/	see worksheet	1,1
reM2	E2	EW02	re,ne	✓	2		0.64	<5%	<5%	<5%	Type1	O	P	<5%	/	1,	11

Elmwood Wetland OWES – Additional Information on Size

The total size of the Elmwood Wetland is 1.78 hectares (ha). This is under the 2.0 ha generally recommended minimal size for a wetland to be evaluated, as presented on the 2022 OWES manual (page 9). However, the manual does allow for smaller wetlands to be evaluated, if the evaluator provides a rationale for doing so. The Elmwood Wetland is a coastal wetland as defined by the Provincial Planning Statement 2024. In addition, there is potential for future development or other land uses on the property that contains the wetland. Therefore, in discussion with the property land managers and owner, it was decided that evaluating the wetland using OWES would be a valuable exercise to inform future land use planning at the Site. The evaluation will help to inform a characterization of the main features and functions of the wetland, which will assist in determining potential impacts from changes in land use in or adjacent to the wetland on those features or functions. The impact assessment will be integral to identifying land use options, mitigation measures, and possible wetland enhancement measures, as well as for obtaining planning approvals.

Fergus Nicoll, Dip.T., Certified Wetland Evaluator

Elmwood Wetland Summary

FA of Units			FA of Type		FA of Forms		Dominant Soils		Furbearers	Evidence
Unit	Area (ha)	FA	FA Marsh	1	ne	0.63	neM1	Loamy Clay		
neM1	1.10				re	0.37	reM2	Organic	No trapping allowed NA	
reM2	0.64	0.37								
							FA of Soils			
							Loamy Clay	0.63		
	1.74	0.37					Organic	0.37		

Codes	Dominant Forms	Dominant Species
neM1	ts, gc, ne	*Phalaris arundinacea, Carex spp., Lythrum salicaria, Poa palustris, Impatiens capensis, Eutrochium maculatum, Impatiens capensis*
reM2	re, ne	*Typha angustifolia, Phalaris arundinacea, Lythrum salicaria, Carex lacustris, Lycopus uniflorus, Galium palustre, Cicuta bulbifera*

Summary of Field Surveys Completed 2020, 2024, at Elmwood Drive Wetland

Date	Survey(s)
2024	
9 April	Reconnaissance, Aquatic Survey, Turtle Survey, Bat Habitat Survey, Nocturnal Amphibian Survey
2 May	Turtle Survey, General Wildlife Visual Encounter Survey (VES)
17 May	Turtle Survey, VES, Plant Community Survey
12 June	Breeding Bird Survey, Turtle Survey, VES, Set up Bat Detectors
15 June	Turtle Survey, VES, Nocturnal Amphibian Survey
2 July	Breeding Bird Survey, Plant Community Survey, VES
28 August	Plant Community Survey, VES
2025	
7 May	Plant Community, VES
9 June	Aquatic Survey, Fish Community Sampling

* Note Additional Data was collected in 2022 by others and was reviewed for this assessment.

Plant Species List

Scientific Name	Common Name	Origin[a]	Global Rarity Status[b]	Ontario Rarity Status[b]	SARA[c]	ESA[d]
Acer rubrum	Red maple	N	G5	S5	–	–
Acorus americanus	American sweetflag	N	G5	S4	–	–
Asclepias incarnata	Swamp milkweed	N	G5	S5	–	–
Asclepias syriaca	Common milkweed	N	G5	S5	–	–
Bromus inermis	Smooth brome	I	GNR	SNA	–	–
Calamagrostis canadensis	Canada blue-joint	N	G5	S5	–	–
Carex bebbii	Bebb's sedge	N	G5	S5	–	–
Carex intumescens	Bladder sedge	N	G5	S5	–	–
Carex lupulina	Hop sedge	N	G5	S5	–	–
Carex lacustris	Lake sedge	N	G5	S5	–	–
Carex pseudocyperus	Cyperus-like sedge	N	G5	S5	–	–
Carex vulpinoidea	Fox sedge	N	G5	S5	–	–
Cichorium intybus	Wild chicory	I	GNR	SNA	–	–
Cicuta bulbifera	Bulbous water-hemlock	N	G5	S5	–	–
Cirsium arvense	Canada thistle	I	G5	SNA	–	–
Convallaria majalis	European lily-of-the-valley	I	G5	SNA	–	–
Cornus stolonifera	Red osier dogwood	N	G5	S5	–	–
Daucus carota	Wild carrot	I	GNR	SNA	–	–
Doellingeria umbellata	Flat-top white aster	N	G5	S5	–	–
Eleocharis sp.	Spikerush	N	G5	?	–	–
Elymus repens	Quackgrass	I	GNR	SNA	–	–
Eutrochium maculatum var. macu	Spotted joe pye weed	N	G5T5	S5	–	–
Fallopia convolvulus	Eurasian black bindweed	I	GNR	SNA	–	–
Fraxinus pennsylvanica	Green ash	N	G4	S4	–	–
Galium palustre	Common marsh bedstraw	N	G5	S5	–	–
Impatiens capensis	Spotted jewelweed	N	G5	S5	–	–
Juglans nigra	Black walnut	N	G5	S4?	–	–
Lonicera tatarica	Tatarian honeysuckle	I	GNR	SNA	–	–
Lycopus uniflorus	Northern water-horehound	N	G5	S5	–	–
Lythrum salicaria	Purple loosestrife	I	G5	SNA	–	–
Parthenocissus inserta	Virgina creeper	N	g5	s5	–	–
Phalaris arundinacea var. arundin	Reed canarygrass	N	G5TNR	S5	–	–
Phleum pratense	Common timothy	I	SNA	GNR	–	–
Phragmites australis ssp. australis	European reed	I	G5T5	SNA	–	–

Scientific Name	Common Name	Origin[a]	Global Rarity Status[b]	Ontario Rarity Status[b]	SARA[c]	ESA[d]
Rhamnus cathartica	European buckthorn	I	GNR	SNA	–	–
Rubus idaeus	Red raspberry	N	G5	S5	–	–
Salix discolor	Pussy willow	N	G5	S5	–	–
Salix petiolaris	Meadow willow	N	G5	S5	–	–
Sium suave	Common water-parsnip	N	G5	S5	–	–
Solanum dulcamara	Bittersweet nightshade	I	GNR	SNA	–	–
Solidago canadensis var. canadel	Canada goldenrod	N	G5T5	S5	–	–
Solidago rugosa	Rough-stemmed goldenrod	N	G5	S5	–	–
Sparganium eurycarpum	Broad-fruited burreed	N	G5	S5	–	–
Symphyotrichum lateriflorum	Calico aster	N	G5	S5	–	–
Symphyotrichum novae-angliae	New england aster	N	G5	S5	–	–
Thelypteris palustris	Marsh fern	N	G5	S5	–	–
Trifolium pratense	Red clover	I	GNR	SNA	–	–
Tussilago farfara	Coltsfoot	I	GNR	SNA	–	–
Typha angustifolia	Narrow-leaved cattail	I	G5	SNA	–	–
Typha latifolia	Broad-leaved cattail	N	G5	S5	–	–
Urtica dioica	Slender stinging nettle	N	G5T5	S5	–	–
Vicia cracca	Cow vetch	I	GNR	SNA	–	–
Vinca minor	Lesser periwinkle	I	GNR	SNA	–	–
Vitis riparia	Riverbank grape	N	G5	S5	–	–

Notes:

[a] Origin: N = Native; (N) = Native but not in study area region; I = Introduced.

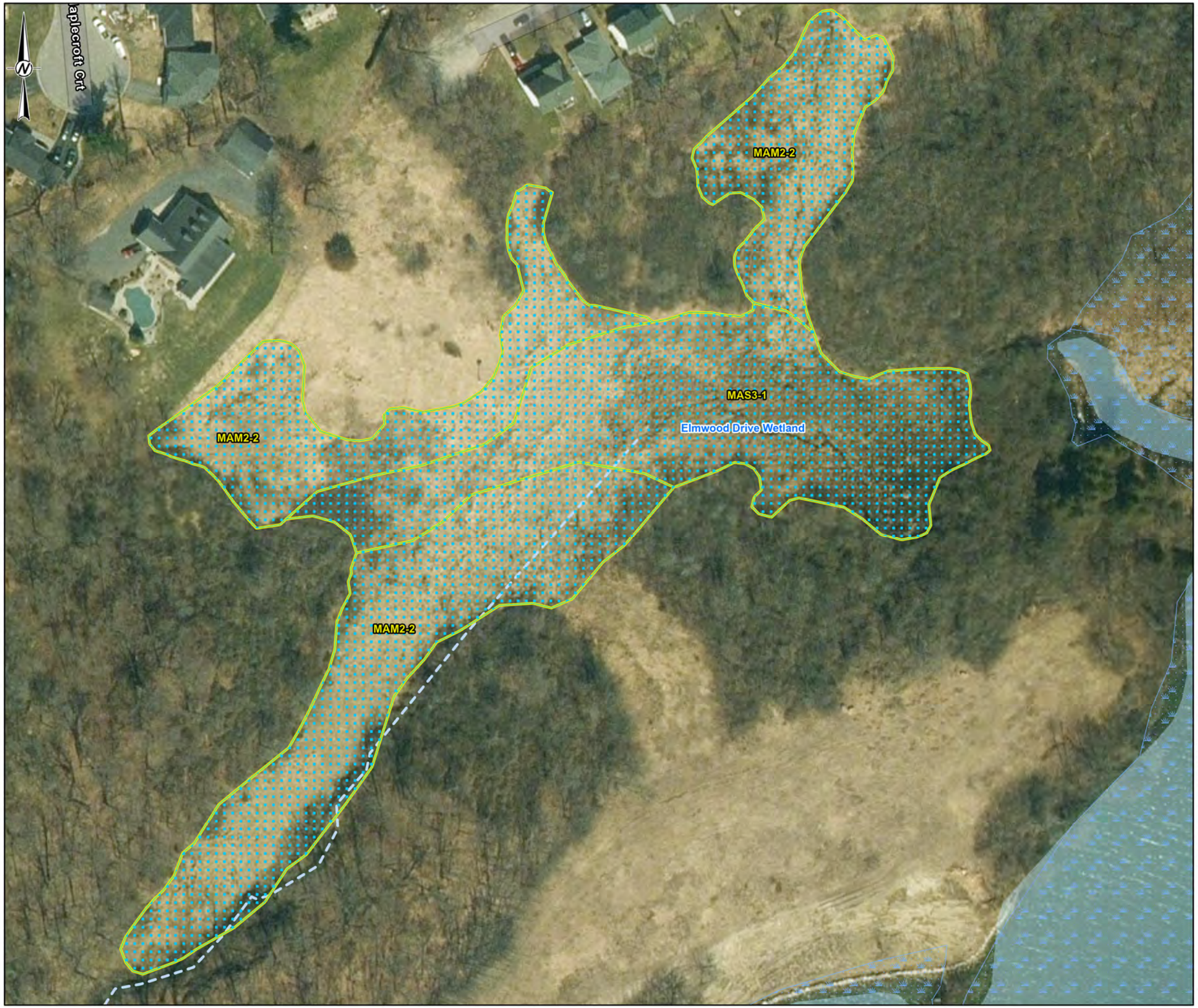
[b] Ranks based upon determinations made by the Ontario Natural Heritage Information Centre.
G = Global; S = Provincial; Ranks 1-3 are considered imperiled or rare; Ranks 4 and 5 are considered secure.
SNA = Not applicable for Ontario Ranking (e.g. Exotic species)

[c] Canada Species at Risk Act (Schedule 1)

[d] Ontario Endangered Species Act (O.Reg.230/08)

FIGURE 1

Sixth Concession Wetland Plant Communities



KEY MAP

SCALE: 1:1,400,000

LEGEND

- INTERMITTENT WATERCOURSE
- WETLAND EVALUATED NOT PROVINCIALLY SIGNIFICANT
- UNEVALUATED WETLAND
- WATERBODY
- ECOLOGICAL LAND CLASSIFICATION (ELC)
  - MAM2-2 Reed Canary Grass Mineral Meadow Marsh
  - MAS3-1 Cattail Organic Shallow Marsh

0 10 20 40 60

1:1,100 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. BASE MAP: MAXAR, MICROSOFT, SOURCES: ESRI, TOMTOM, GARMIN, FAO, NOAA, USGS, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
3. COORDINATE SYSTEM: NAD 1983 CSRS UTM ZONE 17N

CLIENT
1000989284 ONTARIO INC

PROJECT
ONTARIO WETLAND EVALUATION
ELMWOOD DRIVE GANANOQUE, ON

TITLE
WETLAND COMMUNITY MAPPING

CONSULTANT
wsp

YYYY-MM-DD	2025-08-28
DESIGNED	FN
PREPARED	MC
REVIEWED	FN
APPROVED	GW

PROJECT NO.	CONTROL	REV.	FIGURE
CA0053084.9335	0002	1	1

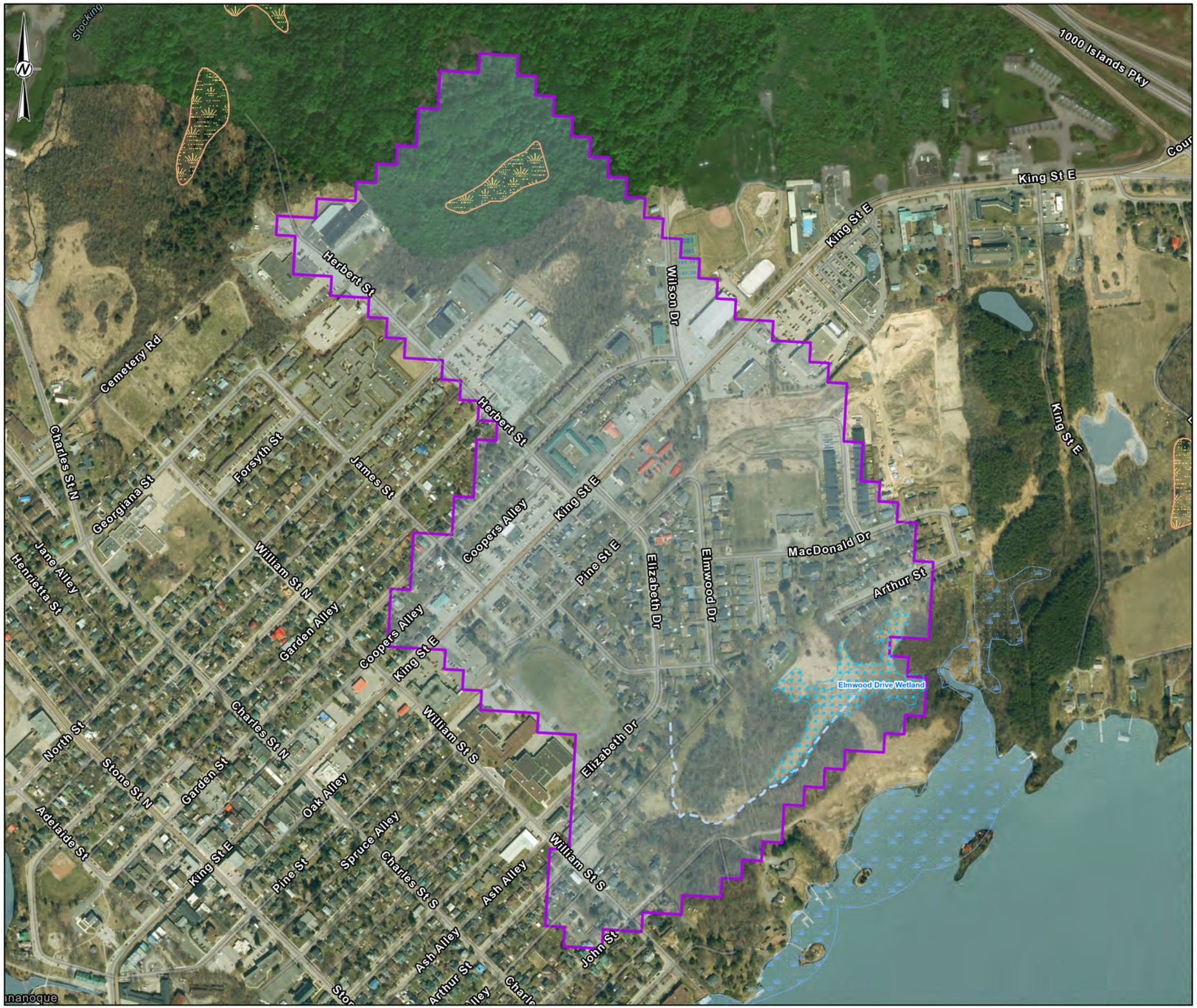
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25mm

PATH: S:\Clients\Tomlinson\Elmwood_Subdivision\99 PROJ\CA0053084_9335_Tomlinson_EIS\40_PROD\0001_Welland\Evaluation\CA0053084_9335_0001_RB_0000\CA0053084_9335_0001_RB_0000.aprx PRINTED ON: AT: 8:56:58 AM

FIGURE 2

Sixth Concession Wetland Catchment Area



KEY MAP

SCALE: 1:1,400,000

LEGEND

- INTERMITTENT WATERCOURSE
- WATERSHED - 705506.29M²
- WETLAND EVALUATED NOT PROVINCIALLY SIGNIFICANT
- UNEVALUATED WETLAND
- UNEVALUATED WETLAND LIO
- WATERBODY

0 50 100 200

1:6,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. BASE MAP: SOURCES: ESRI, TOMTOM, GARMIN, FAO, NOAA, USGS, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY, MAXAR
3. COORDINATE SYSTEM: NAD 1983 CSRS UTM ZONE 17N

CLIENT
1000989284 ONTARIO INC

PROJECT
ONTARIO WETLAND EVALUATION
ELMWOOD DRIVE GANANOQUE, ON

TITLE
ELMWOOD DRIVE WETLAND CATCHMENT

CONSULTANT

wsp

YYYY-MM-DD	2025-08-28
DESIGNED	FN
PREPARED	MC
REVIEWED	FN
APPROVED	GW

PROJECT NO.	CONTROL	REV.	FIGURE
CA0053084.9335	0002	1	2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0

PATH: S:\Clients\Tomlinson\Elmwood_Subdivision\99_PROJ\CA0053084.9335_Tomlinson_EIS\40_PRO\0\0001_WetlandEvaluation\CA0053084.9335_0001_RB_0000\CA0053084.9335_0001_RB_0000.aprx PRINTED ON: AT: 8:58:00 AM

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