Environmental Impact Study

Lot 11 Concession 7

Mansfield

Prepared for:
2735528 Ontario Inc.

Prepared by:
Azimuth Environmental
Consulting, Inc.

November 2021

AEC 21-158

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

November 3, 2021 AEC 21-158

2735528 Ontario Inc.
c/o David Seaman
12 Trotter Court
Barrie, Ontario L4N 5S4

Re: **Environmental Impact Study for a Proposed Development on Lot 11, Concession 7 East of Hurontario (Mansfield), Township of Mulmur**

Dear Mr. Seaman:

Azimuth Environmental Consulting, Inc. was retained to provide an Environmental Impact Study for a proposed residential subdivision development at the location described above. The purpose of this report is to provide the Nottawasaga Valley Conservation Authority and other review agencies with an understanding of natural environmental conditions and potential for impacts related to the proposed development on natural heritage features and functions of the property and adjacent lands. This report also documents natural environmental features present on the property and/or adjacent lands with regard to species at risk and their habitats. The assessment concludes that the proposed development can be achieved without impacts to natural heritage features and functions, including Species at Risk. Additional DFO consultation is recommended at the detailed design stage to determine whether permitting under the federal *Fisheries Act* is required.

Should you have any questions please do not hesitate to contact the undersigned.

Yours truly,

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

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1.0 INTRODUCTION

Azimuth Environmental Consulting, Inc. (Azimuth) was retained by 2735528 Ontario Inc. (proponent) to prepare an Environmental Impact Study (EIS) for a proposed residential subdivision development ("Armstrong Estates") on Lot 11, Concession 7 in the community of Mansfield, Township of Mulmur (Township), County of Dufferin (County) (Figure 1). The lands subject to the proposed development are 21.5 hectares (ha) in size. It is our understanding that an EIS is required because of the presence of a watercourse (Tributary of the Pine River) and associated mapped woodlands on the property. Portions of the study area are within the jurisdiction of the Nottawasaga Valley Conservation Authority (NVCA). A permit under Ontario Regulation (O. Reg.) 172/06 will be required for all works in regulated lands to proceed with the proposed development.

The purpose of this EIS is to identify candidate Key Natural Heritage Features and Functions (KNHFFs) present in the study area and address potential impacts to those KNHFFs. A review of background information, combined with field surveys, was undertaken in spring/summer 2021 to identify KNHFFs. The report also examines potential for Species at Risk (SAR) and SAR habitat protected under the *Endangered Species Act*, 2007 (ESA). The potential for negative impacts to KNHFFs 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 Figure 1 to Figure 3, and adjacent lands [within approximately 120 metres (m) of the property]. Natural features in the overall planning area beyond the defined study area limits are discussed where applicable throughout the report.

2.0 PLANNING CONTEXT

2.1 Provincial Planning Policy (2020)

The Provincial Policy Statement (PPS) (MMAH, 2020) outlines policies related to natural heritage features (Section 2.1) and water resources (Section 2.2). Ontario's *Planning Act*, (1990) requires that planning decisions shall be consistent with the PPS. The study area for this assessment is located entirely in 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 2.1.5 of 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 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 and 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 ecological functions.

2.2 Endangered Species Act (2007)

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

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 County of Dufferin

The property is designated by the County's Official Plan (OP; 2015) as occurring entirely in the Settlements designation (Schedule A; Appendix A). The property and adjacent lands do not occur in the vicinity of a mapped Provincial Plan Area, Provincially Significant Wetland (PSW), Locally Significant Wetland, woodland, Area of Natural and Scientific Interest (ANSI) – Provincial or ANSI – Regional in accordance with Schedule A, Schedule B and Schedule E of the County OP (Appendix A). The property partially contains a County Preliminary Natural Heritage System (Schedule E1, Appendix A). Dufferin County mapping (2021) illustrates a watercourse on the property (Appendix A)

2.4 Township of Mulmur

The property is designated by the Township's OP (2012) as Hamlet Residential, with Natural Area along the watercourse (Schedule A1; Appendix A). Township OP schedules indicate a watercourse, as well as floodplain and moderate steep slope (15-30%) hazards on the property (Schedule B2 and Schedule B3; Appendix A). The OP schedules show no wetlands, core deer wintering areas, ANSI or Significant Woodlands associated with the property (Schedule B2; Appendix A).

Section 5.18 of the OP indicates that pine plantations "with very low natural diversity or significance (*i.e.* not within an area identified on the schedules as being significant for other reasons, such as core wildlife habitat)" do not meet criteria for natural heritage features.

2.5 Nottawasaga Valley Conservation Authority

The property is in the jurisdiction of the NVCA, and thus, includes lands subject to O. Reg. 172/06 – "Regulation of Development Interference with Wetlands and Alterations to Shorelines and Watercourses" by the NVCA. Under Regulation 172/06, the NVCA requires that approvals be obtained for any proposed development or site alteration in areas regulated under a conservation authority's jurisdiction.

2.6 Federal *Fisheries Act*

On August 28, 2019, provisions of the new *Fisheries Act* came into force that included new 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, the project does not fall within waterbodies where Fisheries and Oceans Canada (DFO) review isn't required or

the scope of the project is not entirely covered under standards and code of practice, proponents are asked to submit a request for review to their Fish and Fish Habitat Protection Program regional office. If death of fish, or HADD of fish habitat have the potential to occur, the project may require an authorization from the Minister of Fisheries, Oceans and the Canadian Coast Guard as per Paragraph 34.4(2)(b) or 35(2)(b) of the *Fisheries Act Regulations*. 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

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, NVCA, 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;
- Contacted the MNRF, MECP, and DFO as required to acquire background data related to natural heritage features including SAR information;
- Contacted the NVCA as required to confirm the Terms of Reference for the scope of the study is appropriate;
- Conducted field surveys to document existing natural heritage features, functions, and species:
    - Evaluate/ map vegetation community types based on Ecological Land Classification (ELC) methods (summer 2021);
    - One (1) vascular plant inventory on the property (summer 2021);
    - Fisheries visits to assess the drainage swale on the property and mapped watercourse (Pine River Tributary) to assess potential direct and indirect fish habitat (April, June/July 2021);
    - One (1) evening frog call survey to confirm presence or absence of amphibian habitat on the property (April 2021);
    - Three (3) dawn breeding bird surveys (June 2021);
    - Three (3) evening/nocturnal breeding bird surveys (May-June 2021);
    - Record all incidental wildlife observations during site visits;
- Completed a SAR habitat assessment using field data collected by Azimuth during site visits and other data available and/or provided by agencies to confirm environmental constraints, and approval requirements under the ESA; and,

- Assessed potential direct and indirect impacts of the proposed development on the natural heritage features and functions identified on or adjacent to the property. Natural heritage features and functions, along with buffer setbacks, will be mapped on high quality aerial imagery.

The above scope was provided to the NVCA as a Terms of Reference (TOR) for the field program and impact assessment on April 13, 2021. A response was received on April 20, 2021 (Mike Francis, Planning Ecologist) confirming the scope of the program undertaken was acceptable (Appendix A). The NVCA noted that, if prescribed field surveys revealed headwater drainage features (HDFs) on the property (separate from the Pine River Tributary), a full HDF assessment would be required. As no additional drainage features were identified on the property, this additional work was considered not applicable.

3.1 Background Data

A review of background documents provided information on property characteristics, habitat, wildlife, rare species and communities, and general cultural/historic aspects of the study area. Background documentation included a review of the following:

- MNRF Natural Heritage Information Center (NHIC; MNRF, 2021a);
    - Make-A-Map: Natural Heritage Areas application
- Atlas of the Breeding Birds of Ontario (OBBA; Cadman *et al*., 2007);
- Ontario Reptile and Amphibian Atlas (2021);
- MECP's SAR Ontario list (2021);
- Government of Canada's Species at Risk Public Registry (2021);
- DFO Aquatic SAR interactive mapping (2021);
- NVCA regulation limit mapping (2021);
- Toporama interactive mapping (2021);
- Land Information Ontario (LIO) mapping (2021b);
- Aerial photographs available for the study area (Google Earth Pro, VuMap);
- Atlas of the Mammals of Ontario (Dobbyn, 1994);
- NVCA Fisheries Habitat Management Plan (2009);
- NVCA Integrated Watershed Management Plan – Characterization Report (2018);
- MNRF Fish ON-Line interactive mapping;
- Dufferin County interactive mapping;
- County OP (2015); and,
- Town OP (2012).

3.2 Vegetation Community Mapping and Surveys

Prior to undertaking the field studies, an initial classification of habitats was undertaken using recent air photo imagery for an area encompassing the study area. Vegetation boundaries were then checked in the field on July 19, 2021 during the growing season when the emergent ground cover vegetation layer was present. Vegetation community types were classified using ELC protocols. The wetland boundary was delineated by taking Global Positioning System (GPS) coordinates based on plant species assemblages; GPS coordinates were not recorded for the woodland dripline.

The property visit was undertaken by a qualified ecologist with existing knowledge related to rare, Threatened and Endangered plant species with potential to occur in the area. The assessment was focused during ELC work to ensure that appropriate effort was made to detect any federally or provincially designated species, notably SAR as identified by the Committee on the Status of Species at Risk in Ontario (COSSARO) and Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The plant inventory included a screening for Butternut (*Juglans cinerea*; 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 undertaken for the scope of this assignment included an assessment of SAR with potential to occur at the County scale. The County list was modified based on habitat features in the area and species ranges. The assessment included SAR occurrence records from the NHIC database (Appendix B). Habitat requirements and appropriate designations (Endangered, Threatened or Special Concern) are outlined in Table 1. The SAR assessment followed the MECP guidance document - Client's Guide to Preliminary Screening for SAR (MECP, 2019).

3.3.2 Breeding Birds

Three dawn breeding bird surveys were conducted in the study area on June 4, June 16 and June 28, 2021 guided by point count methodology presented in the OBBA Guide for Participants (OBBA, 2001). All surveys were conducted no earlier than one half hour before sunrise and were completed prior to 10:00am. Surveys were completed under suitable weather conditions [*i.e.* no precipitation and light winds (Beaufort wind scale $\leq$3)], with an observation period of 5 minutes (min) carried out at point count stations shown on Figure 2.

Nocturnal bird surveys were completed based on a modified version of the Canadian Nightjar Survey Protocol (Birds Canada *et al*., 2019). Surveys were carried out in May and June 2021 with the objective of sampling for Eastern Whip-poor-will (*Antrostomus vociferus*) and Common Nighthawk (*Chordeiles minor*) (SAR birds). Surveys were focused to a period within seven days of the full moons on May 26, 2021 and June 24, 2021. Surveys took place starting no earlier than 30min after sunset and no more than 90min after sunset to capture crepuscular conditions. Point counts took place with an observation period of 10min at one roadside point count station. All surveys were undertaken on calm clear nights with:

- At least 50% of the visible moon surface illuminated;
- Little or no cloud cover;
- Calm to light winds (Beaufort ≤3);
- No precipitation; and,
- Temperatures above 10^{o}C.

Azimuth attended the study area for three evenings on May 25, June 23 and June 24, 2021, all of which demonstrated suitable weather conditions. Surveys were undertaken at the survey stations illustrated on Figure 2.

3.3.3 Amphibians and Reptiles (Herpetofauna)

Azimuth conducted one evening calling amphibian survey on April 8, 2021 to assess amphibian breeding on and/or adjacent to the property in accordance with the Great Lakes Marsh Monitoring Program (Bird Studies Canada, 2008) protocol. In accordance with the protocol, the amphibian survey was completed during the period between 30min after sunset and midnight, on an evening with winds Beaufort <4. The survey occurred during the early spring period with a minimum temperature of 5°C. The location of the two survey stations is illustrated on Figure 2. Since availability of potential wetland habitat considered suitable (*e.g.*, sufficient standing water) for breeding amphibians was considered low on the property (based on photo imagery), only one amphibian survey was recommended in the approved TOR. Observations for reptiles (*e.g.*, snakes, turtles) were undertaken as a matter of course during fieldwork.

3.3.4 Bats and Bat Habitat

Several bat species [including Endangered bats Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentionalis*) and Tri-colored Bat (*Perimyotis subflavus*)] may utilize large trees preferably 25 centimetres (cm) diameter at breast height (DBH) in early stages of decay. These trees are described as "snag" trees – those having cracks, splits, holes, *etc.* that could feasibly provide access for roosting bats. Azimuth conducted a preliminary bat snag survey on April 8, 2021 during the leaf-off season to determine

whether or not the property had suitable potential snag trees that might be used by bats (*i.e.*, potential maternity and/or day roosts).

3.4 Fish and Fish Habitat

The property was evaluated on April 13, 2021 and June 24, 2021 to identify the location of drainage occurrences. One watercourse was confirmed as a tributary to a branch of the Pine River, and the field assessment included characterizing channel features and size such as wetted width, water depths, flow, vegetation communities and channel substrate. The watercourse was walked to make visual observation of fish and characteristics of fish habitat, which combined with background information, was utilized to determine fish habitat sensitivity.

MNRF's LIO database and other online information sources, including NVCA's Fisheries Habitat Management Plan (NVCA, 2009), were consulted for background fisheries data for the watercourse on the property. A fisheries information request was submitted to MNRF Midhurst (Appendix B). Aquatic SAR mapping from DFO was used to verify SAR fish records associated with the watercourse and catchment area (DFO, 2019).

4.0 EXISTING CONDITIONS

4.1 Land Use

The property borders Airport Road on the west side and Dufferin County Road 17 on the south side in the community of Mansfield, Ontario, approximately seven kilometres (km) west of Everett. The property is in a developed area and consists of two agricultural Soybean (*Glycine max*) fields separated by a riparian woodland feature (Figure 2). Topography on the property is gently undulating.

Adjacent lands consist of residential, commercial and municipal park land uses to the south and west, and farmland (*e.g.*, row crop, hay) to the north and northeast. The riparian woodland feature continues off-property to the southeast in a coniferous plantation.

4.2 Terrestrial Resources

4.2.1 Vegetation

The limits of the seven ELC communities identified in the study area are illustrated on Figure 2. A complete list of vascular plant species identified is presented in Table 2, and summary descriptions of ELC vegetation communities are in Table 3. Appendix C provides a photographic record of the study area.

OAGM1 (Annual Row Crop-Soybean) occupies the majority of the property. The eastern property boundary is bound by a treed hedgerow, and a grass hedgerow fringe is located along the northern property boundary. The other ELC communities identified include Fresh-Moist Manitoba Maple Deciduous Woodland (WODM5-3), Mixed Mineral Meadow Marsh (MAMM3-1), Fresh-Moist Mixed Meadow (MEMM4), Dry-Fresh Mixed Woodland (WOMM3) and Dry-Fresh Deciduous Shrub Thicket (THDM2) (Figure 2). The MAMM3-1 vegetation community associated with the watercourse is a narrow wetland within the riparian WODM5-3 woodland.

Adjacent lands to the southeast consist of Coniferous Plantation (TAGM1) (Figure 2, Table 3). Agricultural lands north of the northern property boundary appeared to be row crop.

One hundred and fifty vascular plant species were identified in the study area, 64 (43%) of which are considered native to Ontario (Table 2). This proportion of native species is indicative of anthropogenic influences on the study area.

No Butternut trees were found. None of the vegetation communities or plant species documented are of federal or provincial conservation concern, and no plant species are considered rare provincially (*i.e.*, S1-S3) (NHIC, 2021).

4.2.2 Wildlife

4.2.2.1 Mammals

Evidence of five mammalian species [White-tailed Deer (*Odocoileus virginianus*; direct observation, tracks), cat (*Felis catus*; direct observation), Eastern Coyote (*Canis latrans*; tracks, scat), Eastern Cottontail (*Sylvilagus floridanus*; direct observation, scat) and bat [likely Big Brown Bat (*Eptesicus fuscus*) based on size; flyover observation] was observed on the property. Given the proximity of the study area to large natural areas in the greater landscape, it is expected that the following mammals could conceivably be encountered in the study area: small mammal species (various mice, voles, and shrews); Eastern Chipmunk (*Tamias striatus*); Eastern Gray Squirrel (*Sciurus carolinensis*); Striped Skunk (*Mephitis mephitis*); Porcupine (*Erethizon dorsatum*); Red Fox (*Vulpes vulpes*) and Raccoon (*Procyon lotor*).

4.2.2.2 Birds

Forty (40) bird species were detected on the property and/or on adjacent lands during the dawn breeding bird surveys (Table 4). Four (4) bird species were identified incidentally during the remainder of the field program (Table 4). Eastern Meadowlark (*Sturnella magna*) (Threatened) and Least Bittern (*Ixobrychus exilis*) (Threatened) were identified on adjacent lands but not on the property.

Nocturnal breeding bird surveys did not detect presence of Eastern Whip-poor-will (Threatened) or Common Nighthawk (Special Concern) in the study area.

4.2.2.3 Amphibians and Reptiles (Herpetofauna)

No evening calling amphibians were detected in the study area during the early spring survey. Spring Peepers (*Pseudacris crucifer*; three individuals) and Wood Frogs (*Lithobates sylvaticus*; one to three individuals) were heard calling approximately 150-300m off-property.

No salamanders, newts or reptiles were observed over the course of the field program.

4.2.3 Bats and Bat Habitat

The preliminary survey for possible bat habitat on April 8, 2021 revealed that the potential for bat snag trees was not present on the property. Trees were either relatively small (<25cm DBH) or did not have observable bat snag features.

4.3 Species at Risk

The SAR assessment (Table 1) considers SAR and SAR habitat with potential to occur in the study area, in accordance with field data, known SAR for Dufferin County (Endangered, Threatened or Special Concern) and NHIC records (see Appendix B for NHIC data). Based on this assessment, in combination with vegetation communities and other environmental features observed during the investigation, the following species are considered below in this report:

- **Threatened or Endangered**;
  - Eastern Meadowlark;
  - Least Bittern;
- **Special Concern**;
  - Eastern Wood-pewee;
  - Grasshopper Sparrow; and,
  - Snapping Turtle.

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

4.3.1 Eastern Meadowlark

According to the General Habitat Description for Eastern Meadowlark (MECP, 2021), the area within 10m of a nest location is designated highly sensitive to disturbance

(Category 1 habitat). The area 10-100m from a nest location or centre of an approximated defended territory is moderately sensitive to disturbance (Category 2 habitat). The area of continuous suitable habitat 100-300m from a nest location or centre of an approximated defended territory is considered to be least sensitive to disturbance (Category 3 habitat). One Eastern Meadowlark was calling in the study area approximately 50m east of the eastern property boundary during the first dawn breeding bird survey on June 4, 2021 (Figure 2). The species was not found during the other two surveys, so probable breeding could not be confirmed. For the purposes of this study, calling locations are assumed to coincide with nest locations. Therefore, pursuant to MECP direction, Category 1 habitat occurs in the study area (*i.e.*, within 120m of the property) but not within property limits, and Category 2/Category 3 habitat also occurs in the study area. The approximate limits of Category 1 and Category 2 habitat for Eastern Meadowlark are illustrated on Figure 2.

Suitable Category 2 habitat (moderate sensitivity to disturbance) for Eastern Meadowlark generally includes grasslands, pastures and hayfields, and provides for reproductive activities. Suitable Category 3 habitat (high sensitivity to disturbance) primarily supports life cycle activities such as foraging, rearing young, fledgling dispersal and concealment from predators.

4.4 Wetlands

Background NHIC and VuMap mapping (Appendix B) does not indicate presence of wetland on the property, however, a narrow strip of MAMM3-1 marsh (wetland) habitat was identified associated with the Tributary to the Pine River during fieldwork (Figure 2). The wetland forms a portion of the immediate riparian corridor to the creek, and for the purposes of this study, the wetland is considered "unevaluated" by the MNRF.

4.5 Significant Woodland

Woodlands in the study area are not identified as Significant Woodland on Township schedules (Appendix A), however, woodland habitat (WODM5-3, WOMM3) was identified during field surveys (Figure 2). This feature would not be considered Significant Woodland according to the Township OP (Section 5.20.1). The Significant Woodlands designation requires a forested area of at least 10ha in size. Using ELC mapping on current aerial imagery, the woodland on the property is estimated to be approximately 1.5ha in size.

4.6 Significant Valleyland

No portion of the study area is identified as Significant Valleyland nor assigned a similar designation on Township, County (Appendix A), or provincial mapping resources (NHIC, 2021; Appendix B). As per direction in the Natural Heritage Reference Manual (OMNR, 2010), the watercourse on the property does not fulfill the well-defined valley morphology and landform prominence criteria required to be considered Candidate Significant Valleyland.

4.7 Significant Wildlife Habitat

An assessment of the potential for SWH in the study area was conducted using criteria outlined within MNRF's Significant Wildlife Habitat Technical Guide (2000) and the accompanying the Ecoregion 6E Criteria Schedules (MNRF, 2015). Assessment of Candidate SWH categories relative to documented vegetation communities and habitats in the study area is presented in Table 5. The following Candidate SWH type was determined to be present, or has potential to occur, based on results of the field program, organized by habitat type below:

- Special Concern and Rare Wildlife Species.
    - Eastern Wood-pewee
    - Grasshopper Sparrow
    - Snapping Turtle

This candidate SWH type is discussed below in the context of SWH function.

4.8 Areas of Natural and Scientific Interest

No portion of the study area is identified as ANSI on Township, County (Appendix A), or Provincial mapping resources (NHIC, 2021; Appendix B).

4.9 Fish and Fish Habitat

The study area includes one mapped watercourse located in the Pine River Subwatershed (Nottawasaga River Watershed), which traverses the property as shown on Figure 2 (NVCA, 2018). The property is partially regulated by the NVCA in accordance with Ontario Regulation 172/06 as shown on mapping in Appendix A. No other contributing drainage features were identified.

Desktop mapping indicates the watercourse is a headwater tributary of the Pine River that originates at 10 Sideroad/Dufferin County Road 17, and flows in a northeast then southeast direction on the property (Figure 2). It discharges to the main branch of the Pine River approximately 4.8 kilometres (km) northeast of the property.

Site evaluation confirmed the watercourse on the property receives flow from the south through a 1.7m wide x 0.92m high corrugated steel pipe (CSP) culvert at Sideroad 10. This culvert accepts a combination of roadside ditch drainage, and drainage from the adjacent residential neighbourhood (WE, 2021).

The watercourse on the property alternates between defined sections with undefined banks, and undefined sections through dense herbaceous vegetation within the corridor identified as unevaluated wetland (Figure 2). As a result, the wetted width of the watercourse varied in the spring within the broad floodplain between approximately 0.3m to 7.0m (with water depths of 0.03m to as great as 0.19m at an existing culvert on the property described below). Visible minimal spring flows were noted, while the channel was mainly dry (with no visible flow) by the summer. Watercress (*Nasturtium* sp.) was present in one area of the watercourse (Figure 2). Substrate consisted of muck/organic soils with sparse gravel at the aforementioned culvert. The watercourse corridor lacks a defined floodplain. That corridor slopes up to the elevation of the existing farm field on either side of the watercourse. These slopes are partly forested by large deciduous trees that provide limited shading functions to the watercourse.

As shown on Figure 2, there is an existing 6m wide tractor crossing at the watercourse on the property. Watercourse flow is conveyed via a 0.3m diameter plastic culvert. Photographs 1 to 3 in Appendix C (with photograph locations on Figure 2) show the culvert and aquatic conditions at that location.

The Pine River Subwatershed hosts a diverse fish community that includes both spring and fall spawning species (MNRF, 2019; MNRF, 2021b). Approximately 2.6km downstream of the property, there are records of sensitive spring spawning species including Rainbow Trout (*Oncorhynchus mykiss*) and Mottled Sculpin (*Cottus bairdii*; MNRF, 2021b). Although sections of the Pine River are classified as coldwater, temperature monitoring by NVCA summarized in the Integrated Watershed Management Plan resulted in 'cool' classifications in the southern portion of the subwatershed by Airport Road (in proximity to the property), and 'cool/warm' classifications just downstream (NVCA, 2018). On the property, conditions in the tributary on the property are considered marginal and unsuitable for most fish species including salmonids. Given the small size of the channel and muck, and densely vegetated channel conditions with limited flow, the creek presents more as a warmwater system. Given site conditions and lack of any notable barriers to fish movement (aside from lack of flow and seasonal inundation), the creek is conservatively considered to provide seasonal, direct fish habitat; however, the habitat quality is considered low. This feature is protected under the federal *Fisheries Act*.

The main branch of the Pine River is known to contain aquatic SAR including Northern Brook Lamprey (*Ichthyomyzon fossor*) and Silver Lamprey (*Ichthyomyzon unicuspis*) (DFO, 2019). However, such records are over 4.5km away, and there are no records of aquatic SAR in the Tributary of the Pine River in the vicinity of the property (DFO, 2019). As such, there are no further aquatic SAR considerations for the project.

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 following candidate KNHFFs in the study area:

- Habitat for Threatened or Endangered Species;
    - Eastern Meadowlark;
- Unevaluated Wetlands;
- Candidate Significant Wildlife Habitat;
    - Special Concern and Rare Wildlife Species;
        - Eastern Wood-pewee;
        - Grasshopper Sparrow;
        - Snapping Turtle; and,
- Fish Habitat (seasonal direct).

6.0 PROPOSED DEVELOPMENT

The proposed development involves construction of a residential subdivision known as "Armstrong Estates" on a 21.5ha property. The subdivision will be comprised of 42 single dwellings (Lots #1-42), 10 semi-detached dwellings (Lots #43-47) and 15 townhouses (Blocks #48-50) (Figure 3; see also Site Plan in Appendix D). Semi-detached Lots #43-47 and townhome Lots #48-50 will be serviced by three communal underground septic systems (Blocks #51-53), located south of the tributary between the watercourse and County Road 17 (Figure 3), and single detached dwellings will have private individual septic systems. The development also includes two stormwater management facilities (SWMFs) in Block #54 and Block #55, located south and west of the tributary, respectively.

The Site Plan, as overlaid on the existing features map (Figure 3), shows a 6m top-of-bank setback from the limit of development. This setback was determined to provide a suitable, stable distance between the watercourse floodplain corridor and the edge of the development based on soils, topography and vegetation community by geotechnical investigation by Peto MacCallum Ltd. (PML). A 6m setback from natural hazard limits is the minimum provincial allowance (MNR, 2002) and would be considered by the

NVCA (Appendix A). A fenced 6m top-of-bank setback would be outside of the lots and service blocks.

7.0 IMPACT ASSESSMENT

This impact assessment is prepared having regard for the construction footprint of the proposed development lands and associated grading limits, as described above and illustrated on Figure 3. The impact assessment assumes the 6m top-of-bank setback scenario noted above in Section 6.0.

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. Section 10 covers destruction or damage to habitat of Threatened or Endangered species. The following Threatened or Endangered species are confirmed to occur either in the study area or adjacent to the study area:

- Eastern Meadowlark; and,
- Least Bittern.

7.1.1 Eastern Meadowlark

In the study area, the OAGM1 vegetation community (Soybean field) will be affected by the proposed development in terms of a portion of Category 2 habitat (10-100m from the nest location) that extends onto the property. Since this OAGM1 vegetation community is not suitable habitat for the species and would not be expected to be used, the proposed development will not pose direct impacts to Eastern Meadowlark. Grassland habitat east of the property, where Eastern Meadowlark were present during the first breeding bird survey, that is considered suitable for foraging, nesting and raising young, will be maintained post-development. Thus, no direct impacts to suitable Eastern Meadowlark Category 2 habitat will occur. Provided that the mitigation measures recommended below in Section 8.0 are followed, the potential for indirect impacts is considered mitigable.

The proposed development will not restrict Category 3 habitat activities (100-300m from nest location; foraging, rearing young, fledgling dispersal and concealment from predators). Consequently, there is no expectation of negative direct or indirect impacts to Category 3 habitat as a result of the proposed development.

7.1.2 Least Bittern

Least Bittern was detected calling approximately 200m northeast of the property during one of the three dawn breeding bird surveys. This distance locates the species an estimated 80m beyond the study area. Since the proposed development will not impact these lands, there is no expectation of negative direct or indirect impacts to the species as a result of the proposed development.

7.2 Unevaluated Wetlands

An unevaluated wetland (MAMM3-1; estimated area = 0.67ha) was identified on the property associated with the tributary (Figure 2). Based on a fenced 6m top-of-bank setback as the rear lot line, residential lots will be approximately 10-65m (overall) away from the delineated wetland edge, and thus, will not encroach into the wetland. It is our understanding that SWM and septic facilities will remain approximately 25-40m away (overall) from the delineated wetland edge. As such, an appropriate average wetland setback will be maintained from the feature. Consequently, the proposed development will not represent a direct impact to wetlands in regards to the lot fabric or service blocks. Provided that mitigation measures recommended in Section 8.0 below are followed, the potential for indirect impacts to wetlands in relation to lots and service blocks is considered mitigable.

The Site Plan indicates a new culvert crossing associated with Street 'C' that will cross the Tributary of the Pine River. The new culvert crossing will be approximately 21m long (see also Section 7.4 below). Since the existing culvert crossing is ~6m long, this culvert crossing length increase will result in a loss of ~15m of wetland vegetation to accommodate the new crossing, which corresponds to 0.006ha (0.9%) of wetland habitat. Combined with wetland loss due to the Street 'C' Right of Way (0.04ha), construction of Street 'C' and the new culvert crossing will result in a total loss of 0.046ha (6.9%) of wetland. This estimate assumes that the new culvert crossing will be in the same location and orientation as the existing culvert, which would be confirmed during future design stages. Wetland vegetation removals will represent a direct impact to the wetland.

The wetland feature is heavily vegetated, with sparse areas of open water. Based on field observations, the wetland is generally dry by August, and no evening calling amphibians were found during the field program. Based on these feature attributes, unique ecological functions would not be attributed to the wetland on the property. Consequently, loss of 6.9% of wetland vegetation to accommodate the new Street 'C' and culvert crossing would be considered minimal wetland loss that is not anticipated to have an appreciable impact on the wetland or its habitat function, providing mitigation measures in Section

8.0 are followed. The potential for possible indirect wetland impacts are considered mitigable, as discussed in Section 8.0.

7.3 Candidate Significant Wildlife Habitat

According to the PPS, development and site alteration are not permitted in SWH in Ecoregion 6E, unless it can be demonstrated there will be no negative impacts upon the feature and its ecological function.

7.3.1 Special Concern and Rare Wildlife Species

Eastern Wood-pewee and Grasshopper Sparrow (Special Concern) were observed during dawn breeding bird surveys. Eastern Wood-pewee was found in the riparian woodland feature on the property, however, Eastern Wood-pewee are commonly found throughout Ontario. The riparian woodland has an estimated area of 1.50ha, including WODM5-3 and WOMM3 ELC polygons. Construction of Street 'C' and the new culvert crossing will result in a loss of approximately 0.016ha of woodland. Based on a 6m top-of-bank setback, an additional estimated 0.13ha of woodland will likely be removed. Combined, this loss of tree cover corresponds to approximately 0.15ha (9.7%) of woodland habitat loss. Since 90% of the woodland will be retained post-development, the proposed development will not result in loss of woodland feature function. It follows that habitat function for Eastern Wood-pewee will not be expected to be impacted.

Grasshopper Sparrow was detected along the eastern edge (*i.e.*, grassland side) of the hedgerow on the eastern property boundary, and in a grass hedgerow fringe associated with adjacent agricultural lands to the north of the property. The proposed development will not result in loss of the remnant grassland fringe on adjacent lands north of the property, or in loss of adjacent grassland habitat to the east. Since these habitat areas will remain post-development, it follows that habitat function for the species will not be impacted. Providing the mitigation measures recommended in Section 8.0 are followed, the potential for indirect impacts is considered mitigable.

The woodland could conceivably function as a potential movement corridor for Snapping Turtle, although no turtles were observed nor was evidence of turtles found. In lieu of conducting a comprehensive screening, the species is treated as present within the study area limits for the purposes of this assessment. Since the majority of the riparian woodland (90%) will remain post-development, woodland loss would be considered minimal and impacts to its function as a potential movement corridor for turtles are not anticipated, providing mitigation measures in Section 8.0 are followed. The potential for possible indirect impacts are considered mitigable, as discussed in Section 8.0. The existing wetland/riparian woodland corridor associated with the Tributary of the Pine

River is currently bisected by the tractor crossing. The proposed development will result in widening this corridor bisection. Integration of a wildlife passage into the new culvert designs (to be determined at a future design stage) to restore and maintain habitat connectivity on either side of Street 'C' would help mitigate impacts to wildlife, including turtles (if using the riparian corridor).

7.4 Fish Habitat

The PPS states that development and site alteration are not permitted in fish habitat except in accordance with provincial and federal requirements.

Housing lot development will occur at least 11m (and as great as 71m) from identified seasonal direct fish habitat.
In- and near-water work is anticipated to be required for the proposed Street 'C' watercourse crossing. As per Figure 3, this crossing has been located at the existing ~6m tractor crossing; however, it will require replacing given current condition and size. Although crossing designs have not been finalized, the Site Plan (Appendix D) indicates that the existing crossing will be lengthened from approximately 6m to 21m. As a new roadway, the width of the new structure will be sized to accommodatetwo-lane traffic plus fill slopes. Assessment by the project team's fluvial geomorphologist has determined that a 4m wide by 2m tall concrete box culvert (or twin 2.05m diameter circular culverts) is appropriate for the roadway given site conditions and hydrology (WE, 2021). Culvert lengthening is anticipated to involve the removal of riparian woodland and unevaluated wetland vegetation as described above, as well as the alteration of marginal fish habitat on the property (modifying the channel from open reach to enclosed pipe). While details as to the footprint impacts of a new culvert are unknown at this time, it is recognized that a new culvert can be designed to avoid habitat losses, while maintaining fish passage functions and affording required habitat provisions. Typically for new culvert installations, a culvert that satisfies best management practices for a watercourse crossing can occur without adversely impacting fish habitat, as long as standard mitigation measures are met. Such factors include maintaining fish passage functions, provisions of a low flow channel, proper embedment, and sufficient capacity to maintain the bankfull channel flows (approximated by the two-year flood return period). Additionally, for any new culvert, the channel bottom is to be comprised of natural substrate and include habitat elements for fish. Crossing designs will be completed as a condition of draft plan approval.

The proposed development will involve the installation of dry stormwater management ponds (SWMPs) in Blocks 55 and 54 (Figure 3; PEL, 2021). SWMP footprints, and associated grading, will not extend beyond the the 6m top-of-bank setback. As per the prepared stormwater management plan, post-development runoff into the watercourse

will be reduced compared to pre-development conditions (PEL, 2021). In accordance with MECP stormwater criteria for discharge, water quality controls are also proposed on the property. For the larger identified catchment north of the watercourse, 90% of Total Suspended Solids (TSS) in runoff will be removed from a combination of the north SWMP, vegetated ditches and landscaped areas (PEL, 2021). In the catchment that includes most of the lands to the south of the watercourse, an oil-grit separator and landscaped surfaces are expected to result in approximately 83% TSS removal in runoff (PEL, 2021). Moreover, phosphorus loading into the watercourse is expected to be reduced by 35% compared to pre-development conditions (PEL, 2021). Given these proposed water quantity and quality controls, the proposed development setbacks described above are considered sufficient for the protection of fish and fish habitat present in the watercourse.

At this time, stormwater outlet locations are unknown.It is recommended that all proposed stormwater elements within or next to the two-year flood elevation of the watercourse are reviewed by a fisheries ecologist in future design stages in accordance with DFO's projects near water review process. All projects that occur in or near water should identify potential impacts on fish and fish habitat in order to develop measures to avoid and mitigate impacts accordingly. Strategies for mitigation should follow a series of DFO standards and codes of practice for common works, undertakings and activities, and any unmitigable impacts should be identified to determine if submission to DFO for project work is required.

Similarly, detailed designs for the watercourse crossing should be reviewed by a fisheries ecologist. The installation of the new larger culvert is anticipated to result in residual effects that cannot be mitigated, and therefore is expected to require a Request for Review submission to DFO. Culverts typically cause habitat alteration and not channel losses from infilling (as long as the creek alignment remains unchanged), therefore it is expected that DFO may review the project and conclude that an appropriate level of approval is a Letter of Advice (LOA). An authorization is not anticipated to be required as long as standard mitigation measures are met, and channel realignment is not proposed. General recommendations for crossing design are provided in Section 8.0 below.

Work in and around water has the potential for negative impacts to aquatic features and biota during construction. Encroachment into vegetation communities surrounding the existing tractor crossing, for example, will require machinery, and has the potential to cause disturbances and water quality impacts to the watercourse. Grading, excavation and stockpiling also have the potential to result in sediment-laden runoff. Work around flowing water has the potential for sediment impacts both locally and downstream.

Generally, these impacts are predictable, and mitigable with the application of standard Best Management Practices (BMPs). Potential temporary impacts will need to be confirmed upon the advancement of stormwater/road crossing designs. General recommendations for in- and near-water work are provided in Section 8.0 below.

8.0 RECOMMENDATIONS

8.1 Species at Risk

It should be noted that absence of a protected species in the study area does not indicate that they will never occur in 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 KNHFFs. 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 property 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.

8.1.1 Worker Training

Worker training would assist construction workers in identification of the SAR with potential to occur in the area. Workers should be instructed to stop work and contact the MECP immediately if any SAR are encountered in the work area. Individuals working on the property should ensure that SAR are not harmed during construction or killed by heavy machinery, vehicles or other equipment.

The contractor should educate all site personnel to ensure that, if identified, the SAR are not wantonly injured or killed, and to ensure that damage to features which could constitute habitat is avoided. Information should be conveyed through a SAR expert and include:

- Species habitat and identification;
- Requirements under the ESA including avoidance of harm to the species and damage to relevant habitat;
- Appropriate action to take if the species is encountered;
- How to record sightings and encounters; and,
- That care should be taken when undertaking construction activities to avoid harming the species or damaging/destroying habitat.

The expert should be a qualified biologist who specializes in ecology/biology or SAR.

8.2 Migratory Breeding Birds and Bat Habitat

Activities involving the removal of vegetation/trees should be restricted from occurring during the migratory bird 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 (https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods.html). In Zones C1 and C2, vegetation/tree clearing should be avoided between April 1 and August 31 of a given year to avoid impacts to migratory birds.

According to MECP guidelines, the window during which tree removals should not occur to avoid potential impacts to SAR bats and/or SAR bat habitat protected under the ESA is April 1 to September 30. Habitat for SAR bats was deemed to not be present on the property; however, additional precaution is reasonable in the event of possible minor transient/day roosting by bats.

To ensure protection measures for *both* birds and bats, vegetation/tree removals should be avoided between **April 1 and September 30** accordingly.

If work requires that vegetation/tree clearing is required between April 1 and September 30, screening by an ecologist with knowledge of bird species present in the area and SAR bat habitat could be undertaken to ensure that the vegetation/trees have been confirmed to be free of nests (and SAR bat habitat) prior to clearing.

8.3 Sediment and Erosion Controls

Diligent application of sediment and erosion controls based on BMPs is recommended for all future construction activities to minimize the extent of accidental or unavoidable impacts to adjacent vegetation communities, fish habitat and wildlife 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. All soil stockpiles should be suitably isolated using sediment controls. A detailed Sediment and Erosion Control Plan identifying natural heritage protection measures for all stages of construction will be required in future design stages.

8.4 Operations

All maintenance activities required during future construction should be conducted at least 30m away from retained woodlands, wetlands and fish habitat to prevent accidental spillage of deleterious substances that may harm natural environments.

The contractor is required to have a contaminant and spill management plan in place prior to the initiation of works. In the event of a spill, the contractor must report it immediately to the Spills Action Centre (SAC) at 1-800-268-6060.

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.

8.5 Habitat Restoration and Wildlife Passage

Use of appropriate wetland and riparian woodland plantings (*i.e.*, native plants and trees, respectively, known to occur in the MAMM3-1 and WODM5-3 polygons) may be necessary proximal to post-construction wetland and woodland edges based on Township and/or NVCA requirements. Addition of woodland and/or wetland plantings proximal to the new Street 'C' culvert crossing would further help mitigate habitat impacts, and will be required as part of a future submission to DFO.

To the extent possible, vegetation/tree removals should be minimized in riparian woodland, wetland and deciduous shrub thicket areas. The hedgerow along the eastern property boundary is recommended for retainment, if possible, to provide a buffer between the proposed development and adjacent grasslands where Special Concern and Threatened bird species were identified.

Integration of a wildlife passage into the new Street 'C' culvert crossing designs is recommended to help restore and maintain habitat connectivity in the wetland/woodland corridor post-development. Wildlife passage engineering designs should ensure appropriate BMPs provisions (*e.g.*, openness ratio, dry ledges for passage).

8.6 Fish and Fish Habitat

Any project activity proposed in or near water should comply with the fish and fish habitat protection provisions of the *Fisheries Act*, incorporating measures to avoid causing the death of fish or HADD. Mitigation strategies for avoiding or reducing risk to fish and fish habitat are directly associated with factors such as maintaining riparian vegetation or minimizing disturbances to the extent possible, maintaining fish passage, ensuring proper sediment control (see Section 8.3 above), preventing entry of deleterious substances in water, and ensuring that all site disturbances are restored post construction

through implementation of a post construction habitat enhancement plan (such as plantings or aquatic habitat elements). Considerations for working around the Tributary of the Pine River are as follows:

8.6.1 Road Crossing Design

- Crossing length should be minimized to the extent possible to reduce the enclosure to fish habitat and impacts to riparian vegetation;
- All areas of channel bed disturbance should be restored using appropriately sized waterbody material to support fish habitat functions;
- Exposed/disturbed banks surrounding the proposed road should be suitably stabilized and restored using native seed mixes, shrub and tree plantings to re-establish riparian corridor functions;
- Requirements to realign the Tributary to accommodate a new culvert crossing location should be designed by a qualified fluvial geomorphologist; and,
- The proposal to install a new larger crossing is expected to require preparation and submission of a DFO Request for Review. If the crossing location can be maintained, the new culvert may be approvable under an LOA. If a new crossing location is proposed (and the impact assessment concludes 'infilling' or 'loss'), then the culvert proposal may require submission of an offsetting plan and an authorization from DFO.

8.6.2 In-Water Work

- Fisheries timing restrictions apply to any work in or near water. Although sections of the Pine River function as a coldwater system, the section of the subwatershed in which works will occur functions as a coolwater system, and as such, in-water work should be avoided in the spring to avoid the spring spawning period. MNRF has confirmed in and near water work should be avoided between **March 16 to June 30** (Appendix B).
- All in-water work should be outlined in a detailed work plan. All construction should occur in the dry and in isolation of flow. Flow quantity and quality should be maintained downstream at all times;
- All isolated work areas in the watercourse will require fish salvage prior to dewatering activities. Fish salvage must be completed by a qualified crew that has obtained a License to Collect Fish for Scientific Purposes from the MNRF district office; and,
- If dewatering is necessary, dewatering activities should be pumped to a filter bag (*i.e.,* envirobag or equivalent) prior to being released into the watercourse feature. Filter bags should be placed a minimum of 30m from the watercourses 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.

8.7 Permitting

The proposed development will require an NVCA work permit under O. Reg. 172/06 prior to construction. No permitting under the ESA is expected to be required at this time. Natural heritage review of the new culvert road crossing, wildlife passage and SWMF designs will be required to evaluate all development operations proposed in proximity to wildlife and fish habitat to determine mitigation strategies to avoid wildlife impacts, the death of fish and HADD, and to confirm permitting requirements under the *Fisheries Act.*

9.0 CONCLUSIONS

Based on our analysis, it is concluded that environmental conditions on the property are not limiting to the proposed development through incorporation of the environmental protection measures described in Section 8.0. The conclusions below are made on the assumption that acceptable mitigation implementation and confirmation of possible *Fisheries Act* permitting requirement outcomes do not affect the proposed development plan, and that the new culvert crossing will match the location and orientation of the existing culvert.

At this time, our findings are summarized as follows:

- The proposed site alteration is consistent with policies/legislation of the ESA, Township of Mulmur OP, County of Dufferin OP and NVCA O. Reg. 172/06. The proposed site alteration is consistent with the policies of the PPS; ecological functions of Candidate SWH will be retained post-development;

- 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 development will not result in negative direct or indirect impacts to habitat of SAR providing conformance is demonstrated to mitigation measures described in Section 8.0, in accordance with provincial and federal requirements;

- The proposed works are not expected to impact negatively the ecological functions of Candidate SWH outlined in Section 5.0 if the appropriate mitigation measures outlined in Section 8.0 are followed;

- The ecological function of the wetland and the natural open water units are not expected to be impacted as a result of the proposed works if the appropriate mitigation measures described in Section 8.0 are followed during construction. Installation of a new culvert that incorporates wildlife passage will help restore habitat connectivity on the property; and,

- The proposed development proposes alterations to the Tributary to the Pine River, and at this stage of design impacts are principally associated the proposal to construct a new road crossing to connect the south and north blocks, requiring culvert installation. This new culvert is anticipated to require a submission in the form of a Request for Review to DFO. All work proposed in and near water work will require further detailed fisheries review for future permitting of the development.

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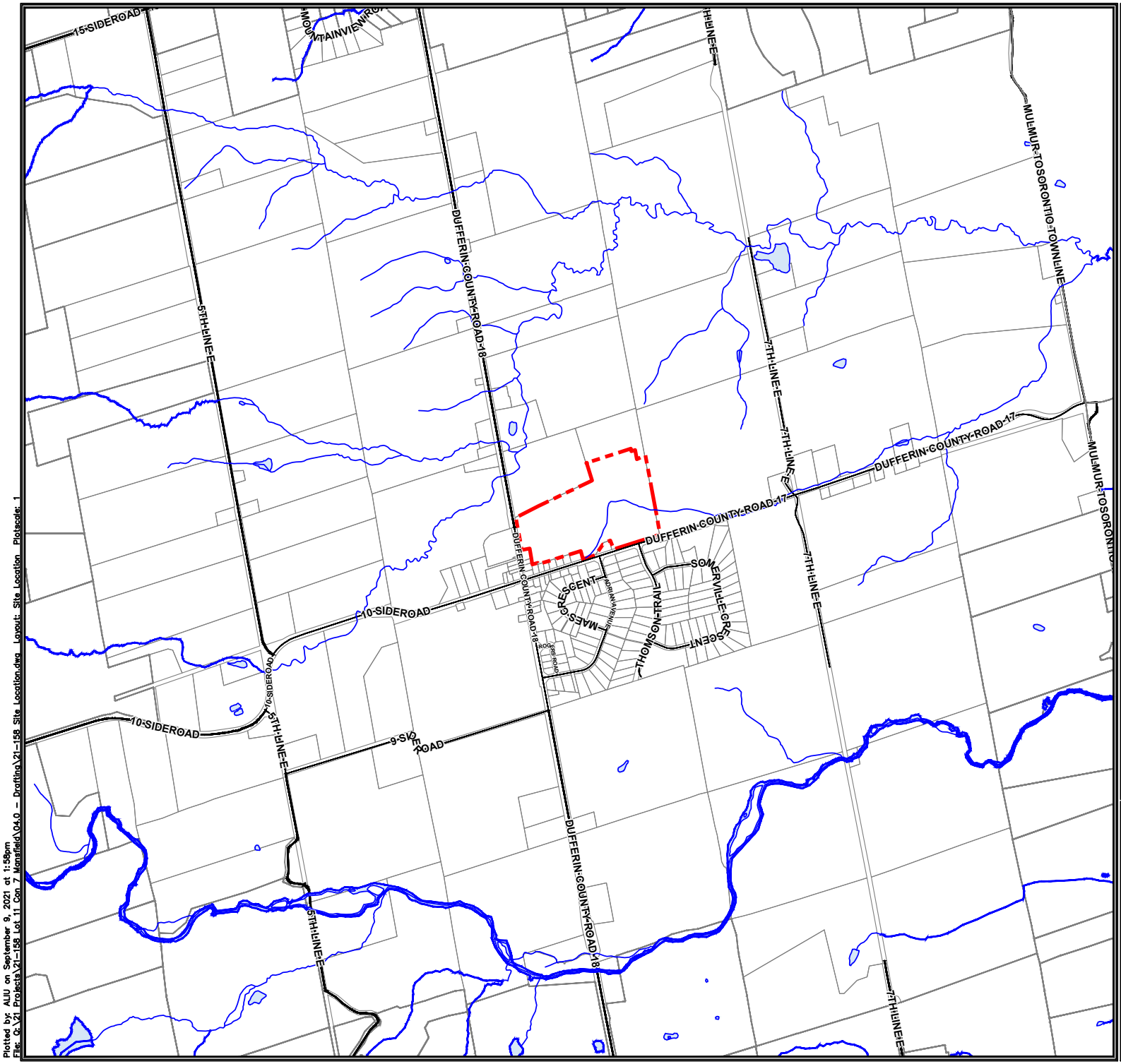
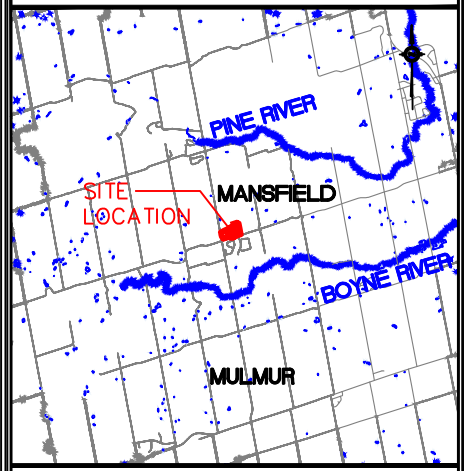


LEGEND:

APPROX. PROPERTY BOUNDARY



REGIONAL MAP

SCALE 1: 250000

0 625 1250

HORIZONTAL SCALE 1: 25000

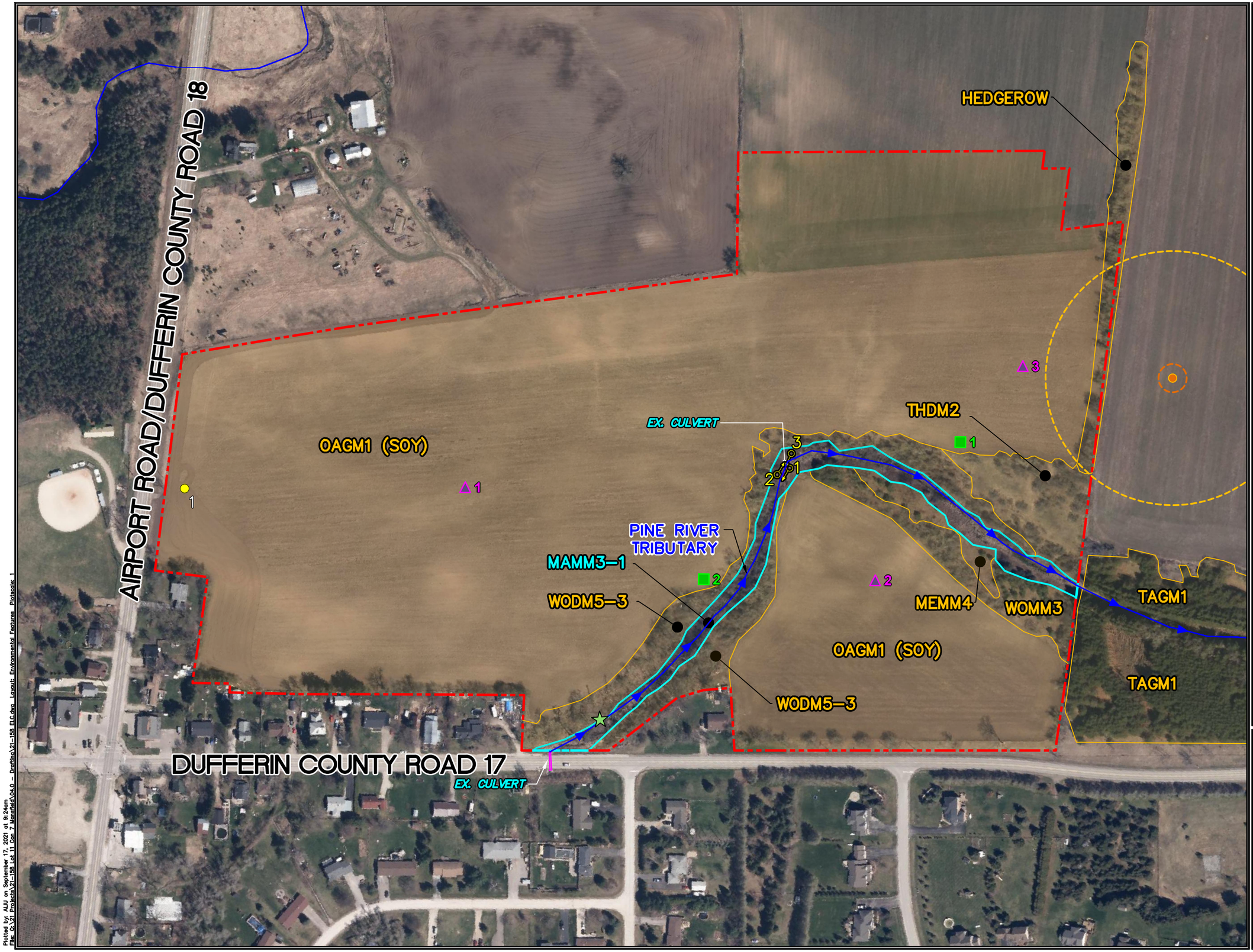
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

STUDY AREA LOCATION

ARMSTRONG ESTATES OF MANSFIELD
MULMUR, ON

DATE ISSUED: *SEPTEMBER 2021*	Figure No.
CREATED BY: *A.L.*	
PROJECT NO.: *21-158*	1
REFERENCE: *DUFFERIN COUNTY*	

Plotted by: ALU on September 9, 2021 at 1:58pm
File: O:\21 Projects\21-158 Lot 11 Con 7 Mansfield\04.0 - Drafting\21-158 Site Location.dwg Layout: Site Location Plotscale: 1

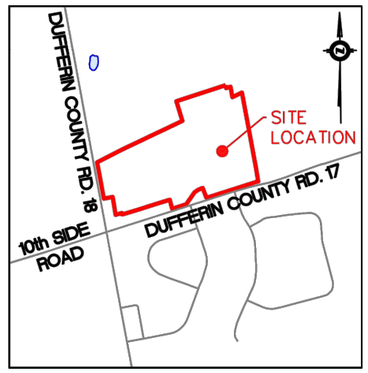


LEGEND:

- APPROX. PROPERTY BOUNDARY
- EXISTING WATERCOURSE (ONTARIO MNR, 2020)
- AMPHIBIAN POINT COUNTS
- DAWN BREEDING BIRD POINT COUNTS
- NOCTURNAL BIRD POINT COUNT
- EASTERN MEADOWLARK TERRITORY CENTRE
- WATERCRESS POINT COUNT
- EASTERN MEADOWLARK CATEGORY 1 HABITAT
- EASTERN MEADOWLARK CATEGORY 2 HABITAT
- AQUATIC PHOTO STATION & DIRECTION
- WETLAND BOUNDARY (DELINEATED IN FIELD)

ELC VEGETATION COMMUNITIES:

MAMM3–1	MIXED MINERAL MEADOW MARSH
MEMM4	FRESH–MOIST MIXED MEADOW
OAGM1(SOY)	ANNUAL ROW CROP
TAGM1	CONIFEROUS PLANTATION
THDM2	DRY–FRESH DECIDUOUS SHRUB THICKET
WODM5–3	FRESH–MOIST MANITOBA MAPLE DECIDUOUS WOODLAND
WOMM3	DRY–FRESH MIXED WOODLAND



LOCATION PLAN

0 62.5 125

HORIZONTAL SCALE 1:2500

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

ENVIRONMENTAL FEATURES

ARMSTRONG ESTATES OF MANSFIELD
MULMUR, ON

DATE ISSUED:	SEPTEMBER 2021	Figure No.
CREATED BY:	A.L.	2
PROJECT NO.:	21-158	
REFERENCE:	DUFFERIN COUNTY	

Plotted by: ALU on September 17, 2021 at 9:24am
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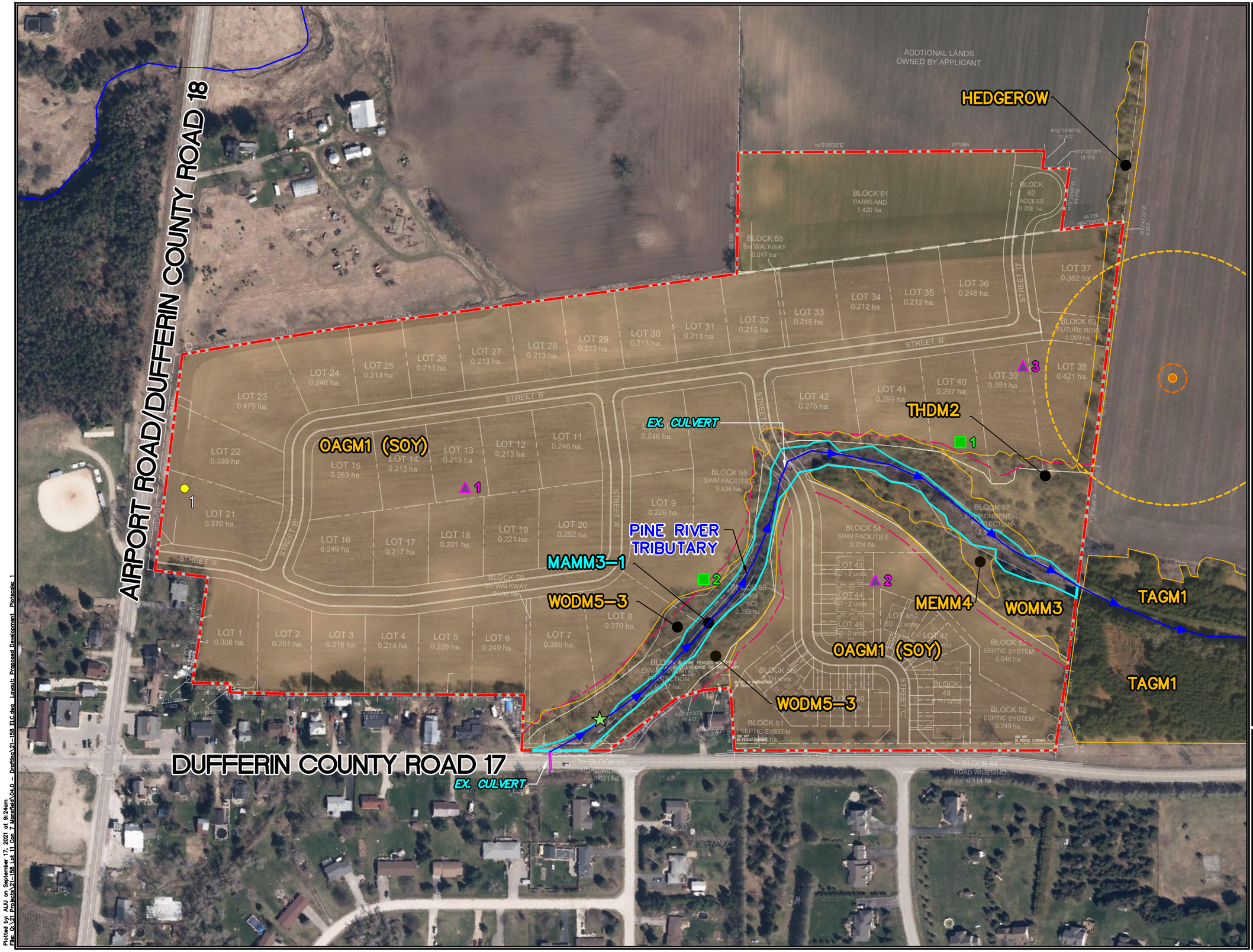
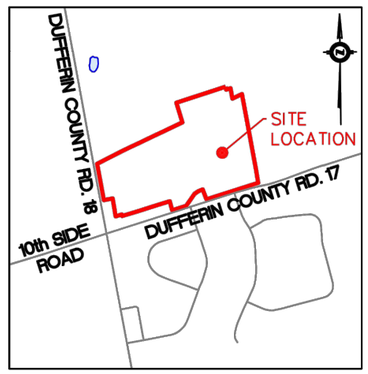


LEGEND:

- APPROX. PROPERTY BOUNDARY
- EXISTING WATERCOURSE (ONTARIO MNR, 2020)
- AMPHIBIAN POINT COUNTS
- DAWN BREEDING BIRD POINT COUNTS
- NOCTURNAL BIRD POINT COUNT
- EASTERN MEADOWLARK TERRITORY CENTRE
- WATERCRESS POINT COUNT
- EASTERN MEADOWLARK CATEGORY 1 HABITAT
- EASTERN MEADOWLARK CATEGORY 2 HABITAT
- 6m Top–of–Bank Setback (PML)
- WETLAND BOUNDARY (DELINEATED IN FIELD)

ELC VEGETATION COMMUNITIES:

MAMM3–1	MIXED MINERAL MEADOW MARSH
MEMM4	FRESH–MOIST MIXED MEADOW
OAGM1(SOY)	ANNUAL ROW CROP
TAGM1	CONIFEROUS PLANTATION
THDM2	DRY–FRESH DECIDUOUS SHRUB THICKET
WODM5–3	FRESH–MOIST MANITOBA MAPLE DECIDUOUS WOODLAND
WOMM3	DRY–FRESH MIXED WOODLAND



LOCATION PLAN

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

PROPOSED DEVELOPMENT AREA

ARMSTRONG ESTATES OF MANSFIELD
MULMUR, ON

DATE ISSUED:	SEPTEMBER 2021	Figure No.
CREATED BY:	A.L.	3
PROJECT NO.:	21-158	
REFERENCE:	DUFFERIN COUNTY	

Plotted by: ALU on September 17, 2021 at 9:24am
File: Q:\21 Projects\21-158 Lot 11 Con 7 Mansfield\04.0 – Drafting\21-158 ELC.dwg Layout: Proposed Development Plotscale: 1

Table 1: Species at Risk Habitat Assessment, Mansfield EIS, 2021 AEC21-158

Common Name	Species Name	ESA	SARA	Key Habitats Used By Species[1]	Initial Assessment
Bald Eagle	*Haliaeetus leucocephalus*	SC	No status	Nests are typically found near the shoreline of lakes or large rivers, often on forested islands (Cadman *et al.* , 2007). ESA Protection: N/A	Property not associated with shorelines of lakes or large rivers. Property does not contain forested islands. Key habitat requirements are not found on the property. The species would not be expected to occur, and not observed during surveys.
Bank Swallow	*Riparia riparia*	THR	No status	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, 2013c). ESA Protection: Species and general habitat protection	Key habitat requirements (*e.g.* , excavated vertical sand/silt stockpile faces) are not found on the property. Property not associated with sand or gravel pits *etc* . The species would not be expected to occur, and not observed during surveys.
Barn Swallow	*Hirundo rustica*	THR	No status	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, 2011d). ESA Protection: Species and general habitat protection	Key habitat requirements (*e.g.* , old buildings or barns, box culverts, bridges) are not found on the property. The species was observed flying over the property during the second survey at point count station #1, but was not observed on the property. The species was not found during the rest of the field program, and is not considered further in this assessment.
Blanding's Turtle	*Enydoidea blandingii*	THR	THR	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, 2005a). ESA Protection: Species and general habitat protection	Key habitat requirements for the species (*e.g.* , open wetlands with emergent aquatic vegetation, lakes, ponds) are not found on the property. The species would not be expected to occur on the property. Adjacent lands do not contain suitable wetland habitat.
Bobolink	*Dolichonyx oryzivorus*	THR	No Status	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, 2010b). ESA Protection: Species and general habitat protection	Key habitat requirements for the species (*e.g.* , hayfields, pastures, tall grass fields) are not found on the property. The species would not be expected to occur on the property. NHIC data show the species occurs in the general area (squares 17NJ7691 - Appendix 2). Although adjacent lands contain suitable tall grass field habitat, the species was not detected during dawn breeding bird surveys. The species is not considered further in this assessment.
Broad Beech Fern	*Phygopteris hexagonoptera*	SC	SC	Rich soils in deciduous forests, such as Maple-Beech forests (MNRF, 2016). ESA Protection: N/A	Property and adjacent lands do not meet the key habitat requirements. The species would not be expected to occur. Not observed while on the property.
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, 2003a). ESA Protection: Species and general habitat protection	Potentially suitable riparian woodland habitat present on the property, but feature is relatively dense and heavily shaded. Species not found.
Cerulean Warbler	*Dendroica cerulea*	THR	SC	Associated with large tracts of mature deciduous forest with tall trees and an open understory. Found in both wet bottomland forests and upland areas (COSEWIC, 2010a). ESA Protection: Species and general habitat protection	Key habitat requirements for the species (*e.g.,* large areas of mature deciduous forest) are not found on the property. The species would not be expected to occur on the property, and was not observed during surveys.
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, 2007a). 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	Anthropogenic structures with chimneys not present on property. Species not expected to occur.
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, 2007d). ESA Protection: N/A	Key habitat requirements for the species (*e.g.,* sand dunes, beaches) are not found on the property. Some treed areas with open patches could conceivably be suitable, but species not detected during nocturnal bird surveys.

Table 1: Species at Risk Habitat Assessment, Mansfield EIS, 2021 AEC21-158

Common Name	Species Name	ESA	SARA	Key Habitats Used By Species[1]	Initial Assessment
Eastern Meadowlark	*Sturnella magna*	THR	No status	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, 2011c). ESA Protection: Species and general habitat protection	**Key habitat requirements for the species (*e.g.* , pastures, grasslands) are not found on the property. The species would not be expected to occur on the property. NHIC records indicate species occurrence in the general area (squares 17NJ7691 and 17NJ7791 - Appendix 2). Adjacent lands contain suitable habitat, and the species was detected on adjacent lands approximately 50m east of the property during the first dawn breeding bird survey only.**
Eastern Small-footed Myotis	*Myotis Lleibii*	END	END	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	Key habitat requirements (*e.g* ., rocky areas, bluffs, old suitable anthropogenic structures, caves, old mines) for the species not found on the property. Hibernation habitat not present. The species would not be expected to occur.
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	Some treed areas with open patches could conceivably be suitable, but species not detected during nocturnal bird surveys.
Eastern Wood-pewee	*Contopus virens*	SC	No status	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, 2012e). ESA Protection: N/A	**A key habitat requirement (*e.g* ., intermediate-age forests) is present in association with riparian woodland feature on the property that may provide some habitat function. Species detected during dawn breeding bird surveys.**
Grasshopper Sparrow *pratensis* subspecies	*Ammodramus savannarum pratensis*	SC	No status	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, 2013a). ESA Protection: N/A	**Key habitat requirements (*e.g* ., large anthropogenic grasslands) do not occur on the property, but grassland/open field habitat occurs on adjacent lands. The species was associated with the adjacent grassland habitat to the east of the property, and the eastern edge of the hedgerow along the eastern property boundary separating the property and these adjacent grasslands.**
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 (MNRF, 2016). ESA Protection: N/A	NHIC data indicate records in the general area (squares 17NJ7691 and 17NJ7791 - Appendix 2), but key habitat requirements (*e.g.* , calcareous rock habitst in shaded, sloped deciduous forests) are not found on the property. The species would not be expected to occur on the property, and was not observed during surveys.
Henslow's Sparrow	*Ammodramus henslowii*	END	END	Requires grassland habitat and occurs more frequently and at higher densities in large patches of suitable habitat. Nests in tallgrass prairie, wet meadow, and marsh habitats as well as agricultural grasslands, lightly grazed pasture and grasslands on reclaimed surface mines (COSEWIC, 2011a). ESA Protection: Species and general habitat protection	Key habitat requirements (*e.g* ., large grassland areas, tallgrass prairies) not present on the property. Species not expected to occur and was not detected during dawn breeding bird surveys.
Least Bittern	*Ixobrychus exilis*	THR	THR	Breed strictly in marshes of emergents (usually cattails) that have relatively stable water levels and interspersed areas of open water (COSEWIC, 2009b). ESA Protection: Species and general habitat protection	**Key habitat requirements not present on the property, and species not found on the property. The species was heard outside the study area approximately 200m northeast of the proeprty during one dawn breeding bird survey. Not considered further in this assessment.**

Table 1: Species at Risk Habitat Assessment, Mansfield EIS, 2021 AEC21-158

Common Name	Species Name	ESA	SARA	Key Habitats Used By Species[1]	Initial Assessment
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, but can often include buildings (MNRF, 2014) (COSEWIC, 2013b). ESA Protection: Species and general habitat protection	Key habitat requirements (*e.g .*, forests with large mature trees suitable for roosting, old suitable anthropogenic structures for roosting, mines or caves for overwintering) for the species are not found on the property. The species would not be expected to occur.
Loggerhead Shrike	*Lanius ludovicianus*	END	END (*mirgrans* subspecies)	Breeding habitat characterized by open areas dominated by grasses and/or forbs, interspersed with scattered shrubs or small trees and bare ground. Suitable habitat includes pasture, old fields, prairie, savannah, pinyon-juniper woodland, shrub-steppe and alvar (COSEWIC, 2014a). ESA Protection: Species and general habitat protection	Key habitat requirements (*e.g.* , open areas with scattered shrubs/small trees and bare ground) for breeding not present on property. Other possible habitat areas, such as old fields, occur on adjacent lands. Species not found.
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, 2010c). ESA Protection: N/A	Key habitat requirements (*e.g.* , areas with milkweed) not present on property. Milkweed has the potential to occur in adjacent fields. Species not found on the property.
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, 2013b). ESA Protection: Species and general habitat protection	Key habitat requirements (*e.g .*, forests with large mature trees suitable for roosting, mines or caves for overwintering) for the species are not found on the property. The species would not be expected to occur.
Northern Map Turtle	*Grapetemys geographica*	SC	SC	Inhabits rivers and lakes where it basks on emergent rocks, banks, logs and fallen trees. Prefer shallow, soft-bottomed aquatic habitats with exposed objects for basking (COSEWIC, 2012d). ESA Protection: N/A	Key habitat requirements (*e.g.* , rivers, lakes) not present on property. Species would not be expected to occur.
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, 2007e). ESA Protection: N/A	Key habitat requirements (*e.g.* , cliffs, tall buildings) not present on property. Species would not be expected to occur.
Red-headed Woodpecker	*Melanerpes erythrocephalus*	SC	THR	Occurs in open deciduous forests, particularly those dominated by oak and beech, grasslands, forest edges, orchards, pastures along rivers and roads, urban parks, golf courses, cemeteries, beaver ponds and timber stands that have been treated with herbicides (COSEWIC, 2007b). ESA Protection: N/A	Key habitat requirements (*e.g.* , open oak-beech deciduous forests, orchards) not present on property. Species would not be expected to occur on the property. Some pasture areas occur along roads in the general area, but species not detected during surveys on or adjacent.
Redside Dace	*Clinostomus elongatus*	END	SC	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, 2007c). ESA Protection: Species and general habitat protection.	Key habitat requirements (*e.g.* , small, clear streams with pools and riffles) not present on or adjacent to the property. Species would not be expected to occur.
Short-eared Owl	*Asio flammeus*	SC	SC	A wide variety of unforested habitats are used, including marshes, grasslands, fallow pastures, and occasionally fields planted with row-crops (COSEWIC 2008b). ESA Protection: N/A	Key habitat requirements (*e.g.* , grasslands, pastures) not present on the property, but occur on adjacent lands. Property dominated by row crops (soybean). Species not detected on or adjacent.
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, 2008a). ESA Protection: N/A	**Key habitat requirements (*e.g.* , slow-moving drainage features with soft mud bottom and dense aquatic plants) present on the property at certain times of the year (*i.e.* , spring flow conditions). Species not detected, but riparian feature could potentially function as a movement corridor.**
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, 2013b). ESA Protection: Species and general habitat protection	Key habitat requirements (*e.g .*, forests with suitable roost trees, suitable anthropogenic structures, mines or caves for overwintering) not found on the property. The species would not be expected to occur.

Table 1: Species at Risk Habitat Assessment, Mansfield EIS, 2021 AEC21-158

Common Name	Species Name	ESA	SARA	Key Habitats Used By Species[1]	Initial Assessment
Wood Thrush	*Hylocichla mustelina*	SC	No status	Found in moist, deciduous hardwood or mixed stands, often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches (COSEWIC, 2012b). ESA Protection: N/A	Key habitat requirements (*e.g.*, large deciduous/mixed forests with dense understory) not found on the property. The species would not be expected to occur.
Yellow-breasted Chat	*Icteria virens*	END	SC	Use regenerating old fields, forest edges, railway and hydro rights-of-way, young coniferous reforestations and, occasionally, wet thickets bordring wetlands (COSEWIC 2011e). ESA Protection: Species and general habitat protection	Successional old fields present adjacent to the property. Riparian woodland feature on property provides some forest edge habitat that could conceivably be used by the species. Species not found on or adjacent.
Yellow Rail	*Coturnicops noveboracensis*	SC	SC	Nest in wet marshy areas of short grass-like vegetation. The habitat must remain wet throughout the breeding season (COSEWIC, 2009c). ESA Protection: N/A	Key habitat requirements (*e.g.*, wet short-grass marshes) not found on the property. The species would not be expected to occur.

[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 2003a. COSEWIC assessment and status report on the Butternut *Juglans cinerea* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 32 pp.

COSEWIC. 2005a. COSEWIC assessment and update status report on the Blanding's Turtle *Enydoidea blandingii* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa.viii +40 pp.

COSEWIC. 2007a. COSEWIC assessment and update 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. 2007b. 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. vi + 27 pp.

COSEWIC. 2007c. COSEWIC assessment and update status report on the Redside Dace *Clinostomus elongates* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 59 pp.

COSEWIC. 2007d. COSEWIC assessment and status report on the Common Nighthawk *Chordeiles minor* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 35 pp.

COSEWIC. 2007e. 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. vii + 45 pp.

COSEWIC. 2008a. 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. 2008b. COSEWIC assessment and update status report on the Short-eared Owl *Asio flammeus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 24 pp.

COSEWIC. 2009a. COSEWIC assessment and update 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. 2009b. COSEWIC assessment and update status report on the Least Bittern *Ixobrychus exilis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 36 pp.

COSEWIC. 2009c. COSEWIC assessment and status report on the Yellow Rail *Coturnicops noveboracensis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 32 pp.

COSEWIC. 2010a. COSEWIC assessment and update status report on the Cerulean Warbler *Dendroica cerulea* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 40 pp.

COSEWIC. 2010b. 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. 2010c. COSEWIC assessment and status report on the Monarch *Danaus plexippus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 43 pp.

COSEWIC. 2010d. COSEWIC assessment and update status report on the Butler's Gartersnake *Thamnophis butleri* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 51 pp.

COSEWIC. 2011a. COSEWIC assessment and update status report on the Henslow's Sparrow *Ammodramus henslowii* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 37 pp.

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

COSEWIC. 2011e. COSEWIC assessment and update status report on the Yellow-breasted Chat *auricollis* subspecies *Icteria virens auricollis* and the Yellow-breasted Chat *virens* subspecies *Icteria virens virens* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xvi + 51 pp.

COSEWIC. 2012b. 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. 2012d. COSEWIC assessment and status report on the Northern Map Turtle *Graptemys geographica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 63 pp.

COSEWIC. 2012e. 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. 2013a. 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. 2013b. 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. 2013c. 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. 2014a. COSEWIC assessment and update status report on the Loggerhead Shrike *Lanius ludovicianus* ssp. and the Prairie subspecies *Lanius ludovicianus excubitorides* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 51 pp.

Environment Canada. 2016. Recovery Strategy for the Butler's Gartersnake (*Thamnophis butleri*) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. vi + 47 pp.

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

Ministry of Natural Resources and Forestry (MNRF). 2016. Species at Risk in Ontario. http://www.ontario.ca/environment-and-energy/species-risk

Table 2: Vascular Plant Species List, Mansfield EIS, 2021.

			[2] ELC Code - Corresponding to Figure 2							[1] Conservation Rank Information		
Family	[1] Scientific Name	[1] Common Name	MEMM4	THDM2	WODM5-3	WOMM3	TAGM1	MAMM3-1	Hedgerows, Field Edge	S-Rank	G-Rank	SARO
Aceraceae	*Acer negundo*	Manitoba Maple	x	x	x	x		x	x	S5	G5	
Aceraceae	*Acer platanoides*	Norway Maple		x	x				x	SE5	GNR	
Aceraceae	*Acer saccharinum*	Silver Maple							x	S5	G5	
Aceraceae	*Acer saccharum*	Sugar Maple							x	S5	G5	
Alismataceae	*Alisma triviale*	Northern Water-plantain						x		S5	G5	
Amaranthaceae	*Amaranthus retroflexus*	Redroot Amaranth							x	SE5	G5	
Anacardiaceae	*Toxicodendron radicans var. rydbergii*	Western Poison Ivy	x		x	x	x		x	S5	G5	
Apiaceae	*Daucus carota*	Wild Carrot	x	x					x	SE5	GNR	
Apocynaceae	*Apocynum cannabinum*	Hemp Dogbane			x					S5	GNR	
Apocynaceae	*Asclepias syriaca*	Common Milkweed	x		x					S5	G5	
Asteraceae	*Ageratina altissima*	White Snakeroot				x				S5	G5	
Asteraceae	*Ambrosia artemisiifolia*	Common Ragweed							x	S5	G5	
Asteraceae	*Arctium minus*	Common Burdock	x		x		x		x	SE5	GNR	
Asteraceae	*Artemisia vulgaris*	Common Wormwood			x					SE5	GU	
Asteraceae	*Bidens frondosa*	Devil's Beggarticks						x		S5	G5	
Asteraceae	*Carduus nutans*	Nodding Thistle		x						SE5	GNR	
Asteraceae	*Cichorium intybus*	Wild Chicory							x	SE5	GNR	
Asteraceae	*Cirsium vulgare*	Bull Thistle							x	SE5	GNR	
Asteraceae	*Erigeron annuus*	Annual Fleabane	x	x	x				x	S5	G5	
Asteraceae	*Erigeron canadensis*	Canada Horseweed							x	S5	G5	
Asteraceae	*Eupatorium perfoliatum*	Common Boneset						x		S5	G5	
Asteraceae	*Euthamia graminifolia*	Grass-leaved Goldenrod	x	x			x	x	x	S5	G5	
Asteraceae	*Eutrochium maculatum var. maculatum*	Spotted Joe Pye Weed						x		S5	G5T5	
Asteraceae	*Leucanthemum vulgare*	Oxeye Daisy	x				x		x	SE5	GNR	
Asteraceae	*Matricaria discoidea*	Pineappleweed							x	SE5	G5	
Asteraceae	*Solidago altissima*	Tall Goldenrod	x	x	x	x	x	x	x	S5	G5	
Asteraceae	*Solidago canadensis*	Canada Goldenrod	x	x	x	x	x	x	x	S5	G5	
Asteraceae	*Sonchus arvensis*	Field Sow-thistle	x						x	SE5	GNR	
Asteraceae	*Symphyotrichum lanceolatum*	Panicled Aster	x					x		S5	G5	
Asteraceae	*Symphyotrichum lateriflorum*	Calico Aster	x		x					S5	G5	
Asteraceae	*Symphyotrichum puniceum*	Purple-stemmed Aster						x		S5	G5	
Asteraceae	*Symphyotrichum urophyllum*	Arrow-leaved Aster	x	x	x	x				S4	G4G5	
Asteraceae	*Taraxacum officinale*	Common Dandelion	x		x	x	x	x	x	SE5	G5	
Asteraceae	*Tragopogon dubius*	Yellow Goatsbeard	x	x						SE5	GNR	
Balsaminaceae	*Impatiens capensis*	Spotted Jewelweed	x		x	x		x		S5	G5	
Betulaceae	*Ostrya virginiana*	Eastern Hop-hornbeam							x	S5	G5	
Boraginaceae	*Hackelia virginiana*	Virginia Stickseed				x				S5	G5	
Brassicaceae	*Alliaria petiolata*	Garlic Mustard			x	x	x		x	SE5	GNR	
Brassicaceae	*Thlaspi arvense*	Field Pennycress						x		SE5	GNR	
Caprifoliaceae	*Lonicera x bella*	*(Lonicera morrowii X Lonicera tatarica)*	x	x	x			x	x	-	GNA	
Caprifoliaceae	*Sambucus sp.*	Elderberry species			x					-	-	-
Caprifoliaceae	*Viburnum lentago*	Nannyberry						x		S5	G5	

			[2] ELC Code - Corresponding to Figure 2							[1] Conservation Rank Information		
Family	[1] Scientific Name	[1] Common Name	MEMM4	THDM2	WODM5-3	WOMM3	TAGM1	MAMM3-1	Hedgerows, Field Edge	S-Rank	G-Rank	SARO
Caprifoliaceae	*Viburnum opulus*	Cranberry Viburnum	x		x			x		S5	G5	
Caryophyllaceae	*Dianthus armeria*	Deptford Pink		x						SE5	GNR	
Caryophyllaceae	*Saponaria officinalis*	Bouncing-bet	x		x	x			x	SE5	GNR	
Caryophyllaceae	*Silene latifolia*	White Campion							x	SE5	GNR	
Caryophyllaceae	*Silene vulgaris*	Bladder Campion	x			x				SE5	GNR	
Chenopodiaceae	*Chenopodium album*	Common Lamb's-quarters			x				x	SE5	G5	
Clusiaceae	*Hypericum perforatum*	Common St. John's-wort	x	x		x	x		x	SE5	GNR	
Convolvulaceae	*Convolvulus arvensis*	Field Bindweed							x	SE5	GNR	
Cornaceae	*Cornus alternifolia*	Alternate-leaved Dogwood	x		x		x	x		S5	G5	
Cornaceae	*Cornus sericea*	Red-osier Dogwood	x	x	x	x		x		S5	G5	
Crassulaceae	*Hylotelephium telephium*	Garden Stonecrop							x	SE2	GNR	
Cucurbitaceae	*Echinocystis lobata*	Wild Cucumber			x			x		S5	G5	
Cyperaceae	*Carex cristatella*	Crested Sedge						x		S5	G5	
Cyperaceae	*Carex retrorsa*	Retrorse Sedge						x		S5	G5	
Cyperaceae	*Carex vulpinoidea*	Fox Sedge						x		S5	G5	
Cyperaceae	*Scirpus atrovirens*	Dark-green Bulrush						x		S5	G5	
Dipsacaceae	*Dipsacus fullonum*	Common Teasel			x					SE5	GNR	
Dryopteridaceae	*Athyrium filix-femina var. angustum*	Northeastern Lady Fern						x		S5	G5T5	
Dryopteridaceae	*Dryopteris cristata*	Crested Wood Fern						x		S5	G5	
Dryopteridaceae	*Dryopteris filix-mas*	Male Fern				x				S4	G5	
Dryopteridaceae	*Onoclea sensibilis*	Sensitive Fern	x			x	x	x		S5	G5	
Equisetaceae	*Equisetum arvense*	Field Horsetail	x					x		S5	G5	
Fabaceae	*Glycine max*	Soybean							x	SE2	GNR	
Fabaceae	*Lathyrus latifolius*	Everlasting Pea				x	x		x	SE4	GNR	
Fabaceae	*Melilotus albus*	White Sweet-clover	x	x					x	SE5	G5	
Fabaceae	*Trifolium pratense*	Red Clover	x	x					x	SE5	GNR	
Fabaceae	*Vicia cracca*	Tufted Vetch	x	x					x	SE5	GNR	
Fagaceae	*Quercus rubra*	Northern Red Oak							x	S5	G5	
Geraniaceae	*Geranium robertianum*	Herb-Robert		x	x	x	x		x	S5	G5	
Grossulariaceae	*Ribes cynosbati*	Eastern Prickly Gooseberry			x	x				S5	G5	
Juglandaceae	*Juglans nigra*	Black Walnut		x	x			x	x	S4?	G5	
Juncaceae	*Juncus effusus*	Soft Rush						x		S5	G5	
Lamiaceae	*Clinopodium vulgare*	Wild Basil		x	x					S5	G5	
Lamiaceae	*Lamiastrum galeobdolon*	Yellow Archangel			x				x	SE1	GNR	
Lamiaceae	*Lycopus uniflorus*	Northern Water-horehound						x		S5	G5	
Lamiaceae	*Mentha canadensis*	Canada Mint	x				x	x		S5	G5	
Lamiaceae	*Nepeta cataria*	Catnip							x	SE5	GNR	
Liliaceae	*Hemerocallis fulva*	Orange Daylily			x				x	SE5	GNA	
Liliaceae	*Maianthemum racemosum*	Large False Solomon's Seal			x					S5	G5T5	
Lythraceae	*Lythrum salicaria*	Purple Loosestrife	x					x		SE5	G5	
Oleaceae	*Fraxinus pennsylvanica*	Red Ash	x	x	x	x	x	x		S4	G5	
Oleaceae	*Syringa vulgaris*	Common Lilac							x	SE5	GNR	
Onagraceae	*Circaea canadensis*	Broad-leaved Enchanter's Nightshade		x	x			x	x	S5	G5	
Onagraceae	*Epilobium coloratum*	Purple-veined Willowherb						x		S5	G5	

			[2] ELC Code - Corresponding to Figure 2							[1] Conservation Rank Information		
Family	[1] Scientific Name	[1] Common Name	MEMM4	THDM2	WODM5-3	WOMM3	TAGM1	MAMM3-1	Hedgerows, Field Edge	S-Rank	G-Rank	SARO
Onagraceae	*Epilobium parviflorum*	Small-flowered Hairy Willowherb						x		SE4	GNR	
Oxalidaceae	*Oxalis stricta*	Upright Yellow Wood-sorrel			x					SE5	G5	
Pinaceae	*Larix decidua*	European Larch				x				SE2	G5	
Pinaceae	*Picea abies*	Norway Spruce							x	SE3	G5	
Pinaceae	*Picea glauca*	White Spruce					x			S5	G5	
Pinaceae	*Pinus resinosa*	Red Pine		x			x			S5	G5	
Pinaceae	*Pinus strobus*	Eastern White Pine	x		x	x	x			S5	G5	
Pinaceae	*Pinus sylvestris*	Scots Pine	x	x		x				SE5	GNR	
Plantaginaceae	*Plantago lanceolata*	English Plantain		x					x	SE5	G5	
Poaceae	*Agrostis gigantea*	Redtop		x			x	x		SE5	G4G5	
Poaceae	*Agrostis stolonifera*	Creeping Bentgrass					x	x		SE5	G5	
Poaceae	*Bromus inermis*	Smooth Brome	x	x	x				x	SE5	G5T5	
Poaceae	*Bromus tectorum*	Downy Brome			x				x	SE5	GNR	
Poaceae	*Dactylis glomerata*	Orchard Grass	x		x	x	x		x	SE5	GNR	
Poaceae	*Danthonia spicata*	Poverty Oatgrass							x	S5	G5	
Poaceae	*Echinochloa crus-galli*	Large Barnyard Grass							x	SE5	GNR	
Poaceae	*Elymus repens*	Quackgrass	x		x	x	x		x	SE5	GNR	
Poaceae	*Glyceria striata*	Fowl Mannagrass						x		S5	G5	
Poaceae	*Leersia oryzoides*	Rice Cutgrass						x		S5	G5	
Poaceae	*Phalaris arundinacea*	Reed Canarygrass	x			x	x	x		S5	G5	
Poaceae	*Phleum pratense*	Common Timothy	x	x		x	x	x		SE5	GNR	
Poaceae	*Poa compressa*	Canada Bluegrass	x	x	x	x	x		x	SE5	GNR	
Poaceae	*Poa pratensis*	Kentucky Bluegrass	x	x	x	x	x		x	S5	G5	
Poaceae	*Setaria viridis*	Green Foxtail							x	SE5	GNR	
Poaceae	*Triticum aestivum*	Common Wheat							x	SE1	GNR	
Polygonaceae	*Fallopia convolvulus*	Eurasian Black Bindweed						x	x	SE5	GNR	
Polygonaceae	*Persicaria maculosa*	Spotted Lady's-thumb						x		SE5	G3G5	
Polygonaceae	*Rumex crispus*	Curled Dock						x		SE5	GNR	
Ranunculaceae	*Actaea sp.*	Baneberry species			x					-	-	-
Ranunculaceae	*Ranunculus acris*	Common Buttercup	x				x	x		SE5	G5	
Ranunculaceae	*Ranunculus repens*	Creeping Buttercup						x		SE5	GNR	
Ranunculaceae	*Ranunculus sceleratus*	Cursed Buttercup						x		S5	G5	
Rhamnaceae	*Rhamnus cathartica*	European Buckthorn	x	x	x	x	x	x	x	SE5	GNR	
Rosaceae	*Agrimonia gryposepala*	Hooked Agrimony	x					x		S5	G5	
Rosaceae	*Crataegus sp.*	Hawthorn species	x	x	x	x				-	-	-
Rosaceae	*Fragaria virginiana*	Wild Strawberry	x		x		x			S5	G5	
Rosaceae	*Geum aleppicum*	Yellow Avens			x	x				S5	G5	
Rosaceae	*Geum canadense*	Canada Avens	x	x	x	x				S5	G5	
Rosaceae	*Malus pumila*	Common Apple	x	x	x			x		SE4	G5	
Rosaceae	*Prunus serotina*	Black Cherry	x	x	x	x				S5	G5	
Rosaceae	*Prunus virginiana*	Chokecherry	x	x	x	x		x	x	S5	G5	
Rosaceae	*Rubus idaeus ssp. strigosus*	North American Red Raspberry	x	x	x	x				S5	G5T5	
Rosaceae	*Rubus occidentalis*	Black Raspberry	x		x	x			x	S5	G5	
Rubiaceae	*Galium palustre*	Common Marsh Bedstraw	x					x		S5	G5	

			[2] ELC Code - Corresponding to Figure 2							[1] Conservation Rank Information		
Family	[1] Scientific Name	[1] Common Name	MEMM4	THDM2	WODM5-3	WOMM3	TAGM1	MAMM3-1	Hedgerows, Field Edge	S-Rank	G-Rank	SARO
Salicaceae	*Populus tremuloides*	Trembling Aspen	x		x		x	x	x	S5	G5	
Salicaceae	*Salix alba*	White Willow						x		SE4	G5	
Salicaceae	*Salix petiolaris*	Meadow Willow						x		S5	G5	
Salicaceae	*Salix sp.*	Tree Willow Species						x		-	-	-
Scrophulariaceae	*Linaria vulgaris*	Butter-and-eggs	x	x						SE5	GNR	
Scrophulariaceae	*Verbascum thapsus*	Common Mullein	x						x	SE5	GNR	
Scrophulariaceae	*Veronica anagallis-aquatica*	Water Speedwell						x		SE	GNR	
Solanaceae	*Physalis heterophylla*	Clammy Ground-cherry		x						S4	G5	
Solanaceae	*Solanum dulcamara*	Bittersweet Nightshade						x		SE5	GNR	
Tiliaceae	*Tilia americana*	Basswood							x	S5	G5	
Typhaceae	*Typha angustifolia*	Narrow-leaved Cattail						x		SE5	G5	
Typhaceae	*Typha latifolia*	Broad-leaved Cattail						x		S5	G5	
Typhaceae	*Typha x glauca*	*(Typha angustifolia X Typha latifolia)*						x		-	GNA	
Ulmaceae	*Ulmus americana*	White Elm	x	x	x			x	x	S5	G4	
Urticaceae	*Urtica dioica*	Stinging Nettle	x					x		SE2	G5	
Verbenaceae	*Verbena hastata*	Blue Vervain						x		S5	G5	
Verbenaceae	*Verbena urticifolia*	White Vervain						x		S5	G5	
Violaceae	*Viola sp.*	Violet species							x	-	-	-
Vitaceae	*Parthenocissus vitacea*	Thicket Creeper	x	x	x	x	x	x	x	S5	G5	
Vitaceae	*Vitis riparia*	Riverbank Grape	x	x	x	x	x	x	x	S5	G5	

[1] Nomenclature and Conservation Rankings based on Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC, 2021)

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

Ecological Land Classification[1]					
System	**Community Class**	**Community Series**	**Ecosite/Vegetation Type**	**Composition**	**Ground Cover**
Terrestrial	N/A	N/A	OAGM1, Annual Row Crops	Active farm fields, currently planted with Soybean.	Cover composed of Soybean at time of survey.
Terrestrial	Cultural	N/A	Hedgerows, Field Edges	Mixture of trees, shrubs and weedy herbaceous species found growing at the edge of OAGM1 fields, acting as a boundary between fields and adjacent fields, properties or roads. Canopy and subcanopy layers varying from dense to sparse, composed of a mixture of deciduous trees including Manitoba Maple, American Elm, Sugar Maple, Trembling Aspen, Black Walnut, Norway Maple, Common Buckthorn, Riverbank Grape, Thicket Creeper and others.	Ground cover composed of various weedy vegetation species typical of field edges and hedgerows, including species such as Smooth Brome, Bouncing-bet, Riverbank Grape, Thicket Creeper, Common Buckthorn, English Plantain, Common Lamb's-quarters, Quackgrass, Canada Horseweed, Wild Carrot, Field Sow-thistle, Orchard Grass, Goldenrods, Common Ragweed and numerous others.
Terrestrial	Cultural	TAG, Treed Agriculture - Plantations	TAGM1, Coniferous Plantation	Polygon abuts subject property at SE edge and is primarily located on adjacent lands. Polygon was viewed from edge, and found to be primarily dominated by planted tree species (Red Pine with some White Spruce) in the canopy.	Ground cover composed of various weedy vegetation species typical of plantation environments, including Common Buckthorn, Thicket Creeper, Riverbank Grape, Western Poison Ivy, Herb-Robert and others.
Terrestrial	Meadow	MEM, Mixed Meadow	MEMM4, Fresh-Moist Mixed Meadow	Polygon is a narrow open meadow located between the Mixed Woodland (MEMM3) and the Meadow Marsh (MAMM3-1), where tree cover is less established. Canopy very sparse, with occasional species such as Manitoba Maple, Scots Pine, Eastern White Pine, Black Cherry and Riverbank Grape. Subcanopy also very sparse, composed of these species in addition to Common Buckthorn and Hawthorn species.	Ground cover dense. Understory dominated by Goldenrods and taller grasses (such as Orchard Grass, Common Timothy) with lesser elements of Riverbank Grape and Common Buckthorn. Ground layer dense, largely composed of Bluegrasses (including Kentucky Bluegrass and Canada Bluegrass), with elements of Arrow-leaved Aster, Thicket Creeper and others. Moist elements such as Spotted Jewelweed and Sensitive fern become more common as the edge approaches the Meadow Marsh (MAMM3-1).

Ecological Land Classification[1]					
System	**Community Class**	**Community Series**	**Ecosite/Vegetation Type**	**Composition**	**Ground Cover**
Terrestrial	Thicket	THD, Deciduous Thicket	THDM2, Dry-Fresh Deciduous Regenetation Thicket	Polygon is a deciduous thicket with scattered taller trees, located north of the east end of the Meadow Marsh (MAMM3-1) on the hillside above. Canopy is very sparse, dominated by Manitoba Maple, Red Ash[2], and American Elm. Subcanopy moderately dense with shrubs and younger trees, composed largely of Manitoba Maple, Hawthorns, Common buckthorn, Riverbank Grape, Red Ash[2] and others.	Ground cover dominated by a mixture of early successional meadow species, in addition to shorter shrubs and brambles. Understory layer dense, dominated by Goldenrods, Smooth Brome, North American Red Raspberry, Riverbank Grape and others. Ground layer also dense, composed of low grasses such as Canada Bluegrass and short Smooth Brome, Riverbank Grape, Thicket Creeper, Butter-and-eggs and others.
Terrestrial	Woodland	WOD, Deciduous Woodland	WODM5-3, Fresh - Moist Manitoba Maple Deciduous Woodland	Polygon is a deciduous treed woodland following the sloped margins of the Meadow Marsh (MAMM3-1) between the Meadow Marsh and the elevated surrounding farmland (OAGM1) and adjacent residential properties. Canopy layer (10m and higher) is broken/patchy throughout and does not provide consistent coverage, and is typically underlain by a more continuous subcanopy/shrub layer. Canopy moderately dense (but <60%), dominated by taller Manitoba Maple with lesser elements of American Elm and Red Ash[2]. Subcanopy dense, dominated by Manitoba Maple, Common Buckthorn and Riverbank Grape with lesser elements of Thicket Creeper, Common Apple, Norway Maple, Chokecherry and others.	Ground cover is variable, including a mix of partial shade and full shade species. Understory is moderately dense, including a micture of Goldenrods, Black Raspberry, Thicket Creeper, Common Buckthorn, White Avens and others. Ground cover is generally dense, including a mixture of Herb-Robert, Thicket Creeper, Broad-leaved Enchanter's Nightshade, Garlic Mustard, Common Buckthorn and others.

Ecological Land Classification[1]					
System	**Community Class**	**Community Series**	**Ecosite/Vegetation Type**	**Composition**	**Ground Cover**
Terrestrial	Woodland	WOM, Mixed Woodland	WOMM3, Dry - Fresh Mixed Woodland	Polygon is a mixed woodland located south of the east end of the Meadow Marsh (MAMM3-1) on the hillside above. This polygon exhibits elevated coniferous elements compared to other portions of the subject property, potentially resulting from proximity to the adjacent plantation (TAGM1) or alternative land use history. Canopy moderately dense to sparse, composed of Scots Pine, Cherry spp., Manitoba Maple, Red Ash[2] and European Larch. Subcanopy moderately dense, composed of Scots Pine, Riverbank Grape, Manitoba Maple, Thicket Creeper and Common Buckthorn.	Ground cover dominated by a mixture of early successional meadow species, in addition to shorter shrubs and brambles and some shade-tolerant species due to occasional densely-shaded areas. Understory layer dense, dominated by Goldenrods with lesser elements of Riverbank Grape and Common Buckthorn. Ground layer dense, largely composed of Bluegrasses (including Kentucky Bluegrass and Canada Bluegrass), with elements of Arrow-leaved Aster, Thicket Creeper, Herb-Robert, Avens spp. and others.
Wetland	Marsh	MAM, Meadow Marsh	MAMM3-1, Mixed Mineral Meadow Marsh	Polygon is primarily a meadow marsh following the floodplain of a small watercourse, dominated by herbaceous vegetation. The west half of this feature is more narrow than the east half and is somewhat overshadowed by the adjacent CUW; however the majority of canopy cover derives from the edge of the wetland and the centre remains dominated by meadow marsh vegetation. Overall, canopy coverage varies from relatively sparse to sparse, composed largely of Manitoba Maple. Subcanopy overall is relatively sparse (becomine more dense in west half), composed primarily of fringe elements of Manitoba Maple, Riverbank Grape, Common Buckthorn, Common Appel, American Elm and Red Ash[2].	Ground cover is dense throughout, composed of a mixture of graminoids and forbs. Understory very dense, composed of a variable mixture of Rice Cutgrass, Spotted Jewelweed, Goldenrod spp., Reed Canary Grass, Grass-leaved Goldenrod, Broad-leaved Cattail, Swamp Aster, Willowherb spp. and others. Ground layer also dense, composed of a mixture of Creeping Bentgrass, shorter Spotted Jewelweed, and Rice Cutgrass, Marsh Bedstraw, Field Horsetail, Sensitive Fern and others.

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

[2] Nomenclature based on Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC, 2021)

Table 4: Breeding Bird Survey, Mansfield EIS, 2021. Surveyor: Scott Tarof **AEC21-158**

			Location[1,2]										Conservation Rankings[3]				
			1			2			3								
FAMILY	SCIENTIFIC NAME	COMMON NAME	Visit 1	Visit 2	Visit 3	Visit 1	Visit 2	Visit 3	Visit 1	Visit 2	Visit 3	Adjacent Lands	Incidental	GRANK	SRANK	MECP	SARA	TRACK
Ardeidae	*Ixobrychus exilis*	Least Bittern										S		G4G5	S4B	THR	THR	Y
Bombycillidae	*Bombycilla cedrorum*	Cedar Waxwing								S			✓	G5	S5B			N
Cardinalidae	*Cardinalis cardinalis*	Northern Cardinal		C/S	S	S		S/C						G5	S5			N
Cardinalidae	*Passerina cyanea*	Indigo Bunting				S				S				G5	S4B			N
Cardinalidae	*Pheucticus ludovicianus*	Rose-breasted Grosbeak										S		G5	S4B			N
Charadriidae	*Charadrius vociferus*	Killdeer		S/X								S	✓	G5	S5B,S5N			N
Columbidae	*Zenaida macroura*	Mourning Dove										C		G5	S5			N
Corvidae	*Corvus brachyrhynchos*	American Crow		C			C				C/S	C	√	G5	S5B			N
Corvidae	*Cyanocitta cristata*	Blue Jay			C		C	C				S		G5	S5			N
Fringillidae	*Spinus tristis*	American Goldfinch	S	S	S/C	S/C	S	C/S		S/C	C/S			G5	S5B			N
Hirundinidae	*Hirundo rustica*	Barn Swallow		S/FO										G5	S4B	THR	THR	Y
Icteridae	*Agelaius phoeniceus*	Red-winged Blackbird			C			X			C/S			G5	S4			N
Icteridae	*Icterus galbula*	Baltimore Oriole				S				S				G5	S4B			N
Icteridae	*Molothrus ater*	Brown-headed Cowbird		S		S								G5	S4B			N
Icteridae	*Quiscalus quiscula*	Common Grackle				S								G5	S5B			N
Icteridae	*Sturnella magna*	Eastern Meadowlark										C	✓	G5	S4B	THR	THR	Y
Mimidae	*Dumetella carolinensis*	Gray Catbird											✓	G5	S4B			N
Paridae	*Poecile atricapillus*	Black-capped Chickadee					S/C		S				✓	G5	S5			N
Parulidae	*Geothlypis trichas*	Common Yellowthroat			S	S		S/C	S		S	S		G5	S5B			N
Parulidae	*Setophaga pinus*	Pine Warbler		S	S							S		G5	S5B			N
Passerellidae	*Ammodramus savannarum*	Grasshopper Sparrow									S/C	S		G5	S4B	SC	SC	Y
Passerellidae	*Melospiza melodia*	Song Sparrow					S/C	S/C			S	S	√	G5	S5B			N
Passerellidae	*Passerculus sandwichensis*	Savannah Sparrow		S	S		S	S/C		S	S	S		G5	S4B			N
Passerellidae	*Pipilo erythrophthalmus*	Eastern Towhee						S/C			S			G5	S4B			N
Passerellidae	*Spizella pallida*	Clay-colored Sparrow										S		G5	S4B			N
Passerellidae	*Spizella passerina*	Chipping Sparrow								S		S		G5	S5B			N
Passerellidae	*Spizella pusilla*	Field Sparrow	S						S		S	S		G5	S4B			N
Phasianidae	*Meleagris gallopavo*	Wild Turkey											√					
Picidae	*Colaptes auratus*	Northern Flicker					S							G5	S4B			N
Picidae	*Picoides pubescens*	Downy Woodpecker					C			C			✓	G5	S5			N
Sittidae	*Sitta canadensis*	Red-breasted Nuthatch					S							G5	S5			N
Sturnidae	*Sturnus vulgaris*	European Starling				S/C	S/C							G5	SNA			N
Troglodytidae	*Troglodytes aedon*	House Wren				S			S	S	S			G5	S5B			N
Turdidae	*Turdus migratorius*	American Robin		S	S			S/C			S	S		G5	S5B			N
Tyrannidae	*Contopus virens*	Eastern Wood-pewee				S								G5	S4B	SC	SC	Y

Table 4: Breeding Bird Survey, Mansfield EIS, 2021. Surveyor: Scott Tarof **AEC21-158**

			Location[1,2]										Conservation Rankings[3]				
			1			2			3								
FAMILY	SCIENTIFIC NAME	COMMON NAME	Visit 1	Visit 2	Visit 3	Visit 1	Visit 2	Visit 3	Visit 1	Visit 2	Visit 3	Adjacent Lands	Incidental	GRANK	SRANK	MECP	SARA	TRACK
Tyrannidae	*Myiarchus crinitus*	Great Crested Flycatcher	S		S	S								G5	S4B			N
Tyrannidae	*Sayornis phoebe*	Eastern Phoebe							S				✓	G5	S5B			N
Tyrannidae	*Tyrannus tyrannus*	Eastern Kingbird								S			✓	G5	S4B			N
Vireonidae	*Vireo olivaceus*	Red-eyed Vireo	S	S	S	S	S		S					G5	S5B			N

[1] **Visit 1**: June 4, 2021, Observer: Scott Tarof, Tempurature 18ºC, Cloud Cover 80% , Wind: B2, Precipitation: Nil, Search Time 06:56 to 07:25; **Visit 2**: June 16, 2021, Observer: Scott Tarof, Tempurature 11ºC, Cloud Cover 0% , Wind: B1, Precipitation: Nil, Search Time 06:57 to 07:26; **Visit 3:** June 28, 2021, Observer: Scott Tarof, Tempurature 23ºC, Cloud Cover 40% , Wind: B2, Precipitation: Nil, Search Time 07:15 to 07:35

[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, Natural Heritage Information Centre (http://nhic.mnr.gov.on.ca/nhic_.cfm)

Table 5. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Mansfield EIS, 2021

Table 1.1 Seasonal Concentrations of Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Waterfowl Stopover and Staging Areas (Terrestrial) **Rationale:** Habitat important to migrating waterfowl.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	CUM1 CUT1 Plus evidence of annual spring flooding from melt water or run-off within these Ecosites.	Fields with sheet water during Spring (mid-March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available. Information Sources • Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. • Reports and other information available from Conservation Authorities • Sites documented through waterfowl planning processes (*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.	The wildlife habitat is not present on or adjacent to the property. The property is not associated with CUM or CUT fields that flood in spring. The property would not be expected to provide habitat function as a waterfowl stopover and staging area (terrestrial).
Waterfowl Stopover and Staging Areas (Aquatic) **Rationale:** Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback Ruddy Duck	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). Information Sources • Environment Canada • Naturalist clubs often are aware of staging/stopover areas • OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes (*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 100 or more of listed species for 7 days, results in > 700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH. • The combined area of the ELC ecosites and a 100m radius area is the SWH. • Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are significant wildlife habitat. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • SWHMiST Index #7 provides development effects and mitigation measures.	The ELC ecosite types are not present on or adjacent to the property. The property would not be expected to provide habitat function as a waterfowl stopover and staging area (aquatic).

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
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". • SWHMiST Index #8 provides development effects and mitigation measures.	A small area of MAM3 ELC ecosite is present on the property, but the candidate SWH criteria are not met. The property and adjacent lands would not be expected to provide habitat function for shorebirds.
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". • SWHMiST Index #10 and #11 provides development effects and mitigation measures.	The property is not associated with described habitat criteria (*e.g.*, combination of large fields and forests/woodlands). Candidate SWH criteria are not met. The property and adjacent lands would not be expected to provide habitat function for overwintering raptors.

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.	The property is not associated with caves, mine shafts, underground foundations or karsts. No suitable habitat on or adjacent to the property. The property would not be expected to provide bat hibernacula habitat function.
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 stands with >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.	The property does not contain the ELC forest ecosites. Habitat criteria not met. The property would not be expected to provide habitat function for maternity roosting bats.
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.	The MAMM3-1 habitat associated with the property is heavily treed/vegetated and would not be considered suitable for overwintering turtles due to the lack of permanent open water with depth required for turtle brumation. The property and adjacent lands would not be expected to provide habitat function as an overwintering area for turtles. Candidate SWM criteria not met.

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. • SWHMiST Index #37 provides development effects and mitigation measures for five-lined skink wintering habitat.	The property does not meet the habitat criteria. No features that could function as hibernacula for reptiles occur on or adjacent to the property. The property would not be expected to provide habitat function for overwintering snakes.
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.	The property and adjacent lands do not meet the habitat criteria (*e.g.*, cliffs, steep, exposed soil banks), and the species indicated were not observed. The property would not be expected to provide habitat function for breeding colonial nesting birds.

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.	The property and adjacent lands do not meet the habitat criteria. ELC ecosites are not present and the species indicated were not observed. The property would not be expected to provide habitat function for these breeding colonial nesting birds.
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.	The property and adjacent lands do not meet the preferred habitat criteria (*i.e.*, no rocky islands or peninsulas within a lake or large river). The MAMM3-1 ELC ecosite associated with the watercourse is small, heavily treed/vegetated and not considered suitable for colonial birds. Candidate SWH criteria are not met. The property would not be expected to provide habitat function for these breeding colonial ground-nesting birds.

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.	The property does not contain the ELC field or forest ecosites required to meet the habitat criteria. Conifer plantation is present on adjacent lands, but the property is not within 5km of Lake Ontario. Candidate SWH criteria are not met. No Monarch Butterflies were observed. The property would not be expected to provide habitat function for migratory butterflies.
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 be completed during spring (Apr./May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #9 provides development effects.	Property and adjacent lands not located within 5km of Lake Ontario. Ecosites listed not present.

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Deer Yarding Areas **<u>Rationale:</u>** Winter habitat for deer is considered to be the main limiting factor for northern deer populations. In winter, deer congregate in "yards" to survive severe winter conditions. Deer yards typically have a long history of annual use by deer, yards typically represent 10-15% of an areas summer range.	White-tailed Deer	Note: OMNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include; FOM, FOC, SWM and SWC. Or these ELC Ecosites; CUP2 CUP3 FOD3 CUT	• Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. • OMNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual". • Woodlots with high densities of deer due to artificial feeding are not significant.	No Studies Required: • Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. • Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local MNRF offices or via Land Information Ontario (LIO). • Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #2 provides development effects and mitigation measures.	Preferred forest or swamp ecosites not on the property. Other ELC ecosites listed not on the property. No deer yarding areas mapped in study area; closest deer yard is >600m to the south (MNRF mapping). The property does not provide the habitat function. See also Deer Winter Congregation Area assessment below.
Deer Winter Congregation Areas **<u>Rationale:</u>** Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.	White-tailed Deer	All Forested Ecosites with these ELC Community Series; FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.	• Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands . • If deer are constrained by snow depth refer to the Deer Yarding Area habitat 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. <u>Information Sources</u> • MNRF District Offices • LIO/NRVIS	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF. • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF. • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques, ground or road surveys. or a pellet count deer density survey. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #2 provides development effects and mitigation measures.	No winter congregation areas for deer mapped in study area (MNRF mapping). The property does not provide the habitat function.

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.	The property and adjacent lands do not contain the habitat elements (*e.g.*, cliffs, talus slopes) and do not meet the required habitat criteria. As a result, the property would not be expected to provide the habitat function.
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 barren habitat on or adjacent to the property. As a result, the property would not be expected to provide the habitat function.
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 habitat on or adjacent to the property. As a result, the property would not be expected to provide the habitat function.

Rare Vegetation Community	Candidate SWH			Confirmed SWH	Assessment
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Old Growth Forest **Rationale:** Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by many wildlife species.	Forest Community Series: FOD FOC FOM SWD SWC SWM	Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest. Information Sources • OMNRF Forest Resource Inventory mapping • OMNRF Districts. • Field Naturalist clubs • Conservation Authorities • Sustainable Forestry Licence (SFL) companies will possibly know locations through field operations. • Municipal forestry departments	Field Studies will determine: • If dominant trees species 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.	No old growth forest habitat occurs on the property. Forest ELC ecosites not present. As a result, the study area would not be expected to provide the habitat function.
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 habitat on or adjacent to the property. As a result, the property would not be expected to provide the habitat function.
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 habitat on or adjacent to the property. As a result, the property would not be expected to provide the habitat function.
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.	Vegetation communities on and adjacent to the property are heavily influenced by adjacent development and agriculture. No rare vegetation communities present.

1.2.2 Specialized Habitat for Wildlife

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Waterfowl Nesting Area **Rationale;** Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 **Note: includes adjacency to Provincially Significant Wetlands**	A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. Information Sources • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from Conservation Authorities.	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or; • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWHMiST Index #25 provides development effects and mitigation measures.	The MAMM3-1 ELC community is approximately 0.67ha in size, which meets the candidate SWH habitat criteria with respect to size. However, the feature is heavily treed and vegetated with graminoids, and only contained appreciable amounts of water in early spring. The area is not considered to offer ideal suitable habitat conducive to waterfowl nesting on (or adjacent) to the property. The habitat function is not considered further in this assessment.
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 suitable habitat conducive to nesting, foraging or perching by the species occurs on or adjacent to the property. Property not associated with lakes, ponds or rivers. Candidate habitat criteria not met. As a result, the property would not be expected to provide the habitat function.

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.	Property and adjacent lands do not provide the combination of habitat features required to be considered significant. Candidate habitat criteria not met. The property would not be expected to provide this habitat function.
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.	Preferred ELC ecosites, and association with exposed mineral soil, required to meet candidate habitat criteria not present in study area. Habitat criteria are not met, so the study area would not be expected to provide the habitat function.

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.	Candidate criteria not met; no potential SWH function in study area.
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.	The study area does not contain the preferred forested ELC ecosites. Candidate criteria not met; no potential SWH function in study area.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Amphibian Breeding Habitat (Wetlands) **<u>Rationale;</u>** Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (*e.g.* Bull Frog) may be adjacent to woodlands.	• Wetlands>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. <u>Information Sources</u> • Ontario Herpetofaunal Summary Atlas (or other similar atlases) • Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. • OMNRF Districts and wetland evaluations • Reports and other information available from Conservation Authorities	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3. **or;** Wetland with confirmed breeding Bullfrogs are significant. • The ELC ecosite wetland area and the shoreline are the SWH. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #15 provides development effects and mitigation measures.	Although the property contains an MA ELC community class area, the early spring amphibian survey indicated that no evening calling amphibians were present. MAMM3-1 dominated by trees and herbaceous plants, with limited water in early spring. Water levels decrease through spring/summer and are essentially dry by early August. The community would not be considered to provide ideal suitable habitat function wetland breeding amphibians. The required candidate habitat criteria are considered to not be met.
Woodland Area-Sensitive Bird Breeding Habitat **<u>Rationale:</u>** Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren **Special Concern:** 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. <u>Information Sources</u> • Local bird clubs. • Canadian Wildlife Service (CWS) for the location of forest bird monitoring. • Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species. • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Note: any site with breeding 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.	Preferred ELC ecosites not present in study area. Candidate SWH criteria not met. Study area would not be anticipated to confer the habitat function.

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 or 1 pair of Sandhill Cranes; **or** breeding by any combination of 5 or more of the listed species. • Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. • Area of the ELC ecosite is the SWH. • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #35 provides development effects and mitigation measures.	Although a small area of MAMM3-1 marsh habitat is present on the property, the area is dominated by trees and herbaceous vegetation, and water levels considered suitable for the habitat function are minimal/absent for most of the year. Habitat considered marginal. As a result, the property would not be expected to provide the habitat function.
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.	Savannah Sparrow detected on the property. Grasshopper Sparrow observed in association with the eastern edge (*i.e.*, grassland side) of the treed hedgerow located along the eastern property boundary, and in a remnant grass hedgerow fringe associated with adjacent agricultural lands north of the property. No CUM ELC ecosites present on the property. Adjacent grasslands do not meet >30ha size criteria for target species. Not considered further in the assessment.
Shrub/Early Successional Bird Breeding Habitat **Rationale;** This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher	Indicator Spp: Brown Thrasher Clay-coloured Sparrow Common Spp. Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a	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	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	Clay-colored Sparrow was detected on adjacent grasslands to the east but not on the property. Field Sparrow was detected on the property and on adjacent grasslands to the east. Eastern Towhee was detected in association with the riparian woodland feature edge and the forested hedgerow along the eastern property boundary. Areas with shrub/thicket habitat do not meet

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
has declined significantly over the past 40 years based on CWS (2004) trend records.	**Special Concern:** Yellow-breasted Chat Golden-winged Warbler	larger habitat for some bird species	• Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs • Ontario Breeding Bird Atlas • Reports and other information available from Conservation Authorities.	territories. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #33 provides development effects and mitigation measures.	minimum size threshold. Not considered further in the assessment.
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.	One preferred ELC ecosite, MAM3, is present on the property, but no crayfish chimneys were documented during Azimuth's field investigations. The property would not be expected to provide the habitat function.
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.	**Two Special Concern bird species were detected. Eastern Wood-pewee was found in the riparian woodland feature on the property. Grasshopper Sparrow was detected along the eastern edge of the hedgerow on the eastern property boundary, and in a tallgrass hedgerow fringe associated with adjacent agricultural lands to the north. Riparian woodland could potentially be used by Snapping Turtle as a movement corridor. Considered further in main text.**

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.	Significant amphibian breeding habitat determined to not be associated with the property or adjacent lands. Consequently, the study area is not considered to provide amphibian movement corridor function.
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 wintering habitat present.

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.	Not on Bruce Peninsula.
6E- 17 **Rationale:** Sharp-tailed grouse only occur on Manitoulin Island in Eco-region 6E, Leks are an important habitat to maintain their population	Lek Sharp-tailed Grouse	CUM CUS CUT	• The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography. • Leks are typically a grassy field/meadow >15ha with adjacent shrublands and >30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated.	Grasslands (field/meadow) are to be >15ha when adjacent to shrubland and >30ha when adjacent to deciduous woodland. • Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying) • Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting Information Sources • OMNRF district office • Bird watching clubs • Local landowners • Ontario Breeding Bird Atlas	Studies confirming lek habitat are to be completed from late March to June. • Any site confirmed with sharp-tailed grouse courtship activities is considered significant • The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitat • SWHMiST Index #32 provides development effects and mitigation measures	Not on Manitoulin Island.

APPENDICES

Appendix A: Municipal and Regional Background Information
Appendix B: Provincial and Federal Background and Correspondence
Appendix C: Photographic Record
Appendix D: Proposed Subdivision Draft Plan

APPENDIX A

Municipal and Regional Background Information

N

Honeywood
Terra Nova
Mulmur
Mansfield
Horning's Mills
Corbetton
Melancthon
Riverview
Shelburne
Primrose
Violet Hill
Rosemont
Mono
Mono Centre
Hockley Village
Camilla
Amaranth
Colbeck
Monticello
Laurel
Grand Valley
Cardinal Woods
Purple Hill
Farmington
Grand Valley
Waldemar
Orangeville
East Garafraxa
Marsville
Orton

COUNTY ROAD 9
COUNTY ROAD 21
COUNTY ROAD 18
COUNTY ROAD 124
HIGHWAY 10
COUNTY ROAD 17
COUNTY ROAD 19
HIGHWAY 89
HIGHWAY 10/89
COUNTY ROAD 12
COUNTY ROAD 11
COUNTY ROAD 8
COUNTY ROAD 7
COUNTY ROAD 25
HIGHWAY 10
COUNTY ROAD 10
HIGHWAY 9
COUNTY ROAD 109
COUNTY ROAD 23
COUNTY ROAD 3
COUNTY ROAD 6
COUNTY ROAD 24

0 2 4 8 12 Kilometers

Legend

- Urban Settlement Area
- Community Settlement Area
- Provincial Highway
- County Road
- Other Road
- Dufferin County Boundary
- Municipal Boundaries
- ***Greenbelt Plan Area (S.***
- Protected Countryside
- ***Oak Ridges Moraine Conversation Plan Area (S. 2.2)***
- Natural Core
- Natural Linkage
- Countryside
- ***Niagara Escarpment Plan Area (S. 2.3)***
- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Recreation Area
- Escarpment Rural Area
- Mineral Resource Extraction Area
- Niagara Escarpment Development Control Area

Sources: LIO (2012), MTO (2012), Dufferin County, NEP (2012), ORMCP, Greenbelt Plan

DUFFERIN COUNTY
OFFICIAL PLAN

Schedule A
Provincial Plan Areas

MMM GROUP
Date: March 2015

Document Path: M:\Jobs\2013 MUST USE E-COLLABORATIONMAPPING ONLY\14.13256.001.P01 - Dufferin County OP\MXD\2015 03\Schedule A - Provincial Plans Areas.mxd

N

COUNTY ROAD 9
COUNTY ROAD 2
COUNTY ROAD 21
Honeywood
Terra Nova
COUNTY ROAD 18
COUNTY ROAD 124
Mulmur
Mansfield
Horning's Mills
HIGHWAY 10
Corbetton
Melancthon
COUNTY ROAD 17
COUNTY ROAD 19
Rosemont
Violet Hill
Riverview
Shelburne
Primrose
HIGHWAY 89
HIGHWAY 10/89
COUNTY ROAD 17
HIGHWAY 89
Refer to Section 3.5.1.2
Mono
Mono Centre
Hockley Village
COUNTY ROAD 18
COUNTY ROAD 8
COUNTY ROAD 12
COUNTY ROAD 11
Camilla
COUNTY ROAD 7
HIGHWAY 10
COUNTY ROAD 15
Colbeck
Monticello
COUNTY ROAD 25
Amaranth
Laurel
COUNTY ROAD 10
Cardinal Woods
Grand Valley
Purple Hill
COUNTY ROAD 16
HIGHWAY 9
Farmington
Grand Valley
Waldemar
COUNTY ROAD 109
COUNTY ROAD 23
Orangeville
COUNTY ROAD 3
COUNTY ROAD 24
COUNTY ROAD 5
Marsville
East Garafraxa
Orton

0 2 4 8 12 Kilometers

Document Path: M:\Jobs\2013 MUST USE E-COLLABORATION\MAPPING ONLY\14.13256.001.P01 - Dufferin County OP\MXD\2015 03\Schedule B - Community Settlement Structure and Land Use.mxd

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)

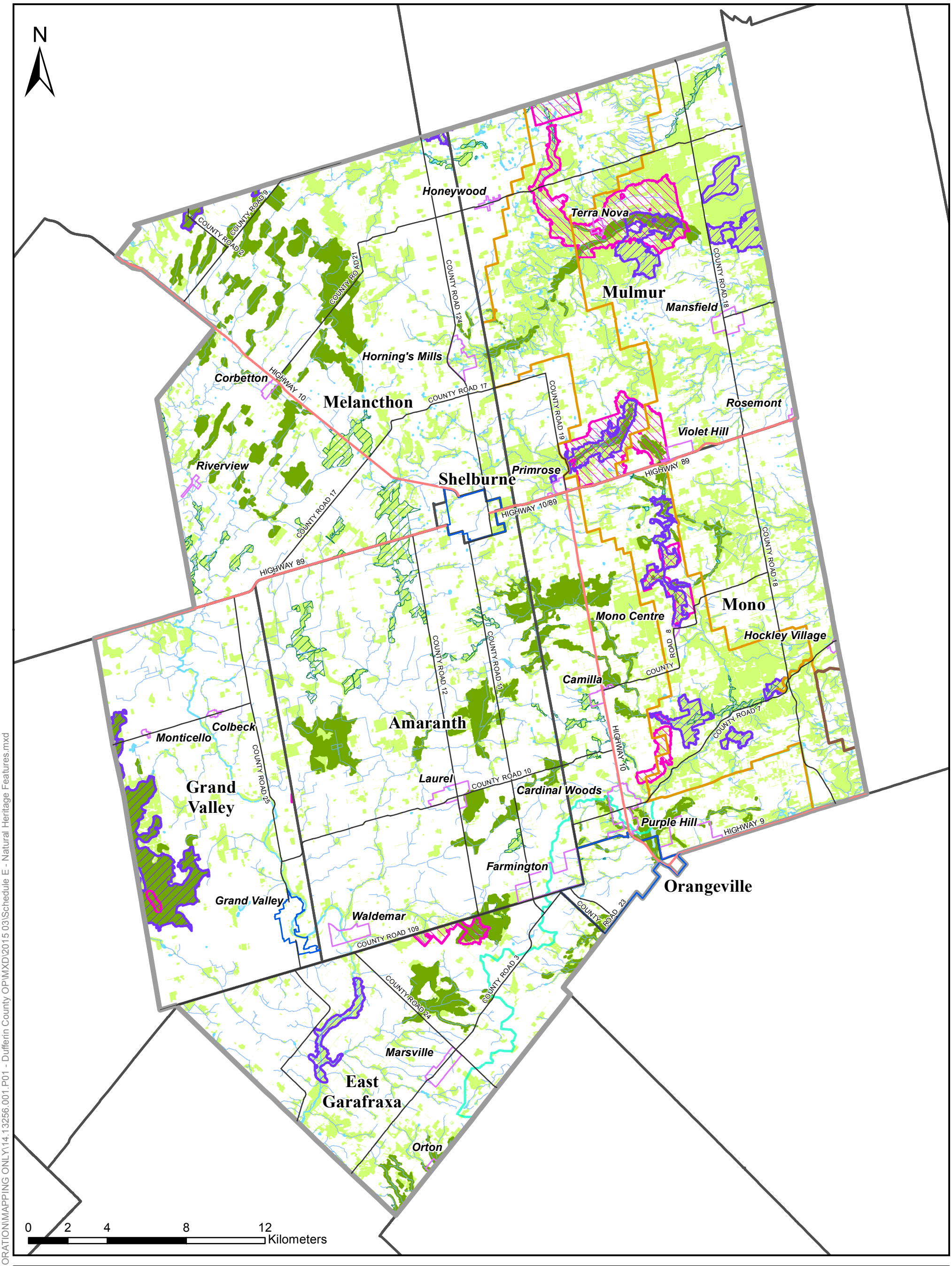
DUFFERIN COUNTY
OFFICIAL PLAN

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



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

Document Path: M:\Jobs\2013 MUST USE E-COLLABORATIONMAPPING ONLY\14.13256.001.P01 - Dufferin County OPMXD\2015 03\Schedule E - Natural Heritage Features.mxd

N

Honeywood
Terra Nova
Mulmur
Mansfield
Horning's Mills
Corbetton
Melancthon
Rosemont
Violet Hill
Riverview
Shelburne
Primrose
Mono
Mono Centre
Hockley Village
Camilla
Amaranth
Colbeck
Monticello
Grand Valley
Laurel
Cardinal Woods
Purple Hill
Farmington
Orangeville
Grand Valley
Waldemar
Marsville
East Garafraxa
Orton

COUNTY ROAD 2
COUNTY ROAD 9
COUNTY ROAD 21
COUNTY ROAD 124
COUNTY ROAD 18
HIGHWAY 10
COUNTY ROAD 17
COUNTY ROAD 19
HIGHWAY 89
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COUNTY ROAD 8
COUNTY ROAD 7
COUNTY ROAD 25
COUNTY ROAD 10
HIGHWAY 9
COUNTY ROAD 23
COUNTY ROAD 109
COUNTY ROAD 3
COUNTY ROAD 5
COUNTY ROAD 24

0 2 4 8 12 Kilometers

Legend

- Urban Settlement Area
- Community Settlement Area
- Provincial Highway
- 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

Document Path: M:\Jobs\2013 MUST USE E-COLLABORATION\MAPPING ONLY\14.13256.001.P01 - Dufferin County OP\MXD\2015 03\Schedule E1 - Natural Heritage System R2.mxd

Dufferin County

4/14/2021, 10:50:09 AM

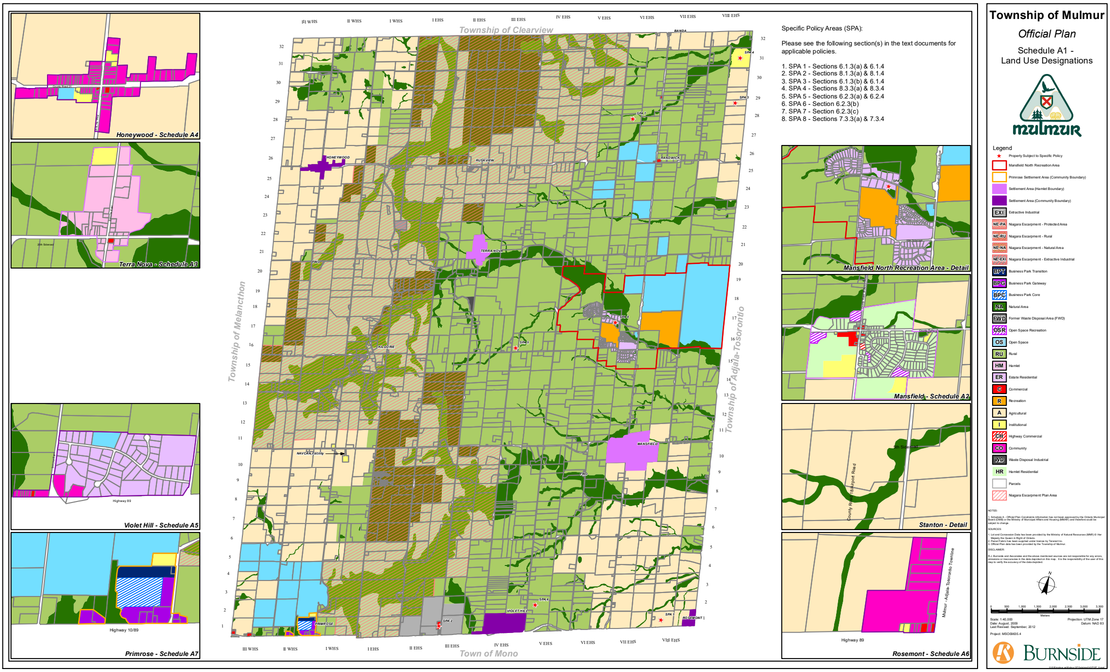
Override 1
Contours (metres)
Dufferin County Municipal Boundaries
Rivers
Soils
Woodlands
Assessment Lot Parcels

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

Dufferin County


Township of Mulmur
Official Plan
Schedule A1 -
Land Use Designations
Township of Clearview
Township of Melancthon
Township of Adjala-Tosorontio
Town of Mono
Specific Policy Areas (SPA):
Please see the following section(s) in the text documents for applicable policies.
1. SPA 1 - Sections 6.1.3(a) & 6.1.4
2. SPA 2 - Sections 8.1.3(a) & 8.1.4
3. SPA 3 - Sections 6.1.3(b) & 6.1.4
4. SPA 4 - Sections 8.3.3(a) & 8.3.4
5. SPA 5 - Sections 6.2.3(a) & 6.2.4
6. SPA 6 - Section 6.2.3(b)
7. SPA 7 - Section 6.2.3(c)
8. SPA 8 - Sections 7.3.3(a) & 7.3.4
Honeywood - Schedule A4
Terra Nova - Schedule A3
Violet Hill - Schedule A5
Primrose - Schedule A7
Mansfield North Recreation Area - Detail
Mansfield - Schedule A2
Stanton - Detail
Rosemont - Schedule A6
Legend
Property Subject to Specific Policy
Mansfield North Recreation Area
Primrose Settlement Area (Community Boundary)
Settlement Area (Hamlet Boundary)
Settlement Area (Community Boundary)
EXI Extractive Industrial
NE-PA Niagara Escarpment - Protected Area
NE-RU Niagara Escarpment - Rural
NE-NA Niagara Escarpment - Natural Area
NE-EXI Niagara Escarpment - Extractive Industrial
BPT Business Park Transition
BPG Business Park Gateway
BPC Business Park Core
NA Natural Area
FWD Former Waste Disposal Area (FWD)
OSR Open Space Recreation
OS Open Space
RU Rural
HM Hamlet
ER Estate Residential
C Commercial
R Recreation
A Agricultural
I Institutional
CH Highway Commercial
CO Community
WD Waste Disposal Industrial
HR Hamlet Residential
Parcels
Niagara Escarpment Plan Area
NOTES:
1. Schedule A - Official Plan Constraints information has not been approved by the Ontario Municipal Board (OMB) or the Ministry of Municipal Affairs and Housing (MMAH) and therefore could be subject to change.
SOURCES:
1. Lot and Concession Data has been provided by the Ministry of Natural Resources (MNR) © Her Majesty the Queen in Right of Ontario.
2. Parcel Fabric has been supplied under license by Teranet Inc.
3. Official Plan data has been provided by the Township of Mulmur.
DISCLAIMER:
R.J. Burnside and Associates and the above mentioned sources are not responsible for any errors, omissions or inaccuracies in the data depicted on this map. It is the responsibility of the user of this map to verify the accuracy of the data depicted.
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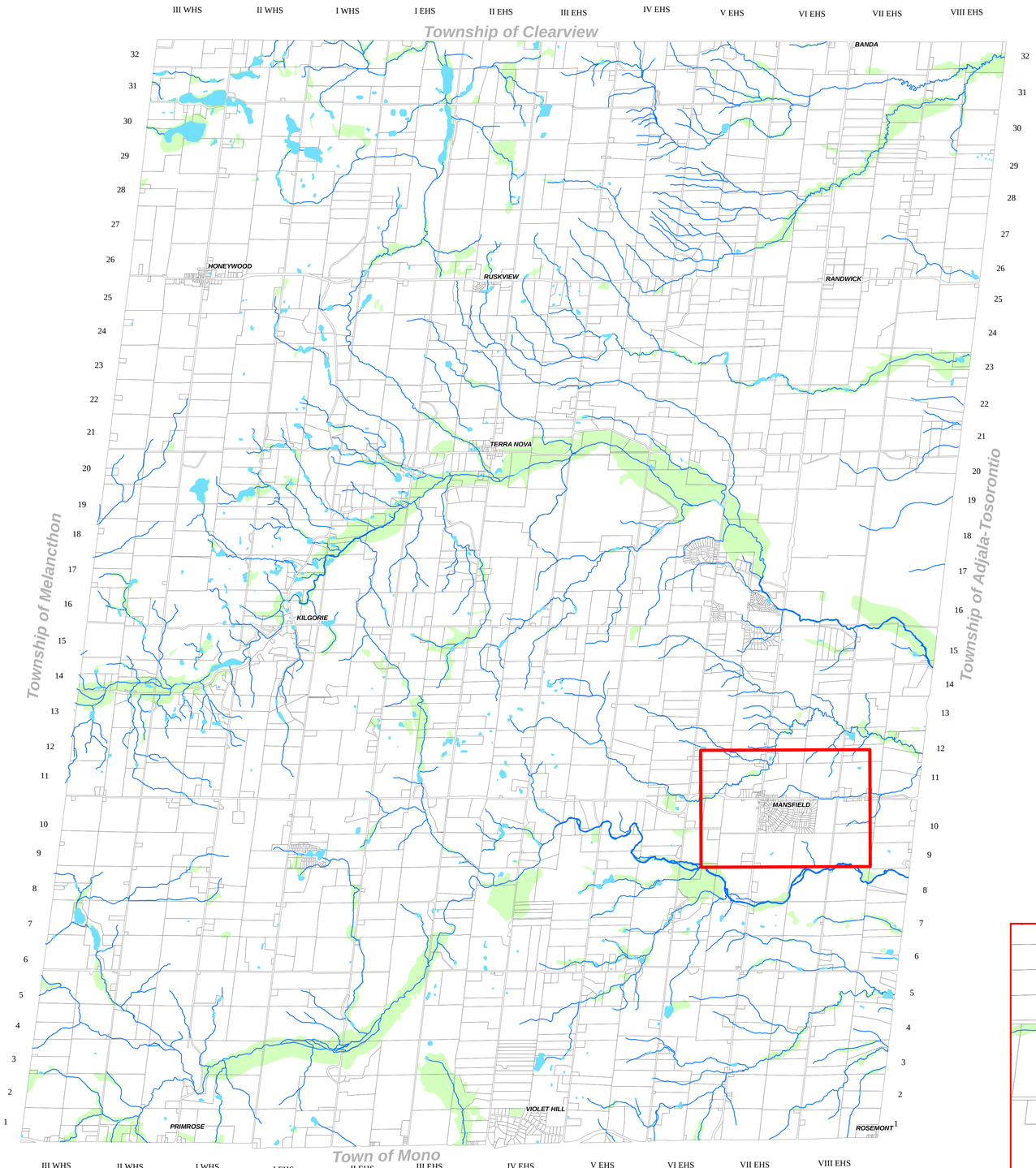
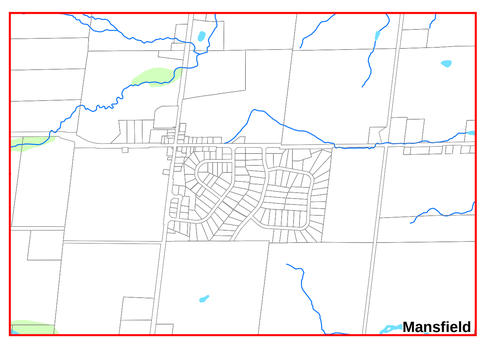
Last Revised: September, 2012
Projection: UTM Zone 17
Datum: NAD 83
Project: MSO09635.4
BURNSIDE





Township of Mulmur

Official Plan

Schedule B1 - Category One Natural Features

Legend

- Streams Without Associated Buffers
- Pond & Flooded Lands
- Wetlands Without Associated Buffers
- Parcels

NOTES:

1. Schedule B1 - Category One Natural Features information has not been approved by the Ontario Municipal Board (OMB) or the Ministry of Municipal Affairs and Housing (MMAH) and therefore could be subject to change.

SOURCES:

1. Lakes, Rivers, Provincial Wetlands, Core Deer Areas, ANSI Earth and Life Science, Lot and Concession data has been provided by the Ministry of Natural Resources (MNR) © Her Majesty the Queen in Right of Ontario
2. Parcel Fabric has been supplied under license by Teranet Inc.
3. Local Wetlands and forestry data has been supplied by the NVCA.

DISCLAIMER:

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N

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Meters

Scale: 1:40,000
Date: August, 2009
Last Revised: October, 2011

Projection: UTM Zone 17
Datum: NAD 83

Project: MSO09635.4

BURNSIDE

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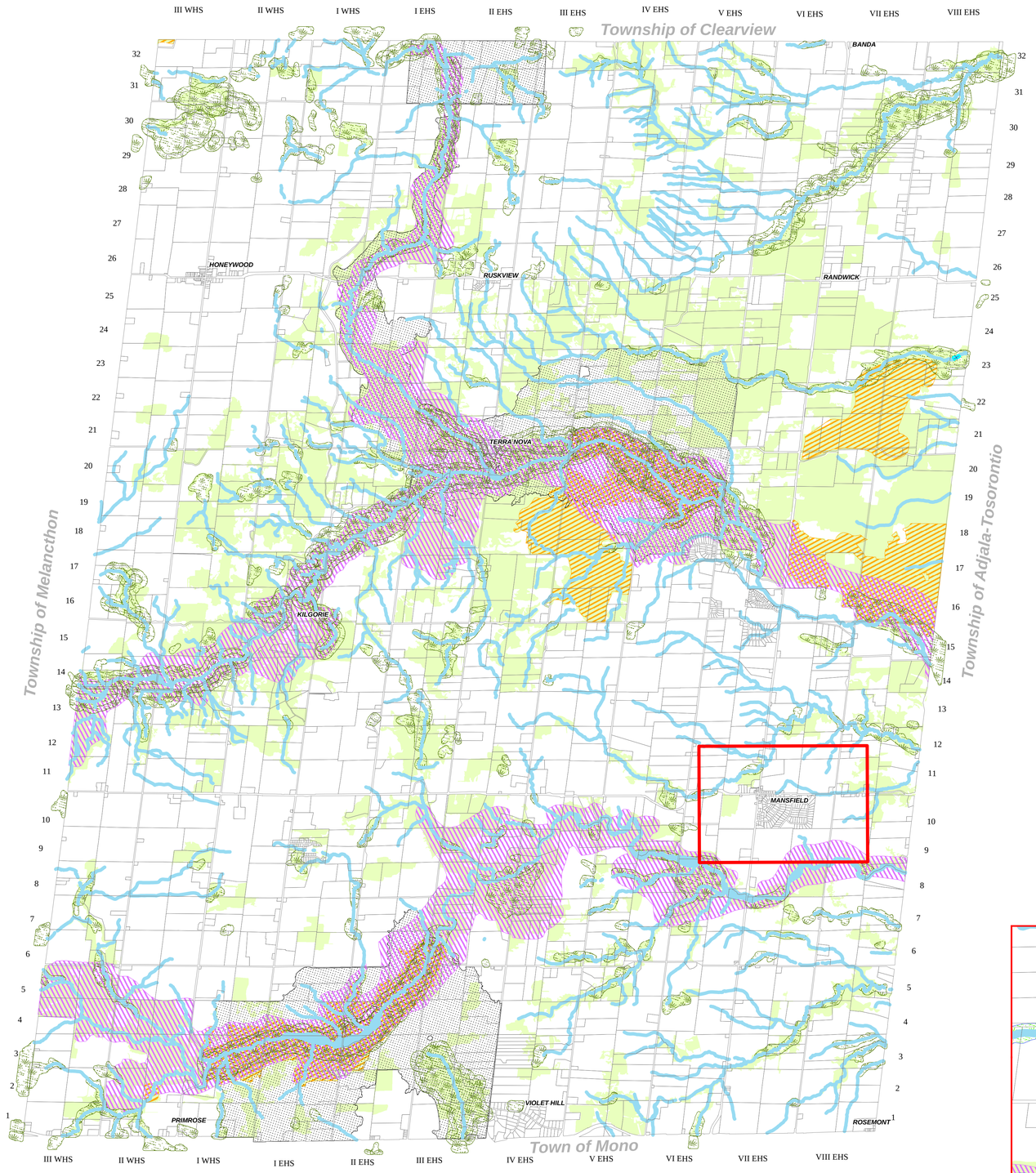

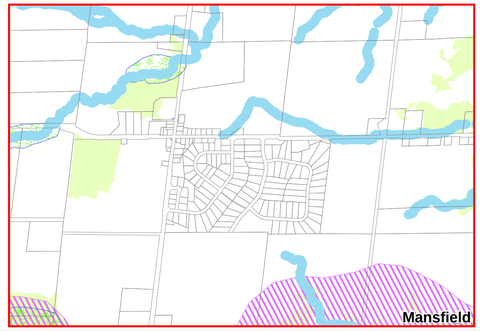

Township of Mulmur

Official Plan

Schedule B2 - Category Two Natural Features

Legend

- Parcels
- Streams (With Associated Buffers)
- Wetlands (With Associated Buffers)
- Core Deer Wintering Area
- ANSI Earth Sciences
- ANSI Life Sciences
- Wooded Area (Over 10ha.)

NOTES:

1. Schedule B2 - Category Two Natural Features information has not been approved by the Ontario Municipal Board (OMB) or the Ministry of Municipal Affairs and Housing (MMAH) and therefore could be subject to change.

2. Wooded areas smaller than 5 h.a. do not appear on this map. Please refer to MNR and NVCA mapping for all forested areas

SOURCES:

1. Lakes, Rivers, Provincial Wetlands, Core Deer Areas, ANSI Earth and Life Science, Lot and Concession data has been provided by the Ministry of Natural Resources (MNR) © Her Majesty the Queen in Right of Ontario
2. Parcel Fabric has been supplied under license by Teranet Inc.
3. Local Wetlands and forestry data has been supplied by the NVCA.

DISCLAIMER:

R.J. Burnside and Associates and the above mentioned sources are not responsible for any errors, omissions or inaccuracies in the data depicted on this map. It is the responsibility of the user of this map to verify the accuracy of the data depicted.

N

0 500 1,000 1,500 2,000 2,500 3,000 3,500

Meters

Scale: 1:40,000
Date: August, 2009
Last Revised: October, 2011

Projection: UTM Zone 17
Datum: NAD 83

Project: MSO09635.4

BURNSIDE

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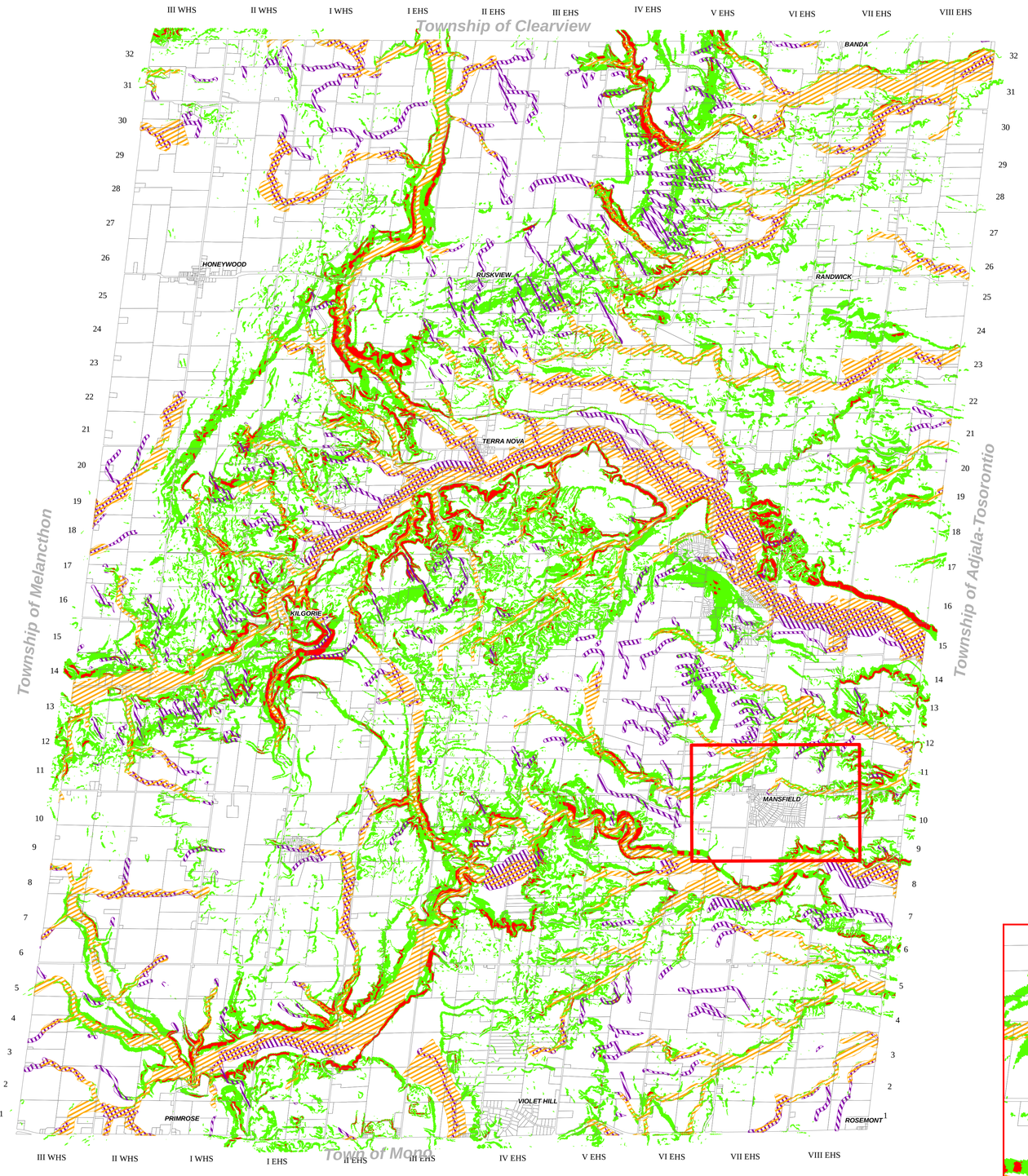

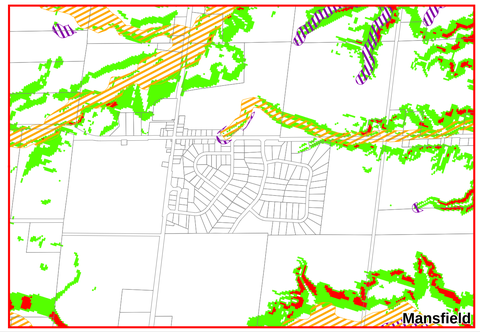

Township of Mulmur

Official Plan

Schedule B3 - Physical Constraints and Hazards

Legend

- Flood Plain & Low Lying Areas
- Meander Belts

Steep Slope Classification

- Moderate Slope (15-30%)
- Steep Slope (>30%)
- Parcels

NOTES:

1. Schedule B3 - Physical Constraints and Hazards information has not been approved by the Ontario Municipal Board (OMB) or the Ministry of Municipal Affairs and Housing (MMAH) and therefore could be subject to change.

2. Slope information was calculated from the NVCA's 10cm Digital Elevation Model (DEM) using ArcGIS 9.3.1 3D Analyst

SOURCES:

1. Lakes, Rivers, Lot and Concession data has been provided by the Ministry of Natural Resources (MNR) © Her Majesty the Queen in Right of Ontario
2. Parcel Fabric has been supplied under license by Teranet Inc.
3. Flood Plain, Meander Belt and slope mapping has been supplied by the NVCA.
4. Senic Sightlines data has been provided by the Niagra Escarpment Comission (NEC) © Her Majesty the Queen in Right of Ontario

DISCLAIMER:

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N

0 500 1,000 1,500 2,000 2,500 3,000 3,500

Meters

Scale: 1:40,000
Date: August, 2009
Last Revised: October, 2011

Projection: UTM Zone 17
Datum: NAD 83

Project: MSO09635.4

BURNSIDE

X:\Dufferin\Mulmur\Map\Cartography\OP_B3.mxd

Scott Tarof

From: Mike Francis [mfrancis@nvca.on.ca]
Sent: Tuesday, April 20, 2021 10:38 AM
To: Scott Tarof
Cc: tatkinson@mulmur.ca; Amy Knapp
Subject: RE: 21-158 TOR Confirmation for Residential Subdivision Development on Lot 11, Concession 7 East of Hurontario (Mansfield), Township of Mulmur

Good morning, Dr. Tarof.

I've reviewed the proposed EIS study terms as per your attachment. Some thoughts for your consideration as follows.

One of your bullets notes the following proposed action: "*Fisheries visits to assess the drainage swale on the property…*". I am not personally familiar with the property in question; however, if headwater drainage features are determined to be present, staff would expect that some level of formal feature assessment (e.g. https://cvc.ca/wp-content/uploads/2014/02/HDFA-final.pdf) would be undertaken to inform appropriate mitigation planning.

It is also expected that your report submission will include a fulsome overview of planning policies and regulations which are relevant to the proposed development, including clear demonstration of consistency, conformity, and compliance. With respect to determining appropriate setbacks to natural heritage features which are regulated by NVCA (i.e. valleylands, watercourses, wetlands if present), staff expect that your report will reference the various requirements prescribed in NVCA's Planning and Regulations Guidelines.

Aside from the above, and on a preliminary basis, I have no concerns with your proposed scope of work. As always, additional study requirements may be identified by your team throughout the course of your work or through subsequent agency review.

I would be pleased to call and discuss further as needed. Thank you

Mike Francis, H.B.Sc., M.E.S., E.P. | Planning Ecologist

Nottawasaga Valley Conservation Authority
8195 8th Line, Utopia, ON L0M 1T0
T 705-424-1479 ext. 236 | **F** 705-424-2115
mfrancis@nvca.on.ca | **nvca.on.ca**

IMPORTANT NOTE
I am currently working remotely as the Nottawasaga Valley Conservation Authority is taking preventative measures to limit the spread of COVID-19. You may experience some delays or disruptions as we follow recommendations of health professionals in this regard.

From: Scott Tarof <starof@azimuthenvironmental.com>
Sent: Tuesday, April 13, 2021 11:27 AM
To: Amy Knapp <aknapp@nvca.on.ca>
Cc: tatkinson@mulmur.ca
Subject: 21-158 TOR Confirmation for Residential Subdivision Development on Lot 11, Concession 7 East of Hurontario (Mansfield), Township of Mulmur

Dear Amy and Tracey:

Azimuth Environmental Consulting, Inc. (Azimuth) is providing environmental consulting services related to the above development. A conceptual Site Plan is attached. Below we provide the proposed Terms of Reference (TOR) for the environmental work and would appreciate it if you could please review and confirm the scope.

- Search the County of Dufferin (County), Township of Mulmur (Township), NVCA, 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, including obtaining current information related to natural heritage conditions including Species at Risk (SAR) in the nearby area;
- Contact the MNRF, MECP, and DFO as required to acquire background data related to natural heritage features including SAR information;
- Contact the NVCA as required to confirm the Terms of Reference for the scope of the study is appropriate;
- Conduct field surveys to document existing natural heritage features, functions, and species:
    - Evaluate/ map vegetation community types based on Ecological Land Classification methods (summer 2021);
    - One (1) vascular plant inventory on the property (summer 2021);
    - Fisheries visits to assess the drainage swale on the property and mapped watercourse (Pine River) to assess potential direct and indirect fish habitat (April, June/July 2021);
    - One (1) evening frog call survey to confirm presence or absence of amphibian habitat on the property (April 2021), noting that although unanticipated, up two (2) additional surveys may be required if amphibian breeding is documented during the April survey;
    - Three (3) dawn breeding bird surveys (June 2021);
    - Three (3) evening/nocturnal breeding bird surveys (May-June 2021);
    - Record all incidental wildlife observations during site visits;
- Complete a SAR habitat assessment using field data collected by Azimuth during site visits and other data available and/or provided by agencies to confirm environmental constraints, and approval requirements under the ESA;
- Assess potential direct and indirect impacts of the proposed development on the natural heritage features and functions identified on or adjacent to the property. Natural heritage features and functions, along with buffer setbacks, will be mapped on high quality aerial imagery;
- Prepare one version of a draft Scoped EIS report (electronic) for client review and comment prior to submission to relevant agencies. The Scoped EIS will include information on impact mitigation/avoidance/restoration where required; and,
- Prepare up to five (5) bound copies of the Scoped EIS report for client distribution to agencies.

No evening amphibian calling activity was noted on-property during the early spring survey.

The other studies would be completed by other firms.

Thank you in advance for your time. We look forward to your reply.

Thank you.

Warm regards,

Dr. Scott Tarof (PhD Biology)
Terrestrial Ecologist
Certified Ontario MNRF Wetland Evaluator
Contract Faculty (Biology, Physical Geography), York University

Due to COVID-19, our staff are working remotely. Our offices are closed to the public but I can be reached on my cell or email. I look forward to talking with you.

Azimuth Environmental Consulting, Inc.
642 Welham Road, Barrie, ON, L4N 9A1
ph: (705) 721-8451 ext 230
cell: (705) 715-7105
starof@azimuthenvironmental.com
www.azimuthenvironmental.com

Providing services in hydrogeology, terrestrial and aquatic ecology & environmental engineering

Nottawasaga Valley Conservation Authority

Property Screening Report

27-Aug-2021

Information Resources for Regulated Properties

Do I need a permit?

Submit a Property Inquiry

Google Driving Directions

Info Regarding Covid-19

Email the Regulations Department
permits@nvca.on.ca

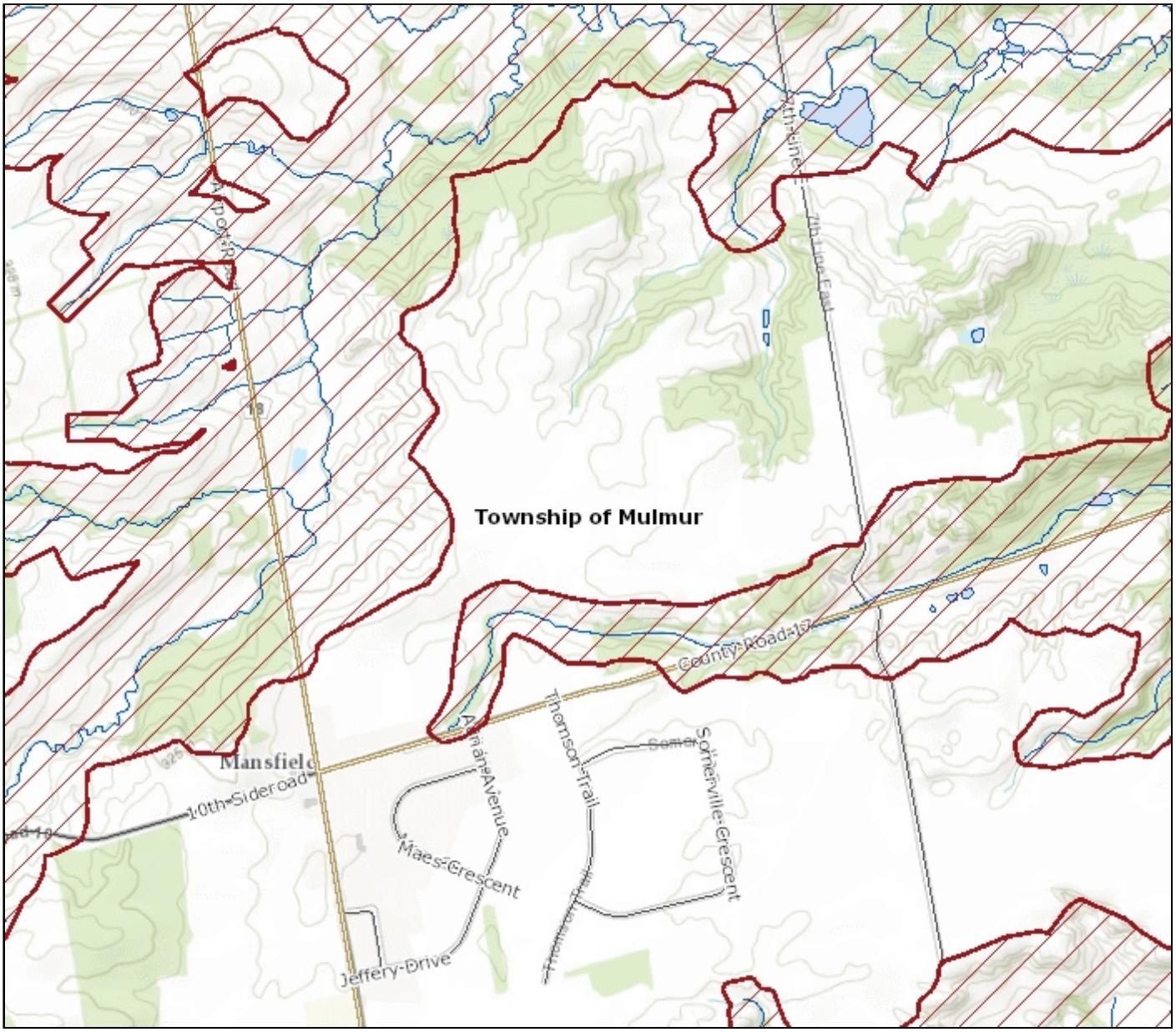
NVCA Contact Information

(705) 424-1479

8195 8th Line,
Utopia, ON L0M 1T0

www.nvca.on.ca

Monday to Friday
8:30 a.m. to 4:30 p.m.
except between 12:00 p.m. - 1:00 p.m.



FW: P1-2020 Pre-Consultation Zoom Information

From: Greg Barker (gbarker@ipsconsultinginc.com)

To: d.seaman1@rogers.com; jvoisin@pel.ca

Date: Monday, February 8, 2021, 03:40 p.m. EST

Please see below from NVCA – nothing major but certainly a bit of work to do.

Greg Barker, B.A.A.

PARTNER

647 Welham Road, Unit 9, Barrie, ON L4N 0B7
Tel: 705 - 812 - 3281 extension 23 | Fax: 705 – 812 - 3438
E-Mail: gbarker@ipsconsultinginc.com URL: www.ipsconsultinginc.com

From: Amy Knapp <aknapp@nvca.on.ca>
Sent: February 8, 2021 2:17 PM
To: Greg Barker <gbarker@ipsconsultinginc.com>
Subject: RE: P1-2020 Pre-Consultation Zoom Information

Good Afternoon Greg.

I have a draft set of comments and will be finalizing them after our meeting. For the most part everything appear to be straight forward. I have provided below some highlights which may be of assistance in advance.

The area is affected by NVCA regulations due to the presence of a tributary of the Pine River its valley system, floodplain and slope erosion hazards.

Natural Hazard - Regulatory Comments

1. A flood hazard study should be completed in support of the proposed development. OR A topographic site survey should be completed in order to determine if further flood information needs to be provided.

2. An erosion hazard and/or A geotechnical study should be completed in support of the proposed development.

3. In general, NVCA's Planning and Regulations Guidelines requires a 15 metre access allowance from natural hazard limits and valleylands top of bank. Provincial guidelines recommend that development should generally be setback a minimum of 6 metres adjacent to erosion and flooding hazards (Sections 3.0 and 3.4, Erosion Access Allowance, Technical Guide – River and Stream Systems: Erosion Hazard Limit, MNR, 2002b). However we note that this is minimum standard from the MNR and it is NVCA's position that the initial design should provide for the 15 metres. Should a 15 metre buffer cannot be achieved, we may consider a reduced allowance down to a minimum of 6 metres subject to a review of the technical justification

Natural Heritage and Ecology - Advisory Comments

4. Due to the presence of confirmed and candidate significant natural heritage features within proximity to the proposed development, a scoped EIS will be required to assess the potential impacts of development on such features, and evaluate conformity of the proposal with relevant natural heritage-related policies. The applicant will be required to retain a qualified ecologist to prepare this submission, at which point the consultant shall contact NVCA planning staff to discuss the appropriate scope of required studies.

Any questions in advance of the meeting, please let me know.

Amy Knapp | **Planner III**

Nottawasaga Valley Conservation Authority

8195 8th Line, Utopia, ON L0M 1T0

T 705-424-1479 ext.233 | **F** 705-424-2115

aknapp@nvca.on.ca | **nvca.on.ca**

I am currently working remotely as the Nottawasaga Valley Conservation Authority is taking preventative measures to limit the spread of COVID-19. You may experience some delays or disruptions as we follow recommendations of health professionals to slow the virus from spreading.

From: Greg Barker [mailto:gbarker@ipsconsultinginc.com]
Sent: Monday, February 8, 2021 11:04 AM
To: Amy Knapp <aknapp@nvca.on.ca>
Subject: RE: P1-2020 Pre-Consultation Zoom Information

Hi Amy,

Hope you had a great weekend.

Touching base on below for any updates you may have regarding tomorrows pre-consultation.

Please let me know – perhaps you have already provided comments to the Town which in that case I apologize!

Thanks Amy.

IPS INNOVATIVE PLANNING SOLUTIONS

Greg Barker, B.A.A.

PARTNER

647 Welham Road, Unit 9, Barrie, ON L4N 0B7
Tel: 705 - 812 - 3281 extension 23 | Fax: 705 – 812 - 3438
E-Mail: gbarker@ipsconsultinginc.com URL: www.ipsconsultinginc.com

From: Amy Knapp <aknapp@nvca.on.ca>
Sent: January 18, 2021 3:33 PM
To: Greg Barker <gbarker@ipsconsultinginc.com>
Subject: RE: P1-2020 Pre-Consultation Zoom Information

Hi Greg,

Happy New Year! I did a copy of the draft plan but have yet to take a full review of it yet. It's on my list for this week and if I have any questions/concerns prior to I will definitely reach out

Amy Knapp | **Planner III**

Nottawasaga Valley Conservation Authority

8195 8th Line, Utopia, ON L0M 1T0

T 705-424-1479 ext.233 | **F** 705-424-2115

aknapp@nvca.on.ca | **nvca.on.ca**

I am currently working remotely as the Nottawasaga Valley Conservation Authority is taking preventative measures to limit the spread of COVID-19. You may experience some delays or disruptions as we follow recommendations of health professionals to slow the virus from spreading.

From: Greg Barker [mailto:gbarker@ipsconsultinginc.com]
Sent: Monday, January 18, 2021 3:20 PM
To: Amy Knapp <aknapp@nvca.on.ca>
Subject: FW: P1-2020 Pre-Consultation Zoom Information

Hi Amy,

Hope you and your family are well!

I wanted to reach out on the email below and associated pre-consultation scheduled for February 9th.

I assume you have been provided a copy of the materials circulated, though see attached if not.

Tracey had suggested reaching out to you to engage in early discussion in an effort to have a more productive meeting. Let me know if youd like to connect to discuss?

Our intent is to avoid the EP zoned areas, understanding additional study is likely required to confirm limit.

Thanks Amy

Greg

Greg Barker, B.A.A.

ASSOCIATE

647 Welham Road, Unit 9A, Barrie, ON L4N 0B7
Tel: 705 - 812 - 3281 extension 23 | Fax: 705 – 812 - 3438
E-Mail: gbarker@ipsconsultinginc.com URL: www.ipsconsultinginc.com

Please note that IPS has moved to our new address above.

From: Tracey Atkinson
Sent: January 18, 2021 12:39 PM
To: Greg Barker
Subject: FW: P1-2020 Pre-Consultation Zoom Information

Tracey Atkinson, BES MCIP RPP Dipl M.M. | CAO | Planner | Acting Clerk

Township of Mulmur | 758070 2nd Line E Mulmur, ON L9V 0G8

Phone 705-466-3341 ext. 222 | Fax 705-466-2922 | tatkinson@mulmur.ca

Join our email list to receive important information and keep up to date on the latest Township news.

From: Alexis Phillips <aphillips@mulmur.ca>
Sent: January 18, 2021 12:24 PM
To: Gord Feniak <Gord.Feniak@rjburnside.com>; aknapp@nvca.on.ca; John Willmetts <jwillmetts@mulmur.ca>; Mike Blacklaws <mblackl@hotmail.com>; jli@dufferincounty.ca; joe_miedema@bell.net; Tracey Atkinson <tatkinson@mulmur.ca>
Subject: P1-2020 Pre-Consultation Zoom Information

Good Afternoon,

Below is the Zoom information for our meeting scheduled for February 9th at 1pm.

Mulmur Township is inviting you to a scheduled Zoom meeting.

Topic: P1-2020 Pre-Consultation Meeting

Time: Feb 9, 2021 01:00 PM Eastern Time (US and Canada)

Join Zoom Meeting

https://us02web.zoom.us/j/81364450508?pwd=cXFnQ2twM0dNUER0YTF5S01tM1Fvdz09

Meeting ID: 813 6445 0508

Passcode: 135467

One tap mobile

+16475580588,,81364450508#,,,,*135467# Canada

+17789072071,,81364450508#,,,,*135467# Canada

Dial by your location

- +1 647 558 0588 Canada
- +1 778 907 2071 Canada
- +1 204 272 7920 Canada
- +1 438 809 7799 Canada
- +1 587 328 1099 Canada
- +1 647 374 4685 Canada

Meeting ID: 813 6445 0508

Passcode: 135467

Find your local number: https://us02web.zoom.us/u/kug7rS06G

Alexis Phillips | Administrative Assistant

Township of Mulmur | 758070 2nd Line E Mulmur, ON L9V 0G8 | www.mulmur.ca

Phone 705-466-3341 ext. 234 | Fax 705-466-2922 | aphillips@mulmur.ca

Join our email list to receive important information and keep up to date on the latest Township news.

APPENDIX B

Provincial and Federal Background and Correspondence

NHIC Data

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

OGF ID	Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	ATLAS NAD83 IDENT	COMMENTS
978095	SPECIES	Hart's-tongue Fern	Asplenium scolopendrium				17NJ7691	
978095	SPECIES	Eastern Meadowlark	Sturnella magna		THR	THR	17NJ7691	
978095	SPECIES	Bobolink	Dolichonyx oryzivorus		THR	THR	17NJ7691	
978105	SPECIES	Hart's-tongue Fern	Asplenium scolopendrium				17NJ7791	
978105	SPECIES	Eastern Meadowlark	Sturnella magna		THR	THR	17NJ7791	

Ontario

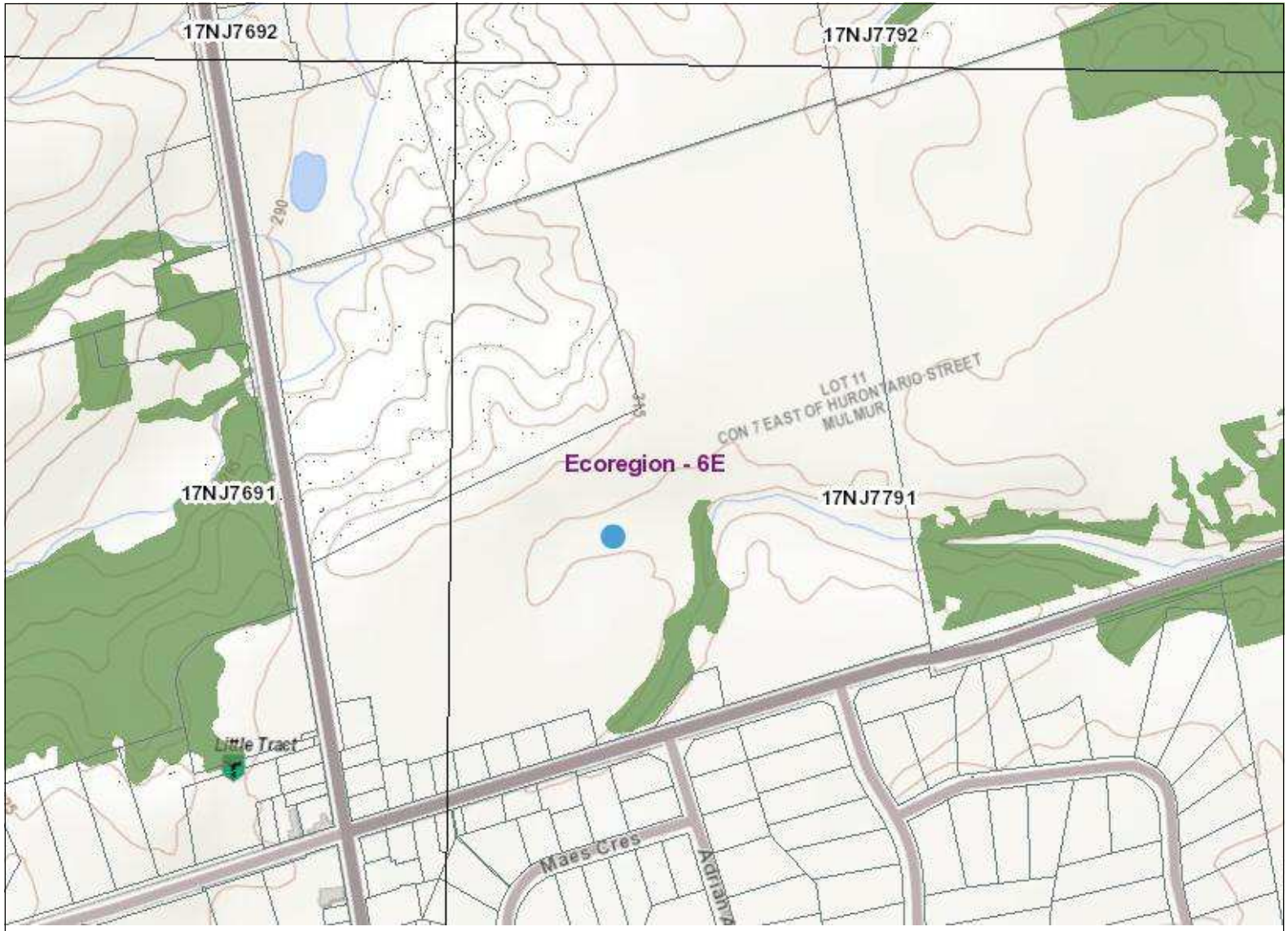
Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

21-158

Map created: 4/8/2021

Notes: Enter map notes



Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System
- Ecoregion

Wetland

- Provincially Significant Wetland Evaluated
- Non - Provincially Significant Wetland Evaluated
- Unevaluated Wetland

Area of Natural Heritage & Scientific Interest (ANSI)

- Provincially Significant Life Science ANSI
- Provincially Significant Earth Science ANSI

Greenbelt Plan

- Boundary
- Greenbelt External Connections

Land Use Designations

- Protected Countryside
- Greenbelt Towns and Villages
- Greenbelt Hamlets
- Urban River Valley
- Greenbelt Specialty Crop Area

Niagara Escarpment Plan (NEP)

- Boundary
- Parks and Open Space System

Land Use Designations

- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area
- Mineral Resource Extraction Area
- Escarpment Recreation Area
- Urban Area
- Minor Urban Centre

Oak Ridges Moraine Conservation Plan (ORM)

- Boundary

Land Use Designations

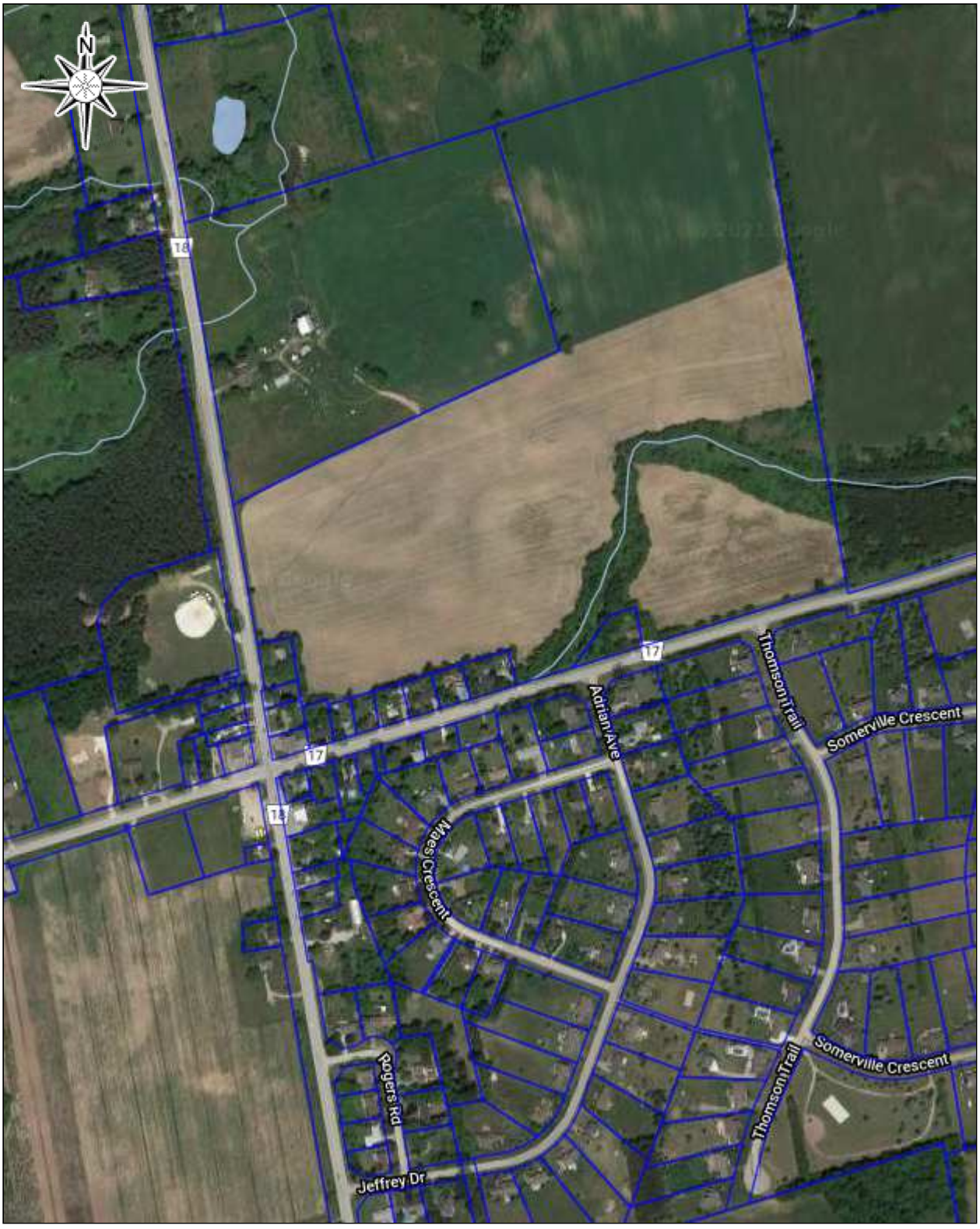
- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement
- Palgrave Estates Residential Community
- Settlement Area

0.3 0 0.16 0.3 Kilometers

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.

This map may not display all features listed in the legend because the feature layer was not turned on at the time the map was made; the features do not exist in the geographic range; or features have not been mapped. Absence of a feature in the map does not mean they do not exist in this area.

21-223



provided by:
FIRST BASE SOLUTIONS
GEOSPATIAL EXPERTS

Michael Gillespie

From: Fortini, Natosha (NDMNRF) [Natosha.Fortini@ontario.ca]
Sent: Friday, September 17, 2021 12:29 PM
To: Michael Gillespie
Subject: RE: (Tracy)Fisheries Information Request - Lot 11, Concession 7 EHS, Mansfield

Hi Michael,

We don't have any fish data or thermal data for this tributary or most other tribs, save for 1 or 2 which denote a cool water/mixed fish community. Based on the conditions you identified and the couple of other data points we have for adjacent tributaries (including one or two July-spawning species), I would say a window of July 1 – March 15 could be appropriate. This is just a general guideline and can be altered by the review and approval authority once more details and the scope of the works are provided for consideration.

Sincerely,

Natosha

Natosha Fortini
Management Biologist | Aurora District | Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry | 50 Bloomington Rd. W., Aurora, ON, L4G 0L8 | P: 289-380-6181| F: 905.713.7361 | natosha.fortini@ontario.ca

Ontario

From: Michael Gillespie <mgillespie@azimuthenvironmental.com>
Sent: September 9, 2021 3:52 PM
To: MIDHURSTINFO (MNRF) <MIDHURSTINFO@ontario.ca>
Subject: (Tracy)Fisheries Information Request - Lot 11, Concession 7 EHS, Mansfield

Good afternoon,

Azimuth Environmental Consulting Inc. is in the process of completing an Environmental Impact Study for a property in Mansfield (Township of Mulmur, County of Dufferin) at Lot 11, Concession 7 East of Hurontario (northeast of Dufferin County Road 18/Dufferin County Road 17; 17T 577287 m E, 4891523 m N). This property is depicted in the attached figures. It contains a tributary of the Pine River approximately 4.8km upstream of the main branch of the Pine River. On the property the watercourse is densely vegetated, mostly unchannelized, and contained minimal spring flows (with dry conditions and no flow on June 24, 2021). No fish were observed. Conditions were considered marginal, and largely representative of a warmwater system. As found in MNRF's LIO database, there are records of Rainbow Trout as close as 2.6km downstream of the property. No records of coldwater species were found until the main branch of the Pine River. Based on site conditions, combined with coolwater species immediately downstream, Azimuth suggests a timing window prohibiting in-water work between March 15th to June 15th. We are kindly seeking MNRF's confirmation that this timing window is appropriate, and requesting any supplemental data (thermal regime, fish records, etc.) that MNRF may have for the watercourse.

Thank you for your time.

Regards,

Mike Gillespie, B.Sc.Env.,

Fisheries Ecologist

Azimuth Environmental Consulting, Inc
642 Welham Road
Barrie, ON L4N 9A1

Phone: (705) 721 - 8451 ext. 203
Cell: (705) 795 - 7101
Fax: (705) 721 - 8926
www.azimuthenvironmental.com

Providing services in hydrogeology, terrestrial and aquatic ecology & environmental engineering

APPENDIX C

Photographic Record

Photograph 1. Pine River tributary at existing tractor crossing (facing upstream/southwest (April 13, 2021).

Photograph 2. Pine River tributary at existing tractor crossing (facing downstream/northeast (April 13, 2021).

Photograph 3. Facing upstream/southwest towards existing tractor crossing (April 13, 2021).

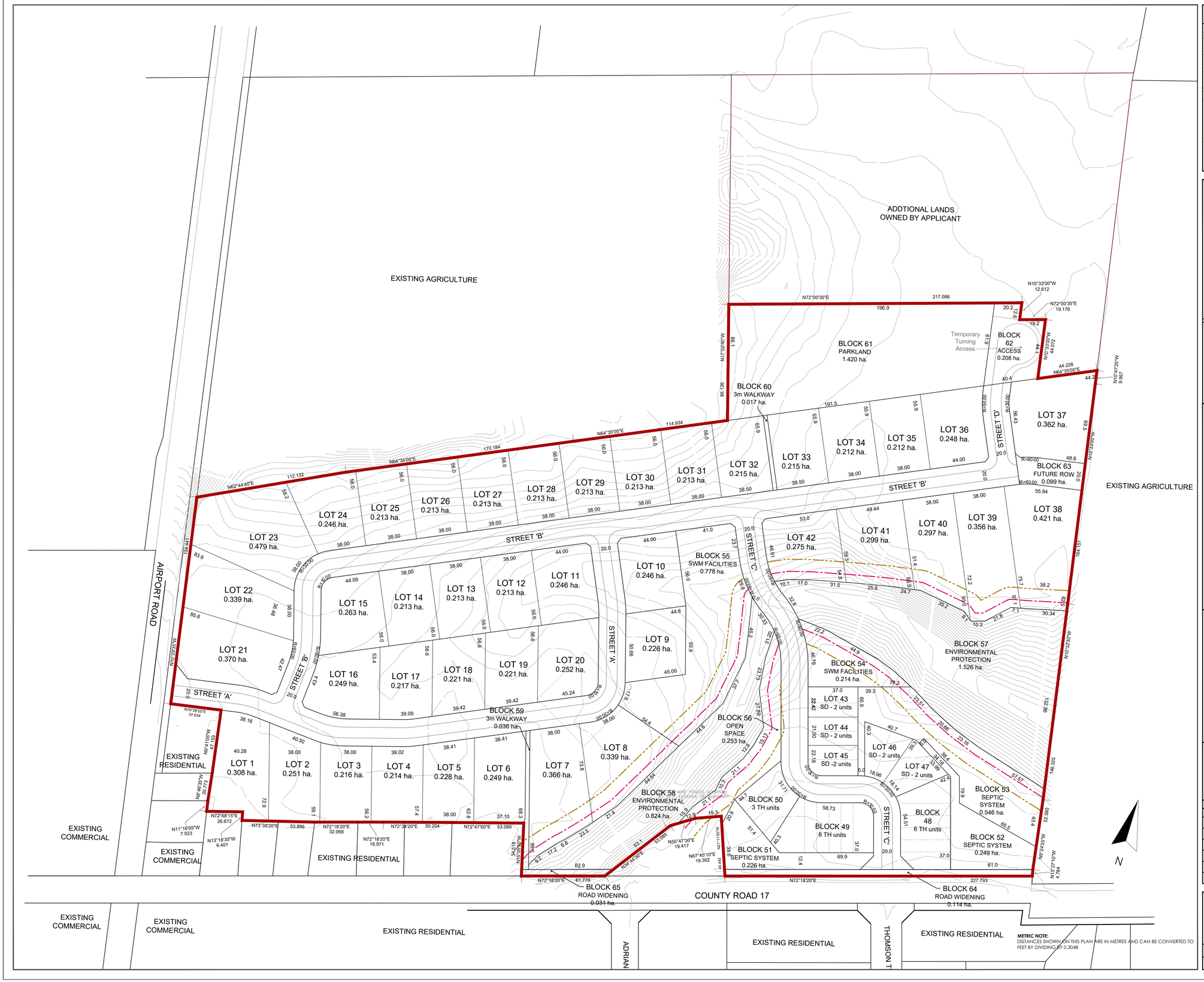
Photograph 4. OAGM1 vegetation community [facing east toward riparian woodland in background (right) and eastern treed hedgerow (left)] (June 4, 2021).

Photograph 5. WODM5-3 ELC vegetation community (facing east). Note the existing tractor gap in the riparian woodland where the existing culvert is located (June 4, 2021).

Photograph 6. Facing east, photograph shows the grass hedgerow fringe associated with adjacent lands to the north (to the left in the photo) and treed hedgerow along the eastern property boundary (June 4, 2021).

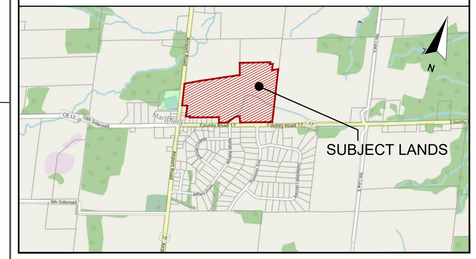
APPENDIX D

Proposed Subdivision Draft Plan



KEY MAP

Scale: 1:20,000



DRAFT PLAN OF SUBDIVISION
ARMSTRONG ESTATES
OF MANSFIELD

Part of Lot 11, Concession 7
East of Hurontario Street
Township of Mulmur
County of Dufferin

Scale 1:1250

0 25 50 75 100 125m

SUBJECT LANDS - 21.510 ha.

6.0m SETBACK FROM TOP-OF-BANK

15.0m SETBACK FROM TOP-OF-BANK

LAND USE SCHEDULE

Land Use	Lot / Block No.	Units	Area (ha.)	Area (ac.)	%
RESIDENTIAL SINGLE LOT (30.0m / 2,000m²)	1-42	42	11.00	27.18	51.1
RESIDENTIAL SEMI-DETACHED LOT (9.0m / 30')	43-47	10	0.44	1.09	2.1
RESIDENTIAL STREET TOWNHOUSE (9.0m / 30')	Blocks 48, 49, 50	15	0.62	1.54	2.9
SEPTIC SYSTEM	Blocks 51, 52, 53		1.02	2.52	4.7
STORMWATER MANAGEMENT FACILITIES	Blocks 54, 55		0.99	2.44	4.6
OPEN SPACE	Block 56		0.25	0.63	1.2
ENVIRONMENTAL PROTECTION	Blocks 57, 58		2.35	5.80	10.9
3.0m WALKWAYS	Blocks 59, 60		0.05	0.13	0.2
PARKLAND	Block 61		1.42	3.51	6.6
ACCESS	Block 62		0.21	0.51	1.0
FUTURE R.O.W.	Block 63		0.10	0.24	0.5
ROAD WIDENINGS	Blocks 64, 65		0.15	0.37	0.7
STREETS	Streets A - D		2.90	7.19	13.5
TOTAL		67	21.50	53.15	100.0

OWNER'S CERTIFICATE

I, THE UNDERSIGNED, BEING THE REGISTERED OWNER OF THE SUBJECT LANDS, HEREBY AUTHORIZE INNOVATIVE PLANNING SOLUTIONS TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND TO SUBMIT SAME TO THE COUNTY OF DUFFERIN FOR APPROVAL.

DATE

SURVEYOR'S CERTIFICATE

I CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

a) SHOWN ON PLAN
b) SHOWN ON PLAN
c) SHOWN ON PLAN
d) RESIDENTIAL, OPEN SPACE
e) SHOWN ON PLAN
f) SHOWN ON PLAN
f1) NONE
g) SHOWN ON PLAN
h) MUNCIPAL WATER
i) SAND
j) SHOWN ON PLAN
k) PRIVATE SEPTIC
l) NONE

SCHEDULE OF REVISIONS

No.	Date	Description	By
1	Sept. 7, 2021	Adjust top-of-bank limits;	A.S.
1	Sept. 8, 2021	Adjust top-of-bank limits;	A.S.

IPS
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Date:	August 12, 2021	Drawn By:	BH
File:	20-1019	Checked:	GB