Prepared By:

Ida Street

Town of Dundalk, Ontario

Briarwood Estates (Dundalk) LLP

ENVIRONMENTAL IMPACT STUDY

Project No. 02-020-2019

May 2025

23 HERRELL AVENUE, BARRIE ON L4N 6T5
WWW.BIRKSNHC.CA

May 28, 2025

Enzo Di Giovanni
Briarwood Estates (Dundalk) LLP
636 Edward Avenue, Unit 14
Richmond Hill, Ontario L4C 0V4

Attention: Enzo Di Giovanni

RE: Environmental Impact Study – Briarwood Estates Ida Street, Dundalk, Township of Southgate, County of Grey
Birks NHC File #02-020-2019

Dear Mr. Di Giovanni:

Birks Natural Heritage Consultants, Inc. ("Birks NHC") was retained to prepare an Environmental Impact Study ('EIS') for the property identified as Briarwood Estates, located on Ida Street, Dundalk in the Township of Southgate, County of Grey. We understand that this assessment is being requested as Briarwood Estates (Dundalk) LLP is exploring the residential development on the property. To that end, an EIS will be required as part of a submission package to obtain municipal approvals.

The purpose of this EIS is to identify and characterize key natural heritage features and functions associated with the property and the proposed development area. Potential impacts to those features and functions are evaluated based on current understanding of the construction and maintenance of the proposed development.

Site specific data was collected by Birks NHC staff during desktop background review coupled with natural heritage assessments conducted in 2020 and 2024 with a focus on identifying and characterizing key natural heritage features and functions present. Through completion of the field program, review of background information, and applicable policies and regulations, we

have established that natural heritage features and functions associated with the property are related to the presence of wetland, candidate significant wildlife habitat and fish habitat.

This report outlines the process by which features were considered for their natural heritage function and value and an assessment of potential impacts associated with the proposed activity. Where potential impacts are identified, mitigation measures are proposed to reduce the potential impacts that could result to those identified. Assuming the mitigation measures recommended in this report and the appropriate compensations measures are implemented, there is no expectation that natural heritage features or functions associated with the study area will be lost.

If you have any questions or concerns regarding this report, please do not hesitate to contact the undersigned.

Birks Natural Heritage Consultants Inc.

Brad Baker, H.B.Sc.
Ecologist

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1 INTRODUCTION

Birks Natural Heritage Consultants, Inc. ('Birks NHC') was retained by Briarwood Estates (Dundalk) LLP ('Briarwood Estates') to prepare an Environmental Impact Study ('EIS') for the lands located at Ida Street in the Town of Dundalk, Township of Southgate (the 'Township') and the County of Grey (the 'County') and referred to in this report as the "subject property" (Figure 1).

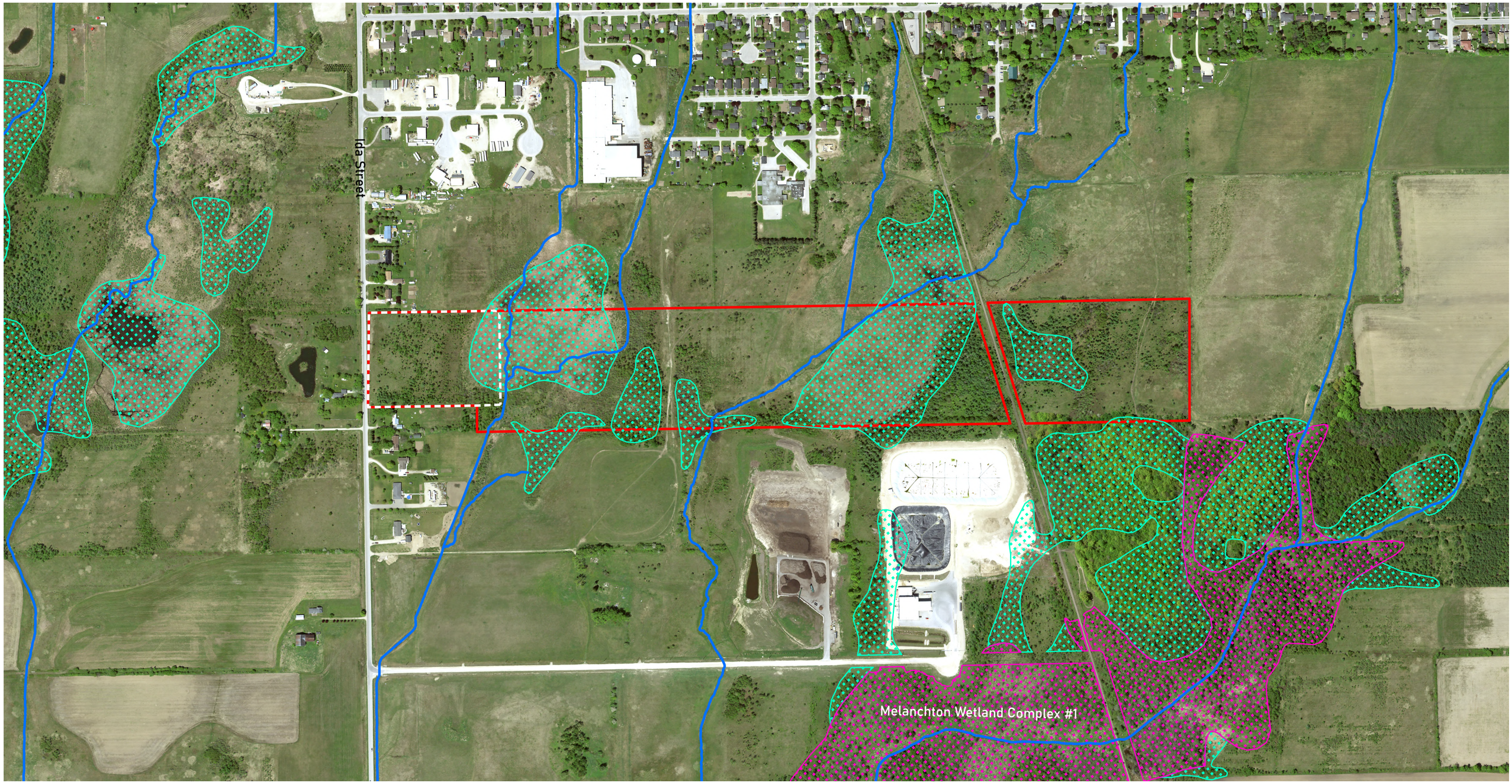
It is our understanding that Briarwood Estates is exploring residential development opportunities on the portion of the subject property immediately adjacent to Ida Street identified in this report (the 'development area') (Figure 2). Due to the presence of natural heritage features including wetland, watercourses and significant wildlife habitat, an EIS will be required as part of the application.

1.1 PURPOSE

The purpose of this EIS is to identify and characterize natural heritage features and functions associated with the proposed development. This information is then considered in the context of the proposed development to determine if potential impacts to those features and functions could arise from the proposed development. Where potential impacts are identified, recommendations or mitigation measures are proposed to ensure that the appropriate natural heritage policies and legislation can be followed.

This report has been prepared to address the natural heritage requirements of the Provincial Planning Statement (2024) (the 'PPS'), *Endangered Species Act* (2007) (the 'ESA'), *Conservation Authorities Act* (1990), the federal *Fisheries Act* (1985), *Migratory Birds Convention Act*, 1994, the *Fish and Wildlife Conservation Act*, 1997, County of Grey Official Plan (2019) (the 'CGOP'), and Town of Southgate Official Plan (2022) (the 'TSOP').

While not explicitly outlined in this EIS, preliminary screening work was also completed for the identification of Natural Heritage Constraints to development. Natural Heritage Constraints are generally considered areas where it is recommended that development could preferentially be avoided, to remove potential for impact, and were used by the project team to define the development plan.



Briarwood Estates
Ida Street, Dundalk

Township of Southgate, County of Grey

Figure 1:
Property and Natural Heritage Features

Property Limit
Development Area

Wetland (Ontario GeoHub)
Un-evaluated
Evaluated-PSW

Watercourse (Ontario GeoHub)

BIRKS NATURAL HERITAGE CONSULTANTS

MAP DRAWING INFORMATION:
DATA PROVIDED BY: Grey County Open Data, GEOSPATIAL ONTARIO
MAP CREATED BY: SB
MAP CHECKED BY: BB
MAP PROJECTION: NAD 1983 UTM ZONE 17N

0 80 160 320 480 640 Meters

FILE LOCATION:
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PROJECT: 02-020-2019 STATUS: DRAFT DATE: 29/01/2025

1.2 Study Area

For the purpose of this EIS, the 'study area' is focused within an area approximately 120 metres ('m') surrounding the development area, as illustrated in Figure 2. Notwithstanding the study area, surveys were completed over the entirety of the subject property and included the area within 120 m of the property boundary. The Ministry of Natural Resources ('MNR') published the Natural Heritage Reference Manual (MNR, 2010) to provide technical guidance for the implementation of the natural heritage policies of the PPS which outlines a distance of 120 m for use in consideration of impacts to adjacent features. To allow for the consideration of any other natural heritage features in the area a landscape level screening was also undertaken through a review of air photos within approximately one kilometer surrounding the study area. For the purpose of provincial natural heritage review the study area is located in Ontario's Ecoregion 6E.

1.3 Site Description

The subject property is a 27 hectare ('ha') parcel that is located in the Settlement Area at the south end of Dundalk, immediately northeast of Ida Street and extending beyond the Grey County Canadian Pacific Rail Trail. The subject property consists of several large areas of wetland (marsh, swamp and thicket swamp), and several upland areas that include forest, shrub thicket and meadow (Figure 3). Two small unnamed tributaries of the Grand River run through the middle of the subject property. The development area is a 3.5 ha parcel of land abutting Ida Street that consists of upland meadow, upland coniferous thicket, thicket swamp and mineral marsh, the wetland portion comprising roughly one-third the area of the development area (1.10 ha). The first of two small tributaries of the Grand River on the property are mapped just outside the development area and along its northeastern boundary. These tributaries flow from two drains at the current built limit of the Town of Dundalk to the north and into the large cattail marsh where they appear to follow the path of least resistance through the flooded areas of the marsh each season and leave through a channelized drain at the south of the wetland area. GeoHub watercourse locations for this area are not extremely accurate.

1.4 Adjacent Land Use

The study area is situated on the south side of Dundalk, adjacent to existing residential properties that are primarily to the northwest and a mix of Hazard and Future Development land use designations to the west and east (Appendix B). Ida Street bounds the subject property on its southwest side. Natural lands and active agricultural lands dominate the area to the southwest outside the Dundalk town boundary (Ida Street).

Briarwood Estates
Ida Street, Dundalk

Township of Southgate, County of Grey

Figure 2:
Study Area

Property Limit
Development Area
120m Study Area
Un-evaluated Wetland (Ontario GeoHub)
Watercourse (Ontario GeoHub)

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MAP CHECKED BY: BB
MAP PROJECTION: NAD 1983 UTM ZONE 17N

0 30 60 120 180 240 Meters

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2 ENVIRONMENTAL POLICY FRAMEWORK

The following summarizes the planning policies and regulations related to natural heritage that apply to the proposed development.

2.1 PROVINCIAL PLANNING STATEMENT, 2024

The Provincial Planning Statement (PPS, 2024) is a policy statement issued under the authority of Section 3 of the Planning Act and came into effect on October 20, 2024. The Provincial Planning Statement provides overall policy directions on matters of provincial interest related to land use planning and development in Ontario, and applies province-wide, except where the Provincial Planning Statement or another provincial plan provides otherwise. Section 4.1 of the PPS specifies policy related to protection of natural heritage features and functions.

According to section 4.1.4 of the PPS stipulates policy for the protection of natural heritage features and functions as follows:
Development and site alteration shall not be permitted in:

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

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

a) Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;
b) Significant woodlands in Ecoregions 6E; and 7E;
c) Significant valleylands in Ecoregions 6E; and 7E;
d) Significant wildlife habitat;
e) Significant areas of natural and scientific interest; and
f) Coastal wetlands in Ecoregions 5E, 6E; and 7E that are not subject to policy 2.1.4(b)

While many of these features are mapped and direction is available to allow for candidate features and functions to be identified, it remains the responsibility of the province and/or the municipality to designate areas identified within Section 4.1.4 and 4.1.5 of the PPS as significant. The Natural Heritage Reference Manual (MNR, 2010) and Ecoregion 6E Significant Wildlife Habitat Criterion Schedule (MNRF, 2015) were used within this report to identify candidate features and functions not currently identified by the province and/or municipality.

Sections 4.1.6 and 4.1.7 state that development and site alteration is not permitted in fish habitat or habitat of endangered and threatened species except in accordance with federal and provincial requirements.

Section 4.1.8 extends protection of those features defined above in policies 4.1.4, 4.1.5 and 4.1.6 to adjacent lands, typically those within 120 m of the potential impact. Section 4.1.8 states that development and site alteration shall not be permitted on adjacent lands to natural heritage features and areas identified in policies 4.1.4, 4.1.5, and 4.1.6 unless the ecological function of the adjacent lands has been evaluated, and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological function.

2.2 Endangered Species Act, 2007

Ontario's ESA provides regulatory protection to Endangered and Threatened species, prohibiting harassment, harm and/or killing of individuals and destruction of their habitats. Habitat is broadly characterized within the ESA as the area prescribed by a regulation as the habitat of the species, or an area on which the species depends, directly or indirectly, to carry on its life processes including reproduction, rearing of young, hibernation, migration or feeding.

O. Reg. 230/08 of the ESA identifies species at risk in Ontario and includes species listed as Extirpated, Endangered, Threatened, and Special Concern. As noted above, only species listed as Endangered and Threatened receive species and habitat protection through the ESA. Species designated as Special Concern may receive protection under the Significant Wildlife Habitat ('SWH') Provisions of the PPS.

2.3 Fisheries Act, 1985

The purpose of the federal *Fisheries Act*, 1985 is, in part, to provide a framework for the conservation and protection of fish and fish habitat through the various regulations that protect against serious harm to fish by death or any permanent or temporary harmful alteration, disruption or destruction to their habitat. Fish habitat is defined as "spawning grounds and any other areas, including nursery, rearing, food supply and migration areas, on which fish depend directly or indirectly in order to carry out their life processes".

The fish and fish habitat protection provisions of the *Fisheries Act* include:

- a prohibition against causing the death of fish, by means other than fishing (Section 34.4);
- prohibition against causing harmful alteration, disruption or destruction of fish habitat (Section 35);
- establishment of standards and codes of practice in relation to works, undertakings and activities during any phase of their construction, operation, modification, decommissioning or abandonment for the avoidance of death to fish, HADD, and for the prevention of pollution (Section 34.2); and,
- ministerial powers to ensure the free passage of fish or the protection of fish or fish habitat with respect to existing obstructions (Section 34.3).

The interpretation and application of the regulations of the Fisheries Act is overseen by Fisheries and Oceans Canada ('DFO'). Under the direction of DFO, projects that have potential to affect fish and fish

habitat are screened using their online guidance platform, 'Projects Near Water' to determine if the project will require review under the *Fisheries Act*. Projects that cannot implement measures to mitigate impact to fish and fish habitat, and do not qualify under the current standards and Codes of Practice, require review by DFO prior to any site disturbance.

When reviewing applications, the DFO will employ a risk-based approach to determine the likelihood and severity of potential impacts to fish and fish habitat that could result from given work, undertaking or activity and will advise the proponent accordingly.

2.4 Conservation Authorities Act (1990)

Ontario's Conservation Authorities fall under the jurisdiction of the Conservation Authorities Act, 1990 which was reviewed and modernized most recently in 2024. The purpose of Conservation Authorities Act is to "provide for the organization and delivery of programs and services that further the conservation, restoration, development and management of natural resources in watersheds in Ontario". The study area falls within the jurisdiction area of the GRCA under the Conservation Authorities Act, O. Reg. 41/24. Due to two small tributaries of the Grand River running through middle of the subject property and un-evaluated wetlands, the subject property is regulated by the GRCA.

2.5 County of Grey Official Plan (2019)

The CGOP provides a policy context for local official plans and zoning bylaws. Schedule A (Land Use Types), Map 2 (Appendix A) illustrates the subject property is within a Primary Settlement Area. Primary Settlement Areas include cities, towns, villages and hamlets, as well as growth areas along shorelines and in recreational areas. They include larger settlements with full municipal service and a wide range of services and amenities which are to be the primary target for residential and non-residential growth. The County will work with the local municipality to identify how and where growth will occur.

2.6 Township of Southgate Official Plan (2022)

The Township of Southgate Official Plan Secondary Schedule, Map 2 (Dundalk Land Use) (Appendix B) illustrates the subject property as being a mix of Hazard Land and Future Development designations. Future Development designation permits only use for agriculture, forestry and conservation until such time as a new designation is approved (Section 5.2.6). Creation of new lots in this designation will only be approved in extenuating circumstances and where the lots will not jeopardize the proper development of the subject property nor the surrounding neighbourhood.

The areas designated Hazard Lands within the Township are coincidental with Conservation Authority regulated areas. Buildings and structures are generally not permitted within Hazard Lands (Section 5.5.2). Certain types of development in Hazard Lands may be considered by the Township in conjunction with the GRCA where no adverse environmental or safety impacts will result. In this situation an EIS and other technical studies may be required.

3 STUDY APPROACH

The following activities and assessments were undertaken to fulfill the objectives of this study.

3.1 Data Sources

Background documents provide information on site characteristics, habitat, wildlife, rare species and communities, and other aspects of the study area. For the purpose of this EIS, the following sources were considered:

- Aerial images (Google)
- Atlas of the Breeding Birds of Ontario (accessed 2024))
- Ontario GeoHub (Geospatial Ontario; MNR; accessed 2024)
- Natural Heritage Information Centre ('NHIC'; accessed 2024))
- Ontario Reptile and Amphibian Atlas (Ontario Nature; accessed 2024)
- iNaturalist (accessed 2024)
- Species at Risk in Ontario List (Ministry of the Environment Conservation and Parks 'MECP'; accessed 2024)
- Township of Southgate Official Plan (2022)
- County of Grey Official Plan (2019)

3.2 Field Surveys

Natural heritage features and functions within the study area were characterized through completion of field surveys in 2020 and 2024. The following sections outline the methods used for each of the surveys, including specific provincial protocols utilized. Incidental wildlife, plant and habitat observations were considered during all surveys. Searches were also conducted to document the presence or absence of suitable habitat based on habitat requirements of Threatened or Endangered species with habitat ranges overlapping the subject property. A summary of the surveys completed including the dates for the completion of the surveys are outlined in Table 1.

Table 1: Summary of Field Surveys Conducted

Dates	Start/End Time	Type of Survey	Birks NHC Ecologist(s)
April 27, 2020	16:07 – 17:59	Amphibian (Day)	B. Baker
April 27, 2020	20:50 – 21:25	Amphibian (Evening)	B. Baker
May 20, 2020	19:15 – 20:15	Amphibian (Evening)	B. Baker
June 29, 2020	21:39 – 22:30	Amphibian (Evening)	B. Baker
April 16, 2024	20:00 – 21:07	Amphibian (Evening)	M. Fuller, B. Baker
May 15, 2024	21:06 – 22:11	Amphibian (Evening)	M. Fuller, B. Baker
June 25, 2024	21:45 – 22:05	Amphibian (Evening)	B. Baker, K. Tuininga
June 4, 2020	7:39 – 8:55	Breeding Bird	B. Baker/ S. Brady
June 5, 2020	7:30 – 9:10	Breeding Bird	B. Baker/ S. Brady
June 18, 2020	7:40 – 8:40	Breeding Bird	B. Baker/ S. Brady
June 6, 2024	6:40 – 7:40	Breeding Bird	B. Baker/ S. Brady
June 19, 2024	6:12 – 8:15	Breeding Bird	B. Baker/ S. Brady
June 4, 2020	N/A	Vegetation	B. Baker, S. Brady
August 18, 2020	N/A	Vegetation	B. Baker, H. Marcks
August 26, 2020	N/A	Vegetation	B. Baker, H. Marcks
October 9, 2020	N/A	Vegetation	B. Baker, S. Brady, H. Marcks
April 16, 2024	N/A	Vegetation	B. Baker/ M. Fuller
June 19, 2024	N/A	Vegetation	B. Baker
August 20, 2024	N/A	Vegetation	M. Fuller
April 16, 2024	N/A	Fish Habitat Assessment	M. Fuller
August 20, 2024	12:15 – 15:00	Fish Community	B. Baker, M. Fuller

3.2.1 Vegetation Community Mapping and Surveys

As a first step in identifying and assessing natural heritage features on the subject property, the vegetation communities were analyzed using Ecological Land Classification ('ELC'). The ecological community boundaries were determined through a review of aerial photography and then further refined during the site visits throughout the 2020 and 2024 field seasons. The ELC system for Southern Ontario (Lee *et al.,* 1998) was used with modifications. In early 2007, the MNR refined their original vegetation type codes to more fully encompass the vast range of natural and cultural communities across Southern Ontario. Through this process, new codes have been added while some have changed slightly. These updated ELC codes have also been used for reporting purposes in this study where they are more representative of the vegetation communities within the subject property.

A plant list was also compiled for the property during the survey work. Plant species were considered through a roving survey in each ELC polygon. The plant list is included in Appendix C.

3.2.2 Wildlife Surveys

A wildlife assessment for the subject property was completed through incidental observations while on site. Any incidental observations of wildlife were noted including other wildlife evidence such as dens, tracks, and scat. For each observation notes and, when possible, photos were taken. These observations were also used in the consideration of the wildlife habitat function associated with the study area.

Wildlife habitat functions were evaluated according to provincial criteria outlined in the Ecoregion 6E Criterion Schedules (MNRF, 2015).

3.2.3 Amphibian Calling Surveys

Amphibian breeding habitat was assessed using auditory surveys that followed the Marsh Monitoring Program Participant's Handbook for Surveying Amphibians (Bird Studies Canada, 2008). According to this protocol, surveys are to be conducted between the months of April and July, at least 15 days apart, to detect species during their 'optimum' breeding window, including early breeders (*i.e.* Chorus Frog (*Pseudacris triseriata*), Spring Peeper (*Pseudacris crucifer*), and Wood Frog (*Lithobates sylvaticus*)), mid-season breeding (*i.e.*, American Toad (*Anaxyrus americanus*), Northern Leopard Frog (*Lithobates pipiens*), and Pickerel Frog (*Lithobates palustris*)), and late-season breeders (*i.e.*, Bullfrog (*Lithobates catesbeianus*), Mink Frog (*Lithobates septentrionalis*), and Gray Treefrog (*Dryophytes versicolor*)). Weather conditions were also taken into consideration for each survey; surveys were not performed during periods of rain and high winds.

Twelve locations were surveyed within the subject property, two within the study area (Figure 3). The calling activity of individuals estimated to be within 100 m of the monitoring station was documented. For each species heard, call activity was ranked using one of the three call level code categories:

- Call code 1 - Individuals can be counted, calls not simultaneous;
- Call code 2 - Calls distinguishable, some simultaneous calling; or,
- Call code 3 - Full chorus, calls simultaneous and overlapping.

Results of the amphibian call surveys can be found in Appendix D.

3.2.4 Dawn Breeding Bird Surveys

Dawn breeding bird surveys were conducted on the subject property in 2020 and 2024 following the methods outlined in the Ontario Breeding Bird Atlas Guide for Participants (Cadman *et al*., 2001), with modifications made where deemed necessary. Specifically, breeding bird surveys consisted of ten-minute point counts that were used to establish qualitative estimates of bird abundance, species presence, and breeding activity in all habitat types within proximity to the subject property. Sixteen breeding bird stations were situated across the subject property (see Figure 3). Results of the dawn breeding bird surveys are found in Appendix E.

3.2.5 Fish Habitat Assessment

A characterization of fish habitat was completed through assessment of feature morphology, water quality, flow regime and vegetation on April 16, 2024, and a fish community survey was completed on August 20, 2024. Additional fish community information was available for the unnamed Grand River tributaries through background information sources such as the MNR and GeoHub.

Fish habitat identified within the study area was assigned one of the following designations:

- Permanent direct fish habitat: a feature where flowing or standing water is present year-round and connected to known fish habitat;
- Seasonal direct fish habitat: a feature that provides direct habitat for fish under elevated water levels (during spring freshet and large storm events), but not under low water conditions, due to insufficient open water and refuge habitat or anoxic water quality conditions; and
- Indirect fish habitat: a feature where there is sufficient water to sustain aquatic invertebrates and plants and that discharges to direct habitat downstream. Fish cannot directly access the area as a result of a barrier to upstream fish movement (*i.e.*, steep channel grade, low water levels, perched culvert).

Direct fish habitat is defined as habitat used by fish for spawning, rearing, feeding or migration. Indirect fish habitat is aquatic habitat that is generally not used by fish, but that provides base flow, nutrient inputs, and food resources to direct fish habitats.

3.3 Species at Risk

The species at risk assessment included an analysis of the habitat requirements of species at risk known to occur in the region to identify those having potential to occur within the study area. Birks NHC reviewed data obtained through desktop review and the site visits, related to potential habitat for provincially designated species, notably species at risk listed under O. Reg. 230/08 of the ESA as Threatened or Endangered. Where it is determined that the species have potential habitat within the study area, survey results were considered to determine the function of the potential habitat and whether the proposed works are in compliance with the regulations of the ESA.

4 NATURAL HERITAGE FEATURES AND FUNCTIONS

The following sections present an examination of our findings as they relate to natural heritage features and functions in the study area.

4.1 General Site Overview

As discussed above the subject property consists of several large areas of wetland, in addition to forested, thicket and meadow upland areas. Two small tributaries of the Grand River also run through the middle of the subject property. The development area, abutting Ida Street, includes a portion of wetland habitat, namely a large cattail dominated marsh. Two drains exit Dundalk to the north and pass

through the marsh in generally diffuse flow although channels can be seen in some years where cattail growth has been pushed aside under higher flows. The majority of the vegetation within the thicket and meadow habitat present in the development area have been cleared since the original vegetation surveys, presumably to allow for test pitting and well installation in the area. This has left a disturbed vegetation community resembling a meadow but dominated by early pioneer field species. The wetland and transition area remain unchanged through the course of the study.

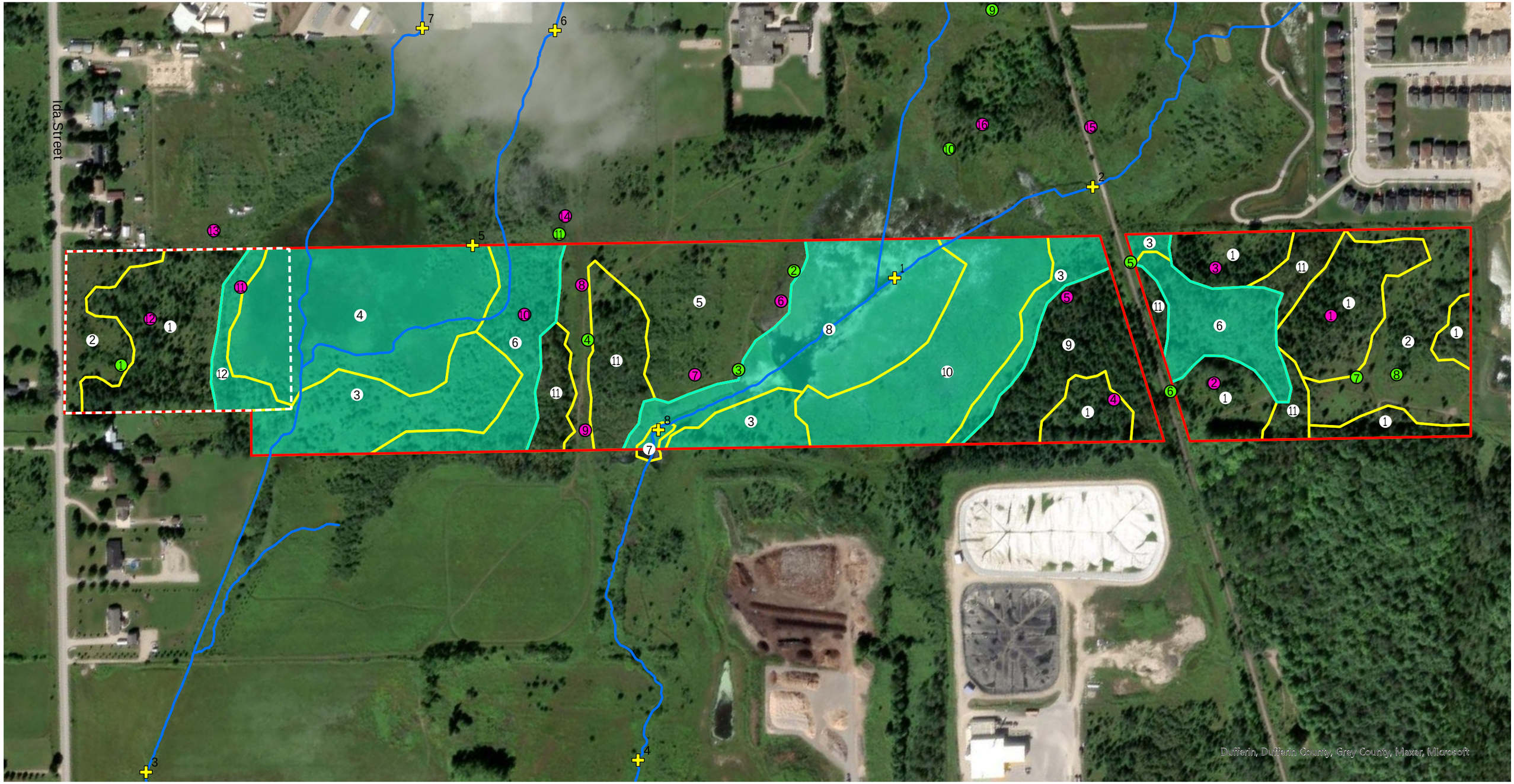
4.1.1 Vegetation Communities

Vegetation communities and their respective locations are illustrated on Figure 3. A total of 12 distinct ecosites were identified within the subject property limits, 5 within the study area. The vegetation communities that occur on the property are listed below (the 5 ELC communities that comprise the habitat within the study area are in bold type).

1. THCM1-2-Dry Fresh Native Coniferous Regeneration Thicket
2. MEFM1-1-Goldenrod Forb Meadow
3. SWTM3-Willow Mineral Deciduous Thicket Swamp
4. MAMM1-2-Cattail Graminoid Mineral Marsh
5. MEGM3-8-Reed Canary Grass Graminoid Meadow
SWDM4-5-Poplar Mineral Deciduous Swamp
7. OAW-Open Water
8. MAMM2- Forb Mineral Meadow Marsh
9. FOCM4-Fresh-Mosit White Cedar Coniferous Forest
10. SWT-Thicket Swamp
11. FODM8-1-Fresh-Moist Popular Deciduous Forest
12. SWTM2-1-Red-osier Dogwood Mineral Thicket Swamp

4.1.2 Vascular Plants

Plants were considered over the course of several years' growing seasons. Vegetation surveys were undertaken by Birks NHC staff during the 2020 and 2024 field seasons as outlined in Table 1. No species at risk plants were documented within the study area. A list of species is included within the EIS report which identifies species presence linked to vegetation communities (Appendix C).



Briarwood Estates
Ida Street, Dundalk

Township of Southgate, County of Grey

Figure 3:
Existing Conditions and Survey Locations

- Property Limit
- Development Area
- Watercourse (Ontario GeoHub)
- Wetland Area (Birks NHC)
- Wetland Limit (Birks NHC, 2024)

Vegetation Communities

1) THCM1-2 - Dry-Fresh Native Coniferous Regeneration Thicket
2) MEFM1-1 - Goldenrod Forb Meadow
3) SWTM3 - Willow Mineral Deciduous Thicket Swamp
4) MAMM1-2 - Cattail Graminoid Mineral Marsh
5) MEGM3-8 - Reed Canary Grass Graminoid Meadow
6) SWDM4-5 - Poplar Mineral Deciduous Swamp
7) OAW - Open Water
8) MAMM2 - Forb Mineral Meadow Marsh
9) FOCM4 - Fresh-Moist White Cedar Coniferous Forest
10) SWT - Thicket Swamp
11) FODM8-1 - Fresh-Moist Poplar Deciduous Forest
12) SWTM2-1 - Red-osier Dogwood Mineral Thicket Swamp

Survey Locations

- Dawn Breeding Bird
- Amphibian Calling
- Fish Sampling

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PROJECT: 02-020-2019 STATUS: DRAFT DATE: 22/05/2025

4.2 Wetlands

No provincially significant wetland (PSW) is found within the development area. Within the larger subject property, there are two main wetland components separated by an upland ridge.

The southwestern wetland unit is formed on a topographical low associated with two branches of a watercourse/drain that leave Dundalk to the north. This wetland comprised a mix of Cattail dominated wetland transitioning through thicket and into Poplar Swamp before becoming a Poplar dominated forest on the upland ridge and a regularly used (informal) ATV trail. The southwestern wetland unit was denoted as an unevaluated wetland and does not appear to be hydrologically connected to Provincially Significant Wetland Units south or east of the subject property. For the purpose of this EIS, the southwestern wetland unit is be considered 'other wetlands'.

The wetlands present to the northeast on the subject property have potential to be hydrologically connected to an existing PSW, the Melancthon Wetland Complex. For the purpose of this EIS, these wetland units would be considered potentially a part of the Melancthon Wetland PSW Complex, pending further study, but are further than 120 meters from the development area. As such, they will not be considered directly in the EIS. Notwithstanding, these are areas where potential offsetting and improvements are being considered including the creation of new wetland communities.

4.3 Woodlands

The CGOP and TSOP identify significant woodlands within Settlement Areas as woodlands of at least 4 hectares in size. The TSOP also maps them in Schedule C, identifying Significant Woodland only at the east side of the subject property. Vegetation community 9, identified as a FOCM4 – Fresh Moist White Cedar Coniferous Forest, is mapped in Schedule C as Provincially Significant Woodland. This vegetation community resides outside the development area and associated study area.

4.4 Valleylands

The topography of the study area is relatively flat and there is little in the way of hills or valleys within the subject property. There are no mapped Significant Valleylands identified within the development area, the study area, or the subject property, nor do site characteristics suggest that further consideration should be given to this potential feature.

4.5 Significant Wildlife Habitat

As a part of this assessment, Birks NHC staff reviewed the MNR's Significant Wildlife Habitat Technical Guide (2000) and the accompanying Ecoregion 6E Criteria Schedules (MNRF, 2015) to assess the potential for SWH to be present in the study area. The full assessment table is included as Appendix F. Based on that assessment, it was determined that the following candidate significant wildlife habitat functions may be associated with the development area and the study area:

- Seasonal Concentrations of Areas of Animals
    - Reptile Hibernaculum (potential) - while no hibernacula were documented on the subject property and few snakes identified in the area during the course of surveys, potential habitat could exist within the upland communities in the western half of the development area.
- Habitat for Species of Conservation Concern (Not End or Thr)
    - Four species of conservation concern were identified for the subject property, three birds and one reptile and are considered further below.

All functions noted are linked to the associated habitats in the development area and the study area as summarized above.

4.5.1 Seasonal Concentrations of Areas of Animals

As outlined within the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E reference document (MNRF, 2015), Seasonal Concentration Areas are areas where wildlife species occur annually. These seasonal aggregations result in large numbers of individuals highly concentrated within relatively small areas. The loss of, or damage to, these areas can result in a significant impact to populations. The study area may provide the following Seasonal Concentration Areas SWH functions:

<u>Reptile Hibernaculum</u>

Snakes overwinter in Ontario by accessing underground hibernation sites below the frost line. They will utilize rock crevices, rodent burrows, tree root systems and structures such as old building foundations to overwinter below the frostline. Because of the variability in features that snakes will use for hibernation, snake hibernaculum may be found in almost any habitat (except for very wet ones). Since features associated with this function appear to be common in the landscape, reptile hibernaculum SWH may be present within the study area. While few snakes were observed during the site assessment and no rock crevices were noted within the development area, reptiles may gain access to below the frost line for hibernation through rodent burrows and tree root systems. Thus, for the purpose of this assessment this function is assumed to be present in the two upland communities within the development area, specifically ELC communities 1. THCM1-2-Dry Fresh Native Coniferous Regeneration Thicket and 2. MEFM1-1-Goldenrod Forb Meadow.

4.5.2 Habitat for Species of Conservation Concern (Not End or Thr)

Habitat of all Special Concern and provincially Rare (S1-S3, SH) plant and animal species, not including Endangered or Threatened species, is considered Significant Wildlife Habitat. When a Natural Heritage Information Center element occurrence is identified within a survey grid square for a Special Concern or provincially rare species, consideration for candidate habitat associated with the subject property is required.

Eastern Wood-Pewee, Barn Swallow and Canada Warbler were recorded in the Ontario Breeding Bird Atlas (OBBA) grid squares that include the study area and the subject property (17TNJ48, 17TNJ49). Each of these three species were recorded at single stations during breeding bird surveys on the subject property but none were found within the study area.

Eastern Wood-Pewee (Special Concern)

The Eastern Wood-Pewee breeds mostly in mature and intermediate age deciduous and mixed forests (less often in coniferous forest) having an open understory and is often associated with forests dominated by Sugar Maple, elm and oak. The species does not prefer woods surrounded by residential developments (COSEWIC 2012a). The habitat within the development area does not meet the preferred breeding habitat characteristics for the Eastern Wood-Pewee. ELC communities east of the study area on the subject property include deciduous forest which could support a wide variety of wildlife species including the Eastern Wood-Pewee.

Barn Swallow (Special Concern)

Prior to European colonization Barn Swallows nested on cliffs, rock overhangs and caves. Today Barn Swallows typically use human-made structures such as barns, sheds and bridges for nest sites (COSEWIC 2021). No human-made structures currently exist on the subject property and no natural nesting habitat exists in the area.

Canada Warbler (Special Concern)

The Canada Warbler prefers wet, mixed forests with well-developed shrub understories, but can occasionally be found in other wet deciduous or coniferous forest types (COSEWIC 2020). Suitable habitat for the species is not found in the study area, but ELC communities found elsewhere on the subject property might be utilized in lieu of ideal habitat.

Snapping Turtle (Special Concern)

Snapping Turtles occur in almost any freshwater habitat including small wetlands, ponds, and ditches. This species has recent occurrences recorded in the survey grid squares which encompasses the study area (17NJ49). Snapping Turtles were recorded incidentally during surveys, and recent iNaturalist observations (2017 and 2024) also record the species near the subject property. This turtle was identified on the east side of the subject property within the beaver ponds present in the area and maintains some potential to utilize the wetland habitats within the study area.

4.6 Areas of Natural and Scientific Interest

No Areas of Natural and Scientific Interest are located in the study area.

4.7 Habitat of Threatened and Endangered Species

The habitat requirements of those species listed as Threatened and Endangered under the ESA were considered in relation to the habitat features noted within the development area and the adjacent

lands. Table 2 provides a summary of the species considered for the purpose of this assessment that were considered to have relevant habitat or records associated with the study area.

Table 2: Species at Risk Assessment

Common Name	Scientific Name	Designation		Habitat Affinities Present Within Study Area
		ESA	SARA	
Birds				
Bank Swallow	*Riparia riparia*	THR	THR	Unlikely – no suitable nesting habitat is found in the development area or elsewhere on the subject property.
[1]Bobolink	*Dolichonyx oryzivorus*	THR	THR	Possible – The presence of an upland meadow community within the study area means that this species should be considered.
Chimney Swift	*Chaetura pelagica*	THR	THR	Unlikely – the species typically nests and roosts in chimneys. No buildings currently exist on the subject property and suitable natural nesting features (large, mature trees with large cavities) are not present.
[1]Eastern Meadowlark	*Sturnella magna*	THR	THR	Possible – Similar to Bobolink, the presence of an upland meadow community within the study area means that this species should be considered.
Sources: MECP SARO List, Birks NHC expertise; NHIC (2024); COSEWIC Designation Status Provincial Status – Species at Risk in Ontario list as outlined in O. Reg. 230/08 of the *Endangered Species Act,* 2007 Federal Status – The *Species at Risk Act*, 2002 establishes Schedule 1 as the official list of Species at Risk.				

Based on habitat use, site knowledge and data available from online resources (*i.e.,* the Ontario Breeding Bird Atlas) it was determined that the following species have candidate habitat associated with the study area and have the potential to occur in the region.

4.7.1 Bank Swallow

Bank Swallows nest in natural and human-made habitats having steeply sloped sand and silt deposits (COSEWIC 2013). No such habitats exist on the subject property. Thus, for the purpose of this assessment further consideration is not given to this function as it relates to the proposed development/site alteration.

4.7.2 Bobolink and Eastern Meadowlark

The NHIC 1 km grid squares that cover the subject property (17NJ4889, 17NJ4890, 17NJ4990) indicate that both Bobolink and Eastern Meadowlark have been documented in the area. The species are found in open grasslands, but the upland meadow in the development area is unlikely to be suitable due to its small size, the limited amount of grasses present and the dominance of goldenrod (*Solidago sp.*). A

single Eastern Meadowlark was documented during field surveys in 2020 but outside the study area. No Bobolinks were recorded on the subject property.

4.7.3 Chimney Swift

Chimney Swifts typically nest in large chimneys associated with homes or other buildings. They formerly nested in large natural tree cavities in old growth forests and on cave walls. No buildings currently exist on the site and no suitable natural features are known in the area. No Chimney Swifts were recorded incidentally or during breeding bird surveys on the subject property. Thus, for the purpose of this assessment further consideration is not given to this function as it relates to the proposed development/site alteration.

4.8 Fish Habitat

Fish habitat on the subject property was characterized through a fish habitat assessment in 2024. The habitat in the Grand River tributaries is warmwater/coolwater permanent direct fish habitat. The tributaries consist of channels varying in wetted width from 50 centimeters (cm) – 3m metres (m). Depths varied from 20 – 30 cm or less. Substrates consisted of silty muck or gravelly silt. Braided channels were noted where the tributaries entered and exited through the cattail marshes on the subject property. Elsewhere some sections of the tributaries were well defined and natural while others were highly channelized. Fish were observed at several locations. The fish community survey completed on August 20, 2024 documented the following species: Northern Redbelly Dace (*Chrosomus eos*), Finescale Dace (*Chrosomus neogaeus*), Brook Stickleback (*Culaea inconstans*), Bluntnose Minnow (*Pimephales notatus*), Longnose Dace (*Rhinichthys cataractae*), Central Mudminnow (*Umbra limi*). Northern Redbelly Dace was by far the most numerous species captured. In addition to several of the above species, the MNR GeoHub database documented several other species in the subject property's tributaries including Common Carp (*Cyprinus carpio*), Creek Chub (*Semotilus atromaculatus*), Fathead Minnow (*Pimephales promelas*), and Johnny Darter (*Etheostoma nigrum*).

4.9 Natural Heritage Features Summary

The results of field surveys, review of background information and analysis indicate that candidate significant natural heritage features and functions are associated with the study area. Our impact assessment will consider potential impacts only to features and functions summarized in Table 3.

Table 3: Natural Heritage Features and Functions Summary

Natural Heritage Feature and Function	Within the Development Area	Within 120 m of the Development Area	Actions Required
Provincially Significant Wetland	None	None	No actions required.
Other Wetland	Unevaluated wetland	Unevaluated wetland	Evaluation for potential impacts required.
Significant Woodlands	None	None	No actions required.
Significant Valleylands	None	None	No actions required.
Significant Wildlife Habitat	Potential: • Reptile Hibernaculum • Special Concern and Rare Wildlife Species: Snapping Turtle	Potential: • Reptile Hibernaculum • Special Concern and Rare Wildlife Species: Snapping Turtle	Evaluation for potential impacts required.
Provincial Areas of Natural and Scientific Interest	None	None	No actions required.
Fish Habitat	Direct Fish Habitat Wetland adjacent to unnamed tributary of the Grand River	Direct Fish Habitat Unnamed tributary of the Grand River	Evaluation for potential impacts to fish and fish habitat required.
Habitat of Threatened or Endangered Species	None	None	No actions required.

5 IMPACT ASSESSMENT

The intent of this study is to identify natural heritage features and functions associated with the study area and determine if potential impacts could arise from the proposed development. Because functions are generally grouped into features, impacts will be considered as they relate to the following three key features and their associated functions:

- Other wetland (associated with the area of focus and study area)
- Candidate Significant Wildlife Habitat (associated with the area of focus and study area).
- Fish Habitat (direct fish habitat associated with the area of focus and the study area).

5.1 PROPOSED DEVELOPMENT

The proposed development will consist of 4 three-story multi-family residential buildings, a total of 378 units. A total of 478 parking spaces will be provided, 378 of which are proposed to be underground. Site access will be provided at two locations off Ida Street. The proposed layout of the site plan is provided in Appendix G. The development area covers the entire area of focus and is within the settlement area for the Town of Dundalk, and areas denoted as Future Development and Hazard Lands by the Town and County. The development comprises 3.5 ha (24%) of the subject property, and the remaining 23.6 ha (76%) is intended to be left undeveloped, protecting existing natural features.

To implement this development plan vegetation removals would be required over the 3.5 ha of the area of focus including 1.10 ha of unevaluated wetland and within the 30 m setback of the western most unnamed Grand River tributary. The majority of the unevaluated wetlands in the Hazard Lands of the overall property will not be disturbed.

Stormwater controls will consist of landscape features along the north, east and west limits of the focus area and a total 100 year below ground stormwater detention tank for long-term groundwater discharge. No surface or rooftop detention is proposed. Quality control is proposed to meet minimum MECP requirements (Enhanced protection - Level 1 treatment) providing 80% total suspended solids using an oil and grit separator as well as enhanced grass swales in the above landscape features (Valdor Engineering 2025).

Vegetation removals will be required within the following communities:

1. THCM1-2-Dry Fresh Native Coniferous Regeneration Thicket
2. MEFM1-1-Goldenrod Forb Meadow
3. SWTM3-Willow Mineral Deciduous Thicket Swamp
4. MAMM1-2-Cattail Graminoid Mineral Marsh
12. SWTM2-1-Red-osier Dogwood Mineral Thicket Swamp

5.2 Direct Impacts

Direct impacts are those that are immediately evident as a result of a development. Typically, the adverse effects of direct impacts are most evident during the site preparation and construction phase of a development. Direct removals of unevaluated wetland that is hydrologically linked to the Melancthon Wetland Complex at the east end of the subject property is not being considered in the development plan, therefore, no direct and/or indirect impacts to those features are expected to occur. It is noted that improvements may be required within or adjacent to those areas to allow for a cut/fill balance associated with the infilling floodplain associated with the southwest wetland and a portion of the 30 m setback of a Grand River tributary within the area of focus. Based on our review, potential natural heritage impacts of the proposed development in the area of focus include the following:

- Tree and vegetation removals within the forested lands;
- Erosion and sedimentation into adjacent natural heritage features;
- Changes to the hydrology/water quality entering natural heritage features;
- Loss of or disturbance to fish habitat
- Loss of and disturbance to wildlife and wildlife habitat

5.2.1 Tree and Vegetation Removals

Vegetation removals would be required for construction of the medium density residential buildings within the ELC communities of the area of focus (Figure 3). Within the proposed development area, this application would result in the removal of roughly 3.5 ha of vegetation. The upland habitats to be removed, consist of meadow and shrub thicket, are common communities found on lands adjacent to the subject property and throughout the Township and County. These areas have already been heavily modified and the ecological functions of these communities within the proposed development envelope were determined to be limited as both are small and situated between existing residential properties. As a result, the potential for negative impacts to the natural heritage in the area are anticipated to be minimal associated with this removal.

Additionally, vegetation removal of the 1.10 ha of wetland habitat within the area of focus is proposed. This would be considered a direct impact to the wetland area. While not explicitly prohibited by natural heritage policies of the GCOP or TSOP, there is a requirement that development or site alteration within 'other wetlands' would be required to meet the no negative impact test. The removal of a portion of this feature is not expected to negatively impact the overall function of the southwestern wetland pocket, but the removal of an area of the wetland could be considered an impact. Creation of wetland elsewhere on the subject property associated with the cut/fill work and compensated for through

enhancements to the larger wetland habitats east of the study area on the subject property are required to ensure that a net benefit to the natural heritage of the area would result. Mitigation and recommendations are also incorporated into Section 6 of this report intended to mitigate impacts to the habitat that remains adjacent to the development.

5.2.2 Erosion and Sedimentation into Natural Heritage Features

Construction activities, especially operations involving the handling of earthen material, increase the availability of sediment for erosion and transport by surface drainage. Any potential direct impacts to habitats which could result from sedimentation can be mitigated through the application of erosion and sediment control plans around the perimeter of the proposed soil disturbance. To mitigate the potential for adverse environmental impacts caused by the release of sediment-laden runoff into any potential receiving wetland or aquatic community, measures for erosion and sediment control will be required for this development. An erosion and sediment control plan is recommended for implementation prior to and during the development and to be maintained until the site is stabilized. Post construction, where necessary, disturbed lands will be stabilized with an appropriate surface treatment to ensure no offsite sediment transfer into natural heritage features on adjacent lands. Assuming sedimentation is controlled during construction, there should be no potential for later introduction of soils or sediment into the retained portions of the natural heritage features.

5.2.3 Changes to the Hydrology/Water Quality Entering Sensitive Features

Unevaluated wetland and direct fish habitat are present within the area of focus and the study area. The footprint of the development as proposed will extend into the existing unevaluated wetland and into the 30 m setback of the unnamed Grand River tributary. Construction is proposed below the shallow water table throughout most of the area of focus and will require short-term dewatering. Long-term dewatering is also anticipated to the extent that MECP Permits to Take Water will be required meaning volumes will exceed 50,000 L/day for 3 of the 4 Phases of development. Impacts to the above natural heritage features resulting from the proposed development are anticipated due to infilling but the long-term dewatering also has the potential to affect water levels in the wetland and watercourse. Additional information through a monitoring and mitigation plan including water balance information will be necessary to fully determine potential impacts and appropriate mitigation for the adjacent natural heritage features.

Provided that existing water levels and drainage and flow conditions are maintained post development and mitigation measures are applied accordingly, the remaining wetland and Grand River tributary functions should be preserved.

5.2.4 Loss of or Disturbance to Fish Habitat

Fish habitat is associated with the unnamed tributary of the Grand River that is situated just east of the area of focus and within the study area. While the tributary in this area has limited definition at certain times of year, the proposed development anticipates intrusion into the mapped tributary's 30 metre

setback and hence some realignment may be required (Valdor Engineering 2024). Potential sedimentation erosion and water quantity and quality changes may also potentially impact this watercourse. Given that the mapped watercourses through the cattail marsh change seasonally there is no expectation that flow through the area would be impeded and the channels would be expected to continue to exist. Thus, the watercourse will remain, and it is expected that its habitat function will continue provided mitigation measures are implemented. Some fish habitat associated with the unevaluated wetland adjacent to the tributary may however be lost due to proposed wetland infilling in the area of focus. Offsetting will be needed for the loss of this wetland/fish habitat, and the 30 m setback of the Grand River tributary will need to be reestablished following the watercourse realignment.

5.2.5 Loss and Disturbance to Wildlife and Wildlife Habitat

Based on the review of site conditions and natural heritage policy direction within the province of Ontario important habitat functions have potential to be associated with the study area. While it is generally expected that the wildlife present in the study area will be tolerant of human activity, consideration is warranted for the protection of those noted candidate SWH functions. Development in proximity to these features could cause habitat loss for important wildlife or disturbance which could reduce range or fecundity of these species.

Wetland Wildlife Habitat

Approximately 1/3 of the area of focus (1.10 ha) consists of unevaluated wetland habitat that includes willow and dogwood thicket swamps and mineral marsh. While the proposed development would result in filling portions of these habitats, larger portions of each, having similar habitat features and functions, would remain adjacent to the area of focus. Some habitat for common wetland wildlife species would be lost, but these species are expected to continue to use habitat in the remaining areas to the north and east. Notwithstanding, mitigation outlined in Section 6 of this report should be implemented to ensure that these habitat features continue to function, and the loss of wetland habitat will require offsetting measures.

Significant Wildlife Habitat

Significant Wildlife Habitat categories were assessed as occurring or potentially occurring within the study area. Habitat for Species of Conservation Concern (Snapping Turtle) have potential to be present within the area of focus and study area. While SWH within the 5 ELC communities mentioned above in Section 5.1 will be impacted, larger areas of these communities having the same functions will remain to the north of the area of focus and to the east within the subject property.

Based on this review it is anticipated that the habitat functions outside the area of focus but within the subject property will remain intact, and wildlife would continue to access and utilize adjacent habitats. Offsetting is proposed to enhance habitats on the subject property to the east of the study area.

5.3 INDIRECT IMPACTS

Indirect impacts are those that do not always manifest in the core development area but in the lands adjacent to the development. Indirect impacts have potential to result following the completion of the proposed activity. Usually this comes as a result of the project or human use of the project site following completion of the project. Indirect impacts often have a wider potential area of impact. Indirect impacts of the proposed development include:

- Anthropogenic disturbance;
- Increased potential for introduction of non-native species

5.3.1 Anthropogenic Disturbance

Anthropogenic disturbance post development can take many forms. A residential development could be expected to bring increased human presence and associated anthropogenic disturbances in the form of increased noise and light, predation by pets, waste deposition, and supplemental feeding (i.e., people depositing food for deer in the winter). These impacts would be more prominent when a new development is proposed in un-developed areas but can still present important impacts long term to neighbouring natural heritage features. The subject property is within a Primary Settlement Area of the Town of Dundalk, surrounded by agricultural and natural lands as well as residential and industrial areas. While the proposed development will result in an increase of human residence it is not expected to result in significant intensification of indirect human impacts. Notwithstanding, in proximity to the natural areas to the north and northeast, mitigation measures including fencing and lighting are recommended to reduce potential impacts and discourage encroachment into the retained natural areas.

5.3.2 Increased potential for introduction of non-native species

Site disturbance may increase the likelihood that non-native and/or invasive vegetation will become established within the retained vegetation communities. Additionally, if construction equipment from other work sites is used without first being cleaned properly, invasive species transport may occur. Mitigation measures are provided in Section 6 of this report intended to control the potential introduction and spread of invasive species.

6 RECOMMENDATIONS AND MITIGATION MEASURES

Mitigation refers to the avoidance or reduction of impacts associated with the proposed activity through best management practices or other activities. As previously discussed, potential impacts were identified which could affect natural heritage features and functions associated with the study area. Where applied correctly, mitigation is intended to reduce the potential for impacts to ensure that the natural heritage features and functions will continue uninhibited by the proposed development. Thus, mitigation would be required to ensure that there is no negative impact, and the development can proceed in conformity with the relevant planning documents and in compliance with environmental law.

Where mitigation can not minimize the potential for impacts, offsetting will be required to ensure that natural features and functions can be maintained into the future. Offsetting in the form of compensation will be required for the loss of wetland habitat.

To support the implementation of local policies, mitigation and compensation measures are recommended to avoid disturbance to the identified study area features and functions and provide additional protection. The following items are recommended to minimize the potential natural heritage impacts identified within this report.

6.1 Natural Heritage Feature Protection

The development is primarily proposed within a previously cleared portion of the subject property but will require work in a wetland area. Development activities are to be contained within the proposed limit of disturbance outlined in Figure 2. This can be undertaken through the implementation of the following mitigation measures.

6.1.1 Fencing

This area should be appropriately delineated prior to beginning of construction to ensure that no accidental deviation occurs from the area of disturbance and intended wetland removals. In some cases, sediment and erosion control fencing may be sufficient to demark the limit of development area/area of disturbance and act as natural feature/wildlife habitat protection. Alternatively, recommendations may be included in the landscaping plan which can involve installation of more permanent water control structures such as a retaining wall. Those plans should be reviewed from a natural heritage perspective, and appropriate fencing should be installed prior to the onset of any site disturbance. The agreed upon protection fencing should be maintained in place and until all site works have been completed and the risk of damage/sediment and erosion is no longer a concern. No development activities (*i.e.*, material and equipment storage, grading, equipment activity) are permitted outside of the identified development limit.

Further, a permanent fence should be installed at the east boundary of the development area to prevent intrusion into the retained wetland area.

6.1.2 Sediment and Erosion Control Plans

Given that work is proposed in proximity to wetland habitat on the subject property, a Sediment and Erosion Control Plan will be important to ensure that the retained adjacent natural areas will be protected from soil migration onsite. In advance of any vegetation clearing or earth works (*i.e.*, clearing or grubbing) it is recommended that the development limit be established, as outlined in Section 6.1.1, to prevent accidental encroachment onto natural areas on adjacent lands. We suggest that sediment and erosion plan should be developed, and controls should be installed prior to all construction activities. Sediment and erosion controls must be maintained throughout construction and post-construction until vegetation is re-established, and the risk of sedimentation is no longer a concern.

6.1.3 General Equipment Maintenance

Equipment maintenance during and post construction should be undertaken in an appropriate area. Tool and vehicle maintenance and cleaning should be completed away from the retained natural areas in a manner that does not encourage the movement of cleaning or maintenance products including cleaners, oils or fuel into the neighbouring forested and wetland areas. Fuel and chemical storage should follow appropriate legislation to ensure that it is maintained and stored in a way that will not result in accidental release or spills to the neighboring natural areas. Further, equipment and vehicles should be inspected and cleaned prior to access to the subject property to prevent the spread of invasive plant species into the site.

6.1.4 Lighting Installations

Light can reduce natural heritage function in retained natural areas in proximity to large light sources such as residential or commercial developments. All exterior light fixtures are to be 'Dark Sky' compliant, designed to minimize light pollution and restrict the amount of glare and upward directed light. In order to minimize the effects of light on the retained adjacent lands we recommend that features such as streetlights be shielded, downward facing, and directed towards the development area. In addition, blue light emissions should be minimized with a preference for warm light. The use of bright unshielded floodlamps and streetlights should be avoided along the north, west and east sides of the development.

6.1.5 Control of Invasives

Areas of colonization for Invasive Species, primarily Phragmites, were noted on the subject property. In order to control invasive species on the property, fill, soil, gravel, and excavated materials used onsite or imported to the property should be controlled and moved by equipment during construction in a manner that will prevent the spread of invasive plants. This may include pre-screening soils before allowing use on the property and demarking areas where soil disturbance may occur in areas of invasive species colonization on the property. Further, vehicles and equipment shall be inspected and cleaned prior to allowing access or egress of the subject property to prevent the spread of invasive plant species.

6.2 Protection of Native Flora and Fauna

6.2.1 Bird Nesting

Construction activities involving the removal of vegetation should be restricted from occurring during the bird breeding season. Migratory birds, nests, and eggs are protected by the *Migratory Birds Convention Act*, 1994 and the *Fish and Wildlife Conservation Act*, 1997. Environment Canada outlines dates when activities in any region have potential to impact nests at the Environment Canada Website (https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds.html)

For this location, vegetation removal should be avoided between April 1st and August 30th of any given year. If vegetation clearing is required between these dates, screening by an ecologist with knowledge

of bird species present in the area could be undertaken to ensure that the vegetation has been confirmed to be free of nests prior to clearing.

Further, a combination of bird friendly design strategies should be implemented, such as visual markers to reduce the reflectiveness of glass and discourage accidental bird-window collisions.

6.2.2 Species at Risk

Given the dynamic character of the natural environment, as well as changes to policy (*i.e.,* new species listing, changes in species health or habitat conditions), annual consideration of current legislation and Species at Risk habitats is recommended in the interpretation of potential presence of Threatened or Endangered species as protected under the ESA.

This report was produced based on the most up-to-date policy information however, it is not intended to act as a long-term assessment of potential Species at Risk. The ESA is recognized as being a 'proponent-driven' piece of legislation and therefore it is the responsibility of the landowner/developer to ensure compliance with the regulations made under this act. Should a considerable length of time and/or sudden change in policy occur prior to construction, it is recommended that a review of the assessment provided within this report be undertaken by a qualified ecologist to ensure compliance with the ESA at that time.

All current Threatened or Endangered species listed under O. Reg. 230/08 made under the ESA (last amended January 2024) have been considered within this report.

Timing Windows - Endangered Bat Species

There is a possibility that trees within the development area could be utilized as day roost trees. Therefore, tree removals should occur outside of the active breeding/day roosting/nesting season for all Species at Risk that may utilize habitats in the area, including bats.

Tree cutting should be timed to occur during the period between November 1 to March 31 and no removals outside of the designated development area should occur. This will ensure that no nesting birds or bats actively roosting in trees will be killed or harmed as a result of clearing activities.

6.2.3 Worker Training

Due to the potential presence of Species at Risk within the Study Area, all on-site construction workers should be informed of the species and protocol to follow should one be encountered. This information would be best conveyed during a pre-construction meeting on-site by an individual knowledgeable of the Species at Risk in the area. Workers should be instructed to stop work and contact a qualified ecologist and/or the local MECP office immediately if any Species at Risk are encountered within the work area.

6.2.4 Fish Habitat

While the current tributary appears to follow an annual path of least resistance through the cattail marsh, the development proposal includes realignment of a portion of the Grand River tributary just outside the northeastern boundary of the area of focus. This could result in the potential for fish habitat loss within the channel and in the wetland habitat that will be removed adjacent to the tributary. All earthworks should be completed using proper sedimentation and erosion measures and maintained until all disturbed areas are permanently stabilized, to minimize impacts to fish and fish habitat. Consideration for loss of fish habitat should be incorporated in the compensation/offsetting plans.

6.3 Compensation/Offsetting

Provincial and local policies state that development and site alteration are not to generally permitted in provincially significant wetlands. In those wetlands designated as 'other wetlands' development or site alteration can be permitted assuming there will be no negative impact. Disturbance and development of the area of focus will result in the loss of potential SWH (Snapping Turtle habitat) as well as the loss of a portion of unevaluated wetland and will require offsetting measures. While each of the natural heritage functions associated with the SWH and wetland are expected to continue to function post redevelopment there will still be a loss of area.

An earthworks program (i.e., grading cut/fill plan) has been proposed to allow for the development including infilling into the unevaluated wetland within the area of focus. Within the remaining lands of the subject property to the northeast of the area of focus, including up to and beyond the Canadian Pacific Rail Trail, a compensation plan will need to be developed that will focus on the restoration and creation of natural heritage features and function.

The restoration or compensation plan will require a focus on directing cut to appropriate areas of the subject property where restoration and or improvement will be beneficial to the overall function of the retained natural areas. This may require:

- Planting of native vegetation;
- Removal of invasive species;
- Re-naturalization of disturbed portions of the Grand River tributaries;
- A mix of endpoint ecosites which will be purposed to support wildlife habitat function in the area;
- Formalization of trails through the retained natural areas to prevent unauthorized access via ATV or other offroad vehicles; and,
- Signage intended to protect the retained natural areas and inform local residents of the importance of these areas.

This will result in a healthier more vibrant natural area directly associated with the Grand River tributaries as well as the Melancthon Wetland PSW Complex which lies just to the east of the property beyond the Rail Trail, with an overall goal of a net benefit to the core natural heritage features. In

addition to wetland creation/restoration, the compensation plan could incorporate the creation of features to increase the potential for wildlife habitat use including:

- Creation of artificial reptile hibernacula to encourage continued use of the area by reptile species;
- Creation of spawning beds for local fish species within existing tributaries and/or removal of artificial drainage (culverts/weeping tiles/ditches) to reestablish more natural hydrological patterns; and,
- Creation of open sandy or gravel areas to encourage turtle nesting;
- Creation of wetland habitat within the cut area.

Following approval of the redevelopment activities, an offsetting and restoration plan should be prepared which is acceptable to the property owner and the review agencies including GRCA and Township of Southgate that will ensure a reasonable restoration effort is provided for the loss of development area habitat.

6.4 Regulatory Agency Approval

6.4.1 Grand River Conservation Authority

The study area falls within the jurisdiction area of the GRCA, and a large portion of the property is regulated under O. Reg. 41/24 Prohibited Activities, Exemptions and Permits due to the presence of wetlands and associated watercourses. As such, a GRCA review and approval are expected to be required.

6.4.2 Fisheries and Oceans Canada

The interpretation and application of the regulations of the Fisheries Act is overseen by DFO. As the project proceeds forward activities in or around fish habitat will be required to be screened using the online guidance platform, 'Projects Near Water' to determine if the project will require review under the *Fisheries Act*. If it is not possible to implement measures to mitigate impact to fish and fish habitat review by DFO may be required prior to any site disturbance.

6.5 Summary of Mitigation Plan

Mitigation of potential impacts to identified natural features and functions during construction are as follows:

Table 4: Mitigation Measures Summary

Identified Natural Heritage Feature and/or Function	Potential Impacts Identified	Recommended Mitigation/ Additional Studies	Potential Impacts with application of Recommended Mitigation	Proposed Offsetting Measures
Other Wetland	• Erosion and Sedimentation into Natural Heritage Features • Potential Changes to Hydrology • Loss of 1.1 ha of other wetland which functions as potential Snapping Turtle Habitat.	• Sediment and Erosion Control • Fencing • General Equipment Maintenance • Lightning installations • Invasives Control • Review of water balance information and confirmation that water taking will not alter wetland water levels.	• Loss of 1.1 ha will still occur	• Compensation Plan Required to offset lost area.
Significant Wildlife Habitat				• Compensation Plan Required to offset lost area.
Fish Habitat	• Changes to the Hydrology/Water Quality Entering Sensitive Features • Erosion and Sedimentation into Natural Heritage Features • Potential watercourse realignment.		• Minimal potential for impacts with applied mitigation • DFO Review may still be required	• To be determined through DFO review if required.
Habitat of Threatened or Endangered Species	• Potential Incidental Harm	• Sediment and Erosion Fencing to act as Reptile Exclusion Fencing • Worker Training • Timing Windows for Tree Clearing Activities • Review of habitat conditions prior to proceeding with activities to ensure no changes to the ESA or species listings.	• Minimal potential for impacts with applied mitigation	• None required

7 CONCLUSIONS

This EIS was prepared for the proposed development of the property identified as Ida Street in the Town of Dundalk, Township of Southgate, County of Grey. We understand that this assessment is required as part of a development application for the property which would allow for the proposed creation of a medium density residential development. The objective of the EIS is to identify the functions associated with natural heritage features present on the property and determine if potential impacts to those functions could arise from the proposed activity. The assessment is focused on potential ecological impacts which could result from the proposed development as outlined in Section 5.1 of this report.

Through site surveys and background information, natural heritage features and functions were identified in the study area. This report outlines the process by which features were considered for their natural heritage function and value and an assessment of potential impacts associated with the proposed activity. To implement this development plan vegetation removals would be required within the area of focus. This aspect of the development application came about through internal project team consultation and consultation with the review agencies. The result is understood to reflect considerations beyond simply natural heritage. While we note that the relevant natural heritage policies do not generally permit development in this manner, we understand that there are many considerations required in planning. To that end, the property and the proposed development application provide an excellent opportunity to provide a net benefit to the natural heritage system in the area.

Thus, where potential impacts have been identified, mitigation measures are proposed to reduce their potential impacts. Further, compensation/offsetting recommendations focused on the northeastern portion of the subject property will be intended to provide offset for the loss of wetland in the area of focus. Assuming that all necessary recommendations, mitigation, restoration and compensation are undertaken, the proposed development could proceed in compliance with environmental legislation and in the spirit of the natural heritage policies for the area which are generally intended to preserve natural heritage including promoting increased protection or creation/restoration of important natural areas.

8 REFERENCES

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APPENDIX A

County of Grey Official Plan Mapping

BIRKS

NATURAL HERITAGE CONSULTANTS

ANNAN
MEAFORD
WOODFORD
GEORGIAN BAY
N
SEE SCHEDULE A - MAP 1
BOGNOR
Refer to Secondary Plan in the Town of the Blue Mountains Official Plan
SEE SCHEDULE A - MAP 3
Simcoe County
Dufferin County
Wellington County

THE COUNTY OF GREY OFFICIAL PLAN

SCHEDULE A
Land Use Types

MAP 2

LEGEND

- Provincial Highway Connecting Link
- Provincial Highway
- County Road
- Local Road
- Seasonal Road
- Agricultural
- Special Agricultural
- Rural
- Primary Settlement Area *
- Secondary Settlement Area *
- Inland Lakes & Shoreline Settlement Area
- Recreational Resort Settlement Area
- Sunset Strip Settlement Area
- Industrial Business Park Settlement Area
- Space Extensive Industrial and Commercial
- Niagara Escarpment Plan Boundary **
- Niagara Escarpment Development Control Area
- Escarpment Natural Area
- Escarpment Recreation Area
- Hazard Lands
- Provincially Significant Wetlands and Significant Costal Lands

* refer to Secondary Schedules for further detail.

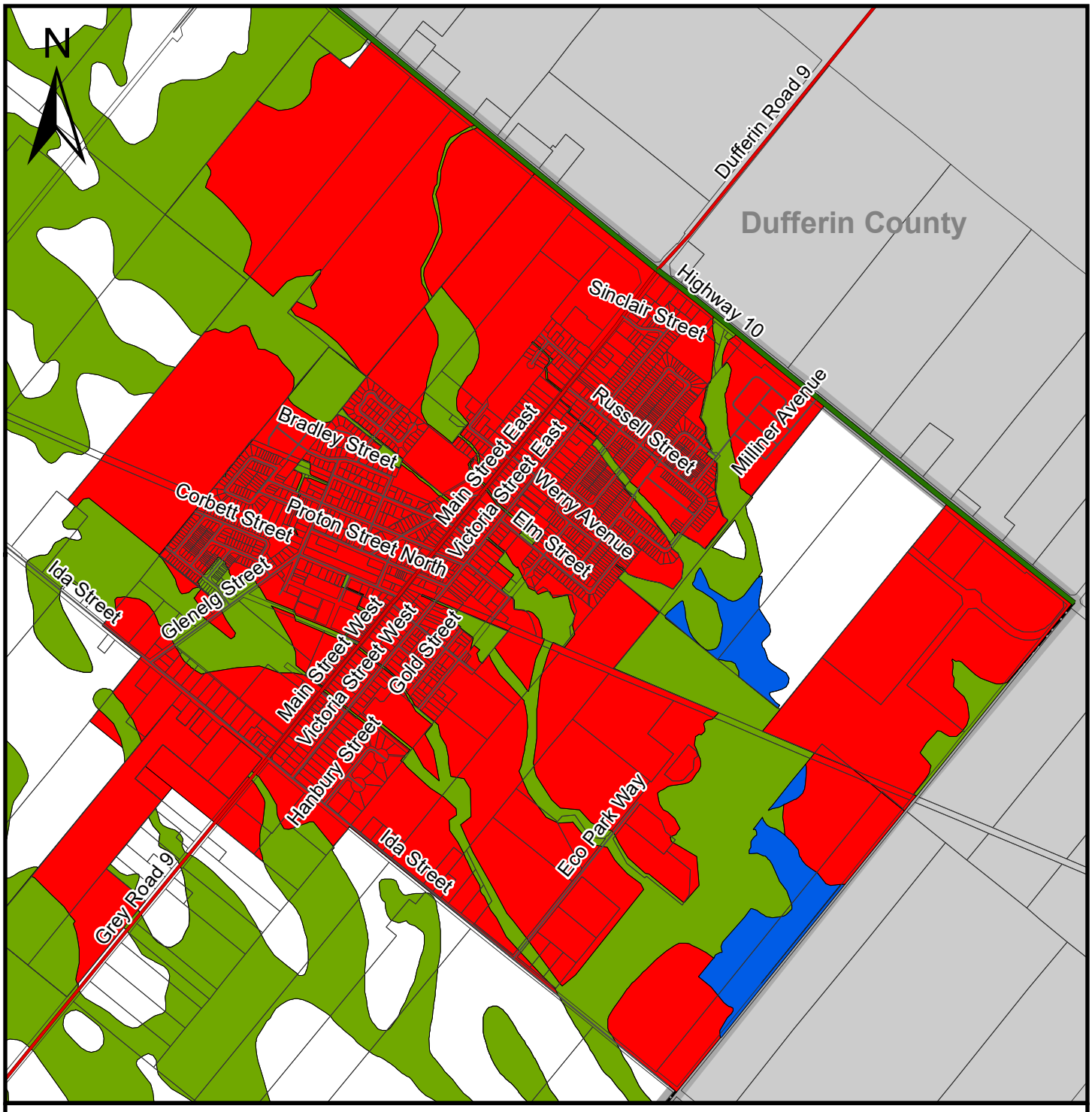
** certain settlement areas within the Niagara Escarpment Plan Boundary may be subject to Development Control.

SCALE 1:95,000

0 1,125 2,250 4,500 6,750 9,000 Meters

AUTHOR: Grey County Planning
FILE NAME: GR_OP_SchedA_Map2eastX36.mxd
CONSOLIDATION: July 12, 2024
INTERACTIVE MAP: geo.grey.ca
DOWNLOAD PDF: grey.ca/planning-development

This map is for illustrative purposes only. Do not rely on this map as being a precise indicator of routes, location of features or surveying purposes. This map may contain cartographical errors or omissions.



LEGEND

- Provincial Highway
- County Road
- Local Road
- Seasonal Road
- Agricultural
- Special Agricultural
- Rural
- Primary Settlement Area
- Secondary Settlement Area
- Inland Lakes and Shoreline Settlement Area
- Recreational Resort Settlement Area
- Sunset Strip Settlement Area
- Industrial Business Park Settlement Area
- Space Extensive Industrial and Commercial
- Niagara Escarpment Plan Boundary **
- Niagara Escarpment Development Control Area
- Escarpment Natural Area
- Escarpment Recreation Area
- Hazard Lands
- Provincially Significant Wetlands

** *certain settlement areas within the Niagara Escarpment Plan Boundary may be subject to Development Control.*

THE COUNTY OF GREY OFFICIAL PLAN

SECONDARY SCHEDULE

Land Use Types

MAP 2q

DUNDALK

SCALE 1:22 000

INTERACTIVE MAP: geo.grey.ca
DOWNLOAD PDF: grey.ca/planning-development

GR_OP_SecSched_Map2qDundalkX11.mxd

APPENDIX B

Township of Southgate Official Plan Mapping

BIRKS

NATURAL HERITAGE CONSULTANTS

TOWNSHIP OF SOUTHGATE

OFFICIAL PLAN

Schedule 'A'
MAP 2
Dundalk
Land Use

N

See Section 5.6.8

See Section 5.6.3

See Section 5.6.10

See Section 5.6.9

Dufferin County

Highway 10

Southgate SRD 75

Southgate Road 22

Ida Street

Glenelg Street

Bradley Street

Artemesia Street North

Corbett Street

Proton Street North

Main Street East

Victoria Street East

Sheffield Street

Werry Avenue

VanDusen Avenue

Elm Street

Russell Street

Main Street West

Victoria Street West

Gold Street

Hanbury Street

Ida Street

Eco Park Way

Grey Road 9

Legend

- Special Policy Area
- Neighbourhood Area
- Downtown Commercial
- Arterial Commercial
- Industrial
- Public Space
- Agricultural
- Future Development
- Rural
- Village Community
- Inland Lakes
- Hazard Land
- Provincially Significant Wetland
- Major Open Space
- Special Policy Area

Adopted by Township Council on May 4, 2022
Approved by the County of Grey on Oct 27, 2022
Consolidated December 1, 2022

0 115 230 460 690 920
Meters

Grey County Planning: SGOP_SchedAMap02Dundalk.mxd

TOWNSHIP OF SOUTHGATE
OFFICIAL PLAN

Schedule 'C'

Natural Heritage Features

Legend

- Significant Earth & Life ANSI
- Significant Earth ANSI
- Significant Life ANSI
- Stream / River
- Lakes
- Other Wetland
- Significant Valleyland
- Significant Woodland

Adopted by Township Council on May 4, 2022
Approved by the County of Grey on October 27, 2022

0 0.75 1.5 3 4.5 6 Km

Grey County Planning: SGOP_SchedC_NatHeritageX17.mxd

APPENDIX C

Plant Species List

BIRKS

NATURAL HERITAGE CONSULTANTS

Appendix C. Vascular Plant List

		Provincial Ranking		
Scientific Name	Common Name	S_Rank	G_Rank	ESA
Acer saccharum	Sugar Maple	S5	G5	
Achillea millefolium	Common Yarrow	SNA	G5	
Agrostis gigantea	Redtop	SNA	G4G5	
Alisma subcordatum	Southern Water-plantain	S4?	G5	
Amelanchier laevis	Smooth Serviceberry	S5	G5	
Apocynum androsaemifolium	Spreading Dogbane	S5	G5	
Aralia nudicaulis	Wild Sarsaparilla	S5	G5	
Arctium lappa	Great Burdock	SNA	GNR	
Asclepias syriaca	Common Milkweed	S5	G5	
Betula papyrifera	Paper Birch	S5	G5	
Bromus inermis	Smooth Brome	SNA	G5	
Calamagrostis epigeios	Feathertop	SNR	GNR	
Calla palustris	Wild Calla	S5	G5	
Carex aquatilis	Water Sedge	S5	G5	
Carex bebbii	Bebb's Sedge	S5	G5	
Carex gracillima	Graceful Sedge	S5	G5	
Carex viridula	Greenish Sedge	S5	G5	
Carex vulpinoidea	Fox Sedge	S5	G5	
Centaurea stoebe	Spotted Knapweed	SNA	GNR	
Cerastium fontanum	Common Mouse-ear Chickweed	SNA	GNR	
Chelone glabra	White Turtlehead	S5	G5	
Cichorium intybus	Wild Chicory	SNA	GNR	
Cicuta maculata	Spotted Water-hemlock	S5	G5	
Circaea canadensis	Enchanter's Nightshade	S5	G5	
Cirsium arvense	Canada Thistle	SNA	G5	
Clinopodium vulgare	Wild Basil	S5	G5	
Cornus alternifolia	Alternate-leaved Dogwood	S5	G5	
Cornus racemosa	Gray Dogwood	S5	G5	
Cornus sericea	Red-osier Dogwood	S5	G5	
Crataegus monogyna	English Hawthorn	SNA	G5	

Dactylis glomerata	Orchard Grass	SNA	GNR	
Daucus carota	Wild Carrot	SNA	GNR	
Endotropis alnifolia	Alder-leaved Buckthorn	S5	G5	
Epilobium ciliatum	Northern Willowherb	S5	G5	
Epilobium coloratum	Purple-veined Willowherb	S5	G5	
Epilobium leptophyllum	Narrow-leaved Willowherb	S5	G5	
Epipactis helleborine	Broad-leaved Helleborine	SNA	GNR	
Equisetum arvense	Field Horsetail	S5	G5	
Equisetum hyemale	Common Scouring-rush	S5	G5	
Equisetum pratense	Meadow Horsetail	S5	G5	
equisetum sp	horsetail			
Erigeron philadelphicus	Philadelphia Fleabane	S5	G5	
Erythronium americanum	Yellow Trout-lily	S5	G5	
Eupatorium perfoliatum	Common Boneset	S5	G5	
Euphrasia sp? hudsoniana?	Eyebright			
Eurybia macrophylla	Large-leaved Aster	S5	G5	
Euthamia graminifolia	Grass-leaved Goldenrod	S5	G5	
Eutrochium maculatum	Spotted Joe Pye Weed	S5	G5	
Fagus grandifolia	American Beech	S4	G5	
Fragaria virginiana	Wild Strawberry	S5	G5	
Fraxinus pennsylvanica	Green Ash	S4	G5	
Galium aparine	Common Bedstraw	S5	G5	
Galium odoratum	Sweet-scented Bedstraw	SNA	GNR	
Galium palustre	Common Marsh Bedstraw	S5	G5	
Geranium robertianum	Herb-Robert	S5	G5	
Geum aleppicum	Yellow Avens	S5	G5	
Geum macrophyllum	Large-leaved Avens	S5	G5	
Glyceria striata	Fowl Mannagrass	S5	G5	
Heracleum maximum	American Cow Parsnip	S5	G5	
Hieracium vulgatum	Common Hawkweed	SNA	G5	
Hydrophyllum virginianum	Virginia Waterleaf	S5	G5	
Hypericum perforatum	Common St. John's-wort	SNA	GNR	
Impatiens capensis	Spotted Jewelweed	S5	G5	
Iris pseudacorus	Yellow Iris?	SNA	GNR	

Juncus tenuis	Slender Rush	SNR	G5	
Juniperus communis	Common Juniper	S5	G5	
Lactuca serriola	Prickly Lettuce	SNA	GNR	
Larix laricina	Tamarack	S5	G5	
Leersia oryzoides	Rice Cutgrass	S5	G5	
Leucanthemum vulgare	Oxeye Daisy	SNA	GNR	
Lotus corniculatus	Garden Bird's-foot Trefoil	SNA	GNR	
Lycopus uniflorus	Northern Water-horehound	S5	G5	
Lysimachia ciliata	Fringed Loostrife	S5	G5	
Lythrum salicaria	Purple Loosestrife	SNA	G5	
Maianthemum stellatum	Star-flowered False Solomon's Seal	S5	G5	
Malus pumila	Common Apple	SNA	G5	
Medicago lupulina	Black Medic	SNA	GNR	
Medicago sativa	Alfalfa	SNA	GNR	
Melilotus albus	White Sweet-clover	SNA	G5	
Mentha canadensis	Canada Mint	S5	G5	
Myosotis sylvatica	Woodland Forget-me-not	SNA	G5	
Oenothera biennis	Common Evening-primrose	S5	G5	
Onoclea sensibilis	Sensitive Fern	S5	G5	
Panicum capillare	Common Panicgrass	S5	G5	
Parthenocissus quinquefolia	Virginia Creeper	S4?	G5	
Persicaria amphibia	Water Smartweed	S5	G5	
Persicaria lapathifolia	Pale Smartweed	S5	G5	
Phalaris arundinacea	Reed Canary Grass	S5	G5	
Phleum pratense	Common Timothy	SNA	GNR	
Picea abies	Norway Spruce	SNA	G5	
Picea glauca	White Spruce	S5	G5	
Picea mariana	Black Spruce	S5	G5	
Pilosella aurantiaca	Orange Hawkweed	SNA	GNR	
Pinus strobus	Eastern White Pine	S5	G5	
Pinus sylvestris	Scots Pine	SNA	GNR	
Plantago lanceolata	English Plantain	SNA	G5	
Plantago major	Common Plantain	SNA	G5	
Poa pratensis	Kentucky Bluegrass	S5	G5	

Pontederia cordata	Pickerelweed	S5	G5
Populus balsamifera	Balsam Poplar	S5	G5
Populus tremuloides	Trembling Aspen	S5	G5
Potentilla anserina	Silverweed	S5	G5
Potentilla norvegica	Rough Cinquefoil	S5	G5
Prunella vulgaris	Self-heal	S5	G5
Prunus pensylvanica	Pin Cherry	S5	G5
Prunus serotina	Black Cherry	S5	G5
Prunus virginiana	Chokecherry	S5	G5
Pteridium aquilinum	Bracken Fern	S5	G5
Pyrola americana	Round-leaved Pyrola	S4?	G5
Pyrus communis	Common Pear	SNA	G5
Ranunculus acris	Common Buttercup	SNA	G5
Rhamnus cathartica	Common Buckthorn	SNA	GNR
Ribes americanum	American Black Currant	S5	G5
Ribes triste	Swamp Red Currant	S5	G5
Rosa acicularis	Prickly Rose	S5	G5
Rubus idaeus	Common Red Raspberry	S5	G5
Rubus pubescens	Dwarf Raspberry	S5	G5
Rudbeckia hirta	Black-eyed Susan	S5	G5
Rumex crispus	Curled Dock	SNA	GNR
Sagittaria latifolia	Broad-leaved Arrowhead	S5	G5
Salix amygdaloides	Peach-leaved Willow	S5	G5
Salix bebbiana	Bebb's Willow	S5	G5
Salix discolor	Pussy Willow	S5	G5
Salix lucida	Shining Willow	S5	G5
Salix petiolaris	Meadow Willow	S5	G5
Scirpus atrovirens	Dark-green Bulrush	S5	G5
Scirpus cyperinus	Common Woolly Bulrush	S5	G5
Scirpus pendulus	Nodding Bulrush	S5	G5
Scutellaria galericulata	Marsh Skullcap	S5	G5
Sisyrinchium montanum	Strict Blue-eyed-grass	S5	G5
Sium suave	Common Water-parsnip	S5	G5
Solanum dulcamara	Bittersweet Nightshade	SNA	GNR

Solidago altissima	Tall Goldenrod	S5	G5
Solidago canadensis	Canada Goldenrod	S5	G5
Solidago juncea	Early Goldenrod	S5	G5
Solidago nemoralis	Grey-stemmed Goldenrod	S5	G5
Solidago patula	Rough-leaved Goldenrod	S4	G5
Solidago rugosa	Rough-stemmed Goldenrod	S5	G5
Sorbus aucuparia	Mountain-Ash	SNA	G5
Sparganium eurycarpum	Broad-fruited Burreed	S5	G5
Spiraea alba	White Meadowsweet	S5	G5
Streptopus lanceolatus	Rose Twisted-stalk	S5	G5
Symphyotrichum lanceolatum	Panicled Aster	S5	G5
Symphyotrichum lateriflorum	Calico Aster	S5	G5
Symphyotrichum novae-angliae	New England Aster	S5	G5
Symphyotrichum ontarionis	Ontario Aster	S5	G5
Symphyotrichum puniceum	Purple-stemmed Aster	S5	G5
Taraxacum officinale	Common Dandelion	SNA	G5
Thalictrum pubescens	Tall Meadow-rue	S5	G5
Thuja ccidentalis	Eastern White Cedar	S5	G5
Tiarella cordifolia	Heart-leaved Foamflower	S5	G5
Toxicodendron radicans	Poison Ivy	S5	G5
Toxicodendron radicans	Poison Ivy	S5	G5
Trifolium pratense	Red Clover	SNA	GNR
Trillium grandiflorum	White Trillium	S5	G5
Tussilago farfara	Coltsfoot	SNA	GNR
Typha angustifolia	Narrow-leaved Cattail	SNA	G5
Ulmus americana	American Elm	S5	G5
Valeriana officinalis	Common Valerian	SNA	GNR
Verbena hastata	Blue Vervain	S5	G5
Viburnum opulus ssp. trilobum	Highbush Cranberry	S5	G5TNR
Vicia cracca	Tufted Vetch	SNA	GNR
Viola sororia	Woolly Blue Violet	S5	G5

APPENDIX D

Amphibian Breeding Data

Appendix D1: Amphibian Breeding Data 2020

Latin Name	Comon Name	Station 1[2]				Station 2				Station 3				Station 4				Station 5				Station 6				Station 7				Station 8				Station 9				Station 10				Station 11				Station 12				Incidental	G-rank	S-rank	ESA Status
		Surveys				Surveys				Surveys				Surveys				Surveys				Surveys				Surveys				Surveys				Surveys				Surveys				Surveys				Surveys							
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Rana sylvatica	Wood Frog									x												x	x	3[3]					x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	G5	S5	NAR
Pseudacris crucifer	Spring Peeper	1-5[1]	3	3			3	3			3	3			1-2	2-10			3	3						3[3]		3[3]																						G5	S5	NAR
Rana pipiens	Leopard Frog					2-10	1-10	1-3			2-20	1-2		1 -1		1-4		1-1	2-?																														G5	S5	NAR
Lithobates clamitans	Green Frog				2-20[1]				3				1-3				1-5				2-15			3[3]																								G5	S5	NAR
Bufo americanus	American Toad			2-5				2-6	1-1			1-5				1-4				2-5																												G5	S5	NAR

[1]Call Codes: 1 = individuals can be counted/calls not simultaneous; 2 = calls distinguishable/some simultaneous calling; 3 = full chorus/calls continuous and overlapping, cannot count males.
(1- #) = call code - number of vocalizing males.

[2]See Figure 3 for monitoring station locations.

[3]Observed off property

x = no frogs of any species heard during survey

N/A - station not surveyed in 2020

Survey 1 - Amphibian Survey Conditions: April 27, 2020; survey time (day): 16:07 - 17:59; air temperature: 14C; wind: B1; cloud cover: 60%; precipitation: nil; surveyors: B. Baker

Survey 2 - **Amphibian Survey Conditions**: April 27, 2020; survey time (evening): 20:50 - 21:25; air temperature: 10C; wind: B0cloud cover: 0%; precipitation: nil; surveyors: B. Baker

Survey 3 - Amphibian Survey Conditions: May 20, 2020; survey time: 19:15-20:15; air temperature: 14C; wind B0; cloud cover 0%; precipitation nil; surveyors: B. Baker

Survey 4 - Amphibian Survey Conditions: June 29, 2020; survey time: 21:39-22:30; air temperature 23C; wind B0; cloud cover 0%; precipitation nil; surveyors: B. Baker

Appendix D2: Amphibian Breeding Data 2024

Latin Name	Comon Name	Station 1[2]			Station 2			Station 3			Station 4			Station 5			Station 6			Station 7			Station 8			Station 9			Station 10			Station 11			Station 12			Incidental	G-rank	S-rank	ESA Status
		Surveys			Surveys			Surveys			Surveys			Surveys			Surveys			Surveys			Surveys			Surveys			Surveys			Surveys			Surveys						
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3				
Rana sylvatica	Wood Frog	1-7[1]				N/A		1-3	N/A		3	N/A		1-4	x	N/A	x		N/A	1-1[3]	x	N/A			N/A	x	x	N/A		N/A		x	N/A		1-3				G5	S5	NAR
Pseudacris crucifer	Spring Peeper	3	3		3			3			3			3				1-1					3[3]	3					3						3[3]	3			G5	S5	NAR
Rana pipiens	Leopard Frog													1-3																					1-1				G5	S5	NAR
Lithobates clamitans	Green Frog			1-5			1-2			1-1			1-4																				1-1			1-4		G5	S5	NAR
Bufo americanus	American Toad		1-2															1-3[3]						1-1											1-2			G5	S5	NAR
Hyla versicolor	Grey Tree Frog						1-1			1-1																				1-3									G5	S5	NAR

[1]Call Codes: 1 = individuals can be counted/calls not simultaneous; 2 = calls distinguishable/some simultaneous calling; 3 = full chorus/calls continuous and overlapping, cannot count males.
(1- #) = call code - number of vocalizing males.

[2]See Figure 3 for monitoring station locations.

[3]Observed off property

x - No amphibians of any species heard during survey

N/A - this station not surveyed

Survey 1 - Amphibian Survey Conditions: April 16, 2024; survey time: 20:00 - 21:07; air temperature: 5C; wind: B0; cloud cover: 0%; precipitation: 0; surveyors: M. Fu

Survey 2 - Amphibian Survey Conditions: May 15, 2024; survey time: 21:06 - 22:11; air temperature 12C; wind B0; cloud cover 0%; precipitation nil; surveyors: M. Fu

Baker, K. Tuininga

APPENDIX E

Bird Species Data

BIRKS

NATURAL HERITAGE CONSULTANTS

Appendix E. Bird Species Documented 2020 and 2024

			Point Count Stations A, B																Breeding Evidence[F]	Conservation Rank[G]		
Family	Scientific Name	English Common Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Incidental*		G-rank[H]	S-rank[I]	SARO Status[J]
Alcedinidae	*Megaceryle alcyon*	Belted Kingfisher					S[d]	H[c]	H[c]		H[b]					H[d]	H[d]			Possible	G5	S4	NAR
Anatidae	*Branta canadensis*	Canada Goose	S[c]		H[c]			H[c]											X	Possible	G5	S5	NAR
Anatidae	*Aix sponsa*	Wood Duck						H[c]	H[b]											Possible	G5	S3	NAR
Anatidae	*Anas platyrhynchos*	Mallard				H[e]		H[b]			H[b]							H[d]		Possible	G5	S5	NAR
Anatidae	*Spatula discors*	Blue-winged Teal																	I	Observed	G5	S3	NAR
Ardeidae	*Botaurus lentiginosus*	American Bittern					S[c]	H[bc]		H[b]										Possible	G5	S5	NAR
Ardeidae	*Ardea herodias*	Great Blue Heron							X[c]		X[a]									Observed	G5	S4	NAR
Ardeidae	*Butorides virescens*	Green Heron			H[e]		H[de]										H[e]			Possible	G5	S4	NAR
Ardeidae	*Ardea alba*	Great Egret																	I	Observed	G5	S3	NAR
Bombycillidae	*Bombycilla cedrorum*	Cedar Waxwing	H[c]		H[d]	S[be]			S[b]						H[d]			S[d]		Possible	G5	S5B	NAR
Cardinalidae	*Cardinalis cardinalis*	Northern Cardinal	S[c]							S[a]										Possible	G5	S5	NAR
Cardinalidae	*Passerina cyanea*	Indigo Bunting	S[bd]	S[c]		S[bd]					S[d]	S[a]			S[d]					Possible	G5	S5	NAR
Cardinalidae	*Pheucticus ludovicianus*	Rose-breasted Grosbeak											S[b]				H[d]			Possible	G5	S5	NAR
Charadriidae	*Charadrius vociferus*	Killdeer	S[c]			T[bc]S[e]			S[d]		H[b]									Probable	G5	S4	NAR
Columbidae	*Zenaida macroura*	Mourning Dove			S[b]	S[c]		S[bd]	S[d]	S[d]			S[d]			S[d]	H[d]	S[d]		Possible	G5	S5	NAR
Corvidae	*Corvus brachyrhynchos*	American Crow	S[e]H[bcd]	H[bde]	H[c]	H[de]		X[d]	X[d]	X[d]			X[d]			X[d]		X[d]		Possible	G5	S5B	NAR
Corvidae	*Corvus corax*	Common Raven	H[e]																	Possible	G5	S5	NAR
Corvidae	*Cyanocitta cristata*	Blue Jay	H[bc]	H[bcde]		H[bcd]	H[d]			H[d]	H[d]	S[d]				S[d]				Possible	G5	S5	NAR
Cuculidae	*Coccyzus erythropthalmus*	Black-billed Cuckoo		S[c]																Possible	G5	S4	NAR
Emberizidae	*Spizella passerina*	Chipping Sparrow			S[b]T[de]									S[d]			S[d]			Probable	G5	S3	NAR
Falconidae	*Falco sparverius*	American Kestrel			H[b]		H[b]													Possible	G5	S4	NAR
Fringillidae	*Carduelis tristis*	American Goldfinch	S[be]H[cd]	H[cd]	H[d]	H[b]	S[e]	S[d]	S[d]	H[ab]	H[ad]	S[b]	H[a]		S[d]	S[d]	H[d]	S[d]		Possible	G5	S5B	NAR
Gruidae	*Antigone canadensis*	Sandhill Crane							H[c]											Possible	G5	S3	NAR
Hirundinidae	*Hirundo rustica*	Barn Swallow							H[b]											Possible			
Hirundinidae	*Tachycineta bicolor*	Tree Swallow			H[c]		AE[b]S[e]	H[c]	S[c]H[b]								H[d]		X	Confirmed	G5	S4	NAR
Icteridae	*Molothrus ater*	Brown-headed Cowbird	T[bc]T[de]	S[b]H[c]	T[bc]	T[bc]S[d]	T[bc]S[d]		T[bc]	H[ab]				S[d]	S[d]		S[d]			Probable	G5	S4B	NAR
Icteridae	*Agelaius phoeniceus*	Red-winged Blackbird	T[de]		T[bc]T[de]	H[b]S[d]	T[bc]T[de]	A[b]S[cd]	T[ab]S[d]		S[ad]	S[ad]	A[bd]	A[abd]	S[d]	S[d]	T[de]	S[d]		Probable	G5	S5	NAR
Icteridae	*Quiscalus quiscula*	Common Grackle	H[c]	S[b]H[c]	H[bd]	H[b]	S[cd]	H[bc]		H[b]	H[a]		H[ab]	H[b]		H[d]	H[d]			Possible	G5	S5	NAR
Icteridae	*Icterus galbula*	Baltimore Oriole			S[b]		S[b]	S[b]	T[bc]		S[b]	H[bd]								Probable	G5	S4	NAR
Icteridae	*Sturnella magna*	Eastern Meadowlark									S[b]									Possible	G5	S3	THR
Laridae	*Larus delawarensis*	Ring-billed Gull			X[c]	X[d]		X[b]	X[b]		X[b]	X[d]	X[d]	X[d]				X[d]		Observed	G5	S5	NAR
Mimidae	*Dumetella carolinensis*	Gray Catbird	S[b]	S[e]	T[bc]	S[d]		S[d]	S[c]							S[d]	S[d]	S[d]		Possible	G5	S4B	NAR
Mimidae	*Toxostoma rufum*	Brown Thrasher	S[d]		S[e]						S[b]				S[d]					Possible	G5	S4	NAR
Paridae	*Poecile atricapillus*	Black-capped Chickadee	S[e]		H[d]	S[d]								H[a]						Possible	G5	S5	NAR
Parulidae	*Cardellina canadensis*	Canada Warbler		S[e]																Possible			
Parulidae	*Setophaga caerulescens*	Black-throated Blue Warbler								S[d]	S[d]	S[d]								Possible	G5	S5	NAR
Parulidae	*Setophaga coronata*	Yellow-rumped Warbler				S[c]				S[a]				S[a]						Possible	G5	S4B	NAR

			Point Count Stations A, B																	Breeding Evidence [F]	Conservation Rank [G]		
Family	Scientific Name	English Common Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Incidental*		G-rank [H]	S-rank [I]	SARO Status [J]
Parulidae	*Setophaga pensylvanica*	Chestnut-sided Warbler	S[c]	S[c]	S[b]				S[b]						S[d]					Possible	G5	S5	NAR
Parulidae	*Setophaga pinus*	Pine Warbler					S[c]													Possible	G5	S3	NAR
Parulidae	*Oporornis philadelphia*	Mourning Warbler				S[c]														Possible	G5	S4B	NAR
Parulidae	*Geothlypis trichas*	Common Yellowthroat	S[bd]	S[b]	T[bc]S[d]	T[de]	T[bc]T[de]	S[bd]	T[bc]S[d]	T[ab]S[d]	S[ad]	S[ad]	S[ad]	T[ab]		S[d]	S[d]			Probable	G5	S5B	NAR
Parulidae	*Setophaga ruticilla*	American Redstart	S[e]			S[e]				S[ad]	T[ab]S[d]	T[ab]			S[d]			S[d]		Probable	G5	S5B	NAR
Parulidae	*Dendroica petechia*	Yellow Warbler	S[e]		T[bc]S[d]	T[bc]S[e]	S[b]	S[d]	T[bc]S[d]	S[bd]	T[ab]S[d]	S[bd]	S[a]	S[b]	S[d]	S[d]		S[d]		Probable	G5	S5B	NAR
Passerellidae	*Melospiza melodia*	Song Sparrow	T[bc]T[de]	T[bc]T[de]	T[bc]S[d]	T[bc]	S[e]	S[d]	T[bc]S[d]	T[ab]S[d]	S[a]	S[a]		T[ab]	S[d]	S[d]		S[d]		Probable	G5	S5B	NAR
Passerellidae	*Spizella passerina*	Chipping Sparrow		H[d]								S[a]	S[a]	S[b]						Possible			NAR
Passerellidae	*Pooecetes gramineus*	Vesper Sparrow	S[c]	S[c]		S[b]	S[e]										S[d]			Possible	G5	S4	NAR
Passerellidae	*Zonotrichia albicollis*	White-throated Sparrow	S[bd]	S[bd]	S[bd]														X	Possible	G5	S5B	NAR
Passerellidae	*Pipilo erythrophthalmus*	Eastern Towhee				T[bc]							S[d]		S[d]					Probable	G5	S3	NAR
Passerellidae	*Melospiza georgiana*	Swamp Sparrow			T[bc]T[de]		S[b]T[de]		T[bc]		S[b]		S[b]				T[de]	S[d]		Probable	G5	S4	NAR
Phasianidae	*Bonasa umbellus*	Ruffed Grouse																	X	Observed			
Picidae	*Colaptes auratus*	Northern Flicker	H[ce]		S[d]		S[c]H[e]		H[b]	H[ab]					S[d]					Possible	G5	S4B	NAR
Picidae	*Dryocopus pileatus*	Pileated Woodpecker							H[b]										I	Possible	G5	S5	NAR
Picidae	*Picoides pubescens*	Downy Woodpecker									S[d]									Possible	G5	S5	NAR
Rallidae	*Porzana carolina*	Sora			T[bc]		T[bc]	T[bc]	S[b]										X	Probable	G5	S5	NAR
Rallidae	*Rallus limicola*	Virginia Rail					S[b]	S[c]	S[b]											Possible	G5	S4	NAR
Regulidae	*Corthylio calendula*	Ruby-crowned Kinglet			H[c]														I	Possible	G5	S3	NAR
Scolopacidae	*Actitis macularius*	Spotted Sandpiper						S[c]												Possible	G5	S5	NAR
Scolopacidae	*Gallinago delicata*	Wilson's Snipe								S[a]			S[b]	S[a]						Possible	G5	S5	NAR
Scolopacidae	*Scolopax minor*	American Woodcock																	X	Observed	S5	S4	NAR
Sittidae	*Sitta canadensis*	Red-breasted Nuthatch	S[c]																	Possible	G5	S5	NAR
Sittidae	*Sitta carolinensis*	White-breasted Nuthatch	S[c]																	Possible	G5	S5	NAR
Sturnidae	*Sturnus vulgaris*	European Starling			H[b]		N[c]	S[d]						X[d]						Probable	G5	S5	NAR
Trochilidae	*Archilochus colubris*	Ruby-throated Hummingbird			H[c]	H[d]														Possible	G5	S5	NAR
Troglodytidae	*Cistothorus stellaris*	Sedge Wren					S[e]		S[d]								S[d]	S[d]		Possible	G5	S4	NAR
Troglodytidae	*Troglodytes aedon*	House Wren	A[d]	S[bc]H[d]	S[e]		S[d]	T[d]	S[d]	S[d]			S[bd]	T[ab]S[d]		S[d]		S[d]		Probable	G5	S5B	NAR
Turdidae	*Turdus migratorius*	American Robin	T[bc]T[de]	S[b]T[de]	S[b]T[de]	T[bc]S[e]	S[b]T[de]	S[d]	S[d]	T[ab]S[d]	S[ad]	S[ad]	S[ad]	S[bd]	S[d]	S[d]	T[de]	S[d]		Probable	G5	S5B	NAR
Turdidae	*Catharus fuscescens*	Veery	S[b]																	Possible	G5	S4B	NAR
Tyrannidae	*Contopus virens*	Eastern Wood-pewee									S[a]									Possible	G5	S4B	SC
Tyrannidae	*Myiarchus crinitus*	Great Crested Flycatcher	S[be]	S[e]	S[e]	S[e]					H[b]									Possible	G5	S4B	NAR
Tyrannidae	*Empidonax alnorum*	Alder Flycatcher	S[b]		S[b]	S[b]		S[b]	S[c]	S[a]	S[b]	S[b]	S[ab]	S[a]						Possible	G5	S5	NAR
Tyrannidae	*Empidonax traillii*	Willow Flycatcher	S[c]		S[c]			S[c]					S[a]							Possible	G5	S5B	NAR
Tyrannidae	*Sayornis phoebe*	Eastern Phoebe				S[d]														Possible	G5	S5	NAR
Tyrannidae	*Tyrannus tyrannus*	Eastern Kingbird			T[de]	S[bd]	S[e]	S[bd]	T[bc]S[d]		H[ab]				S[d]		T[de]			Probable	G5	S4	NAR
Vireonidae	*Vireo gilvus*	Warbling Vireo			S[e]		S[c]	S[b]	S[b]	T[ab]	T[ab]	T[ab]					S[d]			Probable	G5	S5	NAR
Vireonidae	*Vireo olivaceus*	Red-eyed Vireo	T[bc]T[de]	T[bc]T[de]	S[e]	S[bd]						S[a]		S[a]						Probable	G5	S5B	NAR

Surveys Conditions:

[a]June 4, 2020; Start Time 0739hr/ End Time 0855hr; Temperature +18°C; Wind B1; Cloud Cover 10%; Precipitation Nil;Observer S. Brady

[c]June 5, 2020; Start Time 0730hr/End Time 0910hr ; Temperature +18°C; Wind B0; Cloud Cover 0%; Precipitation Nil; Observers B. Baker

[b]June 18, 2020; Start Time 0632hr/ End Time 0840hr; Temperature +18°C; Wind B0; Cloud Cover 0%; Precipitation Nil; Observer S. Brady, B. Baker

[e]June 6, 2024; Start Time 6:40/ End Time 7:40; Temperature +16°C; Wind B1; Cloud Cover 60%; Precipitation Nil; Observer B. Baker

[d]June 19, 2024; Start Time 0612hr/End Time 0815hr; Temperature +23 °C; Wind B0; Cloud Cover 0%; Precipitation Nil; Observer M. Fuller, B. Baker

Family	Scientific Name	English Common Name	Point Count Stations A, B																Breeding Evidence [F]	Conservation Rank [G]		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Incidental*		G-rank [H]	S-rank [I]	SARO Status [J]

[F] OBBA Breeding Evidence Codes:

I - Incidental observed outside its breeding season (not an OBBA code)

X - Species observed in its breeding season (no evidence of breeding).
H - Species observed in its breeding season in suitable nesting habitat.
C - Call heard (male or female), in suitable nesting habitat in nesting season.
S - Singing male Present, or breeding calls heard, in suitable nesting habitat in nesting season.
N - Nest Building or excavation of nest hole.
A - Agitated behavour or anxiety calls of an adult.
P - Pair observed in suitable nesting habitat in nesting season.

[G] Conservation Rank - from MECP, NHIC, SAR and SARO Lists
[H] S-rank - S1 - Extremely Rare, S2 - Very Rare, S3 - Rare to Uncommon, S4 - Common, S5 - Very Common
[I] G-Rank - G1 - Critically Imperiled, G2 - Imperiled, G3 - Vulnerable, G4 - Apparently Secure, G5 - Secure
[J] SARO - EXP (Extirpated), END (Endangered), THR (Threatened), SC (Special Concern), NAR (Not At Risk)

APPENDIX F

Significant Wildlife Habitat Assessment

Appendix F.1-F.6. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E

F.1 - Seasonal Concentrations of Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Waterfowl Stopover and Staging Areas (Terrestrial) **Rationale:** Habitat important to migrating waterfowl.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	CUM1 CUT1 Plus evidence of annual spring flooding from melt water or run-off within these Ecosites.	Fields with sheet water during Spring (mid-March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available. Information Sources • Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. • Reports and other information available from Conservation Authorities • Sites documented through waterfowl planning processes • Field Naturalist Clubs • Ducks Unlimited Canada • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • Any mixed species aggregations of 100 or more individuals required. • The flooded field ecosite habitat plus a 100-300m radius area, dependant on local site conditions and adjacent land use is the significant wildlife habitat. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • Significant Wildlife Habitat Mitigation Support Tool Index #7 provides development effects and mitigation measures.	Habitat in study area and the overall property does not meet criteria related to ELC Ecosite Codes. Spring flooded fields were not documented and only very small numbers of Mallards, Blue-winged Teal and Canada Geese were documented during field investigations.
Waterfowl Stopover and Staging Areas (Aquatic) **Rationale:** Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback Ruddy Duck	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. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water) Information Sources • Environment Canada. • Naturalist clubs often are aware of staging/stopover areas. • OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Areas	Studies carried out and verified presence of: • Aggregations of 100 or more of listed species for 7 days, results in > 700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH • The combined area of the ELC ecosites and a 100m radius area is the SWH • Wetland area and shorelines associated with sites identified within the Significant Wildlife Habitat Technical Guide Appendix K are significant wildlife habitat. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • Significant Wildlife Habitat Mitigation Support Tool Index #7 provides development effects and mitigation measures.	The wetland habitat in the study area does not contain open water and the larger property only contains a small amount of open water and is not of suitable size to support such aggregation. The listed wildlife species were not documented during field investigations other than several incidental Canada Geese and Blue-winged Teal.

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Shorebird Migratory Stopover Area **Rationale:** High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	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, are extremely important for migratory shorebirds in May to mid-June and early July to October. • Sewage treatment ponds and storm water ponds do not qualify as a SWH. Information Sources • Western hemisphere shorebird reserve network. • Canadian Wildlife Service (CWS) Ontario Shorebird Survey. • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area	Studies confirming: • Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 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 • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • Significant Wildlife Habitat Mitigation Support Tool Index #8 provides development effects and mitigation measures.	Suitable habitat is not found within the entire property. Listed species were not documented during field investigations.
Raptor Wintering Area **Rationale:** Sites used by multiple species, a high number of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl **Special Concern:** Short-eared Owl Bald Eagle	Hawks/Owls: Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM; CUT; CUS; CUW. Bald Eagle: Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	• The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Raptor wintering sites (hawk/owl) need to be > 20 ha with a combination of forest and upland. • 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, large trees and snags available for roosting Information Sources: • OMNRF Ecologist or Biologist Field Naturalist Clubs • Natural Heritage Information Center (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Results of Christmas Bird Counts Reports and other information available from Conservation Authorities.	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One or 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. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • Significant Wildlife Habitat Mitigation Support Tool Index #10 and #11 provides development effects and mitigation measures.	The area of focus, study area and overall property do not contain a combination of field and woodlands of suitable size and none of the requisite "upland" ELC communities or shorelines are present. Also, most adjacent fields are active agriculture (*i.e.,* row crops) and not suitable for this function.

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Bat Hibernacula **<u>Rationale:</u>** Bat hibernacula are rare habitats in all Ontario landscapes.	Big Brown Bat Tri-coloured Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	• Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. • Active mine sites should not be considered as SWH • The locations of bat hibernacula are relatively poorly known. <u>Information Sources</u> • OMNRF for possible locations and contact for local experts • Natural Heritage Information Center (NHIC) Bat Hibernaculum Ministry of Northern • Development and Mines for location of mine shafts. • Clubs that explore caves (e.g. Sierra Club) • University Biology Departments with bat experts.	• All sites with confirmed hibernating bats are SWH. • The habitat area includes a 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.). Surveys should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects. • Significant Wildlife Habitat Mitigation Support Tool Index #1 provides development effects and mitigation measures.	No caves, mine shafts, karst or underground foundations have been identified within the overall property nor the study area.
Bat Maternity Colonies **<u>Rationale:</u>** Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	• Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario. • Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3. • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred <u>Information Sources</u> • OMNRF for possible locations and contact for local experts • University Biology Departments with bat experts.	• Maternity Colonies with confirmed use by; • >10 Big Brown Bats© • >5 Adult Female Silver-haired Bats • The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies. • Evaluation methods for maternity colonies should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”. • Significant Wildlife Habitat Mitigation Support Tool Index #12 provides development effects and mitigation measures.	Some of the woodland present within the overall property area is mature and may provide this function to the listed bat species, but no suitable habitat is found within the area of focus nor the study area.
Turtle Wintering Areas **<u>Rationale:</u>** Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Midland Painted Turtle **<u>Special Concern:</u>** Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles; ELC Community Classes; SW, MA, OA and SA, ELC Community Series; FEO and BOO Northern Map Turtle; Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	• For most turtles, wintering areas are in the same general area as their core habitat. Water must 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 • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. <u>Information Sources</u> • EIS studies carried out by Conservation Authorities. • Local field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. • OMNRF Ecologist or Biologist • Field Naturalist clubs • Natural Heritage Information Center (NHIC)	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May) • Congregation of turtles is more common where wintering areas are limited and therefore significant • Significant Wildlife Habitat Mitigation Support Tool Index #28 provides development effects and mitigation measures for turtle wintering habitat.	The wetland habitat within the study area does not contain suitable features (*i.e.,* permanent water) to support this function. No turtle species were documented in the study area during field investigations. However, several Snapping Turtles were observed outside the study area on the subject property and a small amount of suitable habitat may exist outside the study area near the rail trail as well.

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Reptile Hibernaculum **Rationale;** Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	**Snakes:** Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake Milksnake **Special Concern:** Eastern Ribbonsnake **Lizard:** **Special Concern** (Southern Shield population)**:** Five-lined Skink	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. • Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures . Information Sources • In spring, local residents or landowners may have observed the emergence of snakes on their property (e.g. old dug wells). • Reports and other information available from Conservation Authorities. • Field Naturalists clubs • University herpetologists • Natural Heritage Information Center (NHIC) • OMNRF ecologist or biologist may be aware of locations of wintering skinks	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct) • Note: If there are Special Concern Species present, then site is SWH • Note: Sites for hibernation possess specific habitat parameters (e.g. temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population (i.e. strong hibernation site fidelity). Other critical life processes (e.g. mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30 m radius area is the SWH • Significant Wildlife Habitat Mitigation Support Tool Index #13 provides development effects and mitigation measures for snake hibernacula. • Presence of any active hibernaculum for skink is significant. • Significant Wildlife Habitat Mitigation Support Tool Index #37 provides development effects and mitigation measures for five-lined skink wintering habitat.	**Features associated with this function may be present in the western half of the area of focus, and some of the drier ELC communities throughout the rest of the larger property, however, no evidence of these features which could support a congregation of snakes was identified within the study area. Nor were snake species identified in the study area during the course of the field surveys.**
Colonially -Nesting Bird Breeding Habitat (Bank and Cliff) **Rationale:** Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow populations are declining in Ontario.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles. Cliff faces, bridge abutments, silos, barns. Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation. Information Sources • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas • Bird Studies Canada; *NatureCounts* http://www.birdscanada.org/birdmon/ • Field Naturalist Clubs.	Studies confirming: • 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. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • Significant Wildlife Habitat Mitigation Support Tool Index #4 provides development effects and mitigation measures	Habitat in the study area and larger property does not meet key criteria to be considered significant – cliffs or banks were not observed within the study area.

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Colonially -Nesting Bird Breeding Habitat (Tree/Shrubs) **<u>Rationale</u>:** Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Blue Heron Black-crowned Night-Heron Great Egret Green Heron	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. <u>Information Sources</u> • Ontario Breeding Bird Atlas, colonial nest records. • Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNRF). • Natural Heritage Information Center (NHIC) Mixed Wader Nesting Colony • Aerial photographs can help identify large heronries. • Reports and other information available from CAs. • MNRF District Offices. • Local naturalist clubs.	Studies confirming: • 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 as the presence of fresh guano, dead young and/or eggshells • Significant Wildlife Habitat Mitigation Support Tool Index #5 provides development effects and mitigation measures.	Although the overall property contains a small amount of suitable ELC community, no evidence of nests within these communities was observed and no suitable ELC communities were found within the area of focus or the study area. Only Great Blue Heron and Great Egret were documented (both incidentally – no breeding evidence) during the field investigations.
Colonially -Nesting Bird Breeding Habitat (Ground) **<u>Rationale;</u>** Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	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 of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in low bushes in close proximity to streams and irrigation ditches within farmlands. <u>Information Sources</u> • Ontario Breeding Bird Atlas , rare/colonial species records. • Canadian Wildlife Service • Reports and other information available from CAs. • Natural Heritage Information Center (NHIC) Colonial Waterbird Nesting Area • MNRF District Offices. • Field Naturalist clubs.	Studies confirming: • Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. • Presence of 5 or more pairs for Brewer's Blackbird. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. • The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • Significant Wildlife Habitat Mitigation Support Tool Index #6 provides development effects and mitigation measures.	Habitat does not meet key criteria to be considered significant – no rocky islands or peninsulas were documented.

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Migratory Butterfly Stopover Areas **Rationale:** Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Painted Lady Red Admiral Special Concern Monarch	Combination of ELC Community Series; need to have present one Community Series from each land class: Field: CUM CUT CUS Forest: FOC FOD FOM CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present and will be located within 5 km of Lake Ontario. • The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes Information Sources • OMNRF (NHIC) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs • Toronto Entomologists Association • Conservation Authorities	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur. • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. • MUD of >5000 **or** >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant. • Significant Wildlife Habitat Mitigation Support Tool Index #16 provides development effects and mitigation measures.	Study area is not located within 5km of Lake Ontario and thus this habitat function is not applicable.
Landbird Migratory Stopover Areas **Rationale:** Sites with a high diversity of species as well as high numbers are most significant.	All migratory songbirds.: Canadian Wildlife Service Ontario website. All migrant raptor species: Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Woodlots need to be >10 ha in size and within 5 km of Lake Ontario. • If multiple woodlands are located along the shoreline those Woodlands <2km from Lake Ontario 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 Ontario are Candidate SWH . Information Sources • Bird Studies Canada • Ontario Nature • Local birders and naturalist club • Ontario Important Bird Areas (IBA) Program	Studies confirm: • 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. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (Apr./May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • Significant Wildlife Habitat Mitigation Support Tool Index #9 provides development effects	Study area is not located within 5km of Lake Ontario and thus this habitat function is not applicable.

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Deer Yarding Areas **<u>Rationale:</u>** Winter habitat for deer is considered to be the main limiting factor for northern deer populations. In winter, deer congregate in "yards" to survive severe winter conditions. Deer yards typically have a long history of annual use by deer, yards typically represent 10-15% of an areas summer range.	White-tailed Deer	Note: OMNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include; FOM, FOC, SWM and SWC. Or these ELC Ecosites; CUP2 CUP3 FOD3 CUT	• Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. • 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.	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). • 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 within this Schedule. • Significant Wildlife Habitat Mitigation Support Tool Index #2 provides development effects and mitigation measures.	No portions of the study area are mapped as Stratum II by the MNRF (source: LIO).
Deer Winter Congregation Areas **<u>Rationale:</u>** 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 to reduce or avoid the impacts of winter conditions.	White-tailed Deer	All Forested Ecosites with these ELC Community Series; FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.	• Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands . • If deer are constrained by snow depth refer to the Deer Yarding Area habitat. • 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. <u>Information Sources</u> • MNRF District Offices • LIO/NRVIS	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques, ground or road surveys. or a pellet count deer density survey. • 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 below. • Significant Wildlife Habitat Mitigation Support Tool Index #2 provides development effects and mitigation measures.	No suitable habitat of sufficient size is found on the property. Study area is located in the northern part of Ecoregion 6E in an area that receives >20cm of snow accumulation per year. Thus, this criterion is not applicable.

F.2 - Rare Vegetation Communities

Rare Vegetation Community	Candidate SWH			Confirmed SWH	Assessment
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Cliffs and Talus Slopes **Rationale:** Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO TAS TAT CLO CLS CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris	Most cliff and talus slopes occur along the Niagara Escarpment. Information Sources • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF District • Natural Heritage Information Center (NHIC) has location information available on their website • Field Naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes • Significant Wildlife Habitat Mitigation Support Tool Index #21 provides development effects and mitigation measures.	Habitat in the study area does not meet key criteria to be considered significant.
Sand Barren **Rationale;** Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry	ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered, but less than 60%.	A sand barren area >0.5ha in size. Information Sources • OMNRF Districts. • Natural Heritage Information Center (NHIC) has location information available on their website. • Field Naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Sand Barrens • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.) • Significant Wildlife Habitat Mitigation Support Tool Index #20 provides development effects and mitigation measures.	Habitat in the study area does not meet key criteria to be considered significant.
Alvar **Rationale;** Alvars are extremely rare habitats in Ecosregion 6E. Most alvars in Ontario are in Ecoregions 6E and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic-Precambrian contact.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 **Five Alvar Species:** 1) *Carex crawei* 2) *Panicum philadelphicum* 3) *Eleocharis compressa* 4) *Scutellaria parvula* 5) *Trichostema brachiatum* These indicator species are very specific to Alvars within Ecoregion 6E	An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover	An Alvar site > 0.5 ha in size. Information Sources • Alvars of Ontario (2000), Federation of Ontario Naturalists. • Ontario Nature – Conserving Great Lakes Alvars. • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs. • Conservation Authorities.	• Field 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.). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses • Significant Wildlife Habitat Mitigation Support Tool Index #17 provides development effects and mitigation measures.	Habitat in the study area does not meet key criteria to be considered significant.

Rare Vegetation Community	Candidate SWH			Confirmed SWH	Assessment
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Old Growth Forest **Rationale:** Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by many wildlife species.	Forest Community Series: FOD FOC FOM SWD SWC SWM	Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest. Information Sources • OMNRF Forest Resource Inventory mapping • OMNRF Districts. • Field Naturalist clubs • Conservation Authorities • Sustainable Forestry Licence (SFL) companies will possibly know locations through field operations. • Municipal forestry departments	Field Studies will determine: • If dominant trees species of the are >140 years old, then the area containing these trees is SWH • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present) • The area of forest ecosites combined or an eco-element within an ecosite that contains the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest area containing the old growth characteristics • Significant Wildlife Habitat Mitigation Support Tool Index #23 provides development effects and mitigation measures.	Forest communities in study area do not meet key criteria related to Woodland areas. Woodland habitat is not considered to be old growth forest.
Savannah **Rationale:** Savannahs are extremely rare habitats in Ontario.	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. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs. • Conservation Authorities.	Field studies confirm one or more of the Savannah indicator species listed in Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • Significant Wildlife Habitat Mitigation Support Tool Index #18 provides development effects and mitigation measures.	Habitat in the study area does not meet key criteria to be considered significant.
Tallgrass Prairie **Rationale:** Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover.	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. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs. • Conservation Authorities.	Field studies confirm one or more of the Prairie indicator species listed in Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 6E should be used • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • Significant Wildlife Habitat Mitigation Support Tool Index #19 provides development effects and mitigation measures.	Habitat in the study area does not meet key criteria to be considered significant.
Other Rare Vegetation Communities **Rationale:** Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the Significant Wildlife Habitat Technical Guide. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M The OMNRF/NHIC will have up to date listing for rare vegetation communities. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs. • Conservation Authorities.	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of Significant Wildlife Habitat Technical Guide. • Area of the ELC Vegetation Type polygon is the SWH. • Significant Wildlife Habitat Mitigation Support Tool Index #37 provides development effects and mitigation measures.	No rare vegetation communities have been documented within the study area.

F.3 - Specialized Habitat for Wildlife

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Waterfowl Nesting Area **Rationale;** Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	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. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. Information Sources • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from Conservation Authorities.	Studies confirmed: • 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). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • 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. • Significant Wildlife Habitat Technical Guide Index #25 provides development effects and mitigation measures.	Suitable ELC communities are found within and outside of the area of focus, however, sufficient numbers of ducks (Mallard and Blue-winged Teal – the only duck species found) were not recorded during surveys and no nesting was confirmed on the property.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat **Rationale;** Nest sites are fairly uncommon in Eco-region 6E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey **Special Concern** Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree’s canopy. • Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms). Information Sources • Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario. • MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat. • Nature Counts, Ontario Nest Records Scheme data. • OMNRF Districts. • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented • Reports and other information available from Conservation Authorities. • Field Naturalists clubs	Studies confirm the use of these nests by: • 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 contiguous woodland stand is the SWH , maintaining undisturbed shorelines with large trees within this area is important . • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. , Area of the habitat from 400-800m is dependent on-site lines from the nest to the development and inclusion of perching and foraging habitat • 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 mid March to mid August. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”	The listed species were not documented within the study area.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
				• Significant Wildlife Habitat Technical Guide Index #26 provides development effects and mitigation measures	
Woodland Raptor Nesting Habitat **<u>Rationale:</u>** Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3	All natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat. 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. <u>Information Sources</u> • OMNRF Districts. • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada. • Reports and other information available from Conservation Authorities.	Studies confirm: • 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 28ha 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. • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. • Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • Significant Wildlife Habitat Technical Guide Index #27 provides development effects and mitigation measures.	The area of focus and study area does not contain forests of sufficient size, however, the eastern end of the larger property beyond the study area in conjunction with adjacent forests might. No stick nests were documented during field investigations.
Turtle Nesting Areas **<u>Rationale;</u>** These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle <u>Special Concern Species</u> Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. <u>Information Sources</u> • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Center (NHIC) • Field Naturalist clubs	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles • 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. Significant Wildlife Habitat Technical Guide Index #28 provides development effects and mitigation measures for turtle nesting habitat.	Suitable ELC ecosites were not documented within the study area nor the overall property.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Seeps and Springs **Rationale:** Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species Information Sources • Topographical Map. • Thermography. • Hydrological surveys conducted by Conservation Authorities and Ministry of the Environment, Conservation and Parks. • Field Naturalists clubs and landowners. • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped.	Field Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of an 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. • Significant Wildlife Habitat Technical Guide Index #30 provides development effects and mitigation measures	The tributaries crossing the property are within the upper reaches of the Grand River however their substrate and fish species composition indicate they would not be considered coldwater. No groundwater seepage was observed within the property.
Amphibian Breeding Habitat (Woodland). **Rationale:** These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians	• Presence of a wetland, pond or woodland pool (including vernal pools) >500m2 (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 Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF District. • OMNRF wetland evaluations • Field Naturalist clubs • Canadian Wildlife Service • Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org	Studies confirm; • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the wetland area plus a 230m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. • Significant Wildlife Habitat Technical Guide Index #14 provides development effects and mitigation measures.	ELC communities associated with amphibian breeding habitat (woodland) are not found within the area of focus or the study area but were found outside the study area within the larger property boundary (Based on ELC community FOD and calling codes and numbers of individuals at amphibian calling station 4).

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Amphibian Breeding Habitat (Wetlands) **<u>Rationale;</u>** Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	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. <u>Information Sources</u> • Ontario Herpetofaunal Summary Atlas (or other similar atlases) • Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. • OMNRF Districts and wetland evaluations • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3. **or;** Wetland with confirmed breeding Bullfrogs are significant. • The ELC ecosite wetland area and the shoreline are the SWH. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined below. • Significant Wildlife Habitat Technical Guide Index #15 provides development effects and mitigation measures.	The wetland habitat within the study area and elsewhere on the property includes several of the ELC community types for this function, however the habitats within the focus area (Stations 1, 12) do not meet the defining criteria related to species and calling codes. Stations elsewhere on the property (2, 3) had sufficient numbers or high enough calling codes.
Woodland Area-Sensitive Bird Breeding Habitat **<u>Rationale:</u>** Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren **Special Concern:** Canada Warbler	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha, • Interior forest habitat is at least 200 m from forest edge habitat. <u>Information Sources</u> • Local bird clubs. • Canadian Wildlife Service (CWS) for the location of forest bird monitoring. • Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Note: any site with breeding Canada Warblers is to be considered SWH. • Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • Significant Wildlife Habitat Technical Guide Index #34 provides development effects and mitigation measures.	The study area does not contain mature forest conditions. Nor does it contain any forested areas of sufficient size to meet the criteria. The majority of the forested portions are young (*i.e.,* 30-40 years).

F.4 - Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Marsh Breeding Bird Habitat **Rationale;** Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan **Special Concern:** Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites.	• Nesting occurs in wetlands. • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water. Information Sources • OMNRF District and wetland evaluations. • Field Naturalist clubs • Natural Heritage Information Center (NHIC) Records. • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas.	Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes; **or** breeding by any combination of 5 or more of the listed species. • Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. • Area of the ELC ecosite is the SWH. • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • Significant Wildlife Habitat Technical Guide Index #35 provides development effects and mitigation measures	Suitable ELC communities are found within the area of focus (MAMM1-2) and study area and elsewhere on the larger property (MAMM2), however suitable species (SEWR and AMBI) were only recorded outside the study area within the subject property. Sufficient species numbers for significance were not documented anywhere on the property.
Open Country Bird Breeding Habitat Sources Defining Criteria **Rationale;** This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Vesper Sparrow Northern Harrier Savannah Sparrow **Special Concern** Short-eared Owl Grasshopper Sparrow	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 fields, mature hayfields and pasturelands that are at least 5 years or older. • The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species. Information Sources • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • Reports and other information available from Conservation Authorities.	Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species. • A field with 1 or more breeding Short-eared Owls or Grasshopper Sparrow is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • Significant Wildlife Habitat Technical Guide Index #32 provides development effects and mitigation measures	Vegetation communities within the study area are not appropriate to provide this function.
Shrub/Early Successional Bird Breeding Habitat **Rationale;** This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	Indicator Spp: Brown Thrasher Clay-coloured Sparrow Common Spp. Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher **Special Concern:** Golden-winged Warbler	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 row-cropping, haying or live-stock 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. Information Sources • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • Reports and other information available from Conservation Authorities.	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. • A habitat with breeding Golden-winged Warbler is to be considered as Significant Wildlife Habitat. • 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 • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • Significant Wildlife Habitat Technical Guide Index #33 provides development effects and mitigation measures.	Suitable ELC communities are not found on the property.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Terrestrial Crayfish **<u>Rationale:</u>** Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	Chimney or Digger Crayfish; (*Fallicambarus fodiens*) Devil Crayfish or Meadow Crayfish; (*Cambarus Diogenes*)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh or swamp ecosites can be used by terrestrial crayfish.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. <u>Information Sources</u> • Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF March 1998	Studies Confirm: • 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 • Significant Wildlife Habitat Technical Guide Index #36 provides development effects and mitigation measures.	Chimneys were not documented within the area of focus nor the study area wetland communities, however, one was noted outside the study area near BBS station #9.
Special Concern and Rare Wildlife Species **<u>Rationale:</u>** These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites <u>Information Sources</u> • Natural Heritage Information Centre (NHIC) will have Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. • NHIC Website "Get Information" : http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas • Expert advice should be sought as many of the rare spp. have little information available about their requirements.	Studies Confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat. • Significant Wildlife Habitat Technical Guide Index #37 provides development effects and mitigation measures.	**Eastern Wood-pewee was documented outside the study area at BBS station #9.**

F.5 - Animal Movement Corridors

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria	
Amphibian Movement Corridors **Rationale;** Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	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 (**Amphibian Breeding Habitat –Wetland)** Information Sources • MNRF District Office. • Natural Heritage Information Center (NHIC). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs.	• 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 <20mcxlix . • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat. • Significant Wildlife Habitat Technical Guide Index #40 provides development effects and mitigation measures	Significant amphibian breeding habitat is not present within the area of focus and study area; therefore, amphibian movement corridors are not identified within the study area but may be present elsewhere on the property.
Deer Movement Corridors **Rationale:** Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	White-tailed Deer	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when **Deer Wintering Habitat** is confirmed as SWH • A deer wintering habitat identified by the OMNRF as 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). Information Sources • MNRF District Office. • Natural Heritage Information Center (NHIC). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs.	• 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. • Significant Wildlife Habitat Technical Guide Index #39 provides development effects and mitigation measures	No deer wintering habitat present.

F.6 - Exceptions for Ecoregion 6E

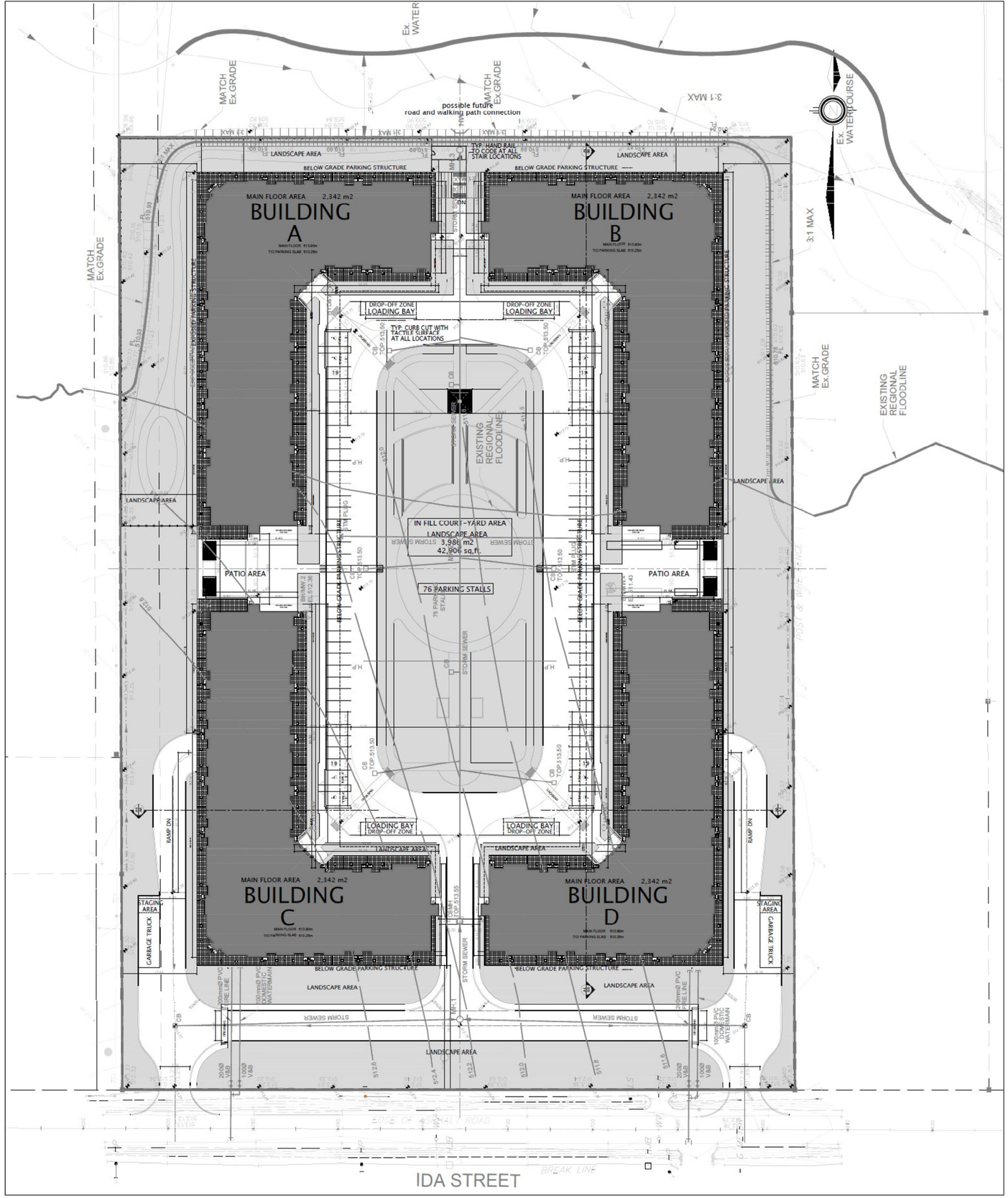
EcoDistrict	Wildlife Habitat and Species	Candidate			Confirmed SWH	Assessment
		Ecosites	Habitat Description	Habitat Criteria and Information	Defining Criteria	
6E-14 **Rationale:** The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracts with mast-producing tree species is important for bears.	**Mast Producing Areas** Black Bear	All Forested habitat represented by ELC Community Series: FOM FOD	• Black bears require forested habitat that provides cover, winter hibernation sites, and mast-producing tree species. • Forested habitats need to be large enough to provide cover and protection for black bears	Woodland ecosites >30ha with mast-producing tree species, either soft (cherry) or hard (oak and beech), Information Sources Important forest habitat for black bears may be identified by OMNRF.	All woodlands > 30ha with a 50%composition of these ELC Vegetation Types are considered significant: FOM1-1 FOM2-1 FOM3-1 FOD1-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5 Significant Wildlife Habitat Technical Guide Index #3 provides development effects and mitigation measures.	Not applicable, study area is not located on the Bruce Peninsula.
6E- 17 **Rationale:** Sharp-tailed grouse only occur on Manitoulin Island in Eco-region 6E, Leks are an important habitat to maintain their population	**Lek** **Sharp-tailed Grouse**	CUM CUS CUT	• The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography. • Leks are typically a grassy field/meadow >15ha with adjacent shrublands and >30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated.	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 Information Sources • OMNRF district office • Bird watching clubs • Local landowners • Ontario Breeding Bird Atlas	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 • Significant Wildlife Habitat Technical Guide Index #32 provides development effects and mitigation measures	Not applicable, study area is not located on Manitoulin Island.

APPENDIX F

Proposed Development Plan

BIRKS

NATURAL HERITAGE CONSULTANTS



OBC: 3.2.245 group C, up to 4 storeys, Sprinklered
(iii) 2400 m2 if 3 storeys in building height.

TOTAL SITE AREA	270,125.05 m2 2,907,601 sq,ft.
DENSITY	5.63
DEVELOPMENT SITE AREA	35,481.69 m2 381,921.7 sq,ft.
DENSITY	42.88
ZONING	R4

LOT COVERAGE AND SETBACKS FOR THE WHOLE DEVELOPMENT

LOT COVERAGE	26%
OPEN AREA	74%
FRONT YARD SET BACK(SOUTH SIDE)	29.25m
SIDE YARD SET BACK (EAST SIDE)	15.99m
SIDE YARD SET BACK (WEST SIDE)	17.60m
REAR YARD SET BACK (NORTH SIDE)	10.00m

PARKING STRUCTURE

EACH PARKING STRUCTURE AREA	7,535.86 m2
TOTAL PARKING STRUCTURE AREA	15,071.72 m2 162,230.6 sq,ft.

REQUIRED PARKING

PARKING STALLS 1.0 PER UNIT	376
PARKING STALLS VISITOR 0.2 PER UNITS	75
PARKING STALLS REQUIRED	451

PROVIDED PARKING

PARKING STALLS BELOW GRADE 1.0 PER UNIT	378
VISITORS PARKING STALLS AT GRADE COURT YARD 0.2 PER UNITS	76
PARKING STALLS PROVIDED	454

PARKING STALLS REQUIRED	6
PARKING STALLS PROVIDED	10

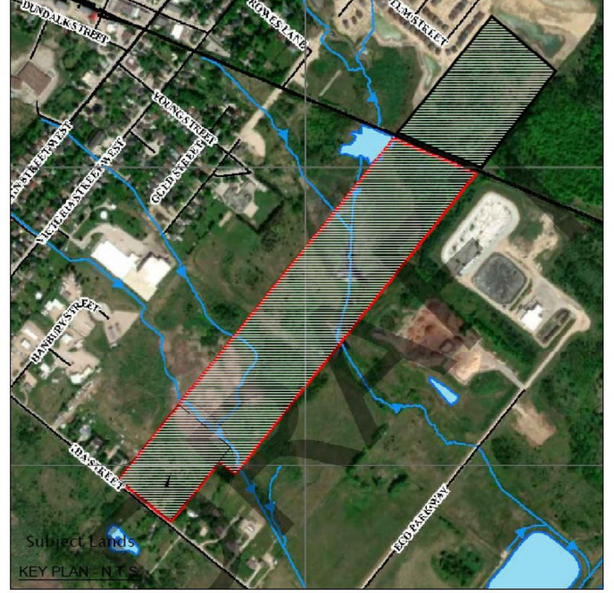
TOWNSHIP OF SOUTHGATE
ZONING BY-LAW
5.10 Parking Spaces for Handicapped
is in excess of 20 parking spaces, 1 space of the first 20 spaces required and
1 space out of each additional 100 spaces or portion thereof shall be provided near and accessible to the point of entrance to the building and clearly marked for the parking of the vehicles used by the disabled person or persons.

BUILDING AREAS

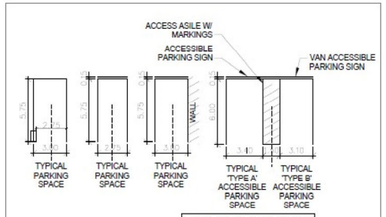
BUILDING -A-	
MAIN FLOOR AREA	2,342 m2
2ND FLOOR AREA	2,309 m2
3RD FLOOR AREA	2,309 m2
GFA-TOTAL AREA PER BUILDING	6,960 m2
BUILDING -B-	
MAIN FLOOR AREA	2,342 m2
2ND FLOOR AREA	2,309 m2
3RD FLOOR AREA	2,309 m2
GFA-TOTAL AREA PER BUILDING	6,960 m2
BUILDING -C-	
MAIN FLOOR AREA	2,342 m2
2ND FLOOR AREA	2,309 m2
3RD FLOOR AREA	2,309 m2
GFA-TOTAL AREA PER BUILDING	6,960 m2
BUILDING -D-	
MAIN FLOOR AREA	2,342 m2
2ND FLOOR AREA	2,309 m2
3RD FLOOR AREA	2,309 m2
GFA-TOTAL AREA PER BUILDING	6,960 m2
GFA-GRAND TOTAL AREA X 4	27,840 m2 299,667.3 sq,ft.

REQUIRED ACCESSIBLE UNITS 15% OF TOTAL
PROVIDED 1 BED accessible unit 15% of total = 56 Units

DWG SHEETS



NOTE.
ALL LANDSCAPING IMAGES ARE FOR REFERENCE ONLY, SEE LANDSCAPE ARCHITECTS DWGS.
ALL SITE GRADES PROPOSED ON THIS AND FOLLOWINGS DWGS ARE SUBJECT TO CIVIL DWGS



DUNDALK CONCEPT	A-101
FLOOD PLAIN SITE PLAN	JUNE 27,2024
2024-25	S&C ARCHITECTS INC.