

Environmental Impact Study

2080 WHITFIELD ROAD, PORT PERRY, TOWNSHIP OF SCUGOG, ONTARIO

Prepared for

Fourteen estates Ltd.

October 3, 2025

Project No. P2025-961

Prepared by



GeoProcess
RESEARCH ASSOCIATES

GeoProcess Research Associates Inc.

133 King Street West

PO Box 65506 DUNDAS

Dundas, ON L9H 6Y6

FORWARD

October 3, 2025



GeoProcess
RESEARCH ASSOCIATES

Knowledge
Research
Consulting

**Re: Environmental Impact Study Terms of Reference
2080 Whitfield Road, Port Perry Township of Scugog, Ontario**

GeoProcess Research Associates Inc. (GeoProcess) is pleased to present the following Environmental Impact Statement (EIS) for the lands owned by Fourteen Estates LTD. located at 2080 Whitfield Road in Port Perry, Scugog, Ontario. The study is required as part of a development proposal for the lands and to address a violation identified by the Kawartha Region Conservation Authority. This EIS reports the findings from both in-field and desktop assessments conducted by GeoProcess and identifies the potential impacts and mitigation measures associated with the proposed site alteration as they relate to the property's natural heritage and hydrological features and functions.

Regards,

GEOPROCESS RESEARCH ASSOCIATES INC



Table of Contents

List of Tables	vi
List of Maps	vi
1. Introduction.....	7
1.1. Study Area	7
2. Policy Context.....	7
2.1. Fisheries Act (1985).....	8
2.2. Species at Risk Act (2002).....	8
2.3. Endangered Species Act (2007).....	8
2.4. Provincial Planning Statement (2024).....	10
2.5. Greenbelt Plan (2017).....	12
2.6. Durham Region Official Plan (2024).....	12
2.7. Township of Scugog Official Plan (2011).....	13
2.8. O. Reg. 41/24 Prohibited Activities, Exemptions and Permits (2024).....	13
2.8.1. Kawartha Region Conservation Authority.....	14
3. Methodology	14
3.1. Background Studies.....	14
3.2. Field Work.....	15
3.2.1. Amphibian Surveys	16
3.2.2. Turtle Basking & Nesting Surveys.....	16
3.2.3. Breeding Bird Surveys.....	16
3.2.4. Snag Surveys	16
3.2.5. Floristic Studies	16
3.2.6. Tree Inventory.....	17
3.2.7. Headwater Drainage Feature Assessment.....	17
3.2.8. Incidental Wildlife Surveys.....	18
3.2.9. Species at Risk Screening and Assessment.....	18
3.2.10. Significant Wildlife Habitat Screening and Assessment.....	18
4. Existing Conditions.....	18
4.1. General Landscape Position	18
4.2. Physiography and Geology.....	18
4.3. Natural Heritage Systems.....	18
4.3.1. Unevaluated Wetland	19
4.4. Vegetation Communities.....	19

4.4.1. Ecological Land Classification.....	19
4.5. Tree Inventory.....	21
4.6. Amphibian Surveys.....	22
4.7. Turtle Basking & Nesting Surveys.....	23
4.8. Breeding Bird Surveys.....	23
4.8.1. SAR Bird Discussion.....	28
4.8.1.1. Eastern Wood-pewee (SC/SC).....	28
4.8.1.2. Bobolink [THR/THR].....	29
4.8.1.3. Eastern Meadowlark [THR/THR].....	29
4.8.2. Potential SAR Bird Species Based on Suitability of Habitat.....	29
4.8.2.1. Barn Swallow [SC/THR].....	29
4.9. Snag Survey.....	30
4.10. Headwater Drainage Feature Assessment.....	32
4.11. Incidental Wildlife.....	32
5. Species at Risk Screening.....	34
5.1. SAR Long List.....	34
5.2. SAR Assessment.....	36
5.2.1. Possibly Occurring.....	37
5.2.1.1. Barn Swallow.....	37
5.2.1.2. Monarch.....	37
Confirmed Presence.....	38
5.2.1.3. Bobolink.....	38
5.2.1.4. Eastern Meadowlark.....	38
5.2.1.5. Eastern Wood-pewee:.....	38
6. Significant Wildlife Habitat Screening.....	39
6.1. Screening.....	39
6.1.1. Habitat for Species of Conservation Concern.....	40
6.1.1.1. Special Concern and Rare Wildlife Species.....	40
6.1.2. Specialized Habitat for Wildlife.....	40
6.1.2.1. Amphibian Breeding Habitat (Wetland).....	40
7. Proposed Development.....	40
7.1. Natural Heritage System Buffers.....	40
7.2. Restoration Plan.....	41
8. Environmental Impact Assessment.....	42
8.1. Impact Summary Table.....	43
8.2. Direct Impact Assessment.....	49
8.2.1. Tree Removals.....	49
8.2.2. Wetland Restoration Plan.....	49
8.3. Indirect Impact Assessment.....	49

8.4. Cumulative Impacts	50
9. Mitigation Measures and Recommendations	50
9.1. Natural Heritage System Measures	50
9.1.1. Tree Preservation Measures	51
9.2. Construction Measures	51
10. Policy Conformity	52
11. Closing	52
12. References	53
Maps	55
Appendix A Vegetation Species Master List	60
Appendix B Tree Inventory & Arborist Report	66
Appendix C Species at Risk Screening Resources	68
Appendix D Significant Wildlife Habitat Screening Eco-region 6E	70
Appendix E Conceptual Restoration Plan	93
Appendix F Proposed Site Plan	95

List of Tables

Table 1. Applicable Policies of the Provincial Planning Statement	11
Table 2. Completed Field Work	15
Table 3. Ecological land classification communities	19
Table 4. Amphibian Call Survey Results	23
Table 5. Breeding Bird Survey Conditions	24
Table 6. Breeding Bird Survey Results	24
Table 7. Species Ranking System	27
Table 8. Snag Survey Results	30
Table 9. Incidental Wildlife List	32
Table 10. Screening Results	35
Table 11. Impact Summary Table	43

List of Maps

Map 1. Key Map	56
Map 2. Existing Conditions	57
Map 3. Natural Heritage Surveys	58
Map 4. Natural Heritage System Limit	59

1. Introduction



GeoProcess Research Associates Inc. (GeoProcess) has been retained by Fourteen estates LTD. to complete an Environmental Impact Study (EIS) for lands located at 2080 Whitfield Road Port Perry, in the Township of Scugog, Ontario. This is herein referred to as the "Subject Property".

The "Study Area" is defined as the Subject Property plus 120 metres (m) of adjacent lands (Map 1). It is our understanding that the Subject Property is the proposed site of a single-family residential development.

The Study Area is located on the southwest and southeast corners of Whitfield Road and Indian Way in Port Perry. The lands are identified as Residential and Open Space by Schedule A-1, and Greenfield Area by Schedule I of the Township of Scugog Official Plan. Natural heritage features associated with the Study Area include an unevaluated wetland, a small woodland, and an associated drainage feature. The Township of Scugog Official Plan requires that an Environmental Impact Study (EIS) be completed for any development within 120 m of a wetland.

A Violation Notice has also been issued from Kawartha Region Conservation Authority (KRCA) related to the removal of vegetation within the wetland feature in the Study Area. To resolve the violation and bring the property at 2080 Whitfield Road into compliance with the Conservation Authorities Act and KRCA Policies, a restoration plan for the affected wetland area has been incorporated into the EIS.

This EIS has been prepared as per the guidance provided in Section 3.7 of the Township of Scugog Official Plan, and reports on the findings from both in-field and desktop assessments conducted by GeoProcess. The EIS report identifies the potential impacts and mitigation measures associated with the proposed development as they relate to the properties' natural heritage and hydrological features and functions.

1.1. Study Area

The Subject Property is approximately 19 hectares (ha) in size and is situated less than a kilometre west of Lake Scugog in the Township of Scugog, Ontario. The Property sits along Whitfield Road and is approximately one kilometre east of Old Simcoe Road. Located within the Lake Scugog Subwatershed, a tributary of Lake Scugog crosses the Property boundary once from the north. The Property falls within the larger Kawartha Conservation Watershed and is within the jurisdiction of the Kawartha Region Conservation Authority (KRCA).

Unevaluated wetlands are present in the middle of the Property, spanning from the north to the south boundary, and are currently mapped by the Natural Heritage Information Centre (NHIC) as covering nearly 2 hectares within the Property. The Study Area contains an additional 0.7 hectares of unevaluated wetland on the western parcel and is identified as Residential and Open Space by Schedule A-1, and Greenfield Area by Schedule I of the Township of Scugog Official Plan.

2. Policy Context

Land use is regulated by various agencies given authority through acts, legislation, and regulations. These intergovernmental agencies establish and implement policy frameworks to govern their respective jurisdictions as they relate to natural heritage, water, fisheries, urban/rural development, municipal

infrastructure, and other environmental features. The policies in this section will cover the relevant statutes, regulations, policies, and plans regulating development within the Study Area to provide an understanding of regulated features, prohibited activities, and development opportunities.

2.1. Fisheries Act (1985)

The Fisheries Act is a federal legislation which aims to manage and protect Canada's aquatic ecosystem including fish and fish habitat. The federal department of Fisheries and Oceans Canada (DFO) is the enforcing agency regulating land use and related activities under the Fisheries Act (1985). Where aquatic species may be present, especially species of special concern, activities near or in water must be permitted by the DFO. The Act protects fish and fish habitat such that:

"No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat" (Section 35 (1)).

Fish habitat is defined by the Act as "water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas".

The Fisheries Act requires that all development and related activities avoid Harmful Alteration, Disruption, or Destruction of fish habitat (HADD) unless authorized by Fisheries and Oceans Canada (DFO). If mitigation measures cannot be applied, and residual effects will cause a HADD, then provisions under the Act may apply (i.e., approval(s) may need to be secured through DFO). Any waterbody or watercourse containing fish or any other area on which fish depend directly or indirectly to carry out their life processes.

2.2. Species at Risk Act (2002)

The Species at Risk Act (2002) is a federal statute passed to prevent the disappearance of wildlife species in Canada through the recovery of wildlife species that are extirpated, endangered, or threatened due to anthropogenic activity and to manage species of special concern to prevent them from becoming endangered or threatened. Activities in proximity to species protected under the Species At Risk Act (SARA) are subject to regulatory approval from the appropriate enforcing authority such as the DFO for aquatic species at risk.

2.3. Endangered Species Act (2007)

The Endangered Species Act (ESA) (2007) was amended on June 5, 2025, through the passing of Bill 5 and is to be replaced with the Species Conservation Act, 2025 at a later date. The purpose of the ESA (2007) is to provide protection and conservation to species at risk while considering social and economic factors for sustainable economic growth in Ontario. The protected species and their habitat are designated by the Committee on the Status of Species at Risk in Ontario (COSSARO) as endangered, threatened, extirpated, or of special concern and the Government of Ontario adds species to the protection list based on COSSARO recommendations. These designations are defined as:

Endangered: A species shall be classified as an endangered species if it lives in the wild in Ontario but is facing imminent extinction or extirpation.

Threatened: A species shall be classified as a threatened species if it lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening to lead to its extinction or extirpation.

Extirpated: A species shall be classified as an extirpated species if it lives somewhere in the world, lived at one time in the wild in Ontario, but no longer lives in the wild in Ontario.

Under the amended ESA, for the purposes of protection under the Act, habitat does not include places where the species formerly occurred or has the potential to be reintroduced unless existing members of the species depend on that area. The ESA defines habitat as the following:

For animal species: habitat is a dwelling place that is occupied or habitually occupied for breeding, rearing, staging, wintering or hibernating, and the area immediately around a dwelling place.

For vascular plant species: habitat is the surrounding critical root zone.

For all other species: habitat is an area on which any member of a species directly depends in order to carry on its life processes

The ESA (Subsection 9(1)) outlines the prohibitions regarding harm to species and states that:

"No person shall,

- (a) kill, harm, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;*
- (b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,*
 - (i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,*
 - (ii) any part of a living or dead member of a species referred to in subclause (i),*
 - (iii) anything derived from a living or dead member of a species referred to in subclause (i); or*
- (c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii)."*

Clause 10 (1)(a) of the ESA also states that:

"No person shall damage or destroy the habitat of

- a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species.
- a species that is listed on the Species at Risk in Ontario List as an extirpated species, if the species is prescribed by the regulations for the purpose of this clause. 2007, c. 6, s. 10 (1)."

There are three applicable regulations under the ESA, 2007; O. Reg. 230/08 - the Species at Risk in Ontario (SARO) List, O. Reg. 242/08 (General), and O. Reg 830/21 (Exemptions – Barn Swallow, Bobolink, Eastern Meadowlark and Butternut). These regulations identify which species and habitats receive protection and provide direction on their current implementation under the ESA.

Prior authorization or issuance of permit from the MECP and/or the Ministry of Natural Resources (MNR) is required to carry out activities that would otherwise be prohibited or regulated under the ESA unless exempt under Ontario Regulation 242/08. Ontario Regulation 242/08 (current as of April 1, 2024) identifies activities

which are exempt from the permitting requirements of the Act, these activities are subject to rigorous controls outside the permit process including registration of the activity and preparation of mitigation plans. Activities that are not exempt require a complete permit application process.

2.4. Provincial Planning Statement (2024)

The Provincial Planning Statement (PPS) 2024 is administered under Section 3 of the *Planning Act*. It became effective October 20, 2024, and replaces the Provincial Policy Statement 2020. The PPS applies to planning decisions made on or after that date. It provides policy direction for land use and development within the Province of Ontario and provides for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment. The policies of the PPS may be complemented by provincial and municipal plans and policies.

The PPS defines eight natural heritage features and provides planning policies for each, listed below. The function of natural heritage features and areas is further clarified by the definition of a Natural Heritage System, which is *"a system made up of natural heritage features and areas, and linkages intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species, and ecosystems."*

- Significant wetlands
- Coastal wetlands
- Fish habitat
- Significant woodlands
- Significant valleylands
- Habitat of endangered species and threatened species
- Significant Wildlife Habitat
- Significant Areas of Natural and Scientific Interest (ANSIs)

Section 4.0 and 5.0 of the PPS deal with development and site alteration and where these activities shall not be permitted. Section 4.0 policies surround the conservation of biodiversity and protection of the health of the Great Lakes, natural heritage, water, agricultural, mineral and cultural heritage and archaeological resources for their economic, environmental and social benefits. Section 5.0 directs development away from areas of natural or human-made hazards to mitigate risks to public health or safety, and property damage from natural hazards, including the risks that may be associated with the impacts of a changing climate.

Policies in Section 4.1 are particularly relevant as they surround development and site alteration in and adjacent to natural heritage features. These policies and select others are outlined below in Table 1.

Table 1. Applicable Policies of the Provincial Planning Statement

Policy Number	Policy
(4.1 - Natural Heritage)	The diversity and connectivity of natural features in an area and the long-term <i>ecological function</i> and biodiversity of <i>natural heritage systems</i> , should be maintained, restored or where possible, improved, recognizing linkages between and among <i>natural heritage features and areas, surface water features and ground water features</i> .
4.1.2	
4.1.3	<i>Natural heritage systems</i> shall be identified in Ecoregions 6E & 7E, recognizing that <i>natural heritage systems</i> will vary in size and form in <i>settlement areas, rural areas, and prime agricultural areas</i> .
4.1.4	<i>Development</i> and site alteration shall not be permitted in: a) <i>significant wetlands</i> in Ecoregions 5E, 6E and 7E; and, b) <i>significant coastal wetlands</i> .
4.1.5	Development and site alteration shall not be permitted in: a) <i>significant wetlands</i> in the Canadian Shield north of Ecoregions 5E, 6E and 7E; b) <i>significant woodlands</i> in Ecoregions 6E and 7E (excluding islands in Lake Huron and St. Marys River); c) <i>significant valleylands</i> in Ecoregions 6E and 7E (excluding islands in Lake Huron and St. Marys River); d) <i>significant wildlife habitat</i> ; e) <i>significant areas of natural and scientific interest</i> ; and f) <i>coastal wetlands</i> in Ecoregions 5E, 6E and 7E that are not subject to policy 4.1.4(b) unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.
4.1.6	<i>Development</i> and site alteration shall not be permitted in <i>fish habitat</i> except in accordance with <i>provincial and federal requirements</i> .
4.1.7	<i>Development</i> and site alteration shall not be permitted in <i>habitat of endangered species and threatened species</i> , except in accordance with <i>provincial and federal requirements</i> .
4.1.8	<i>Development</i> and site alteration shall not be permitted on <i>adjacent lands</i> to the <i>natural heritage features and areas</i> identified in policies 4.1.4, 4.1.5 and 4.1.6 unless the <i>ecological function</i> of the <i>adjacent lands</i> has been evaluated and it has been demonstrated that there will be no <i>negative impacts</i> on the natural features or on their <i>ecological functions</i> .
(4.2 - Water)	<i>Development</i> and site alteration shall be restricted in or near <i>sensitive surface water features and sensitive ground water features</i> such that these features and their related <i>hydrologic functions</i> will be protected, improved or restored which may require mitigative measures and/or alternative development approaches.
4.2.2	
(5.2 - Natural Hazards)	Development shall generally be directed to areas outside of: a) <i>hazardous lands</i> adjacent to the shorelines of the <i>Great Lakes - St. Lawrence River System</i> and <i>large inland lakes</i> which are impacted by <i>flooding hazards, erosion hazards</i> and/or <i>dynamic beach hazards</i> ; b) <i>hazardous lands</i> adjacent to <i>river, stream</i> and <i>small inland lake systems</i> which are impacted by <i>flooding hazards</i> and/or <i>erosion hazards</i> ; and c) <i>hazardous sites</i> .
5.2.1	

Policy Number	Policy
5.2.4	Planning authorities shall prepare for the impacts of a changing climate that may increase the risk associated with natural hazards.

2.5. Greenbelt Plan (2017)

The Greenbelt Plan was originally enacted in 2005 and has since been updated (2017). It provides policies to protect the agricultural land base and the associated ecological and hydrological features and functions within the Greater Golden Horseshoe. Lands included in the Greenbelt Area are defined by O. Reg 59/05.

According to the Government of Ontario's *Current Land Use Designations Maps (2023)*, the Subject Property is located within the Greenbelt Plan Protected Countryside boundary. It is understood that the Subject Property has been included in the Towns and Villages designation which allows for settlement uses, as per the Durham Regional Official Plan which was approved by the province in 2024.

2.6. Durham Region Official Plan (2024)

The Durham Regional Official Plan, also known as Envision Durham, was approved by the Minister of Municipal Affairs and Housing on September 3, 2024. The Durham Regional Official Plan (DROP) is intended to guide long-term planning, providing structural framework for the long-term growth and development of lands within the Region of Durham. This includes the management of natural heritage features in the region.

Chapter 7 of the DROP outlines General Greenland System Policies. The Greenlands System includes Major Open Space Areas, Oak Ridges Moraine Areas and Waterfront Areas. Section 7.4 specifically addresses the Regional Natural Heritage System (RNHS) which is intended to identify core natural features and linkages between them. Enhancement opportunity areas are also identified and include areas adjacent to the RNHS where the system can be enhanced through voluntary stewardship and restoration efforts. Mapping of these features is shown in Map 2a of the DROP (Map 2). Section 7.4.5 of the DROP requires that any development and site alteration proposed within 120 metres of the RNHS will require an EIS.

Key Natural Heritage Features and Key Hydraulic Features form the main components of the RNHS and include the following:

- Wetlands.
- Significant woodlands.
- Significant valleylands.
- Habitat of endangered and threatened species.
- Fish habitat.
- Significant wildlife habitat.
- Life science areas and earth science areas of natural and scientific interest.
- Sand barrens, savannahs, and tallgrass prairies.
- Alvars.

- Lakes and their littoral zones.
- Permanent and intermittent streams.
- Kettle lakes.
- Seepage areas and springs.
- Lake Simcoe shoreline.
- Natural areas abutting Lake Simcoe.

Section 7.4.11 of the DROP prohibits development or site alteration in key natural heritage and/or key hydrologic features, including any associated vegetation protection zone. Exceptions are provided for certain uses; however, these are generally limited to natural resource management, agricultural activities, municipal/regional infrastructure, and existing uses. Areas designated as RNHS are present in the Study Area which triggers the DROP requirement for an EIS (Map 2).

2.7. Township of Scugog Official Plan (2011)

The Township of Scugog Official Plan (TSOP) was last consolidated in September of 2017. The TSOP is intended to guide and manage development within the Township of Scugog. This includes policies to regulate development in and around natural heritage features. Section 4.7.2 of the TSOP requires that any development proposed within 120m of a wetland will require an Environmental Impact Study to be complete which will provide recommendations that will be incorporated into the development approval process. Since a wetland is located on the Subject Property, and EIS is required.

The Subject Property is in the Port Perry Urban Area. As per Schedule A-1, the Subject Property is primarily zoned as Residential with a portion of Open Space area that appears to be associated with a wetland present on the western parcel. Schedule A identifies an Environmental Protection Area directly north of the Subject Property that appears to be associated with the watercourse that conveys flow north from the Study Area.

2.8.O. Reg. 41/24 Prohibited Activities, Exemptions and Permits (2024)

Ontario Regulation 41/24 (effective April 1, 2024), issued under the *Conservation Authorities Act* (CA Act), replaced all 36 individual Conservation Authority regulations with a single, province-wide regulation. This regulation emphasizes public safety and removes the "pollution" and "conservation of land" tests for permitting. Conservation Authorities may grant permission for development if, in their opinion, the proposal will not affect flood control, erosion, dynamic beaches, or unstable soil/bedrock, and will not create conditions that could jeopardize health, safety, or property in the event of a natural hazard.

Section 28(1) of the CA Act prohibits the following activities within a Conservation Authority's jurisdiction:

- (1) the alteration of watercourses or wetlands, and
- (2) development within hazardous lands, wetlands, river/stream valleys, Great Lakes/inland lake shorelines subject to flooding/erosion/dynamic beach hazards, and other areas designated by regulation.

The Subject Property is within Kawartha Region Conservation Authority (KRCA) jurisdiction. The north-eastern and south-western portions of the Subject Property are KRCA regulated areas and development activities are subject to regulatory approval.

2.8.1. Kawartha Region Conservation Authority

A permit is required from KRCA for any alteration to a river, creek, stream, or watercourse or any interference with the hydrological function of a wetland. The Kawartha Region Conservation Authority (KRCA) regulates the wetlands located on and within the Study Area. For properties undergoing development, a buffer of 120 m for PSWs and 30 m for LSWs will be recommended. In general, the distance of adjacent lands for the purpose of conducting studies to demonstrate no negative impacts will be 120 meters from natural features and areas, in keeping with provincial directions. KRCA-regulated features are present within the Study Area.

3. Methodology

The following provides the methodologies followed to complete the background studies and execute the field program designed to characterize the natural heritage features and their functions within the Study Area.

3.1. Background Studies

Literature and data pertaining to the Subject Property were reviewed and evaluated to obtain natural heritage and background planning policy information. A list of documents and information sources consulted to support this study are provided below:

- Durham Region Official Plan (September 3, 2024)
- Township of Scugog Official Plan (March 2, 2011)
- Port Perry Secondary Plan (2015)
- Oak Ridges Moraine Conservation Plan (2017)
- Kawartha Region Conservation Authority
- *Endangered Species Act (2007)* and Species at Risk in Ontario List (O. Reg. 230/08)
- Ontario Regulation 41/24: Prohibited Activities, Exemptions and Permits (April 2024)
- Natural Heritage Information Centre (NHIC) database information, 1 km x 1 km square 17PJ6389, 17PJ6488, 17PJ6490, and 17PJ6589
- Ontario Breeding Bird Atlas (OBBA) and eBird
- Ontario Reptile and Amphibian Atlas
- Ontario Butterfly and Moth Atlases
- iNaturalist- NHIC Rare Species of Ontario
- Fisheries and Oceans Canada (DFO) Aquatic Species at Risk Map

3.2. Field Work

GeoProcess conducted field studies to characterize and inventory the natural heritage features and wildlife activity of the Subject Property and surrounding landscape. A summary of the field work details is provided below in Table 2.

Table 2. Completed Field Work

Activity	Timing	Date	Staff
Amphibian Surveys	Visit 1 (>5°C)	23-04-2025	LB, EV
	Visit 2 (>10°C)	20-05-2025	EV, MS
	Visit 3 (>17°C)	19-06-2025	LB, TS
Breeding Bird Surveys	Visit 1	06-06-2025	DG, LB
	Visit 2	20-06-2025	DG
Turtle Basking Surveys	Visit 1	09-05-2025	LB, MS
	Visit 2	06-06-2025	LB, EV
	Visit 3	24-06-2025	LB
	Visit 4	07-07-2025	LB
	Visit 5	26-08-2025	LB
Turtle Nesting Surveys	Visit 1	09-05-2025	LB, MS
	Visit 2	06-06-2025	LB, EV
	Visit 3	24-06-2025	LB
	Visit 4	07-07-2025	LB
	Visit 5	26-08-2025	LB
Snag Survey	Leaf-Off	23-04-2025	LB, EV
Floristic Studies	Spring (May-June)	06-06-2025	LB, EV
	Summer (July-August)	07-07-2025+26-08-2025	LB
Tree Inventory	-	24-06-2025	IR, LB
Wetland Staking	-	Preliminary: 06-06-2025	IR, EV, LB
		Official:	
Headwater Drainage Feature Assessment	Round 1 (March-April)	Round 1: 19-03-2025	AS, MS
	Round 2 (late April-May)	Round 2: 09-05-2025	LB, MS
	Round 3 (July-mid-September)	Round 3: 26-08-2025	LB
Incidental Wildlife Surveys	-	Throughout all site visits	All staff

3.2.1. Amphibian Surveys

Amphibian surveys were completed following the Marsh Monitoring Program protocol (MMP and BSC, 2000). This required three (3) visits between mid-April and the end of June under proper air and weather conditions. Surveys are conducted 30 minutes following local sunset and completed by midnight where there were light winds, no rain, and air temperatures of 5°C, 10°C, and 17°C or higher for each of the three visits, respectively.

Calling amphibians, if present, were identified to species, and calling activity was assigned a code from one of the following options which indicate increasing abundance:

- 0 no calls
- 1 individuals of one species can be counted, calls not simultaneous
- 2 some calls of one species simultaneous, numbers can be reliably estimated
- 3 full chorus, calls continuous and overlapping (not countable)

3.2.2. Turtle Basking & Nesting Surveys

Turtle basking surveys were completed in conjunction with other day-time survey activities during the spring and early summer. The Subject Properties were swept for evidence of turtle basking activity during sunny conditions when turtles were most likely to be basking.

Dedicated turtle nesting surveys were completed on three separate dates in the evenings between June 2 and July 17, 2025 to coincide with the most active turtle nesting activity windows. Staff swept the Subject Property for turtle nesting activity.

3.2.3. Breeding Bird Surveys

Breeding bird surveys were undertaken on June 6, 2025, and June 20, 2025, by a breeding bird expert under appropriate weather conditions. The area was surveyed using a travelling count approach to search for birds within the feature. Species lists were restricted to specific habitats, and the presence, abundance and level of breeding evidence were identified and recorded using the Ontario Breeding Bird Atlas (OBBA) protocols. Results and analysis of these surveys are presented in Section 0.

3.2.4. Snag Surveys

GeoProcess staff conducted a snag survey on April 23, 2025, to assess the presence or absence of potential bat maternity roosting habitat. This involved assessing all living and dead trees with DBH > 10 cm for cavities, cracks, loose bark, etc. that have the potential to be bat habitat. Surveys are conducted during the leaf-off period so that the view of tree cavities, cracks, and loose bark is not obscured by foliage. The results of the survey are shown in Section 3.2.4.

3.2.5. Floristic Studies

An Ecological Land Classification (ELC) with a two-season botanical inventory of all floristic species was completed on June 6, 2025, and July 7, 2025. Species nomenclature and ranking was determined provincially

by the Ministry of Natural Resources Natural Heritage Information Database (S_Ranks). Vegetation communities were mapped and described according to the Ecological Land Classification system for Southern Ontario (Lee et al., 2008). Vegetation community boundaries were determined using desktop analysis and further refined in the field. The results of this assessment are found in Section 4, Map 3, and Appendix A.

3.2.6. Tree Inventory

Field studies were conducted in June of 2025 to identify and assess the existing trees within 6m of the proposed development limits. An assessment of individual trees included all trees 10 cm Diameter at Breast Height (DBH) or greater. Trees were assessed for condition utilizing the following parameters:

- Tree # - numbers assigned to tree that corresponds to their surveyed/mapped location.
- Species - common and botanical names provided in the inventory table.
- DBH - diameter (centimeters) at breast height, measured at 1.4 m above the ground.
- Condition - condition of trees were assessed as follows:
 - Trunk integrity (TI): conditions on trunk that might affect likelihood of failure based on factors including co-dominant stems, cracks, decay, poor taper, lean, response growth, abnormal or missing/dead bark, etc.
 - Crown Structure (CS): condition on crown structure that might affect likelihood of failure including live crown ratio, presence of defects (including bark, weak attachments, cracks, decay, cavities), crown density.
 - Crown Vigor (CV): an assessment of overall tree health classified as weak/under stress (poor), average vigor for its species and site condition with some signs of stress (fair), growing well and appears to be free of significant health stress factors (good).
 - Canopy Dieback (CDB): extent dead branching and canopy cover loss measured as a percentage of the entire crown.

The location of trees within the vicinity of the proposed development were surveyed for location using a handheld GPS. Species nomenclature and ranking is based on the Ministry of Natural Resources and Forestry Natural Heritage Information Centre species list. Trees that were identified to be within the extent of the wetland feature on site were not surveyed since they would be protected from development disturbance. The results of this assessment are found in Section 4.5, and Appendix B.

3.2.7. Headwater Drainage Feature Assessment

A Headwater Drainage Feature (HDF) field assessment was completed following the 2014 protocol for HDF assessment developed by the Toronto and Region Conservation Authority and the Credit Valley Conservation Authority, in conjunction with the Ministry of Natural Resources and Forestry. On March 19, 2025 GeoProcess completed a site visit to characterize the HDFs shortly after the spring freshet, a second site visit was completed on May 9, 2025, to determine the hydrologic condition of each HDF, and a third site visit occurred on August 26, 2025 to survey features found to be flowing during the second visit.

3.2.8. Incidental Wildlife Surveys

Formal surveys for mammals, reptiles, and insects were not completed, but incidental observations were documented while completing all site visits. The results are presented in Section 4.11.

3.2.9. Species at Risk Screening and Assessment

An assessment and screening of potential Species at Risk (SAR) was conducted for the Subject Property based on Federal and Provincial status. Following the MECP Client's Guide to Preliminary SAR Screening (2019), this screening was based on a review of the Natural Heritage Information Centre, regional species list, atlases (i.e. OBBA, butterfly, moth, and reptile and amphibian), and citizen science databases (i.e. iNaturalist, eBird). Data sources utilized for the screening are described in Appendix C. The SAR assessment results are further discussed in Section 5.2.

3.2.10. Significant Wildlife Habitat Screening and Assessment

A screening for Significant Wildlife Habitat (SWH) following the Ministry of Natural Resources and Forestry Significant Wildlife Habitat Technical Guide (2000) and Significant Wildlife Habitat Criteria Schedule for Ecoregion 7E (2015) was conducted for the Subject Property. Potential SWH identified was assessed during the complementary field studies. The results of this assessment are found in Section 6 and Appendix D.

4. Existing Conditions

4.1. General Landscape Position

The Subject Property is bisected by Indian Way and bound to the north by Whitfield Road, in the township of Scugog, Ontario. Lake Scugog, a large, artificially flooded lake, is less than a kilometre to the east of the Property boundary. The surrounding landscape is composed of farmland, woodland and wetland, as well as low-density residential development to the south and southeast. A wetland is present on the western parcel with an associated drainage feature that conveys flows from the wetland north. The eastern parcel is primarily agriculture with a small, wooded feature located near the eastern limit. The Property falls within the Kawartha Conservation Watershed.

4.2. Physiography and Geology

The Study Area falls within the Schomberg Clay Plains physiographic region of Southern Ontario (Chapman and Putman, 1984). The soils within the Schomberg Clay Plains typically consist of silty clay deposits underlain by drumlinized till plain. The bedrock geology of the Study Area dates to the Ordovician period of the Paleozoic era, with bedrock consisting of shale, limestone, dolostone, and siltstone.

4.3. Natural Heritage Systems

The natural heritage system is made up of a variety of natural heritage and hydrological features and will be evaluated in accordance with the TSOP and DROP feature designations.

4.3.1. Unevaluated Wetland

The Subject Property contains TSOP-designated Open Space areas on the western parcel that are comprised of an unevaluated wetland that is approximately 2.0ha in size within the Subject Property and 0.7ha outside of the property limits. The wetland is connected to Lake Scugog to the northeast by a watercourse that conveys flows from the wetland to the north beneath Whitfield Road. This feature forms the core of the natural heritage system on the Subject Property.

4.4. Vegetation Communities

Vegetation communities were assessed for their floral composition and soil characteristics.

4.4.1. Ecological Land Classification

The results of the ELC are presented below in Table 3 and shown on Map 3. A full botanical inventory can be found in Appendix A. Five unique vegetation communities were identified within the Study Area.

Table 3. Ecological land classification communities

ELC Code and Classification	Vegetation		Comments
Fresh-moist mixed meadow MEMM4(a) with MAMM1-13 rush graminoid meadow marsh Inclusion	Canopy	Heart-leaved Willow (<i>Salix eriocephala</i>).	The effective texture of the soil is Loamy Fine Sand with a moisture regime of 4. Mottles were observed at 46 cm and bedrock is > 100 cm.
	Sub-canopy	Dog-strangling Vine (<i>Vincetoxicum rossicum</i>)	
	Ground	Lance-leaved Aster (<i>Symphiotrichum lanceolatum</i>), Red-top (<i>Agrostis gigantea</i>), White and Pink Clover Hybrid (<i>Trifolium hybridum</i>), Canada Blue-joint (<i>Calamagrostis canadensis</i>), Common Ragweed (<i>Ambrosia artemisifolia</i>), Kentucky Blue-grass (<i>Poa pratensis</i>), and Tall Goldenrod (<i>Solidago altissima</i>).	
	Inclusion	Toad Rush (<i>Juncus bufonus</i>), Reed Canary Grass (<i>Phalaris arundinacea</i>), Articulated Rush (<i>Juncus articulatus</i>), and Water Potato (<i>Alyssa triviale</i>).	
Narrow-leaved Sedge Mineral Meadow Marsh MAMM1-9	Canopy	Balsam Poplar	The effective texture of the soil is Sandy Loam with a moisture regime of 6. Mottles were
	Sub-canopy	Heart-leaved Willow, Trembling Aspen (<i>Populus tremuloides</i>), and Red-osier Dogwood.	

	Ground	Fox Sedge (<i>Carex vulpinoidea</i>), Meadow Sedge (<i>Carex granularis</i>), Bebb's Sedge (<i>Carex bebbii</i>), Crested Sedge (<i>Carex cristatella</i>), Golden Sedge (<i>Carex aurea</i>), Bottlebrush Sedge (<i>Carex hystericina</i>), Hirsute Sedge (<i>Carex hirsutella</i>), Restorse Sedge (<i>Carex retrorsa</i>), Slender Path Rush (<i>Juncus tenuis</i>), and Articulated Rush.	observed at 8 cm and gley was observed at 41 cm. The depth of bedrock is >100 cm. The community has been heavily impacted by being driven on with heavy machinery.
Reed Canary Grass Mineral Meadow Marsh MAMM1-3	Canopy	Bur Oak (<i>Quercus macrocarpa</i>).	The effective texture of the soil is Silty Loam, with a moisture regime of 5. Mottles were observed at 33 cm. The depth of bedrock is >100 cm. The community was dominated by Marsh Marigold in the spring, before becoming dominated by bulrush species, boneset, cattail and reed canary grass in late summer
	Sub-canopy	Red-osier Dogwood, Guelder Rose (<i>Viburnum opulus</i>), Peach-leaf Willow (<i>Salix amygdoloides</i>), and Heart-leaf Willow.	
	Ground	Reed-canary Grass (<i>Phalaris arundinacea</i>), Hybrid Cattail (<i>Typha X Glauca</i>), Fowl Manna Grass (<i>Glyceria striata</i>), Large Manna Grass (<i>Glyceria grandis</i>), Boneset (<i>Eutrochium perfoliatum</i>), Retrorsed Sedge (<i>Carex retrorsa</i>), Awn-fruited Sedge (<i>Carex stipata</i>), Lake Sedge (<i>Carex lacustris</i>), Golden Sedge, Softstem Bulrush (<i>Schoenoplectus tabernaemontani</i>), Hardstem Bulrush (<i>Scirpus atrovirens</i>), Woolgrass (<i>Scirpus cyperinus</i>), and Marsh Marigold (<i>Caltha palustris</i>).	
Fresh-moist mixed meadow MEMM4(b)	Canopy	-	The effective texture of the soil is Loamy Sand, with a moisture regime of 6. Mottles were observed at 20 cm. The depth of bedrock is >100 cm. The community is a goldenrod-dominated mixed graminoid and forb meadow that has experienced heavy and extensive earth displacement and compaction from construction machinery.
	Sub-canopy	Heart-leaved Willow, Red-osier Dogwood, American Elm (<i>Ulmus americana</i>), Bebb's Willow, Meadow Willow (<i>Salix petiolaris</i>), and Crack Willow (<i>Salix euxina</i>).	
	Ground	Tall Goldenrod (<i>Solidago altissima</i>), Grass-leaved Goldenrod (<i>Euthamia graminifolia</i>), Early Goldenrod (<i>Solidago juncea</i>), Giant Goldenrod (<i>Solidago gigantea</i>) – everything else was equal in distribution and abundance.	

Poplar Mineral Deciduous Swamp SWDM4-5	Canopy	Trembling Aspen (<i>Populus tremuloides</i>), Balsam Poplar (<i>Populus balsamifera</i>), Basswood (<i>Tilia americana</i>), and American Elm (<i>Ulmus americana</i>).	The effective texture of the soil is Silty Clay, with a moisture regime of 6. Mottles were observed at 2 cm. The depth of bedrock is >100 cm. The water table was reached at 68 cm during the soil core, a core was not taken in the central portion of the swamp as standing water was present. It is unknown whether the swamp was organic pre-violation activities. Current water levels in the swamp are above the level of fill in its center and water has persisted throughout the summer.
	Sub-canopy	Red-osier Dogwood (<i>Cornus sericea</i>), Nanny Berry (<i>Viburnum lentago</i>), Alternate-leaved Dogwood (<i>Cornus alternifolia</i>), Bebb's Willow (<i>Salix bebbiana</i>), White Willow (<i>Salix alba</i>), and Black Cherry (<i>Prunus serotina</i>).	
	Ground	Narrow-leaved Cattail (<i>Typha angustifolia</i>), Hybrid Cattail (<i>Typha X glauca</i>), Water Plantain (<i>Alyssa triviale</i>), Canada Goldenrod, Rough-stemmed Goldenrod (<i>Solidago rugosa</i>), and Reed-canary Grass (<i>Phalarus arundinacea</i>).	

A complete list of the plant species identified within the Subject Property can be found in Appendix A.

4.5. Tree Inventory

GeoProcess conducted a tree inventory on June 24, 2025, to assess existing trees within the Subject Property. An assessment was completed for all individual trees 10 cm DBH or greater. A summary of the tree inventory is provided in Table 4 below.

The inventory documented 185 trees. Refer to Table 4 and Maps 2, 2a-c for a summary of the species surveyed and tree locations. Two of the surveyed trees are considered "dead". The dominant tree species is black locust (*Robinia pseudoacacia*) followed by Basswood (*Tilia americana*), comprising 23.7% and 11.3% of the trees respectively.

Table 4. Species Tally and Abundance.

Species	Total	Percentage (%)
Balsam Poplar	6	3.2
Basswood	21	11.3
Black Cherry	1	0.5
Black Locust	44	23.7
Black Walnut	3	1.6
Blue Spruce	22	11.8

Species	Total	Percentage (%)
Bur Oak	1	0.5
Common Lilac	1	0.5
Eastern Cottonwood	8	4.3
Freeman's Maple	2	1.1
Hawthorn sp.	1	0.5
Manitoba Maple	13	7.0
Norway Maple	1	0.5
Red Elm	1	0.5
Red Maple	1	0.5
Red Oak	3	1.6
Red Pine	1	0.5
Sugar Maple	7	3.8
Trembling Aspen	2	1.1
Unidentified Dead Tree	1	0.5
White Ash	8	4.3
White Pine	19	10.2
White Spruce	17	9.1

Most trees surveyed on the western parcel were located within a hedgerow along the western property limit. This hedgerow was dominated by black locust, an invasive species in Ontario. The majority of black locust were in poor condition, exhibiting signs of severe damage from past weather events. These trees were relatively large, with an average DBH of 31.9 cm and were judged to be potential hazard trees that should be removed. Most trees on the eastern parcel included a naturalizing hedgerow on the eastern property limit and a group of planted landscape trees on the south-eastern boundary.

4.6. Amphibian Surveys

Amphibian surveys were completed following the Marsh Monitoring Protocol and temperature requirements. Survey stations are provided on Map 3 and the results are in Table 4.

Table 4. Amphibian Call Survey Results

Visit	Start Time	Air Temp (°C)	Wind (Beau- fort)	Precip	Cloud Cover (10ths)	Species Calling (Call Code-# of Individuals)		Background Noise (Code – Notes)	Notes
						In Station	Out of Station		
Station 1									
1 (>10°C)	21:01	13	0	Dry	10	AMTO1-2	-	1	1-2 airplanes flying overhead every 5 minutes.
2 (>17°C)	21:19	10	0	Dry	5	GRFR1-1	-	1	Light traffic sounds in distance.
3 (>17°C)	21:48	16	1	Dry	10	GRFR1-1	-	1	Faint road noise in distance.
Station 2									
1 (>10°C)	21:10	13	0	Dry	10	AMTO1-1	-	1	One airplane flying overhead, distant road noise.
2 (>17°C)	21:11	11	0	Dry	5	SPPE1-1	-	1	Light traffic sounds in distance.
3 (>17°C)	22:00	16	1	Dry	10	GRFR1-3, GRFR1-1, GRFR1-1	-	1	Wind rustling leaves and grass.

4.7. Turtle Basking & Nesting Surveys

Turtle basking surveys were completed in conjunction with other day-time survey activities during the spring and early summer. The Subject Properties were swept for evidence of turtle basking activity. Potential basking areas were limited to the disturbed wetland area on the western parcel. No turtle basking activity was observed.

Dedicated turtle nesting surveys were completed on three separate dates between June 2 and July 17, 2025. Staff swept the Subject Property for turtle nesting activity. No nesting activity was observed during any of the surveys.

4.8. Breeding Bird Surveys

Breeding bird surveys were conducted on two separate dates within the Study Area under suitable conditions between 5 am and 10 am as per OBBA protocols (Table 5). Two breeding bird transects were established for the Study Area, refer to Table 5 for their locations. Transect 1 covers the highly disturbed Deciduous Wetland and transect 2 covers the old field meadow and meadow-marsh areas. Two species at risk were observed in the study area, however, no evidence of breeding was observed.

Table 5. Breeding Bird Survey Conditions

Visit Date	Visit Time	Wind Speed [Beaufort scale]	Cloud Cover (%)	Temperature Range (°C)	Rain	Noise Code (1-5)
June 6, 2025	06:00-07:30	0-1	80-90	13-15	0	2
June 20, 2025	06:00-07:45	2-2	100-100	14-16	0	2

For each species seen or heard on the surveys, the highest level of breeding evidence and highest one-day-total in Old Field Meadow and Deciduous Swamp areas was recorded. A species observed flying over the site, showing no breeding evidence or where no suitable habitat is present, is marked as "Flyover". A species observed, showing no breeding evidence or where no suitable habitat is present, is marked 'X'.

The table also lists the COSSARO [provincial] and COSEWIC [national] rank [if any], as well as the Natural Heritage Information Centre [NHIC, MNR] S rank. COSSARO is the Committee on the Status of Species at Risk in Ontario [MNR] and COSEWIC is the Committee on the Status of Endangered Wildlife in Canada.

Species of Conservation Concern

Species status [for all fauna] was evaluated using the following sources:

- The COSEWIC list for national status designations (current list at time of report preparation);
- The Species At Risk Act for federally listed species (current at time of report preparation);
- The COSSARO list for provincial status designations (current list at time of report preparation);
- The NHIC / Biodiversity Explorer website for provincial rarity ranks (i.e., S-Ranks);

Species heard and or observed within the search area were recorded and the highest level of breeding evidence (using Ontario Breeding Bird Atlas [OBBA] protocols) was determined after completion of both surveys (Table 6). Species at Risk in Ontario (SARO) and Committee on the Status of Endangered Wildlife in Canada (COSEWIC) rankings were attributed to each species.

Table 6. Breeding Bird Survey Results

Common Name	Scientific Name	Transect 1 Deciduous Swamp		Transect 2 Oldfield Meadow/Meadow Marsh		SRank*	SARO	COSEWIC	Comments
		Quantity	BE	Quantity	BE				
Great Blue Heron	<i>Ardea herodias</i>			1	Flyover	S4			
Red-tailed Hawk	<i>Buteo jamaicensis</i>			1	Flyover	S5			Behaviour suggests hawk is nesting in woodlot north of Whitfield Rd.

Common Name	Scientific Name	Transect 1 Deciduous Swamp		Transect 2 Oldfield Meadow/Meadow Marsh		SRank*	SARO	COSEWIC	Comments
		Quantity	BE	Quantity	BE				
Killdeer	<i>Charadrius vociferus</i>	1	A	1	A	S4B			
Spotted Sandpiper	<i>Actitis macularius</i>			1	DD	S5B			This species has increasingly adapted to breeding in open non-wetland areas.
Rock Pigeon	<i>Columba livia</i>			1	Flyover	SNA			
Mourning Dove	<i>Zenaidura macroura</i>	2	P	1	T	S5			
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	1	H			S5			
Northern Flicker	<i>Colaptes auratus</i>	2	AE			S5			
American Kestrel	<i>Falco sparverius</i>	1	T			S4			Cavities in several large dead trees in the wetland are suitable for nesting. The presence of this bird during both site visits suggests nesting here, but the bird was not observed entering or leaving a cavity.
Eastern Kingbird	<i>Tyrannus tyrannus</i>	1	T			S4B			
Eastern Wood Pewee	<i>Contopus virens</i>	1	S			S4B	SC	SC	See Section 4.8.1
Red-eyed Vireo	<i>Vireo olivaceus</i>	1	T			S5B			
Warbling Vireo	<i>Vireo gilvus</i>	1	S			S5B			
Blue Jay	<i>Cyanocitta cristata</i>			1	Flyover	S5			
American Crow	<i>Corvus brachyrhynchos</i>	2	T	1	Flyover	S5			
Tree Swallow	<i>Tachycineta bicolor</i>			1	Flyover	S4S5B			
Black-capped Chickadee	<i>Poecile atricapillus</i>	2	T			S5			

Common Name	Scientific Name	Transect 1 Deciduous Swamp		Transect 2 Oldfield Meadow/Meadow Marsh		SRank*	SARO	COSEWIC	Comments
		Quantity	BE	Quantity	BE				
House Wren	<i>Troglodytes aedon</i>	1	S			S5B			
American Robin	<i>Turdus migratorius</i>	4	A	2	CF	S5			
Gray Catbird	<i>Dumetella carolinensis</i>	1	S			S5B, S3N			
European Starling	<i>Sturnus vulgaris</i>	6	T	8	Flyover	SNA			
Cedar Waxwing	<i>Bombycilla cedrorum</i>			2	P	S5			
Yellow Warbler	<i>Setophaga petechia</i>	1	T			S5B			
Common Yellowthroat	<i>Geothlypis trichas</i>	2	T	1	T	S5B, S3N			
Savannah Sparrow	<i>Passerculus sandwichensis</i>			4	A	S5B, S3N			
Song Sparrow	<i>Melospiza melodia</i>	6	CF	10	A	S5			
Northern Cardinal	<i>Cardinalis cardinalis</i>	1	T			S5			
Bobolink	<i>Dolichonyx oryzivorus</i>			1	S	S4B	THR	THR	See Section 4.8.1
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	8	A	6	A	S5			
Common Grackle	<i>Quiscalus quiscula</i>	2	T			S5			
Brown-headed Cowbird	<i>Molothrus ater</i>	1	S			S5			
Eastern Meadowlark	<i>Sturnella magna</i>			1	S	S4B, S3N	THR	THR	See Section 4.8.1
Baltimore Oriole	<i>Icterus galbula</i>	1	H			S4B			
American Goldfinch	<i>Spinus tristis</i>	6	D	5	S	S5			

Common Name	Scientific Name	Transect 1 Deciduous Swamp		Transect 2 Oldfield Meadow/Meadow Marsh		SRank*	SARO	COSEWIC	Comments
		Quantity	BE	Quantity	BE				
Purple Finch	<i>Haemorhous purpureus</i>	1	S			S5			

In the species columns, Breeding Evidence (BE) was identified for each species based on the highest level of BE observed. The number recorded represents the highest one-day total for that species with the associated breeding code.

**The S-rank is a subnational conservation status rank for species in Ontario. The S-rank system is used to describe how rare a species is in the province with S1 species being extremely rare and S5 species being demonstrably secure.*

Table 7. Species Ranking System

Rank System	Code	Meaning
OBBA Breeding Level		
Possible	H	Species observed in breeding season in suitable nesting habitat.
	S	Singing male present or breeding calls heard in breeding season in suitable habitat.
Probable	P	Pair observed in their breeding season in suitable habitat.
	T	Permanent territory presumed through registration of territorial song or presence of adult bird in breeding habitat on at least 2 days, one week or more apart at the same place.
	D	Courtship or display between a male and female, or two males including courtship feeding and copulation.
	V	Visiting probable nest site.
	A	Agitated behavior or anxiety calls of adults.
	B	Brood patch on adult female or cloacal protuberance on adult male.
	N	Nest building or excavation of nest hole.
Confirmed	DD	Distraction display or injury feigning.
	NU	Used nest or eggshell found (occupied/laid during atlas period).
	FY	Recently fledged young or downy young.
	AE	Adults leaving or entering nest site in circumstances indicating occupied nest.
	FS	Adult carrying faecal sac.
	CF	Adult carrying food for young.
	NE	Nest containing eggs.
	NY	Nest with young seen or heard.
NHIC S-Rank		
SH	Possibly Extirpated (Historical); species occurred historically and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years.	
S1	Critically Imperiled. Extremely rare in Ontario; usually 5 or fewer occurrences in the province.	
S2	Imperiled. Very rare in Ontario; usually between 6 and 20 occurrences in the province.	
S3	Vulnerable. Rare to uncommon in Ontario; usually between 21 and 60 occurrences in the province; may have fewer occurrences, but with some extensive examples remaining.	

Rank System	Code	Meaning
S4		Apparently secure. Considered to be common in Ontario. It denotes a species that is apparently secure, with over 80 occurrences in the province.
S5		Secure. Indicates that a species is widespread in Ontario. It is demonstrably secure in the province.
?		Indicates some uncertainty with the classification due to insufficient information.
SNR		Not Ranked.
SNA		Not Applicable, a conservation status rank is not applicable because the species is not a suitable target for conservation activities.
COSEWIC/ESA & SARA Rankings		
SC		Special Concern.
END		Endangered.
THR		Threatened.
EX		Extirpated.

Out of the 35 summer resident bird species (30 with some breeding evidence), there was three species of conservation concern [e.g., species that are “designated” by COSEWIC and/or listed under the Species at Risk Act [SARA]; species “designated” by COSSARO, including Endangered and Threatened and Special Concern species listed and regulated under Ontario's ESA; and provincially rare species [NHIC S-rank of S1 to S3] were observed during field surveys. These species were the Eastern Wood Pewee, Bobolink and Eastern Meadowlark. One non-native species, the European starling (*Sturnus vulgaris*) was detected.

The highest level of breeding evidence obtained during surveys was the “confirmed” breeding (OBBA, 2001); of four species from observations of adults carrying food for young (CF), the performance of a distraction display or injury feigning (DD), and adults leaving or entering nest site in circumstances indicating occupied nest (AE). Sixteen species were observed exhibiting “probable” breeding behaviour through pairs observed in their breeding season in suitable habitat (P), singing in permanent territory during both rounds of surveys (T), courtship or display between a male and female, or two males including courtship feeding and copulation (D), and exhibiting agitated behaviour or anxiety calls (A). Ten species were observed exhibiting “possible” breeding evidence through singing (S) in suitable habitat (H) during the breeding season. The remaining five species were observed as flyovers and did not exhibit any breeding evidence.

Based on the breeding bird surveys, the meadows, meadow marshes and deciduous swamps provide habitat for species that are considered “vulnerable” (S3), “apparently secure” (S4) and “secure” (S5). These rankings are provided by the Natural Heritage Information Centre (NHIC, 2019).

4.8.1. SAR Bird Discussion

4.8.1.1. Eastern Wood-pewee (SC/SC)

A male bird was heard singing from the wooded wetland area during the first survey of June 6th but not during the second survey of June 20th. Based on these observations, the species may have breed within this area. This species breeds in mature and intermediate-age deciduous and mixed forests (less often in coniferous forest) having an open understory. It is often associated with forests dominated by Sugar Maple (*Acer saccharum*), elm (*Ulmus* sp.) and oak (*Quercus* sp.). It is usually associated with forest clearings and edges within the vicinity of its nest. (COSEWIC, 2012). It is not an area-sensitive species (COSEWIC, 2012),

occurring in small, wooded areas and even in residential areas with mature trees (pers. Obs.). While it is a SAR, the Eastern Wood Pewee is widespread in southern Ontario (OBBA, 2007) and was frequently recorded on point counts in the previous OBBA [Ontario Breeding Bird Atlas \(birdsonario.org\)](https://birdsonario.org). Based on the author's experience, the treed deciduous wetland has frequent maple and elm and is considered possible nesting habitat for this species.

4.8.1.2. Bobolink [THR/THR]

One male Bobolink was seen singing and doing flight songs/displays above the old field meadow that makes up the majority of the subject property during the first survey of June 6th. However, no females, other males, agitated behaviour or other nesting associated behaviour were observed at this time. At breeding sites, this species is generally found in small colonies (COSEWIC, 2022). Habitat present is dominated by grasses and herbaceous vegetation and is considered suitable nesting habitat and typical of areas used by this species (COSEWIC, 2022). During the second survey of June 20th, no Bobolink were present. These observations suggest a single unmated male Bobolink present during the first survey and that by the time of the second survey, the bird had abandoned the site. Based on the author's experience, the old field meadow habitat found on the majority of the subject property is considered possible nesting habitat for this species in the future.

The most recent COSEWIC assessment (COSEWIC, 2022) recommended a status of Special Concern for the Bobolink but the species remains assessed as Threatened under the Species at Risk Act.

4.8.1.3. Eastern Meadowlark [THR/THR]

One male Eastern Meadowlark was seen singing in the old field meadow during the first survey of June 6th. However, no females, other males, agitated behaviour or other behaviour associated with nest were observed at this time. Habitat present is dominated by grasses and herbaceous vegetation and is considered suitable nesting habitat and typical of areas used by this species (COSEWIC, 2011). During the second survey of June 20th, the male was occasionally seen and heard singing from treetops in the hedgerow which occurs along the western boundary of the subject property and from west of the subject property in old field meadow found on the adjacent property. No other part of the subject property was occupied by the meadowlark during the second survey. These observations suggest that the Eastern Meadowlark had largely abandoned the subject property by the second survey, was using the grassland found west of the subject property, but still using the treetops along the west margin of the subject property as singing perches. Based on the author's experience, the old field meadow habitat found on the majority of the subject property is considered possible nesting habitat for this species in the future.

4.8.2. Potential SAR Bird Species Based on Suitability of Habitat

4.8.2.1. Barn Swallow [SC/THR]

No Barn Swallows were recorded onsite. However, this species aerial forages over open areas within about 400 meters of its nest site (COSEWIC, 2021). Birds nest on built structures at points that provide protection from inclement weather including within barns, under bridges, overhanging roofs and will also rarely nest on natural sites such as caves and cliffs that provide protection (COSEWIC, 2021). Built structures and suitable natural sites do not occur within the subject property, hence nesting is not possible. However, potential nest sites likely occur within 400 meters of the subject property, and this species, despite its SAR status, remains

widespread in southern Ontario (OBBA, 2007). Suitable nesting sites are not present on the Subject Property, however the area appears to be at least occasionally used for foraging..

The most recent COSEWIC assessment (COSEWIC, 2021) recommended a status of Special Concern for the Barn Swallow, but the species remains assessed as Threatened under the Species at Risk Act.

No other SAR species are expected as the site does not provide suitable habitat.

4.9. Snag Survey

A snag survey was completed for the Subject Property during the leaf-off period to assess for potential bat habitat. The survey included an assessment of dead standing trees (snags) or live trees with a DBH of 10 cm or greater with loose or exfoliating bark, cavities, hollows, or cracks that provide suitable bat maternity roosting habitat.

Eighteen (18) snags were identified (Table 4). Directly north beyond the Subject Property boundary more snags are present.

Table 8. Snag Survey Results

Snag #	Scientific Name	Common Name	DBH (cm)	Height (m)	Snag Attributes	Notes
759	<i>Fraxinus sp.</i>	Ash sp.	30	2	Cavity Loose bark Crack Other snag within 10m Decay class 4	Dead tree with missing canopy, significant number of wildlife cavities, bark is loose and peeling, trunk wood sloughing off in plates.
760	<i>Unknown</i>	Unknown	26	2	Cavity Crack Other snag within 10m Decay class 6	Chimney cavity and multiple wildlife cavities on tree, long vertical crack right below chimney ~5cm wide.
761	<i>Unknown</i>	Unknown	30	1	Cavity Crack Other snag within 10m Decay class 6	No identifiable features present. Multiple wildlife cavities and long vertical crack ~10cm at widest part.
762	<i>Populus deltoides</i>	Eastern Cottonwood	35	1	Cavity Loose bark Knot Hole Other snag within 10m Decay class 3	Loose, peeling bark, multiple knot holes all over tree, multiple wildlife cavities in canopy section.
763	<i>Unknown</i>	Unknown	48	1	Cavity Crack Other snag within 10m Decay class 5	No identifiable features present. Two long vertical cracks present at base of tree and in middle of tree, both ~5-7cm wide at widest section, Multiple wildlife cavities all over tree.
764	<i>Unknown</i>	Unknown	50	1	Cavity Crack Other snag within 10m Decay class 5	No identifiable features present. Multiple wildlife cavities of varying sizes all over tree, chunks/plates of bark remaining on tree and lifting in sections.
765	<i>Unknown</i>	Unknown	49	2	Cavity Loose bark	No identifiable features present. Chimney cavity due to loss of

Snag #	Scientific Name	Common Name	DBH (cm)	Height (m)	Snag Attributes	Notes
766	<i>Fraxinus pennsylvanica</i>	Green Ash	24	1	Knot hole Other snag within 10m Decay class 3/4 Cavity Loose Bark Knot Hole Other snag within 10m Decay class 4/5	canopy portion of tree, multiple wildlife cavities of varying sizes, bark peeling in plates. Multiple vertical cracks at carrying heights on tree, all appear wide enough to provide habitat for a bat, multiple wildlife cavities, peeling plates of bark.
767	<i>Unknown</i>	Unknown	39	1	Cavity Knot hole Other snag within 10m Decay class 4/5	No identifiable features present. Multiple wildlife cavities, peeling bark.
768	<i>Populus tremuloides</i>	Trembling Aspen	21	2	Cavity Loose bark Knot hole Other snag within 10m Decay class 3	Multiple wildlife cavities, short vertical cracks present at varying heights ~8-10cm wide at widest part, loose bark.
769	<i>Populus tremuloides</i>	Trembling Aspen	51	2	Cavity Loose bark Crack Other snag within 10m Decay class 4/5	Canopy of tree missing leaving a chimney cavity behind, multiple wildlife cavities, peeling bark.
770	<i>Populus tremuloides</i>	Trembling Aspen	53	1	Cavity Loose bark Knot hole Other snag within 10m Decay class 4	Multiple wildlife cavities near top of tree, lifted plates of bark, peeling strips of bark.
771	<i>Populus tremuloides</i>	Trembling Aspen	41	2	Cavity Loose bark Crack Other snag within 10m Decay class 4	Canopy of tree is missing leaving behind a chimney cavity with two wildlife cavities near top providing a view inside the tree, loose bark lifting in plates and peeling in strips.
772	<i>Populus tremuloides</i>	Trembling Aspen	35	1	Cavity Loose bark Crack Other snag within 10m Decay class 4	Long 2.5m vertical crack ~1m above ground, large cavity present in the middle section of the crack, loose plates and strips of peeling bark near canopy.
773	<i>Populus tremuloides</i>	Trembling Aspen	53	1	Cavity Loose bark Crack Knot hole Other snag within 10m Decay class 3	Peeling and bowed bark in middle section of tree creating gaps between the bark and wood of the tree, multiple wildlife cavities, multiple knot holes, 4-5 vertical cracks in upper canopy branches and 1 vertical crack mid-trunk.
774	<i>Fraxinus sp.</i>	Ash sp.	40	2	Cavity Loose bark Knot hole Decay class 5	Multiple wildlife cavities of various sizes at various heights on tree, plates of bark pulling away from wood of tree.
775	<i>Fraxinus pennsylvanica</i>	Green Ash	46	2	Cavity Crack Knot hole Decay class 6	~2m long vertical crack mid-trunk which appears wide enough to fit a bat, multiple wildlife cavities all over tree, chimney cavity at top of tree where canopy is missing.

Snag #	Scientific Name	Common Name	DBH (cm)	Height (m)	Snag Attributes	Notes
776	<i>Populus tremuloides</i>	Trembling Aspen	45, 39	1	Cavity Loose bark Crack Other snag within 10m Decay class 2	Multi-stemmed, one stem is missing its canopy leaving behind a chimney cavity and loose, peeling bark around the chimney area. Both stems have multiple knot holes. Second stem has a ~0.5m vertical crack in one of the larger upper canopy branches.

4.10. Headwater Drainage Feature Assessment

HDF1

HDF1 is a relatively straight feature approximately 200m in length that originates south of the Subject Property and connects directly to the wetland. The feature is aligned approximately parallel to the southern property boundary. HDF1 is also located within KRCA regulated area. The hydrology of the feature was classified as "Contributing" as it was observed to convey minimal flow during the first survey, standing water in the second survey, and dry during the third survey. It is classified as a defined natural channel and riparian vegetation surrounding the feature was classified as containing wetland species. Watercress was observed within the channel indicating potential groundwater inputs. Overall, this feature was ranked as "Protection" level and a 10m setback is recommended.

HDF2

HDF2 consists of two parallel reaches (HDF2a and HDF2b), both approximately 150m long 15m apart. Both features originate from the wetland located on site and convey flow north to a culvert beneath Whitfield Road. The hydrology was found to be valued as both channels were conveying flow during the first visit. During the second visit HDF2a contained standing water and HDF2b was conveying minimal flow. Both channels were dry during the third survey. This indicates that the feature primarily conveys flows from the wetland during freshet and heavy rain events. The riparian zones of both features contained meadow marsh wetland communities and connected to a known upstream wetland on the Subject Property where amphibians were found to be present during amphibian surveys. HDF2a and HDF2b are classified as "Protection" level and a 10m setback is recommended.

4.11. Incidental Wildlife

Incidental wildlife was recorded during each site visit, the observations are provided in Table 9.

Table 9. Incidental Wildlife List

Scientific Name	Common Name	Evidence*	Abundance
Birds			
<i>Corvus brachyrhynchos</i>	American Crow	A+V	Multiple individuals observed throughout all surveys

<i>Scientific Name</i>	<i>Common Name</i>	<i>Evidence*</i>	<i>Abundance</i>
<i>Spinus tristis</i>	American Goldfinch	A+V	Multiple individuals observed throughout all surveys
<i>Turdus migratorius</i>	American Robin	A+V	Multiple individuals observed throughout all surveys
<i>Scolopax minor</i>	American Woodcock	A+V	10+ individuals doing aerial displays
<i>Setophaga fusca</i>	Blackburnian Warbler	A	One individual heard calling from eastern hedgerow in June
<i>Poecile atricapillus</i>	Black-capped Chickadee	A+V	Multiple individuals observed throughout all surveys
<i>Cyanocitta cristata</i>	Blue Jay	A+V	Multiple individuals observed throughout all surveys
<i>Megaceryle alcyon</i>	Belted Kingfisher	A+V	Pair observed mating in remaining snags in swamp
<i>Molothrus ater</i>	Brown-headed Cowbird	A+V	Multiple individuals observed throughout all surveys
<i>Branta canadensis</i>	Canada Goose	A+V	6
<i>Quiscalus quiscula</i>	Common grackle	A+V	Multiple individuals observed throughout all surveys
<i>Sturnella magna</i>	Eastern Meadowlark	A+V	5 individuals heard over the course of spring and early summer – two on site and three in a meadow east of the property
<i>Sturnus vulgaris</i>	European Starling	A+V	Multiple individuals observed throughout all surveys
<i>Dumetella carolinensis</i>	Gray Catbird	A	1
<i>Ardea Herodias</i>	Great Blue Heron	V	1
<i>Charadrius vociferus</i>	Killdeer	A+V	Multiple individuals observed throughout all surveys
<i>Cardinalis cardinalis</i>	Northern Cardinal	A+V	Multiple individuals observed throughout all surveys
<i>Colaptes auratus</i>	Northern Flicker	A+V	
<i>Circus hudsonius</i>	Northern Harrier	V	1
<i>Zenaidura macroura</i>	Mourning Dove	A+V	2
<i>Melanerpes carolinus</i>	Red-bellied Woodpecker	A	2
<i>Melospiza melodia</i>	Song Sparrow	A+V	10+
<i>Cathartes aura</i>	Turkey Vulture	V	3
<i>Gallinago delicata</i>	Wilson's Snipe	A+V	10+
Mammals			
<i>Odocoileus virginianus</i>	White-tailed Deer tracks	V	8
<i>Sylvilagus floridanus</i>	Eastern Cottontail scat	V	5
<i>Procyon lotor</i>	Raccoon Tracks	V	2

Scientific Name	Common Name	Evidence*	Abundance
<i>Canis latrans</i>	Coyote Tracks	V	2
<i>Mustela nivalis</i>	Least Weasel in burrow	A+V	1
<i>Tamias striatus</i>	Chipmunk	A+V	1
<i>Microtus pennsylvanicus</i>	Meadow Vole	V	1
Amphibians			
<i>Lithobates clamitans</i>	Green Frog	V	Multiple individuals observed throughout all surveys
<i>Pseudacris crucifer</i>	Spring Peeper	A	Full chorus
Insects and Bugs			
<i>Colias philodice</i>	Clouded Sulphur	V	2
<i>Phoebis sennae</i>	Yellow Sulphur	V	3
<i>Lethe eurydice</i>	Eyed Brown	V	2
<i>Polyommatus icarus</i>	European Common Blue	V	1
<i>Cucullia asteroides</i>	Asteroid Moth	V	1
	Pearly Crescent	V	3
<i>Pyrrhota borealis</i>	Spring Treetop Flasher	V	1
<i>Euchaetes egle</i>	Milkweed Tussock Moth	V	1
	Virginia Tenucha	V	1

* Evidence is classified into two categories: A = Audio evidence, V = Visual Evidence.

5. Species at Risk Screening

The Endangered Species Act, 2007, S.O. 2007 was passed to protect the biodiversity of Ontario by using the best available scientific, community, and indigenous traditional knowledge and the precautionary principle as its doctrine. The purpose of the Act is to identify species at risk, protect species at risk and their habitats, and promote the recovery of species at risk and stewardship activities that assist in these goals. The Committee on the Status of Species at Risk in Ontario (COSSARO) functions to maintain an up-to-date database of information pertaining to species in Ontario and their classification. COSSARO advises the Minister of the Environment, Conservation and Parks, who makes and files a regulation that lists all plant and animal species classified by COSSARO as extirpated, endangered, threatened, or of special concern. This regulation is the Species at Risk in Ontario List (Ontario Regulation 230/08). Ontario Regulation 242/08 provides general policies concerning exemptions and habitat specifications for those listed SAR species.

5.1. SAR Long List

A Long List of potential SAR was developed for the Study Area based on Provincial and Federal status. Following the MECP Client's Guide to Preliminary SAR Screening (2019), this screening was based on a review of the Natural Heritage Information Centre (NHIC) database (no cell exists for the Subject Property, so all six surrounding cells were utilized, these Atlas IDs include: 17PJ6390, 17PJ6490, 17PJ6590, 17PJ6389, 17PJ6489, 17PJ6388, 17PJ6488, 17PJ6588), the regional species list, atlases (Ontario Breeding Bird, Butterfly, Moth,

Reptile and Amphibian; Atlas Square: 17PJ68), citizen science databases (i.e. iNaturalist and eBird), and any additional sources provided by the MECP. Descriptions of the various data sources are included in Appendix C. Observations of SAR within these squares do not necessarily represent observations within the boundaries of the Study Area. The SAR Long List is provided in Table 10 below for data sources acquired on March 24, 2025.

Table 10. Screening Results

Species			Status		
Common Name	Scientific Name	S_Rank	SARO	SARA	COSEWIC
Birds					
American Coot ^{1, 3, 5}	<i>Fulica americana</i>	S3B,S4N	NAR	-	NAR
Bank Swallow ^{3, 5}	<i>Riparia riparia</i>	S4B	THR	THR	THR
Barn Swallow ^{3, 5}	<i>Hirundo rustica</i>	S4B	SC	THR	SC
Black Tern ^{1, 5, 7}	<i>Chidonias niger</i>	S3B,S4M	SC	-	NAR
Blue-winged Teal ¹	<i>Spatula discors</i>	S3B,S4N	-	-	-
Boblink ^{1, 5}	<i>Dolichonyx oryzivorus</i>	S4B	THR	THR	SC
Canada Warbler ⁵	<i>Cardellina canadensis</i>	S5B	SC	THR	SC
Chimney Swift ^{3, 5}	<i>Chaetura pelagica</i>	S3B	THR	THR	THR
Common Gallinule ¹	<i>Gallinula galeata</i>	S3B	-	-	-
Common Nighthawk ⁵	<i>Chordeiles minor</i>	S4B	SC	SC	SC
Eastern Meadowlark ^{1, 4, 7}	<i>Sturnella magna</i>	S4B,S3N	THR	THR	THR
Eastern Wood-pewee ^{1, 3, 5}	<i>Contopus virens</i>	S4B	SC	SC	SC
Foster's Tern ⁵	<i>Sterna fosteri</i>	S3B	DD	-	DD
Grasshopper Sparrow ^{1, 5}	<i>Ammodramus savannarum</i>	S4B	SC	-	SC
Horned Grebe ⁵	<i>Podiceps auritus</i>	S1B,S3N,S4M	SC	-	SC
Hudsonian Godwit ⁵	<i>Limosa haemastica</i>	S3B,S4M	THR	-	THR
King Rail ³	<i>Rallus elegans</i>	S1B	END	END	END
Least Bittern ^{1, 5}	<i>Ixobrychus exilis</i>	S4B	THR	-	THR
Lesser Yellowlegs ^{5, 7}	<i>Tringa flavipes</i>	S3S4B,S5M	THR	-	THR
Olive-sided Flycatcher ⁵	<i>Contopus cooperi</i>	S4B	SC	SC	SC

Species		Status			
Common Name	Scientific Name	S_Rank	SARO	SARA	COSEWIC
Piping Plover ⁵	<i>Charadrius melodus</i>	S1B	END	-	END
Red-headed Woodpecker ^{1, 7}	<i>Melanerpes erythrocephalus</i>	S3	END	-	END
Red-necked Grebe ⁵	<i>Podiceps grisegena</i>	S3	NAR	-	NAR
Red-necked Phalarope ⁵	<i>Phalaropus lobatus</i>	S3B,S4M	SC	SC	SC
Rusty Blackbird ⁴	<i>Euphagus carolinus</i>	S4B,S3N	NAR	SC	SC
Wood Thrush ^{1, 5}	<i>Hylocichla mustelina</i>	S4B	THR	-	THR
Amphibians and Reptiles					
Blandings Turtle ⁴	<i>Emydoidea blandingii</i>	S3	THR	-	END
Snapping turtle ^{1, 4, 7}	<i>Chelydra serpentina</i>	S4	SC	SC	SC
Midland Painted Turtle ^{1, 4}	<i>Chrysemys picta marginata</i>	S4	-	SC	SC
Insects					
Monarch ^{6, 7}	<i>Danaus plexippus</i>	S2N,S4B	SC	SC	END
Plants					
Black Ash ⁷	<i>Fraxinus nigra</i>	S4	END	-	THR
Butternut ⁷	<i>Juglans cinerera</i>	S2?	END	END	END

Sources: ¹ NHIC Database, ² OBBA, ³ Ontario Reptile and Amphibian Atlas, ⁴ eBird Database, ⁵ Ontario Butterfly Atlas, ⁶ DFO Aquatic SAR Map, ⁷ iNaturalist

5.2. SAR Assessment

An assessment of the above SAR long list results was completed by comparing species habitat needs against the findings of the field surveys for the Study Area. The assessment found that the Study Area has the potential to provide habitat for the species described below:

5.2.1. Possibly Occurring

5.2.1.1. Barn Swallow

The barn swallow was designated as Special Concern under the Ontario *Endangered Species Act* on January 25, 2023. It is found throughout southern Ontario and to the north as far as Hudson Bay. This species uses almost exclusively human-made structures to mount their cup-shaped mud nests on. Males show a glossy colouring of steel-blue on their back and breast band, while females have a pale underbelly and short tail feathers. The tail feathers form a distinctive deep fork with a line of white spots across the end. Barn Swallows forage by catching insects in flight over open areas, waterbodies, and watercourses. During the breeding season Barn Swallows generally forage within 400 m of their nest site. Barn Swallows nesting near agriculture prefer to forage over hayfields, grazed land, and near hedgerows, compared to fields with cereal crops, as the former tend to support greater insect abundance (COSEWIC, 2021). Since the mid-1980's the population has been in decline due to causes not well understood. Modernization of buildings, especially barns, and the use of agricultural pesticides are probable threats.

Barn Swallows were regularly seen aerial foraging over the Subject Property on all surveys, but no structures suitable for nesting exist on the Subject Property. The absence of nesting individuals suggests that the Subject Property is important for locally breeding individuals during aerial foraging but not as direct breeding habitat.

5.2.1.2. Monarch

The Monarch was already assessed as Special Concern when the *Endangered Species Act* took effect in 2008. The Monarch is a showy orange and black butterfly with small white spots. These butterflies are relatively large with a wingspan reaching 93-105 millimetres. Monarch caterpillars feed exclusively on milkweed plants; therefore, their preferred breeding habitat is meadows and open areas. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers such as Spotted Joe-pye Weed, Boneset, Asters, Goldenrods, Bee Balm and Black-eyed Susans. Monarchs spend the winter in Oyamel Fir forests found in central Mexico. The largest threat to Ontario Monarchs is habitat loss and fragmentation at overwintering sites in central Mexico where forests are being logged and converted into agricultural fields and pastures. Widespread pesticide and herbicide use throughout the Monarch's range may also limit recovery.

Vegetation inventories show that both the deciduous swamp, old-field meadows and meadow marshes provide the plants adult Monarchs need to complete their life-cycle throughout the growing season in relative abundance. Specifically, late-blooming summer and fall forbs such as Joe-pye Weed, Boneset, Asters, and Goldenrods, which are important to Monarchs as food sources and breeding habitat, were present. Three adult Monarchs were observed incidentally during site visits. Common Milkweed – the host plant for Monarch caterpillars – was found occasionally throughout the Subject Property, but not in concentrations high enough to be considered breeding habitat. The presence of meadows and open areas suggests that the Subject Property provides habitat for adult Monarch butterflies for feeding and resting.

Confirmed Presence

5.2.1.3. Bobolink

Bobolink was listed as Threatened in the Province of Ontario on September 28, 2010. The preferred breeding habitat for Bobolink consists of hayfields, pastures, and meadows which are dominated by a mixture of grasses and broad-leaved forbs (e.g., red clover, dandelion, timothy). It also occurs in wet prairie, graminoid peatlands, abandoned fields, no-till cropland, small-grain fields, and reed beds. It does not *typically* occupy agricultural fields of row crops such as corn, soybean, and wheat.

Bobolink density is significantly higher in areas with relatively low amounts of total vegetative cover, low alfalfa cover, and low total legume cover but with high litter cover and high grass-to-legume ratios (e.g. hayfields $\geq$ 8 yrs. old). The nests tend to be sited in wet habitats, transitional between drier soils and areas providing poor drainage and are always on the ground, often at the base of large forbs such as meadow rue, golden alexander, clover, etc. Bobolink avoids nesting in habitats dominated by overly dense shrubs and overly deep litter layers ($>2\text{cm}$). Bobolink density and the likelihood of occurrence increase as a function of distance from forest edges (Martin *et al.*, 1995; COSEWIC 2010). The primary threat to the species is the loss of habitat through the conversion of hayfields to other crops and mowing practices.

As noted, one male Bobolink was observed doing mating/territorial displays over the old field meadow that covers most of the Subject Property during breeding bird surveys, although no confirmed breeding was identified within the property limits.

5.2.1.4. Eastern Meadowlark

The Eastern Meadowlark was designated as Threatened under the Ontario *Endangered Species Act* on January 13, 2012. This species primarily resides south of the Canadian Shield within mid-height meadows and open areas including agricultural crops (hay and alfalfa), pastures, orchards, fallow fields, and other similar ecosites. The species uses shrubbery and fence posts for perching and singing. The Eastern Meadowlark is a migratory songbird of medium build with distinct colouring. Their throat and belly are bright yellow against a brown with black-streaked head and back. They have a black "V" across their breast area and white flanks. The species is threatened by habitat loss on breeding grounds from several factors including land use change, farming practices, pesticides and habitat fragmentation.

One male Eastern Meadowlark was observed singing on the Subject Property during the first round of breeding bird surveys. By the second round of breeding bird surveys an individual (potentially the same as the previous survey) was observed singing from the western hedgerow and the old field meadow directly west of the property. An assessment of the Study Area confirmed that appropriate habitat was present in the old field meadow on and surrounding the Subject Property to the west and that breeding may be possible within the old field meadow and surrounding Study Area, however no breeding evidence was observed on the Subject Property.

5.2.1.5. Eastern Wood-pewee:

The Eastern Wood-pewee was designated as Special Concern on the Species at Risk in Ontario List on June 27, 2014. An aerial insectivore forest bird, it is identified by its distinct "pee-ah-wee" song and is difficult to distinguish from related species by morphology. Individuals reach only 15 cm in length and colouring is

adapted to provide camouflage within the forest setting. It is one of many forest flycatchers which partition the forest canopy into different niches of foraging habitat. The species prefers to occupy and breed in mature and intermediate-age deciduous and mixed forests (less often in coniferous forest) having an open understory. It is often associated with forests dominated by Sugar Maple (*Acer saccharum*), elm (*Ulmus* sp.) and oak (*Quercus* sp.). The species is usually associated with forest clearings and edges within the vicinity of its nest. (COSEWIC, 2012). The species is found throughout the eastern half of the continent with its northern limit located north of the Great Lakes system. Threats to the species survival are relatively unclear but may include overall land use conversion and loss of forest, a decrease in available prey, an increase in predators (urbanized squirrels and jays), and impacts related to the over-browsing of forests by white-tailed deer. Threats specific to migration and overwinter habitat in the south must also be considered.

An Eastern Wood-pewee was recording calling and foraging in the deciduous swamp, and the frequent maple and elm trees present provide suitable nesting habitat for the species.

6. Significant Wildlife Habitat Screening

Significant Wildlife Habitat (SWH) is considered natural heritage and is protected as per Section 2.1 of the Provincial Policy Statement, 2014. The Significant Wildlife Habitat Technical Guide (OMNRF, 2000) aids in land use planning by providing the identification, description, and prioritisation of significant wildlife habitat in Ontario. The associated Ecoregion Criteria Schedules are used to further provide detailed criteria for assessing and confirming SWH within Ontario. This section will provide a screening in the form of a summary table followed and an assessment of the potentially or confirmed occurring SWH.

Significant (and/or sensitive) Wildlife Habitat features and functions as described within the OMNRF Significant Wildlife Habitat Ecoregion Criteria Schedule for Region 6E (OMNRF, 2015) were reviewed and evaluated for the Study Area. The documented groups wildlife habitat into five main categories:

- Seasonal concentration areas of animals
- Rare vegetation communities or specialized habitats for wildlife
- Specialized Habitat for Wildlife
- Habitat for species of conservation concern
- Animal movement corridors

The full screening found in Appendix D consisted of a review of the ELC codes and habitat criteria for candidate SWH. Any SWH on the Subject Property or adjacent lands was noted in Column 4 and a rationale was provided in Column 5. In the case of potential SWH, Confirmed Defining Criteria Studies were reviewed, and applicable mitigation measures (in summary form) were also provided in Column 5.

6.1. Screening

The results of the SWH assessment are based on the site conditions present at the time of survey completion. The assessment indicated the presence of candidate SWH within two of the five categories, including:

- Habitat for Species of Conservation Concern

- Specialized Habitat for Wildlife

6.1.1. Habitat for Species of Conservation Concern

6.1.1.1. Special Concern and Rare Wildlife Species

Eastern meadowlark and bobolink, both of which are SAR, were observed during both rounds of breeding bird surveys on site, however, only possible breeding evidence (singing male) was observed for either species. It was noted that the old field meadows within and adjacent to the western boundary of the Subject Property were suitable for grassland species for breeding. Based on a review of aerial imagery, the neighbouring field could meet the size criteria for the species, and this habitat could extend onto the Subject Property. The potential habitat located west of the Subject Property appears to be actively farmed and may be disturbed too frequently to meet the criteria for this SWH classification.

6.1.2. Specialized Habitat for Wildlife

6.1.2.1. Amphibian Breeding Habitat (Wetland)

An assessment for possible Amphibian Breeding Habitat (Wetland) was triggered by the presence of a wetland greater than 500m² in the Study Area. Amphibian surveys were conducted (see Section 4.6), and the results were combined with the remaining criteria for this SWH classification. Amphibian calling surveys did not indicate 2 or more frog/toad species with at least 20 individuals (adults or eggs masses). Bullfrogs were also not detected during the observational/call count surveys. These wildlife studies combined with the disturbed nature of the site indicate that the wetland in the Study Area does not meet the criteria for this SWH category.

7. Proposed Development

The proposed site plan will occupy an approximate area of 19 ha to accommodate the construction of multiple single-family residences. A stormwater pond that drains into the drainage feature on the Subject Property is also included. The proposed development also includes a restoration plan for the wetland located on the western parcel.

7.1. Natural Heritage System Buffers

Natural heritage features present in the Study Area that will require setbacks include a watercourse, headwater drainage features, and the wetland which is to be restored. The wetland was staked with KRCA staff in the summer of 2025, and the staked limit will be incorporated into the natural heritage limit calculation. As shown in Map 4 the watercourse and HDFs are encompassed within the staked limits of the wetland. A 10-metre setback is recommended for all three feature types and as such the wetland and its 10-metre setback will form the outer extent of the natural heritage system except for a small portion of HDF1 in the southwestern corner of the western parcel. A 10m setback is expected to provide adequate buffering between the low-density single-family homes that are proposed and the restored wetland feature. The intensity of the proposed use is expected to be relatively low as the structures are expected to be constructed away from natural heritage features and close to Whitfield Road and Indian Way. Uses near the buffer areas will be limited to relatively passive uses in the rear yards. No grading is proposed within the buffer.

7.2. Restoration Plan

A restoration plan is required by the Kawartha Region Conservation Authority (KRCA) to resolve a violation in the study area where an existing wetland was disturbed on the western property. The violation notice is with respect to the disturbance of the deciduous swamp (SWDM4-5) that occupies the south and central portion of the western parcel. Disturbance included vegetation removals and placement of fill in the wetland. In late 2023, the property experienced a severe microburst/tornado and an extended drought, both of which contributed to notable changes on the site. Severe weather events, including tornadoes documented by the Northern Tornadoes Project (https://www.uwo.ca/ntp/blog/2022/uxbridge_on_ef2_tornado_update.html), have further influenced the site's condition and the landowner undertook cleanup operations of damaged and fallen trees. Additional disturbances to the wetland include the placement of fill, which was comprised of multiple fill piles that are still present in the restoration area.

Restoring a disturbed wetland to a healthy state involves several objectives to ensure ecological balance, functionality, and sustainability. The guiding principles of the conceptual design include:

- **Biodiversity Enhancement:** Promote a diverse range of plant and animal species to create a resilient ecosystem. Seven types of habitat features are proposed to be installed and are described below which are intended to provide short and medium-term habitat solutions as vegetation regenerates and matures over time. A total of 1,160 trees comprised of 8 native species have been selected to regenerate the swamp canopy. The trees will be complimented by 3,575 shrubs comprised of 12 native species including flowering and berry-producing species that will contribute to wildlife habitat. A total of 200 aquatic plants comprised of 10 native species have been proposed to regenerate the portions of the wetland that contain standing water year-round.
- **Hydrological Function:** Ensure proper water retention to support wetland processes and maintain hydrological balance. The restoration plan will attempt to mitigate the effects of fill that were placed within the wetland through the creation of pit and mound features with ephemeral pools with the goal of recreating wetland pockets that retain water over longer periods.
- **Habitat Creation:** Design varied habitats to support different species, including open water, marshes, and upland areas. The planting of a diverse range of native plant species, including flowering and berry-producing species, will provide suitable habitat for a variety of native fauna. In addition, avian perch poles, large woody debris, basking logs, boulder clusters, bat boxes, and ephemeral pools will provide habitat for birds, reptiles, amphibians, and small mammals.
- **Connectivity:** Ensure ecological connectivity with surrounding habitats to support wildlife movement and genetic exchange. The restoration area forms a corridor between a swamp community to the south and a watercourse with additional wooded areas and wetlands to the north. This corridor is aligned with a watercourse that outlets into Lake Scugog approximately 1km to the northeast.

The total area of the disturbed wetland is approximately 2.4 hectares. Including a 10-meter setback, the total disturbed area is 3.09 ha. This includes narrow bands of vegetation that were left in place but are still considered disturbed due to the project's scale. The planned wetland restoration will cover the wetland and its 10-meter setback, totaling about 3.19 ha and slightly increasing the overall wetland area.

The restoration plan involves realigning the wetland limits. This includes removing approximately 0.47 ha of highly disturbed meadow marsh near Whitfield Road, an area previously used for agricultural activities. This section will be compensated for by widening the naturalized area along the northern drainage feature and expanding the wetland along the southern limits on the property. The wetland expansion along the drainage feature and along the southern property limit total 0.57 ha.

These changes are expected to improve the wetland's quality and long-term protection by shifting wetland area away from Whitfield Road. The expansion along the drainage feature may provide enhanced protection from disturbance, while the expansion near the southern boundary will provide enhanced, naturalized habitat compared to the currently disturbed meadow marsh near Whitfield Road. For more specific details on the restoration locations, habitat features, and planting recommendations, please refer to the attached conceptual restoration plan (Appendix E).

The Mississaugas of Scugog Island First Nation (MSIFN) have submitted comments on desired restoration goals for the wetland which have been considered in the design of the restoration plan.

The combination of earthworks to restore hydrological function with the proposed planting plan and habitat feature installations is expected to provide a strong start for the restoration of the wetland community that was disturbed on the Subject Property.

8. Environmental Impact Assessment

Impacts on the various natural heritage features associated within and adjacent to the Subject Property were considered in the impact analysis. Table 11 presents the natural heritage components considered in this assessment, the proposed activity associated with that component, potential short-term and long-term impacts, recommended mitigation measures, and if any residual effects are anticipated. Potential impacts were assessed using secondary source information, including an overlay of the proposed site plan.

8.1. Impact Summary Table

Table 11. Impact Summary Table

Feature and Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
Short-Term Impacts				
Natural Heritage System (NHS)	Grading, Servicing & Development	Release of dust as a result of construction activities	Implement dust suppression measures during site grading when conditions are dry or strong winds are anticipated.	Impacts from dust to the surrounding landscape should be minimal through the implementation of dust suppression. No residual effects expected.
Breeding Birds	Site Clearing/Tree Removal	Impacts to nests and nesting birds	Vegetation and tree clearing should not occur between April 1- September 30th as per the Migratory Birds Convention Act (1994). If clearing is to occur during the nesting season, a nest survey should be completed by a qualified bird biologist 48 hours prior to the proposed works to identify any nest which are not to be disturbed until the young have fledged. Nests are not to be disturbed until the young have fledged or until the nest is deemed inactive. Education of contractors on wildlife encounters.	Implementation of applicable mitigation measures is expected to reduce or eliminate impacts to migratory and breeding birds during the construction period.

Surrounding Habitat	Grading, Servicing & Development	Release of petroleum products or other contaminants into surrounding habitats.	To prevent contaminant runoff into the nearby natural heritage features, equipment maintenance and refuelling need to be controlled to prevent any discharge of petroleum products. Vehicular maintenance and refuelling should be conducted at least 30m from the wetland and HDFs. Construction material, excess material, construction debris, and empty containers should be stored in one location with proper containment and spill control measures in place.	No residual effects expected if mitigation measures are followed.
Local and Migrating Wildlife	Grading, Servicing & Development	Soil compaction and rutting outside of the construction zone	Implement a construction restoration plan to detail how the site will be remediated once construction is complete and install fencing to delineate where the extent of the development footprint is limited.	Minimal residual effects anticipated.
Adjacent Wetland	Grading, Servicing & Development	Damage to riparian area. Erosion and sedimentation release to the watercourse.	Implement silt fencing along the development limit to ensure construction activities and sediment do not migrate to the adjacent Natural Heritage System. Avoid construction during high-volume rain events or significant snow melts/thaws. Construction	Inspection of the erosion and sediment controls (e.g. silt fences, sediment traps, outlets, vegetation, etc.) by a qualified environmental professional (i.e. CAN-CISEC designation or approved equivalent) with follow-up reports to the governing municipality should

			should resume once soils have stabilized to avoid the risk of erosion, soil compaction, or the potential for sediment release into nearby natural features/watercourses.	ensure proper implementation throughout the development. Fencing should be left in place until after construction works are complete and the site has sufficiently stabilized/re-vegetated. No residual effects are expected.
Local and Migrating Wildlife	Grading, Servicing & Development	Noise from construction works on local and migrating wildlife.	Limited measures can be employed as a certain level of construction noise will occur. Limit construction activities at sunrise and sunset during the active spring breeding bird season.	Noise impacts to wildlife present within the surrounding landscape may occur, however they will be occurring during the construction phase of the project, which is a relatively short period of time. It is anticipated that wildlife may avoid the area during construction. Once the construction activities are complete, the noise associated with construction activities will end and wildlife will return.
Long-Term Impacts				
Local and Migrating Wildlife	Development	Light pollution resulting in changes to animal behaviour.	Lights directed downward will reduce the amount of ambient light issuing from the Subject Property. It is recommended that downward-casting lighting is used across the site and lights are not directed towards the NHS.	Due to the overall size and density of the proposed development it is likely to create additional ambient light pollution. If mitigation measures are implemented and followed by the new residents, the overall impacts of light pollution on wildlife and insects can be reduced.

					The shielding and downward casting lights and closing window coverings at night are good steps to reducing impacts. This combined with an educational component should help address the concern. It is likely there will be some impact due to night-time lighting as all outdoor lighting will not be eliminated.
Breeding Birds	Development	Bird Strikes/Deaths		Developments close to natural areas with glass surfaces pose a threat to birds. Birds can see through glass and what is reflected on glass, but not the glass itself. There are several options to reduce bird strikes depending on whether the treatments are before or after the glass has been installed. 1) Pre-installation measures include: Frit and etched patterns; opaque materials and frosted glass; reducing features that create 'fly-through' conditions like glass corners; window muntins; exterior shutters; UV-treated glass. 2) Temporary Solutions: Encourage tenants to install their own deterrent measures on the outside of the windows like decals, ribbon, tape. Encourage tenants to turn off their lights at night during	Bird-friendly measures are recommended to be considered when designing the residential area. There is the potential for residual negative impact on the local and migrating avian population from bird strikes. For more information on bird strikes and bird-friendly building design, visit Flap Canada's website.

			migration windows in the spring and fall. The majority of songbirds migrate at night, bright lights can cause confusion and draw migrating birds off course and result in additional bird strikes, delaying their migration. Making design choices with birds in mind before construction is the most effective way to reduce bird strikes. Encouraging individual tenants to install their own mitigative measures is not as effective as not everyone may want to participate.	
Surrounding Habitat	During Construction	Movement of invasive species to and from the site	Machinery is a major vector for spreading terrestrial invasive species into new areas as they may spread seeds or plant parts to other properties. Contractors are to follow the Clean Equipment Protocol for Industry (2013) as laid out by the Ontario Invasive Plants Council.	Some invasive species were found on site during floristic surveys. Minimal residual effects are expected while adhering to the recommended mitigation measures.
Natural Heritage System	Post-Development	Encroachment, dumping and spread of invasive species	Plantings will be implemented in the vegetated buffer to deter humans and pets from entering the natural heritage system. Fencing installation along property boundaries to discourage local residential use of the NHS.	The NHS will be maintained by 10m setback. Surrounding land use currently supports residential development and agriculture, as a result, no long-term residual effects are anticipated from the proposed development. Opportunities for native planting with the vegetated

			buffer will serve to improve the ecological features and functions associated with the Subject Property.
Watercourse	Development	The release of unwanted pets/invasive species such as goldfish, koi, and red-eared sliders into the stormwater management pond could result in negative impacts downstream if they were to enter into the local watercourse/wetland.	Install one educational sign that describes the importance of a stormwater management pond and the native plants installed there and discourage people from dumping anything into the facility. Residual impacts are expected to reduce with appropriate communication materials (e.g. interpretive signage).

8.2. Direct Impact Assessment

Direct impacts are directly attributed to the proposed development activities, often occurring during the construction phase or associated with physically altering the landscape or removing vegetation communities. Construction activities including grading, servicing, and site development, can cause direct impacts on the surrounding habitats and potential local and migrating wildlife.

8.2.1. Tree Removals

A detailed arborist report was completed by GeoProcess based on the trees identified previously in Section 4.5. The proposed development necessitates the removal of 110 trees. This total includes trees that directly conflict with the proposed site plan and grading, as well as those identified as hazardous and recommended for removal due to safety concerns. Notably, 43 of the trees slated for removal (24%) are invasive black locusts. Removing these invasive species will benefit the local ecosystem by reducing their potential to colonize the proposed wetland restoration area on site. Furthermore, many of these particular trees are severely damaged and currently pose a risk to human health and safety.

A total of 69 trees will be preserved. The majority of these trees are located on the southern property limits along HDF1 on the western parcel and along a neighbouring residential property limit on the eastern parcel. It is understood that these trees will not conflict with the proposed site plan. Eleven of these trees near the southwestern corner of the western parcel are also proposed to be preserved due to their location on neighbouring properties.

8.2.2. Wetland Restoration Plan

The wetland restoration plan will involve the removal of a 0.47 ha of disturbed meadow marsh with compensation via expansion of the swamp (SWDM4-5) and addition of a swamp thicket along the southern limits of the Subject Property. The impacts of the meadow marsh removal are expected to be minimal since the meadow marsh is already heavily disturbed by agriculture and other uses on the Subject Property. The restoration and expansion of the wetland is expected to provide enhanced habitat for plants and wildlife relative to current conditions with a minor increase in total wetland and setback area from 3.09 ha to 3.19 ha. The conceptual restoration plan attached in Appendix E includes habitat features that should provide enhanced habitat for turtles and amphibians as well as birds and other wildlife. Overall, it is expected that the realignment and restoration of the wetland will provide a net benefit to the natural heritage system relative to current conditions.

8.3. Indirect Impact Assessment

Indirect impacts are those which occur as a secondary result of the proposed activity, and not necessarily as a direct result of the activity. These are usually associated with effects such as population growth, density changes, or alterations/additions to road networks. Indirect impacts can include light pollution, which can cause confusion in migrating birds at night, potentially resulting in window strikes. Mitigation recommendations are provided where possible.

The proposed development will increase the population in the local area, which will result in more traffic, noise and light. These factors can all have negative impacts on natural areas. In the case of this development

at the Subject Property, it will result in a shift of wildlife use and interactions because of the increased population density and its associated daily activities. Light pollution could be an issue with the increase in nighttime lighting. It is recommended that outdoor lighting is kept to a minimum, is downcast, and covered on its sides to reduce horizontal projection and window coverings are used to reduce its effects when lights are kept on for extended periods at night.

As the property will only support wildlife habitat for those species most tolerant of an urban setting, it is unlikely that future wildlife utilizing the property will be impacted by the increase in traffic and noise. Species utilizing the site will be accustomed to urbanization and may include animals such as grey squirrel, raccoon, mice, fox, and common backyard bird feeder birds. Residents planting pollinator gardens can have a positive influence on many insects including, bees and butterflies.

It is expected that the proposed residential structures will be setback away from the restored wetland. The rear yards that will be adjacent to the wetland buffer are expected to have a less or equal magnitude of impact relative to the previous agricultural activities that historically took place in the Study Area.

8.4. Cumulative Impacts

Cumulative impacts are environmental changes due to past, present and the reasonably foreseeable future impacts. The Study Area and surrounding landscape have experienced ongoing disturbance from historical and current agricultural land use therefore cumulative impacts on the natural heritage system are difficult to predict and isolate from existing influences. The natural area has already undergone and continues to undergo anthropogenic stressors from agricultural practices. These stressors have played a role in the form and function of the NHS, including ambient noise, tolerant wildlife and vegetation communities, and stormwater and agricultural runoff. The proposed development includes realignment of a portion of the Farleys Creek tributary and planting of a riparian buffer which will help mitigate the impacts of stormwater runoff in the future. Implementing the suggested mitigation measures will ensure that potential cumulative impacts will be negligible.

9. Mitigation Measures and Recommendations

The following mitigation measures are recommended to avoid and minimize impacts. The measures have two distinct intended outcomes: mitigation to reduce the impact on the natural heritage system and mitigation to reduce the impact of active construction.

9.1. Natural Heritage System Measures

Before machinery is active on site, a visual search of the work area should be conducted before work commences each day, particularly for the period when most wildlife is active (generally April 1st to October 31st). Visual inspections will aim to locate snakes, turtles, and other ground-dwelling wildlife such as small mammals. Visual searches should also include inspection of machinery and equipment left in the work area overnight before starting equipment to ensure that wildlife is safely out of the work area.

Other natural heritage system measures include:

- Inspection by a qualified person(s) to conduct regular monitoring of all sediment erosion measures implemented to ensure they are in working order. Any deficiencies observed are to be recorded and immediately reported to the site contractor.
- Minimize outdoor lighting and direct it down and away from natural areas.
- Architectural considerations to minimize bird strikes, which could include window glazing, frosting or etching, UV-treated glass, or exterior window coverings (i.e. shutters or muntins), awnings or canopies over entryways.

9.1.1. Tree Preservation Measures

Trees not designated for removal should be protected where they are located within 6m of the proposed work areas through the following measures:

- Install tree protection fencing in line with the dripline of trees and incorporate it into the sediment and erosion control fencing system. Fencing should be inspected by a qualified arborist.
- Do not store materials or operate machinery within the root zone of trees that are to be retained to avoid compacting soils.
- Any overhanging tree branches or limbs that may interfere with construction work and require removal should be removed by a qualified arborist.
- Fell trees away from other trees and the natural heritage system to avoid damaging trees to be preserved.

9.2. Construction Measures

General construction-related mitigation measures include the following:

- Clearing of vegetation within the Subject Property as part of site preparation should be conducted in late summer or winter months (September to March) so as not to coincide with breeding bird season. If clearing is to proceed within the breeding bird window, the Subject Property should be screened by a qualified bird biologist to determine if any migratory songbirds are nesting within the work zone. Any identified nests are to be protected until it is confirmed that the young have fledged from the nest.
- Construction activities should be limited at sunrise and sunset when birds are most active during the breeding bird season to reduce construction noise impacts.
- Implementation of the erosion and sediment control plan (ESC) is recommended to prevent releases of sediment into the adjacent natural areas. The ESC plan and monitoring should be reviewed and carried out by a qualified professional (i.e. CAN-CISEC certification). Any deficiencies observed are to be recorded and immediately reported to the site contractor. Gaps in fencing should be repaired immediately. ESC measures should not be removed until the site is deemed sufficiently stabilized by a qualified environmental professional.
- Heavy machinery should be washed prior to entering the Subject Property to prevent the spread of invasive species.

- Topsoil removed during stripping is recommended to be stockpiled for reapplication post-construction.
- A construction work plan should designate specific locations for stockpiling soils and other materials or outline the location of materials trucked offsite.
- Implementation of dust control measures is recommended to reduce dust impacts on the adjacent lands.

10. Policy Conformity

The proposed development conforms with the policies of the Township of Scugog and Region of Durham Official Plan as it relates to Natural Heritage. Specifically, it protects the natural heritage and hydrologic features with the appropriate buffers. Planning, design, offsetting, and construction measures identified for the Study Area will promote the protection of natural features outlined in this preliminary EIS.

11. Closing



This EIS completed a policy review, conducted biophysical surveys to document the existing ecological conditions, reviewed the proposed site plan, and landscape and restoration plan. From a natural heritage perspective, the proposed plan meets the requirements of the Township of Scugog's Official Plan and with the implementation of the standard mitigation measures described can proceed without negative impacts to the natural environment.

12. References

- Alan Macnaughton, Ross Layberry, Rick Cavasin, Bev Edwards and Colin Jones. Ontario Butterfly Atlas. Accessed August 2025.
- Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier (eds). 2007. Atlas of the Breeding Birds of Ontario 2001- 2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto. 706 pp.
- Chapman, L.J. and Putnam, D.F. 1984. The Physiography of Southern Ontario; Ontario Geological Survey, Special Volume 2, 270p. Accompanied by Map P.2715 (coloured), scale 1:600 000.
- David Kaposi, Alan Macnaughton and Bev Edwards. Ontario Moth Atlas. Accessed August 2025.
- Fisheries and Oceans Canada. Available from <https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html>. Accessed December 2020.
- iNaturalist. Available from <https://www.inaturalist.org>. Accessed August 2025.
- Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. Ecological land classification for Southwestern Ontario: first approximation and its application. Ontario Ministry of Natural Resources, South Central Region, Science Development and Transfer Branch. Technical Manual ELC-005.
- MNRF. 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement. Second Edition. Toronto: Queen's Printer for Ontario. 248 pp
- MMP and BSC. 2000. The Marsh Monitoring Program Quality Assurance Project Plan. Port Rowan, Ontario. Prepared by Marsh Monitoring Program and Bird Studies Canada for U.S. Environmental Protection Agency Great Lakes National Program Office.
- Natural Heritage Information Centre (NHIC). [NHIC website](#). Ontario Ministry of Natural Resources.
- OMNRF. 2009. Working Draft. Significant Wildlife Habitat Ecoregion 7E Criterion Schedule. Addendum to Significant Wildlife Habitat Technical Guide.
- OMNRF. 2013. Southern Ontario Vascular Plant Species List 3rd Edition. Southern Science & Information Section.
- Ontario Breeding Bird Atlas. 2001. Guide for Participants. Bird Studies Canada.
- Ontario Ministry of Municipal Affairs and Housing. 2024. Provincial Planning Statement, 2024, Under the *Planning Act*. King's Printer for Ontario, 2024.
- Ontario Ministry of Natural Resources. 2000. Significant Wildlife Habitat Technical Guide. Fish and Wildlife Branch, Wildlife Section. Science Development and Transfer Branch, Southcentral Sciences Section.
- Ontario Ministry of Natural Resources. 2009a. Draft Significant Wildlife Habitat Ecoregion Criteria Schedules. Addendum to Significant Wildlife Habitat Technical Guide.

The information contained in this document is confidential and intended for the internal use of Fourteen Estates Ltd. only and may not be used, published or redistributed in any form without prior written consent of GeoProcess Research Associates.

Copyright October 3, 2025 by GeoProcess Research Associates
All rights reserved.

Environmental Impact Study

Prepared for Fourteen Estates Ltd.

October 3, 2025

Prepared by:



Devin Hock, M.Eng, ISA
Ecologist



Lauren Barnett, B.Sc.
Ecologist

Reviewed by:



Ian Roul, M.Sc.
Senior Ecologist

Disclaimer

We certify that the services performed by GeoProcess Research Associates were conducted in a manner consistent with the level of care, skill and diligence to be reasonably exercised by members of the engineering and science professions.

Information obtained during the site investigations or received from third parties does not exhaustively cover all possible environmental conditions or circumstances that may exist in the study area. If a service is not expressly indicated, it should not be assumed that it was provided. Any discussion of the environmental conditions is based upon information provided and available at the time the conclusions were formulated.

This report was prepared exclusively for Fourteen Estates Ltd. by GeoProcess Research Associates. The report may not be relied upon by any other person or entity without our written consent and that of Fourteen Estates Ltd. Any uses of this report or its contents by a third party, or any reliance on decisions made based on it, are the sole responsibility of that party. GeoProcess Research Associates accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this report.

Project Number P2025-961



Maps



CREATED BY: DH PROJECT NO.: P2025-961
 CHECKED BY: IR DATE: Jul 04, 2025



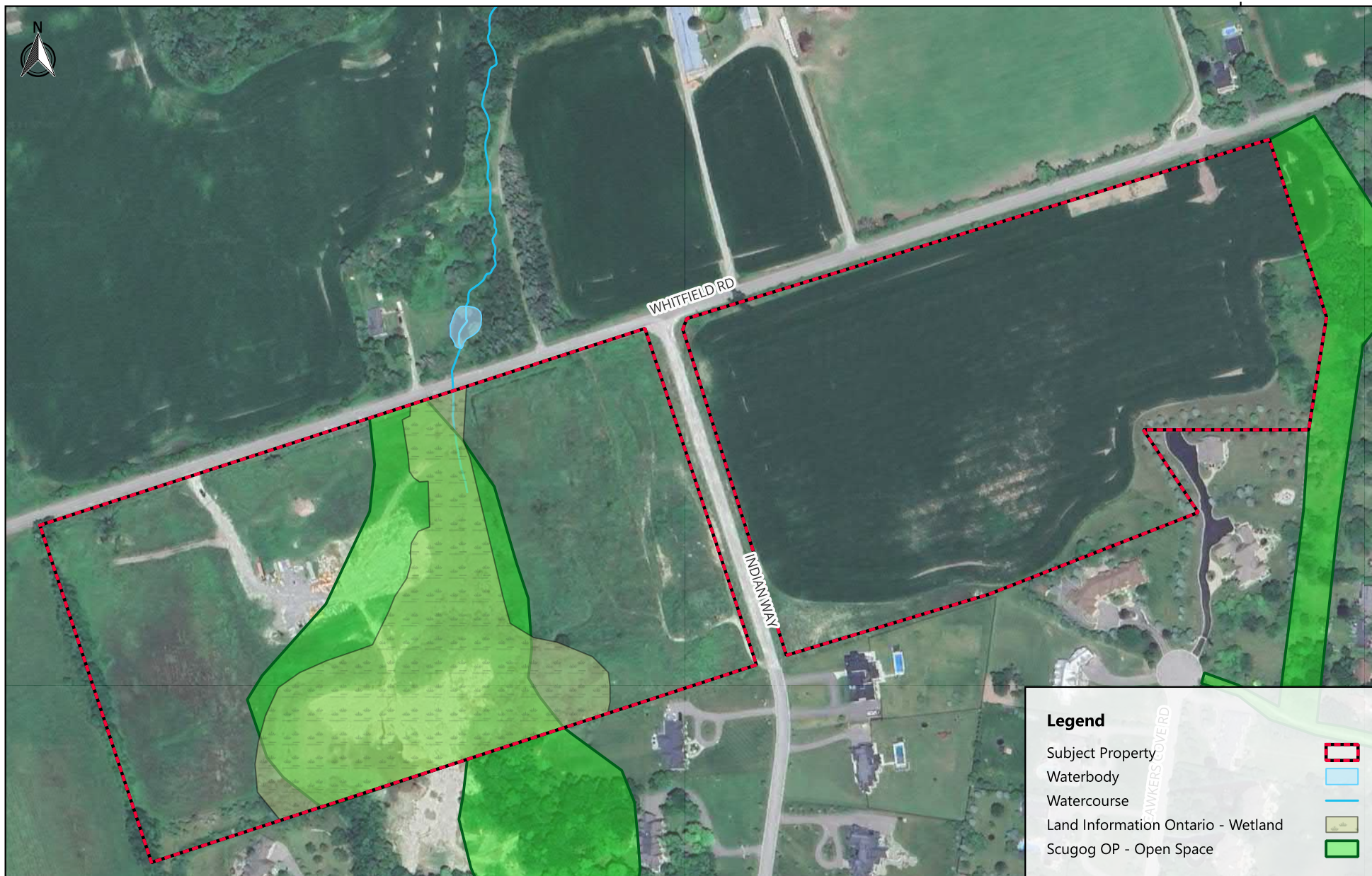
NAD83 / UTM zone 17N (EPSG:26917)

Notes:
 [1] Imagery from Google Earth.
 [2] Contains information licensed under the Open Government Licence – Ontario.

Map 1.

Key Map

Environmental Impact Study
2080 Whitfield Road, Port Perry
 Fourteen Estates Ltd.



CREATED BY: DH PROJECT NO.: P2025-961
 CHECKED BY: IR DATE: Sep 08, 2025

Notes:
 [1] Imagery from Google Earth.
 [2] Contains information licensed under the Open Government Licence – Ontario.

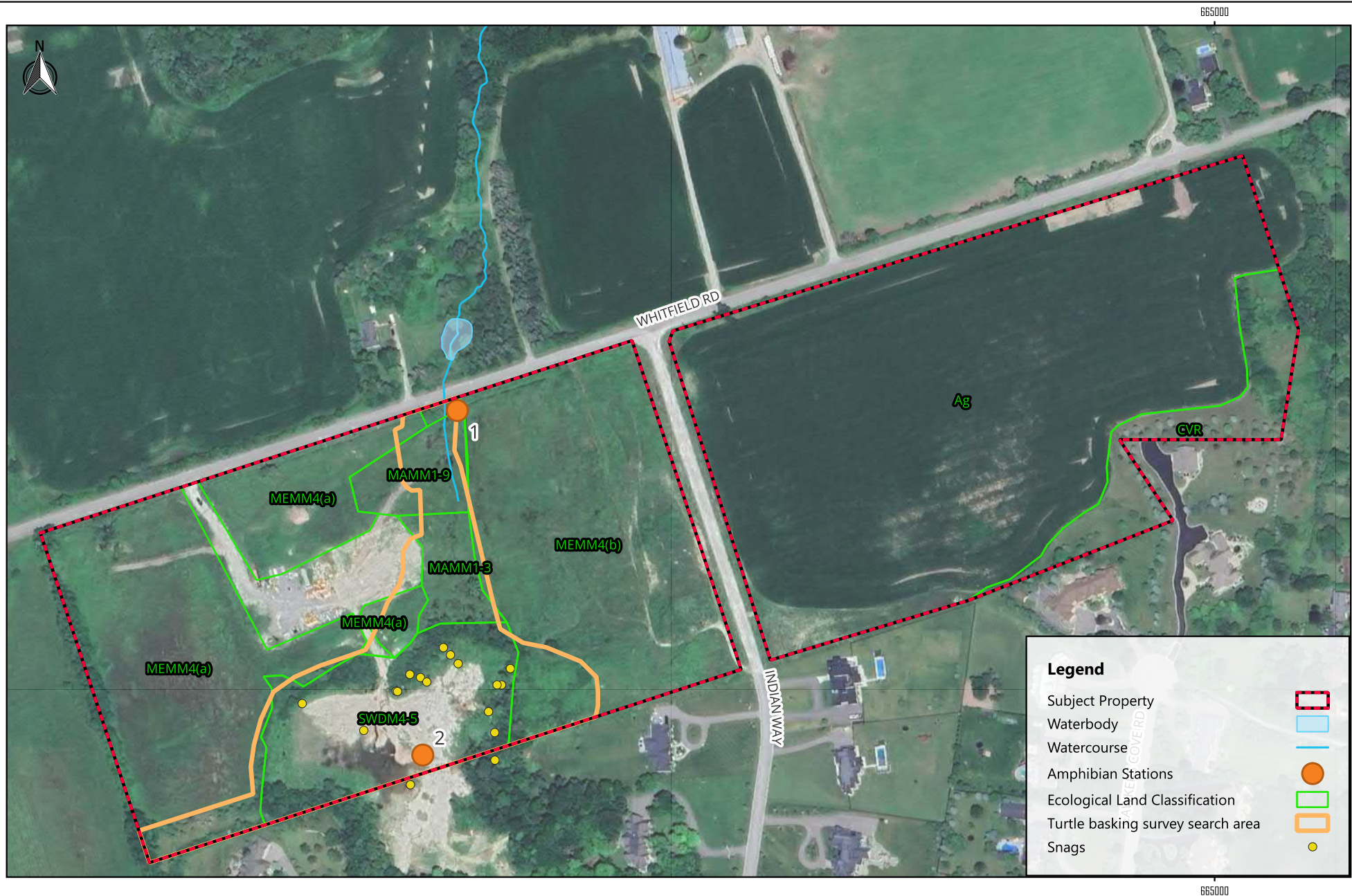
0 50 100 150 200 m

NAD83 / UTM zone 17N (EPSG:26917)

Map 2.

Existing Conditions

Environmental Impact Study
2080 Whitfield Road, Port Perry
 Fourteen Estates LTD.



CREATED BY: DH PROJECT NO.: P2025-961
 CHECKED BY: IR DATE: Sep 08, 2025

Notes:
 [1] Imagery from Google Earth.
 [2] Contains information licensed under the Open Government Licence – Ontario.

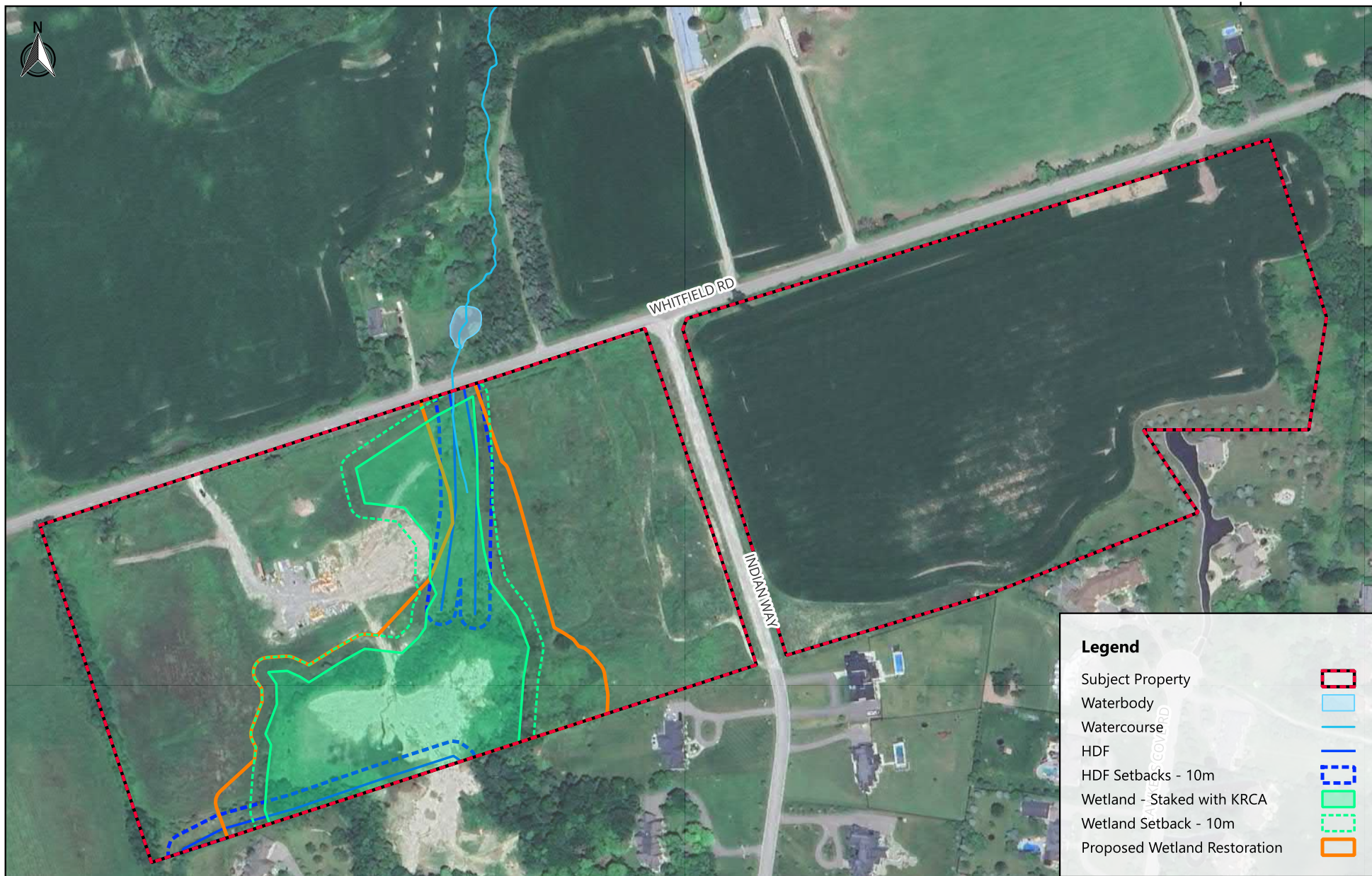
0 50 100 150 200 m

NAD83 / UTM zone 17N (EPSG:26917)

Map 3.

Natural Heritage Surveys

Environmental Impact Study
2080 Whitfield Road, Port Perry
 Fourteen Estates LTD.



CREATED BY: DH PROJECT NO.: P2025-961
 CHECKED BY: IR DATE: Oct 03, 2025

Notes:
 [1] Imagery from Google Earth.
 [2] Contains information licensed under the Open Government Licence – Ontario.

0 50 100 150 200 m

NAD83 / UTM zone 17N (EPSG:26917)

Map 4.

Natural Heritage System

Environmental Impact Study
2080 Whitfield Road, Port Perry
 Fourteen Estates LTD.



Appendix A

Vegetation Species Master List



Common Name	Scientific Name
<i>Canopy</i>	
Manitoba Maple	<i>Acer negundo</i>
Paper Birch	<i>Betula papyrifera</i>
Hawthorn Sp.	<i>Crataegus sp.</i>
Green Ash	<i>Fraxinus pennsylvanica</i>
Black walnut	<i>Juglans nigra</i>
Balsam Poplar	<i>Populus balsamifera</i>
Trembling Aspen	<i>Populus tremuloides</i>
Black Cherry	<i>Prunus serotina</i>
Choke Cherry	<i>Prunus virginiana</i>
Swamp White Oak	<i>Quercus bicolor</i>
Black Locust	<i>Robinia pseudoacacia</i>
White Willow	<i>Salix alba</i>
Peach-leaf Willow	<i>Salix amygdoloides</i>
Rusty Willow	<i>Salix atrocineria</i>
Bebb's Willow	<i>Salix bebbiana</i>
Pussy Willow	<i>Salix discolor</i>
Heart-leaved Willow	<i>Salix eriocephala</i>
Sandbar Willow	<i>Salix interior</i>
Silky Willow	<i>Salix lucida</i>
Meadow Willow	<i>Salix petiolaris</i>
Autumn Willow	<i>Salix serissima</i>
Basswood	<i>Tilia americana</i>
American Elm	<i>Ulmus americana</i>
<i>Understory</i>	
Alternate-leaved Dogwood	<i>Cornus alternifolia</i>
Red-osier Dogwood	<i>Cornus sericea</i>
Virginia Creeper	<i>Parthenocissus quinquefolia</i>
Choke Cherry	<i>Prunus virginiana</i>
European Buckthorn	<i>Rhamnus cathartica</i>
Staghorn Sumac	<i>Rhus typhina</i>
Red Raspberry	<i>Rubus idaeus</i>
Black raspberry	<i>Rubus occidentalis</i>
White Spirea	<i>Spirea alba</i>
Nanny Berry	<i>Viburnum lentago</i>
Guelder Rose	<i>Viburnum opulus</i>
Dog-strangling Vine	<i>Vincetoxicum rossicum</i>
Grapevine	<i>Vitis riparia</i>
<i>Herbaceous</i>	
Common Copperleaf	<i>Acalypha rhomboidea</i>
Common Yarrow	<i>Achillea millefolium</i>
Slender-leaved False Foxglove	<i>Agalinis tenuifolia</i>
Tall Hairy Agrimony	<i>Agrimonia gryposepala</i>

Common Name	Scientific Name
Redtop	<i>Agrostis gigantea</i>
Rough Bentgrass	<i>Agrostis scabra</i>
Creeping Bentgrass	<i>Agrostis stolonifera</i>
Water Plantain	<i>Alyssa triviale</i>
Annual Ragweed	<i>Ambrosia artemisiifolia</i>
Canada Anemone	<i>Anemone canadensis</i>
Dogbane	<i>Apocynum cannabinum</i>
Lesser Burdock	<i>Arctium minus</i>
Swamp Milkweed	<i>Asclepias incarnata</i>
Common Milkweed	<i>Asclepias syriaca</i>
Lady Fern	<i>Athyrium felix-femina</i>
Nodding Beggarticks	<i>Bidens cernua</i>
Purple-stem Beggarticks	<i>Bidens connata</i>
Devil's Beggarticks	<i>Bidens frondosa</i>
Field Mustard	<i>Brassica rapa</i>
Smooth Brome	<i>Bromus inermis</i>
Canada Bluejoint	<i>Calamagrostis canadensis</i>
Marsh Marigold	<i>Caltha palustris</i>
Golden Sedge	<i>Carex aurea</i>
Bebb's Sedge	<i>Carex bebbii</i>
Fringed Sedge	<i>Carex crinita</i>
Wool-grass	<i>Carex cyperinus</i>
Meadow Sedge	<i>Carex granularis</i>
Hirsute Sedge	<i>Carex hirsuta</i>
Porcupine Sedge	<i>Carex hystericina</i>
Lake sedge	<i>Carex lacustris</i>
Common Hop Sedge	<i>Carex lupulina</i>
Troublesome Sedge	<i>Carex molesta</i>
Cyperus-like sedge	<i>Carex pseudocyperus</i>
Eastern Star Sedge	<i>Carex radiata</i>
Retrorse Sedge	<i>Carex retrorsa</i>
Spiked Sedge	<i>Carex spicata</i>
Awl-fruited sedge	<i>Carex stipata</i>
Fox Sedge	<i>Carex vulpinoidea</i>
Common Knapweed	<i>Centaurea nigra</i>
Common Chickweed	<i>Cerastium fontanum</i>
White Goosefoot	<i>Chenopodium album</i>
Chocory	<i>Chicorium intybus</i>
Bulbet-bearing Water Hemlock	<i>Cicuta bulbifera</i>
Creeping Thistle	<i>Cirsium arvense</i>
Bull Thistle	<i>Cirsium vulgare</i>
Virgin's Bower	<i>Clematis virginiana</i>
Field Bindweed	<i>Convolvulus arvensis</i>
Orchard Grass	<i>Dactylis glomerata</i>
Queen-Anne's Lace	<i>Daucus carota</i>

Common Name	Scientific Name
Hairy Crab Grass	<i>Digitaria sanguinalis</i>
Rough Barnyard grass	<i>Echinochloa muricata</i>
Wild Cucumber	<i>Echinocystus lobata</i>
Viper's-bugloss	<i>Echium vulgare</i>
Common Spikerush	<i>Eleocharis palustris</i> (formerly <i>smallii</i>)
Bald Spikerush	<i>Eleocharis erythropoda</i>
Quackgrass	<i>Elymus repens</i>
Fringed Willowherb	<i>Epilobium ciliatum</i>
Purpleleaf Willowherb	<i>Epilobium coloratum</i>
Small-flower/Hoary Willowherb	<i>Epilobium parviflorum</i>
Annual fleabane	<i>Erigeron annuus</i>
Philadelphia fleabane	<i>Erigeron philadelphicus</i>
Dog Mustard	<i>Erucastum gallicum</i>
Field Horsetail	<i>Equisetum arvensis</i>
Variegated Horsetail	<i>Equisetum varigatum</i>
Grass-leaved Goldenrod	<i>Euthamia graminifolia</i>
Joe Pye-weed	<i>Eutrochium maculatum</i>
Boneset	<i>Eutrochium perfoliatum</i>
Black-bindweed	<i>Fallopia convulvus</i>
Field Strawberry	<i>Fragaria virginiana</i>
Catchweed	<i>Gallium aparine</i>
Marsh Bedstraw	<i>Gallium palustre</i>
Three-petal Bedstraw	<i>Gallium trifidum</i>
Lady's/Yellow Bedstraw	<i>Gallium verum</i>
Herb Robert	<i>Geranium robertianum</i>
American Manna Grass	<i>Glyceria grandis</i>
Fowl Manna Grass	<i>Glyceria striata</i>
Jerusalem Artichoke	<i>Helianthus tuberosus</i>
Range Day-lily	<i>Hemerocalus fulva</i>
Common St. John's Wort	<i>Hypericum perforatum</i>
Common Jewelweed	<i>Impatiens capensis</i>
Articulated rush	<i>Juncus articulatus</i>
Toad Rush	<i>Juncus bufonis</i>
Dudley's Rush	<i>Juncus dudleii</i>
Slender Path Rush	<i>Juncus tenuis</i>
Torrey's Rush	<i>Juncus torreyii</i>
Prickly Lettuce	<i>Lactuca serriola</i>
Nipplewort	<i>Lapsana communis</i>
Rice Cutgrass	<i>Leersia Oryzoides</i>
Oxeye Daisy	<i>Leucanthemum vulgare</i>
Tall Fescue	<i>Lolium arundinaceum</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Meadow Ryegrass/Fescue	<i>Lolium pratense</i>
Bird's Foot Trefoil	<i>Lotus corniculatus</i>
American Bugleweed	<i>Lycopus americana</i>

Common Name	Scientific Name
Scarlet Pimpernel	<i>Lysmachia arvensis</i>
Purple-stemmed Loosestrife	<i>Lythrum salicaria</i>
Canada Mayflower	<i>Maianthemum canadensis</i>
Star-flowered Solomon's Seal	<i>Maianthemum stellatum</i>
German Chamomile	<i>Matricaria chamomilla</i>
Black Medick	<i>Medicago lupulina</i>
Alfalfa	<i>Medicago sativa</i>
White Sweetclover	<i>Melilotus albus</i>
Canada Mint	<i>Mentha canadensis</i>
Allegheny Monkey Flower	<i>Mimulus ringans</i>
Water Forget-me-not	<i>Myosotis scorpioides</i>
Watercress	<i>Nasturtium officinale</i>
Common evening-primrose	<i>Oenothera biennis</i>
Sensitive Fern	<i>Onoclea sensibilis</i>
Oak-leaved Goosefoot	<i>Oxybasis glauca</i>
Whichgrass	<i>Panicum capillare</i>
Ditch Stonecrop	<i>Penthorum sedoides</i>
Water Smartweed	<i>Persicaria amphibia</i>
Pale Smartweed	<i>Persicaria lapthifolia</i>
Lady's-thumb	<i>Persicaria maculosa</i>
Pennsylvania Smartweed	<i>Persicaria pennsylvanica</i>
Reed Canary grass	<i>Phalaris arundinacea</i>
Timothy Grass	<i>Phleum pratensis</i>
Common Reed	<i>Phragmites australis</i>
Broadleaf Plantain	<i>Plantago major</i>
Annual Bluegrass	<i>Poa annua</i>
Flat-stemmed Blue Grass	<i>Poa compressa</i>
Fowl Bluegrass	<i>Poa palustris</i>
Kentucky Bluegrass	<i>Poa pratensis</i>
Roughstalk Bluegrass	<i>Poa trivilaes</i>
Prostrate Knotweed	<i>Polygonum aviculare</i>
Rough Cinquefoil	<i>Potentilla norvegica</i>
Selfheal	<i>Prunella vulgaris</i>
Meadow Buttercup	<i>Ranunculus acris</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Cursed Crow's Foot	<i>Ranunculus sceleratus</i>
Black-eyed Susan	<i>Rudbeckia hirta</i>
Crispy Dock	<i>Rumex crispus</i>
Hard-stem Bulrush	<i>Schoenoplectus acutus</i>
Soft-stem Bulrush	<i>Schoenoplectus tabernaemontani</i>
Dark-green Bulrush	<i>Scirpus atrovirens</i>
Small-fruited Bulrush	<i>Scirpus microcarpus</i>
Green Foxtail	<i>Setaria viridis</i>
Bladder Campion	<i>Silene vulgaris</i>
Bittersweet Nightshade	<i>Solanum dulcamara</i>

Common Name	Scientific Name
Tall Goldenrod	<i>Solidago altissima</i>
Canada Goldenrod	<i>Solidago canadensis</i>
Blue-stem Goldenrod	<i>Solidago caesia</i>
Early Goldenrod	<i>Solidago juncea</i>
Giant Goldenrod	<i>Solidago gigantea</i>
Rough-stem Goldenrod	<i>Solidago rugosa</i>
Perennial Sow Thistle	<i>Sonchus arvensis</i>
Spiny Sow Thistle	<i>Sonchus asper</i>
Common Chickweed	<i>Stellaria media</i>
White Heath Aster	<i>Symphiotrichum ericoides</i>
Shining Aster	<i>Symphiotrichum firmum</i>
Lance-leaved Aster	<i>Symphiotrichum lanceolatum</i>
Calico Aster	<i>Symphiotrichum lateriflorum</i>
New England Aster	<i>Symphiotrichum Novae-angelae</i>
Swamp Aster	<i>Symphiotrichum puniceum</i>
Common Dandelion	<i>Taraxacum officinale</i>
Field Penny-cress	<i>Thlapsi arvense</i>
Hybrid Clover	<i>Trifolium hybridum</i>
Red Clover	<i>Trifolium pratense</i>
White Clover	<i>Trifolium repens</i>
Colt's Foot	<i>Tussilago farfara</i>
Narrow-leaved cattail	<i>Typha angustifolia</i>
Narrow X Broad-leaved cattail hybrid	<i>Typha X Glauca</i>
Great Mullein	<i>Verbascum thapsis</i>
Purple Vervain	<i>Verbena hastata</i>
Purple Vetch	<i>Vicia cracca</i>



Appendix B

Tree Inventory & Arborist Report





Appendix C

Species at Risk Screening Resources

Table A 1. SAR screening resources

Screening Resource	Description
Natural Heritage Information Center (NHIC)	The Natural Heritage Information Center (NHIC), operated by the Ontario Ministry of Natural Resources and Forestry, collects, reviews, manages and distributes information on Ontario's biodiversity. Data distributed by the NHIC is used in conservation and natural resource management decision making and was a primary resource for this report. Through the NHIC Make-a-Map tool, data on species, plant communities, wildlife concentration areas and natural areas is made accessible to the public and professionals using generalized 1-kilometer grid units to protect sensitive information. The mapping interface provides current and historical occurrences of SAR within the specified grid unit. The database also identifies environmental designations which provide insight into habitat potential including wetland, areas of natural and scientific interests and woodlands.
Breeding Bird Atlas	The atlas divides the province into 10×10 km squares and then birders find as many breeding species as possible in each square. Atlassers who know birds well by song complete 5-minute "Point Counts", 25 of which are required to provide an index of the abundance of each species in a square. Data from every square are mapped to show the distribution of each species. Point count data from each square show how the relative abundance of each species varies across the province.
eBird	eBird data document bird distribution, abundance, habitat use, and trends through checklist data collected within a simple, scientific framework. Birders enter when, where, and how they went birding, and then fill out a checklist of all the birds seen and heard during the outing. eBird's free mobile app allows offline data collection anywhere in the world, and the website provides many ways to explore and summarize your data and other observations from the global eBird community. eBird hotspots that are within 1 km of the Study Area are selected for species review.
Ontario Moth Atlas	The Ontario Moth Atlas is a project of the Toronto Entomologists' Association. The atlas currently covers about 250 species from 7 of the best-known families. The atlas presently includes 62,000 records. The last update of the atlas was in April 2020. The atlas is updated at least every 3 months. Most atlas data come from iNaturalist records. However, there is some data from Chris Schmidt of Agriculture Canada, the BOLD (Barcode of Life Datasystems) project of the University of Guelph, and from other records submitted directly to the TEA. The atlas uses the same 10×10 km squares at the Breeding Bird Atlas.
Ontario Butterfly Atlas	The Ontario Butterfly Atlas is a project of the Toronto Entomologists' Association (TEA). The TEA has been accumulating records and publishing annual seasonal summaries (Ontario Lepidoptera) for 50 years, with the first edition appearing in 1969. Atlas data comes from eButterfly records, iNaturalist records, BAMONA records, and records submitted directly to the TEA. The atlas uses the same 10×10 km squares at the Breeding Bird Atlas.
i-Naturalist	i-Naturalist is a nature app that helps public identify plants and animals. Using algorithms as well as scientists and taxonomic experts' multiple observations can be identified at a research scale. This data generated by the iNat community can be used in science and conservation. The program actively distributes the data in venues where scientists and land managers can find it. I-Naturalist has a project group for (NHIC) Rare species of Ontario. GeoProcess only records observations with-in 1 km of the Study Area.
Fisheries and Ocean Aquatic Species at Risk Maps	The DFO has compiled critical habitat and distribution data for aquatic species listed under the Species at Risk Act (SARA). The interactive map is intended to provide an overview of the distribution of aquatic species at risk and the presence of their critical habitat within Canadian waters. The official source of information is the Species at Risk Public Registry. Using this map, a 1 km radius circle is outlined around aquatic features located within the Study Area.



Appendix D

Significant Wildlife Habitat Screening Eco-region 6E



Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Seasonal Concentration Areas of Animal					
Waterfowl Stopover and Staging Areas (Terrestrial)	CUM, CUT1 - plus evidence of annual spring flooding within these ecosites *Fields with seasonal flooding and waste grains in certain areas are specific to Tundra Swan	Fields with sheet water during Spring (mid-March to May) •agricultural fields with waste grain are not SWH unless they have spring sheet water available.	No	No habitat features on site or species aggregation.	•Any mixed species aggregations of 100+ individuals • the flooded field plus 100-300m radius, dependant on localized site and adjacent land us • Annual Use of Habitat is documented from information sources or field studies •Specific evaluation methods required
Waterfowl Stopover and Staging Areas (Aquatic)	MAS1,MAS2, MAS3,SAS1,SAM1,SAF1,SWD1,SWD2,SWD3 ,SWD4,SWD5, SWD6,SWD7	Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. • Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify.	No	No habitat features on site.	•Aggregations of 100 + of species listed for 7 days, results in > 700 waterfowl use days. •Areas with annual staging for ruddyducks, canvasbacks and redheads. •The combined area of the ELC ecosites and a 100m radius area. •Wetland area and shorelines associated with sites identified within the SWHTG, Appendix K, are significant wildlife habitat.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
					•Annual Use of Habitat is documented from information sources or field studies • Specific evaluation methods required
Shorebird Migratory Stopover Area	BBO1,BBO2,BBS1,BBS2,BBT1,BBT2,SDO1,SDS2,SDT1,MAM1,MAM2,MAM3,MAM4,MAM5	•Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. •Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores in May to mid-June and early July to October. • No sewage treatment or storm water management ponds.	No	No habitat features on site.	•Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period. •Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. •The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area. •Annual Use of Habitat is documented from information sources or field studies • Specific evaluation methods required
Raptor Wintering Area	Combo of one of each Community Series from one of each: Forest (FOD,FOM,FOC) and Upland (CUM,CUT,CUS,CUW). Bald Eagle: Forest on shoreline area	A combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Need to be > 20 ha. •Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. • Field area of the habitat is to be wind swept with limited snow depth or accumulation. • Eagle sites have open water and large trees and snags available for roosting .	Yes	Habitat features are present on site. Observed Northern Harrier hunting over open fields and willow-thicket adjacent to Deciduous Swamp on two occasions. No evidence or observations of other listed species.	•One or more Short-eared Owls or; •One of more Bald Eagles or; • At least 10 individuals and two of the listed hawk/owl species. •To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. •for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Specific evaluation methods required

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
	adjacent to large rivers and lakes.				
Bat Hibernacula	CCR1,CCR2,CCA1,CCA2. * buildings are not to be considered SWH	May be found in caves, mine shafts, underground foundations and Karsts. •Active mine sites are not considered SWH.	No	No habitat features on site.	•All sites with confirmed hibernating bats are SWH. • area includes 200m radius around the entrance of the hibernaculum for most development types and 1000m for wind farms. •Studies are to be conducted during the peak swarming period (Aug. – Sept.). • Specific survey methods required
Bat Maternity Colonies	All Ecosites in: FOD,FOM,SW D,SWM.	Maternity colonies can be found in tree cavities, vegetation and often in building. *Building are not considered SWH. • Not found in caves or mines in ON. •Located in Mature Deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees. •Prefer snags in early stages of decay (class 1-3 or class 1 or class 2). •Silver-haired Bats prefer older mixed or deciduous forests with at least 21 snags/ha.	No	The Subject Property provides required habitat features such as multiple snags in varying stages of decay – many of which are between classes 1-3. However the deciduous swamp is less than 10ha in size.	•Confirmed use by: >10 Big Brown Bats >5 Adult female Silver Haired Bats. •The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies. • Specific evaluation methods required
Turtle Wintering Areas	Snapping and Midland Painted: SW,MA,OA,SA and FEO/BOO Series.	Wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. •Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen.	No	Before the deciduous Swamp was cleared and filled the Subject Property may have provided turtle overwintering	•Presence of 5 over-wintering Midland Painted Turtles is significant •One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
	Northern Map: Open water areas such as deeper rivers or streams and lakes.	*Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH.		sites. The water level within the now disturbed swamp has remained above ground level throughout all field surveys. The water level present upon the most recent visit (26/08/2025) was 25 cm above the current fill level. Substrates in the edges of the swamp which were left less-disturbed are soft in texture.	• The mapped ELC ecosite area with the over wintering turtles is the SWH. • If the hibernation site is within a stream or river, the deepwater pool where the turtles are over wintering is the SWH. • Search for congregations in Basking Areas in spring and fall.
Reptile Hibernaculum	Any ecosite other than very wet. • Talus, Rock Barren, Crevice, Cave, Alvar may be directly related. • Observations of congregations in spring or fall is good indicator.	Sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover.	No	No habitat features on site.	• Presence of snake hibernacula used by - a minimum of five individuals of a snake sp. or; - individuals of two or more snake spp.. • Congregations of - a minimum of five individuals of a snake sp. or; - individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). • If there are Special Concern Species present, then site is SWH.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		•Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures			•The feature in which the hibernacula is located plus a 30 m radius area is the SWH. • Hibernacula are used annually, often by the same individuals (strong site fidelity) and other life processes often take place near by
Colonially-Nesting Bird Breeding Habitat (Bank and Cliff)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles Cliff faces, bridge abutments, silos, barns. CUM1,CUS1,BLS1,CLO1,CLT1,CUT1,BLO1,BLT1,CLS1.	Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area *does not include man-made structures, recently (2 years) disturbed soil areas or liscenced Mineral Aggregate Operation.	No	No habitat features on site.	•Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests. •Field surveys to observe and count swallow nests are to be completed during the breeding season. • Specific evaluation methods required
Colonially-Nesting Bird Breeding Habitat (Tree/Shrub)	SWM2,SWM3, SWM5,SWM6, SWD1,SWD2,SWD3,SWD4,SWD5,SWD6,SWD7,FET1	Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. •Most nests in trees are 11 to 15 m from ground, near the top of the tree.	No	No habitat features on site.	•Presence of 5 or more active nests of Great Blue Heron or other listed species. •The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH. •Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
					as the presence of fresh guano, dead young and/or eggshells.
Colonially-Nesting Bird Breeding Habitat (Ground)	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1:50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6; MAS1 – 3; CUM,CUT,CUS	Nesting colonies on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands.	No	No habitat features on site.	• Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. • Presence of 5 or more pairs for Brewer's Blackbird. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. • The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH. • Studies would be done during May/June when actively nesting. • Specific evaluation methods required
Migratory Butterfly Stopover Areas	Combo of one of each Field (CUM, CUT, CUS) and Forest (FOC, FOD,FOM,CUP).	Minimum 10 ha in size with combo of field and forest located within 5km of Lake Erie or Lake Ontario. • Should not be disturbed. • Field/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat.	No	No habitat features on site.	• Presence of Monarch Use Days (MUD) during Fall migration (Aug/Oct) • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		•Should provide protection from the elements, often spits of land or areas with the shortest distance to cross the Great Lakes.			•MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant.
Landbird Migratory Stopover Areas	All Ecosites within: FOC,FOM,FOD ,SWC,SWM,S WD	Woodlots > 10ha in size and within 5km of Lake Erie and Lake Ontario. • If woodlands are rare in area, smaller size can be considered. • If multiple woodlands located along shore line, those <2km from shoreline are more significant. • Sites have a variety of habitats; forest, grassland and wetland complexes. •The largest sites are more significant. •Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5km of Lake Erie and Lake Ontario are Candidate SWH.	No	No habitat features on site.	•Use of the habitat by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. •Studies should be completed during spring (Mar to May) and fall (Aug to Oct) migration using standardized assessment techniques. • Specific evaluation methods required
Deer Yarding Areas	Note: OMNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include; FOM, FOC, SWM and SWC.	Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm	No	No habitat features on site.	No Studies Required: • Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. • Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local MNRF offices or via Land Information Ontario (LIO).

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
	Or these ELC Ecosites; CUP2 CUP3 FOD3 CUT	snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. • OMNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual. • Woodlots with high densities of deer due to artificial feeding are not significant			• Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. •
Deer Winter Congregation Areas	All forested ecosites within: FOC,FOM,FOD ,SWC,SWM,S WD + conifer plantations much smaller than 50 ha may be used.	Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. *Woodlots with high densities of deer due to artificial feeding are not significant.	No	No habitat features on site.	• Will be mapped by MNRF. • All woodlots exceeding the criteria are significant unless determined to be not by the MNRF. • Studies to be completed during winter when >20 cm of snow is on the ground, using aerial survey or pellet count.
Rare Vegetation Communities					

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Cliffs and Talus Slopes	Any Ecosite within: TAO CLO TAS CLS TAT CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris. Most cliff and talus slopes occur along the Niagara Escarpment.	No	No habitat features on site.	•Confirm any ELC Vegetation Type for Cliffs or Talus Slopes
Sand Barren	SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicketlike (SBS1), or more closed and treed (SBT1). Tree cover always < or equal to 60%	A sand barren area >0.5ha in size. • Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. • Vegetation can vary from patchy and barren to tree covered, but less than 60%.	No	No habitat features on site.	•Confirm any ELC Vegetation Type for Sand Barrens. •Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.
Alvar	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2,	An Alvar site > 0.5 ha in size, only known sites are found in the western islands of Lake Erie. • An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer	No	No habitat features on site.	•Studies that identify four of the five Alvar Indicator Species at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.).

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
	Five Alvar Indicator Species: 1) <i>Carex crawei</i> 2) <i>Panicum philadelphicum</i> 3) <i>Eleocharis compressa</i> 4) <i>Scutellaria parvula</i> 5) <i>Trichostema brachiatum</i>	of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. - Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animals species. - Vegetation cover varies from patchy to barren with a less than 60% tree cover.			The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses.
Old Growth Forest	FOD FOC FOM SWD SWC SWM	Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest. Characterized by heavy mortality or turnover of overstorey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	No	No habitat features on site.	- If dominant trees species of the area are >140 years old, then the area containing these trees is Significant Wildlife Habitat. - The forested area containing the old growth characteristics will have experienced no recognizable forestry activities - The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH. - Determine ELC vegetation types for the forest and forest area containing the old growth characteristics

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Savannah	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%. • No minimum size to site. • Site must be restored or a natural site. *Remnant sites such as railway right of ways are not considered to be SWH.	No	No habitat features on site.	•Field studies confirm one or more of the Savannah indicator species found in Appendix N, Ecoregion 6E of the SWHTG, OMNR (2000). •Entire area of the ELC Ecosite is SWH. •Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic species).
Tallgrass Prairie	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. •An open Tallgrass Prairie habitat has < 25% tree cover. •No minimum size to site. •Site must be restored or a natural site. *Remnant sites such as railway right of ways are not considered to be SWH.	No	No habitat features on site.	•Field studies confirm one or more of the Prairie indicator species in Appendix N, Ecoregion 6E of The SWHTG, OMNR (2000). •Area of the ELC Ecosite is the SWH. •Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.)
Other Rare Vegetation Communities	See the Significant Wildlife Habitat Technical Guide (OMNR, 200), Appendix M for Provincially Rare S1,S2 and S3 ELC Vegetation Types.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in Appendix M. •May include beaches, fens, forest, marsh, barrens, dunes and swamps. See OMNRF/NHIC for up to date list of rare vegetation communities.	No	No habitat features on site.	•Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG, OMNR (2000). •Area of the ELC Vegetation Type polygon is the SWH.
Specialized Habitat for Wildlife					

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Waterfowl Nesting Area	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4. * Note: includes adjacency to Provincially Significant Wetlands	A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. •Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests.	No	No habitat features on site.	•Presence of 3 or more nesting pairs for listed species excluding Mallards OR •Presence of 10 or more nesting pairs for listed species including Mallards. •Any active nesting site of an American Black Duck is considered significant. •Nesting studies should be completed during the spring breeding season (April - June). •Specific evaluation methods required •A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes,	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. *Nests located on man-made objects are not to be included as SWH. •Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy.	No	No habitat features on site.	- One or more active Osprey or Bald Eagle nests in an area. •Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. •For an Osprey, the active nest and a 300 m radius around the nest or the

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
	ponds and wetlands				contiguous woodland stand is the SWH. *with additional requirements •For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. * with additional requirements •To be significant a site must be used annually. •When found inactive, the site must be known to be inactive for > 3 years or suspected of not being used for >5 years before being considered not significant. •Observational studies to determine nest site use, perching sites and foraging areas need to be done from early March to mid August. • Specific evaluation methods required
Woodland Raptor Nesting Habitat	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3.	All natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat. • Interior habitat determined with a 200m buffer. •Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest.	No	No habitat features on site.	Presence of 1 or more active nests from species list is considered significant. •Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha area of habitat is the SWH. (the 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest) •Barred Owl – A 200m radius around the nest is the SWH. •Broad-winged Hawk and Coopers Hawk, – A 100m radius around the nest is the SWH.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
					• Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. • Conduct field investigations from early March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area.
Turtle Nesting Areas	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. •For an area to function as a turtlenesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. *Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used.	No	No habitat features on site.	Presence of: - 5 or more nesting Midland Painted Turtles OR - One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. •The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat. •Field investigations should be conducted in prime nesting season typically late spring to early summer. •Observational studies observing the turtles nesting is a recommended method.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Seeps and Springs	Where ground water comes to the surface. Often they are found within headwater areas within forested habitats. •Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system.	No	No habitat features on site.	Presence of a site with 2 or more seeps/springs should be considered SWH. •The area of a ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. •The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat.
Amphibian Beeding Habitat (Woodland)	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD •Breeding pools within the woodland or the shortest distance from forest habitat are more	Presence of a wetland, pond or woodland pool (including vernal pools) >500m ² (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size). • Some small wetlands may not be mapped and may be important breeding pools for amphibians. •Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat.	Possibly	Before the deciduous Swamp was cleared and filled the Subject Property may have provided amphibian breeding habitat. Green frogs and spring peepers were heard calling during amphibian surveys, but the recent large-scale disturbance within the swamp likely extirpated and caused mortality	Presence of breeding population of: - 1 or more of the listed newt/salamander species or - 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or - 2 or more of the listed frog species with Call Level Codes of 3. •A combo fo observational and call count surveys required during the spring (March-June) . •The habitat is the wetland area plus a 230m radius of woodland area. • If a wetland area is adjacent to a woodland, a travel corridor connecting

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
	significant because they are more likely to be used due to reduced risk to migrating amphibians.			to many individuals.	the wetland to the woodland is to be included in the habitat.
Amphibian Beeding Habitat (Wetlands)	ELC Community Classes SW, MA, FE, BO, OA and SA. •Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	Wetlands >500m2 (about 25m diameter), supporting high species diversity are significant; •some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. •Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation.	No	No habitat features on site.	Presence of breeding population of: -1 or more of the listed newt/salamander species or -2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or -2 or more of the listed frog/toad species with Call Level Codes of 3. or; - Wetland with confirmed breeding Bullfrogs are significant. •The ELC ecosite wetland area and the shoreline are the SWH. •A combo of observational and call count surveys will be required during the spring (March-June). •If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Woodland Area-Sensitive Bird Breeding Habitat	All Ecosites withing: FOC FOM FOD SWC SWM SWD	Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. •Interior forest habitat is at least 200 m from forest edge habitat.	No	No habitat features on site.	Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. *any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. • Conduct field investigations in spring and early summer. • Specific evaluation methods required
Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)					
Marsh Bird Breeding Habitat	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites	Nesting occurs in wetlands. All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. •For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water..	No	No habitat features on site.	Presence of: - 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes or; -breeding by any combination of 5 or more of the listed species. •any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. •Area of the ELC ecosite is the SWH. •Breeding surveys should be done in May/June. • Specific evaluation methods required
Open Country Bird Breeding Habitat	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30 ha. •Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years). •Grassland sites considered significant should have a history of longevity, either abandoned	Candidate	EAME and BOBO were observed during both rounds of breeding bird surveys on site, however, only possible	Presence of nesting or breeding of: -2 or more of the listed species. • A field with 1 or more breeding Short-eared Owls is to be considered SWH. •The area of SWH is the contiguous ELC ecosite field areas.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		fields, mature hayfields and pasturelands that are at least 5 years or older. •The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species.		breeding evidence (singing male) was observed. The breeding bird expert noted that the old field meadows within and adjacent to the West of the Subject Property are suitable for grassland species for breeding.	•Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Specific evaluation methods required.
Shrub/Early Successional Bird Breeding Habitat	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 •Patches of shrub ecosites can be complexed into a larger habitat for some bird species.	Large field areas succeeding to shrub and thicket habitats > 10ha in size. •Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no rowcropping, haying or livestock pasturing in the last 5 years). •Shrub thicket habitats (> 10 ha) are most likely to support and sustain a diversity of these species. •Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands.	No	No habitat features on site.	Presence of nesting or breeding of - 1 of the indicator species and at least 2 of the common species. •A habitat with breeding Yellowbreasted Chat or Golden-winged Warbler is to be considered as SWH. •The area of the SWH is the contiguous ELC ecosite field/thicket area. •Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Specific evaluation methods required

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Terrestrial Crayfish	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1-with inclusions of above meadow marsh ecosites can be used by terrestrial crayfish.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. •Usually the soil is not too moist so that the tunnel is well formed. •Can often be found far from water.	No	No habitat features on site.	Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of ELC ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. •Surveys should be done April to August in temporary or permanent water. • Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult.
Special Concern and Rare Wildlife Species	All plant and animal element occurrences (EO) within a 1 or 10km grid. All Special Concern and Provincially Rare plant and animal species.	identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites	Candidate	EAME, BOBO, and EWPE were observed indicating that potential habitat is present on site.	Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. •The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat.
Animal Movement Corridors					

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Amphibian Movement Corridors	Corridors may be found in all ecosites associated with water.	Corridors will be determined based on identifying the significant breeding habitat for these species. Movement corridors between breeding habitat and summer habitat. Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from this Schedule.	No	No amphibian breeding SWH was confirmed.	Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m. Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat.
Deer Movement Corridors	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH. A deer wintering habitat identified by the OMNRF as SWH will have corridors that the deer use during fall migration and spring dispersion •Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges).	No	No habitat features on site.	• Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas . • Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas. • Corridors should be at least 200m wide with gaps <20m and if following riparian area with at least 15m of vegetation on both sides of waterway •Shorter corridors are more significant than longer corridors.
Exceptions for EcoRegion 6E					

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Mast Producing Areas (Black Bear) •EcoDistrict 6E-14	All Forested habitat represented by ELC Community Series: FOM FOD	Black bears require forested habitat that provides cover, winter hibernation sites, and mastproducing tree species. • Forested habitats need to be large enough to provide cover and protection for black bears Criteria •Woodland ecosites >30ha with mast-producing tree species, either soft (cherry) or hard (oak and beech)	No	Site not located within EcoDistrict 6E-14	•All woodlands >30 ha with a 50% composition of these ELC Vegetation Types are considered significant: FOM1-1 FOM2-1 FOM3-1 FOD1-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5
Lek (Sharp-tailed grouse) •EcoDistrict 6E-17	CUM CUS CUT	The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography. • Leks are typically a grassy field/meadow >15ha with adjacent shrublands and >30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated. Criteria •Grasslands (field/meadow) are to be >15ha when adjacent to shrubland and >30ha when adjacent to deciduous woodland • Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying) • Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting	No	Site not located within EcoDistrict 6E-17	Studies confirming lek habitat are to be completed from late March to June. • Any site confirmed with sharp-tailed grouse courtship activities is considered significant • The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitat.

Appendix E

Conceptual Restoration Plan

Conceptual Wetland Restoration Plan

2080 WHITFIELD ROAD, PORT PERRY

Prepared for

Fourteen Estates Ltd.

October 1, 2025
Project No. P2025-961

Prepared by



GeoProcess Research Associates Inc.

133 King Street West
PO Box 65506 DUNDAS
Dundas, ON L9H 6Y6



Table of Contents

List of Tables	ii
List of Maps	iii
1. Introduction.....	4
2. Background & Existing Conditions.....	4
3. Restoration Plan.....	4
3.1. Restoration Design Objectives.....	5
3.1.1. Habitat Features.....	5
3.2. Restoration Zones	6
3.2.1. Zone 1 - SWD Regenerating Swamp	7
3.2.2. Zone 2 - MAS Shallow Marsh	8
3.2.3. Zone 3 - SWT Thicket Swamp.....	9
3.2.4. Zone 4 - MAM Meadow Marsh.....	10
3.2.5. Native Seed Mix.....	10
3.3. Restoration Implementation Notes.....	12
3.3.1. Planting Notes	12
3.3.2. Recommended Native Plant and Seed Providers	13
4. Closing.....	13
5. References.....	14
Maps.....	16

List of Tables

Table 1. Restoration Zone Summary	5
Table 2. Zone 1 SWD Potential Plant List.....	7
Table 3. Zone 2 MAS Potential Plant List.....	8
Table 4. Zone 3 SWT Potential Plant List	9
Table 5. Zone 4 MAM Potential Plant List	10
Table 6. Native Seed Mix – Water’s Edge Seed Mix, St. Williams Nursery.....	11

List of Maps

Map 1. Existing Wetland Conditions..... 17

Map 2. Wetland Restoration Concept..... 18



1. Introduction



GeoProcess Research Associates Inc. (GeoProcess) been retained by 14 Estates Ltd. to prepare a conceptual restoration plan for a disturbed wetland located at 2080 Whitfield Road in the Township of Scugog, Ontario (herein referred to as the “subject Property”). The “study area” consists of the area to be restored and the accompanying vegetation protection zone. Refer to Map 1 for review of these boundaries and property location. It is expected that this plan will be further refined following consultation with appropriate agencies.

2. Background & Existing Conditions

A restoration plan is required by the Kawartha Region Conservation Authority (KRCA) to resolve a violation in the study area where an existing wetland was disturbed. Disturbance included vegetation removals and placement of fill in the wetland. In late 2023, the property experienced a severe microburst/tornado and an extended drought, both of which contributed to notable changes on the site. Severe weather events, including tornadoes documented by the Northern Tornadoes Project (https://www.uwo.ca/ntp/blog/2022/uxbridge_on_ef2_tornado_update.html), have further influenced the site’s condition and the landowner undertook cleanup operations of damaged and fallen trees.

The Mississaugas of Scugog Island First Nation (MSIFN) have also made comment on their preferences for restoration of the wetland. The following restoration plan has been informed by a combination of ecological surveys conducted post-disturbance, historical aerial imagery, and a staking of the wetland limits with the KRCA and MSIFN. For the purposes of this restoration plan, the KRCA staked limit will be used to determine the scope of the restoration area. The Mississaugas of Scugog Island First Nation (MSIFN) have submitted comments on desired restoration goals for the wetland which have been considered in the design of the restoration plan.

Disturbances to the wetland include the placement of fill, which includes multiple fill piles that are still present in the restoration area, construction of a wood playhouse, as well as vegetation removal related to the mass die-off of trees due to weather events. The total area of the disturbed wetland is approximately 2.4 hectares in size. This area includes narrow bands of vegetation that were allowed to remain but are still considered to be disturbed due to the scale of the disturbance on site.

3. Restoration Plan

The restoration area has been divided into four zones. These zones were selected based on the communities present, their restoration needs and the level of disturbance. See Map 1 for the approximate locations of the restoration zones. All restoration zone areas were approximated based on field surveys, aerial imagery, and wetland extents provided by the KRCA.



Table 1. Restoration Zone Summary

Restoration Zone	Community Code	Earthwork Required	Vegetation Restoration	Approximate Restoration Area (m ²)
1	SWD	Fill Removal	Enhancement+Revegetation	19,809
2	MAS	None	Revegetation	1,554
3	SWT	None	Enhancement	2,790
4	MAM	None	Enhancement	7,809

3.1. Restoration Design Objectives

Restoring a disturbed wetland to a healthy state involves several objectives to ensure ecological balance, functionality, and sustainability. The guiding principles of the conceptual design include:

- **Biodiversity Enhancement:** Promote a diverse range of plant and animal species to create a resilient ecosystem.
- **Hydrological Function:** Ensure proper water retention to support wetland processes and maintain hydrological balance.
- **Habitat Creation:** Design varied habitats to support different species, including open water, marshes, and upland areas.
- **Connectivity:** Ensure ecological connectivity with surrounding habitats to support wildlife movement and genetic exchange.

3.1.1. Habitat Features

Pit and Mound Features (0.25 to 0.5 m depth)

Pit and mound features will be constructed throughout the disturbed wetland areas to create a topography that would be found on the floor of an old-growth forest, which would take decades to establish on its own. Naturally, this type of landscape would be created when trees with shallow roots were uprooted during a storm or some other event that caused them to fall. As a result, the mass of roots and soil would become the mound, and water would fill the void left by the roots and form a pit. These features will create a diverse microtopography across the restoration area, enhancing the variability of niches for a variety of organisms.

The pit and mound features will range in depth, shape, and orientation. They will range in size from 5 to 10 m² and have depths between 0.25 to 0.5 m. The pit and mounds will intercept surface flows and hold water intermittently throughout the year. The mounds are made from the spoils of digging the pits and should range from 0.5 to 0.75 m in height and should be placed adjacent to the pits.

Native plantings and seed mix will be installed within the pits and mounds, resulting in a forested swamp ecotype. In addition, large woody debris, fine branches, and piles of stones will be placed throughout the features to increase structural diversity.

Large Woody Debris

It is recommended that large woody debris be placed within the pit and mound features and the surrounding open areas to increase the structural diversity of the site and provide habitat for a range of organisms, including plants, mosses, lichens, small animals, and insects. In addition, decaying wood is an organic material that stores nutrients, holds moisture, and provides a beneficial environment for fungi, bacteria, and other microbes that improve water quality.

Various forms of large woody debris are recommended, including root wads, habitat logs, and brush piles. It is recommended that the material come in various lengths and widths, including varying levels of decay if possible. Debris sourced from the Subject Property from previous removals is recommended. Woody debris consisting of the remains of invasive species are not acceptable. Materials will be sourced from elsewhere on the Subject Property where possible.

Basking Logs

Basking logs are used by turtles, amphibians, birds, and other animals as a place to rest, hunt, or thermoregulate. Basking sites are particularly important for turtles which need to maintain a constant temperature and, therefore, rely on outside sources of heat to maintain their body temperature. These habitat features will need to be secured into the bank of the constructed wetland so that they do not mobilize during high flows. The basking logs should extend at least 2 metres into the open water and have a diameter of 0.25 to 0.5 m. Materials will be sourced from elsewhere on the Subject Property where possible.

Boulder Clusters

Piles of stones will be placed within and around the pit and mound features and in the open areas to create different microclimates and cover structures throughout the site. This provides habitat for a range of wildlife. Boulder clusters should be at least 2.0-5.0m² in width and range from 0.5m-1.0m in height. Boulders already present on site may be used. Materials will be sourced from elsewhere on the Subject Property where possible.

Bat Boxes

Bat boxes provide female bats with a warm place to raise their young. Most female bats only produce one pup per year, resulting in slow population growth. Due to habitat loss and white-nose syndrome, bat populations have declined rapidly; therefore, providing additional roosting locations to raise their young is increasingly important. A multi-chambered artificial roosting structure is recommended. This construction type offers space to move around within the bat box as temperatures fluctuate throughout the day or night.

3.2. Restoration Zones

Each zone that requires revegetation or enhancement will be planted with a combination trees, shrubs, herbaceous plugs, and/or a native seed mix. Trees will be planted 2.5m off-centre. All other plants, including shrubs and plugs, will be planted 1.0 m off-centre. Most plantings are proposed to be shrub live stakes. Plant quantities will be determined based on the area of each restoration zone and desired planting density. Refer to Map 2 for the approximate extents of each restoration zone. The restoration area has been modified to expand the communities present along the southern property limits (SWD and SWT on Map 2). It is proposed that these communities be expanded in lieu of restoring a portion of the disturbed staked meadow marsh

near Whitfield Road. Overall, the area of staked wetland (3.09 ha) will be realigned and increased to 3.19 ha. See Maps 1 and 2 for a review of these areas.

The target vegetation community for this restoration plan is a forested swamp with pockets of open water/shallow marsh, shrub thicket, and a meadow marsh along the drainage feature that conveys flow toward Whitfield Road. This was selected based on historical aerial imagery for the restoration area pre-disturbance. Forested swamps are wetlands dominated by trees and shrubs, often with standing water in the spring and limited drainage. They can occur along floodplains, in depressions, and in places where groundwater is close to the surface (NCC 2024). Constructing additional swamp, meadow marsh, and swamp thicket habitat will supplement the remaining swamp community. The plant communities, any required earthworks, and habitat features are outlined in the sections below for all four restoration zones.

3.2.1. Zone 1 - SWD Regenerating Swamp

The SWD Regenerating Swamp is approximately 1.98 ha in size and consists of regenerating wetland communities surrounding a central area that appears to have been filled, partially graded, and completely cleared of vegetation. The regenerating wetland communities contain some vegetation that was spared from previous disturbance; however, nearby vegetation removal and filling activities have likely impacted the plant community.

Native plants are present in the regenerating wetland areas and enhancement is proposed via interplanting of native species. The central region of this community contains several fill piles in addition to the graded fill, all of which will be removed from the restoration area. This zone will be replanted with trees, shrubs, and a native seed mix. See Table 2 for a list of potential plant species as well as Table 6 for the native seed mix to be used. Approximately 8 kg of the native seed mix is required for this zone, however this may vary depending on the seed mix that is ultimately selected (approximately 8-10 kg/ha). An annual cover crop seed, such as Canada Wild Rye, should be applied across this restoration zone to help stabilize soils and provide cover for plantings.

Table 2. Zone 1 SWD Potential Plant List

Trees		Shrubs	
Common Name	Scientific Name	Common Name	Scientific Name
American Elm	<i>Ulmus americana</i>	Buttonbush	<i>Cephalanthus occidentalis</i>
Balsam Poplar	<i>Populus balsamifera</i>	Common Elderberry	<i>Sambucus canadensis</i>
Bur Oak	<i>Quercus macrocarpa</i>	Gray Dogwood	<i>Cornus racemosa</i>
Eastern Cottonwood	<i>Populus deltoides</i>	Highbush Cranberry	<i>Viburnum opulus</i> ssp. <i>Trilobum</i>
Red Maple	<i>Acer rubrum</i>	Nanny Berry	<i>Viburnum lentago</i>
Silver Maple	<i>Acer saccharinum</i>	Red-osier Dogwood	<i>Cornus sericea</i>
Trembling Aspen	<i>Populus tremuloides</i>	Speckled Alder	<i>Alnus incana</i>
Yellow Birch	<i>Betula alleghaniensis</i>	Swamp Red Currant	<i>Ribes triste</i>
Bebb's Willow	<i>Salix bebbiana</i>	White Meadowsweet	<i>Spiraea alba</i>
Heart-leaved Willow	<i>Salix eriocephala</i>	Wild Black Currant	<i>Ribes americanum</i>

Pits and Mounds

Pits and mounds are proposed for this area to break up the graded topography to resemble a pre-disturbance wetland. This will allow for the pooling of water and increase habitat diversity.

Bat Boxes

It is possible that the pre-disturbance wetland contained snags (dead trees) that may have provided habitat for bats. Two to three bat boxes should be installed in the interim to provide enhanced bat habitat.

Boulder Clusters

Approximately 5-10 boulder clusters should be placed throughout this zone to enhance habitat diversity.

Large Woody Debris

The pre-disturbance wetland likely contained the remains of fallen trees which provide valuable habitat for a variety of wildlife. Large woody debris should be scattered intermittently throughout this restoration zone.

3.2.2. Zone 2 - MAS Shallow Marsh

The MAS Shallow Marsh restoration zone is approximately 0.15 ha in size and, at the time of assessment, consists of a shallow pocket that contained standing water for much of the growing season. The pocket appears to be groundwater fed and supplemented by surface-runoff inputs. Vegetation present in the open water portion includes Water Potato (*Alyssa triviale*), Hybrid Cattail (*Typha x Glauca*), Pondweed Species (*Potamogeton sp.*), and Jointed Sedge (*Juncus articulatis*). Vegetation present in the fringes of the pool include Swamp Milkweed (*Asclepias incarnata*), Allegheny Monkey Flower (*Mimulus rungans*), Boneset (*Eupatorium perfoliatum*), Spotted Joe-pye Weed (*Eutrochium maculatum*), Swamp Aster (*Symphiotrichum puniceum*), and Hybrid Cattail. Although some vegetation was present, coverage was low due to recent disturbance in and surrounding the pool. It is assumed that this feature provided shallow aquatic habitat within the larger forested swamp pre-disturbance. This feature will be retained as shallow-water aquatic habitat for amphibians, reptiles, and wetland plants. Herbaceous aquatic plants will be planted within the feature to compliment the native species present in the pool and seed bank. See Table 3 for a list of potential plant species to be interspersed with existing vegetation. Plants should be selected with the consideration that the plant community will start out in full-sun and will gradually transition to a shaded aquatic feature as the swamp community regenerates.

Table 3. Zone 2 MAS Potential Plant List

Aquatic Plants and Shrubs	
Common Name	Scientific Name
American Bur-reed	<i>Sparganium americanum</i>
Arrowhead	<i>Sagittaria latifolia</i>
Bebb's Willow	<i>Salix bebbiana</i>
Buttonbush	<i>Cephalanthus occidentalis</i>
Fowl Mannagrass	<i>Glyceria striata</i>

Giant Bur-reed	<i>Sparganium eurycarpum</i>
Green Bulrush	<i>Scirpus atrovirens</i>
Marsh Marigold	<i>Caltha palustris</i>
Pickerelweed	<i>Pontederia cordata</i>
Porcupine Sedge	<i>Carex hystericina</i>
Red-Osier Dogwood	<i>Cornus sericea</i>
Soft Rush	<i>Juncus effusus</i>
Sweet-Flag	<i>Acorus americanus</i>
White Meadowsweet	<i>Spiraea alba</i>

Basking Logs

Basking logs will be placed within the feature, extending from the periphery toward the centre to provide habitat for reptiles such as turtles.

3.2.3. Zone 3 - SWT Thicket Swamp

The SWT Thicket Swamp restoration zone is approximately 0.28 ha in size and consists of a willow thicket swamp complex with upland meadow and meadow marshes. Using historical aerial imagery, it has been determined that this area was previously farmed and left fallow from 2005 until present. This community has been selected as an addition to the wetland restoration area because its existing community composition (ELC code SWTM3-6) lends well to wetland restoration. Native plants from the adjacent Poplar Swamp and Willow Thicket Swamp are present in this community, and enhancement is proposed via interplanting of native species. See Table 4 for a list of potential plant species to be interspersed with existing vegetation.

Table 4. Zone 3 SWT Potential Plant List

Trees		Shrubs	
Common Name	Scientific Name	Common Name	Scientific Name
Meadow Willow	<i>Salix petiolaris</i>	Buttonbush	<i>Cephalanthus occidentalis</i>
Balsam Poplar	<i>Populus balsamifera</i>	Common Elderberry	<i>Sambucus canadensis</i>
Bur Oak	<i>Quercus macrocarpa</i>	Interior Sandbar Willow	<i>Salix interior</i>
Eastern Cottonwood	<i>Populus deltoides</i>	Highbush Cranberry	<i>Viburnum opulus ssp. Trilobum</i>
Heart-leaved Willow	<i>Salix eriocephala</i>	Nanny Berry	<i>Viburnum lentago</i>
Silver Maple	<i>Acer saccharinum</i>	Red-osier Dogwood	<i>Cornus sericea</i>
Trembling Aspen	<i>Populus tremuloides</i>	Speckled Alder	<i>Alnus incana</i>
Yellow Birch	<i>Betula alleghaniensis</i>	Swamp Red Currant	<i>Ribes triste</i>
Bebb's Willow	<i>Salix bebbiana</i>	White Meadowsweet	<i>Spiraea alba</i>
Pussy Willow	<i>Salix discolor</i>	Wild Black Currant	<i>Ribes americanum</i>

3.2.4. Zone 4 - MAM Meadow Marsh

The MAM Meadow Marsh restoration zone is approximately 0.78 ha in size and consists of regenerating meadow marsh communities that contains some vegetation that was spared from previous disturbance. However, based on historic aerial imagery, a number of trees and shrubs have been removed or fallen over time, and this zone was previously an extension of the forested swamp in the south-central area of the property. Native plants are present in this community and enhancement is proposed via interplanting of native species. See Table 5 for a list of potential plant species to be interspersed with existing vegetation. A mix of trees and shrubs will be planted to encourage regeneration of the MAM community toward its historically wooded state. This community straddles a drainage feature that appears to intermittently convey flow from the rest of the wetland. This community will also be targeted for restoration as an extension of the forested swamp being restored elsewhere on site.

Table 5. Zone 4 MAM Potential Plant List

Trees		Shrubs	
Common Name	Scientific Name	Common Name	Scientific Name
American Elm	<i>Ulmus americana</i>	Bebb's Willow	<i>Salix bebbians</i>
Balsam Poplar	<i>Populus balsamifera</i>	Buttonbush	<i>Cephalanthus occidentalis</i>
Bur Oak	<i>Quercus macrocarpa</i>	Common Elderberry	<i>Sambucus canadensis</i>
Eastern Cottonwood	<i>Populus deltoides</i>	Gray Dogwood	<i>Cornus racemosa</i>
Red Maple	<i>Acer rubrum</i>	Heart-leaved Willow	<i>Salix eriocephala</i>
Silver Maple	<i>Acer saccharinum</i>	Highbush Cranberry	<i>Viburnum opulus ssp. Trilobum</i>
Trembling Aspen	<i>Populus tremuloides</i>	Nanny Berry	<i>Viburnum lentago</i>
Yellow Birch	<i>Betula alleghaniensis</i>	Red-osier Dogwood	<i>Cornus sericea</i>
		Speckled Alder	<i>Alnus incana</i>
		Swamp Red Currant	<i>Ribes triste</i>
		White Meadowsweet	<i>Spiraea alba</i>
		Wild Black Currant	<i>Ribes americanum</i>

Large Woody Debris

The pre-disturbance wetland likely contained the remains of fallen trees which provide valuable habitat for a variety of wildlife. Large woody debris should be scattered intermittently throughout this restoration zone.

3.2.5. Native Seed Mix

A native seed mix should be applied to all disturbed and planted areas in the restoration zone except for areas with standing water. An annual cover crop such as annual ryegrass or similar, should be applied in addition to any native seed mix to provide soil stabilization and cover for native seed and plantings. An example of a native seed mix available from St. William's Nursery in Norfolk County is shown in Table 6. The seed mix should contain species suitable for wetlands and should only contain native species. Final selection should be completed by a qualified ecologist.

Table 6. Native Seed Mix – Water's Edge Seed Mix, St. Williams Nursery

St. William's Nursery - Water's Edge Seed Mix	
Common Name	Scientific Name
Riverbank Wild Rye	<i>Elymus riparius</i>
Virginia Wild Rye	<i>Elymus virginicus</i>
Switch Grass	<i>Panicum virgatum</i>
Fox Sedge	<i>Carex vulpinoidea</i>
Bebb's Sedge	<i>Carex bebbii</i>
Common Evening Primrose	<i>Oenothera biennis</i>
Foxglove Beard-Tongue	<i>Penstemon digitalis</i>
Porcupine Sedge	<i>Carex hystericina</i>
Common Boneset	<i>Eupatorium perfoliatum</i>
Flat-Topped Aster	<i>Doellingeria umbellata</i>
Dark-Green Bulrush	<i>Scirpus atrovirens</i>
Fowl Manna Grass	<i>Glyceria striata</i>
Tall Manna Grass; Reed Manna Grass	<i>Glyceria grandis</i>
Blue Vervain	<i>Verbena hastata</i>
Missouri Ironweed	<i>Vernonia missurica</i>
Marsh Marigold	<i>Caltha palustris</i>
Spotted Joe-Pye Weed	<i>Eupatorium maculatum</i>
Swamp Milkweed	<i>Asclepias incarnata</i>
Awl-Fruited Sedge	<i>Carex stipata</i>
Greenheaded Coneflower; Cut-Leaved Coneflower	<i>Rudbeckia laciniata</i>
New England Aster	<i>Symphyotrichum novae-angliae</i>
Obedient Plant; False Dragonhead	<i>Physostegia virginiana</i>
Great St. John's Wort	<i>Hypericum ascyron</i>
Wild Bergamot	<i>Monarda fistulosa</i>
Sweet Ox-Eye	<i>Heliopsis helianthoides</i>
Purple-stemmed Aster; Swamp Aster	<i>Symphyotrichum puniceum</i>
Cardinal Flower	<i>Lobelia cardinalis</i>
Canada Blue-Joint	<i>Calamagrostis canadensis</i>
Hop Sedge	<i>Carex lupulina</i>
Fringed Sedge	<i>Carex crinita</i>
Great Blue Lobelia	<i>Lobelia siphilitica</i>
Golden Alexanders	<i>Zizia aurea</i>
Wool Grass	<i>Scirpus cyperinus</i>

3.3. Restoration Implementation Notes

The following recommendations have been put forward as part of the restoration plan to maximize the effectiveness of the restoration effort.

3.3.1. Planting Notes

1. Planting stock should be installed in the spring after the last frost (April - June) or fall before the first frost (late September - November) to ensure survivorship of plant material. Plant locations should be chosen according to micro-site selection with considerations for existing plant competition. Plantings will be installed within the restoration areas in natural groupings under the supervision of a project restoration specialist or other qualified professional with an ecology or planting background. Planting holes may be either dug by hand or augured with a handheld auger to reduce impacts on the existing environment. Holes will equal the depth of the root ball and 1.5 times their width.

2. Site preparation: before plant installation, refuse removal should be undertaken to maximize planting success. Where soil compaction is present, soil should be mechanically loosened and aerated prior to planting and receive a layer of topsoil and organic matter to improve growing conditions for plantings. Organic matter will consist of decayed organic material (humus) such as compost; composted woody debris and leaf litter; and/or forest product residuals placed at a depth ranging from 2 to 4 inches.

3. Spacing: shrubs should be planted at 0.5-1.0 metre off-centre. Trees should be placed 2.0-2.5 metres off centre.

4. Monitoring: a monitoring schedule involving yearly site inspections by a qualified biologist or other environmental professional is recommended. Monitoring events should occur once during the growing season (spring, summer) for a minimum of three years following the installation of restoration plantings. Permanent plots should be established, or line transects should be implemented for successful monitoring. Visual analysis incorporating detailed notes to address survivorship of plant species, individual plant health and potential growth of invasive species is recommended. Mortality of all planted individuals should be determined, and the causes of mortality identified (shade/sun intolerance, herbivory, drought, etc.). Monitoring and warranty replacement should be conducted for a 3-year period.

5. Plant warranty: in the event of plant mortality following restoration initiatives, replacement plant material should be replaced by species provided in the planting tables. Cultivars of native species are not acceptable. If species are no longer available, plant selection should be made by a qualified individual.

6. Seed mix: a native seed mix must be applied to all disturbed areas following the completion of on-site work. The seed mix recommended for this site has been determined based on the ecology of the surrounding area. The seed mix known as "Water's Edge Seed Mix" can be sourced from St. William's nursery and ecology centre, 885 Norfolk County Hwy 24, St. Williams, ON N0E 1P0. If the seed mix is not available at the time of planting, a similar mix may be used containing the same or similar species with the approval of a qualified professional with a restoration or ecology background. Seed mixes containing non-native or cultivars of native species are not acceptable and may result in long-term damage to the surrounding plant community. Seed should be applied in the spring or fall at a rate of 8-10 kg/ha. Seeding in the summer will likely lead to higher mortality and lower germination rates unless a diligent watering plan is developed and implemented. The seed quantity required for the site has been estimated in the planting tables based on the proposed

work areas. If the area of disturbance is larger than anticipated, additional seed must be applied to any extra disturbed areas.

7. Cover crop: a nurse crop of Canada wild-rye or a similar annual cover crop should be applied to the restoration area, including all native seed areas, to stabilize soils and protect native seed from erosion.

3.3.2. Recommended Native Plant and Seed Providers

1. Kayanase, 993 Highway #54 P.O. Box 820 Ohsweken, ON N0A 1M0
2. St. William's Nursery, 885 Norfolk County Hwy 24, St. Williams, ON N0E 1P0
3. Ferguson Tree Nursery, 275 County Rd. 44, Kemptville, ON K0G 1J0

4. Closing



The proposed restoration concept herein is expected to resolve the KRCA violation and result in a restored wetland ecosystem that meets the restoration objectives outlined above. A monitoring plan should be implemented following restoration implementation that includes a 3-year monitoring period. Annual visits to determine survivability of plantings should be conducted. Any dead or dying plants should be replaced over the 3-year monitoring period with native equivalents.



5. References

- Alan Macnaughton, Ross Layberry, Rick Cvasin, Bev Edwards and Colin Jones. Ontario Butterfly Atlas Accessed February 2020.
- Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier (eds). 2007. Atlas of the Breeding Birds of Ontario 2001- 2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto. 706 pp.
- David Kaposi, Alan Macnaughton and Bev Edwards. Ontario Moth Atlas Accessed December 2020.
- Fisheries and Oceans Canada. Available from <https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html>. Accessed December 2020.
- Herman, K.D., L.A. Masters, M.R. Penskar, A.A. Reznicek, G.S. Wilhelm, W.W. Brodowicz. (1996). Floristic quality assessment with wetland categories and computer application programs for the State of Michigan. Michigan Department of Natural Resources, Wildlife Divisions, Natural Heritage Program. Lansing, MI, 21 pp+ Appendices.
- iNaturalist. Available from <https://www.inaturalist.org>. Accessed December 2020.
- MNRF. (2010). Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement. Second Edition. Toronto: Queen's Printer for Ontario. 248 pp
- Nature Conservancy Canada. 2024. Southern forest swamp. Accessible at: <https://www.natureconservancy.ca/en/what-we-do/resource-centre/forests-101/southern-forest-swamp.html>.
- OMNRF. 2013. Southern Ontario Vascular Plant Species List 3rd Edition. Southern Science & Information Section.
- Ontario Breeding Bird Atlas. 2001. Guide for Participants. Bird Studies Canada.
- Ontario, Ministry of Municipal Affairs. (2014). Provincial Policy Statement (Toronto: Ministry of Municipal Affairs, 2014).
- TRCA. 2018. Guideline for determining ecosystem compensation - after the decision to compensate has been made. Accessible at: <https://trcaca.s3.ca-central-1.amazonaws.com/app/uploads/2022/03/30134818/TRCA-Guideline-for-Determining-Ecosystem-Compensation-June-2018-v5.pdf>.

The information contained in this document is confidential and intended for the internal use of Fourteen Estates Ltd. only and may not be used, published or redistributed in any form without prior written consent of GeoProcess Research Associates.

Copyright October 1, 2025 by GeoProcess Research Associates
All rights reserved.



Conceptual Wetland Restoration Plan

2080 Whitfield Road, Port Perry

Prepared for Fourteen Estates Ltd.

October 1, 2025

Prepared by:

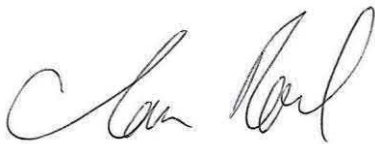


Devin Hock B.Sc., M.Eng.
Ecologist, ISA Certified Arborist



Lauren Barnett B.Sc.
Ecologist

Reviewed by:



Ian Roul, M.Sc.
Senior Ecologist

Disclaimer

We certify that the services performed by GeoProcess Research Associates were conducted in a manner consistent with the level of care, skill and diligence to be reasonably exercised by members of the engineering and science professions.

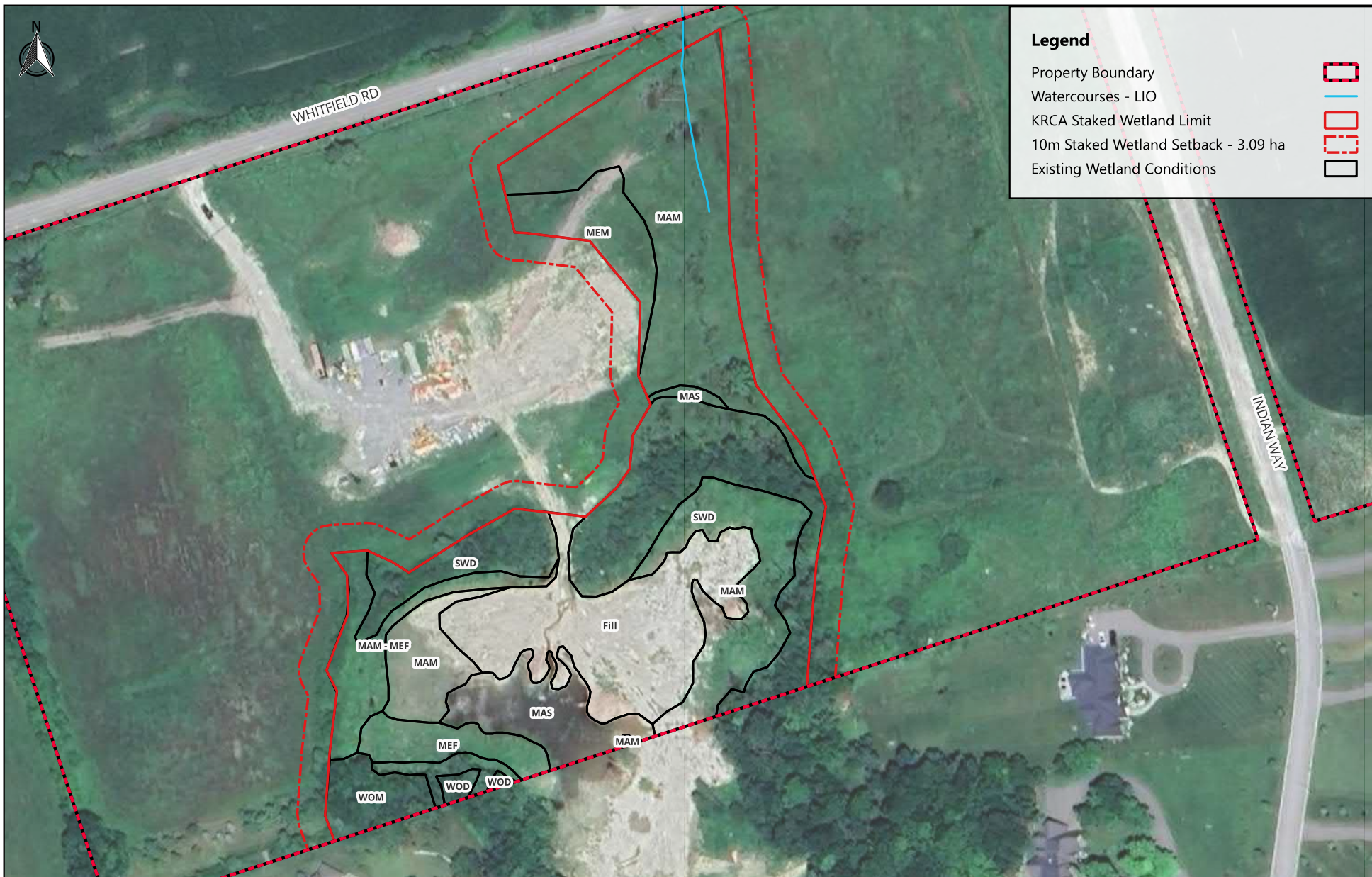
Information obtained during the site investigations or received from third parties does not exhaustively cover all possible environmental conditions or circumstances that may exist in the study area. If a service is not expressly indicated, it should not be assumed that it was provided. Any discussion of the environmental conditions is based upon information provided and available at the time the conclusions were formulated.

This report was prepared exclusively for Fourteen Estates Ltd. by GeoProcess Research Associates. The report may not be relied upon by any other person or entity without our written consent and that of Fourteen Estates Ltd. Any uses of this report or its contents by a third party, or any reliance on decisions made based on it, are the sole responsibility of that party. GeoProcess Research Associates accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this report.

Project Number P2025-961



Maps

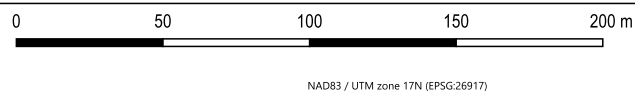
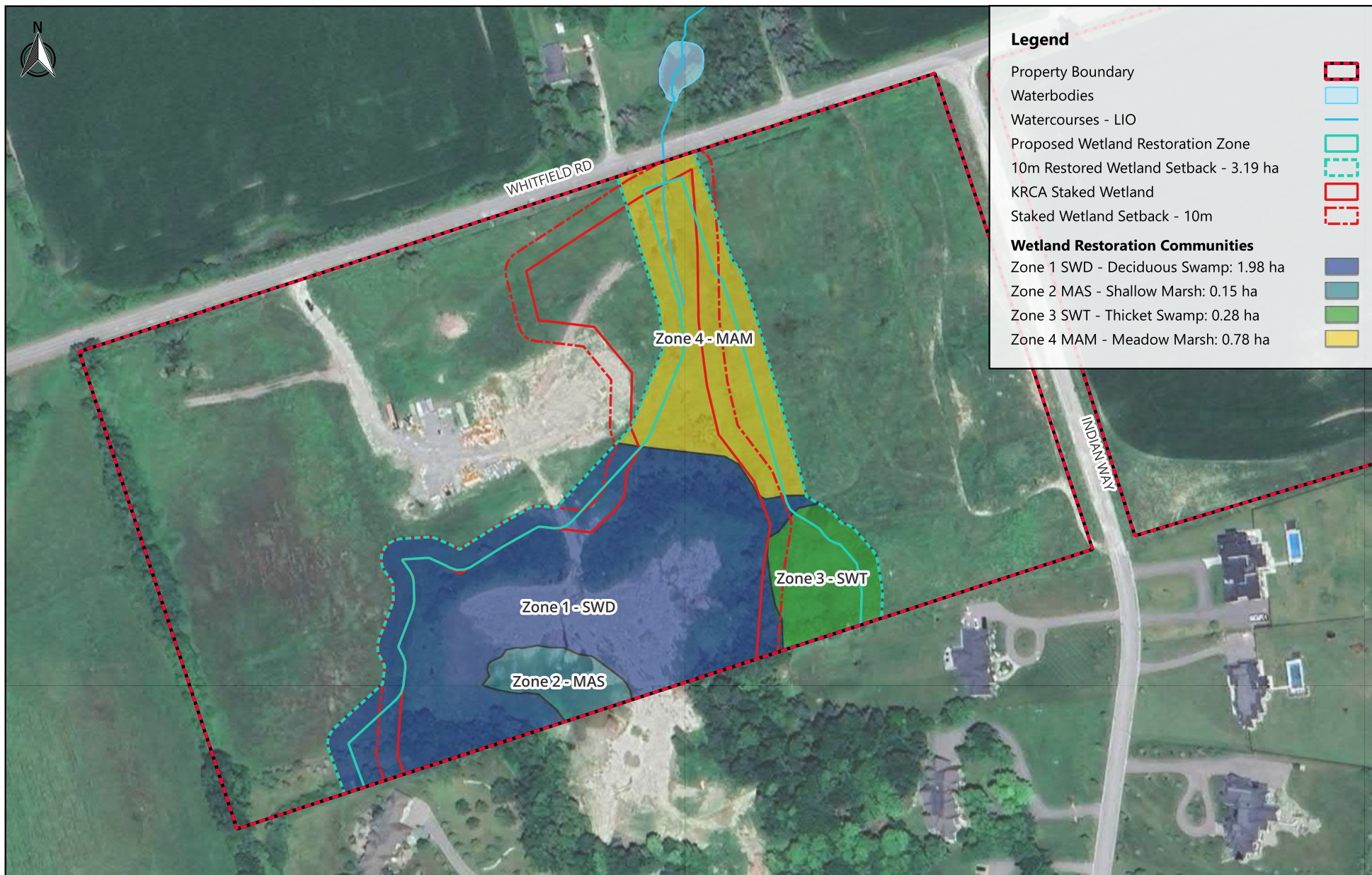


0 50 100 150 200 m

NAD83 / UTM zone 17N (EPSG:26917)

Notes:
[1] Imagery from google Earth.
[2] Contains information licensed under the Open government Licence - Ontario.

CREATED BY: DH PROJECT NO.: P2025-961
CHECKED BY: IR DATE: Oct 01, 2025



Notes:
 [1] Imagery from Google Earth.
 [2] Contains information licensed under the Open government Licence - Ontario.

Map 2.
 Wetland Restoration Concept

2080 Whitfield Road EIS
 Honey Heights Development

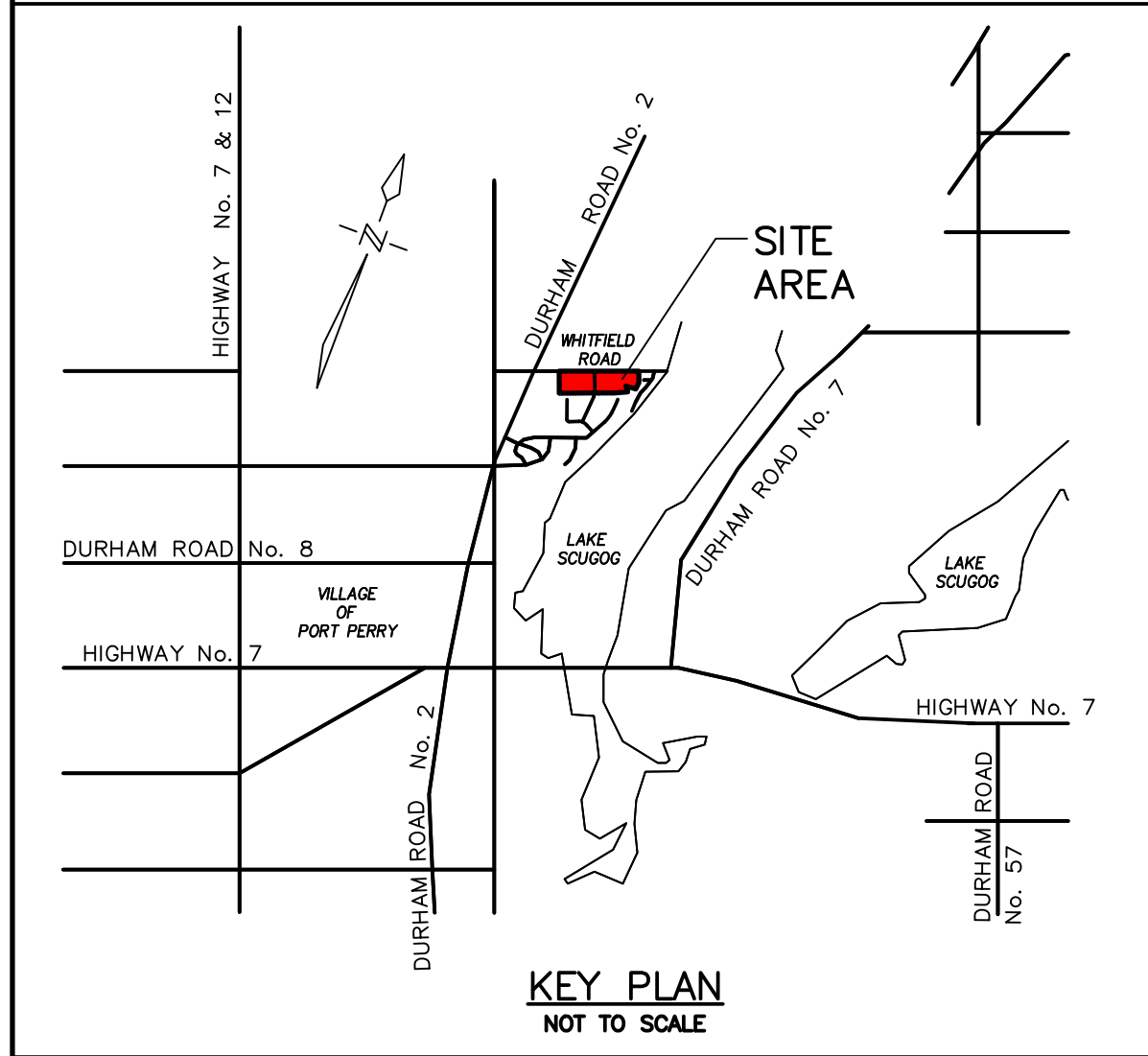
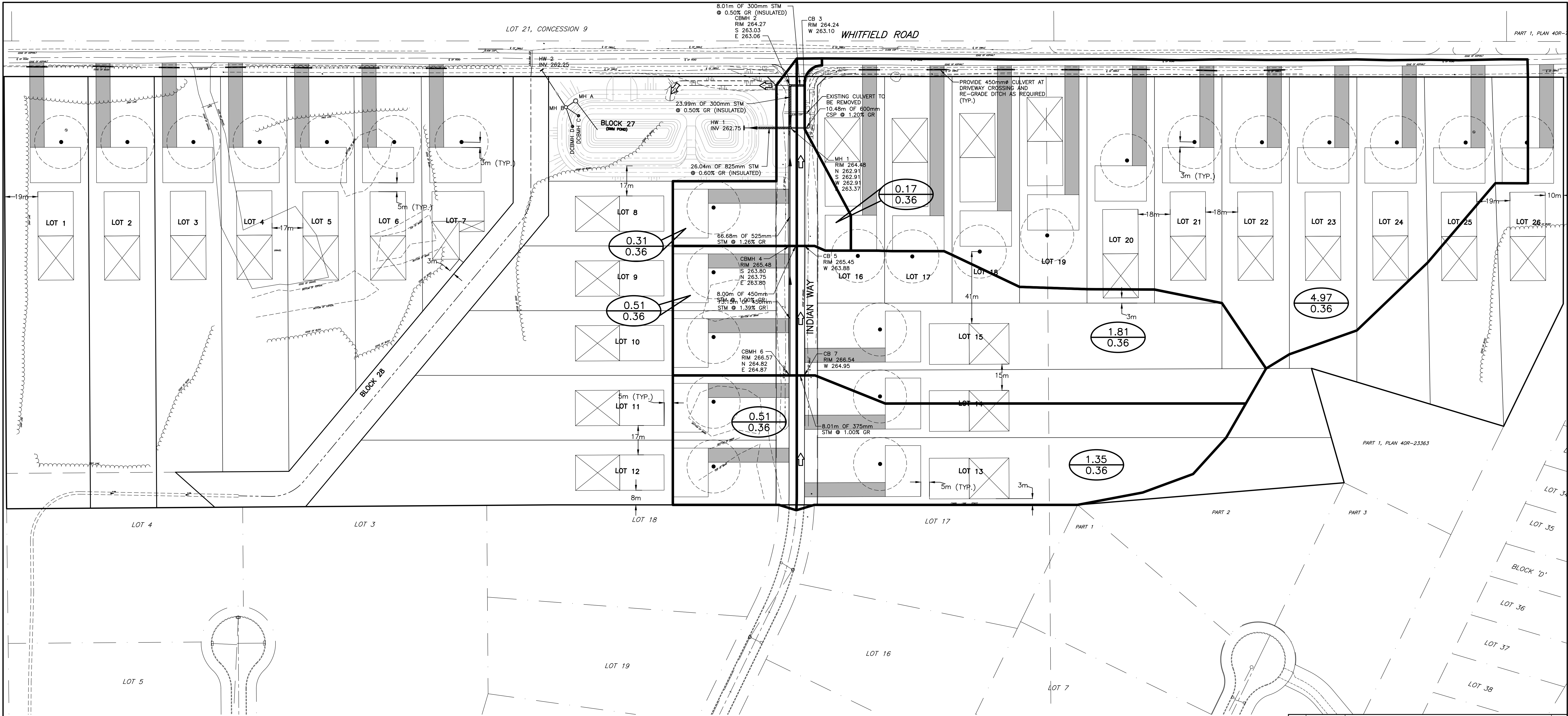
CREATED BY: DH PROJECT NO.: P2025-961
 CHECKED BY: IR DATE: Oct 01, 2025

Appendix F

Proposed Site Plan



X:\STAFF\JOB FILES\112000\112112 RONDEAU - PORT PERRY\112112 DRAWINGS\112112 CONCEPTUAL DEVELOPMENT AND PRELIMINARY ENGINEERING\112112-20250525-DRAFT PLAN OF SUBDIVISION.DWG



LEGEND

- PRELIMINARY SEPTIC BED LOCATION
SEPTIC & RESERVE AREA = 1,000m²
- WELL LOCATION WITH 15m OFFSET RADIUS
- DRAINAGE BOUNDARY
- 0.25 DRAINAGE AREA (ha)
0.90 RUN-OFF COEFFICIENT
- OVERLAND FLOW DIRECTION

NOTE: THIS PLAN IS FOR STORM DRAINAGE AREAS ONLY

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY
HONEY HARBOUR HEIGHTS ESTATES – PHASE 2C			
FUNCTIONAL SERVICING & STORM DRAINAGE PLAN			
		96 King Street East Oshawa, Ontario, L1H 1B6 Phone: 905-576-8500 info@dgbiddle.com dgbiddle.com	
		SCALE: 1:1000	PROJECT NO. 112112
DRAWN BY: M.R.W.		DESIGN BY: M.R.W.	DRAWING NO. D-1
CHECKED BY: D.D.M.		DATE: JAN 2025	