Environmental Impact Study

537086 Main Street

Township of Melancthon

Prepared for:
Angelo Carnevale

Prepared by:
Azimuth Environmental
Consulting, Inc.

April 2024

AEC 23-095

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Assessments & Approvals

April 16, 2024 AEC 23-095

Angelo Carnevale
537086 Main Street
Melancthon, Ontario
L9V 1X6

Attention: Angelo Carnevale

Re: **Environmental Impact Study for a Proposed Residential Development on 537086 Main Street, Township of Melancthon, County of Dufferin**

Dear Angelo Carnevale:

Azimuth Environmental Consulting, Inc. was retained to provide an Environmental Impact Study report for a proposed residential development at the location described above. The purpose of this report is to provide the Township of Melancthon and other review agencies with an understanding of natural environmental conditions and potential for impacts related to the proposed development on significant natural heritage features and functions of the property and adjacent lands. This report also documents the natural environmental features present within the property and adjacent lands with regard to potential Species at Risk and their habitats.

Should you have any questions or require additional information please do not hesitate to contact the undersigned.

Yours truly,
AZIMUTHENVIRONMENTALCONSULTING,INC.

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Terrestrial Ecologist

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1.0 INTRODUCTION

Azimuth Environmental Consulting, Inc. (Azimuth) was retained by the landowner (Angelo Carnevale) to complete an Environmental Impact Study (EIS) related to the development proposed for lands located at 537086 Main Street in the Township of Melancthon (Township), County of Dufferin (County). A map illustrating the limits of the property in its regional context is shown on Figure 1. The study area including a portion of the proposed development footprint are mapped within the jurisdiction of the Nottawasaga Valley Conservation Authority (NVCA) (Appendix A), and therefore a permit issued under Ontario Regulation (O. Reg.) 41/24 may be required to proceed with the proposed development.

The purpose of this EIS is to identify the Key Natural Heritage Features (KNHFs) present within the study area and address potential impacts to KNHFs. A review of background information (including the Site Evaluation Report completed by Azimuth in 2019) in combination with a field program was undertaken in spring 2023 to identify KNHFs and functions. This report also examines potential for Species at Risk (SAR) protected under the *Endangered Species Act*, 2007 (ESA) within the study area. The potential for negative impacts to natural heritage features resulting from the proposed development is considered and recommendations for avoidance and mitigation are provided.

For the purposes of this EIS, the study area comprises the property as shown on Figures 1-3 and adjacent lands (within approximately120 metres (m)) of the property limits. Natural features in the overall planning area beyond the defined study area limits are discussed where applicable throughout this report.

2.0 PLANNING CONTEXT

2.1 Provincial Planning Policy (2020)

The Provincial Policy Statement (PPS) (MMAH, 2020a) outlines policies related to natural heritage features (Section 2.1) and water resources (Section2.2). Ontario's*Planning Act,* (1990) requires that planning decisions shall be consistent with the PPS. The study area for this assessment is located entirely within **Ecoregion 6E**. According to the PPS development and site alteration shall not be permitted in:

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

Similarly, Section 2.1.5 of the PPS states that, unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions, development and site alteration shall not be permitted within:

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

It is ultimately the responsibility of the Province and/or the Municipality to designate areas identified within Section 2.1.4 and 2.1.5of the PPS as "significant".

Section 2.1.6 of the PPS states that development and site alteration is not permitted in fish habitat except in accordance with federal and provincial requirements.

Section 2.1.7 of the PPS states that development and site alteration shall not be permitted in the habitat of Threatened and Endangered species, except in accordance with provincial and federal requirements.

Furthermore, under Section 2.1.8 of the PPS, no development or site alteration will be permitted on lands adjacent to natural heritage features and areas identified in policies 2.1.4, 2.1.5 and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated there will be no negative impacts on the natural features and their ecological functions.

2.2 Endangered Species Act (2007)

Ontario's ESA, 2007 provides regulatory protection to Endangered and Threatened species prohibiting harassment, harm and/or killing of individuals and destruction of their habitats. Habitat is broadly characterized within the ESA as the area prescribed by a regulation as the habitat of the species or an area on which the species depends, directly or indirectly, to carry on its life processes including reproduction, rearing of young, hibernation, migration or feeding.

The various schedules of the ESA included under O. Reg. 230/08 identify SAR in Ontario. These include species listed as Extirpated, Endangered, Threatened and Special Concern. As noted above, only species listed as Endangered and Threatened receive protection from harm and destruction to habitat on which they depend.

2.3 Growth Plan for the Greater Golden Horseshoe (2020)

Section 4.2.2 of the Growth Plan for the Greater Golden Horseshoe (MMAH, 2020b) (Growth Plan) contains policies pertaining to key natural heritage features and key

hydrologic features within the identified Natural Heritage System. The Natural Heritage System for the Growth Plan excludes lands within settlement area boundaries that were approved and in effect as of July 1, 2017. The property is within the Horning's Mills Community Settlement Area and is therefore not subject to the natural heritage features policies of the Growth Plan (Appendix A).

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

a) Will continue to protect any other natural heritage features and areas 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.

2.4 Dufferin County

The Dufferin County Official Plan ("County OP"; 2017) illustrates the property within the Community Settlement Area designation under Schedule B (Community Structure and Land Use; Appendix A).

Natural features including Woodlands, Waterbodies (ponds) and a Watercourse have been mapped within the study area in Schedule E (Natural Heritage Features); Provincially Significant Wetland (PSW), Unevaluated Wetlands and Areas of Natural and Scientific Interest (ANSIs) have not been mapped on the subject or adjacent lands (Schedule E; Appendix A). The study area is within the County's Preliminary Natural Heritage System as per Schedule E1 (Natural Heritage System; Appendix A).

2.5 Township of Melancthon

Schedule B (Land Use & Roads Plan) of the Township of Melancthon Official Plan ("Township OP"; 2017) designates the property as Community and lands on the southwest portion of the subject lands have been designated as Environmental Conservation (Appendix A). Schedule E (Natural Heritage 2 Woodlands, Wildlife Habitat and ANSI) and Schedule F (Natural and Human-made Hazards) of the Township OP identifies Significant Woodland and floodplain in the southwest region of the site (Appendix A). No PSWs, Locally Significant and Unevaluated Wetlands, Deer Wintering Areas/Yards Significant Wildlife Habitat or Significant ANSI have been identified on the subject lands as per Schedules D and E of the Township OP (Appendix A).

2.6 Nottawasaga Valley Conservation Authority

The study area is located within the jurisdiction of the NVCA. The study area includes lands subject to O. Reg. 41/24 – "Regulation of Development Interference with Wetlands and Alterations to Shorelines and Watercourses" by the NVCA. Under Regulation41/24,

the NVCA may require that approvals be obtained for any proposed development or site alteration within areas regulated under the Conservation Authority's jurisdiction.

2.7 Federal Fisheries Act

The *Fisheries Act* includes protections for fish and fish habitat in the form of standards, codes of practice, and guidelines for projects near water. The *Fisheries Act* provides protection against the "death of fish, other than by fishing", (Section 34.4(1)) and the "harmful alteration, disruption or destruction of fish habitat", (Section 35(1)), otherwise known as HADD.In cases where impacts to fish and fish habitat cannot be avoided, and the project does not fall within waterbodies where Fisheries and Oceans Canada (DFO) review is not required, proponents are asked to submit a request for review to their Fish and Fish Habitat Protection Program regional office to determine approval requirements. All projects are encouraged to avoid causing the death of fish and a HADD of fish habitat, using measures to protect fish and fish habitat that include standards and codes of practice for common works, undertakings and activities.

3.0 STUDY APPROACH

3.1 Field Program Summary

A combination of background information and field data were used to fulfill the objectives of this EIS. Azimuth undertook the following activities for this study:

- Searched the County, Township, Ministry of Natural Resources and Forestry (MNRF), Ministry of the Environment, Conservation and Parks (MECP), and DFO records to obtain available background information, including obtaining current information related to natural heritage conditions including SAR in the nearby area;
- Conducted field surveys to document existing natural heritage features, functions, and species. Surveys included:
    - Evaluated/mapped vegetation community types based on Ecological Land Classification for Southern Ontario (Lee *et al*., 1998; 2008) (ELC) methods (June 28, 2023);
    - One (1) vascular plant inventory in spring (June 28, 2023);
    - One (1) evening amphibian breeding survey (April 14, 2023);
    - Conducted a minimum of two (2) dawn breeding bird surveys. Three surveys were completed at or adjacent to plots where Threatened species were detected during one of the first two surveys (May 26, June 9 and 28, 2023);
    - One (1) fish and fish habitat survey to document the extent of fish habitat on the property (June 28, 2023);
    - Recorded all incidental wildlife observations during site visits;
- Identified/evaluated/mapped KNHF and functions in the context of the study area;

- Completed a Significant Wildlife Habitat (SWH) assessment based on the results of the field program;
- Completed an assessment of potential SAR and their habitats that could be present within the study area, including a screening for Butternut (*Juglans cinerea*)(Endangered) and Black Ash (*Fraxinus nigra*)(Endangered);
- Provided a description of the proposed development concept;
- Assessed the potential direct and indirect impacts of the proposed works on the natural heritage features and functions identified on or adjacent to the property;
- Developed an avoidance/mitigation/restoration strategy relative to the proposed development in the context of documented natural heritage features and functions; and,
- Assessed the proposed development's conformity with applicable municipal, provincial, and federal natural heritage policies.

3.2 Vegetation Community Mapping and Surveys

Prior to undertaking the field studies, an initial classification of vegetation communities was undertaken using recent air photo imagery for an area encompassing the study area. Vegetation community boundaries were then checked in the field on June 28, 2023 (Dan Stuart, Azimuth) during the growing season when the emergent ground cover vegetation layer was present. Vegetation community types were classified using ELC protocols. Wetland boundaries were verified by Dan Stuart (OWES-certified) according to Ontario Wetland Evaluation System (OWES) wetland boundary delineation protocols.

The vascular plant inventory was undertaken by a qualified ecologist having knowledge related to rare, Threatened, and Endangered plant species with potential to occur in the area. Particular search effort was applied to find Butternut (Endangered) and Black Ash (Endangered).

3.3 Wildlife Surveys

Wildlife species utilizing the study area were identified from direct observation, auditory signs, and through interpretation of other signs (tracks, scats, vocalizations, *etc.*) as a matter of course while conducting field surveys.

3.3.1 Species at Risk

The SAR screening included an assessment of SAR with potential to occur in the overall planning area, compared with potential habitat features identified within the study area. Habitat requirements and appropriate designations (Endangered and Threatened) are outlined in Table 1.

3.3.2 Breeding Birds

Two dawn breeding bird surveys were conducted within the study area at six survey stations on May 26 and June 9, 2023 by point count methodology of the OBBA Guide for Participants (2001). A third survey was conducted on June 28, 2023 at or adjacent to

plots where Threatened species were detected only once during the first two surveys (point count stations 1-4). All surveys were conducted no earlier than one half hour before sunrise and were completed prior to 10:00a.m. Surveys were completed under suitable weather conditions (*i.e.* no precipitation and light winds (Beaufort wind scale ≤3)) (survey conditions outlined in Table 3). Survey locations are shown on Figure 2.

3.3.3 Amphibian Breeding

One evening calling amphibian survey was completed on April 14, 2023 at four survey stations to assess amphibian breeding within and adjacent to the property in accordance with the Great Lakes Marsh Monitoring Program (Bird Studies Canada, 2008) protocol. As discussed below in Section 4.2.2, the middle and late spring amphibian surveys were not deemed necessary due to lack of activity and potentially suitable amphibian breeding habitat observed during the first survey and were therefore not completed. In accordance with the protocol, the amphibian survey was completed during the period between 30 minutes after sunset and midnight, on an evening with winds Beaufort <4. The survey occurred during the early spring period (prior to April 15 due to warm spring conditions) on an evening with a minimum temperature of 5°C.The locations of survey stations are illustrated on Figure 2.

3.3.4 Fish and Fish Habitat

Watercourses and drainage features in the study area were evaluated on June 28, 2023. The site evaluation was aimed at understanding the location of drainage features and watercourses within the Study Area and to determine the presence of direct and/or indirect fish habitat features that may be protected under the Federal *Fisheries Act*.

3.4 Background Information

In 2019, Azimuth prepared a Site Evaluation Report supporting a lot severance adjacent to the proposed subdivision lands. As such, existing field data undertaken in 2019 on the property and adjacent lands was utilized to the degree possible as a manner of background review.

A review of the following background documents provided information on site characteristics, habitat, wildlife, rare species and communities and general cultural/historic aspects of the study area:

- MNRF's Natural Heritage Information Centre (NHIC; MNRF, 2023a);
- Atlas of the Breeding Birds of Ontario (OBBA; Cadman *et al.*, 2007);
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2024);
- MECP's Species at Risk Ontario list (MECP, 2023);
- iNaturalist (NHIC) Rare Species of Ontario (iNaturalist, 2024);
- Air photos available for the Project Area (Google, VuMap);
- Government of Canada's Species at Risk Public Registry;
- DFO Aquatic Species at Risk Mapping (DFO, 2023);

- MNRF Land Information Ontario online database: Aquatic resource area line segment (MNRF, 2023b); and,
- Atlas of the Mammals of Ontario (Dobbyn, 1994).

3.5 Agency Correspondence

A Terms of Reference (TOR) for the above survey program was established in consultation with the Township's peer reviewer (RJ Burnside& Associates Limited (Burnside)). The TOR is provided in Appendix A. All comments received by the Township's peer reviewer have been incorporated into the study approach and EIS report.

4.0 EXISTING CONDITIONS

4.1 Land Use

The property is approximately 10.2 hectares (ha) in size and is located in the southwest area of the Community of Horning's Mills, between Dufferin Road 124 and Main Street (Figures 1 and 2). The site is nearly entirely active agricultural lands (wheat in 2023) with the exception of a hedgerow that divides the north and south portions of the property, and a woodland corridor that extends onto the eastern corners of the site and is associated with the adjacent hydrologic feature.

Lands to the west and east of the subject lands consists of residential development, while lands to the south include active agriculture. Cultural plantation and residential development occur in adjacent lands to the north.

4.2 Terrestrial Resources

4.2.1 Vegetation

The limits of all ELC communities identified within the study area are illustrated on Figure 2. A complete list of vascular plant species identified on the property is presented on Table 2.

The property is largely active agriculture (Annual Row Crops, OAGM1) (8.8ha) as illustrated on Figure 2. A Naturalized Deciduous Hedgerow (FODM11) runs through the middle of the subject lands on a west-east axis, separating the site into two large agricultural fields. The canopy of the hedgerow is dense, consisting of White Ash, Black Cherry, Red Ash and Trembling Ash and the subcanopy is somewhat dense and consists of similar species with the addition of Silver Maple. The understorey of this community is somewhat dense and composed of American Black Currant, ash species (white/red), Black Cherry, and Tatarian Honeysuckle, and the ground layer is dense and includes American Black Currant, Orchard Grass, Black Cherry, Tatarian Honeysuckle, Canada Goldenrod and Smooth Brome.

A Fresh-Moist Poplar Deciduous Woodland (WODM5-1) occurs in the southeast corner of the subject lands and extends into adjacent lands to the northeast. The canopy of this community is somewhat sparse and composed of Trembling Aspen and Sugar Maple. The subcanopy is moderately dense and includes Red Ash, Black Cherry, White Ash and Sugar Maple. The understorey layer is somewhat sparse and includes Red Ash, Sugar Maple, European Buckthorn, Tatarian Honeysuckle, while the ground layer is somewhat dense and consists of American Black Currant, Goutweed, Smooth Brome, Dame's Rocket, Yellow Avens and Thicket Creeper.

A Dry-Fresh White Pine Coniferous Woodland (WOCM1-3) approximately 0.47ha in size along the northeast property boundary (Figure 2). The canopy is moderately dense and consists of Eastern White Pine, Norway Spruce and lesser elements of Trembling Aspen. The subcanopy is also moderately dense and includes Eastern White Pine as the dominant species, as well as Red Pine, White Ash and Sugar Maple. The understorey is sparse consisting of Eastern White Cedar, White Ash, Manitoba Maple and Tatarian Honeysuckle while the ground layer is dense and includes Goutweed, Lesser Periwinkle, Orchard Grass and Coltsfoot.

A small Fowl Manna Grass Graminoid Organic Meadow Marsh (MAMO1-5) approximately 0.034ha occurs in the northeast corner of the property adjacent to Main Street (Figure 2). This community is lacking a canopy and subcanopy layer. The understorey is sparse, consisting of Bebb's Willow, Meadow Willow, Eastern White Cedar and Red-osier Dogwood, while the ground layer is dense and is composed of Fowl Mannagrass, Broad-leaved Cattail, Spotted Jewelweed, Fowl Bluegrass, Purple-stemmed Aster, Coltsfoot, Watercress and various wetland sedges.

4.2.1.1 Rare and Uncommon Plants

There are no elements of occurrence (EO_ID) within the study area for provincially Endangered or Threatened, or provincially rare vegetation species according to the NHIC database (MNRF, 2023).

No plant species considered Endangered or Threatened were identified during the site investigation, including Butternut or Black Ash trees. Further, no provincially rare (S1-S3) species were observed during the field program.

4.2.2 Wildlife

4.2.2.1 Mammals

Two mammalian species, White-tailed Deer (direct observation) and Red Squirrel (direct observation), were observed throughout the course of the field program. Given the

proximity of the study area to large natural areas in the greater landscape, it is expected the following other mammals could conceivably be encountered within the study area: small mammal species (various mice, voles, and shrews), Eastern Chipmunk, Eastern Gray Squirrel, Red Squirrel, Northern Flying Squirrel, weasel species, American Mink, Muskrat, Groundhog, Striped Skunk, Beaver, Virginia Opossum, Eastern Cottontail, Porcupine, Raccoon, Red Fox and Coyote.

4.2.2.2 Reptiles and Amphibians (Herpetofauna)

The results of the early spring evening calling amphibian survey revealed no breeding activity on the property consistent with a lack of ponds/vernal pools/standing water. One Spring Peeper (*Pseudacris crucifer* S5, highest level of calling activity – call code 1 [non-overlapping calls], number of individuals estimated at 1) was heard in the adjacent pond located to the west of the intersection of Main Street and Oldfield Court (Figure 2), approximately 50m south of the subject lands boundary.

Several control surveys were completed to confirm suitable conditions for the evening that the survey was completed. At a wetland located to the north of the subject lands, Spring Peepers were heard calling at a call code 2 (overlapping calls) and eight individuals were estimated to be present. Further, a second control survey was completed on McKinnon Road adjacent to Minesing Wetlands in the Community of Angus, where Spring Peepers were heard calling at full chorus (call code 3 (overlapping calls), number of individuals not possible to estimate).

During the spring survey, standing water was limited to a minor and highly localized section of the northeast meadow marsh community (MAMO1-5). Due to the minimal standing water and lack of amphibian breeding activity during the April survey, it was concluded that the middle and late spring amphibian surveys were not necessary. This approach is consistent with the recommendations of the Township's peer reviewer (Appendix A).

No other amphibians such as salamanders or newts were observed throughout the remainder of the field program. No snakes or turtles were observed during repeated daytime field surveys completed during seasons and under observation conditions during which species would be active and hence detectable.

4.2.2.3 Birds

Thirty-two (32) bird species were recorded during dawn breeding bird surveys, all of which are typical of rural/agricultural lands and woodland habitats (Table 3). An additional five bird species were identifiedincidentally during the remainder of the field program, also documented on Table 3.

Bobolink (Threatened) and Eastern Meadowlark (Threatened) were detected during one of the breeding bird surveys as discussed in more detail below. Barn Swallow (Special Concern) was detected as an incidental observation. Given that no suitable habitat is present on the subject lands (no anthropogenic structures), this species is not considered further.

4.3 Species at Risk

The SAR assessment (Table 1) fully considers SAR listed as Threatened or Endangered with potential to occur in the general area. Based on this assessment in combination with vegetation communities and other environmental features observed during the site investigation, the following species are considered below in this report:

- **Threatened or Endangered**: Bobolink, Eastern Meadowlark, Little Brown Myotis, Northern Myotis and Tri-colored Bat
- **Special Concern**:Snapping Turtle

Only species designated Threatened or Endangered receive individual and habitat protection under Section 9 and Section 10 of the ESA (Extirpated species also received protection under Section 9 only). Special Concern species are further discussed in the context of SWH (Habitat for Special Concern and Rare Wildlife Species) below.

4.3.1 Bobolink and Eastern Meadowlark

Bobolink and Eastern Meadowlark are obligate-grassland species and breed in a variety of natural and anthropogenic grassland habitats including remnant prairies, savannahs, hayfields, pastures and abandoned fields. Bobolink and Eastern Meadowlark prefer larger grasslands [>10 hectares (ha) and >5ha respectively] with a high grass to forb ratio (McCracken *et. al.*, 2013). Bobolink and Eastern Meadowlark are listed as Threatened on the Species at Risk in Ontario List and therefore receive individual and habitat protection under the ESA.

A pair of Bobolink and two fledglings were flushed while completing the third breeding bird survey (June 28, 2023) within the northwest portion of the agricultural fields in proximity to station 4 (Figure 2). The final survey was completed towards the end of the breeding season and no Bobolink or evidence of nesting was documented on-site during the first and second surveys (May 26 and June 9, 2023), earlier in the breeding season. As such, it is our interpretation that by June 28, 2023, the nesting process was completed and the fledglings had left the nest. The Bobolink observed were therefore anticipated to be transient and likely moving around the landscape to forage. Given the context of the observation, probable or confirmed breeding evidence has not been observed on the subject lands and Bobolink are not considered further.

Possible breeding evidence of Eastern Meadowlark was observed in the northern agricultural fields (wheat) in the subject lands. During the first breeding bird survey on May 26, 2023, one male was heard calling near the eastern property boundary at station 1, and one singing male was detected in the northwest agricultural field at station 4 (Table 3; Figure 2). Eastern Meadowlark was not observed on-site during the second and third breeding bird surveys (a singing male was heard in the adjacent agricultural fields to the west of the subject lands during the second survey only). A single observation on its own does not demonstrate that this species is using a particular area of the property. The MECP requires probable or confirmed breeding evidence as outlined in the OBBA 2001-2005 as breeding evidence within a particular habitat. As such, Eastern Meadowlark is not further discussed.

4.3.2 Little Brown Myotis, Northern Myotis and Tri-colored Bat

Little Brown Myotis, Northern Myotis and Tri-colored Bat may utilize woodlands as maternity roost sites, preferring trees >25 centimeters (cm) diameter at breast height (DBH) with evidence of cracks, holes, splits, lifted bark, *etc.* (called "snags") to provide refuge for the rearing of young during the late spring and early summer months (approximately June). Trees of any size with suitable opportunities for bat access may also be utilized for day roosting purposes during the remainder of the active period.

On-site, the Fresh-Moist Poplar Deciduous Woodland (WODM5-1) in the southeast portion of the subject lands has potential to provide habitat for SAR bats. The Dry-Fresh White Pine Coniferous Woodland (WOCM1-3) in the northeast corner of the site however is not anticipated to provide suitable habitat for Endangered bats as this feature is primarily composed of young coniferous trees that generally lacked evidence of decay and consisted of a dense branching.

Woodlands in adjacent lands to the north of the subject lands consist of cultural plantation (Figure 2). As per the provincial guideline Treed Habitats – Maternity Roost Surveys (MECP, 2022), cultural plantation is not a listed community that is considered to provide suitable habitat for SAR bats. Therefore, the adjacent woodland to the north of the site is not considered to provide potential habitat for these species.

4.4 Wetlands

There are no Provincially Significant Wetlands identified on or adjacent to the property (*i.e.*, within 120m) according to municipal (Appendix A) and provincial (Appendix B) mapping.

One wetland vegetation community, a small Fowl Manna Grass Graminoid Organic Meadow Marsh (MAMO1-5) approximately 0.034ha in size was documented to be

within the property limits as depicted on Figure 2. The feature had slight fen-like characteristics in some areas (areas of patchy vascular plant vegetation with a dense moss layer, and high cover of sedge species), and the combination of deep organic soils on a sloped site and the presence of Watercress were suggestive of persistent groundwater seepage. Further, a seep associated animal species (Eastern Red Damsel) was observed during 2019 field work. As such, this feature was considered a somewhat unique wetland community that requires consideration in spite of its small size. No other wetlands were identified on the subject lands. Impacts to this unit are considered further in the Impact Assessment.

4.5 Significant Woodland

Woodlands on the property and in adjacent lands have been mapped as Significant Woodland within Schedule E (Natural Heritage 2 Woodlands, Wildlife Habitat and ANSI) of the Township OP (Appendix A).

Woodlands to the north of the subject lands are part of a large contiguous woodland tract approximately 26ha in size. As per the Township OP, in Townships where woodland cover is between 15 and 30percent, woodlands 20ha in size are considered significant.

The Township OP also identifies woodlands smaller than 20ha as significant if they have other important features such as if they are located near other woodlands or are in a headwater area, or if they provide a linkage function between other natural heritage features and areas. The deciduous woodland (WODM5-1) in the southeast corner of the subject lands has been identified as Significant Woodland on Township OP mapping (Appendix A). This community is part of a woodland approximately 2ha in size that extends into adjacent lands to the east and is anticipated to be considered Significant due to the presence of Horning's Mills Creek which is a headwater feature.

The coniferous woodland (WOCM1-3) in the northeast corner of the property is an isolated feature approximately 0.47ha in size. The woodland is a narrow (~43m wide) and linear feature (~120m long) that originated as a plantation and is expected to provide limited ecological function. This woodland is an isolated feature (>65m from adjacent woodland communities) connected to a small wetland (that by ELC protocol would be identified as a wetland inclusion due to its size) and is expected to provide limited connectivity. The coniferous woodland is not a sensitive community. The coniferous woodland is not mapped as Significant Woodland on Township OP mapping (Appendix A). As such, this feature is not considered in the Impact Assessment.

4.6 Significant Valleyland

No portion of the study area is identified as Significant Valleyland, nor assigned a similar designation according to municipal or provincial mapping resources (Appendix A).

While a permanent watercourse flows in adjacent lands to the east of the property, this feature is not associated with the well-defined valley morphology and landform prominence required to be considered Candidate Significant Valleyland.

4.7 Significant Wildlife Habitat

An assessment of the potential for SWH within study area was conducted, using the criteria outlined within the Significant Wildlife Habitat Technical Guide (OMNR, 2000) and the accompanying the Ecoregion 6E Criteria Schedules (MNRF, 2015). An assessment of Candidate SWH categories relative to documented vegetation communities and habitats within the property is presented in Table 4. The following Candidate SWH types have potential to be present within the study area based on the results of the field program:

- Seasonal Concentration Areas of Animals
    - Turtle Wintering Areas
- Habitat of Species of Conservation Concern
    - Special Concern and Rare Wildlife Species
        - Snapping Turtle

4.7.1 Seasonal Concentration Areas of Animals

Turtle Wintering Areas

Ponds in adjacent lands to the north and east of the subject lands have potential to provide overwintering habitat for turtles.

4.7.2 Habitat for Special Concern and Rare Wildlife Species

Snapping Turtle

Snapping Turtle (Special Concern) prefer slow-moving water with a soft mud bottom and dense aquatic vegetation, however, this species can be found in almost every kind of freshwater habitat (COSEWIC, 2008).

Potential habitat for Snapping Turtle occurs within the ponds located in adjacent lands to the north and east of the subject lands as depicted in Figure 2.

4.8 Areas of Natural and Scientific Interest

There are no ANSIs located within 120m of the property according to municipal or provincial mapping resources (Appendix A and Appendix B).

4.9 Fish and Fish Habitat

The study area is located within the upper reaches of the Pine River Subwatershed. In proximity to the study area, the Pine River Subwatershed is known to be fed by multiple spring-fed tributaries (NVCA, 2023). One watercourse feature (Horning's Mills Creek) was identified on adjacent lands through aerial imagery and during Azimuth's 2019 field work as part of the Site Evaluation Report. Based on aerial imagery and site observations, Horning's Mills Creek originates to the east of the property in a forested area. A groundwater seep was noted approximately 30m upstream of a manmade pond to the southeast of the property (Figure 2), which likely provides baseflow contributions to the creek. No surface flow, defined channel banks, or swale feature was noted upstream of this seep location. Therefore, the seep location is considered the upper limits of the Horning's Mills Creek and no segment of the creek is located on the subject lands or within 30m of the property limits. Downstream of the seep, the creek flows northeast towards Main Street where is crosses the road twice and eventually drains to the north of the study area as shown on Figure 2. Horning's Mills Creek flows through two online ponds as shown on Figure 2, and fish were observed in the creek during the site visit from within the road right of way. Watercress was also noted in multiple locations within the creek, which is an indicator of potential groundwater contributions. No permanent barriers to fish passage were observed within Horning's Mills Creek, and it is understood that the entire segment of the creek downstream of the seep is considered direct fish habitat and protected under the Federal *Fisheries Act*.

Horning's Mills Creek drains into the Pine River approximately 500m downstream to the north of the study area. Background fish community information from MNRF states that the Pine River has a coldwater thermal regime (MNRF, 2024a), and Brook Trout (coldwater species) have been captured both upstream and downstream of where the Horning's Mills Creek outlets into the Pine River (MNRF, 2024b). Based on this background fisheries information and the groundwater seep/watercress observations, Horning's Mills Creek would also be characterized as a coldwater system similar to the Pine River. No aquatic SAR have been documented in this area (DFO, 2024).

A drainage feature was also identified flowing in a northerly direction along the eastern property boundary as illustrated on Figure 2 (DF1). DF1 functions as a roadside ditch along the west side of Main Street with water depths of less than 3cm and a wetted width of approximately 0.2m. No refuge pools or fish habitat features were noted that would be anticipated to host fish. Surface film (*i.e.*, sheen and oily appearance) was observed at the origin of the drainage feature and watercress was documented along the ditch, indicating that the drainage feature likely originates from a groundwater seep. The drainage feature exits the property to the north and connects to Horning's Mills Creek to

the north. Thus, DF1 is anticipated to function as indirect fish habitat (*i.e.*, conveyance of flow, food sources, nutrients, etc.) and would be protected under the Federal *Fisheries Act*.

5.0 NATURAL HERITAGE FEATURES AND FUNCTIONS

The results of Azimuth's field studies combined with review of background information indicate the potential for the followingcandidate KNHFswithin the study area:

- Habitat for Endangered and Threatened Species
    - Little Brown Myotis, Northern Myotis and Tri-colored Bat
- Other Wetlands
- Significant Woodland
- Significant Wildlife Habitat
    - Turtle Wintering Areas
    - Habitat for Special Concern and Rare Wildlife Species
        - Snapping Turtle
- Fish Habitat
    - Direct fish habitat in Horning's Mills Creek
    - Indirect fish habitat in DF1

6.0 PROPOSED DEVELOPMENT

A proposed concept plan is provided in Appendix C and illustrated relative to the environmental features mapped on the property in Figure 3. The proposed development includes the establishment of 26 residential lots that comprise the majority of the property with the exception of the woodland in the southeast corner of the subject lands and the meadow marsh in the northeast corner. Road access is proposed from Main Street and emergency access via County Road 124. The development is planned to be serviced by private individual septic beds and wells. The proposed development includes one Stormwater Management (SWM) facility at the northeast corner of the property, which was designed by Person Engineering Ltd. (Pearson).

As seen on Figure 3, a 10m setback has been proposed from the northern woodland on adjacent lands and the deciduous woodland in the southeast corner of the subject lands. Construction will require temporary disturbance within the northern woodland setback for the creation of a drainage swale, but this area will be restored post-construction. A 5m setback has been proposed from the northeast wetland. The majority of the small coniferous woodland (WOCM1-3) in the northeast portion of the subject lands is proposed to be removed (0.38ha of the 0.4ha).

7.0 IMPACT ASSESSMENT

This impact assessment is prepared with regards to the construction footprint of proposed development and associated grading limits, as described above and illustrated on Figure 3.

7.1 Habitat for Threatened or Endangered Species

Impacts with regards to the ESA and Habitat of Threatened or Endangered species are covered under Section 9 and 10 of the ESA. Section 9 deals directly with killing, harming, or harassing living members of a species designated Extirpated, Endangered or Threatened while Section 10 covers destruction or damage to habitat of Threatened or Endangered species. The following Threatened or Endangered species have potential to occur on the property:

- Little Brown Myotis, Northern Myotis and Tri-colored Bat

7.1.1 Little Brown Myotis, Northern Myotis and Tri-colored Bat

The deciduous woodland (WODM5-1) in the southeast corner of the subject lands has potential to provide maternity roost habitat for SAR bats. This feature will be retained post-development, and a 10m setback will be applied. Therefore, there will be no direct impacts to the woodland or potential SAR bat habitat.

Artificial lighting has the potential to long-term impacts to bat foraging, emergence, roosting, and breeding (Stone *et al*., 2015). Therefore, it is recommended that any lighting associated with the parkland be directed away from potential roosting (*i.e.* Woodland, Figure 3) to what is required for safety. Provided the recommended mitigation measures are implemented, there is no expectation that there will be any indirect impacts associated with the proposed development potential SAR bats.

Thus, provided the recommended mitigation is implemented, there is no expectation that the proposed development will negatively impact Endangered bats or their potential habitat. Notwithstanding, activities involving tree removal on the subject lands should be avoided during the active period for bats which is between **April 1 through September 30** of any given year (Section 8) to avoid incidental impact to potential day roost habitat.

7.2 Other Wetlands

The proposed development will not encroach upon the meadow marsh (MAMO1-5) within the subject lands (Figure 3), therefore no direct impacts to wetland are anticipated as a result of the proposed development. Further, no temporary encroachment is anticipated within wetland throughout construction activities.

A minimum setback of 5m is proposed from the limit of disturbance associated with the SWM Pond as it relates to the meadow marsh in the northeast corner of the site (Figure 3). The meadow marsh is confined to the property limits and is approximately 0.034ha in size. No amphibian breeding activity was detected within the feature during Azimuth's early spring evening calling amphibian survey. No other associated ecological functions were documented within the MAMO1-5 feature throughout the field investigation. Notwithstanding, due to the unique nature of this wetland, we have recommended that this feature be retained and that a 5m setback be applied. It is our understanding that the existing topography in the northeast corner of the subject lands naturally slopes up around the wetland, and will continue to do so post-development. This natural slope, in addition to the proposed access road adjacent to the SWM pond will as a barrier around the wetland to protect the feature.

Indirect impacts to the hydrology of the wetland post-development are not anticipated provided mitigation measures are adhered to. As discussed in Section 4.4, the meadow marsh is a groundwater fed wetland. As per Pearson's Functional Servicing and Preliminary Stormwater Management Report (2024), post-development infiltration volume will be maintained when compared to pre-development conditions through the installation of soakaway pits in the front yard of all of the lots.To further protect the feature, with the exception of an emergency weir directed towards the wetland, the SWM pond outlet will bypass the wetland and drain into the existing roadside ditch on Main Street (Pearson, 2024). As such, the proposed works are not anticipated to impact the hydrology of the wetland.

Based on the above, it is Azimuth's opinion that a 5m setback to the meadow marsh (MAMO1-5) is appropriate in the context of the proposed development given the limited ecological value of the feature and its small size (< 0.5ha). Providing recommendations for mitigation described in Section 8 below are followed, as well as mitigation outlined in Pearson's report (2024), there is no expectation that the feature would be negatively impacted.

7.3 Significant Woodland

Woodland on the subject lands and in adjacent lands have been mapped as Significant Woodland by the Township OP (Appendix A). Furthermore, the subject lands and adjacent lands to the north, east and south are mapped within Community Settlement Area (Appendix A).

The deciduous woodland (WODM5-1) in the southeast corner of the subject lands will be retained post-development and a 10m setback will be applied. Development will be set

back 10m from this woodland. As outlined within Azimuth's Vegetation Protection and Landscape Plan (2024), the 10m buffer area will be planted with native trees and seeded with a native wildflower seed mix as compensation for tree removal elsewhere on the site. A 10m woodland setback from woodlands in adjacent lands to the north of the subject property has also been proposed from the limit of permanent disturbance. As per Pearson's Functional Servicing and Preliminary Stormwater Management Report (2024), a rear yard swale has been proposed along the northern property boundary that will convey flows from the rear portion of the lots to the proposed SWM pond in the northeast corner of the subject lands (Figure 3). It is our understanding that this feature will not be maintained and will be left to naturalize. Due to the location of the drainage swale, grading within the 10m buffer is required, however, these areas will be restored and left to naturalize post-development. Further, as per Azimuth's Vegetation Protection and Landscape Plan, tree protection fencing will be installed along the northern property boundary. Given that the subject lands are located in a Settlement Area, and that these woodlands are not a sensitive community, it is our opinion that a 10m setback is sufficient to protect the woodlands from the impacts of the proposed residential development. As such, provided mitigation measures are adhered to, there is no expectation that these features will be negatively impacted.

7.4 Candidate Significant Wildlife Habitat

According to the PPS, development and site alteration are not permitted within SWH located in Ecoregion 6E, unless it can be demonstrated there will be no negative impacts upon the feature and its ecological functions. For the purposes of this assessment, the following SWH are treated as significant:

- Seasonal Concentrations of Areas of Animals
    - Turtle Wintering Areas
- Habitat for Special Concern and Rare Wildlife Species
    - Snapping Turtle

7.4.1 Seasonal Concentration Areas of Animals

Turtle Wintering Areas

Two of the adjacent ponds are located greater than 30m from the edge of the proposed development (42m and 58m, Figure 3) and the pond to the east of the project is approximately 23.5m from the edge of the development (Figure 3). Given the distance between the development limits and potential overwintering turtle habitat (ponds), and that a road currently separates the closest pond to the property, the proposed works will not negatively impact the ponds should they function as SWH turtle wintering areas.

7.4.2 Habitat for Special Concern and Rare Wildlife Species

Snapping Turtle

As discussed above in Section 7.4.1, development will occur at least 23.5m from ponds in adjacent lands that may provide habitat for Snapping Turtle. Given this setback, the proposed development will not negatively impact Snapping Turtle should they occur within the surrounding landscape.

7.5 Fish and Fish Habitat

Horning's Mills Creek

No in-water or near-water work (*i.e.,* within 30m) is proposed in proximity to Horning's Mills Creek. Therefore, no direct impacts to fish or fish habitat are anticipated from the proposed development or construction activities. Potential indirect impacts can still result in harm to fish habitat during and post-construction, such as turbid site runoff from exposed soils and thermal warming from stormwater inputs to the creek. These impacts are considered mitigable using standard erosion and sediment control (ESC) measures and design considerations for SWM ponds, which are outlined in Section 8.

DF1

DF1 will be altered as a result of the proposed development. DF1 will be extended to the west along Street A to capture roadside drainage along the proposed development. In addition, the SWM pond outlet will drain into DF1 as shown on Figure 3. Both of these project components will require minor in-water work to connect the ditch and SWM pond outlet to DF1. Potential impacts to fish habitat during in-water construction works can be mitigated using standard Best Management Practices (BMPs) for working in-water. These mitigation measures are outlined in Section 8. No infilling or realigning of the existing DF1 feature is proposed, and the overall function of the feature (*i.e.,* conveyance of flow, food sources, nutrients, etc.) should be maintained post-development. Outside of the in-water work locations described above, a 10m setback at minimum will be provided from DF1 to the proposed grading limit. A 10m setback on an indirect fish habitat feature is suitable to preserve the form and function of the feature. Therefore, no significant or residual impacts to fish habitat are expected. There is the potential for thermal and water quality impacts to DF1 and Horning's Mills Creek downstream given the SWM pond outlet connection. However, recommendations have been provided in Section 8 below to mitigate these impacts, which should be considered during the detail design stage.

Stormwater Management

Pearson has prepared a Functional Servicing and Preliminary Stormwater Management Report in support of the proposed development, which includes a water balance assessment, sanitary design, and preliminary stormwater management plan. Low Impact

Development (LID) techniques are proposed to be implemented throughout the development to meet Township and NVCA requirements (Pearson, 2024). In addition, soakaway pits are proposed in the front yard of all lots to offset the water balance deficit due to the increase imperviousness post-development (Pearson, 2024). Overall, water quantity control will be provided through the use the dry SWM pond, quality control is provided by an oil/grit separator (OGS) treatment unit and SWM pond, and Phosphorus levels will be reduced through a treatment train approach consisting of the rooftop infiltration, dry SWM pond, and OGS treatment unit (Pearson, 2024). Based on the Pearson reporting, it is assumed that baseflow water levels and water quality in the receiving watercourses (DF1 and Horning's Mills Creek) should not be negatively impacted post-development if the appropriate mitigation measures are implemented during the subsequent detail design stage and construction.

8.0 RECOMMENDATIONS

8.1 Species at Risk

It should be noted that the absence of a protected species within the study area does not indicate that they will never occur within the area. Given the dynamic character of the natural environment, there is a constant variation in habitat use. Care should be taken in the interpretation of presence of species of concern including those listed under the ESA. Changes to policy, or the natural environment, could result in shifts, removal, or addition of new areas to the list of areas currently considered candidate KNHFs. This report is intended as a point in time assessment of the potential to impact SAR; not to provide long term "clearance" for SAR. While there is no expectation that the assessment should change significantly, it is the responsibility of the proponent to ensure that they are not in contravention of the ESA at the time that site works are undertaken. A review of the assessment provided in this report by a qualified person should be sufficient to provide appropriate advice at the time of the onset of future site works.

8.2 Migratory Breeding Birds and Bats

Activities involving the removal of vegetation should be restricted from occurring during the breeding season. Migratory birds, nests, and eggs are protected by the *Migratory Birds Convention Act*, 1994 (MBCA) and the *Fish and Wildlife Conservation Act*, 1997 (FWCA). Environment Canada outlines dates when activities in any region have potential to impact nests at the Environment Canada Website (http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=4F39A78F-1#_03). In Zones C1 and C2 vegetation clearing should be avoided between **April 1 through August 31** of any given year. If work requires that vegetation clearing is required between these dates screening by an ecologist with knowledge of bird species present in the area could be undertaken to ensure that the vegetation has been confirmed to be free of nests prior to clearing.

Activities involving tree removal, particularly within woodlands and hedgerows on the property, should be avoided between **April 1 through September 30** of any given year, during the active period for bat species that may utilize trees for maternity and day roosting purposes. It is anticipated that adherence to this timing restriction will avoid impacts to individual SAR bats, therefore remaining in compliance with Section 9 of the ESA affording individual protection to Endangered species.

8.3 Sediment and Erosion Controls

Diligent application of sediment and ESCs is recommended for all future construction activities to minimize the extent of accidental or unavoidable impacts to adjacent vegetation communities, wildlife habitat and fish habitat. Prior to the commencement of site works, silt fencing should be applied along the length of directly adjacent natural or naturalized features, and routine inspection/maintenance of the silt fencing should occur throughout construction. It is recommended that ESCs be maintained until vegetation is re-established post-construction.

Materials storage on the property (*i.e.* soil stockpiles) should be located over 30m from natural features where feasible. Material storage areas should be contained with ESCs to avoid potential indirect impacts to natural features onsite.

8.4 Operations

All maintenance activities (including refueling) required during future construction should be conducted at least 30m away from natural features to prevent accidental spillage of deleterious substances that may harm natural environments.

Snow fencing or equivalent should be installed at the limit of the work area to prevent the accidental intrusion of machinery operations into adjacent undisturbed natural areas.

The contractor is recommended to have a Contaminant and Spill Management Plan in place prior to initiation of works. This should include keeping an emergency spill kit on site at all times. In the event of a spill, the contractor must report itimmediately to the provincial Spills Action Centre (SAC).

8.5 Fish and Fish Habitat

As specified above, construction activities occurring on the property should have regard for the adjacent natural environmental features, and utilize BMPs during construction as follows:

- All ESC measures are to be installed prior to any ground disturbance, and shall be maintained until all disturbed soils have been restored and stabilized following

construction. Along watercourses and wetland features, it is recommended that heavy duty sediment fence be installed.

- All in-water construction within DF1 is to occur in the dry and in isolation of flow. Cofferdam installation and bypass flow management, if required, should follow DFO's *Temporary cofferdams and diversion channels* interim COP (DFO, 2020b).
- Downstream flow quantity and quality is to be maintained at all times during and after construction.
- All dewatering required within an isolated work area is to discharge water into a filter bag (*i.e.*, envirobag or equivalent). Filter bags should be placed a minimum of 30m from fish habitat on stable, vegetated ground to allow fines to settle out of the water. Monitoring of dewatering operations should occur throughout the construction process to ensure water is free of fines before entering the watercourses.
- In-water work in both direct and indirect features shall only be permitted from July 15 – September 30 of any given year unless granted otherwise by MNRF and/or DFO.
- If metre bags or "sandbags" are used for work area isolation (*i.e.*,as a temporary cofferdam), the contractor should ensure the bags do not contain sand, and alternatively utilize stone/peagravel. All materials used for site isolation must be removed at the conclusion of in-water work.
- All site disturbance should be minimized to the extent possible.
- Disposal of material should occur in a timely fashion to minimize risk of entry into the watercourse.
- Outside of approved in-water works, at no time should machinery enter a watercourse, alter or remove any bottom substrate in the watercourse, remove watercourse materials such as boulders and woody debris, or utilize the watercourse for the taking of, or discharge of water, to ensure that fish and fish habitat remains unaffected by the development.
- All machinery maintenance/refueling is recommended to maintain a minimum distance of 30m from retained woodlands and wetland, and fish habitat, to prevent accidental spillage of deleterious substances.

<u>Stormwater Management</u>

Preliminary design plans for the SWM facility and outlet have been prepared by Pearson (2024) and reviewed by Azimuth, but should be assessed once the design has been advanced during detail design. Stormwater runoff can be warmed significantly as it drains off warm pavement and experience further warming as it sits in a pond. Based on the current SWM concept plan, detail design considerations during detail design can include, but not be limited to, the following:

- Maintain the hickenbottom outlet structure to discharge cooler water from lower in the water column;
- Riparian plantings around the facility and basin should be considered to shade water and reduce surface water temperatures;
- Consider installinga cooling trench and/or lengthen the outlet channel if possible to increase the shading potential, reduce flows during storm events, and allow sediment to settle; and,
- Install an energy dissipation device at the pond outlet to reduce flows rates and potential scouring at the receiving channel outlet location.

Currently, Pearson has incorporated numerous measures to offset impacts to water quantity and water quality from the proposed development (rooftop infiltration, dry SWM pond, and OGS treatment unit). During the detail design stage, it is recommended that a 'Fisheries Screening' be completed by a qualified ecologist to determine potential impacts of the SWM design and outlet construction on nearby fish habitat, and to provide any further mitigation measures to avoid a HADD to fish habitat. During the detail design stage, the need for DFO review can also be determined once the impacts of the SWM pond discharge and outlet construction are known. If necessary, a DFO submission through a Request for Review can be completed at the detail design stage. However, it is anticipated that if the appropriate mitigation measures can be implemented to mitigate thermal and water quality impacts, DFO review should not be required.

9.0 CONCLUSIONS

Based upon our analysis, it is concluded that the environmental conditions within the study area are not limiting to the implementation of proposed development (Figure 3), through incorporation of the environmental protection measures and criteria as described throughout this report.

At this time, our findings are summarized as follows:

- The proposed site alteration is consistent with the applicable natural heritage policies of the Provincial Policy Statement, ESA, Growth Plan, Township of Melancthon Official Plan,Dufferin County Official Plan, and Nottawasaga Valley Conservation Authority O. Reg. 41/26.

- Our impact assessment has given full consideration to the habitat requirements of all SAR assumed and documented to occur in the area and results indicate the

proposed site development will not result in negative direct or indirect impacts to habitat of SAR providing conformance is demonstrated to mitigation measures described in Section 8.

- The proposed works are not expected to negatively impact the ecological functions of the Other Wetlands,Candidate Significant Woodland, or Candidate Significant Wildlife Habitat outlined inSection 5 if the appropriate mitigation measures outlined in Section 8 are followed.

- No direct or indirect fish habitat features are expected to be negatively impacted as a result of the proposed works if the appropriate mitigation measures described in Section 8 are followed, along with the mitigation measures outlined in the Functional Servicing and Preliminary Stormwater Management Report (Pearson, 2024).

- A ‘Fisheries Screening’ should be completed during detail design to determine potential impacts to fish habitat within DF1 and Horning’s Mills Creek, and DFO reporting requirements (if any) with respect to the SWM facility.

10.0REFERENCES

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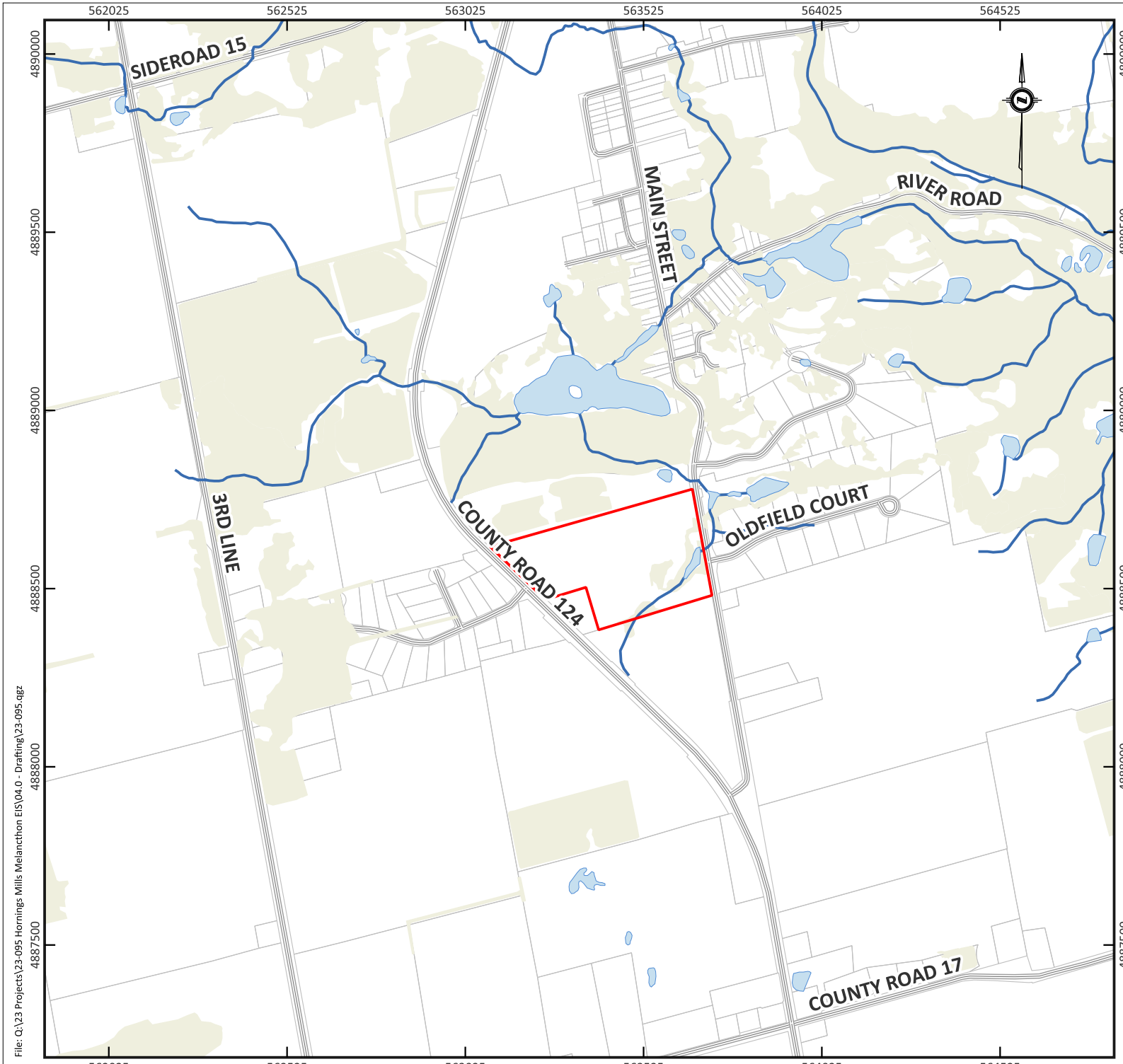
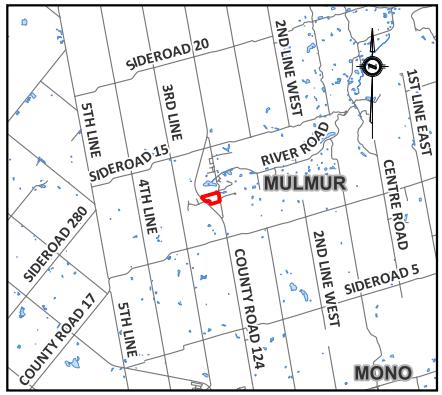


LEGEND

- Approx. Property Boundary
- Road
- Waterbody
- Permanent Watercourse
- Wooded Area

REGIONAL MAP

SCALE 1:250000



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KILOMETERS

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

ENVIRONMENTAL ASSESSMENTS & APPROVALS

SITE LOCATION

537086 MAIN STREET
MELANCHTON, ON

DATE ISSUED:	APRIL 2024
CREATED BY:	A.L.
PROJECT NO.:	23-095
BASE MAP:	MNRF

Figure No. 1

File: Q:\23 Projects\23-095 Hornings Mills Melancthon EIS\04.0 - Drafting\23-095.qgz

LEGEND:

- APPROX. PROPERTY BOUNDARY
- APPROX. WOODLAND DRIPLINE

FISH HABITAT:

- PERMANENT WATERCOURSE/ DIRECT FISH HABITAT
- INTERMITTENT DRAINAGE FEATURE (DF1) / INDIRECT FISH HABITAT
- COLDWATER THERMAL REGIME
- SEEPAGE FLOW
- POND

ELC UPLAND COMMUNITIES:

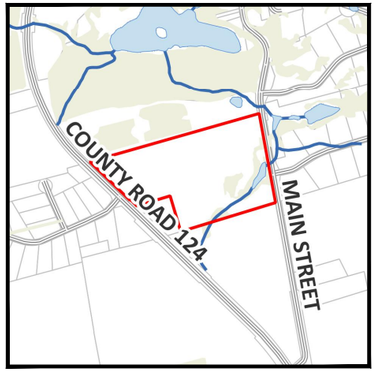
FODM11	NATURALIZED DECIDUOUS HEDGEROW
OAG	OPEN AGRICULTURE
OAGM1	ANNUAL ROW CROP – WHEAT
WOCM1–3	DRY–FRESH WHITE PINE CONIFEROUS WOODLAND
WODM5–1	FRESH–MOIST POPLAR DECIDUOUS WOODLAND

ELC WETLAND COMMUNITIES:

MAM01–5	FOWL MANNA GRASS GRAMINOID ORGANIC MEADOW MARSH

- DAWN BREEDING BIRD SURVEY STATION
- AMPHIBIAN SURVEY STATION

LOCATION PLAN



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HORIZONTAL SCALE 1:2500

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
ENVIRONMENTAL ASSESSMENTS & APPROVALS

ENVIRONMENTAL FEATURES

537086 MAIN STREET
MELANCHTON, ON

DATE ISSUED:	APRIL 2024	Figure No. 2
CREATED BY:	A.L.	
PROJECT NO.:	23-095	
REFERENCE:	DUFFERIN COUNTY	

Plotted by: ALU on April 8, 2024 at 2:09pm
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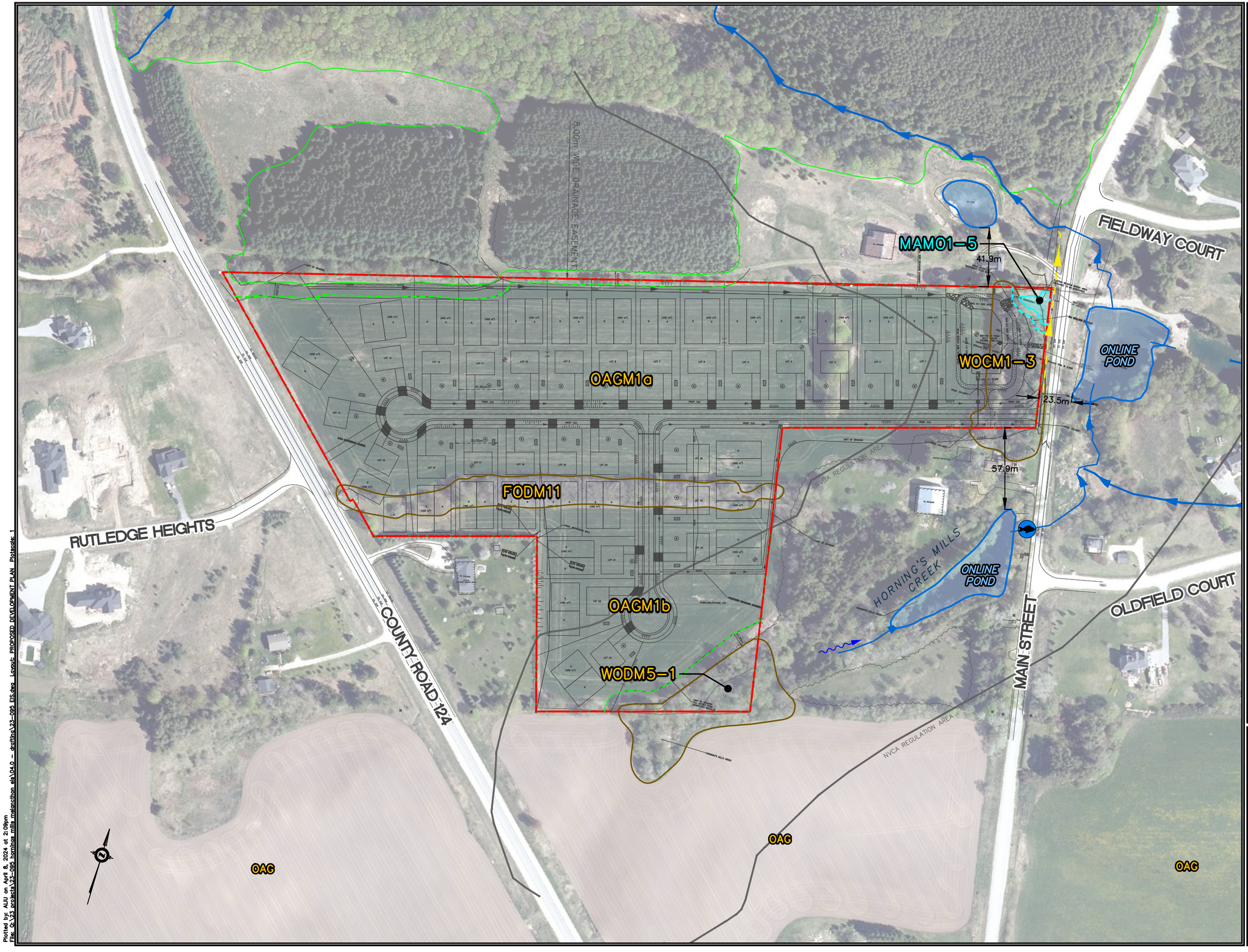


LEGEND:

- APPROX. PROPERTY BOUNDARY
- APPROX. WOODLAND DRIPLINE
- 10m BUFFER TO WOODLAND DRIPLINE

FISH HABITAT:

- PERMANENT WATERCOURSE/ DIRECT FISH HABITAT
- INTERMITTENT DRAINAGE FEATURE (DF1) / INDIRECT FISH HABITAT
- COLDWATER THERMAL REGIME
- SEEPAGE FLOW
- POND

ELC UPLAND COMMUNITIES:

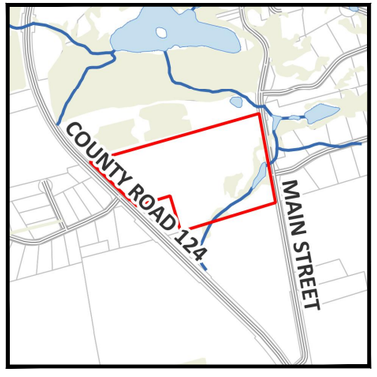
FODM11	NATURALIZED DECIDUOUS HEDGEROW
OAG	OPEN AGRICULTURE
OAGM1	ANNUAL ROW CROP – WHEAT
WOCM1-3	DRY-FRESH WHITE PINE CONIFEROUS WOODLAND
WODM5-1	FRESH-MOIST POPLAR DECIDUOUS WOODLAND

ELC WETLAND COMMUNITIES:

MAM01-5	FOWL MANNA GRASS GRAMINOID ORGANIC MEADOW MARSH

- 5m GRADING SETBACK FROM WETLAND

LOCATION PLAN



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HORIZONTAL SCALE 1:2500

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
ENVIRONMENTAL ASSESSMENTS & APPROVALS

PROPOSED DEVELOPMENT PLAN

537086 MAIN STREET
MELANCHTON, ON

DATE ISSUED:	APRIL 2024	Figure No. 3
CREATED BY:	A.L.	
PROJECT NO.:	23-095	
REFERENCE:	DUFFERIN COUNTY	

Plotted by: ALU on April 8, 2024 at 2:09pm
File: Q:\23 projects\23-095 hornings mills melanchton etc\04.0 - drafting\23-095_EIS.dwg Layout: PROPOSED DEVELOPMENT PLAN Plotscale: 1

Common Name	Species Name	ESA	SARA	Key Habitats Used By Species[1]	Initial Assessment
Bank Swallow	*Riparia riparia*	THR	THR	Nests in burrows excavated in natural and human-made settings with vertical sand and silt faces. Commonly found in sand or gravel pits, road cuts, lakeshore bluffs, and along riverbanks (COSEWIC, 2013a). ESA Protection: Species and general habitat protection	No excavated vertical features, sand or gravel pits providing nesting habitat. Species not observed during the dawn breeding bird surveys program, or incidentally through the course of the field program.
Barn Swallow	*Hirundo rustica*	SC	THR	Ledges and walls of man-made structures such as buildings, barns, boathouses, garages, culverts and bridges. Also nest in caves, holes, crevices and cliff ledges (COSEWIC, 2011a). ESA Protection: Species and general habitat protection	Barn Swallow was observed as an incidental observation during the field proegram. Notwithstanding, there is no suitable nesting habitat within the subject lands (no anthropogenic structures on the property). Not considered further.
Black Ash	*Fraxinus nigra*	END	No status	Facultative wetland tree species frequently found in floodplain forests, swamps, seepage areas, shoreline margins and fens. Occupied sites are generally seasonally-flooded (COSEWIC, 2018a). ESA Protection: Species and general habitat protection (ESA protections take effect January 27, 2024)	Species was not observed during the vascular plant inventory.
Blanding's Turtle	*Enydoidea blandingii*	THR	END	Blanding's Turtles are a primarily aquatic species that prefer wetland habitats, lakes, ponds, slow-moving streams, etc., however they may utilize upland areas to search for suitable basking and nesting sites. In general, preferred wetland sites are eutrophic and characterized by clear, shallow water, with organic substrates and high density of aquatic vegetation (COSEWIC, 2016a). ESA Protection: Species and general habitat protection	No records of Blanding's Turtle in area based on Ontario Reptile and Amphibian Atlas (ORRA) (nearest record in Luther Marsh Wildlife Management Area approximately 25km to the southwest). No wetlands with an abundance of aquatic vegetation and organic substrate on the subject lands or adjacent lands. No suitable habitat.
Bobolink	*Dolichonyx oryzivorus*	THR	THR	Nests primarily in forage crops (*e.g.* hayfields and pastures) dominated by a variety of species such as clover, Timothy, Kentucky Bluegrass, tall grass, and broadleaved plants. Also occurs in wet prairie, graminoid peatlands, and abandoned fields dominated by tall grasses. Does not generally occupy fields of row crops (*e.g* . corn, soybeans, wheat) or short-grass prairie. Sensitive to habitat size and has lower reproductive success in small habitat fragments (COSEWIC, 2010a). ESA Protection: Species and general habitat protection	A pair of Bobolink and two fledglings were flushed while completing the third breeding bird survey (June 28, 2023) within the northwest portion of the agricultural fields in proximity to station 4. Further discussion in the report.
Butternut	*Juglans cinerea*	END	END	Commonly found in riparian habitats, but is also found in rich, moist, well-drained loams, and well-drained gravels. Butternut is intolerant of shade (COSEWIC, 2017a). ESA Protection: Species and general habitat protection	Species was not observed during the vascular plant inventory.
Chimney Swift	*Chaetura pelagica*	THR	THR	Nests primarily in chimneys though some populations (*i.e.* in rural northern areas) may nest in cavity trees (COSEWIC, 2018b). Recent changes in chimney design may be a significant factor in recent declines in numbers (Cadman *et al* ., 2007). ESA Protection: Species and general habitat protection	While anthropogenic structures are present in adjacent lands, there is no suitable nesting habitat within the subject lands. Species not observed during the dawn breeding bird surveys program, or incidentally through the course of the field program.
Common Nighthawk	*Chordeiles minor*	SC	THR	Open habitats including sand dunes, beaches, recently logged/burned over areas, forest clearings, short grass prairies, pastures, open forests, bogs, marshes, lakeshores, gravel roads, mine tailings, quarries, and other open relatively clear areas (COSEWIC, 2018c). ESA Protection: N/A	No records of Common Nighthawk within the community of Horning's Mills on eBird (closest record over 5km to the northeast). No suitable habitat on the property as the subject lands are largely agricultural.
Eastern Meadowlark	*Sturnella magna*	THR	THR	Most common in grassland, pastures, savannahs, as well as anthropogenic grassland habitats, including hayfields, weedy meadows, young orchards, golf courses, restored surface mines, *etc* . Occasionally nest in row crop fields such as corn and soybean, but there are considered low-quality habitat. Large tracts of grassland are preferred over smaller fragments and the minimum area required is estimated at 5ha (COSEWIC, 2011b). ESA Protection: Species and general habitat protection	During the first breeding bird survey on May 26, 2023, one male was heard calling near the eastern property boundary at station 1, and one singing male was detected in the northwest agricultural field at station 4. Eastern Meadowlark was not observed on-site during the second and third breeding bird surveys. Further discussion in the report.
Eastern Small-footed Myotis	*Myotis Lleibii*	END	No status	Generally occurs in mountainous or rocky regions as well as in buildings, on the face of rock bluffs and beneath slabs of rock and stones. Hibernation is typically confined to caves and old mines (Best and Jennings, 1997). ESA Protection: Species and general habitat protection	No rock bluffs, rock slabs, large stones, or similar habitats located within the study area limits. No caves, abandoned mines, or similar features within the study area limits. No suitable habitat for the species.
Eastern Whip-poor-will	*Antrostomus vociferus*	THR	THR	Semi-open forests or patchy forests with clearings, such as barrens or forests that are regenerating following major disturbances, are preferred nesting habitats (COSEWIC, 2009a). ESA Protection: Species and general habitat protection	No records of Eastern Whip-poor-will within the community of Horning's Mills on eBird (closest record over 5km to the east). No suitable habitat on the property as the subject lands are largely agricultural.
Eastern Wood-pewee	*Contopus virens*	SC	SC	Mostly in mature and intermediate-age deciduous and mixed forests having an open understory. It is often associated with forests dominated by Sugar Maple and oak. Usually associated with forest clearings and edges within the vicinity of its nest (COSEWIC, 2012a). ESA Protection: N/A	Species not observed during the dawn breeding bird surveys program, or incidentally through the course of the field program.
Grasshopper Sparrow *pratensis* subspecies	*Ammodramus savannarum pratensis*	SC	SC	Typically breeds in large human-created grasslands (≥5 ha), such as pastures and hayfields, and natural prairies, such as alvars, characterized by well-drained, often poor soil dominated by low, sparse perennial herbaceous vegetation (COSEWIC, 2013b). ESA Protection: N/A	Species not observed during the dawn breeding bird surveys program, or incidentally through the course of the field program.
Hart's-tongue Fern	*Asplenium scolopendrium* var. *americanum*	SC	SC	Grows on calcareous rocks in deep shade on slopes in deciduous forest. Most occurrences are in maple-beech forest (MECP, 2023). ESA Protection: N/A	Potentially suitable habitat for this species is not present. Species was not observed during the vascular plant inventory.
Little Brown Myotis	*Myotis lucifugus*	END	END	Forests and regularly aging human structures as maternity roost sites. Regularly associated with attics of older buildings and barns for summer maternity roost colonies. Overwintering sites are characteristically mines or caves (MNRF, 2014) (COSEWIC, 2013c). ESA Protection: Species and general habitat protection	While young, the deciduous woodland (WODM5-1) that extends on-site has potential to provide habitat for this species. The coniferous woodland (WOCM1-3) in the northeast corner provides low quality habitat due dense branching and lack of decay. Adjacent woodlands to the north of the subject lands are cultural plantation and are not considered suitable habitat as per provincial guidelines (MECP, 2022).
Louisiana Waterthrush	*Parkesia motacilla*	THR	THR	Occupies specialized habitat, showing a strong preferences for nesting and wintering along relatively pristine headwater streams and wetlands situated in large tracts of mature forest. Prefers running water, but also inhabits heavily wooded swamps and vernal or semi-permanent pools (COSEWIC, 2015). ESA Protection: Species and general habitat protection	Species not observed during the dawn breeding bird surveys program, or incidentally through the course of the field program.
Massasauga (Great Lakes - St. Lawrence population)	*Sistrurus catenatus*	THR	THR	In Georgian Bay, Massasaugas use bedrock barrens, conifer swamps, beaver meadows, fens, bogs, and shoreline habitats. On the upper Bruce Peninsula, forested habitats are used during hibernation and open, wetland, and edge habitat with canopy closure <50% in mid-late summer (COSEWIC, 2012b). ESA Protection: Species and general habitat protection	The ORRA has one historic record of Massasauga (1962) within the 10km^2 square that includes the subject lands (17NJ68). Given that the subject lands are primarily agricultural lands and therefore do not provide suitable habitat, and that the most recent recorded observation is from 60 years ago, Massasauga is not considered in this assessment.

Common Name	Species Name	ESA	SARA	Key Habitats Used By Species[1]	Initial Assessment
Monarch	*Danaus plexippus*	SC	SC	Breeding habitat is confined to sites where milkweeds, the sole food of caterpillars, grow. Milkweeds grow in a variety of environments, including meadows in farmlands, along roadsides and in ditches, open wetlands, dry sandy areas, short and tall grass prairie, river banks, irrigation ditches, arid valleys, and south-facing hills (COSEWIC, 2016b). ESA Protection: N/A	While some Common Milkweed was identified on-site, no Monarch caterpillars or adults were observed during the site visits in late May-June 2023. No further assessment.
Northern Brook Lamprey	*Ichthyomyzon fossor*	SC	SC	Inhabits clear, coolwater streams. Adults are found in fast flowing riffles comprised of rock or gravel (MECP, 2023). ESA Protection: N/A	No records of Northern Brook Lamprey on Fisheries and Oceans Canada (DFO) SAR mapping within proximity of the subject lands.
Northern Myotis	*Myotis septentrionalis*	END	END	Maternity roost sites are generally located within deciduous and mixed forests and focused in snags including loose bark and cavities of trees. Overwintering sites are characteristically mines or caves (COSEWIC, 2013c). ESA Protection: Species and general habitat protection	While young, the deciduous woodland (WODM5-1) that extends on-site has potential to provide habitat for this species. The coniferous woodland (WOCM1-3) in the northeast corner provides low quality habitat due dense branching and lack of decay. Adjacent woodlands to the north of the subject lands are cultural plantation and are not considered suitable habitat as per provincial guidelines (MECP, 2022).
Peregrine Falcon	*Falco peregrinus*	SC	SC (*anatum/tundrius*)	Most nest on cliff ledges or crevices, but some will use tall buildings or bridges near good foraging areas. Nests are typically close to bodies of water (COSEWIC, 2017b). ESA Protection: N/A	Species not observed during the dawn breeding bird surveys program, or incidentally through the course of the field program.
Red-headed Woodpecker	*Melanerpes erythrocephalus*	END	END	Occurs in open deciduous forests, particularly those dominated by oak and beech, groves of dead trees, floodplain forests, orchards, cemeteries, savannas and savanna-like grasslands. Although the species occupies a range of habitat types, key habitat is characteristically composed of woodlands where tall trees are of large circumference (i.e. mature cover) and are at a low density. A high density of snag trees is also an indicator of key habitat types (COSEWIC, 2018c). ESA Protection: Species and general habitat protection	Species not observed during the dawn breeding bird surveys program, or incidentally through the course of the field program.
Redside Dace	*Clinostomus elongatus*	END	END	Found in pools and slow-flowing sections of relatively small, clear headwater streams with both pool and riffle habitats and a moderate to high gradient. These streams typically flow through meadows, pasture or shrub overstory, and have abundant overhanging riparian vegetation (COSEWIC, 2017c). ESA Protection: Species and regulated habitat protection.	No records of Redside Dace on DFO SAR mapping within proximity of the subject lands.
Short-eared Owl	*Asio flammeus*	THR	SC	A wide variety of unforested habitats are used, including marshes, grasslands, fallow pastures, and occasionally fields planted with row-crops (COSEWIC 2021). ESA Protection: N/A	Species not observed during the dawn breeding bird surveys program, or incidentally through the course of the field program.
Snapping Turtle	*Chelydra serpentina*	SC	SC	Habitat is characterized by slow-moving water with a soft mud bottom and dense aquatic vegetation. Often located in ponds, sloughs, shallow bays or river edges and slow streams, or areas combining several of these wetland habitats (COSEWIC, 2008). ESA Protection: N/A	Ponds in adjacent lands have potential to provide suitable habitat for Snapping Turtle.
Tri-colored Bat	*Perimyotis subflavus*	END	END	Maternity roost sites include forests and modified landscapes (barns or human-made structures). Overwintering sites include mines and caves (COSEWIC, 2013c). ESA Protection: Species and general habitat protection	While young, the deciduous woodland (WODM5-1) that extends on-site has potential to provide habitat for this species. The coniferous woodland (WOCM1-3) in the northeast corner provides low quality habitat due dense branching and lack of decay. Adjacent woodlands to the north of the subject lands are cultural plantation and are not considered suitable habitat as per provincial guidelines (MECP, 2022).
Wood Thrush	*Hylocichla mustelina*	SC	THR	Found in moist, deciduous hardwood or mixed stands, often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches (COSEWIC, 2012c). ESA Protection: N/A	Species not observed during the dawn breeding bird surveys program, or incidentally through the course of the field program.

[1] Habitat as outlined within the MNRF's Species at Risk in Ontario website files (https://www.ontario.ca/environment-and-energy/species-risk-ontario-list), or Species Specific COSEWIC Reports referenced in this document.

Species at Risk in Ontario List (June 13, 2017)

Best, T., and J. Jennings. 1997. Mammalian Species, *Myotis leibii* . The American Society of Mammalogists. No. 547, pp. 1-6, 5 figs.

Cadman, M., D. Sutherland, G. Beck, D. Lepage and A. Couturier. 2007. Atlas of the Breeding Birds of Ontario 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field

COSEWIC. 2008. COSEWIC assessment and status report on the Snapping Turtle *Chelydra serpentina* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 47 pp.

COSEWIC. 2009a. COSEWIC assessment and status report on the Whip-poor-will *Caprimulgus vociferus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 28 pp.

COSEWIC. 2010a. COSEWIC assessment and update status report on the Bobolink *Dolichonyx oryzivorus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 42 pp.

COSEWIC. 2011a. COSEWIC assessment and status report on the Barn Swallow *Hirundo rustica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 37 pp.

COSEWIC. 2011b. COSEWIC assessment and update status report on the Eastern Meadowlark *Sturnella magna* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 40 pp.

COSEWIC. 2012a. COSEWIC assessment and status report on the Eastern Wood-pewee *Contopus virens* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 39 pp.

COSEWIC. 2012b. COSEWIC assessment and update status report on the Massasauga *Sistrurus catenatus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 84 pp.

COSEWIC. 2012c. COSEWIC assessment and status report on the Wood Thrush *Hylocichla mustelina* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 46 pp.

COSEWIC. 2013a. COSEWIC assessment and update status report on the Bank Swallow *Riparia riparia* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 48 pp.

COSEWIC. 2013b. COSEWIC assessment and status report on the Grasshopper Sparrow pratensis subspecies *Ammodramus savannarum pratensis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 36 pp.

COSEWIC. 2013c. COSEWIC assessment and update status report on the Little Brown Myotis *Myotis lucifugus* , Northern Myotis *Myotis septentrionalis* and Tri-colored Bat *Perimyotis subfalvus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp.

COSEWIC. 2015. COSEWIC assessment and status report on the Louisiana Waterthrush *Parkesia motacilla* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 58 pp.

COSEWIC. 2016a. COSEWIC assessment and status report on the Blanding's Turtle *Emydoidea blandingii* , Nova Scotia population and Great Lakes/St. Lawrence population, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xix + 110 pp.

COSEWIC. 2016b. COSEWIC assessment and status report on the Monarch *Danaus plexippus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 59 pp.

COSEWIC. 2017a. COSEWIC assessment and status report on the Butternut *Juglans cinerea* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 74 pp.

COSEWIC. 2017b. COSEWIC assessment and status report on the Peregrine Falcon *Falco peregrinus* (*pealei* subspecies - *Falco peregrinus* and *pealei anatum/tundrius* - *Falco peregrinus anatum/tundrius*) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xviii + 108 pp.

COSEWIC. 2017c. COSEWIC assessment and update status report on the Redside Dace *Clinostomus elongates* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii + 63 pp.

COSEWIC. 2018a. COSEWIC assessment and status report on the Black Ash *Fraxinus nigra* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii + 95 pp.

COSEWIC. 2018b. COSEWIC assessment and status report on the Chimney Swift *Chaetura pelagic* a in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 49 pp.

COSEWIC. 2018c. COSEWIC assessment and status report on the Common Nighthawk *Chordeiles minor* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 50 pp.

COSEWIC. 2018d. COSEWIC assessment and status report on the Red-headed Woodpecker *Melanerpes erythrocephalu* s in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii + 60 pp.

COSEWIC. 2021. COSEWIC assessment and status report on the Short-eared Owl *Asio flammeus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 69 pp.

Ministry of the Environment, Conservation and Parks (MECP). 2023. Species at Risk in Ontario (https://www.ontario.ca/page/species-risk-ontario)

Ministry of Natural Resources and Forestry (MNRF). 2014. Eastern Small-footed Bat. Queen's Printer for Ontario. https://www.ontario.ca/environment-and-energy/eastern-small-footed-bat

			Vegetation Communities[2]				Conservation Rankings[3]		
FAMILY[1]	SCIENTIFIC NAME[1]	COMMON NAME[1]	WODM5-1	WOCM1-3	FODM11	MAMO1-5	GRANK	SRANK	TRACK
Aceraceae	*Acer negundo*	Manitoba Maple		X			G5	S5	N
Aceraceae	*Acer saccharinum*	Silver Maple			X		G5	S5	N
Aceraceae	*Acer saccharum*	Sugar Maple	X	X	X		G5	S5	N
Alismataceae	*Alisma triviale*	Northern Water-plantain				X	G5	S5	N
Apiaceae	*Aegopodium podagraria*	Goutweed	X	X			GNR	SE5	N
Apiaceae	*Daucus carota*	Wild Carrot	X	X	X		GNR	SE5	N
Apiaceae	*Sium suave*	Common Water-parsnip	X		X		G5	S5	N
Apocynaceae	*Asclepias syriaca*	Common Milkweed	X	X	X		G5	S5	N
Apocynaceae	*Vinca minor*	Lesser Periwinkle		X			GNR	SE5	N
Asteraceae	*Arctium minus*	Common Burdock	X	X	X		GNR	SE5	N
Asteraceae	*Artemisia vulgaris*	Common Wormwood		X			GU	SE5	N
Asteraceae	*Cirsium arvense*	Canada Thistle	X	X	X		G5	SE5	N
Asteraceae	*Cirsium vulgare*	Bull Thistle			X	X	GNR	SE5	N
Asteraceae	*Erigeron annuus*	Annual Fleabane	X		X	X	G5	S5	N
Asteraceae	*Erigeron philadelphicus*	Philadelphia Fleabane			X		G5	S5	P
Asteraceae	*Eupatorium perfoliatum*	Common Boneset				X	G5	S5	N
Asteraceae	*Eutrochium maculatum*	Spotted Joe Pye Weed				X	G5	S5	N
Asteraceae	*Leucanthemum vulgare*	Oxeye Daisy	X	X	X		GNR	SE5	N
Asteraceae	*Matricaria chamomilla*	Wild Chamomile				X	GNR	SE3	N
Asteraceae	*Pilosella caespitosa*	Meadow Hawkweed	X	X	X	X	GNR	SE5	N
Asteraceae	*Solidago canadensis*	Canada Goldenrod	X	X	X		G5	S5	N
Asteraceae	*Solidago gigantea*	Giant Goldenrod	X	X	X		G5	S5	P
Asteraceae	*Symphyotrichum lanceolatum*	Panicled Aster	X		X	X	G5	S5	P
Asteraceae	*Symphyotrichum puniceum*	Purple-stemmed Aster				X	G5	S5	N
Asteraceae	*Taraxacum officinale*	Common Dandelion	X	X	X	X	G5	SE5	N
Asteraceae	*Tragopogon dubius*	Yellow Goatsbeard			X		GNR	SE5	N
Asteraceae	*Tussilago farfara*	Coltsfoot		X		X	GNR	SE5	N
Balsaminaceae	*Impatiens capensis*	Spotted Jewelweed		X		X	G5	S5	N
Boraginaceae	*Myosotis laxa*	Small Forget-me-not				X	G5	S5	N
Boraginaceae	*Myosotis scorpioides*	True Forget-me-not			X		G5	SE5	N
Brassicaceae	*Alliaria petiolata*	Garlic Mustard		X	X		GNR	SE5	N
Brassicaceae	*Brassica rapa*	Field Mustard	X		X		GNR	SE5	N
Brassicaceae	*Hesperis matronalis*	Dame's Rocket	X				G4G5	SE5	N
Brassicaceae	*Nasturtium officinale*	Watercress				X	GNR	SE	N
Brassicaceae	*Thlaspi arvense*	Field Pennycress			X		GNR	SE5	N
Caprifoliaceae	*Lonicera tatarica*	Tatarian Honeysuckle	X	X	X		GNR	SE5	N
Caryophyllaceae	*Cerastium arvense ssp. arvense*	Field Chickweed	X				G5T5	SE2	N

			Vegetation Communities[2]				Conservation Rankings[3]		
FAMILY[1]	SCIENTIFIC NAME[1]	COMMON NAME[1]	WODM5-1	WOCM1-3	FODM11	MAMO1-5	GRANK	SRANK	TRACK
Caryophyllaceae	*Silene vulgaris*	Bladder Campion	X	X	X		GNR	SE5	N
Clusiaceae	*Hypericum perforatum*	Common St. John's-wort		X		X	GNR	SE5	N
Convolvulaceae	*Convolvulus arvensis*	Field Bindweed	X				GNR	SE5	N
Cornaceae	*Cornus alternifolia*	Alternate-leaved Dogwood	X		X		G5	S5	N
Cornaceae	*Cornus sericea*	Red-osier Dogwood	X	X	X	X	G5	S5	N
Crassulaceae	*Penthorum sedoides*	Ditch Stonecrop	X				G5	S5	N
Cucurbitaceae	*Echinocystis lobata*	Wild Cucumber	X				G5	S5	N
Cupressaceae	*Thuja occidentalis*	Eastern White Cedar	X	X		X	G5	S5	N
Cyperaceae	*Carex bebbii*	Bebb's Sedge				X	G5	S5	N
Cyperaceae	*Carex crinita*	Fringed Sedge				X	G5	S5	N
Cyperaceae	*Carex flava*	Yellow Sedge				X	G5	S5	N
Cyperaceae	*Carex stipata*	Awl-fruited Sedge				X	G5	S5	N
Cyperaceae	*Carex utriculata*	Northern Beaked Sedge				X	G5	S5	N
Cyperaceae	*Carex vulpinoidea*	Fox Sedge				X	G5	S5	N
Cyperaceae	*Scirpus atrovirens*	Dark-green Bulrush				X	G5	S5	N
Equisetaceae	*Equisetum arvense*	Field Horsetail		X		X	G5	S5	N
Equisetaceae	*Equisetum fluviatile*	Water Horsetail				X	G5	S5	N
Euphorbiaceae	*Euphorbia cyparissias*	Cypress Spurge	X		X		G5	SE5	N
Fabaceae	*Lotus corniculatus*	Garden Bird's-foot Trefoil		X	X		GNR	SE5	N
Fabaceae	*Medicago lupulina*	Black Medick	X	X			GNR	SE5	N
Fabaceae	*Robinia pseudoacacia*	Black Locust		X	X		G5	SE5	N
Fabaceae	*Trifolium pratense*	Red Clover			X		GNR	SE5	N
Fabaceae	*Trifolium repens*	White Clover	X			X	GNR	SE5	N
Fabaceae	*Vicia cracca*	Tufted Vetch	X	X	X		GNR	SE5	N
Geraniaceae	*Geranium robertianum*	Herb-Robert	X		X	X	G5	S5	N
Grossulariaceae	*Ribes americanum*	American Black Currant	X		X		G5	S5	N
Grossulariaceae	*Ribes cynosbati*	Eastern Prickly Gooseberry	X		X		G5	S5	N
Hippocastanaceae	*Aesculus hippocastanum*	Horse Chestnut		X			GNR	SE2	N
Juglandaceae	*Juglans nigra*	Black Walnut	X		X		G5	S4?	N
Lamiaceae	*Clinopodium vulgare ssp. vulgare*	Wild Basil			X		G5T5	S5	N
Lamiaceae	*Galeopsis tetrahit*	Common Hemp-nettle	X				GNR	SE	N
Lamiaceae	*Leonurus cardiaca*	Common Motherwort		X			GNR	SE5	N
Lamiaceae	*Mentha canadensis*	Canada Mint				X	G5	S5	N
Lamiaceae	*Prunella vulgaris*	Common Self-heal				X	G5	S5	N
Lythraceae	*Lythrum salicaria*	Purple Loosestrife				X	G5	SE5	N
Oleaceae	*Fraxinus americana*	White Ash	X	X	X		G4	S4	N
Oleaceae	*Fraxinus pennsylvanica*	Red Ash	X	X	X		G4	S4	N

			Vegetation Communities[2]				Conservation Rankings[3]		
FAMILY[1]	SCIENTIFIC NAME[1]	COMMON NAME[1]	WODM5-1	WOCM1-3	FODM11	MAMO1-5	GRANK	SRANK	TRACK
Oleaceae	*Syringa vulgaris*	Common Lilac	X	X			GNR	SE5	N
Onagraceae	*Circaea canadensis*	Broad-leaved Enchanter's Nightshade	X		X		G5	S5	N
Onagraceae	*Oenothera biennis*	Common Evening-primrose	X				G5	S5	N
Pinaceae	*Picea glauca*	White Spruce	X				G5	S5	N
Pinaceae	*Picea pungens*	Blue Spruce			X		G5	SE1	N
Pinaceae	*Pinus resinosa*	Red Pine		X	X		G5	S5	N
Pinaceae	*Pinus strobus*	Eastern White Pine		X			G5	S5	N
Poaceae	*Bromus ciliatus*	Fringed Brome			X		G5	S5	N
Poaceae	*Bromus inermis*	Smooth Brome	X	X	X		G5T5	SE5	N
Poaceae	*Dactylis glomerata*	Orchard Grass	X	X	X		GNR	SE5	N
Poaceae	*Digitaria sanguinalis*	Hairy Crabgrass	X				G5	SE5	N
Poaceae	*Glyceria grandis*	Tall Mannagrass				X	G5	S5	N
Poaceae	*Glyceria striata var. striata*	Fowl Mannagrass				X	G5T5	S5	N
Poaceae	*Phalaris arundinacea*	Reed Canarygrass				X	G5	S5	N
Poaceae	*Poa compressa*	Canada Bluegrass				X	GNR	SE5	N
Poaceae	*Poa palustris*	Fowl Bluegrass				X	G5	S5	N
Poaceae	*Poa pratensis*	Kentucky Bluegrass		X		X	G5	S5	P
Poaceae	*Setaria viridis*	Green Foxtail	X				GNR	SE5	N
Polygonaceae	*Rumex crispus*	Curled Dock	X				GNR	SE5	N
Ranunculaceae	*Ranunculus acris*	Common Buttercup	X	X	X	X	G5	SE5	N
Rhamnaceae	*Rhamnus cathartica*	European Buckthorn	X	X			GNR	SE5	N
Rosaceae	*Crataegus sp.*	Hawthorn species		X	X		G5	SE3	N
Rosaceae	*Fragaria virginiana*	Wild Strawberry	X		X		G5	S5	N
Rosaceae	*Geum aleppicum*	Yellow Avens	X		X		G5	S5	N
Rosaceae	*Geum canadense*	Canada Avens	X		X		G5	S5	N
Rosaceae	*Malus pumila*	Common Apple			X		G5	SE4	N
Rosaceae	*Prunus serotina*	Black Cherry	X	X	X		G5	S5	N
Rosaceae	*Prunus virginiana*	Chokecherry			X		G5	S5	N
Rosaceae	*Rubus idaeus ssp. strigosus*	North American Red Raspberry	X		X		G5T5	S5	N
Rosaceae	*Rubus occidentalis*	Black Raspberry		X	X		G5	S5	N
Rosaceae	*Sorbus aucuparia*	European Mountain-ash			X		G5	SE4	N
Rubiaceae	*Galium mollugo*	Smooth Bedstraw				X	GNR	SE5	N
Salicaceae	*Populus balsamifera*	Balsam Poplar		X			G5	S5	N
Salicaceae	*Populus grandidentata*	Large-toothed Aspen		X	X		G5	S5	N
Salicaceae	*Populus nigra*	Black Poplar			X		G5	SE3	N
Salicaceae	*Populus tremuloides*	Trembling Aspen	X	X	X		G5	S5	N
Salicaceae	*Salix bebbiana*	Bebb's Willow				X	G5	S5	N

			Vegetation Communities[2]				Conservation Rankings[3]		
FAMILY[1]	**SCIENTIFIC NAME[1]**	**COMMON NAME[1]**	**WODM5-1**	**WOCM1-3**	**FODM11**	**MAMO1-5**	**GRANK**	**SRANK**	**TRACK**
Salicaceae	*Salix petiolaris*	Meadow Willow				X	G5	S5	N
Scrophulariaceae	*Verbascum thapsus*	Common Mullein	X		X		GNR	SE5	N
Scrophulariaceae	*Veronica officinalis*	Common Speedwell			X		G5	SE5	N
Smilacaceae	*Smilax herbacea*	Herbaceous Carrionflower	X				G5	S4?	N
Solanaceae	*Solanum dulcamara*	Bittersweet Nightshade	X	X		X	GNR	SE5	N
Typhaceae	*Typha latifolia*	Broad-leaved Cattail				X	G5	S5	N
Ulmaceae	*Ulmus americana*	White Elm	X				G4	S5	N
Verbenaceae	*Verbena hastata*	Blue Vervain				X	G5	S5	N
Violaceae	*Viola bicolor*	American Field Pansy		X	X		G5	S1	Y
Violaceae	*Viola pubescens*	Yellow Violet	X				G5	S5	N
Vitaceae	*Parthenocissus vitacea*	Thicket Creeper	X		X		G5	S5	N
Vitaceae	*Vitis riparia*	Riverbank Grape	X	X	X		G5	S5	N

[1] Nomenclature based on Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC, 2024)

[2] ELC Codes based on Ecological Land Classification for Southern Ontario manual (Lee *et al* ., 1998, 2008)

[3] Conservation Rankings: From Ontario Ministry of Natural Resources and Forestry, Natural Heritage Information Centre (https://www.ontario.ca/page/natural-heritage-information-centre)

			Location[1,2]																			Conservation Rankings[3]				
			1			2			3			4			5			6									
FAMILY	SCIENTIFIC NAME	COMMON NAME	Visit 1	Visit 2	Visit 3	Visit 1	Visit 2	Visit 3	Visit 1	Visit 2	Visit 3	Visit 1	Visit 2	Visit 3	Visit 1	Visit 2	Visit 3	Visit 1	Visit 2	Visit 3	Adjacent Lands	Incidental	GRANK	SRANK	ESA	SARA	TRACK
Alcedinidae	*Megaceryle alcyon*	Belted Kingfisher																				✓	G5	S5B,S4N			N
Anatidae	*Branta canadensis*	Canada Goose	FO																				G5	S5			N
Bombycillidae	*Bombycilla cedrorum*	Cedar Waxwing		S	S		S			S	S			C									G5	S5			N
Cardinalidae	*Cardinalis cardinalis*	Northern Cardinal	S	S			S					S			S	S		C					G5	S5			N
Cardinalidae	*Passerina cyanea*	Indigo Bunting		S			S		S			S	S		S	S		S	S		S		G5	S5B			N
Charadriidae	*Charadrius vociferus*	Killdeer				S			S									S					G5	S4B			N
Columbidae	*Zenaida macroura*	Mourning Dove					S						S		S	S					S		G5	S5			N
Corvidae	*Corvus brachyrhynchos*	American Crow	C				C			C	C			C				C			C		G5	S5			N
Corvidae	*Cyanocitta cristata*	Blue Jay	C	C	C			A										C					G5	S5			N
Fringillidae	*Spinus tristis*	American Goldfinch	S	S	C	S		C	S		C		S		S	S			S		C		G5	S5			N
Hirundinidae	*Hirundo rustica*	Barn Swallow																				✓	G5	S4B	SC	THR	Y
Icteridae	*Agelaius phoeniceus*	Red-winged Blackbird	C	S		C	S	CF			CF	C	S			C			C		S		G5	S5			N
Icteridae	*Dolichonyx oryzivorus*	Bobolink												FY									G5	S4B	THR	THR	Y
Icteridae	*Icterus galbula*	Baltimore Oriole		S		S		S	S			S			S						S		G5	S4B			N
Icteridae	*Molothrus ater*	Brown-headed Cowbird					S			S			S								C		G5	S5			N
Icteridae	*Quiscalus quiscula*	Common Grackle		S	C		S								C				S		C		G5	S5			N
Icteridae	*Sturnella magna*	Eastern Meadowlark	C									S									S	✓	G5	S4B,S3N	THR	THR	Y
Mimidae	*Dumetella carolinensis*	Gray Catbird																				✓	G5	S5B,S3N			N
Paridae	*Poecile atricapillus*	Black-capped Chickadee		C		S	S		C				S			S			S				G5	S5			N
Parulidae	*Geothlypis trichas*	Common Yellowthroat																C			S		G5	S5B,S3N			N
Parulidae	*Leiothlypis ruficapilla*	Nashville Warbler										S						S			S		G5	S5B			N
Parulidae	*Mniotilta varia*	Black-and-white Warbler																			S		G5	S5B			N
Parulidae	*Setophaga pinus*	Pine Warbler								S		S			S	S							G5	S5B,S3N			N
Parulidae	*Setophaga ruticilla*	American Redstart			S		S			S		S	S		S	S							G5	S5B			N
Parulidae	*Setophaga tigrina*	Cape May Warbler													S								G5	S5B			N
Passerellidae	*Melospiza georgiana*	Swamp Sparrow																				✓	G5	S5B,S4N			N
Passerellidae	*Melospiza melodia*	Song Sparrow	S	S	S	S	S	S	C		S		S	S	S	S		S	S		S		G5	S5			N
Passerellidae	*Passerculus sandwichensis*	Savannah Sparrow		S																	S		G5	S5B,S3N			N
Passerellidae	*Spizella passerina*	Chipping Sparrow																			S		G5	S5B,S3N			N
Passerellidae	*Zonotrichia albicollis*	White-throated Sparrow	S																				G5	S5			N
Picidae	*Sphyrapicus varius*	Yellow-bellied Sapsucker																				✓	G5	S5B,S3N			N
Sturnidae	*Sturnus vulgaris*	European Starling													S								G5	SNA			N
Troglodytidae	*Troglodytes aedon*	House Wren	S	S		S	S		S			C						S			S		G5	S5B			N
Turdidae	*Turdus migratorius*	American Robin	C	S		S	S	S	S				S		S	S					S		G5	S5			N
Tyrannidae	*Myiarchus crinitus*	Great Crested Flycatcher	S																				G5	S5B			N
Tyrannidae	*Tyrannus tyrannus*	Eastern Kingbird	S			S						S	S					S			A		G5	S4B			N
Vireonidae	*Vireo olivaceus*	Red-eyed Vireo		S			S						S	S	S	S			S		C		G5	S5B			N

[1] **Visit 1**: May 26, 2023, Observer: S. Tarof, Temperature 6°C, Cloud Cover 0% , Wind: B0, Precipitation: Nil, Search Time 07:32 to 08:33, Survey duration: 5 mins; **Visit 2**: June 9, 2023, Observer: S. Tarof, Temperature 13°C, Cloud Cover 100% , Wind: B1, Precipitation: Nil, Search Time 07:40 to 08:37, Survey duration: 5 mins; **Visit 3: June 28, 2023**, Observer: D. Stuart, Temperature 15°C, Cloud Cover 100% , Wind: B3, Precipitation: Nil, Search Time 09:15 to 10:00, Survey duration: 5mins

[2] Breeding Bird Evidence Codes: X - Species observed, C - Call heard, FO - Flyover (Species presence); H - Species observed in its breeding season in suitable nesting habitat, S - Singing male (Possible Breeding); P - Pair observed , T - Territorial behaviour, A - Agitated behaviour or anxiety calls of adult, V - Visiting a probably nest site, N - Nest building or excavation of nest hole (Probable Breeding); DD - Distraction display or injury feigning, NU - Used Nest or egg shells, FY - Recently fledged young, AE - Adult leaving or entering nest sites, FS - Adult carrying fecal sac, CF - Adult carrying food for young, NE - Nest containing eggs, NY - Nest with young seen or heard (Confirmed Breeding).

[3] Conservation Rankings: From Ontario Ministry of Natural Resources and Forestry, Natural Heritage Information Centre (https://www.ontario.ca/page/natural-heritage-information-centre)

Table 4: Significant Wildlife Habitat Assessment, Horning's Mills EIS, Township of Melancthon

Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E

Table 1.1 Seasonal Concentration Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Waterfowl Stopover and Staging Areas (Terrestrial) **Rationale:** Habitat important to migrating waterfowl.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	CUM1 CUT1 Plus evidence of annual spring flooding from melt water or run-off within these Ecosites.	Fields with sheet water during Spring (mid-March to May). • Fields flooding during springmelt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available. Information Sources • Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. • Reports and other information available from Conservation Authorities • Sites documented through waterfowl planning processes (*e.g.* EHJV implementation plan) • Field Naturalist Clubs • Ducks Unlimited Canada • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • Any mixed species aggregations of 100 or more individuals required. • The flooded field ecosite habitat plus a 100-300m radius area, dependant on local site conditions and adjacent land use is the significant wildlife habitat. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • SWHMiST Index #7 provides development effects and mitigation measures.	No signs of seasonally flooded fields on the subject lands – Not Applicable.
Waterfowl Stopover and Staging Areas (Aquatic) **Rationale:** Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). Information Sources • Environment Canada • Naturalist clubs often are aware of staging/stopover areas • OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes (*e.g.* EHJV implementation plan) • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Areas	Studies carried out and verified presence of: • Aggregations of 100or more of listed species for 7 days, results in > 700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH. • The combined area of the ELC ecosites and a 100m radius area is the SWH. • Wetland area and shorelines associated with sites identified within the 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). • SWHMiSTIndex #7 provides development effects and mitigation measures.	Subject lands not associated with a lake, bay, coastal inlet, or large watercourse. Meadow marsh is extremely small (0.034ha) and is not of a suitable size to provide this function – Not Applicable.

Table 4: Significant Wildlife Habitat Assessment, Horning's Mills EIS, Township of Melancthon

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
	Canvasback Ruddy Duck				
Shorebird Migratory Stopover Area **<u>Rationale:</u>**High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	• Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. • Sewage treatment ponds and storm water ponds do not qualify as a SWH. <u>Information Sources</u> • Western hemisphere shorebird reserve network • Canadian Wildlife Service (CWS) Ontario Shorebird Survey • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area	Studies confirming: • Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiSTIndex #8 provides development effects and mitigation measures.	Subject lands not associated with shoreline of lake, river or large wetland with mud flats – Not Applicable.
Raptor Wintering Area **<u>Rationale:</u>** Sites used by multiple species of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl **<u>Special Concern:</u>** Short-eared Owl Bald Eagle	<u>Hawks/Owls:</u> Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM; CUT; CUS; CUW. <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 windswept with limited snow depth or accumulation. • Eagle sites have open water, large trees and snags available for roosting. <u>Information Sources:</u> • OMNRF Ecologist or Biologist Field Naturalist Clubs • Natural Heritage Information Center (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Results of Christmas Bird Counts Reports and other information available from Conservation Authorities.	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One or more Bald Eagles or; At least 10 individuals and two of the listed hawk/owl species. • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiSTIndex #10 and #11 provides development effects and mitigation measures.	Subject lands do not provide a combination of fallow/idle or lightly grazed field/meadow habitat >15ha and woodlands – Not Applicable.

Table 4: Significant Wildlife Habitat Assessment, Horning's Mills EIS, Township of Melancthon

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Bat Hibernacula **Rationale:**Bat hibernacula are rare habitats in all Ontario landscapes.	Big Brown Bat Tri-coloured Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	• Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. • Active mine sites should not be considered as SWH • The locations of bat hibernacula are relatively poorly known. Information Sources • OMNRF for possible locations and contact for local experts • Natural Heritage Information Center (NHIC) Bat Hibernaculum Ministry of Northern • Development and Mines for location of mine shafts. • Clubs that explore caves (*e.g.* Sierra Club) • University Biology Departments with bat experts.	• All sites with confirmed hibernating bats are SWH. • The habitat area includes a 200m radius around the entrance of the hibernaculum, for most development types and 1000m for wind farms • Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects. • SWHMiST Index #1 provides development effects and mitigation measures.	No caves, mine shafts, underground foundations and karsts associated with subject or adjacent lands – Not Applicable.
Bat Maternity Colonies **Rationale:**Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	• Maternity colonies can be found in tree cavities, vegetation and often in buildings(buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario. • Maternity colonies located in Mature deciduous or mixed forest standswith >10/ha large diameter (>25cm 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. Information Sources • OMNRF for possible locations and contact for local experts • University Biology Departments with bat experts.	• Maternity Colonies with confirmed use by; ○ >10 Big Brown Bats ○ >5 Adult Female Silver-haired Bats • The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies. • Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #12 provides development effects and mitigation measures.	While deciduous woodland (WODM5-1) is present in the southeast corner of the subject lands, this community is young and not suitable as maternity colony habitat. No forest ELC communities present on the property – Not Applicable.
Turtle Wintering Areas **Rationale:**Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Midland Painted Turtle **Special Concern:** Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles; ELC Community Classes; SW, MA, OA and SA, ELC Community Series; FEO and BOO Northern Map Turtle; Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	• For most turtles, wintering areas are in the same general area as their core habitat. Water 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. Information Sources • EIS studies carried out by Conservation Authorities. • Local field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. • OMNRF Ecologist or Biologist • Field Naturalist clubs • Natural Heritage Information Center (NHIC)	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May) • Congregation of turtles is more common where wintering areas are limited and therefore significant • SWHMiST Index #28 provides development effects and mitigation measures for turtle wintering habitat.	Ponds in adjacent lands may support this habitat function - Applicable.

Table 4: Significant Wildlife Habitat Assessment, Horning's Mills EIS, Township of Melancthon

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Reptile Hibernaculum **Rationale:**Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	**Snakes:** Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake **Special Concern:** Milksnake Eastern Ribbonsnake **Lizard:** **Special Concern** (Southern Shield population)**:** Five-lined Skink	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. • Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures. Information Sources • In spring, local residents or landowners may have observed the emergence of snakes on their property (*e.g.* old dug wells). • Reports and other information available from Conservation Authorities. • Field Naturalists clubs • University herpetologists • Natural Heritage Information Center (NHIC) • OMNRF ecologist or biologist may be aware of locations of wintering skinks	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (*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. • SWHMiSTIndex #37 provides development effects and mitigation measures for five-lined skink wintering habitat.	No snakes were observed during multiple site visits conducted during spring, under weather conditions when snakes would be active and hence observable. No features such as rock piles or slopes, old stone fences, and abandoned crumbling foundations noted on-site - Not Applicable.
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.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles. Cliff faces, bridge abutments, silos, barns. Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation. Information Sources • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas • Bird Studies Canada; *NatureCounts* http://www.birdscanada.org/birdmon/ • Field Naturalist Clubs.	Studies confirming: • Presence of 1 or more nesting sites with 8or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests. • Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #4 provides development effects and mitigation measures.	No exposed soil banks on subject lands. No Cliff, Blank or Northern Rough-winged Swallows detected during breeding bird surveys – Not Applicable.

Table 4: Significant Wildlife Habitat Assessment, Horning's Mills EIS, Township of Melancthon

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Colonially-Nesting Bird Breeding Habitat (Tree/Shrubs) **Rationale:** Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Blue Heron Black-crowned Night-Heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15 m from ground, near the top of the tree. Information Sources • Ontario Breeding Bird Atlas, colonial nest records. • Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNRF). • Natural Heritage Information Center (NHIC) Mixed Wader Nesting Colony • Aerial photographs can help identify large heronries. • Reports and other information available from CAs. • MNRF District Offices • Local naturalist clubs	Studies confirming: • Presence of 5 or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH. • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells. • SWHMiST Index #5 provides development effects and mitigation measures.	No suitable habitat on subject lands. None of listed species observed during breeding bird surveys – Not Applicable.
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.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6; MAS1 – 3; CUM CUT CUS	• Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in low bushes in close proximity to streams and irrigation ditches within farmlands. Information Sources • Ontario Breeding Bird Atlas , rare/colonial species records. • Canadian Wildlife Service • Reports and other information available from CAs. • Natural Heritage Information Center (NHIC) Colonial Waterbird Nesting Area • MNRF District Offices • Field Naturalist clubs	Studies confirming: • Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. • Presence of 5 or more pairs for Brewer's Blackbird. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. • The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH. • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #6 provides development effects and mitigation measures.	Subject lands do not contain rocky islands/peninsulas within a lake or river. No gull nesting habitat on or adjacent to property. Brewer's Blackbirds not observed during breeding bird surveys - Not Applicable.

Table 4: Significant Wildlife Habitat Assessment, Horning's Mills EIS, Township of Melancthon

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Migratory Butterfly Stopover Areas **Rationale:** Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Painted Lady Red Admiral Special Concern Monarch	Combination of ELC Community Series; need to have present one Community Series from each land class: Field: CUM CUT CUS Forest: FOC FOD FOM CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario. • The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south. • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes. Information Sources • OMNRF (NHIC) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs • Toronto Entomologists Association • Conservation Authorities	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur. • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. • MUD of >5000 **or** >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant. • SWHMiST Index #16 provides development effects and mitigation measures.	Subject lands not located within 5km of Lake Ontario – Not Applicable.
Landbird Migratory Stopover Areas **Rationale:** Sites with a high diversity of species as well as high numbers are most significant.	All migratory songbirds. Canadian Wildlife Service Ontario website. All migratory songbirds. Canadian Wildlife Service Ontario website:	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Woodlots need to be >10 ha in size and within 5 km of Lake Ontario. • If multiple woodlands are located along the shoreline those Woodlands <2km from Lake Ontario are more significant. • Sites have a variety of habitats; forest, grassland and wetland complexes. • The largest sites are more significant. • Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5km of Lake Ontario are Candidate SWH . Information Sources • Bird Studies Canada • Ontario Nature • Local birders and naturalist club • Ontario Important Bird Areas (IBA) Program	Studies confirm: • Use of the habitat by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should becompleted during spring (Apr./May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #9 provides development effects.	Subject lands not located within 5km of Lake Ontario – Not Applicable.

Table 4: Significant Wildlife Habitat Assessment, Horning's Mills EIS, Township of Melancthon

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
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.	White-tailed Deer	Note: OMNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include; FOM, FOC, SWM and SWC. Or these ELC Ecosites; CUP2 CUP3 FOD3 CUT	• Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. • OMNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual". • Woodlots with high densities of deer due to artificial feeding are not significant.	No Studies Required: • Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. • Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local MNRF offices or via Land Information Ontario (LIO). • Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #2 provides development effects and mitigation measures.	Subject and adjacent lands not mapped as part of a deer yard by the province (Ontario GeoHub – Wildlife Values Area [Wildlife Values Area | Wildlife Values Area | Ontario GeoHub (gov.on.ca)]). No sign of browsing on saplings/shrubs of subject lands at levels consistent with traditional use as deer yard habitat – Not Applicable.
Deer Winter Congregation Areas **Rationale:** Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.	White-tailed Deer	All Forested Ecosites with these ELC Community Series; FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.	• Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands . • If deer are constrained by snow depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule. • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. • Woodlots with high densities of deer due to artificial feeding are not significant. Information Sources • MNRF District Offices • LIO/NRVIS	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF. • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF. • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques, ground or road surveys. or a pellet count deer density survey. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #2 provides development effects and mitigation measures.	Subject lands occur in area of province where deer typically migrate to traditional deer yarding areas – function assessed above.

Table 4: Significant Wildlife Habitat Assessment, Horning's Mills EIS, Township of Melancthon
Table 1.2.1 Rare Vegetation Communities

Rare Vegetation Community	Candidate SWH			Confirmed SWH	Assessment
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Cliffs and Talus Slopes **Rationale:** Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO TAS TAT CLO CLS CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris.	Most cliff and talus slopes occur along the Niagara Escarpment. Information Sources • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF District • Natural Heritage Information Center (NHIC) has location information available on their website • Field Naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes • SWHMiST Index #21 provides development effects and mitigation measures.	No cliffs or talus slopes on subject lands - Not Applicable.
Sand Barren **Rationale;** Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry	ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%.	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered, but less than 60%.	A sand barren area >0.5ha in size. Information Sources • MNRF Districts • Natural Heritage Information Center (NHIC) has location information available on their website. • Field Naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Sand Barrens • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.) • SWHMiST Index #20 provides development effects and mitigation measures.	No sand barrens on subject lands - Not Applicable.
Alvar **Rationale:** Alvars are extremely rare habitats in Ecoregion 6E. Most alvars in Ontario are in Ecoregions 6E and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic-Precambrian contact.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 **Five Alvar Species:** 1) *Carex crawei* 2) *Panicum philadelphicum* 3) *Eleocharis compressa* 4) *Scutellaria parvula* 5) *Trichostema brachiatum* These indicator species are very specific to Alvars within Ecoregion 6E.	An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover.	An Alvar site > 0.5 ha in size. Information Sources • Alvars of Ontario (2000), Federation of Ontario Naturalists. • Ontario Nature – Conserving Great Lakes Alvars. • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	• Field studies that identify four of the five **Alvar Indicator Species** at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses. • SWHMiST Index #17 provides development effects and mitigation measures.	No alvar on subject lands - Not Applicable.

Table 4: Significant Wildlife Habitat Assessment, Horning's Mills EIS, Township of Melancthon

Rare Vegetation Community	Candidate SWH			Confirmed SWH	Assessment
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Old Growth Forest **Rationale:** Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by many wildlife species.	Forest CommunitySeries: FOD FOC FOM SWD SWC SWM	Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest. Information Sources • OMNRF Forest Resource Inventory mapping • OMNRF Districts. • Field Naturalist clubs • Conservation Authorities • Sustainable Forestry Licence (SFL) companies will possibly know locations through field operations. • Municipal forestry departments	Field Studies will determine: • If dominant trees species 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 area containing the old growth characteristics. • SWHMiST Index #23 provides development effects and mitigation measures.	Woodlands of the subject lands measure below the 30ha threshold and consist of relatively young successional forest and plantation. No ELC communities meeting SWH criteria present – Not Applicable.
Savannah **Rationale:** Savannahs are extremely rare habitats in Ontario.	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%.	No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies confirm one or more of the Savannah indicator species listed in Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #18 provides development effects and mitigation measures.	No savannah on subject lands - Not Applicable.
Tallgrass Prairie **Rationale:** Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover.	No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies confirm one or more of the Prairie indicator species listed in Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #19 provides development effects and mitigation measures.	No tallgrass prairie on subject lands - Not Applicable.
Other Rare Vegetation Communities **Rationale:** Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M The OMNRF/NHIC will have up to date listing for rare vegetation communities. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG. • Area of the ELC Vegetation Type polygon is the SWH. • SWHMiST Index #37 provides development effects and mitigation measures.	No rare vegetation communities observed on subject lands – Not Applicable.

Table 4: Significant Wildlife Habitat Assessment, Horning's Mills EIS, Township of Melancthon
1.2.2 Specialized Habitat for Wildlife

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SHW	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Waterfowl Nesting Area **Rationale;** Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 **Note: includes adjacency to Provincially Significant Wetlands**	A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. Information Sources • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from Conservation Authorities.	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or; • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWHMiST Index #25 provides development effects and mitigation measures.	No wetlands providing habitat conditions of value to waterfowl associated with the subject. No waterfowl observed utilizing the subject or adjacent lands during breeding bird surveys in June 2023 – Not Applicable.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat **Rationale;** Nest sites are fairly uncommon in Eco-region 6E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey **Special Concern** Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. • Nests located on man-made objects are not to be included as SWH (*e.g.* telephone poles and constructed nesting platforms). Information Sources • Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario. • MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat. • Nature Counts, Ontario Nest Records Scheme data. • OMNRF Districts • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented • Reports and other information available from Conservation Authorities. • Field Naturalists clubs	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area. • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with large trees within this area is important. • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat. • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for > 3 years or suspected of not being used for >5 years before being considered not significant. • Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid March to mid August. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #26 provides development effects and mitigation measures.	No stick nests observed on the subject lands and Osprey and Bald Eagle not observed during breeding bird or other surveys. No forest ELC community present on the property – Not Applicable.

Table 4: Significant Wildlife Habitat Assessment, Horning's Mills EIS, Township of Melancthon

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Woodland Raptor Nesting Habitat **<u>Rationale:</u>** Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3	All natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat. Interior habitat determined with a 200m buffer • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers Hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. <u>Information Sources</u> • OMNRF Districts. • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada. • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of 1 or more active nests from species list is considered significant. • Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha area of habitat is the SWH . (The 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest). • Barred Owl – A 200m radius around the nest is the SWH. • Broad-winged Hawk and Coopers Hawk– A 100m radius around the nest is the SWH. • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. • Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial. (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • SWHMiST Index #27 provides development effects and mitigation measures.	Woodlands of the subject lands measure below the 30ha threshold and contain no interior habitat. No forest ELC communities present on the property. Adjacent lands contain CUP. No stick nests observed on subject lands – Not Applicable.
Turtle Nesting Areas **<u>Rationale:</u>** These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle <u>Special Concern Species</u> Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. <u>Information Sources</u> • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Center (NHIC) • Field Naturalist clubs	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles. • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • SWHMiST Index #28 provides development effects and mitigation measures for turtle nesting habitat.	No ponds or wetlands containing persistent surface water of value to turtles on the subject lands. No evidence of turtle nesting detected (predated nests/scattered egg shells, *etc*.) during multiple site visits completed in May-June (nesting season). No open, sandy/gravel areas present on the subject lands - Not Applicable.

Table 4: Significant Wildlife Habitat Assessment, Horning's Mills EIS, Township of Melancthon

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Seeps and Springs **Rationale;** Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species. Information Sources • Topographical Map • Thermography • Hydrological surveys conducted by Conservation Authorities and MOE. • Field Naturalists clubs and landowners. • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped.	Field Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of 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.	Horning's Mills Creek originates as a groundwater seep approximately 30m upstream of the manmade pond to the southeast of the property in adjacent lands (identified during Azimuth's 2019 fieldwork). One seep does not meet the criteria to be considered significant – Not Applicable.
Amphibian Breeding Habitat (Woodland). **Rationale:** These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	• Presence of a wetland, pond or woodland pool (including vernal pools) >500m^2 (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat. Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records. • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF District • OMNRF wetland evaluations • Field Naturalist clubs • Canadian Wildlife Service • Amphibian Road Call Survey • Ontario Vernal Pool Association:http://www.ontariovernalpools.org	Studies confirm; • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the wetland area plus a 230m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. • SWHMiST Index #14 provides development effects and mitigation measures.	No amphibian activity was detected on the property which is consistent with a lack of ponds/vernal pools/standing water. One Spring Peeper was heard calling from the adjacent pond approximately 50m south of the subject lands boundary (west of the intersection of Main Street and Oldfield Court). As per confirmation with Burnside, a middle and late spring survey were not deemed necessary – Not Applicable.

Table 4: Significant Wildlife Habitat Assessment, Horning's Mills EIS, Township of Melancthon

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SHW	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Amphibian Breeding Habitat (Wetlands) **Rationale;** Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (*e.g.* Bull Frog) may be adjacent to woodlands.	• Wetlands>500m^2 (about 25m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation. Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) • Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. • OMNRF Districts and wetland evaluations • Reports and other information available from Conservation Authorities	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3. **or;** Wetland with confirmed breeding Bullfrogs are significant. • The ELC ecosite wetland area and the shoreline are the SWH. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #15 provides development effects and mitigation measures.	See assessment above for Amphibian Breeding Habitat (Woodland) – Not Applicable.
Woodland Area-Sensitive Bird Breeding Habitat **Rationale:** Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren **Special Concern:** Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. • Interior forest habitat is at least 200 m from forest edge habitat. Information Sources • Local bird clubs. • Canadian Wildlife Service (CWS) for the location of forest bird monitoring. • Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species. • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. • Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #34 provides development effects and mitigation measures.	Woodlands of the subject lands measure below the > 30ha threshold and contain no interior habitat. None of the listed ELC communities present on the property. Further, none of the listed species were detected during breeding bird surveys – Not Applicable.

Table 4: Significant Wildlife Habitat Assessment, Horning's Mills EIS, Township of Melancthon
1.3 Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Marsh Breeding Bird Habitat **Rationale;** Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan **Special Concern:** Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites.	• Nesting occurs in wetlands. • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water. Information Sources • OMNRF District and wetland evaluations. • Field Naturalist clubs • Natural Heritage Information Center (NHIC) Records. • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas	Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or1 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.	No wetlands of value to marsh nesting birds on subject lands and none of listed species or special concern species observed during breeding bird surveys – Not Applicable.
Open Country Bird Breeding Habitat Sources Defining Criteria **Rationale;** This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow **Special Concern** Short-eared Owl	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30 ha. • Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years). • Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. • The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species. Information Sources • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • Reports and other information available from Conservation Authorities.	Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species. • A field with 1 or more breeding Short-eared Owls is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #32 provides development effects and mitigation measures.	No large grasslands (*i.e.*, >30ha) on the subject lands and only one of listed species observed (Savannah Sparrow) during breeding bird surveys and no Short-eared Owl observed – Not Applicable.
Shrub/Early Successional Bird Breeding Habitat **Rationale;** This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	Indicator Spp: Brown Thrasher Clay-coloured Sparrow Common Spp. Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher **Special Concern:** Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species	Large field areas succeeding to shrub and thicket habitats>10ha in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (*i.e.* no row-cropping, haying or live-stock pasturing in the last 5 years). • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species. • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. Information Sources • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs • Ontario Breeding Bird Atlas • Reports and other information available from Conservation Authorities.	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. • A habitat with breeding 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 Index #33 provides development effects and mitigation measures.	No shrub/early successional fallow field areas present on-site. No indicator and only one common species (Field Sparrow) were observed during breeding bird surveys and none of the special concern species detected – Not Applicable.

Table 4: Significant Wildlife Habitat Assessment, Horning's Mills EIS, Township of Melancthon

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Terrestrial Crayfish **<u>Rationale:</u>** Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	Chimney or Digger Crayfish; (*Fallicambarus fodiens*) Devil Crayfish or Meadow Crayfish; (*Cambarus Diogenes*)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh or swamp ecosites can be used by terrestrial crayfish.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. <u>Information Sources</u> • Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF March 1998.	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of ELC ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. • Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult. • SWHMiST Index #36 provides development effects and mitigation measures.	No crayfish chimneys observed on the subject lands – Not Applicable.
Special Concern and Rare Wildlife Species **<u>Rationale:</u>** These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites <u>Information Sources</u> • Natural Heritage Information Centre (NHIC) will have Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. • NHIC Website "Get Information" : http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas • Expert advice should be sought as many of the rare spp. have little information available about their requirements.	Studies Confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species *e.g.* specific nesting habitat or foraging habitat. • SWHMiST Index #37 provides development effects and mitigation measures.	While some Common Milkweed was identified on-site, no observations of Monarch caterpillars or adults were noted during site visits in late May-June 2023. As above, subject lands are not within a Migratory Butterfly Stopover Area. Since there was no evidence of use of the subject lands as breeding habitat and the lands are not significant with respect to migratory stopover, the subject lands do function as significant habitat in the context of Monarch. Ponds in adjacent lands may provide suitable habitat for Snapping Turtle. No Provincially Rare plants or animals observed on or adjacent to the subject lands – Not Applicable.

Table 4: Significant Wildlife Habitat Assessment, Horning's Mills EIS, Township of Melancthon
1.4 Animal Movement Corridors

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria	
Amphibian Movement Corridors **Rationale;** Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. • Corridors will be determined based on identifying the significant breeding habitat for these species 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. Information Sources • MNRF District Office • Natural Heritage Information Center (NHIC) • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. • Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. • Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m. • 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.	Wetlands and ponds on site do not function as Amphibian Breeding Habitat – Wetland (see above) - Not Applicable.
Deer Movement Corridors **Rationale:** Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	White-tailed Deer	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when **Deer Wintering Habitat** is confirmed as SWH 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). Information Sources • MNRF District Office • Natural Heritage Information Center (NHIC). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs	• Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas. • Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas. • Corridors should be at least 200m wide with gaps <20m and if following riparian area with at least 15m of vegetation on both sides of waterway. • Shorter corridors are more significant than longer corridors. • SWHMiST Index #39 provides development effects and mitigation measures.	No deer yarding habitat associated with the subject or adjacent lands – Not Applicable.

Table 4: Significant Wildlife Habitat Assessment, Horning's Mills EIS, Township of Melancthon
1.5 Exceptions for EcoRegion 6E

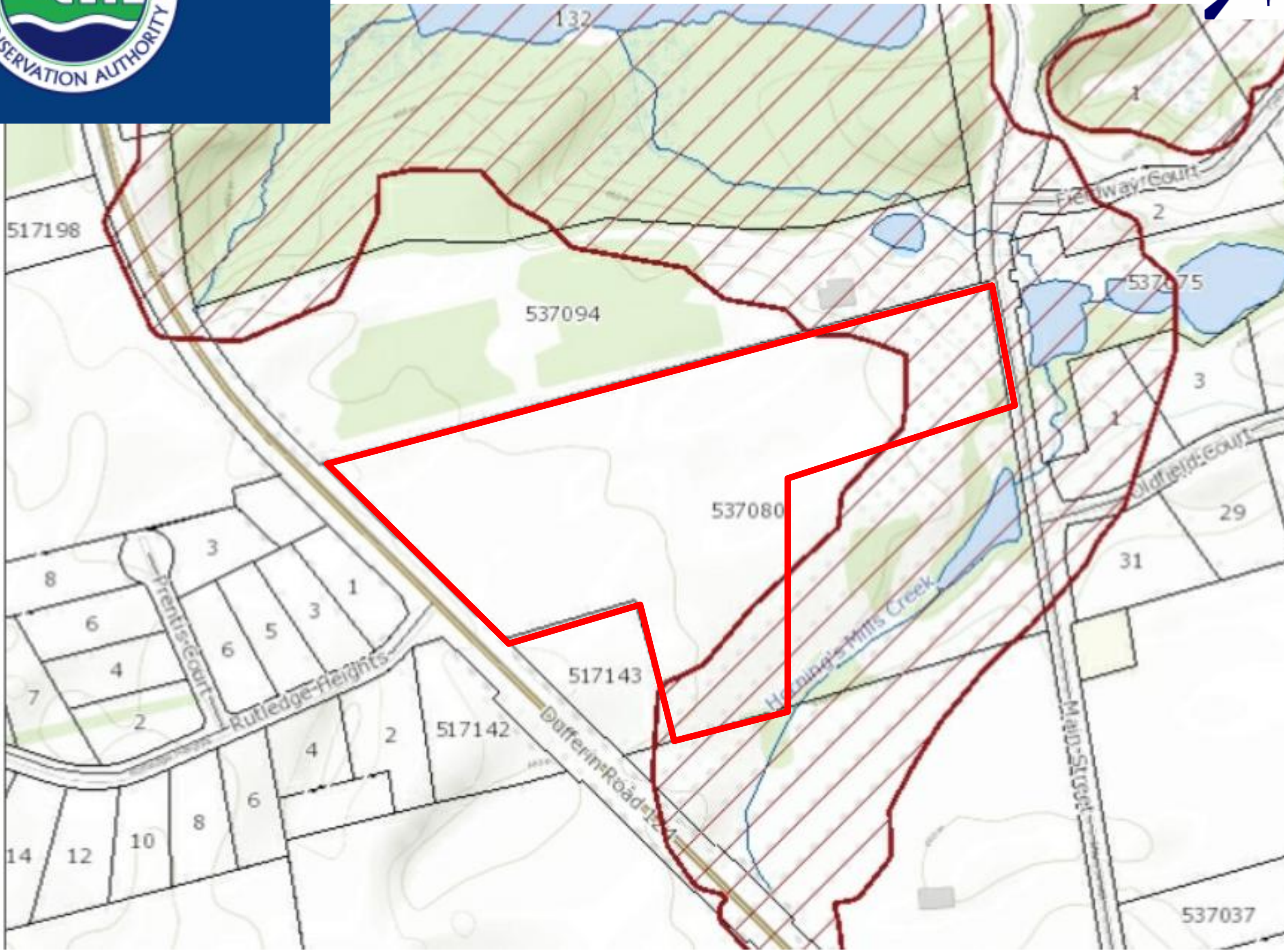
EcoDistrict	Wildlife Habitat and Species	Candidate			Confirmed SWH	Assessment
		Ecosites	Habitat Description	Habitat Criteria and Information	Defining Criteria	
6E-14 **Rationale:** The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracts with mast-producing tree species is important for bears.	**Mast Producing Areas** Black Bear	All Forested habitat represented by ELC Community Series: FOM FOD	• Black bears require forested habitat that provides cover, winter hibernation sites, and mast-producing tree species. • Forested habitats need to be large enough to provide cover and protection for black bears.	Woodland ecosites >30ha with mast-producing tree species, either soft (cherry) or hard (oak and beech). Information Sources Important forest habitat for black bears may be identified by OMNRF.	All woodlands > 30ha with a 50%composition of these ELC Vegetation Types are considered significant: FOM1-1 FOM2-1 FOM3-1 FOD1-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5 SWHMiST Index #3 provides development effects and mitigation measures.	Subject lands not on Bruce Peninsula – Not Applicable.
6E- 17 **Rationale:** Sharp-tailed grouse only occur on Manitoulin Island in Eco-region 6E, Leks are an important habitat to maintain their population	Lek Sharp-tailed Grouse	CUM CUS CUT	• The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography. • Leks are typically a grassy field/meadow >15ha with adjacent shrublands and >30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated.	Grasslands (field/meadow) are to be >15ha when adjacent to shrubland and >30ha when adjacent to deciduous woodland. • Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying) • Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting Information Sources • OMNRF district office • Bird watching clubs • Local landowners • Ontario Breeding Bird Atlas	Studies confirming lek habitat are to be completed from late March to June. • Any site confirmed with sharp-tailed grouse courtship activities is considered significant • The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitat • SWHMiST Index #32 provides development effects and mitigation measures	Subject lands not on Manitoulin Island – Not Applicable.

APPENDICES

Appendix A: Municipal Background and Correspondence
Appendix B: Provincial Background and Correspondence
Appendix C: Proposed Development Concept

APPENDIX A

Municipal Background and Correspondence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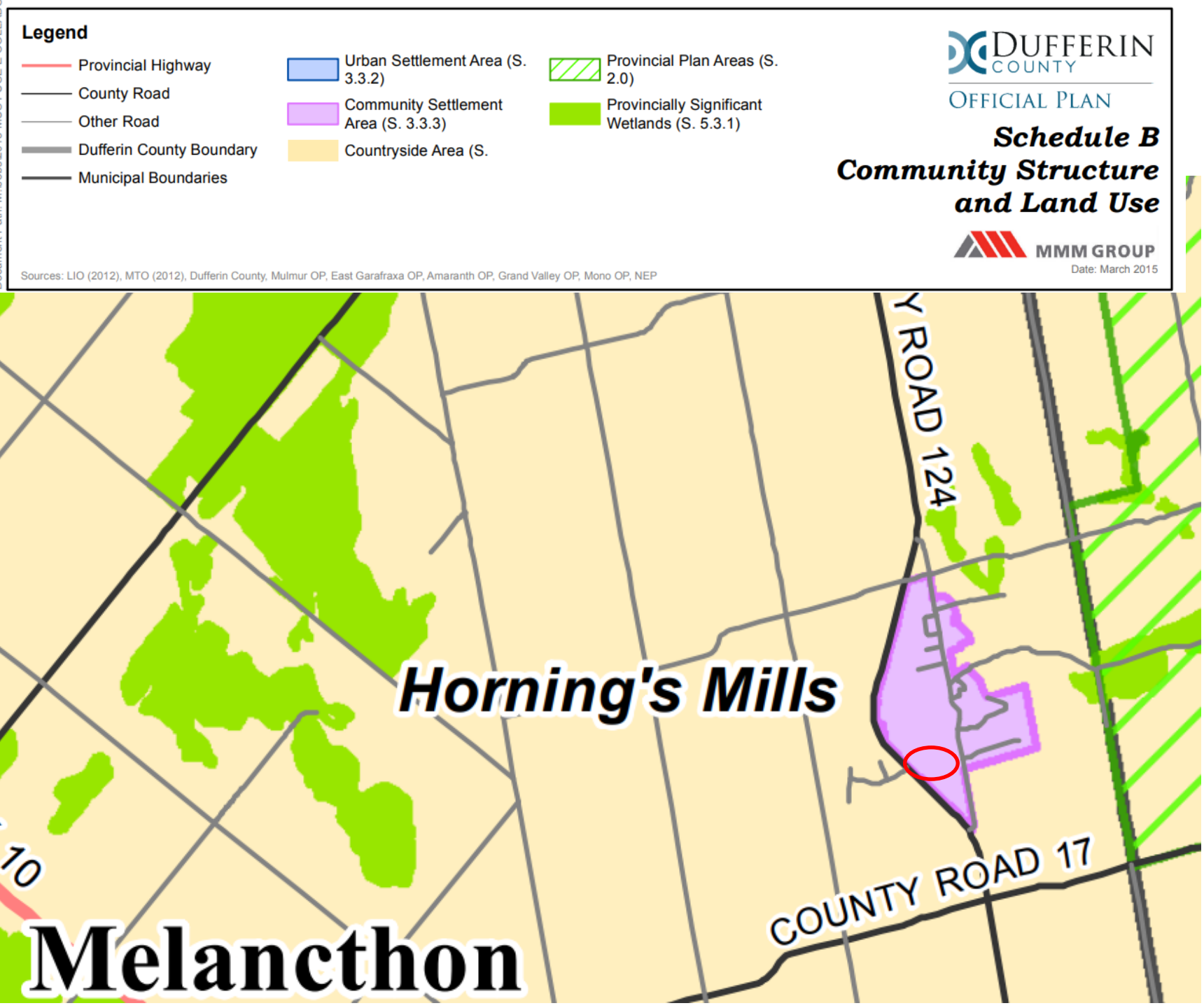

Legend
Provincial Highway
County Road
Other Road
Dufferin County Boundary
Municipal Boundaries
Urban Settlement Area (S. 3.3.2)
Community Settlement Area (S. 3.3.3)
Countryside Area (S.
Provincial Plan Areas (S. 2.0)
Provincially Significant Wetlands (S. 5.3.1)
DUFFERIN COUNTY
OFFICIAL PLAN
Schedule B
Community Structure and Land Use
MMM GROUP
Date: March 2015
Sources: LIO (2012), MTO (2012), Dufferin County, Mulmur OP, East Garafraxa OP, Amaranth OP, Grand Valley OP, Mono OP, NEP
Y ROAD 124
Horning's Mills
COUNTY ROAD 17
10
Melancthon

Legend

- Urban Settlement Area
- Community Settlement Area
- Provincial Highway
- County Road
- Dufferin County Boundary
- Municipal Boundaries
- Waterbody
- Provincially Significant Wetlands (S. 5.3.1)
- Earth Science Area of Natural and Scientific Interest (S. 5.3.3)
- Life Science Area of Natural and Scientific Interest (S. 5.3.3)
- Woodlands (S. 5.3.4)
- Unevaluated Wetlands (S. 5.3.6)
- Watercourses (S. 5.3.8)
- Greenbelt Plan Protected Countryside Area (S. 2.1)
- Oak Ridges Moraine Conservation Plan Area (S. 2.2)
- Niagara Escarpment Plan Area (S. 2.3)

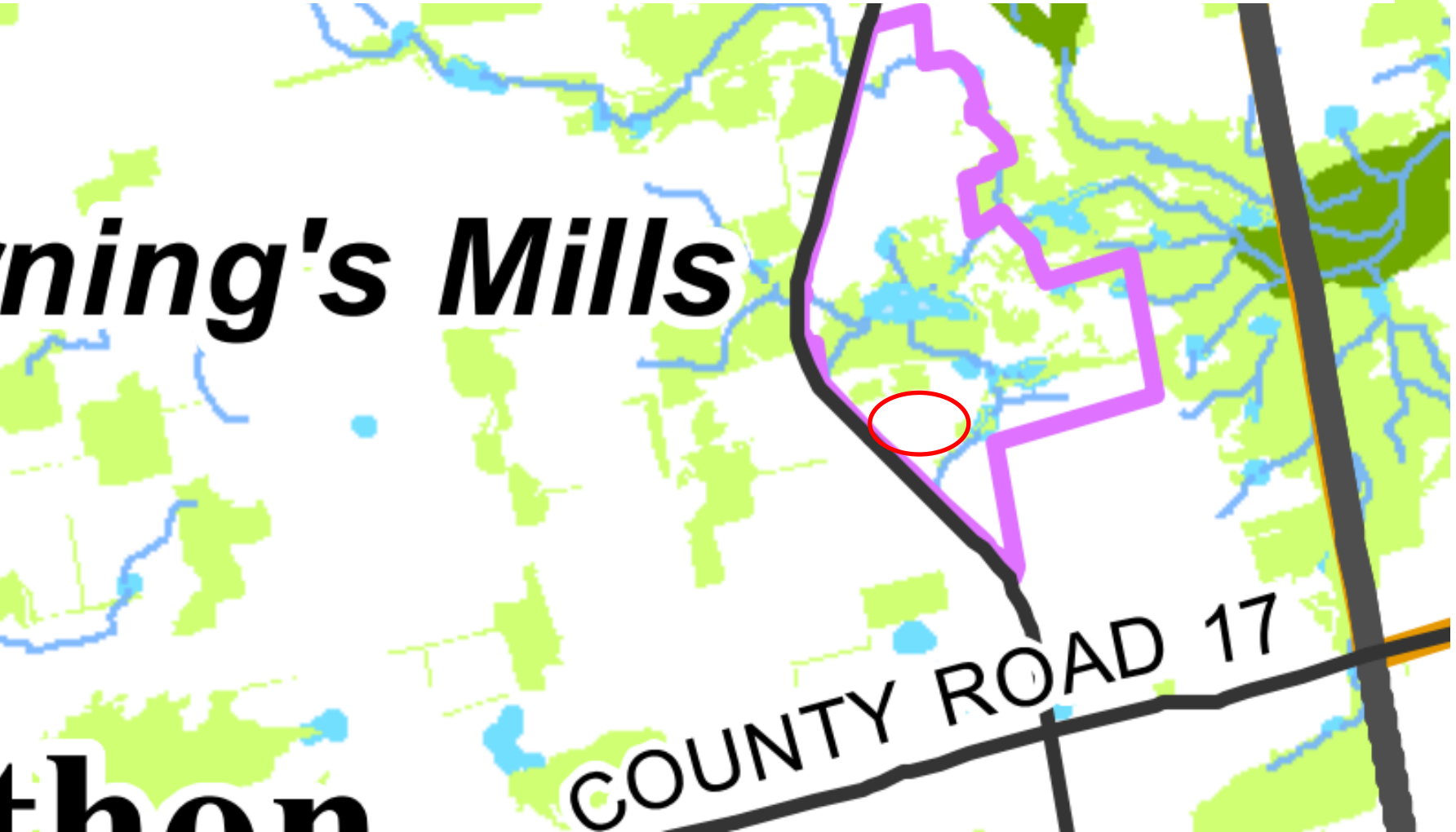
Sources: Credit Valley Conservation, Grand River Conservation, Nottawasaga Valley Conservation, LIO (2012), Dufferin County

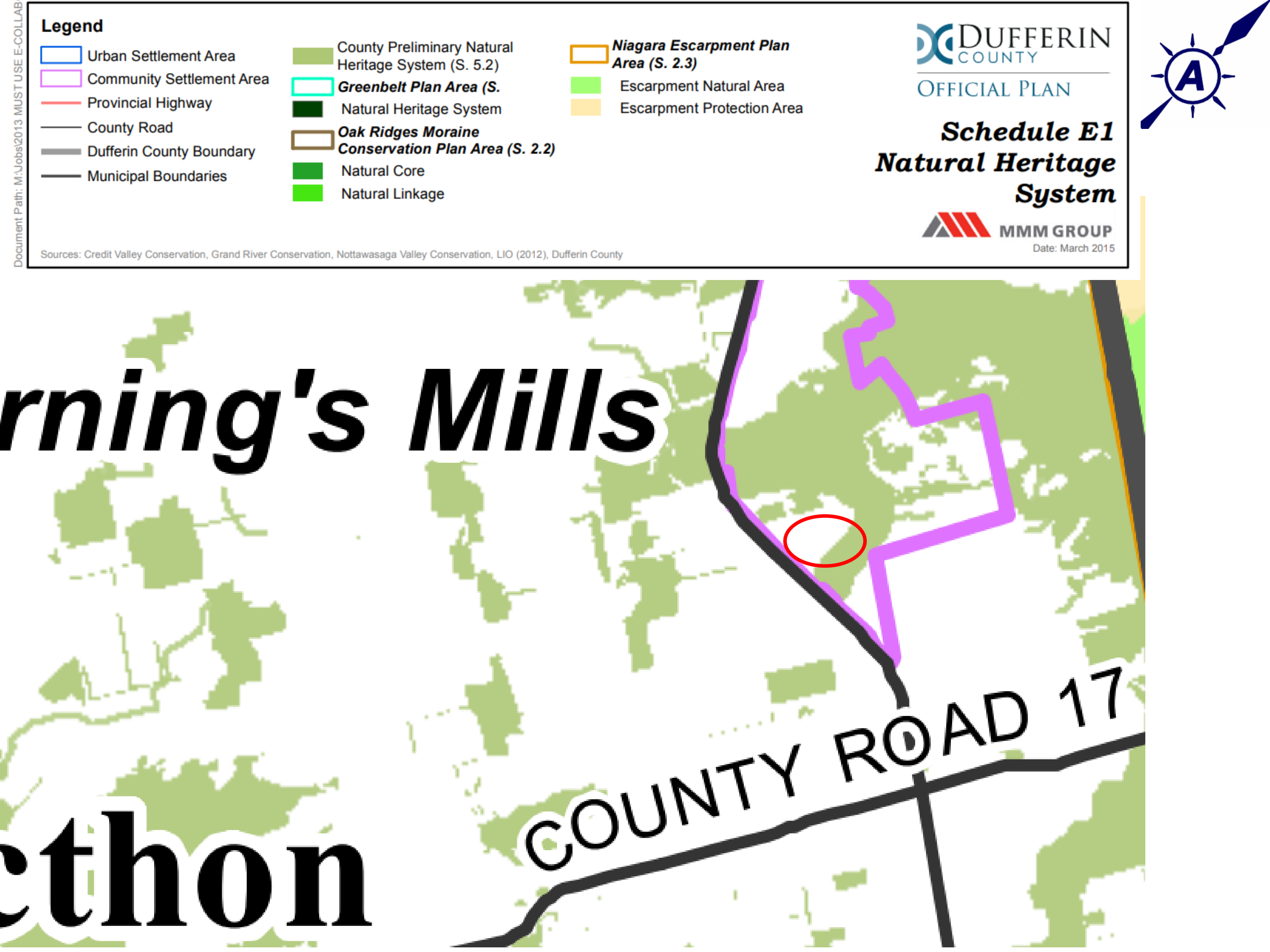
DUFFERIN COUNTY
OFFICIAL PLAN

Schedule E
Natural Heritage Features

MMM GROUP
Date: March 2015

A

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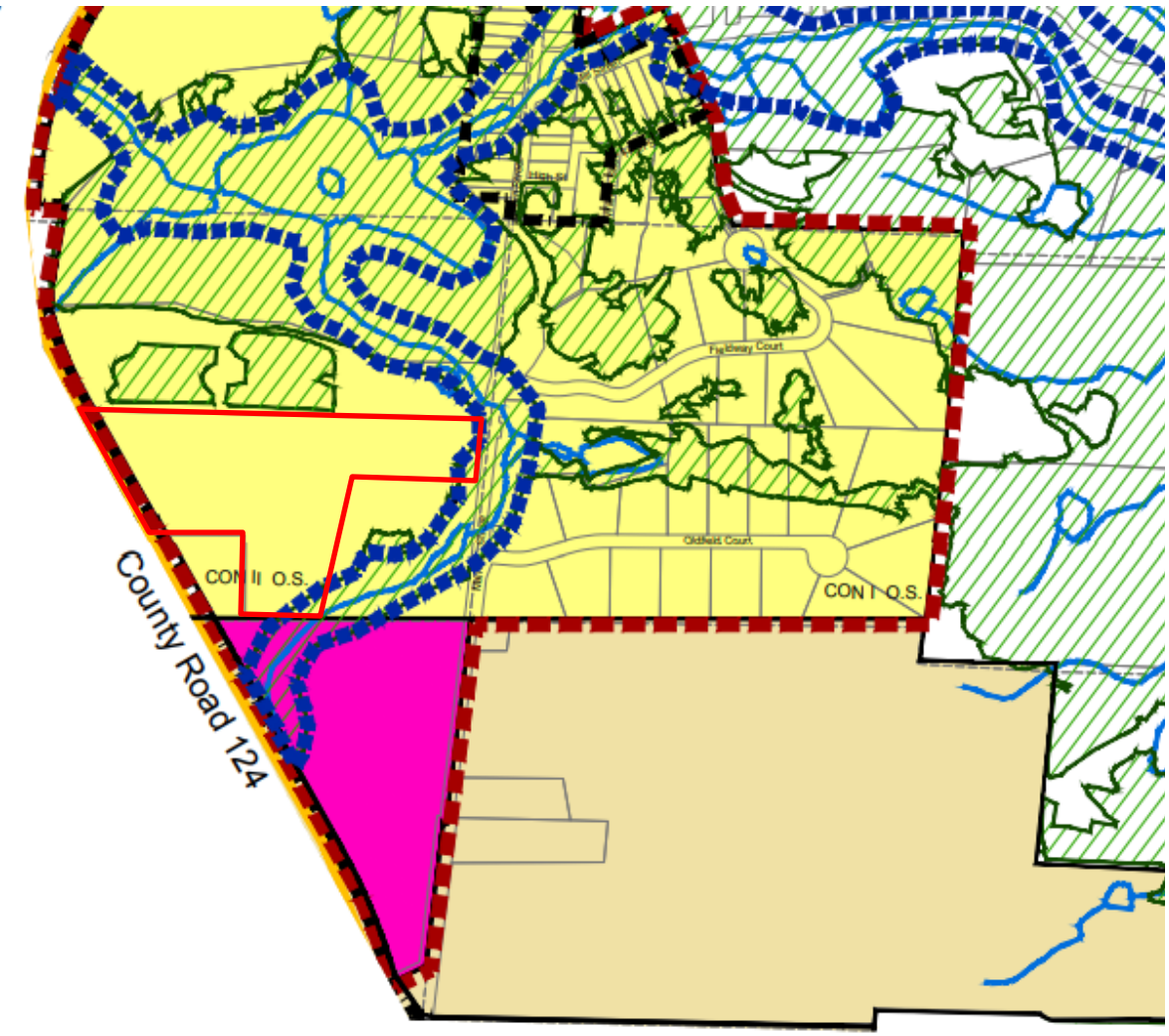
County Road
Dufferin County Boundary
Municipal Boundaries
County Preliminary Natural Heritage System (S. 5.2)
Greenbelt Plan Area (S.
Natural Heritage System
Oak Ridges Moraine Conservation Plan Area (S. 2.2)
Natural Core
Natural Linkage
Niagara Escarpment Plan Area (S. 2.3)
Escarpment Natural Area
Escarpment Protection Area
DUFFERIN COUNTY
OFFICIAL PLAN
Schedule E1
Natural Heritage System
MMM GROUP
Date: March 2015
Sources: Credit Valley Conservation, Grand River Conservation, Nottawasaga Valley Conservation, LIO (2012), Dufferin County
A
rning's Mills
cthon
COUNTY ROAD 17



Schedule A-5

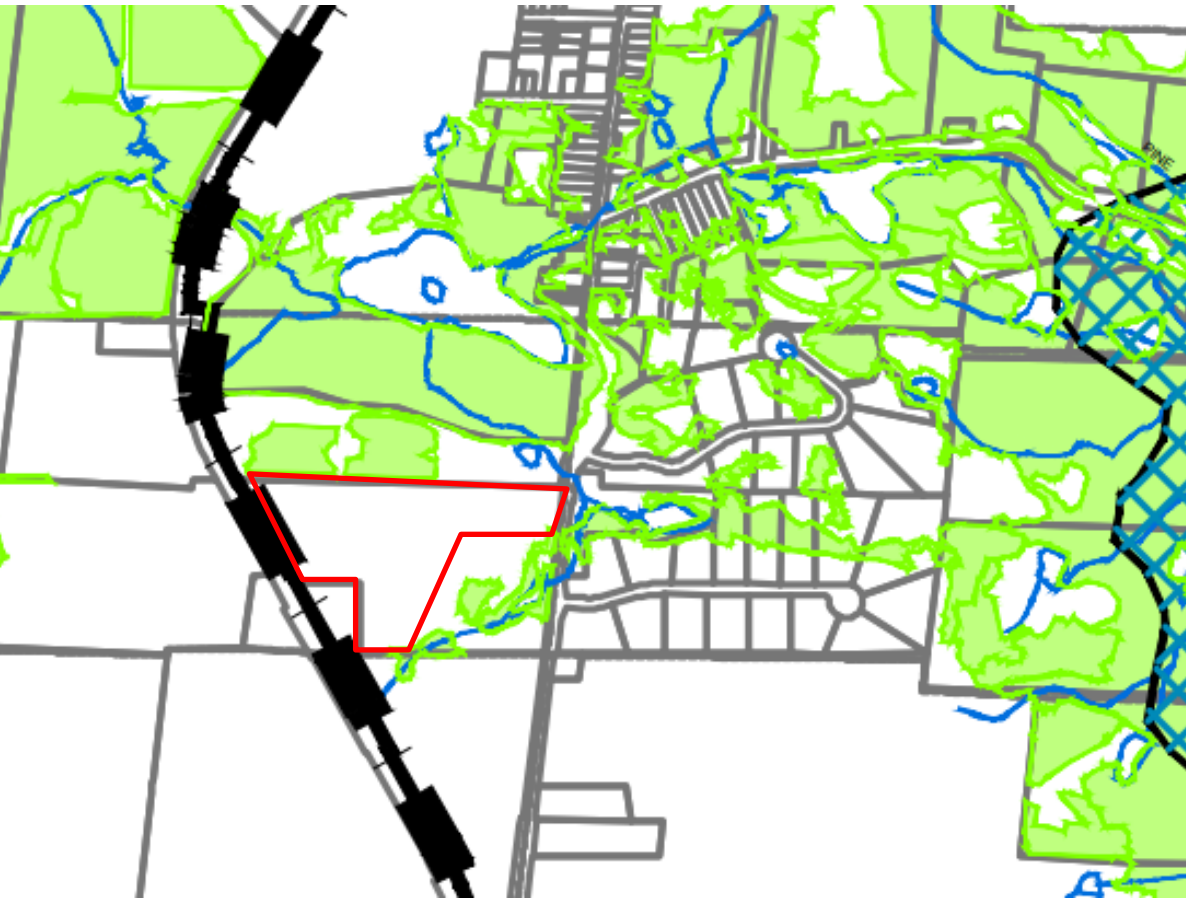
SCHEDULE B
LAND USE & ROADS PLAN

OFFICIAL PLAN
FOR
TOWNSHIP OF MELANCTHON
(Horning's Mills)

- AGRICULTURAL
- RURAL
- ENVIRONMENTAL PROTECTION
- ENVIRONMENTAL CONSERVATION
  (Also see Section 5.5.3 (g))
- COMMUNITY
- LIGHT INDUSTRIAL
- NIAGARA ESCARPMENT DEVELOPMENT CONTROL AREA
- PROVINCIAL HIGHWAY
- ARTERIAL ROAD
- LOCAL ROAD
- EXISTING MINERAL AGGREGATE HAUL ROUTE
- RAIL LINE RIGHT-OF-WAY

This schedule must be read in conjunction with the Official Plan's policies and Schedules D to H.

OCTOBER, 2017



SCHEDULE E
NATURAL HERITAGE 2
WOODLANDS, WILDLIFE HABITAT AND ANSI

OFFICIAL PLAN
FOR
TOWNSHIP OF
MELANCTHON

SIGNIFICANT WOODLANDS
- PRIMARILY 20+ HECTARES

SIGNIFICANT WILDLIFE HABITAT
- DEER WINTERING AREAS

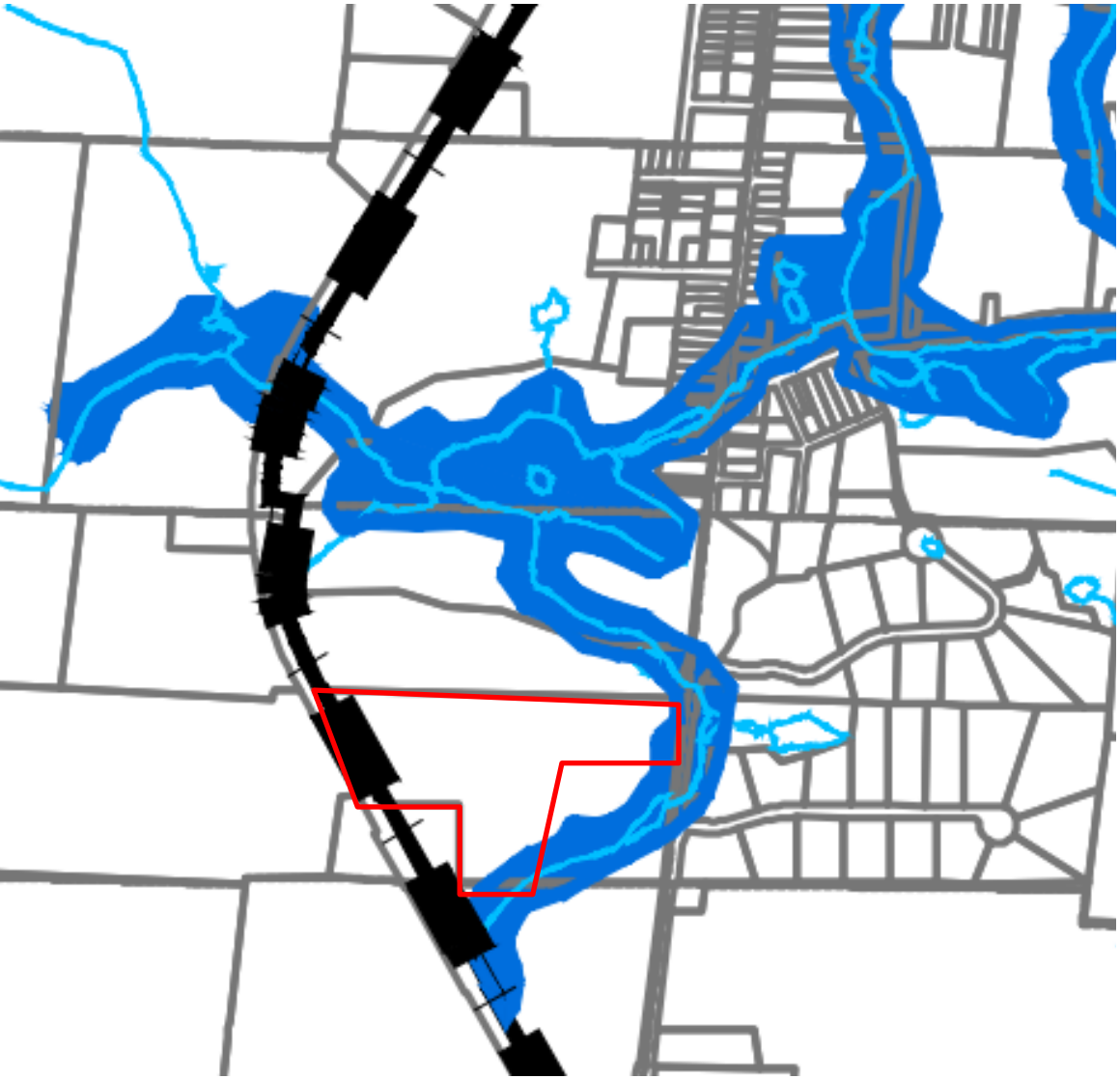
SIGNIFICANT WILDLIFE HABITAT
- DEER WINTERING YARDS

SIGNIFICANT ANSI

WATERCOURSES

NIAGARA ESCARPMENT
DEVELOPMENT CONTROL AREA

OCTOBER, 2017



SCHEDULE F
NATURAL AND HUMAN-MADE HAZARDS

OFFICIAL PLAN
FOR
TOWNSHIP OF
MELANCTHON

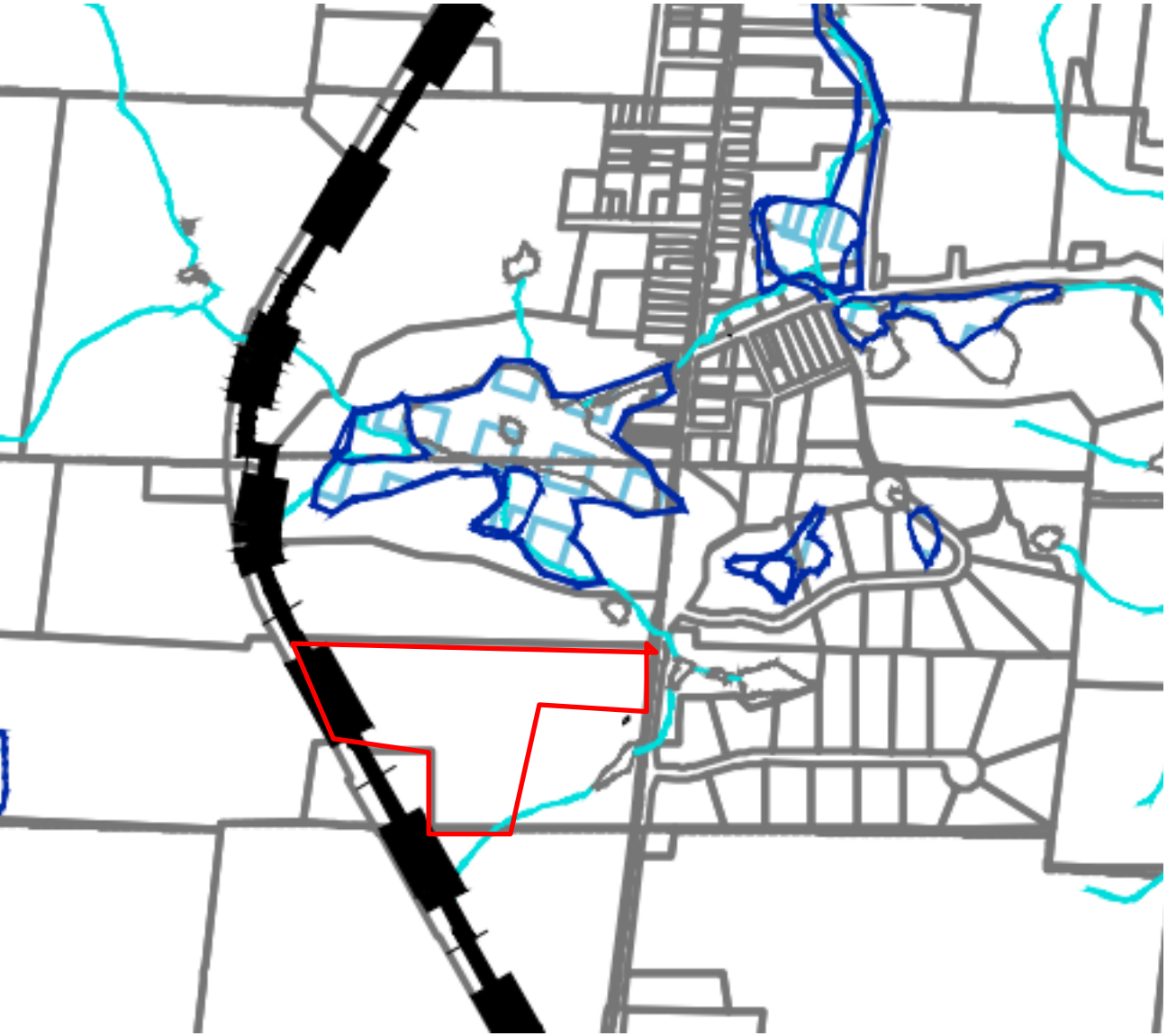
FLOODPLAIN
(Also see Section 5.5.3 (g))

ACTIVE WASTE
DISPOSAL SITE

CLOSED WASTE
DISPOSAL SITE

NIAGARA ESCARPMENT
DEVELOPMENT CONTROL AREA

OCTOBER, 2017



SCHEDULE D
NATURAL HERITAGE 1
WETLANDS

OFFICIAL PLAN
FOR
TOWNSHIP OF
MELANCTHON

PROVINCIALLY SIGNIFICANT WETLANDS

LOCALLY SIGNIFICANT AND UNEVALUATED WETLANDS

NIAGARA ESCARPMENT DEVELOPMENT CONTROL AREA

R.J. Burnside & Associates Limited 292 Speedvale Avenue West Unit 20 Guelph ON N1H 1C4 CANADA
telephone (519) 823-4995 **fax** (519) 941-8120 **web** www.rjburnside.com

BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

April 21, 2023

Via: Email

Silva Yousif, PMP. RPP. MCIP
Senior Planner
Township of Melancthon
157101 Highway 10
Melancthon, ON L9V 2E6

Dear Silva:

Re: Peer Review Comments: Terms of Reference (Scoped EIS) - 537080 Main Street, Horning's Mills
Project No.: 300056814.0000

R.J. Burnside & Associates Limited (Burnside) have reviewed the Terms of Reference for a Scoped EIS in support of a development application at 537080b Main St. in Horning's Mills. Our comments are as follows:

- A scoped EIS is appropriate and should follow the guidance in Section 3.4.2 of the Township's Official Plan.
- The EIS should include a review of relevant natural heritage policies, plans and Acts. The proponent should demonstrate the conformity of the proposed development with the abovementioned policies.
- The Ontario Breeding Bird Atlas (OBBA), Ontario Reptile and Amphibian Atlas (ORAA) should be included within the records review. Consideration should also be provided for citizen science sources such as eBird and iNaturalist for reviewing the potential for rare and endangered / threatened species to occur within the Study Area.
- Plant inventories should occur during the 2023 growing season when representative herbaceous plants are present and identifiable. A single season botanical inventory is appropriate in this case.
- Three amphibian monitoring surveys are recommended regardless of whether anything was or was not heard during the initial round as long as there is sufficient standing water. Different frog species may use the habitat at different times during the spring so it is important to capture all potential breeding periods.
- Three surveys for Bobolink and Eastern Meadowlark are generally required under the MNRF survey protocol. Even if these species are not observed during the first and second survey, the third should be completed, unless it is found that habitat is unsuitable for these species.
- Although not mentioned it is assumed that the Subject property will be assessed for Significant Wildlife Habitat (SWH) in addition to SAR habitat. The Significant Wildlife Habitat Criteria for Ecoregion 6E (MNRF, 2015) and Significant Wildlife Habitat Technical Guide (OMNR, 2000) should be referenced when assessing the presence / absence of SWH.

- Based on the development concept provided, it appears that clearing of trees will be required. As such, considerations for potential impacts to species at risk (SAR) bats in addition to SAR vegetation should be provided. The proponent should confirm the necessity and methodology for surveys with the MECP.
- The EIS should identify the extent of tree removals required as well as any proposed compensation measures, particularly as it pertains to any potential impacts to significant woodlands.
- The EIS should discuss site-appropriate mitigation measures that will be employed to avoid impacts to offsite natural heritage features including Significant Woodlands and Horning's Mills Creek. If the proposed development will approach the boundaries od these features, it may be necessary to stake the boundaries in the field to confirm the extent of any encroachment or the location of setbacks.

Please reach out to the undersigned if you have any questions or need any clarification about these comments.

Yours truly,

R.J. Burnside & Associates Limited

Sarah Yoshida, B.Sc. (Env), G. Cert. E.R.
Ecologist
SY:js

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

Alexa Pompilio-Grant

From: Alexa Pompilio-Grant
Sent: February 23, 2024 3:17 PM
To: Mike Jones
Subject: FW: Terms of Reference (Scoped EIS) - 537080 Main Street, Horning's Mills

Hey Mike,

I'm looking for an email received by Dan on April 25, 2023 from Tricia Radburn re: the TOR for the Horning's Mills project (23-095). The email should have an attachment. When you have time over the next few work days would you mind having a look?

Thanks and enjoy your weekend.

Alexa

From: Tricia Radburn [mailto:Tricia.Radburn@rjburnside.com]
Sent: May 1, 2023 10:49 AM
To: Dan Stuart
Cc: Silva Yousif
Subject: RE: Terms of Reference (Scoped EIS) - 537080 Main Street, Horning's Mills

Dan, thanks for reaching out. Our comment had indicated that three surveys should be completed as long as there is sufficient standing water. If your field investigations found that there is not enough standing water to support amphibian breeding then no further surveys are required.

If you have any additional questions feel free to contact me.

BURNSIDE
Tricia Radburn, MCIP, RPP
Senior Environmental Planner

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

From: Dan Stuart <dstuart@azimuthenvironmental.com>
Sent: Monday, May 01, 2023 10:03 AM
To: Tricia Radburn <Tricia.Radburn@rjburnside.com>
Cc: Silva Yousif <syousif@melancthontownship.ca>
Subject: RE: Terms of Reference (Scoped EIS) - 537080 Main Street, Horning's Mills

Hi Tricia,

Thank you for the comments. Azimuth is generally in agreement regarding the additional requests to be incorporated into the Scoped EIS, however we would like clarification regarding the recommendation to complete 3x amphibian surveys.

During Azimuth's initial site review (April 2023), standing water was limited to a minor and highly localized section of meadow marsh in the northeast corner of the property (see attached map). A pond is also located on adjacent lands, on a previously severed parcel approx. 50m south of the property boundary.

The results of the April 2023 evening amphibian breeding survey did not detect presence of any amphibian activity on the property, or in the pond on adjacent lands.

Given minimal standing water on the property in the early spring season, it is highly unlikely that amphibian breeding habitat would be detected during subsequent May and June surveys. The offsite pond is located ~50m from the property boundary, a setback that in our opinion would be considered sufficient should the pond be functioning as Significant Amphibian Breeding Habitat. As such, we propose that May and June evening breeding amphibian surveys are not necessary given the lack of persisting standing water and resulting potential habitat features.

Please confirm acceptance of this approach, or provide additional comments as necessary.

Thanks again,

Dan Stuart, M.Env.Sc.
Ecology Lead

Azimuth Environmental Consulting, Inc.
642 Welham Road
Barrie, Ontario, L4N 9A1
Office: 705-721-8451 x208
Fax: 705-721-8926
Cell: 705-794-0975
www.azimuthenvironmental.com

Providing services in hydrogeology, terrestrial and aquatic ecology, and arborist assessment

---

From: Tricia Radburn [mailto:Tricia.Radburn@rjburnside.com]
Sent: April-25-23 10:56 AM
To: Dan Stuart
Cc: Silva Yousif
Subject: FW: Terms of Reference (Scoped EIS) - 537080 Main Street, Horning's Mills

Dan, R.J. Burnside & Associates Limited as reviewed the proposed TOR. We have provided a few recommendations in the attached review.

Please feel free to contact me if you have any questions.

Kind Regards,

BURNSIDE
Tricia Radburn, MCIP, RPP
Senior Environmental Planner

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

From: Silva Yousif <syousif@melancthontownship.ca>
Sent: Tuesday, April 18, 2023 9:49 AM
To: Tricia Radburn <Tricia.Radburn@rjburnside.com>; dstuart@azimuthenvironmental.com

Cc: Diksha Marwaha <dmarwaha@melancthontownship.ca>; Kaitlin Dinnick <kdinnick@melancthontownship.ca>; Denise Holmes <dholmes@melancthontownship.ca>; janet.sperling@ontario.ca; eperry@nvca.on.ca
Subject: Re: Terms of Reference (Scoped EIS) - 537080 Main Street, Horning's Mills

Good Morning Dan! long time ☺ hope all is good with you.

Tricia will be assisting with the ToR on this file, I will defer to her if she requires any further information on this file and will go from there.

Thanks
S

Silva Yousif , PMP. RPP. MCIP. | Sr.Planner | Township of Melancthon
| syousif@melancthontownship.ca | www.melancthontownship.ca |

From: Dan Stuart <dstuart@azimuthenvironmental.com>
Sent: Tuesday, April 4, 2023 8:27 AM
To: Silva Yousif <syousif@melancthontownship.ca>
Cc: janet.sperling@ontario.ca <janet.sperling@ontario.ca>; Emma Perry <eperry@nvca.on.ca>
Subject: Terms of Reference (Scoped EIS) - 537080 Main Street, Horning's Mills

Hi Silva,

Hope things are well in your new role! In light of Bill 23, I am contacting yourself (copying NEC & NVCA) regarding clearing a Terms of Reference for a Scoped Environmental Impact Study (EIS) for 537080 Main Street (Horning's Mills) in the Township of Melancthon. Azimuth previously completed a Site Evaluation Report in 2019 based a single in-season site visit (May 2019) toward the severance of the southeast portion of the property.

The proponent is now seeking to develop the Retained Parcel that occupies the remainder of the lands (see attached).

The following Terms of Reference is proposed toward completion of the Scoped EIS:

- Search the Township, County, Ministry of Natural Resources and Forestry (MNRF), Ministry of the Environment, Conservation and Parks (MECP), and Fisheries and Oceans Canada (DFO) records to obtain available background information and current data related to natural heritage features and functions in the area;
- Review and incorporate data collected as part of the related 2019 Site Evaluation Report for the adjacent parcel;
- Conduct field surveys to document existing natural heritage features, functions, and species. Surveys include:

- Evaluate/map vegetation community types based on Ecological Land Classification methods (spring 2023);
- One (1) vascular plant inventory (spring 2023);
- One (1) evening frog call survey (April 2023), with the potential for an additional two (2) surveys (May, June 2023) if breeding activity is recorded during first survey;
- Two (2) dawn breeding bird surveys (June 2023); with the potential for an additional one (1) survey if Bobolink or Eastern Meadowlark (SAR birds) are recorded onsite during initial surveys; and,
- Record all incidental wildlife observations during site visits.

- Complete an assessment of potential SAR and their habitats that could be present within the study area, including a screening for Butternut and Black Ash trees (Endangered); and,
- Assess the potential direct and indirect impacts of the proposed works on the natural heritage features and functions identified on or adjacent to the property.

At this time Azimuth requests that the Township indicate concurrence with the above proposed Terms of Reference toward completion of the Scoped EIS. We would also like to take this opportunity to request any natural heritage background information from the Township that may be helpful in completing the Scoped EIS.

Please feel free to contact me if you would like to discuss any aspects of the project.

Kind regards,

Dan Stuart, M.Env.Sc.
Ecology Lead

Azimuth Environmental Consulting, Inc.
642 Welham Road
Barrie, Ontario, L4N 9A1
Office: 705-721-8451 x208
Fax: 705-721-8926
Cell: 705-794-0975
www.azimuthenvironmental.com

Providing services in hydrogeology, terrestrial and aquatic ecology, and arborist assessment

APPENDIX B

Provincial Background and Correspondence

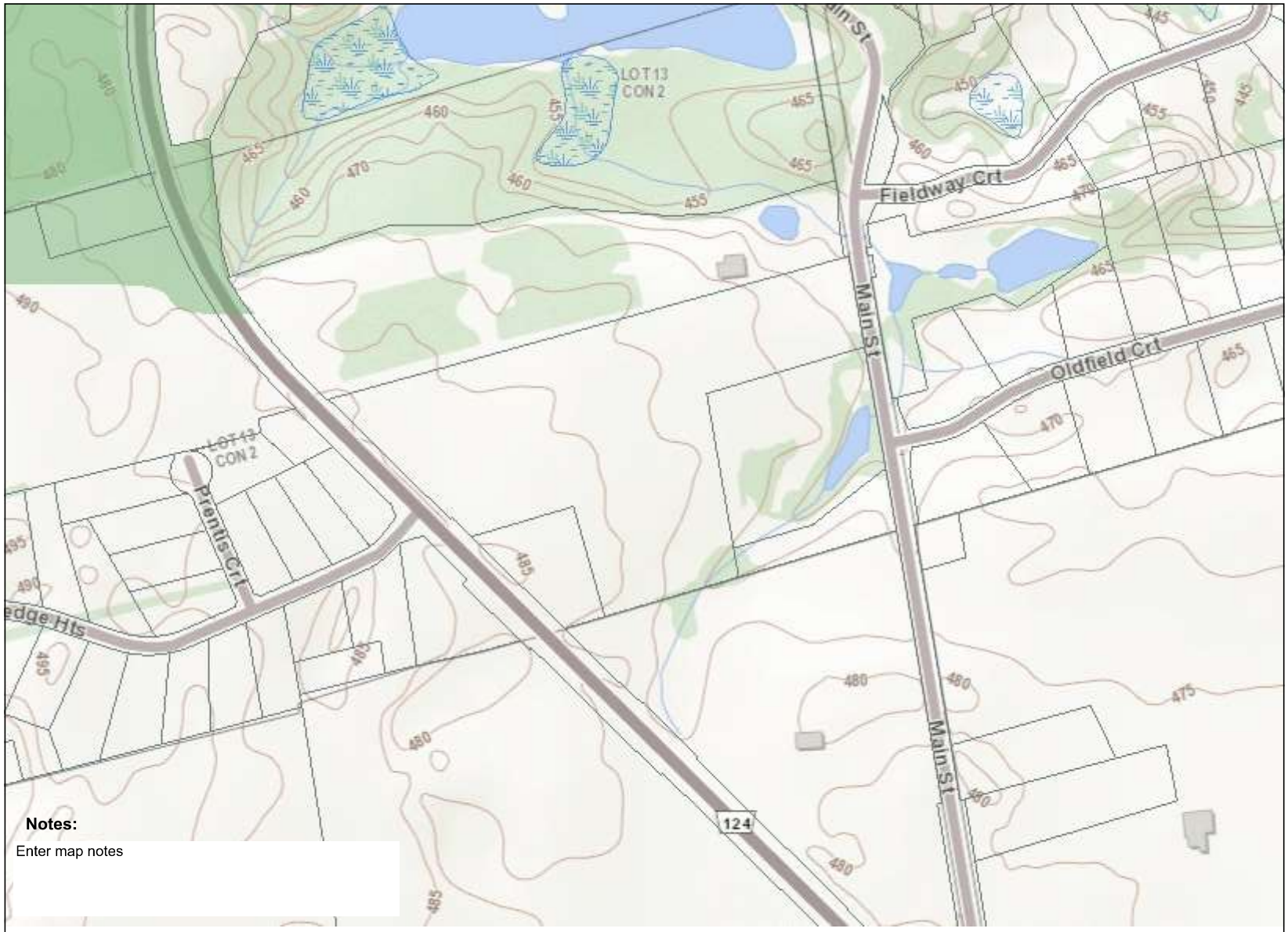
Ontario

Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

Provincial Mapping - NHIC

Map created:2/26/2024



Legend

- Assessment Parcel
- ANSI
- Earth Science Provincially Significant/sciences de la ter d'importance provinciale
- Earth Science Regionally Significant/sciences de la terre d'importance régionale
- Life Science Provincially Significant/sciences de la vie d'importance provinciale
- Life Science Regionally Significant/sciences de la vie d'importance régionale
- Evaluated Wetland
- Provincially Significant/considérée d'importance provinci
- Non-Provincially Significant/non considérée d'importanc provinciale
- Unevaluated Wetland
- Conservation Reserve
- Provincial Park
- Natural Heritage System

Notes:

Enter map notes

0.3 0 0.16 0.3 Kilometres

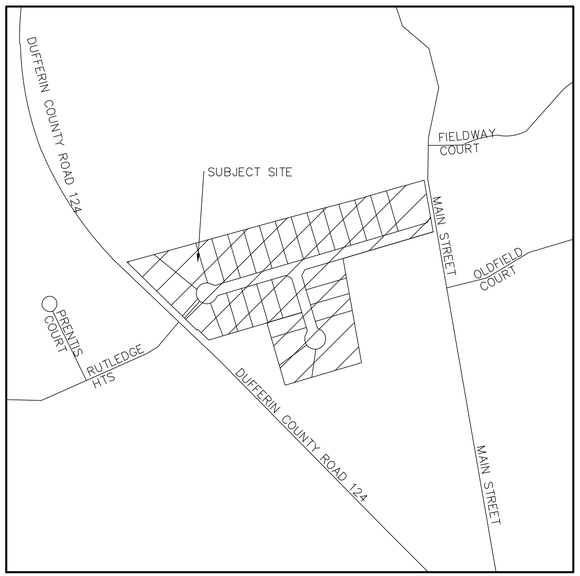
Absence of a feature in the map does not mean they do not exist in this area.

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

APPENDIX C

Proposed Development Concept

Carnevale's
537086 Main st. Horinig's mills
Township of Melancthon



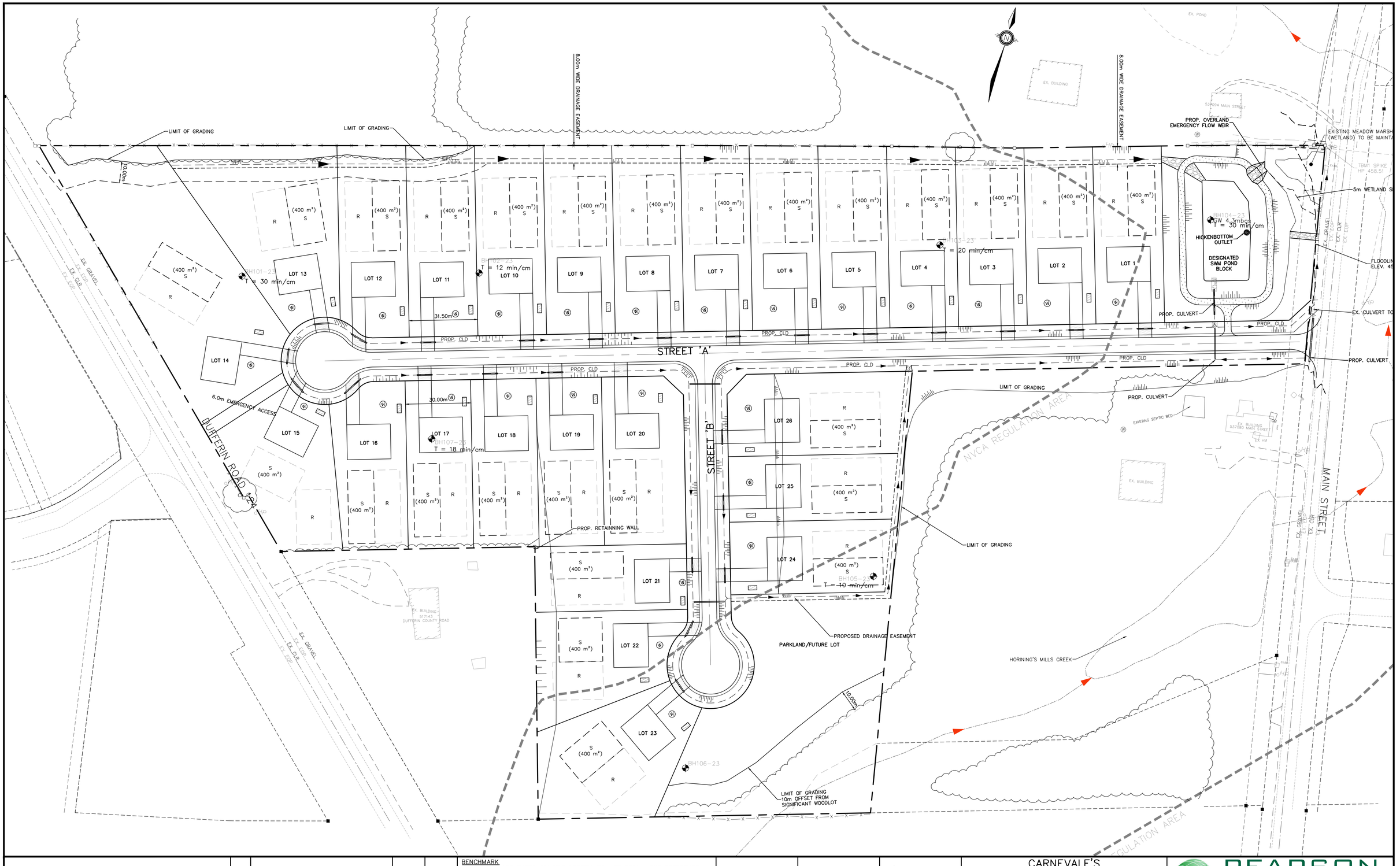
Drawing List

DP-1	draft Plan
SGS-1	Preliminary Site Servicing and Grading Plan
STM-1	Pre-Development Storm Catchment Plan
STM-2	Post-Development Storm Catchment Plan
PND-1	Stormwater Management Pond

Township of Melancthon
157101 On-10
Melancthon, Ontario
L9V 2E6

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

23008 – CARNEVELE'S –00 – FEBRUARY 2024



BENCHMARK
ELEVATIONS ARE BASED ON GPS OBSERVATION TO PERMANENT REFERENCE STATION IN THE NAD83(CSRS-2010) COORDINATE SYSTEM AND HAVE BEEN CORRECTED TO ORTHOMETRIC ELEVATION ON THE CGVD28 DATUM (1978 ADJUSTMENT) WITH GEOID MODEL HTv2.0, AS SUPPLIED BY NATURAL RESOURCES CANADA.

TBM1, SPIKE IN HYDRO POLE, 458.51m.

NO.	REVISION NOTE	DATE	BY

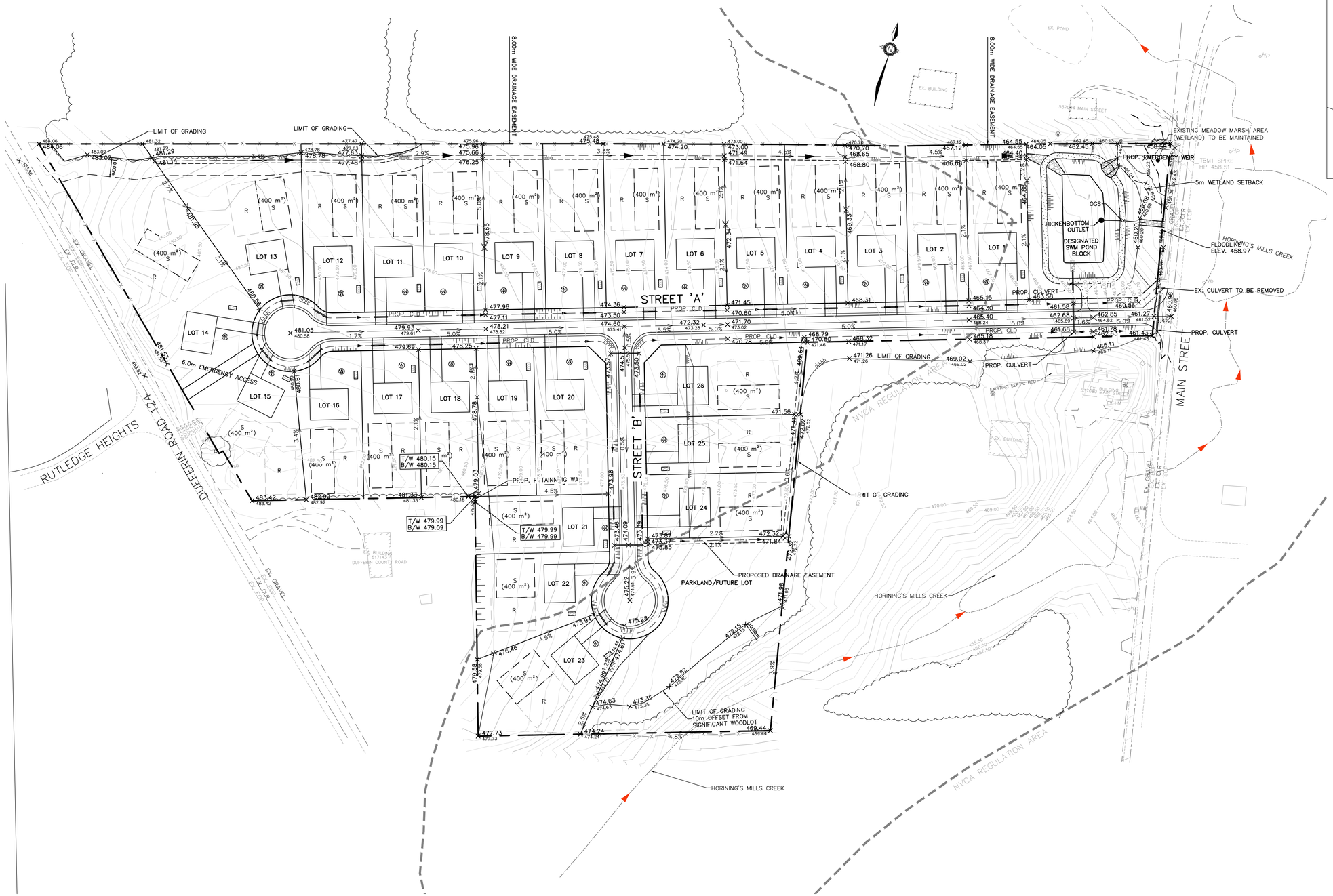
LICENCED PROFESSIONAL ENGINEER
M.W. DEJEAN
Mar 21, 2024
PROVINCE OF ONTARIO

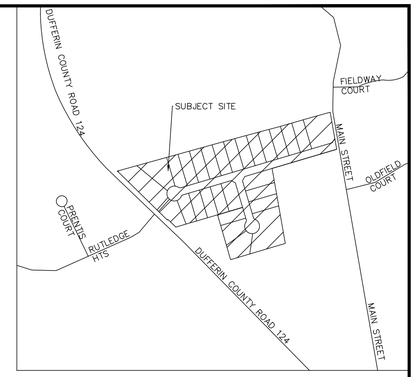
CARNEVALE'S
537086 MAIN ST., HORNING'S MILLS
TOWNSHIP OF MELANCTHON

DRAFT PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AMC/IR	HORIZ SCALE	1:750
DRAWN BY	NP/IR	VERT SCALE	VERT
CHECKED BY	MWD/GMP	DATE	APRIL 2023
PROJECT #	23008		
DRAWING #	DP-1		
REVISION #	0		





KEYMAP
N.T.S

LEGEND

- 254.63 / 254.09 — PROPOSED ELEVATION / EXISTING ELEVATION
- 1.5% — PROPOSED DIRECTION AND
- NVCA REGULATED AREA LINE
- PROPOSED RIPRAP
- PROPOSED SOAKAWAY PITS
- PROPERTY LINE
- PROP. WELL
- DRIVEWAY LOCATION SUBJECT TO CHANGE AT PLOT PLAN STAGE
- R / S — PROP. SEPTIC BED (400m² TYPICAL
- LOT 1 — HOUSE ENVELOPE (320 m²)
- EXISTING/PROPOSED FLOODLINE

NOTE: SEE SEPTIC BED SIZING IN FSR REPORT

NO.	REVISION NOTE	DATE	BY

BENCHMARK
ELEVATIONS ARE BASED ON GPS OBSERVATION TO PERMANENT REFERENCE STATION IN THE NAD83(CSRS-2010) COORDINATE SYSTEM AND HAVE BEEN CORRECTED TO ORTHOMETRIC ELEVATION ON THE CGVD28 DATUM (1978 ADJUSTMENT) WITH GEOID MODEL HTv2.0, AS SUPPLIED BY NATURAL RESOURCES CANADA.

TBM1, SPIKE IN HYDRO POLE, 458.51m.

LICENCED PROFESSIONAL ENGINEER — M.W. DEJEAN — Mar 21, 2024 — PROVINCE OF ONTARIO

CARNEVALE'S
537086 MAIN ST., HORNING'S MILLS
TOWNSHIP OF MELANCTHON

PRELIMINARY SITE SERVICING & GRADING PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AMC/IR	HORIZ SCALE	1:1000
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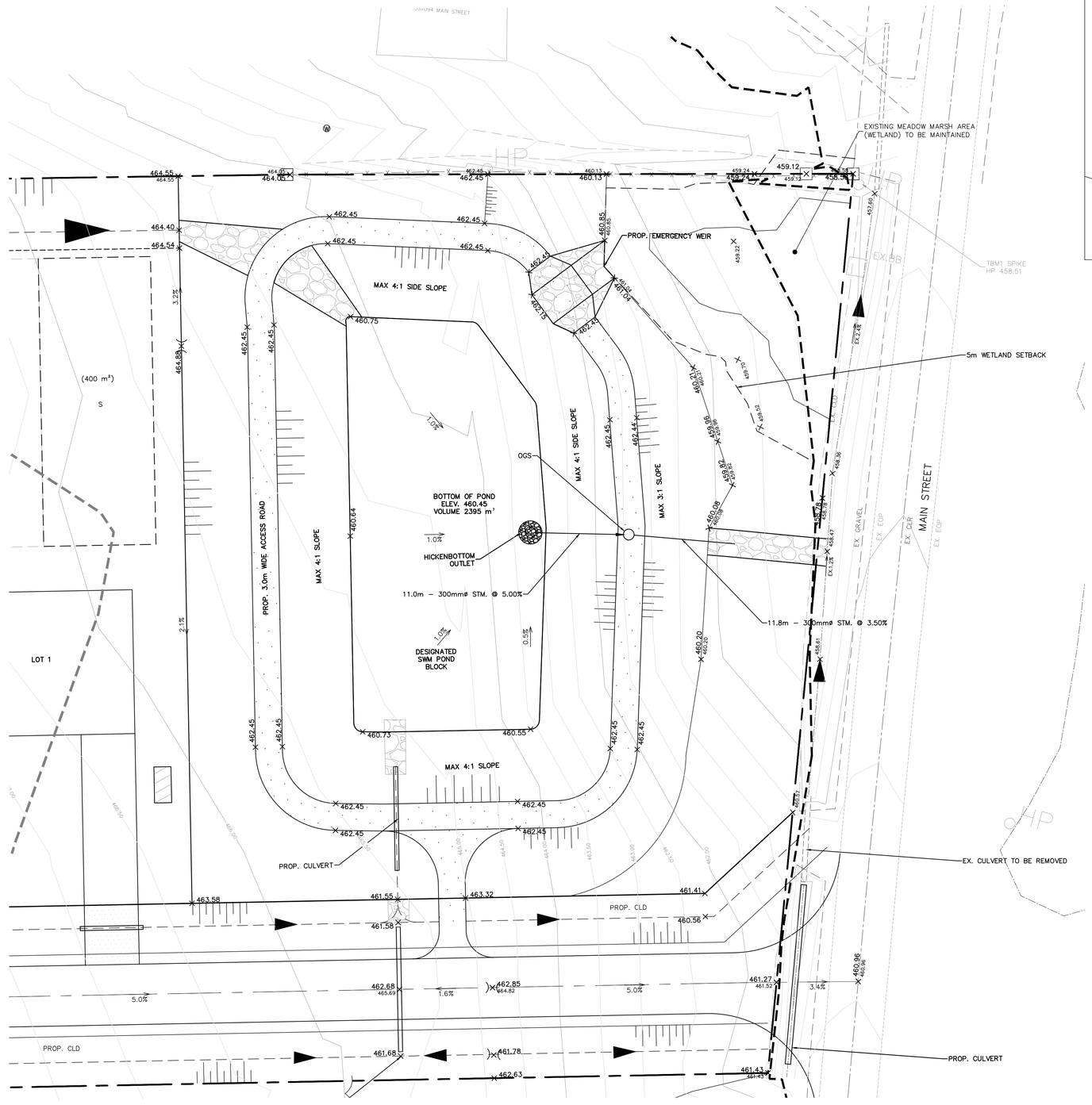
PROJECT #	23008		
DRAWING #	SSG-1		
REVISION #	0		



KEYMAP
N.T.S

LEGEND

×254.63 254.09	PROPOSED ELEVATION EXISTING ELEVATION
1.5% →	PROPOSED DIRECTION AND GRADE
○ MH	STORM MANHOLE
) (	HIGH POINT
▬ ▬ ▬	NVCA REGULATED AREA LINE
▨	PROPOSED RIPRAP
Ⓦ	EXISTING WELL
—— – ——	PROPERTY LINE
━ ━ ━	EXISTING/PROPOSED FLOODLINE

NO.	REVISION NOTE	DATE	BY

BENCHMARK

ELEVATIONS ARE BASED ON GPS OBSERVATION TO PERMANENT REFERENCE STATION IN THE NAD83(CSRS–2010) COORDINATE SYSTEM AND HAVE BEEN CORRECTED TO ORTHOMETRIC ELEVATION ON THE CGVD28 DATUM (1978 ADJUSTMENT) WITH GEOID MODEL HTv2.0, AS SUPPLIED BY NATURAL RESOURCES CANADA.

TBM1, SPIKE IN HYDRO POLE, 458.51m.

LICENCED PROFESSIONAL ENGINEER
M.W. DEJEAN
Mar 21, 2024
PROVINCE OF ONTARIO

CARNEVALE'S
537086 MAIN ST., HORNING'S MILLS
TOWNSHIP OF MELANCTHON

STORMWATER MANAGEMENT POND

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AMC/IR	HORIZ SCALE	1:250	PROJECT #	23008
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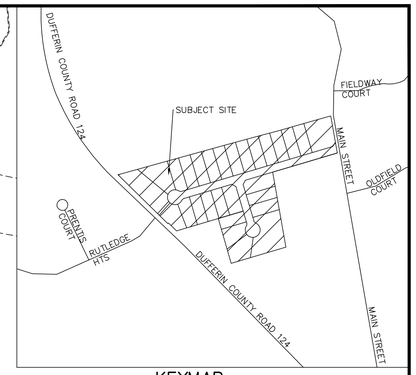

KEYMAP
N.T.S

LEGEND

- OVERLAND FLOW DIRECTION
- CATCHMENT AREA (1 | 0.75 | 1.00 ha) CN NUMBER OR IMPERVIOUSNESS
- AREA IN HECTARES
- CATCHMENT BOUNDARY
- NVCA REGULATED AREA LINE
- EXISTING FLOODLINE
- PROPERTY LIME
- BH#

NO.	REVISION NOTE	DATE	BY

BENCHMARK
ELEVATIONS ARE BASED ON GPS OBSERVATION TO PERMANENT REFERENCE STATION IN THE NAD83(CSRS-2010) COORDINATE SYSTEM AND HAVE BEEN CORRECTED TO ORTHOMETRIC ELEVATION ON THE CGVD28 DATUM (1978 ADJUSTMENT) WITH GEOID MODEL HTv2.0, AS SUPPLIED BY NATURAL RESOURCES CANADA.

TBM1, SPIKE IN HYDRO POLE, 458.51m.

LICENCED PROFESSIONAL ENGINEER
M.W. DEJEAN
Mar 21, 2024
PROVINCE OF ONTARIO

CARNEVALE'S
537086 MAIN ST., HORNING'S MILLS
TOWNSHIP OF MELANCTHON

PRE-DEVELOPMENT STORM CATCHMENT PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AMC/IR	HORIZ SCALE	1:1000
DRAWN BY	NP/IR	VERT SCALE	N/A
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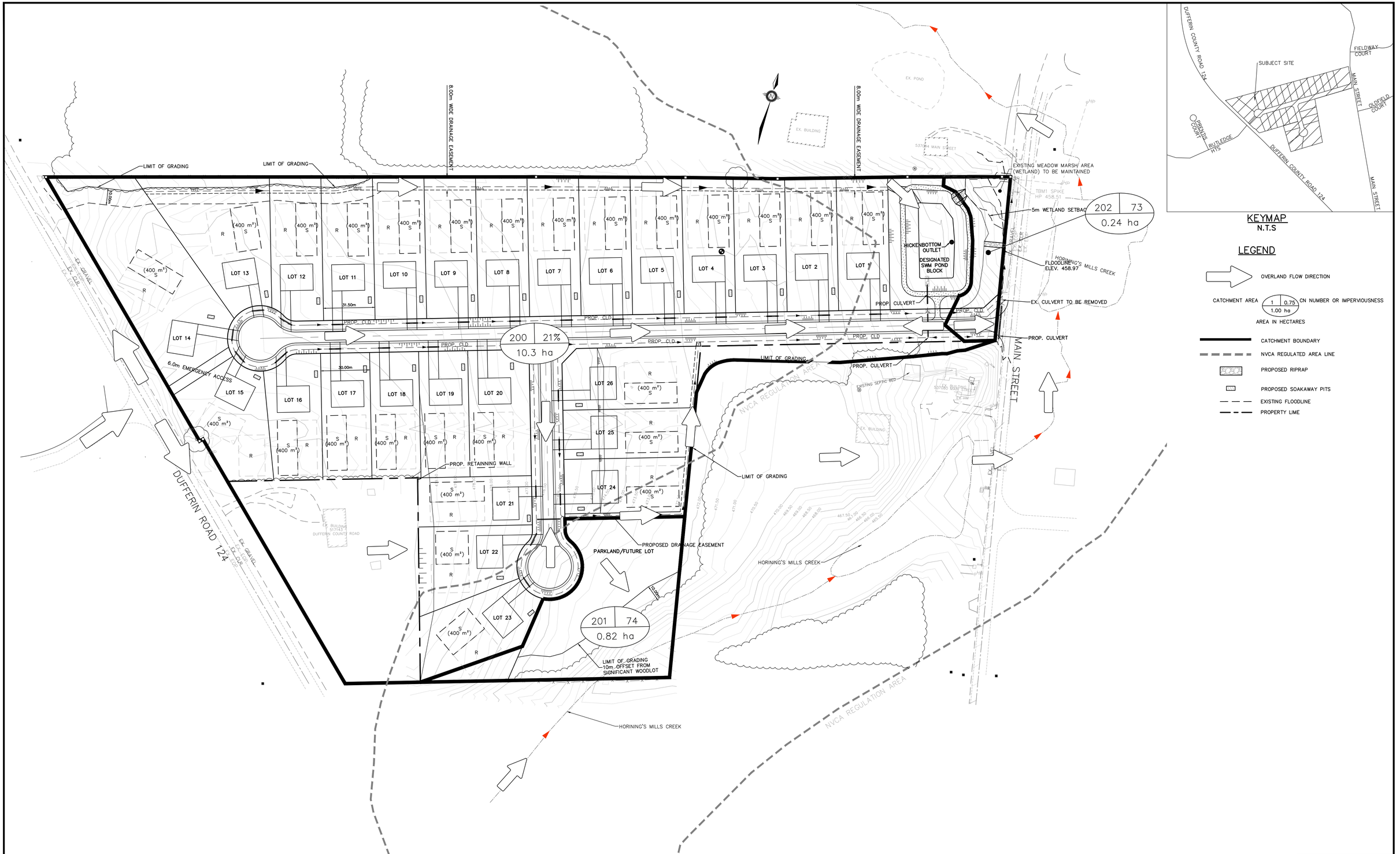
PROJECT #	23008		
DRAWING #	STM-1		
REVISION #	0		



KEYMAP
N.T.S

LEGEND

- OVERLAND FLOW DIRECTION
- CATCHMENT AREA (1 | 0.75 CN NUMBER OR IMPERVIOUSNESS; 1.00 ha AREA IN HECTARES)
- CATCHMENT BOUNDARY
- NVCA REGULATED AREA LINE
- PROPOSED RIPRAP
- PROPOSED SOAKAWAY PITS
- EXISTING FLOODLINE
- PROPERTY LIME

NO.	REVISION NOTE	DATE	BY

BENCHMARK
ELEVATIONS ARE BASED ON GPS OBSERVATION TO PERMANENT REFERENCE STATION IN THE NAD83(CSRS-2010) COORDINATE SYSTEM AND HAVE BEEN CORRECTED TO ORTHOMETRIC ELEVATION ON THE CGVD28 DATUM (1978 ADJUSTMENT) WITH GEOID MODEL HTv2.0, AS SUPPLIED BY NATURAL RESOURCES CANADA.

TBM1, SPIKE IN HYDRO POLE, 458.51m.

LICENCED PROFESSIONAL ENGINEER
M.W. DEJEAN
Mar 21, 2024
PROVINCE OF ONTARIO

CARNEVALE'S
537086 MAIN ST., HORNING'S MILLS
TOWNSHIP OF MELANCTHON

POST-DEVELOPMENT STORM CATCHMENT PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AMC/IR	HORIZ SCALE	1:1000
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REVISION #	0		