

Wilmot Woods Environmental Impact Study

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**March 2022
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R.J. Burnside & Associates Limited

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1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) has been retained by Wilmot Woods Developments Inc. to conduct an Environmental Impact Study (EIS) to support a Draft Plan of Subdivision and Zoning Bylaw Amendment, to permit the development of a residential subdivision. This development is proposed to be located on the southern portion of Part Lot 20, Concession South of Snyder's Road Township of Wilmot (the "Site"), shown on Figure 1-1. The total area of the Site is approximately 37 hectares. Lands within 120 m of the Site are included within the study area.

The Site is located within the designated Baden-New Hamburg Township Urban Area. A woodlot at the southern edge of the property is identified as a Locally Significant Natural Area and Regional Core Environmental Feature and is designated as Open Space. A small tributary of the Nith River, known as the Ivan Gingerich Drain, runs along the eastern edge of the Site. A wetland occurs on the south side of the study area extending onto the property.

Most of the Site is currently being actively farmed for the interim until the development proceeds, with the exception of the woodlot which extends into the southwest corner of the property. The farmed areas are primarily in vegetable production with the exception of a small wheat field at the southwest corner, as shown on Figure 1-1.

The purpose of the EIS is to assess potential future impacts to the Locally Significant Natural Area/Core Environmental Feature and Ivan Gingerich Drain as a result of the proposed development.



Study Area

- Site
- Significant Woodland/Regional Core Environmental Feature
- Study Area

Sources:

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Coord. System: NAD 1983 CSRS UTM Zone 17N		
Projection: Transverse Mercator		
Central Meridian: 81°0'0.00"W		
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Client

WILMOT WOODS DEVELOPMENTS INC.

Figure Title

WILMOT WOODS DEVELOPMENT EIS

SITE LOCATION

Drawn	Checked	Date	Figure No. 1-1
HN	TR	2022/02/13	
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2.0 Policy Context

2.1 Provincial Policy Statement

The PPS (MMAH, 2020) provides general policies on land use patterns, resources, and public health and safety that guide development across Ontario. This report will address Section 2.1 (Natural Heritage).

Eight types of natural heritage features are identified in Section 2.1 of the PPS. In summary, development and site alteration are not permitted within:

- Significant wetlands in Ecoregions 5E, 6E and 7E; and
- Significant coastal wetlands.

In addition, development and site alteration are not permitted within, or adjacent to, the following features unless it can be demonstrated that there will be no negative impacts to the feature or its ecological functions:

- Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;
- Significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
- Significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
- Significant Wildlife Habitat (SWH);
- Significant Areas of Natural and Scientific Interest (ANSI); and
- Coastal wetlands in Ecoregions 5E, 6E and 7E.

In addition, development and site alteration on, and adjacent to, fish habitat and the habitat of endangered and threatened species will only be permitted in accordance with provincial and federal regulatory requirements.

The subject site is located within Ecoregion 6E. The presence or potential presence of some of the features listed in the PPS has been identified on, and in the vicinity of, the subject lands.

2.1 Growth Plan for the Greater Golden Horseshoe

The Growth Plan for the Greater Golden Horseshoe, 2017, is a long-term plan that provides a framework for growth management in the region. The 2017 Growth Plan provided mapping of a Natural Heritage System to identify and protect key natural heritage and hydrologic features.

Neither the Ivan Gingerich Drain nor the woodlot to the south are mapped as part of the Growth Plan's Natural Heritage System. The wetland to the east of the woodlot is not a Provincially Significant Wetland (PSW). The policies associated with the Natural Heritage System and key natural heritage features apply only to lands outside of

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settlements areas. The Site is part of the Township Urban Area. As such, the Growth Plan indicates that:

Beyond the Natural Heritage System, including within settlement areas, the municipality:

- a) Will continue to protect any other natural heritage features in a manner that is consistent with the PPS; and
- b) May continue to protect any other natural heritage system or identify new systems in a manner that is consistent with the PPS.

As such, the natural heritage policies of the PPS and Regional and Township Official Plans apply and this EIS will demonstrate that the proposed development conforms to policies of these documents.

2.2 Region of Waterloo Official Plan

The Region of Waterloo's Official Plan identifies the Site as future Greenfield Development Area within the Baden-New Hamburg Township Urban Area. The woodlot in the southwestern corner of the Site is part of a larger woodland, designated as a Core Environmental Feature in the Region's Official Plan.

The Region identifies Significant Woodlands as treed areas which are greater than 4 ha in size, excluding fencerows, consisting primarily of native tree species and meeting the criteria of a woodland in accordance with the provisions of the Regional Woodland Conservation By-law. The wooded area, coincident with the Core Environmental Feature is expected to meet the criteria for a Significant Woodland.

The EIS will address potential impacts to the Core Environmental Feature and Significant Woodland as a result of the proposed development.

2.3 Township of Wilmot Official Plan (April, 2019 Consolidation)

The Site is located within the Township Urban Area, with most of the lands designated as Urban Residential.

The woodlot on the southwestern corner of the Site is designated as Open Space and is identified as a Core environmental Feature, coincident with the Region's mapping. Section 8.1.3 of the Official Plan includes policies designed to protect Core Environmental Features. Development or site alteration is not permitted within Core Environmental Features, with some exceptions, including the installation of infrastructure. Development may be permitted adjacent to Core Environmental Features subject to the findings of an EIS.

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2.4 Conservation Authority Regulations

The GRCA regulates development in or around hazard lands (i.e., floodplains, slopes, wetlands) through *Ontario Regulation 150/06*.

The Authority “may grant permission for development in [regulated areas] if, in its opinion, the control of flooding, ...pollution or the conservation of land will not be affected by the proposed development.” (*Section 3(1)*).

Regulated lands are present within the study area in association with the Ivan Gingerich Drain which runs along the eastern edge of the property. Additional regulated lands are present north and south of the railroad track.

2.5 Provincial Endangered Species Act, 2007

The *Endangered Species Act 2007* (ESA) provides protection for species at risk (SAR) and their habitat. The ESA, 2007 helps protect species (Section 9) and their habitat (Section 10). Section 9(1)(a) of the ESA states,

“no person shall kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as extirpated, endangered or threatened”.

Section 10(1)(a) of the ESA states,

“no person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario List as an endangered or threatened species”.

There is potential for SAR to be present within the study area.

2.6 Migratory Birds Convention Act, 1994

The *Migratory Birds Convention Act, 1994* (MBCA) and the *Migratory Bird Regulations* (MBR) are federal legislative requirements that are binding on members of the public and all levels of government, including federal and provincial governments. The legislation protects certain species¹, controls the harvest of others, and prohibits commercial sale of all species.

¹ Bird species not regulated under the Act include: Rock Dove, American Crow, Brown-headed Cowbird, Common Grackle, House Sparrow, Red-winged Blackbird, and European Starling. In addition, raptors are not regulated under the MBCA. However, they are protected under provincial legislation which restricts and regulates the taking or possession of eggs and nests. Furthermore, if the species identified is protected under Ontario's *Endangered Species Act, 2007* additional restrictions may apply.

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One key responsibility under the MBCA is described in Section 6 of the associated MBR:

“Subject to subsection 5(9), no person shall

- Disturb, destroy or take a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird, or
- Have in his possession a live migratory bird, or a carcass, skin, nest or egg of a migratory bird except under authority of a permit therefor.”

It is anticipated that migratory birds are present on the Site.

3.0 Methodology

The methodology for this EIS was developed in consultation with the Region of Waterloo and Grand River Conservation Authority (GRCA). A Terms of Reference and related correspondence are provided in Appendix A.

3.1 Review of Secondary Source Information

A comprehensive desktop assessment was completed to compile and review existing natural heritage information available for the Study Area. All areas within 120 m of the subject lands were reviewed as part of the high-level assessment in order to identify significant natural heritage features located within or directly adjacent to the subject lands that may be impacted by the proposed works. Information acquired through this screening process was used to help guide field efforts and evaluate the significance of on-site observations. Information was reviewed from the following sources:

- Aerial photographic imaging;
- MNRF Natural Heritage Information Centre (NHIC) database for significant species and designated natural features within 120 m of the subject lands;
- MNRF Land Information Ontario (LIO) database;
- Ministry of Natural Resources and Forestry (MNRF) Aquatic Resource Area mapping (2015);
- Fisheries and Oceans Canada (DFO) Aquatic Species at Risk mapping (2015 and 2016);
- DFO Species at Risk mapping (2015 and 2017);
- Atlas of Breeding Birds of Ontario (2001-2005); and
- Ontario Reptile and Amphibian Atlas (2019).

3.2 Field Investigations

Field investigations were conducted in the summers of 2018 and 2019, according to the schedule listed in Table 3-1. The purpose of field investigations was to verify whether the features identified in the desktop assessment are present and, if so, to confirm their boundaries. The purpose was also to identify any other natural features not previously documented.

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All field investigations were conducted according to the parameters provided in the Terms of Reference, taking into account follow-up comments, as provided in Appendix A.

Table 3-1: Field Study Methodology

Field Study	Methodology	Staff Involved	Date(s)	Time of Day	Weather Conditions		
					Precipitation / Cloud Cover	Temperature (°C)	Wind (Beaufort Wind Scale) ¹
Ecological Land Classification	Ecological Land Classification for Southern Ontario (Lee <i>et al.</i> , 1998) of entire property.	Peter De Carvalho	August 2, 2018	0800-1230	No precipitation, Sunny, no clouds	22°C on arrival 28°C on departure	N/A
Amphibian Breeding Surveys	Marsh Monitoring Program Breeding Amphibian Protocol	Peter De Carvalho	May 28, 2019 July 8, 2019	2120-2123	- No precipitation. 50% cloud cover - No precipitation. Overcast.	18°C on arrival 21°C on arrival	1 – 1-2
Woodland Boundary Delineation	Edge-of-Dripline	Stewart Gibson	April 20, 2021	0930-1300	No precipitation. Sunny with sparse clouds	21°C on arrival 29°C on departure	N/A
Wetland Boundary Delineation	Ontario Wetland Evaluation System – 3 rd Ed (MNRF, 2014).	Stewart Gibson	April 20, 2021	0930-1300	No precipitation. Sunny with sparse clouds	21°C on arrival 29°C on departure	N/A
Search for potential wildlife habitats	Meandering survey throughout property. Search for features such as: - Reptile hibernacula - Old barns, structures, uncapped chimneys, foundations	Peter De Carvalho	August 2, 2018 July 3, 2019	0800-1230 0930-1300	- No precipitation. Sunny, no clouds - No precipitation. Sunny with sparse clouds	22°C on arrival 28°C on departure 21°C on arrival 29°C on departure	N/A
Incidental wildlife observations	Visual observations of animals, tracks or scat during all site visits.	Peter De Carvalho	August 2, 2018 July 3, 2019	0800-1230 0930-1015	- No precipitation, Sunny, no clouds - No precipitation. Sunny with sparse clouds	22°C on arrival 28°C on departure 21°C on arrival 29°C on departure	1 –

¹ Beaufort Wind Scale 0 = calm, smoke rises vertically (0-2 km/hr); 1 = light air movement, smoke drifts (3-5); 3 = gentle breeze, wind felt on face; leaves rustle (6-11); 4 = moderate breeze, small branches moving, raises dust & loose paper (20-30); 5 = fresh breeze, small trees begin to sway (31-39); 6 = strong breeze, large branches in motion (40-50)

3.3 Assessment Methodology

The significance, rarity, ecological function and sensitivity of various features were assessed in accordance with the following guidance documents:

- Natural Heritage Reference Manual for Natural Heritage Policies of the PPS, 2005 (MNR, 2010);
- Significant Wildlife Habitat Technical Guide (SWHTG; MNR, 2000); and
- Significant Wildlife Habitat Ecoregion 6E Criteria Schedules (MNR, 2015).
- Township of Wilmot Environmental Impact Statement policies (Section 84 of the Official Plan);
- Region of Waterloo Environmental Impact Statement policies (Section 7.G of the Official Plan); and
- Region of Waterloo Greenlands Network Implementation Guideline (May, 2016);

4.0 Existing Conditions

Existing conditions are described for the three main features of the Site:

- The active agricultural lands;
- The Ivan Gingerich Drain; and
- The Locally Significant Natural Area / Regional Core Environmental Feature/Significant Woodland including easement areas south of the railroad track (the boundaries of these three designations coincide).

A detailed characterization of these features is presented in the following sections.

4.1 Active Agricultural Lands

Much of the Site is being used for active agricultural production in the interim pending development. Vegetables are the primary crop, including peas, chard, broccoli, and carrots. A small wheat field is present at the southwestern corner of the property, shown on Figure 1-1. The wheat field is approximately 5 ha in size.

Some agricultural lands can provide ecological functions that support wildlife habitat, such as migration corridors, nesting or foraging areas. The best agricultural lands for wildlife habitat are those which are low intensity with little ongoing activity and maintenance such as pasture, hay, and fallow fields.

The vegetable fields on the Site may provide some limited wildlife movement and foraging but are unlikely to provide any significant nesting sites, including nesting for grassland birds because of the intensity of the production and because the ground cover is more open along row crops and not as dense as grassland conditions. Rare grassland birds such as Bobolink and Eastern Meadowlark are unlikely to be present.

Wheat fields can provide nesting habitat for grassland birds. However, the wheat field on site is approximately 5ha in size. While Bobolink have occasionally been found within wheat fields, this is unusual and generally limited to large fields (greater than 50 ha) (MNRF, 2013). The Recovery Strategy also indicates that small fields represent poor habitat if surrounded by forest, such as the woodland which is present directly adjacent to the wheat field on site. Eastern Meadowlark can be found in smaller fields than Bobolink but the field on-site is relatively small for this species and is similarly unlikely to provide suitable habitat. In addition, due to the farm's crop rotation, the field planted in wheat in 2018 is not always in wheat production. This ongoing rotation will also limit the type of birds found.

In addition, the wheat field does not meet the composition or size criteria to meet the definition of Open Country Bird Breeding Habitat under the Significant Wildlife Habitat Criteria Schedule (MNRF, 2015). As such, suitable nesting habitat for grassland birds is not present within the agricultural portions of the study area.

Some birds and mammals such as barn swallow, owls and bats may nest in agricultural structures such as barns, lean-tos, sheds and uncapped chimneys in old farmhouses. No agricultural structures are present on the Site. Rock piles, stone fences or old building foundations which could provide hibernacula for snakes were also not found.

In general, the agricultural fields present do not provide a significant wildlife habitat function or provide preferable habitat for species at risk birds. As natural heritage features are not present in association with the agricultural lands, no mitigation is required for development on these lands.

4.2 Ivan Gingerich Drain

The Ivan Gingerich Drain runs along the northern boundary of the property. The drain has been straightened and channelized, and serves approximately 192 ha upstream of Waterloo St. With its relatively small drainage basin, flow is expected to be minimal and likely ephemeral. The drain flows to the north. North of Waterloo St. it takes on a more natural, meandering alignment, outletting to the Nith River. The drain has not been classified for fish habitat based on the Fisheries and Oceans Canada's Municipal Drain Classification System. The GRCA has identified it as a watercourse and the floodplain is 30m wide as per GRIN mapping (2022).

Riparian vegetation is minimal on both sides of the drain across most of the site. Therefore, there is limited shading, bank protection or organic inputs to the drain. Sections of the northern reach do feature some woody riparian cover including *Salix alba* and *Populus tremuloides*.

Approximately 1.71 km upstream from where the Ivan Gingerich Drain outlets to the Nith River a species of mussel, Rainbow Mussel (*Villosa iris*), has been mapped as

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historically inhabiting the upstream Nith River. Rainbow Mussel is listed as a species of special concern under the *Endangered Species Act* (ESA) and as an Endangered Species under the federal *Species At Risk Act* (SARA).

Burnside reviewed the MNRF Aquatic Resource Area (ARA) mapping for the subject watercourse and downstream reaches. The subject watercourse is a warm-water watercourse as is the downstream Nith River. Fish historically observed in 2015 surveys are available in Table 4-1 below. None of the species listed are rare.

Table 4-1 Fish Records for the Nith River

Species Name	Scientific Name	Thermal Regime Preference
Bluntnose Minnow	<i>Pimephales notatus</i>	Warm
Eastern Blacknose Dace	<i>Rhinichthys atratulus</i>	Cool
Greenside Darter	<i>Etheostoma blennioides</i>	Warm
Hornyhead Chub	<i>Nocomis biguttatus</i>	Cool
Johnny Darter	<i>Etheostoma nigrum</i>	Cool
Longnose Dace	<i>Rhinichthys cataractae</i>	Cool
Rainbow Darter	<i>Etheostoma caeruleum</i>	Cool
Smallmouth Bass	<i>Micropterus dolomieu</i>	Cool
Stonecat	<i>Noturus flavus</i>	Warm
Striped Shiner	<i>Luxilus chrysocephalus</i>	Cool
White Sucker	<i>Catostomus commersonii</i>	Cool

Source: MNRF ARA Survey Data Point, 2015

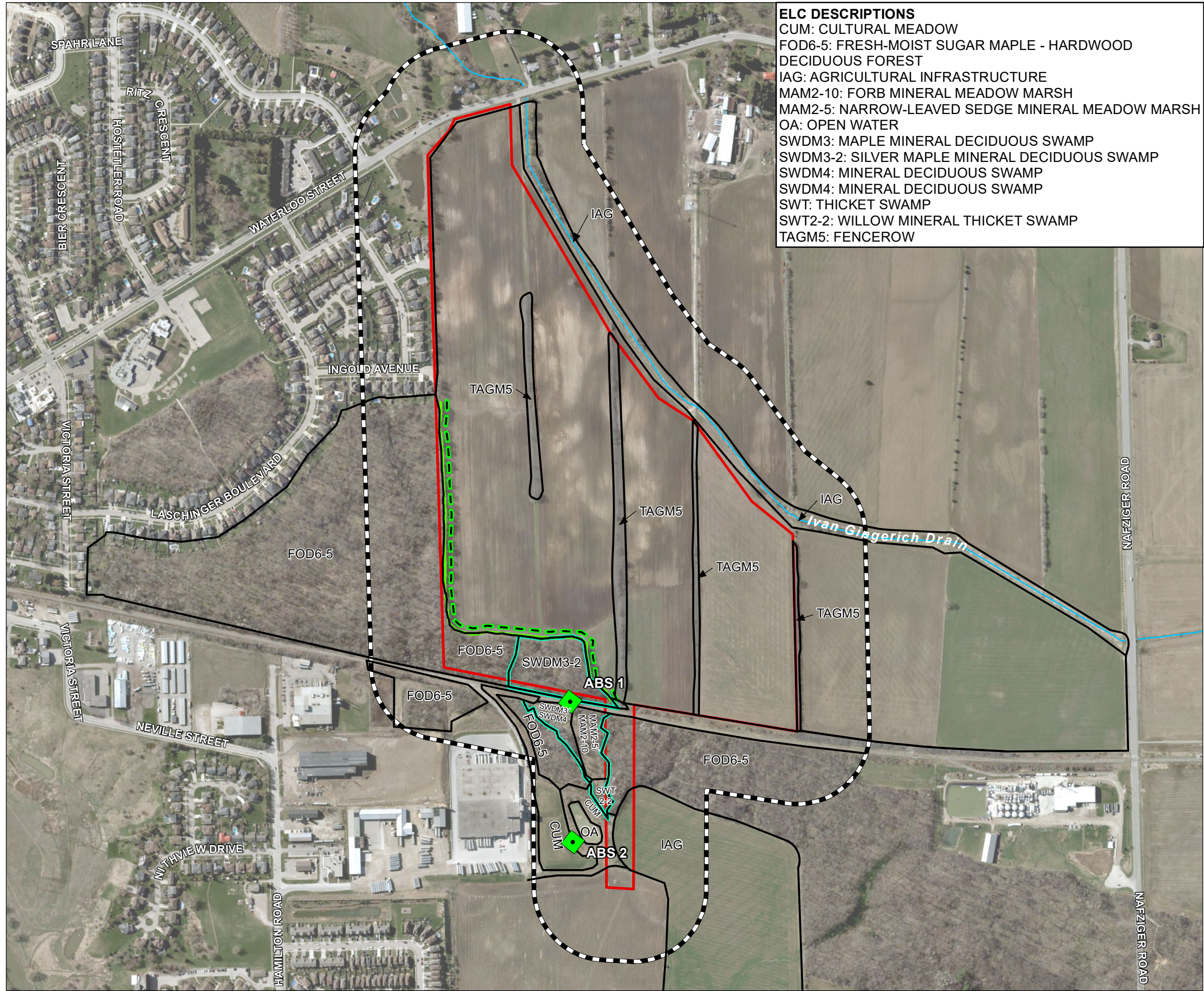
Potential impacts to the drain and recommended mitigation are provided in Section 6.

4.3 Locally Significant Natural Area/Regional Core Area/Significant Woodland

The woodlot that stretches along the western and southern edges of the property and beyond is a Locally Significant Natural Area, Regional Core Natural Feature and Significant Woodland. Vegetation and wildlife habitat associated with this feature are characterized in the following sections.

4.3.1 Vegetation Communities

Three vegetation community types were located on, or proximal to, the subject lands. A summary of these units is provided in Table 4-2 and are shown on Figure 4-1.



- ELC DESCRIPTIONS**
CUM: CULTURAL MEADOW
FOD6-5: FRESH-MOIST SUGAR MAPLE - HARDWOOD DECIDUOUS FOREST
IAG: AGRICULTURAL INFRASTRUCTURE
MAM2-10: FORB MINERAL MEADOW MARSH
MAM2-5: NARROW-LEAVED SEDGE MINERAL MEADOW MARSH
OA: OPEN WATER
SWDM3: MAPLE MINERAL DECIDUOUS SWAMP
SWDM3-2: SILVER MAPLE MINERAL DECIDUOUS SWAMP
SWDM4: MINERAL DECIDUOUS SWAMP
SWT: THICKET SWAMP
SWT2-2: WILLOW MINERAL THICKET SWAMP
TAGM5: FENCEROW

- Amphibian Breeding Survey Station
- ELC Boundary
- Dripline
- 10m Dripline Buffer
- Site
- Study_area_Buffer_120_NEW
- Staked Wetland (July 3rd, 2019)

Sources:
1. Ministry of Natural Resources and Forestry, © Queen's Printer for Ontario.
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False Easting: 500,000m	False Northing: 0m
Page Orientation: 322.6°	Scale Factor: 0.99960

Grid North

0 100 200 300 400 500
Metres



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Figure Title

WILMOT WOODS DEVELOPMENT EIS
VEGETATION COMMUNITIES

Drawn	Checked	Date	Figure No. 4-1
HN	PD	2022/02/28	
Scale	Project No.		
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Table 4-2 Vegetation Communities

ELC Code	Vegetation Type	Species Association	Comments
CULTURAL COMMUNITIES			
TAGM5 (a)	Fencerow	Canopy: Occasional individual or grouped Trembling Aspen/Sugar Maple/Manitoba Maple/American Elm, but typically canopy dominated by shrub species (European Buckthorn, Hawthorn species). Understory: Gray Dogwood, Buckthorn, Hawthorn, Wild Raspberry. Ground Cover: Green Foxtail, Common Hawkweed, Canada, Dandelion, Wild Carrot	Tree and shrub cover <25%. Dominant species included European Buckthorn, Green Foxtail, Wild Carrot. Mineral Soil.
IAG (b)	Agricultural Infrastructure (Ivan Gingerich Drain)	Canopy: Occasional White Willow/Trembling Aspen/Silver Maple (especially south of Waterloo Street), though generally tree species are sparse. Understory: Green Dogwood in some sections Ground Cover: Common Cattail, Spotted Jewelweed, Common Milkweed, Smooth Brome. Wild Carrot.	Tree and shrub cover <25%. Dominant species varied along reach. Mineral Soil. Species composition a mix of wetland species (Spotted Jewelweed, Common Cattail, <i>Carex</i> sp.) and upland (Wild Carrot, Burdock, Chickory).
OAG	Open Agriculture	Ground Cover: Mostly vegetable crops (Carrots, Chard, Broccoli, Peas), though a roughly 5 ha	Non-crop plants typically restricted to fencerows and field margins, though agricultural weeds persist

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ELC Code	Vegetation Type	Species Association	Comments
		section of field to the SW is being used for wheat.	between crop plants.
CUM	Cultural Meadow	Canopy: Some sparse areas of European Buckthorn (on margins/interface with wooded ecosites. Ground Cover: Various grasses (Smooth Brome, Quackgrass, Timothy, Kentucky Bluegrass, etc.), Canada Thistle, Common Dandelion, Poison Ivy, Common Yarrow commonly encountered.	Tree and shrub cover <25%. Species composition/dominance variable. Mineral Soil.
FOREST COMMUNITIES			
FOD	DECIDUOUS FOREST		
FOD6-5	Fresh - Moist Sugar Maple - Hardwood Deciduous Forest	Canopy: Dominated by Sugar Maple, with contributions of Basswood, Beech, Burr Oak, Green Ash, and Black Cherry. Understory: Ironwood, Sugar Maple, Beech. Ground Cover: Wild Raspberry, Smooth Brome, Wild Grape, Virginia Creeper, Sugar Maple regeneration.	Tree and shrub cover >60%. Sugar Maple was the dominant species throughout the system Mineral Soil.
SWAMP COMMUNITIES			
SWD3 /SWD4	Maple/Poplar Mineral Deciduous Swamp	Canopy: Species composition variable. High contribution from maples (Red Maple, Silver Maple,	Tree and shrub cover >25%. Red Maple and Trembling

ELC Code	Vegetation Type	Species Association	Comments
		occasionally Sugar Maple), with younger stands of Trembling Aspen. Understory: Red/Silver Maple, American Beech, Red-osier Dogwood, Gray Dogwood. Ground Cover: <i>Carex sp.</i> , Poison Ivy, Spotted Jewelweed, Sensitive Fern most commonly encountered.	Aspen approach dominance in areas. Mineral Soil.
SWDM3-2	Silver Maple Mineral Deciduous Swamp	Canopy: Silver Maple (<i>Acer saccharinum</i>), Red Maple, Trembling Aspen. Understory: Willow (<i>Salix c.f. nigra</i>), Red/Silver Maple, Gray Dogwood. Ground Cover: <i>Carex sp.</i> , Spotted Jewelweed, Sensitive Fern.	Shrub cover >25%. Stand dominated by willow species (<i>Salix c.f. nigra</i>). Mineral Soil. A ditch runs through the centre of this community with an outlet through a culvert below the rail line.
SWT2-2	Willow Mineral Thicket Swamp	Canopy: Willow (<i>Salix c.f. nigra</i>), with occasional hawthorn (<i>Craetagus sp.</i>), Trembling Aspen, and European Buckthorn. Understory: Willow (<i>Salix c.f. nigra</i>), with occasional hawthorn (<i>Craetagus sp.</i>) and European Buckthorn. Ground Cover: <i>Carex sp.</i> , Manna Grass (<i>Glyceria c.f.</i>	Shrub cover >25%. Stand dominated by willow species (<i>Salix c.f. nigra</i>). Mineral Soil.

ELC Code	Vegetation Type	Species Association	Comments
		<i>striata</i>), Spotted Jewelweed, Sensitive Fern.	
MARSH COMMUNITIES			
MAM2-5/MAM2-10	Narrow-leaved Sedge Mineral Meadow Marsh Ecosite/Forb Mineral Meadow Marsh	Canopy: Occasional Red-osier Dogwood/European Buckthorn at interface with wooded ecosites. Ground Cover: <i>Carex sp.</i> , Manna Grass (<i>Glyceria c.f. striata</i>), Spotted Jewelweed, Sensitive Fern.	Tree and shrub cover <25%. Dominated in most areas by sedge species, though some sections feature dominance by forbs Mineral Soil.

4.3.2 Woodland and Wetland Boundaries

The woodland and wetland boundaries were viewed and discussed on site with Region and GRCA staff on July 3, 2019. The boundaries were staked and surveyed on April 20, 2021. The boundaries are shown on Figure 4-1 and are consistent with those discussed during the visit with agencies.

4.3.3 Rare Plant Species

No records for vegetation species of conservation concern were identified during NHIC background screening. Of Ontario's SAR plant species, it was noted that there is potential for Butternut (*Juglans cinerea*) in this part of the province.

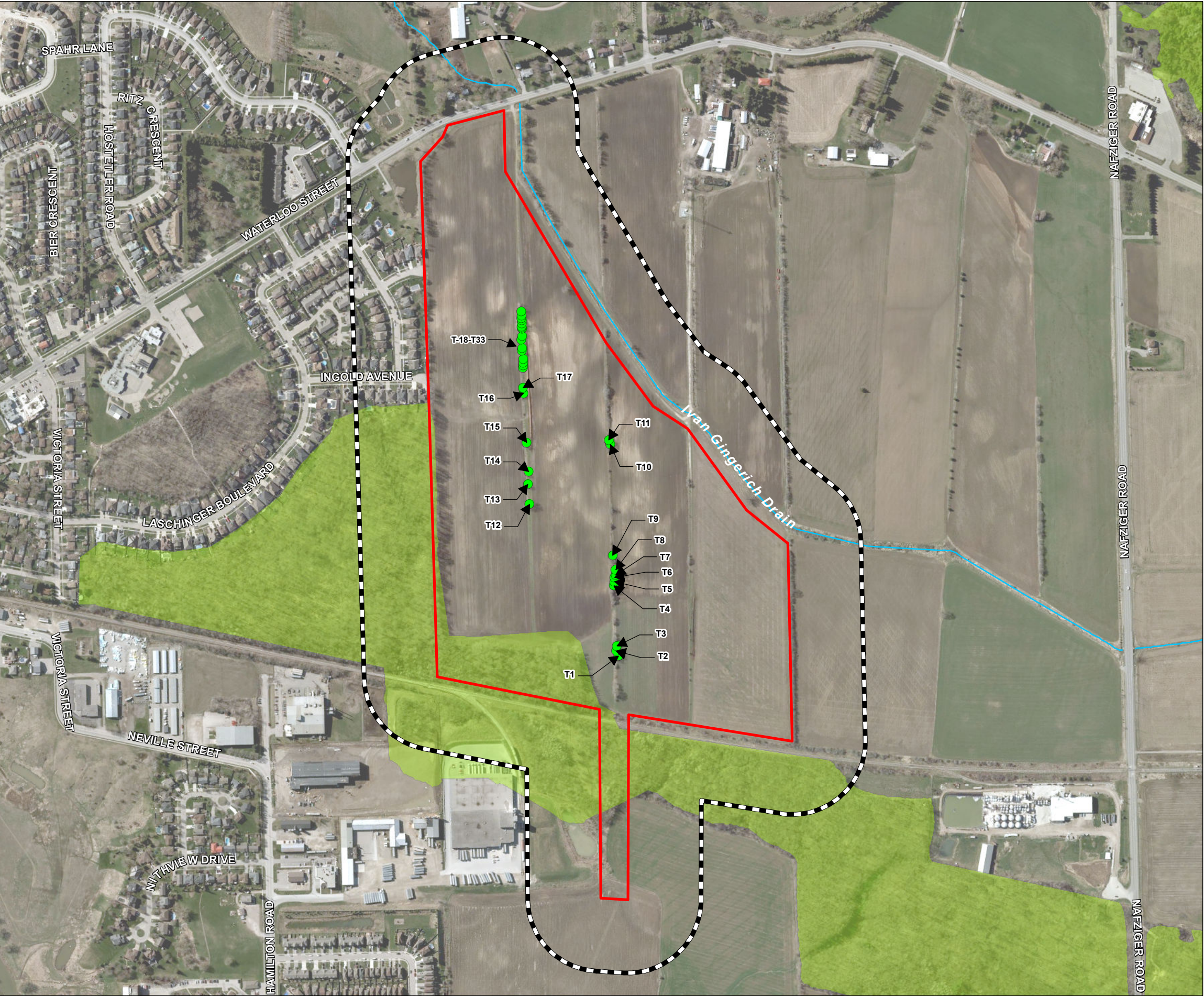
During field investigations, no species of conservation concern were noted. A detailed plant inventory of the FOD community adjacent to the property was not completed. A tree inventory was completed within the fencerows on the Site. No rare species were identified. The tree inventory is presented in Table 4-3. Trees within the fencerows are also shown on Figure 4-2, referenced by Tree ID.

Table 4-3 Tree Inventory

Tree ID	Scientific Name	Species	DBH ²	Condition
T1	<i>Acer platanoides</i>	Norway Maple	35	Good
T2	<i>Acer platanoides</i>	Norway Maple	43	Good
T3	<i>Prunus serotina</i>	Black Cherry	27	Good
T4	<i>Acer saccharum</i>	Sugar Maple	34	Good

² Diameter at breast height

Tree ID	Scientific Name	Species	DBH ²	Condition
T5	<i>Acer saccharum</i>	Sugar Maple	26	Good
T6	<i>Prunus serotina</i>	Black Cherry	110	Good-Fair
T7	<i>Acer saccharum</i>	Sugar Maple	106	Fair
T8	<i>Acer saccharum</i>	Sugar Maple	92	Good
T9	<i>Malus pumila</i>	Apple	38	Fair
T10	<i>Prunus serotina</i>	Black Cherry	38	Good
T11	<i>Prunus serotina</i>	Black Cherry	24	Good
T12	<i>Acer saccharum</i>	Sugar Maple	62	Good
T13	<i>Populus grandidentata</i>	Large-toothed Aspen	26,18	Good
T14	<i>Acer saccharinum</i>	Silver Maple	28	Good
T15	<i>Juglans nigra</i>	Black Walnut	29	Good
T16	<i>Acer saccharinum</i>	Silver Maple	36	Good-Fair
T17	<i>Juglans nigra</i>	Black Walnut	18,19	Good
T18	<i>Acer saccharinum</i>	Silver Maple	17	Good
T19	<i>Acer saccharum</i>	Sugar Maple	14	Good
T20	<i>Juglans nigra</i>	Black Walnut	20	Good
T21	<i>Juglans nigra</i>	Black Walnut	22	Good
T22	<i>Acer saccharum</i>	Sugar Maple	14	Fair
T23	<i>Acer platanoides</i>	Norway Maple	24	Good
T24	<i>Acer saccharum</i>	Sugar Maple	18	Fair
T25	<i>Acer platanoides</i>	Norway Maple	20	Good
T26	<i>Populus tremuloides</i>	Trembling Aspen	20	Good
T27	<i>Populus tremuloides</i>	Trembling Aspen	20	Good
T28	<i>Populus tremuloides</i>	Trembling Aspen	18	Good
T29	<i>Populus tremuloides</i>	Trembling Aspen	27	Good
T30	<i>Populus tremuloides</i>	Trembling Aspen	21	Good
T31	<i>Populus tremuloides</i>	Trembling Aspen	32	Good
T32	<i>Populus tremuloides</i>	Trembling Aspen	19	Good
T33	<i>Ulmus americana</i>	White Elm	24,20	Good



Trees

Site

Study

Significant Woodland/Regional Core Environmental Feature

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Projection: Transverse Mercator

Central Meridian: 81°0'0.00"W

False Easting: 500,000m

False Northing: 0m

Page Orientation: 322.6°

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Client

WILMOT WOODS DEVELOPMENTS INC.

Figure Title

WILMOT WOODS DEVELOPMENT EIS
TREE INVENTORY

Drawn	Checked	Date	Figure No. 4-2
HN	TR	2022/02/28	
Scale		Project No.	
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4.3.4 Bird Community

A review of the Ontario Breeding Bird Atlas (OBBA) identified records of 74 bird species in the vicinity of the site. Records are provided in Appendix B. The relative rarity³ of each species is identified in Table 4-4.

Table 4-4: Provincial S-Ranks of Bird Species Recorded in the Vicinity⁴ of the Site

Rarity Ranking (SRank)*	Number of Species
S4 (S4, S4B, S4N)	31
S5 (S5, S5B, S5N)	38
SNA	5

*S1- Critically Imperiled

S2- Imperiled

S3- Vulnerable

S4- Apparently Secure

S5- Secure

SNA- Not applicable, not suitable for conservation activities

The majority of bird species in the area are considered to be common, secure and not at risk. Species ranked S3 and lower are considered to be vulnerable. Based on a review of OBBA records, no species of S-Rank S3 or lower were identified as being present within the vicinity of the Study Area.

Three species are listed as Special Concern (Eastern Wood-pewee – *Contopus virens*; Red-headed Woodpecker - *Melanerpes erythrocephalus* ; Wood Thrush - *Hylocichla mustelina*), three species are listed as Threatened (Barn Swallow – *Hirundo rustica*; Bobolink – *Dolichonyx oryzivorus*; Eastern Meadowlark – *Sturnella magna*). Threatened and Endangered species, as well as habitats that support them, are protected in Ontario.

These records are for a broad area including, and surrounding, the Site. The active agricultural lands do not provide habitat for grassland nesting birds due to the agricultural operations. An assessment of whether suitable habitat is present for the Species at Risk, noted above, within the woodlot for these species can be found in Section 4.4 of this Report.

4.3.5 Mammal Community

No background records of mammalian species within the site were identified during initial background screening. Mammals with the potential to be present are those typical to rural and agricultural environments, including white-tailed deer, coyote, white-tailed rabbit, groundhog, various rodent species.

³ Rarity based on NatureServe rankings for provincial/state rarity (SRank).

⁴ Based on OBBA 10x10 km square covering the site.

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There are four bat species in Ontario which are listed as Endangered due to an emergent pathogenic fungus affecting bat populations across North America. The distribution of these species (Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis, Tri-colored Bat) is generally poorly understood. Maternal roosting habitat can be found in tree cavities, loose, peeling bark and leaf clusters. An assessment of whether suitable habitat is present within the woodlot for these species can be found in Section 4.4 of this Report.

4.3.6 Amphibian and Reptile Community

4.3.6.1 Background Review

Records of reptiles and amphibians were obtained from the NHIC and ORAA databases. Reptiles and amphibians recorded within the vicinity of the study area are summarized in Table 4-5. Several rare species were identified including Western Chorus Frog (S3) and Snapping Turtle which is listed as Special Concern. An assessment of whether suitable habitat is present within the woodlot for these species can be found in Table 4-6 of this Report.

Table 4-5: Reptiles and Amphibians Documented in the Vicinity of the Study Area

Common Name	Scientific Name	Srank*
American Toad	<i>Bufo americanus</i>	S5
Eastern Redback Salamander	<i>Plethodon cinereus</i>	S5
Mudpuppy	<i>Necturus maculosus</i>	S4
Grey Treefrog	<i>Hyla versicolor</i>	S5
Spring Peeper	<i>Pseudacris crucifer</i>	S5
Western Chorus Frog - Great Lakes/ St. Lawrences - Canadian Shield Population	<i>Pseudacris triseriata pop. 2</i>	S3
Eastern Newt	<i>Notophthalmus viridescens</i>	S4
Red-spotted Newt	<i>Notophthalmus viridescens viridescens</i>	S5
Green Frog	<i>Rana clamitans</i>	S5
Pickerel Frog	<i>Rana palustris</i>	S4
Northern Leopard Frog, Eastern population	<i>Lithobates pipiens</i>	S5
Wood Frog	<i>Rana sylvatica</i>	S5
Snapping Turtle	<i>Chelydra serpentina</i>	S3
Midland Painted Turtle	<i>Chrysemys picta marginata</i>	S5
Milk Snake	<i>Lampropeltis triangulum</i>	S3
Eastern Garter Snake	<i>Thamnophis sirtalis sirtalis</i>	S5
*S1- Critically Imperiled S2- Imperiled S3- Vulnerable S4- Apparently Secure S5- Secure SNA- Not applicable, not suitable for conservation activities		

4.3.6.2 Amphibian Breeding Surveys

Two amphibian breeding surveys were completed on May 28 and July 8, 2019 near the wetland areas north and south of the railway, as shown on Figure 4-1. During the first visit, Spring Peepers (*Pseudacris crucifer*) were noted calling to the southwest of Amphibian Breeding Station (ABS) 1, but no amphibians were heard calling within the Study Area.

During the second visit, a single Western Chorus Frog call was heard at ABS1 some distance to the south (potentially from the Open Aquatic feature). At ABS2, however, no amphibian calls were recorded during the survey.

4.4 Species at Risk Screening

A variety of online databases were reviewed for records of species at risk in the study area, including the following:

- MNRF Natural Heritage Information Centre (NHIC) database for significant species and designated natural features within 120 m of the subject lands;
- Ontario Breeding Bird Atlas (OBBA) database for avian species records within the area;
- Ontario Reptile and Amphibian Atlas (ORAA) database for herpetofaunal species records within the area;
- MNRF Land Information Ontario (LIO) database;
- Ministry of Natural Resources and Forestry (MNRF) Aquatic Resource Area mapping (2015); and
- Fisheries and Oceans Canada (DFO) Aquatic Species at Risk mapping (2015).

The records review identified records of the following species at risk in the general vicinity of the study area:

- Threatened Species:
 - Barn Swallow – *Hirundo rustica*;
 - Bobolink – *Dolichonyx oryzivorus*;
 - Eastern Meadowlark – *Sturnella magna*.

It should also be noted that this area of the province is known to support Butternut (*Juglans cinera*), listed as Threatened under the ESA. No Butternut were observed on the Site.

No records exist but there are also four bat species in Ontario which are listed as Endangered due to an emergent pathogenic fungus affecting bat populations across North America. The distribution of these species (Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis, Tri-colored Bat) is generally poorly understood. No records of aquatic species at risk were identified.

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Additionally, one species (Western Chorus Frog – *Pseudacris triseriata* pop. 2) is listed as Threatened under the federal Species at Risk Act (2002).

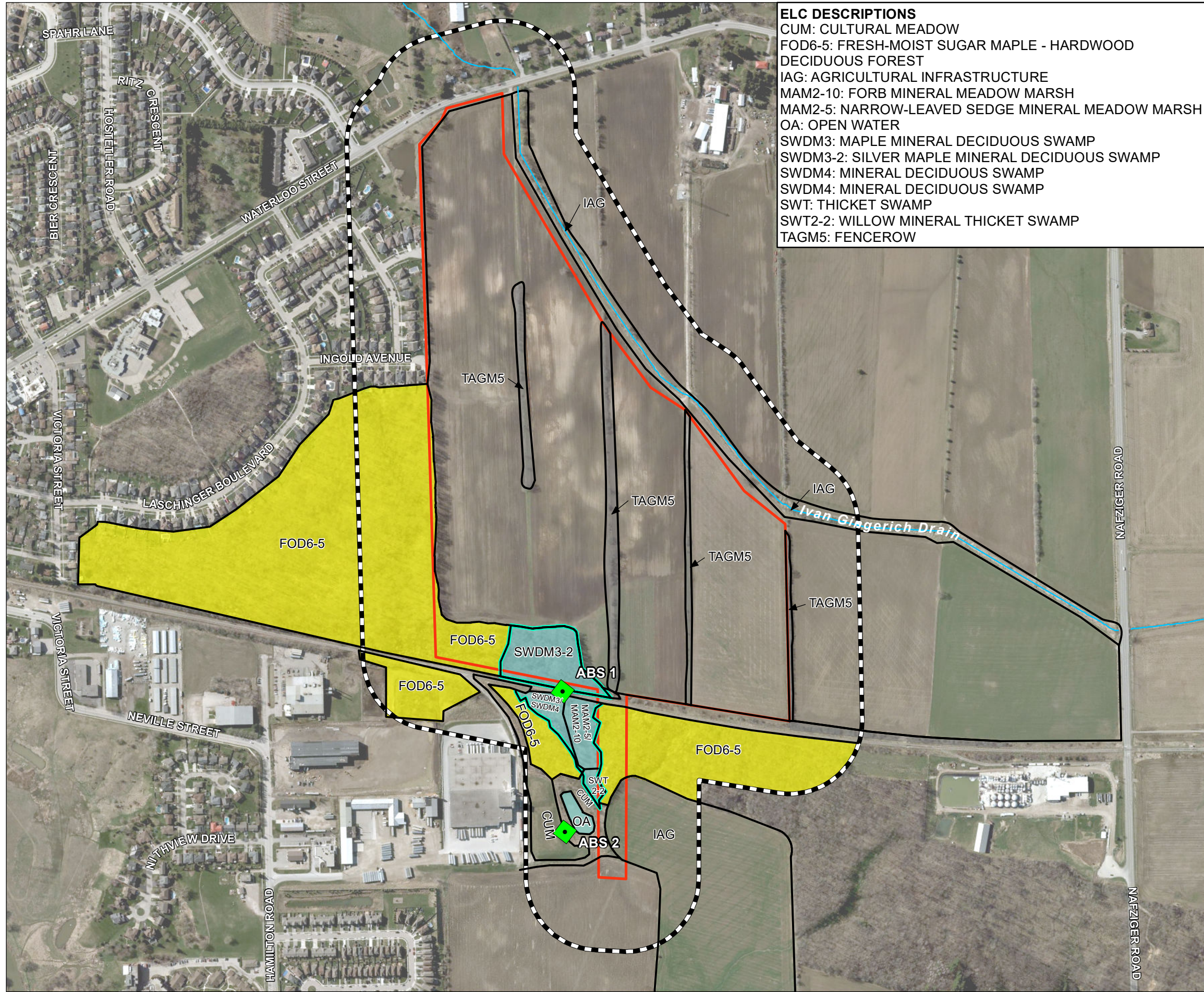
Of these species, only Western Chorus Frog was observed (a single call heard during breeding surveys) during field investigations at the site. A screening was conducted to determine if suitable habitat for any of these species is present in the study area. The screening is present in Table 4-6.

Habitats for Western Chorus Frog and Bats is shown on Figure 4-3.

Table 4-6
Species at Risk Habitat Screening

Common Name	Scientific Name	SRank ¹	Federal SARA Status ²	Federal SARA Schedule ³	Provincial ESA Status ⁴	Date of Last Observation	Habitat Description ⁵	Habitat Present on Site?	Species Observed?
BIRDS									
Barn Swallow	<i>Hirundo rustica</i>	S4B	No Status	No Schedule	THR	2005	Farmlands or rural areas; cliffs, caves, rock niches; building or other man-made structures for nesting; open country near body of water.	No. No suitable nesting sites, barns or buildings are present. Agricultural lands do not provide suitable foraging habitat.	No.
Bobolink	<i>Dolichonyx oryzivorus</i>	S4B	No Status	No Schedule	THR	2005	Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland >50 ha.	No. Agricultural lands do not provide suitable habitat.	No.
Eastern Meadowlark	<i>Sturnella magna</i>	S4B	No Status	No Schedule	THR	2005	Open, grassy meadows, farmland, pastures, hayfields or grassland with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent, open grassy areas >10 ha in size.	No. Agricultural lands do not provide suitable habitat.	No.
FLORA									
Butternut	<i>Juglans cinerea</i>	S3?	END	1	END	September, 2017	Usually grows alone or in small groups in deciduous forests. It prefers moist, well-drained soil and is often found along streams. It is also found on well-drained gravel sites and rarely on dry rocky soil. This species does not do well in the shade, and often grows in sunny openings and near forest edges.	No. Butternut were not observed within fencerows or forest edges. The deciduous forest to the immediate south and east of the property likely provides suitable habitat to support Butternut trees.	No.
MAMMALS									

Common Name	Scientific Name	SRank ¹	Federal SARA Status ²	Federal SARA Schedule ³	Provincial ESA Status ⁴	Date of Last Observation	Habitat Description ⁵	Habitat Present on Site?	Species Observed?
Eastern Small-footed Myotis	<i>Myotis leibii</i>	S3	END	1	END	-	Overwintering habitat: Caves and mines that remain above 0°C. Maternal Roosts: Most often associated with buildings (attics, barns etc.). Occasionally found in cavities, crevices of trees (25-44 cm DBH) exhibiting early stages of decay (Class 1-3; Watt & Caceres, 1999) in FOD (deciduous) or FOM (mixed) mature forest habitat types.	No potential hibernacula in the study area or adjacent lands. Potential roosting/maternity sites are not present within fencerow trees but may be present in the adjacent Core Environmental Feature.	No surveys were undertaken.
Little Brown Myotis	<i>Myotis lucifugus</i>	S4	END	1	END	-	Overwintering habitat: Caves and mines that remain above 0°C. Maternal Roosts: Often associated with cavities, crevices of large diameter trees (25-44 cm DBH) exhibiting early stages of decay (Class 1-3; Watt & Caceres, 1999) in FOD (deciduous) or FOM (mixed) mature forest habitat types. Rarely found roosting in human-made structures (attics, barns etc.)	No potential hibernacula in the study area or adjacent lands. Potential roosting/maternity sites are not present within fencerow tree but may be present in the adjacent Linkage and Core Area.	No surveys were undertaken.
Northern Long-eared Myotis	<i>Myotis septentrionalis</i>	S3	END	1	END	-	Overwintering habitat: Caves and mines that remain above 0°C. Maternal Roosts: Often associated with cavities, crevices of large diameter trees (25-44 cm DBH) exhibiting early stages of decay (Class 1-3; Watt & Caceres, 1999) in FOD (deciduous) or FOM (mixed) mature forest habitat types.	No potential hibernacula in the study area or adjacent lands. Potential roosting/maternity sites are not present within fencerow trees may be present in the adjacent Linkage and Core Area.	No surveys were undertaken.
Tri-colored Bat	<i>Perimyotis subflavus</i>	S3?	END	1	END	-	Overwintering habitat: Caves and mines that remain above 0°C. Maternal Roosts: Often within live or dead foliage within or below the canopy. Oak is the preferred roost tree species.	No potential hibernacula in the study area or adjacent lands. Potential roosting/maternity sites may be present in the adjacent Linkage and Core Area.	No surveys were undertaken.
REPTILES & AMPHIBIANS									
Western Chorus Frog	<i>Pseudacris triseriata</i>	S3	-	THR	THR	1	Found in roadside ditches or temporary ponds in fields, as well as swamps, wet meadows, woodland or open country with cover and moisture.	Suitable habitat is present for this species, and one calling individual was heard during amphibian breeding surveys.	Yes.



- ELC DESCRIPTIONS**
CUM: CULTURAL MEADOW
FOD6-5: FRESH-MOIST SUGAR MAPLE - HARDWOOD DECIDUOUS FOREST
IAG: AGRICULTURAL INFRASTRUCTURE
MAM2-10: FORB MINERAL MEADOW MARSH
MAM2-5: NARROW-LEAVED SEDGE MINERAL MEADOW MARSH
OA: OPEN WATER
SWDM3: MAPLE MINERAL DECIDUOUS SWAMP
SWDM3-2: SILVER MAPLE MINERAL DECIDUOUS SWAMP
SWDM4: MINERAL DECIDUOUS SWAMP
SWT: THICKET SWAMP
SWT2-2: WILLOW MINERAL THICKET SWAMP
TAGM5: FENCEROW

- Amphibian Breeding Survey Station
- ELC Boundary
- Study Area
- Site
- Staked Wetland (July 3rd, 2019)
- Amphibian Breeding Habitat (Woodland) & Habitat for Western Chorus Frog
- Potential Bat Maternity Colonies

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Page Orientation: 322.6°	Scale Factor: 0.99960	

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BURNSIDE

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Figure Title

**WILMOT WOODS DEVELOPMENT EIS
SPECIES AT RISK AND
SIGNIFICANT WILDLIFE HABITATS**

Drawn	Checked	Date	Figure No. 4-3
HN	PD	2022/02/28	
Scale	Project No.		
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4.5 Significant Wildlife Habitat Screening

According to the Natural Heritage Reference Manual (MNR, 2010) and Significant Wildlife Habitat Technical Guide (MNR, 2000), there are four types of Significant Wildlife Habitat ("SWH"), as follows:

- Habitats of Seasonal Concentrations of Animals;
- Rare Vegetation Communities / Specialized Habitats;
- Habitats of Species of Conservation Concern; and
- Animal Movement Corridors.

Significant Wildlife Habitat (SWH) is designated at the local planning level (i.e., municipality). Local designations occur because conditions and feature vary widely between municipalities and what is important and unique in one area may be common and secure in another.

Neither the Region nor the Township of Wilmot has specifically identified criteria for defining SWH, however, both respective Official Plans indicate that any known wildlife habitat is generally provided within the Core Environmental Features.

As such, this assessment will use broad habitat descriptions from the Significant Wildlife Habitat Technical Guide (SWHTG) and the SWHTG Ecoregion 7E Criterion Schedule (MNRF, 2015) as well as our professional judgement to determine whether any habitats may be potentially present.

Through field investigations it was determined that most habitats described in the Ecoregion 7E Criterion Schedule are not present. The results of the SWH screening are presented in Appendix C. The only types of habitats which may be present on, or within 120 m, of the Site are:

- Bat Maternity Colonies;
- Amphibian Breeding Habitat (Woodland); and
- Special Concern and Rare Wildlife Species.

All of these habitats are limited to the deciduous forest/wetland ecosites adjacent to the subject property. A discussion of these habitat types is presented in the following sections.

4.5.1 Bat Maternity Colonies

No formal Bat Maternity Habitat (BMH) surveys were completed, but bats can utilize cavities and foliage in mature deciduous trees as forming maternity colonies. The FOD and SWD ecosites within the Study Area likely support BMH; all suitable communities are assumed to provide SWH for the purpose of this study.

4.5.2 Amphibian Breeding Habitat (Woodland)

Surveys did not identify amphibians in sufficient numbers to meet the criteria for significance. However, Western Chorus Frog, a federally-listed species, was identified on two of the three surveys completed. For the purposes of this study, the wetlands and open water north and south of the rail corridor are assumed to be significant.

4.5.3 Special Concern and Rare Wildlife Species – Western Chorus Frog

As noted above, amphibian call surveys identified Western Chorus Frog calling at distances > 100 m from the survey point. Observations in the field concluded that this species may be present within the southern stormwater (OA) feature. No observations or breeding calls for this species were identified on other portions of the Study Area.

5.0 Plan of Subdivision Proposal

The proposed subdivision will include a mix of single-detached and multiple residential units. A variety of parkland and open space are included, along with a proposed trail network and two stormwater management facilities, as shown on the draft plan of subdivision in Figure 5-1. The plan draft also shows the surveyed limits of natural heritage features. The iterative design process included revisions based on input from a variety of disciplines.

Protection of the fencerows was considered in early iterations but deemed not possible as the fencerows conflicted with requirements for grading and servicing requirements to available servicing outlets.

Development is planned in five stages. No residential units will be located within the floodplain of the Ivan Gingerich Drain. A series of interior roads are proposed with external connections to Waterloo St. via a new road and to the existing community to the west via extensions to Charles Young Ave. and Ingold Ave.

5.1 Stormwater Management

Two stormwater management facilities are proposed. One is located at the southwest corner of the proposed Street Two and Charles Young Ave. extension. This facility will discharge to an existing ditch south of Waterloo St., then into a culvert crossing at Waterloo St, and then into Gingerich drain.

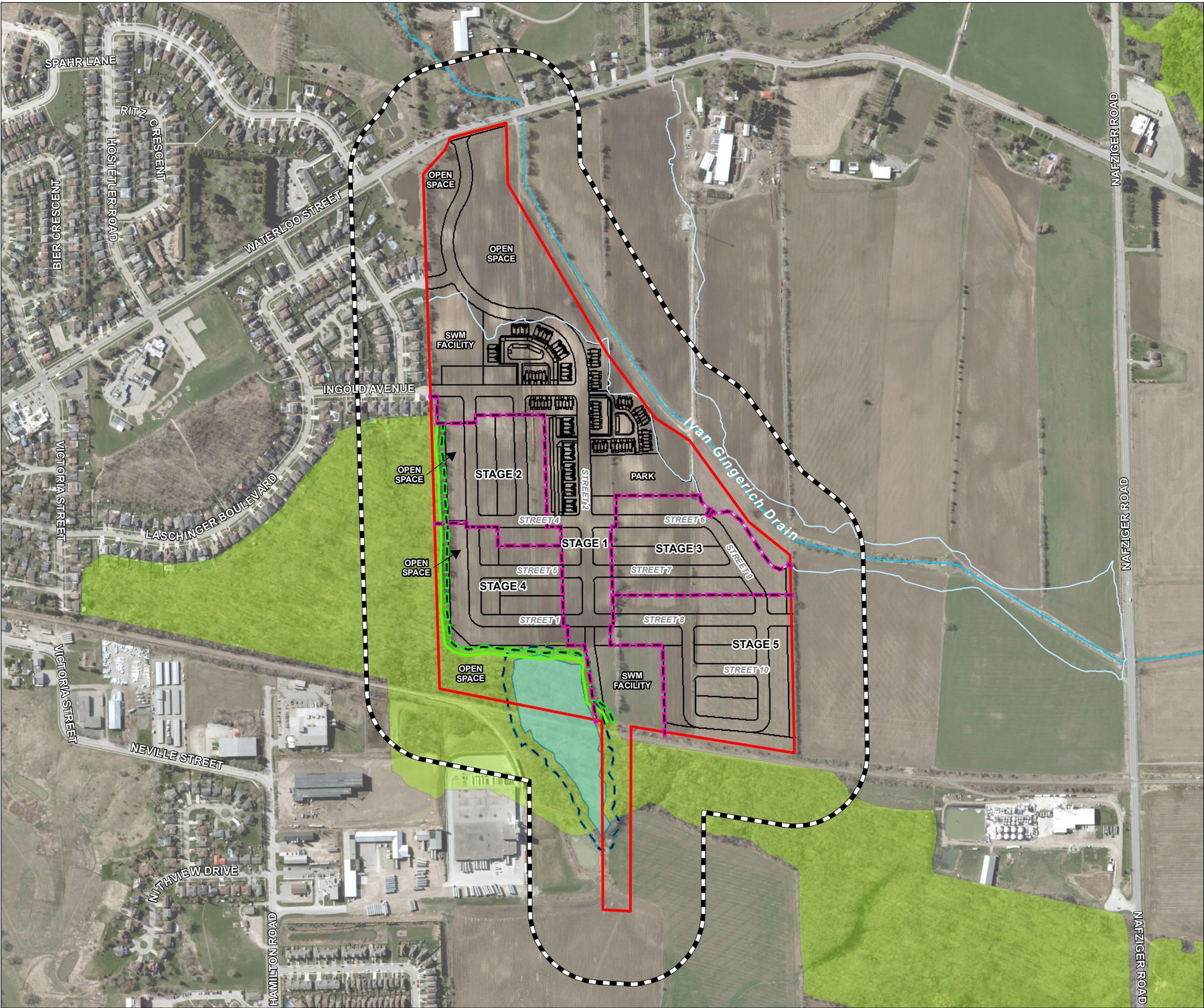
The second is located in the southern portion of the site and will outlet to the wetland north of the rail corridor. There is a ditch running southward through the centre of the wetland. Discharge from the SWM facility will flow through the ditch and through a culvert under the rail line which connects to a ditch running southward through the future employment lands. Outflows from the facility provide peak flow attenuation to

pre-development conditions. Therefore, there is not expected to be any change in water level in the flow-through wetland feature.

5.2 Servicing Corridor

Servicing will be provided via a servicing corridor from the south. The corridor crosses the Core Environmental Feature and rail line. Infrastructure will be installed using trenchless methods through the woodland and in the vicinity of the wetland.

The servicing corridor is shown on Figure 5-1.



- Draft Plan
- Site
- Dripline
- Floodplain Limit
- Staging
- 10m Dripline Buffer
- 15m Wetland Buffer
- Wetland
- Significant Woodland/Regional Core Environmental Feature
- Study Area

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False Northing: 0m

Page Orientation: 322.6°

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Client

WILMOT WOODS DEVELOPMENTS INC.

Figure Title

WILMOT WOODS DEVELOPMENT EIS

DRAFT PLAN OF SUBDIVISION

Drawn	Checked	Date	Figure No.
SV	TR	2022/02/25	5-1
Scale		Project No.	
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6.0 Impact Assessment

The proposed development has the potential to impact the natural heritage features described in Section 4.0 of this Report. These include:

- Fish habitat within the Ivan Gingerich Drain; and
- Woodlot identified as a Locally Significant Natural Area, Regional Core Environmental Feature, Significant Woodland and which potentially supports Significant Wildlife Habitat and roosting habitat for bats.

Potential impacts to these features can be categorized as:

- Direct (within the footprint of the development); or
- Indirect (adjacent to the development but affected by spin-off effects).

In order to avoid most direct effects, a development envelope has been identified that avoids all significant natural features. The process and rationale for the development envelope is described in Section 6.1.

Potential indirect effects resulting from construction activities including grading, changes to infiltration and water balance are summarized in Section 6.2, along with recommended mitigation to minimize impacts.

6.1 Identification of Environmental Buffers

A development envelope refers to an area of adjacent lands outside recommended buffers within which development activities may occur. The envelope is the area where the least impact will be felt, considering natural features and setbacks from them. On the subject lands, a development envelope was identified which includes all lands with the exception of:

- A woodland buffer defined by the dripline plus 10 m;
- A wetland buffer defined by the staked wetland boundary plus 15 m; and
- The property limit on the northeast edge of the property which is at least 15 m from the Ivan Gingerich Drain.

Specifically, these buffers were deemed appropriate because:

- The dripline plus 10 m from the woodland provides a sufficient protective buffer to limit damage to root systems of trees through earth-works activities;
- The margins of the wetland and woodland areas are degraded by edge effect, and often directly adjacent to persistent disturbance (active agriculture or railway corridor). There is a well-established edge. The site is currently in agricultural use to the edge of the feature. Therefore, blow down or sun-scalding are not a concern;
- The wetland does not include sensitive vegetation or wildlife which would warrant a wider buffer along the development edge; and

- Habitat for Chorus Frog was identified only within the open water wetland south of the rail corridor which will be unaffected by the majority of the development. Indirect effects to this habitat are discussed in 6.2.

All new development will be located within the development envelope.

6.2 Potential Impacts and Recommended Mitigation

Direct effects will include:

- Loss of fencerow trees and associated disturbance to migratory birds or their nests which may be present within the fencerow. Suitable bat roosting habitat was not identified within the fencerow trees however there is some potential that at risk bats may be present and could be affected by the removal of trees.

There is also potential for indirect effects during construction and during the lifespan of the development. Indirect effects on natural features may include:

- Construction activities contributing to off-site impacts, including erosion / sedimentation and unintentional encroachment into natural features;
- Installation of infrastructure through the servicing corridor has the potential to disturb the adjacent wetland;
- Changes to surface and groundwater hydrology, which could adversely alter woodland/wetland habitat;
- Discharge from the southern SWM pond into the wetland could have adverse effects on the wetland;
- Introduction of non-native/invasive or nuisance species;
- Effects on wildlife as a result of residential lighting; and
- Encroachment of human disturbance (e.g. yard waste etc.) into natural areas.

Potential impacts, proposed mitigation and monitoring activities are presented in **Table 6-1** below.

Table 6-1: Summary of Potential Negative Impacts and Recommended Mitigation

Activity	Potential Impact	Proposed Mitigation	Monitoring / Compliance Activities
Clearing of fencerow trees within the Development Envelope	Loss of or disturbance to migratory birds or their nests as well as possible removal of bat roosting habitat.	- Any tree clearing will take place outside of the breeding bird and bat roosting timing window; generally, from April 1 to September 30; - If tree clearing must occur within this window a qualified Ecologist / Avian Biologist will first search the affected area. Any active nests will be flagged and all clearing within the associated habitat will be avoided until the Ecologist / Avian Biologist confirms that the birds have fledged and the nest is no longer active; - In addition, if tree clearing must occur within this window, a qualified Ecologist will first assess the trees to determine if potential bat maternity roosting habitat is present, in accordance with provincial guidelines. If trees exhibit characteristics that could provide bat roosting, no clearing will be permitted without further review by MECP and / or a permit under the Endangered Species Act is obtained; and - If a nesting migratory bird (or SAR protected under ESA, 2007) is identified within or adjacent to the construction site, all activities will stop and the Contractor (with assistance from a qualified Ecologist/Avian Biologist) shall discuss mitigation measures with the proponent. In addition, the proponent will contact the MECP to discuss applicable mitigation options. The Contractor will proceed based on the mitigation measures established through discussions with the MECP.	Contractor to ensure that land clearing occurs outside the timing windows listed and/or appropriate monitoring by avian biologist is undertaken.
Construction Activities and Subdivision Footprint	Disturbance to the roots of adjacent trees and impacts from surface runoff into the Core Environmental Feature once the subdivision is constructed.	- A buffer from the woodland dripline plus 10m will be maintained. - A buffer of 15m will be provided from the wetland. - No clearing, work, grading or stockpiling of materials will occur within buffer areas. - The Core Environmental Feature, including buffers should be placed in an appropriate Open Space Zone.	The contractor will be responsible for ensuring that no work occurs within buffer areas.
Construction Activities (including Earth Works / Grading)	Potential erosion / sedimentation and encroachment beyond the development envelope due to grading and works within areas of exposed soil.	- Erosion and sediment control fencing should be placed along edge of the development envelop (i.e. at buffer locations) adjacent to all work zones prior to any grading or earth works. The fencing will act to determine the construction exclusion zone outside of The buffer area. Fencing should be maintained and regularly monitored for the duration of construction and until such time as lands are re-vegetated and stabilized and then it should be removed. - All stockpiles, equipment and work areas should be maintained outside of the fenced area. - A detailed erosion and sediment control plan should be developed by the contractor prior to construction.	The contractor will be responsible for ensuring that sediment and erosion control measures are in place and are maintained in working condition until lands have been revegetated and are stable.
Construction Activities (installation of infrastructure through the servicing corridor)	Installation of servicing through the Core Environmental Features has the potential to disturb the woodland and wetland.	- The installation of servicing through the Core Environmental Feature will be accomplished using trenchless methods. - Launch and receiving pits will be designed by the drilling contractor in accordance with the operational statement. Pits will be located at least 15 m from the staked wetland boundary.	An environmental inspector will be present during drilling to ensure that pits are appropriately located.

Activity	Potential Impact	Proposed Mitigation	Monitoring / Compliance Activities
		Erosion and sediment control fencing will be placed along edge of the pit areas.	
Alterations to Hydrological Regimes through Creation of Impervious Surfaces	New impervious surfaces from the new residences, driveways and ancillary structures have the potential to minimally increase surface water runoff and decrease infiltration on the Site. The hydrology of the adjacent woodland/wetland is not expected to be significantly affected; however, there may be minor changes.	A grading plan should be developed and approved by the Township and GRCA. The grading plan should ensure that existing grades are not significantly altered and that surface water continues to flow through the buffer area towards the woodland and / or wetland. Any significant increases in flow towards natural areas may require increased natural filtration (i.e. grassed strips or infiltration swales) within the buffer area to ensure appropriate management of surface water. This will be confirmed through the Grading Plan.	None required.
SWM discharge	The southern SWM pond will outlet to the wetland and has some potential to alter the hydrology of the wetland.	- The SWM pond design will be approved by GRCA and MECP prior to construction. - The SWM outlet will be designed and constructed to avoid scouring of the wetland edges and bottom. - Although hydrologic changes are not expected, the SWM design and SWM Report will demonstrate that the SWM discharge will not significantly increase / decrease the water levels in the wetland.	No monitoring required.
Lighting	Lighting on residences may cause potential disruption wildlife.	Lighting on new residences should be directed downward and away from woodland or wetland areas.	No monitoring required.
Encroachment of Residential Activities, yard waste etc. into Natural Areas	Disturbance to woodland or wetland habitats.	Permanent fencing between proposed residential developments along the woodland and wetland buffer limits will be installed.	No monitoring required.
Noise	Potential noise impacts during construction.	Construction will adhere to all municipal noise by-laws and time of day restrictions.	Contractor will be responsible for monitoring noise levels and ensuring compliance with bylaws.

7.0 Compliance with Applicable Policies

Table 6-2 demonstrates how the proposed development complies with applicable provincial, municipal and GRCA policies respecting natural heritage and natural hazard features.

Table 6-1: Development Compliance

Feature	Applicable Policies	Policy Intent	How Addressed
Region of Waterloo Core Environmental Features and Township of Wilmot Core Environmental Features	Map 7 of the Township of Wilmot Official Plan. Maps 3C and 4 of the Regional Official Plan.	Protection of provincial, regional and local natural features.	The Core Environmental Features correspond with the features staked by Burnside, the Region and the GRCA. The development envelope was established based on these delineated areas.
Significant Wildlife Habitat (Bat Maternity Colonies, Amphibian Breeding Habitat (Woodland), Special Concern and Rare Wildlife Species)	PPS – Significant Wildlife Habitat, Section 2.1.4.	Development is not permitted within, or adjacent to, significant wildlife habitat unless it can be demonstrated that no negative impact will result to the feature or its ecological function.	All Significant Wildlife Habitat is encompassed within the staked woodland and wetland boundaries and is protected by recommended buffers. Potential effects of lighting and encroachment have been addressed.
Habitat of Endangered Bat Species	<i>Endangered Species Act, 2007.</i>	Endangered and threatened species and their associated general habitats shall not be destroyed, disturbed or harmed.	Trees will be cleared outside of the roosting season which extends between April 1 and September 30 in order to avoid disturbance to roosting bats.
Migratory Birds	<i>Migratory Birds Convention Act,</i>	Migratory birds and their nests should not	Land will be cleared outside of the

Feature	Applicable Policies	Policy Intent	How Addressed
	<i>1994.</i>	be killed or disturbed.	breeding season which extends between April 1 and August 31 in order to avoid disturbance to nests.
Fish Habitat	<i>Fisheries Act</i>	Disturbance or destruction of fish habitat is not permitted, without an appropriate authorization or permit.	No crossing of the Ivan Gingerich Drain is proposed and no in-water work is required. The Ivan Gingerich Drain will be protected from indirect effects through ESC measures.

With the mitigation measures outlined herein, the proposed Wilmot Woods development will comply with applicable natural heritage policies and regulations.

8.0 References

- Cadman, M.D. et al. 2007. *Atlas of the Breeding Birds of Ontario, 2001-2005*. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706 pp.'
- Ministry of Municipal Affairs and Housing (MMAH), 2014. *Provincial Policy Statement 2014 Under the Planning Act*. Ministry of Municipal Affairs and Housing, Provincial Planning Policy Branch, Toronto, ON M5G 2E5. 56 pp.
- Ministry of Natural Resources and Forestry (MNRF). 2015. *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E and 7E*.
- Ministry of Natural Resources (MNRF). 2010. *Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition*. Toronto: Queen's Printer for Ontario. 248 pp.
- Ministry of Natural Resources (MNRF). 2000. *Significant Wildlife Habitat Technical Guide*. Fish and Wildlife Branch, Wildlife Section. Science Development and Transfer Branch, South central Science Section. 151p. + appendices.
- Ministry of Natural Resources (MNRF). 2017. *Species at Risk in Ontario (SARO) List*. Ontario Ministry of Natural Resources. Accessed June 6, 2020 from: www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/246809.html
- Ministry of Natural Resources and Forestry (MNRF). 2013. Bobolink (*Dolichonyx oryzivorus*) & Eastern Meadowlark (*Sturnella magna*) in Ontario – Ontario recovery strategy series. Accessed June 6, 2020 from: https://files.ontario.ca/environment-and-energy/species-at-risk/mnr_sar_rs_est_mdwlrk_en.pdf.
- Natural Heritage Information Centre (NHIC). 2017. *NHIC Biodiversity Explorer Website*. Ontario Ministry of Natural Resources. Accessed June 6, 2020 from: <https://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/mainSubmit.do>



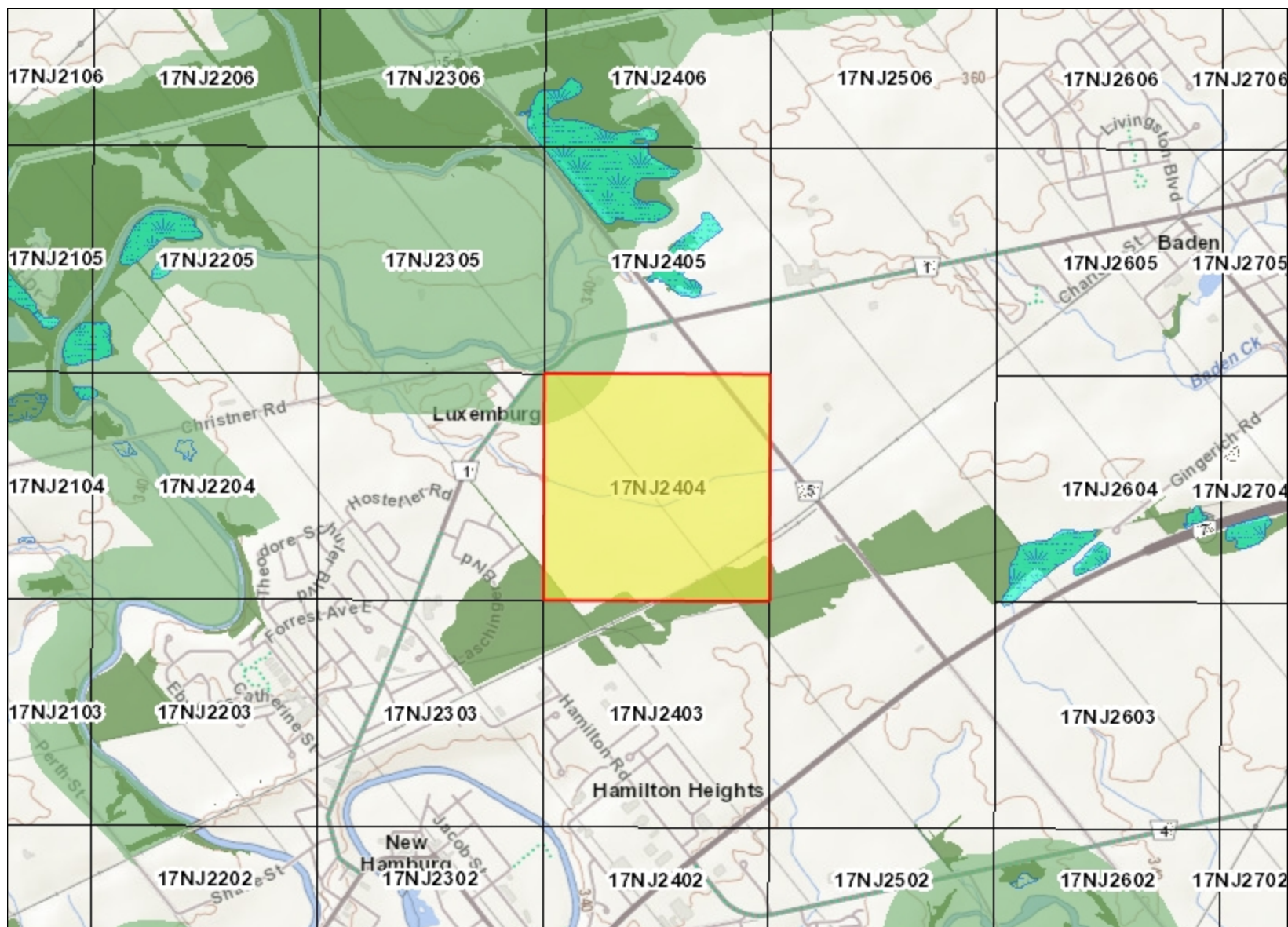
BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]



Appendix A

Background Database Search Results



Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System
- Ecoregion
- Wetland**
 - Provincially Significant Wetland Evaluated
 - Non - Provincially Significant Wetland Evaluated
 - Unevaluated Wetland
- Area of Natural Heritage & Scientific Interest (ANSI)**
 - Provincially Significant Life Science ANSI
 - Provincially Significant Earth Science ANSI
- Greenbelt Plan**
 - Boundary
 - River Valley Connections
- Land Use Designations**
 - Protected Countryside
 - Towns and Villages
 - Hamlets
 - Urban River Valley
 - Specialty Crop Area
- Niagara Escarpment Plan (NEP)**
 - Boundary
 - Parks and Open Space System
- Land Use Designations**
 - Escarpment Natural Area
 - Escarpment Protection Area
 - Escarpment Rural Area
 - Mineral Resource Extraction Area
 - Escarpment Recreation Area
 - Urban Area
 - Minor Urban Centre
- Oak Ridges Moraine Conservation Plan (ORM)**
 - Boundary
- Land Use Designations**
 - Natural Core Area
 - Natural Linkage Area
 - Countryside Area
 - Rural Settlement
 - Palgrave Estates Residential Community
 - Settlement Area

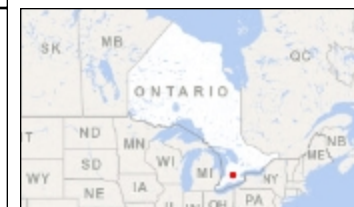
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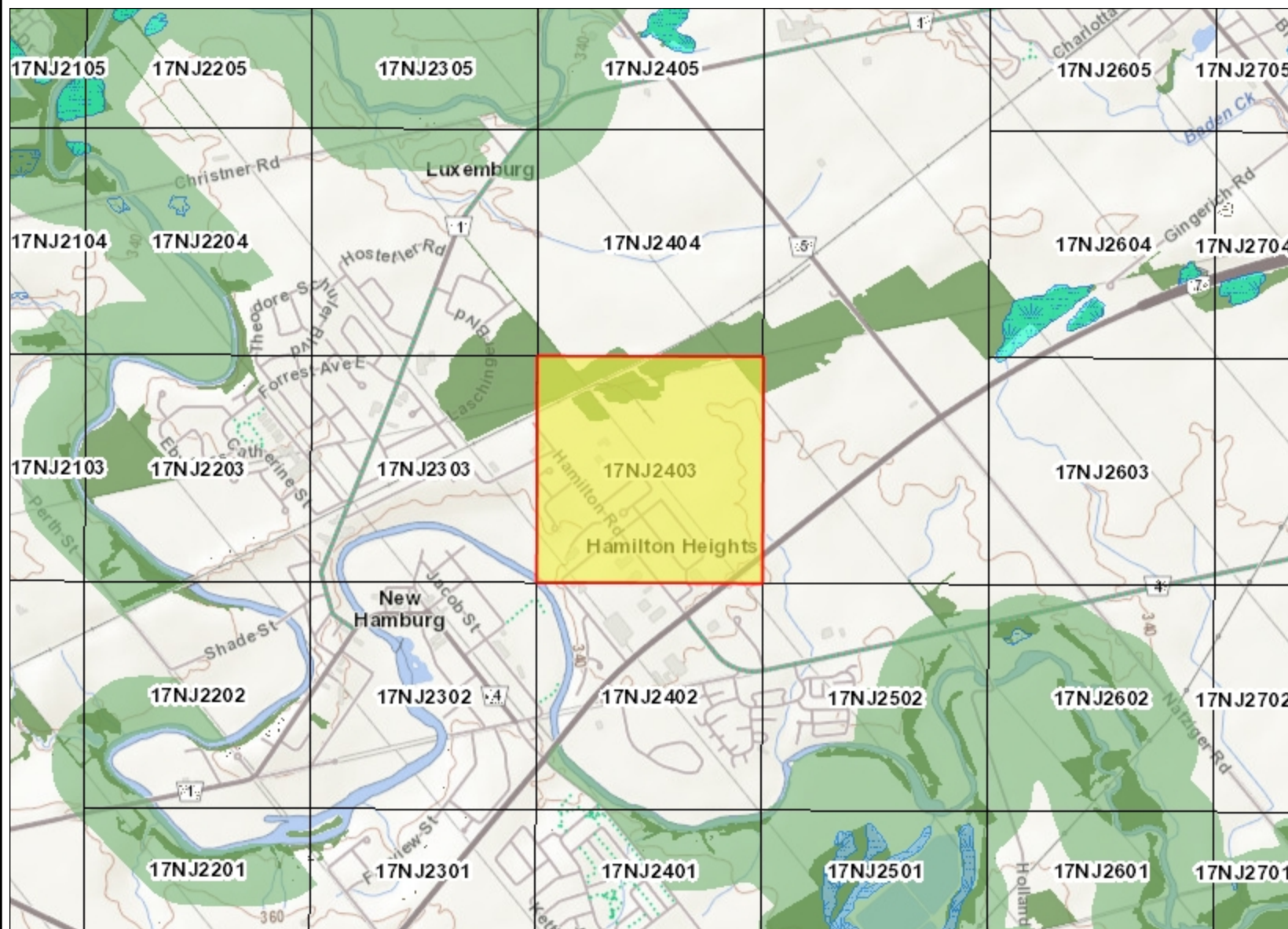


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Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System
- Ecoregion
- Wetland**
 - Provincially Significant Wetland Evaluated
 - Non - Provincially Significant Wetland Evaluated
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 - Minor Urban Centre
- Oak Ridges Moraine Conservation Plan (ORM)**
 - Boundary
- Land Use Designations**
 - Natural Core Area
 - Natural Linkage Area
 - Countryside Area
 - Rural Settlement
 - Palgrave Estates Residential Community
 - Settlement Area

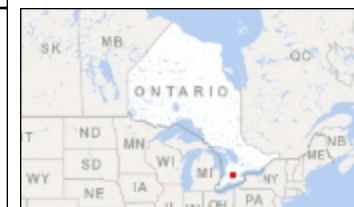
1.3 0 0.67 1.3 Kilometers



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NHIC Results

Grid ID		925778							
Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	Last Obs Date	EO ID	Details URL	
SPECIES	Bobolink	Dolichonyx	S4B	THR	THR	6/13/2003	97275	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=97275	

Grid ID		925777							
Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	Last Obs Date	EO ID	Details URL	
NATURAL AREA	Grand River						18525	http://nhic.mnr.gov.on.ca/natural_areas/areas.php?source=MaMNHA&feature=NA&areaid=18525	

Atlas summary: Species list for square 17NJ20

Region	Square	Species	Max BE	Categ	#Sq	Atlasser Name	#PC	%PC	Abun	#Sq
	7 17NJ20	Canada Goose	FY	CONF	1	Wayne Buck	2	5.26	0.2895	1
	7 17NJ20	Mallard	FY	CONF	1	Wayne Buck	5	13.16	0.5263	1
	7 17NJ20	Ring-necked Pheasant	NE	CONF	1	Wayne Buck				
	7 17NJ20	Wild Turkey	T	PROB	1	Wayne Buck				
	7 17NJ20	Great Blue Heron	AE	CONF	1	Wayne Buck	2	5.26	0.0526	1
	7 17NJ20	Turkey Vulture	H	POSS	1	Wayne Buck	1	2.63	0.0263	1
	7 17NJ20	Red-tailed Hawk	FY	CONF	1	Wayne Buck	3	7.89	0.1053	1
	7 17NJ20	Killdeer	FY	CONF	1	Wayne Buck	8	21.05	0.3158	1
	7 17NJ20	Rock Pigeon	AE	CONF	1	Wayne Buck	7	18.42	1.4474	1
	7 17NJ20	Spotted Sandpiper	H	POSS	1	Wayne Buck	1	2.63	0.0263	1
	7 17NJ20	Mourning Dove	AE	CONF	1	Wayne Buck	14	36.84	0.7895	1
	7 17NJ20	Black-billed Cuckoo	CF	CONF	1	Wayne Buck				
	7 17NJ20	Eastern Screech-Owl	T	PROB	1	Wayne Buck				
	7 17NJ20	Great Horned Owl	T	PROB	1	Wayne Buck				
	7 17NJ20	Ruby-throated Hummingbird	FY	CONF	1	Wayne Buck				
	7 17NJ20	Belted Kingfisher	H	POSS	1	2 atlassers				
	7 17NJ20	Red-headed Woodpecker	CF	CONF	1	Wayne Buck				
	7 17NJ20	Red-bellied Woodpecker	T	PROB	1	Karl R. Konze				
	7 17NJ20	Yellow-bellied Sapsucker	FS	CONF	1	Karl R. Konze				
	7 17NJ20	Downy Woodpecker	FY	CONF	1	Wayne Buck	3	7.89	0.0789	1
	7 17NJ20	Hairy Woodpecker	FY	CONF	1	2 atlassers				
	7 17NJ20	Northern Flicker	CF	CONF	1	Wayne Buck	1	2.63	0.0263	1
	7 17NJ20	Pileated Woodpecker	S	POSS	1	Karl R. Konze				
	7 17NJ20	Eastern Wood-Pewee	T	PROB	1	Karl R. Konze	6	15.79	0.1842	1
	7 17NJ20	Eastern Phoebe	NE	CONF	1	Wayne Buck				
	7 17NJ20	Great Crested Flycatcher	T	PROB	1	Karl R. Konze	4	10.53	0.1316	1
	7 17NJ20	Eastern Kingbird	NY	CONF	1	Wayne Buck	2	5.26	0.1053	1
	7 17NJ20	Yellow-throated Vireo	S	POSS	1	Peter Coe	1	2.63	0.0263	1
	7 17NJ20	Warbling Vireo	T	PROB	1	Wayne Buck	1	2.63	0.0263	1
	7 17NJ20	Red-eyed Vireo	T	PROB	1	Karl R. Konze	6	15.79	0.2105	1
	7 17NJ20	Blue Jay	CF	CONF	1	Wayne Buck	7	18.42	0.2368	1
	7 17NJ20	American Crow	NB	CONF	1	Wayne Buck	21	55.26	1.1316	1
	7 17NJ20	Horned Lark	FY	CONF	1	Wayne Buck	6	15.79	0.2632	1
	7 17NJ20	Tree Swallow	CF	CONF	1	Karl R. Konze	8	21.05	0.4211	1
	7 17NJ20	Cliff Swallow	AE	CONF	1	Wayne Buck	1	2.63	0.0263	1
	7 17NJ20	Barn Swallow	NY	CONF	1	Wayne Buck	6	15.79	0.2895	1
	7 17NJ20	Black-capped Chickadee	NE	CONF	1	Wayne Buck	4	10.53	0.1053	1
	7 17NJ20	White-breasted Nuthatch	CF	CONF	1	Wayne Buck	1	2.63	0.0526	1
	7 17NJ20	Brown Creeper	S	POSS	1	Karl R. Konze				
	7 17NJ20	House Wren	NE	CONF	1	Wayne Buck	6	15.79	0.1579	1
	7 17NJ20	Winter Wren	T	PROB	1	Karl R. Konze				
	7 17NJ20	Eastern Bluebird	NY	CONF	1	Wayne Buck	1	2.63	0.0526	1
	7 17NJ20	Wood Thrush	T	PROB	1	2 atlassers	1	2.63	0.0263	1
	7 17NJ20	American Robin	FY	CONF	1	Wayne Buck	27	71.05	1.3947	1
	7 17NJ20	Gray Catbird	FY	CONF	1	Wayne Buck	2	5.26	0.0526	1
	7 17NJ20	Brown Thrasher	T	PROB	1	Wayne Buck	1	2.63	0.0263	1

Region	Square	Species	Max BE	Categ	#Sq	Atlasser Name	#PC	%PC	Abun	#Sq
	7 17NJ20	European Starling	AE	CONF	1	Wayne Buck	28	73.68	2.7632	1
	7 17NJ20	Cedar Waxwing	CF	CONF	1	Wayne Buck	6	15.79	0.5	1
	7 17NJ20	Yellow Warbler	P	PROB	1	Wayne Buck				
	7 17NJ20	Chestnut-sided Warbler	S	POSS	1	Karl R. Konze				
	7 17NJ20	Black-throated Green Warbler	S	POSS	1	Karl R. Konze				
	7 17NJ20	American Redstart	T	PROB	1	Karl R. Konze				
	7 17NJ20	Ovenbird	T	PROB	1	Karl R. Konze	1	2.63	0.0263	1
	7 17NJ20	Mourning Warbler	T	PROB	1	Karl R. Konze				
	7 17NJ20	Common Yellowthroat	T	PROB	1	Karl R. Konze	6	15.79	0.1579	1
	7 17NJ20	Eastern Towhee	A	PROB	1	Karl R. Konze				
	7 17NJ20	Chipping Sparrow	T	PROB	1	Karl R. Konze	10	26.32	0.3684	1
	7 17NJ20	Field Sparrow	NE	CONF	1	Wayne Buck	1	2.63	0.0263	1
	7 17NJ20	Vesper Sparrow	H	POSS	1	Peter Coe	1	2.63	0.0263	1
	7 17NJ20	Savannah Sparrow	NE	CONF	1	Wayne Buck	20	52.63	0.8684	1
	7 17NJ20	Song Sparrow	FY	CONF	1	Wayne Buck	18	47.37	0.7105	1
	7 17NJ20	Scarlet Tanager	T	PROB	1	Karl R. Konze				
	7 17NJ20	Northern Cardinal	NE	CONF	1	Wayne Buck	7	18.42	0.2105	1
	7 17NJ20	Rose-breasted Grosbeak	T	PROB	1	Karl R. Konze	3	7.89	0.0789	1
	7 17NJ20	Indigo Bunting	CF	CONF	1	Wayne Buck	5	13.16	0.1842	1
	7 17NJ20	Bobolink	V	PROB	1	Wayne Buck	8	21.05	0.2895	1
	7 17NJ20	Red-winged Blackbird	NE	CONF	1	Wayne Buck	21	55.26	1.7632	1
	7 17NJ20	Eastern Meadowlark	CF	CONF	1	Wayne Buck	6	15.79	0.2368	1
	7 17NJ20	Common Grackle	NY	CONF	1	Wayne Buck	25	65.79	3.1579	1
	7 17NJ20	Brown-headed Cowbird	T	PROB	1	Karl R. Konze	10	26.32	0.5	1
	7 17NJ20	Baltimore Oriole	AE	CONF	1	Wayne Buck	4	10.53	0.1579	1
	7 17NJ20	House Finch	FY	CONF	1	Wayne Buck	4	10.53	0.1579	1
	7 17NJ20	American Goldfinch	P	PROB	1	2 atlassers	18	47.37	1.2105	1
	7 17NJ20	House Sparrow	AE	CONF	1	Wayne Buck	3	7.89	0.0789	1

RE: EIS Scope of work- Pfenning property, New Hamburg

Jane Gurney <JGurney@regionofwaterloo.ca>

Fri 2021-05-28 4:21 PM

To: pbritton <pbritton@mhbcplan.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>

Cc: Garrett Korber (gkorber@mte85.com) <gkorber@mte85.com>; Jason Cabral <JCabral@mte85.com>; 'Trevor Heywood' (theywood@grandriver.ca) <theywood@grandriver.ca>; Joanne McDaniel (jmcDaniel@mte85.com) <jmcDaniel@mte85.com>; Harold Okrafka <Harold.okrafka@wilmot.ca>; David Welwood <DWelwood@regionofwaterloo.ca>

Paul, Tricia et al,

Thank you for the update on the proposed work in the woodland to accommodate the directional drilling and installation of the sanitary line to service the proposed development on the NH/Pfenning site earlier this week. As provided by Tim Van Hinte previously, Regional staff will not require detailed inventory or assessment work within the feature where the directional drilling is proposed. The EIS will still be required in accordance with the approved Terms of Reference.

I understand that archaeological assessment work will be undertaken in the feature to assess the area of the sanitary line installation. Regional staff request a memo or brief be provided in advance of the archaeological assessment work that includes the following:

1. A map depicting the general areas proposed for assessment should be provided in advance of the work being undertaken, and updated as required;
2. A brief description of the proposed work, including details about the proposed methodology and anticipated level of disturbance (e.g. hand dug shallow pits, to be filled in as they are reviewed);
3. Approximate timing of proposed work.

This information will allow staff to determine if the level of work will require any permits or authorizations. I would also remind you that if Stage 3 assessments are required, we ask that you consult with the Region in advance of undertaking the work. If it is determined that more extensive excavation is required then updates detailing the proposed work will need to be provided to the Region and GRCA (please confirm Township requirements with staff).

Please let me know if you have any questions or concerns regarding the above.

Jane E. Gurney, RPP, MCIP, AICP

Principal Planner

Community Planning

Region of Waterloo

Mobile: 519-589-6921

Office: 519-575-4500 Ext. 3454

JGurney@regionofwaterloo.ca

From: pbritton <pbritton@mhbcplan.com>**Sent:** May 12, 2021 2:31 PM**To:** Jane Gurney <JGurney@regionofwaterloo.ca>; 'Tricia Radburn' <Tricia.Radburn@rjburnside.com>**Cc:** Garrett Korber (gkorber@mte85.com) <gkorber@mte85.com>; Jason Cabral <JCabral@mte85.com>; 'Trevor Heywood' (theywood@grandriver.ca) <theywood@grandriver.ca>; Joanne McDaniel (jmcDaniel@mte85.com) <jmcDaniel@mte85.com>**Subject:** RE: EIS Scope of work- Pfenning property, New Hamburg

Hi Jane,

A quick call will close the loop and I appreciate the speedy reply.

Have a nice day.

Paul

PAUL R. BRITTON, MCIP, RPP | Vice President/Treasurer

Special Note: Due to the Covid-19 outbreak, we are moving the majority of our staff to remote access and reducing our offices to minimal in-person staff. The firm remains open. We will make this transition as seamless as possible.

MHBC Planning, Urban Design & Landscape Architecture

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From: Jane Gurney [<mailto:JGurney@regionofwaterloo.ca>]

Sent: May-12-21 2:22 PM

To: 'Tricia Radburn'

Cc: Paul Britton; Garrett Korber (gkorber@mte85.com); Jason Cabral; 'Trevor Heywood' (theywood@grandriver.ca); Joanne McDaniel (jmcdaniel@mte85.com)

Subject: RE: EIS Scope of work- Pfenning property, New Hamburg

Tricia et al,

Based on the information provided in Paul Britton's email (attached), it appears that the proposed work is remaining consistent with the work described in the previously approved Terms of Reference for the environmental impact assessment work to be undertaken in support of the proposed development on the NH/Pfenning property. As provided by Tim Van Hinte on September 9, 2018 (email attached), the proposal regarding the approach to addressing the directional drilling was acceptable. If there has been a significant change in the alignment or proposed scope of work that I am missing, please advise, but if the work is consistent then I do not have any further concerns at this time with the proposal.

I have also verified that the GRCA does not have any concerns with the proposed drilling, and am copying Trevor Heywood. Trevor advised that the drill pits and any excavated fill will need to be protected with silt fencing (applies to protect the Core Environmental Features as well), and if the work is proposed within the GRCA regulated area, a permit will be required.

I would be happy to have a call, if needed, to walk through the plans quickly as Paul suggested in his email, and have provided my availability for May 25 and 26 to Joanne as requested.

Thank you,

Jane

Jane E. Gurney, RPP, MCIP, AICP

Principal Planner

Community Planning

Region of Waterloo

Mobile: 519-589-6921

Office: 519-575-4500 Ext. 3454

JGurney@regionofwaterloo.ca

From: Tricia Radburn <Tricia.Radburn@rjburnside.com>

Sent: April 6, 2021 5:13 PM

To: Jane Gurney <JGurney@regionofwaterloo.ca>

Subject: EIS Scope of work- Pfenning property, New Hamburg

Jane,

We are working to complete an EIS that was started several years ago for a proposed development at the Pfenning property in New Hamburg- see attached study area. We had submitted a Terms of Reference back in 2018. At that time, we were not aware that the property would be connected to a new sanitary service through a new connection coming from the proposed employment lands to the south (see narrow portion of study area that extends south of the rail corridor on the attached figure).

The sanitary sewer line will be installed using a trenchless method, drilled under the woodlot. There is also a wetland in close proximity. The entrance and exist pits are planned to be located outside of the woodland and

wetland setbacks.

We have not completed a detailed plant or wildlife survey within the woodlot as this area was not part of our original study area. We believe that the methods being proposed to install the sewer will result in minimal effects to the woodland and wetland and we had not planned to conduct a detailed inventory. Could you please confirm that you are in agreement with this approach? If you feel that a detailed inventory within the woodland is required, please let me know.

I believe you may have been present when the wetland and woodland boundaries were staked several years ago. There may have been a miscommunication and the wetland boundaries were surveyed but the woodland boundary was not. Our ecologists are planning to re-visit the site to confirm the woodlot boundary again in the next couple of weeks. I understand that Region staff are not participating in fieldwork at this time. Could you also confirm that is correct? If you would like to attend the staking please let me know.

Thanks so much.



Tricia Radburn, MCIP, RPP
Senior Environmental Planner

R.J. Burnside & Associates Limited
292 Speedvale Ave. W, Unit 20 Guelph ON
Office: [800-265-9662](tel:800-265-9662) Direct: 226-486-1778 www.rjburnside.com

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If you have received this communication in error please notify the sender at the above email address and delete this email immediately.

Thank you.

Tricia Radburn

From: Tim Van Hinte <TVanHinte@regionofwaterloo.ca>
Sent: Monday, September 10, 2018 1:25 PM
To: 'Tricia Radburn'
Cc: Brenna MacKinnon; Andrew Martin; 'bbrown@grandriver.ca'
Subject: RE: Terms of Reference for an EIS, Pfenning Farm, New Hamburg

Ok thanks Tricia for the additional information – what you are proposing sounds reasonable to me.

Tim

From: Tricia Radburn [mailto:Tricia.Radburn@rjburnside.com]
Sent: Wednesday, August 29, 2018 10:55 AM
To: Tim Van Hinte
Cc: Brenna MacKinnon; Andrew Martin; bbrown@grandriver.ca
Subject: RE: Terms of Reference for an EIS, Pfenning Farm, New Hamburg

Tim,

Thank you for your comments on the TOR. We are in full agreement with your first three comments and will make those revisions/additions. I wanted to provide some additional information to clarify why we feel that breeding bird surveys may not be useful in this case. The portion of the site that is in agriculture is planted primarily with vegetables which do not provide habitat for grassland birds. A small portion of a field is also planted in wheat (as shown in the attached figure). While Bobolink have occasionally been found within wheat fields, this is unusual and generally limited to large fields (greater than 50 ha) (Bobolink and Eastern Meadowlark Recovery Strategy). The wheat field on the site is approximately 5 ha. The Recovery Strategy also indicates that small fields represent poor habitat if surrounded by forest, such as the woodland which is present directly adjacent to the wheat field on site. Eastern Meadowlark can be found in smaller fields than Bobolink but the field on-site is relatively small for this species and is similarly unlikely to provide suitable habitat. Furthermore, the fields on the property are subject to a regular crop rotation such that the wheat field present in 2018 is likely not to be present in the same location, or at all, in 2019. This regular crop rotation is not conducive to the provision of grassland bird habitat. In addition, the wheat field does not meet the composition or size criteria to meet the definition of Open Country Bird Breeding Habitat under the Significant Wildlife Habitat Criteria Schedule. As such, suitable nesting habitat for grassland birds is not present within the agricultural portions of the study area and we do not believe that bird surveys will yield any information that would change this analysis.

Bird habitat is likely present within the wooded areas of the study area. However, no development or site alteration is proposed within the woodland. The sanitary sewer will be installed using directional drilling below the woodland, thus, treed habitat will not be disturbed. We believe that an appropriate buffer width from the woodland can be derived using existing information from background sources which have been collected by observers over multiple years. We intend to use records from the Ontario Breeding Bird Atlas, Natural Heritage Information Centre and e-bird as well as records provided by the OMNRF. The buffer width will also take into account information beyond bird habitat, including any other wildlife habitats which may be present, woodland composition, rarity and sensitivity and any wetlands or vernal pools which may be present, among other criteria.

Please let me know if you have any further questions on this matter or any other components of the TOR.

Kind Regards,



Tricia Radburn, M.Sc.(PI), MCIP, RPP
Senior Environmental Planner

R.J. Burnside & Associates Limited
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Office: [800-265-9662](tel:800-265-9662) Direct: [226-486-1778](tel:226-486-1778)
www.rjburnside.com

From: Tim Van Hinte <TVanHinte@regionofwaterloo.ca>
Sent: Friday, August 24, 2018 4:12 PM
To: Brenna MacKinnon <BMacKinnon@regionofwaterloo.ca>
Cc: Andrew Martin <andrew.martin@wilmot.ca>; bbrown@grandriver.ca; Tricia Radburn <Tricia.Radburn@rjburnside.com>
Subject: RE: Terms of Reference for an EIS, Pfenning Farm, New Hamburg

Hi Brenna

I have reviewed the Terms of Reference for the Pfenning Farm EIS (Burnside, August 2018) and have the following comments:

- Reference on Figure 1 to the “Locally Significant Natural Area” should be revised to identify this area as a Significant Woodland / Regional Core Environmental Feature.
- The section on Planning Context (p.2) should also include a discussion of the Growth Plan.
- Under Region of Waterloo Official Plan (p.2) while the area is currently outside the Township Urban Area, it should be noted that it is part of the ROP amendment (ROPA #1) addressing boundary rationalization.
- The ToR states that “breeding bird surveys are not proposed due to the timing of the commencement of the EIS which occurred after the 2018 breeding season” (p.10). This rationale is not consistent with the Region’s Greenlands Network Implementation Guideline (2016) and requires clarification.

Thanks,

Tim

From: Brenna MacKinnon
Sent: Thursday, August 16, 2018 10:09 AM
To: Tim Van Hinte
Subject: FW: Terms of Reference for an EIS, Pfenning Farm, New Hamburg

From: Andrew Martin
Sent: Wednesday, August 15, 2018 2:36 PM
To: Beth Brown; Brenna MacKinnon

Cc: Tricia Radburn; Harold Okrafka

Subject: Terms of Reference for an EIS, Pfenning Farm, New Hamburg

Beth / Brenna,

R.J. Burnside & Associates Ltd. has been retained to prepare an Environment Impact Study for a proposed development in New Hamburg. They are seeking comments on the attached draft Terms of Reference, outlining the proposed scope and methodology of the study.

Please provide comments at your earliest opportunity.

Andrew Martin, MCIP, RPP | Manager of Planning/EDO | Development Services Dept. | **Township of Wilmot**

60 Snyder's Road West, Baden, ON N3A 1A1 | P. 519. 634.8519 x 245 | F. 519.634.5044 | Toll. 800.469.5576 | TTY. 519.634.5037

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BURNSIDE

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Appendix B

Records Review

Appendix B

NHIC Data

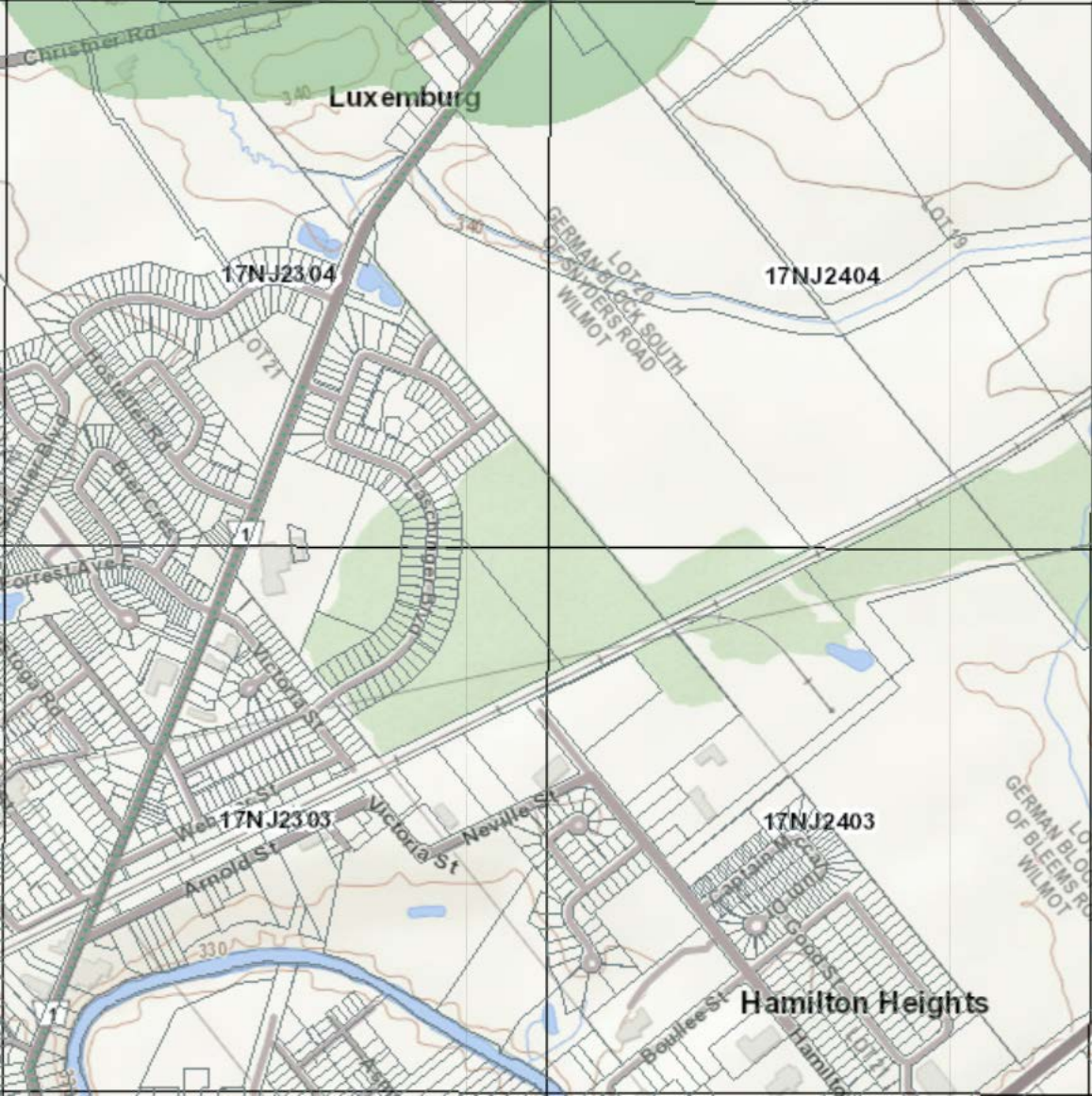
To work further with this data select the content and copy it into your own word or excel documents.

OGF ID	Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	ATLAS NAD83 IDENT	COMMENTS
925777	NATURAL AREA	Grand River					17NJ2403	
925777	SPECIES	Bobolink	Dolichonyx oryzivorus	THR		THR	17NJ2403	

NHIC Data

To work further with this data select the content and copy it into your own word or excel documents.

OGF ID	Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	ATLAS NAD83 IDENT	COMMENTS
925778	SPECIES	Bobolink	Dolichonyx oryzivorus	THR		THR	17NJ2404	
925778	SPECIES	Large Toothwort	Cardamine maxima				17NJ2404	
925768	SPECIES	Bobolink	Dolichonyx oryzivorus	THR		THR	17NJ2304	



Luxemburg

17NJ2304

17NJ2404

Web 17NJ2303

17NJ2403

Hamilton Heights



Legend

Expressway or highway — Autoroute ou route nationale (asphaltée)

Regional or local road — Route régionale ou locale (asphaltée ou non)

Resource / Recreation --- Ressource / route récréative

Rail line —+— Chemin de fer

Utility corridor —+— Ligne de transport d'énergie

Watercourse — Rivière ou ruisseau

Protected or conserved area [] Zone protégée ou conservée

Fire disturbance since 2000 [] Incendie perturbé depuis 2000

Broadleaf forest [10] Forêt de feuillus

Coniferous forest [2] Forêt de conifères

Mixed forest [2] Forêt mixte

Shrubland [] Milieu arbustif

Grassland [] Prairie

Barren [1] Dénudé

Wetland [] Milieu humide

Agriculture [74] Milieu agricole

Water [1] Eau

Developed area [10] Zone développée

Unclassified [] Non classifié

Légende

Autoroute ou route nationale (asphaltée)

Route régionale ou locale (asphaltée ou non)

Ressource / route récréative

Chemin de fer

Ligne de transport d'énergie

Rivière ou ruisseau

Zone protégée ou conservée

Incendie perturbé depuis 2000

Forêt de feuillus

Forêt de conifères

Forêt mixte

Milieu arbustif

Prairie

Dénudé

Milieu humide

Milieu agricole

Eau

Zone développée

Non classifié

The approximate percent coverage of each habitat type is indicated by the numbered box in the legend.

La couverture approximative est indiquée en pourcentage dans le rectangle coloré de la légende.

Cartographic production by Birds Canada
Production cartographique par oiseaux Canada

Note: The project partners are in no way responsible for any inaccuracies, mistakes or omissions in the information that appears on this map.

Avis : Les responsables du projet d'atlas ne peuvent être tenus responsables de toute inexactitude, erreur ou omission concernant les informations apparaissant sur cette carte.

6° Universal Transverse Mercator (UTM) Projection; Zone 17, Central Meridian -81°; North American Datum 1983 (NAD 83)

Projection universelle transverse de Mercator (UTM) 6° Zone 17, méridien central -81°;

Système de référence géodésique nord-américain 1983 (NAD 83)



BIRDS CANADA OISEAUX CANADA

March 2021 / mars 2021

<https://www.birdsontario.org/>

Number of off-road point counts
Nombre de points d'écoute hors route

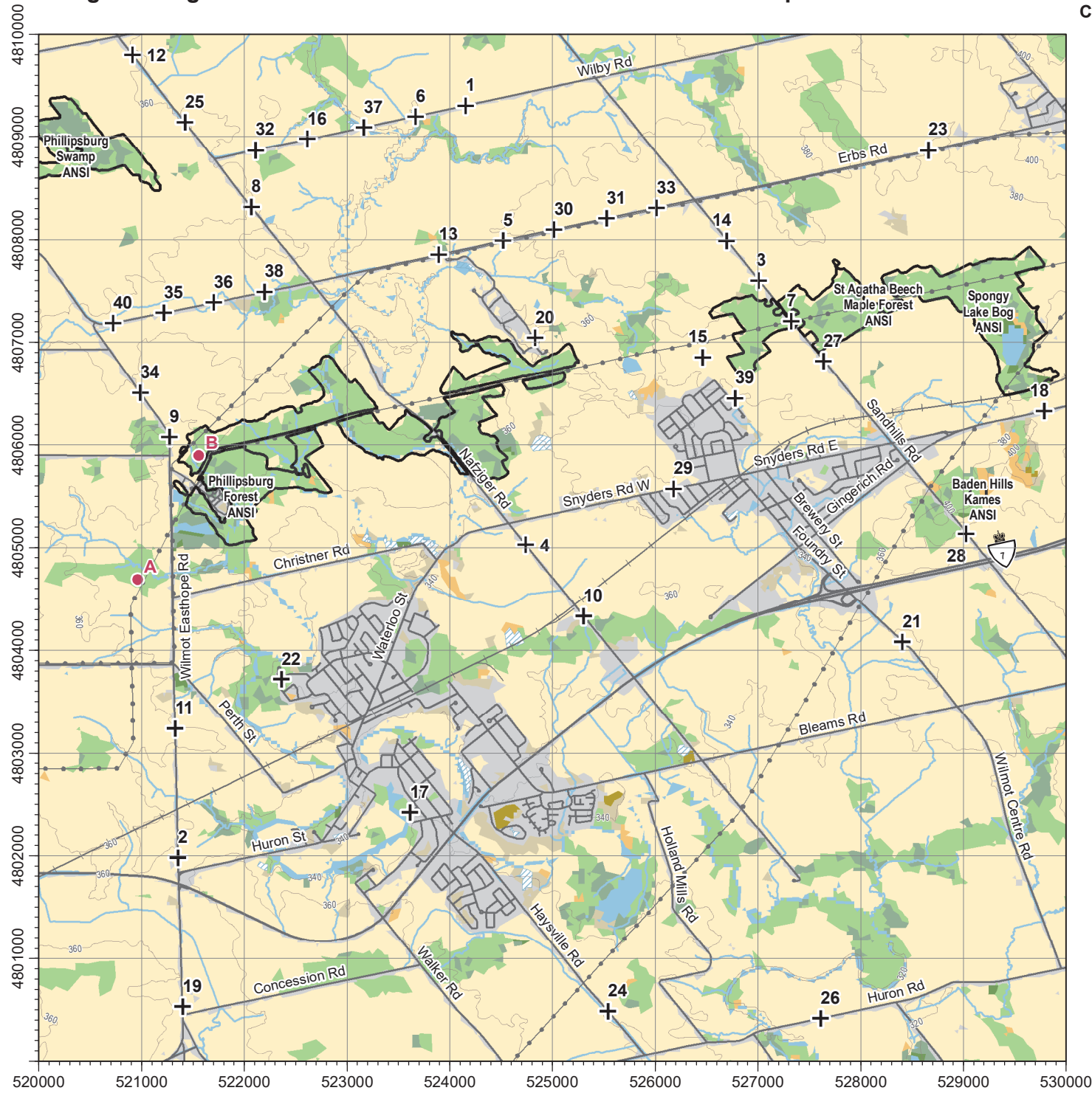
Broadleaf forest:	4	Grassland:	0
Coniferous forest:	0	Wetland:	0
Mixed forest:	1	Shrubland:	0

Predefined / Prédéterminés: 20
Off-road / Hors route: 5

Atlas-2 off-road point Point hors route Atlas-2



0 1 km





Square Summary (17TNJ20) [\[change\]](#)

	#species				#hours		#pc done	
	poss	prob	conf	total	total	peak	road	offrd
Curr.	13	11	30	54	23	10.2	10	0
Prev.	9	23	42	74	108.7	—	38	

Region summary (#7: Waterloo, ON)

#squares	#sq with data	#species	#squares (pc)	
			target	compl.
30	30	160	30	2
30	30	165	0	30

Target number of point counts in this square: 25 in total: 20 road side, 5 off road (Broadleaf Forest in 4, Mixed Forest in 1). Please try to ensure that each off-road station is located such that the entire 100m radius circle is within the prescribed habitat. **Predef. completed:** [05, 13, 23, 30, 31, 33, 35, 36, 38, 40]

SPECIES	Prev.	Code	%
Canada Goose	FY	FY	70
Mute Swan			10
Trumpeter Swan			20
Wood Duck		FY	60
Blue-winged Teal ‡			10
Northern Shoveler ‡			3
Gadwall ‡			0
American Wigeon ‡			0
<u>Mallard</u>	FY		60
American Black Duck ‡			6
Northern Pintail ‡			0
Green-winged Teal ‡			3
Redhead †			0
Hooded Merganser			33

Common Merganser ‡			3
Ruddy Duck ‡			6
Wild Turkey	T	NE	60
Ruffed Grouse			20
Gray Partridge †			0
Ring-necked Pheasant ‡	NE		3
Pied-billed Grebe			20
Rock Pigeon (Feral Pigeon)	AE	NY	76
Mourning Dove	AE	NE	96
<u>Yellow-billed Cuckoo</u>			53
<u>Black-billed Cuckoo</u>	CF		56
Common Nighthawk ‡			6
Eastern Whip-poor-will ‡			0
Chimney Swift §		H	40
<u>Ruby-throated Hummingbird</u>	FY		60
Virginia Rail			10
Sora			6
Common Gallinule ‡			3
American Coot ‡			3

SPECIES	Prev.	Code	%
Sandhill Crane ‡			16
Killdeer §	FY	H	86
Upland Sandpiper †			3
American Woodcock		T	30
Wilson's Snipe ‡			13
<u>Spotted Sandpiper</u>	H		53
Ring-billed Gull § ‡			0
Herring Gull § ‡			0
Black Tern †			0
Common Tern § ‡			3
Common Loon ‡			0
Double-crested Cormorant § ‡			0
American Bittern ‡			0
Least Bittern †			0
Great Blue Heron §	AE		23
Green Heron §		NB	33
Turkey Vulture	H	H	63

Turkey Vulture			55
Osprey		AE	40
Northern Harrier			23
Sharp-shinned Hawk ‡			13
Cooper's Hawk		D	33
Northern Goshawk ‡			0
Bald Eagle ‡		P	26
Red-shouldered Hawk ‡			0
Broad-winged Hawk ‡			10
Red-tailed Hawk	FY	AE	73
Eastern Screech-Owl	T		46
Great Horned Owl	T	P	43
Barred Owl ‡			6
Long-eared Owl ‡			6
Short-eared Owl †			0
Northern Saw-whet Owl ‡			6
Belted Kingfisher	H	T	76

SPECIES	Prev.	Code	%
Yellow-bellied Sapsucker	FS		30
Red-headed Woodpecker †	CF		23
<u>Red-bellied Woodpecker</u>	T		60
Downy Woodpecker	FY	FY	80
Hairy Woodpecker	FY	H	53
<u>Pileated Woodpecker</u>	S		63
Northern Flicker	CF	NY	73
American Kestrel ‡		P	23
Merlin			20
Peregrine Falcon ‡			6
Eastern Wood-Pewee §	T	T	76
Acadian Flycatcher †			3
Alder Flycatcher			33
<u>Willow Flycatcher</u>			56
Least Flycatcher			36
<u>Eastern Phoebe</u>	NE		56
Great Crested Flycatcher	T	S	83
Eastern Kingbird	NY	FY	83
Yellow-throated Vireo ‡	S		13

Blue-headed Vireo ‡			3
Warbling Vireo	T	CF	70
Red-eyed Vireo	T	S	90
Blue Jay	CF	FY	70
American Crow	N	FY	96
Common Raven			36
Black-capped Chickadee	NE	NY	86
Tufted Titmouse ‡			0
<u>Horned Lark §</u>	FY		76
Northern Rough-winged Swallow			40
Purple Martin ‡			16
Tree Swallow	CF	NY	83
Bank Swallow §			30
Barn Swallow §	NY	NY	80

Breeding Bird Atlas - Summary Sheet for Square 17TNJ20 (page 2 of 2)

SPECIES	Prev.	Code	%
Cliff Swallow §	AE	NY	66
Ruby-crowned Kinglet ‡			0
Golden-crowned Kinglet			13
<u>Red-breasted Nuthatch</u>			50
White-breasted Nuthatch	CF	H	53
Brown Creeper	S		33
Blue-gray Gnatcatcher			10
House Wren	NE	CF	93
Winter Wren	T		33
Sedge Wren ‡			0
Marsh Wren			13
Carolina Wren ‡			20
European Starling	AE	CF	86
Gray Catbird	FY	H	83
<u>Brown Thrasher</u>	T		63
Northern Mockingbird ‡			0
Eastern Bluebird	NY	NY	63
Veery			36
Hermit Thrush ‡			0
Wood Thrush §	T	S	56
American Robin	FY	NY	100
<u>Cedar Waxwing</u>	CF		73
House Sparrow	AE	P	83
House Finch	FY	FY	53
Purple Finch ‡			3
Red Crossbill ‡			6
Pine Siskin ‡			20
American Goldfinch	P	AE	86
Grasshopper Sparrow §			23
Chipping Sparrow	T	CF	86
Clay-colored Sparrow ‡			13
<u>Field Sparrow</u> §	NE		53
White-throated Sparrow			30
SPECIES	Prev.	Code	%

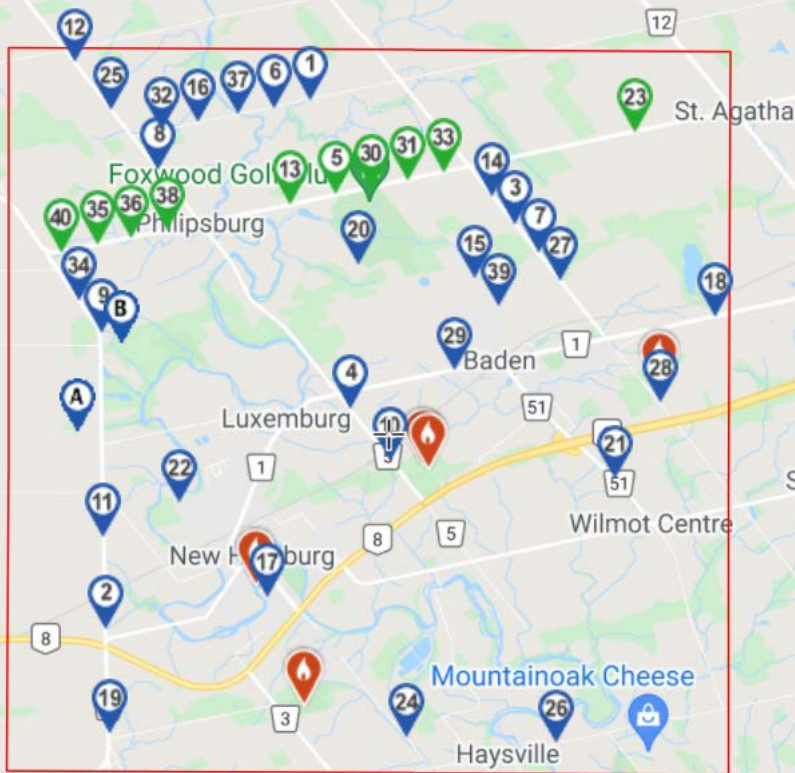
<u>Vesper Sparrow</u>	H		53
<u>Savannah Sparrow</u>	NE		76
Song Sparrow	FY	CF	96
Lincoln's Sparrow ‡			0
<u>Swamp Sparrow</u>			56
Eastern Towhee §	A		36
Bobolink §	V	H	76
Western Meadowlark †			0
<u>Eastern Meadowlark §</u>	CF		53
Orchard Oriole			30
Baltimore Oriole	AE	FY	83
Red-winged Blackbird	NE	AE	100
Brown-headed Cowbird	T	S	83
Common Grackle	NY	FY	93
Ovenbird	T		20
Louisiana Waterthrush †			3
Northern Waterthrush			33
Golden-winged Warbler †			3
Blue-winged Warbler			10
Black-and-white Warbler			10
Nashville Warbler			6
<u>Mourning Warbler</u>	T		50
Common Yellowthroat	T	T	83
Hooded Warbler ‡			10
American Redstart	T	S	80
Cerulean Warbler †			3
Magnolia Warbler ‡			0
Blackburnian Warbler ‡			0
Yellow Warbler	P	T	83
Chestnut-sided Warbler	S		23
Black-throated Blue Warbler ‡			0
<u>Pine Warbler</u>			56
Yellow-rumped Warbler ‡			0

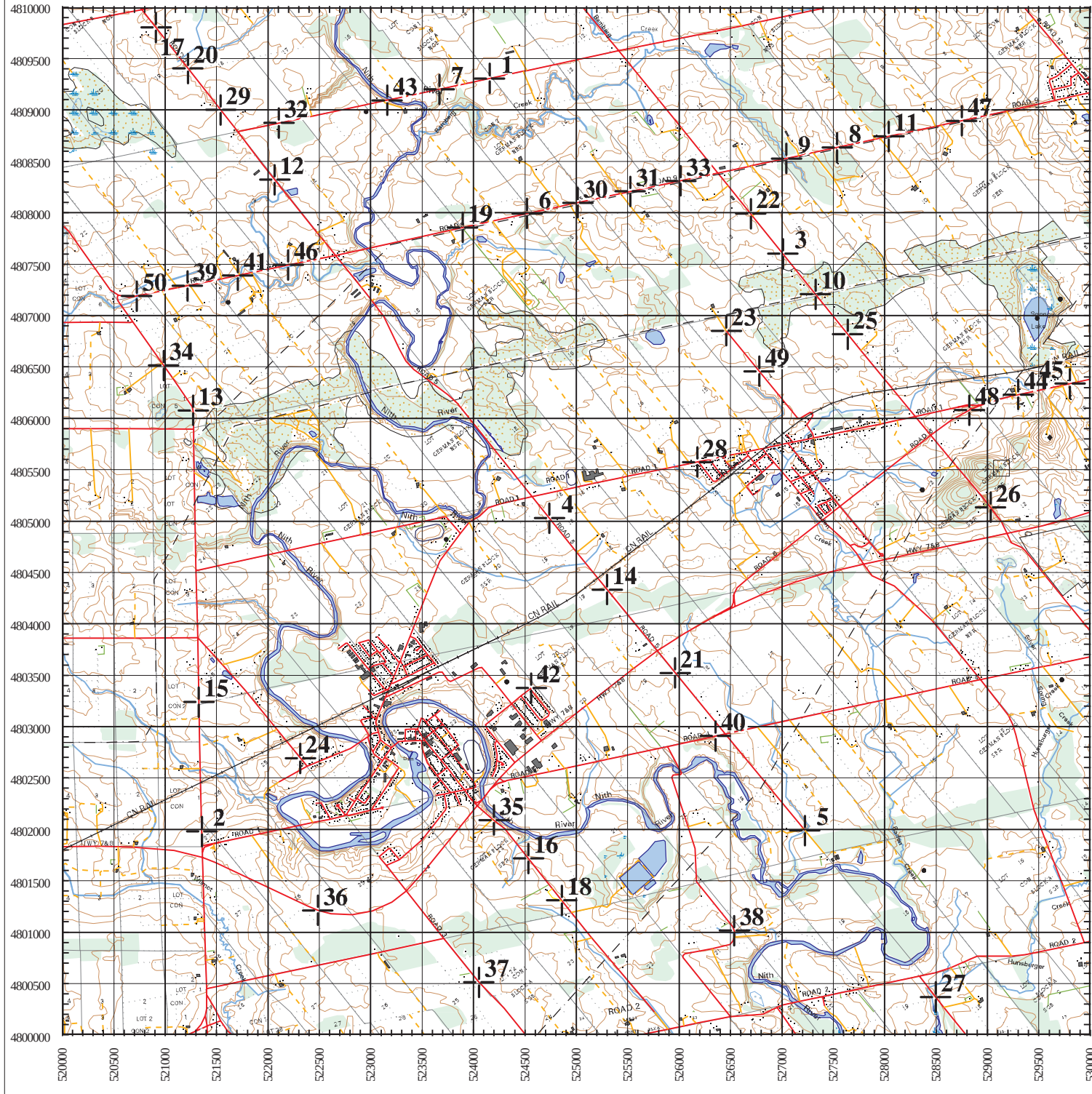
SPECIES**Prev. Code %**

Prairie Warbler †			0
Black-throated Green Warbler	S		10
Canada Warbler ‡			0

Scarlet Tanager	T		33
Northern Cardinal	NE	NE	86
Rose-breasted Grosbeak	T	S	76
Indigo Bunting	CF	T	86

This list includes all breeding species expected in the region #7 (Waterloo). Underlined species are those that you should try to add to this square (17TNJ20). They have not yet been reported in this square, but have been reported in more than 50% of the squares in this region so far. "Prev." is the code for the highest breeding evidence for that species in square 17TNJ20 in the previous atlas. "Code" is the code for the highest breeding evidence for that species in square 17TNJ20 over the last 5 years. The % columns give the percentage of squares in that region where that species was reported (this gives an idea of the expected chance of finding that species in region #7). Rare/Colonial Species Report Forms should be completed for species marked: § (Species of interest), ‡ (regionally rare), † (provincially rare). An up-to-date version of this sheet is available from <https://www.birdscanada.org/naturecounts/atlas/summaryform.jsp?squareID=17TNJ20&lang=EN> Data current as of **25/01/2022 07:28**.





Ontario Breeding Bird Atlas 2001 - 2005

Roadside Point Count Coordinates

No.	Easting	Northing
01	524155	4809306
02	521357	4801979
03	527010	4807601
04	524739	4805029
05	527224	4801990
06	524521	4807993
07	523667	4809200
08	527537	4808635
09	527044	4808529
10	527327	4807207
11	528040	4808743
12	522067	4808321
13	521273	4806078
14	525301	4804333
15	521328	4803240
16	524535	4801717
17	520911	4809802
18	524859	4801309
19	523895	4807856
20	521221	4809403
21	525962	4803523
22	526697	4807991
23	526459	4806851
24	522315	4802691
25	527641	4806818
26	529029	4805136
27	528495	4800370
28	526179	4805575
29	521540	4809001
30	525014	4808098
31	525525	4808208
32	522107	4808874
33	526016	4808311
34	520986	4806513
35	524199	4802090
36	522485	4801213
37	524052	4800512
38	526536	4801014
39	521216	4807289
40	526353	4802908
41	521706	4807390
42	524561	4803376
43	523161	4809094
44	529300	4806230
45	529803	4806337
46	522197	4807492
47	528750	4808895
48	528825	4806080
49	526779	4806457
50	520723	4807189

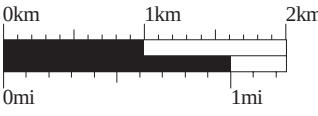
Legend

- Wooded Areas
- Water Bodies
- Water Area
- Water Bodies
- Wetland Area
- Wetlands
- ANSI
- Pits and Quarries
- Parks and Reserves
- Public Road
- Private Road
- Track
- Trail
- Railway
- Contour Lines
- Lots
- Roadside Point Count Locations
- Fences
- Wall
- Hedge
- Feature Outline
- Race Track
- Building Points
- Building Polygons
- Airports
- Petroleum Tank
- Water Tank
- Survey Monuments
- Smoke Stack
- Towers
- Named Places
- Pipelines
- Transmission Line

North American Datum 1983
Universal Transverse Mercator (6 degrees) projection
Zone 17, Central Meridian 81 degrees W.
Grid Interval 1000 meters
Contour Interval 10 meters
Some features on the Breeding Bird Atlas field maps may not have been updated since the early 1980's.

Atlas Square: 17NJ20 Region: 07

(NAD27 - 17NJ20)



Ontario
Breeding
Bird Atlas



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Map may only be used for Ontario Breeding Bird Atlas Work



Species list in taxonomic order for square 17NJ20

All species

Number of rows of data displayed below: 15.

Species #	Common Name	# of Records	Earliest Yr _____	Latest Yr
3	Midland Painted Turtle	12	1978	2019
6	Snapping Turtle	14	1978	2019
12	Eastern Gartersnake	6	1978	1991
18	Milksnake	1	2009	2009
27	Gray Treefrog	31	1978	1993
28	Green Frog	20	1978	2012
30	Northern Leopard Frog	12	1978	1989
31	Pickerel Frog	5	1972	1978
32	Spring Peeper	48	1978	2006
33	Western Chorus Frog	1	2006	2006
34	Wood Frog	13	1978	1992
35	American Toad	55	1978	2006
40	Red-spotted Newt	3	1978	2013
41	Eastern Red-backed Salamander	6	1978	2018
44	Mudpuppy	1	1994	1994



BURNSIDE

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Appendix C

Significant Wildlife Habitat Screening

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 6E Criteria (2015)

Habitat	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)?	Wildlife Species	Defining Criteria	Presence of Confirmed Habitat in the Study Area (within 120 m of the Project)?
Seasonal Concentration Areas of Animals						
Waterfowl Stopover and Staging Areas (Terrestrial) Rationale: Habitat important to migrating waterfowl.	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.	Not Present. No seasonally flooded fields are present.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	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 100-300 m radius area, dependent 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). - SWHMiST Index #7 provides development effects and mitigation measures.	N/A
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.	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)	Not Present. No suitable habitats are present within the Study Area.	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	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 100 m radius area is the SWH. - Wetland area and shorelines associated with sites identified within the SWHTG 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). - SWHMiST Index #7 provides development effects and mitigation measures.	N/A

Habitat	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)?	Wildlife Species	Defining Criteria	Presence of Confirmed Habitat in the Study Area (within 120 m of the Project)?
				Red-breasted Merganser Brant Canvasback Ruddy Duck		
Shorebird Migratory Stopover Area Rationale: High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	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.	Not present. No shorelines, rivers, muddy unvegetated aerars present.	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	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 (<24 hrs) 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 100 m radius area. - Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" - SWHMiST Index #8 provides development effects and mitigation measures.	N/A
Raptor Wintering Area Rationale: Sites used by multiple species, a high number of individuals and used annually are most significant	<u>Hawks/Owls:</u> Combination of ELC Community Series; need to have present one Community Series from each land class; <u>Forest:</u> FOD, FOM, FOC. <u>Upland:</u> CUM; CUT; CUS; CUW. <u>Bald Eagle:</u> 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.	Not present. Sufficiently-sized forest and upland communities are not present.	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl <u>Special Concern:</u> Short-eared Owl Bald Eagle	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." - SWHMiST Index #10 and #11 provides development effects and mitigation measures.	N/A

Habitat	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)?	Wildlife Species	Defining Criteria	Presence of Confirmed Habitat in the Study Area (within 120 m of the Project)?
Bat Hibernacula Rationale: Bat hibernacula are rare habitats in all Ontario landscapes.	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.	Not present. No caves or mines are present.	Big Brown Bat Tri-coloured Bat	- All sites with confirmed hibernating bats are SWH. - The habitat area includes a 200 m radius around the entrance of the hibernaculum for most development types and 1000 m 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”. - SWHMiST Index #1 provides development effects and mitigation measures.	N/A
Bat Maternity Colonies Rationale: Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	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 (>25 cm dbh) wildlife trees. - Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2. - 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.	Likely present. - Large areas of deciduous forest to the south and west may contain suitable roost trees. Snag surveys were not completed in these ecosites. - Some individual lone trees within hedgerow areas on the property may be suitable for day or maternity roosting.	Big Brown Bat Silver-haired Bat	- 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”. - SWHMiST Index #12 provides development effects and mitigation measures.	- Tree cavity/snag surveys or bat acoustic monitoring were not completed. - All forested communities will be assumed to provide SWH for the purposes of this study.
Turtle Wintering Areas Rationale: Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	For Midland Painted and Snapping Turtles: ELC Community Classes: SW, MA, OA and SA ELC Community Series: FEO and BOO For 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 has to be deep enough not to freeze and have soft mud substrates. - Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. - Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH.	Not present. - No suitable ecosites are present. - There is small potential for turtle overwintering associated with a tributary to the Nith River to the northeast of the property. - The largest area of standing water is the southern SWM pond.	Midland Painted Turtle Special Concern: Northern Map Turtle Snapping Turtle	- 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. - SWHMiST Index #28 provides development effects and mitigation measures for turtle wintering habitat.	N/A
Reptile	For all snakes,	For snakes, hibernation takes place	Potentially present.	Snakes:	Studies confirming:	No.

Habitat	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)?	Wildlife Species	Defining Criteria	Presence of Confirmed Habitat in the Study Area (within 120 m of the Project)?
Hibernaculum Rationale: Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	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	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 groundcover. - Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures.	Potentially present - Hibernacula may exist within the adjacent FOD communities in the form of root hollows and disused animal burrows. - Suitable habitat may also exist in association with the railway line to the south.	Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake Eastern Milksnake Special Concern: Eastern Ribbonsnake Lizard: Special Concern: Five-lined Skink (Southern Shield population)	- 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 (e.g., 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. - SWHMiST Index #13 provides development effects and mitigation measures for snake hibernacula. - Presence of any active hibernaculum for skink is significant. - SWHMiST Index #37 provides development effects and mitigation measures for five- lined skink wintering habitat.	No suitable features were identified during field investigations.
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 population are declining in Ontario.	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.	Not present. No eroding or exposed banks or cliffs are present.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	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 50 m 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”. - SWHMiST Index #4 provides development effects and mitigation measures.	N/A
Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs) Rationale: Large colonies are important to local	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4	- 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.	Potentially present within southern SWD areas.	Great Blue Heron Black-crowned Night - Heron Great Egret Green Heron	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 300 m radius or extent of the Forest Ecosite containing the colony or any island <15.0 ha 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	- No. - No evidence of nests were observed during field investigations.

Habitat	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)?	Wildlife Species	Defining Criteria	Presence of Confirmed Habitat in the Study Area (within 120 m of the Project)?
bird population, typically sites are only known colony in area and are used annually.	SWD5 SWD6 SWD7 FET1				evidence such as the presence of fresh guano, dead young and/or eggshells. • SWHMiST Index #5 provides development effects and mitigation measures.	
Colonially - Nesting Bird Breeding Habitat (Ground) Rationale: Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	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. The known range of this species in Ontario is restricted to Rainy River, and patches north of Lake Huron, Manitoulin Island, the Bruce Peninsula, and the Muskoka area (OBBA, 2005)	Not present. - No suitable habitat is present for most coloniallynesting birds. - Suitable habitat is present for Brewer's Blackbird, but the Study Area is outside the known range for this species in Ontario.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	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 150 m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0 ha 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". - SWHMiST Index #6 provides development effects and mitigation measures.	N/A
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.	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 Anecdotaly, 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.	Not present. The Study Area is not within 5 km of Lake Ontario.	Painted Lady Red Admiral <u>Special Concern</u> Monarch	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. - SWHMiST Index #16 provides development effects and mitigation measures.	N/A
Landbird Migratory Stopover Areas Rationale: Sites with a high diversity of species as well as high numbers are most	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 <2 km from Lake Ontario are more significant. - Sites have a variety of habitats; forest, grassland and wetland	Not present. The Study Area is not within 5 km of Lake Ontario.	All migratory songbirds. Canadian Wildlife Service Ontario website: http://www.ec.gc.ca/nature/default.asp?lang=En&n=421B7A9D-1	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	N/A

Habitat	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)?	Wildlife Species	Defining Criteria	Presence of Confirmed Habitat in the Study Area (within 120 m of the Project)?
significant.		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 5 km of Lake Ontario are Candidate SWH.		All migrant raptors species: Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)	for Wind Power Projects". SWHMiST Index #9 provides development effects and mitigation measures.	
Deer Yarding Areas Rationale: 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.	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%. - MNRF 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.	N/A	White-tailed Deer	No Studies Required: - Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40 cm 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 in Table 1.4.1 of this Schedule. - SWHMiST Index #2 provides development effects and mitigation measures.	Not present. No deer yards identified by the MNRF.
Deer Winter Congregation Areas	All Forested Ecosites with these ELC Community Series:	Woodlots will typically be >100 ha in size. Woodlots <100 ha may be considered as significant based on	N/A	White-tailed Deer	Studies confirm: Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by	Not present. No deer wintering

Habitat	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)?	Wildlife Species	Defining Criteria	Presence of Confirmed Habitat in the Study Area (within 120 m of the Project)?
<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 cxlviii.	FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.	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 within Table 1.1 of this Schedule. - Large woodlots > 100 ha 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.			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 >20 cm 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 in Table 1.4.1 of this Schedule. - SWHMiST Index #2 provides development effects and mitigation measures.	areas identified by the MNRF.
Rare Vegetation Communities						
Cliffs and Talus Slopes <u>Rationale:</u> Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO, CLO,TAS, CLS, TAT, CLT	Most cliff and talus slopes occur along the Niagara Escarpment. A Cliff is vertical to near vertical bedrock >3 m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris	Not present.	•	- Confirm any ELC Vegetation Type for Cliffs or Talus Slopes. - SWHMiST Index #21 provides development effects and mitigation measures.	• N/A
Sand Barren <u>Rationale:</u> 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 <u>≤</u> 60%.	A sand barren area >0.5 ha in size. Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered, but less than 60%	Not present.	•	- Confirm any ELC Vegetation Type for Sand Barrens - Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). - SWHMiST Index #20 provides development effects and mitigation measures.	• N/A
Alvar <u>Rationale:</u> Alvars are extremely rare habitats in Ecosregion 6E. Most alvars in Ontario are in Ecoregions 6E	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1	An Alvar site > 0.5 ha in size. 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	Not present	•	- 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 - SWHMiST Index #17 provides development effects and mitigation	• N/A

Habitat	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)?	Wildlife Species	Defining Criteria	Presence of Confirmed Habitat in the Study Area (within 120 m of the Project)?
and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic-Precambrian contact.	CUW2 Five Alvar Indicator Species: <i>Carex crawei</i> <i>Panicum philadelphicum</i> <i>Eleocharis compressa</i> <i>Scutellaria parvula</i> <i>Trichostema brachiatum</i> These indicator species are very specific to Alvars within Ecoregion 6E.	drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animals species. Vegetation cover varies from patchy to barren with a less than 60% tree cover.			measures.	
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	Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest 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.	Not present. • Though large sections of forest exist south of the property, interior habitat is severely reduced due to the placement of railway and roads.		Field Studies will determine: • If dominant trees species of the are >140 years old, then the area containing these trees is Significant Wildlife Habitat. • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (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 forest area containing the old growth characteristics. • SWHMiST Index #23 provides development effects and mitigation measures.	• N/A
Savannah Rationale: Savannahs are extremely rare habitats in Ontario.	TPS1 TPS2 TPW1 TPW2 CUS2	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. A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%.	Not present		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.). • SWHMiST Index #18 provides development effects and mitigation measures.	• N/A
Tallgrass Prairie Rationale: Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	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. A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover.	Not present.		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 theSWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #19 provides development effects and mitigation measures.	• N/A
Other Rare Vegetation	Provincially Rare S1, S2 and S3 vegetation	ELC Ecosite codes that have the potential to be a rare ELC Vegetation	Not present.		Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG.	• N/A

Habitat	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)?	Wildlife Species	Defining Criteria	Presence of Confirmed Habitat in the Study Area (within 120 m of the Project)?
Communities Rationale: Plant communities that often contain rare species which depend on the habitat for survival.	communities are listed in Appendix M of the SWHTG. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Type as outlined in Appendix M. The OMNRF/NHIC will have up to date listing for rare vegetation communities. Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	All communities present are common and typical for the Waterloo Region.		- Area of the ELC Vegetation Type polygon is the SWH. - SWHMiST Index #37 provides development effects and mitigation measures.	
Specialized Habitat for Wildlife						
Waterfowl Nesting Area Rationale: Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	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 120 m 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 (>40 cm dbh) in woodlands for cavity nest sites.	Not present. No suitable ecosites are present.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	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. - SWHMiST Index #25 provides development effects and mitigation measures.	N/A
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	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).	Not present. No treed ecosides adjacent to riparian areas are present within the Study Area.	Osprey Special Concern Bald Eagle	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. cvi, ccvii Area of the habitat from 400-800 m 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.	N/A

Habitat	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)?	Wildlife Species	Defining Criteria	Presence of Confirmed Habitat in the Study Area (within 120 m of the Project)?
scarcity of habitat.					- 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” - SWHMiST Index #26 provides development effects and mitigation measures.	
Woodland Raptor Nesting Habitat Rationale: Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	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 >30 ha with >10 ha of interior habitat. Interior habitat determined with a 200 m 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.	Not present. Woodland with sufficient interior habitat is not present.	Northern Goshawk Cooper’s Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	Studies confirm: - Presence of 1 or more active nests from species list is considered significant. - Red-shouldered Hawk and Northern Goshawk – A 400 m radius around the nest or 28 ha area of habitat is the SWH (the 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest) - Barred Owl – A 200 m radius around the nest is the SWH - Broad-winged Hawk and Coopers Hawk– A 100 m radius around the nest is the SWH. - Sharp-Shinned Hawk – A 50 m 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. - SWHMiST Index #27 provides development effects and mitigation measures.	N/A
Turtle Nesting Areas Rationale: These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Exposed mineral soil (sand or gravel) areas adjacent (<100 m) 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.	Not present. No suitable ecosites are present.	Midland Painted Turtle <u>Special Concern Species:</u> Northern Map Turtle Snapping Turtle	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. - SWHMiST Index #28 provides development effects and mitigation measures for turtle nesting habitat.	N/A
Seeps and Springs Rationale:	Seeps/Springs are areas where ground water comes to the surface.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system.	Not present. No seeps were	Wild Turkey Ruffed Grouse Spruce Grouse	Field Studies confirm: Presence of a site with 2 or more seeps/springs should be considered SWH.	N/A

Habitat	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)?	Wildlife Species	Defining Criteria	Presence of Confirmed Habitat in the Study Area (within 120 m of the Project)?
Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species.	observed.	White-tailed Deer Salamander spp.	- The area of a ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat. - SWHMiST Index #30 provides development effects and mitigation measures	
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	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) >500 m2 (about 25 m diameter) within or adjacent (within 120 m) 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.	Present. Wetlands are present within the woodland area to the north and south of the rail line.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	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 230 m 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. - SWHMiST Index #14 provides development effects and mitigation measures.	Present. Surveys did not identify amphibians in sufficient numbers to meet the criteria for significance. However, on two of three surveys were completed. Western Chorus Frog, a federally-listed species was identified. For the purposes of this study, this community is assumed to provide SWH.
Amphibian Breeding Habitat (Wetlands) Rationale: Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	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 >500 m2 (about 25 m 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.	Not present. All wetlands are associated with woodland habitat. No isolated wetlands are present.	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	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 in Table 1.4.1 of this Schedule. - SWHMiST Index #15 provides development effects and mitigation measures.	N/A
Woodland Area-Sensitive Bird Breeding Habitat Rationale:	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.	Not present. Woodland with sufficient interior habitat is not present.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula	Studies confirm: - Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. - Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. - Conduct field investigations in spring and early summer when	N/A

Habitat	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)?	Wildlife Species	Defining Criteria	Presence of Confirmed Habitat in the Study Area (within 120 m of the Project)?
Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.				Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Special Concern: Cerulean Warbler Canada Warbler	birds are singing and defending their territories. - Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. - SWHMiST Index #34 provides development effects and mitigation measures.	
Habitat for Species of Conservation Concern (not including Endangered or Threatened Species)						
Marsh Breeding Bird Habitat Rationale: Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	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.	Not present. One MAM2 ecosite was noted as present south of the railway at the southern easement, but it does not appear to support large areas of standing shallow water. Only a few inundated areas were identified. The area is too small to support this type of habitat.	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	Studies confirm: - Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or 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”. - SWHMiST Index #35 provides development effects and mitigation measures.	N/A
Open Country Bird Breeding Habitat Rationale: This wildlife habitat is declining throughout Ontario	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).	Not present. No suitable ecosites are present.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow Special Concern	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 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.	N/A

Habitat	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)?	Wildlife Species	Defining Criteria	Presence of Confirmed Habitat in the Study Area (within 120 m of the Project)?
and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.		- 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.		Short-eared Owl	- Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” - SWHMiST cxlix Index #32 provides development effects and mitigation measures.	
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.	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 >10 ha 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.	Not present. Cultural woodland (hedgerow) communities are not of sufficient size to meet the criteria.	Indicator Spp: Brown Thrasher Clay-coloured Sparrow Common Spp. Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher Special Concern: Yellow-breasted Chat Golden-winged Warbler	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 Yellow-breasted Chat or 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”. - SWHMiST cxlix Index #33 provides development effects and mitigation measures.	N/A
Terrestrial Crayfish Rationale: Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	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.	Not present. Suitable areas to support these species are present within and around the margins of MAM2 ecosites on the southern portion of the Study Area. However, no chimneys were observed during field surveys.	Chimney or Digger Crayfish (<i>Fallicambarus fodiens</i>) Devil Crayfish or Meadow Crayfish (<i>Cambarus Diogenes</i>)	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. - SWHMiST Index #36 provides development effects and mitigation measures.	N/A
Special Concern and Rare Wildlife Species	All plant and animal element occurrences (EO) within a 1 or 10 km grid.	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.	Present (Western Chorus Frog)	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the	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	Present. Amphibian call surveys identified Western Chorus Frog calling >

Habitat	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)?	Wildlife Species	Defining Criteria	Presence of Confirmed Habitat in the Study Area (within 120 m of the Project)?
Rationale: These species are quite rare or have experienced significant population declines in Ontario.	Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy			Natural Heritage Information Centre.	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. SWHMiST Index #37 provides development effects and mitigation measures.	100 m from the survey point at the railway. Presence of this species within the Study Area is unconfirmed. It is assumed that this species may be present.
Animal Movement Corridors						
Amphibian Movement Corridors Rationale: Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Corridors may be found in all ecosites associated with water. Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1.	Movement corridors between breeding habitat and summer habitat Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (Amphibian Breeding Habitat –Wetland) of this Schedule.	Not present. Amphibian Breeding Habitat-Wetland is not present, therefore, corridors associated with this type of habitat are not present.	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	- 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 15 m of vegetation on both sides of waterway or be up to 200 m wide of woodland habitat and with gaps <20 m. - Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat - SWHMiST Index #40 provides development effects and mitigation measures	Not present.
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.	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 from Table 1.1 of this schedule. - A deer wintering habitat identified by the OMNRF as SWH in Table 1.1 of this Schedule 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).	Not present. No deer wintering areas identified by the MNRF; therefore, significant deer movement corridors not expected.		- 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 200 m wide with gaps <20 m and if following riparian area with at least 15 m of vegetation on both sides of waterway. - Shorter corridors are more significant than longer corridors, SWHMiST Index #39 provides development effects and mitigation measures.	N/A
Significant Wildlife Habitat Exceptions for Ecodistricts within EcoRegion 6E						
6E-14	All Forested habitat	Woodland ecosites >30 ha with mast-	Not present.		All woodlands >30 ha with a 50% composition of these ELC	N/A

Habitat	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)?	Wildlife Species	Defining Criteria	Presence of Confirmed Habitat in the Study Area (within 120 m of the Project)?
Mast Producing Areas 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 bear	represented by ELC Community Series: FOM FOD	producing tree species, either soft (cherry) or hard (oak and beech), 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	Study Area not in Ecoregion 6E-14.	Black Bear	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 SWHMiST Index #3 provides development effects and mitigation measures.	
6E- 17 Lek Rationale: Sharp-tailed grouse only occur on Manitoulin Island in Eco- region 6E, Leks are an important habitat to maintain their population	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 >15 ha with adjacent shrublands and >30 ha with adjacent deciduous woodland. Conifer trees within 500 m are not tolerated. Grasslands (field/meadow) are to be >15 ha when adjacent to shrubland and >30 ha 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.	Not present. Study Area not in Ecoregion 6E-17.	Sharp-tailed Grouse	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. - SWHMiST cxlix Index #32 provides development effects and mitigation measures.	N/A