GEI Consultants

1st Submission Preliminary EIS

28th Ave East & 16th Street East

Owen Sound, Ontario

Submitted to:
Bruce-Grey Catholic District School Board
799 16th Ave
Hanover, ON
N4N 3A1

Submitted by:
GEI Consultants Canada Ltd.
75 Tiverton Court
Markham, Ontario L3R 4 M8
1-800-810-3281

December 2024
Project No. 2404188

Table of Contents

1. Introduction

1.1. Background

GEI Consultants Canada Ltd. (GEI) has been retained by Bruce Grey Catholic District School Board (BGCDSB) to complete an Environmental Impact Study (EIS) to support the proposed development of the property located southwest of the intersection of 28th Avenue East and 16th Street East in Owen Sound, Ontario, herein referred to as the Subject Lands (**Figure 1, Appendix A**).

The Subject Lands are generally bound by 16th Street East to the north, 28th Avenue East to the east, agricultural fields to the south, and the Grey County CP Rail Trail to the west. They consist primarily of disturbed / cultural vegetation communities, with several natural vegetation pockets, including wetlands, throughout the site. There is also one mapped watercourse in the western half of the Subject Lands and two previously unmapped drainage features in the northwest corner and eastern half of the site, respectively. One additional drainage feature was previously identified through online mapping in the southeast corner of the site; however, this feature was not found during subsequent on-site investigations (**Figure 1 and Figure 2, Appendix A**).

GEI understands that the planned development includes a two-story secondary school with associated facilities (i.e., portable classrooms, tech shop, track, and parking) proposed in the southern half of the site. In accordance with the approved EIS Terms of Reference (GEI 2024), this 1st Submission Preliminary EIS primarily focuses on the southern portion of the site where development is proposed (herein referred to as the Study Area; **Figure 1, Appendix A**).

1.2. Purpose of the EIS

The purpose of an EIS is to assess the potential impacts of a proposed development on the natural heritage features and functions within a defined area of study and the immediately adjacent lands (120 m from the defined area of study). An EIS must also consider applicable policies, such as the Province of Ontario's *Provincial Planning Statement* (PPS; MMAH 2024), associated PPS implementation guidance contained in the *Natural Heritage Reference Manual* (NHRM; MNR 2010), as well as local policies (such as the Grey County Official Plan (OP; 2018, Consolidated 2024), the City of Owen Sound OP (2021, Consolidated 2022), and GSCA regulations and policies).

An EIS' study components typically include the following:

- A review of existing natural heritage background information, policies, and legislation applicable to the Study Area and the adjacent 120 m;
- Characterization of the natural heritage features and functions within the Study Area through the completion of targeted ecological field surveys, including identification of their boundaries;
- A biophysical description of the Study Area and the adjacent 120 m;
- An evaluation of the sensitivity of the natural heritage features and their functions within the Study Area and the adjacent 120 m;

- An assessment of whether any of the existing natural heritage features within Study Area meet the test of "significance" as defined by the PPS;
- Environmental hazards that need to be addressed as part of the development, if any;
- A description of the proposed development;
- Identification and discussion of the potential direct and indirect impacts that could occur to the identified natural heritage features and functions as a result of the proposed development;
- Recommendations for mitigation measures to avoid or minimize impacts before and after development; and
- Recommendations for enhancement of natural heritage features and functions, where appropriate, including any monitoring that may be required to ensure that mitigation measures are achieving the intended goals.

This 1st Submission Preliminary EIS has been prepared to support BGCDSB's Phase III Pre-consultation Submission (as per Schedule F of the Pre-consultation Response document), which is intended to allow agencies the chance to review draft studies and provide recommendations ahead of formal application. GEI understands that a complete EIS will be required to support future application for a Zoning By-law Amendment and Site Plan Approval to permit the development of the Study Area. As this 1st Submission is intended to be a preliminary EIS, there are outstanding components that will be required for GEI to submit a subsequent EIS. Next steps and outstanding components are discussed throughout the report and are summarized in **Section 10**.

It should also be noted that while this 1st Submission Preliminary EIS primarily focuses on the Study Area and surrounding 120 m, where necessary and appropriate, this report also provides characterization and general impact assessment information for the wider Subject Lands (i.e., outside the immediate area of impact) (**Figure 1, Appendix A**).

2. Natural Heritage Planning Considerations

An assessment of the quality and extent of natural heritage features found on, and adjacent to, the Subject Lands was undertaken to comply with requirements of the following regulatory agencies, local municipality, and/or legislation:

- Federal *Migratory Birds Convention Act*, 1994*;*
- Federal *Fisheries Act, 1985*;
- Federal *Species at Risk Act*, 2002 (SARA);
- Provincial *Fish and Wildlife Conservation Act*, 1997;
- PPS under the *Planning Act, 1990* (2024);
- Provincial *Endangered Species Act (ESA),* 2007;
- Grey County's OP (2018, Consolidated 2024);
- The City of Owen Sound's Official Plan (OP, 2021, Consolidated 2022); and
- O. Reg. 41/24: Prohibited Activities, Exemptions and Permits under the *Conservation Authorities Act, 1990* and other relevant Grey Sauble Conservation Authority (GSCA) planning documents.

2.1. Migratory Birds Convention Act

The *Migratory Birds Convention Act* (1994) is federal legislation that protects the nests and offspring of listed migratory bird species from destruction or disturbance. In its application, it requires that best management practices be implemented to detect and avoid disturbance to active nests during development activities.

2.2. Federal Fisheries Act

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

2.3. Species at Risk Act

The *Species at Risk Act* (SARA) is federal legislation designed to prevent wildlife extinction/extirpation and to support the recovery of endangered, threatened, or extirpated species in Canada, as identified by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). SARA also provides guidance related to the management of Special Concern species to prevent them from becoming endangered or threatened.

This legislation prohibits killing, harming, harassing, capturing, or taking species listed as extirpated, endangered, or threatened and prohibits damage or destruction of the residences of the

aforementioned species. For species that are not aquatic or protected by the *Migratory Birds Convention Act*, this legislation only applies to federal lands unless ordered by the Governor in Council.

2.4. Fish and Wildlife Conservation Act

The provincial *Fish and Wildlife Conservation Act* (1997) outlines management of fishing, hunting, and trapping activities to protect and manage fish and wildlife populations. It also dictates the circumstances where wildlife may be kept in captivity, which is not appropriate for this development application. Should any wildlife or fish collection in support of baseline, construction or post-construction activities be required, a permit will be needed from the Ministry of Natural Resources and Forestry (MNRF).

2.5. Provincial Planning Statement

On October 20th, 2024, the Government of Ontario implemented a new Provincial Planning Statement (PPS; 2024) which replaced the Provincial Policy Statement (MMAH, 2020) and A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2019). In general, the new PPS provides direction on matters of provincial interest related to land use planning and development. It "…supports a comprehensive, integrated and long-term approach to planning…" and is intended to be read in its entirety. Land use planners and decision-makers utilizing the new PPS should consider all relevant policies and how they work together.

Many of the natural heritage considerations within the new PPS remain consistent with the previous Provincial Policy Statement. Policies in Section 4.1 (Natural Heritage) of the PPS identify eight types of significant natural heritage features, as follows:

- Significant wetlands;
- Significant coastal wetlands and other coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant Wildlife Habitat (SWH);
- Fish habitat;
- Habitat of endangered and threatened species; and
- Significant Areas of Natural and Scientific Interests (ANSI).

The PPS states that development and site alteration shall not be permitted in significant wetlands within Ecoregions 5E, 6E and 7E, or in significant coastal wetlands. Development and site alteration shall also not be permitted in significant wetlands in the Canadian Shield; significant woodlands in ecoregions 6E and 7E; significant valleylands in ecoregions 6E and 7E; SWH; or significant ANSIs, unless it is demonstrated that there will be no negative impacts on the natural features or their ecological functions. Development and site alteration shall also not be permitted in the habitat of endangered and threatened species or in fish habitat, except in accordance with provincial and federal requirements.

Development and site alteration may be permitted on lands adjacent to the above features provided it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

In addition, Section 5.2.2 of the PPS states that development shall generally be located outside of hazardous lands adjacent to the shorelines of the Great Lakes – St Lawrence River System and river, stream and small inland lake systems which are impacted by flooding hazards and/or erosion hazards.

2.6. Endangered Species Act

The provincial ESA, 2007 (2021 Consolidation) was developed to:

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

The ESA protects all threatened, endangered, and extirpated species listed on the Species at Risk in Ontario (SARO) list (O. Reg. 230/08; Government of Ontario 2007b). These species are legally protected from harm or harassment, and their associated habitats are legally protected from damage or destruction, as defined under the ESA.

2.7. Grey County Official Plan

The Grey County OP (2018, Consolidated 2024) primarily designates the Subject Lands as "Primary Settlement Area" however, consistent with the City of Owen Sound OP discussed below, "Hazard Lands" are also present within the western half and southeast corner of the site per Schedule A: Land Use Types.

Per Section 7.2 of the County's OP, Hazard Lands are lands with a physical condition that may post a risk for the occupant, property damage, or social disruption if developed. Hazard Lands include the following:

- Floodplains;
- Steep or erosion prone slopes;
- Organic or unstable soils;
- Poorly drained areas; and
- Lands along the Georgian Bay shoreline.

Section 7.2 also states that "new development shall generally be directed away from Hazard Lands." Development will only be considered within lands designated Hazard Lands if the following conditions are met:

a) *The hazards can be safely addressed and new hazards are not created or existing ones aggravated;*
b) *No adverse environmental impacts will result. The County, in consultation with the conservation authority, may require an environmental impact study to be prepared at the proponent's expense, in accordance with this Plan;*
c) *Vehicles and people have a way of safely entering and exiting at all times;*

d) The development does not include;
   i. Institutional uses including hospitals, nursing homes, pre-school, school nurseries, day care and schools, where there is a threat to the safe evacuation of the sick, the elderly, persons with disabilities or the young during an emergency as a result of flooding, failure of flood proofing measures or protection works, or erosion; or
   ii. Emergency services such as that provided by fire, police, and ambulance stations and electrical substations, which would be impaired during an emergency as a result of flooding, the failure of flood proofing measures and/or protection works, and/or erosion; or
   iii. Involve hazardous substances, and their disposal, manufacture, treatment or storage of.
e) The advice or approval where required, of the appropriate conservation authority shall be obtained. The County and the conservation authority will consider the mitigation of effects on vegetation, wildlife and fishery resources, and the natural features of the site.
f) There is no feasible location for the development outside of the Hazard Lands land use type.

As previously stated, GEI understands that BGCDSB may be proposing to realign the watercourses designated Hazard Lands on the Subject Lands. To facilitate this realignment, an Engineered Floodplain Study, an appropriate detailed design, a natural channel design, and a detailed engineering Grading Plan have been requested through pre-consultation process. If undertaken, these components will be incorporated into future submissions of the EIS where applicable. This report does not address constraints associated with Hazard Lands designation.

In addition to the above land uses, Significant Woodlands are identified offsite to the north of the wider Subject Lands as per Appendix B, Map 1 of the Grey County OP (Constraints Mapping). These woodlands are more than 120 m from the proposed development footprint (i.e. Study Area) and therefore are not discussed in detail within this EIS.

2.8. City of Owen Sound Official Plan

According to Schedule A of the City of Owen Sound's OP (2021, Consolidated 2022), the wider Subject Lands are zoned "East City Commercial" in the northeast, "Open Space" in the northwest, and "Residential" along the southern boundary. Two small portions zoned "Hazard Lands" are also present on the property. These Hazard Lands appear to be associated with the mapped watercourses on site and enter into the Study Area.

The Subject Lands are also located in the Sydenham Heights Phase 1 Planning Area (Schedule A2 of the Owen Sound OP). The zoning depicted on Schedule A2 is consistent with Schedule A, with the additional specification of both "Low Density Residential" and "High Density Residential" zoning along the southern boundary.

Per Section 6.1.5.1, an EIS is required wherever a development is proposed to redesignate hazard lands, or a development is proposed adjacent to hazard lands, open space, or any significant natural heritage feature (NHF).

2.9. Grey Sauble Conservation Authority

Effective January 1, 2023, following the implementation of Bill 23, the role of Conservation Authorities in reviewing development applications has changed. Previously, GSCA reviewed planning application submissions associated with future development of properties within its jurisdictional boundaries. In addition, GSCA provided planning and technical advice to planning authorities to assist them in fulfilling their responsibilities regarding natural hazards, natural heritage, and other relevant policy areas pursuant to the *Planning Act*, as both a watershed-based resource management agency and through planning advisory services, in addition to their regulatory responsibilities. With the changes associated with Bill 23, the commenting role Conservation Authorities will play in Planning Act applications may vary from municipality to municipality.

GSCA administers O.Reg. 41/24, under the *Conservation Authority Act*. Authorizations are required from GSCA for any development within their regulated areas which include watercourses, flooding and erosion hazards and wetlands as well as regulated allowances adjacent to these features. In particular, 30-metre setbacks from regulated wetlands are required as per O. Reg. 41/24; while this does not determine developable limits, permits are required for any site alteration within this setback and impacts to natural hazards must be considered.

A review of GSCA mapping provided in the pre-consultation materials was completed to determine the extent of Conservation Authority regulated areas within the Subject Lands (GSCA 2023). According to mapping provided during pre-consultation, GSCA regulated area is present associated with the following features:

- The westerly watercourse;
- A previously unmapped easterly drainage feature; and
- A small portion of GSCA regulated area in the southeast corner associated with a tributary of Bothwell's Creek.

On-site investigations indicate that the easterly drainage feature is best characterized as a Headwater Drainage Feature (HDF) and would not be considered a regulated watercourse. This is discussed further in **Section 4.3.2.** In addition, the mapped, southeast feature was not identified through 2024 surveys and therefore is not shown on mapping or discussed in detail within this report.

3. Summary of Data Collection Approaches and Methods

3.1. Background References

The following resources were reviewed for information relating to natural features and species that may be found on or adjacent (120 m) to the Subject Lands:

- Land Information Ontario (LIO) database;
- Natural Heritage Information Centre (NHIC) database;
- Online wildlife atlas data;
- Aquatic species at risk distribution maps; and
- Other sources (e.g., eBird, iNaturalist).

3.1.1. Land Information Ontario Natural Features Summary

Based on the MNRF LIO geographic database, the following natural heritage features were identified on or within 120 m of the Subject Lands (**Figure 2**, **Appendix A**):

- Several wooded areas (identified as hedgerows through on-site investigations) are mapped on the Subject Lands;
- Two mapped watercourses are present on site according to LIO linework:
    - A westerly watercourse running from the central portion of the Study Area towards the northwest corner of the wider Subject Lands; and
    - A watercourse in the southeast corner of the Study Area – note that this feature was not observed during 2024 surveys and is not discussed further in this report.
- Two mapped watercourses are present offsite within 120 m of the Subject Lands. These watercourses are associated with Bothwell's Creek;
- Three unevaluated wetland features are mapped offsite; and
- Greenbelt Boundary / Niagara Escarpment Plan Boundary is present offsite to the east of the Subject Lands.

On site investigations also identified two previously unmapped drainage features on the Subject Lands. These features were assessed to be HDFs and are discussed further in **Section 4.3.2**.

3.1.2. Natural Heritage Information Centre

The NHIC database (2024) was searched for records of provincially significant plants, vegetation communities and wildlife on and in the vicinity of the Subject Lands. The database provides occurrence data by 1 km^2 area squares, with one square overlapping the Subject Lands (17NK0835). The following species of interest were noted:

- Species listed as Threatened or Endangered on the SARO list:
    - Eastern Meadowlark (*Sturnella magna*) – Threatened; and
    - Bobolink (*Dolichonyx oryzivorus*) – Threatened.

- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species; B=breeding):
    - Snapping Turtle (*Chelydra serpentina*) – Special Concern;
    - Canada Warbler (*Cardellina canadensis*) – Special Concern;
    - Upland Sandpiper *(Bartramia longicauda)* – S2B; and
    - Hearts Tongue Fern (*Asplenium scolopendrium*) – S3.

3.1.3. Ontario Breeding Bird Atlas

The Ontario Breeding Bird Atlas (OBBA) contains detailed information on the population and distribution status of Ontario birds (Bird Studies Canada et al. 2006). The data is presented on 100 km^2 area squares with one square overlapping a portion of the Subject Lands (17TNK03). It should be noted that the Subject Lands are a small component of the overall bird atlas square. In total, 112 species were recorded within the atlas square that overlaps with the Subject Lands, with the following species of interest noted:

- Species listed as Threatened or Endangered on the SARO List:
    - Least Bittern (*Ixobrychus exilis*) – Threatened;
    - Bobolink – Threatened;
    - Chimney Swift (*Chaetura pelagica*) – Threatened; and
    - Eastern Meadowlark – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO List or identified as an S1–S3 species; B=breeding):
    - Barn Swallow (*Hirundo rustica*) – Special Concern;
    - Eastern Wood-Pewee (*Contopus virens)* – Special Concern;
    - Grasshopper Sparrow *(Ammodramus savannarum)* – Special Concern; and
    - Upland Sandpiper– S2B.

3.1.4. Ontario Reptile and Amphibian Atlas

The Ontario Reptile and Amphibian Atlas contains detailed information on the population and distribution status of Ontario herpetofauna (Ontario Nature 2019). The data is presented on 100 km^2 area squares with one square overlapping a portion of the Subject Lands (17NK03). The Subject Lands are a small component of the overall atlas square, and therefore, it is unlikely that all herpetofauna species are found within the Subject Lands. Habitat type, availability and size are all contributing factors in herpetofauna species presence and use.

A total of 17 species were recorded in the atlas square that overlaps with the Subject Lands, of which four are a salamander and newt species, six are frog and toad species, five are snake species and two are turtle species. Of these species, the following species of interest was noted:

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

3.1.5. Ontario Butterfly and Moth Atlas

The Ontario Butterfly and Moth Atlases (Toronto Entomologists' Association 2020, 2022) contain detailed information on the population and distribution status of Ontario butterflies and moths. The data is presented on 100 km^2 area squares with one square overlapping a portion of the Subject Lands (17NK03). The Subject Lands are a small component of the overall atlas square, and; therefore, it is unlikely that all butterfly and moth species are found within the Subject Lands. Habitat type, availability and size are all contributing factors in butterfly and moth species presence and use.

In total, 50 species were recorded in the atlas square that overlaps with the Subject Lands. Of these species, 41 were butterflies and 9 were moths with the following species of interest noted:

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

3.1.6. Aquatic Species at Risk Distribution Mapping

Aquatic SAR distribution mapping (DFO 2024) was reviewed to identify any known occurrences of aquatic SAR, including fish and mussels, within the subwatershed where the Subject Lands are located.

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

3.1.7. Citizen Science Databases (eBird and iNaturalist)

3.1.7.1. eBird

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

This online database was examined to identify observations made on, or within 120 m of, the Subject Lands. No significant bird species were identified in this area.

3.1.7.2. iNaturalist

The iNaturalist (2024) database is a large citizen science-based identification and data collection app. It allows any citizen to submit observations to be reviewed and identified by other naturalists and scientists to help provide accurate species observations. As the observations can be submitted by anyone, and the records are not officially vetted, the data obtained from this tool should not be used as a clear indicator of species presence, and species may be filtered out based on habitat and targeted survey efforts.

This online database was examined to identify observations made within the Subject Lands that were research grade. No significant species were found on the Subject Lands or within 120 meters of its boundaries.

3.2. Technical Methods and Field Studies

Based on GEI's review of aerial imagery and background information, and the proposed concept plan, the following ecological field studies were completed to inform the EIS:

- A site reconnaissance (March 2024);
- Botanical inventories and Ecological Land Classification (ELC) surveys (spring, summer, and fall visits in March, May, and September 2024);
- Breeding bird surveys (round 1 in May 2024, round 2 in June 2024, and a grassland bird survey in July 2024);
- Turtle basking surveys (round 1 and 2 in May 2024);
- Snake visual encounter surveys (targeted survey in May 2024, general observations throughout the rest of the field season);
- Amphibian surveys (rounds 1, 2, and 3 in April, May, and June 2024);
- Terrestrial Crayfish surveys (May 2024);
- A bat habitat assessment (May 2024);
- A headwater drainage feature assessment (HDFA; rounds 1, 2, and 3 in March, May, and September 2024);
- An aquatic habitat assessment (May 2024); and
- Fish community sampling (May 2024).

The following sections summarize the methodology for the surveys completed to date. Field personnel and survey information are summarized in **Table 1**, **Appendix B**.

3.2.1. Site Reconnaissance

A site reconnaissance survey was completed in early spring on March 7, 2024, to assess habitat characteristics present within the Subject Lands and further inform the proposed field scope.

3.2.2. Botanical Inventories and ELC Survey Methods

Three rounds of botanical inventories and ELC surveys were completed on the Subject Lands in March, May, and September of 2024 (**Figure 3, Appendix A**). Vegetation communities were identified using aerial imagery and verified in the field. Vegetation community types were confirmed, sampled, and revised, if necessary, using the sampling protocol of the ELC for Southern Ontario (Lee at al. 1998). ELC was completed to the finest level of resolution (Vegetation Type) where feasible. Species names generally follow nomenclature from the Database of Vascular Plants of Canada (Brouillet et al. 2010+).

The provincial status of all plant species and vegetation communities is based on NHIC (2024). Identification of potentially sensitive native plant species is based on their assigned coefficient of conservatism (CC) value, as determined by Oldham et al. (1995). This CC value, ranging from 0 (low) to 10 (high), is based on a species tolerance of disturbance and fidelity to a specific natural habitat. Species with a CC value of 9 or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters.

3.2.3. Breeding Bird Survey Methods

Breeding Bird surveys were completed in May, June, and July (grassland bird survey) of 2024, with one survey round in each of the aforementioned months. Breeding bird surveys were conducted following protocols set forth by the Ontario Breeding Bird Atlas (Cadman et al. 2007) and the Ontario Forest Bird Monitoring Program (Cadman et al. 1998). These protocols generally follow the Bird and Bird Habitats: Guidelines for Wind Power Projects (OMNR 2010) recommended under the SWH Criteria Schedules for Ecoregion 6E (MNRF 2015) but have been adjusted, based on professional experience, to implement a more comprehensive approach that combines area search and point count techniques.

The surveys were conducted between dawn and five hours after dawn with suitable wind conditions, no thick fog or precipitation (Cadman et al. 2007). Point count stations were placed in various habitat types, where present, within the Subject Lands and combined with area searches to help determine the presence, variety, and abundance of bird species (**Figure 4, Appendix A**). Each point count station was surveyed for 10 minutes for birds within 100 m and outside 100 m. All species recorded on a point-count were mapped to provide specific spatial information and were observed for signs of breeding behavior.

3.2.4. Turtle Basking Survey Methods

Potentially suitable aquatic habitat for turtles (e.g., ponds, open wetlands, and riparian/lacustrine areas) was first identified using aerial photography. In May of 2024, two rounds of basking surveys were conducted between 8:00 and 17:00 under sunny conditions with air temperatures between 5°C and 25°C, or alternatively under overcast conditions where air temperatures are between 15°C and 30°C. On days when afternoon air temperature exceeds 25°C surveys were conducted between 8:00 and 10:00.

Binoculars were used to scan, from a distance, for thirty minutes, the edges and surface of each water body for basking turtles. If possible, the perimeter of the feature was walked and surveyed, using polarized sunglasses, after scanning with binoculars.

One basking station was surveyed within the Subject Lands and is illustrated on **Figure 4, Appendix A**.

3.2.5. Snake Visual Encounter Survey Methods

Two targeted snake visual encounter surveys were conducted during the spring emergence period (April to June), given that the probability of encountering elusive snake species is generally higher during this window. Visual Encounter Survey timing windows and survey conditions were based on protocols set forth by the Ministry of Natural Resources and Forestry (MNRF 2016). The Subject Lands were also generally surveyed for incidental observations of snakes during all other on-site visits.

Surveys were conducted between 9:00 and 17:00 under sunny conditions with air temperatures between 10°C and 25°C, or alternatively under overcast conditions where air temperatures are between 15°C and 30°C. On days when afternoon air temperature exceeded 25°C, surveys were conducted between 8:00 and 12:00, or 17:00 and 20:00. Surveys were generally conducted across the Subject Lands.

3.2.6. Breeding Amphibian Survey Methods

Three rounds of calling amphibian surveys were conducted on the Subject Lands in April, May, and June of 2024. Survey protocols are based on the 'Marsh Monitoring Program' (Bird Studies Canada (BSC) 2014). Survey station locations were determined through an assessment of orthophotography, existing vegetation communities and ground observations (**Figure 4, Appendix A**).

The call count surveys were conducted at night within the appropriate timing window from approximately 30 minutes after sunset until midnight. Each station was surveyed three times (once in April, once in May, and once in June) during optimal weather conditions (low wind levels, no heavy rain). Minimum night air temperatures at time of survey of 5°C and 10°C were applied to each of the respective survey periods. Surveys were conducted at least 15 days apart. All calls heard within a survey station were recorded, as well as any call observations outside of the survey station, including on adjacent lands. The provincial and global statuses of species identified on the Subject Lands were obtained from the Natural Heritage Information Centre (NHIC 2024) and the Species at Risk of Ontario (SARO) list.

3.2.7. Terrestrial Crayfish Survey Methods

In accordance with the Significant Wildlife Habitat Criteria Schedules (MNRF 2015), Terrestrial Crayfish surveys were undertaken in May across all suitable ecosites (no minimum size) where there is permanent or temporary water (**Figure 4, Appendix A**).

Visual observations of crayfish individuals themselves are difficult, so records of their chimneys and/or burrows are noted to confirm the presence or absence of Terrestrial Crayfish within the Subject Lands. Geographic data are collected to visually demonstrate the distribution of the Terrestrial Crayfish on the Subject Lands. The locations of clusters (signifying the presence of a colony) or individual chimneys were recorded using a GPS unit. Supplementary information regarding surrounding vegetation (within approximately a 1 m radius), distance to water, as well as the number of chimneys observed was also recorded.

3.2.8. Bat Habitat Assessment Methods

A bat habitat assessment of all treed, forested, and swamp communities on the Subject Lands (ELC Codes HR, FOD, FOM, SWD and SWM) was conducted on May 7, 2024, to determine the presence or absence of suitable habitat conditions for bat maternity roosting, a feature which can be both Significant Wildlife Habitat (SWH), as well as habitat for SAR bats (see **Figure 4, Appendix A** for general survey locations). Surveys were completed during leaf off conditions and the survey targeted snag/cavity trees greater or equal to 10 cm DBH that exhibit a great amount of peeling bark, early stages of decay, and cavities or crevices most often originating from cracks, knots holes, or woodpecker cavities. The

information collected for each snag/cavity tree includes tree species, number of cavities, decay class, UTM coordinates, and representative photos.

The field program was adapted from the MNRF protocols for bat surveys provided in Bats and Bat Habitats: Guidelines for Wind Power Projects, as required in the Significant Wildlife Habitat Ecoregion Criteria Schedules. Information acquired through the Bat Habitat Assessment was used to identify if Significant Bat Maternity Roosting Habitat (SWH) or maternity roosting habitat for SAR bats is present on the site.

3.2.9. Headwater Drainage Feature Assessment Methods

Potential Headwater Drainage Features (HDFs) on the Study Area were assessed using the CVC/TRCA's 2014 HDFA Guidelines. These guidelines provide a standardized means of identifying and assessing the value of HDFs and identifying the long-term management recommendations to protect or maintain the important ecological or biophysical functions provided by HDFs in a developing landscape.

Per the requirements of the HDFA Guidelines, GEI completed 3 site visits in 2024 to assess HDFs on the Subject Lands on the following dates:

- Round 1 – March 7, 2024 (during site reconnaissance);
- Round 2 – May 15, 2024; and
- Round 3 – September 19, 2024

During the first site visit, all areas of the Subject Lands were walked to identify potential HDFs. Any HDFs observed were separated into specific reaches, per the guidance on reach delineation in the HDFA Guidelines, and data collection was completed for each reach based on Ontario Stream Assessment Protocols for Unconstrained Headwater Sampling, Section 4: Module 11 (Stanfield, ed. 2017). Sampling of any identified reaches was then completed in accordance with OSAP protocols.

The second-round (late spring) assessment occurred at least 48 hours after precipitation events so that drainage features would be at baseflow condition, per the requirements of Gorenz and Stanfield (2017). This assessment was completed later in the window as early to mid-May there were several significant rain events, which could have incorrectly skewed the flow conditions of drainage features.

A third (summer) assessment was completed after several days of no precipitation to best characterize whether any baseflow contributions were occurring.

Following completion of all survey rounds, the drainage features were assigned a management recommendation based on the HDFA Guidelines hierarchy.

3.2.10. Aquatic Habitat Assessment Methods

The purpose of the Aquatic Habitat Assessment was to assess existing aquatic habitat conditions within the Subject Lands. The Aquatic Habitat Assessment consisted of a visual survey of existing instream and riparian habitat conditions along and adjacent to the drainage features running through the Subject lands. The assessment took note of any of the following features:

- Hydrology (e.g. flowing or standing water);
- General watercourse morphology (e.g. riffle, run, pools);

- Wetted width and depth (at time of survey);
- Bed and bank substrate;
- Instream habitat (e.g. woody debris, aquatic vegetation, undercut banks);
- Presence of obstructions to fish movement (e.g. culverts, debris dams);
- Evidence of groundwater inputs (e.g. seeps or springs, iron flocculation/staining); and
- Riparian habitat.

3.2.11. Fish Community Sampling Methods

Fish community sampling was completed in May of 2024 for the Subject Lands following receipt of MNRF approval. A Halltech HT-2000 Battery Back Electrofisher and a D-frame dip net with a 500-micron mesh size was used to retrieve fish from the features. Sampling was conducted using the Ontario Stream Assessment Protocol standard single pass survey method (Stanfield 2017). The purpose of the survey was to determine whether fish were present within the watercourse on the Subject Lands.

Exploratory electrofishing was utilized to fish all watercourse and drainage features on the Subject Lands.

4. Ecological Characterization

4.1. Landscape Setting

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

The Subject Lands are located within the Bothwell's Creek Watershed. The watershed is 6447.88 ha in size and connects to Georgian Bay along the shoreline of Leith. The 2023 Grey Sauble Watershed Report Card identified overall stream health within the watershed to be in good and stable condition.

Consideration of the larger ecological matrix or landscape contributes to a better understanding of potential interactions between abiotic and biotic flows and exchanges. The primary linkage areas associated with the Subject Lands that provide opportunities for movement of organisms, matter, and energy across the surrounding landscape are the on-site drainage features and their associated riparian vegetation communities.

4.2. Terrestrial Ecology

4.2.1. Ecological Land Classification

The Subject Lands are primarily made up of cultural meadow communities that appear to be occasionally mowed/hayed, a large north-central and north-west area of disturbed fill, as well as hedgerows. The Subject Lands also contain a western wetland community and an eastern wetland community, both of which extend into the Study Area through narrow bands of riparian wetland associated with the on-site drainage features.

ELC mapping of the Subject Lands is shown on **Figure 3, Appendix A**. A detailed list and description of ELC units is provided in **Table 2, Appendix B**. One provincially rare (S3) vegetation community was present on the Subject Lands outside of the Study Area (Mineral Fen Meadow Marsh, MAM5; NHIC 2024).

4.2.2. Vascular Plants

The three-season botanical inventory identified 142 species of vascular plants. 60% of which are native and 40% of which are exotic. The full species list is included in **Table 3, Appendix B**. Most of the native species are ranked either S5 (secure in Ontario) or S4 (apparently secure in Ontario).

One Endangered species was observed:

- Butternut

One species was ranked S1-S3 (critically imperiled to vulnerable in Ontario) in the northwest MAM5 community:

- Ribbed Sedge (*Carex virescens*) – S3

One locally rare plant was also observed in the MAM5 community, as per the Bruce and Grey rarity rankings (Miller 2023).

- Alpine Rush (*Juncus alpinoarticulatus*) – Rare in Grey County

One of the species recorded within the northern disturbed / cultural meadow community on the Subject Lands had a co-efficient of conservation (CC) value of 9 or higher, representing high sensitivity:

- Smooth Twig-Rush (*Cladium mariscoides*) – 9 CC

The locations of the observed provincially and locally rare species are shown on **Figure 5** (**Appendix A**).

4.2.3. Breeding Bird Results

Five breeding bird point count stations were surveyed within the Subject Lands. A total of 45 bird species were observed. Of this total, four species are confirmed, 23 are probable, and 14 are possible breeders on the Subject Lands. The remaining three bird species are considered non-breeders, flyovers, or migrants. Four additional species were observed only on surrounding lands within 120 m. The observed breeding bird species are discussed in the sections below and in **Table 4, Appendix B**.

A total of 44 (98%) of the confirmed, probable, or possible breeders are provincially ranked S5 (common and secure), S4 (apparently common and secure) or SNA (species not native to Ontario). One bird species is considered provincially rare (S1-S3; NHIC 2024) and two are considered Species At Risk under the SARO Act. These species are discussed in the sections below.

The following provincially rare species was observed on the Subject Lands:

- Great Egret (*Ardea alba*) – S2 in Ontario
    - Two individuals were observed foraging on the wider Subject Lands during round 2 surveys. These individuals are presumed to be part of the nearest known breeding colonies on either the Bruce Peninsula, or Hen and Chicken Islands in Georgian Bay. No suitable breeding habitat is present on the Subject Lands or within the Study Area (i.e., where development is proposed).

The following Species at Risk were observed on the Subject Lands:

- Eastern Meadowlark – Threatened
    - During round 1 breeding bird surveys, six pairs of Eastern Meadowlark were observed at point count stations 1, 2, 3, and 5 in addition to four calling individuals. This provides probable breeding evidence for 4 territories within the Subject Lands. An additional two territories were observed during both surveys on adjacent lands. Following the spring botanical survey, the southern portion of the site was disturbed for agricultural use. Individuals of Eastern Meadowlark were observed returning to this location post-

disturbance; therefore, suitable habitat is assumed to remain on the Subject Lands. Habitat for Endangered and Threatened species is discussed further in **Section 5.7**.

- Bobolink – Threatened
    - One male Bobolink was observed calling within suitable breeding habitat in the Study Area during round 1 breeding bird surveys, providing possible breeding evidence. In addition, two other individuals were observed in suitable breeding habitat on directly adjacent lands during later survey rounds. Following the spring botanical survey, the southern half of the site was disturbed for agricultural use. Bobolink were observed returning to this location post-disturbance; therefore, suitable habitat for Bobolink is also assumed to remain on the Subject Lands. Habitat for Endangered and Threatened species is discussed further in **Section 5.7**.

4.2.4. Turtle Basking Survey Results

Two rounds of turtle basking surveys were completed in May of 2024 at one survey station. The basking station was situated near the northern extent of the eastern drainage feature (**Figure 4, Appendix A**).

No turtles were observed within the Subject Lands or Study Area. Survey results are presented in **Table 5, Appendix B.**

4.2.5. Snake Survey Results

Two snake visual encounter surveys were conducted on May 7 and 15, 2024. Surveys were generally conducted across the Subject Lands. The area searches included exposed rock features that have the potential to provide access below the frostline for hibernacula within the Subject Lands. Cover objects such as logs, rock and man-made debris were also searched alongside open-canopy habitats for basking individuals. The Subject Lands were also generally surveyed for incidental observations of snakes during all other on-site visits.

No snake species were observed within the Subject Lands or Study Area. Survey results are presented in **Table 6, Appendix B**.

4.2.6. Amphibian Survey Results

Three rounds of evening amphibian call-count surveys (AMC) were conducted during the spring of 2024 at five different survey stations: AMC1 – AMC5 (**Figure 4, Appendix A**).

Amphibian call count survey data are provided in **Table 7, Appendix B**. A summary of amphibian observations is provided below:

- During the preliminary site reconnaissance in March of 2024, a call count level 3 was observed for Western Chorus Frog (*Pseudacris triseriata*) at AMC stations 1, 2, and 5.
- One amphibian species was observed during the first official round of call count surveys, Spring Peeper (*Pseudacris crucifer*).

- During the second round of call count surveys, five amphibian species were observed, including Spring Peeper, American Toad (*Anaxyrus americanus*), Gray Treefrog (*Hyla versicolor*), Green Frog (*Lithobates clamitans*), and Western Chorus Frog (*Pseudacris triseriata*).
- During the third round of call count surveys, three species were observed, including Gray Treefrog, Spring Peeper, and Green Frog.
- Northern Leopard Frog (*Lithobates pipiens*) was also incidentally observed on site during daytime surveys but was not heard calling during any of the nighttime investigations.

No provincial or federally listed Species At Risk amphibians were recorded within the Study Area; however, one federally-listed Threatened species was recorded in the wider Subject Lands during the site reconnaissance and round 2 surveys: Western Chorus Frog (Great Lakes/St. Lawrence – Canadian Shield population). This species was recorded at AMC stations 1, 2, and 5.

In general, stations AMC1, AMC2, AMC3, and AMC5 were the only stations where amphibian activity was recorded on site.

4.2.7. Terrestrial Crayfish Survey Results

Terrestrial Crayfish surveys were conducted in, and adjacent to, suitable wetland communities on site as depicted on **Figure 4, Appendix A**. The majority of Terrestrial Crayfish chimneys was observed in the northwest corner of the site, outside of the Study Area. In addition, a small cluster of 7 chimneys was observed within the Study Area along the on-site watercourse (**Figure 5, Appendix A**).

4.2.8. Bat Habitat Assessment Results

A bat habitat assessment was completed in Hedgerow (HR) and Deciduous Swamp (SWD) communities on the Subject Lands as depicted on **Figure 4, Appendix A**. A total of 34 suitable bat snags were identified on site, with the majority occurring within the hedgerow along the southern property boundary.

The locations of suitable bat snags are presented in **Figure 5, Appendix A**.

4.2.9. Incidental Observations

Several incidental observations of wildlife were recorded on the Subject Lands during the various survey efforts, including:

- Sora (*Porzana carolina*) – S5B;
- Monarch (*Danaus plexippus*) – Special Concern;
- Raccoon (*Procyon lotor*) – S5;
- Eastern Cottontail (*Sylvilagus floridanus*) – S5;
- White-tailed Deer (*Odocoileus virginianus*) – S5;
- Black Swallowtail (*Papilio polyxenes*) – S5;
- Viceroy (*Limenitis archippus*) – S5;
- Red Admiral (*Vanessa atalanta*) – S5B; and
- Cabbage White (*Pieris rapae*) – SNA

4.3. Aquatic Ecology

One watercourse is located on the Subject Lands, as depicted on **Figure 6, Appendix A**. This feature appears on LIO mapping and has been mapped by GSCA as a regulated feature. It is assumed to be flowing north through the Subject Lands.

According to LIO and GSCA mapping, a second drainage feature was depicted in the southeast corner of the Study Area; however, consistent with information provided by GSCA in the pre-consultation responses, this drainage feature was not identified in the southeast corner of the site during GEI's 2024 field program and is therefore not discussed further in this report.

On site surveys also identified two HDFs within the wider Subject Lands (**Figure 6, Appendix A**). These features are discussed in **Section 4.3.1**, below.

4.3.1. Headwater Drainage Feature Assessment Results

HDFs are ill-defined, non-permanently flowing drainage features that do not have defined beds and banks. In addition to the watercourse discussed in **Section 4.3**, two HDFs (H1 and H2) consisting of four reaches (H1-S1, H2-S1, H2-S2, and H2-S3) were identified within the Subject Lands (**Figure 6, Appendix A**). These features were characterized as follows:

- H1 is characterized as a narrow swale, connecting seasonally pooled water within the MAM5 community with the western watercourse. H1-S1 was the only identified reach of this feature.
    - H1-S1 was flowing at the time of the first-round assessment in March, held stagnant water at the time of the second-round assessment in May, and was dry during the third-round assessment in September. This feature is located parallel to a gravel driveway and represents contributing fish habitat to the on-site watercourse. H1-S1 is located outside the Study Area (**Figure 6, Appendix A**).
- H2 is characterized as a highly channelized agricultural swale and is made up of three reaches: H2-S1, H2-S2, and H2-S3.
    - H2-S1 is located within the Study Area and is described as a poorly defined swale within a narrow band of meadow marsh community (**Figure 6, Appendix A**). The feature was flowing in March, stagnant in May, and dry in September. During the second-round May visit water remained within approximately 75% of the reach, but it was noted to dry out towards the southern boundary of the Subject Lands. It is assumed that this feature conveys flows offsite to the south during periods of high-water levels; however, additional investigations are required to confirm the direction of flow in this location. Fish sampling completed throughout the entirety of H1 determined no fish occupy the feature; however, H2 is assumed to provide limited contributing fish habitat to occupied reaches downstream.

- H2-S2 is located just north of the Study Area and is largely contained within a swamp thicket wetland community (SWT; **Figure 6, Appendix A**). The reach appears to backwater from the northern wetland community, holding water throughout all site investigations. It is assumed to convey water southward to H2-S1 during periods of high-water levels; however, additional investigations are required to confirm the direction of flow in this location. H2-S2 represents important riparian and terrestrial habitat as a wetland which provides habitat to breeding amphibians. Fish sampling completed throughout the entirety of H2 determined no fish occupy the feature; however, H2 is assumed to provide limited contributing fish habitat to occupied reaches downstream.

- H2-S3 is located in the northeast corner of the Subject Lands (outside the Study Area). This feature is a complex of marsh and thicket wetlands (**Figure 6, Appendix A**). It is assumed to convey water southward to H2-S2 during periods of high-water levels; however, additional investigations are required to confirm the direction of flow in this location. H2-S3 represents important riparian and terrestrial habitat as a wetland which provides habitat to breeding amphibians. No fish were noted in this feature; however, H2 is assumed to provide limited contributing fish habitat to occupied reaches downstream.

Following completion of the 3 survey rounds, the collected data was used to classify each headwater drainage feature as requiring either protection, conservation, mitigation, or no management. The results are presented in **Table 8, Appendix B**. Management recommendations for all HDFs were then decided upon utilizing Part Three of the HDFA Guidelines (CVC and TRCA 2014) and based on GEI's technical experience with similar features (e.g., agriculturally influenced drainage features).

It is important to acknowledge that as with any guidelines, the HDFA Guidelines are intended to have flexibility to best reflect additional considerations regarding the site-specific nature of features, such as historical straightening for agricultural purposes, impairment related to surrounding agriculture, the replication of contributing habitat functions, and compatibility with land uses. As such, there are situations where recommendations are made for an alternative management recommendation based on site specific understanding of these additional factors.

Strict application of the HDFA Guidelines to the HDFs on the Subject Lands would result in management recommendations of 'conservation' for H1-S1 and H2-S1. Recognizing the agricultural impacts to these two reaches, including straightening and impairment (i.e., historical siltation due to ploughing near the edge of the feature and potential pollution due to fertilizers), these features have been assigned a site-specific management recommendation of 'mitigation'. A management recommendation of mitigation indicates that features may be proposed for realignment and/or compensation, with replication of their functions expected to be achieved through detailed design.

H2-S2 and H2-S3 have been assigned a management recommendation of 'protection'. These features are dominated by surrounding wetland communities and provide habitat for breeding amphibians.

4.3.2. Aquatic Habitat Assessment Results

As previously mentioned, one watercourse was identified on site which enters the western half of the Subject Lands and is assumed to be flowing northward (**Figure 6, Appendix A**). This channelized feature is contained within a narrow band of meadow marsh community. Channel substrates are composed primarily of silt and clay. Riparian conditions within the Study Area (i.e., the southern half of the feature) are composed almost entirely of tall meadow grasses. Deep tire ruts provide evidence of historic tractor passage across the feature. As the watercourse approaches the center of the Subject Lands and bends westward, the channel widens and becomes very poorly defined. Riparian conditions within this area transition to become dominated by cattail (*Typha* sp.) and Phragmites (*Phragmites australis* subsp. *australis*). The watercourse eventually connects to a ditch, offsite along the rail trail. This feature is characterized as an intermittent stream as it was observed flowing during both March and May site visits and was dry during the September site visit. The entire channel length of the watercourse was sampled for fish; however, no fish were found to be present on the Subject Lands or within the Study Area. The portion of this watercourse on the Subject Lands and within the Study Area represents contributing fish habitat.

Immediately off site, as the watercourse bends northward along the rail trail, the channel becomes deeper and more defined. Characterized as a channelized ditch, rip rap stones line much of the channel at this location. Fish sampling confirmed the presence of multiple species within the ditched channel offsite. The highest abundance of fish was noted within a deep refuge pool immediately south of 16th Street East. At this location, a concrete box culvert connects flows from the west side of the rail trail, with flow received from the Subject Lands. The watercourse is then culverted beneath 16th St East through a closed bottom box culvert, outletting on the northern side of the roadway.

4.3.3. Fish Community Sampling Results

Exploratory fish community sampling was conducted within all drainage features associated with the Subject Lands. These locations have been broken down as follows:

1. H1 (reach H1-S1)
2. H2 (reaches H2-S1, H2-S2, H2-S3)
3. Watercourse – on-site: the portion of the watercourse running generally through the center of the Subject Lands and Study Area.
4. Watercourse – off-site: the portion of the watercourse just offsite near the northwestern corner of the Subject Lands (outside of the Study Area and Subject Lands).

The following results were gathered through on-site electrofishing of these features:

H1	H2	Watercourse – on-site	Watercourse – off-site – just outside of the Subject Lands and Study Area
No fish were captured within this sampling reach.	No fish were captured within this sampling reach.	No fish were captured within this sampling reach.	Creek Chub (*Semotilus atromaculatus)* - 17 Fathead Minnow (*Pimephales promelas*) - 3 Brook Stickleback (*Culaea inconstans*) - 1 White Sucker (*Catostomos commersonii*) - 7

H1 is assumed to be providing contributing fish habitat due it's connections to the on-site watercourse.

H2 is assumed to be providing contributing fish habitat due its connections to occupied reaches off site; however, the fish habitat quality provided by this feature is extremely limited given its characterization as a highly channelized swale.

Watercourse – on-site represents contributing fish habitat. This feature conveys flow and allochthonous materials to occupied reaches immediately downstream. Heavy vegetative growth and a lack of channel depth at the downstream end of the watercourse represent a likely barrier to fish passage.

Watercourse – off-site is located immediately offsite, flowing parallel along the rail trail. This channel reach is occupied by a number of different species and represents direct fish habitat. Of the species captured, all but the Brooke Stickleback prefer a coolwater thermal regime. Given that only a single Brook Stickleback was captured, a coolwater regime represents over 96% of the sampled population.

5. Analysis of Ecological and Natural Heritage Significance

Eight types of natural features are identified in the PPS (2024):

- Significant wetlands;
- Significant coastal wetlands and other coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- SWH;
- Fish habitat;
- Habitat of endangered and threatened species; and
- Significant ANSIs.

The presence/absence of these natural features on and adjacent to the Subject Lands are discussed in the subsequent sections. This section is informed by the Natural Heritage Reference Manual (NHRM; MNR 2010), the Owen Sound OP (2021, consolidated 2022), Grey County OP (2018, consolidated 2023), and CH O. Reg. 41/24.

5.1. Significant Wetlands

No provincially or locally significant wetlands are currently identified on site; however, as previously discussed in **Section 4.2.1**, two unevaluated wetland communities are present within the Subject Lands and Study Area:

- Western wetland – A meadow marsh (MAM) complex associated with the western watercourse and H1 extending south into the Study Area; and
- Eastern wetland - A thicket swamp (SWT) and meadow marsh (MAM) complex associated with H2 extending south into the Study Area

Wetland communities within the Subject Lands and Study Area are currently 'unevaluated' as per the Ontario Wetland Evaluation System (OWES). This EIS has assumed the wetlands on site are non-significant; however, this assumption would need to be addressed as part of future EIS submissions.

5.2. Significant Coastal Wetlands and Other Coastal Wetlands

Similar to significant wetlands, the MNRF or their designates identify significant coastal wetlands present on the landscape. Coastal wetlands are defined in the NHRM (MNR 2010) as:

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

No significant coastal wetlands or other coastal wetlands are identified in the Subject Lands and would not be expected given the distance of the Subject Lands from the waterbodies noted above.

5.3. Significant Woodlands

Significant Woodlands are identified by the planning authority in consideration of criteria established by the MNRF. Under the NHRM (MNR 2010), woodlands are defined as:

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

The Grey County OP (2022; Section 7.4) provides the following definition of significant woodlands:

> *A woodland shall be either greater than or equal to forty (40) hectares in size outside of settlement areas, or greater than or equal to four (4) hectares in size within settlement area boundaries. If a woodland fails to meet the size criteria outside a settlement area, a woodland can also be significant if it meets any two of the following three criteria:*
>
> - *Proximity to other woodlands i.e. if a woodland was within 30 metres of another significant woodland, or*
> - *Overlap with the boundaries of a Provincially Significant Wetland and Significant Coastal Wetlands, Core Area, Significant Valleylands, or a Significant Areas of Natural and Scientific Interest, or*
> - *Interior habitat of greater than or equal to eight (8) hectares, with a 100 metre interior buffer on all sides.*

On the Subject Lands, all treed communities are culturally influenced hedgerows. In addition, offsite along the rail trail there is a SWD/SWT community which does not meet the Grey County or PPS definition of Significant Woodland based on the criteria provided above.

Significant Woodlands have been identified offsite to the north of the wider Subject Lands as per Appendix B, Map 1 of the Grey County OP (Constraints Mapping). These offsite Significant Woodlands are more than 120 m from the proposed development footprint (i.e. Study Area) and therefore are not discussed in detail within this EIS.

5.4. Significant Valleylands

Significant Valleylands are defined and designated by the planning authority. General guidelines for determining significance of these features are presented in the NHRM (MNR 2010) for Policy 4.1 of the PPS. Recommended criteria for designating significant valleylands includes prominence as distinctive landform, degree of naturalness, and importance of its ecological functions, restoration potential and historical and cultural values.

It is recognized that the NHRM does not specify the number of criteria that are required to be met for a valleyland to be considered significant and recommends that the local planning authorities undertake a study that would determine which criteria should be applied for a valleyland to be considered significant.

Section 7.7 of the Grey County OP (2022) provides the following definition of Significant:

- The valley must be ≥100 m wide and ≥2 km long.
- The valley banks must be ≥3 m in height (extrapolated from 5 m contours at 1:10,000 or better information where available).
- Where valley slope is 3:1 on one side with no slope on the opposite side of the watercourse, the opposite valley limit is delineated using either 100 m from centreline of the watercourse or the limit of the floodplain to create a continuous valley feature.
- Where 3:1 valley slopes occur on both sides of the river, but they are not continuous, the floodplain limit (or contour information and professional judgment) is used to delineate a continuous valley feature.

Significant Valleylands were not identified on the Subject Lands.

5.5. Significant Wildlife Habitat

Significant Wildlife Habitat (SWH) is one of the more complex NHFs to identify and evaluate. There are several provincial documents that discuss identifying and evaluating SWH including the NHRM (MNR 2010), the Significant Wildlife Habitat Technical Guide (MNR 2000), and the SWH Eco-Region Criterion Schedule (MNRF 2015). The Subject Lands are located in Eco-Region 6E and were therefore assessed using the 6E Criterion Schedule (MNRF 2015).

There are four general types of SWH:

- Seasonal concentration areas;
- Rare or specialized habitats;
- Habitat for species of conservation concern; and
- Animal movement corridors.

General descriptions of these types of SWH are provided below.

Seasonal Concentration Areas

Seasonal concentration areas are those sites where large numbers of a species gather at one time of the year, or where several species congregate. Seasonal concentration areas include deer yards, wintering sites for snakes, bats, raptors and turtles, waterfowl staging and molting areas, bird nesting colonies, shorebird staging areas and migratory stopover areas for passerines or butterflies. Only the best examples of these concentration areas are usually designated as SWH.

Rare or Specialized Habitats

Rare and specialized habitat are two separate components. Rare habitats are those with vegetation communities that are considered rare in the province. SRANKS are rarity rankings applied to species at the 'state', or in Canada at the provincial level, and are part of a system developed under the auspices of the Nature Conservancy (Arlington, VA). Generally, community types with SRANKS of S1 to S3 (extremely rare to rare-uncommon in Ontario), as defined by the NHIC (2024), could qualify. It is to be assumed that these habitats are at risk and that they are also likely to support additional wildlife species that are considered significant. Specialized habitats are microhabitats that are critical to some wildlife species. The NHRM (MNR 2010) defines specialized habitats as those that provide for species with highly specific habitat requirements, areas with exceptionally high species diversity or community diversity, and areas that provide habitat that greatly enhances species' survival.

Habitat for Species of Conservation Concern

Species of conservation concern include those that are provincially rare (S1 to S3), provincially historic records (SH) and Special Concern species. Several specialized wildlife habitats are also included in this SWH category, including Terrestrial Crayfish habitat, and significant breeding bird habitats for marsh, open country, and early successional bird species.

Habitats of species of conservation concern do not include habitats of endangered or threatened species as identified by the ESA (2021 Consolidation). Endangered and Threatened species are discussed in **Section 5.7** (below).

Animal Movement Corridors

Animal movement corridors are areas that are traditionally used by wildlife to move from one habitat to another. This is usually in response to different seasonal habitat requirements, including areas used by amphibians between breeding and summer/over-wintering habitats, called amphibian movement corridors.

Table 9, **Appendix B** discusses the potential for SWH within the Subject Lands using the Ecoregion 6E Criterion (MNRF 2015). The following SWH types were identified within the Subject Lands (**Figure 7, Appendix A**):

- Rare or Specialized Habitats
    - Mineral Fen Meadow Marsh (MAM5) in the northwest corner of the Subject Lands (outside the Study Area) (S3 – rare to uncommon in Ontario)
- Habitat for Species of Conservation Concern
    - Terrestrial Crayfish Habitat (concentrated in the MAM5 community and along the western watercourse)
    - Monarch (CUM1 communities within the Study Area)
    - Ribbed Sedge (MAM5 community)

5.6. Fish Habitat

Fish habitat, as defined in the federal *Fisheries Act*, c. F-14, means "spawning grounds and nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly in order to carry out their life processes." Fish, as defined in S.2 of the *Fisheries Act*, c. F-14, includes "parts of fish, shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals."

In addition, Section 7.9.2 of the Grey County OP states that "no development will be permitted within 30 metres of the banks of a stream, river, or lake unless an environmental impact study prepared in accordance with Section 7.11 of this Plan concludes setbacks may be reduced and/or where it has been determined by the appropriate conservation authority these setbacks may be reduced. Landowners are encouraged to forest the areas within 30 metres of any stream to maintain and improve fish habitat, ecological function of the stream, and to increase natural connections."

Direct fish habitat was determined to be present in the mapped, western watercourse as it flows northward along the rail trail (outside of the Study Area and Subject Lands). A 30 m VPZ has been applied to this direct fish habitat.

Channel widening and low water depth were identified to represent a potential barrier to fish passage along the western watercourse as it flows offsite of the Subject Lands; therefore, limited contributing / indirect fish habitat was identified within the on-site portion of the watercourse and H1 and H2. Given the limited contributing habitat provided by these features, where possible, a 10 m VPZ may be considered for the portions of the western watercourse that are planned to be retained, and no fish habitat VPZ has been applied to on-site HDFs. These setbacks are preliminary and may be refined in subsequent EIS submissions. See **Figure 6, Appendix A** for mapping of direct and indirect fish habitat.

5.7. Habitat for Endangered and Threatened Species

Table 5-1 (below) discusses the potential for endangered and threatened SAR and SAR habitat, based on the species identified through the background wildlife atlas search (**Section 3**) and on-site investigations (**Section 4**).

Table 5-1: Potential for SAR and SAR Habitat within or adjacent to the Subject Lands

Species Name	SARO Ranking	Habitat Preferences	Habitat Potential within or adjacent to Subject Lands and Study Area?
Butternut	Endangered	Deciduous forests, forest edges/openings and riparian habitats. Often in areas with moist, well-drained soil.	Yes – This species was observed in the southernmost hedgerow within the Subject Lands and Study Area during vegetation surveys (**Figure 7, Appendix A**).
Bobolink	Threatened	Tall grasslands, undercut pastures, overgrown fields, and meadows.	Yes – Several cultural meadows are present within the Subject Lands and Study Area (**Figure 7, Appendix A**). Bobolink was observed on site during breeding bird surveys.
Chimney Swift	Threatened	Urban settlements where they nest and roost (rest or sleep) in chimneys and other manmade structures near water.	No – No man-made structures are present on site.
Eastern Meadowlark	Threatened	Tall grasslands, undercut pastures, overgrown fields, and meadows.	Yes – Several cultural meadows are present within the Subject Lands and Study Area (**Figure 7, Appendix A**). Eastern Meadowlark was observed on site during breeding bird surveys.
Least Bittern	Threatened	Prefers cattail marshes with a mix of open pools and channels.	No – Nests are typically built near open water, which is needed for foraging. The wetland communities on site are likely not large enough to provide suitable habitat for this species. This species was also not observed during breeding bird surveys on the Subject Lands.

In addition to the Endangered and Threatened species discussed above, SAR bat species were not identified in the background review or on-site investigations but may be using treed features on site. If proposed for removal, suitable bat snags within hedgerow trees would need to be removed outside the bat roosting and migratory bird window (March 15 – November 30) and consultation with the Ministry of Environment, Conservation and Parks (MECP) would be required prior to on-site works.

5.8. Significant Areas for Natural and Scientific Interest

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

5.9. City of Owen Sound Official Plan

The City of Owen Sound OP does not provide guidance on features applicable to the Subject Lands.

5.10. Grey County Official Plan

Per Section 7 of the Grey County OP, the County provides guidance on the following features that are applicable to the Subject Lands:

- Hazard Lands;
- Other Wetlands;
- Fish Habitat;
- Habitat for Endangered and Threatened Species; and
- Significant Wildlife Habitat.

5.11. GSCA Regulated Features

Pursuant to O.Reg. 41/24, GSCA has the authority to regulate development within its regulated areas. The GSCA regulates the following features:

- Lands adjacent to or close to the shoreline of the Great Lakes-St. Lawrence River system that may be a river or stream valleys that have depressional features associated with a river or stream, whether or not they contain a watercourse;
- Hazardous lands;
- Wetlands; and
- Other areas where development could interfere with the hydrologic function of a wetland, including areas up to 120 m of all Provincially Significant Wetlands (PSWs) and wetlands greater than 2 ha size, and areas within 30 m of wetlands less than 2 ha in size.

The wetlands and hazard lands on site are regulated by GSCA.

As previously stated, an Engineered Floodplain Study, an appropriate detailed design, a natural channel design, and a detailed engineering Grading Plan have been requested through pre-consultation process to address Hazard Lands and associated setbacks on site. At the time of this 1st Submission Preliminary EIS, these components are still outstanding. Where applicable, these components will be incorporated into future EIS submissions.

5.12. Summary of Ecological Components Subject to Impact Assessment

The following natural heritage features (NHFs) are subject to impact assessment:

- Unevaluated wetlands + 10 m VPZ;
- Direct fish habitat (offsite portion of watercourse in NW corner, coolwater regime) + 30 m VPZ;
- Indirect/contributing fish habitat (onsite portion of watercourse, H1 and H2)
    - Where the watercourse was determined to have indirect fish habitat, a 10 m VPZ has been recommended to be considered for portions of the watercourse to be retained. No VPZs have been assigned to on-site HDFs with indirect fish habitat. See **Section 5.6** for more information.
- Confirmed SWH:
    - Rare or Specialized Habitats
        - Mineral Fen Meadow Marsh (MAM5) in the northwest corner of the Subject Lands (outside the Study Area) (S3)
    - Habitat for Species of Conservation Concern;
        - Terrestrial Crayfish Habitat
        - Monarch Habitat
        - Ribbed Sedge Habitat.
- SAR Habitat:
    - Butternut (a VPZ may be required from specific retained trees depending on the results of the Butternut Health Assessment)
    - Eastern Meadowlark habitat
    - Bobolink habitat; and
    - Candidate habitat for SAR bats.

The above-noted NHFs are identified on **Figure 7**, **Appendix A**. In the preparation of this NHF mapping, GEI has assumed all wetland units within the Subject Lands (and immediately adjacent) are not provincially significant. As part of future EIS submissions, this assumption would need to be assessed.

6. Conceptual Development Plan

It is GEI's understanding the conceptual development proposal includes a two-story secondary school with associated facilities (i.e., portable classrooms, tech shop, track, and parking) in the southern portion of the site (Study Area).

Based on the Preliminary Grading Plan, the entire Study Area is proposed to be re-graded to support the conceptual development plan (**Figure 8 Appendix A**).

As part of the development, GEI understands that the western watercourse is proposed to be realigned along the southern and western edge of the property. It is understood that natural channel design principles will be employed as part of this proposed realignment, as per the pre-consultation notes; however, at this stage in the development process the exact length and width of the realigned channel and the width of any associated meanders are unknown. In addition, more investigations are required to determine the flood hazard, erosion hazard, meander belt and associated setbacks applicable to the proposed realigned channel. These details should be incorporated into future detailed designs, as appropriate.

In addition, it is understood that flows from H2 on the eastern half of the site are proposed to be redirected west to outlet in the realigned channel along the rail trail. Further studies, including a topographic survey of the center line of H2 and a demonstration that site water balance and wetland hydrology will be maintained post-development, may be required as part of detailed design to support these proposed alterations of flow.

7. Preliminary Impact Assessment, Avoidance, and Mitigation Measures

This section of the report assesses potential effects on the natural heritage functions that could occur over the short-term and long-term following implementation of the proposed development plan. It also identifies possible mitigation measures to limit negative impacts and/or to enhance features and functions.

Impacts from a proposed land development application can generally be considered in two broad categories: direct and indirect. Direct impacts are normally associated with the physical removal or alteration of natural features that could occur based upon a land use application, and indirect impacts may be changes or impacts (these could be minor or more significant) to less visible functions or pathways that could cause negative impacts to natural heritage features over time.

It is GEI's understanding that the development plan and channel realignment concept are preliminary and subject to agency commentary during the pre-application process. As such, the impact assessment presented in the following sections is high-level and preliminary and is expected to be refined in future EIS submissions.

7.1. Direct Impacts

Direct impacts are those that have an immediate effect on a natural heritage feature, such as the removal of trees, alteration of flows, the removal of a riparian wetland, or the removal of regulated habitat for an Endangered or Threatened species.

7.1.1. Wetlands

As previously discussed in **Section 4.2.1**, two unevaluated wetland communities are present within the Subject Lands:

- Western wetland – A meadow marsh (MAM) complex associated with the western watercourse and H1 extending south into the Study Area; and
- Eastern wetland - A thicket swamp (SWT) and meadow marsh (MAM) complex associated with H2 extending south into the Study Area

Within the Study Area, two portions of riparian wetland (totalling 0.51 ha) are proposed to be removed as a result of the potential development. If compensation for wetland removals is required following discussions with agencies, on-site compensation through wetland creation in the Study Area is the preferred option; however, other compensation methods may also be considered.

The remaining unevaluated wetland portions are recommended to be retained and protected with a 10 m VPZ. Since the wetlands on site are currently unevaluated under OWES, it should be noted that this EIS has assumed the wetlands on site are not provincially significant; however, this assumption would need to be addressed as part of future EIS submissions.

7.1.1.1. Confirmation of Site Water Balance

As part of detailed design, it is recommended that it is demonstrated that site water balance is maintained through appropriate studies. In particular, it should be demonstrated that pre- and post-development flow contributions and wetland hydrology are matched. Mitigation measures to maintain hydroperiod requirements should be identified, as necessary, for consideration during the detailed design phase.

7.1.2. Significant Wildlife Habitat

As previously discussed, SWH on the wider Subject Lands includes:

- Rare or Specialized Habitats
    - Mineral Fen Meadow Marsh (MAM5) in the northwest corner of the Subject Lands (outside the Study Area) (S3 – rare to uncommon in Ontario)
- Habitat for Species of Conservation Concern;
    - Terrestrial Crayfish Habitat
    - Monarch Habitat
    - Ribbed Sedge Habitat

Rare Vegetation Communities

The MAM5 community in the northwest corner of the Subject Lands is ranked S3, rare to uncommon in Ontario (**Figure 3, Appendix A**). This community was noted to contain a provincially rare plant species (Ribbed Sedge, S3) as well as a locally rare plant species (Alpine Rush). In addition, Western Chorus Frog (Great Lakes/St. Lawrence – Canadian Shield population), a federally-listed Threatened species, was recorded near this community during the site reconnaissance. This community is outside of the Study Area (i.e., area of impact) and is therefore not anticipated to be impacted by the proposed development provided pre- and post-development flow contributions are matched and it is demonstrated that the development will not negatively impact the hydrology of nearby wetlands.

Terrestrial Crayfish SWH

Terrestrial Crayfish chimneys were generally concentrated in the northwest MAM5 community outside of the Study Area; however, a small cluster of 7 chimneys is present within the southern Study Area along the western watercourse. See **Figure 5, Appendix A** for observations. The planned channel design proposes to realign this watercourse along the southern and western boundaries of the site. With the implementation of natural channel design principles, it is expected that enhanced aquatic and riparian wetland habitat will be provided within the Study Area compared to existing, anthropogenically disturbed conditions. It is also expected that Terrestrial Crayfish using the wetland communities in the northwest corner of the Subject Lands will be able to colonize the realigned channel, provided pre- and post-development flow contributions are maintained.

Monarch Habitat

Monarch butterfly habitat was found to be concentrated in cultural meadows within the southern portion of the Subject Lands (i.e., the Study Area), which was disturbed for agricultural use (**Figure 7, Appendix A**). As part of the channel realignment within the Study Area, pollinator habitat, including incorporation of milkweed, is recommended to be considered. Additional details will be provided at detailed design.

Ribbed Sedge Habitat

Ribbed Sedge was observed within the northwest MAM5 community outside of the Study Area (**Figure 7, Appendix A**). Suitable habitat for this species will remain offsite to the north provided pre- and post-development flow contributions are maintained.

7.1.3. Fish Habitat

As previously described in **Section 4.3.4**, direct fish habitat was identified in the western watercourse as it flows offsite near the northwest corner of the Subject Lands. The remainder of the features on site, including the on-site portion of the watercourse and two HDFs (H1 and H2) were identified as contributing / indirect fish habitat. See **Figure 6, Appendix A** for mapping of direct and indirect fish habitat.

In order to prevent harmful alteration, disruption, or destruction (HADD) to fish and fish habitat (direct and indirect), the following mitigation measures are recommended:

- Where possible, ensure no pre- to post-development loss of channel length within the realigned watercourse channel;
- Ensure pre- to post-development flow contributions are maintained;
- Where possible, match existing inlet and outlet locations;
- Incorporate natural channel design principles to mimic natural aquatic habitats and provide a diverse range of dynamically stable habitat conditions to support potential direct and indirect habitat functions of the realigned watercourse (e.g., benthic invertebrate production, flow conveyance and sediment supply);
- Complete in-water works outside of the applicable fisheries window (to be confirmed with the MNRF), with a preference for work to be completed in the summer when the water levels within the watercourse are lower;
- Where required, complete a fish and wildlife salvage prior to realignment activities;
- Implement temporary diversion and work-site isolation measures where the construction of the new channel and the existing channel overlap to minimize in-water work requirements and ensure downstream flows are maintained at all times;
- Prepare and implement an ESC plan and spill response plan (discussed further in **Section 7.2**);
- Ensure SWM infrastructure maintains or improves all relevant water quality criteria (e.g., TSS, temperature) and maintain site water balance (e.g., infiltration) to prevent impacts to fish and fish habitat;
- Incorporate input from a qualified ecologist and fluvial geomorphologist into the proposed realigned channel design.

See **Section 10** for next steps related to fish habitat.

7.1.4. Headwater Drainage Feature Management

In addition to the recommendations for fish habitat provided above, the HDFs on the Subject Lands were classified as having a management recommendation of 'protection' (H2-S2 and H2-S3) and 'mitigation' (H1-S1, and H2-S1).

As per the HDFA Guidelines, the recommended management approaches for HDFs classified as protection are:

- Protect and/or enhance the existing feature and its riparian zone corridor, and groundwater discharge or wetland in-situ;
- Maintain hydroperiod; Incorporate shallow groundwater and base flow protection techniques such as infiltration treatment;
- Use natural channel design techniques or wetland design to restore and enhance existing habitat features, if necessary; realignment not generally permitted; and
- Design and locate the stormwater management system (e.g. extended detention outfalls) are to be designed and located to avoid impacts (i.e. sediment, temperature) to the feature.

As per the HDFA Guidelines, the recommended management approaches for HDFs classified as mitigation include:

- Replicate or enhance functions through enhanced lot level conveyance measures, such as well-vegetated swales (herbaceous, shrub and tree material) to mimic online wet vegetation pockets or replicate through constructed wetland features connected to downstream;
- Replicate on-site flow and outlet flows at the top end of system to maintain feature functions with vegetated swales, bioswales etc. If catchment drainage has been previously removed due to diversion of stormwater flows, restore lost functions through enhanced lot level controls (i.e., restore original catchment using clean roof drainage); and
- Replication of functions by lot level conveyance measures (e.g. vegetated swales) connected to the NHS, as feasible and/or Low Impact Development (LID) stormwater options.

H1-S1, H2-S2, and H2-S3 are located outside the proposed development footprint and therefore are not expected to be negatively impacted by the development provided pre- and post-development flow contributions are matched and flow directions are confirmed (see **Section 6**). H2-S1 is within the development footprint, and it is recommended that mitigation-level management approaches be considered as part of future EIS submissions, including consideration of a vegetated swale to replicate H2-S1's function on site where possible.

7.1.5. Habitat for Endangered and Threatened Species

As identified in **Section 5.7**, habitat for the following Endangered / Threatened species habitat is applicable to the Subject Lands:

- Butternut
- Bobolink/Eastern Meadowlark
- Candidate habitat for SAR bats

Butternut, Bobolink, and Eastern Meadowlark are eligible species under the Species at Risk Conservation Fund. The SAR Conservation fund option may be selected when applying for applicable ESA permits or when registering an eligible conditional exemption under O. Reg. 830/21. Conditional exemptions exist for both Butternut and Bobolink / Eastern Meadowlark and are summarized at a high-level below.

Butternut

Several Butternut trees were identified in the on-site hedgerows and may fall within the proposed development footprint. According to O. Reg 830/21 Part V Butternut, a Butternut health expert must assess and report on the health of the trees to be impacted in accordance with the Butternut Assessment Guidelines and submit their findings at least 30 days prior to the proposed impactful action.

Should the impacted Butternuts be assessed as Category 1 (poorest condition) clause 9 (1) (a) of the ESA does not apply. Should the trees be assessed as Category 2 or 3, the person has the option to either: 1) replant and monitor Butternuts and meet a variety of reporting / recording keeping and mitigation requirements, or 2) pay into the species conservation fund and meet a scoped list of reporting / recording keeping and mitigative requirements. Meeting the conditions of either of these options would result in clause 9 (1) (a) of the ESA no longer applying. In addition, if Butternuts are retained on site retained trees may require application of a VPZ depending on the results of the Butternut Health Assessment.

A Butternut Health Assessment is proposed as a next step to be included once detailed designs are prepared. All applicable ESA requirements will be addressed prior to any future actions that would impact Butternuts on site. More information about proposed tree removals will be included in future submissions when the Tree Survey and other reporting as applicable, is available.

Bobolink / Eastern Meadowlark

According to O. Reg 830/21 Part IV Bobolink and Eastern Meadowlark Section 13(1), clause 9(1) (a) of the ESA does not apply if the area of habitat to be damaged or destroyed is equal to or less than 30 ha and the person registers the activity and either: 1) Creates or enhances habitat for these species and meets a variety of reporting / record keeping and mitigative requirements, or 2) pays into the SAR conservation fund and meets a scoped list of reporting / recording keeping and mitigative requirements

A portion of the Subject Lands equaling 12.87 ha was identified as suitable Bobolink / Eastern Meadowlark habitat, with 6.47 ha of this habitat occurring within the Study Area (i.e., area of impact). Applicable ESA requirements will be addressed prior to any future actions that would impact Bobolink / Eastern Meadowlark on site.

Candidate habitat for SAR bats

Several suitable bat snags were identified within the on-site hedgerows. If suitable snags are proposed for removal as a result of the development, the proponent would be required to complete and submit an Information Gathering Form (IGF) to the MNR, and removals would need to occur outside the migratory bird breeding period (generally April 1 to August 31) and the bat active period (generally March 15 to November 30 for SAR bats). More information about proposed tree removals will be included in future

submissions when the Tree Survey and other reporting as applicable, is available. Based on the surrounding landscape, it is likely that other, more suitable bat habitat is present off-site to the west of the County Rail Trail.

7.1.6. Individual Tree Removals

At the time of the 1st Submission Preliminary EIS a Tree Survey has not yet been prepared for the Study Area. As part of future submissions, a Tree Survey should be completed, and the results should be integrated.

As previously discussed, proposed tree removals should be conducted outside the migratory bird breeding period (generally April 1 to August 31) and outside of the bat active period (generally March 15 to November 30 for SAR bats), wherever possible. In addition, all ESA requirements related to SAR bat habitat and Endangered / Threatened tree species (such as Butternut) will also need to be addressed prior to removal of applicable trees.

7.2. Potential Indirect Impacts

Indirect effects are those potential effects on the biophysical environment that could potentially result in adverse effects on natural heritage features and associated functions. This could potentially include erosion from the work area with associated sedimentation in natural features, accidental spills, impacts to wildlife (e.g., migratory birds and SAR), impacts to vegetation, and the introduction of invasive and/or non-native plant species. Each of these are discussed in the following sections.

7.2.1. Sediment and Erosion

Erosion and sedimentation from the disturbed work area could potentially result in adverse effects such as erosion and sedimentation of the northern wetland and adjacent lands. To mitigate adverse impacts, an Erosion and Sediment Control (ESC) Plan should be prepared and implemented to minimize the potential for erosion and sedimentation from the construction site. The ESC Plan should be developed based on the guidance provided in the Erosion and Sediment Control Guideline for Urban Construction (TRCA 2019).

Additional measures that are recommended, include:

- Minimize the extent of vegetation removal to the extent possible;
- Construction phasing to minimize the amount of time soils are barren and therefore more susceptible to erosion;
- Requirements and timing for rehabilitation of disturbed areas; and
- Inspection and performance monitoring requirements and adaptive management considerations.

Implementation of an effective ESC plan, incorporating both erosion and sedimentation controls, coupled with regular inspection and performance monitoring and implementation of any remedial actions necessary to ensure effective performance, is anticipated to be largely effective in preventing the movement of eroded soil particles towards adjacent natural heritage features.

Overall, no adverse effects are anticipated as a result of erosion and sedimentation during construction, provided an effective ESC plan, including monitoring and adaptive management, is implemented.

7.2.2. Accidental Spills into the Environment

Accidental spills of potentially hazardous materials (e.g., fuel and oil from heavy equipment), if transported into the NHS or off-site natural heritage features, could cause stress or injury to biota.

In order to mitigate the potential for adverse effects on adjacent habitats due to potential accidental spills during construction, it is recommended that a spill prevention and response plan be prepared that details material handling and storage protocols, mitigation measures (e.g., spill kits on-site), monitoring measures and spill response plans (i.e., emergency contact procedures, including the Spills Action Centre, and response measures including containment and clean-up). Implementation of an effective spill prevention and response plan is anticipated to be largely effective in preventing adverse effects on natural heritage features.

7.2.3. Other Indirect Construction-Related Impacts

Potential indirect impacts to wildlife may arise from noise and dust associated with construction activities and unnatural lighting.

Noise associated with construction will be temporary; therefore, significant impacts to wildlife from noise are not anticipated. In addition, given the existing noise that may result from Appleby Line located immediately north of the Subject Lands, it is expected that local wildlife communities are generally at least somewhat tolerant of anthropogenic noise sources.

During construction activities such as clearing and grubbing, resulting dust can lead to changes in vegetation due to increased heat absorption and decreased transpiration, adverse effects to plants and/or wildlife that are not adapted to high levels of sedimentation, and visual impact. To suppress dust, areas of bare soil can be moistened with water during construction activities to minimize the amount of dust within the development area. Topsoil stockpile locations can also be seeded, and storage can be targeted to areas with reduced wind exposure, away from natural features. Topsoil piles should not exceed 2 m in height, to avoid dust and to maintain the health of the soil. ESC measures should be implemented and will assist in the reduction of dust.

To minimize light being directed into the adjacent ecological features, outdoor lighting should be located and directed away from the retained features wherever possible. In addition, to minimize potential impacts, direct upward light should be eliminated, spill light should be minimized, and all lighting sources should illuminate only non-reflective surfaces wherever possible (e.g., as per City of Toronto Green Development Standard 2007).

7.2.4. Introduction of Invasive and Non-Native Species

The introduction of invasive and non-native plant species along the disturbed portions of the Subject Lands may displace some native flora, particularly in areas where vegetation removals disturb existing invasive species seedbanks. In order to reduce opportunities for the colonization of invasive and non-

native species, areas where disturbance has exposed bare soils should be seeded with a cover crop and native species seed mix.

7.2.5. Occupancy Impacts

Occupancy impacts are described as those that are not directly related to the construction or operation of the facilities in question, but rather arise from the use of the natural areas as a result of the development. The simplest examples are increased use of a natural area by nearby residents, noise effects, domestic wildlife, and unauthorized trails and pathways.

Once the development is completed, subsequent use of the natural areas by residents is difficult to control. The following measures could be employed to limit these impacts:

- Education with respect to the values and implications of the neighbouring natural areas can be employed.
- Dense plantings of native trees and shrubs can be considered to discourage human intrusion into sensitive areas, especially plants that will dissuade trampling such as native, thorny species.

8. Restoration and Enhancement Opportunities

Restoration and enhancement opportunities will be discussed further as part of future EIS submissions. In general, it is recommended that native wetland species be considered for incorporation along the proposed realigned channel. In addition, incorporation of pollinator habitat and enhancements to the proposed realigned channel (such as riffle pool morphology, shading through riparian plantings, and incorporation of large woody debris) are recommended to be considered as part of the proposed natural channel design. The results of the pre-consultation also indicated that access to the Grey County Rail Trail is required to be provided as part of the proposed development. Proposed trail connections will be incorporated into future design submissions as applicable. Lastly, the results of wetland removal discussions with agencies will be integrated into future submissions, as applicable.

9. Monitoring

An ecological monitoring program is intended to ensure that:

- Protective mitigation strategies and actions are effectively implemented;
- Ecological restoration measures are effectively implemented; and
- Created features and associated functions are developing along projected trajectories.

Typically, monitoring programs consist of three types of monitoring: baseline, during-construction, and post-construction (including post-construction compliance and performance monitoring).

A conceptual monitoring plan will be developed and included in future detailed design submissions.

10. Next Steps

Table 10-1, below, provides a high-level overview of predicted impacts and the next steps required to advance the ecological components of this proposed development.

Table 10-1: Overview of Next Steps

Natural Heritage Feature		Preliminary Predicted Impacts	Next Steps / Recommendations
Wetlands		Partial removal. Retained portions are recommended to be protected with a 10 m VPZ.	• Review finalized concept plan/site plan and area of impact; • Conduct feature staking if requested by agencies and integrate the results into future detailed design submissions; • Demonstrate that site water balance is maintained pre- to post-development (i.e., maintenance of pre- to post-development flow contributions and wetland hydrology); • Consider instrumentation of the northeast wetland complex to assess if this feature is groundwater fed; • Consult with review agencies on proposed wetland removals; • Obtain GSCA permitting prior to any work within wetlands and their adjacent lands (see **Section 5.11**)
SWH	MAM5	No impact (provided flow contributions and wetland hydrology are maintained post-development)	• Review finalized concept plan/site plan and area of impact; • Integrate suitable habitat into the proposed realigned channel as appropriate; and • Demonstrate that site water balance is maintained pre- to post-development (i.e., maintenance of pre- to post-development flow contributions and wetland hydrology)
	Terrestrial Crayfish	Partial removal and restoration / mitigation	

Natural Heritage Feature		Preliminary Predicted Impacts	Next Steps / Recommendations
	Monarch	Partial removal and restoration / mitigation	
	Ribbed Sedge	No impact (species will be retained within the Subject Lands provided post development flow contributions and wetland hydrology are maintained)	
Fish Habitat (direct and indirect)		Realignment / removal and mitigation. Retained, direct fish habitat within the western watercourse is recommended to be protected with a 30 m VPZ, retained, indirect fish habitat within the western watercourse is recommended to be protected with a 10 m VPZ.	• Review finalized concept plan/site plan and area of impact; • Complete the recommended detailed topographic survey of the center line of H2 to assess direction of flow; • Submit a Request for Review to Fisheries and Oceans Canada for the proposed western watercourse realignment. This will determine if the project requires a Fisheries Act Authorization. ○ Submitting for a Fisheries Act Authorization requires at least 30% engineering design; 60% engineering design is preferred/recommended • Implement mitigation measures identified in **Section 7.1.3** and **7.1.4**

Habitat for Endangered and Threatened Species	Bobolink and Eastern Meadowlark	Removal	• Review finalized concept plan/site plan and area of impact;
			• As per O. Reg 830/21 Conditional Exemptions – Bobolink and Eastern Meadowlark, if the habitat to be removed is under 30 ha, the development would not require a permit under the ESA, but would require:
			  ○ Registration of the activity;
			  ○ Payment into the SAR conservation trust; and/or

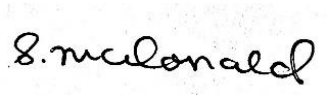
Natural Heritage Feature		Preliminary Predicted Impacts	Next Steps / Recommendations
			○ Meeting the applicable requirements listed in O. Reg 830/21 to quality for a conditional exemption (e.g., registration, reporting, habitat creation and management, monitoring)
	Butternut	Removal	• Review finalized concept plan/site plan and area of impact; • Complete a Butternut Health Assessment to determine the number and health of the impacted trees within the Study Area and prepare a report summarizing the results; • Engage with MECP through an IGF; • Submit the health assessment to the MECP at least 30 days before the proposed activity; • As per O. Reg 830/21 Conditional Exemptions – Butternut, depending on the number and condition of impacted trees, removal of Butternuts on site may or may not qualify for a conditional exemption under the ESA. If a conditional exemption is possible given on site conditions; the following would be required: ○ Payment into the SAR conservation trust and/or ○ Meeting the applicable requirements listed in O. Reg 830/21 to quality for a conditional exemption (e.g., registration, reporting, habitat creation and management, monitoring) • Retained Butternut trees may also require a VPZ prior to on-site works. The width and requirement for a VPZ will depend on the Butternut Health Assessment results.
	SAR bat habitat	Removal	• Review finalized concept plan/site plan and area of impact; • Engage with MECP through an IGF; • Any tree removals are to be completed outside the active window for birds (April 1 – August 31) and bats (March 15 – November 30 for SAR bats)
Other Individual Trees		Removal	• Review finalized concept plan/site plan and area of impact; • Integrate tree survey results from project arborist into future EIS submissions;

Natural Heritage Feature	Preliminary Predicted Impacts	Next Steps / Recommendations
		• Coordinate compensation for tree removals (as applicable) with agencies; and • Any tree removals are to be completed outside the active window for birds (April 1 – August 31) and bats (March 15 – November 30 for SAR bats)

Should you have any questions about the information presented in this 1st Submission Preliminary EIS, please contact one of the undersigned.

Prepared By:

GEI Consultants



Sarah McDonald
Project Manager
519-365-4964
smcdonald@geiconsultants.com

Natalie Dunn
Project Director
416-908-6167
ndunn@geiconsultants.com

11. References

Bird Studies Canada, Environment Canada's Canadian Wildlife Service, Ontario Nature, Ontario Field Ornithologists and Ontario Ministry of Natural Resources. 2024. Ontario Breeding Bird Atlas. Available online at: http://www.birdsontario.org/atlas/index.jsp

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

Chapman, L.J. and Putnam, D.F. 2007. Physiography of southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 228.

Caverhill, B., Johnson, B., Phillips, J., & E. Nadeau 2011. Blanding's Turtle (*Emydoidea blandingii*) and Snapping Turtle (*Chelydra serpentina*) Habitat Use and Movement in the Oakland Swamp Wetland Complex, and Their Response to the Provincial Highway 24 Exclusion Fence and Aquatic Culvert Ecopassage. Toronto Zoo Adopt-a-Pond-Programme

City of Owen Sound 2021 (Consolidated 2022). Owen Sound Official Plan. Available online at: https://www.owensound.ca/business-building-development/planning-and-development/official-plan/

Department of Fisheries and Oceans (DFO). 2023. Aquatic Species at Risk Distribution Mapping. Available online at http://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html

eBird. 2023. Explore Hotspots. Available online at: https://ebird.org/explore

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

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

Government of Ontario. 2007a*. Endangered Species Act, 2007,* S.O. 2007, c. 6. (Consolidated October 2021).

Government of Ontario. 2007b. Ontario Regulation 230/08: Species at Risk in Ontario List. *Endangered Species Act, 2007, S.O. 2007, c. 6.* (Consolidated January 2024).

Government of Ontario. 2007c. Ontario Regulation 832/21: Habitat. *Endangered Species Act*, 2007, S.O. 2007, c. 6. (Consolidated December 2021).

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

Grey County n.d. Environmental Impact Study Technical Guide. Available online at: https://www.grey.ca/government/land-use-planning/planning-application-form-guidelines

Grey County 2018 (Consolidated 2023). Recolour Grey County, Grey Official Plan. Available online at: https://www.grey.ca/government/land-use-planning/official-plan-and-policies

Grey Sauble Conservation Authority (GSCA) 2017. Regulation Mapping. Available online at: https://www.greysauble.on.ca/mapping-gis/grey-sauble-conservation-authority-regulations-mapping/

iNaturalist. 2023. Explore Observations. Available online at: https://www.inaturalist.org/ observations

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

Miller, T. 2023. Vascular Plant List, Bruce & Grey: Compendium 5e. Owen Sound Field Naturalists. Owen Sound, ON. 87 pp.

Natural Heritage Information Centre (NHIC). 2024. Element summary for plants, wildlife, and vegetation communities. Ontario Ministry of Natural Resources, Peterborough.

Ontario Ministry of Municipal Affairs and Housing (MMAH). 2024. Provincial Planning Statement. Ontario Ministry of Municipal Affairs and Housing. Toronto: Queens Printer for Ontario.

Ontario Ministry of Natural Resources (MNR). 2000. Significant Wildlife Habitat Technical Guide. Fish and Wildlife Branch, Wildlife Section, Science Development and Transfer Branch, Southcentral Sciences Section. 151 pp.

Ontario Ministry of Natural Resources (MNR) 2010. Natural Heritage Reference Manual for the Natural Heritage Policies of the Provincial Policy Statement. Available online: http://www.mnr.gov.on.ca/en/Business/LUEPS/Publication/249081.html

Ontario Ministry of Natural Resources (MNR) 2011. Bats and Bat Habitats: Guidelines for Wind Power Projects. Second Edition.

Ontario Ministry of Natural Resources (MNR) 2012a. Bobolink Survey Methodology.

Ontario Ministry of Natural Resources (MNR) 2012b. Blanding's Turtle Survey Protocol.

Ontario Ministry of Natural Resources and Forestry. 2015. Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E. Regional Operations Division. Southern Region Resources Section. January 2015.

Ontario Ministry of Natural Resources and Forestry (MNRF) 2016. Survey Protocol for Ontario's Species at Risk Snakes. Ontario Ministry of Natural Resources and Forestry, Species Conservation Policy Branch. Peterborough, Ontario. ii + 17 pp.

Ontario Ministry of Natural Resources and Forestry (MNRF) 2017. Survey Protocols for Species at Risks Bats within Treed Habitats: Little Brown Myotis, Northern Myotis, and Tri-Coloured Bat.

Ontario Ministry of Natural Resources and Forestry (MNRF). 2023. Land Information Ontario (LIO). Available online at: https://www.lioapplications.lrc.gov.on.ca/Natural_Heritage/index.html?viewer=Natural_Heritage.Natural_Heritage&locale=en-CA

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

Stanfield, L. Editor 2017. Ontario Stream Assessment Protocol. Version 10 – 2017. Fisheries Policy Section. Ontario Ministry of Natural Resources. Peterborough, Ontario. 26 pp. 548 pp.

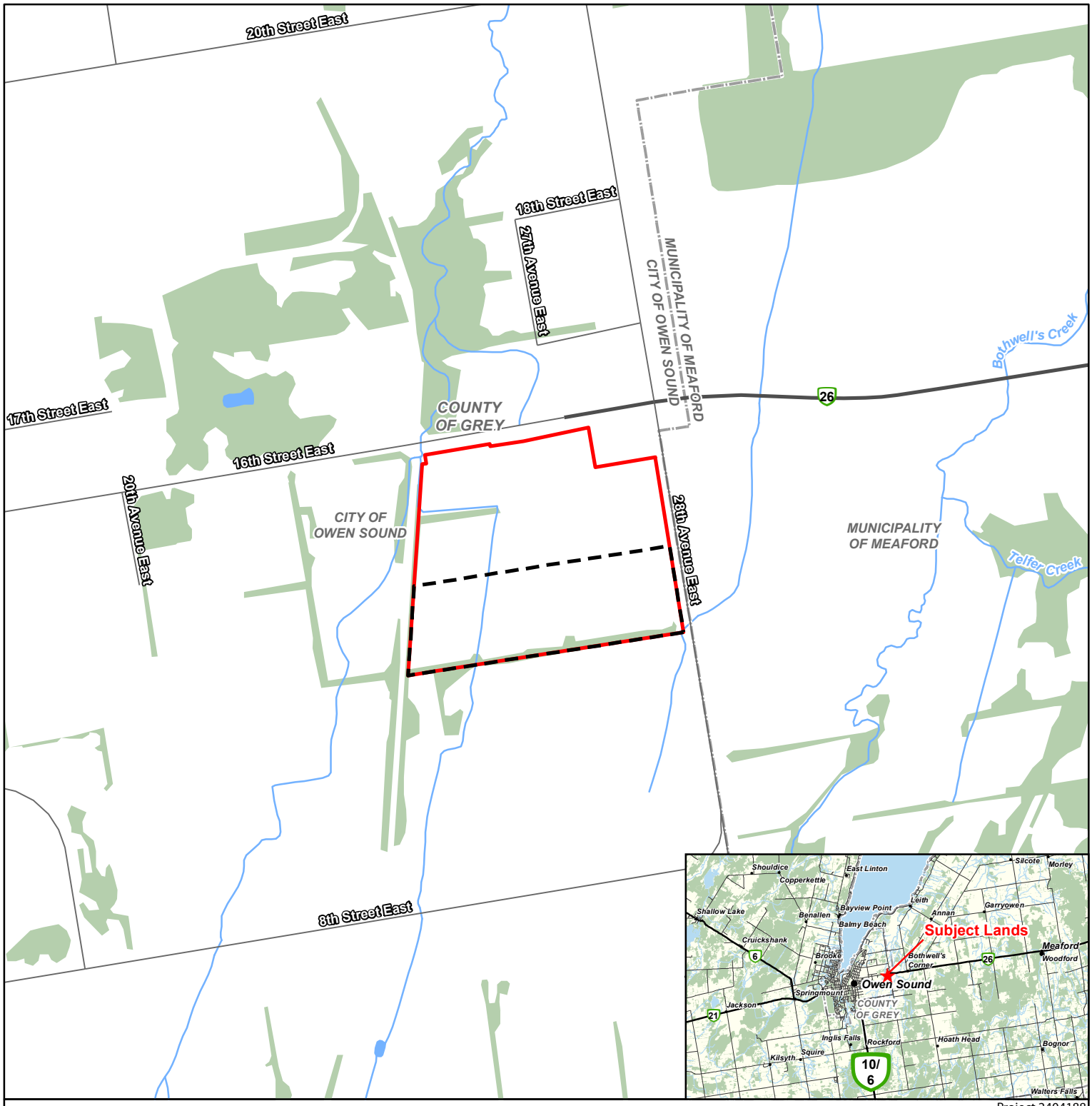
Toronto and Region Conservation Authority (TRCA) and Credit Valley Conservation (CVC) 2014. Evaluation, Classification and Management of Headwater Drainage Features Guidelines. Available online at: https://cvc.ca/wp-content/uploads//2021/06/HDFA-final.pdf

TRCA 2017. Wetland Water Balance Risk Evaluation. Available online at: https://trca.ca/app/uploads/2017/12/WetlandWaterBalanceRiskEvaluation_Nov2017.pdf

Toronto Entomologists' Association. 2020. Ontario Moth Atlas. Available online at: https://www.ontarioinsects.org/moth/

Toronto Entomologists' Association. 2022. Ontario Butterfly Atlas. Available online at: https://www.ontarioinsects.org/atlas/

Appendix A Figures



Project 2404188

NOTES:
1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2024.

Legend

- Subject Lands
- Study Area
- Highway
- Road
- Municipal Boundary, Lower/Single Tier
- Municipal Boundary, Upper Tier
- Watercourse
- Waterbody
- Wooded Area

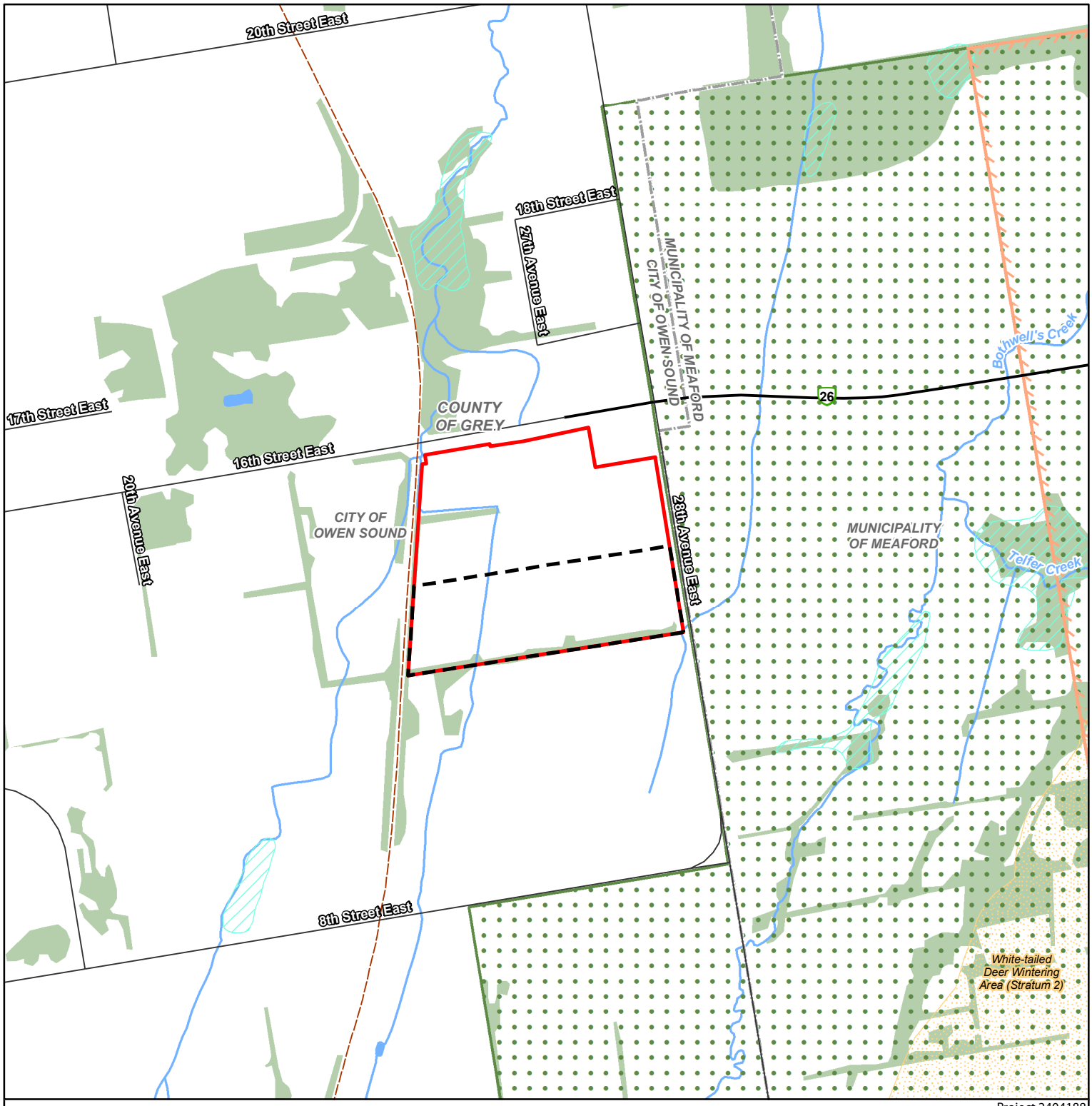
16th St E & 28th Ave E, Owen Sound
Bruce Grey Catholic District School Board
Ecological Impact Study

Figure 1
Location of Subject Lands

0 100 m
1:10,000

N

GEI Consultants



Project 2404188

NOTES:
1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2024.

Legend

- Subject Lands
- Study Area
- Highway
- Road
- Trail Segment (OTN)
- Municipal Boundary, Lower/Single Tier
- Niagara Escarpment Plan NHS
- Greenbelt Boundary / Niagara Escarpment Plan Boundary
- Wetland - Not evaluated per OWES
- Wildlife Activity Area
- Wooded Area
- Waterbody
- Watercourse

16th St E & 28th Ave E, Owen Sound
Bruce Grey Catholic District School Board
Ecological Impact Study

Figure 2
Landscape Setting

0 100 m
1:10,000

N

GEI Consultants

Project 2404188

NOTES:

1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2024.
3. Orthoimagery © First Base Solutions, 2024. Imagery taken in 2020.

Legend

- Subject Lands
- Study Area
- Ecological Land Classification
- Watercourse

ELC LEGEND

AG, Agricultural
CUM, Cultural Meadow
CUM1, Mineral Cultural Meadow
CUT1, Mineral Cultural Thicket
CUW1, Cultural Woodland
DIST, Disturbed
IND, Industrial
F-M CUM1, Fresh-Moist Mineral Cultural Meadow
FOD, Deciduous Forest
HR, Hedgerow
**Provincially ranked S3*

MAM, Meadow Marsh
MAM2, Mineral Meadow Marsh
MAM2-2, Reed Canary Grass Mineral Meadow Marsh
MAM2-20, Common Reed Mineral Meadow Marsh
MAM5*, Mineral Fen Meadow Marsh
SAM1-2, Duckweed Mixed Shallow Aquatic
SWD2-2, Green Ash Mineral Deciduous Swamp
SWD4, Mineral Deciduous Swamp
SWT2, Mineral Thicket Swamp
SWT2-2, Willow Mineral Thicket Swamp
SWT2-5, Red-osier Dogwood Mineral Thicket Swamp

16th St E & 28th Ave E, Owen Sound
Bruce Grey Catholic District School Board
Environmental Impact Study

Figure 3
Ecological Land Classification

0 50 m
1:2,800

N

GEI Consultants

Project 2404188

NOTES:

1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2024.
3. Orthoimagery © First Base Solutions, 2024. Imagery taken in 2020.

Legend

- Subject Lands
- Study Area
- Ecological Land Classification
- Watercourse
- Bat Habitat Assessment
- Terrestrial Crayfish Surveys
- Amphibian Call Count Station
- Breeding Bird Survey Station
- Turtle Basking Station

ELC LEGEND

AG, Agricultural
CUM, Cultural Meadow
CUM1, Mineral Cultural Meadow
CUT1, Mineral Cultural Thicket
CUW1, Cultural Woodland
DIST, Disturbed
IND, Industrial
F-M CUM1, Fresh-Moist Mineral Cultural Meadow
FOD, Deciduous Forest
HR, Hedgerow
*Provincially ranked S3

MAM, Meadow Marsh
MAM2, Mineral Meadow Marsh
MAM2-2, Reed Canary Grass Mineral Meadow Marsh
MAM2-20, Common Reed Mineral Meadow Marsh
MAM5*, Mineral Fen Meadow Marsh
SAM1-2, Duckweed Mixed Shallow Aquatic
SWD2-2, Green Ash Mineral Deciduous Swamp
SWD4, Mineral Deciduous Swamp
SWT2, Mineral Thicket Swamp
SWT2-2, Willow Mineral Thicket Swamp
SWT2-5, Red-osier Dogwood Mineral Thicket Swamp

16th St E & 28th Ave E, Owen Sound
Bruce Grey Catholic District School Board
Ecological Impact Study

Figure 4
Survey Stations

0 50 m
1:2,800

N

GEI Consultants

Project 2404188

NOTES:

1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2024.
3. Orthoimagery © First Base Solutions, 2024. Imagery taken in 2020.

Legend

- Subject Lands
- Study Area
- Ecological Land Classification
- Watercourse
- Terrestrial Crayfish Locations
- Bat Snag Locations
- Butternut Location
- Ribbed Sedge (S3)
- Alpine Rush (locally rare)

ELC LEGEND

AG, Agricultural
CUM, Cultural Meadow
CUM1, Mineral Cultural Meadow
CUT1, Mineral Cultural Thicket
CUW1, Cultural Woodland
DIST, Disturbed
IND, Industrial
F-M CUM1, Fresh-Moist Mineral Cultural Meadow
FOD, Deciduous Forest
HR, Hedgerow
Provincially ranked S3
MAM, Meadow Marsh
MAM2, Mineral Meadow Marsh
MAM2-2, Reed Canary Grass Mineral Meadow Marsh
MAM2-20, Common Reed Mineral Meadow Marsh
MAM5*, Mineral Fen Meadow Marsh
SAM1-2, Duckweed Mixed Shallow Aquatic
SWD2-2, Green Ash Mineral Deciduous Swamp
SWD4, Mineral Deciduous Swamp
SWT2, Mineral Thicket Swamp
SWT2-2, Willow Mineral Thicket Swamp
SWT2-5, Red-osier Dogwood Mineral Thicket Swamp

16th St E & 28th Ave E, Owen Sound
Bruce Grey Catholic District School Board
Environmental Impact Study

Figure 5
Terrestrial Results

0 50 m
1:2,800

N

GEI Consultants

Project 2404188

NOTES:

1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2024.
3. Orthoimagery © First Base Solutions, 2024. Imagery taken in 2020.

Legend

- Subject Lands
- Study Area
- Ecological Land Classification
- Watercourse

Fish Habitat

- Direct Fish Habitat
- Contributing Fish Habitat

HDF Management Recommendation

- Mitigation
- Protection
- Reach Break

ELC LEGEND

AG, Agricultural
CUM, Cultural Meadow
CUM1, Mineral Cultural Meadow
CUT1, Mineral Cultural Thicket
CUW1, Cultural Woodland
DIST, Disturbed
IND, Industrial
F-M CUM1, Fresh-Moist Mineral Cultural Meadow
FOD, Deciduous Forest
HR, Hedgerow
**Provincially ranked S3*
MAM, Meadow Marsh
MAM2, Mineral Meadow Marsh
MAM2-2, Reed Canary Grass Mineral Meadow Marsh
MAM2-20, Common Reed Mineral Meadow Marsh
MAM5*, Mineral Fen Meadow Marsh
SAM1-2, Duckweed Mixed Shallow Aquatic
SWD2-2, Green Ash Mineral Deciduous Swamp
SWD4, Mineral Deciduous Swamp
SWT2, Mineral Thicket Swamp
SWT2-2, Willow Mineral Thicket Swamp
SWT2-5, Red-osier Dogwood Mineral Thicket Swamp

16th St E & 28th Ave E, Owen Sound
Bruce Grey Catholic District School Board
Ecological Impact Study

Figure 6
Aquatic Results

0 50 m
1:2,800
N

GEI Consultants

Project 2404188

16th St E & 28th Ave E, Owen Sound
Bruce Grey Catholic District School Board
Ecological Impact Study

Figure 7
Existing Natural Heritage Features

NOTES:

1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2024.
3. Orthoimagery © First Base Solutions, 2024. Imagery taken in 2020.

Legend

- Subject Lands
- Study Area
- Ecological Land Classification
- Watercourse
- Wetlands
- Wetland + 10m

Fish Habitat

- Direct Fish Habitat
- Contributing Fish Habitat
- Fish Habitat Setback (30 m from watercourses with direct habitat, 10 m from watercourses with indirect habitat)

HDF Management Recommendation

- Mitigation
- Protection
- Reach Break

Confirmed Significant Wildlife Habitat

- Terrestrial Crayfish Habitat
- Ribbed Sedge Habitat
- Monarch Butterfly Habitat

Candidate SAR Habitat

- Bat Snag Location

Confirmed SAR Habitat

- Butternut Location**
- Eastern Meadowlark and Bobolink Habitat

**Depending of the result of the Butternut health assessment, a VPZ may be required from these trees

ELC LEGEND

AG, Agricultural
CUM, Cultural Meadow
CUM1, Mineral Cultural Meadow
CUT1, Mineral Cultural Thicket
CUW1, Cultural Woodland
DIST, Disturbed
IND, Industrial
F-M CUM1, Fresh-Moist Mineral Cultural Meadow
FOD, Deciduous Forest
HR, Hedgerow
*Provincially ranked S3
MAM, Meadow Marsh
MAM2, Mineral Meadow Marsh
MAM2-2, Reed Canary Grass Mineral Meadow Marsh
MAM2-20, Common Reed Mineral Meadow Marsh
MAM5*, Mineral Fen Meadow Marsh
SAM1-2, Duckweed Mixed Shallow Aquatic
SWD2-2, Green Ash Mineral Deciduous Swamp
SWD4, Mineral Deciduous Swamp
SWT2, Mineral Thicket Swamp
SWT2-2, Willow Mineral Thicket Swamp
SWT2-5, Red-osier Dogwood Mineral Thicket Swamp

0 50 m
1:2,800

N

GEI Consultants

Project 2404188

NOTES:

1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2024.
3. Orthoimagery © First Base Solutions, 2024. Imagery taken in 2020.
4. Concept Plan and Grading Plan © GEI Consultants, November 2024.

Legend

- Subject Lands
- Study Area
- Watercourse
- Concept Plan
- Grading Plan

16th St E & 28th Ave E, Owen Sound
Bruce Grey Catholic District School Board
Environmental Impact Study

Figure 8
Conceptual Development and Grading Plan

0 50 m

1:2,800

N

GEI Consultants

Appendix B Tables

Table 1: Field Studies and Natural Inventories (2024)

SURVEYORS (SURNAME, INTL)	SURVEY TYPE	DATE (2024)	AIR TEMP (c°)	WATER TEMP (c°)	HUMIDITY (%)	CLOUD COVER (%)	BEAUFORT WIND SPEED	PRECIPITATION COMMENTS
Martin, S., Kimble, B.	• Site Reconnaissance • HDFA Round 1	MR 7	6	NA	49	10	3	No precipitation
Martin, S.	• Amphibian Call Count Survey Round 1	AP 29	18	NA	82	60	3	No precipitation
Martin, S.	• Bat Habitat Assessment • Turtle Basking Round 1 • Snake VES Round 1 • Terrestrial Crayfish Survey	MA 7	16	NA	40	0	2	No precipitation
Martin, S., Kimble, B.	• Spring Botany • Confirmatory ELC • Turtle Basking Round 2 • Snake VES Round 2 • Amphibian Call Count Survey Round 2 • Terrestrial Crayfish Survey • Fish Community Sampling • HDFA Round 2 • Aquatic Habitat Assessment	MA 15	14	NA	55	0	2	No precipitation
Martin, S.	• Breeding Bird Survey Round 1	MA 26	22	NA	55	50	2	No precipitation
Martin, S.	• Breeding Bird Survey Round 2	JN 15	12	NA	44	0	2	No precipitation
Martin, S.	• Amphibian Call Count Survey Round 3	JN 28	17	NA	90	90	2	Occasional light rain
Martin, S.	• Breeding Bird Survey Round 3 (Grassland Bird Survey)	JL 02	12	NA	52	10	2	No precipitation at time of survey, light rain later in the day
Martin, S.	• Summer Botany	JL 18	20	NA	63	50	3	No precipitation

Table 1: Field Studies and Natural Inventories (2024)

SURVEYORS (SURNAME, INTL)	SURVEY TYPE	DATE (2024)	AIR TEMP (c°)	WATER TEMP (c°)	HUMIDITY (%)	CLOUD COVER (%)	BEAUFORT WIND SPEED	PRECIPITATION COMMENTS
Martin, S. McDonald, S.	• Fall Botany • HDFA Round 3	SE 19	22	NA	69	10	2	No precipitation

LEGEND:

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

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

Table 2: Ecological Landscape Characterization (ELC) Community Descriptions

ELC TYPE	COMMUNITY DESCRIPTION	S-RANK (NHIC 2023)
CULTURAL		
CUM Cultural Meadow	• Tree cover < 25%, shrub cover < 25% • Culturally-influenced	NR
CUM1 Mineral Cultural Meadow	• Tree cover < 25%, shrub cover < 25% • Culturally-influenced • Groundcover varies across the Subject Lands but commonly consisted of Spotted Knapweed, Orchard Grass, Tall Goldenrod, Smooth Bedstraw, Tufted Vetch • Common Milkweed was dominant within the Study Area alongside Common Lamb's Quarters	NR
F-M CUM1 Fresh – Moist Mineral Cultural Meadow	• Tree cover < 25%, shrub cover < 25% • Culturally-influenced • Dominated by Black Knapweed, Tall Goldenrod, Smooth Bedstraw, and Tufted Vetch	NR
CUT1 Mineral Cultural Thicket	• Tree cover < 25%, shrub cover > 25% • Culturally-influenced • Sub-canopy of White Ash and Sugar Maple • Understory of Chokecherry, Black Raspberry, Smooth Serviceberry, and White Ash • Groundcover of Tall Goldenrod, Wild Strawberry, Oxeye Daisy, and Orchard Grass	NR
CUW1 Cultural Woodland	• 35% < tree cover < 60% • Culturally-influenced • Canopy dominated by Sugar Maple, White Ash, Basswood, and American Elm • Sub-canopy dominated by White Ash, Sugar Maple, Black Walnut, and American Elm • Understory dominated by Common Apple, Hawthorn sp., Chokecherry, and Nannyberry • Groundcover dominated by Yellow Trout Lily, Wild Strawberry, Annual Bluegrass, and Common Dandelion	NR
FOREST		
FOD	• Tree cover > 60%	NR

ELC TYPE	COMMUNITY DESCRIPTION	S-RANK (NHIC 2023)
Deciduous Forest	• Deciduous tree species > 75% of canopy cover	
SWAMP		
SWD2-2 Green Ash Mineral Deciduous Swamp	• Tree cover > 25%; trees > 5m in height • Generally dominated by Green Ash throughout community • Sub-canopy of Green Ash and American Elm • Understory of Green Ash, Red Osier Dogwood, Trembling Aspen, and Eastern White Cedar • Groundcover of Fowl Bluegrass, Woolly Sedge, Yellow Sedge, Panicled Aster, and Grass-leaved Goldenrod	S5
SWD4 Mineral Deciduous Swamp	• Tree cover > 25%; trees > 5m in height • Canopy dominated by Green Ash, Silver Maple, American Elm, and Basswood • Sub-canopy dominated by Green Ash, Silver Maple, American Elm, and Hybrid Crack Willow • Understory dominated by Nannyberry, Red Osier Dogwood, and Cranberry Viburnum • Groundcover dominated by Reed Canary Grass, Panicled Aster, Fowl Mannagrass, and Spotted Jewelweed	S4/S5
SWT2 Mineral Thicket Swamp	• Tree cover ≤ 25%; hydrophytic shrubs >25% • Canopy dominated by Green Ash, Silver Maple, American Elm, and Basswood • Sub-canopy dominated by Green Ash, Silver Maple, American Elm, and Hybrid Crack Willow • Understory dominated by Nannyberry, Red Osier Dogwood, and Cranberry Viburnum • Groundcover dominated by Reed Canary Grass, Panicled Aster, Fowl Mannagrass, and Spotted Jewelweed	NR
SWT2-2 Willow Mineral Thicket Swamp	• Tree cover ≤ 25%; hydrophytic shrubs >25% • Sub-canopy of American Elm and Green Ash • Dominated by Willow species (Cottony Willow, Bebb's Willow, and Meadow Willow) in the understory • Groundcover of Reed Canary Grass and Small Duckweed	S5
SWT2-5 Red-osier Dogwood Mineral Thicket Swamp	• Tree cover ≤ 25%; hydrophytic shrubs >25% • Sub-canopy of Green Ash and American Elm • Dominated by Red-osier Dogwood in the understory • Groundcover of Reed Canary Grass, Panicled Aster, Common Marsh Bedstraw, and Giant Goldenrod	S5

ELC TYPE	COMMUNITY DESCRIPTION	S-RANK (NHIC 2023)
MARSH		
MAM Meadow Marsh	• Tree and shrub cover <25% • Dominated by emergent hydrophytic macrophytes	NR
MAM2 Mineral Meadow Marsh	• Tree and shrub cover <25% • Understory of Red Osier Dogwood, Cottony Willow and Meadow Willow • Dominated by Reed Canary Grass in the ground layer along with Grass-leaved Goldenrod, Panicled Aster, and Phragmites	NR
MAM2-2 Reed Canary Grass Mineral Meadow Marsh	• Tree and shrub cover <25% • Understory of Red Osier Dogwood, Cottony Willow, and Green Ash • Dominated by Reed Canary Grass in the ground layer along with Panicled Aster, Fowl Bluegrass, and New England Aster	S5
MAM2-20 Common Reed Mineral Meadow Marsh	• Tree and shrub cover <25% • Groundcover dominated by Phragmites along with Reed Canary Grass, Broad-leaved Cattail, and Redtop	NR
MAM5 Mineral Fen Meadow Marsh	• Tree and shrub cover <25% • Sub-canopy of Green Ash and American Elm • Understory of Red Osier Dogwood, Green Ash, Meadow Willow, and American Elm • Dominated by Golden Groundsel in the ground layer along with Woolly Sedge, Yellow Sedge, Panicled Aster, Grass-leaved Goldenrod, and Common Silverweed	S3
Shallow Aquatic		
SAM1-2 Duckweed Mixed Shallow Aquatic	• No tree or shrub cover, dominated by submergent and/or floating aquatic vegetation • Dominated by Reed Canary Grass, Soft-stemmed Bulrush, and Broad-leaved Cattail in the understory • Groundcover of Small Duckweed	S5
OTHER		

ELC TYPE	COMMUNITY DESCRIPTION	S-RANK (NHIC 2023)
HR Hedgerow	• Generally Green Ash dominated within the Subject Lands with abundant Buckthorn and Red Osier Dogwood	NR
AG Agricultural	• Actively managed agricultural fields	NR
DIST Disturbed	• Areas disturbed by anthropogenic use	NR
IND Industrial	• Areas under industrial use	NR

ORDER	FAMILY	LATIN NAME	COMMON NAME	COEFFICIENT OF CONSERVATISM (NHIC SEP 19 2023)	WETNESS INDEX (NHIC SEP 19 2023)	OWES WETLAND SPECIES	WEEDINESS INDEX	INVASIVE EXOTIC RANK (Urban Forest Associates 2002)	PROVINCIALLY TRACKED (NHIC) (NHIC FEB 6 2024)	PROVINCIAL STATUS (S-RANK) (NHIC FEB 6 2024)	GLOBAL STATUS (G-RANK) (NHIC FEB 6 2024)	SARO (MNRF) (NHIC FEB 6 2024)	COSEWIC STATUS (NHIC FEB 6 2024)		BRUCE (Miller 2023)	GREY (Miller 2023)	SPECIES CODE	AUTHORITY
DICOTYLEDONS	Amaranthaceae	Amaranthus retroflexus	Redroot Amaranth		3		-1		N	SNA	G5				*	*	AMARETR	L.
DICOTYLEDONS	Amaranthaceae	Chenopodium album	Common Lamb's-Quarters		3		-1		N	SNA	G5				*	*	CHEALBU	L.
DICOTYLEDONS	Apiaceae	Daucus carota	Wild Carrot		5		-2		N	SNA	GNR				*	*	DAUCARO	L.
DICOTYLEDONS	Apocynaceae	Asclepias syriaca	Common Milkweed	0	5				N	S5	G5				C	C	ASCSYRI	L.
DICOTYLEDONS	Asteraceae	Achillea millefolium	Common Yarrow		3		-1		N	SNA	G5						ACHMILL	L.
DICOTYLEDONS	Asteraceae	Bidens frondosa	Devil's Beggarticks	3	-3	I			N	S5	G5				C	C	BIDFRON	L.
DICOTYLEDONS	Asteraceae	Centaurea nigra	Black Knapweed		5				N	SNA	GNR				*	*	CENNIGR	L.
DICOTYLEDONS	Asteraceae	Centaurea nigrescens	Short-Fringed Knapweed		5		-1		N	SNA	GNR				**	**	CENNGRS	Willd.
DICOTYLEDONS	Asteraceae	Centaurea stoebe	Spotted Knapweed		5		-3	3	N	SNA	GNR				**	**	CENSTOE	L.
DICOTYLEDONS	Asteraceae	Centaurea x moncktonii	Meadow Knapweed		5				N	SNA	GNA				*	*	CENXMON	C.E. Britton
DICOTYLEDONS	Asteraceae	Cichorium intybus	Wild Chicory		5		-1		N	SNA	GNR				*	*	CICINTY	L.
DICOTYLEDONS	Asteraceae	Cirsium arvense	Canada Thistle		3		-1	1	N	SNA	G5				**	**	CIRARVE	(L.) Scop.
DICOTYLEDONS	Asteraceae	Cirsium vulgare	Bull Thistle		3		-1		N	SNA	GNR				*	*	CIRVULG	(Savi) Tenore
DICOTYLEDONS	Asteraceae	Erigeron annuus	Annual Fleabane	0	3				N	S5	G5				C	C	ERIANNU	(L.) Pers.
DICOTYLEDONS	Asteraceae	Euthamia graminifolia	Grass-Leaved Goldenrod	2	0				N	S5	G5				C	C	EUTGRAM	(L.) Nutt.
DICOTYLEDONS	Asteraceae	Eutrochium maculatum var. maculatum	Spotted Joe Pye Weed	3	-5	I			N	S5	G5T5				C	C	EUTMAMA	(L.) E.E. Lamont
DICOTYLEDONS	Asteraceae	Hieracium umbellatum	Umbellate Hawkweed	6	5		-1		N	S5	G5				R		HIEUMBE	L.
DICOTYLEDONS	Asteraceae	Leucanthemum vulgare	Oxeye Daisy		5		-1		N	SNA	GNR				*	*	LEUVULG	Lam.
DICOTYLEDONS	Asteraceae	Packera aurea	Golden Groundsel	7	-3	I			N	S5	G5				C	C	PACAURE	(L.) Á. Löve & D. Löve
DICOTYLEDONS	Asteraceae	Solidago altissima var. altissima	Tall Goldenrod	1	3				N	S5	G5				C	C	SOLALAL	L.
DICOTYLEDONS	Asteraceae	Solidago canadensis	Canada Goldenrod	1	3				N	S5	G5				C	C	SOLCANA	L.
DICOTYLEDONS	Asteraceae	Solidago gigantea	Giant Goldenrod	4	-3	T			P	S5	G5				C	C	SOLGIGA	Aiton
DICOTYLEDONS	Asteraceae	Solidago nemoralis ssp. nemoralis	Grey-Stemmed Goldenrod (var. nemora	2	5				N	S5	G5T5				C	C	SOLNENE	Aiton
DICOTYLEDONS	Asteraceae	Sonchus arvensis ssp. arvensis	Field Sow-Thistle		3				N	SNA	GNRTNR				*	*	SONARAR	L.
DICOTYLEDONS	Asteraceae	Symphyotrichum ericoides var. ericoide	White Heath Aster	4	3				N	S5	G5T5				C	C	SYMERER	(L.) G.L. Nesom
DICOTYLEDONS	Asteraceae	Symphyotrichum lanceolatum	Panicled Aster	3	-3	I			P	S5	G5						SYMLANC	(Willd.) G.L. Nesom
DICOTYLEDONS	Asteraceae	Symphyotrichum lateriflorum var. later	Calico Aster	3	0	T			N	S5	G5T5				C	C	SYMLATE	(L.) Á. & D. Löve
DICOTYLEDONS	Asteraceae	Symphyotrichum novae-angliae	New England Aster	2	-3				N	S5	G5				C	C	SYMNOVA	(L.) G.L. Nesom
DICOTYLEDONS	Asteraceae	Symphyotrichum puniceum	Purple-Stemmed Aster	6	-5	I			N	S5	G5				C	C	SYMPUNI	(L.) Á. & D. Löve
DICOTYLEDONS	Asteraceae	Taraxacum officinale	Common Dandelion		3		-2		N	SNA	G5				*	*	TAROFFI	F.H. Wiggers
DICOTYLEDONS	Asteraceae	Tragopogon pratensis	Meadow Goatsbeard		5		-1		N	SNA	GNR				*	*	TRAPRAT	L.
DICOTYLEDONS	Asteraceae	Tussilago farfara	Coltsfoot		3	T	-2	4	N	SNA	GNR				**	**	TUSFARF	L.
DICOTYLEDONS	Balsaminaceae	Impatiens capensis	Spotted Jewelweed	4	-3	I			N	S5	G5				C	C	IMPCAPE	Meerburgh
DICOTYLEDONS	Boraginaceae	Symphytum officinale	Common Comfrey		5		-1		N	SNA	GNR				*	*	SYMOFFI	L.
DICOTYLEDONS	Brassicaceae	Nasturtium officinale	Watercress		-5		-1		N	SNA	GNR				*	*/?	NASOFFI	R. Br.
DICOTYLEDONS	Caryophyllaceae	Cerastium fontanum ssp. vulgare	Common Mouse-Ear Chickweed		3		-1		N	SNA	GNRTNR						CERFONT	(Hartman) Greuter & Burdet
DICOTYLEDONS	Caryophyllaceae	Stellaria media	Common Chickweed		3		-1		N	SNA	GNRTNR				*	*	STEMEDI	(L.) Villars
DICOTYLEDONS	Cornaceae	Cornus alternifolia	Alternate-Leaved Dogwood	6	3				N	S5	G5				C	C	CORALTE	L. f.
DICOTYLEDONS	Cornaceae	Cornus sericea	Red-Osier Dogwood	2	-3	I*			N	S5	G5				C	C	CORSERI	L.
DICOTYLEDONS	Fabaceae	Lathyrus latifolius	Everlasting Pea		5		-1		N	SNA	GNR				*	*	LATLATI	L.
DICOTYLEDONS	Fabaceae	Lotus corniculatus	Garden Bird's-Foot Trefoil		3		-2	2	N	SNA	GNR				*	*	LOTCORN	L.
DICOTYLEDONS	Fabaceae	Medicago sativa ssp. sativa	Alfalfa (ssp. sativa)		5		-1	4	N	SNA	GNRTNR				*	*	MEDSASA	L.
DICOTYLEDONS	Fabaceae	Melilotus albus	White Sweet-Clover		3		-3	2	N	SNA	G5				**	**	MELALBU	Medik.
DICOTYLEDONS	Fabaceae	Robinia pseudoacacia	Black Locust		3		-3	2	N	SNA	G5				**	**	ROBPSEU	L.
DICOTYLEDONS	Fabaceae	Trifolium hybridum	Alsike Clover		3		-1		N	SNA	GNR				*	*	TRIHYBR	L.
DICOTYLEDONS	Fabaceae	Trifolium pratense	Red Clover		3		-2	4	N	SNA	GNR				*	*	TRIPRAT	L.
DICOTYLEDONS	Fabaceae	Vicia cracca	Tufted Vetch		5		-1	2	N	SNA	GNR				*	*	VICCRAC	L.
DICOTYLEDONS	Hypericaceae	Hypericum perforatum ssp. perforatum	Common St. John's-Wort		5		-3	4	N	SNA	GNR						HYPPERF	L.
DICOTYLEDONS	Juglandaceae	Juglans cinerea	Butternut	6	3				Y	S2?	G3	END	END		C	C	JUGCINE	L.
DICOTYLEDONS	Juglandaceae	Juglans nigra	Black Walnut	5	3				N	S4?	G5				^	^	JUGNIGR	L.
DICOTYLEDONS	Lamiaceae	Clinopodium vulgare	Wild Basil	4	5				N	S5	G5				C	C	CLIVULG	L.
DICOTYLEDONS	Lamiaceae	Glechoma hederacea	Ground-Ivy		3		-2	4	N	SNA	GNR				*	*	GLEHEDE	L.
DICOTYLEDONS	Lamiaceae	Lycopus americanus	American Water-Horehound	4	-5	I			N	S5	G5				C	C	LYCAMER	Muhlenb. ex Bartram
DICOTYLEDONS	Lamiaceae	Mentha spicata	Spearmint		-3	T	-1		N	SNA	GNR				*	*	MENSPIC	L.
DICOTYLEDONS	Lamiaceae	Prunella vulgaris ssp. lanceolata	Lance-Leaved Self-Heal	0	0	T			N	S5	G5T5				C	C	PRUVULA	(W.P.C. Barton) Piper & Beattie
DICOTYLEDONS	Lamiaceae	Prunella vulgaris ssp. vulgaris	Common Self-Heal		0		-1		N	SNA	G5TU						PRUVUVU	L.
DICOTYLEDONS	Lythraceae	Lythrum salicaria	Purple Loosestrife		-5	I	-3	1	N	SNA	G5				**	**	LYTSALI	L.
DICOTYLEDONS	Malvaceae	Tilia americana	Basswood	4	3				N	S5	G5				C	C	TILAMER	L.
DICOTYLEDONS	Oleaceae	Fraxinus americana	White Ash	4	3				N	S4	G4				C	C	FRAAMER	L.
DICOTYLEDONS	Oleaceae	Fraxinus pennsylvanica	Red Ash	3	-3	T			N	S4	G4				C	C	FRAPENN	Marshall
DICOTYLEDONS	Onagraceae	Epilobium hirsutum	Hairy Willowherb		-3	I	-2		N	SNA	GNR				*	*	EPIHIRS	L.
DICOTYLEDONS	Onagraceae	Oenothera biennis	Common Evening Primrose	0	3				N	S5	G5				X	X	OENBIEN	L.
DICOTYLEDONS	Plantaginaceae	Linaria vulgaris	Butter-And-Eggs		5		-1	4	N	SNA	GNR				*	*	LINVULG	Miller
DICOTYLEDONS	Plantaginaceae	Plantago lanceolata	English Plantain		3		-1		N	SNA	G5				*	*	PLALANC	L.
DICOTYLEDONS	Plantaginaceae	Plantago major	Common Plantain		3		-1		N	SNA	G5				*	*	PLAMAJO	L.
DICOTYLEDONS	Polygonaceae	Reynoutria japonica var. japonica	Japanese Knotweed		3		-1	2	N	SNA	GNRTNR						REYJAPO	Houttuyn
DICOTYLEDONS	Polygonaceae	Rumex crispus	Curled Dock		0	T	-2		N	SNA	GNR				*	*	RUMCRIS	L.
DICOTYLEDONS	Primulaceae	Lysimachia ciliata	Fringed Yellow Loosestrife	4	-3	T			N	S5	G5				C	C	LYSCILI	L.
DICOTYLEDONS	Ranunculaceae	Ranunculus acris	Common Buttercup		0	T	-2		N	SNA	G5				*	*	RANACRI	L.
DICOTYLEDONS	Rhamnaceae	Rhamnus cathartica	European Buckthorn		0	T	-3	1	N	SNA	GNR				**	**	RHACATH	L.
DICOTYLEDONS	Rosaceae	Amelanchier laevis	Smooth Serviceberry	5	5				N	S5	G5				C	C	AMELAEV	Wiegand
DICOTYLEDONS	Rosaceae	Crataegus mollis	Downy Hawthorn	4	0	T			N	S4S5	G5						CRAMOLL	(Torrey & A. Gray) Scheele
DICOTYLEDONS	Rosaceae	Crataegus punctata	Dotted Hawthorn	4	5				N	S5	G5				C	C	CRAPUNC	Jacquin
DICOTYLEDONS	Rosaceae	Fragaria virginiana	Wild Strawberry	2	3				N	S5	G5						FRAVIRG	Miller
DICOTYLEDONS	Rosaceae	Geum aleppicum	Yellow Avens	2	0	T			N	S5	G5				C	C	GEUALEP	Jacquin
DICOTYLEDONS	Rosaceae	Geum canadense	White Avens	3	0	T			N	S5	G5				C	C	GEUCANA	Jacquin
DICOTYLEDONS	Rosaceae	Malus pumila	Common Apple		5		-1		N	SNA	G5				*	*	MALPUMI	Miller
DICOTYLEDONS	Rosaceae	Potentilla anserina ssp. anserina	Common Silverweed	5	-3	T			N	S5	G5T5				C	C	POTANAN	L.
DICOTYLEDONS	Rosaceae	Poterium sanguisorba var. polygamum	Small Burnet		0		-1		N	SNA	G5TNR						POTSANG	L.
DICOTYLEDONS	Rosaceae	Prunus virginiana var. virginiana	Chokecherry	2	3				N	S5	G5T5				C	C	PRUVIRG	L.
DICOTYLEDONS	Rosaceae	Rubus occidentalis	Black Raspberry	2	5				N	S5	G5				C	C	RUBOCCI	L.
DICOTYLEDONS	Rosaceae	Spiraea alba var. alba	White Meadowsweet	3	-3	I			N	S5	G5T5				C	C	SPIALAL	Du Roi
DICOTYLEDONS	Rubiaceae	Galium mollugo	Smooth Bedstraw		5		-2	2	N	SNA	GNR				**	**	GALMOLL	L.
DICOTYLEDONS	Rubiaceae	Galium palustre	Common Marsh Bedstraw	5	-5	I			N	S5	G5				C	C	GALPALU	L.
DICOTYLEDONS	Salicaceae	Populus tremuloides	Trembling Aspen	2	0	T			N	S5	G5				C	C	POPTREM	Michaux
DICOTYLEDONS	Salicaceae	Salix bebbiana	Bebb's Willow	4	-3	I			N	S5	G5				C	C	SALBEBB	Sargent
DICOTYLEDONS	Salicaceae	Salix eriocephala	Cottony Willow	4	-3	T			N	S5	G5				C	C	SALERIO	Michaux
DICOTYLEDONS	Salicaceae	Salix petiolaris	Meadow Willow	3	-3	I			N	S5	G5				C	C	SALPETI	J.E. Smith
DICOTYLEDONS	Salicaceae	Salix x fragilis	Hybrid Crack Willow			T	-3	3	N	SNA	GNA						SALXFRA	L.
DICOTYLEDONS	Sapindaceae	Acer negundo	Manitoba Maple	0	0	T		1	N	S5	G5				(^)	(^)	ACENEGU	L.
DICOTYLEDONS	Sapindaceae	Acer saccharinum	Silver Maple	5	-3	I			N	S5	G5				C	C	ACESACC	L.
DICOTYLEDONS	Sapindaceae	Acer saccharum	Sugar Maple	4	3				N	S5	G5				C	C	ACESASA	Marshall
DICOTYLEDONS	Ulmaceae	Ulmus americana	White Elm	3	-3	T			N	S5	G4				C	C	ULMAMER	L.
DICOTYLEDONS	Verbenaceae	Verbena hastata	Blue Vervain	4	-3	I			N	S5	G5				C	C	VERHAST	L.
DICOTYLEDONS	Viburnaceae	Viburnum lentago	Nannyberry	4	0	T			N	S5	G5				C	C	VIBLENT	L.
DICOTYLEDONS	Viburnaceae	Viburnum opulus var. opulus	Cranberry Viburnum		-3		-1	4	N	SNA	G5TNR				**	**	VIBOPOP	
DICOTYLEDONS	Vitaceae	Vitis riparia	Riverbank Grape	0	0				N	S5	G5				C	C	VITRIPA	Michaux
GYMNOSPERMS	Cupressaceae	Thuja occidentalis	Eastern White Cedar	4	-3	T			N	S5	G5				C	C	THUOCCI	L.
MONOCOTYLEDONS	Araceae	Lemna minor	Small Duckweed	5	-5	I			N	S5	G5				C/X	C/X	LEMMINO	L.
MONOCOTYLEDONS	Asparagaceae	Maianthemum stellatum	Star-Flowered False Solomon's Seal	6	0				N	S5	G5				C	C	MAISTEL	(L.) Link
MONOCOTYLEDONS	Cyperaceae	Carex aurea	Golden Sedge	4	-3	T			N	S5	G5				C	C	CARAURE	Nuttall
MONOCOTYLEDONS	Cyperaceae	Carex cristatella	Crested Sedge	3	-3	I			N	S5	G5				C	C	CARCRIS	Britton

ORDER	FAMILY	LATIN NAME	COMMON NAME	COEFFICIENT OF CONSERVATISM (NHIC SEP 19 2023)	WETNESS INDEX (NHIC SEP 19 2023)	OWES WETLAND SPECIES	WEEDINESS INDEX	INVASIVE EXOTIC RANK (Urban Forest Associates 2002)	PROVINCIALLY TRACKED (NHIC) (NHIC FEB 6 2024)	PROVINCIAL STATUS (S-RANK) (NHIC FEB 6 2024)	GLOBAL STATUS (G-RANK) (NHIC FEB 6 2024)	SARO (MNRF) (NHIC FEB 6 2024)	COSEWIC STATUS (NHIC FEB 6 2024)	BRUCE (Miller 2023)	GREY (Miller 2023)	SPECIES CODE	AUTHORITY
MONOCOTYLEDONS	Cyperaceae	Carex flava	Yellow Sedge	5	-5	I			N	S5	G5			C	C	CARFLAV	L.
MONOCOTYLEDONS	Cyperaceae	Carex granularis	Limestone Meadow Sedge	3	-3	T			N	S5	G5			C	C	CARGRAN	Muhlenb. ex Willdenow
MONOCOTYLEDONS	Cyperaceae	Carex pellita	Woolly Sedge	2	-5	I			N	S5	G5			C	C	CARPELL	Willdenow
MONOCOTYLEDONS	Cyperaceae	Carex projecta	Necklace Sedge	5	-3	I			N	S5	G5			C	C	CARPROJ	Mackenzie
MONOCOTYLEDONS	Cyperaceae	Carex virescens	Ribbed Sedge	7	3				Y	S3	G5					CARVIRE	Muhlenb. ex Willdenow
MONOCOTYLEDONS	Cyperaceae	Carex vulpinoidea	Fox Sedge	3	-5	I			N	S5	G5			C	C	CARVULP	Michaux
MONOCOTYLEDONS	Cyperaceae	Cladium mariscoides	Smooth Twig-Rush	9	-5	I			N	S5	G5			C	C	CLAMARI	(Muhlenb.) Torrey
MONOCOTYLEDONS	Cyperaceae	Schoenoplectus tabernaemontani	Soft-Stemmed Bulrush	5	-5	I			N	S5	G5			C	C	SCHTABE	(C.C. Gmelin) Palla
MONOCOTYLEDONS	Cyperaceae	Scirpus atrovirens	Dark-Green Bulrush	3	-5	T			N	S5	G5			C	C	SCIATRO	Willdenow
MONOCOTYLEDONS	Iridaceae	Iris versicolor	Harlequin Blue Flag	5	-5	I			N	S5	G5			C	C	IRIVERS	L.
MONOCOTYLEDONS	Iridaceae	Sisyrinchium montanum	Strict Blue-Eyed Grass	4	0	T			N	S5	G5			C	C	SISMONT	Greene
MONOCOTYLEDONS	Juncaceae	Juncus alpinoarticulatus	Alpine Rush	5	-5	I			N	S5	G5			C	R	JUNALPI	Chaix
MONOCOTYLEDONS	Juncaceae	Juncus articulatus	Jointed Rush	5	-5	I			N	S5	G5			C	C	JUNARTI	L.
MONOCOTYLEDONS	Juncaceae	Juncus dudleyi	Dudley's Rush	1	-3	T			N	S5	G5			C	C	JUNDUDL	Wiegand
MONOCOTYLEDONS	Juncaceae	Juncus effusus	Soft Rush	4	-5				N	S5	G5					JUNEFFU	L.
MONOCOTYLEDONS	Juncaceae	Juncus nodosus	Knotted Rush	5	-5	I			N	S5	G5			C	C	JUNNODO	L.
MONOCOTYLEDONS	Liliaceae	Erythronium americanum ssp. americar	Yellow Trout Lily	5	5				N	S5	G5T5			C	C	ERYAMER	Ker Gawler
MONOCOTYLEDONS	Melanthiaceae	Trillium grandiflorum	White Trillium	5	3				N	S5	G5			C	C	TRIGRAN	(Michx.) Salisbury
MONOCOTYLEDONS	Orchidaceae	Liparis loeselii	Loesel's Twayblade	5	-3	I			N	S4S5	G5			C	C	LIPLOES	(L.) Richard
MONOCOTYLEDONS	Poaceae	Agrostis gigantea	Redtop		-3		-2		N	SNA	G4G5			*	*	AGRGIGA	Roth
MONOCOTYLEDONS	Poaceae	Bromus inermis	Smooth Brome		5		-3	4	N	SNA	G5T5			*	*	BROINER	Leysser
MONOCOTYLEDONS	Poaceae	Dactylis glomerata	Orchard Grass		3		-1	3	N	SNA	GNR			*	*	DACGLOM	L.
MONOCOTYLEDONS	Poaceae	Danthonia spicata	Poverty Oatgrass	5	5				N	S5	G5			C	C	DANSPIC	(L.) P. Beauvois ex Roemer & Schultes
MONOCOTYLEDONS	Poaceae	Glyceria striata	Fowl Mannagrass	3	-5	I			N	S5	G5			C	C	GLYSTRI	(Lam.) Hitchcock
MONOCOTYLEDONS	Poaceae	Lolium arundinaceum	Tall Fescue		3		-1	3	N	SNA	GNR			*	*	LOLARUN	(Schreber) Darbyshire
MONOCOTYLEDONS	Poaceae	Muhlenbergia glomerata	Spike Muhly	7	-5	I			N	S5	G5			C	C	MUHGLOM	(Willd.) Trinius
MONOCOTYLEDONS	Poaceae	Panicum capillare	Common Panicgrass	0	0				N	S5	G5			X	X	PANCAPI	L.
MONOCOTYLEDONS	Poaceae	Phalaris arundinacea var. arundinacea	Reed Canary Grass	0	-3	T		P	N	S5	G5TNR			C	C	PHAARAR	L.
MONOCOTYLEDONS	Poaceae	Phleum pratense ssp. pratense	Common Timothy		3		-1		N	SNA	GNRTNR					PHLPRAT	L.
MONOCOTYLEDONS	Poaceae	Phragmites australis ssp. australis	European Reed		-3	T		1	N	SNA	G5T5			**	**	PHRAUAU	(Cav.) Trinius ex Steudel
MONOCOTYLEDONS	Poaceae	Poa annua	Annual Bluegrass		3		-2		N	SNA	GNR			*	*	POAANNU	L.
MONOCOTYLEDONS	Poaceae	Poa compressa	Canada Bluegrass		3				N	SNA	GNR			*	*	POACOMP	L.
MONOCOTYLEDONS	Poaceae	Poa palustris	Fowl Bluegrass	5	-3	I			N	S5	G5			C	C	POAPALU	L.
MONOCOTYLEDONS	Poaceae	Poa pratensis	Kentucky Bluegrass	0	3			2	P	S5	G5					POAPRAT	L.
MONOCOTYLEDONS	Poaceae	Setaria viridis var. viridis	Green Foxtail		5		-1	4	N	SNA	GNRTNR					SETVIRI	(L.) Palisot de Beauvois
MONOCOTYLEDONS	Typhaceae	Typha angustifolia	Narrow-Leaved Cattail		-5	I		P	N	SNA	G5			**	**	TYPANGU	L.
MONOCOTYLEDONS	Typhaceae	Typha latifolia	Broad-Leaved Cattail	1	-5	I			N	S5	G5			C	C	TYPLATI	L.
MONOCOTYLEDONS	Typhaceae	Typha x glauca	Blue Cattail		-5	I		P	N	SNA	GNA			**	**	TYPXGLA	Godron
PTERIDOPHYTES	Equisetaceae	Equisetum arvense	Field Horsetail	0	0	T			N	S5	G5			C	C	EQUARVE	L.
PTERIDOPHYTES	Equisetaceae	Equisetum variegatum	Variegated Scouring-Rush	5	-3	I			N	S5	G5			C	C	EQUVARI	Schleicher ex F. Weber & D. Mohr

STATISTICS		
Species Diversity		
Total Number of Species:	143	
Native Species:	86	60%
Exotic Species:	57	40%
S1-S3 Species:	2	2%
S4 Species:	6	7%
S5 Species:	78	91%
Provincially Tracked Species:	2	2%
Floristic Quality Assessment (FQA)		
Mean Co-efficient of Conservatism (CC)	3.5	
CC 0 - 3 = lowest sensitivity	38	44%
CC 4 - 6 = moderate sensitivity	43	50%
CC 7 - 8 = high sensitivity	4	5%
CC 9 - 10 = highest sensitivity	1	1%
Floristic Quality Index (FQI)	33	
Weedy & Invasive Species		
Mean Weediness Index (Oldham et al):	-1.5	
-1 = low potential invasiveness	31	54%
-2 = moderate potential invasiveness	12	21%
-3 = high potential invasiveness	8	14%
Mean Exotic Rank (Urban Forest Associates):	3	
Category 1	5	9%
Category 2	7	12%
Category 3	4	7%
Category 4	9	16%
Potentially Invasive (P)	3	5%
Wetland Species		
Mean Wetness Index	0.3	
Upland	27	19%
Facultative upland	40	28%
Facultative	20	14%
Facultative wetland	32	22%
Obligate wetland	23	16%

Common Name	Species Code	Scientific Name	Provincial Status (S Rank)	Global Status (G Rank)	SARO (MECP)	COSEWIC (Federal)	Schedule 1?	SWH Indicator Species	Highest Breeding Evidence
Anseriformes									
Anatidae									
Mallard	MALL	*Anas platyrhynchos*	S5	G5				X	PO-H
Columbiformes									
Columbidae									
Mourning Dove	MODO	*Zenaida macroura*	S5	G5					PR-T
Cuculiformes									
Cuculidae									
Black-billed Cuckoo	BBCU	*Coccyzus erythropthalmus*	S4S5B	G5				X	PO-S
Gruiformes									
Rallidae									
Sora	SORA	*Porzana carolina*	S5B	G5				X	PR-T
Charadriiformes									
Charadriidae									
Killdeer	KILL	*Charadrius vociferus*	S4B	G5					PR-T
Scolopacidae									
American Woodcock	AMWO	*Scolopax minor*	S4B	G5					CO-NE
Spotted Sandpiper	SPSA	*Actitis macularius*	S5B	G5				X	PR-T
Laridae									
Ring-billed Gull	RBGU	*Larus delawarensis*	S5	G5				X	OB-X
Pelecaniformes									
Ardeidae									
Great Egret	GREG	*Ardea alba*	S2B	G5				X	OB-X
Cathartiformes									
Cathartidae									
Turkey Vulture	TUVU	*Cathartes aura*	S5B, S3N	G5					OB-X
Accipitriformes									
Accipitridae									
Red-tailed Hawk	RTHA	*Buteo jamaicensis*	S5	G5		NAR		X	PO-H
Piciformes									
Picidae									
Downy Woodpecker	DOWO	*Dryobates pubescens*	S5	G5					PO-H
Northern Flicker	NOFL	*Colaptes auratus*	S5	G5					PO-H
Passeriformes									
Tyrannidae									
Eastern Kingbird	EAKI	*Tyrannus tyrannus*	S4B	G5					PR-T
Alder Flycatcher	ALFL	*Empidonax alnorum*	S5B	G5					PR-T
Willow Flycatcher	WIFL	*Empidonax trailli*	S5B	G5				X	PO-S
Vireonidae									
Warbling Vireo	WAVI	*Vireo gilvus*	S5B	G5					PR-T
Red-eyed Vireo	REVI	*Vireo olivaceus*	S5B	G5					PR-T
Corvidae									
Blue Jay	BLJA	*Cyanocitta cristata*	S5	G5					PO-H
American Crow	AMCR	*Corvus brachyrhynchos*	S5	G5					PO-H
Paridae									
Black-capped Chickadee	BCCH	*Poecile atricapillus*	S5	G5					PO-H
Troglodytidae									
House Wren	HOWR	*Troglodytes aedon*	S5B	G5					PR-T
Turdidae									
Eastern Bluebird	EABL	*Sialia sialis*	S5B, S4N	G5		NAR			PO-S
American Robin	AMRO	*Turdus migratorius*	S5	G5					CO-FY
Mimidae									
Gray Catbird	GRCA	*Dumetella carolinensis*	S5B, S3N	G5					PR-T
Brown Thrasher	BRTH	*Toxostoma rufum*	S4B	G5				X	PO-S
Sturnidae									
European Starling	EUST	*Sturnus vulgaris*	SNA	G5					PO-H
Bombycillidae									
Cedar Waxwing	CEDW	*Bombycilla cedrorum*	S5	G5					PR-T
Fringillidae									
House Finch	HOFI	*Haemorhous mexicanus*	SNA	G5					PO-S
American Goldfinch	AMGO	*Spinus tristis*	S5	G5					PR-P
Passerellidae									
Chipping Sparrow	CHSP	*Spizella passerina*	S5B, S3N	G5					PO-S

Common Name	Species Code	Scientific Name	Provincial Status (S Rank)	Global Status (G Rank)	SARO (MECP)	COSEWIC (Federal)	Schedule 1?	SWH Indicator Species	Highest Breeding Evidence
Field Sparrow	FISP	*Spizella pusilla*	S4B, S3N	G5				X	PR-T
White-throated Sparrow	WTSP	*Zonotrichia albicollis*	S5	G5					PO-S
Savannah Sparrow	SAVS	*Passerculus sandwichensis*	S5B, S3N	G5				X	PR-T
Song Sparrow	SOSP	*Melospiza melodia*	S%B, S4N	G5					CO-FY
Eastern Towhee	EATO	*Pipilo erythrophthalmus*	S4B, S3N	G5				X	PO-S
Icteridae									
Bobolink	BOBO	*Dolichonyx oryzivorus*	S4B	G5	THR	THR			PR-T
Eastern Meadowlark	EAME	*Sturnella magna*	S4B, S3N	G5	THR	THR			PR-T
Baltimore Oriole	BAOR	*Icterus galbula*	S4B	G5					PO-S
Red-winged Blackbird	RWBL	*Agelaius phoeniceus*	S5	G5					CO-FY
Brown-headed Cowbird	BHCO	*Molothrus ater*	S5	G5					PR-T
Common Grackle	COGR	*Quiscalus quiscula*	S5	G5					PO-H
Parulidae									
Blue-winged Warbler	BWWA	*Vermivora cyanoptera*	S4B	G5					PO-S
Common Yellowthroat	COYE	*Geothlypis trichas*	S5B, S3N	G5					PR-T
American Redstart	AMRE	*Setophaga ruticilla*	S5B	G5					PR-T
Yellow Warbler	YWAR	*Setophaga petechia*	S5B	G5					PR-T
Cardinalidae									
Northern Cardinal	NOCA	*Cardinalis cardinalis*	S5	G5					PR-T
Rose-breasted Grosbeak	RBGR	*Pheucticus ludovicianus*	S5B	G5					PR-T
Indigo Bunting	INBU	*Passerina cyanea*	S5B	G5					PR-T

Species Common Name and Scientific Name: Chesser, R. T., K. J. Burns, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Remsen, Jr., D. F. Stotz, B. M. Winger, and K. Winker. 2018. Check-list of North American Birds (online). American Ornithological Society. Available online: http://checklist.aou.org/taxa

Species Code: Consistent with the American Ornithologists' Union. 2018. Species 4-Letter-Codes. Available online: http://www.birdsontario.org/atlas/codes.jsp?lang=en&pg=species

Highest Breeding Evidence: Codes assigned for breeding evidence are consistent with the Ontario Breeding Bird Atlas (OBBA). 2018. Breeding Evidence Codes. Available online: http://www.birdsontario.org/atlas/codes.jsp?lang=en&pg=breeding&sortorder=aou

S ranks: Provincial ranks are from the Natural Heritage Information Centre; S1 (critically imperiled), S2 (imperlied), S3 (vulnerable), S4 (apparently secure), S5 (secure); ranks were updated using NHIC species list 2021. Available to download from: https://www.ontario.ca/page/get-natural-heritage-information

G ranks: Global ranks are from the Natural Heritage Information Centre; G1 (extremely rare), G2 (very rare), G3 (rare to uncommon), G4 (common), G5 (very common); ranks were updated using NHIC species list 2021. Available to download from: https://www.ontario.ca/page/get-natural-heritage-information

SARO (MECP): Ontario Species at Risk as listed by the Committee on the Status of Species at Risk in Ontario (from Ontario Regulation 230/08 Species at Risk in Ontario website: https://www.ontario.ca/laws/regulation/080230/); END - Endangered; THR - Threatened; SC - Special Concern; NAR - Not at Risk

COSEWIC: Assessed Species at Risk at the national level as listed by the Committee on the Status of Endangered Wildlife in Canada (from COSEWIC: https://wildlife-species.canada.ca/species-risk-registry/sar/index/default_e.cfm); END - Endangered, THR - Threatened, SC - Special Concern, NAR - Not at Risk

SWH Indicator Species: SWH refers to Significant Wildlife Habitat as defined by the MNRF (2015) Significant Wildlife Habitat Criteria Schedules for Ecoregions 7E and 6E (as appropriate for the Subject Lands). SWH indicator species are identified in this table and any potential SWH is discussed in the text of this report. Available online: http://www.townofnemi.on.ca/wp-content/uploads/2016/02/NEMI-OP-App-C-schedule-6e-jan-2015-access-ver-final-s.pdf

Table 5: Turtle Survey Results

DATE SURVEYED	SURVEY ROUND	TRANSECT OR STATION NUMBER	SPECIES CODE								
			NOTU	MPTU	SNTU	MATU	BLTU	SSTU	WOTU	STIN	SPTU
7-MA-24	1	TU1	X								
15-MA-24	2	TU1	X								

LEGEND:

SPECIES CODE	COMMON NAME	SCIENTIFIC NAME
NOTU	No turtles observed despite survey effort	
MPTU	Midland Painted Turtle	*Chrysemys picta marginata*
SNTU	Snapping Turtle	*Chelydra serpentina*
MATU	Northern Map Turtle	*Graptemys geographica*
BLTU	Blanding's Turtle	*Emydoidea blandingii*
SSTU	Spiny Soft-shelled Turtle	*Apalone spinifera*
WOTU	Wood Turtle	*Glyptemys insculpta*
STIN	Stinkpot Turtle	*Stemotherus odoratus*
SPTU	Spotted Turtle	*Clemmys guttata*

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

Table 6: Snake Survey Results

DATE SURVEYED	SURVEY ROUND	TRANSECT OR STATION NUMBER	SPECIES CODE														
			NOSN	EAGA	MISN	BRSN	RBSN	NWSN	RISN	BLRA	BUGA	FOSN	HOSN	MASS	RNSN	SGSN	QUSN
MA 7	1	NA – visual encounter survey	X														
MA 15	2	NA – visual encounter survey	X														

LEGEND:

SPECIES CODE	COMMON NAME	SCIENTIFIC NAME
NOSN	No snakes observed despite survey effort	
EAGA	Eastern Gartersnake	*Thamnophis sirtalis sirtalis*
MISN	Eastern Milksnake	*Lampropeltis triangulum*
BRSN	DeKay's Brownsnake	*Storeria dekayi*
RBSN	Northern Red-bellied Snake	*Storeria occipitomaculata occipitomaculata*
NWSN	Northern Watersnake	*Nerodia sipedon sipedon*
RASN	Gray Ratsnake	*Pantherophis spiloides*
RISN	Eastern Ribbonsnake	*Thamnophis sauritus*
BLRA	Blue Racer	*Coluber constrictor foxii*
BUGA	Butler's Gartersnake	*Thamnophis butleri*
FOSN	Eastern Foxsnake	*Pantherophis gloyd*
HOSN	Eastern Hog-nosed Snake	*Heterodon platifhinos*
MASS	Massassauga	*Sistrusus catenatus catenatus*
RNSN	Ring-necked Snake	*Diadophis punctatus*
SGSN	Smooth Greensnake	*Opheodrys vernalis*
QUSN	Queensnake	*Regina septemvittata*

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

Table 7: Amphibian Call Count Survey Station Results

SURVEY ROUND	STATION NUMBER	SPECIES CODE											
		NOAM	AMTO	FOTO	GRTR	SPPE	CHFR	WOFR	NLFR	PIFR	GRFR	BULL	MIFR
1	AMC1					1(3)							
2	AMC1					1(6)	1(1)						
3	AMC1	X											
1	AMC2					3							
2	AMC2		1(3)		2(7)	3					1(4)		
3	AMC2				1(2)	1(6)					1(3)		
1	AMC3					3							
2	AMC3				1(3)	1(5)					1(1)		
3	AMC3										1(2)		
1	AMC4	X											
2	AMC4	X											
3	AMC4	X											
1	AMC5	X											
2	AMC5	X											
3	AMC5	X											

LEGEND:

SPECIES CODE	COMMON NAME	SCIENTIFIC NAME
NOAM	No Amphibians	No amphibians despite survey effort
AMTO	American Toad	*Anaxyrus americanus*
FOTO	Fowler's Toad	*Anaxyrus fowleri*
GRTR	Gray Treefrog	*Hyla versicolor*
CHFR	Western Chorus Frog	*Pseudacris triseriata*
WOFR	Wood Frog	*Lithobates sylvaticus*
NLRF	Northern Leopard Frog	*Lithobates pipiens*

CALL CODES	
X	No amphibians heard
1	Calls can be counted without error
2	Calls overlap but can be reliably estimated
3	Calls overlap too much to estimate number

Table 7: Amphibian Call Count Survey Station Results

PIFR	Pickerel Frog	*Lithobates palustris*	
GRFR	Green Frog	*Lithobates clamitans*	
BULL	American Bullfrog	*Lithobates catesbeianus*	
MIFR	Mink Frog	*Lithobates septentrionalis*	

Note: For each species, the first number is the call code and the second number, which is in brackets, is the number of individuals of that species heard calling.

Table 8: Headwater Drainage Feature Classification and Management Recommendations

DRAINAGE FEATURE SEGMENT	STEP 1. HYDROLOGY		STEP 2. RIPARIAN	STEP 3. FISH HABITAT	STEP 4. TERRESTRIAL HABITAT	MANAGEMENT RECOMMENDATION (PER HDFA GUIDELINES)	SITE-SPECIFIC MANAGEMENT RECOMMENDATION
	FUNCTION	MODIFIERS					
H1-S1	FT-7 FC-4 (Round 1) FC-2 (Round 2) FC-1 (Round 3) **Contributing**-Feature was flowing during early spring.	Feature appears to be a dug swale to facilitate drainage.	**Important -** Riparian area dominated by wetland.	**Contributing-** No suitable habitat. Feature may provide contributing functions to support downstream fish habitat.	**Limited-** As per Table 7 of the HDFA guidelines, swales provide limited terrestrial function.	**Conservation**	**Mitigation**
H2-S1	FT-7 FC-4 (Round 1) FC-2 (Round 2) FC-1 (Round 3) **Contributing**-Feature held stagnant water during Round 2.	Surrounding agricultural land use is likely to influence the feature.	**Important –** The immediate riparian corridor is defined as wetland.	**Contributing-** No suitable habitat. Feature may provide contributing functions to support downstream fish habitat.	**Limited-** As per Table 7 of the HDFA guidelines, swales provide limited terrestrial function.	**Conservation**	**Mitigation**
H2-S2	FT-6 FC-4 (Round 1) FC-2 (Round 2) FC-2 (Round 3) **Important**-Feature held water during all visits.	Surrounding agricultural land use is likely to influence the feature.	**Important -** Riparian area dominated by wetland.	**Contributing-** No suitable habitat. Feature may provide contributing functions to support downstream fish habitat.	**Important –** The feature provides habitat to breeding amphibians.	**Protection**	**Protection**
H2-S3	FT-6 FC-4 (Round 1)	Surrounding agricultural land	**Important -** Riparian area	**Contributing-** No suitable	**Important –** The feature provides	**Protection**	**Protection**

Table 8: Headwater Drainage Feature Classification and Management Recommendations

DRAINAGE FEATURE SEGMENT	STEP 1. HYDROLOGY		STEP 2. RIPARIAN	STEP 3. FISH HABITAT	STEP 4. TERRESTRIAL HABITAT	MANAGEMENT RECOMMENDATION (PER HDFA GUIDELINES)	SITE-SPECIFIC MANAGEMENT RECOMMENDATION
	FUNCTION	MODIFIERS					
	FC-2 (Round 2) FC-2 (Round 3) **Important**-Feature held water during all visits.	use is likely to influence the feature.	dominated by wetland.	habitat. Feature may provide contributing functions to support downstream fish habitat.	habitat to breeding amphibians.		

LEGEND:

FT	Feature Types (1-defined natural channel, 2-channelized, 3-multi-thread, 4-no defined feature, 5-tiled drainage, 6-wetland, 7-swale, 8-roadside ditch, 9-online pond outlet)
FC	Flow Conditions (1-no surface water, 2-standing water, 3-interstitial flow, 4-surface flow minimal, 5-surface flow substantial)

Note: Codes correspond with Ontario Stream Assessment Protocol (OSAP) guidelines

Table 9: Preliminary Significant Wildlife Habitat Assessment

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
1. SEASONAL CONCENTRATION AREAS					
Waterfowl Stopover and Staging Areas (terrestrial)	Yes – CUM1 and CUT vegetation communities are present on or within 120 m of the Subject Lands and within the Study Area.	No – This area does not have historical waterfowl stopover use and is not an area known for sheet water use.	No	N/A	Not present
Waterfowl Stopover and Staging Areas (aquatic)	Yes – MAS and SWD vegetation communities are present on or within 120 m of the Subject Lands and within the Study Area.	No – These features are generally small, and don't contain open water. They would not attract or support significant numbers of waterfowl.	No	N/A	Not present
Shorebird Migratory Stopover Areas	Yes – MAM vegetation communities are present on or within 120 m of the Subject Lands and within the Study Area.	No – Muddy, unvegetated shorelines not present.	No	N/A	Not present
Raptor Wintering Areas	No – While upland communities (CUM, CUT, CUW) are present on the Subject Lands, no forest ELC communities (i.e., FOM, FOD, FOC) are present.	NA	No	N/A	Not present

Table 9: Preliminary Significant Wildlife Habitat Assessment

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
Bat Hibernacula	No – Applicable vegetation communities are absent from the Subject Lands and Study Area.	N/A	No	N/A	Not present
Bat Maternity Colonies	No – Applicable vegetation communities are absent from the Subject Lands. Several suitable bat snags were observed within hedgerows on the Subject Lands and within the Study Area. If planned to be removed, this work would need to be done outside the bat roosting and migratory bird window (April 1 – October 1).	N/A	No	N/A	Not present
Turtle Wintering Areas	Yes – SWD, SWT, MAM, and OA vegetation communities are present on or within 120 m of the Subject Lands. SWD, SWT, and MAM communities are present within the Study Area. In addition, two watercourses are present on the Subject Lands and within the Study Area.	Candidate – The OA community north of the Study Area may have deeper pools where overwintering could be supported.	Yes – Turtle basking surveys should be completed.	No – Two rounds of turtle basking surveys were completed on the Subject Lands. No turtles were observed.	Not present
Colonial Bird Nesting Sites	Yes – CUM and CUT vegetation	No – Presence of	No	N/A	Not present

Table 9: Preliminary Significant Wildlife Habitat Assessment

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
(bank/cliff)	communities are present on or within 120 m of the Subject Lands and within the Study Area.	exposed or eroding banks, hills, steep slopes and sand piles are not present on the Subject Lands.			
Colonial Bird Nesting Sites (tree/shrubs)	Yes – Two SWD vegetation communities are present on or within 120 m of the Subject Lands. The westernmost SWD community along the rail trail also extends on to the Study Area.	Yes – Standing trees are present in the SWD communities.	Yes – Breeding bird surveys were completed on site.	No wildlife associated with this SWH type was observed during breeding bird surveys.	Not present
Colonial Bird Nesting Sites (ground)	No – Rocky islands or peninsulas are absent from the Subject Lands.	N/A	No	N/A	Not present
Reptile Hibernacula	Yes – Applicable ecosites are present on or within 120 m of the Subject Lands	No – Rock outcrops, old foundations, abandoned wells or natural/naturalized features were not identified on the Subject Lands.	No	N/A	Not present
Migratory Butterfly Stopover Areas	No – While there are FOD communities present offsite and field communities (CUM and CUT) present on the	N/A	No	N/A	Not present

Table 9: Preliminary Significant Wildlife Habitat Assessment

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
	Subject Lands, no upland forested communities are present on the Subject Lands or within the Study Area. In addition, this site is >5km from Lake Ontario.				
Migratory Landbird Stopover Areas	Yes – SWD vegetation communities are present on or within 120 m of the Subject Lands and the Study Area.	No – The Subject Lands are located greater than 5 km away from Lake Ontario.	No	N/A	Not present
Deer Yarding Areas	No – Mapping from the MNRF LIO database did not depict any deer yarding areas on or adjacent to the Subject Lands.	N/A	No	N/A	Not present
Deer Winter Congregation Areas	No – Mapping from the MNRF LIO database did not depict any deer wintering areas on or adjacent to the Subject Lands.	N/A	No	N/A	Not present
2. RARE VEGETATION COMMUNITIES OR SPECIALIZED HABITAT FOR WILDLIFE					
2a. Rare Vegetation Communities					
Rare Vegetation Types (cliffs, talus slopes, sand barrens, alvars, old-growth forests, savannahs, and	No – Rare vegetation communities were not observed within the Subject Lands or Study Area.	N/A	No	NA	Not present

Table 9: Preliminary Significant Wildlife Habitat Assessment

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
tallgrass prairies)					
Other Rare Vegetation Types (S1 to S3 communities)	Yes – An MAM5 vegetation community was identified in the northwest corner of the Subject Lands outside of Study Area (S3)	N/A	No	N/A	Present
2b. Specialized Wildlife Habitat					
Waterfowl Nesting Area	Yes – MAM and SWD vegetation communities are present within the Subject Lands and Study Area.	No – Upland features are not at least 120 m wide to protect against nest predation.	No	N/A	Not present
Bald Eagle and Osprey Habitats	Yes – SWD communities are present within the Subject Lands and Study Area.	No – Large aquatic features are not present on the Subject Lands.	No	N/A	Not present
Woodland Raptor Nesting Habitat	Yes – SWD vegetation communities are present on the Subject Lands and within the Study Area.	No – The vegetation communities on the Subject Lands do not meet the minimum size criteria (>30 ha with a minimum of 10 ha interior habitat).	No	N/A	Not present
Turtle Nesting Areas	No – MAS, SAS, SAM, SAF, and BOO vegetation communities are absent from the Subject	N/A	No	N/A	Not present

Table 9: Preliminary Significant Wildlife Habitat Assessment

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
	Lands.				
Seeps and Springs	No – While forested vegetation communities are present on the Subject Lands and within the Study Area, these areas are small, generally associated with on-site watercourses, and are not considered suitable forest habitat. In addition, no groundwater indicators have been observed through on-site investigations to date.	N/A	No	N/A	Not present
Woodland Amphibian Breeding Habitats (within or < 120m from woodland)	Yes – SWD and FOD vegetation communities are present on or within 120 m of the Subject Lands.	Yes – SWD wetland habitats are present within and adjacent to the Subject Lands.	Yes – Amphibian call count surveys were conducted.	No – Defining criteria were not met for SWD wetlands within and adjacent to the Subject Lands (AMC stations 4 and 5)	Not present

Table 9: Preliminary Significant Wildlife Habitat Assessment

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
Wetland Amphibian Breeding Habitats (wetland >120m from woodland)	Yes – SWD and MAM vegetation communities are present on or within 120 m of the Subject Lands. SWD and MAM communities are present within the Study Area.	Yes – Several MAM and one SWD wetland on site meet the minimum size criteria.	Yes – Amphibian call count surveys have been conducted.	No – Three rounds of amphibian call count surveys were completed on the Subject Lands. Defining criteria for SWH was not met.	Not present
Woodland Area-Sensitive Bird Breeding Habitat	Yes – SWD vegetation communities are present within the Subject Lands.	No – No interior habitat is present (as measured 200 m into the feature).	No	N/A	Not present
3. SPECIES OF CONSERVATION CONCERN					
Marsh Bird Breeding Habitat	Yes – MAM vegetation communities are present within the Subject Lands and Study Area.	Yes – Nesting is possible in all wetlands with shallow water and emergent vegetation.	Yes – Breeding Bird surveys have been conducted.	No – Three rounds of breeding bird call count surveys were completed on the Subject Lands. Defining criteria for SWH was not met.	Not present
Open Country Bird Breeding Habitat	Yes – CUM vegetation communities are present on the Subject Lands and within	No – Minimum size criteria is not met (>30	No	N/A	Not present

Table 9: Preliminary Significant Wildlife Habitat Assessment

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
	the Study Area.	ha).			
Shrub/Early Successional Bird Breeding Habitat	No – CUW and CUT vegetation communities are absent from the Subject Lands and Study Area.	N/A	No	N/A	Not present
Terrestrial Crayfish	Yes – MAM and SWD vegetation communities were identified within the Subject Lands and Study Area.	Yes – No minimum size requirement.	Yes – Terrestrial Crayfish surveys should be conducted.	Yes – Two rounds of Terrestrial Crayfish surveys were conducted in 2024 and several chimneys were found in the northwestern corner of the Subject Lands. In addition, a cluster of 7 chimneys was found within the Study Area along the western watercourse.	Present

Table 9: Preliminary Significant Wildlife Habitat Assessment

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
Special Concern and Rare Wildlife Species					
(i) Snapping Turtle (*Chelydra serpentina*) – Special Concern;	Yes – Prefers shallow water with soft mud and leaf litter substrate. Females also use gravelly and sandy areas near streams as nesting sites (i.e., gravel road shoulders).	N/A	Yes – Turtle basking surveys were conducted on the Subject Lands. No turtles were observed during basking surveys.	N/A	Not present
(ii) Canada Warbler (*Cardellina canadensis*) – Special Concern;	No - Prefers moist forests with a dense, shrub layer, complex understory, and available perch trees. On site woodland communities are relatively small and isolated and are not anticipated to provide suitable habitat.	N/A	No	N/A	Not present

Table 9: Preliminary Significant Wildlife Habitat Assessment

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE		ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
(iii)	Barn Swallow (*Hirundo rustica*) – Special Concern;	No – Prefers open or semi-open land, farms, fields, marshes, lakes and nests in anthropogenic structures (barns, sheds, bridges etc.). No suitable anthropogenic structures were observed on the Subject Lands.	N/A	No	N/A	Not present
(iv)	Eastern Wood-Pewee (*Contopus virens)* – Special Concern;	No – Prefers edges of deciduous and mixed forests as well as forest clearings. Potentially suitable woodland habitat is not present in or within 120 m of the Subject Lands.	NA	No	N/A	Not present
(v)	Grasshopper Sparrow *(Ammodramus savannarum)* – Special Concern;	Yes – Breeds in large areas of grassland, pasture, prairie, or hayfield. Large cultural meadow communities are present on the Subject Lands.	NA	Yes – Three rounds of breeding bird surveys have been conducted on the Subject Lands. This species was not observed.	N/A	Not present
(vi)	Monarch (*Danaus plexippus*) – Special Concern;	Yes – Adult monarchs require a variety of nectaring plants for foraging habitat and, in general, habitat can be varied,	NA	Yes – High abundances of milkweed were observed in the	N/A	Present

Table 9: Preliminary Significant Wildlife Habitat Assessment

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE		ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
		including prairies, meadows, marshes, and roadsides. Monarchs also specifically breed on Milkweed.		CUM1 communities within the Study Area during botanical inventories and incidental observations of Monarch were recorded on site.		
(vii)	Upland Sandpiper *(Bartramia longicauda)* – S2B;	Yes – Nests in grassland habitat but may be found foraging in meadows, pastures, and other croplands.	NA	Yes – Three rounds of breeding bird surveys have been conducted on the Subject Lands. This species was not observed.	N/A	Not present
(viii)	Hart's Tongue Fern (*Asplenium scolopendrium*) – S3;	No – Prefers mossy, calcareous rocks within shaded deciduous forests. Particularly Maple-Beech assemblages. On site woodland communities are relatively small and isolated and are not anticipated to provide suitable habitat.	N/A	No	N/A	Not present
(ix)	Ribbed Sedge (*Carex virescens*) – S3	Yes – Can be found in dry-moist forests.	N/A	Yes – This species was observed in the northwestern MAM5 community during	N/A	Present

Table 9: Preliminary Significant Wildlife Habitat Assessment

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
			botanical inventories.		
4. ANIMAL MOVEMENT CORRIDORS					
Amphibian Movement Corridors	No – Amphibian Breeding Habitat SWH is not present.	N/A	N/A	N/A	Not present
Deer Movement Corridors	No – Deer wintering habitat is not present on the Subject Lands or within the Study Area.	N/A	No	N/A	Not present