

NATURAL HERITAGE
SCOPED ENVIRONMENTAL
IMPACT STUDY

PREPARED FOR

**Robert Palmer:
Storage Building**

**Part Lot 8, Concession Georgian Range,
Geographic Township of Keppel
Township of Georgian Bluffs
County of Grey**

PREPARED BY

AWS

ENVIRONMENTAL CONSULTING INC.

operating as Aquatic and Wildlife Services

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1 Executive Summary

Robert Palmer has proposed to construct a Storage Building within his landholding at Part Lot 8, Concession Georgian Range, geographic Township of Keppel, Township of Georgian Bluffs, Grey County. The subject property is 0.65ha (1.61 ac) in size, vacant with no civic address, is fully forested and fronting on Grey Road 1. Currently Mr. Palmer has a dwelling at 505093 on the east side of Grey Rd 1 situated opposite the proposed storage building site. Provided under Appendix 1 is the Grey County-Property Report having Assessment Roll Number: 420362000723405 with Figure 1 showing the Property Location.

In the winter of 2023/2024 Mr. Palmer retained a local contractor to begin clearing trees within the proposed Storage Building Site. During this time, he had received an entrance/driveway permit began focused tree clearing within the building area and was proceeding with a building permit application for the project when he was advised by the Township of Georgian Bluffs at that time that he would need a site variance for supporting technical reports (EIS & Archeology) for the development, being told that the proposal does not qualify as ‘residential’. Mr. Palmer then retained the services of local Land Use Planning consultant Ron Davidson. Mr. Davidson consulted with the Township and Grey County planning department (March 16, 2024), it was through this consultation that it was confirmed that a Natural Heritage Environmental Impact Study (EIS) would be required. At that point (May 15/24), Mr. Palmer retained the services of AWS Environmental Consulting Inc, who submitted an EIS Terms-of-Reference (ToR) to Grey County Planning Ecologist Michael Cook (see Appendix 5) for a ‘Scoped EIS’ which was approved on May 15, 2024.

On May 29, 2024, AWS undertook its first site investigation, becoming aware at that time of the site tree cutting activity and consulted with Mr. Palmer regarding the background circumstances prior to AWS involvement in this project. The contractor had cleared approximately 80% of the proposed storage building site of trees prior to Mr. Palmer becoming aware that an EIS would be required. Once AWS became involved with this project, no further tree clearing or site alterations have occurred on site.

Through the ‘scoping’ exercise it was agreed that the EIS would focus on and address three natural heritage planning policies: Habitat for Endangered/Threatened Species, Significant Wildlife Habitat and Significant Woodland. Though a large portion of the proposed Building Area was cleared of trees, more than 60% of the full Study Landl area was still in natural forest cover, having no site disturbances. Within the tree cut-over area (approximately 20m deep x 30m wide) the site stumps and logs were still visible, allowing species identification and approximation of tree size. Plus, with the tree cutting occurring in the previous winter season, much of the ground level flora was still intact and just beginning to ‘green-up’ in late May.

Through the EIS process, the proposed Development Land area of 0.09ha (30m x 30m) has been shown in Figure 9 for the Storage Building area. This EIS has provided recommended mitigation measures for constrained tree cutting limits and tree cutting timelines parameters to maintain no negative impact on the natural environment/features and identified ecological functions of the Study Land and adjacent surrounding natural lands. Thus, with constrained site development the proposed Storage Building will conform with Endangered Species Act, 2007, the 2024 Provincial Planning Statement for Natural Heritage and the 2019 Grey County Official Plan-Natural Grey policies.

2 Introduction

This Natural Heritage 'Environmental Impact Study' (EIS) follows the approved 'Scoped EIS Terms-of-Reference focusing on the relevant planning policies of the 2024 Natural Heritage Provincial Planning Statement, the 2019 Grey County Official Plan, Township of Georgian Bluffs Zoning By-Law and other applicable Provincial and Federal Acts / Legislation / Regulations. Technical reporting will follow the Provincial Natural Heritage Reference Manual of March 2010 for the three noted natural heritage features for identification (presence/absence), ecological function determination and habitat significance determination where none are currently available and/or require on-site investigative works. Natural heritage features and ecological function impact assessment will follow the format as defined by the Provincial Policy Statement 2.1, with a review of available literature reports, data files, feature maps etc. currently available through Municipal, Provincial and Federal agencies augmented with field survey/inventory works for the Study Land and adjacent review lands (as applicable).

Within this technical report, the field investigation lands are referred to as the '**Study Land**', delineated on Figure 2. A broader review of the 120m adjacent lands, referred to as the '**Site Lands**' is also delineated in Figure 2, being undertaken for adjacent natural heritage features, linkages and landscape review. This broader Site Land review included air photo interpretation, background literature reviews, and field observations within the same landownership property plus roadside, property line observations to identify adjacent natural heritage features or corridor/linkages to off-site features for ecological function assessment.

3 Study Works

3.1 Background Review

A literature review and data searches were conducted of the provincial data bank maintained by the Natural Heritage Information Center to aid in the identification of Natural Heritage features and historical occurrence records for provincial Flora and Fauna 'species of conservation concern' in a 2 km radius to the Study Land (see Appendix 2). This background review was utilized to augment field data collection. A full listing of reports and documents reviewed or cited is provided in the reference section. Sources include:

- 2019 County of Grey Official Plan and applicable mapping
- Ontario Ministry of Natural Resources and Forestry (OMNRF)- Owen Sound Area Office; fish and wildlife records and maps and Land Information Ontario data bank and maps.
- Natural Heritage Information Center (NHIC) web site of the OMNRF for significant flora and fauna records.
- Other published documents and literature as noted under the reporting Reference section.

3.2 Field Study Methodology

The full property location mapping is provided on Figure 1, with the field inventory lands or '**Study Land**' and the adjacent 120 m or '**Site Lands**' are shown on Figure 2. Historical data record searches, literature reviews and satellite image interpretation encompassed the Site Lands with a broader landscape review extending 2 km's from the Study Lands for historical records search of 'species of conservation concern'.

Vascular Plant Surveys were conducted during the growing seasons (spring and summer) of 2024. A list of species with conservation ranking, status levels and Floristic Quality Scores is provided in Appendix 3. Survey works followed a random coverage search method throughout vegetation community number 1 for the Study Land.

General Fauna Surveys within the Study Land included specific searches and/or investigations for amphibians, breeding birds, activity for snakes/turtles, general searches for mammals and movement corridor functions throughout the late spring and summer seasons of 2024, providing 2-season coverage period. A list of all fauna species recorded over the study period is provided in Appendix 4 with current rankings, status levels and highest bird breeding codes observed.

Mammal sightings or observations of habitat use (tracks, scat) were recorded during all other flora and fauna investigation work during all site visits. Specific searches plus random coverage was completed across the Study Land.

Breeding Bird Surveys for the Study Land followed two standardized search methods:

- a) Monitoring activity included 'Point Counts' for breeding activity in accordance with Forest Bird Monitoring Protocol by Bird Studies Canada. Point Count locations were established to cover all habitat types with monitoring point location mapping provided under Appendix 4. Occurrences were recorded through both sightings and calling for a total of 5-10 minutes at each point count location.
- b) Additional bird species observations of feeding adults and fledglings during summer site visits were also recorded and are listed in Appendix 4 as observations outside the breeding season.

Herpetofauna Surveys were conducted within the Study Lands but were focused within suitable habitat areas.

- a) One small and shallow (<2cm depth) ephemeral pool was noted on-site with limited Amphibian breeding habitat within the forested -upland environment of vegetation community 1. By early June the ephemeral pool area had no surface waters, and the soil was only slightly moist. Though the early breeding period for amphibians was missed (late April), given the pools size, locations terrain, very shallow water depth, limited period of surface waters present and negligible breeding activity noted in late March, it is anticipated that no early during amphibian activity to provincial criteria threshold would be expected.
- b) Reptile-Turtle: No suitable habitat was identifiable on-site or within the adjacent forested Site Lands

- c) Reptile-Snake habitat was present but considered to be low quality within vegetation community 1. The historical data records search did not identify any SAR snakes within 2 km's to the subject Study Lands. Additionally, site development is focused within vegetation community 1 which has low quality snake habitat (scattered ground cover and low % ground cover/flora, lack of habitat diversity, no clear corridor feature and full overhead closed forest canopy). As such, intensive snake survey works were not deemed to be required (as per MECP -SAR snake study parameters of no records within 2km's). On-site survey investigations did not identify any habitat areas which could support hibernation or gestation key life cycle functions within the Study Land or visible adjacent lands from the property limits.

Fish Habitat and **fish** community survey work was not required as no surface water features which could support fish or fish habitat were identified or historically mapped within the Study Land. To the east are the waters of Georgian Bay, having a separation distance of 65m with a paved County Road and residential development between the Study Land and Georgian Bay waters. Given the separation distance, existing development and no direct surface water linkage from the Study Land to Georgian Bay waters, site development conforms with the Federal Fisheries Act, PPS and County Official Plan for Fish Habitat.

3.3 Field Survey Dates

Table 1: Field Survey Dates and Focus of Works

Date	Survey Time & Duration	Weather Conditions (at start time)	Survey Focus
May 29, 2024	0730-0830 For 1.0 hrs.	Wind Speed = 6-12 km/hr., Air Temp. = 9.0 C, Precipitation. = 0, Cloud Cover = 50%	Preliminary habitat investigations, characterization and features. First Breeding Bird survey.
May 29, 2024	2245 to 2300 For 0.25 hrs.	Wind Speed = 6-12 km/hr., Air Temp. = 9.0 C, Precipitation. = 0, Cloud Cover = 50%	Nighttime Anuran Calling Survey, Bat Foraging Activity
June 19, 2024	1115 to 1145 For 0.5 hrs.	Wind Speed = 12-19 km/hr., Air Temp. = 14.0 C, Precipitation. = 0, Cloud Cover = 25%	General Fauna, Spring Flora inventory
June 20, 2024	0900 to 0945 For 0.75 hrs.	Wind Speed = 6-12km/hr., Air Temp. = 23.0 C, Precipitation. = 0, Cloud Cover = 50%	Second Breeding Bird Survey General Fauna
July 29, 2024	1200 to 1230 For 0.5 hrs.	Wind Speed = 6-12 km/hr., Air Temp. = 27.0 C, Precipitation. = 0, Cloud Cover = 25%	General Fauna, Butternut investigation,
Aug. 15, 2024	1115 to 1200 For 0.75 hrs.	Wind Speed = 6-12 km/hr., Air Temp. = 23.0 C, Precipitation. = 0, Cloud Cover = 75%	General Fauna, Summer Flora Inventory

Total on-site field investigation works provided six site visits completing 3.75 hours of search effort with 2-season coverage (spring and summer). Features on-site would not support early spring season or late spring amphibian breeding habitat, nor key life cycle functions for reptiles. Note: Approximately 80% of the proposed Development area was cleared of trees prior to the applicant/landowner becoming aware that an EIS would be required, thus limiting field study coverage times. All field survey work site visit dates and weather conditions are in accordance with protocol requirements for the focused field survey works noted and per the approved ToR.

4 Vegetation Community Characterization

Vegetation community boundaries within the Site Lands were mapped and defined in the field based on the Ecological Land Classification (ELC) for Southern Ontario, First Approximation. ELC code, ranking and characterization for each vegetation community are provided in Table 2. Mapping of vegetation communities is provided in Figure 7.

Table 2: Vegetation Community Types and ELC Codes

Vegetation Community Number	ELC Code	Type	Description	Provincial Ranking
1	FOD5-1	Dry-Fresh Sugar Maple Deciduous Forest	Mature aged stand dominated with Sugar Maple having a closed canopy. Average stand height = 27m, Average stand dbh = 38cm, Basal Area = 29m ² /ha. Ground cover mix of Herbs & Forbs, Seedlings at 30% coverage.	S5
2	FOC2-2	White Cedar Coniferous Forest	Mature stand dominated with White Cedar, scattered Balsam Fir and White Birch.	S5
3	FOD6-5	Fresh-Moist Sugar Maple-Hardwood Deciduous Forest	Mature stand dominated by Sugar Maple with scattered White Cedar, Yellow Birch, Balsam Poplar, Ironwood.	S5

Scoped- Significant Feature Analysis

5 Habitat of Endangered and Threatened Species

A literature search for historic records of Endangered and Threatened species has been undertaken of the Natural Heritage Information Centre (NHIC) database and provided in Appendix 2 for the surrounding landscape extending 2 km's from the Study Land. This data records search utilizes the 'Species at Risk' in Ontario (SARO) listings maintained by the Ontario Ministry of Natural Resources (MNR); and the national lists maintained by Environment Canada (i.e. Committee on the Status of Endangered Wildlife in Canada (COSEWIC)). As input to this work along with published resources of the MNR and in conjunction with field investigations, provided below is a review of both historical records and on-site any identified Species-at-Risk, provincial habitat description and assessment of the on-site habitat within the Study Land.

Through this background literature review the following Ontario Species-At-Risk (SAR) have been identified within 2 km's to the Study Land having a SARO Status of Endangered or Threatened (see Appendix 2):

- Four bird species: Red-headed Woodpecker, Eastern Meadowlark, Bobolink and Whip-poor-will

The Provincial Planning Statement (PPS) section 4.1.7 states:

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

A review of provincial habitat criteria and on-site habitat investigations has been provided below for the noted flora and fauna.

Red-headed Woodpecker

- Provincial habitat description: *Open deciduous forest with little understory, fields or pasture lands with scattered large trees, wooded swamps, orchards, small woodlands or forest edges; groves of dead or dying trees, feeds on insects and stores nuts or acorns for winter; loss of habitat is limiting factor, requires cavity trees with at least 40 cm dbh, requires about 4 ha for a territory*
 - Study Land: No identifiable habitat to provincial criteria within the Study Land or immediate adjacent lands. Intensive EIS field investigations did not record this species within the Study Land (see Appendix 4). Thus, **no** further review or impact assessment is deemed warranted and no negative impacts are anticipated to this SAR bird from the proposed site development.

Eastern Meadowlark

- Provincial habitat description: *Open, grassy meadows, farmlands, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent open grassy areas > 10 ha in size*
 - Study Land: No suitable habitat was identified to provincial criteria within the Study Land or immediate adjacent lands. Intensive EIS field investigations did not record this species within the Study Land (see Appendix 4). Thus, **no** further review or impact assessment is deemed warranted and no negative impacts are anticipated to this SAR bird from the proposed site development.

Bobolink

- Provincial habitat description: *Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland > 50 ha in size*
 - Study Land: No suitable habitat was identified to provincial criteria within the Study Land or immediate adjacent lands. Intensive EIS field investigations did not record this species within the Study Land (see Appendix 4). Thus, **no** further review or impact assessment is deemed warranted and no negative impacts are anticipated to this SAR bird from the proposed site development.

Whip-poor-will

- Provincial habitat description: *Dry, open, deciduous woodlands of small to medium trees; oak or beech with lots of clearings and shaded leaf-litter; wooded edges, forest clearings with little herbaceous growth; pine plantations; associated with >100ha forests; may require 500 to 1000 ha to maintain population.*
 - Study Land: No suitable habitat was identified to provincial criteria within the Study Land or immediate adjacent lands. Intensive EIS field investigations did not record this species within the Study Land (see Appendix 4). Thus, **no** further review or impact assessment is deemed warranted and no negative impacts are anticipated to this SAR bird from the proposed site development.

The OMNRF documentation of historical records states:

- *Absence of information for a specific location does not mean there are no natural areas, provincially tracked species, plant communities or wildlife concentration areas at that location. It means that on the date the MNR created the dataset there was no information for that location. These data are not a substitute for site visits.*

Site investigations throughout the Study Land over the 2-season coverage period were completed for flora and fauna that are currently listed under the Endangered Species Act and Species at Risk Act. Appendix 3 and Appendix 4 provide a complete inventory of species recorded during EIS

investigations in the Study Land. Through on-site survey works, no observations of SAR Fauna were recorded.

No SAR Flora (live) were recorded within the Study Lands or visibly evident within the immediate adjacent lands from the property limit. Though much of the proposed Development Land area within the Study Land was cleared of trees prior to EIS works commencing, the still visible stumps (averaging 20cm in height) and scattered logs on-site permitted species identification. One standing snag (dead) Butternut was observed along the western limit of the Study Lands, see Site Photos and location mapping on Figure 8. Under the Endangered Species Act, 2007 section 9 (1)(b) relating to the habitat protective measures for Butternut, the Act does not apply to confirmed dead butternut by a Butternut Health Assessor. This author is a provincially certified Butternut Health assessor (Certification # 099) and can confirm the subject single Butternut Tree is dead, being a Class 3 type standing snag (primarily only the main stem is standing having sloughing off bark and no branching). As this is a dead butternut, it was not listed under Appendix 4, Flora inventory Listing.

Though no SAR Fauna were observed within the Study Land, the noted single standing Butternut Tree could also support bat roosting and/or maternity functions. Some bat species in Ontario are currently listed as Species-at-Risk, with their habitat regulated under the Ontario Endangered Species Act (ESA) 2007. As such, this snag is considered a candidate (unconfirmed) habitat for bats. Further discussion and impact assessment for Candidate SAR Bat habitat is provided under reporting section 9.

6 Significant Woodlands

The County of Grey has undertaken countywide mapping for Significant Woodlands within its current Official Plan-Appendix B, with area mapping provided under Figure 4B. The County Official Plan mapping identifies all of the woodland within the Study Land to have a 'Significant Woodland' designation.

The Natural Heritage Provincial Planning Statement 4.1.5 (b) regarding Significant Woodlands states:

Development and site alteration shall not be permitted in significant woodlands in Ecoregions 6E and 7E unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

The Grey County Official Plan policy 7.4 regarding Significant Woodlands in part states:

No Development or site alteration may occur within Significant Woodlands or their adjacent lands unless it has been demonstrated through an environmental impact study...that there will be no negative impacts on the natural features or their ecological functions.

With a Significant Woodland feature confirmed within the Study Land, further review and impact assessment is required and provided under reporting section 10, to demonstrate compliance with the PPS 4.1.5 (b), and the Grey County Official Plan policy 7.4.

7 Significant Wildlife Habitat

Currently no mapping has been undertaken within Grey County to identify Significant Wildlife Habitat (SWH) due to its complexity and varied sub-components, that require on-site survey work. Some historical OMNRF inventory and wildlife assessments within Grey County have been checked to locate any previously determined confirmed SWH within the Study or Site Lands. Additionally, EIS field inventory works carried out over the Study Land augment this historical data to aid in the determination of significance for each wildlife habitat sub-component.

The Ontario Ministry of Natural Resources and Forestry published in January 2015 “Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E” as a supplement document to the 2000 Significant Wildlife Habitat Technical Guide (SWHTG). This supporting document provides a listing of candidate and criteria or threshold levels to confirm the presence of significant wildlife habitat within Ecoregion 6E with MNRFLand Information Ontario identifying that the subject lands are situated within Ecoregion 6E. Some historical Provincial MNRFLand inventory and wildlife assessment works within Grey County (Green in Grey Natural Heritage System) have been sourced to aid in determination of confirmed SWH. Additionally EIS field inventory works carried out over the Study Lands will augment this historical data to aid in the determination of significance for each wildlife habitat sub-component.

The subject Study Land is within the provincial Ecoregion 6E area. Provided below is a review of Ecoregion 6E criteria for candidate SWH, a review of threshold levels and any confirmed SWH for the Study Land.

This review follows the Natural Heritage Reference Manual, 2010 (NHRM), flow chart of Figure No. 9-1 for the identification (candidate habitat) and confirming of Significant Wildlife Habitat.

7.1 Seasonal Concentration Areas of Animals

A summary review of Provincial Criteria Table 1.1 is provided below:

- Waterfowl Stopover and staging (Terrestrial)
 - No criteria waterfowl species were recorded within the Study Land during the spring or late summer stopover and staging activity periods.
 - No ELC criteria codes are present and no substantive seasonal flooding occurs within the riparian environment.
 - Criteria threshold for species and aggregate numbers not met based on site survey work undertaken, site evidence and air photo interpretation.
 - No candidate or confirmed SWH.

- Waterfowl Stopover and staging (Aquatic)
 - No criteria waterfowl species were observed.
 - No ELC criteria codes are present.
 - Criteria threshold for species and aggregate numbers not met based on site survey work undertaken during the spring migration period.
 - No candidate or confirmed SWH.

- Shorebird Migratory Stopover
 - No criteria shorebird species were observed.
 - No ELC criteria codes are present.
 - Criteria threshold for species and aggregate numbers not met.
 - No candidate or confirmed SWH.

- Raptor Wintering Area
 - No criteria raptor species were observed during the spring-summer monitoring period. Given the sites size, forest cover and no key habitat areas, no overwintering survey works were deemed necessary.
 - ELC forest criteria codes: FOD and FOC are present but no Open Uplands within the Site Lands.
 - No historical documentation of habitat uses during winter period.
 - No candidate or confirmed SWH.

- Bat Hibernacula
 - No detailed bat species survey work was undertaken.
 - No ELC criteria codes are present. No Karst features, Caves, mine shafts or open underground environments were observed within the Study Land.
 - No historical documentation of bat hibernation activity, no ecological functioning habitat was identifiable.
 - No candidate or confirmed SWH.

- Bat Maternity Colonies
 - No bat foraging activity was noted during the evening investigations. Nor was any evidence (bat dropping) noted around the identified candidate bat roosting tree. No detailed bat acoustic survey works were undertaken within the Study Lands, deemed unwarranted.
 - Forest ELC criteria code FOD and FOC are present within Study Land.
 - Full habitat assessment for Cavity Trees and Snags density survey work was not undertaken due to the Tree Clearing activity over much of the proposed building area prior to EIS works commencing. However, the remaining stumps were all indicative that tree diameters would typically be <18cm, thus no large diameter trees would have been present in the cut-over area. Within the remaining undisturbed forest of the Study Land area, only Two candidate bat habitat trees were noted (One dead Butternut + One live cavity Sugar Maple tree). It is concluded that snag/cavity tree density did not nor would not have met provincial criteria for significance determination within the Study Land.
 - No confirmed SWH.

- Turtle Wintering Areas
 - No criteria turtle species were recorded within the Study Land.
 - No ELC criteria codes are present.
 - Given the lack of organic soils, no suitable habitat for critical overwintering life cycle functions was identifiable within the Study Land.
 - No candidate or confirmed SWH.

- Reptile Hibernaculum
 - One criteria species Eastern Gartersnake was recorded with a single observation during the August site visit. Site investigations did not note any suitable candidate hibernation habitat within Study Land.
 - No suitable habitat to provincial description was noted within the Study Land.
 - Criteria threshold for species and aggregate numbers not met.
 - No confirmed SWH.

- Colonially-Nesting Bird Breeding Habitat: Bank and Cliff
 - No criteria bird species were observed.
 - No ELC criteria codes are present.
 - No candidate or confirmed SWH.

- Colonially-Nesting Bird Breeding Habitat: Tree/Shrub
 - No criteria bird species were observed.
 - No ELC criteria code are present.
 - No candidate or confirmed SWH.

- Colonially-Nesting Bird Breeding Habitat: Ground
 - No criteria bird species were observed.
 - No ELC criteria codes are present.
 - No candidate or confirmed SWH.

- Migratory Butterfly Stopover Areas
 - No criteria butterfly species were observed.
 - Study Lands are not located within 5km of Lake Ontario (criteria site location).
 - No candidate or confirmed SWH.

- Landbird Migratory Stopover Areas
 - Several migratory songbird species present within the Study Land.
 - Study Lands are not located within the criteria 5km of Lake Ontario.
 - No candidate or confirmed SWH.

- Deer Yarding Areas
 - OMNRF determines this habitat. Midhurst District has identified and mapped wintering deer yards within Grey County and no such habitat designation is identified within the Site Lands, confirmed through Land Information Ontario.
 - No candidate or confirmed SWH.

- Deer Winter Congregation Areas
 - Within Grey County, deer are typically constrained by snow depths thus yarding habitat is used rather than congregation areas. Congregation areas are typically associated with Carolinian regions, thus not a SWH function in Grey County.
 - No candidate or confirmed SWH.

7.2 Rare Vegetation Communities

A summary review of Provincial Criteria Table 1.2.1 is provided below:

- Cliffs and Talus Slopes
 - No ELC criteria code types present within the Study or Site Lands.
 - No candidate or confirmed SWH.
- Sand Barren
 - No ELC criteria code types present within the Study or Site Lands.
 - No candidate or confirmed SWH.
- Alvar
 - No ELC criteria code types present within the Study or Site Lands.
 - No candidate or confirmed SWH.
- Old Growth Forest
 - ELC criteria code types; FOD and FOC are present.
 - Provincial Habitat description criteria for 'Old Growth Forest' community not present (tree sizes, density, etc.) within the Study Land or identifiable within the Site Lands.
 - No candidate or confirmed SWH.
- Savannah
 - No ELC criteria code types present within the Study or Site Lands.
 - No candidate or confirmed SWH.
- Tallgrass Prairie
 - No ELC criteria code types present within the Study or Site Lands.
 - No candidate or confirmed SWH.
- Other Rare Vegetation Communities
 - No ELC types having a provincial rank of S1, S2 or S3 identified within the Study or Site Lands.
 - No candidate or confirmed SWH.

7.3 Specialized Habitat for Wildlife

A summary review of Provincial Criteria Table 1.2.2 is provided below:

- Waterfowl Nesting Area
 - No criteria waterfowl species were recorded within the Study Land.
 - No ELC criteria codes are present within the Study Land.
 - Criteria thresholds not met for species diversity, numbers or suitable habitat.
 - No confirmed SWH.

- Bald Eagle and Osprey Nesting, Foraging and Perching Habitat
 - No criteria species were observed.
 - ELC criteria codes: FOD and FOC are present; however, no stick nests observed within the Study Land.
 - Criteria thresholds not met for active use of habitat.
 - No confirmed SWH.

- Woodland Raptor Nesting Habitat
 - No criteria species were observed.
 - ELC criteria codes: FOD and FOC are present; however, there was no evidence of current or past nesting activity within the Study Land or immediate adjacent lands.
 - Criteria thresholds for species, numbers and habitat size plus use, not met.
 - No confirmed SWH.

- Turtle Nesting Areas
 - No criteria species were recorded within the Study Land.
 - No ELC criteria codes are present.
 - Criteria thresholds for species, numbers, and habitat size plus use, not met.
 - No confirmed SWH.

- Seeps and Springs
 - Criteria species: Wild Turkey and Salamander species were recorded within the Study Land.
 - No groundwater upwelling features were identified within the Study Land.
 - Criteria thresholds for 2 or more seeps/springs not met
 - No confirmed SWH

- Amphibian Breeding Habitat (Woodland)
 - Criteria species: Gray Treefrog is present.
 - ELC criteria codes: FOD and FOC are present within the Study Land.
 - Criteria thresholds for species diversity and numbers were not met (two or more criteria species with >20 individuals).
 - No confirmed SWH

- Amphibian Breeding Habitat (Wetlands)
 - Criteria species: Gray Treefrog is present.
 - No ELC criteria codes are present.
 - Criteria thresholds for species diversity and numbers (two or more criteria species; >20 individuals) were not met.
 - No confirmed SWH.

- Woodland Area-Sensitive Bird Breeding Habitat
 - One criteria bird species; Ovenbird was recorded within the Study Land.
 - ELC criteria codes: FOD and FOC are present within the Study Land.
 - Criteria threshold for 3 or more criteria species not met.
 - No confirmed SWH.

7.4 Habitat for Species of Conservation Concern

A summary review of Provincial Criteria Table 1.3 is provided below:

- Marsh Breeding Bird Habitat
 - No criteria bird species were observed.
 - No ELC criteria codes are present.
 - Criteria thresholds not met for species diversity, numbers or active habitat use.
 - No candidate or confirmed SWH.
- Open Country Bird Breeding Habitat
 - No criteria bird species were observed.
 - No ELC criteria codes are present.
 - Criteria thresholds for species diversity, numbers or active habitat use, not met.
 - No candidate or confirmed SWH.
- Shrub/Early Successional Bird Breeding Habitat
 - No criteria indicator species were observed.
 - No ELC criteria codes present.
 - Criteria thresholds for species diversity, numbers or active habitat use, not met.
 - No confirmed SWH.
- Terrestrial Crayfish
 - No criteria species (no crayfish chimneys) observed.
 - No ELC criteria codes are present.
 - Criteria threshold for species diversity, numbers or active habitat use, not met.
 - No candidate or confirmed SWH.
- Special Concern and Provincially Rare Wildlife Species
 - No flora species were identified in 2024 which have a Special Concern or Provincial rarity status within the Study Land flora inventory listing, see Appendix 3.
 - No fauna species were identified in 2024 which have a Special Concern or Provincial rarity status within the Study Land fauna inventory listing, see Appendix 4.
 - Through the historical records search (Appendix 2), the following Special Concern status or provincially rare species were noted:

Fauna

➤ Wood Thrush

- Provincial habitat description: *Carolinian and Grey Lakes-St. Lawrence forest zones; undisturbed moist mature deciduous or mixed forest with deciduous sapling growth; near pond or swamp; hardwood forest edges; must have some trees higher than 12m*

- No suitable habitat to provincial description within the Study Land. Intensive breeding/rearing bird inventory works throughout the spring and summer season of 2024 did not record this woodland bird within the Study Land.
- Eastern Wood-pewee
 - Provincial habitat description: *Open, deciduous, mixed or coniferous forest, predominantly by oak with little understory, forest clearings, edges, farm woodlots, parks*
 - Marginal habitat to provincial description is identifiable within vegetation community 1 of the Study Land. Intensive breeding/rearing bird inventory works throughout the spring and summer season of 2024 did not record this woodland bird within the Study Land.
- Grasshopper Sparrow
 - Provincial habitat description: *Requires well-drained grassland or prairie with low cover of grasses, taller weeds on sandy soil; hayfields or weedy fallow fields; uplands with ground vegetation of various densities; perches for singing; requires tracts of grassland > 10 ha*
 - No suitable habitat to provincial description within the Study Land. Intensive breeding/rearing bird inventory works throughout the spring and summer season of 2024 did not record this woodland bird within the Study Land.

Flora

- Hart's-tongue Fern
 - Suitable habitat to provincial description is identifiable within vegetation community 1 of the Study Land. Intensive flora inventory works throughout the spring and summer season of 2024 did not record this vascular plant within the Study Land.
- No confirmed SWH

7.5 Animal Movement Corridors

A summary review of Provincial Criteria Table 1.4.1 is provided below:

- Amphibian Movement Corridors
 - Table 1.2.2 criteria not met (Section 11.3, above)
 - With no confirmed significant amphibian breeding habitat noted, no corridor or linkage function assessment is required.
 - No confirmed SWH.
- Deer Movement Corridors
 - No deer wintering habitat was confirmed through Table 1.1 criteria analysis (Section 11.1); thus no delineation of threshold levels for deer movement corridor is required.
 - No candidate or confirmed SWH.

7.6 Exceptions for Ecoregion 6E

A summary review of Provincial Criteria Table 1.5.1 is provided below:

- Mast Producing Areas
 - Candidate areas are only within for EcoDistrict 6E-14, the Upper Bruce Peninsula.
 - No candidate or confirmed SWH.
- Sharp-tailed Grouse
 - Candidate areas are only within for EcoDistrict 6E-17, for Manitoulin Island.
 - No candidate or confirmed SWH.

In summary, from this analysis of the Ecoregion 6E criteria schedules, **No** sub-components of Significant Wildlife Habitat have been identified as candidate or confirmed within the Study Land.

The Natural Heritage PPS 4.1.5 (d) states:

Development and site alteration shall not be permitted in significant wildlife habitat unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

Natural Heritage PPS 4.1.8 regarding the adjacent lands (120 m) for significant wildlife habitat states:

Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 4.1.4, 4.1.5 and 4.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.

With **No** Significant Wildlife Habitat confirmed within the Study Land, site development will conform with the PPS 4.1.5 (d), 4.1.8 and the Grey County Official Plan policy 7.10 (1) and no further review is deemed required.

8 Significant Feature Analysis Summary

Through the significant feature analysis, the following have been identified:

- Candidate regulated ESA habitat for Bats within the woodland feature.
- Confirmed Significant Woodland feature

In addition to these natural heritage features, Figure 4C demonstrates that the subject Study Land is outside the Grey County designated 'Natural Heritage System- Core Lands'. At its closest point, site development within the Study Land will have a minimum separation distance of 32m, all forested lands. As such, it is anticipated that the proposed Dry Storage Building will have no negative impact to the NHS lands or associated woodland ecology functions.

Further review of Candidate SAR Bat Habitat and the Significant Woodland Feature has been provided within the 'Impact Assessment' component of the EIS. Site development constraints with recommended mitigation measures in relation to the proposed development activity have also been provided to maintain compliance with applicable Planning Policies and the Endangered Species Act 2007.

IMPACT ASSESSMENT

9 Habitat for Endangered & Threatened Species

9.1 Bat Habitat Characterization

Through on-site investigations for candidate bat roosting/maternity function habitat trees, two potential trees were identified. Within the northwest corner of the Study Land a large diameter mature Sugar Maple tree had several cavities within the upper main stem area. A second candidate bat habitat tree was identified along the westerly Study Land limit, being the single standing Butternut Snag (dead tree). Both candidate bat habitat features have location mapping provided on Figure 8. Several bat species in Ontario are on the Species-at-Risk (SAR) listing, with their habitat protected and regulated under the Endangered Species Act (ESA) 2007. Therefore, without further intensive survey works for bat presence/absence determination, these snags/cavity trees are thus referred to as 'candidate' bat habitat, assuming to be functional habitat for impact assessment purposes.

In Ontario the Endangered Species Act, 2007 (ESA) provides protection of critical habitat for Endangered/Threatened bat species. ESA 2007 provides both species protection (Section 9) and habitat protection (Section 10) to species listed as 'Endangered or Threatened'. If an activity or project will result in adverse effects to Endangered or Threatened species and/or their habitat, additional action would need to be taken by a proponent to remain in compliance with the ESA 2007.

9.2 Recommendation

Northern Myotis, Little Brown Myotis and Tri-colored Bats are all endangered bat species known to occur in Grey County and which utilize suitable woodland habitat during the spring and summer seasons for maternity functions, day roosts and forage habitat.

The MECP Bat Standard Survey Note (Guidelines) of 2021 states:

The purpose of this note is to support compliance with Ontario's Endangered Species Act, 2007 (ESA) by providing consistent and practical survey guidance for species at risk bats. Where a project or activity is planned in a manner that pro-actively avoids adverse effects to bats (does not contravene s. 9 or s. 10 of the ESA), there is no need to conduct species at risk bat surveys... Ultimately, it is the proponent's responsibility to assess potential impacts of their planned activity on species at risk bats and take the appropriate steps to achieve compliance with the ESA.

Candidate bat habitat tree/snag location mapping is shown on Figure 8, with the Development Land area for tree clearing/storage building construction shown on Figure 9.

The identified Butternut snag is situated 30m west of the Development Land and the noted single Sugar Maple tree is situated approximately 20m west of the Development Land. The lands west of the Development Lands within the Study Land and within the same property ownership are to be retained in Natural Forest Cover. The noted separation distance from the Development Land to the two-candidate bat habitat cavity tree & snag tree is sufficient to maintain no negative impact to these two features or their candidate ecological function for bats.

The Endangered Species Act section 9 deals with 'killing, harming or harassing' a protected species, such as Bats. The aforementioned MECP Bat Survey Standard Notes 2021 in relation to Section 9 under ESA states:

*If a proposed activity will avoid impairing or eliminating the function of habitat for supporting bat life processes (e.g. remove, stub, etc. a small number of potential maternity or day roost trees in treed habitats) but the timing of tree removal will avoid the bat active season (**April 1 – November 30 in Southern Ontario / May 1 to August 31 in Northern Ontario**), then there is no need to conduct species at risk bat surveys of treed habitats.*

NOTE: MECP just recently update the tree removal period, extending it from Sept 30 now to Nov 30 in S. Ontario.

This MECP recommended tree cutting period shall be incorporated into the EIS mitigation measures to aid in avoiding impairing the candidate on-site bat maternity activity period.

The Endangered Species Act section 10 deals with 'damage or destroying habitat' protected under the Act. The document 'Categorizing and Protecting Habitat under the Endangered Species Act' states:

*An activity that damages the habitat of a species is one that alters the habitat in ways that **impair** the function (usefulness) of the habitat for supporting one or more of the species' life processes.*

*An activity that destroys the habitat of a species is one that alters the habitat in ways that **eliminate** the function (usefulness) of the habitat for supporting one or more of the species' life processes.*

In some cases, the anticipated alteration that a proposed activity will have on habitat may be so minor that the function of the habitat for supporting the species' life processes will not become impaired or eliminated. In such cases the activity would not contravene subsection 10(1) of the ESA and would not require authorization under the Act with respect to this provision.

The MECP Bat Standard Survey Note (Guidelines) of 2021 also states:

*The damage and destruction assessment of habitat **may vary geographically** as the availability of other nearby maternity and day roost trees differs across the province of Ontario.*

Therefore, through site development 'avoidance' of the two candidate bat habitat trees, site development would conform with the ESA section 10 with no application to MECP or clearance/authorization required under the ESA.

In conclusion, with the recommended MECP tree cutting timeline, site development would be in compliance with section 9 of the ESA. Additionally, with avoidance of the two candidate bat habitat trees plus retained forest cover buffering said habitat, site development would be in-compliance with section 10 of the ESA.

10 Significant Woodland

10.1 Characterization

A general characterization of the vegetation within the Site Lands has been provided in Section 4, Table 2. A recorded vascular plant Flora species listing for the Study Land is provided under Appendix 3, with individual species ranking and scoring values under the 'Floristic Quality Assessment (FQA) for Southern Ontario' system. The floristic quality assessment scoring can be utilized to assess specialized habitat types, plant diversity and a sites vascular plants degree of tolerance to habitat alterations.

10.2 Floristic Quality Scoring

Within the Study Land a total of 42 vascular plant species were identified with 31 species or 74% being native and 11 species or 26% considered non-native. Within Southern Ontario, the average non-native composition ranges between 20 to 30%, as per M. Oldham of OMNR Natural Heritage Information Center, FQA manual. The Study Land non-native flora percentage composition is within this provincial range, reflecting a level of botanical species composition that is stable and uniform to other S. Ontario similar forest stands.

Floristic Quality Assessment values for the 'coefficient of conservatism' (FQA-CC) scoring ranks for **native** flora are based on a plant's degree of fidelity to a range of synecological parameters established by the province and can represent a flora species tolerance to site disturbances. An analysis of this scoring for native species within the Study Land is provided in Table 3 below.

Table No. 3: Native Flora Coefficient of Conservatism (CC) breakdown-Upland Environment

Scoring	Provincial Description	Study Lands Plant Numbers
0 to 3	<i>Plants found in a wide variety of plant communities including disturbed sites</i>	14 species or 45%
4 to 6	<i>Plants typically associated with a specific plant community, but tolerate moderate disturbances</i>	15 species or 49%
7 to 8	<i>Plants associated with a plant community in an advanced successional stage that has undergone minor disturbance</i>	2 species or 6%
9 to 10	<i>Those plants with high degrees of fidelity to a narrow range of synecological parameters</i>	0 species or 0%

Table No. 3 demonstrates that 94 % of the native vascular plants within the Study Land occupy a wide range of habitat types and tolerate high to moderate degrees of site disturbances while 6% of the native flora can tolerate at least minor site disturbances. No flora species of conservation concern were identified within the Study Land, nor any species requiring specialized forest habitat areas (scoring values of 9 or higher).

10.3 Woodland Ecological Functions

Through on-site investigations, data analysis, air photo interpretation and feature mapping of the Study Land, significant life cycle function habitat of the forest cover is primarily associated with candidate bat habitat and nesting/rearing habitat for common bird species. No key life cycle habitat for other fauna species of conservation concern were identified. No vascular plants of conservation concern or specialized habitat for flora areas could be identified within the Study Land. The key ecological function associated with this Significant Woodland being candidate bat habitat within the Study Land has been reviewed with impact assessment and mitigation measures discussed under reporting section 9.

10.4 Impact Assessment

Several literature research documents dealing with tree clearing impacts within woodlands have been undertaken within North America, primarily for silvicultural practices and timber harvesting impacts. However, tree clearing regardless of use is a land use change, whether it be for on-going log landings or small way-side pits or man-made structures like dwellings, it is still a tree clearing area/ land use change. Ontario MNR research has shown that tree clearing areas within woodlands should be constrained in their size to aid in prevention of becoming conduits for non-native species and reducing woodland bird impacts. As a Best Management Practice, through MNR-science & research branch in the early 1990's it was determined that tree clearings <0.4ha (1ac) within woodlands had no measurable negative impact to breeding/rearing functions of common woodland bird species. Research has also shown that woodland clearings that do not

exceed 0.4ha (4000m²) minimize wind throw impacts on trees along the new clearing edge, which could cause increased forest canopy loss beyond the established clearing area.

As such, it is recommended that a tree clearing within significant woodlands not only be constrained for tree cutting timeline but also in tree clearing area not to exceed 0.4ha and maintain a suitable forest cover separation width between clearings.

Figure 9 shows the Development Land area at approximately 30m x 30m or 0.09ha in area for the Storage Building site. This tree clearing area is well below the noted recommended threshold tree clearing maximum area, thus no woodland ecological function impacts are anticipated from the proposed site development. Prevailing winds in this part of Grey County are from the north or west oriented lengthwise to the subject property. In review of provincial mapping of elevation contours shown on Figure 7 it reflects that the lands on the western end of the property are relatively flat until reaching a terrace stepdown located 80m west of the Development Land that has a 40m elevation drop to the Development Lands (5m for each contour line). The terrain continues in an easterly slope direction towards Georgian Bay. This rapid elevation changes over the site aids to 'shelter' the Development Land area and remaining tree cover through dissipating high wind velocity impacts to the forest canopy within the Study Land. As such the proposed tree clearing area within the Development Land abutting to the Grey County Road corridor-tree clearing strip, is not anticipated to have any cumulative tree loss impacts from site development.

With the recommended Development Land constraint size plus tree cutting timeline constraint no anticipated negative impacts to the Sites Significant Woodland feature or its identified key ecological function would be anticipated. Therefore, it has been demonstrated that site development for the proposed Storage Building would conform with the PPS 4.1.5 (b) and the Grey County Official Plan policy 7.4.

11 Mitigation Measures

The following mitigative measures should be implemented through Site Plan Control or Development Agreement. These measures are recommended to maintain the ecological functioning role and natural heritage features that have been identified within the Study Land and are following applicable Acts, Legislation, and Natural Heritage Planning Policies of the current Provincial Policy Statement and the County of Grey Official Plan.

- 11.1 The proposed Storage Building be situated within the EIS Delineated Development Land as depicted in Figure 9.
- 11.2 No tree felling activity should occur within the Development Land from April 1st to November 30th in accordance with the Ministry of Energy Conservation and Parks (MECP)-SAR Branch recommendation to maintain compliance with the Endangered Species Act, 2007, avoiding the active Bat Maternity/Roosting period.
- 11.3 Consultation with Grey County-Planning Ecologist may be required in relation to 'tree loss' impacts, with possible tree replacement measures needed or other alternative forms of tree cover reduction off-setting measures as the subject property is fully forested with no option for on-site tree planting.

12 Conclusions

Through the Impact Assessment component site development recommended mitigation measures range from:

- avoidance of identified candidate bat habitat cavity tree/snag,
- constrained tree clearing area size and
- constrained tree cutting period

With these development mitigation measures and development constraint parameters in place, it has been demonstrated and concluded that the proposed Storage Building would have no anticipated negative impacts or loss of ecological function to the Natural Heritage features assessed within the Study Land or surrounding natural environment.

Therefore, it has been concluded that with the recommended mitigation measures the proposed activity would conform to the 2024 Provincial Planning Statement and the 2019 Grey County Official Plan for Natural Heritage.

All comments contained within this report '*italicized*' are quotes pertaining to available literature, technical reports, manuals, and documents relevant to the features and/or functions observed within these Study Lands. All natural feature locations are estimates based on current Bruce County or Province of Ontario air photo imagery and plotting by handheld GPS unit for significant features and through site topographic mapping on Ontario Base Maps.

The maps contained within this report should not be considered 'a legal survey' but are deemed adequate for this planning/application review process.

Respectfully Submitted



John Morton, President
AWS Environmental Consulting Inc.

13 References

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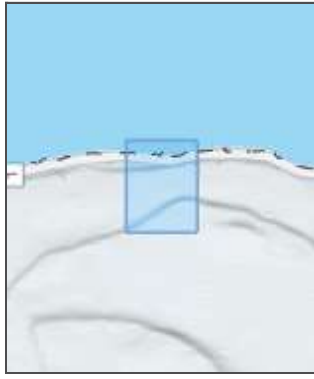
14 Figures

Mapping Note for Clarification:

All below figures are a very close approximation for the property boundary but given various mapping scales, boundary anomalies etc., EIS figures may not match the survey plan dimensions to its entirety.

Figure 1.....	Property Location
Figure 2.....	Study and Site Lands
Figure 3.....	Provincial Natural Heritage Features, Provincial Sourced
Figure 4A.....	Grey County Official Plan - Land Use Designations
Figure 4B.....	Grey County Official Plan – Environmental Constraints
Figure 4C.....	Grey County Official Plan - Natural Heritage System
Figure 5.....	Township of Georgian Bluffs - Zoning
Figure 6.....	Conservation Authority Regulatory Lands
Figure 7.....	Vegetation Communities and Ecological Land Classification Types
Figure 8.....	Natural Heritage Features
Figure 9.....	Development Land

Figure 1: Property Location



Legend

Assessment Parcel



Lots and Concessions



Full Property



Notes

Robert Palmer, Storage Building
Part Lot 8, Georgian Range

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Figure 2: Study and Site Lands



Legend

Assessment Parcel



Lots and Concessions



Study Land



Site Lands:
120m adjacent
lands



Notes

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Part Lot 8, Georgian Range

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Figure 3: Provincial Features

Map created: 1/2/2025



Notes:

Robert Palmer, Part Lot 8, Georgiian Range

0.3

0

0.16

0.3 Kilometres

Absence of a feature in the map does not mean they do not exist in this area.

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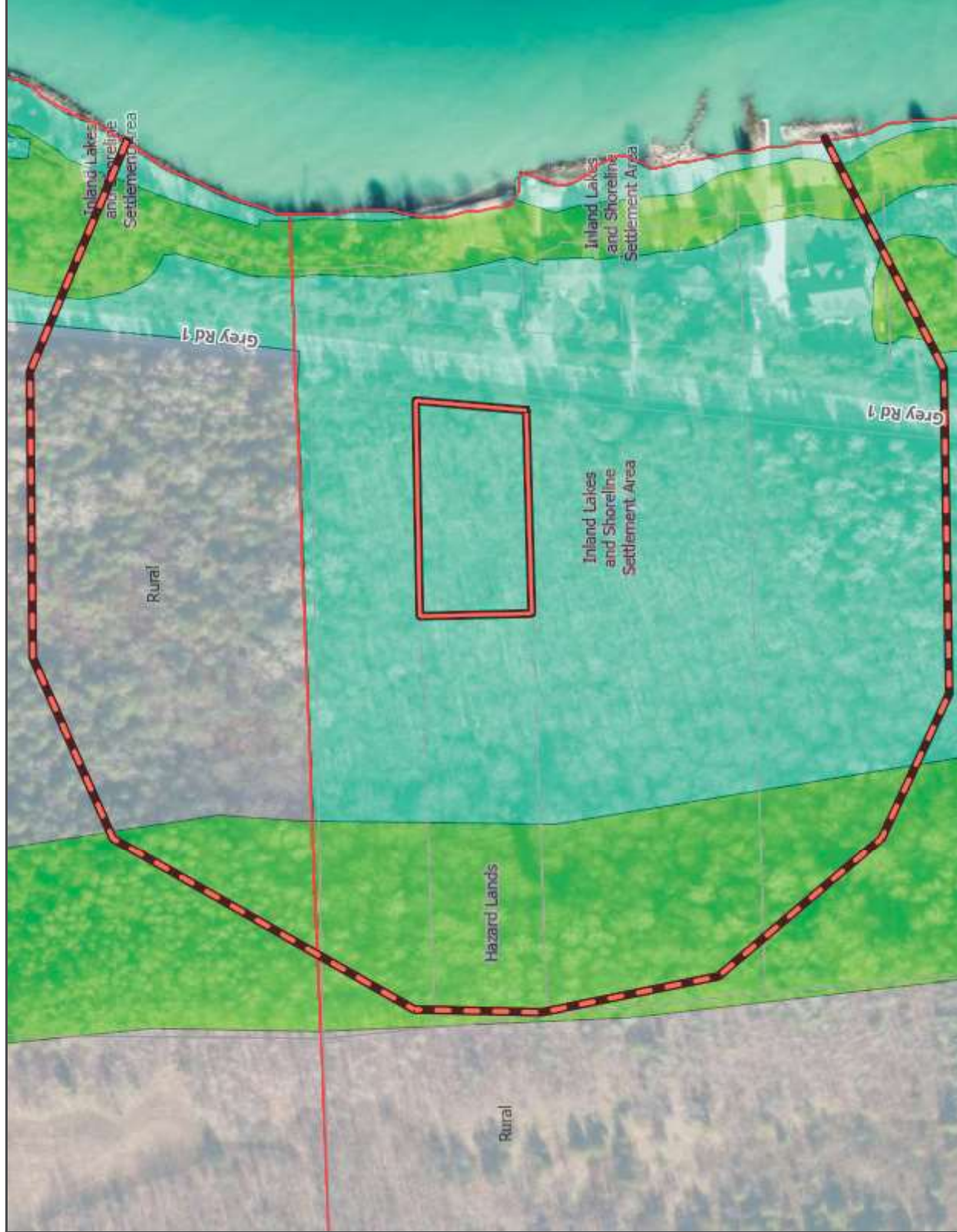
Legend

- Assessment Parcel
- Ecoregion
- ANSI
 - Earth Science Provincially Significant/sciences de la terre d'importance provinciale
 - Earth Science Regionally Significant/sciences de la terre d'importance régionale
 - Life Science Provincially Significant/sciences de la vie d'importance provinciale
 - Life Science Regionally Significant/sciences de la vie d'importance régionale
 - Evaluated Wetland
 - Provincially Significant/considérée d'importance provinciale
 - Non-Provincially Significant/non considérée d'importance provinciale
 - Unevaluated Wetland
 - Woodland
 - Natural Heritage System

Study Land



Figure 4A: County Official Plan, Schedule 'A', Land Use



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Legend

Assessment Parcel



Lots and Concessions



County Official Plan (2018)

Land use



Inland Lakes and



Shoreline Settlement Area



Study Land



Site Lands









Notes

**Robert Palmer, Storage Building
 Part Lot 8, Georgian Range**

**Figure 4B: County Official Plan, Appendix 'B'
Environmental Constraints**



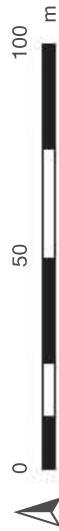
Legend

- Assessment Parcel 
- Lots and Concessions 
- County Official Plan (2018)
- Lakes and Rivers 
- Significant Woodlands 
- Study Land 
- Site Lands 

Notes

Robert Palmer, Storage Building
Part Lot 8, Georgian Range

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Legend

Assessment Parcel



Lots and Concessions



County Official Plan (2018)

NHS Core



Study Land



Site Lands



Notes

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Part Lot 8, Georgian Range

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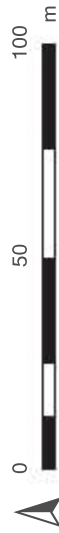









Figure 5: Georgian Bluffs Zoning



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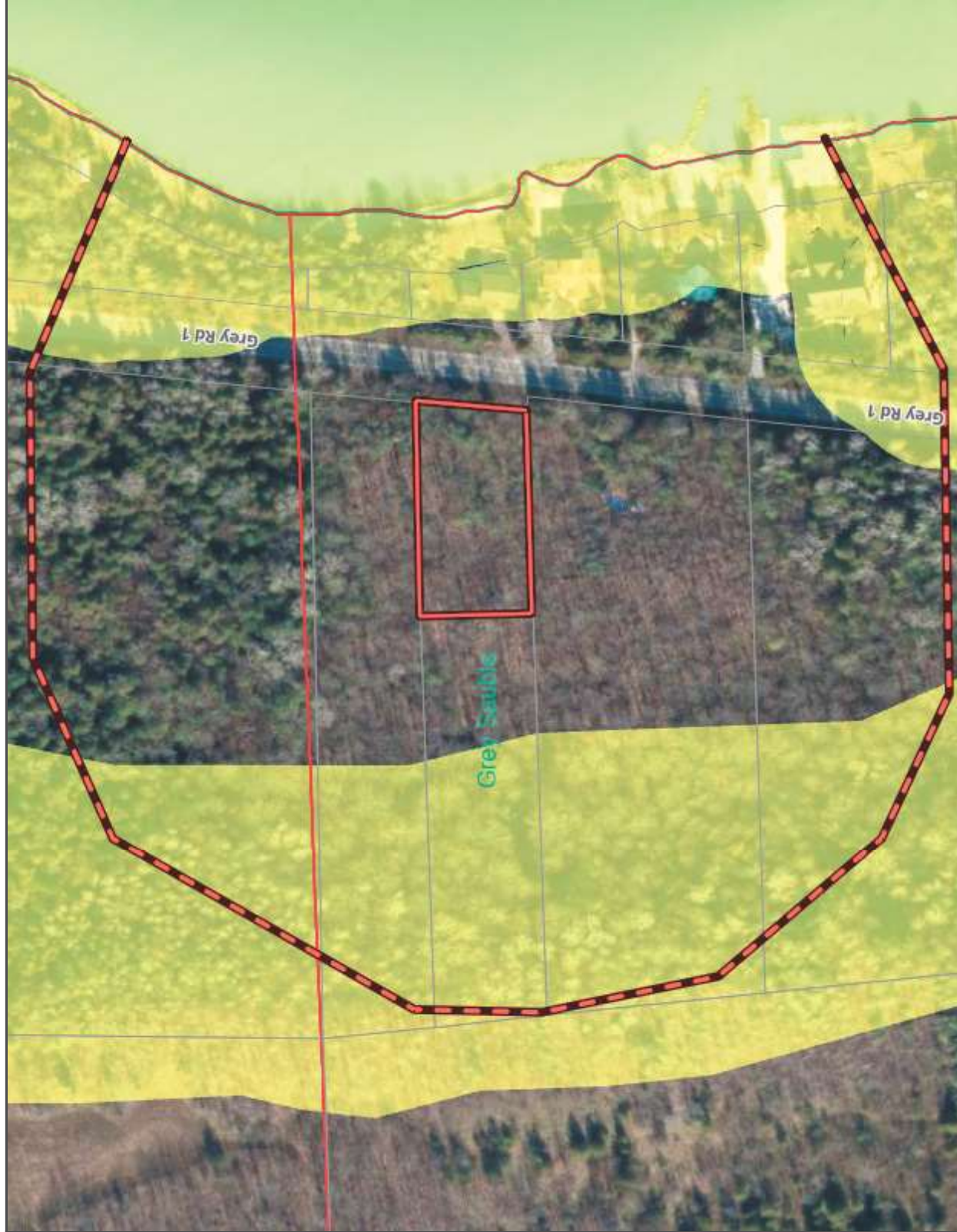
Legend

- Assessment Parcel 
- Lots and Concessions 
- Zoning - Georgian Bluffs
- Zoning - Georgian Bluffs
 -  Environmental Protection
 -  Rural
 -  Shoreline Residential
-  Study Land
-  Site Lands

Notes

Robert Palmer, Storage Building
 Part Lot 8, Georgian Range

Figure 6: Conservation Authority, Regulatory Lands



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Legend

Assessment Parcel



Lots and Concessions



Conservation Authorities

CA Boundaries



Regulations - GSCA



Study Land



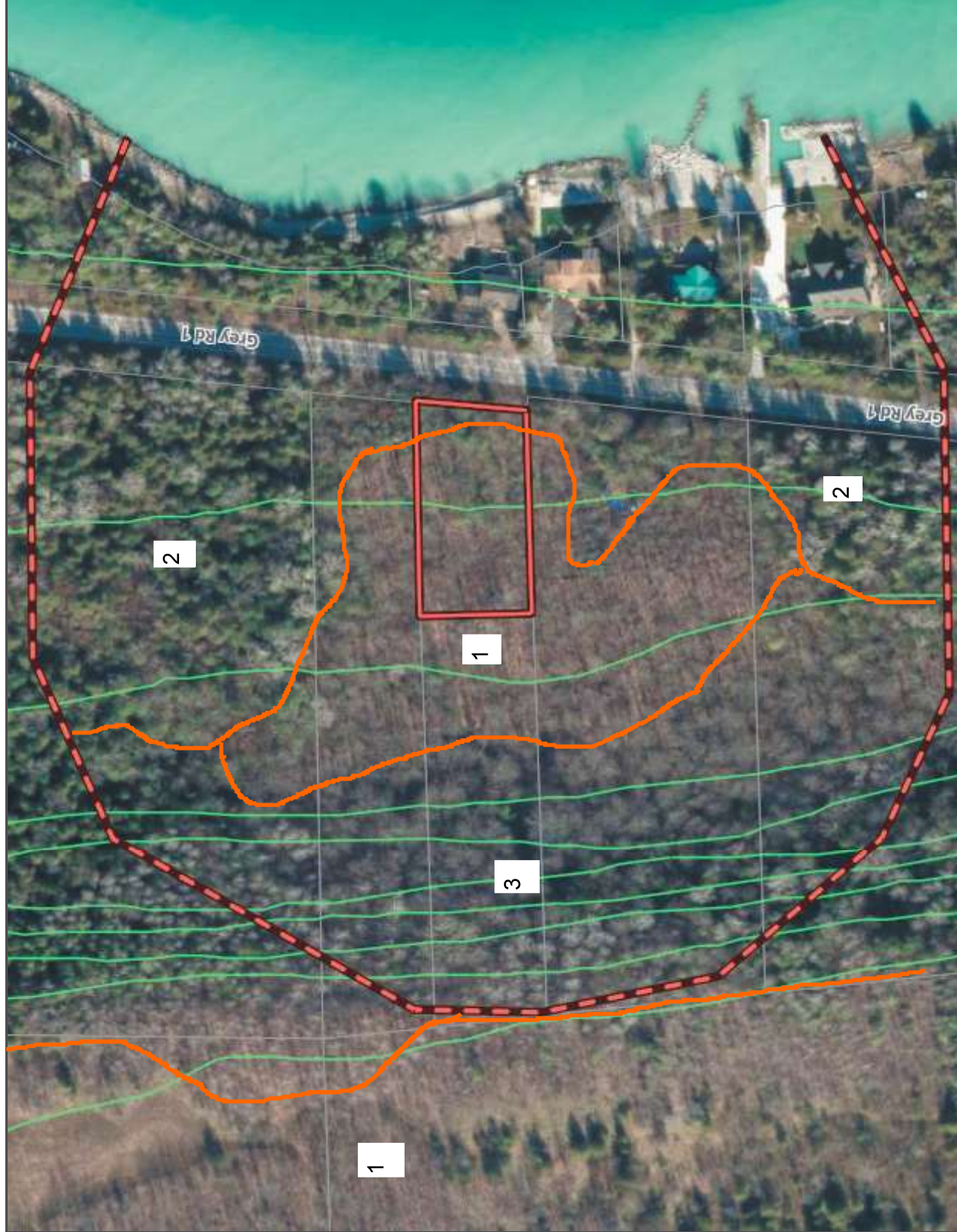
Site Lands



Notes

**Robert Palmer, Storage Building
 Part Lot 8, Georgian Range**

Figure 7: Vegetation Communities



Legend

Assessment Parcel

Study Land

Site Lands

Elevation Contours

Vegetation Community Limit

Vegetation Community Number

-  Assessment Parcel
-  Study Land
-  Site Lands
-  Elevation Contours
-  Vegetation Community Limit
-  Vegetation Community Number

Ecological Land Classification

- 1 = FOD5-1: Dry-Fresh Sugar Maple Deciduous Forest
- 2 = FOC2-2: Dry-Fresh White Cedar Coniferous Forest
- 3 = FOD6-5: Fresh-Moist Sugar Maple-Hardwood Deciduous Forest

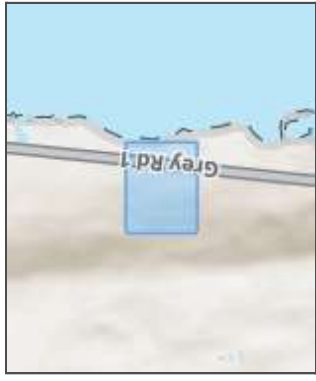
Notes

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Part Lot 8, Georgian Range

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Figure 8: Natural Heritage Features



Legend

Assessment Parcel

Elevation

Contours (Meters ASL)

Study Land

Tree Clearing Area: Pre-EIS

Development Area: Roped off by Applicant

Standing dead Butternut Tree & Candidate Bat Habitat

Seasonally Moist-Wet Ephemeral Pool

SW
Significant Woodland

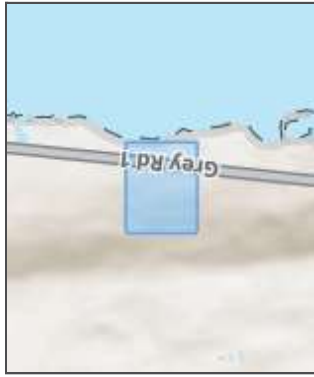
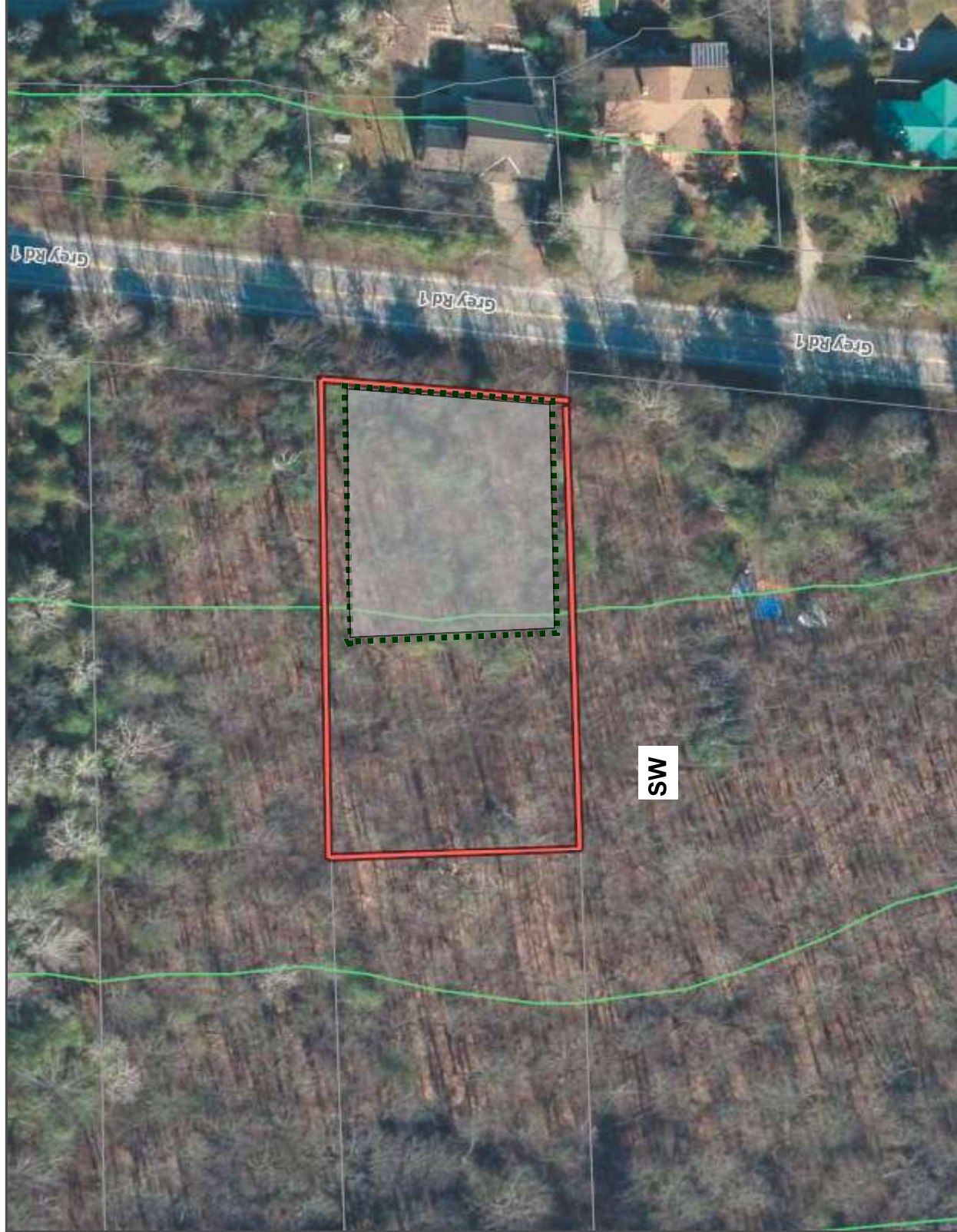
Notes

Robert Palmer, Storage Building
Part lot 8, Georgian Range

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Figure 9: Development Land



Legend

Assessment Parcel



Elevation

Contours (Meters ASL)



Study Land

SW

Significant
Woodland



Development
Land

Approx 30m x 30m =
0.09 ha

Notes

**Robert Palmer, Storage Building
Part lot 8, Georgian Range**

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APPENDIX 1

- Grey County property Parcel Report

Roll Number	Address	Assessed Value	Acreage
420362000723405	No Address Assigned	\$56000	1.61

Notice: Assessed value may not reflect current market value MPAC

NEC Designation	Legal Description	Property Use
Outside the Niagara Escarpment Plan Area	RANGE GEORGIAN PT LOT 8 RP;16R4377 PART 2	Vacant residential land not on water

Zoning*

Shoreline Residential,Rural,Environmental Protection

* Zoning may not be accurate. Confirm with local municipal zoning bylaw.



APPENDIX 2

- OMNRF- Natural Heritage Center data search for historical records of significant Flora and Fauna, with search coverage map of surrounding 2 km area

NHIC Data Search findings for Species of Conservation Concern

Historical records search for flora and fauna 'species of conservation concern', within a 2km radius to the Study Land

Robert Palmer, Storage Building : Part Lot 8, Conc. Georgian Range, Geographic Township of Keppel

Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status
Fauna	Red-headed Woodpecker	Melanerpes erythrocephalus	S3B	END	END
Fauna	Eastern Meadowlark	Sturnella magna	S4B	THR	THR
Fauna	Bobolink	Dolichonyx oryzivorus	S4B	THR	THR
Flora	Restricted Species	Non-Reporting	S2B	THR	THR
Fauna	Eastern Whip-poor-will	Antrostomus vociferus	S4B	THR	SC
Fauna	Wood Thrush	Hylocichla mustelina	S4B	SC	THR
Flora	American Hart's-tongue Fern	Asplenium scolopendrium var. americanum	S3	SC	SC
Fauna	Eastern Wood-pewee	Contopus virens	S4B	SC	SC
Fauna	Grasshopper Sparrow	Ammodramus savannarum	S4B	SC	SC
Fauna	Upland Sandpiper	Bartramia longicauda	S2B	NAR	NAR
Flora	Autumn Coralroot	Corallorhiza odontorhiza	S3	NAR	NAR

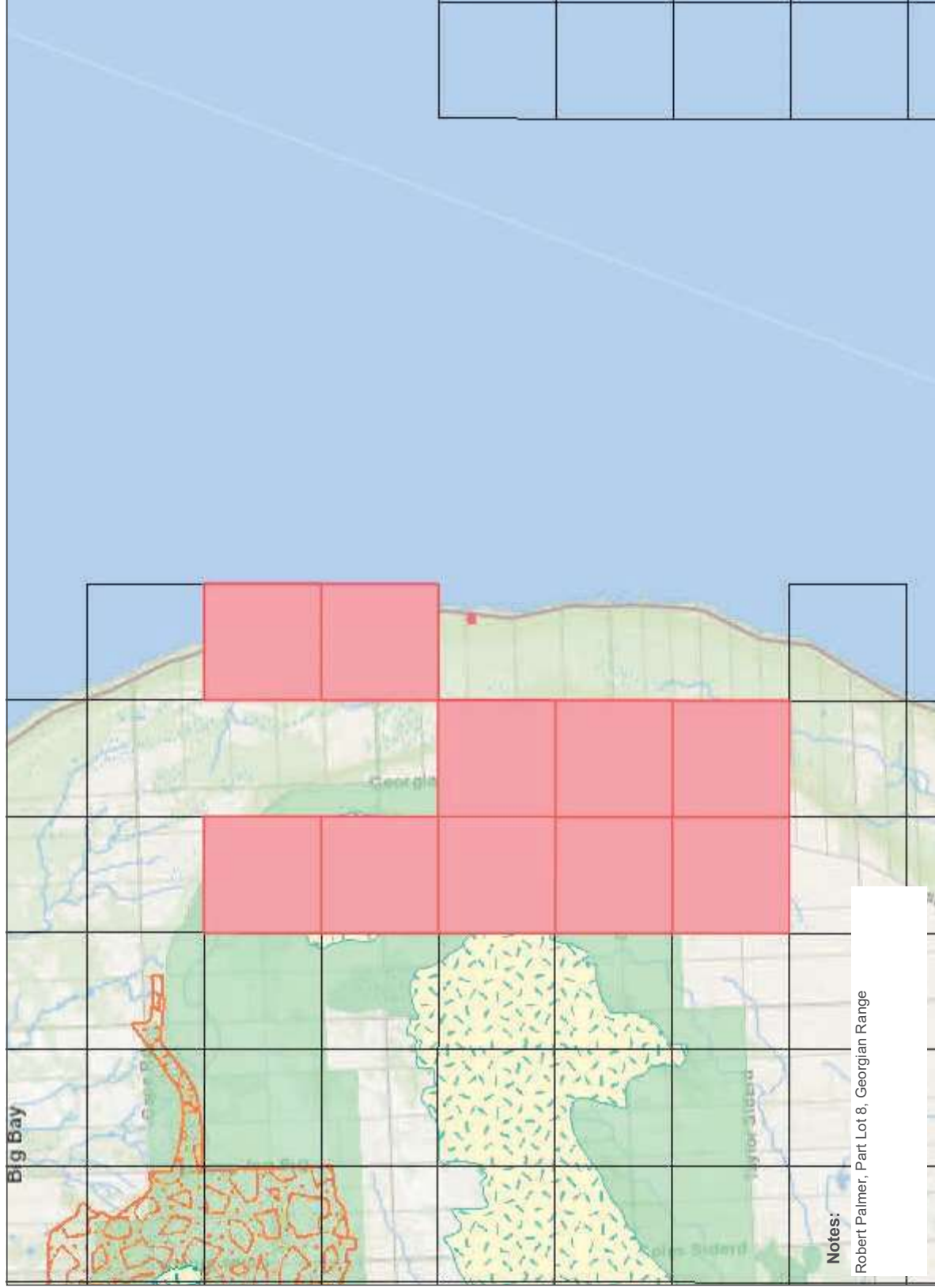
NOTE: Restricted species were confirmed with NHIC, with no observations or historical occurrences within the Study Land



Ministry of Natural Resources
Make-a-Map: Natural Heritage Areas

NHIC Data Records Search Coverage Area

Map created: 1/2/2025



Notes:
Robert Palmer, Part Lot 8, Georgian Range

Legend

- NHIC 1 Km Grid
- ANSI
- Earth Science Provincially Significant/sciences de la terre d'importance provinciale
- Earth Science Regionally Significant/sciences de la terre d'importance régionale
- Life Science Provincially Significant/sciences de la vie d'importance provinciale
- Life Science Regionally Significant/sciences de la vie d'importance régionale
- Conservation Reserve
- Provincial Park
- Natural Heritage System



2.6 Kilometres 0 1.30 2.6 Absence of a feature in the map does not mean they do not exist in this area.



This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources(OMNR) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.

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APPENDIX 3

- Flora Listing: Rankings, Status and Floristic Quality Scoring

Robert Palmer -Storage Building: Flora Inventory Listing

With Current Ranking, Status and Floristic Quality Assessment Scores (FQA)

Part lot 8, Conc. Georgian Range, Geographic Township of Keppel, Township of Georgian Bluffs

1) Vegetation communities: 1 and 2

No Species of Conservation Concern Identified

Scientific Name	Common Name	Native or Introduced	Federal			Provincial			Regional		FQA	
			Ranking	COSEWIC	SARA	Ranking	COSSARO	ESA	Local	CC	CW	
<i>Abies balsamea</i>	Balsam Fir	N	N5	NAR	NA	S5	NAR	NA	NAR	5	-3	
<i>Acer saccharum</i>	Sugar Maple	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	-3	
<i>Achillea millefolium</i>	Yarrow	I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	3	
<i>Adiantum pedatum</i>	Maidenhair Fern	N	N5	NAR	NA	S5	NAR	NA	NAR	7	1	
<i>Allium tricoccum</i>	Wild Leek	N	N5	NAR	NA	S4	NAR	NA	NAR	7	2	
<i>Anthriscus sylvestris</i>	Wild Chervil	I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	5	
<i>Athyrium filix-femina</i>	Lady Fern	N	N5	NAR	NA	S5	NAR	NA	NAR	4	0	
<i>Berberis vulgaris</i>	Common Barberry	I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	3	
<i>Betula alleghaniensis</i>	Yellow Birch	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	6	0	
<i>Betula papyrifera</i>	Paper Birch	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	2	2	
<i>Carex arciata</i>	Drooping Wood Sedge	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	5	
<i>Carex eburnea</i>	Ebony Sedge	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	6	4	
<i>Carex gracillima</i>	Graceful Sedge	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	3	
<i>Cirsium arvense</i>	Canada Thistle	I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	3	
<i>Circaea lutetiana</i>	Enchanter's Nightshade	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	3	3	
<i>Cornus alternifolia</i>	Alternate-leaved Dogwood	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	6	5	
<i>Cornus sericea</i>	Red Osier Dogwood	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	2	-3	

<i>Daucus carota</i>	Wild Carrot	I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	5
<i>Dryopteris carthusiana</i>	Spinulose Woodfern	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	-2
<i>Equisetum hyemale</i>	Common Scouring Rush	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	2	-2
<i>Erigeron annuus</i>	Annual Fleabane	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	0	-1
<i>Fraxinus americana</i>	White Ash	N	N5	NAR	N.A.	S4	NAR	N.A.	Common	4	3
<i>Geranium robertianum</i>	Herb Robert	N	N4	NAR	N.A.	S5	NAR	N.A.	Common	2	3
<i>Geum canadense</i>	White Avens	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	3	0
<i>Oenothera biennis</i>	Evening Primrose	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	0	3
<i>Ostrya virginiana</i>	Ironwood	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	4
<i>Picea glauca</i>	White Spruce	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	6	3
<i>Pilosella officinarum</i>	Mouse-ear Hawkweed	I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	0
<i>Poa compressa</i>	Canada Bluegrass	I	NNR	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	2
<i>Populus balsamifera</i>	Balsam Poplar	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	-3
<i>Prunus serotina</i>	Black Cherry	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	3	3
<i>Pteridium aquilinum</i>	Bracken Fern	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	2	3
<i>Ranunculus acris</i>	Common Buttercup	I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	-2
<i>Rubus occidentalis</i>	Wild Black Raspberry	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	0	0
<i>Solidago canadensis</i>	Canada Goldenrod	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	1	3
<i>Stellaria media</i>	Common Chickweed	I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	3
<i>Taraxacum officinale</i>	Dandelion	I	N5	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	3
<i>Tilia americana</i>	Basswood	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	3
<i>Thuja occidentalis</i>	Eastern White Cedar	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	-3
<i>Trillium grandiflorum</i>	Large-flowered Trillium	N	N5	NAR	NA	S5	NAR	NA	NAR	5	5
<i>Toxicodendron rydbergii</i>	Poison Ivy	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	0	0
<i>Verbascum thapsus</i>	Mullein	I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	5
MEAN										3	2

Total number of Native species = 31 or 74 %
 Total number of Introduced or Non-Native species = 11 or 26 %
42

National and Provincial Rank: Based on current 2024 Ontario Natural Heritage Information Center (NHIC) listings

- | | |
|---|-------------------------------------|
| NNA/ NNR defined as: No Ranking | SNA defined as : Unranked |
| N5 defined as: Very common | S5 defined as: Secure |
| N4 defined as: Common | S4 defined as: Apparently Secure |
| N3 defined as: Rare to uncommon species | S3 defined as: Vulnerable |
| N2 defined as : Very Rare | S2 defined as: Imperiled |
| N1 defined as: Extremely Rare | S1 defined as: Critically Imperiled |

NAR defined as : Not At Risk / END defined as : Endangered / THR defined as :Threatened / SC defined as : Special Concern

National Status based on: Species At Risk Act, COSEWIC 2024 Listings

Provincial Status based on: 2007 Endangered Species Act and current regulatory habitats, NHIC 2024 and 2024 COSSARO/SARO Listings
 SARA: Schedule 1 listed, Schedule 2 or Schedule 3 or Not Applicable (NA)

ESA: Regulated General or Specific Habitat or Not Applicable (NA) or ? = Moratorium/Yet to be Determined

Regional Status based on: Bruce-Grey Plant Committee: A Checklist of Vascular Plants for Bruce and Grey Counties Ontario

Ontario Ministry of Natural Resources and Forestry, 'Floristic Quality Assessment' (FQA) Scoring System:

CC = Coefficient of Conservatism, ranked 0 (grows anywhere) to 10 (very specific habitat requirements)

WI = Wetness Index, values from -5 (very wet) to 5 (very dry)

Note: CC scores of 8 or higher are indicator species of candidate Significant Woodlands

APPENDIX 4

- Fauna Listing: Ranking and Status and Point Count Location Mapping

Robert Palmer -Storage Building : Fauna Inventory Listing

with Current Ranking, Status and Observed Numbers or Point Count Locations

Part Lot 8, Conc. Georgian Range, geographic Township of Keppel, Township of Georgian Bluffs

Birds

Note: 'X' denotes a criteria bird species for Significant Wildlife Habitat determination

Latin Name	Common Name	Recorded Breeding Code	Recorded at Point Count Numbers	Federal			Provincial			Regional
				Ranking	COSEWIC	SARA	Ranking	COSSARO	ESA	
<i>Cardinalis cardinalis</i>	Northern Cardinal	Po-H	B2	N5	NAR	NA	S5	NAR	NA	Local
<i>Carduelis tristis</i>	American Goldfinch	Po-H	B1	N5	NAR	NA	S5	NAR	NA	Common
<i>Colaptes auratus</i>	Northern Flicker	Po-H	B1	N5	NAR	NA	S4	NAR	NA	Common
<i>Corvus brachyrhynchos</i>	American Crow	Ob		N5	NAR	NA	S5	NAR	NA	Common
<i>Cyanocitta cristata</i>	Blue Jay	Conf	B2	N5	NAR	NA	S5	NAR	NA	Common
<i>Dryocopus pileatus</i>	Piliated Woodpecker	Ob		N5	NAR	NA	S5	NAR	NA	Common
<i>Geothlypis philadelphia</i>	Mourning Warbler	Po-S	B2	N5	NAR	NA	S4	NAR	NA	Common
<i>Meleagris gallopavo</i>	Wild Turkey	Conf	B1	N5	NAR	NA	S5	NAR	NA	Common
<i>Passer domesticus</i>	House Sparrow	Pr	B1	NNA	Exotic	NA	SNA	NAR	NA	Exotic
<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak	Pr	B2	N5	NAR	NA	S4	NAR	NA	Common
<i>Picoides villosus</i>	Hairy Woodpecker	Po-H	B2	N5	NAR	NA	S5	NAR	NA	Common
<i>Poecile atricapillus</i>	Black-capped Chickadee	Conf	B1, B2	N5	NAR	NA	S5	NAR	NA	Common
<i>Quiscalus quiscula</i>	Common Grackle	Ob-X		N5	NAR	NA	S5	NAR	NA	Common
<i>Sayornis phoebe</i>	Eastern Phoebe	Po-H	B1	N5	NAR	NA	S5	NAR	NA	Common
<i>Seiurus aurocapilla</i>	Ovenbird	Pr	B2	N5	NAR	NA	S4	NAR	NA	Common
<i>Setophaga ruticilla</i>	American Redstart	Pr	B2	N5	NAR	NA	S5	NAR	NA	Common
<i>Sitta carolinensis</i>	White-breasted Nuthatch	Po-H	B2	N5	NAR	NA	S5	NAR	NA	Common
<i>Spizella passerina</i>	Chipping Sparrow	Po-H	B1	N5	NAR	NA	S5	NAR	NA	Common
<i>Turdus migratorius</i>	American Robin	Conf	B1	N5	NAR	NA	S5	NAR	NA	Common
<i>Zenaidura macroura</i>	Mourning Dove	Ob		N5	NAR	NA	S5	NAR	NA	Common

X

Condensed Breeding Codes as per Bird Studies Canada Protocol

Ob = Observed bird outside of the Breeding Season

Po-S = Possible: Singing/Calls in suitable nesting habitat

Ob-X = Observed in breeding season but no evidence of breeding

Pr = Probable: pairs observed, nest building, courtship display

Po-H = Possible: Observed in suitable nesting habitat

Conf = Confirmed: active nest, egg shells, feeding young

Mammals

Latin Name	Common Name	Observed Number	Federal			Provincial			Regional	
			Ranking	COSEWIC	SARA	Ranking	COSSARO	ESA	Local	
<i>Peromyscus maniculatus</i>	Deer Mouse	1	N5	NAR	NA	S5	NAR	NA	Common	
<i>Procyon lotor</i>	Northern Raccoon	1	N5	NAR	NA	S5	NAR	NA	Common	
<i>Sciurus carolinensis</i>	Gray Squirrel	1	N5	NAR	NA	S5	NAR	NA	Common	
<i>Tamias striatus</i>	Eastern Chipmunk	3	N5	NAR	NA	S5	NAR	NA	Common	
<i>Tamiasciurus hudsonicus</i>	Red Squirrel	2	N5	NAR	NA	S5	NAR	NA	Common	

Fish

None		0							
------	--	---	--	--	--	--	--	--	--

Reptiles

<i>Thamnophis sirtalis</i>	Common Gartersnake	1	N5	NAR	NA	S5	NAR	NA	Common
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Amphibians

<i>Hyla versicolor</i>	Gray Treefrog	1	N5	NAR	NA	S5	NAR	NA	Common
<i>Plethodon cinereus</i>	Eastern Red-backed Salamander	3	N5	NAR	NA	S5	NAR	NA	Common

Butterflies

<i>Celastrina neglecta</i>	Summer Azure	2	N5	NAR	NA	S5	NAR	NA	Common
<i>Cercyonis pegala</i>	Common Wood-Nymph	5	N5	NAR	NA	S5	NAR	NA	Common
<i>Euphyes vestris</i>	Dun Skipper	1	N5	NAR	NA	S5	NAR	NA	Common

Dragonflies & Damselflies

<i>Calopteryx maculata</i>	Ebony Jewelwing	3	N5	NAR	NA	S5	NAR	NA	Common
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National and Provincial Rank: Based on current 2024 Ontario Natural Heritage Information Center (NHIC) listings

NNA defined as: Not Ranked
 N5 defined as: Secure
 N4 defined as: Apparently Secure
 N3 defined as: Vulnerable
 N2 defined as: Imperiled
 N1 defined as: Critically Imperiled

SNA defined as: Unranked
 S5 defined as: Secure
 S4 defined as: Apparently Secure
 S3 defined as: Vulnerable
 S2 defined as: Imperiled
 S1 defined as: Critical Imperiled (Prov. Rare)

National Status based on: Species At Risk Act, and COSEWIC 2024 Listings

SARA: Schedule 1 listed, Schedule 2 or Schedule 3 or Not Applicable (NA)

Provincial Status based on: 2007 Endangered Species Act, NHIC 2024, and COSSARO 2024 Listings

ESA: Regulated General or Specific Habitat for END/THR, SC Status Not Applicable (NA)

Regional Status lists based on:

Birds- Region No. 8 (Bruce) 'Atlas Breeding Birds of Ontario 2001-2005'
 Dragonflies & Damselflies: S. Ontario Regional Lists of Odonata, Paul Pratt

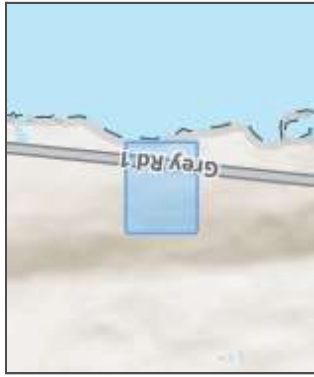
Anuran (Frog and Toad) Point Count Calling Survey Results:

Survey Date	Point Count No.	Species Code / Calling Code / Numbers
29-May-24	A1	GT / 1 / 1

North American / Bird Studies Canada - Marsh Monitoring Frog Calling Abundance Codes:

- Code 0 = No calling activity
- Code 1 = Individual calls do not overlap and calling individuals can be discreetly counted
- Code 2 = Calls of individuals sometimes overlap, but numbers of individuals can still be estimated
- Code 3 = Overlap among calls seems continuous (full chores) and count estimate is impossible

Frog Species Codes:	
SP = Spring Peeper	WF = Wood Frog
GT = Gray Treefrog	GF = Green Frog
	NLF= Northern Leopard Frog
	WCF= Western Chorus Frog
	BF = Bullfrog
	PF = Pickerel Frog
	MF = Mink Frog
	AT = American Toad



Legend

Assessment Parcel



Elevation

Contours (Meters ASL)



Study Land



Area cleared of trees prior to EIS start



Breeding Bird Point Counts 1-2



Anuran Night Time Point Count 1

Notes

**Robert Palmer, Storage Building
Part lot 8, Georgian Range**

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APPENDIX 5

- **Approved 'Terms-of-Reference' for Scoping of a Environmental Impact Study**

May 15, 2024

Hi John,

I agree. The scoped study ToR provided below is sufficient. If tree/habitat compensation is required, please provide an appropriate compensation rate within the mitigation measures.

If you have any questions or concerns during the study, feel free to reach out.

Kind regards,

Michael Cook

Planning Ecologist

Grey County



From: aws@gbtel.ca <aws@gbtel.ca>

Sent: Wednesday, May 15, 2024 2:27 PM

To: Michael Cook <Michael.Cook@grey.ca>

Cc: Rob Palmer <rpalmer999@gmail.com>; Ron Davidson <ronalddavidson@rogers.com>

Subject: Storage Building - EIS



Hello Michael

I have been contacted by Ron regarding a proposed Storage Building Development by Mr. Robert Palmer on his Georgian Bluff's property (420362000723405) and Ron tells me he has discussed briefly with you on this project already and that an EIS will be required.

Mr. Palmer is proposing only a small storage building, no dwelling, no septic treatment area etc, thus a pretty minor development proposal. The site does have a County – Significant Woodland feature designation, which triggered the EIS.

I have reviewed all available County and Provincial mapping and did a records search of the NHIC data base. There are no: PSW or Other Wetlands, ANSI's, Significant Valley land features or Watercourses/Fish Habitat on-site nor within 120m other than the Georgian Bay waters further to the east which would not be negatively impacted from a limited tree clearing/storage building construction here.

Given the limited development type, small size and limited N. Heritage features in the area I am recommending (in essence this is a trimmed down ToR) , with your approval a: Focused 'Scoped-EIS' only, The Scoped-EIS will address three aspects (with supporting field work to County Guidelines and Provincial Protocols) and address applicable Policies for: Habitat of End. & Thr. Species (SAR-Bats, Butternut, Red-headed Woodpecker etc.) + Significant Woodland + Significant Wildlife Habitat-'Species of Conservation Concern' only (a full SWH assessment is not warranted).

The proposed development will remain outside of EH, Hazard areas, focused within the Shoreline area designation only. Attached drawing shows the proposed Scoped-EIS Study Land being approx. 80m in depth from the road allowance, which encompasses the proposed tree clearing-development area + a minimum 50m of adjacent same property lands (aids in addressing most SAR setback requirements of 50m from site alterations).

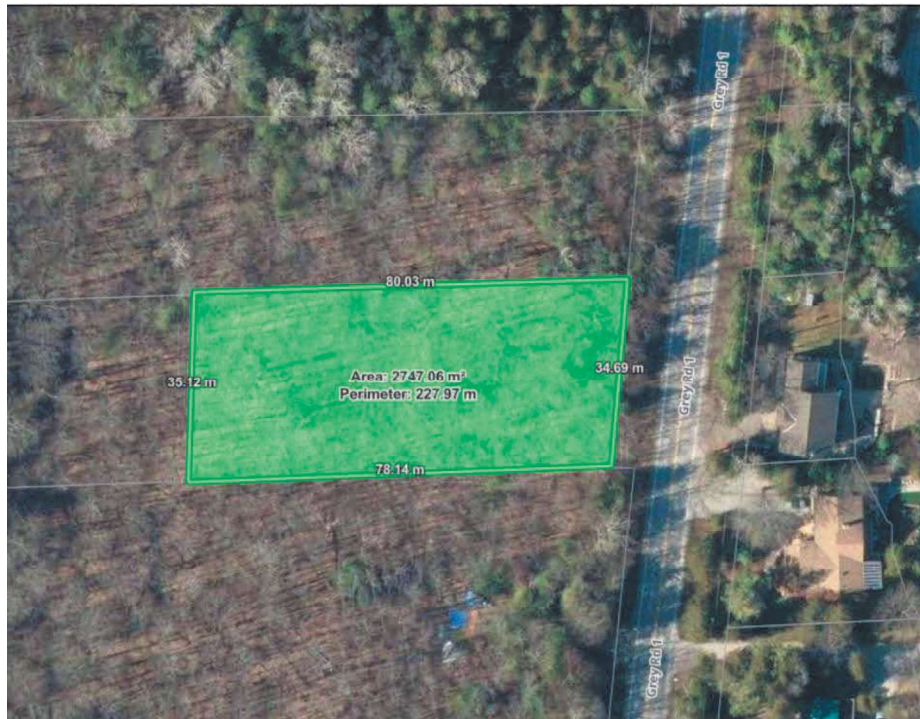
If you do not concur with this approach or require additional EIS works, please Reply All to discuss further. If acceptable, please Reply All to confirm Grey County acceptance in this scoping exercise / ToR and we will be commencing the EIS field work ASAP.

Thank You in advance for this consideration.

Kind Regards

John M

AWS



APPENDIX 6

- Site Photographs



Photo No. 1: Vegetation community 1, Study Land, June 2024

Photo No. 2: Adjacent property, vegetation community 2, June 2024





Photo No. 3: Tree clearing area looking west from County Rd, May 2024

Photo No. 4: Tree clearing area looking east out to County Rd, Note flagging tape perimeter, May 2024





Photo No. 5: Dead Butternut Snag & Candidate Bat Habitat Tree

Photo No. 6: Seasonal ephemeral pool, already gone dry, June 2024



APPENDIX 7

- **AWS Qualifications & EIS Experience**



AWS Environmental Consulting Inc.
(Operating as Aquatic and Wildlife Services)

242090 Concession Rd. 3 Keppel,
R.R. # 1, Shallow Lake, Ontario, Canada, N0H 2K0

Office: 519-372-2303, Email: aws@gbtel.ca

C.V. Summary: John D. Morton

Education

- 1985: Graduate Sault College, Forestry Technician
- 1986: Honors Graduate Sault College, Fish & Wildlife Technologist
- 15 years training and experience with Ontario Ministry of Natural Resources as a contract & full-time employee for Natural Heritage Programs and Biology/Ecology positions.

Work Experience Summary

- 1997 to Present: Sole Proprietorship of **Aquatic and Wildlife Services**, then Incorporated as **AWS Environmental Consulting Inc.** in August 2015, specializing in Natural Heritage Studies and Development Impact Assessments:
 - Over 450 Natural Heritage and Natural Environment Impact Study Reports for Land Use development proposals throughout Southwestern and Central Ontario in accordance with Legislation/Regulation and Guidelines to Federal and Provincial Government, Planning control boards like Niagara Escarpment Plan, County and lower tier Municipal governments and Conservation Authority Regulatory Land requirements.
 - Impact assessment technical reports ranging from: Single Residential Lot creations to Plan of Subdivisions for 150+ Lots, and Aggregate applications ranging from 5ha Wayside Gravel Pits to 120 ha Quarry Operations for both above and below groundwater table extraction.
 - Design and monitor technical reports for Shoreline Developments, Water Crossings, Natural Environment restoration plans, Recreational Pond designs, Flora/Fauna assessment and monitoring plans plus Managed Forest Plans.
 - Species At Risk Surveys for flora and fauna with study areas encompassing 20ha to 7000ha.
 - Ontario Municipal Board Hearings, Civil court proceedings providing expert witness testimony on Natural Heritage Features, Biology/ Ecology, Development Impacts and Mitigation Techniques.
- 1986 to 1997: Resource Technologist with the Ontario Ministry of Natural Resources, responsibilities included:
 - Backfill positions for Owen Sound Area Office District Biologist (Fisheries and Wildlife), District Fish & Wildlife Management Officer and District Ecologist.
 - Review and comment on Provincial interests through Planning Review for development proposals and provided technical reviews of Provincial Manuals for Natural Heritage.

- Deputy Conservation Officer with completion of 5-week Enforcement Training Program, Provincial Offenses charges, court evidence presentation and convictions.
 - Fish & Wildlife Population and Habitat surveys and Rehabilitation Designs.
 - Midhurst District Administrator and Program Coordinator of Wetlands and CFWIP Programs with annual budgeting and auditing roles.
 - Fisheries Research Technician and Fish Culture Technician, Chatsworth Fish Culture Station.
 - Lake Huron Fisheries Management and Research technologist.
- 1982 to 1986: Contract Resource Technician with Ontario Ministry of Natural Resources, Grey-Sauble and Saugeen Conservation Authorities, responsibilities included:
 - Wetland Inventory Technician, Fish and Wildlife Population and Habitat Surveys.

Project Related Experience Summary

- Fauna population and habitat surveys:
 - Salmonid biomass surveys through seining and Electro-fishing.
 - Stream/Watershed surveys for habitat quality/conditions, fish passage/barriers, water quality assessment including Benthic Macro Invertebrate sampling.
 - Genetic research survey work on Chinook Salmon, Saugeen Muskellunge, Backcross Lake Trout.
 - Inland Lake surveys for water quality, thermal regimes, fisheries qualitative assessments through seining, trap netting, creel survey.
 - Stream/River/Lake Fisheries habitat enhancement and rehabilitation Plans.
 - Wintering Deer Yard mapping, quality assessment, carrying capacity calculations, herd health monitoring and natural reproduction rates.
 - Genetic research work on Bruce Peninsula Eastern Massassagua Rattlesnake and Black Bears including radio telemetry.
 - Breeding Bird surveys including waterfowl nesting surveys and natural recruitment success, Bald Eagle monitoring and banding, mapping of Owen Sound area significant production/staging areas.
 - Amphibian qualitative assessment within sensitive environments and monitoring population trends for wetland habitat conditions.
 - Species At Risk Surveys with habitat mapping and Ecological Land Classification community mapping for Copeland Forest, Shallow Lake Wetland, Meaford National Defense Training Centre, Grey County Pretty River Forest Tract and Oliphant Fens
- Flora species and habitat surveys:
 - Provincially Certified Wetland evaluator to Book 2 and 3 standards, with over 150 wetland evaluations and desktop upgrades completed. Wetland Evaluation instructor to former book 2 standards with successful training of 30+ candidates.
 - Southern Ontario Ecological Land Classification- Vegetation Community Mapping for sensitive and/or rare habitat types including fens, bogs, natural beaches, and alvars plus common woodland community types.

- Botanical qualitative inventory works including identification, mapping of species of conservation concern with status levels and habitat types/condition assessments.
- Tree marking for sustainable harvesting and rotational management of fuel wood and/or saw logs.
- Native tree and shrub nursery operation with annual seedling production and retail sales of deciduous and conifer seedlings and saplings.

Certification & Training Courses:

- Provincially Certified Wetland Evaluator to Book 2 and Book 3 Standards
- Provincial Class 1 Electro-fishing Certification
- Provincial workshop training for Natural Heritage Environmental Impact Studies, Natural Hazard Studies and Non-Renewable (Aggregates) Impact Studies
- Level '1' OMNR Law Enforcement training
- Advanced Fish Habitat training and Habitat Impact Assessment
- Fluvial Geomorphology Workshop
- Stream Bioengineering Restoration training
- Cyprinidae Identification Workshop
- Wetland Restoration Techniques Training
- Provincial Managed Forest Tax Incentive Plan Approver
- Species-At-Risk Ontario Mussel Identification
- Bruce Peninsula Eastern Massassagua Rattlesnake Habitat Identification Training through Radio Telemetry work with Parks Canada
- Ecological Land Classification System for Southern Ontario
- Provincial Tree Making Course
- WHMIS
- Ontario Courts Evidence Collection and Presentation Training
- Department of Fisheries and Oceans South Georgian Bay Fish Habitat Issues Workshop
- Provincial Butternut Health Assessor
- Biotechnical Slope Stabilization Workshop
- Member of Ecological Society of America, Ecological Restoration Society, Landscape Ontario, Delta Waterfowl, Ducks Unlimited, local Fish & Game clubs.

Recipient of Provincial -OMNR Award for Fish Habitat Restoration Works & Stewardship

Natural Heritage Environmental Impact Studies and Experience 1997-2023

Bruce County: Residential / Commercial Subdivisions & Lot Severances (86)	Bruce County Infrastructure (30)
Lakeside Woods Subdivision	Barrow Bay North Shore Road
Weatherhead Development	Bruce Road 21-Stoney Creek
Maple Ridge Development	Bruce Road 25
Good Acres Development	Kincardine-Park Street
Brown Subdivision	Bruce Road 9
Sundance Estates- Bruce	Bruce Road 12
Walker Estates Phase II	Southampton Sanitary Sewers
Mystic Cove Subdivision	Arran Landfill Expansion
Black Subdivision	Calhoun Drain
Mary Rose Subdivision	Bruce County Line Road Upgrades
Gray Mildmay Development	Otter Creek-Dam Removal
Lake Huron Escape	McClure's Bridge
MacKenzie Development	Silver Creek Bridges-Walkerton
Harkins Harbour Development	Saugeen Shores 10th Line Drain
Karen Investment Ltd	Mildmay Elora Street Dam Removal
Dent Subdivision	South Bruce Meux Cr Bridge
Blue Water Shores	Mildmay Adam Street Dam Removal
Market Street Subdivision	Blue Heron Parking Lot
Goetz Severances	Mystic Cove Stream Realignment
Chippewa Golf Course Severances	Casey Property-Bank Stabilization
S. MacDonald Severances	Mildmay-Hamel's Pond and Dam
Zepf Severances	Barrow Bay Road
Porto Severance	MacKenzie Marina Dredging
B. Elliot Severances	Pike Bay Marina Dredging
Royal Homes-Kincardine	Chesley Lake Cottagers Assoc. Dredging
Ferguson Point Severances	Miller Property Shoreline Dredging
CAW-Saugeen Beach Severances	Hood Property Shoreline Dredging
Siekierski Building Envelope	Smith Com. Expansion
Murray Severance	Bruce Rd 23 Intersection
Walker Severances	Wiaraton-Elm Street Reconstruction
Janssen Building Envelope	
Knight Building Envelope	
Thorn Severance	
Kramer Building Envelope	
Smith Severances	
D. Elliot Severance	
Vespasiano Severance	
Hahn Lot Development	
Pegagus Trails	Carniello-Lake Huron Shoreline Dev.
Lorne Beach Development	Goodale Lot Severance
Mulholland Division St	Rintoul Wiaraton Lot Development
Chippewa Golf & Country Club	Earnest Severance
Leslie Subdivision	Chantry Subdivision
McMillan Subdivision	Petrovic Severance
Peacock's Meats and Groceries Inc	Ripley Subdivision
Webster Subdivision	Turton Severances
Innes Subdivision	Thompson Severance
Moravian Subdivision	Barry's-Kimberly Lane Subdivision
Barry's Construction-Walkerton	Inverhuron Park Expansion
Lee Building Envelopes	Tiverton Subdivision
Sauble Sunset Subdivision	Launch Group High Street Subdivision
Sabbagh Subdivision	Charette Severances
Matheson Severances	SKG Southampton Subdivision
Seeman Severance	Hayes Severance
P. MacDonald Severances	Madill Severances
Arcaro Building Envelope	LEED Tree Retention Plan
O'Conner Severances	Home Hardware-Sauble Beach
McLay Severances	Wells Trucking-Mildmay
Burley Building Envelope	Wildwood Resort Subdivision
Hamilton Severances	Ellis Lot Severances
Miramichi Shores Subdivision	Goulding Lot Development
Barclay Site Development	West Lot Development
Collins Severances	301 Subdivision
Weiss Tree Preservation Plan	McHaig Lot Severances
Town of Saugeen Shores B.E.	Thompson Lot Development
Bennett Severance	Dreammakers Campground Expansion
Voison-Southampton	
Robinson Family Severances	
Rudell-Fishing Islands	
Kempton Building Envelope	
Sauble Church-Parking Lot Exp.	
Lamport Building Envelope	
Southampton-Division Street	
Lamport Building Envelope	
Hall Building Envelope	
Martin Lot Severance	

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Grey County: Residential / Commercial Subdivisions and Lot Severances (104)

Zaferis Building Envelope	Wiley Severance	Sutherland Building Env.
Clancy- 20th St Buil.Envelope	Davies Severance	Miles Building Env.
Emmerson Building Envelope	Stewart Severances	Goetz Severance
Shantz Building Envelope	Irwin Building Envelope	NVIS Markdale Subdivision
Fligg Building Envelope	Valent Building Envelope	Balagantry Markdale Subdivision
Todd Severance	Barfoot Building Envelope	Barry's-Balmly Beach Subdivision
Underwood Building Envelope	Voisin Building Envelope	Kopp Building Env.
Klages Severances	Colborne Building Envelope	Radbourne Severances
Beacock Building Envelope	Tengler Building Envelope	Schenk Haover Subdivision
McNeil Building Envelope	Langeraap Building Envelope	Brown Building Env.
Gilbert Severances	Wattie Building Envelope	Wilkie Building Env.
Dillman Severance	Hall Severance	Viking-Cives Ltd - Mount Forest
Thom Severances	Hrodzicki Building Envelope	Cameron Building Envelope
DiFranco Severances	Nicholls Dwelling Expansion	Dr. Bond Lot Severance
Farnenhorst Building Envelope	Caframo Tree Preservation Plan	Moric Severance
Biesinger Severances	Elliott Building Envelope	Beirmes Severance
Love Building Envelope	Spaleta Building Envelope	Oak & Stone Subdivision
Braun Severances	Haslam Severance	Chatsworth Subdivision
Legge Building Envelope	Bethune Severance	Feng Comm. Farm/Abattoir
Wilcox Building Envelope	Andpet 16th Ave Comm Deve.	Langeraap Lot Development
HSC Clavering Severances	Loucks Subdivision	Anderson Lot Development
Holmes Building Envelope	Langen Subdivision	Prentice Lot Development
Brulette Severances	Boulter Subdivision	Simcoe County (3)
Phillipp Severances	Hilton Head Subdivision	Devils Glen Club House Expansion
Sheppard Severance	Oak Meadows Subdivision	Wilbert Severances
Pfaff Building Envelope	Mannerow Estates	Alliance Homes Building Envelopes
Wilmer Severances	Georgian Shores Subdivision	
Doherty Building Envelope	Sutacriti Park Phase III	Huron County (2)
Menaul Severance	Debrincat Subdivision	Wingham Golf Course Severances
McNabb Building Envelope	Ferraro Subdivision	Kraemer Building Envelope
Toombs Building Envelope	Andpet Bothwells Corner Comm.	
McGowan Building Envelope	HSC Alvanley Comm. Cement Plant	Wellington County Developments (5)
Lobban Severance	MacKinnon-Smart Subdivision	Murphy Subdivision - Mount Forest
Craig Building Envelope	Saugeen Cedar Heights	South Saug. Development-Mount Forest
Godwin Building Envelope	Sunvale Durham HomesSubdivision	Town of Erin-Weber Building Envelope
Weber Envelope	Barry's Construction-Kilsyh Subdivision	Town of Minto-Palmerston Industrial Park
Value Stream Prod. Severances	Georgian Escapes Subdivision	Town of Erin-Langen Severance

Natural Heritage Environmental Impact Studies and Experience 1997-2023

Infrastructure, Recreation & Energy Projects		Species At Risk and Biological Surveys
Grey County (50)		
Devils Glen Ski Hill Expansion	Grey-Bruce County Line Road	Bruce County (13) Rankin River-Sky Lake SAR Study Rankin River-Boat Lake SAR Study Rankin River-Isaac Lake SAR Study Beatty Saugeen River-Thermal Grey/Bruce Wetland Evaluation Upgrades Spring Creek Fish Habitat Saugeen River-Muskellunge Habitat Beatty Saugeen River-Smolt Passage Chesley Lake Angling Winter Creel Peninsula Black Bear Radio Tag-Dens Peninsula Winter Yard Deer Browse Denny's Dam Fishway Monitoring Saugeen Shores-Significant Woodland Study
Morris Wetland Creation	Greir Creek Bridge	
Rocky Saugeen Campground Exp	Chatsworth- Sewage Upgrade	
Sobiski Shoreline Stabilization	Southgate-Stream Realignment	
Pesnaill Shoreline Stabilization	Mill Creek Crossing	
Carmicheal Pond Cleanout	Dipple Drain	
Overton Pond Design	West Grey-Traverston Creek Realig.	
Beaver River Bank Stabilization	Sydenham River Stabilization	
Andrews Pond Design	Minnihill Cr, Habitat Improvements	
Hrodzicki Storage Building	Town of Hanover Business Park	
Klages Tree Retention Plan	Sydenham Heights-Servicing	
Cedar Run Horse Park Expansion	Georgian Bluffs-Inglis Falls Road	
Osler Bluff Ski Club-Building	Monterra Plateau Stream Realig.	
Osler Bluff-Water Reservoir	Owen Sound 10th St. Extension	
Blue Mount. Ski Hill Expansion		
Walters Falls Hydro Facility		
Blue Mount Resort-Roller		
Blue Mount. Resort Stream Mon.		
AndPet Commercial Development		
East West Exchange Retreat		
Lahman Comm. Development		
Blue Mount. Resort SWMP Outlet		
Lee Pond Design		
Morrison Marina		
Meaford-Cemetery Creek Rd		
Goodyear-Effluent Monitoring		
Miller Group -O.S. Indus. Park		
Parker-Nature Retreat Resort		
Bayou Cable Park Inc.-Thornbury		
Georgian Escapes Ltd- Retreat		
Owen Sound 7th Street Drain		
Highway 4 -Stream Crossing		
O.Sound 6th Ave Stream Course		
Sarawak Carney Street SWM		
Southgate- Camp Creek Crossing		
Owen Sound 9th St. Bridge		
Wellington County (2)		Grey County (3) Shallow Lake SAR Study Meaford National Defence Base SAR Study Pretty River Valley County Forest SAR Study Simcoe County (1) Copeland Forest SAR Study Region of Peel (1) Rattray Marsh SAR Study City of London (1) Byron Pit Natural Environ. Rehab Features
Minto-Coon Creek 5-Year Monitoring	White's Creek Restoration	
Huron County (2)		
Wingham Force main	Goderich Pier Stabilization	
Simcoe County (3)		
Hamilton Brothers-Stream Restor.	Devils Glen Stream Realignment	
Robitaille Wind Farm-Cedar Point		
Dufferin County (3)		
Bowman Comm. Development	Cedar Highlands Ski Club	
Preist Severance		
Perth County (1)		
Maitland River Estates - Listowel		
Manitoulin Island (3)		
Manitoulin Streams Association	Municipality Official Plan	
Barrie Island Cottage Subdivision		

Additionally : Natural Environment Impact Assessment Reports for Aggregate Applications
 Southern & Central Ontario: 152 Technical Reports for Pits and Quarries, above and below waterable extraction with successful representation at Ontario Municipal Board Hearing, Niagara Escarpment Hearings, County and Municipal Council Presentation and Legal Court Proceedings