Durham Kawartha Power Line Class Environmental Assessment

Final Natural Environment Existing Conditions Report

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Prepared By:

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1 Introduction

Hydro One Networks Inc. (Hydro One) is initiating a Class Environmental Assessment (Class EA) to construct a new 230 kV double-circuit transmission line to support the growth of Eastern Ontario, referred to as the Durham Kawartha Power Line Project (the Project). The Project will span from the Clarington Transformer Station (TS) in the Municipality of Clarington to the Dobbin TS in the County of Peterborough and is anticipated to be approximately 53 kilometres (km) in length.

The Project's Class EA is being conducted in accordance with the Class Environmental Assessment for Transmission Facilities (2024) in accordance with the Ontario *Environmental Assessment Act*. Key activities for a Class EA include characterization of baseline environment, identifying required permits and approvals, ongoing engagement with Rights holders and stakeholders, identification and evaluation of viable alternatives and selection of a preferred route and effects identification and mitigation requirements. This Natural Environment Existing Conditions Report (NER) documents the methods and results of the desktop review and field program conducted by WSP Canada Inc. (WSP) to support characterization of existing conditions of natural heritage features and surface water resources in the Project vicinity. The results provided within this report are summarized in the Environmental Study Report (ESR) and inform the assessment of potential Project impacts on the natural environment.

Hydro One is prioritizing the use of existing transmission line rights-of-way (ROW) where possible for the Project; however, two route alternatives have been identified for a portion of the new transmission line as shown in Figure 1.

Route Alternative A: uses an existing wood pole ROW, with required additional widening and clearing of adjacent wooded areas.

Route Alternative B: farther east than Route Alternative A and avoids the need for additional clearing in wooded areas, but requires a new transmission line ROW on agricultural lands.

The Project will also include work at both Clarington and Dobbin TS to support the new line connections.

1.1 Study Area

Study areas are required to define the spatial extent in which existing conditions information is collected for the purposes of supporting an alternative routes evaluation and identification and assessment of potential project impacts.

Two study areas are defined for the Project for the purposes of the NER, a project study area (PSA) and a local study area (LSA). The PSA includes lands within 120 metres (m) of the transmission line centreline. This distance is consistent with the maximum buffer area that is typically applied to sensitive natural heritage features identified in the Natural Heritage Reference Manual (MNR 2010) and corresponds to the area within which potential effects on the features from proposed developments and activities are to be evaluated. The LSA includes lands within 500 m of the Project and covers areas of potential indirect Project effects and cumulative effects.

1.2 Class EA Engagement Process – Information Sharing

Rights holders and stakeholders have an opportunity to provide feedback to Hydro One as part of the Class EA engagement process. Details about natural environment existing conditions observed by rights holders and stakeholders in the PSA and LSA that were provided to the Project team during the engagement process are included in this section of the report.

During the first Community Open Houses in June of 2024, the Project team was made aware of two turtle crossings (one within the PSA and one within the LSA), a coyote and deer crossing in the LSA and a pond in the PSA contained bass and catfish.

The Project team also received feedback from First Nation communities regarding the importance of certain species, ecosystems, and habitats. Communities emphasized the importance of connectivity of these features for species of Indigenous cultural significance. Species and ecosystems identified by engaged First Nation communities as being of cultural significance have been incorporated in this report.

The following First Nation communities (Rights holders) were included in the engagement process:

- Alderville First Nation (AFN);
- Beausoleil First Nation (BFN);
- Chippewas of Georgina Island First Nation (GIFN);
- Chippewas of Rama First Nation (CRFN);
- Curve Lake First Nation (CLFN);

- Hiawatha First Nation (HFN);
- Mississaugas of Scugog Island First Nation (MSIFN); and,
- Kawartha Nishnawbe (KN).

Additionally, Hydro One provided the Project's Field Work Plan, two 2025 field work technical memos and the draft NER to First Nation communities who were engaged with on the Project. HFN provided comments on the Field Work Plan in July 2024. CLFN provided comments on the draft NER in February and May 2025. MSIFN provided comments on the Field Work Plan in December of 2024, the second field work technical memo in April and June of 2025, and the draft NER in February, May and August 2025. The Project team's responses to these comments have been incorporated into this report.

2 Desktop Review

A desktop review of available information was conducted to document existing conditions and identify sensitive natural environment features that may be present in the study areas. The investigation of existing conditions included a background information search and literature review to gather data and provide context for the evaluation of natural features in the study areas. Table 2-1 presents the list of information sources reviewed. Preliminary written communication (email) with the Ministry of Natural Resources (MNR) Aurora and Peterborough offices and the Ministry of the Environment, Conservation and Parks (MECP) was completed in July 2024 to obtain additional information and data that were not publicly available.

Table 2-1: List of Information Sources Reviewed by Desktop

Information Source	Record
• Indigenous Knowledge (IK) / Traditional Land and Resource Use (TLRU) studies and/or engagement with First Nations	• IK/TLRU was reviewed and incorporated, where provided.
• Data requests from MNR, MECP	• Natural Heritage Features • Maps and Existing Studies
• Applicable Provincial Plans (Greenbelt Plan, Oak Ridges Moraine Conservation Plan) • Applicable Municipal Official Plans (Region of Durham, Municipality of Clarington, City of Kawartha Lakes [Geographic Township of Manvers], County of Peterborough) and schedules	• Designated natural heritage features and areas (i.e., watershed planning, land use, wetlands, woodlots)
• Conservation Authority Requests and Public Data • Central Lake Ontario Conservation Authority (CLOCA, 2024) • Kawartha Conservation (KC, 2024) • Otonabee Region Conservation Authority (ORCA, 2024)	• Natural Heritage Features • Wildlife and Vegetation Data • Regulated Areas Mapping • Fish and habitat information • Watershed reports (various) • Watershed planning maps (various)
• The Ecosystems of Ontario, Part I: Ecozones and Ecoregions (Crins 2009)	• Ecozone and Ecoregions of Ontario including mapping and common species distributions.

Information Source	Record
• Land Information Ontario (LIO) (MNR 2024a, 2024b, 2024d, 2024e)	• Active Aggregate Pits • Areas of Natural and Scientific Interest (ANSI) • Aquatic Feeding Areas • Aquatic Resource Area (ARA) water line/polygon and point segment • Crown Land Use Policy Atlas (CLUPA) • Conservation Reserves (CLUPA, GapTool) • Forest Resource Inventory and Wetland Layer (LIO) • Ontario Hydro Network (OHN) Waterbodies/Watercourses • Ontario Watershed Boundaries (OWB), including Quaternary Watersheds • Ontario Watershed Information Tool • Wetlands • Woodlands • National Parks • Provincial Parks (CLUPA, GapTool) • Recreation and tourism, (canoe routes, trails, portages, campsites, etc.)
• Natural Heritage Information Centre (NHIC) (MNR 2024c) Datasets	• Species at Risk (SAR)/Species of Conservation Concern (SOCC) • Natural Areas Information Queries • NHIC Element Occurrences (including SAR and SOCC) • Provincially Tracked Species
• MNR Restricted Datasets (where acquired)	• Cultural Heritage Values • Fish Nursery Areas • Fish Spawning Areas
• MECP SAR Information (MECP, 2018)	• MECP SAR lists, general information, distribution, etc.
• Federal SAR Public Registry (ECCC, 2024)	• Status/recovery reports on various SAR • Federal Critical Habitat Mapping
• ECCC Waterfowl Breeding Population and Habitat Survey database (ECCC, 2021)	• Waterfowl Habitat • Nesting Areas • Migratory Patterns

Information Source	Record
• eBird (eBird, 2024)	• Bird Range Maps • Occurrence Records
• iNaturalist (iNaturalist., 2024)	• iNaturalist data, including for provincial parks and conservation reserves and fish occurrence data
• Ontario Breeding Bird Atlas: Atlas 2 (Cadman et al., 2007), Atlas 3 (in progress, OBBA 2024)	• Breeding bird occurrence data
• Vascular Plants at Risk in Ontario (Leslie, 2018)	• SAR plant range maps
• Canadian Wildlife Federation (CWF, 2024)	• SAR data
• Ontario Mammal Atlas (Dobbyn, 1994)	• Mammal habitat and occurrence data
• Bat Conservation International (BCI) (BCI, 2024)	• Bat range maps
• Ontario Butterfly Atlas (TEA, 2024a)	• Butterfly habitat and occurrence data
• Ontario Moth Atlas (TEA, 2024b)	• Moth habitat and occurrence data
• MNR Fish ON-Line (MNRF, 2022)	• Fish species and angler reporting MNRF stocking information
• MNR Atlas of Brook Trout Streams and Rivers in Ontario (MNR 2003)	• Brook Trout habitat and occurrence records
• MNR Atlas of Walleye Streams and Rivers in Ontario (MNR, 2004)	• Walleye habitat and occurrence records
• MNR Inland Ontario Lakes designated for Lake Trout Management (MNRF 2015a)	• Lake Trout habitat and occurrence records
• MNR Historical Brook Trout Stocking Mapping Application (1905-2016) (MNRF 2017)	• Historical Brook Trout stocking area maps
• Fisheries and Oceans Canada (DFO) Aquatic SAR Mapping (DFO, 2024a)	• Aquatic SAR Mapping
• Royal Ontario Museum (ROM) Global Biodiversity Information Facility IPT, Ichthyology Collection (Millen, 2019)	• Historical occurrence records
• ROM Freshwater Fishes of Ontario (Field Guide) (Holm et al., 2021)	• Field Guide to Freshwater Fishes of Ontario including range maps, information on fisheries life history needs and identification keys
• Atlas of the freshwater fishes of Canada with a taxonomic key (Mandrak et al., in prep)	• Canadian fish distribution data by watershed

Information Source	Record
• MECP Lake Partner Program (MECP, 2024a)	• Secchi depth and total phosphorus data from sampling sites that are part of the Lake Partner Program
• Freshwater Mussels of Ontario • (Metcalfe-Smith et al., 2005)	• Freshwater mussel distribution, life history data, and identification
• Canadian Freshwater Mussel Guide (Toronto Zoo-DFO, 2022)	• Freshwater mussel distribution and identification
• Canadian Wildlife Federation (CWF, 2024)	• Fish barrier and dam mapping
• Ontario Invasive Species Awareness Data	• Early detection and distribution mapping for invasive species (EDDMapS, 2024) General invasive species distribution and listing (OFAH and MNRF 2024, Invasive Species Centre 2024, DFO 2021)
• Great Lakes Conservation Blueprint for Aquatic Biodiversity, Volume 2: Tertiary Watershed Summaries (Phair et al., 2005)	• Watershed summaries
• Peer reviewed literature (various sources)	• Wildlife, wildlife habitats, fish community and fish habitat, SAR/SOCC/SCS, etc.
• Ontario Watershed Information Tool (OWIT) developed by the MNRF (2019)	• Watershed area and return period flow data
• Water Survey of Canada (WSC) and MECP (2019)	• Archived hydrometric data
• MECP Provincial (Stream) Water Quality Monitoring Network (PWQMN) (MECP, 2023)	• Archived water quality data
• Existing aerial photography (Google, 2024)	• Land cover and access

Information gathered through the preliminary desktop review was used to identify areas of interest in the PSA to investigate in the field during windshield surveys (see Section 1.1 and 4.2.1). Examples of terrestrial areas of interest include wetlands, wooded areas, and locations of recorded SAR/ SOCC/Species of Cultural Significance (SCS) occurrences. Examples of Areas of Interest (AOI) pertaining to surface water features (e.g., water crossings, infrastructure locations, riparian clearing areas), fish, fish habitat, SAR/SOCC/SCS, as well as any gaps that would require further investigation in the field.

3 Species at Risk Screening

A SAR screening was completed to support the crossing list and field surveys for the Project (Appendix A). The screening also considered SOCC and SCS[1].

For the purposes of the screening, SAR are defined as the following:

- Any species listed under Schedule 1 of the *Species at Risk Act, S.C. 2002, c. 29* (SARA, Canada, 2002) as threatened, endangered, or extirpated.
- Any species listed under the *Endangered Species Act, 2007, S.O. 2007, c. 6* (ESA, Ontario, 2007) as threatened, endangered, or extirpated.

For the purposes of the screening, SOCC are defined as:

- Any species that is not a SAR as defined above and falls under one or more of the following categories:
    - any species listed under Schedule 1 of SARA as special concern.
    - any species listed under the ESA as special concern.
    - any species designated threatened, endangered, or extirpated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).
    - any species with a subnational rank (SRank) of S1 – S3 or SH as designated by the NHIC.

For the purposes of the screening, SCS are defined as:

- Any species designated as a species of cultural significance by First Nations engaged on behalf of the Project.

A screening of all SAR/SOCC/SCS that have the potential to be found in the LSA was conducted first as a desktop exercise using the sources listed in Table 2-1 and updated following field surveys (Section 4) and through First Nations feedback. Species with overlapping ranges, or recent occurrence records, were screened by comparing their habitat requirements to habitat conditions in the LSA (as determined through aerial imagery or other background information).

The potential for the species to occur was determined through a probability of occurrence (Table 3-1).

[1] Noting that the list of SCS is based on the information provided by First Nations and should not be assumed to be comprehensive.

Table 3-1: Ranking Probability of Occurrence

Ranking	Description
Low	No suitable habitat and no documented occurrences in the LSA.
Moderate	Suitable habitat present, but no documented occurrences; or species recorded, but no suitable habitat apparent.
High	Suitable habitat present and documented occurrences in the LSA.

4 Field Survey Methods

4.1 Terrestrial Surveys

4.1.1 Terrestrial Windshield Surveys

Terrestrial windshield surveys were conducted at 28 roadside locations on April 23-26, 2024 (Figure 2). Survey site selection was driven primarily by available public access intersecting the LSA. Locations intersecting the planned ROW were targeted.

At each survey location, surveyors documented general conditions and, to the extent feasible, confirmed the presence of sensitive natural features within their line of sight. The presence of suitable habitat for those species identified in the desktop SAR screening was evaluated as part of the windshield surveys. The windshield surveys also informed the need for targeted field surveys during appropriate timing windows later in the year and assessed land access requirements. The following information was recorded at each survey location, to the extent feasible:

- Representative land cover (with photographs).
- Notable wildlife features (e.g., stick nests, dens, cavities).
- Incidental wildlife observations (auditory, visual).
- Habitat potential for SAR.
- Recommended targeted surveys.

4.1.2 Ecological Land Classification and Botanical Inventory

Preliminary delineation of vegetation community polygons in the LSA was completed by desktop using the ecological land classification (ELC) system for southern Ontario (Lee et al., 1998; Lee, 2008). Outcomes of the desktop analysis supported the preparation of the sampling plan, including field maps, and facilitated logistical arrangements. The following variables were factored into survey location selection:

- Size and distribution of each vegetation community type.
- Unique vegetation communities.
- Potential for SAR, SOCC, or SCS.
- Access constraints.
- Potential for Project interaction (e.g., overlap with proposed ROW).

A program of field surveys was then conducted to confirm polygon boundaries and refine community classifications as needed. High-level ELC surveys were conducted on August 13-15, 2024 to delineate and classify the plant communities within accessible portions of the LSA, and particularly targeting the ROW and adjacent lands in the PSA. Additionally, three sets of survey dates (September 17-18, 2024, November 14, 2024, and June 24-28, 2025) were added when access agreements were secured for additional properties in the LSA. These surveys were used to ground truth the desktop ELC polygons, identify potential presence of rare vegetation communities and inform the assessment of habitat potential for plant and wildlife species, including SAR. [redacted] Ecosites where new clearing would be required (pending route selection) were also revisited to gather multi-season botanical data.

At each survey location, plant species were inventoried, and the percent cover of each vegetation stratum was estimated. The stratum refers to a layer of vegetation (e.g., tree stratum, shrub stratum). Surveys were conducted by systematically walking through all habitats in a meandering fashion, generally paralleling the principal (long) axis of a natural area, where feasible. Common and uncommon plant species were documented during the surveys. Noxious weeds (as defined in the *Weed Control Act*) and invasive plants were also documented. Vegetation communities were characterized using the ELC system for southern Ontario based on species composition, abundance, and cover within the various strata.

For properties without access agreements, high-level ground truthing of desktop ELC data was conducted on plant communities that were observable from publicly accessible roadways during the same survey dates. These assessments were conducted by surveyors from the passenger seat of a vehicle traveling along local roads. Botanical inventories were not compiled for these supplemental roadside ELC surveys.

Additionally, a one-day targeted Butternut (*Juglans cinerea*) SAR survey was carried out on October 17, 2024 outside Clarington TS. This search was conducted by systematically walking through the targeted woodland and recording observations of Butternut and other incidental plant species.

In July and August of 2025, a certified Butternut Health Expert (#704) conducted a Butternut Health Assessment (BHA) for butternut trees that were identified in the woodland outside the Clarington TS during the October 17, 2024 survey. The focus of the assessment was to evaluate the butternuts for potential hybridity and butternut canker infection. Survey protocols followed those outlined in *Butternut Assessment Guidelines: Assessment of Butternut Tree Health for the Purposes of the Endangered Species Act, 2007* (Ontario, 2021). Hybridity is assessed using a minimum of 5 morphological characteristics from among 11 traits, assigning

a score of 0, 1, or 2, with 0 being most closely aligning with those of 'pure butternut' and positive integers reflecting characteristics associated with Japanese Walnut (*Juglans ailantifolia*) and hybrids of the two species. If the results of the hybridity assessment result in a score of 0 to 3, the tree is considered to be a Butternut for the purposes of the ESA, while those scoring greater than 4 are considered to be of hybrid origin. Genetic testing may be required where trees exhibit ambiguous features, or where 5 or more traits cannot be assessed. Where possible, a leaf sample is collected to preserve in case genetic testing is required/requested. Butternuts are then required to be evaluated into categories based on their degree of impact by butternut canker infection. This involves the measurement of the tree (either at 1.4 m above grade [diameter-at-breast-height (DBH)] for trees with at least one stem above this height, or at the root collar for trees below this height) the assessment of the tree's percentage of live crown, and the number of sooty and open cankers present. BHAs were completed at the Clarington TS on three days (July 9, July 30 and August 21, 2025).

4.1.3 Breeding Bird Surveys

The objective of breeding bird surveys was to determine the diversity and abundance of breeding birds in the PSA, as well as to identify habitat for bird SAR, SOCC and SCS in the PSA, if present.

Preliminary survey locations were selected in advance of the field surveys through a desktop analysis of available land cover mapping loaded to WSP's web mapping tool. Survey locations were selected to target a variety of representative habitat types distributed throughout the PSA. Given access limitations in 2024, survey locations were established at roadsides, focusing on areas where the Project intersects roads. Survey locations in 2025 focused on the ROW and adjacent habitats in the PSA. Survey locations were refined as needed in the field based on access and other logistical constraints. As the objective of the sampling design was to assess breeding bird species distribution and composition throughout the PSA, the rationale for this effort is based on achieving a broad distribution of survey locations throughout the PSA.

Breeding bird surveys were conducted during the breeding bird survey timing window (May 24 to July 10 in southern Ontario; Cadman et al., 2007) over three sets of dates: June 25-26, 2024, Jun 10-13, 2025, and June 24-27, 2025. Two rounds of surveys were conducted in 2025 (i.e., stations revisited). One round of surveys was conducted in 2024 due to access being delayed until late in the survey window. Roadside stations were surveyed when access was not available and thus were not resurveyed in 2025 (i.e., the 2025 stations were different than the 2024 stations), as the primary objective of the surveys for the purposes of the Class EA is to inform understanding of species presence and distribution where there is greatest potential

for Project effects. However, data from the 2024 roadside stations will continue to be used to inform existing conditions in the PSA.

Surveys were conducted in accordance with methods outlined in the Canadian Breeding Bird Survey (Downes and Collins, 2003) and the Ontario Breeding Bird Atlas (Cadman et al., 2007). The Ontario Breeding Bird Atlas protocol requires five-minute point counts; however, the observation period was extended to ten minutes to improve detection, consistent with recommendations in other guidelines, including the Forest Bird Monitoring Programs in Wildlife Monitoring Programs and Inventory Techniques for Ontario (Konze and McLaren, 1997).

Breeding bird surveys were performed using a point count methodology. A total of 35 locations were surveyed in 2024, and 37 stations were surveyed in 2025 (Figure 2). Survey locations consisted of a 50 m radius circular plot with an additional 50 m radius buffer (i.e., a total 100 m radius surveyed). All birds heard or observed were recorded at intervals of 0-50 m, 50- 100 m, >100 m, and flyovers (birds seen flying overhead). Survey locations were spaced a minimum of 250 m apart to avoid double counting. Breeding bird surveys were completed by qualified biologists, knowledgeable in bird identification by sight and sound, within the period beginning approximately 30 minutes before sunrise to 10:00 a.m, to capture the period of maximum bird song activity. Species were identified through unique vocalizations and by visual observations. Binoculars were occasionally used to identify species by sight. Each bird was recorded once and mapped on the field data sheet to ensure no duplication of individual birds. Environmental conditions (temperature, precipitation, cloud cover) and time were recorded at each survey location as these variables are known to influence the activity levels of birds and their probability of detection. Periods of high winds or inclement weather were avoided to the extent practical[2]. Noise levels were taken into consideration when confirming survey locations in the field.

4.1.4 Amphibian Acoustic Surveys

Amphibian (frog and toad) call count acoustic surveys were conducted during the amphibian calling timing window (April 1 to June 15 in southern Ontario; BSC, 2008) over three sets of

[2] There were three dates during survey round #1 where winds reached 20-30 km/hr very briefly near the end of the daily survey period (on June 10, 11 and 12, 2025 at stations BB22, BB24 and BB33). However, the same or higher abundance and diversity were detected at these stations during round #1 compared to round #2 when winds were lower (see Appendix E, Table 2). There was an additional survey date during survey round #2 where winds reached 20-30 km/hr near the end of the daily survey period (on June 27, 2025 at stations BB04, BB05, and BB10 to BB13). Although lower abundance and diversity were detected during round #2 at these stations, WSP is confident the differences are not significant compared to other factors such as being later in the day (a reversal of round #1 where these stations were visited first in the day) and are within the range of natural variation, especially given that some new species were recorded during round #2 despite higher winds (see Appendix E, Table 4).

dates: April 21-26, May 26-29, and June 18-25, 2025. Acoustic surveys were completed at 30 stations (Figure 2) and were conducted following protocols from the Marsh Monitoring Program method for vocalizing frog surveys (BSC, 2008). This method involves collection of call data from fixed stations over three survey periods during the spring and early summer (i.e., April, May and June). Surveys began one half-hour after sunset and ended by midnight during evenings with appropriate weather conditions (i.e., little wind and a minimum air temperature of 5°C, 10°C, and 17°C for each respective survey period).

Each station consisted of a semi-circle with a 100 m radius from the centre point (where the observer stands), and each survey was three minutes in duration. All frogs and toads seen or heard were noted. Frogs and toads heard or seen outside of the 100 m radius and/or outside the target feature were also noted, including direction and estimated distance (where possible).

4.1.5 General Wildlife and Wildlife Habitat Surveys

General wildlife and wildlife habitat surveys were conducted as visual encounter surveys concurrent with the terrestrial windshield surveys, ELC and botanical inventory, amphibian acoustic surveys, breeding bird surveys and aquatic surveys. The objective of the general wildlife and wildlife habitat surveys was to document incidental wildlife observations and record potential SAR/SOCC/SCS habitat and Significant Wildlife Habitat (SWH)[3] in the PSA. Mapping compiled from the desktop review and windshield surveys was reviewed to identify natural features warranting further investigation in the field given their potential to support wildlife, such as wetlands, cavity trees, and rock piles.

Special attention was paid to edge habitats and other areas where mammals might be active. Areas of exposed substrate such as sand or mud were examined for any visible tracks. When encountered, tracks and other signs (e.g., tracks, scat, hair, tree scrapes) were recorded and identified to a species, if possible. All suitable habitats for reptiles were searched (e.g., flipping logs and other types of cover objects, observations in piles of rocks) where access was available, and all reptiles and amphibians observed were identified and recorded.

Specific habitat features that support various life processes of wildlife, such as nesting and roosting sites, foraging habitat, and hibernation habitat, were recorded. Any SAR/SOCC/SCS individuals observed were recorded, and notes taken on the behaviour, location, and type of habitat where the individual was observed.

[3] As defined in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNRF 2015b).

4.2 Aquatic Surveys

4.2.1 Water Crossing List

The initial task for the fish and fish habitat and surface water baseline characterization program involved the development of a water crossing list to identify all watercourse and waterbodies that are expected to be crossed by the alternative routes. The water crossing list was developed for the Preferred Route and both Route Alternatives and was progressively refined as new desktop and field data became available.

The water crossing list was developed using Geographic Information Systems (GIS). This involved overlaying the preliminary Project footprint with the Ontario Hydro Network (OHN) datasets for watercourses and waterbodies (MNR, 2024d) to identify “mapped” water crossing locations along the length of the Project route (i.e., MNR-mapped waterbodies that are expected to be traversed by the Project footprint). The mapped and unmapped features (MNR 2024d) were then further assessed based on a review and interpretation of aerial imagery and associated digital elevation model (DEM) information to confirm, to the extent possible, the presence of defined bed or banks (i.e., the criterion for the definition of a waterbody in Ontario [Stanfield, 2017; Lakes and Rivers Improvement Act, 1990]). Each of the identified water crossings from the crossing list were assigned a unique site ID. Details on the development of the water crossing list are provided in Durham Kawartha Power Line Field Work Plan (WSP 2024).

4.2.2 Aquatic Windshield Surveys

Aquatic windshield surveys were conducted to confirm existing conditions within the PSA identified through the desktop review that overlap with the centreline. Water features were present within the PSA at 71 locations and were visited during the windshield surveys (Figure 3). The locations of the windshield surveys were aligned to represent the water feature upstream and/or downstream of the proposed water crossings where access from the roadside could safely be obtained, and no property access was required.

The field crew accessed each water crossing, where possible, documenting general conditions and confirming the presence of sensitive natural features. The presence or absence of suitable habitat for those species identified in the desktop review and SAR screening was evaluated as part of the windshield surveys. At each water feature selected for the survey, the water feature and habitats present were classified by the following categories and the following data collected:

- Location in latitude and longitude and/or Universal Transverse Mercator (UTM) coordinates, North American Datum (NAD) 83 was collected.

- **Water Feature Type –** water feature type was identified based on visual assessment under the following categories: watercourse, waterbody and no defined channel (see full description in Section 4.2.3).
- **Inferred Permanence** – permanence was inferred from visual assessment and will be refined based on a combination of the results from the ground-based field studies and desktop analyses (e.g., review of historical flow records from available stream gauge stations for similar-scaled catchments). Flow regime was categorized as: non-permanent or permanent (see full description in Section 4.2.3).
- **Bankfull Width (m) –** bankfull width was measured and reported in metres if access allowed or visually estimated from a vantage point and categorized into the following:
    - <2 m
    - 2 m to 5 m
    - 5 m to 10 m
    - >10 m
    - >25 m
- **Fish Habitat Potential –** based on the habitat features observed, high-level fish habitat potential in each water feature assessed during the windshield survey was rated as follows:
    - **No –** The water feature has no habitat available and will not support fish because a defined channel is not present, and/or is not hydrologically connected to fish habitats and/or freezes to the bottom.
    - **Yes –** The water feature has habitat available and may support fish because a defined channel is present.
    - **Unknown –** Further field investigations are required to determine conditions present.
- **Instream Barriers, Impediments or Hydraulic Controls –** each water crossing was visually assessed for barrier/impediment/control presence or absence, permanence, and type (i.e., beaver dam, perched culvert, hydroelectric dam, waterfall, or “other”).
- **Existing infrastructure –** each water crossing was visually assessed for existing infrastructure presence or absence and type (i.e., bridge, culvert, transmission line, or “other”).
- **Potential Pollution Point Sources –** potential pollution point sources (e.g., discharge outlets, agriculture, road, golf course) were identified as present or absent. **Changes from Previously Mapped Conditions –** site conditions were inspected during field reconnaissance to determine if conditions at the time of visit were consistent with current available imagery. Conditions were observed using the following criteria:

  - **No –** conditions appear consistent with current imagery/mapping.
  - **Yes –** conditions are not consistent with current imagery/mapping (e.g., influence of beaver dams and activity on the landscape in creating new wetlands, seasonal flooding, logging activities).

- **Accessibility –** notes on access (e.g., no access issues, gated access, fences, private property) were recorded to support the future existing conditions field surveys.
- **Geo-referenced photographs –** photographs were collected from standard vantage points (for watercourses – facing upstream, downstream, left bank, right bank, substrates; for waterbodies – cardinal = directions [i.e., north, south, east, west]). Additional photographs of sensitive features, existing infrastructure, potential pollution source points, etc. were also taken where relevant.

4.2.3 Surface Water Surveys

The field investigations for the surface water assessment (completed in August 2024, October 2024, and June 2025) were undertaken at 32 water crossing locations that were selected during a preliminary desktop study of mapped and potential unmapped watercourses and waterbodies crossed along the Project corridor. The sites were selected from 71 potential water crossings located on the centreline of the PSA within the Water Crossing List (Appendix B, Table 1). The aim for the fish and fish habitat and surface water surveys was to complete surveys at a minimum of 25% of the potential crossing locations. The field studies for surface water were completed in parallel with the associated field surveys for the fish habitat assessment (described in Section 4.2.2). The field investigation completed in 2024 and 2025 was used to confirm the presence of watercourses, lakes or ponds at each crossing location, as well as to identify any additional unmapped watercourses or water features.

For the purposes of this assessment, the term “watercourse” is used to describe a flowing body of water within a defined channel (e.g., named or unnamed rivers, creeks, streams). The term “waterbody” is used to describe a lake or pond that has defined basin, surrounded by land and has no discernible flow. Lakes will be categorized as waterbodies >8 ha and ponds as those <8 ha. The term “water feature” is used to describe a potential water channel that has undefined bed and banks or a channel that has anthropogenic features (i.e., constructed ditch).

The surface water field surveys were completed along a roughly 150 m reach of the water body (centered over the proposed crossing location being 50 m upstream from the proposed crossing and 100 m downstream from the crossing, where possible) and included the following:

- General observations of typical channel patterns and flow conditions, as well as documentation of characteristic bed and bank morphology (including any erosion/deposition features), channel substrate, and riparian vegetation.
- A Rapid Geomorphic Assessment (RGA) in accordance with MOE (2003) to provide a preliminary assessment of channel stability in the vicinity of the crossing location (based on the presence or absence of various indicators of channel degradation, aggradation, widening and planform adjustment).
- Measurements of channel geometry, including bankfull width and depth, wetted width and depth, and side and channel slopes.
- A discharge estimate (based on the velocity-area method) using a flow meter and wading rod.
- Measurements of basic water quality parameters (i.e., conductivity, pH, temperature, and dissolved oxygen) using a multi-parameter water quality meter.

4.2.4 Fish and Fish Habitat Surveys

Fish and fish habitat surveys were completed in August and October 2024, assessing a total of 23 water crossing locations. Additional surveys were conducted in June 2025, at 11 water crossing locations. A combined total of 34 water crossing locations have been assessed between 2024 and 2025 (Figure 3). Assessments were conducted following standard protocols for the surveys as noted in the FWP (WSP August 2024) (i.e., Stanfield, 2017; Metcalfe et al., 2013; MTO, 2020; DFO, 1989).

The sites selected for the targeted field surveys were selected from the 71 potential water crossings located on the centreline of the PSA within the Water Crossing List (Appendix B, Table 1). Sites were selected based on a combination of watercourse size, absence of existing fish occurrence records, included a combination of mapped vs unmapped watercourses, and available property access to create a diverse set of sites to be surveyed in field. The aim for the fish and fish habitat surveys was to complete surveys on a minimum of 25% of the potential crossings.

Surveys were completed along 200 m reach of each water feature, including 50 m upstream from the proposed crossing and 150 m downstream from the crossing on watercourses and 200 m along the shoreline of waterbodies. If 200 m could not be surveyed due to site logistics (e.g., dense forest, land access issues), the field crew endeavored to survey as much of the site as is safely accessible, up to 200 m. For large waterbodies, field data collection will consist of a habitat assessment from shore.

The following variables were documented/collected at each surveyed crossing:

- Water feature type, based on a visual assessment:

  - **Watercourse –** a flowing body of water within a defined channel (e.g., rivers, creeks, streams etc.).
  - **Lake/Pond –** waterbody that has defined basin, surrounded by land and has no discernible flow. Lakes will be categorized as waterbodies >8 ha and ponds as those <8 ha.
  - **No Channel / Water Feature –** a potential water feature (based on desktop or field surveys) that was determined to have no defined bed and/or banks during the field survey, is not hydraulically connected to fish habitats, and/or is not present in background mapping (i.e., OHN; MNR, 2024d).
- Permanence, based on a visual assessment:
  - **Non-Permanent –** water feature may exhibit ephemeral (flows only during and after large precipitation events for a period of a few days to a few weeks) or intermittent (i.e., flows during wet seasons and in the summer after a major rain event, a non-permanent flowing drainage feature with a defined channel and evidence of annual scour or deposition) flow. Non-permanent water feature may have poorly to well defined channel banks. Non-permanent water features are those that dry out for a portion of the year during drought conditions and do not contain water for most of the year (i.e., >8 months of the year).
  - **Permanent –** watercourses that exhibit flow for most of the year and waterbodies that contain water for most of the year (i.e., 8 months of the year or longer) but dry during drought conditions.
- Location UTM coordinates, NAD 83 will be collected.
- Basic in-situ water quality parameters (conductivity, pH, water temperature, and dissolved oxygen) were measured using a multi-parameter water quality meter. A visual estimate of water colour and clarity, and detection of odour was also recorded.

At each watercourse selected for the survey, a detailed habitat assessment was completed. The channel was classified by the following habitat morphology types (modified from (O'Neil & Hildebrand, 1986); (TRCA, 2014)):

- **Riffle –** Portion of channel with increased velocity relative to run and pool habitat types; broken water surface due to effects of submerged or exposed bed materials; relatively shallow (less than 0.25 m) during moderate to low flow periods.
- **Rapids –** Portion of channel with highest velocity relative to other habitat types. Deeper than riffle (ranging from approximately 0.25 m to 0.5 m); often formed by channel constriction. Substrate extremely coarse; dominated by large cobble and boulder material. Instream cover provided in pocket eddies and associated with cobble/boulder substrate.
- **Run –** Portion of channel characterized by moderate to high current velocity relative to pool and flat habitat, water surface largely unbroken. Deeper than riffle habitat type.

- **Flat –** Area of channel characterized by low current velocities (relative to riffle and run cover types); near-laminar (i.e., non-turbulent) flow character. Depositional area featuring predominantly sand/silt substrate. Differentiated from pool habitat type on basis of high channel uniformity and lack of direct riffle/run association. More depositional in nature than run habitat (e.g., sand/silt substrate, lower food production, low cover).
- **Pool –** Discrete portion of channel featuring increased depth and reduced velocity (downstream oriented) relative to riffle and run habitat types; formed by channel scour (i.e., removal of bed or bank material by flowing water).
- **Impoundment –** Pools formed behind dams; tend to accumulate sediment/organic debris more than scour pools; may have cover associated with damming structure.
- **Backwater –** Discrete, localized area of variable size, exhibiting reverse flow direction; generally produced by bank irregularities; velocities variable but generally lower than the main flow; substrate like adjacent channel, but with higher proportion of fines.

At each waterbody selected for the survey, a detailed habitat assessment was completed. The waterbody was classified by the following habitat morphology types:

- **Lake** – body of water with no discernable flow >8 ha in size.
- **Pond** – body of water with no discernable flow <8 ha in size.

Within each habitat morphology type, the following parameters were measured or visually assessed (where possible):

- Bank-full width, wetted width, and channel length were measured to the nearest 1 m (or otherwise nearest increment where available). Bankfull depth and maximum depth will be measured in watercourses to the nearest 0.10 m and in waterbodies, the mean depth (m) were estimated from the shoreline.
- Substrate composition was visually estimated as a percentage of total area within each habitat unit. Substrate classifications used the Modified Wentworth Scale (Wentworth , 1922).
    - **Organic** – organic material.
    - **Silt** – particles less than 0.06 millimetres (mm) in diameter.
    - **Sand** – particles between 0.06 mm and 2.00 mm in diameter.
    - **Gravel** – particles between 2 mm and 64 mm in diameter; range of sizes may be present.
    - **Cobble** – particles between 64 mm and 256 mm in diameter.
    - **Boulder** – particles greater than 256 mm in diameter.
    - **Bedrock** – consolidated rock.

- Availability of instream cover was visually assessed as overhanging vegetation (i.e., riparian vegetation), substrate, depth/turbulence, aquatic vegetation, undercut banks, and woody debris as a percentage of total area within each habitat unit.
- Bank shape was visually assessed as sloping, vertical, or undercut.
- Bank stability was visually assessed as protected (i.e., stable), vulnerable (i.e., potentially unstable), eroding (i.e., active erosion of bank), or depositional (i.e., active deposits on the bank).

The following variables were measured or visually assessed within the entire surveyed length:

- Presence of potential fish passage impediments and barriers were visually assessed. The type, height, and potential permanency of the barrier were documented. It is acknowledged that the presence of a barrier does not preclude fish presence upstream of the barrier. Barriers were considered permanent if it appears that they are likely to have been present for more than 20 years (e.g., a human constructed dam) and not permanent if it appears that they are unlikely to have been present for more than 20 years or can be naturally altered (e.g., a beaver dam).
- Evidence of sensitive features present (e.g., watercress, groundwater seepage/springs, or iron staining).
- Description of pollution point sources and/or existing infrastructure present (including dimensions, size, type, etc.).
- Supporting and environmental information (e.g., weather conditions, such as air temperature, wind direction, precipitation type, and percent cloud cover) and access notes.
- Presence of fish and/or wildlife including incidental observations (i.e., non-survey target species, tracks, scat, etc.)
- Georeferenced photographs were taken at each water feature including upstream and downstream banks and substrates and cardinal directions at the proposed crossing location. Representative photos of habitat types, poorly defined banks, any observed sensitive features, and beaver dams were also taken along the survey reach (Appendix I, Aquatic Photographic Log).

Based on the habitat features described above, the fish habitat potential in each water feature for each critical life history stage (i.e., spawning, rearing, foraging, overwintering) for each species group that may be present (e.g., small-bodied fish, large-bodied fish, SAR, SOCC, SCS) was rated as follows:

- **Nil –** The water feature has no habitat available and will not support fish because a defined channel is not present, no hydrological connection to fish bearing waters, and/or may freeze to the bottom in the winter.

- **Low –** The water feature has low-quality habitat available, which may include an ephemeral to semi-permanent flow regime, poorly defined banks, limited abundance of habitat and substrate types to provide life history functions for fish (e.g., only pool habitat with silt substrate), partial barriers to fish movement (e.g., beaver dams, log jams), and minimal instream cover.
- **Moderate –** The water feature has moderate-quality habitat available, which may include an ephemeral to semi-permanent flow regime, some habitat and substrate type variety (e.g., more than two types available), absence of barriers to fish movement in the vicinity of the crossing, and multiple sources of instream cover.
- **High –** The water feature has high-quality habitat available, which may include a permanent flow regime, a variety of habitat and substrate types to meet life history requirements for fish (including spawning habitat), presence of sensitive features (e.g., watercress, groundwater seepage/springs, or iron staining), absence of barriers, and variety of instream cover. Water features with ephemeral and semi-permanent flow regimes may be rated as having high rearing potential for young-of-year fish as these water features are known to provide nursery habitat.

The fish habitat potential rating was applied in a conservative manner, and if there is any potential for SAR, SOCC and/or SCS fish to be present in a water feature, the habitat potential ratings documented that potential, even if it was low quality habitat.

4.3 Environmental DNA Surveys

Environmental deoxyribonucleic acid (eDNA) samples were collected to aid in determining the freshwater fish and freshwater vertebrate community assemblages. Aquatic eDNA sampling was completed at five water crossing sites in October 2024 (WC-1029.01, 1033.01, 1033.02, 1041.01, 1066.01) as well as four water crossings (WC-1003.01, 1034.01, 1055.01, 1058.02) in June 2025. A total of nine sampling locations along the centreline of the LSA have had eDNA samples collected. The sites were selected based on areas with available property access, crossings which had no historical fish records, and sites which had sufficient water levels for the samples to be collected.

In 2024, surveys were planned at nine locations; however, due to seasonally dry conditions resulting in insufficient water levels at four of the proposed stations (WC-1000.01, WC-1029.02, WC-1030, WC-1065), only five sites were surveyed. To account for the stations missed in 2024, four locations were scheduled for survey during the 2025 sampling.

The methodology for sample collection is summarized below, as provided by the analytical laboratory (Nature Metrics, 2024).

Once a sample location was determined, subsamples were collected from multiple locations around the waterbody/area. Subsamples were collected using an empty mineral water bottle to transfer water to the sampling bag provided. The number of subsamples collected was dependent on the waterbody type. In streams where eDNA is well mixed and transported through flow, five (5 x 600 ml) subsamples were collected from different locations along the length of the stream, working from downstream to upstream. In ponds where eDNA does not mix well due to the absence of flow, twelve (12 x 250 ml) subsamples were collected at multiple locations around the perimeter of the pond. The collected subsamples totaled a minimum of 3L of water. Once collated in the sampling bag, the bag was shaken for 20-30 seconds to thoroughly mix the subsamples.

Once the sample was thoroughly mixed, the peristaltic pump (Vampire sampler) was prepared. Staff connected the silicone hose before securing the pump head to the drive unit. The hose was then inserted directly into the sampling bag and the pump was run by pressing the drive unity trigger to slowly fill the hose with water. Once the hose was filled, the eDNA filter inlet was attached to the hose adapter. The opposite end of the hose was inserted into a measuring jug to record the volume of water filtered. The pump was then run until the flow of the water leaving the filter outlet slowed or stopped completely. Once all of the water had passed through the filter, or the filter became fully clogged, the hose was removed from the sampling bag and the pump was run until the hose was clear of any water and no more water was exiting the filter. The filter was detached from the hose and the volume of water filtered was recorded on the sampling datasheet. The preservative solution was then inserted into the filter via syringe and the filter was capped and placed into the specimen bag and sealed. Samples were then shipped directly back to Nature Metrics for analysis, within 2 weeks of sampling.

To increase confidence in the eDNA results, measures to avoid contamination of eDNA sample kits were implemented. Sealed, sterile kits were opened one at a time and contents were kept inside of the bag before use. The provided sterile medical gloves were worn when touching any kit components and touching of anything not necessary to sample collection was avoided to minimize introducing external DNA into the sample. Gloves were changed between each kit and any reusable tools were decontaminated using a disinfectant wipe between each sample. In addition, a field negative control (blank) was included to detect possible contamination introduced during sampling. The blank sample was processed in the same way as the water samples using purified (mineral) water.

5 Field Survey Results

5.1 Terrestrial Surveys

5.1.1 Terrestrial Windshield Surveys

Given that the terrestrial windshield surveys were restricted to public roadside access, their primary value was in documenting land cover and notable habitat features within line of sight, recording incidental observations of wildlife, and noting access options for future surveys.

The existing ROW along much of its length is a mix of meadow and shrubs, as well as agricultural lands. One ESA threatened species, Eastern Meadowlark (*Sturnella magna*), was frequently observed in open fields within the PSA during the terrestrial windshield surveys (Figure 4). The fields were also noted to likely provide habitat for Bobolink (*Dolichonyx oryzivorus*) (ESA threatened), which was later observed (see Section 5.1.3) and possibly Loggerhead Shrike (*Lanius ludovicianus*) and Henslow's Sparrow (*Centronyx henslowii*) (both ESA endangered), though these species were not observed during subsequent surveys, and later evaluation of land cover mapping concluded there were no suitable habitat types of sufficient size present in the LSA for these two area-sensitive species. Over one dozen Barn Swallows (*Hirundo rustica*) (ESA special concern) were observed entering and exiting a barn at Hooton Dr and Howden Quarter Line and foraging over neighbouring agricultural fields (Figure 4.17). The ROW crosses a few extraction sites that were identified as potential nesting sites for Bank Swallow (*Riparia riparia*) (ESA threatened).

Other wildlife features of interest identified during the terrestrial windshield surveys include several cavity trees that may provide habitat for bats and birds, rock piles that may provide habitat for snakes, and wetlands that may provide habitat for turtles and amphibians. These features are included among the SWH observations shown in Figure 5.

5.1.2 Ecological Land Classification and Botanical Inventory

Mapping of the plant communities (ecosites) in the LSA, as determined through ELC (combination of desktop mapping and field verification), is provided in Figure 4 and Figure 5. The area of each plant community and percent representation in the ROW, PSA, and LSA, respectively, are provided in Appendix C. Anthropogenic ecosites are also included in Figure 4, Figure 5 and Appendix C for reference. None of the identified plant communities are provincially "rare" (S1-S3), noting that survey effort in the LSA was largely restricted.

The LSA is mostly composed of agricultural land, open pasture, forest (mixed, coniferous, and deciduous), residential land use, cultural meadow, and coniferous swamp. The various types of plant communities are distributed relatively evenly across the Project route, with no major

differences in landscape composition from east to west. Naturally occurring plant communities are more prevalent around the six Provincially Significant Wetland (PSW) complexes that overlap the LSA (Figure 4 and Figure 5; see Section 6.1 for further discussion on wetlands). These PSW complexes are also distributed relatively evenly across the LSA.

Open anthropogenic land cover types (agriculture, open agriculture, annual row crops, open pasture, shrub pasture, and cultural meadow) account for 47.1% (Route Alternative A) and 47.3% (Route Alternative B) of the LSA. An additional 7.7% / 7.9% (Route Alternative A / B) of the LSA is covered by all other anthropogenic land cover types (agricultural infrastructure, commercial and institutional, education, extraction, power generation, recreational, residential, and transportation and utilities). Wooded habitat, including forests, swamps, woodlands, and plantations, accounts for 34.0% / 33.6% (Route Alternative A / B) of the LSA. All other land cover types (thicket, marsh, meadow, savannah, hedgerow, and aquatic) make up a combined 11.1% (Route Alternative A) / 11.2% (Route Alternative B).

Similar to the LSA, the PSA is mostly composed of open anthropogenic (57.4% Route Alternative A, 59.1% Route Alternative B) and other anthropogenic land cover types (5.2% Route Alternative A / 5.1% Route Alternative B). Wooded habitat accounts for much of the remaining land cover in the PSA (27.3% Route Alternative A / 26.0% Route Alternative B). The final 10.1% (Route Alternative A) / 9.8% (Route Alternative B) of land cover in the PSA is made up of all other habitat types.

The ROW is made up of 71.3% / 72.7% (Route Alternative A / B) open anthropogenic land cover types, the highest percentage among the LSA, PSA, and ROW. An additional 4.1% / 4.1% (Route Alternative A / B) of the ROW consists of other anthropogenic land cover types. Wooded habitat makes up a much lower percentage of the ROW (9.4% Route Alternative A / 8.1% Route Alternative B) than the LSA or PSA. The vegetation in the ROW is regularly maintained, which limits the amount of woody vegetation, but small areas of woody vegetation are retained where they do not pose safety concerns for the infrastructure, or where they are on the perimeter of the ROW. Additionally, some patches of woody vegetation within the ROW represent regeneration between vegetation maintenance rounds and are in early to mid-successional stages. The remainder of the ROW (15.3% Route Alternative A / 15.1% Route Alternative B) is made up of marsh, thicket, savannah, hedgerow, and aquatic land cover types. No meadow landcover is present in the ROW.

[redacted].

A total of 388 vascular plant species were identified during the botanical inventory. Of these, 63% are native species and 22% are non-native (introduced) species. The remaining 15%

could not be identified to the species level due to plant condition. Six noxious weed species were identified during the field surveys: Canada Thistle (*Cirsium arvense*), Coltsfoot (*Tussilago farfara*), Eastern Poison Ivy (*Toxicodendron radicans*), European Buckthorn (*Rhamnus cathartica*), European Swallowwort (*Vincetoxicum rossicum*), and Field Sow-thistle (*Sonchus arvensis*).

Of the 388 plant species identified during the botanical inventory, 48 are considered SCS (see Appendix A). Most of the identified plant species have provincial and global rankings of "secure" (S4 or S5; G4 or G5). Butternut (listed as endangered under the ESA and SARA) was observed in four delineated plant communities, including 40 individuals near the Clarington TS (Figure 4.1), five individuals elsewhere within the PSA (Figures 4.14, 4.15, 4.16) and two individuals within the broader LSA (Figure 4.16). Additionally, 31 individuals of Black Ash (*Fraxinus nigra*, listed as endangered under the ESA) were observed in 10 locations throughout the LSA (Figures 4.2, 4.7, 4.8, 4.9, 4.12, 4.15, 4.18, 4.19, 4.20). [redacted] A complete list of plant species observed in the LSA is provided in Appendix D. As survey effort was restricted to properties for which access agreements were obtained, this list should not be considered exhaustive.

5.1.3 Breeding Bird Surveys

In total, 94 bird species were recorded in the LSA during breeding bird surveys. The total number of bird species recorded in 2024 and 2025 was 65 and 86, respectively. Most of the species recorded during the breeding bird surveys are common in the region. The most commonly observed species were Song Sparrow (*Melospiza melodia*), American Robin (*Turdus migratorius*), American Crow (*Corvus brachyrhynchos*), European Starling (*Sturnus vulgaris*), Common Grackle (*Quiscalus quiscula*), and Red-winged Blackbird (*Agelaius phoeniceus*). None of these species are of conservation concern, [redacted] European Starling is an introduced species.

Noteworthy bird species due to their conservation statuses or cultural significance are identified in Table 5-1. The full list of species recorded during surveys as well as stations at which they were recorded are provided in Appendix E. Eastern Meadowlark was the most frequently observed SAR, with 33 individuals recorded across 21 stations. Eastern Meadowlark, Bank Swallow (*Riparia riparia*; SAR; 16 observations; 1 station), Bobolink (SAR; 4 observations; 3 stations), Grasshopper Sparrow (*Ammodramus savannarum*; SOCC; 2 observations; 2 stations), and [redacted] were all observed in the cultural meadows, hayfields and pastures that were common along the ROW. Observations of Eastern Wood-pewee (*Contopus virens*; SOCC; 22 observations;

19 stations) and Wood Thrush (*Hylocichla mustelina*; SAR; 11 observations; 7 stations) were made across various forest habitats and woodlots within the LSA. Barn Swallow (SOCC; 16 observations; 8 stations) was seen foraging in open habitat at multiple locations during breeding bird surveys. A single Golden-winged Warbler (*Vermivora chrysoptera*; SAR; 1 observation; 1 station) was observed in thicket habitat within the ROW (Figure 4.14). Other species of note that are not SAR, SOCC, or SCS are Great Blue Heron (*Ardea herodias*) and Green Heron (*Butorides virescens*) which are included under Schedule 1 of the Migratory Birds Regulations, 2022 (MBR) (Canada, 2022) and are therefore subject to year-round nest protection. In addition, an active Osprey nest was identified on a transmission tower in the existing ROW (adjacent to station BB28; Figure 5.12). Raptor nests are protected under the provincial *Fish and Wildlife Conservation Act, 1997*.

Table 5-1: Bird Species at Risk, of Conservation Concern, and of Cultural Significance Recorded During Breeding Bird Surveys in the Local Study Area

Common Name	Scientific Name	ESA[1]	SARA[2]	S-RANK[3]	SCS[4]
Bank Swallow	*Riparia riparia*	THR	THR	S4B	–
Barn Swallow	*Hirundo rustica*	SC	THR	S4B	–
Bobolink	*Dolichonyx oryzivorus*	THR	THR	S4B	–
Eastern Meadowlark	*Sturnella magna*	THR	THR	S4B,S3N	–
Eastern Wood-pewee	*Contopus virens*	SC	SC	S4B	–
Golden-winged Warbler	*Vermivora chrysoptera*	SC	THR	S3B	–
Grasshopper Sparrow	*Ammodramus savannarum pratensis*	SC	SC	S4B	–
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	SCS
Wood Thrush	*Hylocichla mustelina*	SC	THR	S4B	–

1. ESA = *Endangered Species Act, 2007*; THR = threatened; SC = special concern.
2. SARA = *Species at Risk Act*; THR = threatened; SC = special concern.
3. S-RANK = provincial conservation status ranking; S3N = vulnerable breeding populations within the province; S4B = apparently secure breeding population within the province.
4. SCS = Species of Cultural Significance.

5.1.4 Amphibian Acoustic Surveys

Six anuran species were observed during call count acoustic surveys: Spring Peeper (*Pseudacris crucifer*), American Toad (*Anaxyrus americanus*), Gray Treefrog (*Dryophytes versicolor*), Green Frog (*Lithobates clamitans*), Western Chorus Frog (Great Lakes/St. Lawrence – Canadian Shield population) (*Pseudacris triseriata*), and Wood Frog (*Lithobates sylvaticus*) (Appendix F). Most species observed during field surveys are secure and common in Ontario and globally (S5; G5) and are not listed under the ESA or SARA. Western Chorus Frog (Great Lakes/St. Lawrence – Canadian Shield population) is listed as threatened under SARA. Upon further review of the survey results, initial observations of Western Chorus Frog recorded at six stations (AC07, AC08, AC14, AC15, AC17, and AC28) during the surveys were determined to represent Spring Peeper individuals giving alternate calls (as Spring Peepers were recorded in large numbers at each station where small numbers of Western Chorus Frogs [1 to 6 individuals] were documented, and the Spring Peeper alternate call sounds very similar to Western Chorus Frog calls). However, a full chorus of Western Chorus Frog was heard calling in the LSA (greater than 300 m beyond station AC18) [redacted] Noteworthy anuran species due to their conservation status or cultural significance are identified in Table 5-2. A summary of species richness and maximum calling codes at each station is provided in Table 5-3. The full survey results are provided in Appendix F.

Table 5-2: Anuran Species at Risk, of Conservation Concern, and of Cultural Significance Recorded During Amphibian Acoustic Surveys in the Local Study Area

Common Name	Scientific Name	ESA[1]	SARA[2]	S-RANK[3]	SCS[4]
Western Chorus Frog (Great Lakes/St. Lawrence – Canadian Shield population)	*Pseudacris triseriata*	–	THR	S4	–
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	SCS

1. ESA = *Endangered Species Act, 2007*; THR = threatened; SC = special concern.
2. SARA = *Species at Risk Act*; THR = threatened; SC = special concern.
3. S-RANK = provincial conservation status ranking; S3N = vulnerable breeding populations within the province; S4B = apparently secure breeding population within the province.
4. SCS = Species of Cultural Significance.

Table 5-3: Amphibian Acoustic Survey Results (Species Richness and Maximum Calling Codes per Station)

	Species Maximum Calling Code[1] Recorded at Each Station						
Station	American Toad	Green Frog	Gray Treefrog	Spring Peeper	Western Chorus Frog	Wood Frog	# of Species per Station
AC01	-	L1	L1	L2		L3	4
AC02	-	L1	L3	L3		L3	4
AC03	-	L2	L3	L3		L1	4
AC04	-	-	-	-		-	0
AC05	-	-	-	-		-	0
AC06	-	L3	L3	L3		-	3
AC07	-	L1	-	L3		L1	4
AC08	-	L1	L1	L3		-	4
AC09	-	L1	L1	L3		L1	4
AC10	-	-	L1	L3		L3	3
AC11	L1	L1	L3	L3		L3	5
AC12	-	-	L2	-		-	1
AC13	-	-	-	-		-	0
AC14	L1	L1	L1	L3		-	5
AC15	-	L1	-	L3		-	3
AC16	-	L1	-	L3		L1	3
AC17	-	-	L3	L3		L3	4
AC18	-	-	-	-	L3[2]	-	0
AC19	-	L3	L3	L1		-	3
AC20	-	-	-	-		-	0
AC21	-	L1	L1	L3		-	3
AC22	L1	-	-	L3		-	2
AC23	-	-	-	-		-	0
AC24	-	L1	-	-		-	1

	Species Maximum Calling Code[1] Recorded at Each Station						
Station	**American Toad**	**Green Frog**	**Gray Treefrog**	**Spring Peeper**	**Western Chorus Frog**	**Wood Frog**	**# of Species per Station**
AC25	-	L2	-	-		-	1
AC26	L1	-	-	L3		L3	3
AC27	L1	L1	L3	L3		-	4
AC28	L2	-	L3	L3		L3	5
AC29	-	-	-	-		-	0
AC30	L1	-	-	L1		L1	3
Total # of Stations Where Recorded	**7**	**16**	**15**	**20**	**1**	**12**	**-**

1. Calling Code Definitions:
Call Level 1- individuals can be counted, no overlapping calls
Call Level 2- some calls overlap, but the number of individuals can still be reliably estimated
Call Level 3- calls continuous and overlapping, individuals not distinguishable
2. Western Chorus Frog was heard calling greater than 300 m east beyond this station location (in the PSA or potentially broader LSA).

5.1.5 General Wildlife and Wildlife Habitat Surveys

In addition to the 91 bird species observed in the LSA during breeding bird surveys (Section 5.1.3) and the six amphibian species observed in the LSA during amphibian acoustic surveys, 36 other wildlife species were observed during field surveys: two additional amphibian species, seven additional bird species, 17 mammal species, six insect species, and four reptile species. Most of these species are “secure” provincially and globally (S5 and G5) and are not listed under the ESA or SARA.

Of the 17 mammal species recorded during field surveys, six are considered SCS: [redacted]

Nine adult Monarchs (*Danaus plexippus*) and one larval Monarch were observed during general wildlife surveys. Monarch is listed as special concern under the ESA and endangered under SARA.

One juvenile Blanding’s Turtle (*Emydoidea blandingii*) was recorded basking at Jackson Creek, west of Ackison Road (Figure 4.20). Blanding’s Turtle is listed as threatened under the

ESA and endangered under SARA. Three Snapping Turtles (*Chelydra serpentina*) were found dead-on-road: one on Highway 35 near Ballyduff (Figure 4.10), one on Highway 7A west of Bethany (Figure 4.12), and one on the main access road east of Union School Road (Figure 4.4). Additionally, a predated Snapping Turtle nest site was identified adjacent to the wetland just west of Enfield Road and north of Concession Road 9 (Figure 4.2) and one Snapping Turtle was observed in a watercourse at crossing AWS-3003, east of Cartwright East Quarter Line (Figure 4.6). Snapping Turtle is listed as special concern under both the ESA and SARA. Several Midland Painted Turtles (*Chrysemys picta marginata*) were recorded basking in a small pond within the PSA east of Fowler Road (Figure 4.6). eDNA sampling also identified the presence of Painted Turtle within a small aquatic feature adjacent to the Pigeon River No. 20 PSW (Figure 4.8) and within the Cavan Bog Wetland Complex PSW (Figure 4.18). Midland Painted Turtle is listed as special concern under SARA. [redacted]

Two amphibian SCS were observed incidentally in the LSA: [redacted]

One additional Golden-winged Warbler was recorded incidentally within the PSA during general wildlife surveys (observed carrying food at station ELC17; Figure 4.9). Golden-winged Warbler is listed as special concern under the ESA and threatened under SARA. Two Eastern Whip-poor-wills (*Antrostomus vociferus*) were recorded within the LSA (heard calling in the distance from stations AC09 and AC26; Figures 4.6 to 4.8). Eastern Whip-poor-will is listed as special concern under the ESA and threatened under SARA. Evidence of two bird species, Green Heron and Pileated Woodpecker (*Dryocopus pileatus*), that receive year-round nest protection under Schedule 1 of the MBR, was recorded during the general wildlife surveys. Five Green Herons were observed in the Jackson Creek Complex PSW (Figure 5.19). Foraging cavities belonging to Pileated Woodpecker (*Dryocopus pileatus*) were identified in two locations: 1) south of Ballyduff Road within the PSA, and 2) south of Stewart Line within LSA. Potential nesting cavities were also identified at the location south of Stewart Line within the LSA. This location is over 300 m from the ROW (Figures 5.15 and 5.16).

A complete list of wildlife species observed in the LSA is provided in Appendix G. Results from the wildlife habitat surveys related to SWH are described in Section 6.8: Significant Wildlife Habitat.

5.2 Aquatic Surveys

5.2.1 Water Crossing List

Information gathered from the desktop review was compiled to create a comprehensive water crossing list (Appendix B, Table 1). The water crossing list includes the water features along the proposed routes and all water features within the PSA on either side of the routes and was updated with the results of the field surveys. Due to the close proximity of the known water crossings which intersect Route A and Route B, the crossings have been combined and are addressed throughout the aquatics section as a singular preferred route. No additional water crossings were determined to be located on Route B. There are some waterbodies that were surveyed along the Route A that extend to be crossed by Route B (e.g., WC-1004 etc.). Therefore, this analysis indicates that Route B is considered the more ecologically conservative route, in that it avoids additional impacts to watercourses and waterbodies.

5.2.2 Aquatic Windshield Surveys

Aquatic windshield surveys were completed in spring 2024, at 72 roadside locations, where water features that crossed the centreline were perceived to intersected public road crossings. Many roadside sites captured several stations both upstream and down stream on the same water feature. Sites were classified by water feature type based on three categories: watercourse (flowing water within a defined channel), waterbody (lake or pond with no discernible flow), or water feature / no defined channel (potential waterbody with no defined bed or banks). These results were previously reported in the Durham Kawartha Power Line Field Work Plan (WSP, 2024) and are included here in Appendix B**,** Table 2.

A total of 58 sites were classified as watercourses, 3 sites were classified as waterbodies, and 11 sites were classified as having no defined channel. Water features were assessed for permanency and identified as either non-permanent (flows and standing water are limited to wet seasons and/or after precipitation events) or permanent (flows or contains water for most of the year). A total of 18 sites were classified as non-permanent and 54 sites were classified as permanent. Bankfull width was estimated at each location and categorized into the following:

- <2 m (21 water crossings)
- 2 to 5 m (25 water crossings)
- 5 to 10 m (6 water crossings)
- >10 m (6 water crossings)
- >25 m (3 water crossings)
- Undefined (no defined banks) (11 sites)

Fish habitat potential was determined based on the presence/absence of a defined channel, hydrological connection, and water depth. A total of 51 sites were identified as having fish habitat potential, 11 sites require further investigation to determine fish habitat potential, and 10 sites did not have fish habitat potential. Present site conditions were assessed and compared to existing aerial imagery to determine inconsistencies. Most locations (61) were consistent with aerial imagery at the time of investigation. Conditions at the remaining 11 sites differed from aerial imagery. These inconsistencies included differences in size, location, presence/absence of water features and/or water crossing infrastructure and changes in flow direction due to beaver dams. Windshield survey results are presented in Appendix B, Table 2.

5.2.3 Surface Water Surveys

Based on the desktop study and field surveys, the Project footprint intersects watercourses and waterbodies at 71 locations. Watercourses along the Project footprint include Bowmanville Creek, Fleetwood Creek, Jackson Creek and the Pigeon River. The watercourse and waterbody crossing locations are shown on Figures 3.1 through 3.10, while the estimated tertiary watershed areas for Kawartha Lakes, North Lake Ontario Shoreline, Otonabee River, and Scugog River are shown on Figure 6. The results of the desktop analysis and field investigations (site specific and regional scales) at the watercourse crossing locations are provided in the following sections.

5.2.3.1 General Drainage and Channel Characteristics

A summary of hydrological, hydraulic and geomorphological characteristics at the 71 water crossing locations intersected by the Project footprint, including the 34 water crossing locations surveyed in the field, are presented in Table H-1 in Appendix H, recognizing that the information is based on site-specific observations and measurements that were obtained during the field visits, as well as the general findings completed as part of a desktop analysis for locations that were not visited in the field (i.e., using sources identified in Table 2-1). Photographs of each water crossing location visited as part of the field program are provided in Appendix I, while the completed RGA forms for each location are presented in Appendix J. In general, the watercourses crossed by the Project footprint range from first to fourth order streams, with catchment areas of approximately <0.1 to 5,000 hectares (ha). Land cover in the catchments consists primarily of rural agricultural areas.

5.2.3.2 Flow Volumes

Estimated flood discharges and mean monthly flows at the watercourse crossings were derived based on a regional analysis using data from nearby Water Survey of Canada (WSC) stations, including stations 02HD006 (Bowmanville Creek at Bowmanville), 02HJ006 (Jackson Creek near Jackson Heights), and 02HH003 (Pigeon River near Lotus).

Flows at the watercourse crossing locations were pro-rated to the target catchment based on area, using the formula:

$$Q_2 = Q_1 \times (A_2 / A_1)^{C}$$

Where Q_2 is the target flow, Q_1 is the reference flow, A_2 and A_1 are the target catchment area and reference catchment area, respectively, and C is a coefficient (equal to 1 in the case of mean flows and approximated as 0.75 in the case of peak [return period] flows) (MTO, 1997).

The hydrometric stations used for the regional analysis are summarized in Table 5-4 below, while the estimated 2-year, 100-year and mean monthly discharges at the watercourse crossings are shown in Tables K-1 and K-2 in Appendix K, respectively.

Table 5-4: Available Long-Term Hydrometric Stations from the Regional Area

Station ID #	Name	Latitude/ Longitude	Approx. Distance from Project footprint [km]	Drainage Area [ha]	Period of Record	2-Year Discharge [m³/s]	100-Year Discharge [m³/s]
02HD006	Bowmanville Creek at Bowmanville	43°55'17" N 78°42'07" W	28	80.9	1959-1995, 2006-2024	7.05	43.90
02HJ006	Jackson Creek near Jackson Heights	44°18'35" N 78°22'14" W	10	107	2006-2024	2.21	3.94
02HH003	Pigeon River Near Lotus	44°07'27" N 78°41'42" W	0	26.3	2004-2022	175.28	233.99

Source: Hydrometric station data were obtained from the Environment Canada Water Survey of Canada Historical Hydrometric Data database (Government of Canada 2022).

In general, surface water flows and water levels at the watercourses crossed by the Project are largely controlled by snowmelt and rainfall generated runoff patterns. The spring and fall hydrographs are typically characterized by moderate to high flows in response to the annual snowmelt event in April-May and fall rains in October-November, while hydrographs during the summer and winter months are marked by mostly low flows or dry channel conditions augmented by the occasional rainfall generate runoff peak.

Additionally, flow rates were measured at five water crossing locations during the field surveys. Velocities were recorded at the water crossing locations using a flow meter and wading rod.

The discharge estimates were calculated using the velocity-area method. Discharge estimates are summarized in Table 5-5.

Table 5-5: Flows Collected at Water Crossing Locations during Field Surveys

Crossing ID	Watercourse	Drainage Area [ha]	Estimated Discharge [L/s][a]
WC-1025[b]	-	281.12	4.75
WC-1044[c]	Fleetwood Creek	2437.96	386.32
WC-1055.01[d]	-	9.67	2.71
WC-1060[b]	-	56.13	1.13
WC-1061[b]	-	70.92	0.03

a) Discharge estimated using velocity-area method.
b) Discharge estimates based on velocities obtained using a flow meter and wading rod in August 2024.
c) Discharge estimates based on velocities obtained using a flow meter and wading rod in October 2024.
d) Discharge estimates based on velocities obtained using a flow meter and wading rod in June 2025.

5.2.3.3 Surface Water Quality

Historical water quality monitoring data was assessed from a total of five PWQMN stations to characterize surface water quality conditions in the regional area. These include three stations from the North Lake Ontario Shoreline watershed (Stations 6011600502, 6011600602, and 6011600102), one station from the Kawartha Lakes watershed (Station 17002107402), and one station from the Otonabee River watershed (Station 17002103802), noting that each monitoring station was active at the time of reporting. Details for each PWQMN station are presented in Table 5-6 while a summary of the historical water quality monitoring data is presented in Table 5-7.

Table 5-6: Selected Provincial Water Quality Monitoring Network Stations from the Regional Area

Station ID	Station Name	Latitude °N	Longitude °W	Available Water Quality Record	General Location	Tertiary Watershed
6011600502	Bowmanville Creek	43°58’11	78°44’51	2003-2022	Mill St, Hampton Conservation Area	North Lake Ontario Shoreline

Station ID	Station Name	Latitude °N	Longitude °W	Available Water Quality Record	General Location	Tertiary Watershed
6011600602	Bowmanville Creek	44°23’20	78°44’17	2003-2022	Reg Rd 20, Long Sault Conservation Area	North Lake Ontario Shoreline
6011600102	Bowmanville Creek	43°5339	78°40’30	1964-2022	West Beach Road, Bowmanville	North Lake Ontario Shoreline
17002107402	Pigeon River	44°2031	78°32’30	1972-2022	Victoria County Rd 14, Free Landing, N. of Omemee	Kawartha Lakes
17002103802	Jackson Creek	44°1758	78°19’14	1969-2022	Dalhousie St, Peterborough	Otonabee River

Table 5-7: Surface Water Quality Results from PWQMN Stations in the Regional Area

Parameter	Units	Guideline Value	Bowmanville Creek (Station ID 6011600602)		Bowmanville Creek (Station ID 6011600502)		Bowmanville Creek (Station ID 6011200102)		Pigeon River (Station ID 17002107402)		Jackson Creek (Station ID 17002103802)	
			Median Value [a]	% meet guideline	Median Value [a]	% meet guideline	Median Value [a)]	% meet guideline	Median Value [a]	% meet guideline	Median Value [a]	% meet guideline
Temperature	°C	N/A[b]	10.5	N/A[b]	12.3	N/A[b]	11.5	N/A[b]	14	N/A[b]	12.2	N/A[b]
pH	n/a[k]	6.5-8.5[c][d]	8.2	96%	8.4	94%	8.4	89%	8.3	95%	8.4	87%
Alkalinity	mg/L ($CaCO_3$)	30-500[d][e]	177	100%	216	100%	201	100%	165	100%	211	100%
Conductivity	µS/cm	N/A[b]	366	N/A[b]	460	N/A[b]	477	N/A[b]	370	N/A[b]	498	N/A[b]
Chloride	mg/L	250[f]	1.3	100%	13.2	100%	22.4	100%	13.2	100%	29.8	100%
Phosphorus	mg/L	0.01-0.03[c]	0.01	73%	0.02	68%	0.03	47%	0.02	81%	0.04	24%
Nitrate	mg/L	10[g][h]	0.12	100%	0.57	100%	0.64	100%	0.02	100%	0.19	100%
Nitrite	mg/L	1[g][h]	0.004	100%	0.005	100%	0.008	100%	0.003	100%	0.006	100%
Total suspended solids	mg/L	25[i]	5.7	89%	2.7	98%	11.3	78%	2.0	99%	5.3	88%
Turbidity	NTU	5[f][j]	3.1	90%	2.3	80%	9.4	24%	1.3	98%	2.6	72%
Total dissolved solids	mg/L	500[f]	- [u]	- [u]	- [u]	- [u]	310	96%	240	100%	321	100%
Dissolved Oxygen	mg/L	>4[k][l]	7.5	8%	11.0	6%	10.9	100%	10.2	1%	10.4	1%
Total Aluminium	µg/L	75[c][m][n]	32	100%	35	96%	56	77%	7	100%	33	86%
Total Cadmium[h]	µg/L	0.5[g][o][p]	0.24	48%	0.19	54%	0.38	31%	0.28	40%	0.35	36%
Total Copper[h]	µg/L	5[c][q]	0.2	100%	0.3	100%	1.4	83%	0.7	96%	2.0	84%
Total Iron[h]	µg/L	300[c][f][r]	68	100%	109	96%	200	66%	20	100%	170	83%
Total Lead[h]	µg/L	1-5[c][s][t]	2.2	91%	2.8	71%	4.0	77%	3.0	87%	3.7	83%

Notes:

a) Corresponds to median value of collected samples for select PWQMN location.

b) Not applicable. No guideline value available for select parameter.

c) Ontario Ministry of the Environment, 1994. Water Management, Policies, Guidelines. Provincial Water Quality Objectives of the Ministry of Environment and Energy. ISBN 0-7778-8473-9 rev. Queen's Printer for Ontario, 1994.

d) Operational Guideline detailed in the Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines (MOE 2003).

e) Water Management, Policies, Guidelines. Provincial Water Quality Objectives of the Ministry of Environment and Energy (MOE 1994) states that alkalinity should not be decreased by more than 25% of the natural concentration.

f) Aesthetic objective detailed in the Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines (MOE 2003).

g) Maximum Acceptable Concentration (MAC) detailed in the Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines (MOE 2003).

h) Where both nitrate and nitrite are present, the total of the two should not exceed 10 mg/L (as nitrogen).

i) Based on CCME 1999 - Canadian Water Quality Guideline, Water Quality (Freshwater) for the Protection of Aquatic Life where the maximum increase of 25 mg/L from background levels for any short-term exposure (e.g., 24-h period) under clear flow conditions and maximum increase of 25 mg/L from background levels at any time when background levels are between 25 and 250 mg/L under high flow conditions.

j) Based on CCME 1999 - Canadian Water Quality Guideline, Water Quality (Freshwater) for the Protection of Aquatic Life indicating a maximum increase of 8 NTUs from background levels for a short-term exposure (e.g., 24-h period). Maximum average increase of 2 NTUs from background levels for a longer-term exposure (e.g., 30-d period).

k) Based on Ontario Ministry of the Environment (1994) Water Management, Policies, Guidelines. Provincial Water Quality Objectives for dissolved oxygen where the concentration limit should be between 4-8 mg/L should not be less than 47-63% of saturation value.

l) Based on CCME 1999 - Canadian Water Quality Guideline, Water Quality (Freshwater) for the Protection of Aquatic Life, the concentration limit of dissolved oxygen should be between 5.5-9.5 mg/L. That said, the value is variable. Guidelines should be referred to for more information.

m) Operational Guideline detailed in the Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines (MOE 2003) states limit for aluminum at 01mg/L.

n) CCME 1999 - Canadian Water Quality Guideline, Water Quality (Freshwater) for the Protection of Aquatic Life indicates an aluminum limit of 0.005 mg/L if pH <6.5 and 0.1 mg/L if pH ≥ 6.5.

o) The PWQO criterion for total cadmium is dependent on the hardness. Hardness at the stations were either below 100 mg/L as CaCO3 and therefore the cadmium criterion was set at 0.0001 mg/L.

p) CCME 1999 - Canadian Water Quality Guideline, Water Quality (Freshwater) for the Protection of Aquatic Life indicates a cadmium limit between 0.00004mg/L to 0.00012mg/L. Limit is based on equation detailed in Guidelines for correcting cadmium limit to measured hardness.

q) The PWQO criterion for total copper is dependent on the hardness. Hardness was measured between 95 mg/L and 335 mg/L for PWQMN stations. Therefore the copper criterion was set at 5 µg/L.

r) Canadian Water Quality Guideline, Water Quality (Freshwater) for the Protection of Aquatic Life (CCME 1999).

s) Maximum Acceptable Concentration (MAC) detailed in the Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines (MOE 2003) for lead is 10 µg/L.

t) CCME 1999 - Canadian Water Quality Guideline, Water Quality (Freshwater) for the Protection of Aquatic Life indicates a lead limit between 0.001-0.007mg/L based on hardness. Limit is based on equation detailed in Guidelines for correcting cadmium limit to measured hardness.

u) Select parameter results not available within PWQMN database.

n/a = not applicable; N/A = not available; µS/cm = microsiemens per centimetre; NTU = Nephelometric Turbidity Units.

Based on the available water quality results identified in the desktop study of the North Lake Ontario Shoreline watershed (i.e., Bowmanville Creek PWQMN stations 6011200102, 6011600502, and 6011600602) the watercourse included neutral pH that ranged from 7.48 to 8.92, alkalinity that varied from 88.4 to 279 mg/L (as calcium carbonate [$CaCO_3$]), hardness that ranged from 160 to 335 mg/L, and dissolved oxygen levels that varied between 1.25 and 38.0 mg/L. Turbidity conditions were observed to range from 0.6 to 540 NTU with a calculated median of 8.0 NTU, while suspended solids concentrations varied from <0.5 to 18,984 mg/L with a median of 8.5 mg/L. Phosphorous concentrations were greater than the Interim PWQO criterion of 0.02 mg/L in 45% of surface water samples, with a median of 0.02 mg/L. Approximately 64% of the total cadmium samples were greater than the Interim PWQO criterion of 0.0002 mg/L. Total copper concentrations were greater than the Interim PWQO criterion of 0.005 mg/L in 14% of surface water samples, with a median of 0.001 mg/L. Total iron concentrations were greater than the PWQO criterion of 300 µg/L in 30% of surface water samples, with a median of 170 µg/L. Total lead concentrations were greater than the Interim PWQO criterion of 5 µg/L in 23% surface water samples, with a median of 3.2 µg/L.

With reference to the available water quality results identified in the desktop study of the Kawartha Lakes watershed (i.e., Pigeon River PWQMN station 17002107402), the watercourse included neutral pH values that ranged from 7.26 to 8.93, alkalinity that varied from 92 to 242 mg/L, hardness that ranged from 100 to 253 mg/L, and dissolved oxygen levels that varied between 2 mg/L and 20.81 mg/L. Turbidity conditions ranged from 0.3 to 12 NTU, with a calculated median of 1.29 NTU. In comparison, suspended solids concentrations varied from <0.5 to 36.0 mg/L, with a median of 1.9 mg/L. Phosphorous concentrations were greater than the Interim PWQO criterion of 0.02 mg/L in 19% of surface water samples, with a median of 0.015 mg/L. While approximately 60% of the total cadmium samples were greater than the Interim PWQO criterion of 0.5 µg/L, with a median of 0.28 µg/L. Total copper concentrations were greater than the Interim PWQO criterion of 5 µg/L in 4% of surface water samples with a median of 0.7 µg/L, total iron concentrations were below the PWQO criterion of 300 µg/L in all surface water samples with a median of 20 µg/L, and total lead concentrations were greater than the Interim PWQO criterion of 5 µg/L in 13% of surface water samples with a median of 3.0 µg/L.

With reference to the available water quality results identified in the desktop study of the Otonabee River watershed (i.e., Jackson Creek PWQMN station 17002103802), the watercourse included neutral pH values that ranged from 7.16 to 8.8, alkalinity that varied from 70 to 263 mg/L, hardness that ranged from 94.2 to 316 mg/L, and dissolved oxygen levels that varied between 3 mg/L and 90 mg/L. Turbidity conditions ranged from 0.45 to 150 NTU, with a calculated median of 2.58 NTU. In comparison, suspended solids concentrations varied from <0.5 to 7,132 mg/L, with a median of 12.0 mg/L. Phosphorous concentrations were greater

than the Interim PWQO criterion of 0.02 mg/L in 76% of surface water samples, with a median of 0.04 mg/L. While approximately 64% of the total cadmium samples were greater than the Interim PWQO criterion of 0.5 µg/L, with a median of 0.35 µg/L. Total copper concentrations were greater than the Interim PWQO criterion of 5 µg/L in 16% of surface water samples with a median of 2.0 µg/L, total iron concentrations were greater than the PWQO criterion of 300 µg/L in 17% of surface water samples with a median of 170 µg/L, and total lead concentrations were greater than the Interim PWQO criterion of 5 µg/L in 14% of surface water samples with a median of 3.7 µg/L.

5.2.4 Fish and Fish Habitat Surveys

Fish and fish habitat surveys were completed in August 2024, October 2024, and June 2025. A total of 34 water crossing locations were surveyed over the course of the project—23 in 2024 and 11 in 2025 (Figure 3). This led to more sites being sampled than originally planned (i.e., 47% of total water crossings, compared to 25%). Surveys were completed by documenting the variables listed in Section 4.2.3. The information collected during the surveys was supplemented by the known watercourse features from the crossing list (Appendix B, Table 1), the pre-screening of the sites and potential fish connectivity during the windshield surveys (Appendix B, Table 2), and fish community observations (Appendix B, Table 3). A summary of the key habitat features and watercourse characteristics at each of the crossing locations surveyed is provided in Appendix B, Table 4A and Table 4B. A photographic log of each water crossing is provided in Appendix I.

Of the 34 water crossings surveyed, 4 were classified as permanent waterbodies, 19 were classified as non-permanent features with no defined channel, three as a permanent feature with no defined channel[4], and 8 were classified as watercourses (5 permanent and 3 non-permanent). Combined there was a total of 12 permanent and 22 non-permanent features within the sites sampled.

For the 12 combined waterbodies and watercourses, the field surveys determined the following average bankfull width categories:

- <2 m (three water crossings)
- 2 to 5 m (two water crossings)
- 5 to 10 m (two water crossings)
- >10 m (five water crossings)

Most sites visited (14 sites) were classified as dry and undefined channels at the time of the survey. Of the watercourses identified, one watercourse was dry at the time of investigation

[4] These sites were often associated with the presence of mapped wetlands under Ontario LIO wetland mapping.

but had a discernible channel, leading to no habitat morphology being collected. The remaining five watercourses exhibited a variety of habitat morphology types (i.e., flat, run, pool, undefined), with four sites having more than one morphology type. Water crossings WC-1025, WC-1055.01, WC-1060, and WC-1061 had a mixture of flat, run, and pool morphology. The two largest watercourses surveyed were WC-1033 (Pigeon River) and WC-1044 (Fleetwood Creek). Pigeon River had an average wetted width of 3.0 m and an average wetted depth of 1.0 m, with consistent flat habitat morphology, and large fish community which was visually confirmed. Fleetwood Creek was a consistent run morphology with an average wetted width of 6.5 m and an average wetted depth of 0.45 m. Fleetwood Creek had a high abundance of in-water cover for fish, and a diverse community of fish which was visually confirmed during the assessment.

Four waterbodies that were classified as ponds were located along the centreline, WC-1003.01, WC-1033.02, WC-1034.01, and WC-1041.01. WC-1003.01 was an irregularly shaped ponded wetland feature located on both sides of Regional Road 3, which channelized downstream into a permanent watercourse. WC-1003.01 was approximately 0.8 ha in size as determined through in field measurements. WC-1033.02 was a round permanent ground water fed pond, with high amounts of algae present at the time of survey, which connected to an adjacent wetland system. WC-1033.02 was approximately 0.02 ha in size as determined from aerial imagery. WC-1034.01 was an isolated round permanent pond, with dense aquatic vegetation, and was approximately 0.04 ha as determined through aerial imagery. WC-1041.01 was an irregularly shaped, anthropogenic permanent pond, with low algae content, and a size of approximately 0.09 ha as determined through aerial imagery.

Channel substrates were varied within and between sites, ranging from small fines (clay, silt, sand, organics) to large coarser materials (gravel, cobble, boulder). Fine material was the basis of all sites (i.e., present at > 60% or more of the substrate material), with coarse material ranging from 2 to 40%. Five sites were comprised of 100% fine substrates (WC-1008, 1033, 1033.02, 1041.01, and 1044). Coarse substrate was present at five watercourse sites (WC-1025, 1055.01, 1060, 1061, 1065), where WC-1055.01, WC-1060 and WC-1061 had a significant percentage of coarse materials with 30-40% composition, and WC-1025 and WC-1065 had 5% or less coarse material.

Ground water indicators (watercress, iron staining, seepages, etc.) were identified at nine of the water crossings (five watercourses, one waterbody, and three water features). Ground water presence coincided with all watercourses and waterbodies having water temperatures of 15°C or lower and being ranked as having potential significant fish habitat.

All sites had high bank stability ranging from 80% to 100% stable, aside from WC-1003.01 which was located in a ponded waterbody along a roadway, and WC-1033 which was located

directly within a wetland and had poorly defined banks with low bank stability. In-water cover varied in quantity and quality between sites; however, aquatic vegetation, overhanging vegetation and/or woody debris was present at all sites.

In-situ water quality values were collected at all sites where water was present and had sufficient water depths. Most of the readings fell within the standard ranges indicated in the Provincial Water Quality Objectives (PWQO) and the Canadian Council of Ministers of the Environment (CCME) water quality index guidelines (CCME, 2024). All in-situ water quality values are available in Appendix B, Table 4. Field temperatures ranged from 12.25°C to 24.02°C, with eleven sites falling within the cold water range (<17.5°C), one site within the cool water range (17.5°C to 21°C) and five sites within the warm water range (>21°C) (Jones & Schmidt 2019). Based on the in-situ field readings, five sites contradicted the previously reported thermal regimes provided in background information (MNR, 2024a). The PWQO indicates that the ideal pH levels should be maintained between 6.5 and 9 for protection of aquatic life (MOEE, 1994;CCME, 2024); three sites fall outside this range: WC-1025 (9.1), WC-1046 (6.3), and WC-1060 (9.2). Dissolved oxygen readings fell within the range of 5.5 mg/L to 9.5 mg/L (CCME, 2024), aside from three sites: WC-1033.01 registering at 2 mg/L, WC-1033.02 registering at 4.7 mg/L, and WC-1058.01 registering at 5 mg/L.

No fisheries community sampling was completed during the field program; however, field crews observed fish at nine of the sites surveyed and confirmed fish habitat (noted in Appendix B, Table 3). Fish habitat rankings determined that three sites (WC-1025, WC-1033, WC-1044) held significant fish habitat potential for various life history events (i.e., spawning, rearing, migration, and overwintering habitat). These three sites were determined to have low to moderate potential for salmonid presence and critical life stage habitat. No aquatic SAR/SOCC/SCS were observed during the field surveys.

5.3 Environmental DNA Surveys

eDNA surveys were successfully completed at the following nine water crossing locations in October 2024, and June 2025 (Appendix B, Table 3).

- WC-1029.01 (2024)
- WC-1041.01 (2024)
- WC-1033.01 (2024)
- WC-1033.02 (2024)
- WC-1066.01 (2024)
- WC-1003.01 (2025)
- WC-1034.01 (2025)
- WC-1055.01 (2025)

- WC-1058.02 (2025)

The first five samples were collected and submitted to NatureMetrics for analysis in October 2024. Results were received in January 2025 and categorized into freshwater fish, and freshwater vertebrates. The findings below are presented in Appendix B, Table 5A and Table 6A, and are exclusive to the 2024 results. Samples collected in June 2025 were submitted to NatureMetrics for analysis against the freshwater fish and freshwater vertebrate primers. Results were received August 2025 and are presented in Appendix B, Table 5B and Table 6B .

The freshwater fish meta barcode analysis detected the presence of: Fathead Minnow (*Pimephales promelas*), Northern Redbelly Dace (*Chrosomus eos*), Brook Stickleback (*Culaea inconstans*), Central Mudminnow (*Umbra limi*), and Atlantic Salmon (*Salmo salar*). General genus and family records indicate the presence of *Culaea sp*. (Stickleback), *Cyprinidae sp.* (Minnows), *Chrosomus sp.* (Dace), and *Semotilus sp.* (Chub species) (Appendix B, Table 5A and Table 5B). The primers used for testing did not target freshwater mussels (Unionid); therefore, none were detected through eDNA analysis.

From the 2024 eDNA results, fish species were detected at WC1029.01, WC-1033.01, WC-1033.02, and WC-1066.01. Species detected at these sites are consistent with the existing historical species list records at the main watercourses adjacent and connected to the sampled crossings (Appendix B, Table 3). No fish species were detected at WC-1041.01 which is consistent with the historical records and field investigations. It should be noted that the waterbody at this location was classified as a man-made isolated pond and therefore is not classified as fish habitat under the federal *Fisheries Act* (Canada 1985, DFO 2023). The absence of eDNA results for this location does not confirm absence of fish.

The 2025 eDNA results detected fish at WC-1034.01, and WC-1058.02. Species detected were Northern Redbelly Dace and Brook Stickleback, which are consistent with the existing historical species list records at the adjacent watercourses. No fish were detected at WC-1003.01 and WC-1055.01. The lack of fish being detected from WC-1003.01 and WC-1055.01 may be attributed to the classification of these crossings as indirectly supporting fish habitat, while higher quality fish habitat has been identified further downstream. The lack of species detected at WC-1055.01 is likely due to the crossing being situated in the upper section of a drainage channel during a rainfall event. The lack of species being detected through eDNA analysis at these locations does not necessarily indicate the absence of fish at these sites, but rather that at the time of the survey no detectable genetic material was collected. Field-based assessments continue to classify these areas as fish habitat, which contribute to high-quality downstream environments.

Atlantic Salmon was detected at WC-1033.02 in the 2024 results; however, this species has no record of historical presence within Pigeon River or the tertiary watershed (DFO 2024b). There is one record of Atlantic Salmon within the PSA crossing centreline, located in the North Lake Ontario Shoreline watershed at WC-1001. Atlantic Salmon are listed as extirpated in Ontario under SRANK, ESA, and COSEWIC. The detection of Atlantic Salmon within the eDNA results is accompanied by the caveat that detections of this species may derive from human / non-natural sources. The record indicated that <1% of the percentage of DNA sequences assigned to Atlantic Salmon was collected and provided, and the low percentage rating indicates the possibility of misidentification. In addition, no records of fish farms, hatcheries, or historical stocking have been identified within Pigeon River, which could contribute to the record (MNRF, 2022). As such this result will be considered at the family level as a salmonid, which is more consistent with the historical records for the watershed. NHIC (branch within MNR) has confirmed that they do not track Atlantic Salmon, as the original/native Lake Ontario population is extinct, and have not reached out for further information on the record. NHIC provided the records to the Lake Ontario Management unit (MNR) and reports all aquatic records to DFO internally (pers. comm. NHIC, 2025). No further correspondence has been received regarding this record. [redacted]

Due to the uncertainty around this record, further studies are recommended to be completed to assess the current presence and habitat potential of Atlantic Salmon. This would include the collection of eDNA within the main channel at WC-1033, and a secondary sample of eDNA taken at WC-1033.02 for confirmation. Supplemental field surveys including fisheries community sampling, detailed habitat assessment upstream and downstream of the PSA, and spawning surveys will be completed if the Project footprint has potential to interact with Pigeon River or its tributaries.

eDNA analysis detected the following freshwater vertebrates: Beaver, Eastern Meadow Vole (*Microtus pennsylvanicus*), Muskrat, Racoon (*Procyon lotor*), Northern Leopard Frog (*Lithobates pipiens*), Wood Frog, and Midland Painted Turtle within the PSA. General genus and family records indicate the presence of *Lithobates sp.* (frogs), *Dryophytes sp.* (tree frogs), *Microtus sp*. (voles), and *Anatidae sp*. (waterfowl) (Appendix B, Table 6A & Table 6B). Observational and historical records within the region confirm that these species assemblages are to be expected. One of these species, Midland Painted Turtle, is an SOCC (special concern under SARA and COSEWIC). No freshwater vertebrate SAR were identified through the eDNA analysis.

6 Evaluation of Natural Heritage Features in the Study Area

This section of the NER assesses the observed natural heritage features within the federal, provincial, regional, and local regulatory context of the LSA. The evaluation identifies potential constraints on Project implementation that such features may impose. The following sources were used to assess natural heritage features and identify potential regulatory constraints:

- *Species at Risk Act* (SARA) (Canada, 2002).
- *Fisheries Act* (Canada, 1985).
- *Migratory Birds Convention Act* (MBCA) (Canada 1994).
- *Endangered Species Act* (ESA) (Ontario, 2007).
- *Fish and Wildlife Conservation Act* (Ontario, 1997).
- *Planning Act* (Ontario, 1990b).
- Provincial Planning Statement (PPS) (MMAH, 2024).
- Greenbelt Plan (Ontario, 2017a).
- Oak Ridges Moraine (ORM) Conservation Plan (Ontario, 2017b).
- Natural Heritage Reference Manual (NHRM) (MNR, 2010).
- Significant Wildlife Habitat Technical Guide (SWHTG) (MNR, 2000).
- Significant Wildlife Habitat Mitigation Support Tool (SWHMiST; MNRF, 2014).
- Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNRF, 2015b).
- *Conservation Authorities Act* (Ontario, 1990a).
- O. Reg. 41/24: Prohibited Activities, Exemptions and Permits (Ontario, 2024).
- Durham Region Official Plan (Durham, 2024).
- Municipality of Clarington Official Plan (Clarington, 2018).
- City of Kawartha Lakes Official Plan (Kawartha Lakes, 2012).
- County of Peterborough Official Plan (Peterborough, 2022).

In addition to potential regulatory constraints identified from the sources above, Hydro One's goal is to achieve the agreement and support, articulated in UNDRIP as "Free Prior and Informed Consent", of Indigenous peoples, per Articles 3, 4 and 32 of the UNDRIP, 2021.

6.1 Wetlands

The PPS requires that municipalities and others responsible for land use planning protect Provincially Significant Wetlands (PSWs). A wetland is determined to be a PSW using evaluation procedures established by the Province, as amended from time to time (MMAH, 2024). Wetlands are assessed based on a range of criteria, including biology, hydrology, societal value, and special features (MNR, 2024f). No new development is permitted in PSWs (MMAH, 2024). Development adjacent to a PSW may be permitted where it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

Based on MNR mapping (MNR, 2024c), numerous wetlands overlap the LSA (Figure 2).

The following six PSWs overlap the LSA, PSA, and/or ROW as described:

- Enfield Wetland Complex – intersects LSA, PSA, and ROW within Route Alternatives A and B
- Pigeon River No. 20 Complex – intersects LSA, PSA, and ROW
- Pigeon River No. 23 Complex – intersects LSA, PSA, and ROW
- Cavan Bog Wetland Complex – intersects LSA, PSA, and ROW
- Jackson Creek Complex – intersects LSA and PSA
- Jackson Creek East Complex – intersects LSA and PSA

In addition to the PSWs, one evaluated, non-provincially significant wetland (Cadmus South Wetland) intersects the LSA only (Figure 2.3).

Where direct impacts to wetlands are anticipated, desktop mapping will be field verified by the engineering, procurement and construction team (EPC) during detailed design to confirm wetland boundaries. Direct impacts may include both temporary (e.g., access) and permanent (e.g., Project components) disturbances.

Wetlands (regardless of provincial designation) are identified as key hydrologic features and key natural heritage features in the Greenbelt Plan (Ontario, 2017a), ORM Conservation Plan (Ontario, 2017b), Durham Region Official Plan (Durham, OP) (2024), City of Clarington Official Plan (Clarington OP) (2018), City of Kawartha Lakes Official Plan (Kawartha Lakes OP) (2012), and County of Peterborough Official Plan (Peterborough OP) (2022). [redacted]

Within the applicable permitting requirements, potential consideration of placement of new infrastructure within wetlands (other than PSWs) is subject to various requirements being met, including those of First Nations. With regards to crown agency permitting process, it requires demonstratable need for and lack of reasonable alternative to the infrastructure, and adequate mitigation of effects demonstrated through an environmental assessment as minimum requirements for consideration (Ontario, 2017a; Ontario, 2017b; Durham, 2024; Clarington, 2018; Kawartha Lake, 2012; Peterborough, 2022). These constraints reflect the ecological and cultural value of wetlands and recognize the pressures of development to these systems historically impacted by European settlement in Ontario. To the extent possible, Hydro One seeks to avoid disturbance to wetlands through design and implement mitigation measures to reduce potential for effects.

6.2 Significant Woodlands

Woodlands are treed areas, woodlots, and forested areas that provide various environmental and economic benefits to landowners and the general public (MMAH, 2024). Woodlands can vary in their level of significance at the local, regional, and provincial levels. Significant woodlands are woodlands that are ecologically, functionally and/or economically important based on one or more features such as species composition, stand age, contribution to the broader landscape, site quality, or past management history (MNR, 2010). The designation of significant woodlands is deferred to local planning authorities. General guidelines for determining significance of a woodland area are also included in the NHRM (MNR, 2010) for Policy 4.1 of the PPS if the local planning authorities have not provided criteria for significance.

Significant woodlands are identified as key natural heritage features in the Greenbelt Plan (Ontario, 2017a), ORM Conservation Plan (Ontario, 2017b), Durham OP (2024), Clarington OP (2018), Kawartha Lakes OP (2012), and Peterborough OP (2022). Within the applicable permitting requirements, potential placement of new infrastructure within significant woodlands is subject to various requirements being met, including those of First Nations. The permitting process requires demonstratable need for and lack of reasonable alternative to the infrastructure, and adequate mitigation of effects demonstrated through an environmental assessment as minimum requirements for consideration (Ontario, 2017a; Ontario, 2017b; Durham, 2024; Clarington, 2018; Kawartha Lake, 2012; Peterborough, 2022). These constraints reflect the ecological and cultural value of woodlands and recognize the pressures of development to these systems historically impacted by European settlement in Ontario. Hydro One seeks to avoid disturbance to woodlands through design and implement mitigation measures to reduce potential for effects.

Significant woodlands have not been mapped in the Greenbelt Plan, ORM Conservation Plan, Durham OP, Clarington OP, Kawartha Lakes OP, or Peterborough OP, but are considered an element of the Regional Natural Heritage System (Map 2a of the Durham OP). Additionally, the Natural Core Areas mapped in the ORM Conservation Plan Land Use Designation Map contain a high concentration of key natural features, including significant woodlands. [redacted]. However, Hydro One precautionarily assumes all woodlands in the study areas are culturally significant given the high likelihood that they support culturally important tree and wildlife species, some of which are common on the local landscape.

Approximately 34.0% / 33.6% (Route Alternative A / B) of the LSA is composed of wooded habitat (forest, swamp, plantation, woodland), and some of this area likely constitutes significant woodlands. Approximately 9.4% / 8.2% (Route Alternative A / B) of the proposed ROW is mapped as wooded habitat. However, much of this estimated area likely results from mapping imprecision of the ROW as the existing ROW that will be used for most of the Project route is subject to regular vegetation maintenance. Wooded habitat does occur in the proposed ROW for Route Alternative A and occasionally as small incursions into the existing ROW. However, impacts to woodlands will largely be avoided given that clearing will be confined to the existing ROW.

6.3 Significant Valleylands

Valleylands are natural areas that occur in a valley or other landform depression in which water flows or stands for part of the year (MMAH, 2024). Significant valleylands are valleylands that are “ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system” (MNR, 2010). The designation of significant valleylands is deferred to local planning authorities. General guidelines for determining significance of a valleyland are also included in the NHRM (MNR, 2010) if the local planning authorities have not provided criteria for significance. Recommended criteria for designating significant valleylands under the PPS include prominence as a distinctive landform, degree of naturalness, importance of its ecological functions, restoration potential, and historical and cultural values.

Significant valleylands are identified as key natural heritage features in the Greenbelt Plan (Ontario, 2017a), ORM Conservation Plan (Ontario 2017b), Durham OP (2024), Clarington OP (2018), Kawartha Lakes OP (2012), and Peterborough OP (2022). New infrastructure may be permitted within significant valleylands given that various requirements are met, including

demonstrable need for, and lack of reasonable alternative to, the infrastructure, and adequate mitigation of impacts demonstrated through an environmental assessment (Ontario, 2017a; Ontario, 2017b; Durham, 2024; Clarington, 2018; Kawartha Lake, 2012; Peterborough, 2022). A permit from the applicable conservation authority may also be required for development within or adjacent to watercourses, wetlands and hazard lands.

The Durham Region OP (2024) uses the significant valleylands designation criteria and standards provided in Table 8.1 of the NHRM (MNR, 2010). The other applicable municipal official plans (Clarington, 2018; Kawartha Lakes, 2012; Peterborough, 2022) do not define significant valleylands and therefore the same NHRM (MNR, 2010) evaluation criteria and standards apply.

Significant valleylands have not been mapped to greater specificity than the Regional Natural Heritage System in the Durham OP (Map 2a, Durham, 2024) and the Natural Core Areas of the ORM Conservation Plan (Land Use Designation Map, Ontario, 2017b). However, it is possible that valleylands associated with some of the larger watercourses in the LSA, including Bowmanville Creek, Fleetwood Creek, Jackson Creek and Pigeon River, are significant based on NHRM criteria (MNR, 2010).

6.4 Areas of Natural and Scientific Interest

Areas of Natural and Scientific Interest (ANSI) are designated by the MNR based on the presence of unique natural landscapes or existing features that meet specific criteria as having life or earth science values related to protection, scientific study or education. ANSI are ranked by the MNR as being either provincially or regionally significant.

There are two regionally significant candidate life science ANSI in the LSA (Figure 2). Enfield Wetlands ANSI is located just north of Clarington TS and intersects with the proposed ROW of both Route Alternative A and Route Alternative B. Cavan Creek Headwaters ANSI is located east of Bethany on the south side of the LSA. This ANSI does not intersect with the proposed ROW.

Within the applicable permitting requirements, potential placement of new infrastructure within ANSIs is subject to various requirements being met, including those of First Nations. The permitting process requires demonstratable need for and lack of reasonable alternative to the infrastructure, and adequate mitigation of effects demonstrated through an environmental assessment as minimum requirements for consideration (Ontario, 2017a; Ontario, 2017b; Durham, 2024; Clarington, 2018; Kawartha Lake, 2012; Peterborough, 2022). These constraints reflect the ecological and cultural value of features classified as ANSI and recognize the pressures of development to these systems historically impacted by European

settlement in Ontario. To the extent possible, Hydro One seeks to avoid disturbance to ANSI through design and implement mitigation measures to reduce potential for effects.

6.5 Environmentally Sensitive Areas

Environmentally Significant Areas are designated areas that are particularly sensitive due to their significant characteristics and which require additional protection to preserve their environmental qualities.

Two Environmentally Sensitive Areas intersect with the LSA and ROW within the eastern portion of the Project route. The Jackson Creek Wetland Environmentally Sensitive Area approximately overlaps the Jackson Creek and Jackson Creek East PSWs. Similarly, the Jackson Creek Headwaters/Cavan Swamp Environmentally Sensitive Area is positioned roughly in line with the Cavan Bog Wetland Complex PSW. As such, a discussion of relevant constraints for these areas is included in Section 6.1.

The applicable municipal official plans (Durham, 2024; Clarington, 2018; Kawartha Lakes, 2012; Peterborough, 2022), Greenbelt Plan (Ontario, 2017a) and ORM Conservation Plan (Ontario, 2017b) do not define Environmentally Significant Areas.

6.6 Conservation Areas

There are three designated conservation areas managed by applicable conservation authorities that each intersect with both the LSA and ROW:

1) Enfield Conservation Area, managed by Central Lake Ontario Conservation Authority, contains a portion of the Enfield Wetland Complex.
2) Durham East Cross Forest Conservation Area is located east of Pigeon River No. 20 PSW and includes a mix of wooded habitat and unevaluated wetlands. It is managed by Kawartha Region Conservation Authority.
3) Cavan Swamp Wildlife Area falls under the jurisdiction of Otonabee Conservation and overlaps with Cavan Bog Wetland Complex PSW.

Development is generally not permitted in areas that are within a conservation authority's jurisdiction, including hazardous lands, wetlands, and river or stream valleys (Ontario, 1990a). Within the applicable permitting requirements, potential placement of new infrastructure within conservation areas is subject to various requirements being met, including those of First Nations. The permitting process requires demonstratable need for and lack of reasonable alternative to the infrastructure, and adequate mitigation of effects demonstrated through an environmental assessment as minimum requirements for consideration (MMAH, 2024; Ontario, 1990a). In this case, a permit from the applicable conservation authority may also be required

for development within or adjacent to watercourses, wetlands and hazard lands. These constraints reflect the ecological and cultural value of features classified as conservation areas and recognize the pressures of development to these systems historically impacted by European settlement in Ontario. To the extent possible, Hydro One seeks to avoid disturbance to conservation areas through design and implement mitigation measures to reduce potential for effects.

The updated role of the conservation authorities in regulating prohibited activities, exemptions and permits within their jurisdiction is still being clarified under the new O. Reg. 41/24 (effective April 1, 2024). Therefore, the relevant constraints to infrastructure construction associated with conservation authority oversight will be revised as necessary moving forward.

6.7 Habitat of Endangered or Threatened Species

General habitat protection is provided by the ESA to all threatened and endangered species. Under the recently amended (June, 2025) ESA, habitat is defined, for animals, as the dwelling place that is occupied for the purposes of breeding, rearing, staging, wintering or hibernating, and the immediate surrounding area. For vascular plants, habitat is defined as the critical root zone of individuals. For all other species, habitat is defined as the area on which individuals directly depend to carry out life processes. Species-specific habitat protection is only afforded to those species for which a habitat regulation has been prepared and passed into law as a regulation of the ESA. A habitat regulation outlines specific habitat features and associated buffers that are protected and also specifies the geographic area(s) of the province where the habitat regulation applies. For some species without a habitat regulation in place, a General Habitat Description (GHD) developed by the Province is available to help define the area of protected habitat for the species. Based on current MECP guidance on the revised definition of habitat under the amended ESA, protection is afforded to GHD Category 1 and Category 2 habitats (i.e., GHD Category 3 habitat is not protected under the amended ESA). However, Hydro One is committed to using the previous SAR habitat definitions for construction planning purposes (e.g. to delineate habitat and determine suitable mitigation measures and offsetting for SAR that may be impacted by the Project) to address First Nations concerns regarding the changes under the amended ESA.

Development and site alteration in habitat of endangered and threatened species is prohibited, except in accordance with provincial requirements under the ESA. Policies in the applicable provincial and municipal plans align with and defer to provincial requirements under the ESA.

Sixteen species designated as endangered or threatened under the ESA have high potential to occur in the LSA (Appendix A). Six of these species – Bank Swallow, Bobolink, Eastern Meadowlark, Blanding's Turtle, Black Ash, and Butternut – were observed during field surveys

(Appendix G) and are discussed further below. A description of habitat preferences and habitat availability within the LSA is provided in Appendix A for the other ten species: Chimney Swift (*Chaetura pelagica*), Eastern Red Bat (*Lasiurus borealis*), Hoary Bat (*Lasiurus cinereus*), Least Bittern (*Ixobrychus exilis*), Red-headed Woodpecker (*Melanerpes erythrocephalus*), Silver-haired Bat (*Lasionycteris noctivagans*), Yellow-breasted Chat (*Icteria virens*), Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Eastern Hog-nosed Snake (*Heterodon platirhinos*). A description of habitat preferences and habitat availability within the LSA for species with moderate or low potential to occur is also provided in Appendix A.

Bank Swallow

Sixteen Bank Swallows were observed during breeding bird surveys at an active nesting colony in the vertical side of a quarry on the east side of Bowmanville Avenue within the PSA (Figure 4.5). This species nests in vertical or near-vertical banks in a variety of features, including lake bluffs, stream and riverbanks, sand and gravel pits, and roadcuts (Garrison and Turner, 2020). Nest sites are typically found near open areas with foraging opportunities such as rivers, lakes, grasslands, agricultural fields, wetlands, and riparian woods (Garrison and Turner, 2020).

Habitat for Bank Swallow is understood from the GHD (MECP, 2022) as follows:

- Category 1 - the Bank Swallow breeding colony, including the congregation of burrows and the substrate around them.
- Category 2 - the area within 50 m in front of the breeding colony bank face to allow Bank Swallows to enter and exit burrows.
- Category 3 - the area of suitable foraging habitat within 500 m of the outer edge of the breeding colony.

Other aggregate quarries/extraction areas within the LSA may provide suitable nesting habitat for Bank Swallow in addition to other anthropogenic features with stockpiles or banks associated with riparian or natural environments. Bank Swallow is also protected by the MBCA, which prohibits the disturbance of migratory birds, their nests, and their eggs.

Bobolink and Eastern Meadowlark

Bobolink (18 individuals; Figures 4.1 to 4.3, 4.6, 4.9 to 4.11, 4.14, 4.15) and Eastern Meadowlark (77 individuals; Figures 4.2 to 4.4, 4.6, 4.8 to 4.12, 4.14 to 4.20) were observed during breeding bird surveys and general wildlife surveys in cultural meadows, hayfields, and pastures in the ROW, PSA and wider LSA. Bobolink breeds in grasslands or graminoid-dominated hayfields with tall vegetation (Gahbauer, 2007a). This species prefers grassland

habitat with a forb component and a moderate litter layer (Gahbauer, 2007a). It has low tolerance for the presence of woody vegetation and is sensitive to frequent mowing within the breeding season (Gahbauer, 2007a). Bobolinks 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 (Gahbauer, 2007a). Bobolink is area-sensitive, with many studies reporting minimum area requirements of 5 to 50 ha to maintain good quality interior grassland habitat to support breeding and reduce edge effects such as predation and brood parasitism (MECP, 2013b). Habitat for Bobolink is understood from the GHD (MECP, 2013b) as follows:

- Category 1 - nest and the area within 10 m of the nest.
- Category 2 - the area between 10 m and 60 m of the nest or centre of approximated defended territory.
- Category 3 - the area of continuous suitable habitat between 60 m and 300 m of the nest or approximated centre of defended territory.

Eastern Meadowlark breeds in pastures, hayfields, meadows, and old fields. This species prefers moderately tall grasslands with abundant litter cover, high grass proportion, and a forb component, on well drained sites or slopes with heterogeneous cover layers (Roseberry and Klimstra, 1970; Hull, 2003). Minimum patch area requirements to support breeding habitat for this species have been reported at 5 ha, however, abundance and productivity are higher in larger patches and in patches surrounded by other open habitats (MECP, 2016). Habitat for Eastern Meadowlark is understood from the GHD (MECP, 2016) as follows:

- Category 1 - nest and the area within 10 m of the nest.
- Category 2 - the area between 10 m and 100 m of the nest or centre of approximated defended territory.
- Category 3 - the area of continuous suitable habitat between 100 m and 300 m of the nest or approximated centre of defended territory.

Agricultural fields (hayfield, pastures) and cultural meadows with these characteristics in the LSA, including the proposed ROW, provide suitable nesting habitat for these species. Both species are also protected by the MBCA, which prohibits the disturbance of migratory birds, their nests, and their eggs.

Blanding's Turtle

One Blanding's Turtle was observed within the PSA basking in a wetland southwest of the Dobbin TS (Figure 4.20). Blanding's Turtle favours aquatic habitats that are comprised of shallow, nutrient-rich standing or slow-moving water with organic substrates and abundant aquatic vegetation (COSEWIC, 2016). Nesting occurs in open upland areas and can occur significant distances from aquatic habitats (COSEWIC, 2016). Suitable nesting substrates include organic soils, sands, gravel, and cobble. Habitat for Blanding's Turtle is understood from the GHD (MECP, 2013a) as follows:

- Category 1 - nest and the area within 30 m, or overwintering sites and the area within 30 m.
- Category 2 - the wetland complex (i.e., all suitable wetlands or waterbodies within 500 m of each other) that extends up to 2 km from an occurrence, and the area within 30 m around those suitable wetlands or waterbodies.
- Category 3 - area between 30 m and 250 m around suitable wetlands/waterbodies identified in Category 2, within 2 km of an occurrence.

In the LSA, wetlands and waterbodies with suitable characteristics (i.e., abundant vegetation, low to no flow, and open water areas of sufficient depth) provide potential overwintering habitat for Blanding's Turtle, while open meadows, fields, forests, savannahs, shorelines, and roadsides provide potential nesting habitat. Nesting typically occurs within 250 m of suitable waterbodies in sun-exposed areas with low vegetation cover and loose substrates (COSEWIC, 2016).

Black Ash

Thirty-one Black Ash trees were observed during field surveys in 10 locations within the LSA (Figures 4.2, 4.7 to 4.9, 4.12, 4.13, 4.15, 4.18 to 4.20). Four of these trees occur within the ROW (Figures 4.8, 4.9, 4.12, 4.13, 4.18, 4.19). Some mapped locations represent groups of trees. This tree species is considered a facultative wetland species that occurs in moist ecosystems such as swamps, wet forests and floodplains, where it typically grows on mucky or peaty soils (Reznicek et al., 2011). Additional Black Ash trees are likely to be found within the LSA as swamps, deciduous forests, and mixed forests are common throughout the LSA. These habitats combined represent 21.4% (Route Alternative A) / 21.0% (Route Alternative B) of the LSA.

Per Ontario Regulation 6/24, habitat protection applies to all healthy Black Ash trees that meet the following criteria:

- Stem height of 1.37 m or greater;

- Diameter measured at a height of 1.37 m that is 8 centimetres (cm) or greater; and
- Located in municipalities or territorial districts listed in Schedule 1 of the Regulation.

A 30 m area around the stem of the tree is also protected.

The PSA is in an applicable municipality; therefore, Black Ash habitat protections apply. Per MECP guidance received regarding the revised definition of habitat under the amended ESA, Ontario Regulation 6/24 for Black Ash continues to apply.

Butternut

Forty-seven Butternut trees were observed in the LSA (Figure 4). Two trees were found in the broader LSA south of the Cavan Bog Wetland Complex PSW (Figure 4.16), while five were located in the PSA either on residential properties or in forest habitat (Figures 4.14, 4.15, 4.16). The remaining 40 Butternut were all observed in a forested parcel of land on the north side of the Clarington TS, including 28 Butternuts within the ROW (Figures 4.1 and 4.15). Butternut is often found along stream banks and in deciduous and mixed forests (Voss and Reznicek, 2012). Additional Butternut trees are likely to be found within the LSA as deciduous forests and mixed forests are common throughout the LSA. These habitats combined represent 13.9% (both Route Alternatives of the LSA. Other than the forest edge at Clarington TS and occasional small incursions, there are no woodlands in the ROW due to regular vegetation maintenance. However, Butternut seedlings commonly grow in open regenerating areas, such as the cultural meadows common throughout the ROW, when mature trees are located in adjacent woodlands.

Butternut receives individual and general habitat protection under the ESA, specifically for healthy, genetically pure trees as determined through a BHA, and their 21 m critical root zone (per current guidance from MECP regarding habitat protection for this species under the amended ESA). BHAs were completed in 2025 for 40 Butternuts observed within the ROW or within 25 m of the ROW at the Clarington TS. The BHAs were completed by a qualified professional to confirm infection with Butternut Canker and determine the tree health category. Of the 40 Butternuts that were assessed, 25 were identified as Category 1 trees, 14 as Category 2 trees and one as a Category 3 tree. Category 1 trees are in advanced stages of disease as a result of Butternut Canker and do not support the protection or recovery of the species in the area. Therefore, Category 1 trees do not receive protections under the ESA. Category 2 trees are retainable trees that are not in advanced stages of disease and could support the protection and recovery of the species in the area. Category 3 trees are retainable trees that could support the protection and recovery of the species in the area and be useful in determining sources of resistance to Butternut Canker. Genetic testing using samples collected during the BHA was conducted for all Category 2 and Category 3 trees to determine

genetic purity. The results of the genetic testing indicate that 12 of the 15 trees are pure Butternuts (11 Category 2 trees and one Category 3 tree) and thus receive protections under the ESA.

6.8 Significant Wildlife Habitat

SWH is one of the more complicated natural heritage features to identify and evaluate. The NHRM includes criteria and guidelines for designating SWH. There are two other documents, the Significant Wildlife Habitat Technical Guide (SWHTG) and the Significant Wildlife Habitat Mitigation Support Tool (SWHMiST) (MNR, 2000 and MNRF, 2014), that can be used to help decide what areas and features should be considered SWH. These documents were used as reference material for this study and were reviewed against the ELC mapping and various wildlife field survey results to determine candidate and confirmed SWH areas within the PSA. SWH should be evaluated in the context of the entire planning authority's jurisdiction, and only the best examples are considered significant.

There are four general categories of SWH: seasonal concentration areas; rare vegetation communities or specialized habitat for wildlife; habitat for species of conservation concern; and animal movement corridors. These general categories each contain one or more specific habitat types. The specific habitats considered in this NER are evaluated based on the criteria outlined in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNRF, 2015).

SWH is identified as a key natural heritage feature in the Greenbelt Plan (Ontario, 2017a), ORM Conservation Plan (Ontario, 2017b), Durham OP (2024), Clarington OP (2018), Kawartha Lakes OP (2012), and Peterborough OP (2022). Within the applicable permitting requirements, potential placement of new infrastructure within significant wildlife habitat is subject to various requirements being met, including those of First Nations. The permitting process requires demonstratable need for and lack of reasonable alternative to the infrastructure, and adequate mitigation of effects demonstrated through an environmental assessment as minimum requirements for consideration (Ontario, 2017a; Ontario, 2017b; Durham, 2024; Clarington, 2018; Kawartha Lake, 2012; Peterborough, 2022). These constraints reflect the ecological and cultural value of wildlife habitat and recognize the pressures of development to these systems historically impacted by European settlement in Ontario. Hydro One seeks to avoid disturbance to wildlife habitat through design and implement mitigation measures to reduce potential for effects.

6.8.1 Seasonal Concentration Areas of Animals

Seasonal concentration areas of animals are considered to be areas where large numbers of a species gather together at one time of the year, or where several species congregate on an

annual basis. The SWH criteria schedules for Ecoregion 6E (MNRF, 2015) identify 16 types of seasonal concentration areas of animals that may be considered SWH:

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

Marsh and swamp habitats throughout the ROW may provide suitable aquatic waterfowl stopover and staging areas, if sufficient open water is available. The wildlife habitat assessment surveys identified one candidate location within the Enfield Wetland Complex on Route Alternative A (Figure 5.2). Additionally, agricultural fields, cultural meadows and thickets that flood during spring melt and run-off may be used as terrestrial waterfowl stopover and staging areas in the ROW on both Route Alternatives A and B. It is precautionarily assumed that the above described habitats within the ROW provide candidate waterfowl stopover and staging areas per the SWH criteria schedules for Ecoregion 6E (MNRF, 2015). [redacted]

Because the LSA is more than 5 km from Lake Ontario and features no major lakes or rivers, criteria for shorebird migratory stopover areas, migratory butterfly stopover areas and landbird migratory stopover areas are not met per the SWH criteria schedules for Ecoregion 6E (MNRF, 2015). However, [redacted]

[redacted] and migratory birds and butterflies may use habitats within the LSA.

One candidate raptor wintering area was identified within the LSA in a woodlot south of the Cavan Bog Wetland Complex PSW (Figures 4.17, 4.18). The LSA may provide additional raptor wintering areas within the matrix of forest and open cultural habitat. Within the ROW, there are candidate raptor wintering areas in the forest edge at Clarington TS and in small forest incursions along the Project route and Route Alternative A. However, there is unlikely to be suitable raptor wintering habitat elsewhere in the ROW due to regular vegetation maintenance. Additionally, raptor wintering habitat is not limited in the LSA and in the region, and open foraging habitat is abundant in the LSA and in the region. There are no suitable features (e.g., abandoned mines, caves, karst) to support bat hibernacula in the LSA or ROW.

There is mature forest throughout the LSA, and many mature forest stands were observed to contain large-diameter cavity trees and snags suitable for bat maternity colonies. Wooded habitat composes 34.0% / 33.6% (Route Alternative A / Route Alternative B) of the LSA. Snags or cavity trees that may provide suitable bat maternity habitat within the LSA were recorded in candidate forest and swamp ecosites at nine locations during field surveys (Figures 5.1 to 5.3, 5.5 to 5.7, 5.9, 5.11). Elsewhere within the ROW, suitable bat maternity habitat may occur in the forest edge at Clarington TS and in small forest incursions along the Project route. Regular vegetation maintenance in the ROW reduces the likelihood of additional bat maternity colonies.

Wetlands with open water areas in the LSA may provide turtle wintering habitat. Four locations within the LSA were recorded as candidate turtle wintering habitat during general wildlife habitat assessment surveys: two within the Jackson Creek PSW (Figure 5.19), one within the Cavan Bog Wetland Complex PSW (Figure 5.18), one within the Pigeon River No. 20 PSW (Figure 5.8). Although 12 Midland Painted Turtles were observed basking in the PSA, in an anthropogenic pond within an agricultural field (Figure 4.6), anthropogenic ponds do not meet criteria for significance per the SWH criteria schedules for Ecoregion 6E (MNRF, 2015). The other most likely sites within the ROW with open water of sufficient depth are two crossings of Jackson Creek – one within the Cavan Bog Wetland Complex PSW and the second between the Jackson Creek PSW and the Jackson Creek East PSW near Dobbins Transmission Station. Other permanent wetlands and watercourse crossings, including Bowman Creek, Pigeon River, Fleetwood Creek, Cavan Creek, may also contain open water of sufficient depth in the ROW to support turtle wintering habitat.

Twenty-five rock piles were observed within the LSA and may function as suitable reptile hibernacula (Figures 5.1, 5.2, 5.5, 5.8, 5.10, 5.11, 5.13, 5.14, and 5.17 to 5.20). Three of the rock piles were located within the ROW.

Two locations within the LSA were recorded as candidate tree/shrub colonially-nesting bird breeding habitat during general wildlife habitat assessment surveys, one within the Enfield Wetland Complex PSW (Figure 5.2) and one within the Jackson Creek Complex PSW (Figure 5.19). Four to five Green Herons, one of the indicator species for this SWH type, were observed at the location in the Jackson Creek Complex PSW. Green Heron was also recorded at three other stations during the breeding bird surveys (at stations BB26, BB28 and BB33). In the Cavan Bog Wetland Complex PSW, a breeding pair of Green Herons was observed in a marsh at the edge of a swamp (at station BB33, Figure 5.15). Additionally, in the Pigeon River No. 23 Complex PSW, a Green Heron was observed with evidence of possible breeding in swamp habitat during a breeding bird survey (at station BB28, Figures 5.12 and 5.13). These observations meet the criteria for candidate SWH given the presence of suitable swamp ecosites. Although Green Heron was observed at station BB26 (Figure 2.5), this location does not meet criteria for SWH because no suitable swamp ecosites are present (it is an anthropogenic pond). Nevertheless, nest sites of herons are protected year-round under the MBCA. Additional tree/shrub colonially-nesting bird breeding habitat may occur in mixed and deciduous swamps throughout the LSA. This SWH type is unlikely to occur within the ROW due to regular vegetation maintenance that would remove suitable nesting trees.

Bank and cliff colonially-nesting bird breeding habitat was not observed during field surveys, However, cultural meadows with sandy hills within the LSA and the ROW may provide suitable bank and cliff colonially-nesting bird breeding habitat in areas not surveyed. Cultural meadow communities are located along both Route Alternatives A and B.

The LSA lacks islands or peninsulas associated with open water or marshy areas that would provide breeding habitat for most ground colonially-nesting bird species. There is potential for areas of low bushes within open farmlands in the LSA and ROW to provide suitable habitat for Brewer's Blackbird (*Euphagus cyanocephalus*), a ground colonially-nesting species. However, there are no recent occurrence records of this species in the LSA.

Two deer yarding areas, mapped by the MNR, are located within the LSA (Figures 2.5, 2.6, 2.8, 2.9 and Figures 5.11, 5.12, and 5.16 to 5.18). One is located across a mosaic landscape of forest and agricultural fields west of Bethany (Figures 2.5 to 2.6 and 5.11 to 5.12). Most of this yarding area is outside the LSA; however, a portion does extend into the LSA and ROW at this site. The second deer yarding area extends across the LSA and ROW just west of Highway 7 (Figures 2.8 to 2.9 and 5.16 to 5.18). This area is associated with the Cavan Bog Wetland Complex (PSW). Field surveys also identified two woodlots that may be suitable for deer winter congregation areas within the PSA, but outside the ROW (Figures 5.15, 5.17, 5.18). MNR has the responsibility of confirming significance of potential deer winter congregation areas based on their data and/or studies. As such, they are identified as

candidate SWH at this time. In addition to the MNR mapped features and field observations, there are numerous forested areas elsewhere within the LSA suitable for supporting deer winter congregation areas. Although there is minimal forest habitat in the ROW due to regular vegetation maintenance, wooded habitat does occur in the proposed ROW near Clarington TS, within Route Alternative A, and occasionally elsewhere as small incursions.

6.8.2 Rare Vegetation Communities

Rare vegetation communities are vegetation communities that are considered rare in the province. It is assumed that these vegetation communities are at risk of disappearing from the landscape due to their current rarity and that they are more likely than other more common vegetation communities to support rare species and other features that are considered significant. The SWH criteria schedules for Ecoregion 6E (MNRF, 2015) identify seven rare vegetation communities that may be considered SWH:

- Cliffs and talus slopes.
- Sand barren.
- Alvar.
- Old growth forest.
- Savannah.
- Tallgrass prairie.
- Other rare vegetation communities (communities assigned a provincial conservation rank of S1 to S3).

There are no cliffs, talus slopes, sand barrens, alvar, or tallgrass prairie in the LSA according to ELC mapping completed for the Project (combination of desktop and field verification) and available provincial records.

[redacted] No prairie communities were identified in the LSA; however, savannah communities account for 25.6 ha / 24.5 ha (Route Alternative A / Route Alternative B) within the LSA and 3.8 ha (Route Alternative A / Route Alternative B) within the ROW. Within the LSA, 16 areas of savannah communities were originally identified during desktop review. In 2024 and 2025, 11 of these areas were ground-truthed, and six areas were confirmed as savannah communities: two Cultural Savannah (CUS), one Mineral Cultural Savannah (CUS1), one Mixed Savannah (SVM), and two Coniferous Savannahs (SVC). An additional Coniferous Savannah (SVC) community, that was not previously identified during desktop review, was identified during field surveys in 2025. The remaining five savannah

communities identified through desktop were not ground-truthed because they occur beyond the ROW and would not be impacted by the Project. To qualify as SWH, savannah communities must be sites that are restored or natural. Natural savannahs are extremely rare habitats in Ontario. It is likely that most of the cultural savannah cover in the LSA is a result of regeneration from previous disturbances (e.g., old pastures). Further, none of the field verified savannah communities in the LSA meet criteria for significance (per the SWH criteria schedules for Ecoregion 6E; MNRF, 2015) as they do not meet ecosite criteria (i.e., CUS2, TPS1, TPS2, TPW1, TPW2). However, non-field verified cultural savannah sites will continue to be considered candidate SWH until further investigations are conducted, if required during detailed design, to verify if the appropriate criteria are met. [redacted]

It is unlikely that the forests throughout the LSA and ROW are in the old growth forest stage due to historical logging practices in the region. The forested areas within the ROW at Clarington TS and within Route Alternative A were classified as intermediate-aged forests during field surveys. Additional forest incursions into the ROW, which are minimal due to regular vegetation maintenance, are also likely to be intermediate or young forests.

There are no other rare vegetation communities (ranked S1 to S3 provincially) mapped in the LSA.

6.8.3 Specialized Habitat for Wildlife

Specialized habitat for wildlife is habitat or microhabitat that provides a critical resource for a group of wildlife. The SWH criteria schedules for Ecoregion 6E (MNRF, 2015) identify eight specialized habitats that may be considered SWH:

- Waterfowl nesting areas.
- Bald Eagle and Osprey nesting, foraging and perching habitat.
- Woodland raptor nesting habitat.
- Turtle nesting areas.
- Seeps and springs.
- Amphibian breeding habitat (woodlands).
- Amphibian breeding habitat (wetlands).
- Woodland area-sensitive bird breeding habitat.

Four potential waterfowl nesting areas were identified in the LSA during field surveys (of these, two are within the ROW). Two are within the Enfield Wetland Complex PSW (Figure 5.2), one is in the Pigeon River No. 20 PSW (Figures 5.7 and 5.8) and one is located at the anthropogenic pond southwest of Bethany (Figure 5.11). Other waterfowl nesting areas may be located in wetlands elsewhere within the LSA, including those that overlap with the ROW.

There is no Bald Eagle and Osprey nesting, foraging, and perching habitat in the LSA that meets criteria for significance (per the SWH Criteria Schedules for Ecoregion 6E; MNRF, 2015) due to the absence of suitable waterbodies adjacent to treed habitat. Presence of suitable waterbodies is the primary criterion in the evaluation of this SWH type as suitability of habitat for nesting is dependent on proximity to a suitable waterbody (according to the SWHMiST, within 120 m; MNRF, 2014). The SWHMiST states Osprey nests are almost always associated with large lakes and marshes and usually built in large trees near the shore or over the water. Large lakes, rivers and marshes containing fish are required for foraging. The SWHMiST states Bald Eagle nests are almost always associated with lakes (generally with >5 km of shoreline) and rivers. Waterbodies that support abundant fish are required and the species prefers large, shallow lakes for foraging. Large waterbodies with these characteristics are not present in the LSA. Suitable waterbodies appear to be present within 0.5 km to 2 km of the LSA; therefore, nesting and perching habitat may be present within the LSA. These nesting and perching habitats would not meet criteria for significance as defined in the SWH Criteria Schedules for Ecoregion 6E or the SWHMiST where they are not within 120 m of a suitable waterbody. Although an active Osprey nest was identified on a transmission tower in the existing ROW (Figure 5.12), anthropogenic structures do not quality as SWH for Bald Eagles and Ospreys per the SWH Criteria Schedules for Ecoregion 6E. Nevertheless, raptor nests are protected under the provincial *Fish and Wildlife Conservation Act, 1997*.

Wooded areas, including forests, swamps, and plantations, in the LSA may qualify as woodland raptor nesting habitat. No woodland raptor nests were observed during field surveys; however, one of the indicator species, Broad-winged Hawk (*Buteo platypterus*), was observed at breeding bird survey station BB14 (Figures 2.2, 2.3). Candidate woodland raptor nesting habitat occurs in proximity to this station, largely outside the ROW. Retained patches of wooded habitat types totalling approximately 20.0 ha / 17.2 ha (Route Alternative A / Route Alternative B) in the ROW may provide woodland raptor nesting habitat, but most are unlikely to be of sufficient maturity to be suitable. Additionally, woodland nesting habitat is not limited in the LSA and in the region.

Open woodland, meadow, field and savannah ecosites in close proximity (<100 m) to wetlands and waterbodies and with suitable substrates (i.e., organic soils, sand and/or gravel) provide candidate SWH for turtle nesting. Sand and gravel road shoulders in proximity to wetlands and

waterbodies may also provide turtle nesting opportunities; however, in most scenarios, road shoulders are turtle population sinks given that they pose a high mortality risk to nesting adults, nests and hatchlings. Snapping Turtle nesting was confirmed along Concession Road 9 adjacent to the Enfield Wetland Complex PSW (Figure 4.2); however, road embankments and shoulders do not qualify as SWH (per the SWH Criteria Schedules for Ecoregion 6E; MNRF 2015).

One candidate seep and spring location was observed in the PSA during field surveys in a coniferous swamp west of the Cavan Bog Wetland Complex PSW (Figure 5.15).

Fourteen candidate amphibian breeding habitat locations were identified in the LSA during general wildlife habitat assessment surveys (Figure 5). Woodland amphibian breeding habitat includes wetlands, ponds or pools greater than 500 m^2 in size that occur within or up to 120 m from suitable forest types. Candidate woodland amphibian breeding habitat occurs throughout the LSA in areas where suitable woodlands abut wetlands. During the amphibian acoustic surveys, four species indicative of woodland amphibian breeding habitat (per the SWH Criteria Schedules for Ecoregion 6E; MNRF, 2015) were detected: Gray Treefrog, Spring Peeper, Western Chorus Frog, and Wood Frog. Based on the survey results, woodland amphibian breeding habitat has been confirmed at six locations: two within the ROW (at stations AC06and AC27; Figures 5.3, 5.4, 5.11), four locations within the PSA (at stations AC02, AC10, AC11 and AC28; Figures 5.2, 5.6, 5.8 and 5.9. One additional location has been identified as candidate woodland amphibian breeding habitat based on the survey results (at station AC17; Figure 5.14) where three indicator species were heard calling at Level 3 but the aquatic feature was not visible to confirm if the size criterion for significance was met.

Wetland amphibian breeding habitat includes open wetlands greater than 500 m^2 in size that are typically isolated from woodland ecosites. Candidate wetland amphibian breeding habitat occurs throughout the LSA in marsh habitats. During the amphibian acoustic surveys, four species indicative of wetland amphibian breeding habitat (per the SWH Criteria Schedules for Ecoregion 6E; MNRF, 2015) were detected during the amphibian acoustic surveys: American Toad, Gray Treefrog, Green Frog, and Western Chorus Frog (Appendix G). Based on the survey results, wetland amphibian breeding habitat has been confirmed at one location within the ROW (at station AC19; Figure 5.15).

Eight species indicative of woodland area-sensitive bird breeding habitat (per the SWH Criteria Schedules for Ecoregion 6E; MNRF, 2015) were observed in the LSA during breeding bird surveys: Black-throated Green Warbler (*Setophaga virens*), Blue-headed Vireo (*Vireo solitarius*), Ovenbird (*Seiurus aurocapilla*), Red-breasted Nuthatch (*Sitta canadensis*), Scarlet Tanager (*Piranga olivacea*), Veery (*Catharus fuscescens*), Winter Wren (*Troglodytes troglodytes*), and Yellow-bellied Sapsucker (*Sphyrapicus varius*) (Appendix G). Large, mature

forests may provide suitable woodland area-sensitive bird breeding habitat for these species and others at various sites throughout the LSA. Although forested areas within the ROW are minimal, some forest incursions into the ROW may be contiguous with large forest stands and therefore qualify as candidate woodland area-sensitive bird breeding habitat (>30 ha stand size) (MNRF, 2015). However, most of these incursions are in early to mid-successional stage and are unsuitable as habitat for these species. The forest/swamp incursion into the ROW in alternative Route Alternative A is contiguous with an approximately 100 ha forested area (Figure 5.2). Although desktop mapping indicates this forest/swamp incursion also overlaps Route Alternative B, the field-verified ELC mapping determined this area was characterized by agricultural field. The forest edge observed during field surveys was of intermediate age but there may be contiguous areas of mature forest beyond what was surveyed. This forest/swamp inclusion is therefore a candidate site for woodland area-sensitive bird breeding habitat. The forested area at Clarington TS that intersects the ROW does not meet criteria for significance as woodland area-sensitive bird breeding habitat (per the SWH Criteria Schedules for Ecoregion 6E; MNRF 2015) due to its small contiguous forest size (approximately 3 ha).

6.8.4 Habitat for Species of Conservation Concern

The SWH criteria schedules for Ecoregion 6E (MNRF, 2015) identify five habitats of species of conservation concern that may be considered SWH:

- Marsh bird breeding habitat.
- Open country bird breeding habitat.
- Shrub/early successional bird breeding habitat.
- Terrestrial crayfish habitat.
- Habitat of special concern and rare wildlife species.

Confirmed marsh bird breeding habitat is present within the ROW in two locations. In the Cavan Bog Wetland Complex PSW, a breeding pair of Green Herons was observed in a marsh during a breeding bird survey (at station BB33, Figure 5.15). Additionally, in the Pigeon River No. 23 Complex PSW, a Green Heron was observed with evidence of possible breeding in swamp habitat during a breeding bird survey (at station BB28, Figure 5.12 and 5.13). These observations meet the criteria for confirmed SWH given that at least one breeding Green Heron was observed in a suitable ecosite, a list which includes swamp, marsh, and mineral cultural meadow habitats. Four additional candidate marsh bird breeding habitat locations within the ROW and LSA were recorded during the general wildlife habitat assessment surveys: three within the Enfield Wetland Complex PSW (one in the ROW and two in the PSA; Figures 5.1 and 5.2) and one where the Pigeon River crosses the ROW in the Pigeon River No. 20 Complex PSW (Figure 5.8). Green Heron was also observed at an anthropogenic pond

in the ROW southwest of Bethany (at station BB26, Figure 2.5); however, this location does not meet the criteria for SWH because suitable ecosites are not present. Nevertheless, nest sites of herons are protected year-round under the MBCA. No other species indicative of marsh bird breeding habitat (per the SWH Criteria Schedules for Ecoregion 6E; MNRF 2015) were observed during breeding bird surveys or incidentally. There are other areas of meadow marsh and shallow marsh habitat in the ROW and LSA that qualify as candidate SWH as they may provide marsh bird breeding habitat. Marsh birds are protected by the MBCA, which prohibits the disturbance of migratory birds, their nests, and their eggs.

There are numerous hayfields, pastures, and graminoid-dominated cultural meadows throughout the ROW and LSA, which qualify as candidate SWH for open country bird breeding habitat. Open country bird breeding habitat includes large grasslands greater than 30 in size, excluding agricultural lands being actively used for farming (i.e., no row cropping or intensive hay or livestock pasturing in the last five years). Thirteen locations were marked as potential open country bird breeding habitat during general wildlife habitat assessment surveys (Figures 5.10 to 5.12, 5.15, and 5.17 to 5.19) though many others are likely to occur. Open anthropogenic land cover types (which include agricultural fields and cultural meadow) account for 47.1% (Route Alternative A) and 47.3% (Route Alternative B) of the LSA. Four species indicative of open country bird breeding habitat (per the SWH Criteria Schedules for Ecoregion 6E; MNRF 2015) were observed during breeding bird surveys: Grasshopper Sparrow, Savannah Sparrow (*Passerculus sandwichensis*), Vesper Sparrow (*Pooecetes gramineus*), and Northern Harrier (*Circus hudsonius*) (Appendix E). Based on the survey results, open country bird breeding habitat has been confirmed at one location within the PSA (at station BB36; Figure 5.17), where Savannah Sparrow and Vesper Sparrow were recorded with possible breeding evidence in pasture lands approximately 30 ha in size that did not appear to be intensively used (based on presence of tall grasses and no evidence of livestock). Most open country birds are protected by the MBCA, which prohibits the disturbance of migratory birds, their nests, and their eggs. Raptors are not protected by the MBCA but are protected by the provincial *Fish and Wildlife Conservation Act, 1997* (Ontario, 1997), which similarly prohibits the disturbance of nests and eggs of prescribed species.

There are cultural thicket, cultural savannah, and woodland habitats in the LSA and ROW, which qualify as candidate SWH as they may provide shrub/early successional bird breeding habitat. These habitat types include large fields succeeding to shrub and thicket habitats greater than 10 ha in size, excluding agricultural lands being actively used for farming (i.e., no row cropping or intensive hay or livestock pasturing in the last five years). Candidate SWH is present in both Route Alternatives A and B. Six species associated with shrub/early successional bird breeding habitat (per the SWH Criteria Schedules for Ecoregion 6E; MNRF, 2015) were observed during breeding bird surveys. Two of these are indicator species: Brown

Thrasher (*Toxostoma rufum*) and Clay-colored Sparrow (*Spizella pallida*) (Appendix E). Three of these are common species: Eastern Towhee (*Pipilo erythrophthalmus*), Field Sparrow (*Spizella pusilla*), and Willow Flycatcher (*Empidonax traillii*) (Appendix E). One is a special concern species under the ESA, Golden-winged Warbler (Appendix A, Appendix E). Based on the survey results, shrub/early successional bird breeding habitat has been confirmed at four locations within the ROW and PSA (at stations BB24, BB31, BB32, and RBB23; Figures 5.10, 5.11, 5.13, 5.14), where breeding evidence was recorded for Golden-winged Warbler or at least one indicator species and two common species, in areas adjacent to suitable ecosites approximately 10 ha or greater in size. Shrub/early successional birds are protected by the MBCA, which prohibits the disturbance of migratory birds, their nests, and their eggs.

Neither terrestrial crayfish nor their chimneys were observed during field surveys, but they may be present in the LSA in suitable swamp, marsh, and cultural meadow habitats.

For the purpose of evaluating SWH, special concern and rare wildlife species include species listed as special concern under the ESA species listed under SARA or by COSEWIC as threatened or endangered, and species that are rare, whose populations are significantly declining, or have a high percentage of their global population in Ontario (i.e., ranked S1-S3 by NHIC). This category excludes species listed as endangered or threatened under the ESA (see Section 6.7).

Fourteen special concern species have high potential to occur in the LSA (Appendix A) and are discussed below. Nine of these species were observed during field surveys.

Nine adult Monarch butterflies and one caterpillar were observed foraging in the PSA during field surveys, including seven locations within the ROW (Figures 4.2 to 4.4, 4.7, 4.8, 4.19, 4.20). This butterfly requires Milkweed (*Asclepius* 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 (COSEWIC, 2010). These habitats are also suitable for American Bumble Bee (*Bombus pensylvanicus*). American Bumble Bee builds nests in tufts of grass, old bird nests, rock piles, and other features found in open grassland habitats (Hatfield et al., 2015). American Bumble Bee was not observed during field surveys but there are recent occurrence records of the species from the vicinity of the LSA. Cultural meadows, meadow marshes, forest edges, and other open habitats in the ROW and LSA for both Route Alternative A and B provide suitable foraging and breeding habitat for Monarch and American Bumble Bee. Furthermore, Milkweed was identified during the botanical inventory (Appendix D). However, habitat for these species is well-represented throughout the broader region and not limited in the LSA.

Forty-five Eastern Wood-pewees were observed in forest habitat at multiple locations in the LSA during breeding bird surveys and general wildlife surveys (Figures 4.1, 4.3 to 4.20, Appendix E, Appendix G). Eastern Wood-pewee inhabits a wide variety of wooded upland and lowland habitats, including deciduous, coniferous, and mixed forests (McCarty 1996). 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.

Wood Thrush (*Hylocichla mustelina*) 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 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, 2012b). There are recent occurrence records for this species from the vicinity of the LSA. Wood Thrush is identified as a confirmed breeder in OBBA squares overlapping the LSA (Cadman et al., 2007). Further, 13 Wood Thrushes were confirmed at seven locations in the PSA and LSA during breeding bird surveys and general wildlife surveys (Figures 4.6, 4.8, 4.11, 4.14, 4.15, 4.16, 4.18).

One additional woodland bird species that has a high potential to occur in the LSA, though not observed during field surveys, is Canada Warbler (*Cardellina canadensis*). 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 as well as riparian thickets (McLaren, 2007). There are recent occurrence records for this species from the vicinity of the LSA. Canada Warbler is identified as a possible breeder in OBBA squares overlapping the LSA (Cadman et al., 2007).

Various forest types in the LSA provide suitable habitat for Eastern Wood-pewee, Canada Warbler, and Wood Thrush. Although there is minimal forest habitat in the ROW due to regular vegetation maintenance, wooded habitat does occur in the proposed ROW near Clarington TS, within Route Alternative A, and occasionally elsewhere in the ROW as small incursions. All three species are protected by the MBCA, which prohibits the disturbance of migratory birds, their nests and their eggs.

Three Grasshopper Sparrows were observed in cultural meadow and open agricultural habitats at three locations during breeding bird surveys and general wildlife surveys (Figures 4.4, 4.11, 4.13, Appendix E, Appendix G). Grasshopper Sparrow is found in medium to large grasslands with low herbaceous cover and few shrubs (Vickery, 1996). It also uses a wide variety of agricultural fields, including cereal crops and pastures. Hayfields and cultural meadows in the ROW and LSA provide suitable breeding habitat for this species. These two

habitat types occur in both Route Alternatives A and B. This species is protected by the MBCA, which prohibits the disturbance of migratory birds, their nests and their eggs.

Two Golden-winged Warblers were observed in cultural thicket habitat during breeding bird surveys and general wildlife surveys (at stations BB32 and ELC17, Figures 4.9 and 4.14, Appendix E, Appendix G). Golden-winged Warbler breeds in regenerating scrub habitat with dense ground cover and a patchwork of shrubs, usually surrounded by forest. Its preferred habitat is characteristic of a successional landscape associated with natural or anthropogenic disturbance such as ROW, and field edges or openings resulting from logging or burning (Confer et al., 2011). These habitat types occur in both Route Alternative A and B. There are also recent occurrence records of the species in the vicinity of the LSA, and the species is identified as a confirmed breeder in OBBA squares overlapping the LSA (Cadman et al., 2007). This species is protected by the MBCA, which prohibits the disturbance of migratory birds, their nests and their eggs.

Common Nighthawk (*Chordeiles minor*) is an aerial insectivorous bird that may use agricultural and other open habitats in the ROW and LSA as nesting and foraging habitat. These habitat types occur in both Route Alternatives A and B. This species requires areas with large open habitat, such as farmland, open woodlands, clearcuts, burns, rock outcrops, alvars, bog ferns, prairies, gravel pits, and gravel rooftops in cities (Sandilands, 2007). There are recent occurrence records of Common Nighthawk from the vicinity of the LSA and the species is identified as a probable breeder in OBBA squares overlapping the LSA (Cadman et al., 2007). This species is protected by the MBCA, which prohibits the disturbance of migratory birds, their nests and their eggs.

Two Eastern Whip-poor-wills were recorded incidentally in the LSA during amphibian acoustic surveys at stations AC09 and AC26 (Figures 4.6 and 4.8). Eastern Whip-poor-will is an aerial insectivorous bird that may use open treed habitats in the ROW and LSA for nesting and foraging. Eastern Whip-poor-will typically breeds in dry deciduous or mixed forest with little ground cover. Dense expanses of forest are avoided in favour of forests with patches of open habitat or forests adjacent to open habitat (Cink et al., 2020). Nesting can occur in most types of early-successional forest, as well as rock or sand barrens with scattered trees, savannahs, old burns, abandoned gravel pits, other disturbed sites in a state of early to mid-forest succession, and open conifer plantations (COSEWIC, 2022). Within the LSA, suitable habitat for this species is present in open forest, plantation and savannah communities. These habitat types occur in both Route Alternatives A and B. There are recent occurrence records of Eastern Whip-poor-will from the vicinity of the LSA and the species is identified as a probable breeder in OBBA squares overlapping the LSA (Cadman et al., 2007). This species is

protected by the MBCA, which prohibits the disturbance of migratory birds, their nests and their eggs.

Barn Swallows were observed in open habitats throughout the LSA, including entering and exiting a barn at the northwest corner of Hooton Drive and Howden Quarter Line (Figure 4.17). The species nests in anthropogenic structures including barns, buildings, sheds, bridges and culverts. Preferred foraging habitat includes grassy fields, pastures, agricultural cropland, cleared ROW, and wetlands (COSEWIC, 2011a). This species is protected by the MBCA, which prohibits the disturbance of migratory birds, their nests and their eggs. The foraging habitat for this species is well-represented throughout the broader region and not limited in the LSA.

Eastern Milksnake (*Lampropeltis triangulum*) uses a wide range of habitat including prairies, pastures, hayfields, wetlands, and various forest types. Proximity to water and cover enhances habitat suitability. Hibernation takes place in mammal burrows, hollow logs, gravel or soil banks, and old foundations (COSEWIC 2014). There are recent occurrence records of Eastern Milksnake within the vicinity of the LSA (ORAA 2023). Many habitat types throughout the LSA, including pastures, cultural meadows, savannahs, open woodlands and other open habitats in the ROW, may provide suitable habitat for Eastern Milksnake. Outside of reptile hibernacula, which are discussed in Section 6.8.1, general habitat availability for Eastern Milksnake is abundant in the LSA.

Three Snapping Turtles were found dead-on-road in the LSA. One was observed on Highway 35 approximately 500 m east of the nearest swamp habitat (Figure 4.10). The second was observed on Highway 7A next to a thicket swamp within the Pigeon River No. 23 Complex PSW (Figure 4.12). The third was found on the access road adjacent to a wetland east of Union School Road (Figure 4.4). Additionally, a Snapping Turtle was observed in a watercourse at crossing AWS-3003, east of Cartwright East Quarter Line (Figure 4.6) and a predated Snapping Turtle nest was found adjacent to swamp habitat north of Concession Road 9 (Figure 4.2). Snapping Turtles use almost every type of freshwater habitat but show preference for wetlands/waterbodies with shallow, slow-moving water, soft substrates and dense aquatic vegetation. Nesting sites occur within 500 m of aquatic habitat in open sun-exposed areas with organic soils, sand or gravel (COSEWIC, 2008b). Similarly, Midland Painted Turtle uses wetlands/waterbodies with shallow, slow-moving water, organic substrates and abundant basking sites and vegetation (COSEWIC, 2018). There are recent occurrence records of Midland Painted Turtle within the vicinity of the LSA (ORAA, 2023) and this species was confirmed in the PSA and ROW at three locations: at WC-1034.01 and WC-1066.01 (Figures 4.8 and 4.18) via eDNA analysis and at ELC46 where 12 individuals were observed basking in an anthropogenic pond (Figure 4.6). Wetlands and waterbodies throughout the

LSA, including those that cross the ROW, may provide suitable habitat for Snapping Turtle and Midland Painted Turtle. Wetland habitats and waterbodies occur in both Route Alternatives A and B.

A full chorus of Western Chorus Frog (Great Lakes/St. Lawrence – Canadian Shield population) was recorded within the PSA during amphibian acoustic surveys (heard calling greater than 300 m beyond station AC18, Figure 4.15)[5]. Western Chorus Frog breeds in temporary or shallow permanent wetlands including ponds, basins, marshes, swamps and drainage ditches. It is 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, 2014b). There are recent occurrence records in the vicinity of the LSA (ORAA, 2023). Wetlands throughout the LSA, including those that cross the ROW, may provide suitable habitat for Western Chorus Frogs. Wetland habitats occur in both Route Alternatives A and B.

6.8.5 Animal Movement Corridors

The SWHTG (MNR, 2000) defines animal movement corridors as elongated, naturally vegetated parts of the landscape used by animals to move from one habitat to another. This is generally in response to different seasonal habitat requirements. Examples include trails used by deer to move to wintering areas or areas used by amphibians between breeding and summer or overwintering habitat. To qualify as SWH, these corridors should be a critical link between habitats that are regularly used by wildlife.

The SWH criteria schedule for Ecoregions 6E (MNRF, 2015) identifies two types of animal movement corridors that may be considered SWH:

- Amphibian movement corridors.
- Deer movement corridors.

Woodlands, wetlands and watercourses that cross the LSA may serve as animal movement corridors that link various green spaces and provide important sources of food, cover, and water in a largely rural and urban landscape. The ROW may also be used as an animal movement corridor.

[5] As discussed in Section 5.1.4. additional calls identified to this species during field surveys at stations AC07, AC08, AC14, AC15, AC17, AC28 have since been determined to likely represent alternate call of Spring Peepers.

6.9 Aquatic and Fish Habitat

A total of 71 water crossings were identified along the centreline of the PSA. Through the combination of desktop, windshield and field results it was determined that of the 71 crossings 5 were classified as waterbodies, 28 as unmapped / undefined water features, and 38 as watercourses. Of these features 40 have been determined to be permanent, 2 as intermittent, and 29 as non permanent or unknown (MNR, 2024d). Named watercourses which directly cross the centreline include: Bowmanville Creek, Pigeon River, Fleetwood Creek, and Jackson Creek. Thermal regimes are identified through ARA data (MNR, 2024a) and identify 34 crossings as cold water, 7 crossings as warm water, and 30 crossings as unknown thermal regimes. The potential for cold water system rehabilitation was identified at 28 of the 34 cold water crossings, indicating locations where improvements to habitat, species stocking, barrier and impediment removal could be corrected as part of future rehabilitation programs and offsetting projects if required.

The majority of water crossings were identified to be watercourses that provide direct or indirect fish habitat, which was supported by the in-field data, which indicated that all previously identified watercourses held permanent or seasonal water flow and provided direct fish habitat.

The in-field fish and fish habitat surveys indicated that most unmapped water features or areas of no defined channel, present along the centreline crossing do not provide direct fish habitat. However, they may provide flow, nutrients, and indirect habitat to the downstream fish populations. Many of the crossing locations were dry upon investigation, with some sites having no indication of water presence even seasonally.

Of the 71 identified crossings in the PSA, 46 of these crossings (65%) have historical, eDNA, or visually confirmed fisheries communities. The general fisheries community within the PSA consisted of a diverse variety of species which can be reviewed in Appendix B, Table 3. Species range from sport fish, bait fish, and benthic species, in a warm to cold water thermal regimes. Where fish habitat is present throughout the PSA small-bodied fish were the most commonly occurring including species such as *Leuciscdae sp*. (minnows), and *Cyprinidae sp*. Followed by members of the *Catostomidae* family (i.e., Suckers).

Thirty-six (36) of the crossings in the PSA are known to be inhabited by salmonids (i.e., brook trout [*Salvelinus fontinalis*], brown trout [*Salmo trutta*], and rainbow trout [*Oncorhynchus mykiss*], etc.). Salmonids were identified at 33 out of 34 cold water crossings, and 3 warm or unknown thermal regime crossings (MNR 2024a). Lampreys were identified to inhabit 5 water features (i.e., American brook lamprey [*Lethenteron appendix*] and the invasive sea lamprey

[*Petromyzon marinus*]). No fish sanctuaries, mapped spawning areas, migration routes, or stocking areas were identified.

Based on the presence of fish and fish habitat within the PSA and centreline, applicable restricted activity in-water work timing windows and regulatory permitting will be required for any near and in water works. Appropriate buffer distances should be applied to all waterbodies and watercourses, which have potential to interact with the project footprint. [redacted]

7 Summary

Based on desktop assessment and field investigation, the following potential natural heritage constraints have been identified within the ROW and PSA for the Project:

- Wetlands, including PSWs.
- Significant Woodlands.
- ANSIs.
- Environmentally Sensitive Areas.
- Habitat of Endangered or Threatened Species – Bank Swallow, Bobolink, Chimney Swift, Eastern Meadowlark, Least Bittern, Red-headed Woodpecker, Yellow-breasted Chat, Eastern Red Bat, Hoary Bat, Little Brown Myotis, Northern Myotis, Blanding's Turtle, Eastern Hog-nosed Snake, Black Ash, and Butternut.
- Rare Vegetation Communities – Savannah.
- Seasonal Concentration Areas of Animals – Waterfowl Stopover and Staging Areas (Terrestrial and Aquatic), Raptor Wintering Areas, Bat Maternity Colonies, Turtle Wintering Areas, Reptile Hibernacula, Colonially-Nesting Bird Breeding Habitat (Tree/Shrubs, Bank/Cliff), Deer Yarding Areas, and Deer Winter Congregation Areas.
- Specialized Habitat for Wildlife – Waterfowl Nesting Areas, Woodland Raptor Nesting Habitat, Turtle Nesting Areas, Seeps and Springs, Amphibian Breeding Habitat (Woodlands), Amphibian Breeding Habitat (Wetlands), and Woodland Area-Sensitive Bird Breeding Habitat.
- Habitat for Species of Conservation Concern – Marsh Bird Breeding Habitat, Open Country Bird Breeding Habitat, Shrub/early Successional Bird Breeding Habitat, Terrestrial Crayfish Habitat, Western Chorus Frog, Barn Swallow, Canada Warbler, Common Nighthawk, Eastern Whip-poor-will, Eastern Wood-pewee, Golden-winged Warbler, Grasshopper Sparrow, Wood Thrush, American Bumble Bee, Monarch, Midland Painted Turtle, Eastern Milksnake, and Snapping Turtle.
- Animal Movement Corridors.
- Fish and Fish Habitat.

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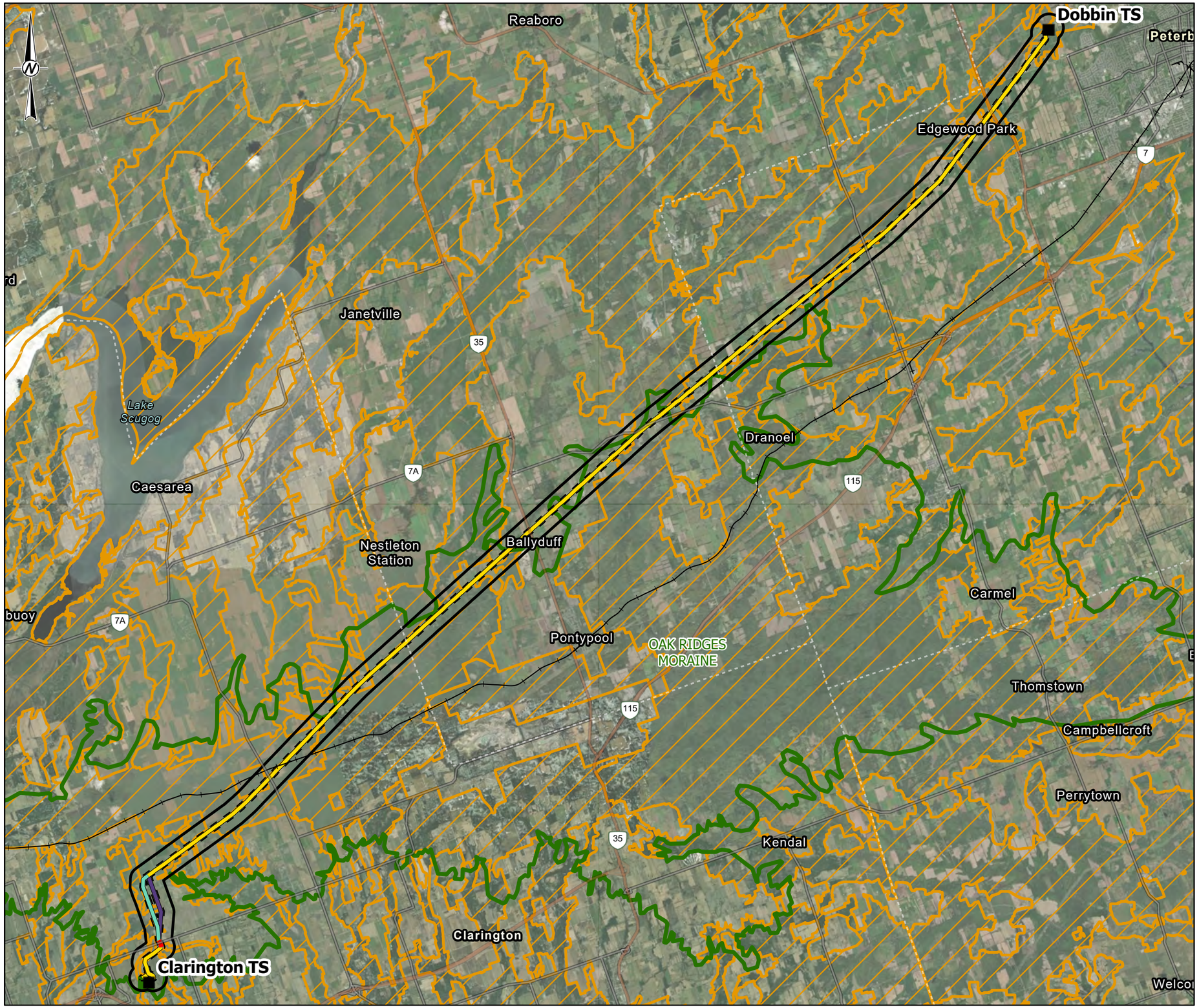
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Figures



KEY MAP



SCALE 1:1,500,000

LEGEND

- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)
- NATURAL HERITAGE SYSTEM AREA (MNR)
- OAK RIDGES MORAINE BOUNDARY

0 1,250 2,500 5,000

1:150,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, NGA, EPA, NPS, AAFC, NRCAN
   WORLD IMAGERY: EARTHSTAR GEOGRAPHICS
   HYBRID REFERENCE LAYER: SOURCES: ESRI, TOMTOM, GARMIN, FAO, NOAA, USGS, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
PROJECT OVERVIEW

CONSULTANT

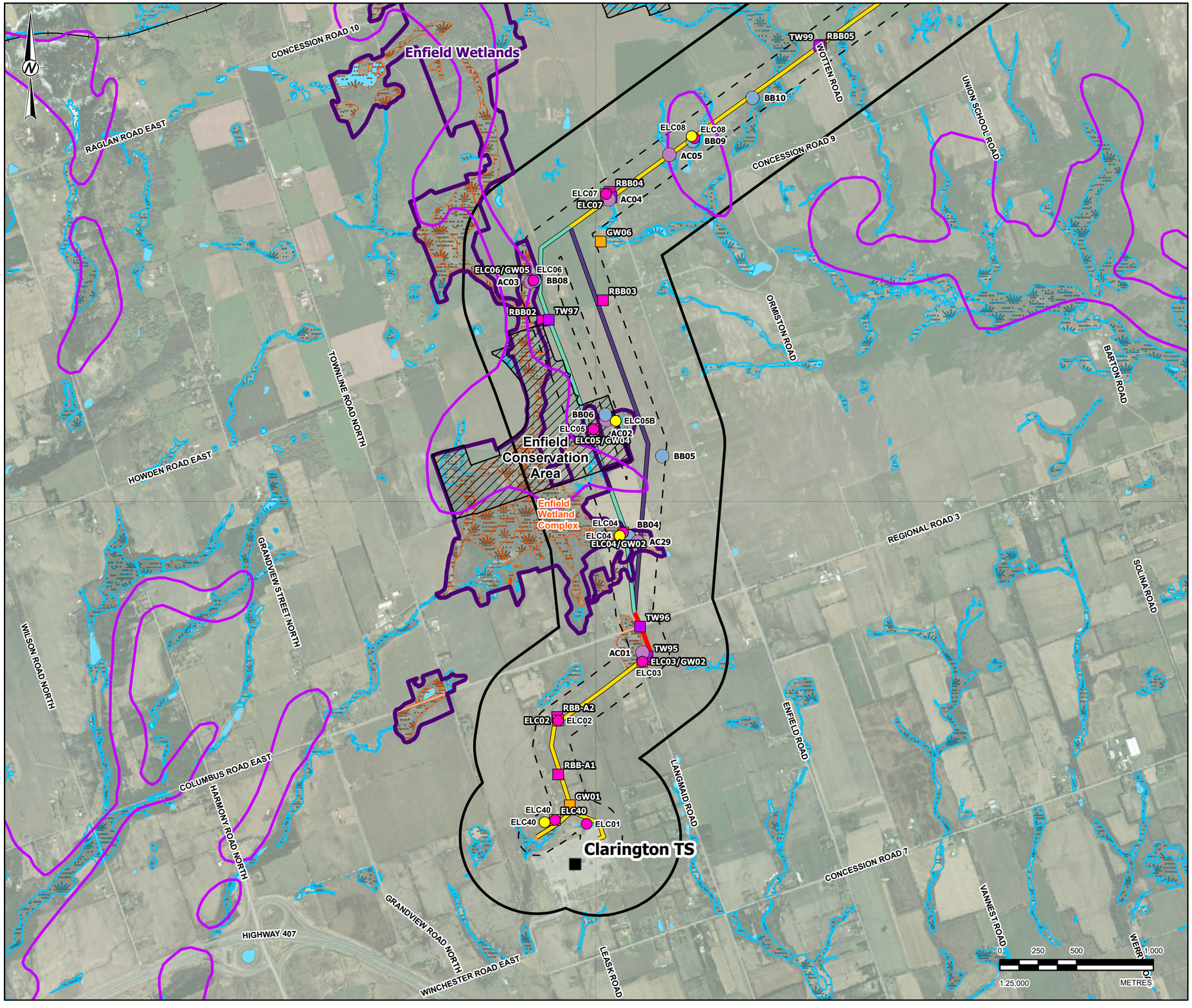
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APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
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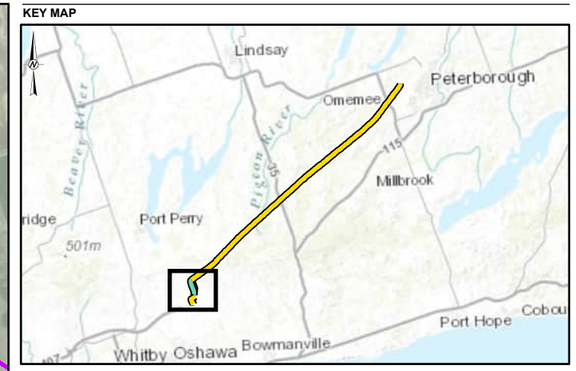
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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25mm



KEY MAP



SCALE 1:1,000,000

LEGEND

- BREEDING BIRD SURVEY LOCATION
- AMPHIBIAN SURVEY LOCATION
- ELC SURVEY LOCATION (2024)
- ELC SURVEY LOCATION (2025)
- ROADSIDE BREEDING BIRD SURVEY LOCATION
- TERRESTRIAL WINDSHIELD SURVEY LOCATION
- ECOLOGICAL LAND CLASSIFICATION AND GENERAL WILDLIFE SURVEY LOCATION
- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ANSI
- CONSERVATION AREA
- ENVIRONMENTALLY SENSITIVE AREA (MNR)

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, NGA, EPA, NPS, AAFC, NRCAN
WORLD IMAGERY: EARTHSTAR GEOGRAPHICS
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

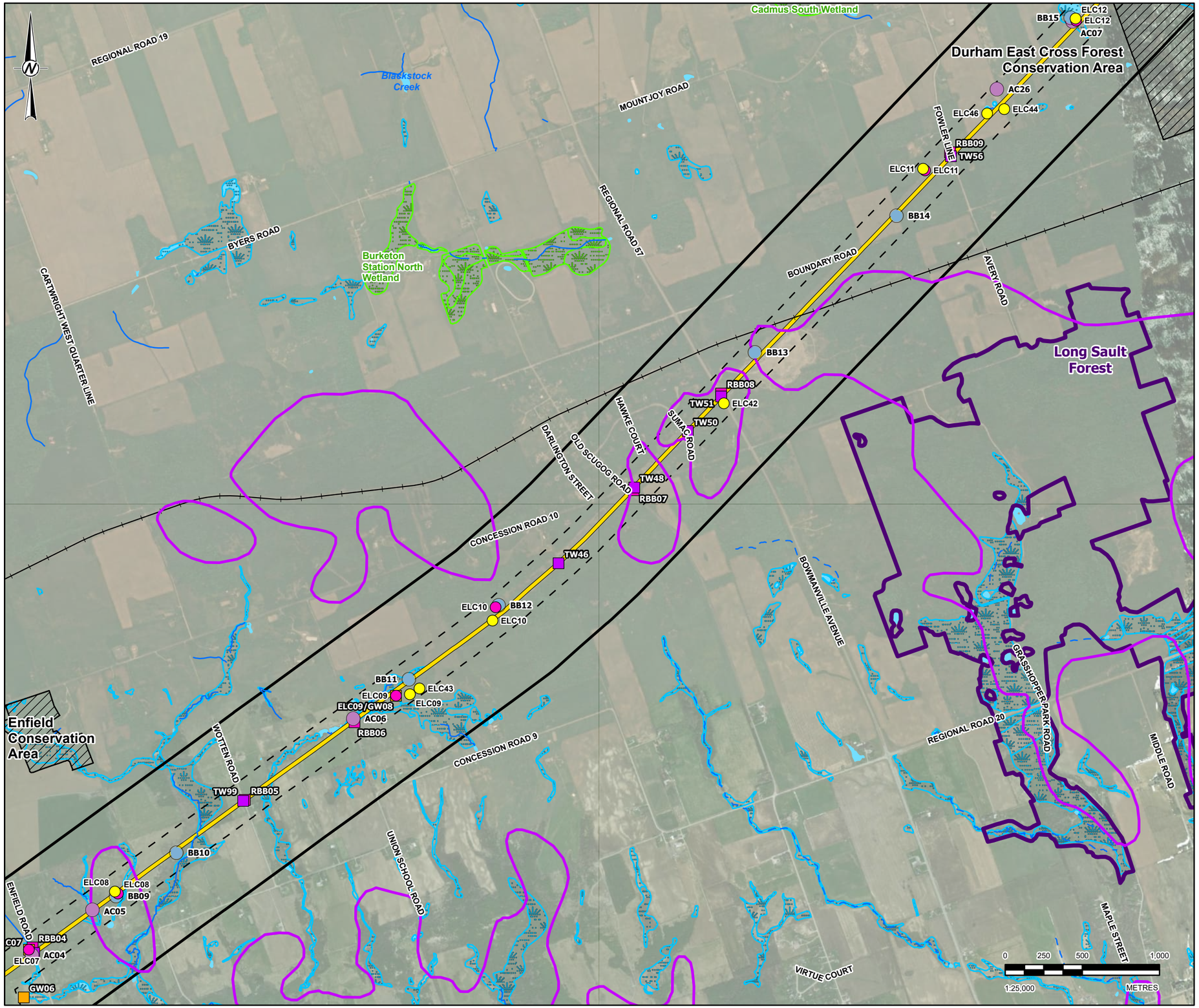
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TERRESTRIAL SURVEY LOCATIONS

CONSULTANT

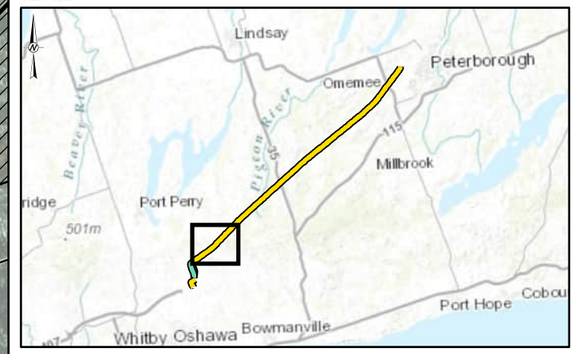
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DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	2.1

PATH: S:\Clients\HydroOne\Dobbin_TS\99_PROJ\CA0020403.4964\40_PROD\0011_Natural_Heritage\CA0020403-4964-0011-HN-0000.aprx, PRINTED ON: AT: 12:02:08 PM
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
0 25mm



KEY MAP



SCALE 1:1,000,000

LEGEND

- BREEDING BIRD SURVEY LOCATION
- AMPHIBIAN SURVEY LOCATION
- ELC SURVEY LOCATION (2024)
- ELC SURVEY LOCATION (2025)
- ROADSIDE BREEDING BIRD SURVEY LOCATION
- TERRESTRIAL WINDSHIELD SURVEY LOCATION
- ECOLOGICAL LAND CLASSIFICATION AND GENERAL WILDLIFE SURVEY LOCATION
- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- INTERMITTENT
- PERMANENT
- UNEVALUATED WETLAND
- EVALUATED WETLAND (NO SIGNIFICANCE)
- ANSI
- CONSERVATION AREA
- ENVIRONMENTALLY SENSITIVE AREA (MNR)

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, NGA, EPA, NPS, AAFC, NRCAN
   WORLD IMAGERY: MAXAR
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY LOCATIONS

CONSULTANT
wsp

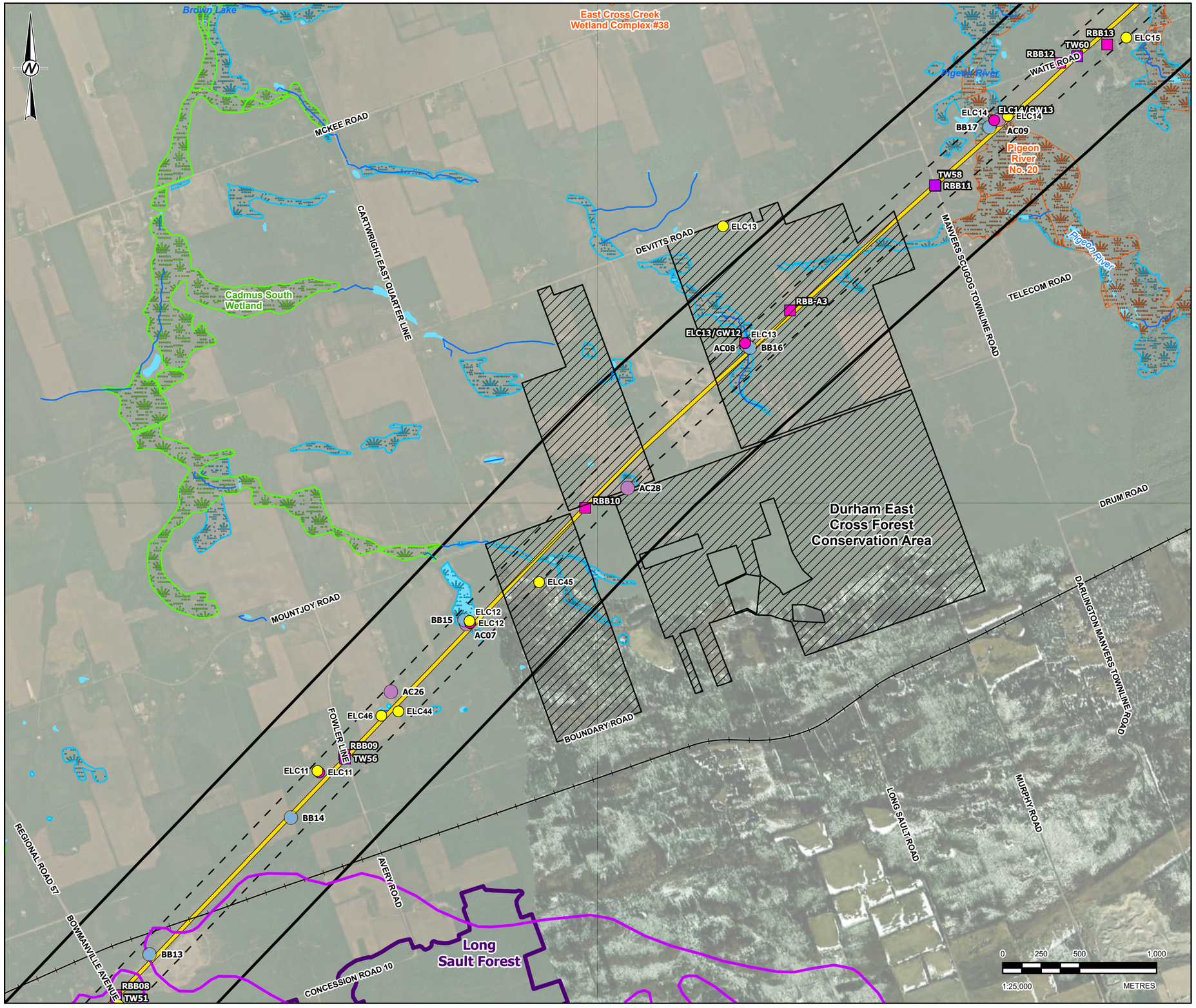
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DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	2.2

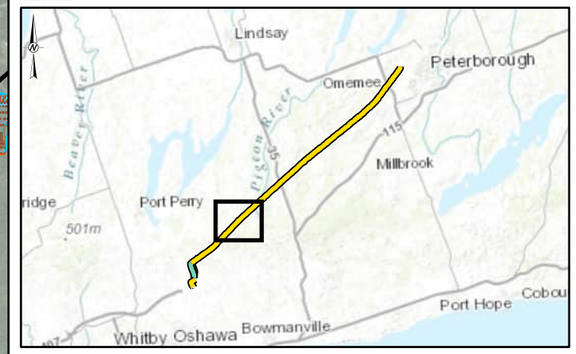
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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KEY MAP



SCALE 1:1,000,000

LEGEND

- BREEDING BIRD SURVEY LOCATION
- AMPHIBIAN SURVEY LOCATION
- ELC SURVEY LOCATION (2024)
- ELC SURVEY LOCATION (2025)
- ROADSIDE BREEDING BIRD SURVEY LOCATION
- TERRESTRIAL WINDSHIELD SURVEY LOCATION
- ECOLOGICAL LAND CLASSIFICATION AND GENERAL WILDLIFE SURVEY LOCATION
- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- INTERMITTENT
- PERMANENT
- UNEVALUATED WETLAND
- EVALUATED WETLAND (NO SIGNIFICANCE)
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ANSI
- CONSERVATION AREA
- ENVIRONMENTALLY SENSITIVE AREA (MNR)

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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2. IMAGERY CREDITS: WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, NGA, EPA, NPS, AAFC, NRCAN
WORLD IMAGERY: EARTHSTAR GEOGRAPHICS
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

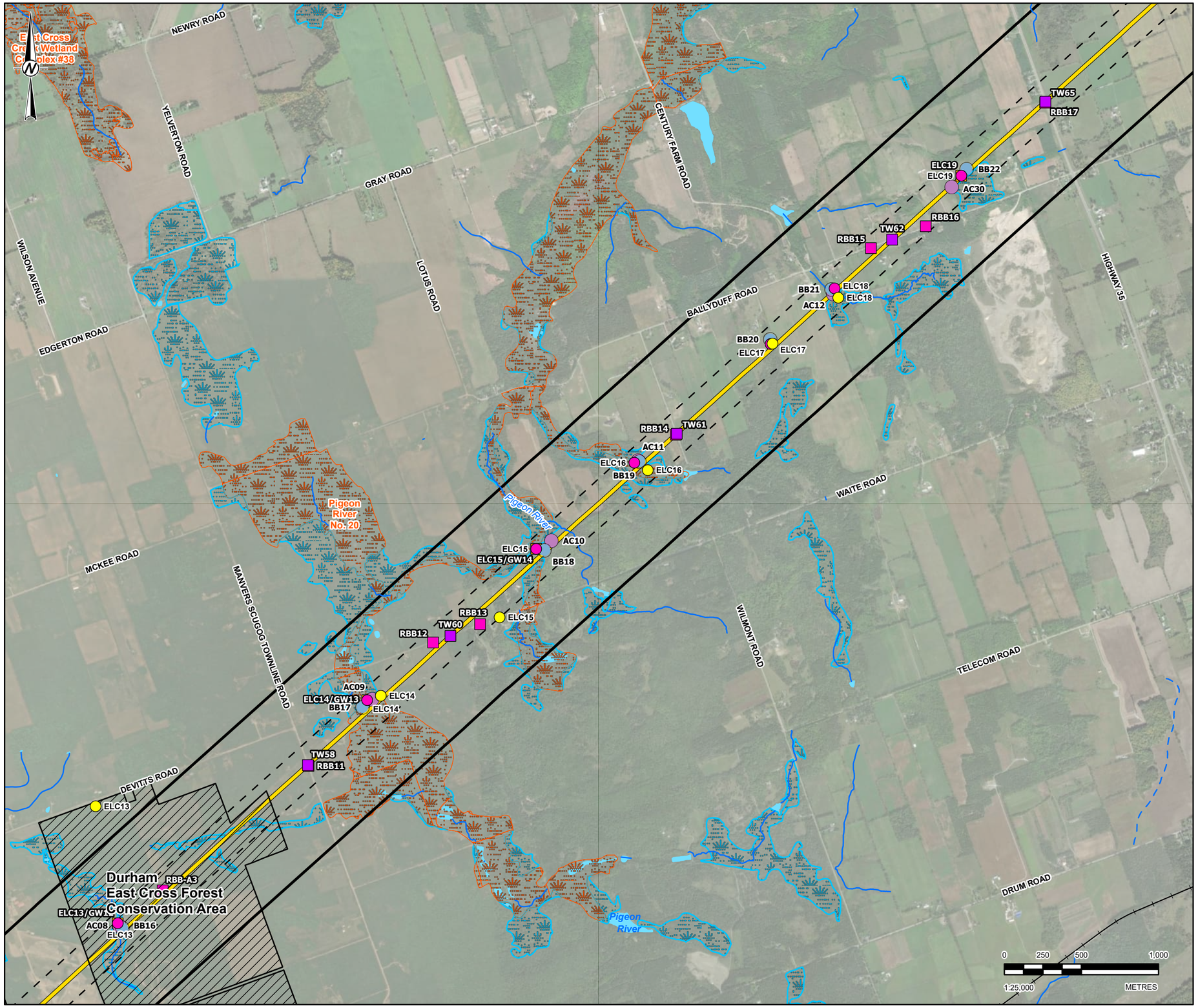
TITLE
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CONSULTANT

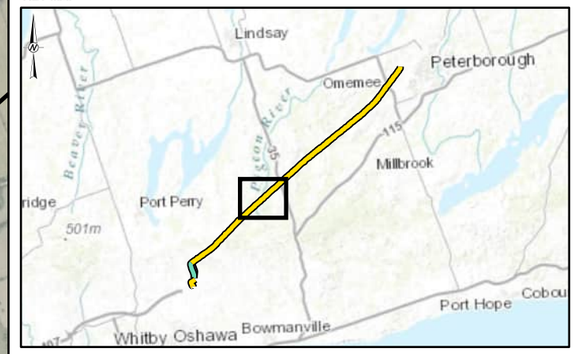
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DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	2.3

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
0 25mm



KEY MAP



SCALE 1:1,000,000

LEGEND

- BREEDING BIRD SURVEY LOCATION
- AMPHIBIAN SURVEY LOCATION
- ELC SURVEY LOCATION (2024)
- ELC SURVEY LOCATION (2025)
- ROADSIDE BREEDING BIRD SURVEY LOCATION
- TERRESTRIAL WINDSHIELD SURVEY LOCATION
- ECOLOGICAL LAND CLASSIFICATION AND GENERAL WILDLIFE SURVEY LOCATION
- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- INTERMITTENT
- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ANSI
- CONSERVATION AREA

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: WORLD IMAGERY: EARTHSTAR GEOGRAPHICS
WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, EPA, NPS, AAFC, NRCAN
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

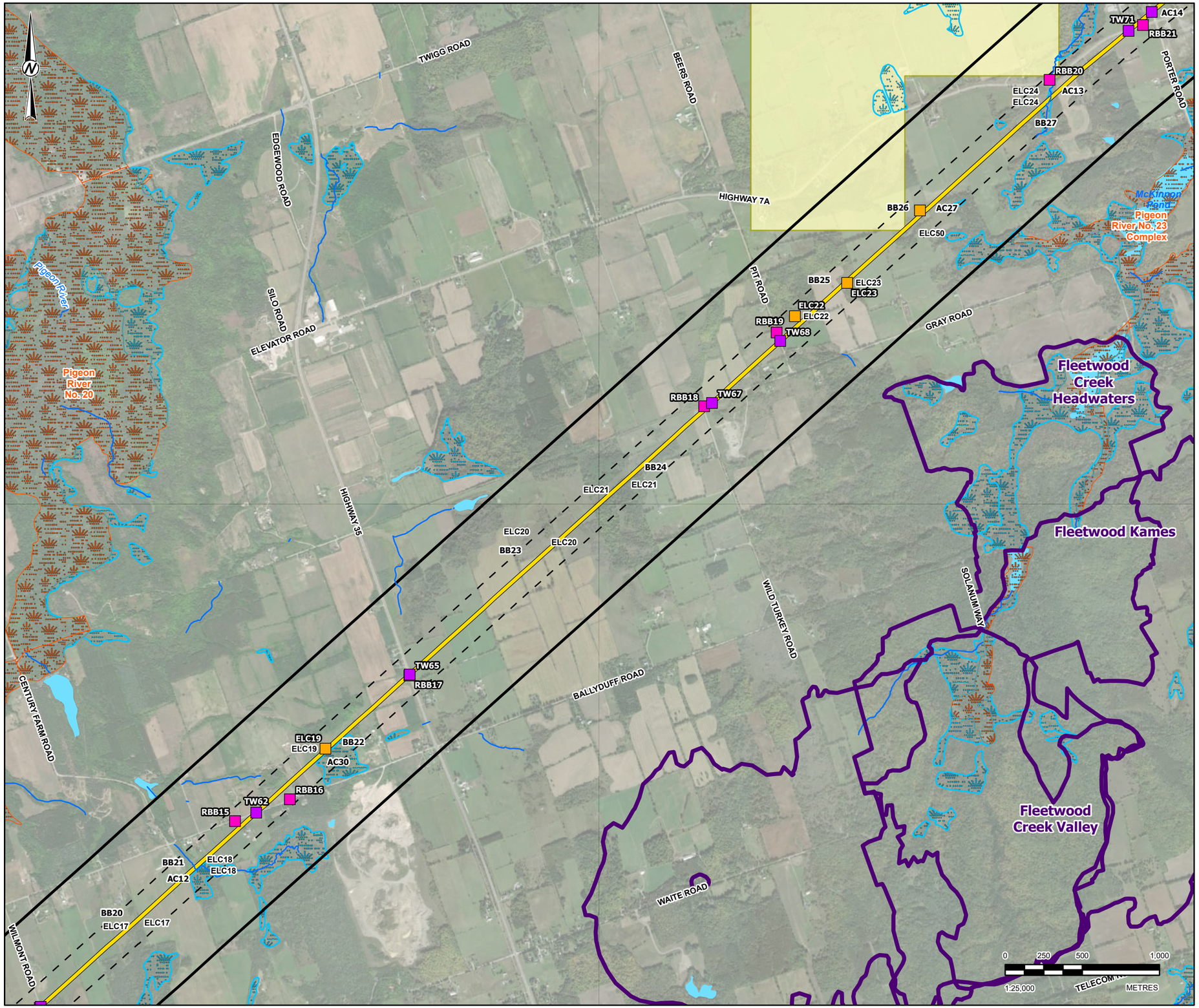
TITLE
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CONSULTANT

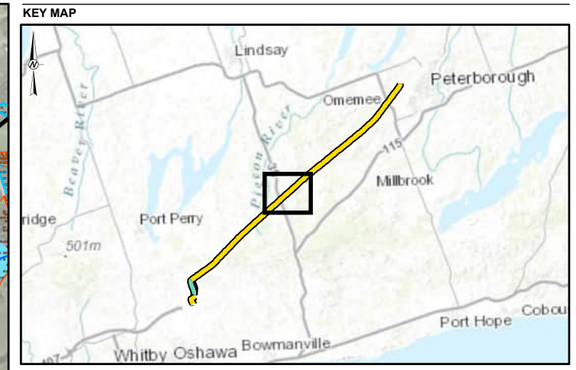
YYYY-MM-DD	2025-10-03
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	2.4

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
0 25mm



KEY MAP



SCALE 1:1,000,000

LEGEND

- BREEDING BIRD SURVEY LOCATION
- AMPHIBIAN SURVEY LOCATION
- ELC SURVEY LOCATION (2024)
- ELC SURVEY LOCATION (2025)
- ROADSIDE BREEDING BIRD SURVEY LOCATION
- TERRESTRIAL WINDSHIELD SURVEY LOCATION
- ECOLOGICAL LAND CLASSIFICATION AND GENERAL WILDLIFE SURVEY LOCATION
- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ANSI
- DEER YARDING AREA (MNR)

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, EPA, NPS, AAFC, NRCAN
   WORLD IMAGERY: MAXAR
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY LOCATIONS

CONSULTANT

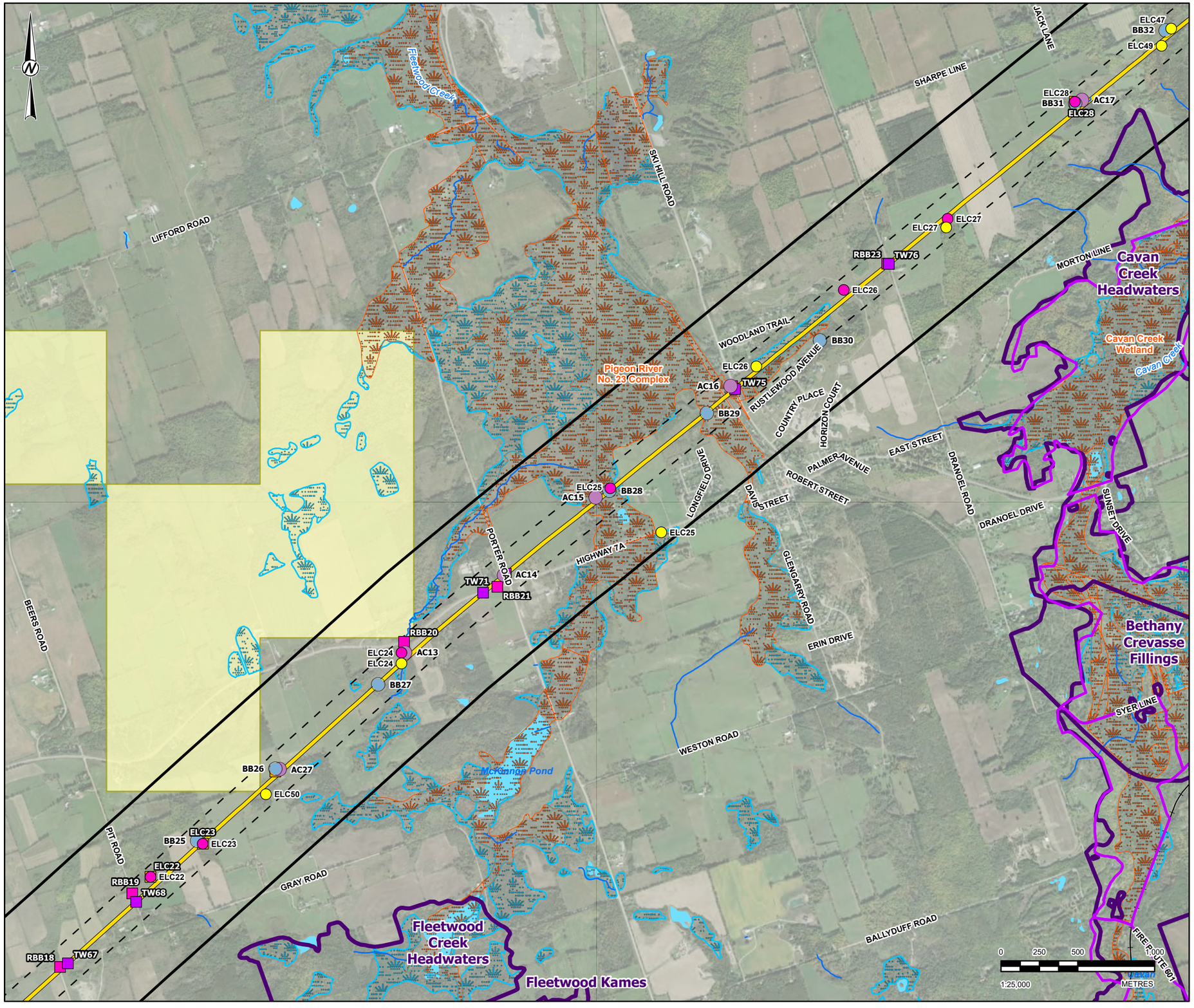
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DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	2.5

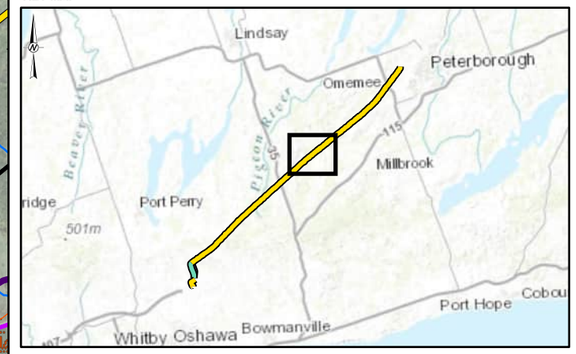
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25mm

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KEY MAP



SCALE 1:1,000,000

LEGEND

- BREEDING BIRD SURVEY LOCATION
- AMPHIBIAN SURVEY LOCATION
- ELC SURVEY LOCATION (2024)
- ELC SURVEY LOCATION (2025)
- ROADSIDE BREEDING BIRD SURVEY LOCATION
- TERRESTRIAL WINDSHIELD SURVEY LOCATION
- ECOLOGICAL LAND CLASSIFICATION AND GENERAL WILDLIFE SURVEY LOCATION
- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- INTERMITTENT
- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ANSI
- DEER YARDING AREA (MNR)
- ENVIRONMENTALLY SENSITIVE AREA (MNR)

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: WORLD IMAGERY: EARTHSTAR GEOGRAPHICS
WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, EPA, NPS, AAFC, NRCAN
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY LOCATIONS

CONSULTANT

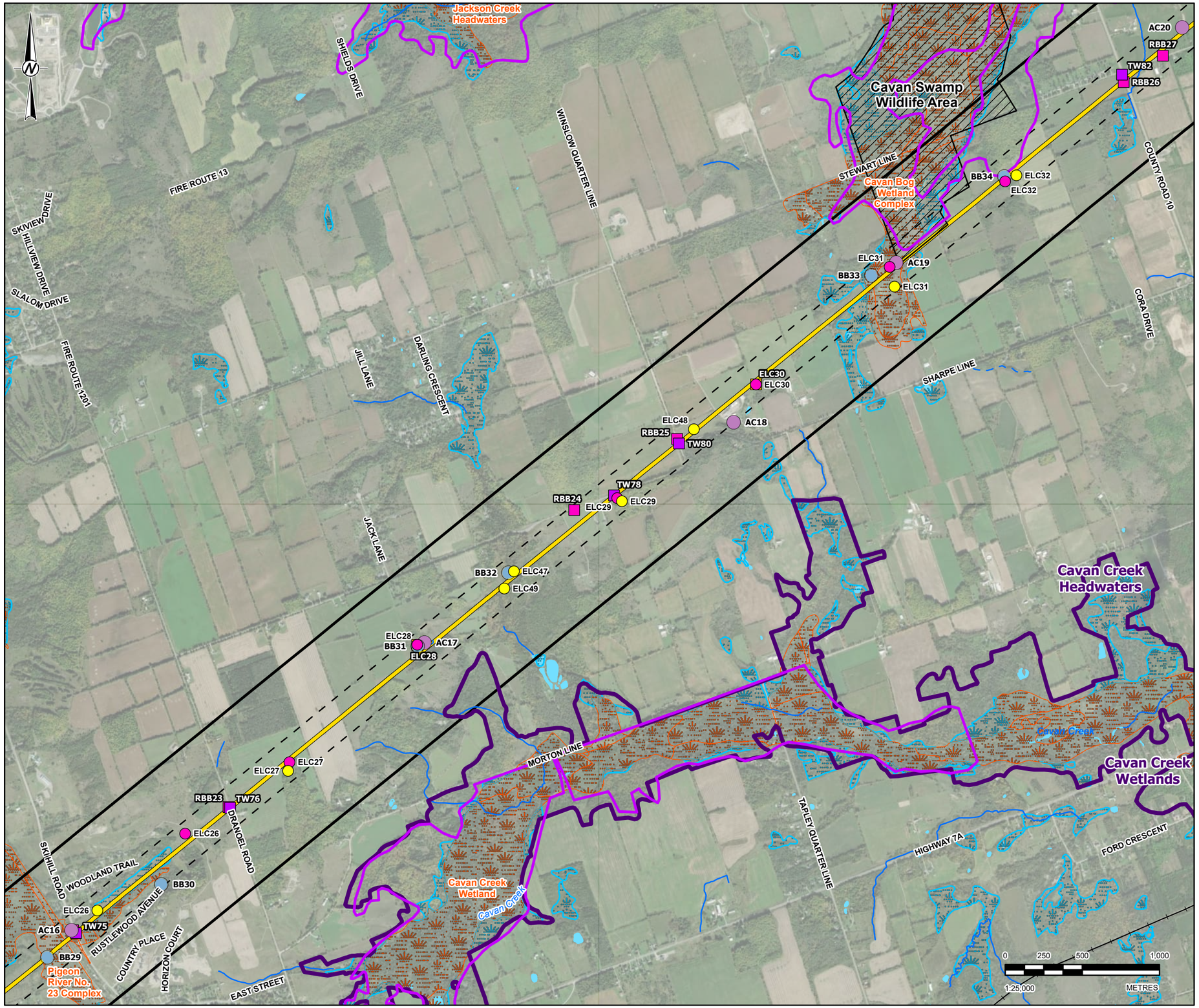
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YYYY-MM-DD	2025-10-03
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

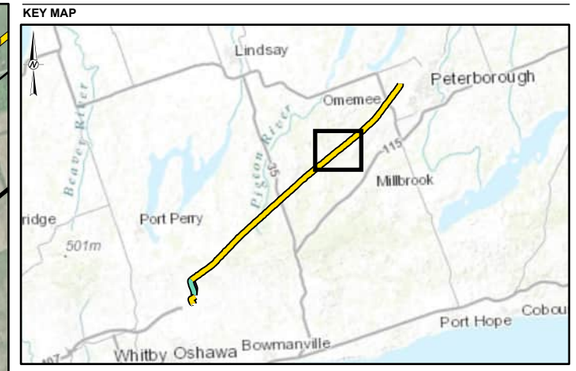
PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	2.6

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



KEY MAP



SCALE 1:1,000,000

LEGEND

- BREEDING BIRD SURVEY LOCATION
- AMPHIBIAN SURVEY LOCATION
- ELC SURVEY LOCATION (2024)
- ELC SURVEY LOCATION (2025)
- ROADSIDE BREEDING BIRD SURVEY LOCATION
- TERRESTRIAL WINDSHIELD SURVEY LOCATION
- ECOLOGICAL LAND CLASSIFICATION AND GENERAL WILDLIFE SURVEY LOCATION
- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- INTERMITTENT
- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ANSI
- CONSERVATION AREA
- ENVIRONMENTALLY SENSITIVE AREA (MNR)

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: WORLD IMAGERY: EARTHSTAR GEOGRAPHICS
WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, EPA, NPS, AAFC, NRCAN
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

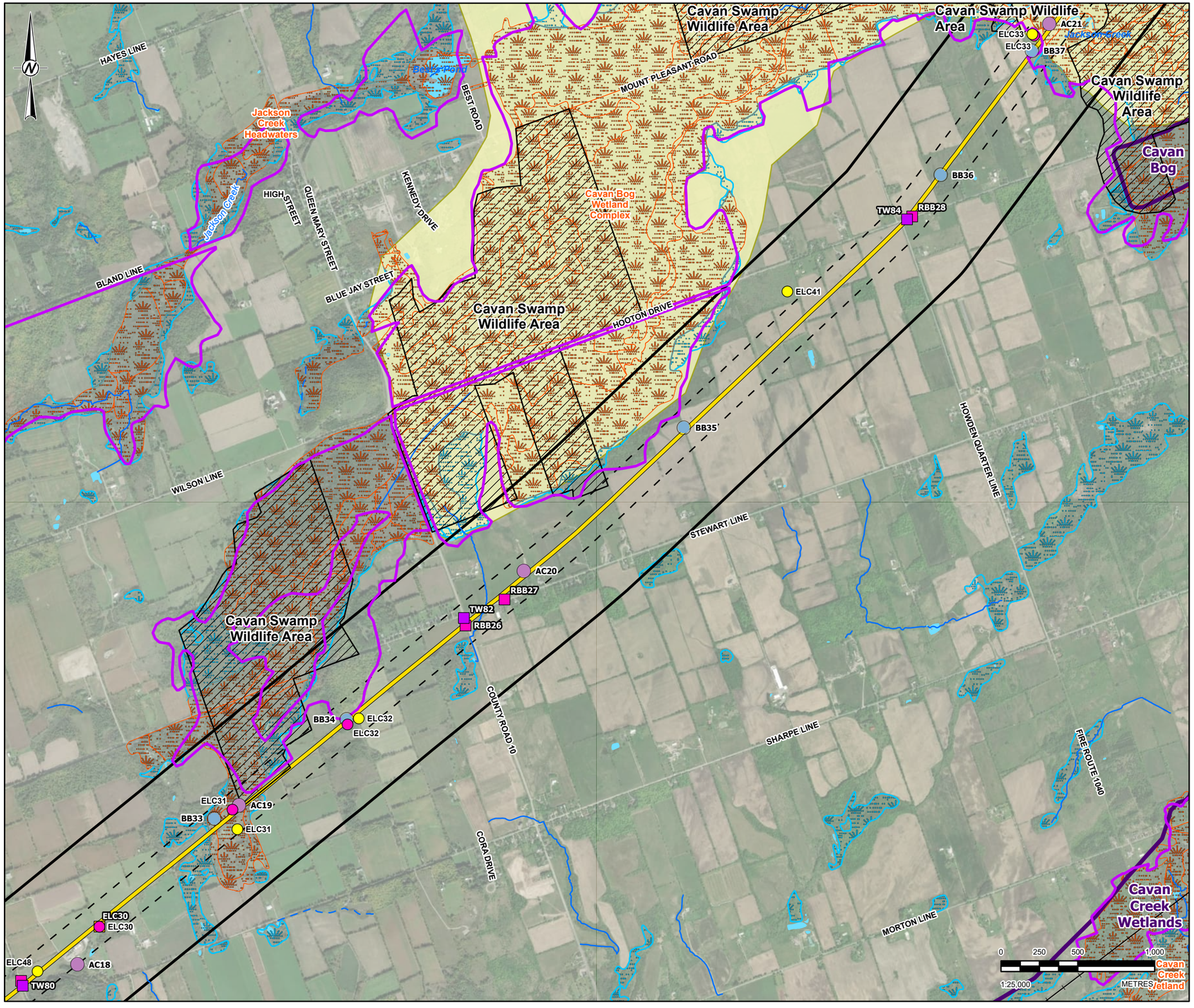
TITLE
TERRESTRIAL SURVEY LOCATIONS

CONSULTANT

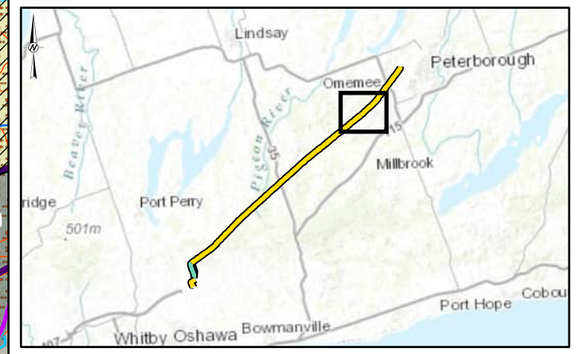
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DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	2.7

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
25mm
0



KEY MAP



SCALE 1:1,000,000

LEGEND

- BREEDING BIRD SURVEY LOCATION
- AMPHIBIAN SURVEY LOCATION
- ELC SURVEY LOCATION (2024)
- ELC SURVEY LOCATION (2025)
- ROADSIDE BREEDING BIRD SURVEY LOCATION
- TERRESTRIAL WINDSHIELD SURVEY LOCATION
- ECOLOGICAL LAND CLASSIFICATION AND GENERAL WILDLIFE SURVEY LOCATION
- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- INTERMITTENT
- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ANSI
- CONSERVATION AREA
- DEER YARDING AREA (MNR)
- ENVIRONMENTALLY SENSITIVE AREA (MNR)

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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2. IMAGERY CREDITS: WORLD IMAGERY: EARTHSTAR GEOGRAPHICS
WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, EPA, NPS, AAFC, NRCAN
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY LOCATIONS

CONSULTANT

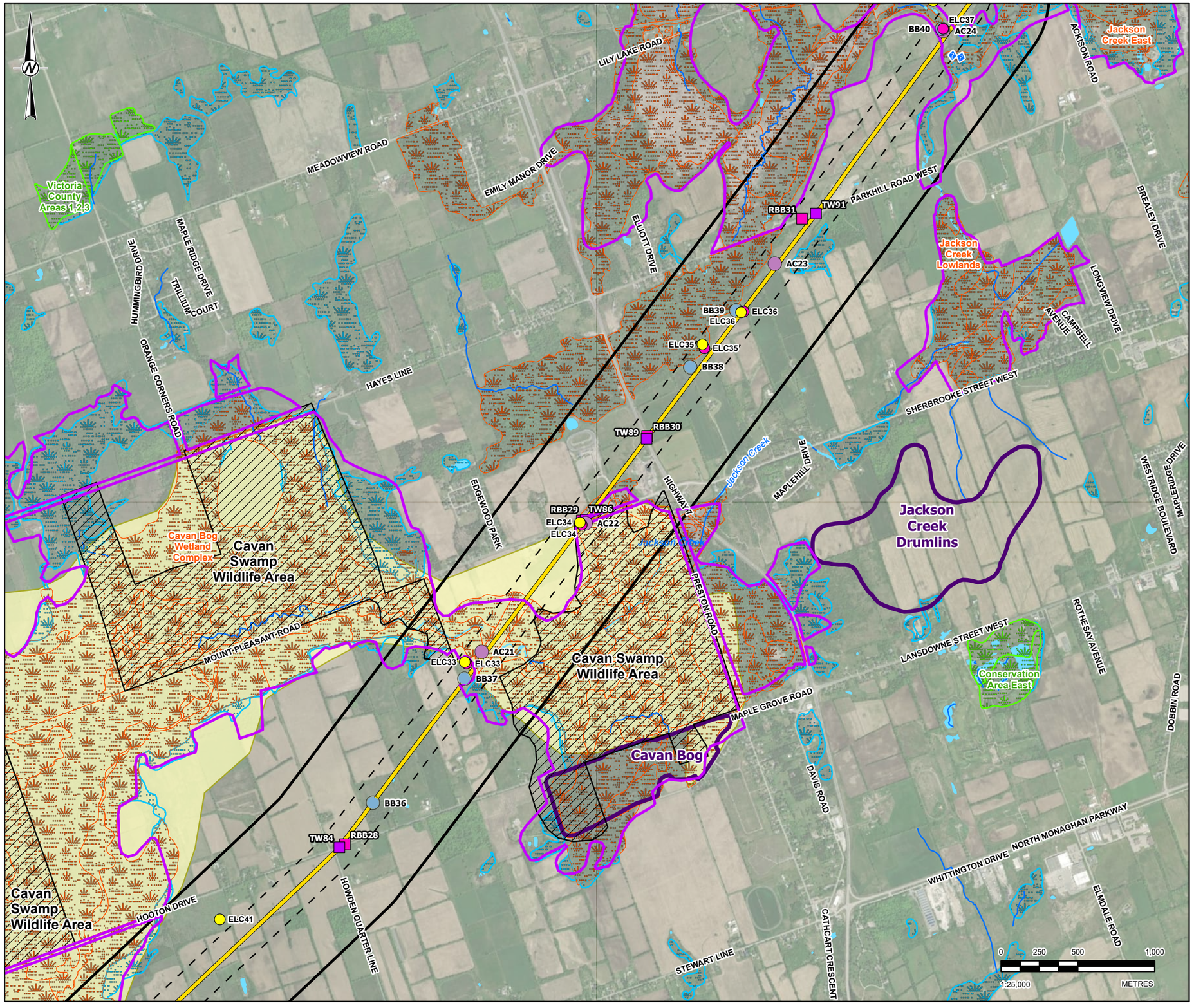
YYYY-MM-DD	2025-10-03
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	2.8

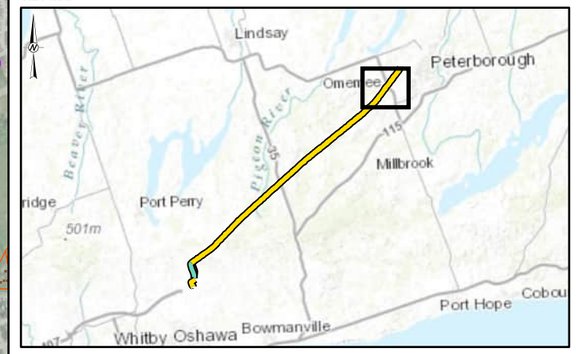
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25mm

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KEY MAP



SCALE 1:1,000,000

LEGEND

- BREEDING BIRD SURVEY LOCATION
- AMPHIBIAN SURVEY LOCATION
- ELC SURVEY LOCATION (2024)
- ELC SURVEY LOCATION (2025)
- ROADSIDE BREEDING BIRD SURVEY LOCATION
- TERRESTRIAL WINDSHIELD SURVEY LOCATION
- ECOLOGICAL LAND CLASSIFICATION AND GENERAL WILDLIFE SURVEY LOCATION
- TRANSFORMER STATION (TS)
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- INTERMITTENT
- PERMANENT
- UNEVALUATED WETLAND
- EVALUATED WETLAND (NO SIGNIFICANCE)
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ANSI
- CONSERVATION AREA
- DEER YARDING AREA (MNR)
- ENVIRONMENTALLY SENSITIVE AREA (MNR)

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: WORLD IMAGERY: EARTHSTAR GEOGRAPHICS
WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, EPA, NPS, AAFC, NRCAN
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY LOCATIONS

CONSULTANT
wsp

YYYY-MM-DD	2025-10-03
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

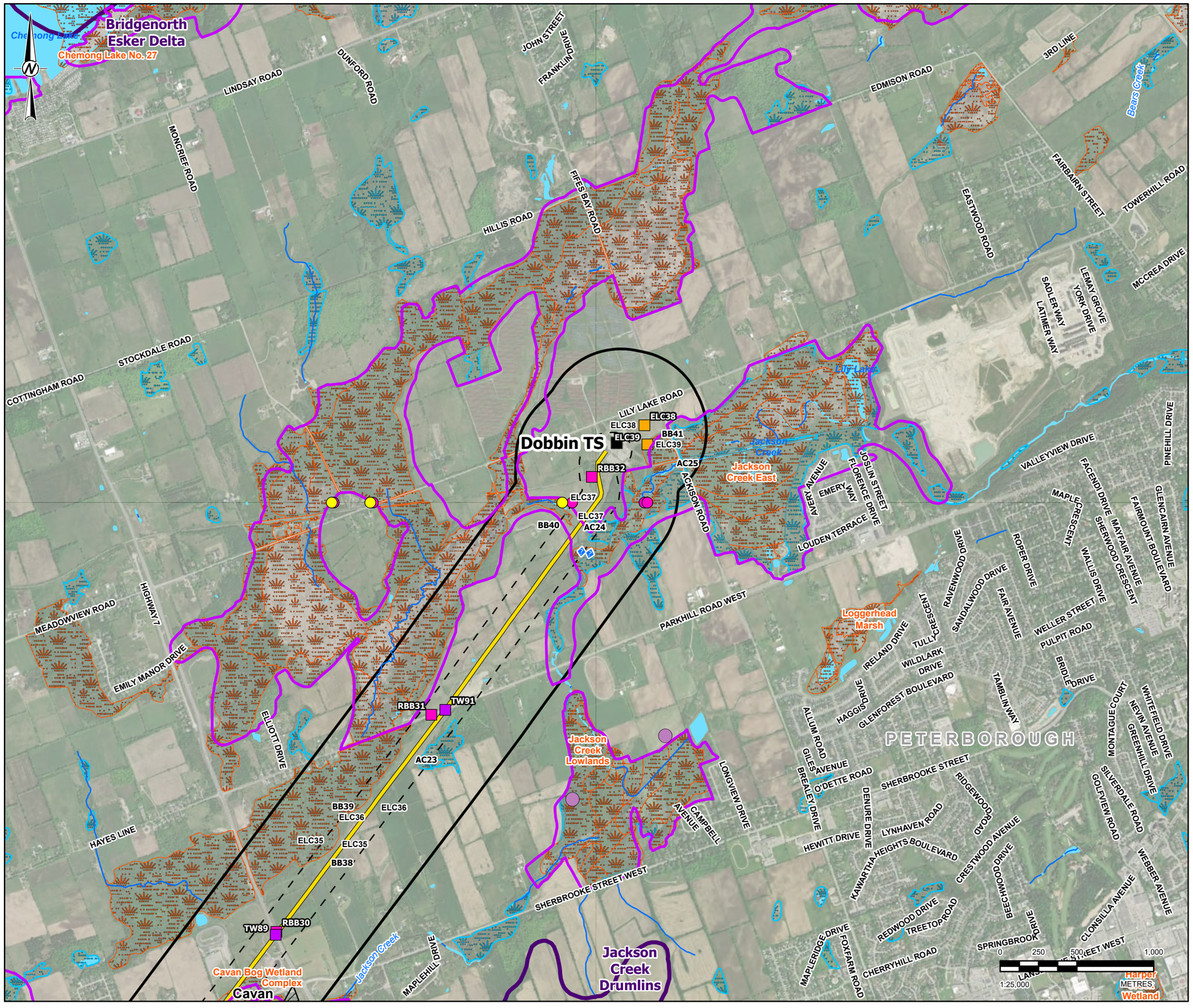
PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	2.9

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

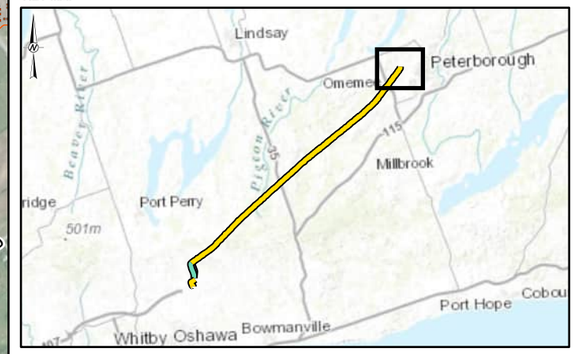
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KEY MAP



SCALE 1:1,000,000

LEGEND

- BREEDING BIRD SURVEY LOCATION
- AMPHIBIAN SURVEY LOCATION
- ELC SURVEY LOCATION (2024)
- ELC SURVEY LOCATION (2025)
- ROADSIDE BREEDING BIRD SURVEY LOCATION
- TERRESTRIAL WINDSHIELD SURVEY LOCATION
- ECOLOGICAL LAND CLASSIFICATION AND GENERAL WILDLIFE SURVEY LOCATION
- TRANSFORMER STATION (TS)
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ANSI
- CONSERVATION AREA
- DEER YARDING AREA (MNR)
- ENVIRONMENTALLY SENSITIVE AREA (MNR)

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: WORLD IMAGERY: EARTHSTAR GEOGRAPHICS
WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, EPA, NPS, AAFC, NRCAN
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY LOCATIONS

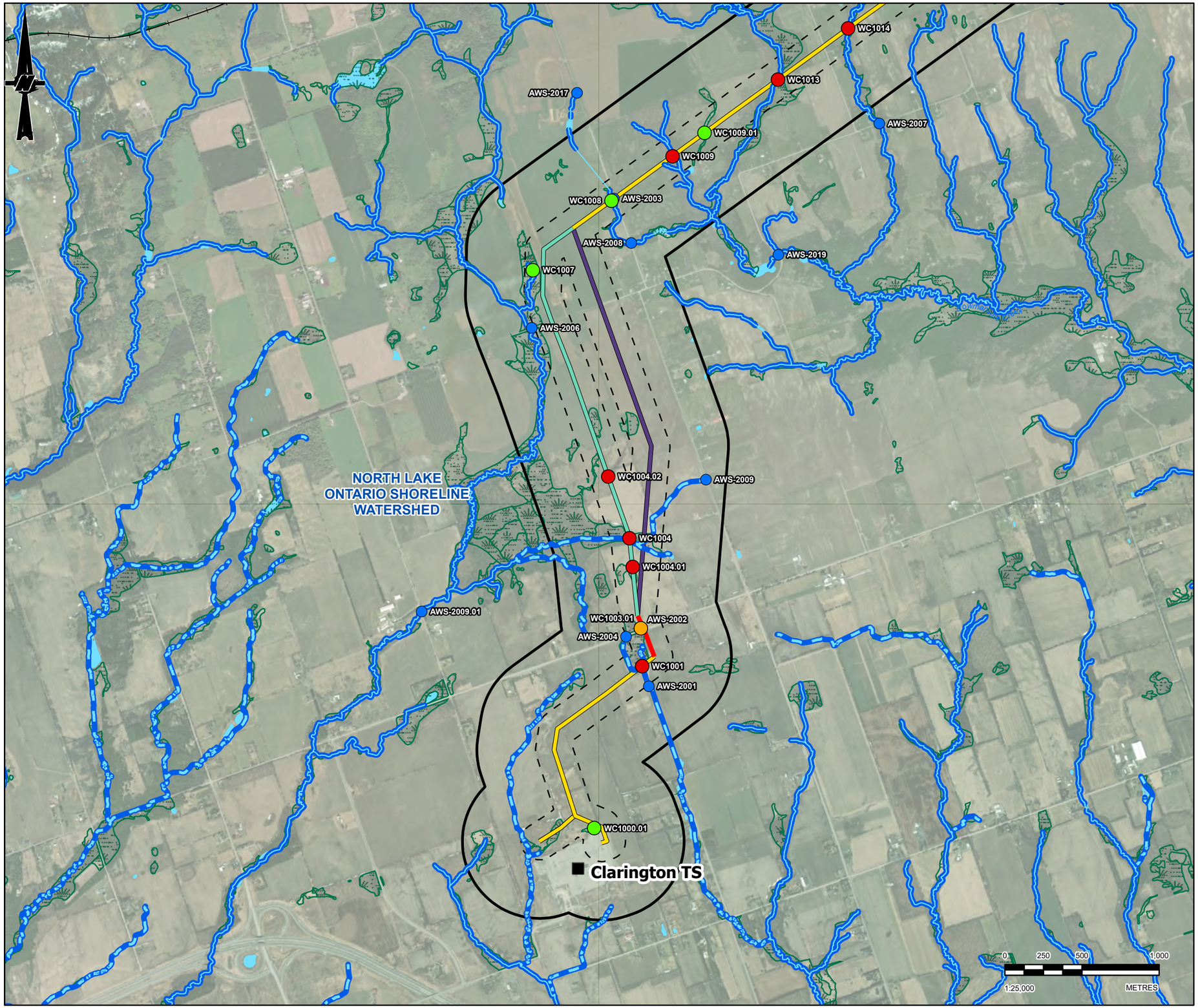
CONSULTANT
wsp

YYYY-MM-DD	2025-10-03
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

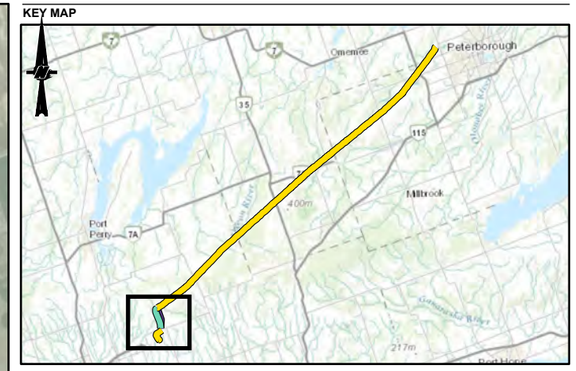
PROJECT NO.	CONTROL	REV.	FIGURE
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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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KEY MAP



SCALE 1:750,000

LEGEND

- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)
- WATERBODY
- WETLAND
- WATERSHED BOUNDARY

AQUATIC SURVEY TYPES

- AQUATIC WINDSHIELD SURVEY LOCATION
- NOT SURVEYED
- EDNA AND HABITAT SITES
- SURVEYED

THERMAL REGIME

- COLD

WATERCOURSE PERMANENCY

- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: WORLD TOPOGRAPHIC MAP: CITY OF KAWARTHA LAKES, CITY OF PETERBOROUGH, PETERBOROUGH COUNTY, REGION OF DURHAM, ONTARIO BASE MAP, PROVINCE OF ONTARIO, ONTARIO MNR, ESRI CANADA, ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, USGS, NGA, EPA, USDA, NPS, AAFC, NRCAN
   WORLD IMAGERY: EARTHSTAR GEOGRAPHICS
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
AQUATIC SURVEY LOCATIONS

CONSULTANT

wsp

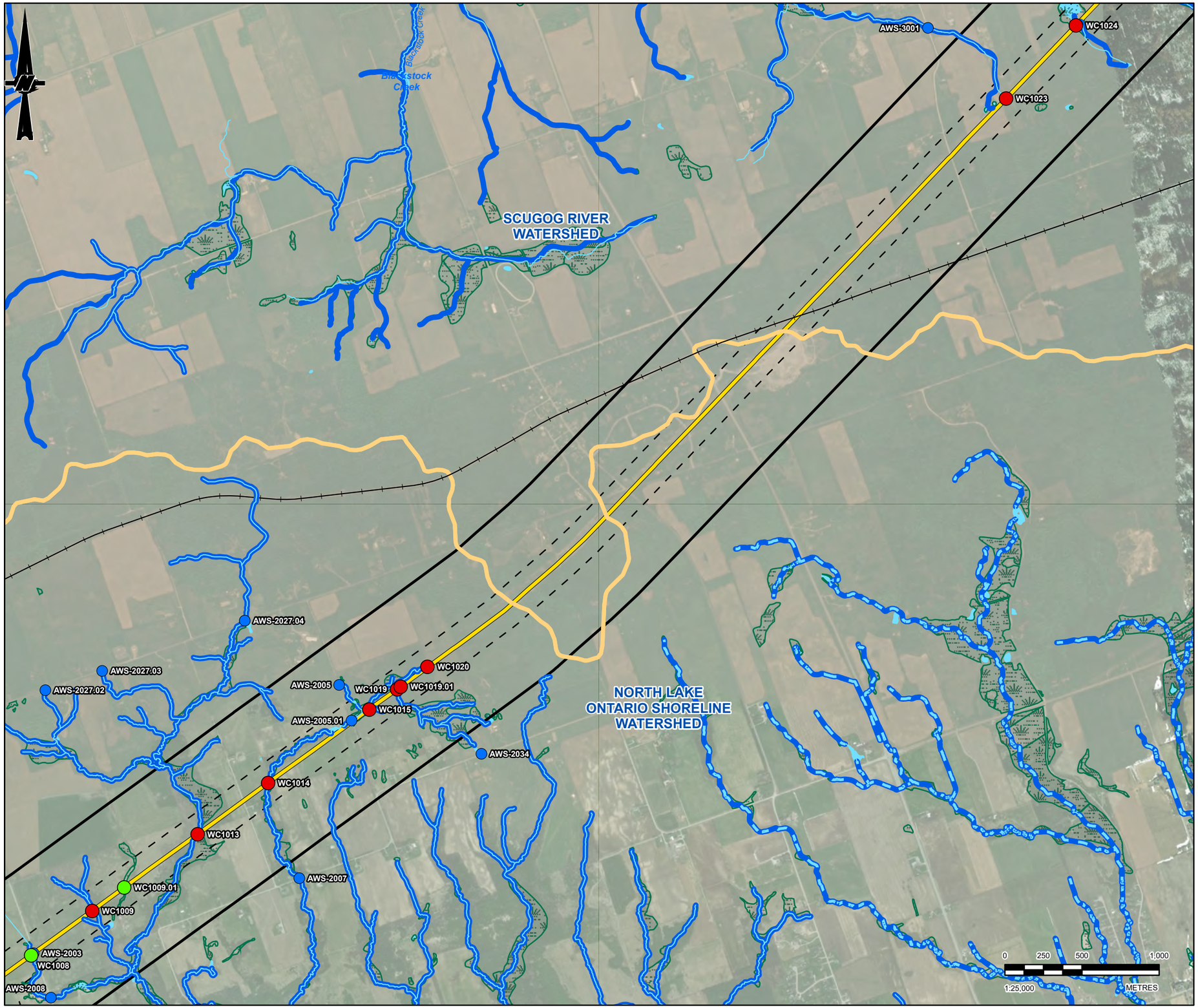
YYYY-MM-DD	2025-10-14
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	3.1

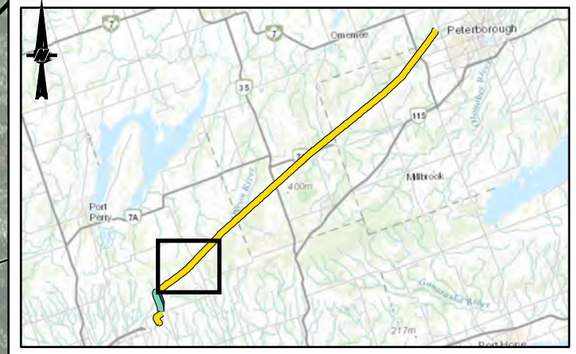
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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KEY MAP



SCALE 1:750,000

LEGEND

- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)
- WATERBODY
- WETLAND
- WATERSHED BOUNDARY

AQUATIC SURVEY TYPES

- AQUATIC WINDSHIELD SURVEY LOCATION
- NOT SURVEYED
- EDNA AND HABITAT SITES
- SURVEYED

THERMAL REGIME

- COLD

WATERCOURSE PERMANENCY

- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: WORLD IMAGERY: EARTHSTAR GEOGRAPHICS
WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, EPA, NPS, AAFC, NRCAN
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
AQUATIC SURVEY LOCATIONS

CONSULTANT

YYYY-MM-DD	2025-10-14
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	3.2

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

0 25mm

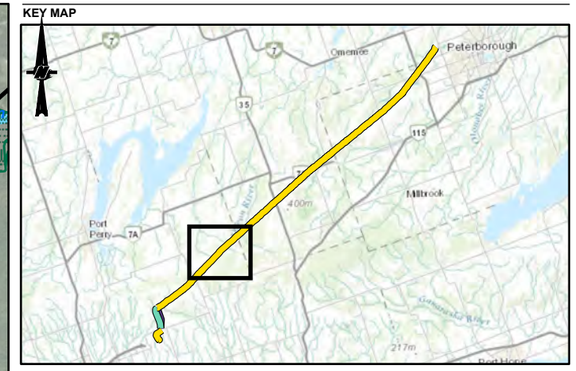
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Brown Lake

AWS-3006
AWS-3005
WC1033.01
WC1033
WC1033.02
AWS-3030
WC1030
WC1031.01
AWS-3024
KAWARTHA LAKES WATERSHED
AWS-3031
AWS-3032
WC1029.02
WC1029.01
WC1029
SCUGOG RIVER WATERSHED
AWS-3004
AWS-3003
AWS-3002
WC1025
AWS-3001
WC1024
WC1023
NORTH LAKE ONTARIO SHORELINE WATERSHED

0 250 500 1,000
1:25,000 METRES

KEY MAP



SCALE 1:750,000

LEGEND

- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)
- WATERBODY
- WETLAND
- WATERSHED BOUNDARY

AQUATIC SURVEY TYPES

- AQUATIC WINDSHIELD SURVEY LOCATION
- NOT SURVEYED
- EDNA AND HABITAT SITES
- SURVEYED

THERMAL REGIME

- COLD

WATERCOURSE PERMANENCY

- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: WORLD IMAGERY: EARTHSTAR GEOGRAPHICS
WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, EPA, NPS, AAFC, NRCAN
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
AQUATIC SURVEY LOCATIONS

CONSULTANT

YYYY-MM-DD	2025-10-14
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

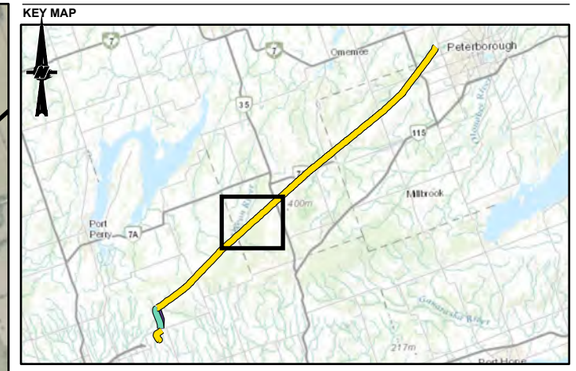
PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	3.3

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



SCALE 1:750,000

LEGEND

- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)
- WATERBODY
- WETLAND
- WATERSHED BOUNDARY

AQUATIC SURVEY TYPES

- AQUATIC WINDSHIELD SURVEY LOCATION
- NOT SURVEYED
- EDNA AND HABITAT SITES
- SURVEYED

THERMAL REGIME

- COLD

WATERCOURSE PERMANENCY

- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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2. IMAGERY CREDITS: WORLD IMAGERY: EARTHSTAR GEOGRAPHICS
WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, EPA, NPS, AAFC, NRCAN
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
AQUATIC SURVEY LOCATIONS

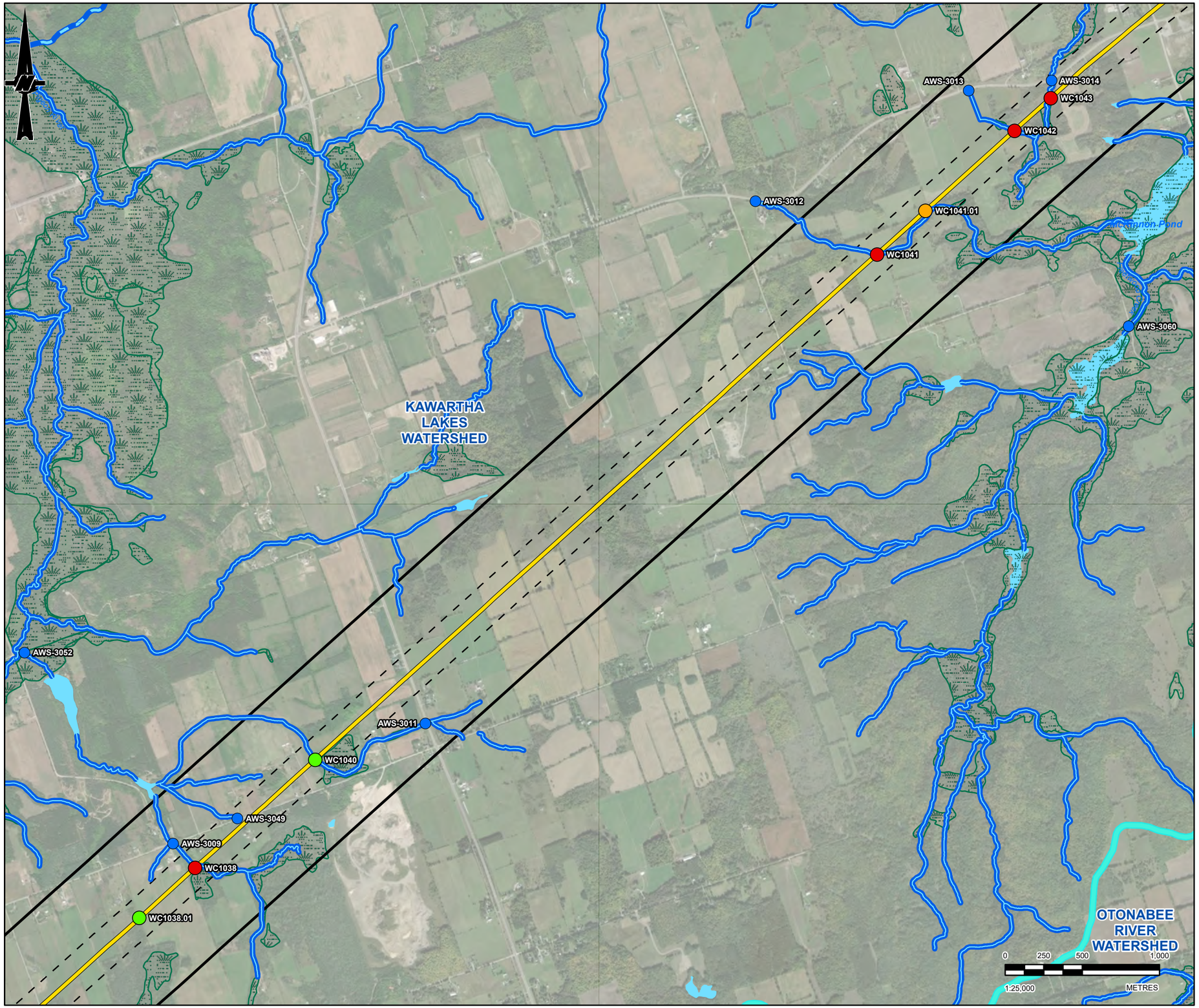
CONSULTANT

wsp

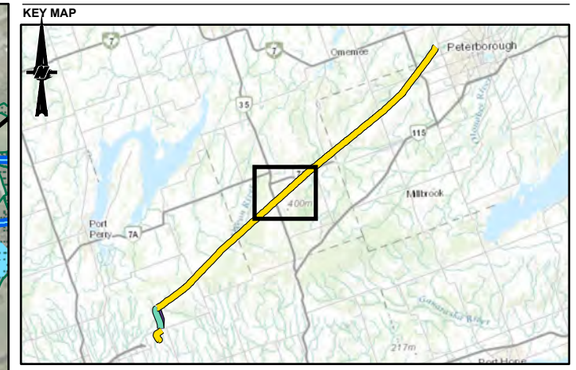
YYYY-MM-DD	2025-10-14
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	3.4

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
25mm
0



KEY MAP



SCALE 1:750,000

LEGEND

- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)
- WATERBODY
- WETLAND
- WATERSHED BOUNDARY

AQUATIC SURVEY TYPES

- AQUATIC WINDSHIELD SURVEY LOCATION
- NOT SURVEYED
- EDNA AND HABITAT SITES
- SURVEYED

THERMAL REGIME

- COLD

WATERCOURSE PERMANENCY

- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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   WORLD IMAGERY: MAXAR
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
AQUATIC SURVEY LOCATIONS

CONSULTANT

YYYY-MM-DD	2025-10-14
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

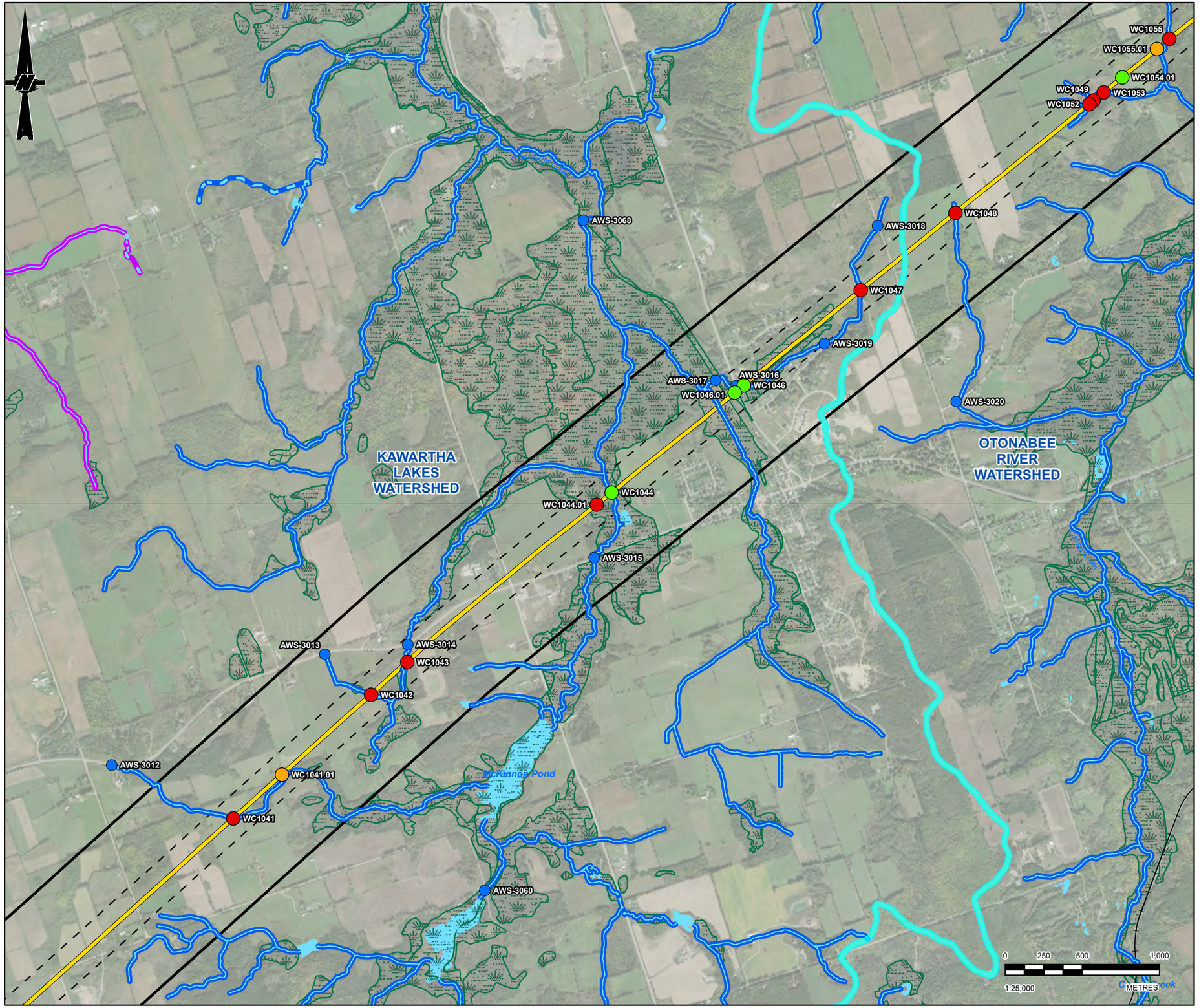
PROJECT NO.	CONTROL	REV.	FIGURE
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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

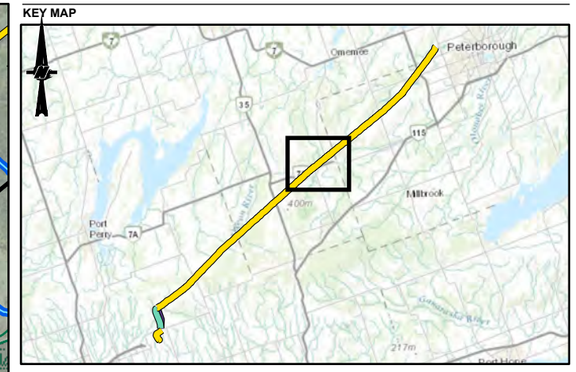
25mm

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KEY MAP



SCALE 1:750,000

LEGEND

- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)
- WATERBODY
- WETLAND
- WATERSHED BOUNDARY

AQUATIC SURVEY TYPES

- AQUATIC WINDSHIELD SURVEY LOCATION
- NOT SURVEYED
- EDNA AND HABITAT SITES
- SURVEYED

THERMAL REGIME

- COLD
- WARM

WATERCOURSE PERMANENCY

- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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   WORLD IMAGERY: MAXAR
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
AQUATIC SURVEY LOCATIONS

CONSULTANT

YYYY-MM-DD	2025-10-14
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	3.6

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

0 25mm

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KAWARTHA LAKES WATERSHED

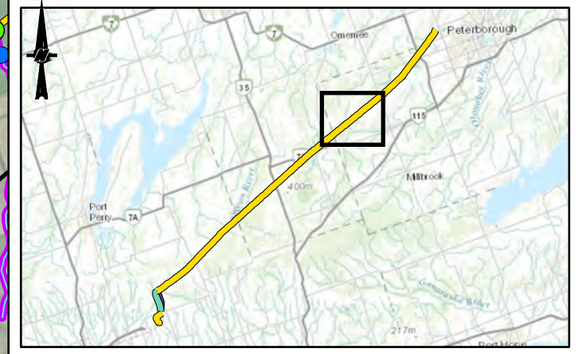
OTONABEE RIVER WATERSHED

WC1061
AWS-3025
WC1060
AWS-3024
AWS-3023
WC1059
WC1058.04
WC1058
WC1058.02
WC1058.01
WC1058.03
AWS-3023.01
AWS-3080
WC1056
AWS-3080.01
AWS-3021
WC1055
WC1055.01
WC1054.01
WC1049
WC1053
WC1052
AWS-3079
AWS-3018
WC1048
WC1047
AWS-3019
AWS-3017
AWS-3016
WC1046
WC1046.01
AWS-3020

Cavan Creek
Harwood Creek

0 250 500 1,000
1:25,000 METRES

KEY MAP



SCALE 1:750,000

LEGEND

- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)
- WATERBODY
- WETLAND
- WATERSHED BOUNDARY

AQUATIC SURVEY TYPES

- AQUATIC WINDSHIELD SURVEY LOCATION
- NOT SURVEYED
- EDNA AND HABITAT SITES
- SURVEYED

THERMAL REGIME

- COLD
- WARM

WATERCOURSE PERMANENCY

- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, EPA, NPS, AAFC, NRCAN
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
AQUATIC SURVEY LOCATIONS

CONSULTANT
wsp

YYYY-MM-DD	2025-10-14
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	3.7

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
0 25mm

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KAWARTHA LAKES WATERSHED

OTONABEE RIVER WATERSHED

Beaver Pond

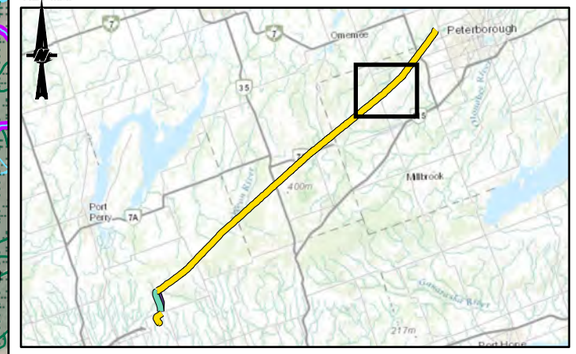
Beaver Creek

Jackson Creek

WC1066.01
WC1066
WC1065
WC1064
WC1063
WC1062.01
AWS-3107.02
AWS-3096
WC1061
AWS-3025
WC1060
AWS-3024
AWS-3023
WC1059
WC1058.04
WC1058
WC1058.02
WC1058.01
WC1058.03
AWS-3023.01
WC1056
AWS-3080
AWS-3080.01

0 250 500 1,000
1:25,000 METRES

KEY MAP



SCALE 1:750,000

LEGEND

- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)
- WATERBODY
- WETLAND
- WATERSHED BOUNDARY

AQUATIC SURVEY TYPES

- AQUATIC WINDSHIELD SURVEY LOCATION
- NOT SURVEYED
- EDNA AND HABITAT SITES
- SURVEYED

THERMAL REGIME

- COLD
- WARM

WATERCOURSE PERMANENCY

- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: WORLD IMAGERY: EARTHSTAR GEOGRAPHICS
WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, EPA, NPS, AAFC, NRCAN
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
AQUATIC SURVEY LOCATIONS

CONSULTANT

YYYY-MM-DD	2025-10-14
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	3.8

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

0 25mm

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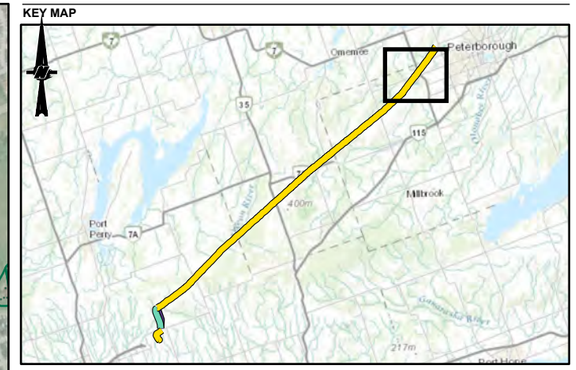
KAWARTHA LAKES WATERSHED

OTONABEE RIVER WATERSHED

AWS-3119.03
AWS-3119.04
AWS-3119.05
AWS-3119.06
WC1071
AWS-3119.01
AWS-3119
AWS-3113
AWS-3113.01
WC1067
AWS-3027
WC1066.02
AWS-3017
Jackson Creek
AWS-3026
WC1066.01
WC1066
WC1065
WC1063
WC1064
WC1062.01
AWS-3107.02

0 250 500 1,000
1:25,000 METRES

KEY MAP



SCALE 1:750,000

LEGEND

- TRANSFORMER STATION (TS)
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)
- WATERBODY
- WETLAND
- WATERSHED BOUNDARY

AQUATIC SURVEY TYPES

- AQUATIC WINDSHIELD SURVEY LOCATION
- NOT SURVEYED
- EDNA AND HABITAT SITES
- SURVEYED

THERMAL REGIME

- UNKNOWN
- WARM

WATERCOURSE PERMANENCY

- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
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   WORLD IMAGERY: MAXAR
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
AQUATIC SURVEY LOCATIONS

CONSULTANT
wsp

YYYY-MM-DD	2025-10-14
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	3.9

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

0 25mm

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KAWARTHA LAKES WATERSHED

OTONABEE RIVER WATERSHED

PETERBOROUGH

Clear Creek

Beans Creek

Dobbin TS

AWS-3118

AWS-3118.01

AWS-3119.02

AWS-3119.03

AWS-3119.04

AWS-3119.05

AWS-3119.06

AWS-3119

AWS-3119.01

AWS-3113

AWS-3113.01

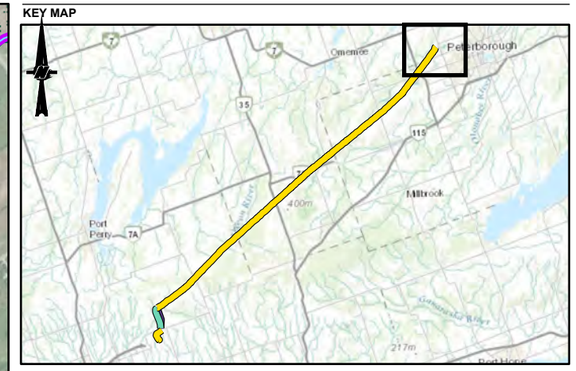
WC1071

WC1067

0 250 500 1,000

1:25,000 METRES

KEY MAP



SCALE 1:750,000

LEGEND

- TRANSFORMER STATION (TS)
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)
- WATERBODY
- WETLAND
- WATERSHED BOUNDARY

AQUATIC SURVEY TYPES

- AQUATIC WINDSHIELD SURVEY LOCATION
- NOT SURVEYED
- EDNA AND HABITAT SITES
- SURVEYED

THERMAL REGIME

- COLD
- WARM

WATERCOURSE PERMANENCY

- INTERMITTENT WATERCOURSE
- PERMANENT WATERCOURSE

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
AQUATIC SURVEY LOCATIONS

CONSULTANT

YYYY-MM-DD	2025-10-14
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	3.10

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

0 25mm

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Place holder for Figure 4: Terrestrial Survey Results - Ecological Land Classification and SAR/SOCC/SCS

CONFIDENTIAL

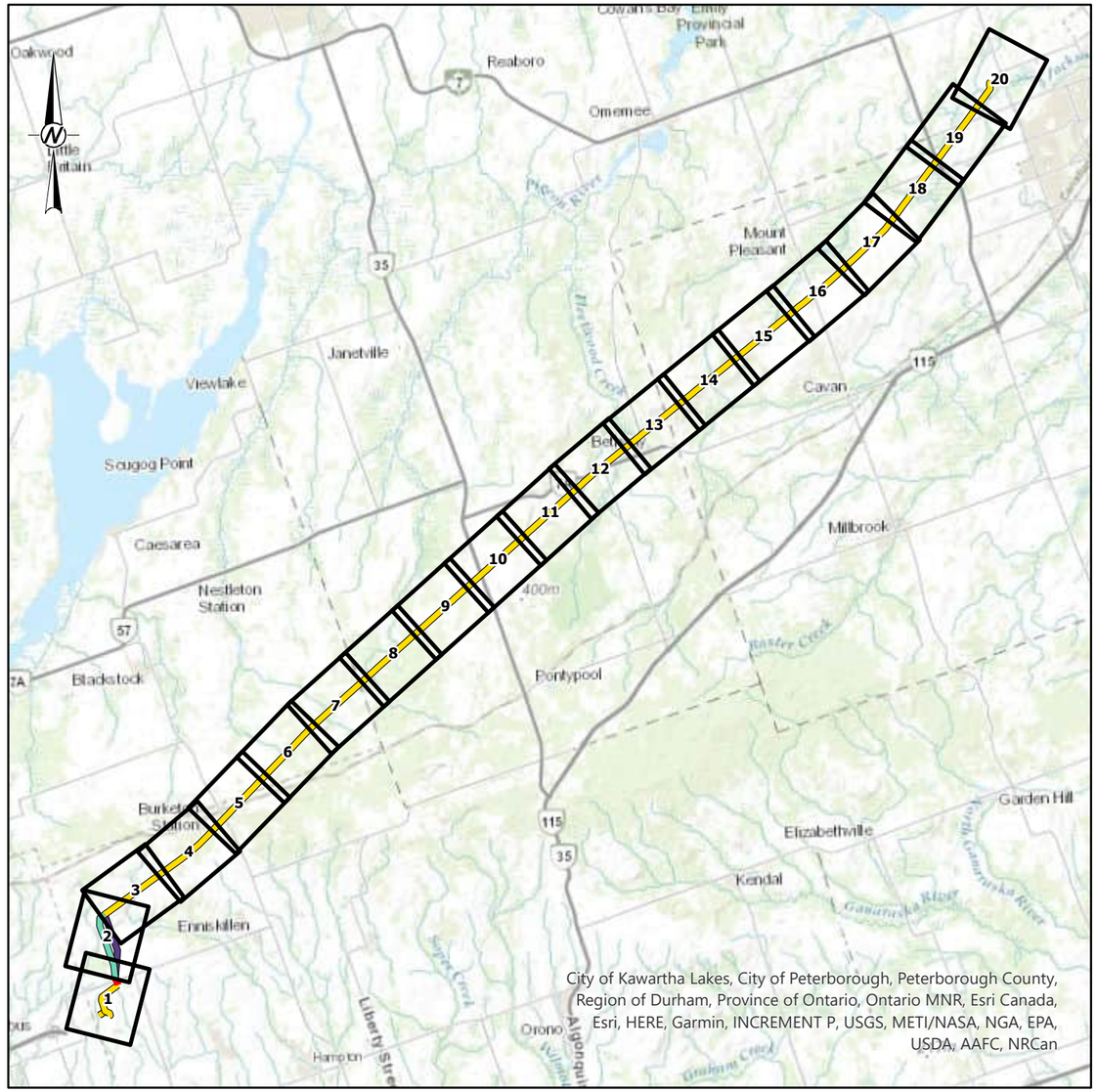
Figure 4 has been redacted to protect sensitive cultural and ecological data

ECOLOGICAL LAND CLASSIFICATION DESCRIPTIONS

Code	Description
AG	Agriculture
CGL_4	Recreational
CUM	Cultural Meadow
CUM/OAGM4	Cultural Meadow/Open Pasture
CUM1-1	Dry – Moist Old Field Meadow Type
CUP	Cultural Plantation
CUP2	Mixed Plantation
CUP3-3	Scotch Pine Coniferous Plantation Type
CUS	Cultural Savannah
CUT	Cultural Thicket
CUT1	Mineral Cultural Thicket
CUW	Cultural Woodland
CVC	Commercial and Institutional
CVC_4	Extraction
CVI	Transportation and Utilities
CVI_4	Power Generation
CVR	Residential
CVS_1	Education
FO	Forest
FOC	Coniferous Forest
FOC/SWC	Coniferous Forest/Coniferous Swamp
FOC2	Dry – Fresh Cedar Coniferous Forest
FOC4	Fresh – Moist White Cedar Coniferous Forest Ecosite
FOCM5	Naturalized Coniferous Hedge-row Ecosite
FOCM6	Naturalized Coniferous Plantation
FOCM6-3	Dry – Fresh Scotch Pine Naturalized Coniferous Plantation
FOD	Deciduous Forest
FOD5	Dry-fresh maple Deciduous Forest
FODM11	Naturalized Deciduous Hedge-row Ecosite
FODM12	Naturalized Deciduous Plantation
FODM3-1	Dry – Fresh Poplar Deciduous Forest Type
FOM	Mixed Forest
FOM/SWM	Mixed Forest/Mixed Swamp
IAG	Agricultural Infrastructure
MA	MARSH

Code	Description
MAM	Meadow Marsh
MAM/MAS	Meadow Marsh/Shallow Marsh
MAMM1	Graminoid Mineral Meadow Marsh
MAS	Shallow Marsh
MAS	Marsh
MAS2-1	Cattail Mineral Shallow Marsh Type
MASM1-1	Cattail Mineral Shallow Marsh Type
MASM1-4	Narrow-leaved Sedge Mineral Shallow Marsh Type
ME	Meadow
OAG	Open Agriculture
OAGM1	Annual Row Crops
OAGM4	Open Pasture
OAGM4/CUM	Open Pasture/Cultural Meadow
OAMG4	Open Pasture
OAO	Open Aquatic
SA	Shallow Water
SAGM4	Plantation
SAGM6	Shrub Pasture
SW	Swamp
Swc	Coniferous Swamp
SWC1	White Cedar Mineral Coniferous Swamp
SWD	Deciduous Swamp
SWD/SWT	Deciduous Swamp/Thicket Swamp
SWDM4-1	Willow Mineral Deciduous Swamp Type
SWM	Mixed Swamp
SWT	Thicket Swamp
Swt3	Alder organic swamp thicket
SWTM1	Alder Mineral Deciduous Thicket Swamp Ecosite
SWTM3	Willow Mineral Deciduous Thicket Swamp Ecosite
TAGM4	Treed Pasture
TH	Thicket
THD	Deciduous Thicket
THDM5	Fresh - Moist Deciduous Thicket Ecosite
WO	Woodland

OVERVIEW



CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
ECOLOGICAL LAND CLASSIFICATION OVERVIEW

CONSULTANT

YYYY-MM-DD	2025-10-02
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5

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25mm
0

TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

- OPEN COUNTRY BIRD BREEDING HABITAT
- MARSH BIRD BREEDING HABITAT
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT

CANDIDATE SIGNIFICANT WILDLIFE HABITAT (SWH)

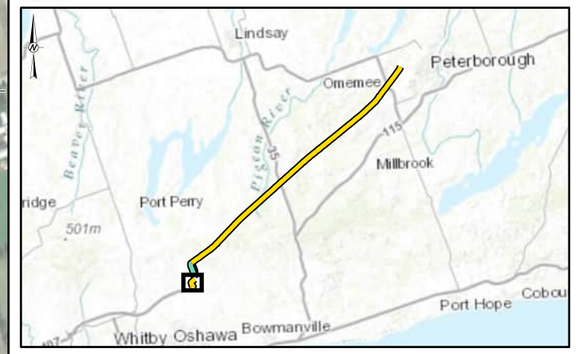
- SEEPS AND SPRINGS
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- RAPTOR WINTERING AREA
- OPEN COUNTRY BIRD BREEDING HABITAT
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT
- REPTILE HIBERNACULUM
- TREE/SHRUB COLONIAL NESTING BIRD BREEDING HABITAT
- TURTLE WINTERING AREAS
- MARSH BIRD BREEDING HABITAT
- WATERFOWL NESTING AREA
- WATERFOWL NESTING AREA AND STAGING AREA (AQUATIC)
- DEER WINTER CONGREGATION AREA
- BAT MATERNITY COLONIES

RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY

REGIONAL ROAD 3
ENFIELD ROAD
LANGMAID ROAD
GRANDVIEW STREET NORTH
GRANDVIEW ROAD NORTH
CONCESSION ROAD 7
Clarington TS

KEY MAP



SCALE 1:1,000,000

LEGEND

- TRANSFORMER STATION (TS)
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- INTERMITTENT
- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ECOLOGICAL LAND CLASSIFICATION (FIELD VERIFIED)
- ECOLOGICAL LAND CLASSIFICATION (DESKTOP REVIEW)

0 100 200 400
1:10,000 METRES

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
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2. IMAGERY CREDITS: WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, NGA, EPA, NPS, AAFC, NRCAN
WORLD IMAGERY: MAXAR
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT

YYYY-MM-DD	2025-10-10
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.1

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0 25mm

TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

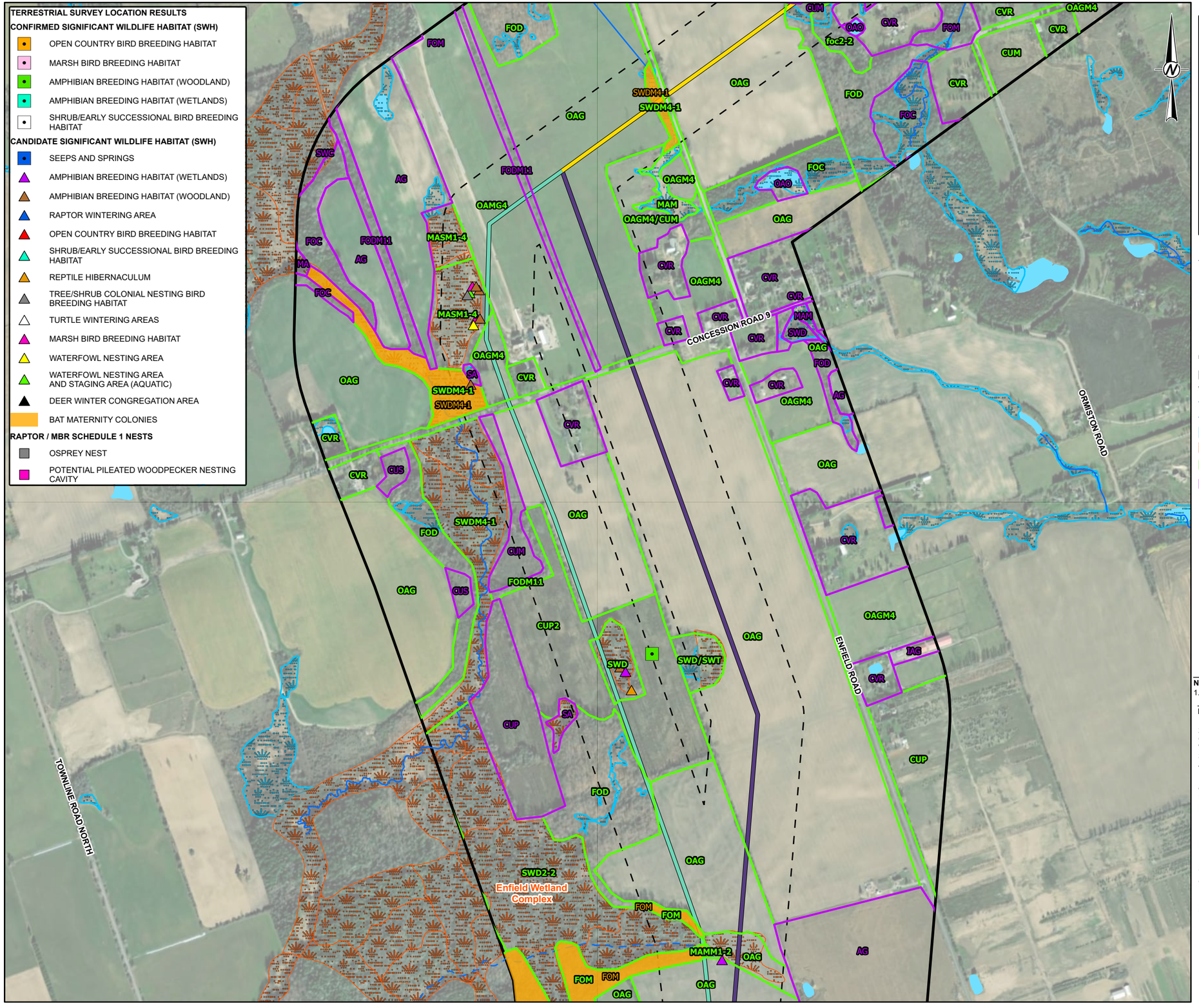
- OPEN COUNTRY BIRD BREEDING HABITAT
- MARSH BIRD BREEDING HABITAT
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT

CANDIDATE SIGNIFICANT WILDLIFE HABITAT (SWH)

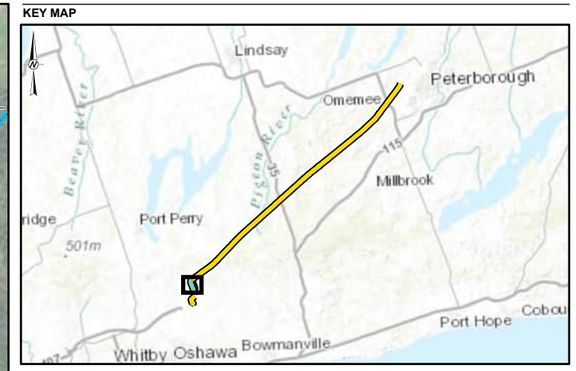
- SEEPS AND SPRINGS
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- RAPTOR WINTERING AREA
- OPEN COUNTRY BIRD BREEDING HABITAT
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT
- REPTILE HIBERNACULUM
- TREE/SHRUB COLONIAL NESTING BIRD BREEDING HABITAT
- TURTLE WINTERING AREAS
- MARSH BIRD BREEDING HABITAT
- WATERFOWL NESTING AREA
- WATERFOWL NESTING AREA AND STAGING AREA (AQUATIC)
- DEER WINTER CONGREGATION AREA
- BAT MATERNITY COLONIES

RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY



KEY MAP



SCALE 1:1,000,000

LEGEND

- TRANSFORMER STATION (TS)
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- INTERMITTENT
- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ECOLOGICAL LAND CLASSIFICATION (FIELD VERIFIED)
- ECOLOGICAL LAND CLASSIFICATION (DESKTOP REVIEW)

0 100 200 400

1:10,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT

YYYY-MM-DD	2025-10-10
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.2

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

0 25mm

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TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

- OPEN COUNTRY BIRD BREEDING HABITAT
- MARSH BIRD BREEDING HABITAT
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT

CANDIDATE SIGNIFICANT WILDLIFE HABITAT (SWH)

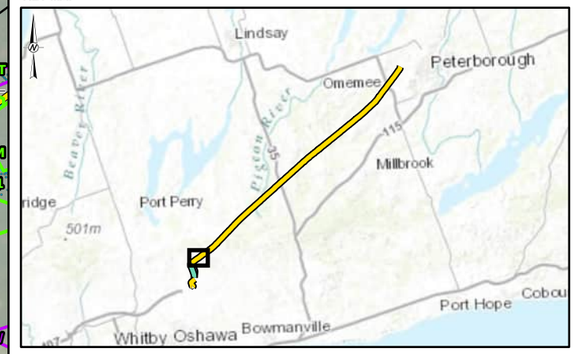
- SEEPS AND SPRINGS
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- RAPTOR WINTERING AREA
- OPEN COUNTRY BIRD BREEDING HABITAT
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT
- REPTILE HIBERNACULUM
- TREE/SHRUB COLONIAL NESTING BIRD BREEDING HABITAT
- TURTLE WINTERING AREAS
- MARSH BIRD BREEDING HABITAT
- WATERFOWL NESTING AREA
- WATERFOWL NESTING AREA AND STAGING AREA (AQUATIC)
- DEER WINTER CONGREGATION AREA
- BAT MATERNITY COLONIES

RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY

CONCESSION ROAD 10
ENFIELD ROAD
WOTTEN ROAD
UNION SCHOOL ROAD
CONCESSION ROAD 9
ORMISTON ROAD
Enfield Wetland Complex

KEY MAP



SCALE 1:1,000,000

LEGEND

- TRANSFORMER STATION (TS)
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ECOLOGICAL LAND CLASSIFICATION (FIELD VERIFIED)
- ECOLOGICAL LAND CLASSIFICATION (DESKTOP REVIEW)

0 100 200 400

1:10,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT

YYYY-MM-DD	2025-10-10
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.3

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

0 25mm

PATH: S:\Clients\HydroOne\Doblin_TS\99_PROJ\CA0020403-4964\40_PROD\0011_Natural_Heritage\CA0020403-4964-0011-HN-0000.aprx PRINTED ON: AT: 12:20:57 PM

TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

- OPEN COUNTRY BIRD BREEDING HABITAT
- MARSH BIRD BREEDING HABITAT
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT

CANDIDATE SIGNIFICANT WILDLIFE HABITAT (SWH)

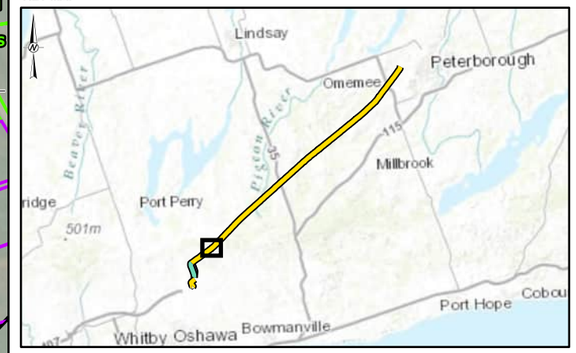
- SEEPS AND SPRINGS
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- RAPTOR WINTERING AREA
- OPEN COUNTRY BIRD BREEDING HABITAT
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT
- REPTILE HIBERNACULUM
- TREE/SHRUB COLONIAL NESTING BIRD BREEDING HABITAT
- TURTLE WINTERING AREAS
- MARSH BIRD BREEDING HABITAT
- WATERFOWL NESTING AREA
- WATERFOWL NESTING AREA AND STAGING AREA (AQUATIC)
- DEER WINTER CONGREGATION AREA
- BAT MATERNITY COLONIES

RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY

MARY STREET
ROY CARTER STREET
DARLINGTON STREET
SUMAC ROAD
HAWKE COURT
OLD SCUGOG ROAD
CONCESSION ROAD 10
CONCESSION ROAD 9
UNION SCHOOL ROAD

KEY MAP



SCALE 1:1,000,000

LEGEND

- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- INTERMITTENT
- PERMANENT
- UNEVALUATED WETLAND
- ECOLOGICAL LAND CLASSIFICATION (FIELD VERIFIED)
- ECOLOGICAL LAND CLASSIFICATION (DESKTOP REVIEW)

0 100 200 400
1:10,000 METRES

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
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WORLD IMAGERY: MAXAR
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4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT

YYYY-MM-DD	2025-10-10
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.4

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0 25mm

TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

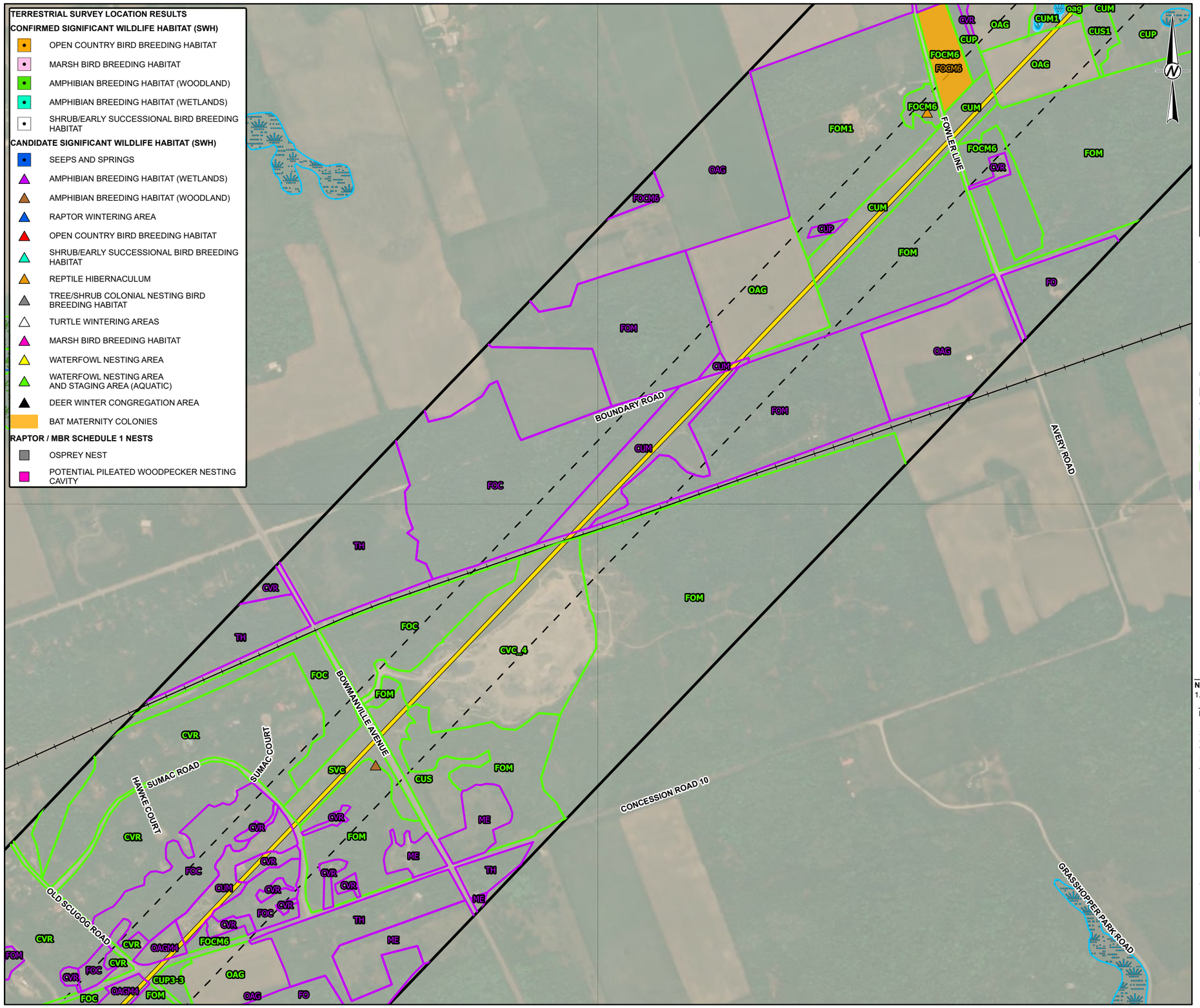
- OPEN COUNTRY BIRD BREEDING HABITAT
- MARSH BIRD BREEDING HABITAT
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT

CANDIDATE SIGNIFICANT WILDLIFE HABITAT (SWH)

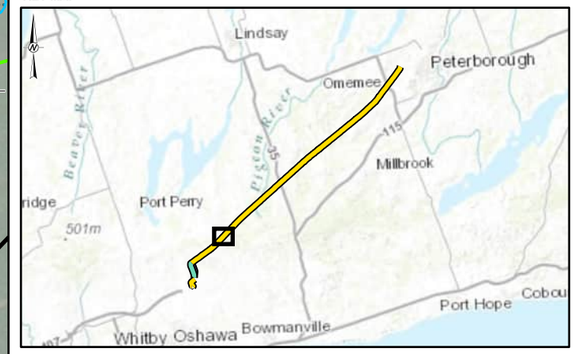
- SEEPS AND SPRINGS
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- RAPTOR WINTERING AREA
- OPEN COUNTRY BIRD BREEDING HABITAT
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- TREE/SHRUB COLONIAL NESTING BIRD BREEDING HABITAT
- TURTLE WINTERING AREAS
- MARSH BIRD BREEDING HABITAT
- WATERFOWL NESTING AREA
- WATERFOWL NESTING AREA AND STAGING AREA (AQUATIC)
- DEER WINTER CONGREGATION AREA
- BAT MATERNITY COLONIES

RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY



KEY MAP



SCALE 1:1,000,000

LEGEND

- TRANSFORMER STATION (TS)
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- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- PERMANENT
- UNEVALUATED WETLAND
- EVALUATED WETLAND (NO SIGNIFICANCE)
- ECOLOGICAL LAND CLASSIFICATION (FIELD VERIFIED)
- ECOLOGICAL LAND CLASSIFICATION (DESKTOP REVIEW)

0 100 200 400

1:10,000 METRES

NOTE(S)

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CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT

YYYY-MM-DD	2025-10-10
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.5

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TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

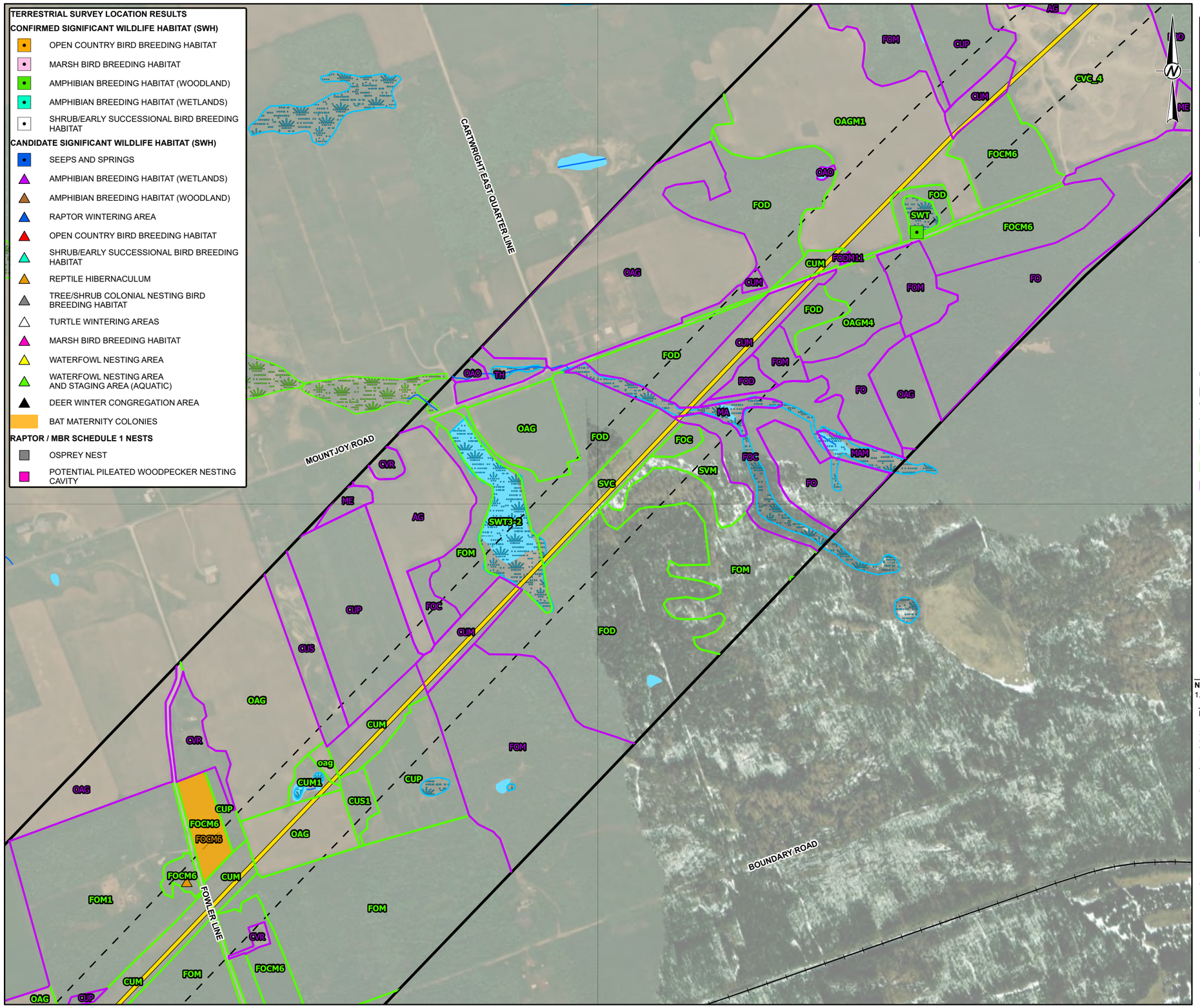
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- MARSH BIRD BREEDING HABITAT
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT

CANDIDATE SIGNIFICANT WILDLIFE HABITAT (SWH)

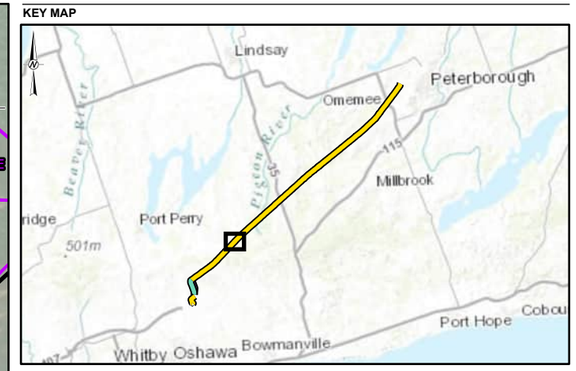
- SEEPS AND SPRINGS
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- RAPTOR WINTERING AREA
- OPEN COUNTRY BIRD BREEDING HABITAT
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT
- REPTILE HIBERNACULUM
- TREE/SHRUB COLONIAL NESTING BIRD BREEDING HABITAT
- TURTLE WINTERING AREAS
- MARSH BIRD BREEDING HABITAT
- WATERFOWL NESTING AREA
- WATERFOWL NESTING AREA AND STAGING AREA (AQUATIC)
- DEER WINTER CONGREGATION AREA
- BAT MATERNITY COLONIES

RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY



KEY MAP



SCALE 1:1,000,000

LEGEND

- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- PERMANENT
- UNEVALUATED WETLAND
- EVALUATED WETLAND (NO SIGNIFICANCE)
- ECOLOGICAL LAND CLASSIFICATION (FIELD VERIFIED)
- ECOLOGICAL LAND CLASSIFICATION (DESKTOP REVIEW)

0 100 200 400

1:10,000 METRES

NOTE(S)

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CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT
wsp

YYYY-MM-DD	2025-10-10
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.6

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TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

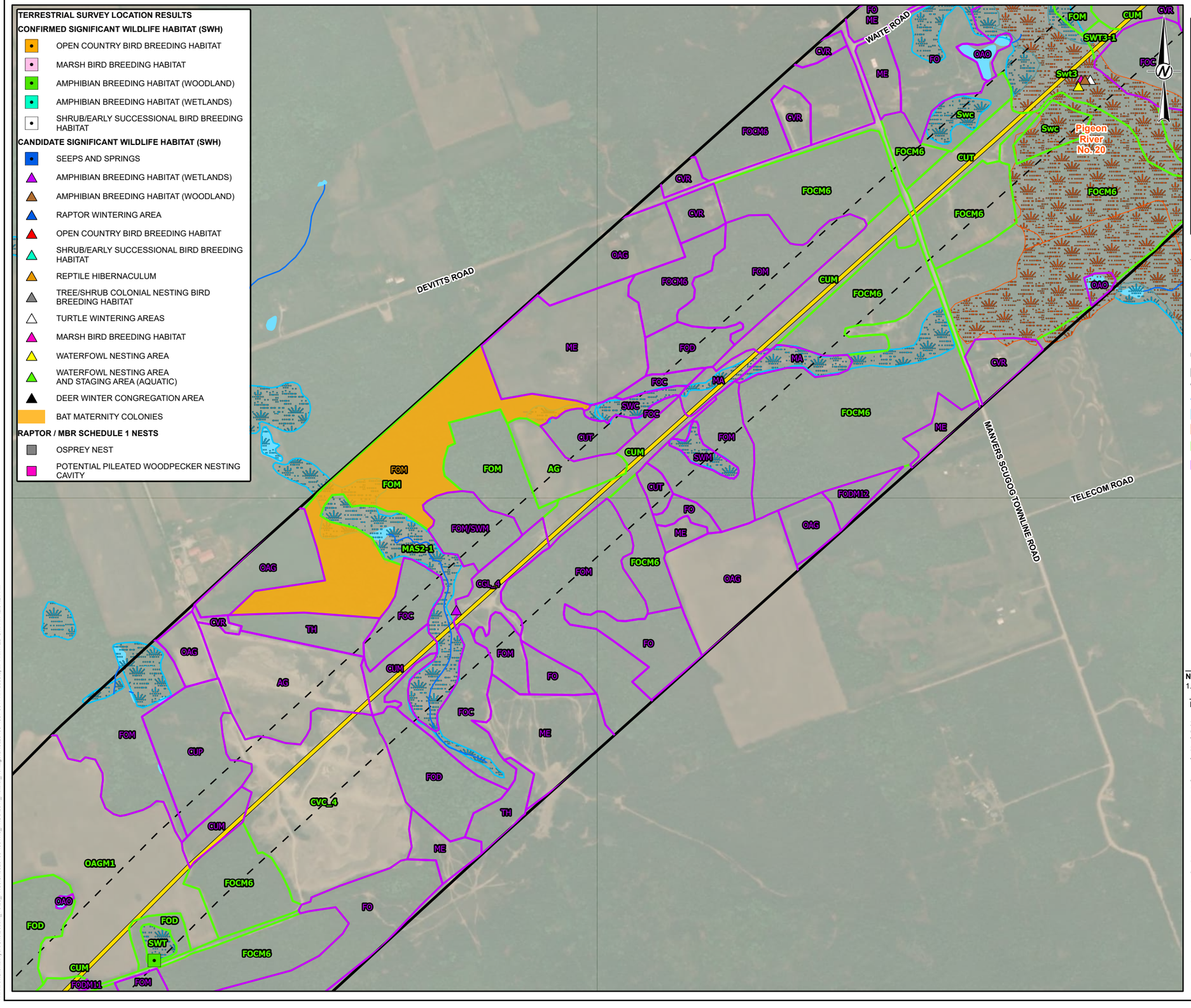
- OPEN COUNTRY BIRD BREEDING HABITAT
- MARSH BIRD BREEDING HABITAT
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT

CANDIDATE SIGNIFICANT WILDLIFE HABITAT (SWH)

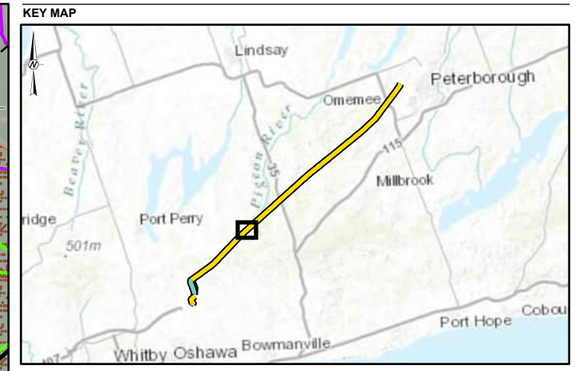
- SEEPS AND SPRINGS
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
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- RAPTOR WINTERING AREA
- OPEN COUNTRY BIRD BREEDING HABITAT
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT
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- TREE/SHRUB COLONIAL NESTING BIRD BREEDING HABITAT
- TURTLE WINTERING AREAS
- MARSH BIRD BREEDING HABITAT
- WATERFOWL NESTING AREA
- WATERFOWL NESTING AREA AND STAGING AREA (AQUATIC)
- DEER WINTER CONGREGATION AREA
- BAT MATERNITY COLONIES

RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY



KEY MAP



SCALE 1:1,000,000

LEGEND

- TRANSFORMER STATION (TS)
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ECOLOGICAL LAND CLASSIFICATION (FIELD VERIFIED)
- ECOLOGICAL LAND CLASSIFICATION (DESKTOP REVIEW)

0 100 200 400

1:10,000 METRES

NOTE(S)

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CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT

YYYY-MM-DD	2025-10-10
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.7

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25mm
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TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

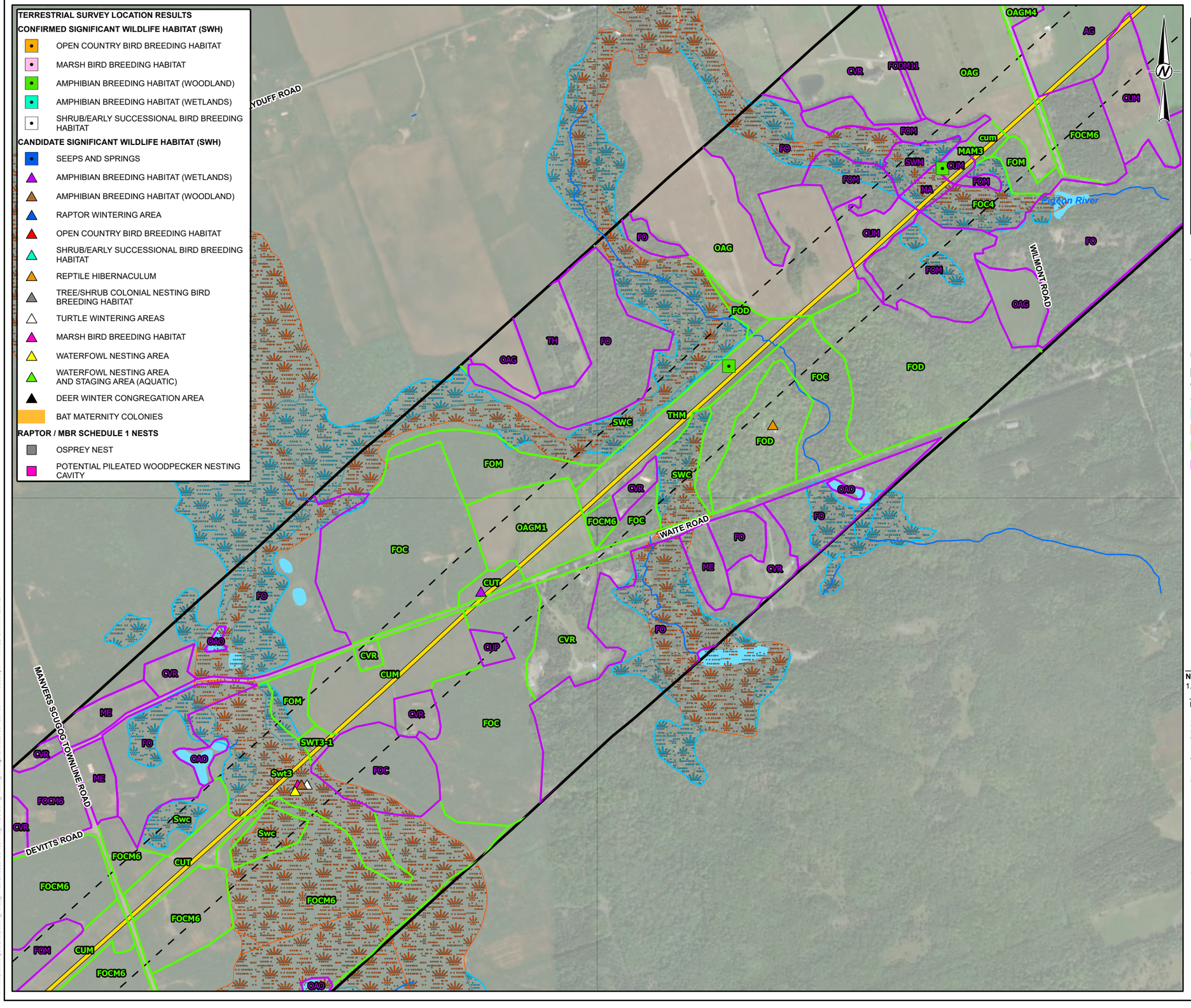
- OPEN COUNTRY BIRD BREEDING HABITAT
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- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT

CANDIDATE SIGNIFICANT WILDLIFE HABITAT (SWH)

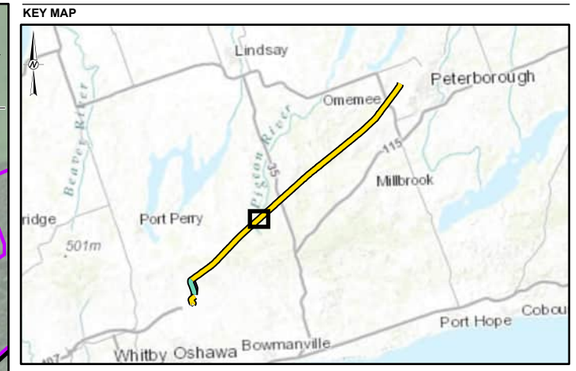
- SEEPS AND SPRINGS
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- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- RAPTOR WINTERING AREA
- OPEN COUNTRY BIRD BREEDING HABITAT
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- TREE/SHRUB COLONIAL NESTING BIRD BREEDING HABITAT
- TURTLE WINTERING AREAS
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- WATERFOWL NESTING AREA
- WATERFOWL NESTING AREA AND STAGING AREA (AQUATIC)
- DEER WINTER CONGREGATION AREA
- BAT MATERNITY COLONIES

RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY



KEY MAP



SCALE 1:1,000,000

LEGEND

- TRANSFORMER STATION (TS)
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
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- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ECOLOGICAL LAND CLASSIFICATION (FIELD VERIFIED)
- ECOLOGICAL LAND CLASSIFICATION (DESKTOP REVIEW)

0 100 200 400

1:10,000 METRES

NOTE(S)

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CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT

YYYY-MM-DD	2025-10-10
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PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.8

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25mm
0

TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

- OPEN COUNTRY BIRD BREEDING HABITAT
- MARSH BIRD BREEDING HABITAT
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
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CANDIDATE SIGNIFICANT WILDLIFE HABITAT (SWH)

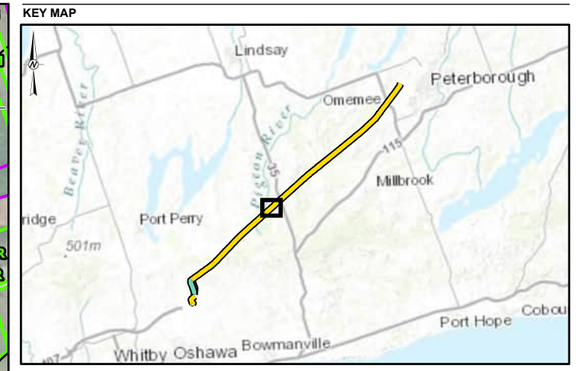
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- BAT MATERNITY COLONIES

RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY

CENTURY FARM ROAD
BALLYDUFF ROAD
WILMONT ROAD
WAITE ROAD
Lynde River

KEY MAP



SCALE 1:1,000,000

LEGEND

- TRANSFORMER STATION (TS)
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
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1:10,000 METRES

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DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT

YYYY-MM-DD	2025-10-10
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APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.9

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0 25mm

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TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

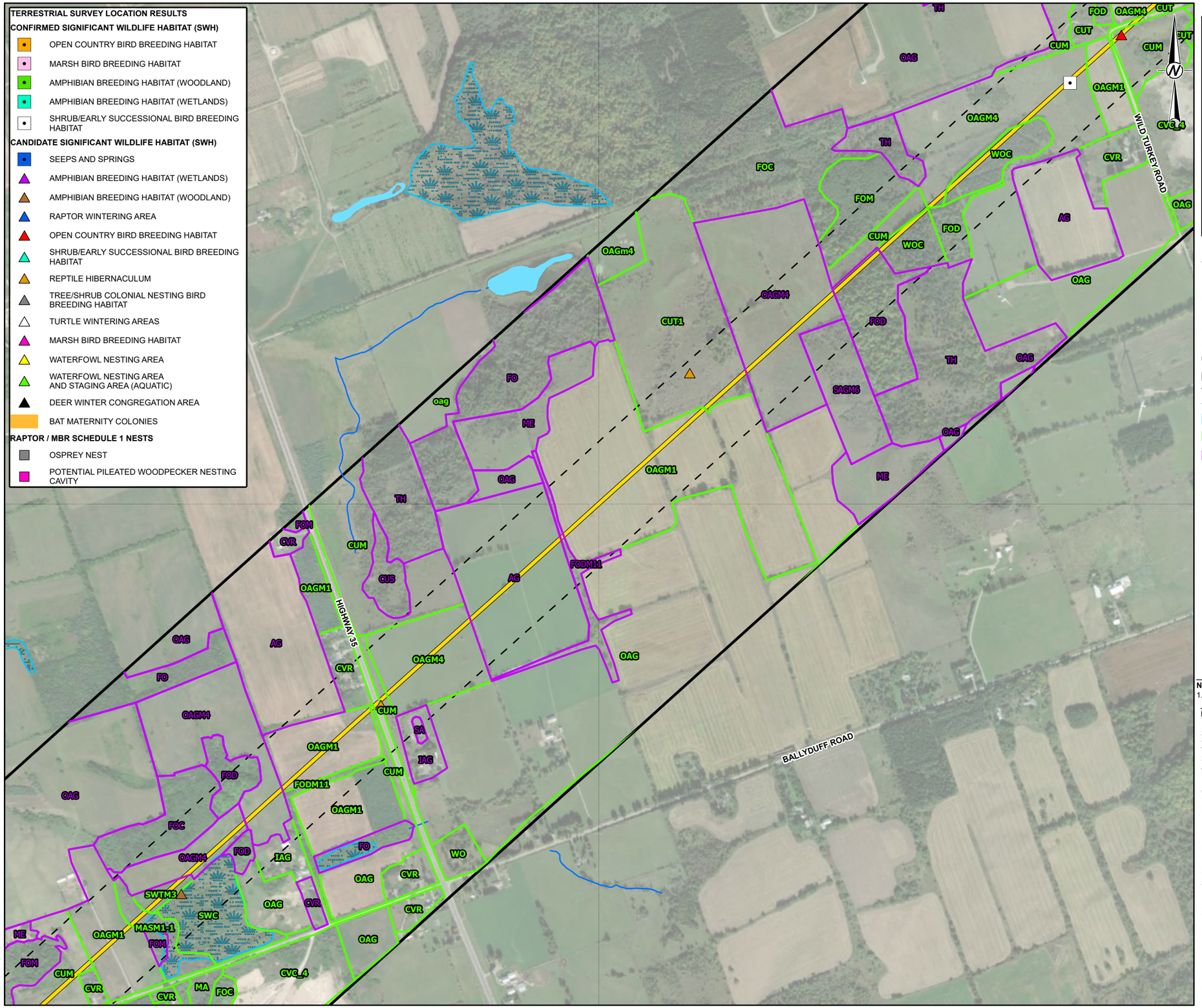
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CANDIDATE SIGNIFICANT WILDLIFE HABITAT (SWH)

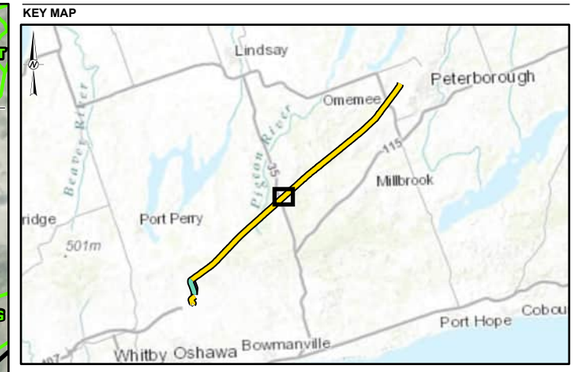
- SEEPS AND SPRINGS
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- RAPTOR WINTERING AREA
- OPEN COUNTRY BIRD BREEDING HABITAT
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT
- REPTILE HIBERNACULUM
- TREE/SHRUB COLONIAL NESTING BIRD BREEDING HABITAT
- TURTLE WINTERING AREAS
- MARSH BIRD BREEDING HABITAT
- WATERFOWL NESTING AREA
- WATERFOWL NESTING AREA AND STAGING AREA (AQUATIC)
- DEER WINTER CONGREGATION AREA
- BAT MATERNITY COLONIES

RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY



KEY MAP



SCALE 1:1,000,000

LEGEND

- TRANSFORMER STATION (TS)
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- PERMANENT
- UNEVALUATED WETLAND
- ECOLOGICAL LAND CLASSIFICATION (FIELD VERIFIED)
- ECOLOGICAL LAND CLASSIFICATION (DESKTOP REVIEW)

0 100 200 400

1:10,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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   WORLD IMAGERY: MAXAR
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT

YYYY-MM-DD	2025-10-10
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.10

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
25mm
0

TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

- OPEN COUNTRY BIRD BREEDING HABITAT
- MARSH BIRD BREEDING HABITAT
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT

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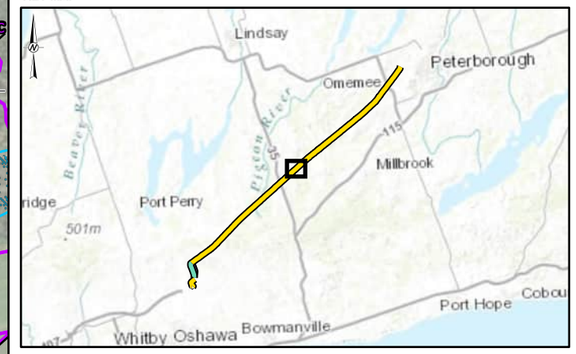
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- BAT MATERNITY COLONIES

RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY

BEERS ROAD
GALLOWAY ROAD
HIGHWAY 7A
PIT ROAD
GRAY ROAD
WILD TURKEY ROAD
Pigeon River No. 23 Complex

KEY MAP



SCALE 1:1,000,000

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- ECOLOGICAL LAND CLASSIFICATION (DESKTOP REVIEW)
- DEER YARDING AREA (MNR)

0 100 200 400
1:10,000 METRES

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PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT

YYYY-MM-DD	2025-10-10
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APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.11

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TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

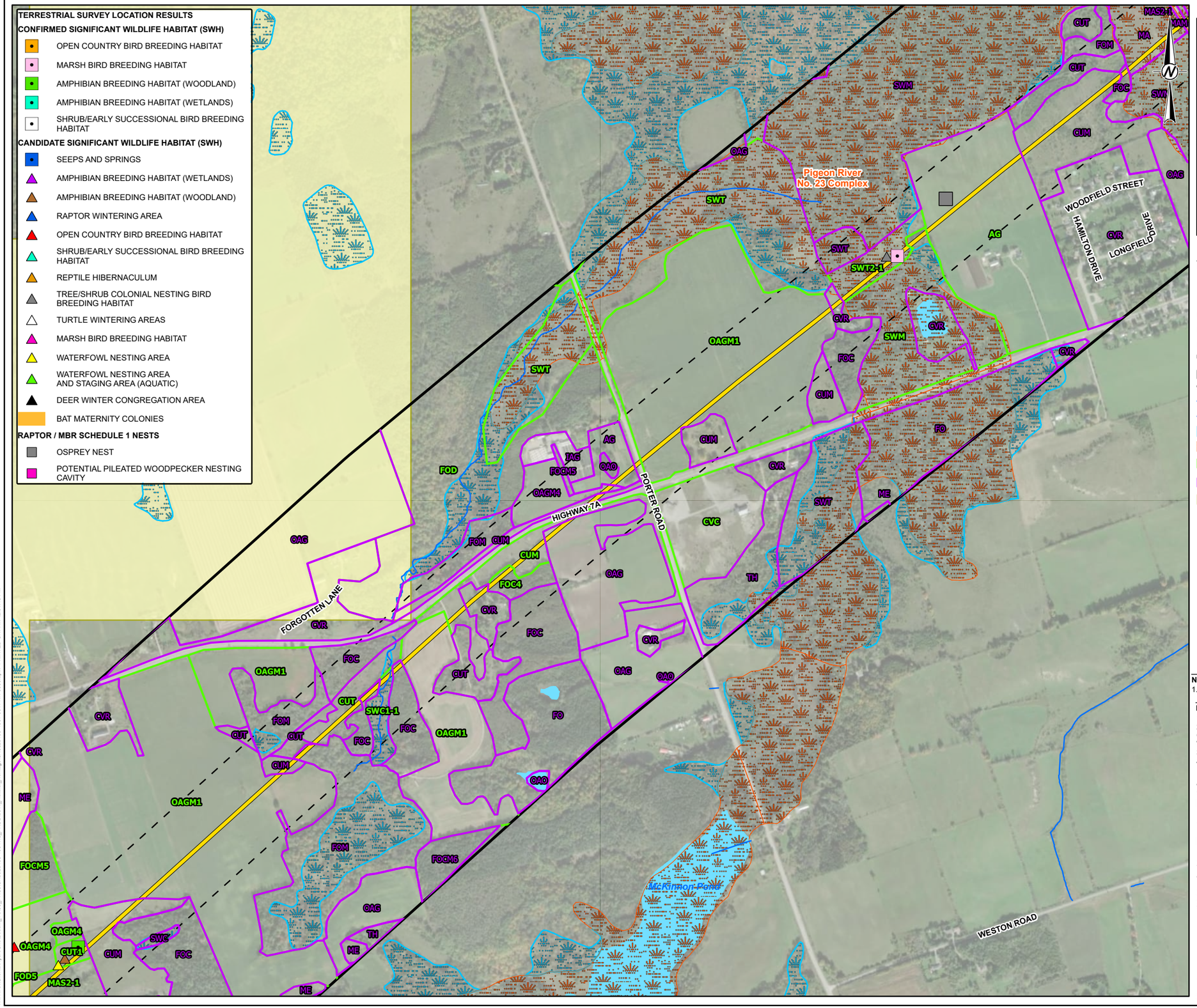
- OPEN COUNTRY BIRD BREEDING HABITAT
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CANDIDATE SIGNIFICANT WILDLIFE HABITAT (SWH)

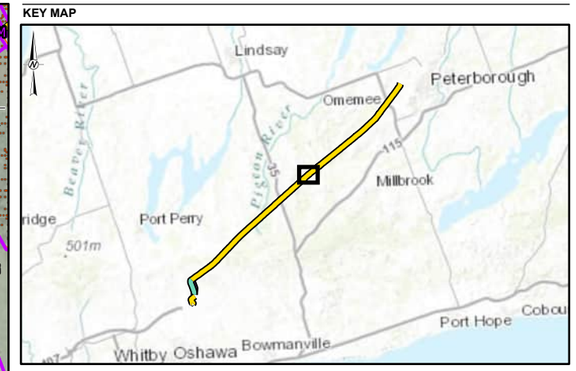
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- BAT MATERNITY COLONIES

RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY



KEY MAP



SCALE 1:1,000,000

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WATERCOURSE PERMANENCY

- INTERMITTENT
- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ECOLOGICAL LAND CLASSIFICATION (FIELD VERIFIED)
- ECOLOGICAL LAND CLASSIFICATION (DESKTOP REVIEW)
- DEER YARDING AREA (MNR)

0 100 200 400

1:10,000 METRES

NOTE(S)

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CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT

YYYY-MM-DD	2025-10-10
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.12

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TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

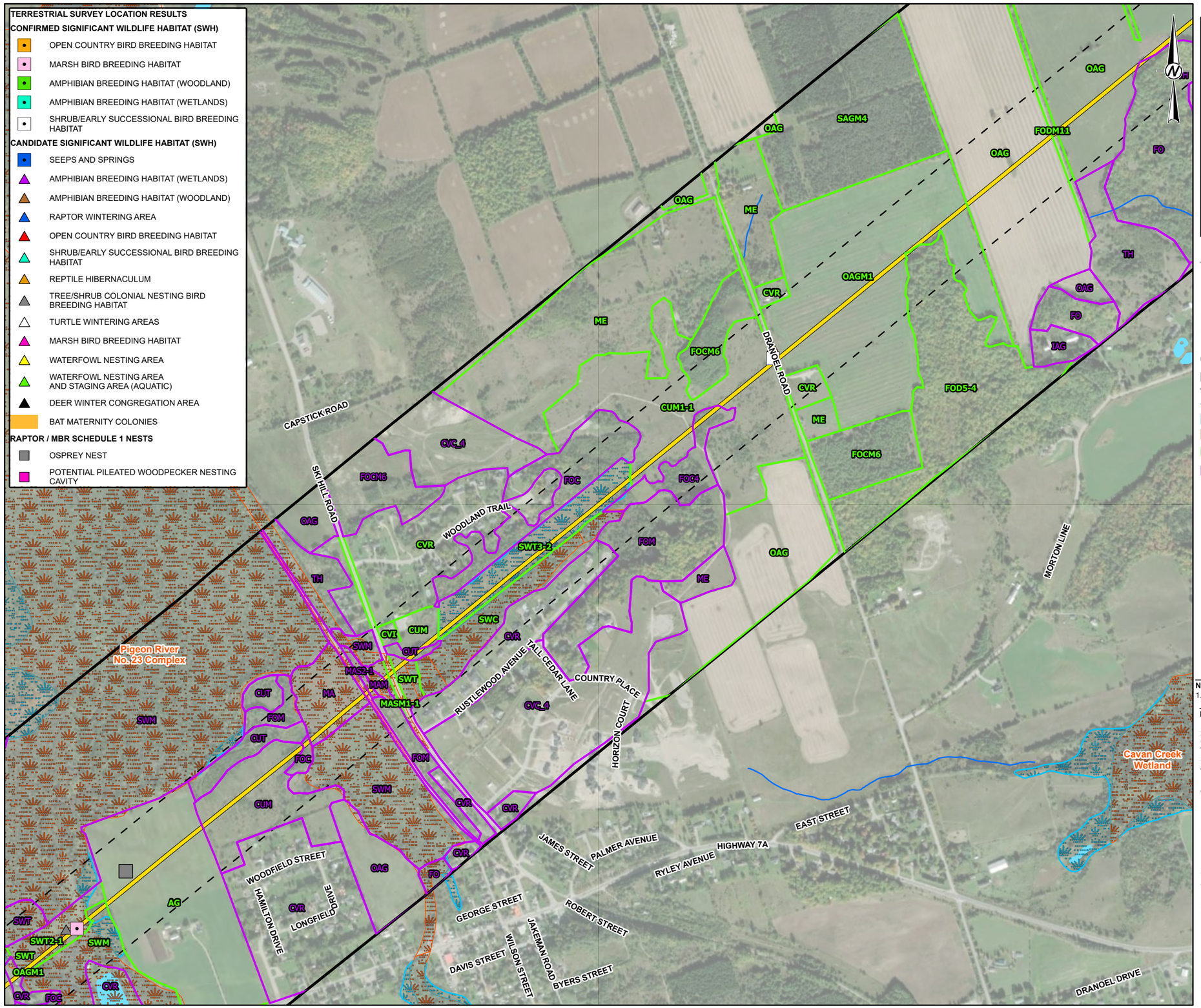
- OPEN COUNTRY BIRD BREEDING HABITAT
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CANDIDATE SIGNIFICANT WILDLIFE HABITAT (SWH)

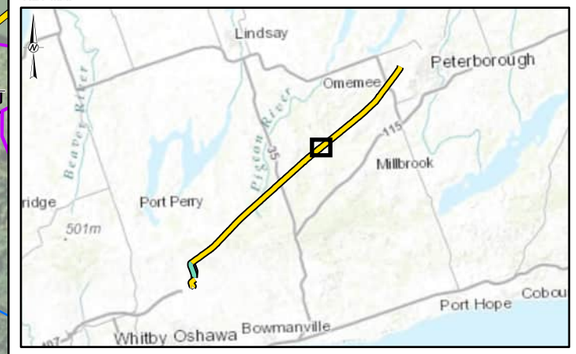
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- BAT MATERNITY COLONIES

RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY



KEY MAP



SCALE 1:1,000,000

LEGEND

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- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ECOLOGICAL LAND CLASSIFICATION (FIELD VERIFIED)
- ECOLOGICAL LAND CLASSIFICATION (DESKTOP REVIEW)

0 100 200 400

1:10,000 METRES

NOTE(S)

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CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT

YYYY-MM-DD	2025-10-10
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.13

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

0 25mm

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TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

- OPEN COUNTRY BIRD BREEDING HABITAT
- MARSH BIRD BREEDING HABITAT
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT

CANDIDATE SIGNIFICANT WILDLIFE HABITAT (SWH)

- SEEPS AND SPRINGS
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
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- RAPTOR WINTERING AREA
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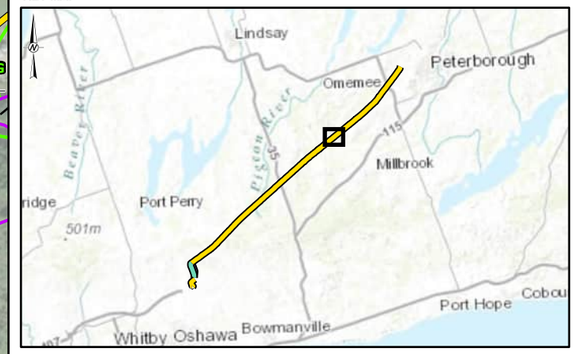
RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY

DARLING CRESCENT
JACK LANE
SHARPE LINE
WINSLOW QUARTER LINE
MORTON LINE
Cavan Creek
Cavan Creek Wetland

OAG, OAGM1, OAGM4, FOD, FOD5-4, FODM11, CVR, CUT, CUM, CUM1, FOM, CUT1, FOC4-2, FOC, FO, ME, TH, oagm1, SAGM4, IAG

KEY MAP



SCALE 1:1,000,000

LEGEND

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0 100 200 400
1:10,000 METRES

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TITLE
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CONSULTANT

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APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.14

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TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

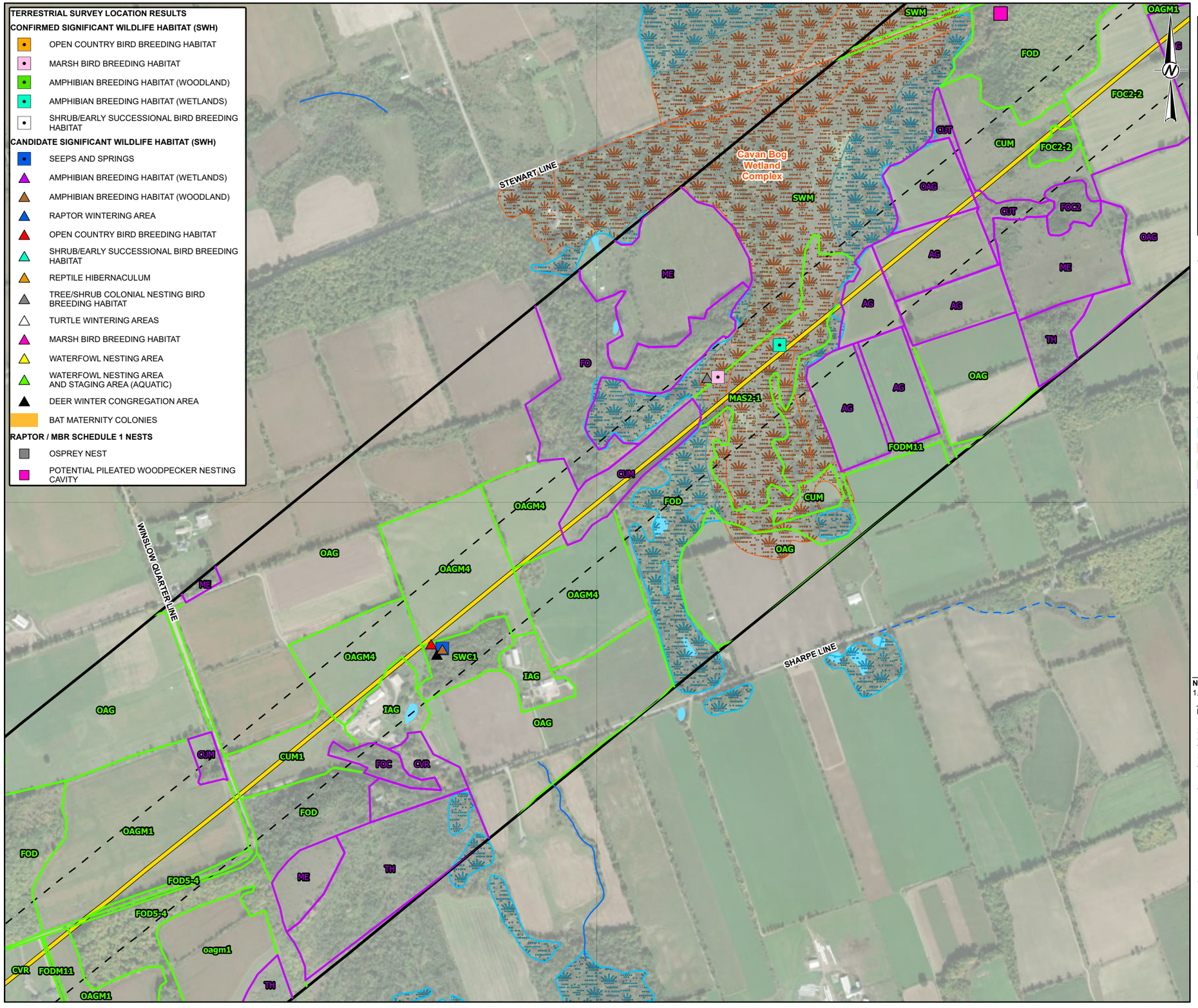
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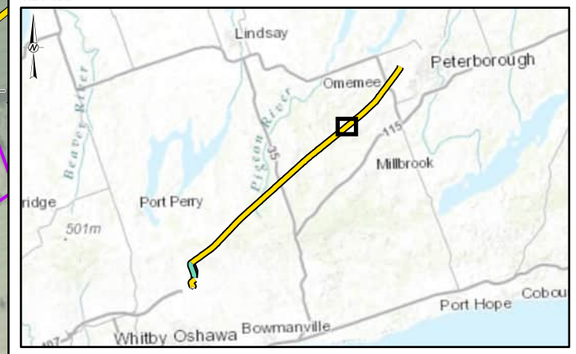
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KEY MAP



SCALE 1:1,000,000

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0 100 200 400

1:10,000 METRES

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CONSULTANT

YYYY-MM-DD	2025-10-10
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PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.15

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0 25mm

TERRESTRIAL SURVEY LOCATION RESULTS

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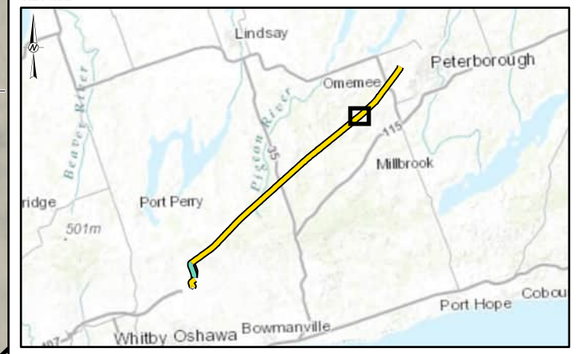
RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY

HOOTON DRIVE
COUNTY ROAD 10
STEWART LINE
SHARPE LINE

CUM FOC CUM AG FOD SWC AG CUM CUM CVR CUP OAO OAG OAG OAG CVR CVR FO OAG OAG OAGM4 CVR CVR CUM MAM AG ME OAG FOD OAGM1 CVR SWM FOD FOD FOD AG OAG FOC2-2 CVS_1 SWM CUT CUM FOC2-2 ME OAG CUT FOC2 OAG AG ME MAS2-1 AG AG FOD FODM11 AG OAG TH

KEY MAP



SCALE 1:1,000,000

LEGEND

- TRANSFORMER STATION (TS)
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- INTERMITTENT
- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ECOLOGICAL LAND CLASSIFICATION (FIELD VERIFIED)
- ECOLOGICAL LAND CLASSIFICATION (DESKTOP REVIEW)
- DEER YARDING AREA (MNR)

0 100 200 400

1:10,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, EPA, NPS, AAFC, NRCAN
   WORLD IMAGERY: MAXAR
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT

YYYY-MM-DD	2025-10-10
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.16

PATH: S:\Clients\HydroOne\Doobin_TS\99_PROJ\CA0020403-4964\40_PROJ\0011_Natural_Heritage\CA0020403-4964-0011-HN-0000.aprx PRINTED ON: AT: 12:02:09 PM
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
25mm
0

TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

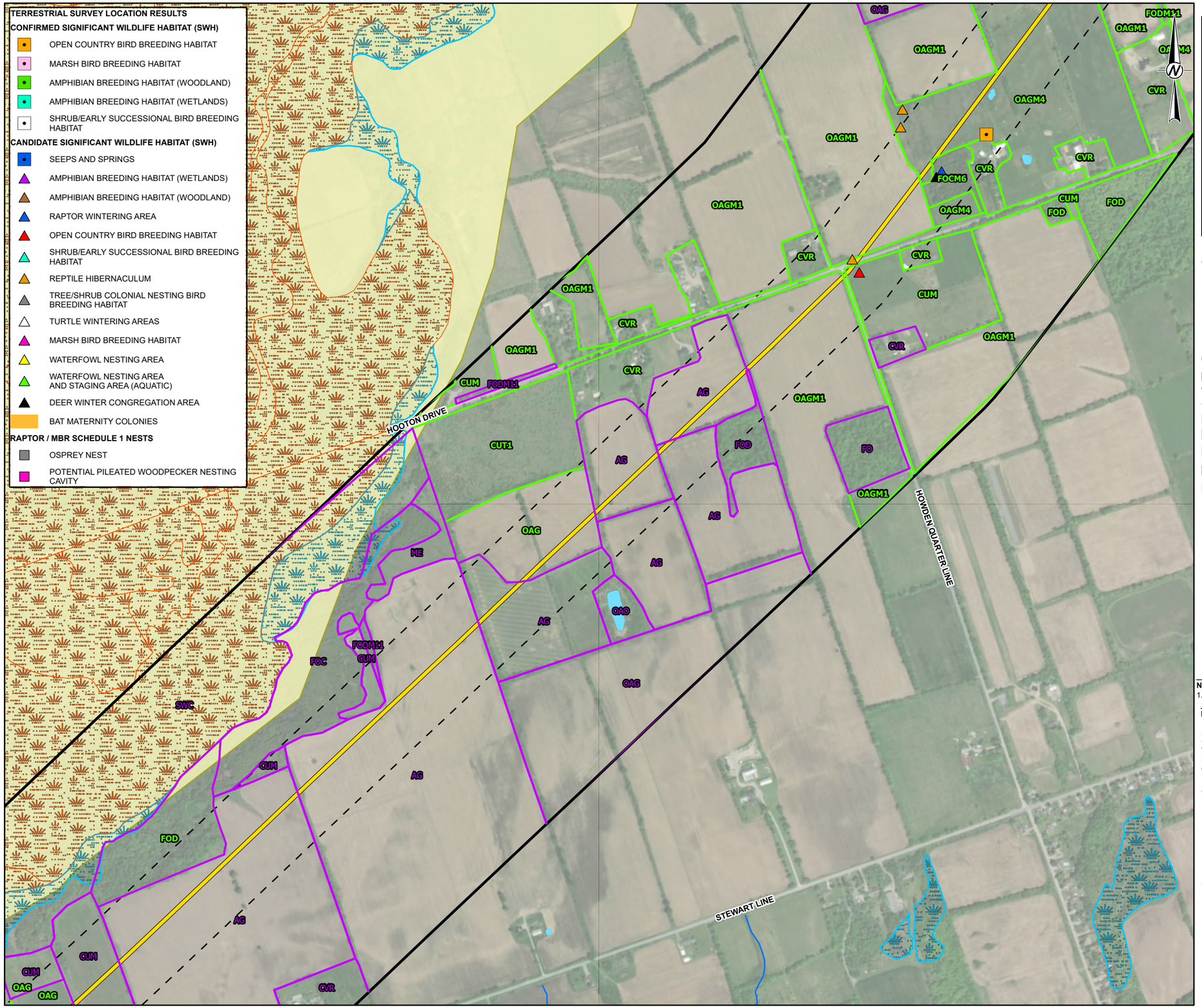
- OPEN COUNTRY BIRD BREEDING HABITAT
- MARSH BIRD BREEDING HABITAT
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT

CANDIDATE SIGNIFICANT WILDLIFE HABITAT (SWH)

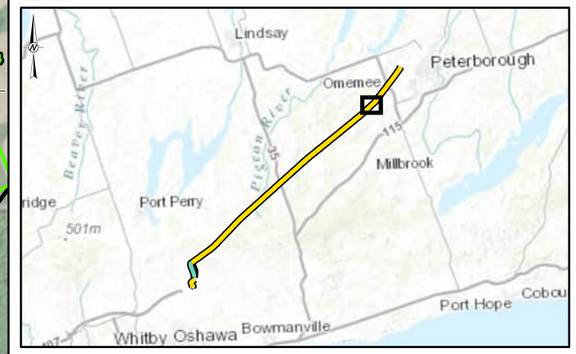
- SEEPS AND SPRINGS
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- RAPTOR WINTERING AREA
- OPEN COUNTRY BIRD BREEDING HABITAT
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT
- REPTILE HIBERNACULUM
- TREE/SHRUB COLONIAL NESTING BIRD BREEDING HABITAT
- TURTLE WINTERING AREAS
- MARSH BIRD BREEDING HABITAT
- WATERFOWL NESTING AREA
- WATERFOWL NESTING AREA AND STAGING AREA (AQUATIC)
- DEER WINTER CONGREGATION AREA
- BAT MATERNITY COLONIES

RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY



KEY MAP



SCALE 1:1,000,000

LEGEND

- TRANSFORMER STATION (TS)
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ECOLOGICAL LAND CLASSIFICATION (FIELD VERIFIED)
- ECOLOGICAL LAND CLASSIFICATION (DESKTOP REVIEW)
- DEER YARDING AREA (MNR)

0 100 200 400

1:10,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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   WORLD IMAGERY: MAXAR
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT

wsp

YYYY-MM-DD	2025-10-10
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.17

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

0 25mm

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TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

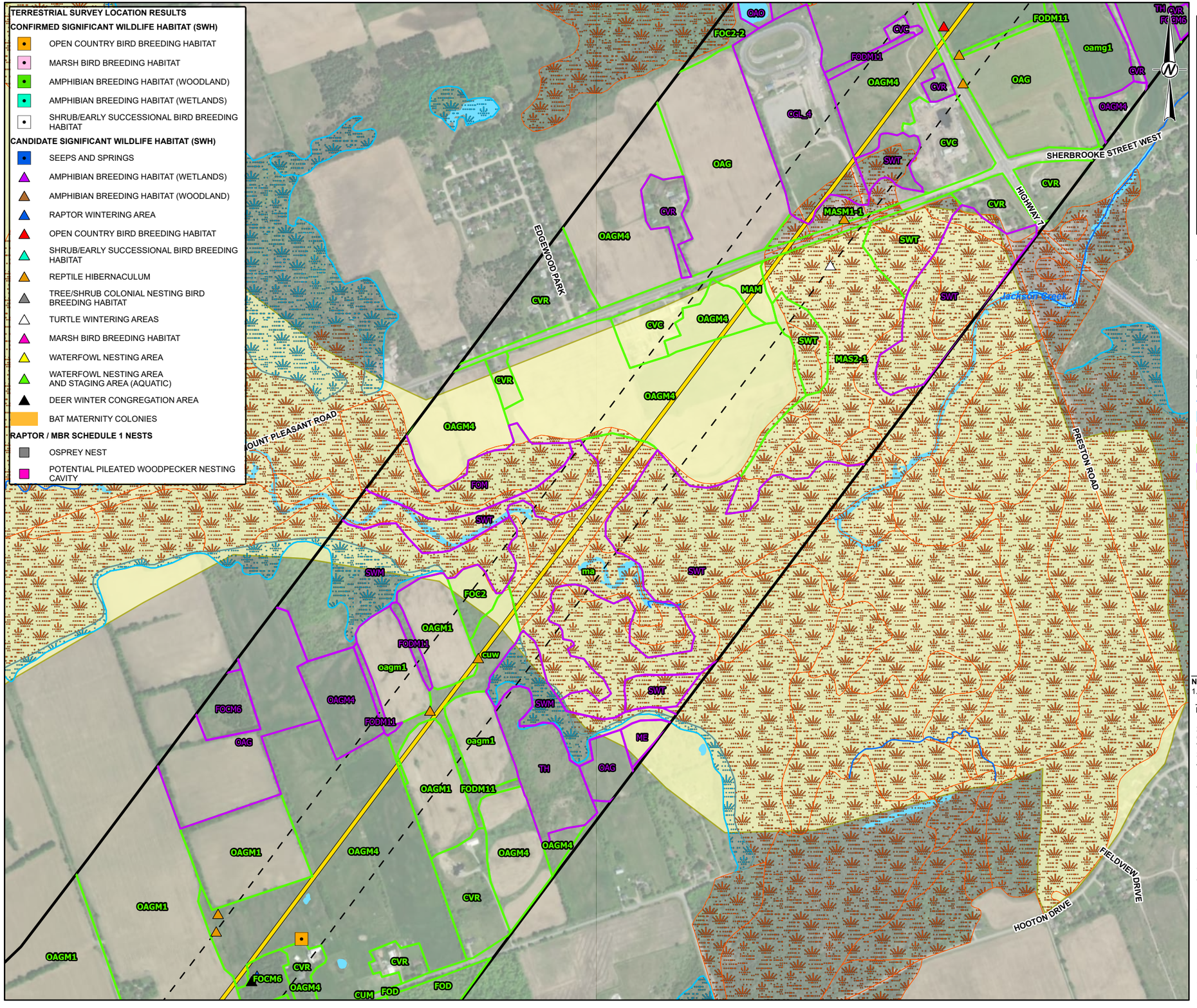
- OPEN COUNTRY BIRD BREEDING HABITAT
- MARSH BIRD BREEDING HABITAT
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT

CANDIDATE SIGNIFICANT WILDLIFE HABITAT (SWH)

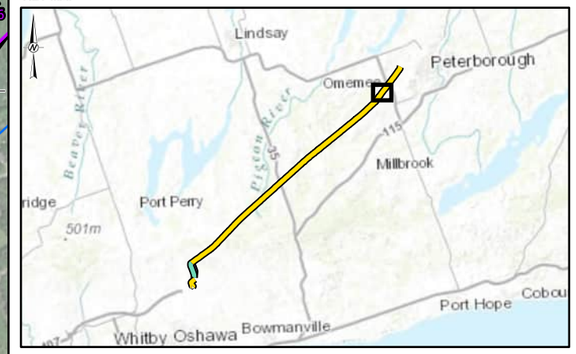
- SEEPS AND SPRINGS
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- RAPTOR WINTERING AREA
- OPEN COUNTRY BIRD BREEDING HABITAT
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT
- REPTILE HIBERNACULUM
- TREE/SHRUB COLONIAL NESTING BIRD BREEDING HABITAT
- TURTLE WINTERING AREAS
- MARSH BIRD BREEDING HABITAT
- WATERFOWL NESTING AREA
- WATERFOWL NESTING AREA AND STAGING AREA (AQUATIC)
- DEER WINTER CONGREGATION AREA
- BAT MATERNITY COLONIES

RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY



KEY MAP



SCALE 1:1,000,000

LEGEND

- TRANSFORMER STATION (TS)
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ECOLOGICAL LAND CLASSIFICATION (FIELD VERIFIED)
- ECOLOGICAL LAND CLASSIFICATION (DESKTOP REVIEW)
- DEER YARDING AREA (MNR)

0 100 200 400

1:10,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT

YYYY-MM-DD	2025-10-10
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.18

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

25mm

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TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

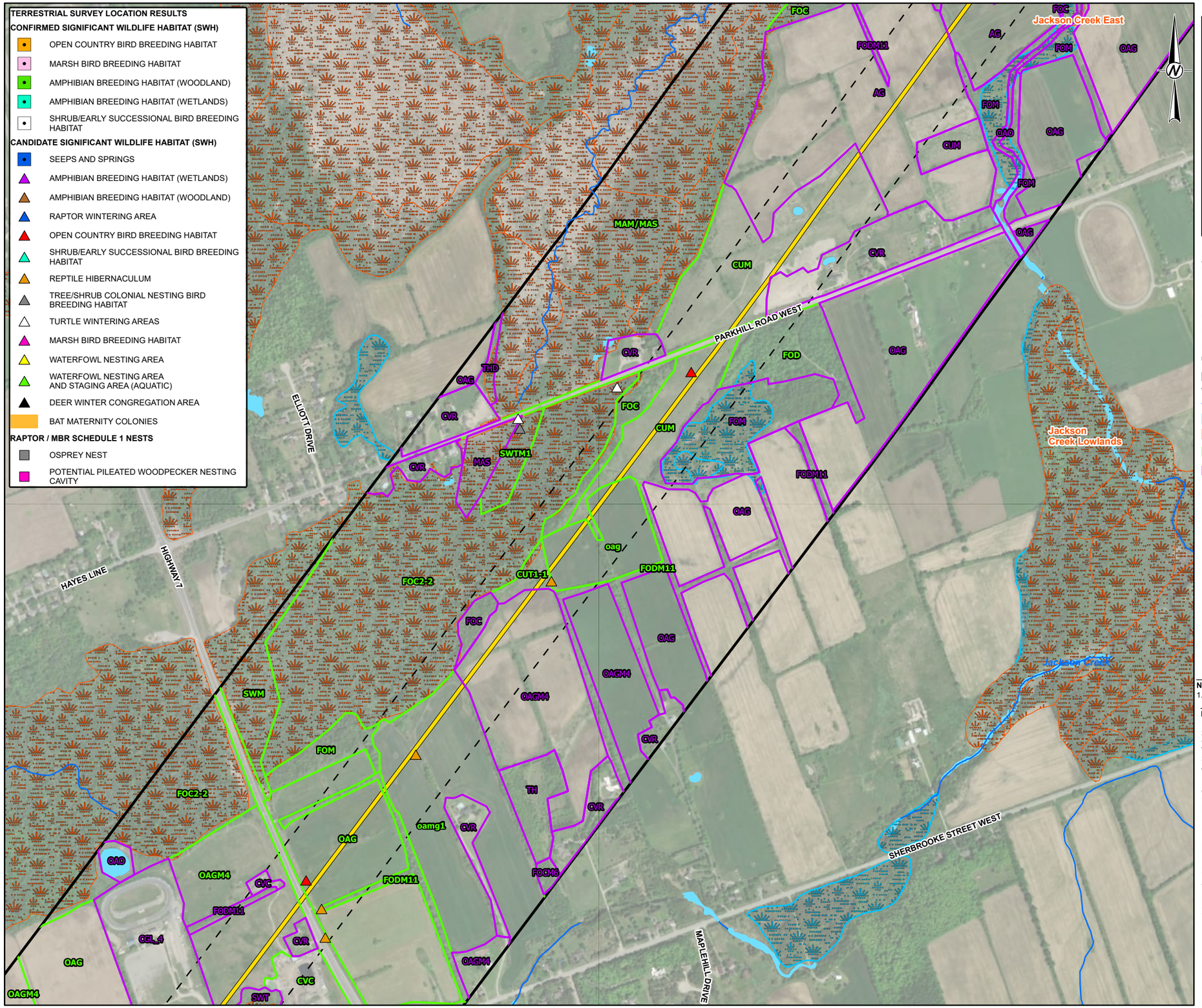
- OPEN COUNTRY BIRD BREEDING HABITAT
- MARSH BIRD BREEDING HABITAT
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT

CANDIDATE SIGNIFICANT WILDLIFE HABITAT (SWH)

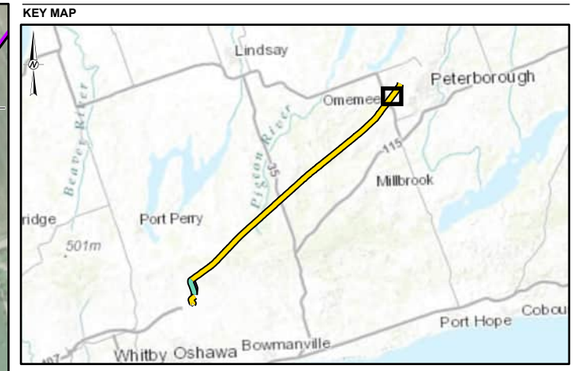
- SEEPS AND SPRINGS
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- RAPTOR WINTERING AREA
- OPEN COUNTRY BIRD BREEDING HABITAT
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT
- REPTILE HIBERNACULUM
- TREE/SHRUB COLONIAL NESTING BIRD BREEDING HABITAT
- TURTLE WINTERING AREAS
- MARSH BIRD BREEDING HABITAT
- WATERFOWL NESTING AREA
- WATERFOWL NESTING AREA AND STAGING AREA (AQUATIC)
- DEER WINTER CONGREGATION AREA
- BAT MATERNITY COLONIES

RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY



KEY MAP



SCALE 1:1,000,000

LEGEND

- TRANSFORMER STATION (TS)
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ECOLOGICAL LAND CLASSIFICATION (FIELD VERIFIED)
- ECOLOGICAL LAND CLASSIFICATION (DESKTOP REVIEW)

0 100 200 400

1:10,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT

YYYY-MM-DD	2025-10-10
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.19

PATH: S:\Clients\HydroOne\Doblin_TS\99_PROJ\CA0020403\4964\40_PRO\DI\0011_Natural_Heritage\CA0020403-4964-0011-HN-0000.aprx PRINTED ON: AT: 12:02:30 PM
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0 25mm

TERRESTRIAL SURVEY LOCATION RESULTS

CONFIRMED SIGNIFICANT WILDLIFE HABITAT (SWH)

- OPEN COUNTRY BIRD BREEDING HABITAT
- MARSH BIRD BREEDING HABITAT
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT

CANDIDATE SIGNIFICANT WILDLIFE HABITAT (SWH)

- SEEPS AND SPRINGS
- AMPHIBIAN BREEDING HABITAT (WETLANDS)
- AMPHIBIAN BREEDING HABITAT (WOODLAND)
- RAPTOR WINTERING AREA
- OPEN COUNTRY BIRD BREEDING HABITAT
- SHRUB/EARLY SUCCESSIONAL BIRD BREEDING HABITAT
- REPTILE HIBERNACULUM
- TREE/SHRUB COLONIAL NESTING BIRD BREEDING HABITAT
- TURTLE WINTERING AREAS
- MARSH BIRD BREEDING HABITAT
- WATERFOWL NESTING AREA
- WATERFOWL NESTING AREA AND STAGING AREA (AQUATIC)
- DEER WINTER CONGREGATION AREA
- BAT MATERNITY COLONIES

RAPTOR / MBR SCHEDULE 1 NESTS

- OSPREY NEST
- POTENTIAL PILEATED WOODPECKER NESTING CAVITY

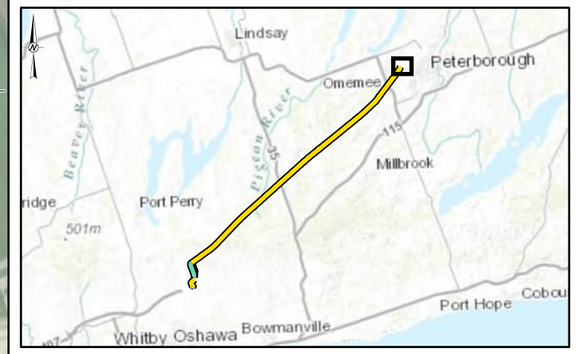
FIFES BAY ROAD
LILY LAKE ROAD
ACKISON ROAD
PARKHILL ROAD WEST
BREALEY DRIVE
JOSLIN STREET
EMERY WAY
AVERY AVENUE
CHANDLER CRESCENT
GOODWIN TERRACE
FLORENCE DRIVE
BRIGGS GROVE
LOUDEN TERRACE

Dobbin TS

Jackson Creek
Jackson Creek East
Loggerhead Marsh

GVR, OAG, FOC, MAMM1, CUW, CUM, FOD, ME, CUS, GVI, FOCM6, SWD, OAGM4, OAO, SWT, FOM, MAM, SWM, MAS, FODM11, AG, MAM/MAS

KEY MAP



SCALE 1:1,000,000

LEGEND

- TRANSFORMER STATION (TS)
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)

WATERCOURSE PERMANENCY

- PERMANENT
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- ECOLOGICAL LAND CLASSIFICATION (FIELD VERIFIED)
- ECOLOGICAL LAND CLASSIFICATION (DESKTOP REVIEW)

0 100 200 400
1:10,000 METRES

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: WORLD TOPOGRAPHIC MAP: ESRI, © OPENSTREETMAP CONTRIBUTORS, HERE, GARMIN, FAO, USGS, EPA, NPS, AAFC, NRCAN
WORLD IMAGERY: MAXAR
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4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
TERRESTRIAL SURVEY RESULTS - ECOLOGICAL LAND CLASSIFICATION AND SIGNIFICANT WILDLIFE HABITAT

CONSULTANT

YYYY-MM-DD	2025-10-10
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	5.20

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

0 25mm

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KEY MAP



SCALE 1:1,500,000

LEGEND

- TRANSFORMER STATION (TS)
- RAILWAY
- SECTION OF PREFERRED ROUTE TO BE UNDERGROUND
- PREFERRED ROUTE
- ROUTE ALTERNATIVE A CENTERLINE
- ROUTE ALTERNATIVE B CENTERLINE
- PROJECT STUDY AREA (PSA)
- LOCAL STUDY AREA (LSA)
- TERTIARY WATERSHED BOUNDARY
- WATERBODY

0 5 10

1:200,000 KILOMETERS

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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   WORLD IMAGERY: EARTHSTAR GEOGRAPHICS
   HYBRID REFERENCE LAYER: SOURCES: ESRI, TOMTOM, GARMIN, FAO, NOAA, USGS, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
3. ROUTE ALTERNATIVES PROVIDED BY HYDRO ONE INC. OCTOBER 25TH, 2024.
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
HYDRO ONE

PROJECT
DURHAM KAWARTHA POWERLINE PROJECT

TITLE
PROJECT OVERVIEW AND WATERSHED BOUNDARIES

CONSULTANT

YYYY-MM-DD	2025-10-14
DESIGNED	SO
PREPARED	SO
REVIEWED	TP
APPROVED	BB

PROJECT NO.	CONTROL	REV.	FIGURE
CA0020403.4964	0001	A	6

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

0 25mm

PATH: S:\Clients\HydroOne\Dobbin_TS\99_PRO\CA0020403-4964\40_PROD\0010_Aquatics\CA0020403-4964-0010-RQ-0000.aprx PRINTED ON: AT 10:30:38 AM

Appendix A: Species at Risk Screening

Appendix A, Table 1: Species at Risk Screening

Taxon	Common Name	Scientific Name	S-rank[1]	COSSARO Status[2]	ESA Status[3]	COSEWIC Status[4]	SARA Status[5]	SAR / SOCC / SCS	Habitat Requirements	Probability to Occur in the Study Area
Amphibians	American Bullfrog	*Lithobates catesbeianus*	S4	~	~	~	~	SCS	Bullfrogs, which require large permanent waterbodies to breed but may spend part of the summer in smaller ponds, are usually found in water along a well-vegetated shoreline. Over the winter, bullfrogs hibernate in deep ponds, lakes and rivers (ORAA 2023c).	High - Large waterbodies in the study area provide suitable habitat for this species. Two American Bullfrogs were recorded in suitable habitat during field surveys. Additionally, there are recent occurrence records of the species within the study area (ORAA, iNaturalist) and it was recorded in suitable habitat at two locations during field surveys.
Amphibians	Green Frog	*Lithobates clamitans*	S5	~	~	~	~	SCS	Green frogs may be found in or near virtually any shallow, permanent waterbodies such as springs, swamps, brooks, ponds and lakes. Young green frogs use temporary waterbodies in the summer and can be found in almost any pool or puddle in a natural area, including potholes on roads. These frogs hibernate underwater and often bask along shorelines in the summer (ORAA 2023d).	High - Waterbodies and wetlands in the study area provide suitable habitat for this species. There are recent occurrence records of the species within the study area (ORAA, iNaturalist). Additionally, many individuals were observed in suitable habitat during field surveys.
Amphibians	Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield population	*Pseudacris triseriata pop. 1*	S4	~	~	THR	THR	SAR	In Ontario, Western Chorus Frogs breed in temporary or shallow permenant 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 2014b).	High - Study area crosses multiple wetlands which may provide suitable breeding habitat. There are recent occurrence records of the species within the study area (NHIC, ORAA). Additionally, a full chorus of Western Chorus Frog was recorded in the LSA during amphibian calling surveys (>300m beyond station AC18).
Birds	Acadian Flycatcher	*Empidonax virescens*	S1B	END	END	END	END	SAR	In Ontario, Acadian flycatcher breeds in the understory of large, mature, closed-canopy forests, swamps and forested ravines. This bird prefers forests greater than 40 ha in size and exhibits edge sensitivity preferring the deep interior of the forest. Its nest is loosely woven and placed near the tip of branch in a small tree or shrub often, but not always, near water (Allen et al. 2002).	Moderate - Closed canopy forests ≥40 ha in size are present within the study area which may provide suitable breeding habitat. Acadian Flycatcher is listed as a possible breeder within OBBA squares that overlap the study area. However, element occurrence records (exact co-ordinates) of SAR that overlap the PSA were acquired from NHIC through a sensitive data use licence agreement and no Acadian Flytcatcher records are present in the PSA.
Birds	Bank Swallow	*Riparia riparia*	S4B	THR	THR	THR	THR	SAR	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; COSEWIC 2013a; Garrison 2020).	High - Numerous streams and riverbanks present on site may provide suitable breeding habitat in vertical or near-vertical banks. There are recent occurrence records of the species within the study area (NHIC, eBird) and it is listed as a confirmed breeder within OBBA squares that overlap the study area. Additionally, an active nesting colony was confirmed within the PSA during field surveys.
Birds	Barn Swallow	*Hirundo rustica*	S4B	SC	SC	SC	THR	SAR	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).	High - Study area contains anthropogenic structures which may contribute suitable nesting habitat in proximity to open areas such as agricultural fields and wetlands providing foraging habitat. There are recent occurrence records of the species within the study area (NHIC, eBird, iNaturalist) and it is listed as a confirmed breeder within OBBA squares that overlap the study area. Additionally, several individuals were observed in suitable habitat during field surveys.
Birds	Bobolink	*Dolichonyx oryzivorus*	S4B	THR	THR	SC	THR	SAR	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; Renfrew et al. 2020).	High - Grassland, hayfields, and cultural meadows within the study area may provide suitable breeding habitat. There are recent occurrence records of the species within the study area (NHIC, eBird). Bobolink is listed as a confirmed breeder within OBBA squares that overlap the study area. Additionally, several individuals were observed in suitable habitat during field surveys.
Birds	Canada Warbler	*Cardellina canadensis*	S5B	SC	SC	SC	THR	SAR	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).	High - Breeding habitat is likely present within the study area in the form of moist mixed forests and swamps.There are recent occurrence records of the species within the study area (NHIC, eBird, iNaturalist). Canada Warbler is listed as a possible breeder within OBBA squares that overlap the study area.
Birds	Chimney Swift	*Chaetura pelagica*	S3B	THR	THR	THR	THR	SAR	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 - Abundant urban habitat (i.e., chimneys) and wooded sites (i.e., large diameter trees) within the study area may provide suitable breeding habitat. There are recent occurrence records of the species within the study area (eBird). Chimney Swift is listed as a confirmed breeder within OBBA squares that overlap the study area.

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Birds	Common Nighthawk	*Chordeiles minor*	S4B	SC	SC	SC	SC	SAR, SOCC	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)	High - The study area contains large open habitat suitable for foraging such as farmland, open woodlands, and wetlands. There are recent occurrence records of the species within the study area (eBird, iNaturalist). Common Nighthawk is listed as a probable breeder within OBBA squares that overlap the study area.
Birds	Eastern Meadowlark	*Sturnella magna*	S4B,S3N	THR	THR	THR	THR	SAR	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).	High - Grassland, cultural meadows, and pasture within the study area may provide suitable breeding habitat. There are recent occurrence records of the species within the study area (NHIC, eBird). Eastern Meadowlark is listed as a confirmed breeder within OBBA squares that overlap the study area. Additionally, several individuals were observed in suitable habitat during field surveys.
Birds	Eastern Whip-poor-will	*Antrostomus vociferus*	S4B	SC	SC	THR	THR	SAR	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 2009a, 2022). No nest is constructed, and eggs are laid directly on the leaf litter (Mills 2007).	High - Semi-open forests present within the study area may provide suitable breeding habitat. There are recent occurrence records of the species within the study area (NHIC, eBird, iNaturalist). Additionally, two individuals were recorded incidentally within the LSA during field surveys.
Birds	Eastern Wood-pewee	*Contopus virens*	S4B	SC	SC	SC	SC	SAR, SOCC	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. Nest is constructed atop a horizontal branch, 1-2 m above the ground, in a wide variety of deciduous and coniferous trees (COSEWIC 2012a).	High - Forests within the study area may provide suitable nesting habitat for this species. There are recent occurrence records of the species within the study area (NHIC, eBird, iNaturalist) and it is listed as a confirmed breeder within OBBA squares that overlap the study area. Additionally, several individuals were recorded in suitable nesting habitat during field surveys.
Birds	Golden-winged Warbler	*Vermivora chrysoptera*	S3B	~	SC	THR	THR	SAR	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).	High - Meadows and potential shrubland, as well as anthropgenic disturbance such as field edges may provide suitable breeding habitat. There are recent occurrence records of the species within the study area (NHIC, eBird) and it is listed as a confirmed breeder within OBBA squares that overlap the study area. Additionally, two individuals were recorded incidentally within the PSA during field surveys.
Birds	Grasshopper Sparrow	*Ammodramus savannarum*	S4B	SC	SC	SC	SC	SAR, SOCC	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 2013b).	High - Agricultural fields, grasslands, cultural meadows, and pasture within the study area may provide suitable breeding habitat.There are recent occurrence records of the species within the study area (NHIC, eBird, iNaturalist) and it is listed as a probable breeder within OBBA squares that overlap the study area. Additionally, four individuals were observed in suitable habitat during field surveys.
Birds	Henslow's Sparrow	*Centronyx henslowii*	S1B	END	END	END	END	SAR	In Ontario, Henslow's sparrow breeds in large grasslands with low disturbance, such as lightly grazed and ungrazed pastures, fallow hayfields, grassy swales in open farmland, and wet meadows. Preferred habitat contains tall, dense grass cover, typically over 30 cm high, with a high percentage of ground cover, and a thick mat of dead plant material. Henslow's sparrow generally avoids areas with emergent woody shrubs or trees, and fence lines. Areas of standing water or ephemerally wet patches appear to be important. This species breeds more frequently in patches of habitat greater than 30 ha and preferably greater than 100 ha (COSEWIC 2011b).	Low - Although there are recent occurrence records of the species within the study area (NHIC), element occurrence records (exact co-ordinates) of SAR that overlap the PSA were acquired from NHIC through a sensitive data use licence agreement and no Henslow's Sparrow records are present in the PSA. Further, the study area does not contain grasslands ≥30 ha in size that would be suitable for Henslow's Sparrow breeding habitat.
Birds	Least Bittern	*Ixobrychus exilis*	S4B	~	THR	SC	THR	SAR	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 2009b).	High - Wetland habitat, including potential shallow marsh, in the study area may provide suitable breeding habitat for this species. There are recent occurrence records of the species within the study area (NHIC, eBird) and it is listed as a possible breeder within OBBA squares that overlap the study area.
Birds	Loggerhead Shrike	*Lanius ludovicianus*	S1B	END	END	END	END	SAR	In Ontario, loggerhead shrike breeds in open country habitat characterized by short grasses with scattered shrubs or low trees. Unimproved pasture containing scattered hawthorns (Crataegus spp.) on shallow soils over limestone bedrock is the preferred habitat. Preferred nest sites include isolated hawthorns or red cedar. Males defend large territories of approximately 50 ha (Chabot 2007).	Low - There are recent occurrence records of the species within the study area (NHIC, eBird), however, the study area does not contain short grasslands ≥50 ha in size that would be suitable for Loggerhead Shrike breeding habitat.
Birds	Red-headed Woodpecker	*Melanerpes erythrocephalus*	S3	END	END	END	END	SAR	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; Frei et al. 2020).	High - Woodlands and hedgerows in open agricultural areas throughout the study area may provide suitable nesting habitat. There are recent occurrence records of the species within the study area (NHIC, eBird, iNaturalist) and it is listed as a probable breeder within OBBA squares that overlap the study area.

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Birds	Red-winged Blackbird	*Agelaius phoeniceus*	S5	~	~	~	~	SCS	Red-winged Blackbirds breed in a variety of wetland and upland habitats. Wetland habitats include freshwater marsh, saltwater marsh, and rice (Oryza sativa) paddies. Upland breeding habitats commonly include sedge (Carex spp.) meadows, alfalfa (Medicago sativa) fields and other crop lands, and old fields; breeds less commonly in wooded areas along waterways and in open patches in woodlands. Roosts during breeding season in habitats with dense cover, especially in wetlands (Yasukawa & Searcy 2020).	High - Marshes, cultural meadows, and agricultural fields throughout the study area may provide suitable breeding habitat. There are recent occurrence records of the species within the study area (eBird, iNaturalist) and it is listed as a confirmed breeder within OBBA squares that overlap the study area. Additionally, several individuals were observed in suitable habitat during field surveys.
Birds	Short-eared Owl	*Asio flammeus*	S4?B,S2S3N	THR	THR	THR	SC	SAR	Short-eared owl is an area-sensitive species that requires 75-100ha of contiguous habitat for breeding (MNR 2000). 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 2008a). 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 - Short-eared Owl is listed as a possible breeder within OBBA squares that overlap the study area, however, the study area does not contain grasslands or marshes ≥75 ha in size that would be suitable for Short-eared Owl breeding habitat.
Birds	Wood Thrush	*Hylocichla mustelina*	S4B	SC	SC	THR	THR	SAR	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 2012b).	High - Woodlands with closed canopy throughout the study area may provide suitable breeding habitat.There are recent occurrence records of the species within the study area (NHIC, eBird, iNaturalist) and it is listed as a confirmed breeder within OBBA squares that overlap the study area. Additionally, several individuals were recorded in suitable habitat during field surveys.
Birds	Yellow-breasted Chat	*Icteria virens*	S1B	END	END	END	END	SAR	In Ontario, yellow-breasted chat breeds in early successional, shrub-thicket habitats including woodland edges, regenerating old fields, railway and transmission line rights-of-way, young coniferous reforestations, and wet thickets bordering wetlands. Tangles of grape (Vitis spp.) and raspberry (Rubus spp.) vines are features of most breeding sites. There is some evidence that the yellow-breasted chat is an area sensitive species. Nests are located in dense shrubbery near to the ground (COSEWIC 2011c).	High - Study area may contain suitable breeding habitat such as shrubby woodland edges and wet thickets bordering wetlands. There are recent occurrence records of the species within the study area (NHIC) and it is listed as a probable breeder within OBBA squares that overlap the study area.
Insects	American Bumble Bee	*Bombus pensylvanicus*	S3S4	SC	SC	SC	SC	SOCC	This bumble bee species is found in open grassland habitats, including agricultural fields and meadows. It builds nests in tufts of grass, old bird nests, rock piles, mammal burrows or cavities of trees (Hatfield et al. 2015).	High - Several open agricultural fields and meadows may provide suitable habitat for this species. There are recent occurrence records of the species within the study area (NHIC, iNaturalist).
Insects	Monarch	*Danaus plexippus*	S2N,S4B	SC	SC	END	END	SAR	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).	High - Meadow and wetland habitats within the study area may provide suitable habitat. There are recent occurrence records of the species within the study area (Ontario Butterfly Atlas). Additionally, several individuals were observed in suitable habitat during field surveys.
Mammals	Eastern Red Bat	*Lasiurus borealis*	S2S3	END	END	END	~	SAR	Eastern red bats occupy a wide diversity of habitats across their geographic range. They use both deciduous and coniferous forests, of any age and 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 in 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 (COSEWIC 2023).	High - Woodlands within the study area may provide suitable maternity roosting habitat.
Mammals	Eastern Small-footed Myotis	*Myotis leibii*	S2S3	END	END	~	~	SAR	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).	Moderate - Rock piles within woodlands in the study area may provide suitable roosting habitat.
Mammals	Gray Fox	*Urocyon cinereoargenteus*	S1	THR	THR	THR	THR	SAR	While the Ontario range of this species extends across much of southern and southeastern Ontario, the only known population in the province is on Pelee Island, with very rare sightings elsewhere in the province at points close to the border with the United States. This species inhabits deciduous forests and marshes and will den in a variety of features including rock outcroppings, hollow trees, burrows or brush piles, usually where dense brush provides cover and in close proximity to water. This species is considered a habitat generalist (COSEWIC 2015).	Low - This species is rare in the province and the only known current population is located on Pelee island. Only historic sightings are known in the study area.

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Mammals	Hoary Bat	*Lasiurus cinereus*	S2S3	END	END	END	~	SAR	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 (COSEWIC 2023).	High - Woodlands within the study area may provide suitable maternity roosting habitat.
Mammals	Little Brown Myotis	*Myotis lucifugus*	S3	END	END	END	END	SAR	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 2018b).	High - Woodlands and man-made structures within the study area may provide suitable maternity roosting habitat.
Mammals	Northern Myotis	*Myotis septentrionalis*	S3	END	END	END	END	SAR	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 2018b).	High - Woodlands within the study area may provide suitable maternity roosting habitat.
Mammals	Silver-haired Bat	*Lasionycteris noctivagans*	S2S3	END	END	END	~	SAR	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 (COSEWIC 2023).	High - Woodlands within the study area may provide suitable maternity roosting habitat.
Mammals	Tri-colored Bat	*Perimyotis subflavus*	S3?	END	END	END	END	SAR	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 2018b).	Moderate - Woodlands within the study area may provide suitable maternity roosting habitat, however, this species is uncommon with a scattered distribution in Ontario.
Reptiles	Blanding's Turtle	*Emydoidea blandingii*	S3	THR	THR	END	END	SAR, SCS	In Ontario, Blanding's Turtle will use a variety of aquatic habitats, including swamps, bogs, fens, marshes, lakes, ponds, beaver regulated wetlands, slow-flowing creeks, channels and sloughs. However, it prefers shallow, eutrophic wetlands with organic substrates, slow to no flow and abundant aquatic vegetation. Swamp, pond , marsh, lake, fen and bog habitats are significantly preferred over lotic or ephemeral habitats. This species is known to make extensive inter- and intra-wetland movements and uses multiple bodies of water throughout the active season. Females may make large overland movements of >10km during the nesting season and nest sites may be >1km from the nearest wetlands (average 100-242m). Suitable nesting sites occur in sun-exposed areas with low vegetation cover and loose substrates including organic soils, sand, gravel and cobble. They hibernate singly or communally in shallow waters of suitable waterbodies (COSEWIC 2016).	High - Wetlands and slow-flowing creeks within the study area may provide suitable habitat for this species. There are recent occurrence records of the species within the study area (NHIC, ORAA, iNaturalist). Additionally, one individual was observed in suitable habitat during field surveys.
Reptiles	Eastern Hog-nosed Snake	*Heterodon platirhinos*	S3	THR	THR	THR	THR	SAR	Eastern hog-nosed snake is an area-sensitive species that uses a habitat mosaic of open habitats and >5ha of forest. It uses large areas to carry out life processes and has an active season range of >5km. Preferred habitat includes well-drained, loose or sandy soil, open woods, brushland, and forest edge, often in proximity to water. They hibernate singly in sandy soils below the frost line (either in self-excavated or existing animal burrows). Nesting occurs in sandy soils, rotting logs or in cavities under rocks. Eastern hog-nosed snake is a prey specialist on toads (COSEWIC 2021; Kraus 2011; MNR 2000).	High - Mosaics of woodlands and fields throughout the study area may provide suitable habitat for this species, where sandy soils are present.There are recent occurrence records of the species within the study area (ORAA).
Reptiles	Eastern Milksnake	*Lampropeltis triangulum*	S4	~	NAR	SC	SC	SOCC	In Ontario, milksnake uses a wide range of habitats including prairies, pastures, hayfields, wetlands and various forest types, and is well-known in rural areas where it frequents older buildings. Proximity to water and cover enhances habitat suitability. Hibernation takes place in mammal burrows, hollow logs, gravel or soil banks, and old foundations (COSEWIC 2014).	High - Woodlands, wetlands and fields throughout the study area may provide suitable habitat for this species. There are recent occurrence records of the species within the study area (NHIC, ORAA, iNaturalist).

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Reptiles	Midland Painted Turtle	*Chrysemys picta marginata*	S4	~	~	SC	SC	SOCC, SCS	Painted Turtles occupy slow moving, relatively shallow and well-vegetated wetlands (e.g., swamps, marshes, ponds, fens, bogs, and oxbows) and water bodies (e.g., lakes, rivers, creeks, and streams) with abundant basking sites and organic substrate. These turtles are found in association with submergent aquatic plants, which are used for cover and feeding. The species is semi-tolerant of human-altered landscapes and may occasionally be found occupying urban ponds and lands subject to anthropogenic disturbance (e.g., farm ponds, impoundments, water treatment facilities). Suitable nesting habitat includes open, often south-facing, and sloped areas with sandy-loamy and/or gravel substrate usually within 1200 m of aquatic active season habitats. Painted Turtles overwinter in shallow water with deep sediment (COSEWIC 2018).	High - Wetlands, watercourses and waterbodies throughout the study area may provide suitable habitat for this species. There are recent occurrence records of the species within the study area (NHIC, ORAA, iNaturalist). Additionally, several individuals were observed basking in suitable habitat in the study area during field surveys and this species was confirmed in the study area via eDNA analysis.
Reptiles	Snapping Turtle	*Chelydra serpentina*	S4	~	SC	SC	SC	SOCC, SCS	Snapping Turtle uses almost every type of freshwater aquatic habitat, but shows preference for areas with shallow, slow-moving water, soft substrates and dense aquatic vegetation. Established populations are most often located in ponds, sloughs, shallow bays or river edges and slow streams, or areas combining several of these wetland habitats. Hibernation takes place under water, on the water bottom beneath logs, sticks, vegetation mats, overhanging banks or in soft substrates. Nesting sites occur within 500m of waterbodies/watercourses in open areas with organic soils, sand, or gravel (COSEWIC 2008b).	High - Wetlands, watercourses and waterbodies throughout may provide suitable habitat. There are recent occurrence records of the species within the study area (NHIC, ORAA, iNaturalist). Additionally, three individuals and one nest site were observed in suitable habitat during field surveys.
Vascular Plants	American Ginseng	*Panax quinquefolius*	S2	THR	THR	END	END	SAR	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 2018a).	Moderate - suitable habitat is present in the study area.
Vascular Plants	Big Bluestem	*Andropogon gerardi*	S4	~	~	~	~	SCS	A characteristic prairie species, but spreading along roadsides and railroads; in oak forests, jack pine plains, old fields, fens and sedge meadows (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area and there are recent occurrence records of the species within the study area (iNaturalist).
Vascular Plants	Black Ash	*Fraxinus nigra*	S4	END	END	THR	~	SAR, SCS	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; COSSARO 2020).	High - suitable habitat is present in the study area and there are recent occurrence records of the species within the study area (NHIC). Additionally, several specimens were observed in suitable habitat during field surveys.
Vascular Plants	Butternut	*Juglans cinerea*	S2?	END	END	END	END	SAR, SCS	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 - suitable habitat is present within the study area and there are recent occurrence records of the species within the study area (NHIC). Additionally, several specimens were observed in suitable habitat during field surveys (most of these were recorded near the Clarington TS).
Vascular Plants	Eastern Prairie Fringed Orchid	*Platanthera leucophaea*	S2	END	END	END	END	SAR	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 - Although wet meadows within the study area provide suitable habitat, the species range is restricted to only two known locations along the shore of Lake Erie far outside the study area.
Vascular Plants	Little Bluestem	*Schizachyrium scoparium*	S4	~	~	~	~	SCS	A characteristic prairie species, but more often seen in jack pine plains, sand dunes, and shores; dolomite pavements; spreading along roadsides and railroads, in sandy old fields, etc (Reznicek et al., 2011).	High - suitable habitat is present in the study area and there are recent occurrence records of the species within the study area (iNaturalist).
Vascular Plants	Round-headed Bush-clover	*Lespedeza capitata*	S4	~	~	~	~	SCS	Dry open usually sandy ground, including prairies, fields, bluffs. and roadsides (Reznicek et al., 2011).	Moderate - suitable habitat is present in the study area.
Vascular Plants	Tall Cinquefoil	*Drymocallis arguta*	S4	~	~	~	~	SCS	Dry sandy old fields, river banks, prairies, sandy hillsides, shores, and roadsides, often in barren or grassy places; on thin rocky soil and rock summits (Reznicek et al., 2011).	High - suitable habitat is present in the study area and there are recent occurrence records of the species within the study area (iNaturalist).
Vascular Plants	American Beech	*Fagus grandifolia*	S4	~	~	~	~	SCS	Needs moist, well-drained and rich soil. They are shade tolerant and the range is across Southern and Central Ontario and extends to the north shore of Georgian Bay (MNR 2025). Typical of beech-maple forests and hemlock-white pine-northern hardwoods. Thrives especially on islands and favored by moist winds (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	American Mountain Ash	*Sorbus americana*	S5	~	~	~	~	SCS	Grows best in moist soil but will tolerate dryer conditions. Grows in a variety of soils and prefers full sun or partial shade (MNR 2025). Swamps (both cedar and deciduous) and stream banks; mixed forests, especially at borders, as on bluffs along Lake Superior (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed within the study area during the field surveys, however the species is common in the region.

Taxon	Common Name	Scientific Name	S-rank[1]	COSSARO Status[2]	ESA Status[3]	COSEWIC Status[4]	SARA Status[5]	SAR / SOCC / SCS	Habitat Requirements	Probability to Occur in the Study Area
Vascular Plants	Autumn Willow	*Salix serissima*	S5	~	~	~	~	SCS	Occurs in "wet thickets, fens, brackish marshy strands, marly lakeshores, treed bogs, gravelly stream banks, [and] lakeshores" from 10-3000 m in elevation (FNA 2010). In New England, this species is associated with high pH wetlands and is found in places where limestone and marble substrates are frequent (Native Plant Trust 2025).	Moderate - suitable habitat is present in the study area. This species was not confirmed within the study area during the field surveys, however the species is common in the region.
Vascular Plants	Balsam Fir	*Abies balsamea*	S5	~	~	~	~	SCS	Grows in all soil mositure levels, variety of soils and can grow in both sun and shade. Coniferous and mixed forests, often with aspen or paper birch (especially in a rather characteristic association near the Great Lakes shores); cedar swamps, bogs, and spruce-fir stands (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Balsam Poplar	*Populus balsamifera*	S5	~	~	~	~	SCS	Found in mixed, forest/woodland, grassland/herbaceous, old fields. Balsam poplar most frequently grows in moist soils of various textures including subirrigated sandy and gravelly soils, calcareous clay loams, or silt loams. It grows at elevations from sea level to about 5,500 feet (1,676 m). It is usually found in cool lowlands such as alluvial bottoms, sandbars, stream banks, lake shores and swamps. It grows in pure stands or in the following forest types: aspen, balsam fir-paper birch, white spruce-balsam fir-paper birch, black ash-American elm-red maple, aspen-birch, white spruce-aspen, and black cottonwood-willow (Fowells 1965).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Basswood	*Tilia americana*	S5	~	~	~	~	SCS	Basswood grows in mesic forests, rich coves, rocky slopes, rich north-facing river bluffs, stream and lake shores, metabasalt boulderfields, and calcareous Coastal Plain ravines (Weakley and the Southeastern Flora Team 2024).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Beaked Hazel	*Corylus cornuta*	S5	~	~	~	~	SCS	Grows in forest/woodland, forest edge, and/or shrubland. Beaked Hazel occurs on damp rocky slopes, moist to dry roadsides, stream banks, coastal mountain ranges, as an understory plant in open woodlands, edges of woods, fencerows, waste places, and thickets (FNA 1997).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Bebb's Willow	*Salix bebbiana*	S5	~	~	~	~	SCS	Grows in forest/woodland, forest edge, conifer forest and grassland. In North America, Bebb's willow occurs in "riparian and upland conifer forests, wet lowland thickets, Picea mariana treed bogs, stream margins, lakeshores, prairie margins, dry south-facing slopes, cienegas, seeps, [and] disturbed areas" (FNA 2010). This species has colonized a variety of habitats, including borders of mountain streams, swamps, lakes, hillsides, open meadows, forest margins and even irrigation ditches (Froiland 1962, Goodrich 1983).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Bitternut Hickory	*Carya cordiformis*	S5	~	~	~	~	SCS	Bitternut hickory grows across Southern Ontario. It grows best in low, moist areas or in rich soil on higher ground. Because bitternut hickory grows well in shade, it is usually found among other trees (MNR 2025). In beech-maple and mixed hardwood stands (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Black Cherry	*Prunus serotina*	S5	~	~	~	~	SCS	Black cherry grows across Southern Ontario. This species tolerates a variety of moisture levels, grows in a variety of soils and grows best in full sun. A common tree of fencerows and borders of fields and forests, almost anywhere that birds have deposited the seeds; can be very scrubby in rocky ground or dry open jack pine or aspen savanna (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Black Oak	*Quercus veluntina*	S4	~	~	~	~	SCS	Black oak is found in Southern Ontario north of lakes Erie and Ontario. This species grows best in well-drained, acidic or chalky soils and requires full to part sun. Usually in dry sandy forests with other oaks and hickory or (in cutover areas) red maple and large-tooth aspen (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Black Spruce	*Picea mariana*	S5	~	~	~	~	SCS	Black spruce is a transcontinental species as it grows across Canada and throughout Ontario. The species tolerates many moisture levels, partial shade and grows in a variety of soils. In the southern portion of its range in the state, almost entirely restricted to bogs; northward, found also in the same swamps, dune ridges, gravelly shores, etc., but most often in bogs (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Black Walnut	*Juglans nigra*	S4?	~	~	~	~	SCS	Black walnut occurs in rich woods, meadows and fields, and calcareous hammocks (FNA 1997, Native Plant Trust 2025, Weakley and the Southeastern Flora Team 2024).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Black Willow	*Salix nigra*	S4	~	~	~	~	SCS	Black willow occurs in "floodplains, edges of ponds and lakes, swamps, marshes, white cedar bogs, wet meadows, open fields, roadside ditches, [and] mixed upland deciduous woods along streams" (FNA 2010).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Bladdernut	*Staphylea trifolia*	S4	~	~	~	~	SCS	Deciduous forests and thickets, especially on floodplains and river banks (Michigan Flora Online, 2011)	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Blue Beech	*Carpinus caroliniana*	S5	~	~	~	~	SCS	Blue beech is found in Southern Ontario in forested areas around the edges of Lake Erie and Lake Ontario. It is also found around Pembroke, Renfrew and on Manitoulin Island. It grows best in moist sites with rich, well drained soils and tolerates full shade and full sun with ample moisture (MNR 2025).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region

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Vascular Plants	Bog Willow	*Salix pedicellaris*	S5	~	~	~	~	SCS	Bog Willow (Salix pedicellaris) occurs in Sphagnum bogs, fens, and Black Spruce treed bogs, at 0-1400 meters elevation (FNA 2010).	Low - no suitable habitat in the study area and the species is not common within the region.
Vascular Plants	Bur Oak	*Quercus macrocarpa*	S5	~	~	~	~	SCS	Bur oak is typically found on limestone or calcareous clay but in a wide range of habitats including bottomlands, riparian slopes, poorly drained areas, prairies and in a variety of moisture regimes. The species can tolerate fairly dry and cold conditions: in the northwestern portion of its, it occurs on dry slopes and ridges, prairies (FNA 1997; Kenny and Wenzell 2015).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Canada Plum	*Prunus nigra*	S4	~	~	~	~	SCS	Canada plum grows in the borders of deciduous woods, bottomland forests, roadside thickets, old fields, and hedgerows, (FNA 2014, Weakley 2024).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Canadian Buffalo-berry	*Shepherdia canadensis*	~	~	~	~	~	SCS	Canada buffaloberry is a short shrub with leathery green leaves, commonly found in the understory or edges of forests across the province. It is a nitrogen fixer, and tolerant of a range of moisture conditions and soil types (AWES 2025).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Chinquapin Oak	*Quercus muehlenbergii*	S4	~	~	~	~	SCS	Chinquapin oak is uncommon in Ontario but can be found in Southwestern and Southeastern Ontario near the Great Lakes and St. Lawrence River. Grows best in well-drained soil but will tolerate wet conditions and can grow along streams. This species grows best on rocky sites such as shallow soil over limestone and stable forested sand dunes (MNR 2025).	Low - this is a rare species in Ontario and the study area is not located near a great lake or St.Lawrence River.
Vascular Plants	Chokeberry	*Aronia melanocarpa*	S5	~	~	~	~	SCS	Chokeberry occurs in "swamps, bogs, wet thickets, margins of ponds and lakes, beaver ponds, woods, moist high-elevation forests, [and on] rock outcrops" (FNA 2014).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Chokecherry	*Prunus virginiana*	S5	~	~	~	~	SCS	Chokecherry is found throughout southern Ontario and on the Canadian Shield from Quebec to Manitoba. It grows best in moist soils and full sun, but can tolerate partial shade. Almost everywhere except wet ground. A species of fencerows and roadsides, dry open rocky and sandy ground, shores and openings, as well as dune thickets, jack pine plains, and river banks; often at borders of forests and in open forests (Michigan Flora Online, 2011).	High -suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Common (American) Elderberry	*Sambucus canadensis*	S5	~	~	~	~	SCS	The common elderberry (Sambucus canadensis) is a shrub that grows wild in much of Southern Ontario as well as in many areas in Eastern North America. The elderberry is commonly found on fertile, moist soils (OMAFRA 2023).	High -suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Common Juniper	*Juniperus communis*	S5	~	~	~	~	SCS	Most widespread on or near sandy shores and dunes along the Great Lakes, often associated with pines; also inland and there occurring in a diversity of habitats: old fields and gravelly banks also occasionally in coniferous swamps (on hummocks in wet places); in oak-hickory forests and northward scattered under jack pine and aspens (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Cottony Willow	*Salix eriocephala*	S5	~	~	~	~	SCS	Gravelly or rocky streambanks, riverbanks, riverscour prairies, calcareous fens, marshes, marshy fields, mixed mesophytic woods on alluvium, impoundments, and other disturbed wet areas, at elevations of 0 to 1200 meters (FNA 2010, Weakley and Southeastern Flora Team 2024).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Creeping Juniper	*Juniperus horizontalis*	S5	~	~	~	~	SCS	Almost entirely confined to the sandy or gravelly shores and dunes of the Great Lakes, usually associated with pine and the common juniper, and relic on older shores and beach ridges among cedar and fir thickets (Michigan Flora Online, 2011).	Low - no suitable habitat present in the study area and no local observation records.
Vascular Plants	Downy Arrow-wood	*Viburnum rafinesqueanum*	S5	~	~	~	~	SCS	Typically in dry sandy or rocky forests with oak, hickory, pine, or other trees, sometimes beech and maple and along associated banks and openings; fencerows; sometimes in swampy ground and thickets along rivers (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Downy Hawthorn	*Crataegus mollis*	~	~	~	~	~	SCS	Forests and forest borders, floodplains and river bluffs, sandy hillsides, fields, meadows, roadsides (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Eastern Cottonwood	*Populus deltoides*	S5	~	~	~	~	SCS	Eastern cottonwood is uncommon in Ontario but can be found in Southern Ontario near the Great Lakes and St. Lawrence River and in the Lake of the Woods area in Northwestern Ontario. Grows best in well-drained, moist sites, typically around stream banks and requires full sun (MNR, 2025).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Eastern Hemlock	*Tsuga canadensis*	S5	~	~	~	~	SCS	Mostly hilly or rocky woods (Fernald, 1950); in southern portion of range, frequently in moist, shaded ravines, or other sheltered microhabitats.	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Eastern Hop-hornbeam (Ironwood)	*Ostrya virginiana*	S5	~	~	~	~	SCS	Eastern hop-hornbeam occurs in "moist, open to forested hillsides to dry upland slopes and ridges, sometimes also on moist, well-drained flood plains" (FNA 1997). It prefers moist, well-drained and slightly acidic soils (Ritz 2012).	High - suitable habitat is present in the study area. This species was observed during the field surveys.

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Vascular Plants	Eastern Ninebark	*Physocarpus opulifolius*	S5	~	~	~	~	SCS	Banks of rivers and streams, shores, often in very calcareous sites; occasionally in swamps or swales farther from borders of water (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Eastern Red Cedar	*Juniperus virginiana*	S5	~	~	~	~	SCS	Stabilized sand dunes, lake shores, open deciduous forests, especially, oak-hickory, and even swamps and open wetlands; old fields and hillsides in open juniper savannas with J. communis (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Eastern White Cedar	*Thuja occidentalis*	S5	~	~	~	~	SCS	This is the characteristic tree of “cedar swamps” and may be found at least sparesely in almost all kinds of forests (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Eastern White Pine	*Pinus strobus*	S5	~	~	~	~	SCS	Often in mixed forests (“hemlock-white pine-northern hardwoods”) but also on sandy plains and dunes with red and sometimes jack pine, bogs with tamarack, in swamps (mixed or on banks, rather than deciduous swamps or floodplains), on rock ridges, and even in cedar swamps (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Fragrant Sumac	*Rhus aromatica*	S4	~	~	~	~	SCS	Sandy, gravelly soil, open or with oak, hickory, and/or pine; bluffs and river banks; thin soil over limestone (Drummond Island); rather local in occurrence (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Gray Dogwood	*Cornus racemosa*	S5	~	~	~	~	SCS	Along rivers, streams, and lakes, often forming dense thickets on banks and shores; marshes and swamps; sandy oak and pine forests; fencerows and borders of forests; less often in hardwood forests or prairie remnants (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Green Ash	*Fraxinus pennsylvanica var. subintegerrima or F. lanceolata*	S4	~	~	~	~	SCS	Swamps and shores, often in areas that are quite wet, at least seasonally, often dominant on floodplains, occasionally invading peatlands, also in upland deciduous forests and old fields (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Hackberry	*Celtis occidentalis*	S4	~	~	~	~	SCS	River banks, stream valleys and ravines, rich moist forests, and rarely drier sites (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Hazelnut	*Corylus americana*	S5	~	~	~	~	SCS	Dry savannas, river banks, forests and thickets. Where abundant, also occasionally in wetter sites, even rarely on hummocks in swamps (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Maple-leaved Viburnum	*Viburnum acerifolium*	S5	~	~	~	~	SCS	Most often an understory shrub in deciduous forests, both dry and sandy with oak, pine, aspen, and/or sassafras and rich beech-maple forest; often on slopes and hillsides, including old forested dunes as well as river banks; less often in somewhat swampy forests (but not conifer swamps) (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	High Bush Blueberry	*Vaccinium corymbosum*	S4	~	~	~	~	SCS	Wet sandy or peaty places: moist forests, high shrub zones and borders of bogs, boggy thickets, hummocks in fens, often with tamarack and poison sumac; rarely in drier oak or oak-hickory forests (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	High Bush Cranberry	*Viburnum opulus var. americanum*	S5	~	~	~	~	SCS	Swamps (both hardwood and coniferous), borders of forests and shores, wet roadsides and ditches; banks and thickets along rivers and streams, fens; and other moist often open ground (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Kentucky Coffee Tree	*Gymnocladus dioicus*	S2	THR	THR	THR	THR	SAR	This species is designated as threatened only in the following geographic areas of Ontario: Counties of Essex, Elgin, Lambton, Middlesex, Norfolk and Oxford and in the Municipality of Chatham-Kent. In Ontario, Kentucky coffee-tree is found in rich, mesic and floodplain forests. Populations are scattered throughout the Carolinian forest in Ontario, but are commonly found near streams, rivers, former swamps and wetlands. Kentucky coffee-tree thrives in disturbed areas, but can survive in most habitats, even difficult ones (e.g. bare or poor soils) as long as sunlight is present (Environment Canada 2014). This species prefers deep, rich soils.	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Largetooth Aspen	*Populus grandidentata*	S5	~	~	~	~	SCS	A common tree of sandy soils, especially in dry cutover and burned areas, clearings, savannas, and forests, often with oaks and pines; persisting in mature deciduous forests as larger trees for some time (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Meadow (Slender) Willow	*Salix petiolaris*	S5	~	~	~	~	SCS	Marshy and swampy ground, shores, ditches, sedge meadows, and bog and fen margins, usually in ± open places (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Mountain Maple	*Acer spicatum*	S5	~	~	~	~	SCS	Mixed and coniferous forests and thickets, including deciduous forests and forested bluffs or banks, conifer swamps; sometimes growing with A. pensylvanicum but usually in somewhat moister forests. Very local southward (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Nannyberry	*Viburnum lentago*	S5	~	~	~	~	SCS	Borders and banks of streams and rivers; fens, sedge meadows, tamarack swamps; shrubby swamps, swamps, thickets, fencerows (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.

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Vascular Plants	Paper (White) Birch	*Betula papyrifera*	S5	~	~	~	~	SCS	Widespread in a diversity of habitats; especially characteristic after fire or other disturbance, when seedlings are often abundant. Frequently on older, stable dunes and associated with aspen on upland sites, but also in swamps (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Peach-leaved Willow	*Salix amygdaloides*	S5	~	~	~	~	SCS	Shores, stream banks, floodplains, swamps, and borders of marshes (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Prickly Ash	*Zanthoxylum americanum*	S5	~	~	~	~	SCS	Sometimes in upland deciduous forests, but usually in moist forests and thickets, even swamps, along streams and river banks (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Pussy Willow	*Salix discolor*	S5	~	~	~	~	SCS	Bogs, swamps, shores, stream banks, ditches, wet thickets and fields, rarely upland in sandy or rocky ground (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Red (Green) Ash	*Fraxinus pennsylvanica*	S4	~	~	~	~	SCS	Swamps and shores, often in areas that are quite wet, at least seasonally, often dominant on floodplains, occasionally invading peatlands, also in upland deciduous forests and old fields (Michigan Flora Online, 2011)	High -suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Red Elderberry	*Sambucus racemosa*	S5	~	~	~	~	SCS	Primarily in beech-maple forests, especially along borders, trails, and clearings, but also with conifers and in mixed forests, thickets, occasionally swamps (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Red Oak	*Quercus rubra*	S5	~	~	~	~	SCS	Thrives in rich mesic forests, but also grows on sandy plains with jack pine and on rock outcrops in the Lake Superior region, rather scrubby in the latter situations but can be a magnificent tree on better soils (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Red-osier Dogwood	*Cornus sericea*	S5	~	~	~	~	SCS	In almost all sorts of moist situations: marshes, swamps (even coniferous, with tamarack, spruce, and/or cedar), wet shores, sides of rivers and streams; on rock outcrops and talus slopes; coniferous and mixed thickets on shores and common on sand dunes (Michigan Flora Online, 2011)	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	River Birch	*Betula nigra*	S3	~	~	~	~	SCS	Shores of streams, lakes, or ponds, usually in sandy soils (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Riverbank Grape	*Vitis riparia*	S5	~	~	~	~	SCS	Lowland to upland forests, especially along borders; thickets, fencerows, river banks; shores and dunes (Michigan Flora Online, 2011).	High -suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Rock Elm	*Ulmus thomasii*	S4	~	~	~	~	SCS	Mixed hardwood forests and moist rich forests along rivers, sometimes in drier, gravelly or rocky, calcareous settings (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Round Headed Bush Clover	*Lespedeza capitata*	S4	~	~	~	~	SCS	Dry open usually sandy ground, including prairies, fields, bluffs. and roadsides (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Round-leaved Dogwood	*Cornus rugosa*	S5	~	~	~	~	SCS	Deciduous and mixed forests, especially at borders near lakes, rivers, and clearings; especially well developed with fir, aspen, paper birch, and/or cedar in thickets along the shores of Lakes Michigan and Huron and on dunes; also on rock outcrops and talus slopes; fencerows, forested bluffs (Michigan Flora Online, 2011).	High -suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Sage-leaved Willow	*Salix candida*	S5	~	~	~	~	SCS	Fens, beach meadows, tamarack swamps, stream borders, usually in open calcareous sites (Michigan Flora Online, 2011).	Moderate -suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Sandbar Willow	*Salix interior*	S5	~	~	~	~	SCS	Shores, dunes, stream margins, ditches, only rarely on dry ground; forms large dense thickets from extensive root systems (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Sandcherry	*Prunus pumila var. susquehanae*	S4?	~	~	~	~	SCS	Sandy or gravelly shores, dunes, and old beach ridges around the Great Lakes; inland, on sandy plains and fields, often with jack pine and/or oak (Michigan Flora Online, 2011).	Low- suitable habitat was not observed in the study area and the species is rare in region.
Vascular Plants	Serviceberry sp.	*Amelanchier sp.*	S5	~	~	~	~	SCS	~	High - Serviceberry sp. was observed during field surveys.
Vascular Plants	Shagbark Hickory	*Carya ovata*	S5	~	~	~	~	SCS	Usually in dry upland forests, with oaks, but sometimes in lowland forests (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Shining Willow	*Salix lucida*	S5	~	~	~	~	SCS	Shores and low dunes, swales, ditches, and wetlands generally (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Silky Dogwood	*Cornus obliqua*	S5	~	~	~	~	SCS	Wet (very rarely upland) sites: marshes, swamps (including cedar-tamarack), bogs and fens; margins of ponds, lakes, and streams and on banks of streams and rivers; often forming dense thickets at the edges of swamps and bodies of water (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.

Taxon	Common Name	Scientific Name	S-rank[1]	COSSARO Status[2]	ESA Status[3]	COSEWIC Status[4]	SARA Status[5]	SAR / SOCC / SCS	Habitat Requirements	Probability to Occur in the Study Area
Vascular Plants	Silver Maple	*Acer saccharinum*	S5	~	~	~	~	SCS	Swamps (including floodplains), river banks, lake shores (where samaras may wash up and germinate in dense rows); also sometimes in moist hardwoods, as well as weedy in fencerows along roadsides, fields, and other successional habitats (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Slippery Elm	*Ulmus rubra*	S5	~	~	~	~	SCS	Floodplains, stream banks, and rich hardwoods (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Speckled (Grey) Alder	*Alnus incana ssp. rugosa*	S5	~	~	~	~	SCS	A common tall shrub in older zones of bogs, along lakes and streams, in extensive mucky swamps, and in all sorts of wetlands (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Spicebush	*Lindera benzoin*	S5	~	~	~	~	SCS	Moist rich deciduous forests and swamps, rarely under cedar northward. Occasionally on more upland settings, especially in situations with planted coniferous trees (Michigan Flora Online, 2011).	Low- study area is likely unsuitable and the species is rare in region.
Vascular Plants	Staghorn Sumac	*Rhus typhina*	S5	~	~	~	~	SCS	Fields, clearings, roadsides, hillsides, rocky openings and ledges, thickets, borders of forests and in open forests (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Striped Maple	*Acer pensylvanicum*	S4	~	~	~	~	SCS	Rich deciduous forests, conifer-hardwoods, sandy forested bluffs, occasionally in cedar swamps. It thrives especially close to the Great Lakes and is less common inland (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Sugar Maple	*Acer saccharum*	S5	~	~	~	~	SCS	This is the maple of "beech-maple" forests, where it is also often associated with hemlock, yellow birch (northward), basswood, ironwood, and other species. It thrives on a diversity of soils, including stabilized (forested) dunes receiving moisture-laden winds off the Great Lakes, but rarely in swamps (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Tamarack	*Larix laricina*	S5	~	~	~	~	SCS	In almost all sorts of wet places, open or forested, shores, and sometimes on drier ground where there is not too much competition; especially characteristic of the older stages in peatland succession (and invading younger mats), sometimes with spruce and less often cedar. Also frequent in beach thickets and interdunal hollows (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Trembling Aspen	*Populus tremuloides*	S5	~	~	~	~	SCS	Typical of swamps, with both conifers and hardwoods, but often on drier, even sandy sites; characteristically in clearings, after fire or logging (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Upland Willow	*Salix humilis*	S5	~	~	~	~	SCS	Usually in dry sandy or rocky ground, often with jack pine and oak, occasionally on the edges of moister sandy sites (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	White Ash	*Fraxinus americana*	S4	~	~	~	~	SCS	Usually in well-drained upland deciduous forests, especially beech-maple, sometimes on floodplains (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	White Elm	*Ulmus americana*	S5	~	~	~	~	SCS	Characteristic of swamps, such as river floodplains, even cedar swamps, often with Silver Maple, and also in rich upland hardwoods; also an important early successional species (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	White Oak	*Quercus alba*	S5	~	~	~	~	SCS	Oak-hickory, beech-maple, and mixed hardwood stands; often with jack pine and other oaks on sandy plains (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	White Spruce	*Picea glauca*	S5	~	~	~	~	SCS	Coniferous swamps, mixed forests, bogs, and stream borders, often seen in thickets and forests on dunes and gravelly shores along the Great Lakes (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Vascular Plants	Wild Bergamot	*Monarda fistulosa var. fistulosa*	S5	~	~	~	~	SCS	Usually in dry, open, sandy, gravelly, or rocky ground such as oak or jack pine savanna, prairies, fields, and roadsides; occasionally in sedge meadows or other moist places; often at edges of forests and thickets, on open stream and lake banks and stabilized dunes; spreading into disturbed places (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. Wild Bergamot was observed within the LSA during field surveys. Additionally, there are recent occurrence records of the species within the study area (iNaturalist).
Vascular Plants	Wild Plum	*Prunus americana*	S4	~	~	~	~	SCS	A small tree or tall shrub often forming thickets on sandy open to forested sites; along streams, ponds, lakes, and borders of forests; fence-rows and roadsides (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Witch-hazel	*Hamamelis virginiana*	S4S5	~	~	~	~	SCS	May be found in rich deciduous forests, but more often in sandy dry forests and savannas with oak, hickory, aspen, or pine (Michigan Flora Online, 2011).	Moderate - suitable habitat is present in the study area. This species was not confirmed during field surveys however the species is common in the region.
Vascular Plants	Yellow Birch	*Betula alleghaniensis*	S5	~	~	~	~	SCS	In a diversity of habitats, from lowland hardwoods to hemlock-white pine-northern hardwoods forest (Michigan Flora Online, 2011).	High - suitable habitat is present in the study area. This species was observed during the field surveys.
Mammals	American Beaver	*Castor canadensis*	S5	~	~	~	~	SCS	Within Ontario, Beavers are found in all parts of the province with the exception of southwestern Ontario, where only a few are found because of a lack of suitable water habitat (Federation of Ontario Naturalist, 1966).	High - waterbodies within the study area may provide suitable habitat. This species was confirmed present during wildlife surveys.
Mammals	American Marten	*Martes americana*	S5	~	~	~	~	SCS	In Ontario, the Marten can be found from Lake Simcoe in the south and Arnprior in the east north to the tree line. Martens prefer mature coniferous forests (Federation of Ontario Naturalist, 1966).	Low - study area is too south to be suitable for this species.

Taxon	Common Name	Scientific Name	S-rank[1]	COSSARO Status[2]	ESA Status[3]	COSEWIC Status[4]	SARA Status[5]	SAR / SOCC / SCS	Habitat Requirements	Probability to Occur in the Study Area
Mammals	Coyote	*Canis latrans*	S5	~	~	~	~	SCS	The coyote is a common mammal of open woodlands and agricultural areas. It is common throughout Ontario except the far north. Coyotes are prevalent in the open forests and extensive agricultural regions of southern Ontario (Federation of Ontario Naturalist, 1966).	High - Forests and agricultural areas within the study area may provide suitable habitat. This species was confirmed present during wildlife surveys.
Mammals	Muskrat	*Ondatra zibethicus*	S5	~	~	~	~	SCS	Muskrats reside in marshes, shallow lakes, and slow flowing streams and rivers where there is abundant vegetation and the water does not freeze to the bottom (Federation of Ontario Naturalist, 1966).	High - marshes and streams within the study area may provide suitable habitat. This species was confirmed present during wildlife surveys.
Mammals	Porcupine	*Erethizon dorsatum*	S5	~	~	~	~	SCS	Porcupines in Ontario are usually associated with coniferous forests, but do venture into grasslands in wooded riparian areas (Federation of Ontario Naturalist, 1966).	High - forests, grasslands and wooded areas within the study area may provide suitable habitat. This species was confirmed present during wildlife surveys.
Mammals	White-tailed Deer	*Odocoileus virginianus*	S5	~	~	~	~	SCS	White-tailed deer can be found throughout North America from Mexico to a point mid-way between Lake Superior and James Bay. The species range is partly dependent on land-use practices such as logging (Federation of Ontario Naturalist, 1966).	High - second growth forest within the study area may provide suitable habitat. This species was confirmed present during wildlife surveys.
Fish	Salmon sp.	*Salmo sp.*	-	~	~	~	~	SCS	In Lake Ontario, adult 'Lake' salmon typically remained in the lake until immediately prior to spawning, at which time they ascended their natal streams and established spawning sites. The small size of most tributaries of Lake Ontario and their low flow and volume were, in most cases, unfavourable for the extended residency of large salmon (Parsons 1973). Adults rarely remained in the streams longer than one week after spawning (Parsons 1973). Little is known about the preferred lacustrine habitat of Atlantic Salmon except that lakes with deep, cool, oligotrophic conditions, a forage base that includes rainbow smelt (Osmerus mordax), and the presence of feeder streams providing suitable spawning and nursery habitat, appear to be the most ecologically suitable (MacCrimmon and Gots 1979, Cuerrier 1983).	High - creeks, rivers and large waterbodies within the study area may provide suitable habitat. This species was confirmed present during aquatic surveys.

LEGEND

[1] **S-Rank (provincial)**

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.

S1	Critically Imperiled - Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
S2	Imperiled - Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
S3	Vulnerable - Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4	Apparently Secure - Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5	Secure - Common, widespread, and abundant in the nation or state/province.
S#S#	Range Rank - A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
SAN	Non-breeding accidental.
SE	Exotic - not believed to be a native component of Ontario's fauna.
SZN	Non-breeding migrants/vagrants.
SZB	Breeding migrants/vagrants.

[2] **COSSARO (Committee on the Status of Species at Risk in Ontario) Status**

The provincial review process is implemented by COSSARO (Status as of January 2025).

COSSARO is an independent advisory panel to the Ontario Ministry of Environment, Conservation and Parks (MECP) that assesses the status of species at risk of extinction.
http://cossaroagency.ca/

COSSARO Conservation Status Ranks

EXT	Extinct - A species that no longer exists anywhere in the world.
EXP	Extirpated - A species that lives somewhere in the world, lived at one time in the wild in Ontario, but no longer lives in the wild in Ontario.
END	Endangered - A species that is facing imminent Extinction or extirpation.
THR	Threatened - A species that is likely to become Endangered if steps are not taken to address factors threatening to lead to its Extinction or extirpation.
SC	Special Concern – A species that may become Threatened or Endangered because of a combination of biological characteristics and identified threats.

[3] **ESA (Endangered Species Act) Status**

Provincial status from MECP (Status as of January 2025)
https://www.ontario.ca/page/species-risk-ontario

ESA Conservation Status Ranks

EXT	Extinct - A species that no longer exists anywhere in the world.
EXP	Extirpated - A species that lives somewhere in the world, lived at one time in the wild in Ontario, but no longer lives in the wild in Ontario.
END	Endangered - A species that is facing imminent Extinction or extirpation.
THR	Threatened - A species that is likely to become Endangered if steps are not taken to address factors threatening to lead to its Extinction or extirpation.
SC	Special Concern – A species that may become Threatened or Endangered because of a combination of biological characteristics and identified threats.

[4] **COSEWIC (Committee on the Status of Endangered Wildlife in Canada) Status**

The federal review process is implemented by COSEWIC (Status as of May 2025)

COSEWIC is an independent advisory panel to the Minister of Environment and Climate Change Canada that meets twice a year to assess the status of wildlife species at risk of extinction.
https://www.cosewic.ca/index.php/en-ca/

COSEWIC Conservation Status Ranks

EXT	Extinct - A species that no longer exists.
EXP	Extirpated - A species no longer existing in the wild in Canada, but occurring elsewhere.
END	Endangered - A species facing imminent extirpation or Extinction.
THR	Threatened - A species likely to become Endangered if limiting factors are not reversed.
SC	Special Concern (formerly vulnerable) - A species that may become a Threatened or an Endangered species because of a combination of biological characteristics and identified threats.
NAR	Not At Risk - A species that has been evaluated and found to be not at risk of Extinction given the current circumstances.
DD	Data Deficient (formerly Indeterminate) - Available information is insufficient to resolve a species' eligibility for assessment or to permit an assessment of the species' risk of Extinction.

[5] **SARA (Species at Risk Act) Status and Schedule**

Federal status from the Government of Canada's Species at Risk Public Registry (Status as of June 2024)
https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html

The Act establishes Schedule 1, as the official list of wildlife species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or a Special Concern. Once listed, the measures to protect and recover a listed wildlife species are implemented.

EXT	Extinct - A wildlife species that no longer exists.
EXP	Extirpated - A wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
END	Endangered - A wildlife species that is facing imminent extirpation or Extinction.
THR	Threatened - A wildlife species that is likely to become Endangered if nothing is done to reverse the factors leading to its extirpation or Extinction.
SC	Special Concern - A wildlife species that may become a Threatened or an Endangered species because of a combination of biological characteristics and identified threats.

Schedule 1: is the official list of species that are classified as Extirpated, Endangered, Threatened and Special Concern.
Schedule 2: species listed in Schedule 2 are species that had been designated as Endangered or Threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
Schedule 3: species listed in Schedule 3 are species that had been designated as Special Concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

The Act establishes Schedule 1 as the official list of wildlife species at risk. However, please note that while Schedule 1 lists species that are Extirpated, Endangered, Threatened and Special Concern, the prohibitions do not apply to species of Special Concern.

Species that were designated at risk by COSEWIC prior to October 1999 (Schedule 2 & 3) must be reassessed using revised criteria before they can be considered for addition to Schedule 1 of SARA. After they have been assessed, the Governor in Council may on the recommendation of the Minister, decide on whether or not they should be added to the List of Wildlife Species at Risk.

Appendix B: Aquatic Survey Results

Appendix B Table 1: DKPL Project Study Area Water Crossing List, 2024 and 2025

Water Crossing ID	Centerline OR Buffer	Easting	Northing	Latitude	Longitude	Water Feature Name (MNRF 2024a, 2024d)	Water Feature Type (MNRF 2024a, 2024d)	OHN Water Feature Type (MNRF 2024d)	ARA Thermal Regime (MNRF 2024a)	ARA Cold Water Rehab Potential (MNRF 2024a)	OHN Permanency (MNRF 2024d)	OHN Tertiary Watershed (MNRF 2024d, 2024e)	Associated Wetlands (MNRF 2024f)	MNRF District (MNRF 2024f)	MNRF Fish Management Zone (MNRF 2022)	Conservation Authority (MNRF 2024f)	Parks/ Conservation Area (MNRF 2024b, 2024c, 2024f)
WC-1000.01	Centerline	673096	4872840	43.98831	-78.841446	-	Unmapped	-	-	-	-	North Lake Ontario Shoreline	-	Aurora Midhurst Owen Sound District	17	Central Lake Ontario	-
WC-1001	Centerline	673406	4873889	43.997685	-78.837225	-	Watercourse	Stream	Cold	Yes	Intermittent	North Lake Ontario Shoreline	Enfield Wetland Complex	Aurora Midhurst Owen Sound District	17	Central Lake Ontario	-
WC-1003.01	Centerline	673397	4874136	43.999899	-78.837266	-	Unmapped	-	-	-	-	North Lake Ontario Shoreline	Enfield Wetland Complex	Aurora Midhurst Owen Sound District	17	Central Lake Ontario	-
WC-1004	Centerline	673324	4874719	44.005164	-78.837983	-	Watercourse	Stream	Cold	Yes	Intermittent	North Lake Ontario Shoreline	Enfield Wetland Complex	Aurora Midhurst Owen Sound District	17	Central Lake Ontario	-
WC-1004.01	Centerline	673345	4874533	44.003492	-78.837784	-	Unmapped	-	-	-	-	North Lake Ontario Shoreline	Enfield Wetland Complex	Aurora Midhurst Owen Sound District	17	Central Lake Ontario	-
WC-1004.02	Centerline	673187	4875119	44.008797	-78.839566	-	Unmapped	-	-	-	-	North Lake Ontario Shoreline	Enfield Wetland Complex	Aurora Midhurst Owen Sound District	17	Central Lake Ontario	-
WC-1007	Centerline	672698	4876458	44.020963	-78.845213	-	Watercourse	Stream	Cold	Yes	Permanent	North Lake Ontario Shoreline	Enfield Wetland Complex	Aurora Midhurst Owen Sound District	17	Central Lake Ontario	-
WC-1008	Centerline	673207	4876908	44.024892	-78.838735	Bowmanville Creek	Watercourse	Stream	Cold	Yes	Permanent	North Lake Ontario Shoreline	Unevaluated	Aurora Midhurst Owen Sound District	17	Central Lake Ontario	-
WC-1009	Centerline	673602	4877196	44.027389	-78.833703	Bowmanville Creek	Watercourse	Stream	Cold	Yes	Permanent	North Lake Ontario Shoreline	Unevaluated	Aurora Midhurst Owen Sound District	17	Central Lake Ontario	-
WC-1009.01	Centerline	673811	4877349	44.028711	-78.831053	-	Unmapped	-	-	-	-	North Lake Ontario Shoreline	Unevaluated	Aurora Midhurst Owen Sound District	17	Central Lake Ontario	-
WC-1013	Centerline	674286	4877693	44.031692	-78.825015	Bowmanville Creek	Watercourse	Stream	Cold	Yes	Permanent	North Lake Ontario Shoreline	Unevaluated	Aurora Midhurst Owen Sound District	17	Central Lake Ontario	-
WC-1014	Centerline	674743	4878026	44.034584	-78.819208	Bowmanville Creek	Watercourse	Stream	Cold	Yes	Permanent	North Lake Ontario Shoreline	Unevaluated	Aurora Midhurst Owen Sound District	17	Central Lake Ontario	-
WC-1015	Centerline	675399	4878502	44.038712	-78.810871	Bowmanville Creek	Waterbody	Pond	Cold	Yes	Permanent	North Lake Ontario Shoreline	Unevaluated	Aurora Midhurst Owen Sound District	17	Central Lake Ontario	-
WC-1019	Centerline	675580	4878634	44.039849	-78.808572	Bowmanville Creek	Watercourse	Stream	Cold	Yes	Permanent	North Lake Ontario Shoreline	Unevaluated	Aurora Midhurst Owen Sound District	17	Central Lake Ontario	-
WC-1019.01	Centerline	675603	4878650	44.039994	-78.808275	-	Unmapped	-	-	-	-	North Lake Ontario Shoreline	Unevaluated	Aurora Midhurst Owen Sound District	17	Central Lake Ontario	-
WC-1020	Centerline	675777	4878779	44.041119	-78.806059	Bowmanville Creek	Watercourse	Stream	Cold	Yes	Permanent	North Lake Ontario Shoreline	Unevaluated	Aurora Midhurst Owen Sound District	17	Central Lake Ontario	-
WC-1023	Centerline	679528	4882463	44.073352	-78.758017	-	Watercourse	Stream	Cold	Yes	Permanent	Scugog River	-	Aurora Midhurst Owen Sound District	17	Kawartha Region Conservation Authority	-
WC-1024	Centerline	679983	4882938	44.077509	-78.752192	-	Watercourse	Stream	Cold	Yes	Permanent	Scugog River	Unevaluated	Aurora Midhurst Owen Sound District	17	Kawartha Region Conservation Authority	-
WC-1025	Centerline	680402	4883379	44.081373	-78.746803	-	Watercourse	Stream	Cold	Yes	Permanent	Scugog River	Unevaluated	Aurora Midhurst Owen Sound District	17	Kawartha Region Conservation Authority	-
WC-1029	Centerline	681786	4884723	44.093121	-78.729071	-	Watercourse	Stream	Cold	Yes	Permanent	Scugog River	Unevaluated	Aurora Midhurst Owen Sound District	17	Kawartha Region Conservation Authority	-
WC-1029.01	Centerline	681759	4884699	44.092911	-78.729416	-	Unmapped	-	-	-	-	Scugog River	Unevaluated	Aurora Midhurst Owen Sound District	17	Kawartha Region Conservation Authority	-
WC-1029.02	Centerline	681929	4884851	44.09424	-78.727251	-	Unmapped	-	-	-	-	Scugog River	-	Aurora Midhurst Owen Sound District	17	Kawartha Region Conservation Authority	-
WC-1030	Centerline	682548	4885406	44.099079	-78.719324	-	Watercourse	Stream	Cold	Yes	Permanent	Scugog River	Unevaluated	Aurora Midhurst Owen Sound District	18	Kawartha Region Conservation Authority	-
WC-1031.01	Centerline	682336	4885216	44.097419	-78.722042	-	Unmapped	-	-	-	-	Kawartha Lakes	-	Aurora Midhurst Owen Sound District	17	Kawartha Region Conservation Authority	-
WC-1033	Centerline	683431	4886198	44.10598	-78.708027	Pigeon River	Watercourse	Stream	Cold	Yes	Permanent	Kawartha Lakes	Evaluated (Swamp)	Aurora Midhurst Owen Sound District	17	Kawartha Region Conservation Authority	-
WC-1033.01	Centerline	683415	4886184	44.105859	-78.708228	-	Unmapped	-	-	-	-	Kawartha Lakes	Evaluated (Swamp)	Aurora Midhurst Owen Sound District	17	Kawartha Region Conservation Authority	-
WC-1033.02	Centerline	683294	4886074	44.1049	-78.709779	-	Unmapped	-	-	-	-	Kawartha Lakes	Evaluated (Swamp)	Aurora Midhurst Owen Sound District	17	Kawartha Region Conservation Authority	-
WC-1034	Centerline	684492	4887152	44.114291	-78.694446	-	Watercourse	Stream	Cold	Yes	Permanent	Kawartha Lakes	-	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1034.01	Centerline	684406	4887076	44.113633	-78.695552	-	Unmapped	-	-	-	-	Kawartha Lakes	-	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1036	Centerline	684693	4887335	44.115892	-78.69188	-	Watercourse	Stream	Cold	Yes	Permanent	Kawartha Lakes	-	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1037	Centerline	685105	4887707	44.119132	-78.686603	-	Watercourse	Stream	Cold	Yes	Permanent	Kawartha Lakes	Evaluated (Swamp)	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1037.01	Centerline	685240	4887825	44.120157	-78.684874	-	Unmapped	-	-	-	-	Kawartha Lakes	-	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1038	Centerline	686397	4888865	44.129226	-78.670055	-	Watercourse	Stream	Cold	Yes	Permanent	Kawartha Lakes	-	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1038.01	Centerline	686036	4888542	44.126407	-78.674674	-	Unmapped	-	-	-	-	Kawartha Lakes	-	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1040	Centerline	687176	4889566	44.135327	-78.660074	-	Watercourse	Stream	Cold	Yes	Permanent	Kawartha Lakes	-	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1041	Centerline	690819	4892844	44.163872	-78.613389	-	Watercourse	Stream	Cold	Yes	Permanent	Kawartha Lakes	-	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1041.01	Centerline	691133	4893127	44.166338	-78.609354	-	Unmapped	-	-	-	-	Kawartha Lakes	-	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1042	Centerline	691711	4893645	44.170853	-78.60194	-	Watercourse	Stream	Cold	Yes	Permanent	Kawartha Lakes	-	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1043	Centerline	691946	4893857	44.172695	-78.598928	-	Watercourse	Stream	Cold	Yes	Permanent	Kawartha Lakes	Unevaluated	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1044	Centerline	693272	4894956	44.182226	-78.581954	Fleetwood Creek	Watercourse	Stream	Cold	Yes	Permanent	Kawartha Lakes	Evaluated	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1044.01	Centerline	693175	4894878	44.181551	-78.583202	-	Unmapped	-	-	-	-	Kawartha Lakes	Evaluated	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1045	Centerline	693963	4895516	44.187078	-78.573108	-	Watercourse	Stream	Cold	Yes	Permanent	Kawartha Lakes	Evaluated	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1046	Centerline	694129	4895651	44.188254	-78.570987	-	Watercourse	Stream	Cold	Yes	Permanent	Kawartha Lakes	Evaluated	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1046.01	Centerline	694070	4895603	44.187842	-78.571737	-	Unmapped	-	-	-	-	Kawartha Lakes	Evaluated	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1047	Centerline	694886	4896267	44.193595	-78.56129	-	Watercourse	Stream	Cold	Yes	Permanent	Kawartha Lakes	-	Peterborough Bancroft District	17	Kawartha Region Conservation Authority	-
WC-1048	Centerline	695501	4896768	44.197933	-78.553422	-	Watercourse	Stream	Cold	No	Permanent	Otonabee River	-	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1049	Centerline	696396	4897496	44.204238	-78.541954	-	Watercourse	Stream	Cold	No	Permanent	Otonabee River	-	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1052	Centerline	696370	4897474	44.204051	-78.542293	-	Watercourse	Stream	Cold	No	Permanent	Otonabee River	-	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1053	Centerline	696461	4897548	44.204695	-78.541117	-	Watercourse	Stream	Cold	No	Permanent	Otonabee River	-	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1054.01	Centerline	696582	4897647	44.205548	-78.539577	-	Unmapped	-	-	-	-	Otonabee River	-	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-

Water Crossing ID	Centerline OR Buffer	Easting	Northing	Latitude	Longitude	Water Feature Name (MNRF 2024a, 2024d)	Water Feature Type (MNRF 2024a, 2024d)	OHN Water Feature Type (MNRF 2024d)	ARA Thermal Regime (MNRF 2024a)	ARA Cold Water Rehab Potential (MNRF 2024a)	OHN Permanency (MNRF 2024d)	OHN Tertiary Watershed (MNRF 2024d, 2024e)	Associated Wetlands (MNRF 2024f)	MNRF District (MNRF 2024f)	MNRF Fish Management Zone (MNRF 2022)	Conservation Authority (MNRF 2024f)	Parks/ Conservation Area (MNRF 2024b, 2024c, 2024f)
WC-1055	Centerline	696888	4897896	44.207702	-78.535656	-	Watercourse	Stream	Cold	No	Permanent	Otonabee River	-	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1055.01	Centerline	696807	4897830	44.207139	-78.536697	-	Unmapped	-	-	-	-	Otonabee River	-	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1056	Centerline	698098	4898873	44.216171	-78.520156	-	Watercourse	Stream	Cold	No	Permanent	Otonabee River	-	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1058	Centerline	699405	4899939	44.2254	-78.503403	-	Watercourse	Stream	Warm	-	Permanent	Otonabee River	Evaluated	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	Cavan Swamp Wildlife Area
WC-1058.01	Centerline	699214	4899783	44.224047	-78.505847	-	Unmapped	-	-	-	-	Otonabee River	-	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1058.02	Centerline	699323	4899873	44.22483	-78.50445	-	Unmapped	-	-	-	-	Otonabee River	Evaluated	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1058.03	Centerline	698967	4899582	44.222304	-78.509019	-	Unmapped	-	-	-	-	Otonabee River	-	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1058.04	Centerline	699520	4900033	44.226214	-78.501922	-	Unmapped	-	-	-	-	Otonabee River	Evaluated	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	Cavan Swamp Wildlife Area
WC-1059	Centerline	699923	4900359	44.229038	-78.496759	-	Watercourse	Stream	Warm	-	Permanent	Otonabee River	-	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1060	Centerline	701016	4901255	44.236794	-78.482744	-	Watercourse	Stream	Warm	-	Permanent	Otonabee River	-	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1061	Centerline	701279	4901469	44.238643	-78.479372	-	Watercourse	Stream	Warm	-	Permanent	Otonabee River	-	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1061.01	Centerline	701261	4901454	44.238518	-78.479606	-	Unmapped	-	-	-	-	Otonabee River	-	Aurora Midhurst Owen Sound District	17	Kawartha Region Conservation Authority	-
WC-1062.01	Centerline	704051	4904171	44.26218	-78.443637	-	Unmapped	-	-	-	-	Otonabee River	-	Aurora Midhurst Owen Sound District	17	Otonabee Region Conservation Authority	-
WC-1063	Centerline	704305	4904512	44.26517	-78.44033	-	Watercourse	Stream	-	-	Permanent	Otonabee River	-	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1064	Centerline	704342	4904562	44.265612	-78.43984	-	Watercourse	Stream	-	-	Permanent	Otonabee River	-	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1065	Centerline	704489	4904756	44.267318	-78.437928	-	Watercourse	Stream	-	-	Permanent	Otonabee River	-	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1066	Centerline	704721	4905063	44.270008	-78.434908	Jackson Creek	Watercourse	Stream	Warm	-	Permanent	Otonabee River	Evaluated	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1066.01	Centerline	704712	4905051	44.269908	-78.43502	-	Unmapped	-	-	-	-	Otonabee River	Evaluated	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1066.02	Centerline	705294	4905824	44.276691	-78.427434	-	Unmapped	-	-	-	-	Otonabee River	-	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1067	Centerline	706593	4907550	44.291851	-78.410489	-	Watercourse	Stream	Warm	-	Permanent	Otonabee River	Evaluated	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-
WC-1071	Centerline	707708	4909068	44.305182	-78.395922	-	Watercourse	Stream	Warm	-	Permanent	Otonabee River	Evaluated	Peterborough Bancroft District	17	Otonabee Region Conservation Authority	-

Notes: - =not available/unknown, All coordinates are provided as universal transverse Mercator's in NAD 83 Zone 17T .

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Appendix B, Table 2: Aquatics Windshield Survey Results, 2024

Aquatic Windshield Survey ID	Water Crossing ID	Date	Latitude	Longitude	Water Feature Type	Inferred Permanence	Estimated Bankfull Width (m)	Fish Habitat Potential	Instream Barriers, Impediments or Hydraulic Controls	Existing Infrastructure	Potential Pollution Point Sources	Changes from Previously Mapped Conditions	Fish Observed
AWS-3030	WC-3020	30-Apr-2024	44.100286	-78.712414	Watercourse	Permanent	<2 m	Yes	N/A	Culvert, road	Road	No change noted	None
AWS-3031	WC-3018, 3018.01	30-Apr-2024	44.098825	-78.739553	Watercourse	Permanent	<2 m	Yes	N/A	Culvert, road	Road, agriculture	No change noted	None
AWS-3018	WC-3070	30-Apr-2024	44.197752	-78.559826	Watercourse	Non-Permanent	2 m to 5 m	Unknown	Blocked culvert	Culvert, road	Road	No change noted	None
AWS-3017A	WC-3063, 3063.01	30-Apr-2024	44.188542	-78.573208	Watercourse	Permanent	<2 m	Yes	Dense vegetation	Culvert, ATV trail, CSP and box culvert crossing, Transmission line, Transmission line tower	ATV trail	No change noted	None
AWS-3068	WC-3068, 3069	30-Apr-2024	44.198099	-78.583525	Watercourse	Permanent	>10 m	Yes	Beaver dam	Culvert, ATV trail	ATV trail	No change noted	None
AWS-3019	WC-3070	30-Apr-2024	44.190594	-78.564345	Watercourse	Non-Permanent	2 m to 5 m	Unknown	Dense vegetation, man-made walkways potentially acting as barrier	Road, residential subdivision	Road, residential subdivision	Watercourse is NE of OHN layer	None
AWS-3032	WC-3013, 3013.01	30-Apr-2024	44.095013	-78.755562	Watercourse	Permanent	<2 m	Yes	Perched culvert	Culvert, road	Road, agriculture	No change noted	None
AWS-3004	WC-3012.01	30-Apr-2024	44.085326	-78.739057	Waterbody	Permanent	>25 m	Unknown	N/A	Road	Road, agriculture	No change noted	None
AWS-3003	WC-3006	30-Apr-2024	44.082514	-78.750588	Watercourse	Permanent	2 m to 5 m	Yes	Partially blocked beaver guard	Culvert, road	Road, agriculture	No change noted	None
AWS-3002	WC-3004, 3004.01	30-Apr-2024	44.081552	-78.754778	Watercourse	Permanent	<2 m	Yes	N/A	Culvert, road	Road, agriculture	No change noted	None
AWS-3020	WC-3071	1-May-2024	44.186910	-78.553744	Watercourse	Permanent	<2 m	Yes	N/A	Culvert, road	Road, agriculture	No change noted	None
AWS-3001	WC-3002	1-May-2024	44.077579	-78.764341	Watercourse	Non-Permanent	<2 m	Unknown	Perched culvert, tile drain	Culvert, road	Road, agriculture	No change noted	None
AWS-2034	WC-2041	1-May-2024	44.035762	-78.802602	Waterbody	Permanent	>10 m	Yes	N/A	Road	Road, agriculture	No change noted	None
AWS-3023.01	WC-3091, 3091.02, 3091.04, 3092 alternate for WS-3023	1-May-2024	44.217500	-78.506201	Watercourse	Permanent	2 m to 5 m	Yes	N/A	Culvert, road	Road, agriculture	No change noted	None
AWS-3080.01	WC-3080	1-May-2024	44.215441	-78.514713	Watercourse	Permanent	2 m to 5 m	Yes	Perched culvert	Culvert, road	Road	No change noted	None
AWS-3080	WC-3080	1-May-2024	44.215907	-78.521648	No Defined Channel	Non-Permanent	N/A	No	Underground HDPE	Culvert, road, transmission line, transmission line tower	Road, agriculture	The watercourse appears to be tiled	None
AWS-3021	WC-3074, 3075, 3076, 3076.0, 307, 3079.01	1-May-2024	44.210535	-78.535531	Watercourse	Permanent	5 m to 10 m	Yes	N/A	Culvert, road	Road	No change noted	None
AWS-3079	WC-2075, 3079	1-May-2024	44.198780	-78.527092	Watercourse	Permanent	2 m to 5 m	Yes	N/A	Culvert, road	Road	No change noted	None
AWS-3023	WC-3091, 3091.02, 3091.04, 3092	1-May-2024	44.232356	-78.501076	Watercourse	Permanent	<2 m	Yes	N/A	Culvert, road	Road	More open water in wetland compared to aerial imagery	Brook Stickleback
AWS-2007	WC-2023	1-May-2024	44.028886	-78.816921	Watercourse	Permanent	<2 m	Yes	Culvert mostly buried on downstream end	Culvert, road	Road, agriculture	No change noted	None
AWS-3096	WC-3095, 3096	1-May-2024	44.242486	-78.487484	No Defined Channel	Non-Permanent	N/A	No	N/A	Road	Road	No visible watercourse	None
AWS-2005.01	WC-2032, 2033, 2034, 2035	1-May-2024	44.038059	-78.812373	Watercourse	Permanent	2 m to 5 m	Yes	Perched culvert, buried culvert	Culvert, transmission line, transmission line tower, road	Road, agriculture	No change noted	None
AWS-3024B	WC-3095	1-May-2024	44.236698	-78.482859	Watercourse	Permanent	2 m to 5 m	Yes	Dense vegetation	Road, transmission line, transmission line tower, culvert	Road, agriculture	No change noted	None
AWS-3025	WC-3096	1-May-2024	44.237593	-78.478954	Watercourse	Permanent	2 m to 5 m	Yes	Perched culvert	Culvert, road, transmission line	Road, agriculture	No change noted	None
AWS-3107.02	WC-3107	1-May-2024	44.260081	-78.429787	Watercourse	Permanent	2 m to 5 m	Yes	N/A	Culvert, road	Road	No change noted	None

Appendix B
Aquatic Survey Results

Aquatic Windshield Survey ID	Water Crossing ID	Date	Latitude	Longitude	Water Feature Type	Inferred Permanence	Estimated Bankfull Width (m)	Fish Habitat Potential	Instream Barriers, Impediments or Hydraulic Controls	Existing Infrastructure	Potential Pollution Point Sources	Changes from Previously Mapped Conditions	Fish Observed
AWS-2005	WC-2036	1-May-2024	44.040149	-78.813242	No Defined Channel	Non-Permanent	N/A	No	N/A	Road	Road, agriculture	No change noted	None
AWS-2027.04	WC-2027	1-May-2024	44.043973	-78.820761	Watercourse	Permanent	<2 m	Yes	Dam, constructed pond with sheet pile wall	Culvert, road	Road, agriculture	No change noted	None
AWS-2027.03	WC-2027	1-May-2024	44.041375	-78.832615	No Defined Channel	Non-Permanent	N/A	No	Not connected to other water features	Road	Road, agriculture	No change noted	None
AWS-3017B	WC-3107	1-May-2024	44.276199	-78.418714	Watercourse	Permanent	>25 m	Yes	N/A	Road	Road	No change noted	Minnow spp.
AWS-2027.02	WC-2027	1-May-2024	44.040275	-78.837635	Watercourse	Permanent	<2 m	Unknown	Perched culvert	Culvert, road	Road	No change noted	None
AWS-2027.01	WC-2027	1-May-2024	44.039406	-78.841276	No Defined Channel	Permanent	N/A	Unknown	Perched culvert, tile drain	Culvert, road	Road, agriculture	No change noted	None
AWS-2017	WC-2017	1-May-2024	44.031170	-78.841314	No Defined Channel	Non-Permanent	N/A	No	N/A	Culvert, road	Road, agriculture	No change noted	None
AWS-2003	WC-2017	1-May-2024	44.025050	-78.838458	Watercourse	Permanent	2 m to 5 m	Yes	N/A	Road	Road, agriculture	No change noted	None
AWS-2008	WC-2019, 2022	2-May-2024	44.022312	-78.837258	Watercourse	Permanent	<2 m	Yes	N/A	Culvert, road	Road, agriculture	No change noted	None
AWS-2019	WC-2019	2-May-2024	44.021548	-78.825227	Watercourse	Permanent	5 m to 10 m	Yes	Steep drop, woody debris accumulation, beaver dam	Culvert, road, bridge	Road	No change noted	Lamprey sp., Leuciscidae sp.
AWS-2006	WC-2013, 2013.1	2-May-2024	44.017645	-78.845431	Watercourse	Permanent	2 m to 5 m	Yes	N/A	Culvert, road	Road, agriculture	No change noted	None
AWS-2009	WC-2008, 2008.01	2-May-2024	44.008454	-78.831751	No Defined Channel	Non-Permanent	N/A	No	Tile drain	Culvert, road	Road, agriculture	No change noted	None
AWS-2002	WC-2004	2-May-2024	43.999836	-78.837203	No Defined Channel	Non-Permanent	N/A	Unknown	Tile drain	Culvert, transmission line, transmission line tower, road	Road, agriculture	No change noted	None
AWS-2004	WC-2004	2-May-2024	43.999408	-78.838498	No Defined Channel	Permanent	N/A	Unknown	N/A	Culvert, transmission line, road	Road, agriculture	Significantly more standing water than aerial imagery suggests	None
AWS-2001	WC-2004, 2005, 2005.01 2006	2-May-2024	43.996512	-78.836641	Watercourse	Permanent	<2 m	Yes	Buried culvert	Culvert, road	Road, agriculture	Watercourse is only running along the West side of the road, mapping shows it running down the East after turning through a culvert	None
AWS-3027	WC-3107.02	2-May-2024	44.277167	-78.427725	No Defined Channel	Non-Permanent	N/A	No	N/A	Transmission line, transmission line tower, road	Road, agriculture	No change noted	None
AWS-3119.06	WC-3119	2-May-2024	44.297661	-78.429171	Watercourse	Permanent	2 m to 5 m	Yes	N/A	Culvert, rail	Road	No change noted	None
AWS-3119.03	WC-3119	2-May-2024	44.307439	-78.411110	Watercourse	Permanent	2 m to 5 m	Yes	N/A	Culvert, road	Road	No change noted	Brook Stickleback, Minnow spp.
AWS-3119.01	WC-3119	2-May-2024	44.299580	-78.389189	Watercourse	Non-Permanent	<2 m	Unknown	Dense vegetation	Culvert, road	Road, agriculture	No change noted	None
AWS-3026	WC-3105.01, 3107, 3107.01	2-May-2024	44.273699	-78.442747	Watercourse	Permanent	>10 m	Yes	N/A	Culvert, road	Road	No change noted	Minnow spp.
AWS-3119.05	WC-3119	2-May-2024	44.303111	-78.428241	Watercourse	Non-Permanent	5 m to 10 m	Unknown	Dense vegetation, low water levels	Culvert, road	Road	No change noted	None
AWS-3119.04	WC-3119	2-May-2024	44.305838	-78.417045	Watercourse	Permanent	<2 m	Yes	N/A	Culvert, road	Road	No change noted	Minnow spp.
AWS-3119	WC-3119	2-May-2024	44.297248	-78.397948	Watercourse	Permanent	>10 m	Yes	N/A	Culvert, road	Road, agriculture	No change noted	Species unknown
AWS-3118	WC-3118	2-May-2024	44.309391	-78.387249	Watercourse	Permanent	>10 m	Yes	N/A	Culvert, road, floating wooden structure	Road	No change noted	Minnow spp.
AWS-3113	WC-3113	2-May-2024	44.295303	-78.405994	Watercourse	Non-Permanent	<2 m	Unknown	Low flow	Culvert, road, transmission line, transmission line tower	Road, active construction	No change noted	None
AWS-2009.01	WC-2008, 2008.1	2-May-2024	44.001444	-78.855062	Watercourse	Permanent	2 m to 5 m	Yes	N/A	Culvert, road	Road, agriculture	No change noted	None
AWS-3119.02	WC-3119	3-May-2024	44.307546	-78.400149	Watercourse	Permanent	5 m to 10 m	Yes	Beaver dam	Culvert, trail	Trail, road	Consistent with aerial imagery on downstream, however active beaver dam on the upstream diverting flow	Minnow spp.

Aquatic Windshield Survey ID	Water Crossing ID	Date	Latitude	Longitude	Water Feature Type	Inferred Permanence	Estimated Bankfull Width (m)	Fish Habitat Potential	Instream Barriers, Impediments or Hydraulic Controls	Existing Infrastructure	Potential Pollution Point Sources	Changes from Previously Mapped Conditions	Fish Observed
AWS-3118.01	WC-3127.01	3-May-2024	44.308562	-78.392222	No Defined Channel	Non-Permanent	N/A	Unknown	Low flow, dense vegetation, no visible infrastructure to allow water crossing	Transmission line, culvert, transmission line tower, trail, transmission station	Trail	No visible infrastructure to allow water crossing	None
AWS-3113.01	WC-3113	3-May-2024	44.293134	-78.414301	Watercourse	Permanent	2 m to 5 m	Yes	Potentially blocked culvert (unable to confirm)	Culvert, road	Road	No change noted	Minnow spp.
AWS-3052	WC-3052	29-Apr-2024	44.142087	-78.683355	Watercourse	Permanent	2 m to 5 m	Yes	Perched culvert	Culvert, road	Road	No change noted	None
AWS-3009	WC-3044	29-Apr-2024	44.130815	-78.671825	Watercourse	Permanent	2 m to 5 m	Yes	N/A	Culvert, road	Road	No change noted	None
AWS-3049	WC-1039	29-Apr-2024	44.132091	-78.666604	Waterbody	Non-Permanent	2 m to 5 m	Unknown	N/A	Road	Road, agriculture	No change noted	None
AWS-3008	WC-3040, WC-3040.01	29-Apr-2024	44.124420	-78.694599	Watercourse	Permanent	2 m to 5 m	Yes	N/A	Road, bridge	Road	No change noted	None
AWS-3024.01	WC-3024	29-Apr-2024	44.120718	-78.713359	Watercourse	Permanent	<2 m	Yes	N/A	Culvert, road	Road	No change noted	None
AWS-3008.01	WC-3040, WC-3040.01	29-Apr-2024	44.116781	-78.673388	Watercourse	Permanent	<2 m	Yes	N/A	Culvert, road	Road	No change noted	None
AWS-3040	WC-3040	29-Apr-2024	44.117301	-78.670956	Watercourse	Permanent	2 m to 5 m	Yes	Perched culvert	Culvert, road	Road	No change noted	None
AWS-3011	WC-3052	29-Apr-2024	44.134106	-78.658013	Watercourse	Non-Permanent	<2 m	Unknown	Field drain for road crossing, agricultural activities	Drain	Road, agriculture	No direct connection to the crossing along the corridor, intermittent flow, no continuous channel	None
AWS-3012	WC-3060	29-Apr-2024	44.167137	-78.622660	Watercourse	Non-Permanent	<2 m	Unknown	Sewage drain, blocked culvert with leaves/debris	Culvert, road	Road	Survey location is at the end of the watercourse/pooling along roadside	None
AWS-3013	WC-3061	29-Apr-2024	44.173304	-78.605551	Watercourse	Permanent	2 m to 5 m	Yes	N/A	Culvert, transmission line, road	Road, agriculture	No change noted	None
AWS-3014	WC-3063	29-Apr-2024	44.173738	-78.598848	Watercourse	Permanent	2 m to 5 m	Yes	Potential fallen logs and debris	Culvert, road	Road	No change noted	None
AWS-3015	WC-3067, 3067.01	29-Apr-2024	44.178376	-78.583381	Watercourse	Permanent	5 m to 10 m	Yes	N/A	Road, culvert, twin box culvert bridge, culvert crossings	Road	No change noted	None
AWS-3060	WC-367, WC-3060	29-Apr-2024	44.159256	-78.593060	Watercourse	Permanent	>10 m	Yes	Weir on the upstream from pooling/pond to channelized downstream	Road, dam/weir, culvert	Road	No change noted	White Sucker
AWS-3016	WC-3069, 3069.01	29-Apr-2024	44.188276	-78.571523	Watercourse	Permanent	>25 m	Yes	Dense aquatic vegetation	Culvert, road, transmission line, transmission line tower	Road	Culvert crossing is located directly under centerline, standing water along whole roadway	None
AWS-3007	WC-3037	30-Apr-2024	44.112721	-78.690326	Watercourse	Permanent	2 m to 5 m	Yes	Perched culvert	Culvert, road	Road	No change noted	None
AWS-3006	WC-3036, 3036.01	30-Apr-2024	44.111304	-78.695995	Watercourse	Permanent	<2 m	Yes	Perched culvert	Culvert, road	Road	No change noted	None
AWS-3005	WC- 3024, 3024.01, 3024.02, 3026.02	30-Apr-2024	44.108197	-78.709639	Watercourse	Permanent	5 m to 10 m	Yes	Beaver dam	Culvert, road	Road	No change noted	None
AWS-3024A	WC-3024	30-Apr-2024	44.097669	-78.700296	Watercourse	Permanent	2 m to 5 m	Yes	N/A	Culvert, road	Road	No change noted	None

Notes: N/A= not applicable; m = meters; < = less than.

Appendix B Table 3: Fish Occurrences at Water Crossings along the DKPL Project Study Area, 2024 and 2025

Water Crossing ID	Historical Fish Community (MNRF 2022, MNRF 2024a)	Field Observations	EDNA collected.
WC-1000.01	-	-	-
WC-1001	Atlantic Salmon, Blacknose Dace, Bluegill, Bluntnose Minnow, Brook Trout, Brown Trout, Carps and Minnows, Common Shiner, Creek Chub, Fathead Minnow, Finescale Dace, Johnny Darter, Johnny Darter x Tesselated Darter, Lampreys, Mottled Sculpin, Northern Redbelly Dace, Pumpkinseed, Rainbow Darter, Rainbow Trout, Rock Bass, Sea Lamprey, Slimy Sculpin, White Sucker,	-	-
WC-1003.01	-	-	No Species Detected
WC-1004	Blacknose Dace, Brook Stickleback, Brook Trout, Creek Chub, Fathead Minnow, Mottled Sculpin, Northern Redbelly Dace, White Sucker	-	-
WC-1004.01	-	-	-
WC-1004.02	-	-	-
WC-1007	Blacknose Dace, Brook Stickleback, Brook Trout, Creek Chub, Fathead Minnow, Mottled Sculpin, Northern Redbelly Dace, White Sucker	-	-
WC-1008	Black Crappie, Backnose Dace, Bluegill, Brook Trout, Brown Bullhead, Brown Trout, Coho Salmon, Common Carp, Creek Chub, Fathead Minnow, Largemouth Bass, Mottled Sculpin, Muskellunge, Northern Pike, Pumpkinseed, Pumpkinseed, Rainbow Smelt, Rainbow Trout, Rock Bass, Smallmouth Bass, Walleye, White Sucker, Yellow Perch	-	-
WC-1009	Black Crappie, Blacknose Dace, Bluegill, Brook Trout, Brown Bullhead, Brown Trout, Coho Salmon, Common Carp, Creek Chub, Fathead Minnow, Largemouth Bass, Mottled Sculpin, Muskellunge, Northern Pike, Pumpkinseed, Rainbow Smelt, Rainbow Trout, Rock Bass, Smallmouth Bass, Walleye, White Sucker, Yellow Perch	-	-
WC-1009.01	-	-	-
WC-1013	Black Crappie, Blacknose Dace, Bluegill, Brook Trout, Brown Bullhead, Brown Trout, Coho Salmon, Common Carp, Creek Chub, Fathead Minnow, Largemouth Bass, Mottled Sculpin, Muskellunge, Northern Pike, Pumpkinseed, Rainbow Smelt, Rainbow Trout, Rock Bass, Smallmouth Bass, Walleye, White Sucker, Yellow Perch	-	-
WC-1014	American Brook Lamprey, Atlantic Salmon, Blacknose Dace, Brook Stickleback, Brook Trout, Brown Trout, Common Shiner, Creek Chub, Fathead Minnow, Longnose Dace, Mottled Sculpin, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, White Sucker	-	-
WC-1015	American Brook Lamprey, Atlantic Salmon, Blacknose Dace, Brook Stickleback, Brook Trout, Brown Trout, Common Shiner, Creek Chub, Fathead Minnow, Longnose Dace, Mottled Sculpin, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, White Sucker	-	-
WC-1019	American Brook Lamprey, Atlantic Salmon, Blacknose Dace, Brook Stickleback, Brook Trout, Brown Trout, Common Shiner, Creek Chub, Fathead Minnow, Longnose Dace, Mottled Sculpin, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, White Sucker	-	-
WC-1019.01	-	-	-
WC-1020	American Brook Lamprey, Atlantic Salmon, Blacknose Dace, Brook Stickleback, Brook Trout, Brown Trout, Common Shiner, Creek Chub, Fathead Minnow, Longnose Dace, Mottled Sculpin, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, White Sucker	-	-
WC-1023	Blacknose Dace, Brassy Minnow, Brook Trout, Brown Bullhead, Common Shiner, Creek Chub, Fathead Minnow, Largemouth Bass, Longnose Sucker, Northern Redbelly Dace, Pumpkinseed, Rock Bass, White Sucker	-	-
WC-1024	Blacknose Dace, Brassy Minnow, Brook Trout, Brown Bullhead, Common Shiner, Creek Chub, Fathead Minnow, Largemouth Bass, Longnose Sucker, Northern Redbelly Dace, Pumpkinseed, Rock Bass, White Sucker	-	-
WC-1025	Blacknose Dace, Brassy Minnow, Brook Trout, Brown Bullhead, Common Shiner, Creek Chub, Fathead Minnow, Largemouth Bass, Longnose Sucker, Northern Redbelly Dace, Pumpkinseed, Rock Bass, White Sucker	Visually Observed (Creek Chub, Sucker Sp., Dace Sp.)(2024)	-
WC-1029	Blacknose Dace, Brassy Minnow, Brook Trout, Brown Bullhead, Common Shiner, Creek Chub, Fathead Minnow, Largemouth Bass, Longnose Sucker, Northern Redbelly Dace, Pumpkinseed, Rock Bass, White Sucker	Visually Observed Upstream (Species Unknown) (2024, 2025)	-
WC-1029.01	-	-	Fathead Minnow, Northern Redbelly Dace, Chub sp.
WC-1029.02	-	-	-
WC-1030	-	-	-
WC-1031.01	-	-	-
WC-1033	Blacknose Dace, Blacknose Shiner, Bluegill, Brook Stickleback, Brook Trout, Brown Bullhead, Central Mudminnow, Common Carp, Common Shiner, Creek Chub, Fathead Minnow, Golden Shiner, Hornyhead Chub, Johnny Darter x Tesselated Darter, Largemouth Bass, Longnose Dace, Mottled Sculpin, Muskellunge, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, Rock Bass, Sculpins, Smallmouth Bass, White Sucker, Yellow Perch	Visually Observed (Creek Chub, Sucker sp., Dace sp., Shiner sp.) (2024)	-
WC-1033.01	-	-	Brook Stickleback
WC-1033.02	-	Visually Observed (Forage Fish Species) (2024)	Salmonid sp., Brook Stickleback
WC-1034	Blacknose Dace, Blacknose Shiner, Bluegill, Brook Stickleback, Brook Trout, Brown Bullhead, Central Mudminnow, Common Carp, Common Shiner, Creek Chub, Fathead Minnow, Golden Shiner, Hornyhead Chub, Johnny Darter x Tesselated Darter, Largemouth Bass, Longnose Dace, Mottled Sculpin, Muskellunge, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, Rock Bass, Sculpins, Smallmouth Bass, White Sucker, White Sucker, Yellow Perch	-	-
WC-1034.01	-	-	Northern Redbelly Dace, Brook Stickleback
WC-1036	Blacknose Dace, Blacknose Shiner, Bluegill, Brook Stickleback, Brook Trout, Brown Bullhead, Central Mudminnow, Common Carp, Common Shiner, Creek Chub, Fathead Minnow, Golden Shiner, Hornyhead Chub, Johnny Darter x Tesselated Darter, Largemouth Bass, Longnose Dace, Mottled Sculpin, Muskellunge, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, Rock Bass, Sculpins, Smallmouth Bass, White Sucker, Yellow Perch	-	-

Water Crossing ID	Historical Fish Community (MNRF 2022, MNRF 2024a)	Field Observations	EDNA collected.
WC-1037	Blacknose Dace, Blacknose Shiner, Bluegill, Brook Stickleback, Brook Trout, Brown Bullhead, Central Mudminnow, Common Carp, Common Shiner, Creek Chub, Fathead Minnow, Golden Shiner, Hornyhead Chub, Johnny Darter x Tesselated Darter, Largemouth Bass, Longnose Dace, Mottled Sculpin, Muskellunge, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, Rock Bass, Sculpins, Smallmouth Bass, White Sucker, Yellow Perch	-	-
WC-1037.01	-	-	-
WC-1038	Blacknose Dace, Blacknose Shiner, Brook Stickleback, Brook Trout, Brown Bullhead, Central Mudminnow, Common Shiner, Creek Chub, Fathead Minnow, Golden Shiner, Hornyhead Chub, Johnny Darter x Tesselated Darter, Longnose Dace, Mottled Sculpin, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, Rock Bass, Sculpins, White Sucker	-	-
WC-1038.01	-	-	-
WC-1040	Blacknose Dace, Blacknose Shiner, Brook Stickleback, Brook Trout, Brown Bullhead, Central Mudminnow, Common Shiner, Creek Chub, Fathead Minnow, Golden Shiner, Hornyhead Chub, Johnny Darter x Tesselated Darter, Longnose Dace, Mottled Sculpin, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, Rock Bass, Sculpins, White Sucker	-	-
WC-1041	Blacknose Dace, Blacknose Shiner, Brook Stickleback, Brook Trout, Brown Bullhead, Central Mudminnow, Common Shiner, Creek Chub, Fathead Minnow, Golden Shiner, Hornyhead Chub, Johnny Darter x Tesselated Darter, Longnose Dace, Mottled Sculpin, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, Rock Bass, Sculpins, White Sucker	-	-
WC-1041.01	-	-	No Species Detected
WC-1042	Blacknose Dace, Blacknose Shiner, Brook Stickleback, Brook Trout, Brown Bullhead, Central Mudminnow, Common Shiner, Creek Chub, Fathead Minnow, Golden Shiner, Hornyhead Chub, Johnny Darter x Tesselated Darter, Longnose Dace, Mottled Sculpin, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, Rock Bass, Sculpins, White Sucker	-	-
WC-1043	Blacknose Dace, Blacknose Shiner, Brook Stickleback, Brook Trout, Brown Bullhead, Central Mudminnow, Common Shiner, Creek Chub, Fathead Minnow, Golden Shiner, Hornyhead Chub, Johnny Darter x Tesselated Darter, Longnose Dace, Mottled Sculpin, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, Rock Bass, Sculpins, White Sucker	-	-
WC-1044	Blacknose Dace, Blacknose Shiner, Brook Stickleback, Brook Trout, Brown Bullhead, Central Mudminnow, Common Shiner, Creek Chub, Fathead Minnow, Golden Shiner, Hornyhead Chub, Johnny Darter x Tesselated Darter, Longnose Dace, Mottled Sculpin, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, Rock Bass, Sculpins, White Sucker	Visually Observed (Forage Fish Species) (2024)	-
WC-1044.01	-	-	-
WC-1045	Blacknose Dace, Blacknose Shiner, Brook Stickleback, Brook Trout, Brown Bullhead, Central Mudminnow, Common Shiner, Creek Chub, Fathead Minnow, Golden Shiner, Hornyhead Chub, Johnny Darter x Tesselated Darter, Longnose Dace, Mottled Sculpin, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, Rock Bass, Sculpins, White Sucker	-	-
WC-1046	Blacknose Dace, Blacknose Shiner, Brook Stickleback, Brook Trout, Brown Bullhead, Central Mudminnow, Common Shiner, Creek Chub, Fathead Minnow, Golden Shiner, Hornyhead Chub, Johnny Darter x Tesselated Darter, Longnose Dace, Mottled Sculpin, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, Rock Bass, Sculpins, White Sucker	-	-
WC-1046.01	-	-	-
WC-1047	Blacknose Dace, Blacknose Shiner, Brook Stickleback, Brook Trout, Brown Bullhead, Central Mudminnow, Common Shiner, Creek Chub, Fathead Minnow, Golden Shiner, Hornyhead Chub, Johnny Darter x Tesselated Darter, Longnose Dace, Mottled Sculpin, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, Rock Bass, Sculpins, White Sucker	-	-
WC-1048	Blacknose Dace, Bluntnose Minnow, Brassy Minnow, Brook Stickleback, Brook Trout, Brown Bullhead, Brown Trout, Common Shiner, Creek Chub, Fathead Minnow, Hornyhead Chub, Johnny Darter, Johnny Darter x Tesselated Darter, Largemouth Bass, Logperch, Longnose Dace, Longnose Sucker, Mottled Sculpin, Northern Hog Sucker, Northern Redbelly Dace, Pimephales sp., Rock Bass, Sculpins, Slimy Sculpin, Smallmouth Bass, White Sucker	-	-
WC-1049	Blacknose Dace, Bluntnose Minnow, Brassy Minnow, Brook Stickleback, Brook Trout, Brown Bullhead, Brown Trout, Common Shiner, Creek Chub, Fathead Minnow, Hornyhead Chub, Johnny Darter, Johnny Darter x Tesselated Darter, Largemouth Bass, Logperch, Longnose Dace, Longnose Sucker, Mottled Sculpin, Northern Hog Sucker, Northern Redbelly Dace, Pimephales sp., Rock Bass, Sculpins, Slimy Sculpin, Smallmouth Bass, White Sucker	-	-
WC-1052	Blacknose Dace, Bluntnose Minnow, Brassy Minnow, Brook Stickleback, Brook Trout, Brown Bullhead, Brown Trout, Common Shiner, Creek Chub, Fathead Minnow, Hornyhead Chub, Johnny Darter, Johnny Darter x Tesselated Darter, Largemouth Bass, Logperch, Longnose Dace, Longnose Sucker, Mottled Sculpin, Northern Hog Sucker, Northern Redbelly Dace, Pimephales sp., Rock Bass, Sculpins, Slimy Sculpin, Smallmouth Bass, White Sucker	-	-
WC-1053	Blacknose Dace, Bluntnose Minnow, Brassy Minnow, Brook Stickleback, Brook Trout, Brown Bullhead, Brown Trout, Common Shiner, Creek Chub, Fathead Minnow, Hornyhead Chub, Johnny Darter, Johnny Darter x Tesselated Darter, Largemouth Bass, Logperch, Longnose Dace, Longnose Sucker, Mottled Sculpin, Northern Hog Sucker, Northern Redbelly Dace, Pimephales sp., Rock Bass, Sculpins, Slimy Sculpin, Smallmouth Bass, White Sucker	-	-
WC-1054.01	-	-	-
WC-1055	Blacknose Dace, Bluntnose Minnow, Brassy Minnow, Brook Stickleback, Brook Trout, Brown Bullhead, Brown Trout, Common Shiner, Creek Chub, Fathead Minnow, Hornyhead Chub, Johnny Darter, Johnny Darter x Tesselated Darter, Largemouth Bass, Logperch, Longnose Dace, Longnose Sucker, Mottled Sculpin, Northern Hog Sucker, Northern Redbelly Dace, Pimephales sp., Rock Bass, Sculpins, Slimy Sculpin, Smallmouth Bass, White Sucker	Visually Observed (Forage Fish Species) (2025)	-
WC-1055.01	-	-	No Species Detected

Water Crossing ID	Historical Fish Community (MNRF 2022, MNRF 2024a)	Field Observations	EDNA collected.
WC-1056	Blacknose Dace, Bluntnose Minnow, Brassy Minnow, Brook Stickleback, Brook Trout, Brown Bullhead, Brown Trout, Common Shiner, Creek Chub, Fathead Minnow, Hornyhead Chub, Johnny Darter, Johnny Darter x Tesselated Darter, Largemouth Bass, Logperch, Longnose Dace, Longnose Sucker, Mottled Sculpin, Northern Hog Sucker, Northern Redbelly Dace, Pimephales sp., Rock Bass, Sculpins, Slimy Sculpin, Smallmouth Bass, White Sucker	-	-
WC-1058	Blacknose Dace, Blacknose Shiner, Bluntnose Minnow, Brassy Minnow, Brook Stickleback, Brown Bullhead, Carps and Minnows, Common Shiner, Creek Chub, Hornyhead Chub, Logperch, Longnose Dace, Mottled Sculpin, Northern Pearl Dace, Northern Redbelly Dace, Notropis sp., Pumpkinseed, Rock Bass, Smallmouth Bass, Spottail Shiner, White Sucker, Yellow Perch	-	-
WC-1058.01	-	-	-
WC-1058.02	-	-	Brook Stickleback
WC-1058.03	-	-	-
WC-1058.04	-	-	-
WC-1059	Blacknose Dace, Blacknose Shiner, Bluntnose Minnow, Brassy Minnow, Brook Stickleback, Brown Bullhead, Carps and Minnows, Common Shiner, Creek Chub, Hornyhead Chub, Logperch, Longnose Dace, Mottled Sculpin, Northern Pearl Dace, Northern Redbelly Dace, Notropis sp., Pumpkinseed, Rock Bass, Smallmouth Bass, Spottail Shiner, White Sucker, Yellow Perch	-	-
WC-1060	Blacknose Dace, Blacknose Shiner, Bluntnose Minnow, Brassy Minnow, Brook Stickleback, Brown Bullhead, Carps and Minnows, Common Shiner, Creek Chub, Hornyhead Chub, Logperch, Longnose Dace, Mottled Sculpin, Northern Pearl Dace, Northern Redbelly Dace, Notropis sp., Pumpkinseed, Rock Bass, Smallmouth Bass, Spottail Shiner, White Sucker, Yellow Perch	Visually Observed Upstream (Species Unknown) (2024)	-
WC-1061	Blacknose Dace, Blacknose Shiner, Bluntnose Minnow, Brassy Minnow, Brook Stickleback, Brown Bullhead, Carps and Minnows, Common Shiner, Creek Chub, Hornyhead Chub, Logperch, Longnose Dace, Mottled Sculpin, Northern Pearl Dace, Northern Redbelly Dace, Notropis sp., Pumpkinseed, Rock Bass, Smallmouth Bass, Spottail Shiner, White Sucker, Yellow Perch	-	-
WC-1061.01	-	-	-
WC-1062.01	-	-	-
WC-1063	-	-	-
WC-1064	-	-	-
WC-1065	-	-	-
WC-1066	Blacknose Dace, Blacknose Shiner, Bluegill, Bluntnose Minnow, Brassy Minnow, Brook Stickleback, Brook Trout, Brown Bullhead, Brown Trout, Carps and Minnows, Common Shiner, Creek Chub, Hornyhead Chub, Logperch, Longnose Dace, Mottled Sculpin, Northern Pearl Dace, Northern Redbelly Dace, Notropis sp., Pumpkinseed, Rock Bass, Smallmouth Bass, Spottail Shiner, White Perch, White Sucker, Yellow Perch	-	-
WC-1066.01	-	-	Central Mudminnow, Brook Stickleback
WC-1066.02	-	-	-
WC-1067	Blacknose Dace, Blacknose Shiner, Bluntnose Minnow, Brassy Minnow, Brook Stickleback, Brown Bullhead, Carps and Minnows, Common Shiner, Creek Chub, Hornyhead Chub, Logperch, Longnose Dace, Mottled Sculpin, Northern Pearl Dace, Northern Redbelly Dace, Notropis sp., Pumpkinseed, Rock Bass, Smallmouth Bass, Spottail Shiner, White Sucker, Yellow Perch	Visually Observed Upstream (Species Unknown) (2024)	-
WC-1071	Blacknose Dace, Blacknose Shiner, Bluegill, Bluntnose Minnow, Brassy Minnow, Brook Stickleback, Brook Trout, Brown Bullhead, Brown Trout, Carps and Minnows, Common Shiner, Creek Chub, Hornyhead Chub, Logperch, Longnose Dace, Mottled Sculpin, Northern Pearl Dace, Northern Redbelly Dace, Notropis sp., Pumpkinseed, Rock Bass, Smallmouth Bass, Spottail Shiner, White Perch, White Sucker, Yellow Perch	Visually Observed Upstream (Species Unknown) (2024)	-

Notes: sp = species; - =not available/collected; 2024 = Fish visually observed in 2024; 2025= Fish visually observed in 2025
References:
MNRF 2022, MNRF 2024a

MNRF. 2022. Fish ON-Line. [updated August 03, 2022; accessed January 26, 2024]. https://www.lioapplications.lrc.gov.on.ca/fishonline/Index.html?viewer=FishONLine.FishONLine&locale=en-CA.
MNRF. 2024a. Aquatic Resource Area (ARA), Land Information Ontario (LIO). Ontario Ministry of Natural Resources & Forestry. King's Printer for Ontario 2024.

Appendix B Table 4A: Water Feature Characteristics at Centreline Crossing Locations in the DKPL Project Study Area, 2024

Water Crossing ID	Easting (m)	Northing (m)	Feature Type	Water Feature Name (MNRF 2024a, 2024d)	Visual Permanency	Thermal Regime (MNRF 2024a)	Watercourse Pattern	Confinement	Channel Form	Habitat Type	Mean Wetted Width (m)	Mean Wetted Depth (m)	Mean Bankfull Width (m)	Substrate Types(%)	Cover Type (%)	Bank Stability	Riparian Vegetation	Water Colour and Clarity	Water Temperature (°C)	Specific Conductivity (µS/cm)	pH	Turbidity	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	Fish Habitat	Quality of Fish Habitat	eDNA collected	Additional Watercourse Features	Site Comments
WC-1000.01	673095.63	4872839.53	Water Feature	-	Non-Permanent	-	No Defined Channel			-	Dry		-	-	-	-	Grasses/ Shrubs/ Mixed Forest	No water present							No	-	-	-	Dry with no defined channel features.
WC-1007	672698.00	4876458.00	Water Feature	-	Non-Permanent	Cold	No Defined Channel			-	-	-	-	-	-	-	Grasses/ Shrubs	Turbid	23.1	-b	7.9	13.8	5.9	77.0	Unknown	-	-	-	No defined channel features, located within a swamp wetland.
WC-1008	673206.50	4876908.41	Watercourse	Bowmanville Creek (Headwaters)	Non-Permanent	Cold	Straight	Occasionally Confined	Neutral	Flat, Undefined	0.20	0.02	1.50	Or 15%, Cl 80%, Sa 5%	OHV 90%, AV 5%, WD 5%	LDB 100%, RDB 100%	Grasses/ Shrubs/ Mixed Forest	-	-	-	-	-	-	-	Yes	Seasonal low quality fish habitat for small bodied fish	-	GW Indicator	Originates as a headwater feature, before channelizing into small flat morphology. Insufficient water levels limited the ability to collect water quality.
WC-1025	680402.00	4883379.00	Watercourse	-	Permanent	Cold	Regular Meander	Confined	Neutral	Flat, Run, Pool	0.80	0.18	2.00	Sa 60%, Si 25%, Or 10%, Gr 5%	OHV 50%, AV 10%, WD 5%, SUB 5%	LDB 90%, RDB 90%	Grasses/ Shrubs/ Mixed Forest	Clear	15.2	392.1	**9.1**	2.7	8.3	83.0	Yes	Important: Spawning, Rearing, Migration	-	CSP culvert, GW indicator	Watercourse flowing through a valley system, with a known fish community.
WC-1029	681786.29	4884723.10	Water Feature	-	Permanent	Cold	No Defined Channel			-	-	-	-	-	-	-	Grasses/ Shrubs	Tea	24.0	-b	6.9	3.1	-b	-b	Yes	Low quality fish habitat for small bodied fish	-	-	Large wetland and flooded area covered potential watercourse. Flood limits not captured on aerial imagery.
WC-1029.01	681759.31	4884699.02	Water Feature	-	Non-Permanent	-	No Defined Channel			-	-	-	-	-	-	-	Grasses/ Shrubs	Clear	-b	-b	-b	-b	-b	-b	Yes	Low quality fish habitat for small bodied fish	Yes	-	No defined channel, located in a large wetland with fluctuating water levels. Direct connection to known fish habitat. Aquatroll equipment malfunction.
WC-1029.02	681928.55	4884851.41	Water Feature	-	Non-Permanent	-	No Defined Channel			-	Dry		-	-	-	-	Grasses/ Shrubs/ Mixed Forest	No water present							No	-	-	-	No defined channel features, located along an existing trail.
WC-1030	682548.20	4885406.45	Water Feature	-	Non-Permanent	Cold	No Defined Channel			-	Dry		-	-	-	-	Grasses/ Shrubs/ Mixed Forest	No water present							No	-	-	-	Dry site with no defined channel features.
WC-1031.01	682335.75	4885216.04	Water Feature	-	Non-Permanent	-	No Defined Channel			-	Dry		-	-	-	-	Grasses/ Shrubs/ Mixed Forest	No water present							No	-	-	-	No defined channel features, located along an existing trail.
WC-1033	683431.09	4886198.09	Watercourse	Pigeon River	Permanent	Cold	Irregular Meander	Unconfined	Open	Flat	3.00	1.00	6.00	Or 80%, Si 20%	WD 20%, AV 10%, OHV 15%	LDB 40%, RDB 40%	Grasses/ Shrubs	Clear	14.3	365.7	8.1	0.7	8.6	78.0	Yes	Important: Overwintering, Spawning, Rearing, Migration	-	GW Indicator, Islands	Large watercourse with deep water levels located within the Pigeon River Swamp. Large fish community was observed.
WC-1033.01	683415.00	4886184.00	Water Feature	-	Non-Permanent	-	No Defined Channel			-	-	-	-	-	-	-	Grasses/ Shrubs	Clear	14.2	371.0	7.4	0.7	**2.0**	20.0	Yes	Low to moderate quality fish habitat for small bodied fish	Yes	-	Located in a Pigeon River Swamp, adjacent to WC-1033. No defined channel features, however water presence indicates potential for fish presence.
WC-1033.02	683294.21	4886074.22	Waterbody	-	Permanent	-	Round	-	-	Pond	20.00	0.25	24.00	Or 70%, Si 10%, Cl 15%, Sa 5%	AV 80%, WD 5%	B1 100%, B2 100%	Muskeg/ Grasses/ Shrubs/ Mixed Forest	Clear	14.1	393.2	7.6	3.7	**4.7**	47.0	Yes	Moderate to high quality habitat for small bodied fish	Yes	GW Indicator, High algae	Ground water fed pond area located in a depression at the edge of Pigeon River Swamp
WC-1040	687176.20	4889565.78	Water Feature	-	Non-Permanent	Cold	No Defined Channel			-	-	-	-	-	-	-	Grasses/ Shrubs	Turbid	22.1	-b	7.6	24.1	5.9	74.0	Unknown	-	-	GW Indicator	Stagnant water located within pooled water by a marsh wetland. No defined channel features.
WC-1041.01	691133.32	4893126.98	Waterbody	-	Permanent	-	Irregular	-	-	Pond	22a	>1	28a	Or 75%, Si 10%, Cl 10%, Sa 5%	OHV 10%, AV 5%	B1 90%, B2 80%	Grasses/ Shrubs/ Crops	Clear	-b	-b	-b	-b	-b	-b	Yes	Low quality fish habitat for small bodied fish	Yes	Low algae	Man made isolated pond, surrounded by agricultural fields and forest. Aquatroll equipment malfunction therefore no records.
WC-1044	693272.08	4894955.82	Watercourse	Fleetwood Creek	Permanent	Cold	Regular Meander	Confined	Neutral	Run	6.50	0.45	10.00	Or 40%, Si 40%, Sa 20%	WD 20%, AV 10%, OHV 5%, UCB 5%	LDB 80%, RDB 80%	Grasses/ Shrubs/ Mixed Forest	Clear	14.5	381.3	8.6	3.9	9.4	93.0	Yes	Important: Overwintering, Spawning, Rearing, Migration	-	GW Indicator	Moderate watercourse with large fish community, abundant cover and consistent habitat.
WC-1046	694128.88	4895651.23	Water Feature	-	Non-Permanent	Cold	No Defined Channel			-	-	-	-	-	-	-	Grasses/ Shrubs	Clear	19.1	-b	**6.3**	12.4	6.9	77.0	Unknown	-	-	GW Indicator	Pooled water from wetland feature, no defined channel features.
WC-1046.01	694070.00	4895603.00	Water Feature	-	Non-Permanent	-	No Defined Channel			-	-	-	-	-	-	-	Grasses/ Shrubs/ Mixed Forest	Tannins	21.1	-b	7.9	2.7	6.0	78.0	Unknown	-	-	Gw Indicator	Site located in a wetland feature with no defined channel.
WC-1060	701016.18	4901255.14	Watercourse	-	Permanent	Warm	Straight	Confined	Incised	Run, Pool, Flat	0.76	0.11	2.03	Sa 45%, Co 20%, Gr 15%, Si 10%, Or 5%, Bo 5%	OHV 50%, AV 15%, WD 15%, SUB 5%	LDB 90%, RDB 90%	Grasses/ Shrubs/ Deciduous Forest/ Crops	Clear	15.8	1155.6	**9.2**	2.7	8.2	84.0	Yes	Low quality fish habitat for small bodied fish	-	-	Watercourse flowing in a small valley between agricultural fields.
WC-1061	701279.15	4901468.78	Watercourse	-	Non-Permanent	Warm	Straight	Occasionally Confined	Neutral	Run, Pool, Flat, Undefined	0.60	0.05	1.20	Cl 55%, Sa 10%, Co 20%, Gr 5%, Si 5%, Bo 5%	OHV 25%, AV 65%, WD 5%, SUB 5%	LDB 100%, RDB 100%	Grasses/ Shrubs/ Crops	Clear	-	-	-	-	-	-	Yes	Seasonal low quality fish habitat for small bodied fish	-	-	Small intermittent watercourse flowing in a valley before becoming subsurface. Watercourse was drying up throughout the survey, and water levels became insufficient for sampling.
WC-1061.01	701260.89	4901454.32	Water Feature	-	Non-Permanent	-	No Defined Channel			-	Dry		-	-	-	-	Grasses/ Shrubs/ Mixed Forest	No water present							No	-	-	-	Adjacent to WC-1061. No channel, located at the top of a vegetated slope.
WC-1062.01	704051.29	4904171.43	Water Feature	-	Non-Permanent	-	No Defined Channel			-	Dry		-	-	-	-	Grasses	No water present							No	-	-	-	Located within a low point in a valley meadow. No evidence of water.

Water Crossing ID	Easting (m)	Northing (m)	Feature Type	Water Feature Name (MNRF 2024a, 2024d)	Visual Permanency	Thermal Regime (MNRF 2024a)	Watercourse Pattern	Confinement	Channel Form	Habitat Type	Mean Wetted Width (m)	Mean Wetted Depth (m)	Mean Bankfull Width (m)	Substrate Types(%)	Cover Type (%)	Bank Stability	Riparian Vegetation	Water Colour and Clarity	Water Temperature (°C)	Specific Conductivity (µS/cm)	pH	Turbidity	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	Fish Habitat	Quality of Fish Habitat	eDNA collected	Additional Watercourse Features	Site Comments
WC-1065	704489.17	4904756.35	Watercourse	-	Non-Permanent	-	Straight	Confined	Neutral	Dry Channel	Dry		1.50	Organic 55%, Clay 30%, Silt 13%, Boulder 2%	OHV 70%, SUB 2%	LDB 80%, RDB 80%	Grasses/ Shrubs/ Crops	No water present							Unknown	-	-	-	Dry channel with seasonal flow, acting as a farm drainage path.
WC-1066.01	704712.28	4905051.29	Water Feature	-	Non-Permanent	-	No Defined Channel			-	-	-	-	-	-	-	Grasses / Mixed Forest	Clear	-b	-b	-b	-b	-b	-b	Yes	Supporting low quality habitat for small bodied fish	Yes		eDNA collected within the open water of wetland feature, no defined watercourse channel

Notes: - = not applicable; mg/L = milligrams per litre; µS/cm = microSiemens per centimetre; % = percent; m = metre; Sa = Sand; Si = Silt; Or = Organics; Cl = Clay; Co = Cobble; Bo = Boulder; Gr = Gravel; Bd = Bedrock; CSP = Corrugated steel pipe; AV = Aquatic Vegetation; OHV = Overhanging vegetation; UCB = Undercut Banks; WD = woody debris; SUB = Substrate; GW = Ground Water; > = greater than; < = less than; US = upstream; DS = downstream; Rf = riffle; Ru = run; Fl = flat; Imp = impoundment; Po = pool;
All coordinates are provided as universal transverse Mercator's in NAD 83 Zone 17T .
Bolded values indicate values outside of the CCME CWQG (2024) and/or PWQO (MECP1994).
(a) Measurements were gathered from aerial imagery.
(b) Water quality equipment malfunction during survey.
References:
Canadian Council of Ministers of the Environment (CCME). 2024. Water Quality Guidelines for the Protection of Aquatic Life. [Accessed November 10 2024]. Canadian Council of Ministers of the Environment | Le Conseil canadien des ministres de l'environment
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Appendix B Table 4B: Water Feature Characteristics at Centreline Crossing Locations in the DKPL Project Study Area, 2025

Water Crossing ID	Easting (m)	Northing (m)	Feature Type	Water Feature Name (MNRF 2024a, 2024d)	Visual Permanency	Thermal Regime (MNRF 2024a)	Watercourse Pattern	Confinement	Channel Form	Habitat Type	Mean Wetted Width (m)	Mean Wetted Depth (m)	Mean Bankfull Width (m)	Substrate Types(%)	Cover Type (%)	Bank Stability	Riparian Vegetation	Water Colour and Clarity	Water Temperature (ºC)	Specific Conductivity (µS/cm)	pH	Turbidity	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	Fish Habitat	Quality of Fish Habitat	eDNA collected	Additional Watercourse Features	Site Comments
WC-1003.01	673399.4	4874129.34	Waterbody	-	Permanent	-	Irregular	-	-	Pond	110.00	1.00	160.00	Or 50%, Sa 25%, Gr 25%	AV 50%, DT 15%, OHV 10%, WD 10%, SUB 10%	LDB 40%, RDB 40%	Wetland/ Shrubs/ Grasses	Clear	17.5	717.3	8.2	0.2	9.3	97.5	Yes	Moderate quality fish habitat, supporting high quality downstream habitat.	Yes	-	Small channel, which connects to a ponded wetland feature which channelizes downstream into two defined channels.
WC-1009.01	673809.67	4877350.18	Water Feature	-	Non-Permanent	-	No Defined Channel			-	-	-	-	-	-	-	Grasses/ Shrubs/ Wetland	Turbid	12.3	526.2	8.1	0.6	6.1	57.0	Unknown	-	-	-	Low-lying wetland feature, with no defined channel or drainage path.
WC-1034.01	684403.32	4887077.95	Waterbody	-	Permanent	-	Round	-	-	Pond	25.00	0.50	30.00	Or 40%, Si 30%, Sa 25%, Gr 5%	AV 80%, OHV 5%	LDB 80%, RDB 80%	Wetland/ Shrubs/ Grasses/ Mixed Forest	Clear	17.1	327.6	8.0	11.5	7.0	73.0	Yes	Low quality fish habitat for small bodied fish	Yes		Circular ponded wetland with dense aquatic vegetation and no visible inlet or outlet.
WC-1038.01	686036.36	4888528.87	Water Feature	-	Non-Permanent	-	No Defined Channel			-	-	-	-	-	-	-	Crops/ Grasses/ Shrubs/ Deciduous	-	-	-	-	-	-	-	No	-	-	-	Dry with no defined channel features, located adjacent to an agricultural field.
WC-1054.01	696562.59	4897649.29	Water Feature	-	Non-Permanent	-	No Defined Channel			-	-	-	-	-	-	-	Grasses/ Shrubs	-	-	-	-	-	-	-	No	-	-	-	Dry with no defined channel features, located on a slope in an open field.
WC-1055.01	696813.86	4897827.7	Watercourse	-	Permanent	-	Regular Meander	Confined	Open	Run, Riffle, Pool	1.75	0.16	7.70	Sa 45%, Gr 20%, Co 15%, Or 10%, Si 5%, Bo 5%	OHV 25%, AV 20%, WD 20%, SUB 5%, UCB 5%, DT 5%	LDB 80%, RDB 80%	Mixed Forest/ Wetland/ Grasses/ Shrubs	Clear	12.3	518.2	8.5	19.7	8.7	82.0	Yes	Low quality supporting fish habitat at crossing, connecting downstream to high quality habitat.	Yes	GW indicator	Drainage channel with mixed defined channel and open wetland habitat. Before connecting downstream to WC-1055 which has defined high quality habitat.
WC-1058.01	699219	4899774.63	Water Feature	-	Permanent	-	No Defined Channel			-	-	-	-	-	-	-	Crops/ Grasses/ Shrubs	Clear	15.4	499.9	7.8	0.1	**5.0**	50.0	Yes	Low to moderate quality fish habitat for small bodied fish	-	-	Shallow wetland with no defined channel, connecting to WC-1058.02 open water wetland.
WC-1058.02	699307.13	4899847.46	Water Feature	-	Permanent	-	No Defined Channel			-	-	-	-	-	-	-	Wetland/ Shrubs	Clear	21.5	413.4	8.3	2.8	7.7	88.0	Yes	Moderate quality fish habitat for small bodied fish	Yes	-	Large open water wetland located west of WC-1058, with no defined channel.
WC-1058.03	698956.66	4899594.01	Water Feature	-	Non-Permanent	-	No Defined Channel			-	-	-	-	-	-	-	Crops/ Grasses/ Shrubs	-	-	-	-	-	-	-	No	-	-	-	Dry with no defined channel features, located in a low-lying meadow with a small section of stagnant pooling.
WC-1063	704311.49	4904513.2	Water Feature	-	Non-Permanent	-	No Defined Channel			-	-	-	-	-	-	-	Crops/ Grasses/ Shrubs	-	-	-	-	-	-	-	No	-	-	-	Dry with no defined channel features, located in an agricultural field.
WC-1064	704327.62	4904602.99	Water Feature	-	Non-Permanent	-	No Defined Channel			-	-	-	-	-	-	-	Crops/ Grasses/ Shrubs	-	-	-	-	-	-	-	No	-	-	-	Dry with no defined channel features, located in an agricultural field.

Notes: - = not applicable; mg/L = milligrams per litre; µS/cm = microSiemens per centimetre; % = percent; m = metre; Sa = Sand; Si = Silt; Or = Organics; Cl = Clay; Co = Cobble; Bo = Boulder; Gr = Gravel; Bd = Bedrock; CSP = Corrugated steel pipe; AV = Aquatic Vegetation; OHV = Overhanging vegetation; UCB = Undercut Banks; WD = Woody Debris; SUB = Substrate; DT = Depth and Turbulence; GW = Groundwater; > = greater than; < = less than; US = upstream; DS = downstream; Rf = riffle; Ru = run; Fl = flat; Imp = impoundment; Po = pool;
All coordinates are provided as universal transverse Mercator's in NAD 83 Zone 17T .
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Appendix B Table 5A: Freshwater Fish EDNA results, October 2024.

Water Crossing ID	Adjacent Watercourse Name / Tertiary Watershed	Family Specific Results	Genus Specific Results	Species Specific Results	Species Scientific Names
WC-1029.01	Scugog River Watershed	*Cyprinidae*	*Chrosomus sp., Semotilus sp.*	Fathead Minnow, Northern Redbelly Dace, Chub sp.	*Pimephales promelas, Chrosomus eos*
WC-1033.01	Pigeon River, Kawartha Lakes Watershed	-	*Culaea sp.*	Brook Stickleback	*Culaea inconstans*
WC-1033.02	Pigeon River, Kawartha Lakes Watershed	-	*Culaea sp.*	Atlantic Salmon(a), Brook Stickleback	*Salmo salar, Culaea inconstans*
WC-1041.01	Fleetwood Creek, Kawartha Lakes Watershed	-	-	-	-
WC-1066.01	Jackson Creek, Otonabee River Watershed	-	-	Central Mudminnow, Brook Stickleback	*Umbra limi, Culaea inconstans*

Appendix B Table 6A: Freshwater Vertebrates EDNA results, October 2024.

Water Crossing ID	Adjacent Watercourse Name / Tertiary Watershed	Family Specific Results	Genus Specific Results	Species Specific Results	Species Scientific Names
WC-1029.01	Scugog River Watershed	*Anatidae, Passeriformes*	*Condylura sp., Lithobates sp., Microtus sp.,*	American Beaver, Eastern Meadow Vole, Muskrat	*Castor canadensis, Microtus pennsylvanicus, Ondatra zibethicus*
WC-1033.01	Pigeon River, Kawartha Lakes Watershed	-	*Lithobates sp.*	Eastern Meadow Vole	*Microtus pennsylvanicus*
WC-1033.02	Pigeon River, Kawartha Lakes Watershed	*Anatidae*	*Lithobates sp.*	Northern Leopard Frog	*Lithobates pipiens*
WC-1041.01	Fleetwood Creek, Kawartha Lakes Watershed	-	-	Raccoon	*Procyon lotor*
WC-1066.01	Jackson Creek, Otonabee River Watershed	-	*Lithobates sp.*	American Beaver, Eastern Meadow Vole, Muskrat, Painted Turtle	*Castor canadensis, Microtus pennsylvanicus, Ondatra zibethicus, Chrysemys picta*

Notes:
(a): Listed as EXT (Extirpated) under ESA and COSEWIC in Ontario. Presence to be confirmed with the MECP.
- : No data
The naming Rosy-Red Minnow (*Pimephales promelas*) has been altered to Fathead Minnow, as Rosy-Red Minnow is a colour variant of the species.
NatureMetrics uses the classification "Cyprinidae" which has updated terminology in recent literature to "Leuciscidae". Cyprinidae has been used to reference to EDNA results to keep consistency.

Appendix B Table 5B: Freshwater Fish EDNA Results, June 2025.

Water Crossing ID	Adjacent Watercourse Name / Tertiary Watershed	Family Specific Results	Genus Specific Results	Species Specific Results	Species Scientific Names
WC-1003.01	North Lake Ontario Watershed	-	-	-	-
WC-1034.01	Kawartha Lakes Watershed	*Cyprinidae, Gasterosteidae*	*Chrosomus sp., Culaea sp.*	Northern Redbelly Dace, Brook Stickleback	*Chrosomus eos, Culaea inconstans*
WC-1055.01	Otonabee River Watershed	-	-	-	-
WC-1058.02	Otonabee River Watershed	*Gasterosteidae*	*Culaea sp.*	Brook Stickleback	*Culaea inconstans*

Appendix B Table 6B: Freshwater Vertebrates EDNA Results, June 2025.

Water Crossing ID	Adjacent Watercourse Name / Tertiary Watershed	Family Specific Results	Genus Specific Results	Species Specific Results	Species Scientific Names
WC-1003.01	North Lake Ontario Watershed	*Anatidae (Waterbird)*	-	-	-
WC-1034.01	Kawartha Lakes Watershed	*Anatidae (Waterbird)*	*Dryophytes sp. (Tree frog sp.), Lithobates sp.(Frog sp.)*	Painted Turtle, Wood Frog	*Chrysemys picta, Lithobates sylvaticus*
WC-1055.01	Otonabee River Watershed	-	-	-	-
WC-1058.02	Otonabee River Watershed	*Anatidae (Waterbird)*	-	Northern Leopard Frog	*Lithobates pipiens*

Notes:
- : No Data
NatureMetrics uses the classification "Cyprinidae" which has updated terminology in recent literature to "Leuciscidae". Cyprinidae has been used to reference to EDNA results to keep consistency.

Appendix C: Ecological Land Classification Ecosites in the Study Area

Appendix C, Table 1: ELC Ecosites - Area and Percent Representation in the ROW, PSA and LSA

Ecological Land Classification (ELC) Ecosites			Right of Way (ROW)				Project Study Area (PSA)				Local Study Area (LSA)			
			Area (ha)		Percentage of ROW (%)		Area (ha)		Percentage of PSA (%)		Area (ha)		Percentage of LSA (%)	
Category	**Code**	**Description**	Route A	Route B	Route A	Route B	Route A	Route B	Route A	Route B	Route A	Route B	Route A	Route B
Anthropogenic - Open	AG	Agriculture	18.131	18.131	8.534	8.553	105.595	105.748	8.570	8.601	342.586	340.373	6.548	6.526
Anthropogenic - Open	CUM	Cultural Meadow	47.618	47.618	22.414	22.464	150.915	149.537	12.249	12.162	231.993	231.758	4.434	4.443
Anthropogenic - Open	CUM/CUT	Cultural Meadow/Cultural Thicket	0.035	0.035	0.017	0.017	1.651	1.651	0.134	0.134	1.875	1.875	0.036	0.036
Anthropogenic - Open	CUM/OAGM4	Cultural Meadow/Open Pasture	0.239	0.239	0.113	0.113	2.703	2.703	0.219	0.220	5.653	5.653	0.108	0.108
Anthropogenic - Open	CUM1	Mineral Cultural Meadow	1.566	1.566	0.737	0.739	5.504	5.504	0.447	0.448	5.607	5.607	0.107	0.108
Anthropogenic - Open	CUM1-1	Dry – Moist Old Field Meadow Type	2.636	2.636	1.241	1.244	12.477	12.477	1.013	1.015	26.084	26.084	0.499	0.500
Anthropogenic - Open	OAG	Open Agriculture	28.229	33.322	13.287	15.719	149.017	177.080	12.095	14.402	1047.580	1045.380	20.023	20.042
Anthropogenic - Open	OAGM1	Annual Row Crops	28.380	28.380	13.358	13.388	152.752	152.752	12.398	12.424	438.891	438.891	8.389	8.414
Anthropogenic - Open	OAGM4	Open Pasture	24.568	22.228	11.564	10.486	125.361	117.523	10.175	9.558	354.495	363.376	6.776	6.967
Anthropogenic - Open	OAGM4/CUM	Open Pasture/Cultural Meadow	0.000	0.000	0.000	0.000	0.737	0.988	0.060	0.080	3.216	3.216	0.061	0.062
Anthropogenic - Open	SAGM6	Shrub Pasture	0.000	0.000	0.000	0.000	0.953	0.953	0.077	0.078	4.334	4.334	0.083	0.083
Anthropogenic - Other	CGL_4	Recreational	1.829	1.829	0.861	0.863	6.197	6.197	0.503	0.504	13.116	13.116	0.251	0.251
Anthropogenic - Other	CVC	Commercial and Institutional	0.000	0.000	0.000	0.000	1.630	1.630	0.132	0.133	13.053	13.053	0.250	0.250
Anthropogenic - Other	CVC_4	Extraction	3.882	3.882	1.827	1.831	17.361	17.361	1.409	1.412	71.745	71.745	1.371	1.375
Anthropogenic - Other	CVI	Transportation and Utilities	0.562	0.562	0.265	0.265	6.114	6.114	0.496	0.497	21.739	21.739	0.416	0.417
Anthropogenic - Other	CVI_4	Power Generation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.831	13.831	0.264	0.265
Anthropogenic - Other	CVR	Residential	2.103	2.103	0.990	0.992	29.274	27.951	2.376	2.273	257.119	266.965	4.915	5.118
Anthropogenic - Other	CVS_1	Education	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.961	0.961	0.018	0.018
Anthropogenic - Other	IAG	Agricultural Infrastructure	0.300	0.300	0.141	0.142	3.672	3.672	0.298	0.299	10.720	11.206	0.205	0.215
Aquatic	OAO	Open Aquatic	0.522	0.522	0.246	0.246	1.161	1.161	0.094	0.094	10.079	10.079	0.193	0.193
Aquatic	SA	Shallow Water	0.000	0.000	0.000	0.000	0.383	0.202	0.031	0.016	0.933	0.783	0.018	0.015
Hedgerow	FOCM5	Naturalized Coniferous Hedge-row Ecosite	0.000	0.000	0.000	0.000	0.100	0.100	0.008	0.008	11.452	11.452	0.219	0.220
Hedgerow	FODM11	Naturalized Deciduous Hedgerow Ecosite	0.966	0.873	0.455	0.412	8.099	8.096	0.657	0.658	29.751	27.977	0.569	0.536
Marsh	MA	Marsh	4.542	4.542	2.138	2.143	16.058	16.058	1.303	1.306	24.268	24.098	0.464	0.462
Marsh	MAM	Meadow Marsh	0.742	0.742	0.349	0.350	2.618	2.618	0.213	0.213	5.618	5.885	0.107	0.113
Marsh	MAM/MAS	Meadow Marsh/Shallow Marsh	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	36.398	36.398	0.696	0.698
Marsh	MAM3	Graminoid Organic Meadow Marsh	0.094	0.094	0.044	0.044	0.199	0.199	0.016	0.016	0.199	0.199	0.004	0.004
Marsh	MAMM1	Graminoid Mineral Meadow Marsh	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060	0.060	0.001	0.001
Marsh	MAMM1-1	Canada Blue-joint Graminoid Mineral Meadow Marsh	0.045	0.045	0.021	0.021	0.045	0.045	0.004	0.004	0.045	0.045	0.001	0.001
Marsh	MAMM1-2	Cattail Graminoid Mineral Meadow Marsh	0.065	0.000	0.031	0.000	0.094	0.094	0.008	0.008	0.094	0.094	0.002	0.002
Marsh	MAS	Shallow Marsh	0.000	0.000	0.000	0.000	0.251	0.251	0.020	0.020	2.643	2.643	0.051	0.051
Marsh	MAS2	Graminoid Mineral Shallow Marsh	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Marsh	MAS2-1	Cattail Mineral Shallow Marsh Type	3.378	3.378	1.590	1.594	16.473	16.473	1.337	1.340	37.885	37.885	0.724	0.726
Marsh	MASM1-1	Cattail Mineral Shallow Marsh Type	1.234	1.234	0.581	0.582	5.762	5.762	0.468	0.469	7.906	7.906	0.151	0.152
Marsh	MASM1-14	Reed Canary Grass Mineral Shallow Marsh	0.248	0.248	0.117	0.117	0.605	0.605	0.049	0.049	0.605	0.605	0.012	0.012
Marsh	MASM1-4	Narrow-leaved Sedge Mineral Shallow Marsh Type	0.346	0.000	0.163	0.000	3.723	0.000	0.302	0.000	4.954	4.954	0.095	0.095
Meadow	ME	Meadow	0.000	0.000	0.000	0.000	0.152	0.152	0.012	0.012	118.884	118.884	2.272	2.279
Savannah	CUS	Cultural Savannah	0.801	0.801	0.377	0.378	3.838	3.838	0.312	0.312	14.223	13.058	0.272	0.250
Savannah	CUS1	Mineral Cultural Savannah	0.023	0.023	0.011	0.011	0.814	0.814	0.066	0.066	1.075	1.075	0.021	0.021
Savannah	SVC	Coniferous Savannah	2.869	2.869	1.350	1.353	6.809	6.809	0.553	0.554	7.633	7.633	0.146	0.146
Savannah	SVM	Mixed Savannah	0.083	0.083	0.039	0.039	1.131	1.131	0.092	0.092	2.700	2.700	0.052	0.052
Thicket	CUT	Cultural Thicket	4.446	4.446	2.093	2.097	15.949	15.949	1.294	1.297	22.565	22.565	0.431	0.433
Thicket	CUT1	Mineral Cultural Thicket	2.271	2.271	1.069	1.072	7.497	7.497	0.608	0.610	27.981	27.981	0.535	0.536
Thicket	CUT1-1	Sumach Deciduous Srub Thicket	0.234	0.234	0.110	0.110	1.000	1.000	0.081	0.081	1.000	1.000	0.019	0.019
Thicket	SWT	Thicket Swamp	0.884	0.884	0.416	0.417	10.031	10.031	0.814	0.816	77.885	77.885	1.489	1.493
Thicket	SWT2-1	Speckled Alder Mineral Deciduous Thicket Swamp	0.832	0.832	0.392	0.393	2.048	2.048	0.166	0.167	2.048	2.048	0.039	0.039
Thicket	SWT3	Alder Organic Swamp Thicket	0.926	0.926	0.436	0.437	4.189	4.189	0.340	0.341	9.372	9.372	0.179	0.180
Thicket	SWT3-1	Speckled Alder Organic Deciduous Thicket Swamp	0.312	0.312	0.147	0.147	0.509	0.509	0.041	0.041	0.509	0.509	0.010	0.010
Thicket	SWT3-2	Willow Organic Thicket Swamp	2.741	2.741	1.290	1.293	6.789	6.789	0.551	0.552	9.661	9.661	0.185	0.185
Thicket	SWTM1	Alder Mineral Deciduous Thicket Swamp Ecosite	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.677	1.677	0.032	0.032

Appendix C

Ecological Land Classification Ecosites in the Study Area

Ecological Land Classification (ELC) Ecosites			Right of Way (ROW)				Project Study Area (PSA)				Local Study Area (LSA)			
			Area (ha)		Percentage of ROW (%)		Area (ha)		Percentage of PSA (%)		Area (ha)		Percentage of LSA (%)	
Category	**Code**	**Description**	Route A	Route B	Route A	Route B	Route A	Route B	Route A	Route B	Route A	Route B	Route A	Route B
Thicket	SWTM3	Willow Mineral Deciduous Thicket Swamp Ecosite	0.483	0.483	0.227	0.228	0.647	0.647	0.053	0.053	0.647	0.647	0.012	0.012
Thicket	SWTM3-1	Missouri Willow Mineral Deciduous Thicket Swamp	0.298	0.298	0.140	0.141	0.640	0.640	0.052	0.052	0.640	0.640	0.012	0.012
Thicket	TH	Thicket	0.000	0.000	0.000	0.000	0.432	0.432	0.035	0.035	110.790	110.790	2.118	2.124
Thicket	THD	Deciduous Thicket	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.563	0.563	0.011	0.011
Thicket	THDM5	Fresh - Moist Deciduous Thicket Ecosite	0.090	0.090	0.042	0.042	0.419	0.419	0.034	0.034	0.419	0.419	0.008	0.008
Thicket	THM	Mixed Thicket	2.944	2.944	1.386	1.389	5.384	5.384	0.437	0.438	5.384	5.384	0.103	0.103
Wooded Habitat	CUP	Cultural Plantation	0.024	0.024	0.011	0.011	6.430	6.430	0.522	0.523	33.143	32.795	0.633	0.629
Wooded Habitat	CUP2	Mixed Plantation	1.115	0.000	0.525	0.000	8.720	0.029	0.708	0.002	14.337	13.230	0.274	0.254
Wooded Habitat	CUP3	Coniferous Plantation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Wooded Habitat	CUP3-3	Scotch Pine Coniferous Plantation Type	0.031	0.031	0.014	0.014	0.562	0.562	0.046	0.046	0.613	0.613	0.012	0.012
Wooded Habitat	CUW	Cultural Woodland	1.174	1.174	0.553	0.554	4.867	4.867	0.395	0.396	11.788	11.788	0.225	0.226
Wooded Habitat	FO	Forest	0.205	0.205	0.097	0.097	3.912	3.912	0.317	0.318	223.813	223.813	4.278	4.291
Wooded Habitat	FOC	Coniferous Forest	1.633	1.633	0.768	0.770	56.687	56.687	4.601	4.610	238.162	235.094	4.552	4.507
Wooded Habitat	FOC/SWC	Coniferous Forest/Coniferous Swamp	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	1.747	1.747	0.033	0.034
Wooded Habitat	FOC2	Dry – Fresh Cedar Coniferous Forest	0.000	0.000	0.000	0.000	0.844	0.844	0.068	0.069	2.763	2.763	0.053	0.053
Wooded Habitat	FOC2-2	Dry White Cedar Calcareous Bedrock Coniferous Forest	1.477	1.477	0.695	0.697	13.541	13.541	1.099	1.101	57.400	57.400	1.097	1.100
Wooded Habitat	FOC4	Fresh – Moist White Cedar Coniferous Forest Ecosite	0.641	0.641	0.302	0.302	5.039	5.039	0.409	0.410	6.635	6.635	0.127	0.127
Wooded Habitat	FOC4-1	Fresh - Moist White Cedar Coniferous Forest	0.031	0.031	0.015	0.015	1.918	1.918	0.156	0.156	3.643	3.643	0.070	0.070
Wooded Habitat	FOC4-2	Fresh - Moist White Cedar - Hemlock Coniferous Forest	0.716	0.716	0.337	0.338	4.043	4.043	0.328	0.329	6.266	6.266	0.120	0.120
Wooded Habitat	FOCM6	Naturalized Coniferous Plantation	1.015	1.015	0.478	0.479	23.550	23.550	1.911	1.915	135.658	135.658	2.593	2.601
Wooded Habitat	FOCM6-3	Dry – Fresh Scotch Pine Naturalized Coniferous Plantation	0.497	0.497	0.234	0.235	2.275	2.275	0.185	0.185	2.472	2.472	0.047	0.047
Wooded Habitat	FOD	Deciduous Forest	2.406	1.800	1.132	0.849	52.067	48.061	4.226	3.909	272.243	269.272	5.204	5.162
Wooded Habitat	FOD5	Dry – Fresh Maple Deciduous Forest	0.000	0.000	0.000	0.000	0.851	0.851	0.069	0.069	11.666	11.666	0.223	0.224
Wooded Habitat	FOD5-1	Dry - Fresh Sugar Maple Deciduous Forest	0.278	0.278	0.131	0.131	2.409	2.409	0.196	0.196	2.980	2.980	0.057	0.057
Wooded Habitat	FOD5-2	Dry - Fresh Sugar Maple - Beech Deciduous Forest	2.246	2.246	1.057	1.060	8.963	8.963	0.727	0.729	14.979	14.979	0.286	0.287
Wooded Habitat	FOD5-4	Dry - Fresh Sugar Maple - Ironwood Deciduous Forest	0.315	0.315	0.148	0.149	4.441	4.441	0.360	0.361	23.988	23.988	0.459	0.460
Wooded Habitat	FODM12	Naturalized Deciduous Plantation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.201	1.201	0.023	0.023
Wooded Habitat	FODM3-1	Dry – Fresh Poplar Deciduous Forest Type	0.196	0.196	0.092	0.092	2.025	2.025	0.164	0.165	3.516	3.516	0.067	0.067
Wooded Habitat	FOM	Mixed Forest	2.151	1.935	1.012	0.913	78.114	77.442	6.340	6.299	404.538	403.306	7.732	7.732
Wooded Habitat	FOM/SWM	Mixed Forest/Mixed Swamp	0.000	0.000	0.000	0.000	1.003	1.003	0.081	0.082	3.327	3.327	0.064	0.064
Wooded Habitat	FOM1	Dry Oak - Pine Calcareous Shallow Mixed Forest	0.000	0.000	0.000	0.000	2.966	2.966	0.241	0.241	17.253	17.253	0.330	0.331
Wooded Habitat	SAGM4	Plantation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.459	13.459	0.257	0.258
Wooded Habitat	SW	Swamp	0.486	0.486	0.229	0.229	3.301	3.301	0.268	0.268	8.549	8.549	0.163	0.164
Wooded Habitat	SWC	Coniferous Swamp	0.290	0.290	0.137	0.137	17.507	17.507	1.421	1.424	88.154	87.425	1.685	1.676
Wooded Habitat	SWC1	White Cedar Mineral Coniferous Swamp	0.049	0.049	0.023	0.023	2.079	2.079	0.169	0.169	2.900	2.900	0.055	0.056
Wooded Habitat	SWC1-1	White Cedar Mineral Coniferous Swamp	0.180	0.180	0.085	0.085	0.832	0.832	0.068	0.068	1.148	1.148	0.022	0.022
Wooded Habitat	SWD	Deciduous Swamp	0.697	0.000	0.328	0.000	2.050	0.310	0.166	0.025	8.121	8.524	0.155	0.163
Wooded Habitat	SWD/SWT	Deciduous Swamp/Thicket Swamp	0.000	0.000	0.000	0.000	0.000	1.113	0.000	0.091	1.528	1.528	0.029	0.029
Wooded Habitat	SWD2-2	Green Ash Mineral Deciduous Swamp	0.086	0.000	0.041	0.000	1.001	0.078	0.081	0.006	17.923	7.391	0.343	0.142
Wooded Habitat	SWDM4-1	Willow Mineral Deciduous Swamp Type	0.156	0.156	0.074	0.074	2.310	0.648	0.187	0.053	12.436	4.671	0.238	0.090
Wooded Habitat	SWM	Mixed Swamp	0.371	0.371	0.175	0.175	16.226	16.226	1.317	1.320	122.396	122.396	2.339	2.347
Wooded Habitat	SWM3-1	Yellow Birch - Conifer Mineral Mixed Swamp	0.178	0.178	0.084	0.084	1.808	1.808	0.147	0.147	2.666	2.666	0.051	0.051
Wooded Habitat	WO	Woodland	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.201	1.201	0.023	0.023
Wooded Habitat	WOC	Coniferous Woodland	1.307	1.307	0.615	0.617	3.975	3.975	0.323	0.323	4.033	4.033	0.077	0.077
Totals			**212.449**	**211.978**	**100.000**	**100.000**	**1232.080**	**1229.518**	**100.000**	**100.000**	**5231.791**	**5216.016**	**100.000**	**100.000**

Appendix C, Table 2: ELC Category Subgroups - Area and Percent Representation in the ROW, PSA and LSA

		Right of Way (ROW)				Project Study Area (PSA)				Local Study Area (LSA)			
		Area (ha)		Percentage of ROW (%)		Area (ha)		Percentage of PSA (%)		Area (ha)		Percentage of LSA (%)	
Subgroups	**Component ELC Codes**	Route A	Route B	Route A	Route B	Route A	Route B	Route A	Route B	Route A	Route B	Route A	Route B
Anthropogenic - Open	AG, CUM, CUM/CUT, CUM/OAGM4, CUM1, CUM1-1, OAG, OAGM1 , OAGM4, OAGM4/CUM, SAGM6	151.40	154.16	71.27	72.72	707.67	726.92	57.44	59.12	2462.31	2466.55	47.06	47.29
Anthropogenic - Other	CGL_4, CVC, CVC_4, CVI, CVI_4, CVR, CVS_1, IAG	8.68	8.68	4.08	4.09	64.25	62.92	5.21	5.12	402.28	412.62	7.69	7.91
Aquatic	OAO, SA	0.52	0.52	0.25	0.25	1.54	1.36	0.13	0.11	11.01	10.86	0.21	0.21
Hedgerow	FOCM5, FODM11	0.97	0.87	0.45	0.41	8.20	8.20	0.67	0.67	41.20	39.43	0.79	0.76
Marsh	MA, MAM, MAM/MAS, MAM3, MAMM1, MAMM1-1, MAMM1-2, MAS, MAS2, MAS2-1, MASM1-1, MASM1-14, MASM1-4	10.69	10.28	5.03	4.85	45.83	42.10	3.72	3.42	120.68	120.77	2.31	2.32
Meadow	ME	0.00	0.00	0.00	0.00	0.15	0.15	0.01	0.01	118.88	118.88	2.27	2.28
Savannah	CUS, CUS1, SVC, SVM	3.78	3.78	1.78	1.78	12.59	12.59	1.02	1.02	25.63	24.47	0.49	0.47
Thicket	CUT, CUT1, CUT1-1, SWT, SWT2-1, SWT3, SWT3-1, SWT3-2, SWTM1, SWTM3, SWTM3-1, TH, THD, THDM5, THM	16.46	16.46	7.75	7.77	55.54	55.54	4.51	4.52	271.14	271.14	5.18	5.20
Wooded Habitat	CUP, CUP2, CUP3, CUP3-3, CUW, FO, FOC, FOC/SWC, FOC2, FOC2-2, FOC4, FOC4-1, FOC4-2, FOCM6, FOCM6-3, FOD, FOD5, FOD5-1, FOD5-2, FOD5-4, FODM12, FODM3-1, FOM, FOM/SWM, FOM1, SAGM4, SW, SWC, SWC1, SWC1-1, SWD, SWD/SWT, SWD2-2, SWDM4-1, SWM, SWM3-1, WO, WOC	19.95	17.23	9.39	8.13	336.32	319.73	27.30	26.00	1778.65	1751.30	34.00	33.58
Totals		**212.45**	**211.98**	**100.00**	**100.00**	**1232.08**	**1229.52**	**100.00**	**100.00**	**5231.79**	**5216.02**	**100.00**	**100.00**

Appendix D: Terrestrial Survey Results - Plants

Appendix D, Table 1: Terrestrial Survey Results - Plants

Scientific Name	Common Name	S_Rank[1]	COSEWIC Status[2]	SARA Status[3]	ESA Status[4]	COSSARO Status[5]	Common Name SYNONYMS	Physiology/ Habit[6]	Native Status[7]	SAR / SOCC / SCS
Abies balsamea	Balsam Fir	S5	~	~	~	~	~	Tree	N	SCS
Acer negundo	Manitoba Maple	S5	~	~	~	~	~	Tree	N	~
Acer rubrum	Red Maple	S5	~	~	~	~	~	Tree	N	~
Acer saccharinum	Silver Maple	S5	~	~	~	~	~	Tree	N	SCS
Acer saccharum	Sugar Maple	S5	~	~	~	~	~	Tree	N	SCS
Achillea millefolium	Common Yarrow	SNA	~	~	~	~	~	Forb	I	~
Actaea pachypoda	White Baneberry	S5	~	~	~	~	~	Forb	N	~
Actaea rubra	Red Baneberry	S5	~	~	~	~	~	Forb	N	~
Actaea sp.	Baneberry sp.	~	~	~	~	~	~	Forb	N/A	~
Ageratina altissima	White Snakeroot	S5	~	~	~	~	~	Forb	N	~
Agrimonia gryposepala	Hooked Agrimony	S5	~	~	~	~	~	Forb	N	~
Agrostis gigantea	Redtop	SNA	~	~	~	~	~	Grass	I	~
Alisma triviale	Northern Water-plantain	S5	~	~	~	~	~	Forb	N	~
Alliaria petiolata	Garlic Mustard	SNA	~	~	~	~	~	Forb	I	~
Alnus incana	Grey Alder	S5	~	~	~	~	~	Shrub	N	SCS
Alnus sp.	Alder sp.	~	~	~	~	~	~	Shrub	N/A	~
Amelanchier sp.	Serviceberry sp.	~	~	~	~	~	~	Tree	N/A	SCS
Anaphalis margaritacea	Pearly Everlasting	S5	~	~	~	~	~	Forb	N	~
Anchusa officinalis	Common Bugloss	SNA	~	~	~	~	~	Forb	I	~
Anemonastrum canadense	Canada Anemone	S5	~	~	~	~	~	Forb	N	~
Anemone cylindrica	Long-headed Anemone	S4	~	~	~	~	~	Forb	N	~
Apocynum androsaemifolium	Spreading Dogbane	S5	~	~	~	~	~	Forb	N	~
Apocynum cannabinum	Hemp Dogbane	S5	~	~	~	~	~	Forb	N	~
Aralia nudicaulis	Wild Sarsaparilla	S5	~	~	~	~	~	Forb	N	~
Arctium lappa	Great Burdock	SNA	~	~	~	~	~	Forb	I	~
Arctium sp.	Burdock sp.	~	~	~	~	~	~	Forb	N/A	~
Arisaema triphyllum	Jack-in-the-pulpit	S5	~	~	~	~	~	Forb	N	~
Asarum canadense	Canada Wild-ginger	S5	~	~	~	~	~	Forb	N	~
Asclepias incarnata	Swamp Milkweed	S5	~	~	~	~	~	Forb	N	~
Asclepias syriaca	Common Milkweed	S5	~	~	~	~	~	Forb	N	~
Asparagus officinalis	Garden Asparagus	SNA	~	~	~	~	~	Forb	I	~
Athyrium filix-femina	Common Lady Fern	S5	~	~	~	~	~	Fern	N	~
Athyrium filix-femina var. angustum	Northeastern Lady Fern	S5	~	~	~	~	~	Fern	N	~
Avena sp.	Oats sp.	~	~	~	~	~	~	Grass	N/A	~
Barbarea sp.	Wintercress sp.	~	~	~	~	~	~	Forb	N/A	~
Betula alleghaniensis	Yellow Birch	S5	~	~	~	~	~	Tree	N	SCS
Betula papyrifera	Paper Birch	S5	~	~	~	~	~	Tree	N	SCS
Betula populifolia	Grey Birch	S4	~	~	~	~	~	Tree	N	~
Betula sp.	Birch sp.	~	~	~	~	~	~	Tree	N/A	~
Bidens cernua	Nodding Beggarticks	S5	~	~	~	~	~	Forb	N	~
Bidens sp.	Beggarticks sp.	~	~	~	~	~	~	Forb	N/A	~
Boehmeria cylindrica	Small-spike False Nettle	S5	~	~	~	~	~	Forb	N	~
Brassica rapa	Field Mustard	SNA	~	~	~	~	~	Forb	I	~
Bromus ciliatus	Fringed Brome	S5	~	~	~	~	~	Grass	N	~
Bromus inermis	Smooth Brome	SNA	~	~	~	~	~	Grass	I	~
Calamagrostis canadensis var. canadensis	Bluejoint Reedgrass	S5	~	~	~	~	~	Grass	N	~

Appendix D
Terrestrial Survey Results - Plants

Scientific Name	Common Name	S_Rank[1]	COSEWIC Status[2]	SARA Status[3]	ESA Status[4]	COSSARO Status[5]	Common Name SYNONYMS	Physiology/ Habit[6]	Native Status[7]	SAR / SOCC / SCS
Carex albursina	White Bear Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex aquatilis	Water Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex arcta	Northern Clustered Sedge	S4S5	~	~	~	~	~	Sedge	N	~
Carex arctata	Drooping Woodland Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex bebbii	Bebb's Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex communis	Fibrous-root Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex comosa	Bearded Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex flava	Yellow Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex gracillima	Graceful Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex granularis	Limestone Meadow Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex hystericina	Porcupine Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex intumescens	Bladder Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex lupulina	Hop Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex radiata	Eastern Star Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex rosea	Rosy Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex scabrata	Eastern Rough Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex scoparia	Pointed Broom Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex sp.	Sedge sp.	~	~	~	~	~	~	Sedge	N/A	~
Carex sparganioides	Burreed Sedge	S4S5	~	~	~	~	~	Sedge	N	~
Carex spicata	Spiked Sedge	SNA	~	~	~	~	~	Sedge	I	~
Carex sprengelii	Sprengel's Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex stipata	Awl-fruited Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex stricta	Tussock Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex utriculata	Northern Beaked Sedge	S5	~	~	~	~	~	Sedge	N	~
Carex vulpinoidea	Fox Sedge	S5	~	~	~	~	~	Sedge	N	~
Carya cordiformis	Bitternut Hickory	S5	~	~	~	~	~	Tree	N	SCS
Carya ovata	Shagbark Hickory	S5	~	~	~	~	~	Tree	N	SCS
Caulophyllum sp.	Blue Cohosh sp.	~	~	~	~	~	~	Forb	N/A	~
Caulophyllum thalictroides	Blue Cohosh	S5	~	~	~	~	~	Forb	N	~
Centaurea stoebe	Spotted Knapweed	SNA	~	~	~	~	~	Forb	I	~
Chelidonium majus	Greater Celandine	SNA	~	~	~	~	~	Forb	I	~
Cicuta bulbifera	Bulbous Water-hemlock	S5	~	~	~	~	~	Forb	N	~
Cicuta maculata	Spotted Water-hemlock	S5	~	~	~	~	~	Forb	N	~
Circaea canadensis	Broad-leaved Enchanter's Nightshade	S5	~	~	~	~	~	Forb	N	~
Cirsium arvense	Canada Thistle	SNA	~	~	~	~	~	Forb	I	~
Claytosmunda claytoniana	Interrupted Fern	S5	~	~	~	~	~	Fern	N	~
Clematis virginiana	Virginia Clematis	S5	~	~	~	~	~	Vine	N	~
Clintonia borealis	Yellow Clintonia	S5	~	~	~	~	~	Forb	N	~
Coreopsis lanceolata	Lance-leaved Tickseed	S4	~	~	~	~	~	Forb	N	~
Cornus alternifolia	Alternate-leaved Dogwood	S5	~	~	~	~	~	Shrub	N	~
Cornus canadensis	Bunchberry	S5	~	~	~	~	~	Shrub	N	~
Cornus obliqua	Silky Dogwood	S5	~	~	~	~	~	Shrub	N	SCS
Cornus rugosa	Round-leaved Dogwood	S5	~	~	~	~	~	Shrub	N	SCS
Cornus sericea	Red-osier Dogwood	S5	~	~	~	~	~	Shrub	N	SCS
Crataegus monogyna	English Hawthorn	SNA	~	~	~	~	~	Tree	I	~
Crataegus sp.	Hawthorn sp.	~	~	~	~	~	~	Tree	N/A	~
Cucumis sp.	Melon sp.	~	~	~	~	~	~	Forb	N/A	~

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Cuscuta gronovii var. gronovii	Swamp Dodder	S5?	~	~	~	~	~	Forb	N	~
Cypripedium reginae	Showy Lady's-slipper	S4	~	~	~	~	~	Forb	N	~
Cystopteris bulbifera	Bulblet Bladder Fern	S5	~	~	~	~	~	Fern	N	~
Dactylis glomerata	Orchard Grass	SNA	~	~	~	~	~	Grass	I	~
Daucus carota	Wild Carrot	SNA	~	~	~	~	~	Forb	I	~
Desmodium canadense	Canada Tick-trefoil	S4	~	~	~	~	~	Forb	N	~
Desmodium sp.	Tick-trefoil sp.	~	~	~	~	~	~	Forb	N/A	~
Dichanthelium sp.	Panicgrass sp.	~	~	~	~	~	~	Grass	N/A	~
Dryopteris carthusiana	Spinulose Wood Fern	S5	~	~	~	~	~	Fern	N	~
Dryopteris cristata	Crested Wood Fern	S5	~	~	~	~	~	Fern	N	~
Dryopteris intermedia	Evergreen Wood Fern	S5	~	~	~	~	~	Fern	N	~
Dryopteris marginalis	Marginal Wood Fern	S5	~	~	~	~	~	Fern	N	~
Echinocystis lobata	Wild Cucumber	S5	~	~	~	~	~	Vine	N	~
Echium plantagineum	Purple Viper's Bugloss	SNA	~	~	~	~	~	Forb	I	~
Echium vulgare	Common Viper's Bugloss	SNA	~	~	~	~	~	Forb	I	~
Elaeagnus angustifolia	Russian Olive	SNA	~	~	~	~	~	Shrub	I	~
Elaeagnus umbellata	Autumn Olive	SNA	~	~	~	~	~	Shrub	I	~
Eleocharis sp.	Spikerush sp.	~	~	~	~	~	~	Sedge	N/A	~
Elymus lanceolatus ssp. psammophilus x Elymus trachycaulus ssp. trachycaulus	N/A	~	~	~	~	~	~	Grass	N	~
Elymus repens	Quackgrass	SNA	~	~	~	~	~	Grass	I	~
Epilobium ciliatum	Northern Willowherb	S5	~	~	~	~	~	Forb	N	~
Epilobium coloratum	Purple-veined Willowherb	S5	~	~	~	~	~	Forb	N	~
Epilobium leptophyllum	Narrow-leaved Willowherb	S5	~	~	~	~	~	Forb	N	~
Epipactis helleborine	Broad-leaved Helleborine	SNA	~	~	~	~	~	Forb	I	~
Equisetum arvense	Field Horsetail	S5	~	~	~	~	~	Fern	N	~
Equisetum fluviatile	Water Horsetail	S5	~	~	~	~	~	Fern	N	~
Equisetum hyemale	Common Scouring-rush	S5	~	~	~	~	~	Fern	N	~
Equisetum sylvaticum	Woodland Horsetail	S5	~	~	~	~	~	Fern	N	~
Equisetum variegatum	Variegated Scouring-rush	S5	~	~	~	~	~	Fern	N	~
Erigeron annuus	Annual Fleabane	S5	~	~	~	~	~	Forb	N	~
Erigeron philadelphicus	Philadelphia Fleabane	S5	~	~	~	~	~	Forb	N	~
Erigeron philadelphicus var. philadelphicus	Philadelphia Fleabane	S5	~	~	~	~	~	Forb	N	~
Erigeron sp.	Fleabane sp.	~	~	~	~	~	~	Forb	N/A	~
Eupatorium altissimum	Tall Boneset	S4	~	~	~	~	~	Forb	N	~
Eupatorium perfoliatum	Common Boneset	S5	~	~	~	~	~	Forb	N	~
Eurybia macrophylla	Large-leaved Aster	S5	~	~	~	~	~	Forb	N	~
Eurybia sp.	Aster sp.	~	~	~	~	~	~	Forb	N/A	~
Euthamia graminifolia	Grass-leaved Goldenrod	S5	~	~	~	~	~	Forb	N	~
Eutrochium maculatum	Spotted Joe Pye Weed	S5	~	~	~	~	~	Forb	N	~
Eutrochium maculatum var. maculatum	Spotted Joe Pye Weed	S5	~	~	~	~	~	Forb	N	~
Fagus grandifolia	American Beech	S4	~	~	~	~	~	Tree	N	SCS
Fragaria sp.	Strawberry sp.	~	~	~	~	~	~	Forb	N/A	~
Fragaria vesca	Woodland Strawberry	S5	~	~	~	~	~	Forb	N	~
Fragaria virginiana	Wild Strawberry	S5	~	~	~	~	~	Forb	N	~
Frangula alnus	Glossy Buckthorn	SNA	~	~	~	~	~	Shrub	I	~
Fraxinus americana	White Ash	S4	~	~	~	~	~	Tree	N	SCS

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Fraxinus nigra	Black Ash	S4	THR	~	END	END	~	Tree	N	SAR, SCS
Fraxinus pennsylvanica	Red Ash	S4	~	~	~	~	~	Tree	N	SCS
Fraxinus sp.	Ash sp.	~	~	~	~	~	~	Tree	N/A	~
Galium aparine	Common Bedstraw	S5	~	~	~	~	~	Forb	N	~
Galium asprellum	Rough Bedstraw	S5	~	~	~	~	~	Forb	N	~
Galium palustre	Common Marsh Bedstraw	S5	~	~	~	~	~	Forb	N	~
Galium sp.	Bedstraw sp.	~	~	~	~	~	~	Forb	N/A	~
Gentianopsis virgata	Lesser Fringed Gentian	S4	~	~	~	~	~	Forb	N	~
Geranium robertianum	Herb-Robert	S5	~	~	~	~	~	Forb	I	~
Geum canadense	Canada Avens	S5	~	~	~	~	~	Forb	N	~
Geum fragarioides	Barren Strawberry	S5	~	~	~	~	~	Forb	N	~
Geum rivale	Water Avens	S5	~	~	~	~	~	Forb	N	~
Geum sp.	Avens sp.	~	~	~	~	~	~	Forb	N/A	~
Geum urbanum	Wood Avens	SNA	~	~	~	~	~	Forb	I	~
Glechoma hederacea	Ground-ivy	SNA	~	~	~	~	~	Forb	I	~
Glyceria borealis	Boreal Mannagrass	S5	~	~	~	~	~	Grass	N	~
Glyceria striata	Fowl Mannagrass	S5	~	~	~	~	~	Grass	N	~
Grass sp.	Grass sp.	~	~	~	~	~	~	Forb	N/A	~
Gymnocarpium dryopteris	Common Oak Fern	S5	~	~	~	~	~	Fern	N	~
Hesperis matronalis	Dame's Rocket	SNA	~	~	~	~	~	Forb	I	~
Hieracium lachenalii	Common Hawkweed	SNA	~	~	~	~	~	Forb	I	~
Hieracium sp.	Hawkweed sp.	~	~	~	~	~	~	Forb	N/A	~
Hydrocharis morsus-ranae	European Frog-bit	SNA	~	~	~	~	~	Forb	I	~
Hydrophyllum virginianum	Virginia Waterleaf	S5	~	~	~	~	~	Forb	N	~
Hypericum perforatum	Common St. John's-wort	SNA	~	~	~	~	~	Forb	I	~
Hypericum perforatum ssp. perforatum	Common St. John's-wort	SNA	~	~	~	~	~	Forb	I	~
Hypericum sp.	St. John's-wort	~	~	~	~	~	~	Forb	N/A	~
Impatiens capensis	Spotted Jewelweed	S5	~	~	~	~	~	Forb	N	~
Juglans cinerea	Butternut	S2?	END	END	END	END	~	Tree	N	SAR, SCS
Juglans nigra	Black Walnut	S4?	~	~	~	~	~	Tree	N	SCS
Juncus articulatus	Jointed Rush	S5	~	~	~	~	~	Rush	N	~
Juncus compressus	Compressed Rush	SNA	~	~	~	~	~	Rush	I	~
Juncus dudleyi	Dudley's Rush	S5	~	~	~	~	~	Rush	N	~
Juniperus communis	Common Juniper	S5	~	~	~	~	~	Shrub	N	SCS
Juniperus virginiana	Eastern Red Cedar	S5	~	~	~	~	~	Tree	N	SCS
Larix laricina	Tamarack	S5	~	~	~	~	~	Tree	N	SCS
Leersia oryzoides	Rice Cutgrass	S5	~	~	~	~	~	Grass	N	~
Lemna minor	Small Duckweed	S5	~	~	~	~	~	Forb	N	~
Lemna sp.	Duckweed sp.	~	~	~	~	~	~	Forb	N/A	~
Leonurus cardiaca	Common Motherwort	SNA	~	~	~	~	~	Forb	I	~
Leucanthemum vulgare	Oxeye Daisy	SNA	~	~	~	~	~	Forb	I	~
Lonicera tatarica	Tatarian Honeysuckle	SNA	~	~	~	~	~	Shrub	I	~
Lotus corniculatus	Garden Bird's-foot Trefoil	SNA	~	~	~	~	~	Forb	I	~
Lycopodium sp.	Clubmoss sp.	~	~	~	~	~	~	Fern	N/A	~
Lycopus americanus	American Water-horehound	S5	~	~	~	~	~	Forb	N	~
Lycopus uniflorus	Northern Water-horehound	S5	~	~	~	~	~	Forb	N	~
Lysimachia borealis	Northern Starflower	S5	~	~	~	~	~	Forb	N	~

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Lysimachia ciliata	Fringed Yellow Loosestrife	S5	~	~	~	~	~	Forb	N	~
Lysimachia sp.	Loosestrife sp.	~	~	~	~	~	~	Forb	N/A	~
Lysimachia terrestris	Swamp Yellow Loosestrife	S5	~	~	~	~	~	Forb	N	~
Lysimachia thyrsiflora	Tufted Yellow Loosestrife	S5	~	~	~	~	~	Forb	N	~
Lythrum salicaria	Purple Loosestrife	SNA	~	~	~	~	~	Forb	I	~
Maianthemum canadense	Wild Lily-of-the-valley	S5	~	~	~	~	~	Forb	N	~
Maianthemum canadense ssp. canadense	Wild Lily-of-the-valley	S5	~	~	~	~	~	Forb	N	~
Maianthemum racemosum	Large False Solomon's Seal	S5	~	~	~	~	~	Forb	N	~
Maianthemum stellatum	Star-flowered False Solomon's Seal	S5	~	~	~	~	~	Forb	N	~
Malus pumila	Common Apple	SNA	~	~	~	~	~	Tree	I	~
Malus sp.	Apple sp.	~	~	~	~	~	~	Tree	N/A	~
Matteuccia struthiopteris	Ostrich Fern	S5	~	~	~	~	~	Fern	N	~
Medicago lupulina	Black Medick	SNA	~	~	~	~	~	Forb	I	~
Medicago sativa	Alfalfa	SNA	~	~	~	~	~	Forb	I	~
Melilotus albus	White Sweet-clover	SNA	~	~	~	~	~	Forb	I	~
Melilotus officinalis	Yellow Sweet-clover	SNA	~	~	~	~	~	Forb	I	~
Menispermum canadense	Canada Moonseed	S4	~	~	~	~	~	Vine	N	~
Mentha canadensis	Canada Mint	S5	~	~	~	~	~	Forb	N	~
Mitchella repens	Partridgeberry	S5	~	~	~	~	~	Shrub	N	~
Mitella diphylla	Two-leaved Mitrewort	S5	~	~	~	~	~	Forb	N	~
Monarda fistulosa	Wild Bergamot	S5	~	~	~	~	~	Forb	N	SCS
Morus alba	White Mulberry	SNA	~	~	~	~	~	Tree	I	~
Nabalus altissimus	Tall Rattlesnakeroot	S5	~	~	~	~	Tall White Lettuce	Forb	N	~
Nasturtium officinale	Watercress	SNA	~	~	~	~	~	Forb	I	~
Onoclea sensibilis	Sensitive Fern	S5	~	~	~	~	~	Fern	N	~
Osmunda regalis var. spectabilis	Royal Fern	S5	~	~	~	~	~	Fern	N	~
Ostrya virginiana	Eastern Hop-hornbeam	S5	~	~	~	~	~	Tree	N	SCS
Oxalis sp.	Wood-sorrel sp.	~	~	~	~	~	~	Forb	N/A	~
Parthenocissus quinquefolia	Virginia Creeper	S4?	~	~	~	~	~	Vine	N	~
Parthenocissus sp.	Creeper sp.	~	~	~	~	~	~	Vine	N/A	~
Parthenocissus vitacea	Thicket Creeper	S5	~	~	~	~	~	Vine	N	~
Penstemon digitalis	Foxglove Beardtongue	S4S5	~	~	~	~	~	Forb	N	~
Persicaria amphibia	Water Smartweed	S5	~	~	~	~	~	Forb	N	~
Persicaria lapathifolia	Pale Smartweed	S5	~	~	~	~	~	Forb	N	~
Persicaria sp.	Smartweed sp.	~	~	~	~	~	~	Forb	N/A	~
Petroselinum crispum	Garden Parsley	SNA	~	~	~	~	~	Forb	I	~
Phalaris arundinacea	Reed Canarygrass	S5	~	~	~	~	~	Grass	I	~
Phalaris arundinacea var. arundinacea	Reed Canarygrass	S5	~	~	~	~	~	Grass	N	~
Phegopteris connectilis	Northern Beech Fern	S5	~	~	~	~	~	Fern	N	~
Phleum pratense	Common Timothy	SNA	~	~	~	~	~	Grass	I	~
Phragmites australis	Common Reed	SU	~	~	~	~	~	Grass	N	~
Physalis heterophylla	Clammy Ground-cherry	S4	~	~	~	~	~	Forb	N	~
Physocarpus opulifolius	Eastern Ninebark	S5	~	~	~	~	~	Shrub	N	SCS
Picea glauca	White Spruce	S5	~	~	~	~	~	Tree	N	SCS
Pilea sp.	Clearweed sp.	~	~	~	~	~	~	Forb	N/A	~
Pilosella sp.	Hawkweed sp.	~	~	~	~	~	~	Forb	N/A	~
Pinus resinosa	Red Pine	S5	~	~	~	~	~	Tree	N	~

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Pinus strobus	Eastern White Pine	S5	~	~	~	~	~	Tree	N	SCS
Pinus sylvestris	Scots Pine	SNA	~	~	~	~	~	Tree	I	~
Plantago lanceolata	English Plantain	SNA	~	~	~	~	~	Forb	I	~
Plantago major	Common Plantain	SNA	~	~	~	~	~	Forb	I	~
Poa compressa	Canada Bluegrass	SNA	~	~	~	~	~	Grass	I	~
Poa palustris	Fowl Bluegrass	S5	~	~	~	~	~	Grass	N	~
Poa pratensis	Kentucky Bluegrass	S5	~	~	~	~	~	Grass	I	~
Poa sp.	Bluegrass sp.	~	~	~	~	~	~	Grass	N/A	~
Podophyllum peltatum	May-apple	S5	~	~	~	~	~	Forb	N	~
Polygonum sp.	Knotweed sp.	~	~	~	~	~	~	Forb	N/A	~
Populus balsamifera	Balsam Poplar	S5	~	~	~	~	~	Tree	N	SCS
Populus tremuloides	Trembling Aspen	S5	~	~	~	~	~	Tree	N	SCS
Potamogeton gramineus	Grass-leaved Pondweed	S5	~	~	~	~	~	Forb	N	~
Potentilla anserina ssp. anserina	Common Silverweed	S5	~	~	~	~	~	Forb	N	~
Potentilla argentea	Silvery Cinquefoil	SNA	~	~	~	~	~	Forb	I	~
Potentilla norvegica	Rough Cinquefoil	S5	~	~	~	~	~	Forb	N	~
Potentilla recta	Sulphur Cinquefoil	SNA	~	~	~	~	~	Forb	I	~
Prunella vulgaris	Common Self-heal	S5	~	~	~	~	~	Forb	N	~
Prunella vulgaris ssp. lanceolata	Lance-leaved Self-heal	S5	~	~	~	~	~	Forb	N	~
Prunus avium	Sweet Cherry	SNA	~	~	~	~	~	Tree	I	~
Prunus pensylvanica	Pin Cherry	S5	~	~	~	~	~	Tree	N	~
Prunus serotina	Black Cherry	S5	~	~	~	~	~	Tree	N	SCS
Prunus virginiana	Chokecherry	S5	~	~	~	~	~	Shrub	N	SCS
Prunus virginiana var. virginiana	Chokecherry	S5	~	~	~	~	~	Shrub	N	~
Pteridium aquilinum	Bracken Fern	S5	~	~	~	~	~	Fern	N	~
Pteridium aquilinum ssp. latiusculum	Eastern Bracken Fern	S5	~	~	~	~	~	Fern	N	~
Quercus rubra	Northern Red Oak	S5	~	~	~	~	~	Tree	N	SCS
Ranunculus acris	Common Buttercup	SNA	~	~	~	~	~	Forb	I	~
Ranunculus sceleratus	Cursed Buttercup	S5	~	~	~	~	~	Forb	N	~
Ranunculus sp.	Buttercup sp.	~	~	~	~	~	~	Forb	N/A	~
Rhamnus cathartica	European Buckthorn	SNA	~	~	~	~	~	Tree	I	~
Rhus typhina	Staghorn Sumac	S5	~	~	~	~	~	Shrub	N	SCS
Ribes americanum	American Black Currant	S5	~	~	~	~	~	Shrub	N	~
Ribes cynosbati	Eastern Prickly Gooseberry	S5	~	~	~	~	~	Shrub	N	~
Ribes sp.	Gooseberry sp.	~	~	~	~	~	~	Shrub	N/A	~
Rosa multiflora	Multiflora Rose	SNA	~	~	~	~	~	Shrub	I	~
Rosa sp.	Rose sp.	~	~	~	~	~	~	Shrub	N/A	~
Rubus allegheniensis	Allegheny Blackberry	S5	~	~	~	~	~	Shrub	N	~
Rubus hispidus	Bristly Dewberry	S4	~	~	~	~	~	Shrub	N	~
Rubus idaeus	Red Raspberry	S5	~	~	~	~	~	Shrub	N	~
Rubus idaeus ssp. strigosus	North American Red Raspberry	S5	~	~	~	~	~	Shrub	N	~
Rubus occidentalis	Black Raspberry	S5	~	~	~	~	~	Shrub	N	~
Rubus odoratus	Purple-flowering Raspberry	S5	~	~	~	~	~	Shrub	N	~
Rubus pubescens	Dwarf Raspberry	S5	~	~	~	~	~	Forb	N	~
Rudbeckia hirta	Black-eyed Susan	S5	~	~	~	~	~	Forb	N	~
Rudbeckia triloba	Brown-eyed Susan	SNA	~	~	~	~	~	Forb	I	~
Rumex acetosella	Sheep Sorrel	SNA	~	~	~	~	~	Forb	I	~

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Rumex britannica	Greater Water Dock	S5	~	~	~	~	~	Forb	N	~
Rumex crispus	Curled Dock	SNA	~	~	~	~	~	Forb	I	~
Rumex obtusifolius	Bitter Dock	SNA	~	~	~	~	~	Forb	I	~
Rumex sp.	Dock sp.	~	~	~	~	~	~	Forb	N/A	~
Sagittaria latifolia	Broad-leaved Arrowhead	S5	~	~	~	~	~	Forb	N	~
Sagittaria sp.	Arrowhead sp.	~	~	~	~	~	~	Forb	N/A	~
Salix amygdaloides	Peach-leaved Willow	S5	~	~	~	~	~	Tree	N	SCS
Salix bebbiana	Bebb's Willow	S5	~	~	~	~	~	Shrub	N	SCS
Salix brachycarpa var. brachycarpa	Short-capsuled Willow	S4	~	~	~	~	~	Shrub	N	~
Salix discolor	Pussy Willow	S5	~	~	~	~	~	Shrub	N	SCS
Salix eriocephala	Cottony Willow	S5	~	~	~	~	~	Shrub	N	SCS
Salix interior	Sandbar Willow	S5	~	~	~	~	~	Shrub	N	SCS
Salix lucida	Shining Willow	S5	~	~	~	~	~	Shrub	N	SCS
Salix petiolaris	Meadow Willow	S5	~	~	~	~	~	Shrub	N	SCS
Salix purpurea	Purple Willow	SNA	~	~	~	~	~	Shrub	I	~
Salix sp.	Willow sp.	~	~	~	~	~	~	Shrub	N/A	~
Salix x fragilis	(Salix alba X Salix euxina)	SNA	~	~	~	~	Crack Willow	Tree	I	~
Sambucus canadensis	Common Elderberry	S5	~	~	~	~	~	Shrub	N	SCS
Sambucus nigra	Black Elderberry	SNA	~	~	~	~	~	Shrub	I	~
Sambucus racemosa	Red Elderberry	S5	~	~	~	~	~	Shrub	N	SCS
Sambucus sp.	Elderberry sp.	~	~	~	~	~	~	Shrub	N/A	~
Sanguinaria canadensis	Bloodroot	S5	~	~	~	~	~	Forb	N	~
Schoenoplectus sp.	Bulrush sp.	~	~	~	~	~	~	Sedge	N/A	~
Schoenoplectus tabernaemontani	Soft-stemmed Bulrush	S5	~	~	~	~	~	Sedge	N	~
Scirpus atrovirens	Dark-green Bulrush	S5	~	~	~	~	~	Sedge	N	~
Scirpus cyperinus	Common Woolly Bulrush	S5	~	~	~	~	~	Sedge	N	~
Scirpus sp.	Bulrush sp.	~	~	~	~	~	~	Sedge	N/A	~
Scutellaria galericulata	Marsh Skullcap	S5	~	~	~	~	~	Forb	N	~
Scutellaria sp.	Skullcap sp.	~	~	~	~	~	~	Forb	N/A	~
Selaginella sp.	Spikemoss sp.	~	~	~	~	~	~	Fern	N/A	~
Silene vulgaris	Bladder Campion	SNA	~	~	~	~	~	Forb	I	~
Sium suave	Common Water-parsnip	S5	~	~	~	~	~	Forb	N	~
Smilax herbacea	Herbaceous Carrionflower	S4?	~	~	~	~	~	Vine	N	~
Smilax tamnoides	Bristly Greenbriar	S5	~	~	~	~	~	Vine	N	~
Solanum dulcamara	Bittersweet Nightshade	SNA	~	~	~	~	~	Forb	I	~
Solidago altissima	Tall Goldenrod	S5	~	~	~	~	~	Forb	N	~
Solidago altissima var. altissima	Eastern Tall Goldenrod	S5	~	~	~	~	~	Forb	N	~
Solidago canadensis	Canada Goldenrod	S5	~	~	~	~	~	Forb	N	~
Solidago canadensis var. canadensis	Canada Goldenrod	S5	~	~	~	~	~	Forb	N	~
Solidago flexicaulis	Zigzag Goldenrod	S5	~	~	~	~	~	Forb	N	~
Solidago gigantea	Giant Goldenrod	S5	~	~	~	~	~	Forb	N	~
Solidago juncea	Early Goldenrod	S5	~	~	~	~	~	Forb	N	~
Solidago macrophylla	Large-leaved Goldenrod	S4	~	~	~	~	~	Forb	N	~
Solidago nemoralis ssp. nemoralis	Grey-stemmed Goldenrod	S5	~	~	~	~	~	Forb	N	~
Solidago rugosa	Rough-stemmed Goldenrod	S5	~	~	~	~	~	Forb	N	~
Solidago sp.	Goldenrod sp.	~	~	~	~	~	~	Forb	N/A	~
Sonchus arvensis	Field Sow-thistle	SNA	~	~	~	~	~	Forb	I	~

Scientific Name	Common Name	S_Rank[1]	COSEWIC Status[2]	SARA Status[3]	ESA Status[4]	COSSARO Status[5]	Common Name SYNONYMS	Physiology/ Habit[6]	Native Status[7]	SAR / SOCC / SCS
Sonchus sp.	Sow-thistle sp.	~	~	~	~	~	~	Forb	N/A	~
Sorbus aucuparia	European Mountain-ash	SNA	~	~	~	~	~	Tree	I	~
Sorbus decora	Showy Mountain-ash	S5	~	~	~	~	~	Tree	N	~
Sparganium angustifolium	Narrow-leaved Burreed	S4?	~	~	~	~	~	Forb	N	~
Spiraea alba	White Meadowsweet	S5	~	~	~	~	~	Shrub	N	~
Stachys sp.	Hedge-nettle sp.	~	~	~	~	~	~	Forb	N/A	~
Stellaria graminea	Grass-leaved Starwort	SNA	~	~	~	~	~	Forb	I	~
Streptopus amplexifolius	Clasping-leaved Twisted-stalk	S5	~	~	~	~	~	Forb	N	~
Symphyotrichum cordifolium	Heart-leaved Aster	S5	~	~	~	~	~	Forb	N	~
Symphyotrichum ericoides	White Heath Aster	S5	~	~	~	~	~	Forb	N	~
Symphyotrichum firmum	Glossy-leaved Aster	S4?	~	~	~	~	~	Forb	N	~
Symphyotrichum lanceolatum	Panicled Aster	S5	~	~	~	~	~	Forb	N	~
Symphyotrichum lateriflorum	Calico Aster	S5	~	~	~	~	~	Forb	N	~
Symphyotrichum novae-angliae	New England Aster	S5	~	~	~	~	~	Forb	N	~
Symphyotrichum ontarionis var. ontarionis	Ontario Aster	S4	~	~	~	~	~	Forb	N	~
Symphyotrichum puniceum	Purple-stemmed Aster	S5	~	~	~	~	~	Forb	N	~
Symphyotrichum sp.	Aster sp.	~	~	~	~	~	~	Forb	N/A	~
Syringa sp.	Lilac sp.	~	~	~	~	~	~	Shrub	N/A	~
Syringa vulgaris	Common Lilac	SNA	~	~	~	~	~	Shrub	I	~
Taraxacum officinale	Common Dandelion	SNA	~	~	~	~	~	Forb	I	~
Thalictrum dioicum	Early Meadow-rue	S5	~	~	~	~	~	Forb	N	~
Thalictrum pubescens	Tall Meadow-rue	S5	~	~	~	~	~	Forb	N	~
Thelypteris palustris	Marsh Fern	S5	~	~	~	~	~	Fern	N	~
Thuja occidentalis	Eastern White Cedar	S5	~	~	~	~	~	Tree	N	SCS
Tiarella stolonifera	Heart-leaved Foamflower	S5	~	~	~	~	~	Forb	N	~
Tilia americana	Basswood	S5	~	~	~	~	~	Tree	N	SCS
Toxicodendron radicans	Poison Ivy	S5	~	~	~	~	~	Shrub	N	~
Toxicodendron radicans var. radicans	Eastern Poison Ivy	S5	~	~	~	~	~	Vine	N	~
Toxicodendron radicans var. rydbergii	Western Poison Ivy	S5	~	~	~	~	~	Vine	N	~
Tragopogon dubius	Yellow Goatsbeard	SNA	~	~	~	~	~	Forb	I	~
Tragopogon sp.	Goatsbeard sp.	~	~	~	~	~	~	Forb	N/A	~
Trifolium hybridum	Alsike Clover	SNA	~	~	~	~	~	Forb	I	~
Trifolium pratense	Red Clover	SNA	~	~	~	~	~	Forb	I	~
Trifolium repens	White Clover	SNA	~	~	~	~	~	Forb	I	~
Trillium erectum	Red Trillium	S5	~	~	~	~	~	Forb	N	~
Trillium sp.	Trillium sp.	~	~	~	~	~	~	Forb	N/A	~
Tsuga canadensis	Eastern Hemlock	S5	~	~	~	~	~	Tree	N	SCS
Tussilago farfara	Coltsfoot	SNA	~	~	~	~	~	Forb	I	~
Typha angustifolia	Narrow-leaved Cattail	SNA	~	~	~	~	~	Forb	I	~
Typha latifolia	Broad-leaved Cattail	S5	~	~	~	~	~	Forb	N	~
Typha sp.	Cattail sp.	~	~	~	~	~	~	Forb	N/A	~
Ulmus americana	White Elm	S5	~	~	~	~	~	Tree	N	SCS
Ulmus rubra	Slippery Elm	S5	~	~	~	~	~	Tree	N	SCS
Ulmus sp.	Elm sp.	~	~	~	~	~	~	Tree	N/A	~
Urtica dioica	Stinging Nettle	SNA	~	~	~	~	~	Forb	N	~
Urtica gracilis	Slender Stinging Nettle	S5	~	~	~	~	~	Forb	N	~
Verbascum thapsus	Common Mullein	SNA	~	~	~	~	~	Forb	I	~

Scientific Name	Common Name	S_Rank[1]	COSEWIC Status[2]	SARA Status[3]	ESA Status[4]	COSSARO Status[5]	Common Name SYNONYMS	Physiology/ Habit[6]	Native Status[7]	SAR / SOCC / SCS
Verbena hastata	Blue Vervain	S5	~	~	~	~	~	Forb	N	~
Verbena urticifolia	White Vervain	S5	~	~	~	~	~	Forb	N	~
Vernonia sp.	Ironweed sp.	~	~	~	~	~	~	Forb	N/A	~
Viburnum acerifolium	Maple-leaved Viburnum	S5	~	~	~	~	~	Shrub	N	~
Viburnum lentago	Nannyberry	S5	~	~	~	~	~	Shrub	N	SCS
Viburnum opulus	Cranberry Viburnum	S5	~	~	~	~	~	Shrub	I	~
Viburnum opulus var. opulus	Cranberry Viburnum	SNA	~	~	~	~	~	Shrub	I	~
Vicia cracca	Tufted Vetch	SNA	~	~	~	~	~	Forb	I	~
Vincetoxicum rossicum	European Swallowwort	SNA	~	~	~	~	Dog-strangling Vine	Forb	I	~
Vincetoxicum sp.	Swallowwort sp.	~	~	~	~	~	~	Forb	N/A	~
Viola sp.	Violet sp.	~	~	~	~	~	~	Forb	N/A	~
Vitis riparia	Riverbank Grape	S5	~	~	~	~	~	Vine	N	SCS
Zea mays	Corn	SNA	~	~	~	~	~	Grass	I	~
Zea mays ssp. mays	Corn	SNA	~	~	~	~	~	Grass	I	~

388 species

Scientific Name and Common Name

Based on latest NHIC all species list (February 6, 2024) which typically follows VASCAN, though some discrepancies exist between the sources

VASCAN: http://data.canadensys.net/VASCAN/search

NHIC: https://www.sdc.gov.on.ca/sites/MNRF-PublicDocs/EN/ProvincialServices/ONTARIO_SPECIES_LISTS.zip

[1] S-Ranks (Provincial)

Provincial Status from the NHIC all species list (February 6, 2024)

NHIC: http://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/ProvincialServices/Ontario_Vascular_Plants.xlsx

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.

S1: Critically Imperiled – At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.

S2: Imperiled – At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.

S3: Vulnerable – At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.

S4: Apparently Secure – At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.

S5: Secure – At very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.

S#S#: Range Rank – A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

SX: Presumed Extirpated – Species or ecosystem is believed to be extirpated from the jurisdiction (province). Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered. [equivalent to “Regionally Extinct” in IUCN Red List terminology]

SH: Possibly Extirpated (Historical) – Known from only historical records but still some hope of rediscovery. There is evidence that the species or ecosystem may no longer be present in the jurisdiction, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction.

SNR: Unranked – subnational conservation status not yet assessed.

SU: Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

SNA: Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities (e.g., long distance aerial and aquatic migrants, hybrids without conservation value, and non-native species.

?: Inexact or Uncertain - Denotes inexact or uncertain numeric rank.

T#: Infraspecific Taxon (trinomial) - The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank. Rules for assigning T-ranks follow the same principles outlined above. For example, the subnational rank of a critically imperiled subspecies of an otherwise widespread and common species would be S5T1. A T subrank cannot imply the subspecies or variety is more abundant than the species, for example, a S1T2 subrank should not occur. A vertebrate animal population may be tracked as an infraspecific taxon and given a T rank; in such cases a Q is used after the T-rank to denote the taxon's informal taxonomic status.

[2] COSEWIC (Committee on the Status of Endangered Wildlife in Canada)
The federal review process is implemented by COSEWIC (Status as of 5 June 2024)
The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is an independent advisory panel to the Minister of Environment and Climate Change Canada that meets twice a year to assess the status of wildlife species at risk of extinction.
https://www.cosewic.ca/index.php/en-ca/

EXT: Extinct – A species that no longer exists.
EXP: Extirpated – A species no longer existing in the wild in Canada, but occurring elsewhere.
END: Endangered – A species facing imminent extirpation or extinction.
THR: Threatened – A species likely to become endangered if limiting factors are not reversed.
SC: Special Concern – A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
NAR:Not At Risk – A species that has been evaluated and found to be not at risk of extinction given the current circumstances.
DD: Data Deficient – Available information is insufficient (a) to resolve a species' eligibility for assessment or (b) to permit an assessment of the species' risk of extinction.

[3] SARA (Species at Risk Act) Status and Schedule
Federal status from the Government of Canada's Species at Risk Public Registry (Status as of June 19, 2024), with updates for newer amendments to SARA Schedule 1.
https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html
The Act establishes Schedule 1, as the official list of species at risk in Canada. It classifies those species as being either Extirpated, Endangered, Threatened, or a Special Concern. Once listed, the measures to protect and recover a listed species are implemented. However, please note that while Schedule 1 lists species that are extirpated, endangered, threatened and of special concern, the prohibitions do not apply to species of special concern.

EXT: Extinct – A species that no longer exists.
EXP: Extirpated – A species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
END: Endangered – A species that is facing imminent extirpation or extinction.
THR: Threatened – A species likely to become endangered if limiting factors are not reversed.
SC: Special Concern – A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

[4] ESA (Species At Risk in Ontario)
Provincial status from MECP (Status as of June 5, 2024).
https://www.ontario.ca/environment-and-energy/species-risk-ontario-list

The provincial review process is implemented by the Committee on the Status of Species at Risk in Ontario (COSSARO). COSSARO is an independent advisory panel to the Ontario Ministry of the Environment, Conservation and Parks (MECP) that assesses the status of species at risk of extinction.
EXP: Extirpated – Lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario.
END: Endangered – Lives in the wild in Ontario but is facing imminent extinction or extirpation.
THR: Threatened – Lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.
SC: Special Concern – Lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.

[5] COSSARO (Committee on the Status of Species at Risk in Ontario)
Status from COSSARO (Status as of June 5, 2024)
An independent committee of experts considers which plants and animals should be listed as at risk. The Committee on the Status of Species at Risk in Ontario (COSSARO) consists of up to 12 members with expertise in scientific disciplines or community knowledge or Aboriginal Traditional Knowledge.
http://cossaroagency.ca/species/

EXP: Extirpated – Lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario.

END: Endangered – Lives in the wild in Ontario but is facing imminent extinction or extirpation.
THR: Threatened – Lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.
SC: Special concern – Lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.
NAR: Not at Risk – Does not meet the criteria for any of the above categories.
DD: Data Deficient – There is not enough information to make a decision as to its status.

[6] PHYSIOLOGY/HABIT (VASCAN)
http://data.canadensys.net/VASCAN/search
Habit: Physiology/Habit. The growth form of the species (e.g. herb, shrub, tree).

[7] Native Status
Based on NHIC and VASCAN (Status as of June 13, 2024)

Native status prioritizes the NHIC ranking over VASCAN as our provincial reasource is more likely to be up-to-date on Ontario native status. Only in cases where NHIC does not provide a rank does the VASCAN native status apply.

VASCAN: http://data.canadensys.net/VASCAN/search
NHIC: https://www.sdc.gov.on.ca/sites/MNRF-PublicDocs/EN/ProvincialServices/ONTARIO_SPECIES_LISTS.zip

N: Native - Taxon present as a result of natural processes only, without human agency.
I: Introduced - Taxon established (naturalized) in a region outside of its original range, as a result of human activity, either deliberate or accidental. Taxa are considered introduced in Canada when they became established after European colonization.
N/A: N/A - not applicable. Applied to genera or to hybrids not given a status by NHIC or VASCAN
Unrankable: Unrankable - species not given a status by NHIC or VASCAN

Appendix E: Breeding Bird Survey Results

Appendix E, Table 1: 2024 Breeding Bird Survey Results

Common Name	Scientific Name	SAR / SOCC / SCS	Total Individuals	Total # of Stations	RBB01	RBB02	RBB03	RBB04	RBB05	RBB06	RBB07	RBB08	RBB09	RBB10	RBB11	RBB12	RBB13	RBB14	RBB15	RBB16	RBB17	RBB18	RBB19	RBB20	RBB21	RBB22	RBB23	RBB24
Alder Flycatcher	*Empidonax alnorum*		3	3	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
American Crow	*Corvus brachyrhynchos*		40	24	0	0	1	0	1	0	1	1	4	1	1	1	0	1	4	2	0	1	1	0	1	0	2	0
American Goldfinch	*Spinus tristis*		51	27	1	1	1	1	2	1	1	1	2	3	0	1	2	0	0	5	0	1	1	4	2	3	0	1
American Redstart	*Setophaga ruticilla*		3	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
American Robin	*Turdus migratorius*		53	27	2	3	1	4	0	3	2	3	0	2	0	1	2	3	1	2	3	0	0	1	0	3	1	1
Baltimore Oriole	*Icterus galbula*		3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Barn Swallow	*Hirundo rustica*	SAR	13	6	0	1	1	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
Belted Kingfisher	*Ceryle alcyon*		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Black-and-white Warbler	*Mniotilta varia*		2	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Black-capped Chickadee	*Poecile atricapillus*		25	14	0	0	0	0	1	4	0	0	2	3	1	0	0	0	1	0	0	0	0	1	0	2	1	2
Blue Jay	*Cyanocitta cristata*		24	17	0	0	1	0	1	0	0	3	0	5	0	1	0	1	0	1	0	1	1	1	0	1	1	0
Bobolink	*Dolichonyx oryzivorus*	SAR	2	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brown Thrasher	*Toxostoma rufum*		4	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Brown-headed Cowbird	*Molothrus ater*		7	5	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
Cedar Waxwing	*Bombycilla cedrorum*		4	3	0	1	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Chestnut-sided Warbler	*Setophaga pensylvanica*		9	5	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Chipping Sparrow	*Spizella passerina*		10	9	0	2	1	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	1	1	1	0	0	0
Clay-colored Sparrow	*Spizella pallida*		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Common Grackle	*Quiscalus quiscula*		75	12	0	7	2	17	0	0	0	4	1	1	0	0	0	0	1	0	1	0	0	0	1	0	0	0
Common Raven	*Corvus corax*		6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4	0	0	0
Common Yellowthroat	*Geothlypis trichas*		26	21	0	1	0	2	1	1	0	2	1	1	0	2	1	1	1	1	0	0	0	0	1	1	0	1
Downy Woodpecker	*Picoides pubescens*		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Eastern Kingbird	*Tyrannus tyrannus*		12	8	0	0	0	0	0	2	1	0	0	0	0	2	0	0	0	0	1	3	0	0	0	0	0	0
Eastern Meadowlark	*Sturnella magna*	SAR	24	15	0	0	1	0	2	1	0	0	0	0	0	2	1	0	2	1	1	2	1	0	0	0	0	2
Eastern Phoebe	*Sayornis phoebe*		1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eastern Towhee	*Pipilo erythrophthalmus*		4	4	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0
Eastern Wood-Pewee	*Contopus virens*	SOCC	6	6	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	1
European Starling	*Sturnus vulgaris*		112	10	0	0	1	0	0	0	2	18	0	0	0	0	0	19	0	0	1	0	0	0	1	0	0	0
Field Sparrow	*Spizella pusilla*		8	7	0	0	0	0	0	0	0	2	1	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0
Grasshopper Sparrow	*Ammodramus savannarum*	SOCC	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Gray Catbird	*Dumetella carolinensis*		12	9	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Great Crested Flycatcher	*Myiarchus crinitus*		3	3	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Hairy Woodpecker	*Picoides villosus*		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
House Finch	*Haemorhous mexicanus*		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
House Wren	*Troglodytes aedon*		6	6	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0
Indigo Bunting	*Passerina cyanea*		13	13	0	0	0	1	1	0	1	1	1	0	1	0	0	0	0	0	0	1	0	1	0	1	1	0
Killdeer	*Charadrius vociferus*		9	8	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0
Mourning Dove	*Zenaida macroura*		28	20	0	1	1	1	0	2	1	0	1	1	1	1	0	3	0	0	0	0	1	0	1	2	0	3
Mourning Warbler	*Geothlypis philadelphia*		3	3	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Northern Cardinal	*Cardinalis cardinalis*		15	12	1	1	0	0	1	2	0	1	0	2	0	0	0	1	1	1	0	0	0	0	0	0	0	0
Northern Flicker	*Colaptes auratus*		13	9	0	2	0	0	0	0	1	0	0	2	1	0	0	0	0	0	0	1	1	0	0	2	0	0
Northern Harrier	*Circus cyaneus*		1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ovenbird	*Seiurus aurocapilla*		6	5	0	0	0	0	0	0	0	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0
Pine Warbler	*Setophaga pinus*		3	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0
Purple Finch	*Haemorhous purpureus*		1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Red-bellied Woodpecker	*Melanerpes carolinus*		2	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Red-breasted Nuthatch	*Sitta canadensis*		4	4	0	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
Red-eyed Vireo	*Vireo olivaceus*		13	12	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	1	1	0	1	0	0	0	2
Red-winged Blackbird	*Agelaius phoeniceus*	SCS	89	23	8	6	1	4	1	7	0	1	0	6	0	1	0	10	3	2	1	0	0	1	2	13	0	8
Ring-billed Gull	*Larus delawarensis*		2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rock Pigeon	*Columba livia*		2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rose-breasted Grosbeak	*Pheucticus ludovicianus*		1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Savannah Sparrow	*Passerculus sandwichensis*		14	10	0	0	2	1	1	2	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
Song Sparrow	*Melospiza melodia*		53	29	1	2	1	6	1	1	0	1	1	2	1	1	0	3	1	0	1	2	1	3	1	0	2	5
Swamp Sparrow	*Melospiza georgiana*		5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Tree Swallow	*Tachycineta bicolor*		7	3	0	0	0	0	0	3	0	0	0	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0
Turkey Vulture	*Cathartes aura*		7	5	0	0	0	0	0	0	0	0	0	0	0	3	1	1	0	1	0	0	0	0	0	0	0	0
Vesper Sparrow	*Pooecetes gramineus*		2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Warbling Vireo	*Vireo gilvus*		2	2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
White-breasted Nuthatch	*Sitta carolinensis*		4	2	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wild Turkey	*Meleagris gallopava*		12	3	0	0	0	0	0	0	0	0	0	1	0	8	3	0	0	0	0	0	0	0	0	0	0	0
Willow Flycatcher	*Empidonax traillii*		2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow Warbler	*Setophaga petechia*		2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow-bellied Sapsucker	*Sphyrapicus varius*		5	3	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	1
Yellow-billed Cuckoo	*Coccyzus americanus*		1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65 species	**TOTALS**	**6**	**876**	**35**	**8**	**15**	**14**	**12**	**17**	**15**	**15**	**15**	**13**	**23**	**11**	**12**	**12**	**19**	**11**	**13**	**11**	**15**	**11**	**11**	**13**	**12**	**12**	**11**

Appendix E, Table 1: 2024 Breeding Bird Survey Results

Common Name	Scientific Name	SAR / SOCC / SCS	RBB25	RBB26	RBB27	RBB28	RBB29	RBB30	RBB31	RBB32	RBBA1	RBBA2	RBBA3
Alder Flycatcher	*Empidonax alnorum*		0	0	0	0	0	0	0	0	0	0	0
American Crow	*Corvus brachyrhynchos*		1	1	2	2	1	0	4	1	1	4	0
American Goldfinch	*Spinus tristis*		0	4	1	2	0	5	0	1	1	1	2
American Redstart	*Setophaga ruticilla*		0	0	0	0	0	0	0	1	0	0	0
American Robin	*Turdus migratorius*		1	2	1	1	3	1	0	4	1	1	0
Baltimore Oriole	*Icterus galbula*		1	0	0	0	0	0	0	1	0	0	0
Barn Swallow	*Hirundo rustica*	SAR	0	0	0	2	0	0	0	0	0	0	0
Belted Kingfisher	*Ceryle alcyon*		0	0	0	0	0	0	0	0	0	0	0
Black-and-white Warbler	*Mniotilta varia*		0	0	0	0	0	0	0	1	0	0	0
Black-capped Chickadee	*Poecile atricapillus*		1	0	1	0	0	0	0	4	0	1	0
Blue Jay	*Cyanocitta cristata*		0	0	1	2	0	0	1	1	0	0	1
Bobolink	*Dolichonyx oryzivorus*	SAR	0	0	0	0	0	0	0	0	0	0	0
Brown Thrasher	*Toxostoma rufum*		0	0	0	2	0	0	0	0	0	0	0
Brown-headed Cowbird	*Molothrus ater*		0	0	0	0	0	0	0	0	1	0	0
Cedar Waxwing	*Bombycilla cedrorum*		0	0	0	0	0	0	0	0	0	0	0
Chestnut-sided Warbler	*Setophaga pensylvanica*		2	0	0	0	0	0	0	0	0	0	0
Chipping Sparrow	*Spizella passerina*		0	0	0	0	0	0	0	0	0	0	0
Clay-colored Sparrow	*Spizella pallida*		0	0	0	0	0	0	0	0	0	0	0
Common Grackle	*Quiscalus quiscula*		0	0	0	6	31	0	0	0	3	0	0
Common Raven	*Corvus corax*		0	1	0	0	0	0	0	0	0	0	0
Common Yellowthroat	*Geothlypis trichas*		0	2	1	0	0	1	1	2	0	1	0
Downy Woodpecker	*Picoides pubescens*		0	0	0	0	0	0	0	0	0	0	0
Eastern Kingbird	*Tyrannus tyrannus*		0	0	1	0	0	0	0	1	1	0	0
Eastern Meadowlark	*Sturnella magna*	SAR	0	0	1	0	0	4	1	2	0	0	0
Eastern Phoebe	*Sayornis phoebe*		0	0	0	0	0	0	0	0	0	0	0
Eastern Towhee	*Pipilo erythrophthalmus*		0	0	0	0	0	0	0	0	0	0	0
Eastern Wood-Pewee	*Contopus virens*	SOCC	0	1	0	0	0	0	0	0	0	0	0
European Starling	*Sturnus vulgaris*		0	0	4	50	15	0	0	0	1	0	0
Field Sparrow	*Spizella pusilla*		0	0	0	0	0	0	0	0	0	0	1
Grasshopper Sparrow	*Ammodramus savannarum*	SOCC	0	0	0	0	0	0	0	0	0	0	0
Gray Catbird	*Dumetella carolinensis*		1	1	0	0	2	0	0	1	3	1	0
Great Crested Flycatcher	*Myiarchus crinitus*		0	0	0	0	0	0	1	0	0	0	0
Hairy Woodpecker	*Picoides villosus*		0	0	0	0	0	0	0	0	0	0	0
House Finch	*Haemorhous mexicanus*		0	0	0	0	0	0	0	1	0	0	0
House Wren	*Troglodytes aedon*		0	1	1	0	0	0	0	0	0	0	0
Indigo Bunting	*Passerina cyanea*		1	1	0	0	0	0	0	0	0	0	1
Killdeer	*Charadrius vociferus*		1	0	0	2	0	0	0	0	0	0	0
Mourning Dove	*Zenaida macroura*		1	1	1	1	1	0	0	3	0	0	0
Mourning Warbler	*Geothlypis philadelphia*		1	0	0	0	0	0	0	0	0	0	0
Northern Cardinal	*Cardinalis cardinalis*		0	0	0	0	0	0	2	0	1	1	0
Northern Flicker	*Colaptes auratus*		1	0	0	0	0	0	0	0	0	0	2
Northern Harrier	*Circus cyaneus*		0	0	0	0	0	0	0	0	0	0	0
Ovenbird	*Seiurus aurocapilla*		0	0	0	0	0	0	0	0	0	0	2
Pine Warbler	*Setophaga pinus*		0	0	0	0	0	0	0	0	0	0	0
Purple Finch	*Haemorhous purpureus*		0	0	0	0	0	0	0	0	0	0	0
Red-bellied Woodpecker	*Melanerpes carolinus*		0	0	0	0	0	0	0	0	0	0	0
Red-breasted Nuthatch	*Sitta canadensis*		0	0	0	0	0	0	0	0	0	0	0
Red-eyed Vireo	*Vireo olivaceus*		1	1	1	1	0	0	1	0	0	0	0
Red-winged Blackbird	*Agelaius phoeniceus*	SCS	2	5	1	3	2	0	1	0	0	0	0
Ring-billed Gull	*Larus delawarensis*		0	0	0	0	1	0	0	0	1	0	0
Rock Pigeon	*Columba livia*		2	0	0	0	0	0	0	0	0	0	0
Rose-breasted Grosbeak	*Pheucticus ludovicianus*		0	0	0	0	0	0	0	0	0	0	0
Savannah Sparrow	*Passerculus sandwichensis*		0	1	1	1	0	3	0	0	0	0	0
Song Sparrow	*Melospiza melodia*		2	3	1	0	0	2	1	4	1	1	1
Swamp Sparrow	*Melospiza georgiana*		0	0	0	0	3	0	0	0	0	0	0
Tree Swallow	*Tachycineta bicolor*		0	0	0	0	0	0	0	0	0	0	0
Turkey Vulture	*Cathartes aura*		0	0	0	0	0	0	0	0	0	0	1
Vesper Sparrow	*Pooecetes gramineus*		1	0	0	0	0	0	0	0	0	0	0
Warbling Vireo	*Vireo gilvus*		0	0	0	0	0	0	0	0	0	0	0
White-breasted Nuthatch	*Sitta carolinensis*		0	0	0	0	0	0	0	0	0	0	0
Wild Turkey	*Meleagris gallopava*		0	0	0	0	0	0	0	0	0	0	0
Willow Flycatcher	*Empidonax traillii*		0	0	0	0	1	0	0	0	0	1	0
Yellow Warbler	*Setophaga petechia*		0	0	0	0	0	0	0	0	2	0	0
Yellow-bellied Sapsucker	*Sphyrapicus varius*		0	0	0	0	0	0	0	0	0	0	0
Yellow-billed Cuckoo	*Coccyzus americanus*		0	0	0	0	0	0	0	0	0	0	0
65 species	**TOTALS**	**6**	**16**	**14**	**15**	**13**	**10**	**6**	**9**	**15**	**12**	**9**	**8**

Appendix E, Table 2: 2024 Breeding Bird Survey Chronology and Weather Conditions

Station ID	Date	Survey #	Start Time	End Time	Start Air Temp (°C)	End Air Temp (°C)	Start Wind Code[1]	End Wind Code[1]	Start Sky Code[2]	End Sky Code[2]	# of Species
RBB01	2024-06-26	1	8:24	8:34	22	22	1	1	1	1	8
RBB02	2024-06-26	1	9:11	9:21	23	23	1	1	1	1	15
RBB03	2024-06-26	1	8:00	8:10	19	19	1	1	1	1	14
RBB04	2024-06-26	1	8:47	8:57	22	22	1	1	1	1	12
RBB05	2024-06-26	1	7:36	7:46	19	19	2	2	1	1	17
RBB06	2024-06-26	1	8:14	8:24	20	20	1	1	1	1	15
RBB07	2024-06-26	1	7:11	7:21	17	17	1	1	0	0	15
RBB08	2024-06-26	1	7:31	7:41	20	20	1	1	1	1	15
RBB09	2024-06-26	1	6:52	7:02	16	16	1	1	0	0	13
RBB10	2024-06-26	1	6:57	7:07	19	19	1	1	1	1	23
RBB11	2024-06-25	1	9:30	9:40	22	22	3	3	1	1	11
RBB12	2024-06-25	1	10:13	10:23	22	22	3	3	2	2	12
RBB13	2024-06-25	1	9:07	9:17	20	20	1	3	1	1	12
RBB14	2024-06-25	1	9:45	9:55	21	21	3	3	2	2	19
RBB15	2024-06-25	1	8:39	8:49	22	22	1	1	1	1	11
RBB16	2024-06-25	1	9:17	9:27	21	21	3	3	2	2	13
RBB17	2024-06-25	1	8:16	8:26	20	20	1	1	1	1	11
RBB18	2024-06-25	1	8:46	8:56	19	19	2	2	2	2	15
RBB19	2024-06-25	1	7:47	7:57	26	26	1	1	0	0	11
RBB20	2024-06-25	1	8:16	8:26	18	18	2	2	2	2	11
RBB21	2024-06-25	1	7:25	7:35	16	16	1	1	0	0	13
RBB22	2024-06-25	1	7:40	7:50	17	17	2	2	2	2	12
RBB23	2024-06-25	1	7:05	7:15	16	16	1	1	0	0	12
RBB24	2024-06-25	1	7:14	7:24	17	17	2	2	2	2	11
RBB25	2024-06-25	1	6:36	6:46	14	14	1	1	0	0	16
RBB26	2024-06-25	1	6:46	6:56	16	16	0	0	0	0	14
RBB27	2024-06-25	1	6:13	6:23	11	11	0	1	0	0	15
RBB28	2024-06-25	1	6:25	6:35	13	13	0	0	0	0	13
RBB29	2024-06-25	1	5:40	5:50	11	11	0	0	0	0	10
RBB30	2024-06-25	1	6:04	6:14	11	11	0	0	0	0	6
RBB31	2024-06-25	1	5:17	5:27	11	11	0	0	1	1	9
RBB32	2024-06-25	1	5:30	5:40	11	11	0	0	0	0	15
RBBA1	2024-06-26	1	8:56	9:06	20	20	1	1	1	1	12
RBBA2	2024-06-26	1	9:15	9:25	21	21	1	1	1	1	9
RBBA3	2024-06-25	1	10:03	10:13	25	25	3	3	1	1	8

LEGEND

[1] Beaufort Wind Scale

0 = calm, smoke rises vertically (0-2 km/hr); 1 = Light air movement, smoke drifts (3-5 km/hr); 2 = Slight breeze, wind felt on face; leaves rustle (6-11 km/hr);
3= Gentle breeze, leaves & twigs in constant motion (12-19 km/hr); 4= Moderate breeze, small branches moving, raises dust & loose paper (20-30 km/hr);
5= Fresh breeze, small trees begin to sway (31-39 km/hr); 6= Strong breeze, large branches in motion (40-50 km/hr).

[2] Beaufort Sky Codes

0 = clear (no cloud cover); 1 = partly cloudy (scattered or broken) or variable; 2 = cloudy or overcast; 3 = sandstorm, duststorm or blowing snow; 4 = fog, smoke, thick dust, or haze;
5 = drizzle or light rain; 6 = rain; 7 = snow or snow/rain mix; 8 = showers; 9 = thunderstorms.

Appendix E, Table 3: 2025 Breeding Bird Survey Results

Common Name	Scientific Name	SAR / SOCC / SCS	Total Individuals	Total # of Stations	BB04	BB05	BB06	BB08	BB09	BB10	BB11	BB12	BB13	BB14	BB15	BB16	BB17	BB18	BB19	BB20	BB21	BB22	BB23	BB24	BB25	BB26	BB27	BB28	BB29	BB30	BB31	BB32	BB33	BB34	BB35	BB36	BB37	BB38	BB39	BB40	BB41
Alder Flycatcher	*Empidonax alnorum*		37	18	0	0	2	2	0	0	2	0	0	0	2	0	2	3	1	0	5	2	0	0	0	3	1	1	2	0	0	1	0	0	0	1	0	0	2	3	2
American Crow	*Corvus brachyrhynchos*		85	31	4	2	2	0	2	4	1	3	3	1	1	3	0	0	2	11	4	2	1	4	1	4	5	1	4	3	1	1	0	1	2	5	1	0	4	2	0
American Goldfinch	*Spinus tristis*		74	33	1	1	8	3	2	1	0	2	1	1	4	2	2	4	6	2	2	2	2	2	1	1	1	2	1	2	3	2	3	2	2	0	0	1	3	0	2
American Kestrel	*Falco sparverius*		2	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
American Redstart	*Setophaga ruticilla*		5	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	1	0
American Robin	*Turdus migratorius*		55	26	0	3	1	3	5	0	1	0	1	1	0	2	3	1	0	2	1	2	1	0	0	0	3	2	2	7	3	1	2	0	2	1	3	0	1	0	1
Baltimore Oriole	*Icterus galbula*		6	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Bank Swallow	*Riparia riparia*	SAR	16	1	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barn Swallow	*Hirundo rustica*	SAR	3	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Belted Kingfisher	*Ceryle alcyon*		3	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Black-and-white Warbler	*Mniotilta varia*		4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
Black-capped Chickadee	*Poecile atricapillus*		37	23	2	1	0	1	0	1	1	1	2	1	0	0	1	1	1	2	3	0	0	1	3	1	3	0	0	1	0	1	0	0	1	0	2	4	0	2	0
Black-throated Green Warbler	*Setophaga virens*		9	8	0	0	0	0	0	2	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
Blue Jay	*Cyanocitta cristata*		33	23	0	0	0	0	0	0	1	1	1	1	3	1	2	0	2	1	1	1	0	1	1	1	1	1	0	0	3	2	1	1	4	0	1	1	0	0	0
Blue-headed Vireo	*Vireo solitarius*		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Blue-winged Warbler	*Vermivora pinus*		4	4	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0
Bobolink	*Dolichonyx oryzivorus*	SAR	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Broad-winged Hawk	*Buteo platypterus*		1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brown Thrasher	*Toxostoma rufum*		8	7	0	0	0	0	1	1	0	0	1	0	0	0	1	0	0	0	0	2	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Brown-headed Cowbird	*Molothrus ater*		7	6	0	1	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
Canada Goose	*Branta canadensis*		2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	
Cedar Waxwing	*Bombycilla cedrorum*		19	9	0	0	0	0	1	0	0	0	0	0	3	2	0	2	1	0	0	1	0	0	0	0	4	0	0	0	0	0	0	0	4	0	0	0	1	0	
Chestnut-sided Warbler	*Setophaga pensylvanica*		13	8	0	0	0	0	0	2	2	0	2	0	0	0	0	1	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
Chipping Sparrow	*Spizella passerina*		11	6	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	2	0	
Clay-colored Sparrow	*Spizella pallida*		2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Common Grackle	*Quiscalus quiscula*		37	16	1	3	6	2	0	0	0	0	0	0	0	0	2	0	0	1	0	2	0	2	0	1	2	3	4	1	0	0	5	0	0	0	1	1	0	0	
Common Raven	*Corvus corax*		3	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Common Yellowthroat	*Geothlypis trichas*		55	29	0	0	1	1	0	0	3	0	1	1	2	5	1	2	2	3	3	2	1	0	2	2	1	2	3	2	1	1	2	1	2	1	4	2	0	2	
Downy Woodpecker	*Picoides pubescens*		3	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
Eastern Bluebird	*Sialia sialis*		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Eastern Kingbird	*Tyrannus tyrannus*		18	10	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	1	0	0	3	2	0	0	0	0	3	0	1	0	0	2	0	0	1	0	2
Eastern Meadowlark	*Sturnella magna*	SAR	9	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	2	0	0	0	2	1
Eastern Towhee	*Pipilo erythrophthalmus*		4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
Eastern Wood-Pewee	*Contopus virens*	SOCC	16	13	0	0	0	0	0	1	0	2	0	1	1	0	0	0	0	0	0	0	0	1	2	1	0	1	0	1	1	0	0	1	0	2	0	0	1	0	0
European Starling	*Sturnus vulgaris*		25	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	6	0	0	0	3	0	0	4	0	0	0	0	0	5	0	0	0	0	3
Field Sparrow	*Spizella pusilla*		29	17	0	0	4	0	3	0	1	0	3	1	1	0	1	1	0	1	0	0	1	1	2	1	0	0	0	4	2	0	1	0	0	0	0	0	0	1	
Golden-winged Warbler	*Vermivora chrysoptera*	SAR	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
Gray Catbird	*Dumetella carolinensis*		26	17	3	0	2	1	1	0	1	1	0	0	2	0	0	1	1	0	0	2	0	0	1	0	0	2	0	0	0	2	1	0	2	0	2	0	1	0	0
Great Blue Heron	*Ardea herodias*		4	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	
Great Crested Flycatcher	*Myiarchus crinitus*		5	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	
Green Heron	*Butorides virescens*		4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2	0	0	0	0	0	0	0	0	
Hairy Woodpecker	*Picoides villosus*		3	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	
Horned Lark	*Eremophila alpestris*		3	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
House Sparrow	*Passer domesticus*		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
House Wren	*Troglodytes aedon*		6	6	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	
Indigo Bunting	*Passerina cyanea*		20	13	0	0	0	0	0	2	0	2	1	1	0	0	0	0	0	2	0	0	2	0	3	1	2	0	0	0	0	0	0	0	1	0	1	1	0	1	0
Killdeer	*Charadrius vociferus*		6	5	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Least Flycatcher	*Empidonax minimus*		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Magnolia Warbler	*Setophaga magnolia*		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Mallard	*Anas platyrhynchos*		18	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	1	0	0	0	0	3	2	0	2	0	0	0	0	0	0	3	0	0	0	3	0
Mourning Dove	*Zenaida macroura*		32	20	0	1	0	1	2	1	0	0	1	0	0	3	2	0	1	1	0	0	2	0	0	1	0	3	2	1	0	4	1	1	0	1	2	0	0	1	0
Mourning Warbler	*Geothlypis philadelphia*		5	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Northern Cardinal	*Cardinalis cardinalis*		19	12	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	2	0	2	0	0	1	0	2	0	1	0	1	2	0	1	3	0
Northern Flicker	*Colaptes auratus*		6	6	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	1	0	0	0	0	0	0	0	0
Northern Rough-winged Swallo	*Stelgidopteryx serripennis*		1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Northern Waterthrush	*Parkesia noveboracensis*		2	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Osprey	*Pandion haliaetus*		2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Ovenbird	*Seiurus aurocapilla*		13	7	0	0	0	0	0	0	4	1	0	0	2	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	1	0	0
Pileated Woodpecker	*Dryocopus pileatus*		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Pine Warbler	*Setophaga pinus*		3	3	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Purple Finch	*Haemorhous purpureus*		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Red-bellied Woodpecker	*Melanerpes carolinus*		4	4	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Red-breasted Nuthatch	*Sitta canadensis*		2	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Red-eyed Vireo	*Vireo olivaceus*		36	21	0	0	0	0	0	3	1	2	0	2	1	2	5	0	1	0	2	1	0	2	2	1	0	2	0	1	0	0	0	1	1	1	1	3	1	0	0
Red-tailed Hawk	*Buteo jamaicensis*		2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Red-winged Blackbird	*Agelaius phoeniceus*	SCS	101	19	1	5	1	10	0	0	1	0	0	0	0	7	8	1	6	0	0	1	1	0	0	5	0	5	19	0	2	0	9	0	0	6	7	0	0	6	0
Rock Pigeon	*Columba livia*		3	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rose-breasted Grosbeak	*Pheucticus ludovicianus*		6	6	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	0	0	0	
Ruby-throated Hummingbird	*Archilochus colubris*		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Ruffed Grouse	*Bonasa umbellus*		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	
Savannah Sparrow	*Passerculus sandwichensis*		10	6	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	1	0	1	0	0	0	0	2	0	0	0	1	0	0	0	0	0	
Scarlet Tanager	*Piranga olivacea*		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
Song Sparrow	*Melospiza melodia*		133	37	3	2	2	3	3	5	5	3	4	3	6	3	2	4	3	4	7	4	4	4	3	5	4	3	2	2	5	2	3	2	5	4	7	1	4	5	2
Swamp Sparrow	*Melospiza georgiana*		34	12	1	0	0	6	0	0	0	0	0	0	3	1	4	0	3	0	1	1	0	0	0	0	0	2	6	0	0	0	3	0	0	0	0	0	0	3	0
Turkey Vulture	*Cathartes aura*		7	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Veery	*Catharus fuscescens*		10	8	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	3	0	0	0	0	0	0	0	1	1	0	1	1
Vesper Sparrow	*Pooecetes gramineus*		7	5	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Warbling Vireo	*Vireo gilvus*		4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
White-throated Sparrow	*Zonotrichia albicollis*		2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Wild Turkey	*Meleagris gallopava*		16	5	0	0	0	0	2	6	1	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Willow Flycatcher	*Empidonax traillii*		2	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Winter Wren	*Troglodytes troglodytes*		2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
Wood Duck	*Aix sponsa*		2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Wood Thrush	*Hylocichla mustelina*	SAR	11	7	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	2	0	0	2	0	0	0	0
Yellow Warbler	*Setophaga petechia*		4	3	0	0	1	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow-bellied Sapsucker	*Sphyrapicus varius*		2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
86 species	**TOTALS**	**8**	**1226**	**36**	**10**	**14**	**14**	**17**	**11**	**12**	**17**	**16**	**14**	**16**	**19**	**17**	**17**	**18**	**17**	**18**	**19**	**19**	**18**	**16**	**21**	**21**	**16**	**18**	**14**	**17**	**16**	**21**	**19**	**12**	**16**	**20**	**20**	**13**	**15**	**20**	**13**

Appendix E, Table 4: 2025 Breeding Bird Survey Chronology and Weather Conditions

Station ID	Date	Survey #	Start Time	End Time	Start Air Temp (°C)	End Air Temp (°C)	Start Wind Code[1]	End Wind Code[1]	Start Sky Code[2]	End Sky Code[2]	# of Species
BB04	2025-06-13	1	6:00	6:10	9	10	2	2	2	2	8
BB04	2025-06-27	2	8:01	8:11	17	18	4	4	2	2	6
BB05	2025-06-13	1	6:25	6:35	10	10	3	3	2	2	13
BB05	2025-06-27	2	7:37	7:47	17	17	3	4	2	2	6
BB06	2025-06-13	1	7:10	7:20	11	11	2	2	2	2	12
BB06	2025-06-27	2	7:09	7:19	16	16	3	3	2	2	7
BB08	2025-06-13	1	8:15	8:25	12	12	2	2	2	2	13
BB08	2025-06-26	2	9:37	9:47	18	18	1	1	2	2	11
BB09	2025-06-13	1	9:35	9:45	13	14	1	1	2	2	7
BB09	2025-06-27	2	6:00	6:10	15	15	3	3	2	2	9
BB10	2025-06-13	1	9:32	9:42	13	13	2	2	2	2	10
BB10	2025-06-27	2	5:55	6:05	17	17	4	4	2	2	8
BB11	2025-06-13	1	7:23	7:33	11	11	2	2	2	2	12
BB11	2025-06-27	2	7:00	7:10	17	17	4	4	2	2	11
BB12	2025-06-13	1	7:55	8:05	11	11	2	2	2	2	14
BB12	2025-06-27	2	7:43	7:53	17	17	4	4	2	2	5
BB13	2025-06-13	1	8:00	8:10	10	10	2	2	2	2	12
BB13	2025-06-27	2	9:08	9:18	17	17	4	4	2	2	9
BB14	2025-06-12	1	9:25	9:35	16	16	3	3	1	1	12
BB14	2025-06-26	2	5:55	6:05	19	18	2	3	2	2	10
BB15	2025-06-12	1	6:01	6:11	15	15	2	2	1	1	12
BB15	2025-06-26	2	8:42	8:52	18	18	1	1	2	2	13
BB16	2025-06-12	1	8:31	8:41	14	14	3	3	1	1	9
BB16	2025-06-26	2	6:50	7:00	18	18	3	3	2	2	16
BB17	2025-06-12	1	7:15	7:25	14	14	1	1	1	1	12
BB17	2025-06-26	2	7:40	7:50	18	18	1	1	2	2	13
BB18	2025-06-12	1	7:30	7:40	14	14	3	3	1	1	12
BB18	2025-06-26	2	7:52	8:02	18	18	3	3	2	2	11
BB19	2025-06-12	1	8:12	8:22	14	14	1	1	2	2	11
BB19	2025-06-26	2	6:42	6:52	18	18	2	2	2	2	13
BB20	2025-06-12	1	6:02	6:12	13	13	3	3	1	1	14
BB20	2025-06-26	2	8:43	8:53	19	19	3	3	2	2	11
BB21	2025-06-12	1	6:30	6:40	13	13	3	3	1	1	14
BB21	2025-06-26	2	9:10	9:20	19	19	2	3	2	2	12
BB22	2025-06-11	1	9:40	9:50	16	16	4	4	1	1	13
BB22	2025-06-25	2	5:50	6:00	18	18	1	1	1	1	12
BB23	2025-06-12	1	9:40	9:50	16	16	2	2	1	1	16
BB23	2025-06-26	2	5:45	5:55	18	18	3	2	5	2	10
BB24	2025-06-12	1	8:53	9:03	16	16	4	4	1	1	10
BB24	2025-06-25	2	6:47	6:57	19	19	1	1	2	2	10
BB25	2025-06-11	1	9:27	9:37	18	18	3	3	1	1	15
BB25	2025-06-25	2	6:13	6:23	20	20	2	2	2	2	17
BB26	2025-06-11	1	8:47	8:57	17	17	3	3	1	1	18
BB26	2025-06-25	2	6:49	6:59	21	21	2	2	2	2	15
BB27	2025-06-11	1	7:45	7:55	16	16	3	3	2	2	8
BB27	2025-06-25	2	7:51	8:01	21	21	2	3	2	2	11
BB28	2025-06-11	1	7:46	7:56	14	15	2	2	2	2	14
BB28	2025-06-25	2	7:48	7:58	20	20	1	1	2	2	13
BB29	2025-06-11	1	6:23	6:33	14	14	1	1	1	2	11
BB29	2025-06-25	2	8:42	8:52	22	22	2	2	1	1	11
BB30	2025-06-11	1	5:40	5:50	13	13	1	1	1	1	14
BB30	2025-06-25	2	9:20	9:30	23	23	2	2	1	1	15
BB31	2025-06-11	1	6:40	6:50	13	13	1	2	2	2	14
BB31	2025-06-25	2	8:47	8:57	22	22	2	2	2	2	9
BB32	2025-06-11	1	5:50	6:00	12	12	1	1	2	2	15
BB32	2025-06-25	2	9:34	9:44	23	24	2	2	1	1	13
BB33	2025-06-10	1	9:25	9:35	16	16	4	3	0	0	15
BB33	2025-06-24	2	6:00	6:10	22	23	1	1	0	0	11
BB34	2025-06-10	1	8:36	8:46	15	15	3	3	0	0	5
BB34	2025-06-24	2	6:57	7:07	24	24	1	2	0	0	9
BB35	2025-06-10	1	8:25	8:35	16	16	2	2	0	0	11
BB35	2025-06-24	2	6:03	6:13	23	24	1	1	1	1	14
BB36	2025-06-10	1	7:41	7:51	14	15	2	2	0	0	13
BB36	2025-06-24	2	6:38	6:48	24	24	1	1	1	1	13
BB37	2025-06-10	1	7:04	7:14	14	14	1	1	1	1	14
BB37	2025-06-24	2	7:20	7:30	26	26	1	1	1	1	17
BB38	2025-06-10	1	6:46	6:56	14	14	1	1	0	0	8
BB38	2025-06-24	2	8:16	8:26	26	26	1	1	0	0	9
BB39	2025-06-10	1	7:12	7:22	14	14	1	1	0	0	11
BB39	2025-06-24	2	7:56	8:06	26	26	1	1	0	0	8
BB40	2025-06-10	1	5:53	6:03	13	14	1	1	1/4	1/4	15
BB40	2025-06-24	2	8:33	8:43	28	28	2	2	0	0	13
BB41	2025-06-10	1	5:45	5:55	14	14	1	1	1	1	10
BB41	2025-06-24	2	9:12	9:22	28	28	2	2	0	0	9

LEGEND

[1] Beaufort Wind Scale

0 = calm, smoke rises vertically (0-2 km/hr); 1 = Light air movement, smoke drifts (3-5 km/hr); 2 = Slight breeze, wind felt on face; leaves rustle (6-11 km/hr);
3= Gentle breeze, leaves & twigs in constant motion (12-19 km/hr); 4= Moderate breeze, small branches moving, raises dust & loose paper (20-30 km/hr);
5= Fresh breeze, small trees begin to sway (31-39 km/hr); 6= Strong breeze, large branches in motion (40-50 km/hr).

[2] Beaufort Sky Codes

0 = clear (no cloud cover); 1 = partly cloudy (scattered or broken) or variable; 2 = cloudy or overcast; 3 = sandstorm, duststorm or blowing snow;
4 = fog, smoke, thick dust, or haze; 5 = drizzle or light rain; 6 = rain; 7 = snow or snow/rain mix; 8 = showers; 9 = thunderstorms.

Appendix F: Amphibian Acoustic Results

Appendix F, Table 1: 2025 Amphibian Acoustic Survey Results

Station ID	Date	Survey #	Start Time	End Time	Air Temp (°C)	Sky Code[1]	Wind Code[2]	Relative Humidity (%)	Species	Direction	Distance	Call Code[3]	Count	Anurans Outside of Target Feature
AC01	2025-04-21	1	20:19	20:22	11	1	1	94	Spring Peeper	W	<20m	L2	10	None
									Wood Frog	SW	<100m	L1	1	
	2025-05-26	2	21:09	21:12	17	0	1	60	Wood Frog	W	<30m	L3	N/A	None
									Spring Peeper	W	<40m	L1	1	
	2025-06-18	3	21:02	21:05	26	2	1	77	Gray Treefrog	W	<40m	L1	7	Gray Treefrog (L1) >200m E
									Green Frog	W	<50m	L1	5	
AC02	2025-04-21	1	21:21	21:24	10	1	1	96	Spring Peeper	NW	<10m	L3	>15	None
									Wood Frog	W	<20m	L1	5	
	2025-05-26	2	21:47	21:50	15	0	1	67	Wood Frog	W	<20m	L3	N/A	None
									Spring Peeper	W	<20m	L3	N/A	
	2025-06-18	3	21:40	21:43	25	2	1	84	Gray Treefrog	W	<50m	L3	N/A	None
									Green Frog	W	<50m	L1	4	
AC03	2025-04-21	1	21:48	21:51	10	1	1	96	Spring Peeper	NW	<30m	L3	>15	None
									Wood Frog	NW	<30m	L1	4	
	2025-05-26	2	22:00	22:03	15	0	1	67	Gray Treefrog	N	<20m	L3	N/A	None
									Spring Peeper	N	<20m	L3	N/A	
	2025-06-18	3	21:52	21:55	23	2	1	84	Green Frog	SW	<50m	L2	11	Green Frog (L1) >100m S
									Wood Frog	SW	<50m	L1	1	
AC04	2025-04-21	1	22:04	22:07	10	1	2	96	None	N/A	N/A	N/A	N/A	Spring Peeper (L3) >300m W , Wood Frog (L1) >300m W
	2025-05-26	2	22:11	22:14	13	0	2	57	None	N/A	N/A	N/A	N/A	Spring Peeper (L1) >200m SW , Gray Treefrog (L3) >200m SW
	2025-06-18	3	22:05	22:08	23	2	0	84	None	N/A	N/A	N/A	N/A	Gray Treefrog (L3) >300m E
AC05	2025-04-21	1	22:20	22:23	9	1	2	99	None	N/A	N/A	N/A	N/A	Spring Peeper (L1) >200m SE
	2025-05-26	2	22:21	22:24	14	0	2	61	None	N/A	N/A	N/A	N/A	Spring Peeper (L1) >300m SE, American Toad (L1) >300m SE, Wood Frog (L3) >300m SE, Gray Treefrog (L3) >300m SE
	2025-06-18	3	22:13	22:16	22	2	1	86	None	N/A	N/A	N/A	N/A	Gray Treefrog (L1) >100m SE, Green Frog (L1) >200m SE
AC06	2025-04-22	1	20:30	20:33	10	0	0	55	Spring Peeper	NE	<20m	L3	N/A	None
	2025-05-26	2	22:45	22:48	14	0	2	61	None	N/A	N/A	N/A	N/A	Spring Peeper (L1) <200m NE, American Toad (L1) >300m W
	2025-06-18	3	22:36	22:39	21	2	1	86	Green Frog	E	<30m	L3	N/A	Gray Treefrog (L1) <20m W
									Gray Treefrog	NE	<100m	L3	N/A	
AC07	2025-04-23	1	20:46	20:49	8	0	0	58	Spring Peeper	W	<20m	L3	N/A	None
									Wood Frog	NW	<20m	L1	1	
	2025-05-26	2	23:09	23:12	12	0	2	71	Spring Peeper	SW	<20m	L1	6	Gray Treefrog (L3) >200m NE
									Green Frog	W	<30m	L1	2	
	2025-06-23	3	21:11	21:14	32	0	1	37	Green Frog	W	<50m	L1	2	Gray Treefrog (L1) <200m NW
AC08	2025-04-23	1	21:42	21:45	6	0	0	59	Spring Peeper	NW	<10m	L3	N/A	None
	2025-05-27	2	21:34	21:37	15	1	1	40	Spring Peeper	E	<20m	L1	8	Gray Treefrog (L3) <200m E, American Toad (L1) <200m E, Spring Pepper (L1) >100m E, Wood Frog (L2) >100m E
	2025-06-23	3	21:52	21:55	31	0	0	42	Green Frog	NW	<100m	L1	4	None
									Gray Treefrog	NW	<100m	L1	1	
AC09	2025-04-23	1	21:11	21:14	12	1	1	51	Spring Peeper	SW	<50m	L3	N/A	None
									Wood Frog	SW	<50m	L1	3	
									Wood Frog	W	<100m	L1	2	
	2025-05-27	2	22:03	22:06	15	0	1	60	Spring Peeper	SW	<100m	L2	11	Gray Treefrog (L2) <200m N, Green Frog (L1) >200m NW
	2025-06-23	3	22:19	22:22	28	0	0	42	Green Frog	W	<50m	L1	5	Gray Treefrog (L3) <200m S
									Gray Treefrog	W	<50m	L1	2	
AC10	2025-04-24	1	20:30	20:30	16	0	0	73	Spring Peeper	W	<200m	L3	N/A	None
									Wood Frog	W	>200m	L3	N/A	
	2025-05-27	2	22:21	22:24	13	0	1	50	Spring Peeper	NE	<50m	L3	N/A	Gray Treefrog (L2) >200m E
									Gray Treefrog	E	<100m	L1	4	
	2025-06-23	3	22:39	22:42	27	0	0	60	None	N/A	N/A	N/A	N/A	Gray Treefrog (L2) >200m SE
AC11	2025-04-23	1	21:43	21:46	12	2	1	51	Spring Peeper	SW	<50m	L3	N/A	None
									Wood Frog	SW	<50m	L3	N/A	
	2025-05-27	2	22:44	22:47	12	0	1	50	Gray Treefrog	SW	<100m	L1	2	None
									Spring Peeper	SW	<100m	L1	4	
									American Toad	SW	<100m	L1	2	
									Green Frog	SW	<100m	L1	1	
	2025-06-23	3	23:00	23:03	27	0	1	60	Gray Treefrog	E	<50m	L3	N/A	None
									Green Frog	W	<50m	L1	2	
AC12	2025-04-23	1	22:10	22:13	11	2	1	51	None	N/A	N/A	N/A	N/A	None
	2025-05-28	2	21:05	21:08	13	5	2	95	None	N/A	N/A	N/A	N/A	None
	2025-06-23	3	23:12	23:15	27	0	1	58	Gray Treefrog	SW	<100m	L2	12	None
AC13	2025-04-24	1	21:30	21:33	12	0	0	73	None	N/A	N/A	N/A	N/A	Spring peeper (L3), American Toad (L1)
	2025-05-28	2	22:14	22:17	13	5	2	96	None	N/A	N/A	N/A	N/A	Gray Treefrog (L3) >100m E
	2025-06-24	3	21:48	21:51	26	0	1	60	None	N/A	N/A	N/A	N/A	Gray Treefrog (L1) >300m N
AC14	2025-04-24	1	21:48	21:51	12	0	0	73	Spring Peeper	W	<10m	L3	N/A	None
									American Toad	W	<10m	L1	1	
	2025-05-28	2	22:21	22:24	13	5	2	95	Gray Treefrog	W	<40m	L1	1	Spring Peeper (L1) <200m NW
	2025-06-24	3	21:54	21:57	26	0	1	60	Green Frog	W	<40m	L1	5	Gray Treefrog (L1) >300m NW
									Gray Treefrog	NW	<50m	L1	6	
AC15	2025-04-25	1	21:23	21:26	13	2	2	78	Spring Peeper	NE	<20m	L3	N/A	None
									Spring Peeper	NE	<20m	L3	N/A	
	2025-05-28	2	22:35	22:38	12	5	2	95	Spring Peeper	NE	<20m	L2	12	None
	2025-06-24	3	22:08	22:11	26	0	1	66	Green Frog	NE	<30m	L1	4	None
AC16	2025-04-24	1	22:03	22:06	12	0	0	75	Spring Peeper	SW	>300m	L3	N/A	Wood Frog (L1) <10m NW, American Toad (L1) <10m NW
	2025-05-28	2	22:48	22:51	12	5	2	95	None	N/A	N/A	N/A	N/A	Gray Treefrog (L2) >200m E , Spring Peeper (L1) >200m E
	2025-06-24	3	22:21	22:24	25	0	1	61	Green Frog	W	>200m	L1	5	Gray Treefrog (L2) >200m N
									Wood Frog	W	>100m	L1	1	

Station ID	Date	Survey #	Start Time	End Time	Air Temp (°C)	Sky Code[1]	Wind Code[2]	Relative Humidity (%)	Species	Direction	Distance	Call Code[3]	Count	Anurans Outside of Target Feature
AC17	2025-04-25	1	21:02	21:05	13	2	2	85	Wood Frog	SE	>100m	L3	N/A	None
									Spring Peeper	SE	>100m	L3	N/A	
									Wood Frog	SE	>100m	L3	N/A	
									Spring Peeper	SE	>100m	L3	N/A	
	2025-05-28	2	23:10	23:13	11	5	2	95	Gray Treefrog	S	<30m	L3	N/A	None
									Spring Peeper	S	<30m	L1	6	
	2025-06-24	3	22:47	22:50	24	0	2	61	None	N/A	N/A	N/A	N/A	Gray Treefrog (L1) >300m SE
AC18	2025-04-24	1	22:25	22:28	12	0	0	76	None	N/A	N/A	N/A	N/A	Spring Peeper (L1) >300m E, Western Chorus Frog (L3) >300m E
	2025-05-29	2	21:02	21:05	15	2	2	86	None	N/A	N/A	N/A	N/A	None
	2025-06-25	3	21:12	21:15	28	0	1	40	None	N/A	N/A	N/A	N/A	None
AC19	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A - could not complete (no access)
	2025-05-29	2	21:12	21:15	14	2	1	86	Gray Treefrog	W	<30m	L3	N/A	None
									Spring Peeper	W	<40m	L1	2	Spring Peeper (L1) >200m N
	2025-06-25	3	21:29	21:32	26	0	0	47	Green Frog	NW	<100m	L3	N/A	None
AC20	2025-04-25	1	22:35	22:38	13	2	2	84	None	N/A	N/A	N/A	N/A	None
	2025-05-29	2	21:40	21:43	12	2	1	86	None	N/A	N/A	N/A	N/A	Spring Peeper (L3) >200m NW
	2025-06-25	3	21:51	21:54	26	0	0	47	None	N/A	N/A	N/A	N/A	None
AC21	2025-04-25	1	23:10	23:13	12	2	2	84	Spring Peeper	N	>300m	L3	N/A	None
	2025-05-29	2	22:07	22:10	14	2	1	89	Spring Peeper	S	<40m	L3	N/A	None
									Gray Treefrog	S	<40m	L1	3	
									Green Frog	S	<40m	L1	1	
	2025-06-25	3	22:21	22:24	24	0	0	44	None	N/A	N/A	N/A	N/A	None
AC22	2025-04-25	1	23:36	23:39	12	2	2	85	Spring Peeper	W	<10m	L3	N/A	Wood Frog (L1) <30m S
									American Toad	NW	<20m	L1	1	
	2025-05-29	2	22:19	22:21	14	2	1	91	American Toad	SW	<40m	L1	1	Spring Peeper (L2) <200m S, Gray Treefrog (L2) <200m S
	2025-06-25	3	22:35	22:38	24	0	1	44	None	N/A	N/A	N/A	N/A	Gray Treefrog (L1) >300m SE
AC23	2025-04-26	1	21:37	21:40	5	5	3	82	None	N/A	N/A	N/A	N/A	Spring Peeper (L2) >200m N
	2025-05-29	2	22:42	22:45	13	2	1	91	None	N/A	N/A	N/A	N/A	Gray Treefrog (L3) >100m E
	2025-06-25	3	22:56	22:59	24	0	2	46	None	N/A	N/A	N/A	N/A	None
AC24	2025-04-26	1	21:10	21:13	6	5	3	83	None	N/A	N/A	N/A	N/A	Spring Peeper (L3) >300m NE
	2025-05-29	2	23:14	23:17	15	2	1	92	None	N/A	N/A	N/A	N/A	Spring Peeper (L1) <200m E, Gray Treefrog (L2) >300m S
	2025-06-25	3	23:33	23:36	24	1	1	48	Green Frog	E	<200m	L1	2	None
AC25	2025-04-26	1	20:35	20:38	6	5	2	82	None	N/A	N/A	N/A	N/A	Spring Peeper (Unknown)
	2025-05-29	2	22:58	22:01	15	2	1	91	None	N/A	N/A	N/A	N/A	Gray Treefrog (L1) >300m W
	2025-06-25	3	23:14	23:17	25	0	2	46	Green Frog	S	<50m	L2	10	None
AC26	2025-04-23	1	20:27	20:30	13	1	1	51	Spring Peeper	S	<10m	L3	N/A	None
									American Toad	S	<20m	L1	1	
									Wood Frog	SW	<20m	L3	N/A	
	2025-05-26	2	23:27	23:30	11	0	1	77	Wood Frog	E	<10m	L3	N/A	American Toad (L1) >200m E
									Spring Peeper	E	<30m	L2	12	
									American Toad	E	<30m	L1	2	
	2025-06-18	3	23:09	23:12	22	2	0	86	None	N/A	N/A	N/A	N/A	Gray Treefrog (L2) >200m E
AC27	2025-04-25	1	21:39	21:42	14	2	2	73	Spring Peeper	N	<10m	L3	N/A	Spring Peeper (L2) <10m E
									American Toad	N	<20m	L1	2	
	2025-05-28	2	21:42	21:45	13	5	2	95	Gray Treefrog	E	<20m	L3	N/A	None
									Spring Peeper	NE	<20m	L3	N/A	
	2025-06-24	3	21:21	21:24	26	1	1	58	Green Frog	NE	<50m	L1	2	None
									Gray Treefrog	E	<40m	L1	1	
AC28	2025-04-24	1	20:43	20:46	13	0	0	72	Spring Peeper	NW	<10m	L3	N/A	None
									Wood Frog	NW	<10m	L3	N/A	
									American Toad	NW	<10m	L2	1	
	2025-05-27	2	20:58	20:59	16	1	1	44	Gray Treefrog	N	<30m	L3	N/A	Gray Treefrog (L1) <200m E
									Spring Peeper	N	<30m	L3	N/A	
	2025-06-23	3	21:23	21:26	31	0	0	45	None	N/A	N/A	N/A	N/A	None
AC29	2025-04-21	1	20:43	20:46	11	1	1	96	None	N/A	N/A	N/A	N/A	Spring Peeper (L1) >300m NE, Spring Peeper (L2) >300m SW
	2025-05-26	2	21:24	21:27	15	0	1	67	None	N/A	N/A	N/A	N/A	Wood Frog (L3) >300m S, Spring Peeper (L1) >200m S
	2025-06-18	3	21:19	21:22	25	2	1	78	None	N/A	N/A	N/A	N/A	Gray Treefrog (L1) >200m S
AC30	2025-04-23	1	22:23	22:26	11	2	1	56	Wood Frog	N	<20m	L1	1	Spring Peeper (L3) >300m N
	2025-05-27	2	23:03	23:06	12	0	1	50	Spring Peeper	NE	<50m	L1	3	Gray Treefrog (L2) >100m E
									American Toad	NE	<100m	L1	3	
	2025-06-23	3	23:24	23:27	27	0	0	58	None	N/A	N/A	N/A	N/A	Gray Treefrog (L1) >200m N, Gray Treefrog (L2) >200m S

LEGEND

[1] Beaufort Sky Codes

0 = clear (no cloud cover); 1 = partly cloudy (scattered or broken) or variable; 2 = cloudy or overcast; 3 = sandstorm, duststorm or blowing snow; 4 = fog, smoke, thick dust, or haze; 5 = drizzle or light rain; 6 = rain; 7 = snow or snow/rain mix; 8 = showers; 9 = thunderstorms.

[2] Beaufort Wind Scale

0 = calm, smoke rises vertically (0-2 km/hr); 1 = Light air movement, smoke drifts (3-5 km/hr); 2 = Slight breeze, wind felt on face; leaves rustle (6-11 km/hr); 3= Gentle breeze, leaves & twigs in constant motion (12-19 km/hr); 4= Moderate breeze, small branches moving, raises dust & loose paper (20-30 km/hr); 5= Fresh breeze, small trees begin to sway (31-39 km/hr); 6= Strong breeze, large branches in motion (40-50 km/hr).

[3] Call Codes

L1 = Level 1 – individual calls can be counted, no overlap.
L2 = Level 2 – although some calls may overlap, the number of individuals can still be reliably estimated.
L3 = Level 3 – full chorus; calls continuous and overlapping; individuals not distinguishable.

Appendix G: Terrestrial Survey Results – Wildlife

Appendix G, Table 1: Terrestrial Survey Results - Wildlife

Taxon	Common Name	Scientific Name	S-rank[1]	COSSARO Status[2]	ESA Status[3]	COSEWIC Status[4]	SARA Status[5]	SAR / SOCC / SCS	Year Observed
Birds	Alder Flycatcher	*Empidonax alnorum*	S5B	~	~	~	~	~	2024/2025
Amphibians	American Bullfrog	*Lithobates catesbeianus*	S4	~	~	~	~	SCS	2025
Birds	American Crow	*Corvus brachyrhynchos*	S5	~	~	~	~	~	2024/2025
Birds	American Goldfinch	*Spinus tristis*	S5	~	~	~	~	~	2024/2025
Birds	American Kestrel	*Falco sparverius*	S4	~	~	~	~	~	2024/2025
Birds	American Redstart	*Setophaga ruticilla*	S5B	~	~	~	~	~	2024/2025
Birds	American Robin	*Turdus migratorius*	S5	~	~	~	~	~	2024/2025
Amphibians	American Toad	*Anaxyrus americanus*	S5	~	~	~	~	~	2024/2025
Birds	American Woodcock	*Scolopax minor*	S4B	~	~	~	~	~	2025
Birds	Baltimore Oriole	*Icterus galbula*	S4B	~	~	~	~	~	2024/2025
Birds	Bank Swallow	*Riparia riparia*	S4B	THR	THR	THR	THR	SAR	2025
Birds	Barn Swallow	*Hirundo rustica*	S4B	SC	SC	SC	THR	SAR	2024/2025
Mammals	Beaver	*Castor canadensis*	S5	~	~	~	~	SCS	2025
Birds	Belted Kingfisher	*Megaceryle alcyon*	S5B,S4N	~	~	~	~	~	2024/2025
Insects	Black Swallowtail	*Papilio polyxenes*	S5	~	~	~	~	~	2024
Birds	Black-and-white Warbler	*Mniotilta varia*	S5B	~	~	~	~	~	2024/2025
Birds	Black-billed Cuckoo	*Coccyzus erythropthalmus*	S4S5B	~	~	~	~	~	2025
Birds	Black-capped Chickadee	*Poecile atricapillus*	S5	~	~	~	~	~	2024/2025
Birds	Black-throated Green Warbler	*Setophaga virens*	S5B	~	~	~	~	~	2025
Reptiles	Blanding's Turtle	*Emydoidea blandingii*	S3	THR	THR	END	END	SAR, SCS	2025
Birds	Blue Jay	*Cyanocitta cristata*	S5	~	~	~	~	~	2024/2025
Birds	Blue-headed Vireo	*Vireo solitarius*	S5B	~	~	~	~	~	2025
Birds	Blue-winged Warbler	*Vermivora cyanoptera*	S4B	~	~	~	~	~	2025
Birds	Bobolink	*Dolichonyx oryzivorus*	S4B	THR	THR	SC	THR	SAR	2024/2025
Birds	Broad-winged Hawk	*Buteo platypterus*	S5B	~	~	~	~	~	2025
Birds	Brown Thrasher	*Toxostoma rufum*	S4B	~	~	~	~	~	2024/2025
Birds	Brown-headed Cowbird	*Molothrus ater*	S5	~	~	~	~	~	2024/2025
Birds	Canada Goose	*Branta canadensis*	S5	~	~	~	~	~	2024/2025
Insects	Cecropia Moth	*Hyalophora cecropia*	S4S5	~	~	~	~	~	2024
Birds	Cedar Waxwing	*Bombycilla cedrorum*	S5	~	~	~	~	~	2024/2025
Birds	Chestnut-sided Warbler	*Setophaga pensylvanica*	S5B	~	~	~	~	~	2024/2025
Birds	Chipping Sparrow	*Spizella passerina*	S5B,S3N	~	~	~	~	~	2024/2025
Birds	Clay-colored Sparrow	*Spizella pallida*	S4B	~	~	~	~	~	2024/2025
Birds	Common Grackle	*Quiscalus quiscula*	S5	~	~	~	~	~	2024/2025
Birds	Common Raven	*Corvus corax*	S5	~	~	~	~	~	2024/2025
Birds	Common Yellowthroat	*Geothlypis trichas*	S5B,S3N	~	~	~	~	~	2024/2025
Mammals	Coyote	*Canis latrans*	S5	~	~	~	~	SCS	2024/2025
Birds	Dark-eyed Junco	*Junco hyemalis*	S5	~	~	~	~	~	2024/2025
Mammals	Deer Mouse	*Peromyscus maniculatus*	S5	~	~	~	~	~	2025
Birds	Downy Woodpecker	*Dryobates pubescens*	S5	~	~	~	~	~	2024/2025
Birds	Eastern Bluebird	*Sialia sialis*	S5B,S4N	~	NAR	NAR	~	~	2025
Mammals	Eastern Chipmunk	*Tamias striatus*	S5	~	~	~	~	~	2024/2025

Taxon	Common Name	Scientific Name	S-rank[1]	COSSARO Status[2]	ESA Status[3]	COSEWIC Status[4]	SARA Status[5]	SAR / SOCC / SCS	Year Observed
Mammals	Eastern Cottontail	*Sylvilagus floridanus*	S5	~	~	~	~	~	2024
Reptiles	Eastern Gartersnake	*Thamnophis sirtalis sirtalis*	S5	~	~	~	~	~	2024
Mammals	Eastern Gray Squirrel	*Sciurus carolinensis*	S5	~	~	~	~	~	2024/2025
Birds	Eastern Kingbird	*Tyrannus tyrannus*	S4B	~	~	~	~	~	2024/2025
Birds	Eastern Meadowlark	*Sturnella magna*	S4B,S3N	THR	THR	THR	THR	SAR	2024/2025
Birds	Eastern Phoebe	*Sayornis phoebe*	S5B	~	~	~	~	~	2024/2025
Birds	Eastern Towhee	*Pipilo erythrophthalmus*	S4B,S3N	~	~	~	~	~	2024/2025
Birds	Eastern Whip-poor-will	*Antrostomus vociferus*	S4B	SC	SC	THR	THR	SAR	2025
Birds	Eastern Wood-pewee	*Contopus virens*	S4B	SC	SC	SC	SC	SOCC	2024/2025
Insects	European Fire Ant	Myrmica rubra	SNA	~	~	~	~	~	2024
Birds	European Starling	*Sturnus vulgaris*	SNA	~	~	~	~	~	2024/2025
Birds	Field Sparrow	*Spizella pusilla*	S4B,S3N	~	~	~	~	~	2024/2025
Mammals	Fisher	*Pekania pennanti*	S5	~	~	~	~	~	2024/2025
Birds	Golden-winged Warbler	*Vermivora chrysoptera*	S3B	~	SC	THR	THR	SAR	2025
Birds	Grasshopper Sparrow	*Ammodramus savannarum*	S4B	SC	SC	SC	SC	SOCC	2024/2025
Birds	Gray Catbird	*Dumetella carolinensis*	S5B,S3N	~	~	~	~	~	2024/2025
Amphibians	Gray Treefrog	*Dryophytes versicolor*	S5	~	~	~	~	~	2024/2025
Birds	Great Blue Heron	*Ardea herodias*	S4	~	~	~	~	~	2025
Birds	Great Crested Flycatcher	*Myiarchus crinitus*	S5B	~	~	~	~	~	2024/2025
Amphibians	Green Frog	*Lithobates clamitans*	S5	~	~	~	~	SCS	2024/2025
Birds	Green Heron	*Butorides virescens*	S4B	~	~	~	~	~	2024/2025
Birds	Hairy Woodpecker	*Dryobates villosus*	S5	~	~	~	~	~	2024/2025
Birds	Hermit Thrush	*Catharus guttatus*	S5B,S4N	~	~	~	~	~	2024
Birds	Horned Lark	*Eremophila alpestris*	S4	~	~	~	~	~	2025
Birds	House Finch	*Haemorhous mexicanus*	SNA	~	~	~	~	~	2024
Birds	House Sparrow	*Passer domesticus*	SNA	~	~	~	~	~	2025
Birds	House Wren	*Troglodytes aedon*	S5B	~	~	~	~	~	2024/2025
Birds	Indigo Bunting	*Passerina cyanea*	S5B	~	~	~	~	~	2024/2025
Birds	Killdeer	*Charadrius vociferus*	S4B	~	~	~	~	~	2024/2025
Birds	Least Flycatcher	*Empidonax minimus*	S5B	~	~	~	~	~	2025
Birds	Magnolia Warbler	*Setophaga magnolia*	S5B	~	~	~	~	~	2025
Birds	Mallard	*Anas platyrhynchos*	S5	~	~	~	~	~	2024/2025
Mammals	Meadow Vole	*Microtus pennsylvanicus*	S5	~	~	~	~	~	2025
Reptiles	Midland Painted Turtle	*Chrysemys picta marginata*	S4	~	~	SC	SC	SOCC, SCS	2025
Insects	Monarch	*Danaus plexippus*	S2N,S4B	SC	SC	END	END	SAR	2024/2025
Birds	Mourning Dove	*Zenaida macroura*	S5	~	~	~	~	~	2024/2025
Birds	Mourning Warbler	*Geothlypis philadelphia*	S5B	~	~	~	~	~	2024/2025
Mammals	Muskrat	*Ondatra zibethicus*	S5	~	~	~	~	SCS	2025
Birds	Northern Cardinal	*Cardinalis cardinalis*	S5	~	~	~	~	~	2024/2025
Birds	Northern Flicker	*Colaptes auratus*	S5	~	~	~	~	~	2024/2025
Birds	Northern Harrier	*Circus hudsonius*	S5B,S4N	~	NAR	NAR	~	~	2024
Amphibians	Northern Leopard Frog	*Lithobates pipiens*	S5	~	NAR	NAR	~	~	2024/2025
Mammals	Northern Raccoon	*Procyon lotor*	S5	~	~	~	~	~	2024/2025

Taxon	Common Name	Scientific Name	S-rank[1]	COSSARO Status[2]	ESA Status[3]	COSEWIC Status[4]	SARA Status[5]	SAR / SOCC / SCS	Year Observed
Birds	Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	S4B	~	~	~	~	~	2025
Birds	Northern Waterthrush	*Parkesia noveboracensis*	S5B	~	~	~	~	~	2024/2025
Birds	Osprey	*Pandion haliaetus*	S5B	~	~	~	~	~	2024/2025
Birds	Ovenbird	*Seiurus aurocapilla*	S5B	~	~	~	~	~	2024/2025
Birds	Pine Siskin	*Spinus pinus*	S5						2024
Birds	Pine Warbler	*Setophaga pinus*	S5B,S3N	~	~	~	~	~	2024/2025
Mammals	Porcupine	*Erethizon dorsatum*	S5	~	~	~	~	SCS	2024/2025
Birds	Purple Finch	*Haemorhous purpureus*	S5	~	~	~	~	~	2024/2025
Mammals	Red Fox	*Vulpes vulpes*	S5	~	~	~	~	SCS	2025
Mammals	Red Squirrel	*Tamiasciurus hudsonicus*	S5	~	~	~	~	~	2024/2025
Birds	Red-bellied Woodpecker	*Melanerpes carolinus*	S5	~	~	~	~	~	2024/2025
Birds	Red-breasted Nuthatch	*Sitta canadensis*	S5	~	~	~	~	~	2024/2025
Birds	Red-eyed Vireo	*Vireo olivaceus*	S5B	~	~	~	~	~	2024/2025
Birds	Red-shouldered Hawk	*Buteo lineatus*	S4B,S2N		NAR	NAR			2024
Birds	Red-tailed Hawk	*Buteo jamaicensis*	S5	~	NAR	NAR	~	~	2024/2025
Birds	Red-winged Blackbird	*Agelaius phoeniceus*	S5	~	~	~	~	SCS	2024/2025
Birds	Ring-billed Gull	*Larus delawarensis*	S5	~	~	~	~	~	2024/2025
Birds	Rock Pigeon	*Columba livia*	SNA	~	~	~	~	~	2024/2025
Birds	Rose-breasted Grosbeak	*Pheucticus ludovicianus*	S5B	~	~	~	~	~	2024/2025
Birds	Ruby-crowned Kinglet	*Corthylio calendula*	S5B,S3N	~	~	~	~	~	2024
Birds	Ruby-throated Hummingbird	*Archilochus colubris*	S5B	~	~	~	~	~	2025
Birds	Ruffed Grouse	*Bonasa umbellus*	S5						2024
Birds	Sandhill Crane	*Antigone canadensis*	S5B,S3N						2024
Birds	Savannah Sparrow	*Passerculus sandwichensis*	S5B,S3N	~	~	~	~	~	2024/2025
Birds	Scarlet Tanager	*Piranga olivacea*	S5B	~	~	~	~	~	2025
Reptiles	Snapping Turtle	*Chelydra serpentina*	S4	~	SC	SC	SC	SOCC, SCS	2024/2025
Birds	Song Sparrow	*Melospiza melodia*	S5	~	~	~	~	~	2024/2025
Birds	Sora	*Porzana carolina*	S5B						2024
Amphibians	Spring Peeper	*Pseudacris crucifer*	S5	~	~	~	~	~	2024/2025
Birds	Swamp Sparrow	*Melospiza georgiana*	S5B,S4N	~	~	~	~	~	2024/2025
Birds	Tree Swallow	*Tachycineta bicolor*	S4S5B	~	~	~	~	~	2024
Birds	Turkey Vulture	*Cathartes aura*	S5B,S3N	~	~	~	~	~	2024/2025
Birds	Veery	*Catharus fuscescens*	S5B	~	~	~	~	~	2025
Birds	Vesper Sparrow	*Pooecetes gramineus*	S4B	~	~	~	~	~	2024/2025
Insects	Viceroy	*Limenitis archippus*	S5	~	~	~	~	~	2024
Birds	Warbling Vireo	*Vireo gilvus*	S5B	~	~	~	~	~	2024/2025
Amphibians	Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield population	*Pseudacris triseriata pop. 1*	S4	~	~	THR	THR	SAR	2025
Insects	White Admiral	*Limenitis arthemis arthemis*	S5	~	~	~	~	~	2024
Birds	White-breasted Nuthatch	*Sitta carolinensis*	S5	~	~	~	~	~	2024
Mammals	White-tailed Deer	*Odocoileus virginianus*	S5	~	~	~	~	SCS	2024/2025
Birds	White-throated Sparrow	*Zonotrichia albicollis*	S5						2024
Birds	Wild Turkey	*Meleagris gallopavo*	S5	~	~	~	~	~	2024/2025
Birds	Willow Flycatcher	*Empidonax traillii*	S4B	~	~	~	~	~	2024/2025

Taxon	Common Name	Scientific Name	S-rank[1]	COSSARO Status[2]	ESA Status[3]	COSEWIC Status[4]	SARA Status[5]	SAR / SOCC / SCS	Year Observed
Birds	Winter Wren	*Troglodytes hiemalis*	S5B,S4N	~	~	~	~	~	2025
Birds	Wood Duck	*Aix sponsa*	S5B,S3N	~	~	~	~	~	2024/2025
Amphibians	Wood Frog	*Lithobates sylvaticus*	S5	~	~	~	~	~	2024/2025
Birds	Wood Thrush	*Hylocichla mustelina*	S4B	SC	SC	THR	THR	SAR	2025
Mammals	Woodchuck	*Marmota monax*	S5	~	~	~	~	~	2025
Birds	Yellow Warbler	*Setophaga petechia*	S5B	~	~	~	~	~	2024/2025
Birds	Yellow-bellied Sapsucker	*Sphyrapicus varius*	S5B,S3N	~	~	~	~	~	2024/2025
Birds	Yellow-billed Cuckoo	*Coccyzus americanus*	S4B	~	~	~	~	~	2024
Birds	Yellow-rumped Warbler	*Setophaga coronata*	S5B,S4N	~	~	~	~	~	2024/2025

WILDLIFE LIST LEGEND

[1] S-Rank (provincial)

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.

S1	Critically Imperiled - Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
S2	Imperiled - Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
S3	Vulnerable - Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4	Apparently Secure - Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5	Secure - Common, widespread, and abundant in the nation or state/province.
S#S#	Range Rank - A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
SAN	Non-breeding accidental.
SE	Exotic - not believed to be a native component of Ontario's fauna.
SZN	Non-breeding migrants/vagrants.
SZB	Breeding migrants/vagrants.

[2] COSSARO (Committee on the Status of Species at Risk in Ontario) Status

The provincial review process is implemented by COSSARO (Status as of January 2025).

COSSARO is an independent advisory panel to the Ontario Ministry of Environment, Conservation and Parks (MECP) that assesses the status of species at risk of extinction.
http://cossaroagency.ca/

COSSARO Conservation Status Ranks

EXT	Extinct - A species that no longer exists anywhere in the world.
EXP	Extirpated - A species that lives somewhere in the world, lived at one time in the wild in Ontario, but no longer lives in the wild in Ontario.
END	Endangered - A species that is facing imminent Extinction or extirpation.
THR	Threatened - A species that is likely to become Endangered if steps are not taken to address factors threatening to lead to its Extinction or extirpation.
SC	Special Concern – A species that may become Threatened or Endangered because of a combination of biological characteristics and identified threats.

[3] ESA (Endangered Species Act) Status

Provincial status from MECP (Status as of January 2025)

https://www.ontario.ca/page/species-risk-ontario

ESA Conservation Status Ranks

EXT	Extinct - A species that no longer exists anywhere in the world.
EXP	Extirpated - A species that lives somewhere in the world, lived at one time in the wild in Ontario, but no longer lives in the wild in Ontario.
END	Endangered - A species that is facing imminent Extinction or extirpation.
THR	Threatened - A species that is likely to become Endangered if steps are not taken to address factors threatening to lead to its Extinction or extirpation.
SC	Special Concern – A species that may become Threatened or Endangered because of a combination of biological characteristics and identified threats.

[4] COSEWIC (Committee on the Status of Endangered Wildlife in Canada) Status

The federal review process is implemented by COSEWIC (Status as of May 2025)

COSEWIC is an independent advisory panel to the Minister of Environment and Climate Change Canada that meets twice a year to assess the status of wildlife species at risk of extinction.
https://www.cosewic.ca/index.php/en-ca/

COSEWIC Conservation Status Ranks

EXT	Extinct - A species that no longer exists.
EXP	Extirpated - A species no longer existing in the wild in Canada, but occurring elsewhere.
END	Endangered - A species facing imminent extirpation or Extinction.
THR	Threatened - A species likely to become Endangered if limiting factors are not reversed.
SC	Special Concern (formerly vulnerable) - A species that may become a Threatened or an Endangered species because of a combination of biological characteristics and identified threats.
NAR	Not At Risk - A species that has been evaluated and found to be not at risk of Extinction given the current circumstances.
DD	Data Deficient (formerly Indeterminate) - Available information is insufficient to resolve a species' eligibility for assessment or to permit an assessment of the species' risk of Extinction.

[5] SARA (Species at Risk Act) Status and Schedule

Federal status from the Government of Canada's Species at Risk Public Registry (Status as of June 2024)
https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html

The Act establishes Schedule 1, as the official list of wildlife species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or a Special Concern. Once listed, the measures to protect and recover a listed wildlife species are implemented.

EXT	Extinct - A wildlife species that no longer exists.
EXP	Extirpated - A wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
END	Endangered - A wildlife species that is facing imminent extirpation or Extinction.
THR	Threatened - A wildlife species that is likely to become Endangered if nothing is done to reverse the factors leading to its extirpation or Extinction.
SC	Special Concern - A wildlife species that may become a Threatened or an Endangered species because of a combination of biological characteristics and identified threats.

Schedule 1: is the official list of species that are classified as Extirpated, Endangered, Threatened and Special Concern.
Schedule 2: species listed in Schedule 2 are species that had been designated as Endangered or Threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
Schedule 3: species listed in Schedule 3 are species that had been designated as Special Concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

The Act establishes Schedule 1 as the official list of wildlife species at risk. However, please note that while Schedule 1 lists species that are Extirpated, Endangered, Threatened and Special Concern, the prohibitions do not apply to species of Special Concern.

Species that were designated at risk by COSEWIC prior to October 1999 (Schedule 2 & 3) must be reassessed using revised criteria before they can be considered for addition to Schedule 1 of SARA. After they have been assessed, the Governor in Council may on the recommendation of the Minister, decide on whether or not they should be added to the List of Wildlife Species at Risk.

Appendix H: Hydrological, Hydraulic and Geomorphological Characteristics of Project Watercourse Crossings

Table H-1: Hydrological, Hydraulic and Geomorphological Characteristics of Project Watercourse Crossings

Crossing ID	Name of Watercourse or Drainage Feature	Drainage Area [ha]	Data Collection Method	General Channel Characteristics	Surveyed Parameters at Crossing Location (August 13 to 15, October 2 to 3, 2024, and June 3 to 5, 2025)				Zone 17N UTM (NAD 83)	
					Wetted Width [m]	Wetted Depth [m]	Bankfull Width [m]	Bankfull Depth [m]	Northing [m]	Easting [m]
WC-1000.01	-	19.74	Desktop and Field Verified	Dry meadow, potential marsh area. No defined channel present with no open water observed during field reconnaissance.	-	-	-	-	673096	4872840
WC-1001	-	34.18	Desktop	Small ponded area. Intermittent stream according to Ontario Hydro Network dataset (MNRF 2022c).	<1 (a)	-	<2 (a)	-	673406	4873889
WC-1003.01	-	-(b)	Desktop and Field Verified	Pond/wetland area. No defined channel or flowing water observed. All culverts in the area were dry during field reconnaissance.	<1 (a)	-	<2 (a)	-	673397	4874136
WC-1004	-	55.26	Desktop	Intermittent stream according to Ontario Hydro Network dataset (MNRF 2022c).	<1 (a)	-	<2 (a)	-	673324	4874719
WC-1004.01	-	3.12	Desktop	Unmapped water feature. Appears to be a small drainage feature. Potential ephemeral stream.	<1 (a)	-	<2 (a)	-	673345	4874533
WC-1004.02	-	16.70	Desktop	Unmapped water feature. Appears to be a small drainage feature. Potential ephemeral stream.	<1 (a)	-	<2 (a)	-	673187	4875119
WC-1007	-	13.96	Desktop and Field Verified	Swamp/marsh area. No defined channel observed field reconnaissance. Appears to be a small drainage feature.	<1	-	<2	-	672698	4876458
WC-1008	Bowmanville Creek	29.37	Desktop and Field Verified	Small ephemeral stream watercourse with poorly defined bed and banks. Appears to be a headwater feature, confined within a steep valley. Low pooled flow for 100 m transitioning to subsurface flow downstream. Iron staining and watercress present throughout indicating potential groundwater influence. Low flow at the time of survey with no fish potential due to subsurface flow downstream.	0.25	0.03	0.7	0.04	673207	4876908
WC-1009	Bowmanville Creek	22.47	Desktop	Tributary of Bowmanville Creek. Small permanent stream.	<1 (a)	-	<2 (a)	-	673602	4877196
WC-1009.01	-	17.41	Desktop and Field Verified	Marsh area with no defined channel or flowing water. Small shallow pools present, suggesting a potential ephemeral drainage feature.	<1 (a)	-	<2 (a)	-	673811	4877349
WC-1013	Bowmanville Creek	585.70	Desktop	Tributary of Bowmanville Creek. Small permanent stream.	2.5	-	5	-	674286	4877693
WC-1014	Bowmanville Creek	67.36	Desktop	Tributary of Bowmanville Creek. Small permanent stream.	<1 (a)	-	<2 (a)	-	674743	4878026
WC-1015	Bowmanville Creek	6.22	Desktop	Tributary of Bowmanville Creek. Small ponded area.	30	-	54	-	675399	4878502
WC-1019	Bowmanville Creek	6.24	Desktop	Tributary of Bowmanville Creek. Appears to be a small drainage feature. Potential ephemeral stream.	<1 (a)	-	<2 (a)	-	675580	4878634
WC-1019.01	-	0.08	Desktop	Unmapped water feature. Appears to be a small drainage feature.	9.2	-	9.9	-	675603	4878650
WC-1020	Bowmanville Creek	30.77	Desktop	Tributary of Bowmanville Creek. Appears to be a small drainage feature. Potential ephemeral stream.	<1 (a)	-	<2 (a)	-	675777	4878779
WC-1023	-	1331.71	Desktop	Permanent stream according to OHN permanency information (2024d). Small, ponded areas located at the water crossing as well.	1	-	2	-	679528	4882463
WC-1024	-	41.75	Desktop	Permanent stream according to OHN permanency information (2024d). Appears to be a headwater feature. Potential ephemeral stream based on aerial imagery.	1	-	2	-	679983	4882938
WC-1025	-	281.12	Desktop and Field Verified	Small permanent stream with moderately defined bed and banks. Stream appears to flow northwest through the crossing location. Consistent channel morphology throughout the channel reach. Some areas of diffused wetland and located within low-lying area, however a distinct channel was visible during the field reconnaissance.	0.6	0.16	0.8	0.17	680402	4883379
WC-1029	-	553.24	Desktop and Field Verified	Large pooling wetland area. Appears to be a small permanent watercourse with poorly defined bed and banks. Too deep to wade during the field reconnaissance. Possible beaver dams obstructing flow along the channel as observed on aerial imagery.	3.4	-	5.5	-	681786	4884723

Crossing ID	Name of Watercourse or Drainage Feature	Drainage Area [ha]	Data Collection Method	General Channel Characteristics	Surveyed Parameters at Crossing Location (August 13 to 15, October 2 to 3, 2024, and June 3 to 5, 2025)				Zone 17N UTM (NAD 83)	
					Wetted Width [m]	Wetted Depth [m]	Bankfull Width [m]	Bankfull Depth [m]	Northing [m]	Easting [m]
WC-1029.01	-	0.12	Desktop and Field Verified	No defined channel observed. Appears to be branching channels stemming out from WC-1029. Possible ruts from recreation vehicles along the ROW.	-	-	-	-	681759	4884699
WC-1029.02	-	11.40	Desktop and Field Verified	Dry meadow/marsh. No defined channel visible during field reconnaissance.	-	-	-	-	681929	4884851
WC-1030	-	25.27	Desktop and Field Verified	Dry meadow/marsh. No defined channel visible during field reconnaissance.	-	-	-	-	682548	4885406
WC-1031.01	-	9.14	Desktop and Field Verified	No defined channel due to lack of bed and banks within the swamp area. Appears to be tire tracks (i.e., ruts) from recreational vehicles. No connection to surrounding watercourses or waterbodies was visible during field reconnaissance.	-	-	-	-	682336	4885216
WC-1033	Pigeon River	1819.69	Desktop and Field Verified	Large sized permanent flowing stream with well-defined bed and banks, moderate entrenchment, and mostly stable channel conditions. Watercourse was too deep to wade during field reconnaissance.	2.4	-	3.3	-	683431	4886198
WC-1033.01	-	0.18	Desktop and Field Verified	Swamp/marsh ponded area. Open water present in small depression between confined slopes on the east and west side of crossing location. No flow observed during field reconnaissance. Dense wetland vegetation within the area indicates a potential outlet to the south, but no evidence of a channel was observed.	-	-	-	-	683415	4886184
WC-1033.02	-	0.17	Desktop and Field Verified	Swamp/marsh ponded area. Wetland with open standing water observed during field reconnaissance. Appears to be a groundwater influenced pond at the edge of the Pigeon River swamp/marsh area. Too deep to wade at time of field reconnaissance.	20	-	24	-	683294	4886074
WC-1034	-	95.52	Desktop	Permanent stream according to OHN permanency information (2024d).	1	-	1.5	-	684492	4887152
WC-1034.01	-	-	Desktop and Field Verified	Unmapped water feature. Appears to be a small, isolated ponded drainage feature, with no visible inlet or outlet.	25	0.5	30-	0.6-	684406	4887076
WC-1036	-	- [(b)]	Desktop	Feature appears to be a small permanent watercourse / drainage feature with poorly defined bed and banks.	0.5	-	1.3	-	684693	4887335
WC-1037	-	328.94	Desktop	Feature appears to be a small permanent watercourse / drainage feature with moderately defined bed and banks.	1	-	3	-	685105	4887707
WC-1037.01	-	3.05	Desktop	Unmapped water feature. Appears to be a small, ponded drainage feature.	<1 [(a)]	-	13	-	685240	4887825
WC-1038	-	502.72	Desktop	Permanent stream.	<1 [(a)]	-	<2 [(a)]	-	686397	4888865
WC-1038.01	-	3.03	Desktop and Field Verified	No channel or water present. Farmers field/forested area. Relatively flat topography.	<1 [(a)]	-	10	-	686036	4888542
WC-1040	-	203.43	Desktop and Field Verified	Cattail marsh with pooling water. No defined channel observed during field reconnaissance. Sheen and iron staining, likely groundwater influenced, observed within ponded area.	-	-	-	-	687176	4889566
WC-1041	-	141.64	Desktop	Permanent stream.	<1 [(a)]	-	<2 [(a)]	-	690819	4892844
WC-1041.01	-	39.47	Desktop and Field Verified	Constructed isolated pond. No outlet observed. Wetted depth likely greater than 1 m. Pond was too deep to wade during field reconnaissance.	22	>1	28		691133	4893127
WC-1042	-	258.83	Desktop	Permanent stream.	<1 [(a)]	-	<2 [(a)]	-	691711	4893645
WC-1043	-	41.18	Desktop	Permanent stream.	<1 [(a)]	-	<2 [(a)]	-	691946	4893857
WC-1044	Fleetwood Creek	2437.96	Desktop and Field Verified	Large sized permanent stream with moderately defined bed and banks, moderate entrenchment and mostly stable channel conditions (i.e., some evidence of large organic debris and exposed tree roots along banks). The channel morphology was consistent throughout the stream, with variances in wetted widths based on the surrounding floodplain and riparian vegetation. Watercress was present throughout the stream.	7.2	0.45	7.43	0.588	693272	4894956
WC-1044.01	-	3.90	Desktop	Unmapped water feature.	3.3	-	5.3	-	693175	4894878
WC-1045	-	474.67	Desktop	Permanent stream.	<1 [(a)]	-	<2 [(a)]	-	693963	4895516

Crossing ID	Name of Watercourse or Drainage Feature	Drainage Area [ha]	Data Collection Method	General Channel Characteristics	Surveyed Parameters at Crossing Location (August 13 to 15, October 2 to 3, 2024, and June 3 to 5, 2025)				Zone 17N UTM (NAD 83)	
					Wetted Width [m]	Wetted Depth [m]	Bankfull Width [m]	Bankfull Depth [m]	Northing [m]	Easting [m]
WC-1046	-	128.90	Desktop and Field Verified	Cattail marsh with ponded open water. No defined channel observed during field reconnaissance. Sheen and iron staining, likely groundwater influenced, observed within ponded area.	-	-	-	-	694129	4895651
WC-1046.01	-	-	Desktop and Field Verified	Cattail marsh with ponded open water. No defined channel observed during field reconnaissance. Sheen and iron staining, likely groundwater influenced, observed within ponded area.	-	-	-	-	694070	4895603
WC-1047	-	63.50	Desktop	Permanent stream.	<1 [a]	-	<2 [a]	-	694886	4896267
WC-1048	-	45.73	Desktop	Permanent stream.	<1 [a]	-	<2 [a]	-	695501	4896768
WC-1049	-	14.50	Desktop	Permanent stream.	<1 [a]	-	<2 [a]	-	696396	4897496
WC-1052	-	- [b]	Desktop	Permanent stream.	<1 [a]	-	<2 [a]	-	696370	4897474
WC-1053	-	3.21	Desktop	Permanent stream.	<1 [a]	-	<2 [a]	-	696461	4897548
WC-1054.01	-	1.84	Desktop and Field Verified	Farmer's field, completely dry with no defined channel observed during field reconnaissance.	-	-	-	-	696582	4897647
WC-1055	-	783.12	Desktop	Permanent stream.	2.2	-	3.3	-	696888	4897896
WC-1055.01	-	9.67	Desktop and Field Verified	Unmapped water feature with moderately defined channel and open wetland habitat area.	1.75	0.16	7.7	0.2	696807	4897830
WC-1056	-	77.22	Desktop	Permanent stream.	<1 [a]	-	<2 [a]	-	698098	4898873
WC-1058	-	223.13	Desktop	Permanent stream.	2	-	4	-	699405	4899939
WC-1058.01	-	28.50	Desktop and Field Verified	Shallow wetland with no defined channel or flowing water observed during field reconnaissance.	-	-	-	-	699214	4899783
WC-1058.02	-	1.38	Desktop and Field Verified	Large wetland area with no access to assumed channel approximately 70 m downstream. Too deep to wade during field reconnaissance.	-	-	-	-	699323	4899873
WC-1058.03	-	1.34	Desktop and Field Verified	No defined channel. Shallow pooled water observed intermittently along fence line on cattle/animal trail during field reconnaissance.	-	-	-	-	698967	4899582
WC-1058.04	-	13.12	Desktop	Unmapped water feature.	<1 [a]	-	<2 [a]	-	699520	4900033
WC-1059	-	31.32	Desktop	Permanent stream.	<1 [a]	-	<2 [a]	-	699923	4900359
WC-1060	-	56.13	Desktop and Field Verified	Small sized intermittent stream with moderately defined bed and banks, slight entrenchment and transitional channel conditions (i.e., evidence of aggradation, scouring, large organic debris and multiple channel threads observed during field reconnaissance). Channel consists of a series of runs and pools through a confined valley with dense overhanging vegetation.	0.8	0.13	1	0.24	701016	4901255
WC-1061	-	70.92	Desktop and Field Verified	Small sized intermittent stream with poorly defined bed and banks. Channel located within a valley. Open water present from roadway to the crossing location, however the channel was dry downstream of the crossing. The landowner indicated flow is diverted by tile drains and is generally dry throughout the year.	0.5	0.02	15.1	2.38	701279	4901469
WC-1061.01	-	0.49	Desktop and Field Verified	No defined channel observed during field reconnaissance. Location appeared to be a dry field with no evidence of historical pooling or channels.	-	-	-	-	701261	4901454
WC-1062.01	-	1.52	Desktop and Field Verified	No defined channel observed during field reconnaissance. Location appeared to be a dry field with no evidence of historical pooling or channels.	-	-	-	-	704051	4904171
WC-1063	-	34.23	Desktop and Field Verified	Farmer's field, completely dry with no defined channel observed during field reconnaissance.	-	-	-	-	704305	4904512
WC-1064	-	7.75	Desktop and Field Verified	Farmer's field, completely dry with no defined channel observed during field reconnaissance.	-	-	-	-	704342	4904562
WC-1065	-	6.74	Desktop and Field Verified	Small ephemeral stream (suspected agricultural swale/ditch) with moderately defined bed and banks, slight entrenchment, and mostly stable channel conditions (i.e., densely vegetated). Channel was dry at time of field reconnaissance.	-		1.5		704489	4904756

Crossing ID	Name of Watercourse or Drainage Feature	Drainage Area [ha]	Data Collection Method	General Channel Characteristics	Surveyed Parameters at Crossing Location (August 13 to 15, October 2 to 3, 2024, and June 3 to 5, 2025)				Zone 17N UTM (NAD 83)	
					Wetted Width [m]	Wetted Depth [m]	Bankfull Width [m]	Bankfull Depth [m]	Northing [m]	Easting [m]
WC-1066	Jackson Creek	4920.30	Desktop	Jackson Creek, permanent stream.	9	-	15	-	704721	4905063
WC-1066.01	-	- (b)	Desktop and Field Verified	Swamp/marsh ponded area. Wetland with shallow open standing water observed during field reconnaissance. No defined channel present.	-	-	-	-	704712	4905051
WC-1066.02	-	57.53	Desktop	Unmapped water feature.	<1 (a)	-	<2 (a)	-	705294	4905824
WC-1067	-	49.84	Desktop	Permanent stream.	<1 (a)	-	<2 (a)	-	706593	4907550
WC-1071	-	2922.98	Desktop	Permanent stream.	2.8	-	5.6	-	707708	4909068

Notes:

(a) Watercourse/waterbody characteristics are based on desktop analysis. Wetted and bankfull widths are based on conservative estimates and were assessed using topographic and aerial imagery.

(b) Reliable estimates of drainage area were not possible due to the small size of these features and the generally muted (flat) topography in the local area.

Appendix I: Aquatic Photo Logs



Photograph 1: Eastern view of water crossing WC-1000.01. (August 2024).



Photograph 2: Western view of water crossing WC-1000.01. (August 2024).



Photograph 3: Western view of water crossing WC-1007. (August 2024).



Photograph 4: Eastern view of water crossing WC-1007. (August 2024).



Photograph 5: Northern / Upstream view of water crossing WC-1008. (August 2024).



Photograph 6: Southern / Downstream view of water crossing WC-1008. (August 2024).



Photograph 7: Northern / Upstream view of water crossing WC-1025. (August 2024).



Photograph 8: Southern / Downstream view of water crossing WC-1025. (August 2024).



Photograph 9: Northeastern view of water crossing WC-1029. (August 2024).



Photograph 10: Southwestern view of water crossing WC-10029. (August 2024).



Photograph 11: Eastern view of water crossing WC-1029.01. (October 2024).



Photograph 12: Western view of water crossing WC-1029.01. (October 2024).



Photograph 13: Southern view of water crossing WC-1029.02. (October 2024).



Photograph 14: Eastern view of water crossing WC-1029.02. (October 2024).



Photograph 15: Northeastern view of water crossing WC-1030. (October 2024).



Photograph 16: Southwestern view of water crossing WC-1030. (October 2024).



Photograph 17: Western view of water crossing WC-1031.01. (August 2024).



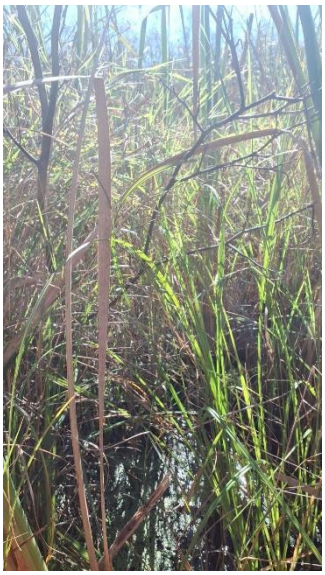
Photograph 18: Eastern view of water crossing WC-1031.01. (August 2024).



Photograph 19: Northern / Downstream view of water crossing WC-1033. (August 2024).



Photograph 20: Southern / Upstream view of water crossing WC-1033. (August 2024).



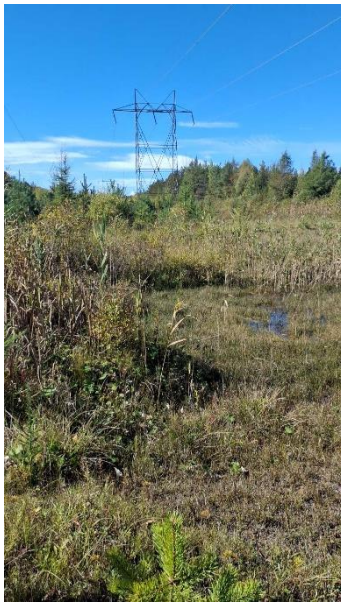
Photograph 21: Southern view of water crossing WC-1033.01. (October 2024).



Photograph 22: View of substrate and water depth at water crossing WC-1033.01. (October 2024).



Photograph 23: Southern view of water crossing WC-1033.02. (October 2024).



Photograph 24: Western view of water crossing WC-1033.02. (October 2024).



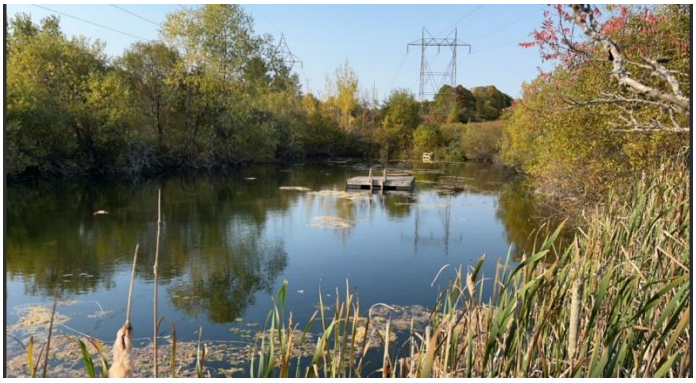
Photograph 25: Eastern view of water crossing WC-1040. (August 2024).



Photograph 26: Eastern view of water crossing WC-1040. (August 2024).



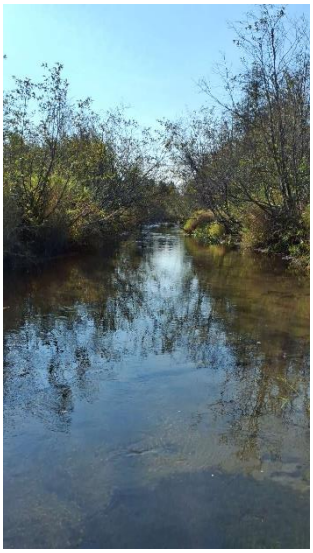
Photograph 27: Southern view of water crossing WC-1041.01. (October 2024).



Photograph 28: Northeastern view of water crossing WC-1041.01. (October 2024).



Photograph 29: Northern / Downstream view of water crossing WC-1044. (August 2024).



Photograph 30: Southern / Upstream view of water crossing WC-1044. (August 2024).



Photograph 31: Northern / Upstream view of water crossing WC-1046. (August 2024).



Photograph 32: Eastern view of water crossing WC-1046 from roadway. (August 2024).



Photograph 33: Northeastern view of water crossing WC-1046.01. (August 2024).



Photograph 34: Western view of water crossing WC-1046.01. (August 2024).



Photograph 35: Southern / Upstream view of water crossing WC-1060. (August 2024).



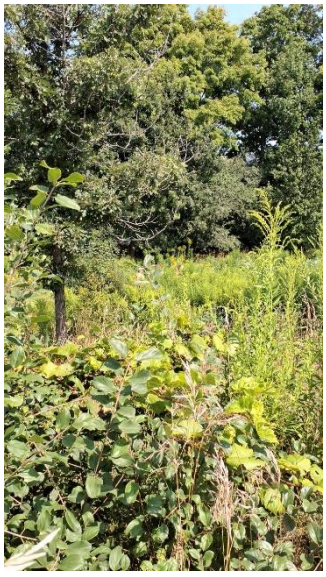
Photograph 36: Northern / Downstream view of water crossing WC-1060. (August 2024).



Photograph 37: Southern / Upstream view of water crossing WC-1061. (August 2024).



Photograph 38: Northern / Downstream view of water crossing WC-1061. (August 2024).



Photograph 37: Eastern view of water crossing WC-1061.01. (August 2024).



Photograph 38: Western view of water crossing WC-1061.01. (August 2024).



Photograph 39: Eastern view of water crossing WC-1062.01. (August 2024).



Photograph 40: Western view of water crossing WC-1062.01. (August 2024).



Photograph 41: Southern view of water crossing WC-1065. (October 2024).



Photograph 42: Northeastern view of water crossing WC-1065. (October 2024).



Photograph 43: Southern view of water crossing WC-1066.01. (October 2024).



Photograph 44: Western view of water crossing WC-1066.01. (October 2024).



Photograph 45: Downstream / Western view of water crossing WC-1003.01. (June 2025).



Photograph 46: Upstream / Western view of water crossing WC-1003.01. (June 2025).



Photograph 47: Upstream/ Eastern view of water crossing WC-1009.01. (June 2025).



Photograph 48: Downstream / Southern view of water crossing WC-1009.01. (June 2025).



Photograph 49: Eastern view of water crossing WC-1034.01. (June 2025).



Photograph 50: Western view of water crossing WC-1034.01. (June 2025).



Photograph 51: Eastern view of water crossing WC-1038.01. (June 2025).



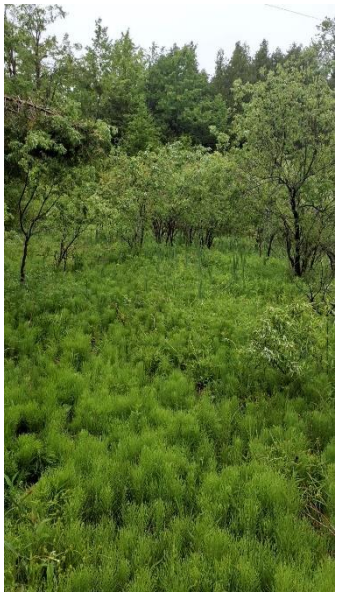
Photograph 52: Western view of water crossing WC-1038.01. (June 2025).



Photograph 53: Southeastern view of water crossing WC-1054.01. (June 2025).



Photograph 54: Northwestern view of water crossing WC-1054.01. (June 2025).



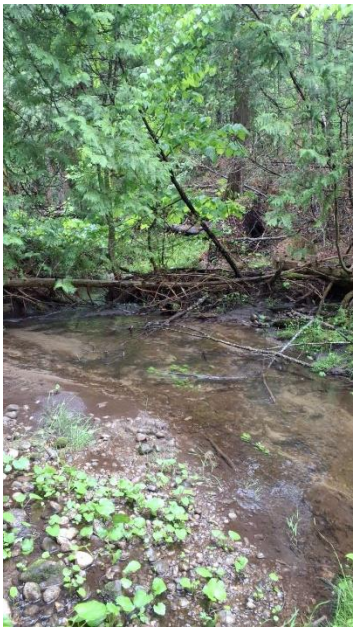
Photograph 55: Upstream / Northern view of water crossing WC-1055.01. (June 2025).



Photograph 56: Downstream / Southern view of water crossing WC-1055.01. (June 2025).



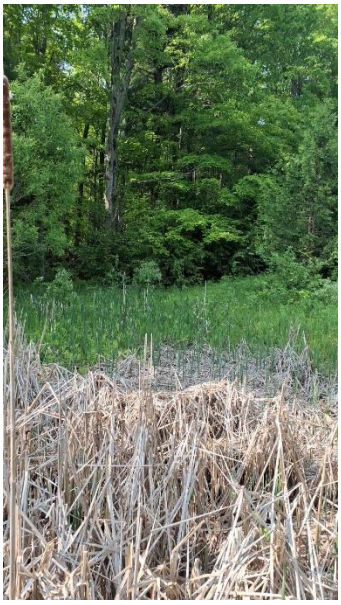
Photograph 57: Downstream habitat of water crossing WC-1055.01. (June 2025).



Photograph 58: Downstream habitat of water crossing WC-1055.01. (June 2025).



Photograph 59: Northeastern view of water crossing WC-1058.01. (June 2025).



Photograph 60: Southwestern view of water crossing WC-1058.01. (June 2025).



Photograph 61: Western view of water crossing WC-1058.02. (June 2025).



Photograph 62: Eastern view of water crossing WC-1058.02. (June 2025).



Photograph 63: Northern view of water crossing WC-1058.03. (June 2025).



Photograph 64: Southern view of water crossing WC-1058.03. (June 2025).



Photograph 65: Western view of water crossing WC-1063. (June 2025).



Photograph 66: Eastern view of water crossing WC-1063. (June 2025).



Photograph 67: Western view of water crossing WC-1064. (June 2025).



Photograph 68: Eastern view of water crossing WC-1064. (June 2025).

Appendix J: Completed Rapid Geomorphic Assessments (RGA)

RAPID GEOMORPHIC ASSESSMENT (RGA)

Date: 15-Aug-24 Location: WC-1008
Field Staff: Michael Hildebrandt Project #: CA0020404.4964

Appendix J, Table 1: RGA for WC-1008

FORM/ PROCESS	GEOMORPHIC INDICATOR #	GEOMORPHIC INDICATOR DESCRIPTION	PRESENT (YES) OR ABSENT (NO)	
Evidence of Aggradation (AI)	1	Lobate bar		No
	2	Coarse material in riffles embedded		No
	3	Siltation in pools	Yes	
	4	Medial bars		No
	5	Accretion on point bars		No
	6	Poor longitudinal sorting of bed materials		No
	7	Deposition in the overbank zone		No
		RATIO OF INDICES (1)	1/7 = 0.14	
Evidence of Degradation (DI)	1	Exposed bridge footing(s)		No
	2	Exposed sanitary/storm sewer/pipeline/etc.		No
	3	Elevated storm sewer outfall(s)		No
	4	Undermined gabion baskets/concrete aprons/etc.		No
	5	Scour pools d/s of culverts/stormsewer outlets		No
	6	Cut face on bar forms		No
	7	Head cutting due to knick point migration		No
	8	Terrace cut through older bar material		No
	9	Suspended armor layer visible in bank		No
	10	Channel worn into undisturbed overburden/bedrock		No
		RATIO OF INDICES (1)	0/10 = 10	
Evidence of Widening (WI)	1	Fallen/leaning trees/fence posts/etc.	Yes	
	2	Occurrence of large organic debris	Yes	
	3	Exposed tree roots	Yes	
	4	Basal scour on inside meander bends		No
	5	Basal scour on both sides of channel through riffle		No
	6	Gabion baskets/concrete walls/etc. out flanked		No
	7	Length of basal scour > 50% through subject reach		No
	8	Exposed length of previously buried pipe/cable/etc.		No
	9	Fracture lines along top of bank		No
	10	Exposed building foundation		No
		RATIO OF INDICES (1)	3/10 = 0.30	
Evidence of Planimetric Form Adjustment (PI)	1	Formation of cute(s)		No
	2	Single thread channel to multiple channel		No
	3	Evolution of pool-riffle form to low bed relief form		No
	4	Cutoff channel(s)		No
	5	Formation of island(s)		No
	6	Thalweg alignment out of phase meander form		No
	7	Bar forms poorly formed/reworked/removed		No
		RATIO OF INDICES (1)	0/7 = 0	
STABILITY INDEX (SI) = (AI + DI + WI + PI) / 4 (2)			0.11	

Notes:

[1] Ratio of Indices or Factor = Number of Indices Present / Total Number of Indices.

[2] Stability Index or SI values inferred as follows: 0.20 or lower = In Regime; 0.21 to 0.40 = Transitional or Stressed; and 0.41 or higher = In Adjustment.

Sourced and adapted from: *Ontario Ministry of the Enviroment, 2003. Stormwater Management Planning and Design Manual.*

RAPID GEOMORPHIC ASSESSMENT (RGA)

Date: 13-Aug-24 Location: WC-1025
Field Staff: Michael Hildebrandt Project #: CA0020404.4964

Appendix J, Table 2: RGA for WC-1025

FORM/ PROCESS	GEOMORPHIC INDICATOR #	GEOMORPHIC INDICATOR DESCRIPTION	PRESENT (YES) OR ABSENT (NO)	
Evidence of Aggradation (AI)	1	Lobate bar		No
	2	Coarse material in riffles embedded		No
	3	Siltation in pools	Yes	
	4	Medial bars		No
	5	Accretion on point bars		No
	6	Poor longitudinal sorting of bed materials	Yes	
	7	Deposition in the overbank zone		No
		RATIO OF INDICES (1)	2/7 = 0.29	
Evidence of Degradation (DI)	1	Exposed bridge footing(s)		No
	2	Exposed sanitary/storm sewer/pipeline/etc.		No
	3	Elevated storm sewer outfall(s)		No
	4	Undermined gabion baskets/concrete aprons/etc.		No
	5	Scour pools d/s of culverts/stormsewer outlets		No
	6	Cut face on bar forms		No
	7	Head cutting due to knick point migration		No
	8	Terrace cut through older bar material		No
	9	Suspended armor layer visible in bank		No
	10	Channel worn into undisturbed overburden/bedrock		No
		RATIO OF INDICES (1)	0/10 = 0	
Evidence of Widening (WI)	1	Fallen/leaning trees/fence posts/etc.		No
	2	Occurrence of large organic debris		No
	3	Exposed tree roots		No
	4	Basal scour on inside meander bends		No
	5	Basal scour on both sides of channel through riffle		No
	6	Gabion baskets/concrete walls/etc. out flanked		No
	7	Length of basal scour > 50% through subject reach		No
	8	Exposed length of previously buried pipe/cable/etc.		No
	9	Fracture lines along top of bank		No
	10	Exposed building foundation		No
		RATIO OF INDICES (1)	0/10 = 0	
Evidence of Planimetric Form Adjustment (PI)	1	Formation of cute(s)	Yes	
	2	Single thread channel to multiple channel	Yes	
	3	Evolution of pool-riffle form to low bed relief form		No
	4	Cutoff channel(s)	Yes	
	5	Formation of island(s)		No
	6	Thalweg alignment out of phase meander form		No
	7	Bar forms poorly formed/reworked/removed		No
		RATIO OF INDICES (1)	3/7 = 0.43	
STABILITY INDEX (SI) = (AI + DI + WI + PI) / 4 (2)			0.18	

Notes:

[1] Ratio of Indices or Factor = Number of Indices Present / Total Number of Indices.

[2] Stability Index or SI values inferred as follows: 0.20 or lower = In Regime; 0.21 to 0.40 = Transitional or Stressed; and 0.41 or higher = In Adjustment.

Sourced and adapted from: *Ontario Ministry of the Enviroment, 2003. Stormwater Management Planning and Design Manual.*

RAPID GEOMORPHIC ASSESSMENT (RGA)

Date: 02-Oct-24 Location: WC-1033
Field Staff: Adam Kennedy Project #: CA0020404.4964

Appendix J, Table 3: RGA for WC-1033

FORM/ PROCESS	GEOMORPHIC INDICATOR #	GEOMORPHIC INDICATOR DESCRIPTION	PRESENT (YES) OR ABSENT (NO)	
Evidence of Aggradation (AI)	1	Lobate bar		No
	2	Coarse material in riffles embedded		No
	3	Siltation in pools	Yes	
	4	Medial bars		No
	5	Accretion on point bars		No
	6	Poor longitudinal sorting of bed materials	Yes	
	7	Deposition in the overbank zone		No
		RATIO OF INDICES (1)	2/7 = 0.29	
Evidence of Degradation (DI)	1	Exposed bridge footing(s)		No
	2	Exposed sanitary/storm sewer/pipeline/etc.		No
	3	Elevated storm sewer outfall(s)		No
	4	Undermined gabion baskets/concrete aprons/etc.		No
	5	Scour pools d/s of culverts/stormsewer outlets		No
	6	Cut face on bar forms		No
	7	Head cutting due to knick point migration		No
	8	Terrace cut through older bar material		No
	9	Suspended armor layer visible in bank		No
	10	Channel worn into undisturbed overburden/bedrock		No
		RATIO OF INDICES (1)	0/10 = 0	
Evidence of Widening (WI)	1	Fallen/leaning trees/fence posts/etc.		No
	2	Occurrence of large organic debris		No
	3	Exposed tree roots		No
	4	Basal scour on inside meander bends		No
	5	Basal scour on both sides of channel through riffle		No
	6	Gabion baskets/concrete walls/etc. out flanked		No
	7	Length of basal scour > 50% through subject reach		No
	8	Exposed length of previously buried pipe/cable/etc.		No
	9	Fracture lines along top of bank		No
	10	Exposed building foundation		No
		RATIO OF INDICES (1)	0/10 = 0	
Evidence of Planimetric Form Adjustment (PI)	1	Formation of cute(s)		No
	2	Single thread channel to multiple channel		No
	3	Evolution of pool-riffle form to low bed relief form		No
	4	Cutoff channel(s)		No
	5	Formation of island(s)	Yes	
	6	Thalweg alignment out of phase meander form		No
	7	Bar forms poorly formed/reworked/removed		No
		RATIO OF INDICES (1)	1/7 = 0.14	
STABILITY INDEX (SI) = (AI + DI + WI + PI) / 4 (2)			0.11	

Notes:

[1] Ratio of Indices or Factor = Number of Indices Present / Total Number of Indices.

[2] Stability Index or SI values inferred as follows: 0.20 or lower = In Regime; 0.21 to 0.40 = Transitional or Stressed; and 0.41 or higher = In Adjustment.

Sourced and adapted from: *Ontario Ministry of the Enviroment, 2003. Stormwater Management Planning and Design Manual.*

RAPID GEOMORPHIC ASSESSMENT (RGA)

Date: 03-Oct-24 Location: WC-1044
Field Staff: Michael Hildebrandt Project #: CA0020404.4964

Appendix J, Table 4: RGA for WC-1044

FORM/ PROCESS	GEOMORPHIC INDICATOR #	GEOMORPHIC INDICATOR DESCRIPTION	PRESENT (YES) OR ABSENT (NO)	
Evidence of Aggradation (AI)	1	Lobate bar		No
	2	Coarse material in riffles embedded		No
	3	Siltation in pools	Yes	
	4	Medial bars		No
	5	Accretion on point bars		No
	6	Poor longitudinal sorting of bed materials		No
	7	Deposition in the overbank zone		No
		RATIO OF INDICES [(1)]	1/7 = 0.14	
Evidence of Degradation (DI)	1	Exposed bridge footing(s)		No
	2	Exposed sanitary/storm sewer/pipeline/etc.		No
	3	Elevated storm sewer outfall(s)		No
	4	Undermined gabion baskets/concrete aprons/etc.		No
	5	Scour pools d/s of culverts/stormsewer outlets		No
	6	Cut face on bar forms		No
	7	Head cutting due to knick point migration		No
	8	Terrace cut through older bar material		No
	9	Suspended armor layer visible in bank		No
	10	Channel worn into undisturbed overburden/bedrock		No
		RATIO OF INDICES [(1)]	0/10 = 10	
Evidence of Widening (WI)	1	Fallen/leaning trees/fence posts/etc.	Yes	
	2	Occurrence of large organic debris	Yes	
	3	Exposed tree roots	Yes	
	4	Basal scour on inside meander bends		No
	5	Basal scour on both sides of channel through riffle		No
	6	Gabion baskets/concrete walls/etc. out flanked		No
	7	Length of basal scour > 50% through subject reach		No
	8	Exposed length of previously buried pipe/cable/etc.		No
	9	Fracture lines along top of bank		No
	10	Exposed building foundation		No
		RATIO OF INDICES [(1)]	3/10 = 0.3	
Evidence of Planimetric Form Adjustment (PI)	1	Formation of cute(s)		No
	2	Single thread channel to multiple channel		No
	3	Evolution of pool-riffle form to low bed relief form		No
	4	Cutoff channel(s)		No
	5	Formation of island(s)		No
	6	Thalweg alignment out of phase meander form		No
	7	Bar forms poorly formed/reworked/removed	Yes	
		RATIO OF INDICES [(1)]	1/7 = 0.14	
STABILITY INDEX (SI) = (AI + DI + WI + PI) / 4 [(2)]			0.16	

Notes:

[1] Ratio of Indices or Factor = Number of Indices Present / Total Number of Indices.

[2] Stability Index or SI values inferred as follows: 0.20 or lower = In Regime; 0.21 to 0.40 = Transitional or Stressed; and 0.41 or higher = In Adjustment.

Sourced and adapted from: *Ontario Ministry of the Enviroment, 2003. Stormwater Management Planning and Design Manual.*

RAPID GEOMORPHIC ASSESSMENT (RGA)

Date: 14-Aug-24 Location: WC-1060
Field Staff: Michael Hildebrandt Project #: CA0020404.4964

Appendix J, Table 5: RGA for WC-1060

FORM/ PROCESS	GEOMORPHIC INDICATOR #	GEOMORPHIC INDICATOR DESCRIPTION	PRESENT (YES) OR ABSENT (NO)	
Evidence of Aggradation (AI)	1	Lobate bar		No
	2	Coarse material in riffles embedded	Yes	
	3	Siltation in pools	Yes	
	4	Medial bars		No
	5	Accretion on point bars		No
	6	Poor longitudinal sorting of bed materials	Yes	
	7	Deposition in the overbank zone		No
		RATIO OF INDICES [(1)]	3/7 = 0.43	
Evidence of Degradation (DI)	1	Exposed bridge footing(s)		No
	2	Exposed sanitary/storm sewer/pipeline/etc.		No
	3	Elevated storm sewer outfall(s)		No
	4	Undermined gabion baskets/concrete aprons/etc.		No
	5	Scour pools d/s of culverts/stormsewer outlets	Yes	
	6	Cut face on bar forms		No
	7	Head cutting due to knick point migration		No
	8	Terrace cut through older bar material		No
	9	Suspended armor layer visible in bank		No
	10	Channel worn into undisturbed overburden/bedrock		No
		RATIO OF INDICES [(1)]	1/10 = 0.1	
Evidence of Widening (WI)	1	Fallen/leaning trees/fence posts/etc.		No
	2	Occurrence of large organic debris	Yes	
	3	Exposed tree roots	Yes	
	4	Basal scour on inside meander bends		No
	5	Basal scour on both sides of channel through riffle		No
	6	Gabion baskets/concrete walls/etc. out flanked		No
	7	Length of basal scour > 50% through subject reach		No
	8	Exposed length of previously buried pipe/cable/etc.		No
	9	Fracture lines along top of bank		No
	10	Exposed building foundation		No
		RATIO OF INDICES [(1)]	2/10 = 0.2	
Evidence of Planimetric Form Adjustment (PI)	1	Formation of cute(s)	Yes	
	2	Single thread channel to multiple channel	Yes	
	3	Evolution of pool-riffle form to low bed relief form		No
	4	Cutoff channel(s)	Yes	
	5	Formation of island(s)		No
	6	Thalweg alignment out of phase meander form		No
	7	Bar forms poorly formed/reworked/removed		No
		RATIO OF INDICES [(1)]	3/7 = 0.43	
STABILITY INDEX (SI) = (AI + DI + WI + PI) / 4 [(2)]			0.29	

Notes:

[1] Ratio of Indices or Factor = Number of Indices Present / Total Number of Indices.

[2] Stability Index or SI values inferred as follows: 0.20 or lower = In Regime; 0.21 to 0.40 = Transitional or Stressed; and 0.41 or higher = In Adjustment.

Sourced and adapted from: *Ontario Ministry of the Enviroment, 2003. Stormwater Management Planning and Design Manual.*

RAPID GEOMORPHIC ASSESSMENT (RGA)

Date: 14-Aug-24 Location: WC-1060
Field Staff: Michael Hildebrandt Project #: CA0020404.4964

Appendix J, Table 6: RGA for WC-1061

FORM/ PROCESS	GEOMORPHIC INDICATOR		PRESENT (YES) OR ABSENT (NO)	
	#	DESCRIPTION		
Evidence of Aggradation (AI)	1	Lobate bar		No
	2	Coarse material in riffles embedded	Yes	
	3	Siltation in pools	Yes	
	4	Medial bars		No
	5	Accretion on point bars		No
	6	Poor longitudinal sorting of bed materials	Yes	
	7	Deposition in the overbank zone		No
		RATIO OF INDICES [(1)]	3/7 = 0.43	
Evidence of Degradation (DI)	1	Exposed bridge footing(s)		No
	2	Exposed sanitary/storm sewer/pipeline/etc.		No
	3	Elevated storm sewer outfall(s)		No
	4	Undermined gabion baskets/concrete aprons/etc.		No
	5	Scour pools d/s of culverts/stormsewer outlets		No
	6	Cut face on bar forms		No
	7	Head cutting due to knick point migration		No
	8	Terrace cut through older bar material		No
	9	Suspended armor layer visible in bank		No
	10	Channel worn into undisturbed overburden/bedrock		No
		RATIO OF INDICES [(1)]	0/10 = 0	
Evidence of Widening (WI)	1	Fallen/leaning trees/fence posts/etc.		No
	2	Occurrence of large organic debris	Yes	
	3	Exposed tree roots		No
	4	Basal scour on inside meander bends		No
	5	Basal scour on both sides of channel through riffle		No
	6	Gabion baskets/concrete walls/etc. out flanked		No
	7	Length of basal scour > 50% through subject reach		No
	8	Exposed length of previously buried pipe/cable/etc.		No
	9	Fracture lines along top of bank		No
	10	Exposed building foundation		No
		RATIO OF INDICES [(1)]	1/10 = 0.1	
Evidence of Planimetric Form Adjustment (PI)	1	Formation of cute(s)		No
	2	Single thread channel to multiple channel		No
	3	Evolution of pool-riffle form to low bed relief form		No
	4	Cutoff channel(s)		No
	5	Formation of island(s)		No
	6	Thalweg alignment out of phase meander form		No
	7	Bar forms poorly formed/reworked/removed		No
		RATIO OF INDICES [(1)]	0/7 = 0	
STABILITY INDEX (SI) = (AI + DI + WI + PI) / 4 [(2)]			0.13	

Notes:

[1] Ratio of Indices or Factor = Number of Indices Present / Total Number of Indices.

[2] Stability Index or SI values inferred as follows: 0.20 or lower = In Regime; 0.21 to 0.40 = Transitional or Stressed; and 0.41 or higher = In Adjustment.

Sourced and adapted from: *Ontario Ministry of the Enviroment, 2003. Stormwater Management Planning and Design Manual.*

Appendix K: Flood Discharges and Mean Monthly Flows

Appendix K, Table 1: Estimated Flood Discharges for Project Watercourse Crossings

Crossing ID	Name of Watercourse or Drainage Feature	Prorated WSC Station	Estimated Drainage Area	2-Year Discharge	100-Year Discharge
		(ID #)	(ha)	(m^3/s)	(m^3/s)
WC-1000.01	-	02HD006	19.74	0.248	0.688
WC-1001	-	02HD006	34.18	0.375	0.969
WC-1003.01	-	- [(a)]	- [(a)]	- [(a)]	- [(a)]
WC-1004	-	02HD006	55.26	0.537	1.183
WC-1004.01	-	02HD006	3.12	0.062	0.161
WC-1004.02	-	02HD006	16.7	0.219	0.567
WC-1007	-	02HD006	13.96	0.191	0.495
WC-1008	Bowmanville Creek	02HD006	29.37	0.334	0.865
WC-1009	Bowmanville Creek	02HD006	22.47	0.274	0.708
WC-1009.01	-	02HD006	17.41	0.226	0.585
WC-1013	Bowmanville Creek	02HD006	585.7	3.155	8.163
WC-1014	Bowmanville Creek	02HD006	67.36	0.623	1.612
WC-1015	Bowmanville Creek	02HD006	6.22	0.104	0.27
WC-1019	Bowmanville Creek	02HD006	6.24	0.105	0.271
WC-1019.01	-	02HD006	0.08	0.004	0.01
WC-1020	Bowmanville Creek	02HD006	30.77	0.346	0.895
WC-1023	-	02HH003	1331.71	1.38	2.744
WC-1024	-	02HH003	41.75	0.103	0.204
WC-1025	-	02HH003	281.12	0.43	0.854
WC-1029	-	02HH003	553.24	0.714	1.42
WC-1029.01	-	02HH003	0.12	0.001	0.002
WC-1029.02	-	02HH003	11.4	0.039	0.078
WC-1030	-	02HH003	25.27	0.071	0.14
WC-1031.01	-	02HH003	9.14	0.033	0.066
WC-1033	Pigeon River	02HH003	1819.69	1.744	3.466
WC-1033.01	-	02HH003	0.18	0.002	0.004
WC-1033.02	-	02HH003	0.17	0.002	0.004
WC-1034	-	02HH003	95.52	0.191	0.38
WC-1034.01	-	- [(a)]	- [(a)]	- [(a)]	- [(a)]
WC-1036	-	- [(a)]	- [(a)]	- [(a)]	- [(a)]
WC-1037	-	02HH003	328.94	0.483	0.961
WC-1037.01	-	02HH003	3.05	0.014	0.028
WC-1038	-	02HH003	502.72	0.664	1.321
WC-1038.01	-	02HH003	3.03	0.014	0.028
WC-1040	-	02HH003	203.43	0.337	0.67
WC-1041	-	02HH003	141.64	0.257	0.511
WC-1041.01	-	02HH003	39.47	0.099	0.196
WC-1042	-	02HH003	258.83	0.404	0.803
WC-1043	-	02HH003	41.18	0.102	0.202
WC-1044	Fleetwood Creek	02HH003	2437.96	2.171	4.317
WC-1044.01	-	02HH003	3.9	0.017	0.034
WC-1045	-	02HH003	474.67	0.636	1.266
WC-1046	-	02HH003	128.9	0.239	0.476
WC-1046.01	-	- [(a)]	- [(a)]	- [(a)]	- [(a)]
WC-1047	-	02HH003	63.5	0.141	0.28
WC-1048	-	02HJ006	45.73	0.165	0.358
WC-1049	-	02HJ006	14.5	0.069	0.152
WC-1052	-	- [(a)]	- [(a)]	- [(a)]	- [(a)]
WC-1053	-	02HJ006	3.21	0.022	0.049
WC-1054.01	-	02HJ006	1.84	0.015	0.032
WC-1055	-	02HJ006	783.12	1.387	3.011
WC-1055.01	-	02HJ006	9.67	0.051	0.112
WC-1056	-	02HJ006	77.22	0.244	0.53
WC-1058	-	02HJ006	223.13	0.541	1.175

Crossing ID	Name of Watercourse or Drainage Feature	Prorated WSC Station (ID #)	Estimated Drainage Area (ha)	2-Year Discharge (m^3/s)	100-Year Discharge (m^3/s)
WC-1058.01	-	02HJ006	28.5	0.116	0.251
WC-1058.02	-	02HJ006	1.38	0.012	0.025
WC-1058.03	-	02HJ006	1.34	0.011	0.026
WC-1058.04	-	02HJ006	13.12	0.065	0.14
WC-1059	-	02HJ006	31.32	0.124	0.269
WC-1060	-	02HJ006	56.13	0.192	0.417
WC-1061	-	02HJ006	70.92	0.229	0.497
WC-1061.01	-	02HJ006	0.49	0.006	0.012
WC-1062.01	-	02HJ006	1.52	0.013	0.028
WC-1063	-	02HJ006	34.23	0.132	0.288
WC-1064	-	02HJ006	7.75	0.044	0.095
WC-1065	-	02HJ006	6.74	0.039	0.085
WC-1066	Jackson Creek	02HJ006	4920.3	5.504	11.954
WC-1066.01	-	- [(a)]	- [(a)]	- [(a)]	- [(a)]
WC-1066.02	-	02HJ006	57.53	0.196	0.425
WC-1067	-	02HJ006	49.84	0.176	0.381
WC-1071	-	02HJ006	2922.98	3.724	8.089

Note(s):

a) Reliable estimates of drainage area, and in turn discharge rates, were not possible due to the small size of these features and the generally muted (flat) topography in the local area.

Appendix K, Table 2: Estimated Flood Discharges for Project Watercourse Crossings

Crossing ID	Station ID #	Mean Monthly Flows (m^3/s)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
WC-1000.01	02HD006	0.01	0.02	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
WC-1001	02HD006	0.02	0.02	0.04	0.04	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02
WC-1003.01	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]
WC-1004	02HD006	0.03	0.04	0.06	0.06	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.03
WC-1004.01	02HD006	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1004.02	02HD006	0.01	0.01	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
WC-1007	02HD006	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
WC-1008	02HD006	0.02	0.02	0.04	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02
WC-1009	02HD006	0.02	0.02	0.03	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02
WC-1009.01	02HD006	0.01	0.01	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
WC-1013	02HD006	0.19	0.21	0.37	0.19	0.19	0.13	0.11	0.11	0.19	0.14	0.17	0.19
WC-1014	02HD006	0.04	0.04	0.07	0.04	0.04	0.03	0.02	0.02	0.04	0.03	0.03	0.04
WC-1015	02HD006	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.01
WC-1019	02HD006	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.01
WC-1019.01	02HD006	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1020	02HH003	0.02	0.02	0.04	0.02	0.02	0.01	0.01	0.01	0.02	0.01	0.02	0.02
WC-1023	02HH003	0.20	0.19	0.25	0.20	0.20	0.17	0.14	0.15	0.20	0.19	0.20	0.21
WC-1024	02HH003	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02
WC-1025	02HH003	0.06	0.06	0.08	0.06	0.06	0.05	0.04	0.05	0.06	0.06	0.06	0.06
WC-1029	02HH003	0.10	0.10	0.13	0.10	0.10	0.09	0.07	0.08	0.10	0.10	0.11	0.11
WC-1029.01	02HH003	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1029.02	02HH003	0.01	0.01	0.01	0.01	0.01	0.00	<0.01	<0.01	0.01	0.01	0.01	0.01
WC-1030	02HH003	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
WC-1031.01	02HH003	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1033	02HH003	0.25	0.23	0.32	0.25	0.25	0.22	0.18	0.18	0.25	0.24	0.26	0.26
WC-1033.01	02HH003	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1033.02	02HH003	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1034	02HH003	0.03	0.03	0.04	0.03	0.03	0.02	0.02	0.02	0.03	0.03	0.03	0.03
WC-1034.01	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]
WC-1036	02HH003	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1037	02HH003	0.07	0.06	0.09	0.07	0.07	0.06	0.05	0.05	0.07	0.07	0.07	0.07
WC-1037.01	02HH003	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1038	02HH003	0.10	0.09	0.12	0.10	0.10	0.08	0.07	0.07	0.10	0.09	0.10	0.10
WC-1038.01	02HH003	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1040	02HH003	0.05	0.05	0.06	0.05	0.05	0.04	0.03	0.04	0.05	0.05	0.05	0.05
WC-1041	02HH003	0.04	0.03	0.05	0.04	0.04	0.03	0.03	0.03	0.04	0.03	0.04	0.04
WC-1041.01	02HH003	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
WC-1042	02HH003	0.06	0.05	0.07	0.06	0.06	0.05	0.04	0.04	0.06	0.05	0.06	0.06
WC-1043	02HH003	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02
WC-1044	02HH003	0.31	0.29	0.40	0.31	0.31	0.27	0.22	0.23	0.31	0.29	0.32	0.33
WC-1044.01	02HH003	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1045	02HH003	0.09	0.09	0.12	0.09	0.09	0.08	0.07	0.07	0.09	0.09	0.09	0.10
WC-1046	02HH003	0.03	0.03	0.04	0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.04	0.04
WC-1046.01	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]
WC-1047	02HJ006	0.02	0.02	0.03	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02
WC-1048	02HJ006	0.02	0.02	0.04	0.02	0.02	0.01	0.01	0.01	0.02	0.01	0.01	0.02
WC-1049	02HJ006	0.01	0.01	0.02	0.01	0.01	0.01	<0.01	<0.01	0.01	<0.01	0.01	0.01
WC-1052	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]
WC-1053	02HJ006	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1054.01	02HJ006	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1055	02HJ006	0.15	0.15	0.36	0.15	0.15	0.10	0.04	0.04	0.15	0.07	0.12	0.15
WC-1055.01	02HJ006	0.01	0.01	0.01	0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.01
WC-1056	02HJ006	0.03	0.03	0.06	0.03	0.03	0.02	0.01	0.01	0.03	0.01	0.02	0.03
WC-1058	02HJ006	0.06	0.06	0.14	0.06	0.06	0.04	0.02	0.02	0.06	0.03	0.05	0.06
WC-1058.01	02HJ006	0.01	0.01	0.03	0.01	0.01	0.01	<0.01	<0.01	0.01	0.01	0.01	0.01
WC-1058.02	02HJ006	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1058.03	02HJ006	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1058.04	02HJ006	0.01	0.01	0.02	0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01	0.01
WC-1059	02HJ006	0.01	0.01	0.03	0.01	0.01	0.01	<0.01	<0.01	0.01	0.01	0.01	0.01
WC-1060	02HJ006	0.02	0.02	0.05	0.02	0.02	0.01	0.01	0.01	0.02	0.01	0.02	0.02
WC-1061	02HJ006	0.02	0.02	0.06	0.02	0.02	0.02	0.01	0.01	0.02	0.01	0.02	0.03
WC-1061.01	02HJ006	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1062.01	02HJ006	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1063	02HJ006	0.01	0.01	0.03	0.01	0.01	0.01	<0.01	<0.01	0.01	0.01	0.01	0.01
WC-1064	02HJ006	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1065	02HJ006	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WC-1066	02HJ006	0.58	0.60	1.44	0.58	0.58	0.41	0.17	0.18	0.58	0.29	0.46	0.60

Crossing ID	Station ID #	Mean Monthly Flows (m^3/s)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
WC-1066.01	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]	- [a]
WC-1066.02	02HJ006	0.02	0.02	0.05	0.02	0.02	0.01	0.01	0.01	0.02	0.01	0.02	0.02
WC-1067	02HJ006	0.02	0.02	0.05	0.02	0.02	0.01	0.01	0.01	0.02	0.01	0.01	0.02
WC-1071	02HJ006	0.39	0.40	0.97	0.39	0.39	0.28	0.12	0.12	0.39	0.20	0.31	0.41

Note(s):

a) Reliable estimates of drainage area, and in turn discharge rates, were not possible due to the small size of these features and the generally muted (flat) topography in the local area.