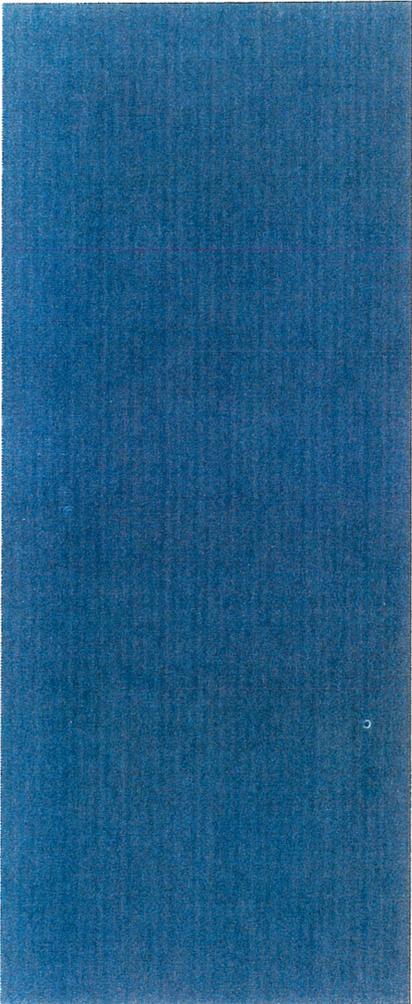


ENVIRONMENTAL IMPACT STUDY
LOON CALL MARKDALE DEVELOPMENT

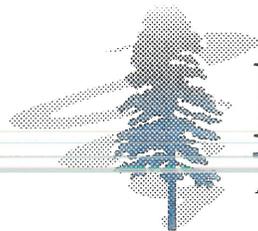


COMMUNITY OF MARKDALE

Prepared for:

GH1 Development Inc.

November 2021



Michalski Nielsen

ASSOCIATES LIMITED

ENVIRONMENTAL PLANNING BIOPHYSICAL ANALYSIS
LAKE CAPACITY ASSESSMENT RESOURCE MANAGEMENT



Michalski Nielsen

ASSOCIATES LIMITED

November 30, 2021

Mr. Suresh Singh
LC Development Group
GH1 Development Inc.
909 Davenport Road, 2nd Floor
Toronto, Ontario
M6G 2B7

Re: Loon Call Markdale Development; Our File 2620

Mr. Singh:

Enclosed please find our report entitled **ENVIRONMENTAL IMPACT STUDY, LOON CALL MARKDALE DEVELOPMENT – COMMUNITY OF MARKDALE** (November 2021).

Should you have any questions, or if further clarification is required, do not hesitate to call.

Yours truly,

MICHALSKI NIELSEN ASSOCIATES LIMITED

Per:

Gord Nielsen, M.Sc.
Ecologist
President

GN/be

Enc.

16 Robert Boyer Lane, Bracebridge, Ontario P1L 1R9
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1 INTRODUCTION

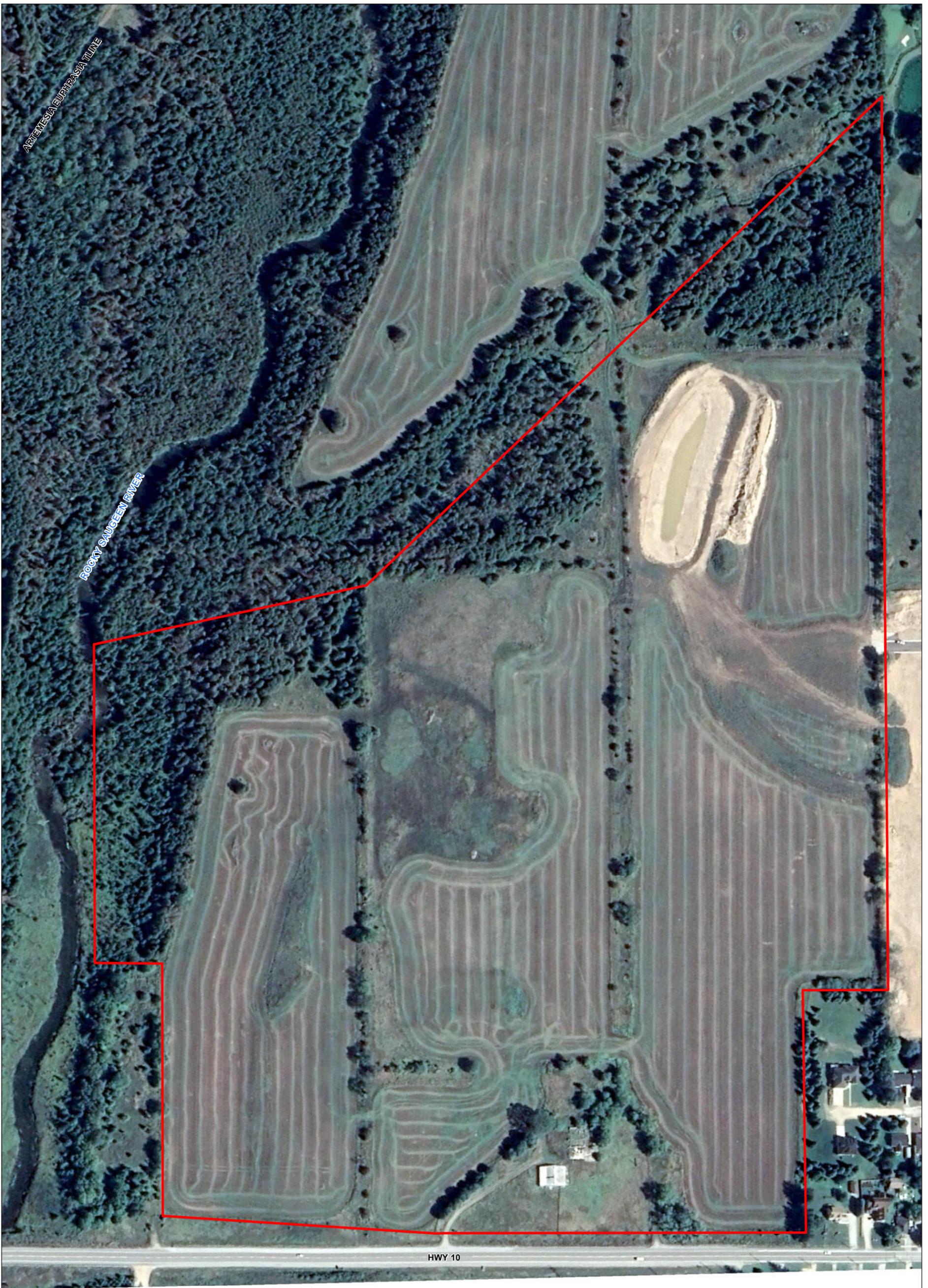
1.1 Purpose and Scope of Study

In the early summer of 2020, LC Development Group (LCDG) acquired a property within the northwest corner of the community of Markdale the majority of which is located within the primary settlement area of that community. This property is located at 775309 Highway 10, in the Municipality of Grey Highlands, County of Grey. The property, which is shown in **Figure 1**, is approximately 35.36 ha in size and is legally described as Part Lots 95, 96 and 97, Concession 1, northeast of the Toronto Sydenham Road.

The property is bordered by Highway 10 and vacant agricultural land to the southwest, by the Rocky Saugeen River and its valleyland to the northwest, by a tributary of that river and its valleyland, beyond which are agricultural lands, to the northeast, and by a combination of housing development and a golf course to the east and southeast.

The subject lands are intended to be developed for attainable housing, consisting of small-lot single family homes and row townhouses. Michalski Nielsen Associates Limited has completed this Environmental Impact Study in support of this proposed development. Our work has involved reviewing pertinent background information, collecting all of the necessary field information through the early summer, fall and spring of 2020/2021 to be able to fully understand natural environment conditions and constraints in association with the subject property and adjacent lands, consulting with local planning authorities, determining whether there are any natural environment constraints which should preclude or substantially influence the footprint of development on those lands, and providing guidance on how such development should proceed. In this particular instance, such guidance needed to include that relating to:

- the identification of areas which are suitable for residential development;
- the location and design of site services, with a particular emphasis on stormwater management;
- the long-term protection of lands on which there are substantial environmental constraints; and
- additional mitigation measures which need to be implemented in order to protect the natural features on or adjacent to these lands.



LEGEND:
 Subject Property



METRE SCALE: 		NORTH: 
PRINT SCALE: 1:2750	PRINT SIZE: 11 x 17"	
DATUM: NAD 1983	PROJECTION: UTM Zone 17	
DATE: Apr 05, 2021	DRAWN: KG	CHECKED: AZ
PREPARED BY:		

CLIENT:  **Michalski Nielsen**
ASSOCIATES LIMITED

PROJECT: **Markdale Environmental Review**

TITLE: **Site Location**

Palmer™

FIGURE 1 REVISION: 1-1 PROJECT NO. 1603357

1.2 Site Overview

The subject property is shown on **Figure 1**, with its location illustrated on the key map that is included with that drawing. It is located within the northwest corner of the community of Markdale. The tableland portions of the property are presently in agricultural use (primarily row fields that have been planted with soybean). There is driveway access into the property from Highway 10, with an old barn foundation and a steel storage building accessible off of that driveway. There are some trees around this former homestead location and some hedgerows within the tableland portion of the site. Further, there is an area of currently uncultivated lands within this tableland area, with the more hummocky ground conditions and rockier soils in that area suggesting it was previously used for livestock grazing. The valleyland portions of the property, which include both the valleyland of the Rocky Saugeen River and that of a tributary to that river, are forested, although there has been some trail creation and timber harvesting (of Eastern White Cedar) within these areas. The property also contains a recently constructed stormwater management pond and its outlet that were built to service new residential development to the northeast and east of the subject property. It also includes the remnants of construction access pathways associated with the installation of this stormwater facility. There is also a farm laneway at the northeast end of this property which crosses the tributary of the Rocky Saugeen River, accessing planted fields on the far side of that valleyland (but not being the only potential access to those fields).

1.3 Proposed Development

Appendix A shows the development concept plan for this property, to which Michalski Nielsen Associates Limited has had input and supports. The tableland portions of the property are to be developed as a residential subdivision that is to include a mix of single detached units on small lots and row townhouses. The development is proposed to be constructed in phases, with the timing of those phases to be determined by market demand. The current stormwater management pond, constructed for the adjacent development to the northeast and east, was designed to be able to accommodate future development on the subject property; a majority of proposed development will capitalize on this facility, with some modifications to it required to increase its storage volumes, however the grades of the property are such that development of the western/southwestern portions of it will require construction of a separate stormwater management pond on the tableland within the southwestern corner of the property.

1.4 Acknowledgements

Michalski Nielsen Associates Limited has been assisted on this project by Palmer Consulting Group Inc. (PECG), who were involved in the terrestrial components of the field assessment completed in the summer and fall of 2020 and spring of 2021, the Species at Risk review and the review of Significant Wildlife Habitat.

2 METHODOLOGIES

2.1 Background Review

Relevant background material was reviewed to provide context for field investigations and to identify any environmental designations and policy requirements. This review included the following sources of information:

- Natural Heritage Information Centre (NHIC) Make-A-Map application, which includes the NHIC’s species records database and Land Information Ontario (LIO) features;
- Ontario Breeding Bird Atlas (OBBA, 2001-2005);
- Ontario Reptile and Amphibian Atlas (ORAA, 2020);
- Ontario Butterfly Atlas (OBA, 2020);
- DFO mapping (DFO, 2020);
- Significant Wildlife Habitat Technical Guide (MNRF, 2000); and
- Aerial photography and topographic mapping.

2.2 Field Surveys

Field investigations were conducted on June 24 and 28, July 5, and October 29, 2020, as well as on April 23 and May 27, 2021 (**Table 1**). Field investigations were conducted in accordance with the methods described in subsections 2.2.1 through to 2.2.3.

Table 1. Summary of Field Investigations

Date	Field Investigation	Weather Conditions
June 24, 2020	Overall site review; survey of aquatic habitats; incidental wildlife observations	18°C; 30% cloud cover; 20 km/h wind
June 28, 2020	Breeding bird survey; incidental wildlife observations	14°C; fog; 7 km/h wind
July 5, 2020	Breeding bird survey; incidental wildlife observations	14°C; 60% cloud cover; 7 km/h wind

Date	Field Investigation	Weather Conditions
October 29, 2020	Ecological Land Classification; flora inventory, Species at Risk habitat screening; Significant Wildlife Habitat screening; incidental wildlife observations	4°C; 100% cloud cover; 8 km/h wind
April 23, 2021	Snake hibernacula survey, spring flora inventory; incidental wildlife observations	5°C; 0% cloud cover; 12 km/h wind
May 27, 2021	Site visit with SVCA; additional assessment of aquatic habitats; incidental wildlife observations	9°C; 100% cloud cover; 3 km/h wind

2.2.1 Vegetation and Flora

Terrestrial ecologists completed field investigations to document existing vegetation communities, natural features, and general site conditions. Vegetation communities were mapped and described based on their best fit to community classifications within the standard systems provided in the *Ecological Land Classification for Southern Ontario* (Lee *et al.*, 1998). The identification of vegetation communities assisted in the assessment of wildlife habitat opportunities.

2.2.2 Aquatic Habitat Assessment

A general aquatic habitat assessment was conducted by an aquatic ecologist for both the Rocky Saugeen River and its tributary. Data recorded included channel width and depth, stream morphology, substrate conditions, water colour and clarity, instream cover characteristics, riparian cover characteristics, presence or absence of seepage, presence or absence of barriers to fish movement, and other factors which might positively or negatively impact on fish habitat.

2.2.3 Wildlife

Breeding Bird Surveys

Two breeding bird surveys were conducted on the site in general accordance with the Ontario Breeding Bird Atlas protocols (Bird Studies Canada, 2001). These surveys were undertaken within the peak breeding season for most bird species; the first survey was conducted on June 28, 2020, with the second survey conducted one week later, on July 5, 2020. The surveys were carried out between 05:00 and 10:00 h to coincide with the dawn chorus. The surveyor recorded all bird species seen and heard within and flying over the survey area on each site visit. The number, breeding evidence, and approximate location of each bird or bird group was recorded on mapping of the property.

Snake Hibernacula Survey

A site survey was completed on a sunny morning in the spring to capture spring emergence activity. The temperature at the beginning of the survey was 2° C and warmed up to 7° C by late morning at the end of the survey. The survey was completed around the existing steel storage building and the remnants of an old barn foundation.

Species at Risk Survey

Prior to fieldwork, records of Species at Risk (SAR) for the general area were queried through the NHIC database and various online citizen science databases. A general screening for potential SAR habitat opportunities was completed for the subject property. Habitat opportunities for SAR on the site were then assessed by comparing habitat preferences of species deemed to have potential to occur against current site conditions. The locations of all encountered SAR were also recorded.

Significant Wildlife Habitat (SWH) Screening

The Significant Wildlife Habitat Criteria for Ecoregion 6E (MNRF 2015) were compared with the habitat attributes of the subject property to determine the potential for candidate SWH.

Incidental Wildlife Observations

Incidental observations of wildlife were recorded through direct and indirect evidence. Direct evidence included visual or auditory observations of species. Indirect evidence included observations of tracks, scat and browse.

2.3 Consultation with Saugeen Valley Conservation

A site inspection was held between representatives of Saugeen Valley Conservation, Michalski Nielsen Associates Limited and Pinestone Engineering. The inspection allowed for observation of valleyland and watercourse conditions and to discuss the relationship of proposed development, including rear lot limits, to those constraint areas. It also provided an opportunity to discuss stormwater management requirements, and how the newly proposed pond would integrate with the valleyland; the location of the proposed outlet from this facility was chosen on the basis of this meeting. Finally, it provided an opportunity to discuss the potential for possible future pedestrian access trails into the valleyland.

3 ENVIRONMENTAL POLICY CONTEXT

3.1 Overview

Decisions on land use planning within this property, as it relates to the protection of the natural environment, are governed by Ontario’s Provincial Policy Statement (PPS), Ontario Regulation 169/06 and related policies of Saugeen Valley Conservation, the Grey County Official Plan (2019) and the Municipality of Grey Highlands Official Plan (2017). A planning analysis of the proposed development has been prepared under separate cover by List Planning Ltd., and it is not the intent of the present document to duplicate that information. Accordingly, our discussion of municipal planning direction is very brief. However it is important that this report addresses the natural heritage policy guidance of the PPS. Further, it is important that the requirements of the *Endangered Species Act* be spoken to. Our policy discussion is therefore primarily focused on these two items, followed by brief discussion of Conservation Authority and municipal environmental planning direction.

3.2 Provincial Policy Statement

The 2020 PPS provides an over-arching policy direction for municipal planning decisions in Ontario. That plan was last updated in 2020. The natural heritage policies (Section 2.1) reads as follows:

2.1 Natural Heritage

2.1.1 Natural features and areas shall be protected for the long term.

2.1.2 The diversity and connectivity of natural features in an area, and the long-term *ecological function* and biodiversity of *natural heritage systems*, should be maintained, restored or, where possible, improved, recognizing linkages between and among *natural heritage features and areas, surface water features* and *ground water features*.

2.1.3 *Natural heritage systems* shall be identified in Ecoregions 6E & 7E, recognizing that *natural heritage systems* will vary in size and form in *settlement areas, rural areas, and prime agricultural areas*.

2.1.4 *Development and site alteration* shall not be permitted in:

- a) *significant wetlands* in Ecoregions 5E, 6E and 7E; and
- b) *significant coastal wetlands*.

2.1.5 *Development and site alteration* shall not be permitted in:

- a) *significant wetlands* in the Canadian Shield north of Ecoregions 5E, 6E and 7E;

-
- b) *significant woodlands* in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
 - c) *significant valleylands* in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
 - d) *significant wildlife habitat*;
 - e) *significant areas of natural and scientific interest*; and
 - f) *coastal wetlands* in Ecoregions 5E, 6E and 7E1 that are not subject to policy 2.1.4(b)

unless it has been demonstrated that there will be no *negative impacts* on the natural features or their *ecological functions*.

- 2.1.6 *Development and site alteration* shall not be permitted in *fish habitat* except in accordance with *provincial and federal requirements*.
- 2.1.7 *Development and site alteration* shall not be permitted in *habitat of endangered species and threatened species*, except in accordance with *provincial and federal requirements*.
- 2.1.8 *Development and site alteration* shall not be permitted on *adjacent lands* to the *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 that there will be no *negative impacts* on the natural features or on their *ecological functions*.
- 2.1.9 Nothing in policy 2.1 is intended to limit the ability of *agricultural uses* to continue.

There are no identified Provincially Significant wetlands or Coastal Wetlands within the property or on adjacent lands. Nor are there any unevaluated wetlands identified, although portions of the valley floor of the Rocky Saugeen River do have wetland attributes.

Significant Woodlands and Significant Valleylands are difficult to identify at a site-specific level. However the Grey County Official Plan (see Section 3.4 of this report) does identify Significant Woodlands at a broad scale. This includes wooded areas along the valleyland of both the Rocky Saugeen River and its tributary within and adjacent to the subject property, with the identified Significant Woodlands also including a small portion of tableland woodland that is connected to these valley systems. That Official Plan also identifies Significant Valleylands, with the valleyland of the Rocky Saugeen River, but not that of its tributary that flows across the subject property, having been so identified.

Significant Wildlife Habitat is one aspect of the PPS which is less straightforward to define. In this regard, the Province has provided technical guidance on what might constitute Significant Wildlife

Habitat, but has left decisions on the designation of such habitat to the discretion of individual municipalities. In accordance with guidance documents produced by the Province, for Ecoregion 6E, and with specific reference to the subject lands, this can include:

Seasonal Concentration Areas of Animals

- None identified

Specialized Habitat for Wildlife

- Woodland Raptor Nesting Habitat
- Seeps and Springs

Habitat for Species of Conservation Concern (not including Endangered or Threatened Species)

- None identified

Animal Movement Corridors

The Province's documents on Significant Wildlife Habitat are provided for guidance only. The Provincial Policy Statement explicitly provides latitude to municipalities on how they define such habitat. In this regard, the definition of significance, as it relates to Significant Wildlife Habitat, includes "ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system." Further, it states that in the determination of significance, criteria are recommended by the Province, "but municipal approaches that achieve or exceed the same objectives may also be used." This is important, because what may be a fairly scarce habitat attribute within one portion of the Province, and which may be at risk of further loss because of ongoing development pressures, may be very commonplace, and not at any risk of decline, elsewhere.

What is clear from the definition of Significant Wildlife Habitat in the PPS is that it is something that is best defined over an entire municipality, not on individual blocks of land. Unfortunately, it is not the common practice of municipalities, particularly those outside of large urban areas, to define such areas.

That said, within some jurisdictions, it is becoming more common to identify and protect a Natural Heritage System, which at least indirectly captures much of the land that might contribute to Significant Wildlife Habitat. The County of Grey Official Plan does identify a broad natural heritage system, consisting of Core Areas and Linkages, however no such features have been identified in proximity of

the subject lands. In the absence of a municipal-wide approach to the identification of such habitat, it is our belief that EIS reports such as this can simply identify candidate Significant Wildlife Habitat, and provide context around what the loss of any such habitat might mean at a broader municipal level, to help guide good planning decisions; this report has been structured to do just that.

As a further comment on municipal decisions regarding Significant Wildlife Habitat, even in a case where a municipality deems that a property contains Significant Wildlife Habitat, the policy direction of the PPS is permissive. In this regard, in accordance with Policy 2.1.5, it allows development both within and adjacent to areas of Significant Wildlife Habitat providing that “there will be no negative impacts on the natural features or ecological functions”. For Significant Wildlife Habitat, this must be considered in the context of the PPS definition of “ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural system”.

No Areas of Natural and Scientific Interest (ANSIs) have been identified on or adjacent to the subject property.

3.3 Endangered Species Act

The *Endangered Species Act (ESA)* came into effect in Ontario in 2007, and provided for immediate protection of all species on the Species at Risk in Ontario (SARO) list. This protection is afforded under Section 9(1) of the *Act*, which reads:

Prohibition on killing, etc.

9.(1) No person shall,

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

-
- c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b)(i), (ii) or (iii). 2007, c.6, s.9(1).

The *ESA* additionally affords habitat protection to species on the SARO list. The relevant portions of the *Act* are found under Sections 10(1) through 10(3) and are repeated as follows:

Prohibition on damage to habitat, etc.

- 10(1) No person shall damage or destroy the habitat of,
- (a) a species that is listed on the Species at Risk in Ontario List as an endangered or threatened species; or
 - (b) a species that is listed on the Species at Risk in Ontario List as an extirpated species, if the species is prescribed by the regulations for the purpose of this clause. 2007, c.6, s. 10(1).

Specified geographic area

- 10(2) If the Species at Risk in Ontario List specifies a geographic area that a classification of a species applies to, subsection (1) only applies to that species in that area. 2007, c. 6, s. 10 (2).

Exception, suspension of protections

- 10(3) If a species is listed on the Species at Risk in Ontario List as an endangered or threatened species for the first time, the application of the prohibition in clause (1) (a) with respect to the habitat of the species is subject to any order made under section 8.1. 2019, c. 9, Sched. 5, s. 9.

Also important to this discussion is the definition of habitat under the *Endangered Species Act*, which is described under Section 2(1) as follows:

“Habitat” means,

- (a) With respect to a species of animal, plant or other organism for which a regulation made under clause 55 (1) (a) is in force, the area prescribed by that regulation as the habitat of the species, or
- (b) With respect to any other species of animal, plant or other organism, an area on which the species depends, directly or indirectly, to carry on its life processes, including life processes such as reproduction, rearing, hibernation, migration or feeding, and includes places in the area described in clause (a) or (b), whichever is applicable, that are used by members of the species as dens, nets, hibernacula or other residence; (habitat)

-
- Definition of “habitat”, cl. (b)
- (2) For greater certainty, clause (b) of the definition of “habitat” in subsection (1) does not include an area where the species formerly occurred or has the potential to be reintroduced unless existing members of the species depend on that area to carry on their life processes. 2007, c. 6, s. 2 (2).

The MNRF has prepared a document entitled *Categorizing and Protecting Habitat under the ESA* that outlines the overall approach and considerations that the MNRF used in determining whether a proposed activity is likely to damage or destroy habitat protected under subsection 10(1) of the *ESA*. Although the responsibility for administering the *ESA* has since been transferred by the Province from MNRF to the Ministry of Environment, Conservation and Parks (MECP), the guidance provided in that document remains useful. For clarity, the following is provided directly from that document:

Not every activity that occurs within or near habitat will damage or destroy that habitat. Determining whether a proposed activity is likely to damage or destroy the habitat of an endangered or threatened species requires the consideration of the activity details, which parts of habitat are likely to be altered by the activity, and how the alteration may affect the species' ability to carry out its life processes.

3.1.1 Damaging Habitat

An activity that damages the habitat of a species is one that alters the habitat in ways that impair the function (usefulness) of the habitat for supporting one or more of the species' life processes.

3.1.2 Destroying Habitat

An activity that destroys the habitat of a species is one that alters the habitat in ways that eliminate the function (usefulness) of the habitat for supporting one or more of the species' life processes.

*In some cases, the anticipated alteration that a proposed activity will have on habitat may be so minor that the function of the habitat for supporting the species' life processes will not become impaired or eliminated. In such cases the activity would not contravene subsection 10(1) of the *ESA* and would not require authorization under the *Act* with respect to this provision. In other cases, the alteration may be more significant such that the function of the habitat for supporting one or more of the species' life processes may become impaired or eliminated. Such activities would contravene subsection 10(1) of the *ESA* and would require authorization under the *Act* prior to proceeding.*

Ensuring compliance with the *Endangered Species Act* is a proponent's responsibility. On a development of this scale, it requires an understanding of what species are known to the broader area, then

an assessment of their potential to use the lands to be developed, based on habitat attributes. For some species, this analysis may benefit from targeted field surveys to determine whether a species is using habitat that may be suitable for it; however, as endangered and threatened species are generally difficult to find, and as the mobility of wildlife means that their absence on any given occasion does not discount their potential use, the assessment of habitat potential is always key.

The Province has a permitting process which allows activities which would otherwise be prohibited under Section 9 or 10 of the *Endangered Species Act*, which is described under Section 17 of the *Act*.

As described later in this report, an assessment of Species at Risk potential has been completed for the lands to be developed, and adjacent lands.

3.4 Saugeen Valley Conservation Policies

In accordance with information provided by Saugeen Valley Conservation, the Rocky Saugeen River and its valleyland, together with the tributary and its valleyland that flows into it along the boundaries of the subject property, are regulated under **Ontario Regulation 169/06: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses**. The Conservation Authority's mapped "approximate regulated and screening area" limits are shown in **Appendix B**, with a more precise determination of the actual regulation area limits made by the Conservation Authority on a property by property basis, as situations dictate. Under Regulation 169/06, a permit is required from that Conservation Authority for any site grading, fill placement, fill removal or construction within the regulated area. It is important to note that it is possible to get a permit for development within a regulated area, subject to the approval of the Conservation Authority and providing that all intended works address such matters as the protection of watercourses, the protection of any natural hazards associated with the valleylands, including those relating to flooding and erosion concerns, and proper attention to such matters as stream buffering, water quality protection, protection of natural corridor functions and the protection of other ecological functions. It is the intent of this report to demonstrate how all such functions can be maintained at the interface between proposed development and the watercourses and their valleylands.

Saugeen Valley Conservation has an **Environmental Planning and Regulations Policies Manual** (Amended October 16, 2018), which has been reviewed in the preparation of this report. Some of the key considerations of that document include:

-
- a natural heritage systems approach is taken by that authority that recognizes that individual natural features and ecological functions have strong ecological linkages with one another;
 - river and valley systems are important components of a natural heritage system because of both their hydrological and ecological functions;
 - the Conservation Authority's policy direction is to encourage that municipalities to plan for a 15 m wide protective zoning adjacent to each side of a watercourse to ensure those watercourses are buffered from incompatible uses;
 - ANSIs, woodland and wetlands are also recognized as important components of natural heritage systems, as are aquatic ecosystems and fish habitat, habitat of Endangered and Threatened species, Species of Concern, locally rare species and wildlife habitat areas;
 - development must protect, maintain and wherever possible enhance the natural heritage system and its features and functions;
 - a precautionary approach is taken to natural hazard management, with applications for new development required to demonstrate that they do not worsen or create natural hazards, nor increase risks to public safety and property damage;
 - erosion and sediment control is important both during and after the construction phase of any new development;
 - stormwater management techniques must be implemented to minimize the rate and volume of stormwater runoff, and to address the quality of such runoff; and
 - the Conservation Authority works with its municipal partners to help ensure all such matters are considered and addressed as part of development applications.

Note that one of the purposes of this EIS is to ensure all potential concerns of Saugeen valley Conservation are appropriately considered and addressed.

3.5 County of Grey Official Plan

As conformity of the proposed development with the policies of the County of Grey Official Plan (2019) are addressed under separate cover by List Planning, the present discussion is focused on the Plan's most relevant natural heritage policies only.

Schedule A, Land Use Types, to the County of Grey Official Plan identifies a majority of the subject property as being within the Primary Settlement Area, with the valleyland of the Rocky Saugeen River and its tributary identified as hazard lands. The hazard lands limits in association with the subject property have been examined in the field with staff from Saugeen Valley Conservation, with development limits having been established in consultation with staff from that authority, in an effort to avoid potential conflicts.

Schedule C, Natural Heritage System, to the County of Grey Official Plan does not identify either Core Areas or Linkages within a kilometre or more of the subject property.

Appendix B to the County of Grey Official Plan maps Significant Woodlands, with such features having been identified, at a coarse scale, within the valleyland of both the Rocky Saugeen River and its tributary, but also including portions of tableland woodlands that are adjacent to those valleylands. The description of Significant Woodlands in Section 7.4.1 of the Official Plan notes that the identification of such features was done primarily as a desk-top based GIS exercise, with acknowledgement that there may be inaccuracies or omissions. It goes on to state that "as a result, site visits by qualified individuals may be required at the application stage to scope any potential studies." Pre-consultation has occurred on this project with representatives of the County of Grey. One of the purposes of the present report is to provide additional information on woodlands within the property, and to justify the relationship of development to such features.

Appendix B to the County of Grey Official Plan additionally maps Significant Valleylands. The valleyland of the Rocky Saugeen River has been identified as Significant Valleyland but the valleyland of its tributary has not been.

Finally, Appendix B to the County of Grey Official Plan additionally maps Significant ANSIs, with no such features having been identified within a kilometer or more of the subject property.

3.6 Municipality of Grey Highlands Official Plan

As conformity with the policies of the Municipality of Grey Highlands Official Plan (approved by the County of Grey in 2017, with portions of the plan remaining under appeal) are addressed under separate cover by List Planning, the present discussion is focused on the Plan's most relevant natural heritage policies only.

Schedule A, Land Use, to the Grey Highlands Official Plan identifies a majority of the subject property as being within the Primary Settlement Area, with the northwesterly portion, bordering the valleyland of the Rocky Saugeen River, identified as a small remnant rural area. The valleyland of both the Rocky Saugeen River and its tributary within and adjacent to the subject lands are identified as hazard lands. These designations are all consistent with those in the Grey County Official Plan.

Schedule C, Constraint Mapping, to the Grey Highlands Official Plan includes the identification of stream/river and some significant woodland in relation to the Rocky Saugeen River and its valleyland, as well as along the tributary and its valleyland; the limits of these constraint areas are similar to those depicted within the Grey County Official Plan, although the schedules to the latter document appear to show a greater level of detail. Consistent with other mapping that has been reviewed, no ANSIs or wetlands have been identified by Grey Highlands in any proximity of the subject property.

4 EXISTING ENVIRONMENTAL CONDITIONS AND CONSTRAINT ASSESSMENT

4.1 Physical Characteristics

A majority of the subject property is tableland, with gentle to moderate slopes. Elevations across the lands to be developed range from approximately 423 metres above sea level (masl) at both the northeastern and southeastern corners of the property to 410 masl at the northwestern corner of the tableland area. A majority of the tableland portion of the property grades towards the west and northwest, generally towards the tributary of the Rocky Saugeen River, although the southwestern portion of these lands grade westerly to the Rocky Saugeen River itself. These valleylands are quite incised, with the tributary having an elevation of approximately 408 masl where it enters the property, grading down to 401.5 masl where it enters the Rocky Saugeen River, and with that river exiting the property at an elevation of approximately 400.5 masl. There is generally a 6 m to 11 m grade drop across the valley slopes, with such valley slopes generally being only moderately steep, typically $\leq 25\%$.

Across the tableland portions of the subject property, drainage occurs towards these two nearby watercourses as sheet flow, although the generally permeable soils do appear to allow for considerable infiltration of smaller precipitation events, with that water then discharging as shallow groundwater to the two watercourses. There are no minor drainage courses or ditching within the tableland portions of the subject property. There was evidence of diffuse seepage, as well as one well-defined seepage zone, within the valleylands and along the edges of the watercourses themselves.

4.2 Vegetation and Flora

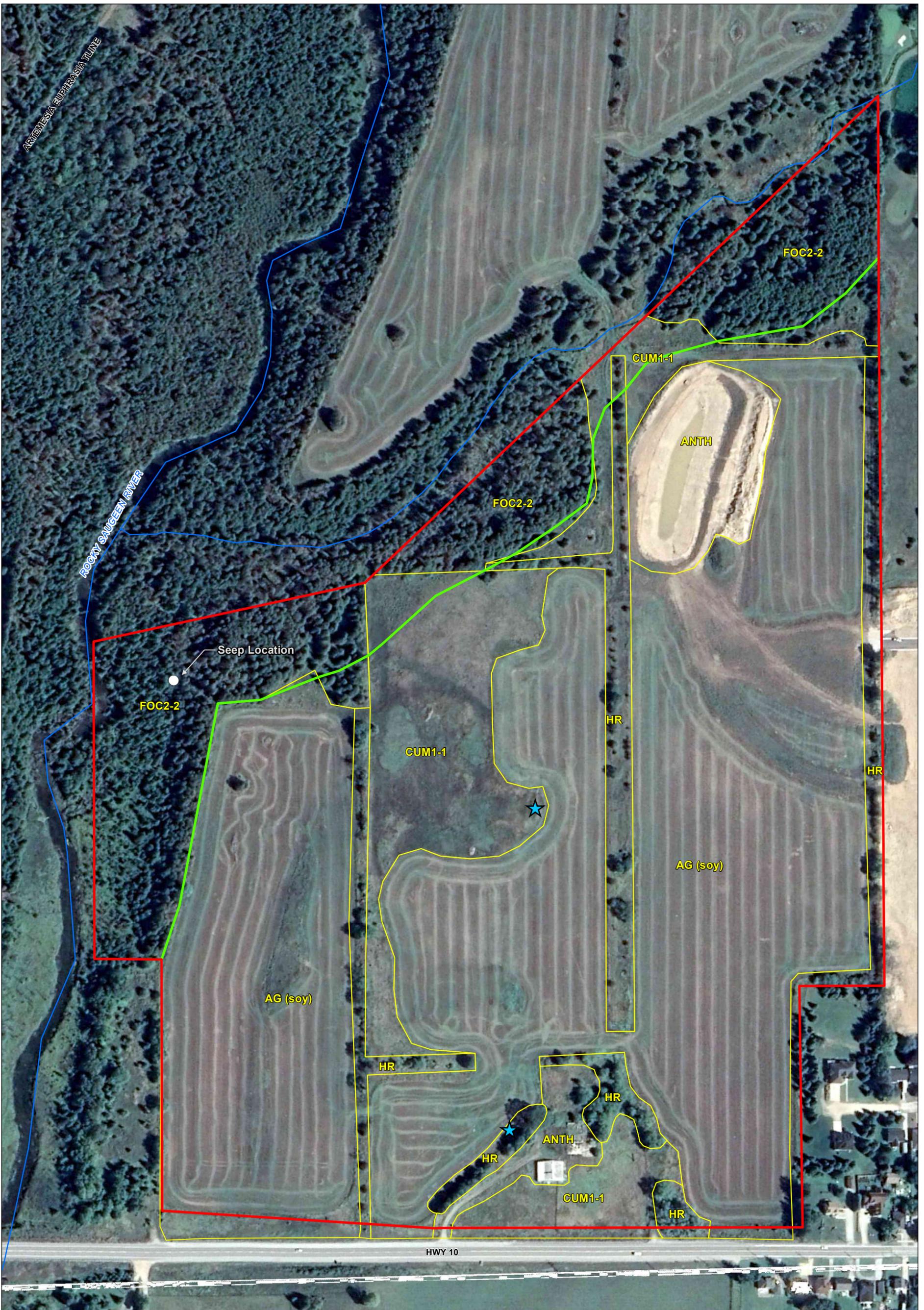
4.2.1 Vegetation Communities

A total of five vegetation communities were identified within the subject property boundaries. These communities include coniferous forest, cultural meadow, agricultural fields, hedgerows and anthropogenic areas (**Figure 2**), each of which are described in the paragraphs following.

Terrestrial System

Forest

FOC2-2 - Dry White Cedar Coniferous Forest: This mid-aged forest community was identified along the northern and western limits of the subject property, associated with the valleyland of the Rocky Saugeen River and its tributary (**Figure 2**). In general, the canopy and subcanopy are dominated by



LEGEND: Eastern Meadowlark Top of Slope (in-field delineation by Palmer) Watercourse Vegetation Communities Subject Property	Environmental Land Classification : Forest (FO) FOC2-2: Dry-Fresh White Cedar Coniferous Forest Cultural (CU) CUM1-1: Dry - Moist Old Field Meadow AG: Agricultural HR: Hedgerow ANTH: Anthropologic	METRE SCALE: 	NORTH: 	CLIENT:
		PRINT SCALE: 1:2750 PRINT SIZE: 11 x 17" DATUM: NAD 1983 PROJECTION: UTM Zone 17 DATE: May 28, 2021 DRAWN: KG CHECKED: AZ	PROJECT: Markdale Environmental Review	
Palmer™		TITLE: Existing Conditions		REVISION: 1-1 PROJECT NO. 1603357
FIGURE 2		FIGURE 2		FIGURE 2

Eastern White Cedar (*Thuja occidentalis*), providing over 60% cover at a height of 6 to 20 m. Small amounts of mountain ash (*Sorbus* sp.) seedlings were observed throughout these communities (**Photograph 1**). In the northwest corner of the subject property, an abundance of stumps were noted, with conditions indicating that these trees had been harvested. Along the western limit on the subject property, thinning of the woodland was also observed. The understory and ground cover of the resultant disturbed areas is densely vegetated with cultural meadow species, including Tall Goldenrod (*Solidago altissima*), and also includes small woody debris. Younger trees were observed towards the base of the slope and included species such as Tamarack (*Larix laricina*) and White Pine (*Picea glauca*). Small pockets of herbaceous species were found at the toe of the slope, including Hard-stemmed Bulrush (*Schoenoplectus acutus*), Coltsfoot (*Tussilago farfara*), Porcupine Sedge (*Carex hystericina*), and Common Buttercup (*Ranunculus acris*). The rest of the forest floor was covered in fallen cedar leaves with rich, mineral loam soils below. Occasional pockets of open forest canopy were observed in the communities, likely due to windthrow (**Photograph 2**), with cultural meadow vegetation observed in these small openings.

A well-defined seep was observed at the base of the forested slope during the spring survey (**Figure 2**), with more diffuse seepage identified elsewhere across the lower portions of the valleylands. The well-defined seep was approximately 6 m by 8 m in size and approximately 30 cm deep, with water bubbling up to the surface and Watercress (*Nasturtium officinale*), a coldwater indicator species, occurring within it.



Photographs 1 and 2. Typical views of FOC2-2 communities (October 29, 2020).

Cultural

CUM1-1: Dry-Moist Old field Cultural Meadow: This community was identified in two locations within the subject property (**Figure 2**). Within these areas, tree cover is very sparse (<10%), and comprised of Manitoba Maple (*Acer negundo*) and Norway Maple (*Acer platanoides*), at a height of 6 to 20 m. Understory vegetation, at a height of 0.5 to 2 m, is dominated by Smooth Brome (*Bromus inermis*) with occasional Wild Carrot (*Daucus carota*), providing more than 60% cover. Ground vegetation includes Canada Bluegrass (*Poa compressa*), Wild Basil, Bittersweet Nightshade (*Solanum dulcamara*), and Garden Bird's-foot Trefoil (*Lotus corniculatus*), providing 10 to 25% cover at a height of <0.5 m (**Photograph 3**).



Photograph 3. Typical view of CUM1-1 community (October 29, 2020).

AG: Agricultural Field: Agricultural fields encompass large portions of the subject property. Minimal tree cover was present, all from surrounding hedgerows. The agricultural fields were planted in Soybean (*Glycine max*) (**Photograph 4**).



Photograph 4. Typical view of AG (soy) community (October 29, 2020).

HR: Hedgerow: Several hedgerow communities are found within the subject property (**Photograph 5**). The hedgerows contain White Spruce (*Picea glauca*), cherry (*Prunus* sp.), Sugar Maple, Norway Maple,

and Eastern White Cedar, in the canopy and subcanopy, at a height of 2 to 15 m. The understory contains European Buckthorn (*Rhamnus cathartica*), Nannyberry (*Viburnum lentago*), and Riverbank Grape (*Vitis riparia*).



Photograph 5. Typical view of hedgerows (October 29, 2020).

Anthropogenic

ANTH: A steel storage building occurs on the subject property. Remnants of an old stone barn foundation are located east of that storage building.

A recently constructed 2-cell stormwater management pond, with a culvert outlet to a cooling trench, occurs within the northern portion of the eastern agricultural field (**Photograph 6**). It is surrounded by cultural meadow vegetation. Silt laden and opaque water was observed within the pond, with no visible aquatic vegetation within. Evidence of waterfowl use was observed in and around the pond. A gravel path surrounding the pond was noted, as well as erosion gullies on the side of the pond. A cooling trench outlet occurs to the east of the pond (**Photograph 7**).



Photograph 6. View of the two-cell stormwater management pond on the subject property (October 29, 2020).



Photograph 7. Cooling trench associated with existing stormwater pond on property (October 29, 2020).

4.2.2 Flora

Based on our surveys, a total of 65 species of vascular plants were observed on the subject property, with this reasonably low number of species being a reflection of the extent of agricultural lands on this

property, and the small number and diversity of other plant communities. Thirty one of these plant species (48%) were identified as native, with 26 species (40%) identified as non-native; 8 species were only identified to the genus level.

4.3 Aquatic Habitat

The tributary to the Rocky Saugeen River, found directly north of the Dry White Cedar Coniferous Forest (FOC2-2) community (**Figure 2**), has a typical width of 2 m and depths generally ranging from 10 cm to 25 cm (**Photograph 8**). There are areas where this watercourse flows through a dense cedar canopy and widens out to about 5 m, becoming very shallow. Considerable evidence of diffuse seepage was seen within the lower portions of the valleyland and along the edge of this tributary, with Watercress, a coldwater indicator plant species, seen at various locations within the watercourse. Gradients of this stream reach range from moderate to gentle. Substrates are generally sandy, but include gravel, cobble and limited boulder. Instream cover is provided by vegetation, minor bank undercutting, large woody material and occasional boulders. Grasses and forb species comprise the densely vegetated banks, including Tall Goldenrod, Reed Canarygrass (*Phalaris arundinacea*), Rubus species (*Rubus* sp.), and Wild Basil (*Clinopodium vulgare*), providing 10% to 15% herbaceous cover. Canopy cover, which is predominantly Eastern White Cedar, is variable. Flows at the time of the June 24, 2020 site visit were visually estimated to be 40 L/s, with baseflow likely to be around 20 L/s. This tributary has all of the appearances of being a permanently flowing coldwater stream. Although instream habitat complexity is somewhat limited, streams such as this can support coldwater species such as Brook Trout (*Salvelinus fontinalis*), particularly for spawning and juvenile development. No barriers were identified to fish migration into this reach from the Rocky Saugeen River.

The section of the Rocky Saugeen River located directly adjacent to the northwest boundary of the subject property was noted to be wide (approximately 10 m wide) and of moderate depth (approximately 0.6 m deep), with gentle gradients (**Photograph 9**). Approximately 20% canopy cover and 5% herbaceous cover was noted, including riparian and cultural meadow species along the banks of the watercourse. Some large woody debris occurs within the watercourse, derived from adjacent willow (*Salix* sp.) trees. As was observed along the tributary of this river, there was abundant diffuse seepage within the valleyland, and also one well-defined seep along the toe of valley slope. The nature of this broad, moderately deep watercourse makes it more difficult to determine the presence of bankside seepage, however we have no doubt this is also occurring. This reach of the Rocky Saugeen River also has

attributes consistent with the requirements of a coldwater fish community. The open nature of this reach, combined with its low gradient, is likely to result in gradual temperature increases along it. The reasonably small amount of instream cover is also a potential habitat limitation within this reach. No barriers to fish migration were identified in this reach.

The Rocky Saugeen River is a well-recognized coldwater fishery watercourse amongst anglers, particularly for Brook Trout. Brook Trout have more exacting temperature requirements than other salmonids, and are typically found in watercourses where there is locally abundant groundwater discharge. Spawning most typically occurs where there is localized upwelling, and the species requires summer water temperatures to remain below 20° C for it to be successful. It also requires clear water conditions, and therefore tends to be located within the upper reaches of watercourses which receive a majority of their flow from groundwater discharge.

Saugeen Valley Conservation has published a Watershed Report Card for the Rocky Saugeen River describing this as a fairly small subwatershed of the Saugeen River, with a subwatershed area of 282 km² and a stream length of 57.4 km. Overall stream gradients are very gentle, with a fall of less than 3 m per kilometre of river. The mean annual stream flow is 5.0 cubic metres per second (cms) (5,000 L/s), with the 7Q20 flow (the lowest seven day average flow over the last 20 years of record) being 1.11 cms, confirming the importance of groundwater discharge as baseflow into this system. The subwatershed receives high scores for the amount of forest and wetland cover, as well as for surface water quality. A majority of this watercourse has good riparian cover along its banks.

Both the Rocky Saugeen River and its tributary within/adjacent to the subject property are presumed to support a coldwater fish community.



Photograph 8. Tributary north of the FOC2-2 community (October 29, 2020).



Photograph 9. Rocky Saugeen River west of the FOC2-2 community (October 29, 2020).

4.4 Breeding Birds

A total of 37 bird species were identified on the subject property (**Appendix D**), with these birds documented in accordance with the following habitats and locations: (i) agricultural fields, (ii) valleylands, and (iii) flyovers and adjacent areas. Most of the birds recorded on the subject property are considered common, widespread and abundant in the province of Ontario. The most frequently observed species found on the property are those characteristic of open fields and shrubby areas, such as Song Sparrow (*Melospiza melodia*), American Goldfinch (*Carduelis tristis*), and Red-winged Blackbird (*Agelaius phoeniceus*).

Two SAR birds were recorded at or near the subject property, as follows:

- Bobolink (*Dolichonyx oryzivorus*) – One male was heard singing northwest of the subject property; and.
- Eastern Meadowlark (*Sturnella magna*) – One male was heard singing near the old barn foundation and another male was observed in a cultural meadow vegetation community in the central part of the subject property (**Figure 2**).

Bobolink is listed as Threatened both nationally and provincially. While there is suitable breeding habitat for Bobolink on the subject property, no individuals were observed on the property itself.

Eastern Meadowlark is listed as Threatened both nationally and provincially. Two Eastern Meadowlarks were observed singing on the subject property during both breeding bird surveys. The observations, at least a week apart at the same location for both individuals, provides a probable breeding status of Territorial at the site for Eastern Meadowlark.

The significance of these two species is further discussed in Section 4.7.

Five area-sensitive species were recorded on or adjacent to the subject property, as follows:

- Cooper's Hawk (*Accipiter cooperi*);
- Black-throated Green Warbler (*Setophaga virens*);
- Black-and-white Warbler (*Mniotilta varia*);

-
- American Redstart (*Setophaga ruticilla*); and
 - Savannah Sparrow (*Passerculus sandwichensis*).

Area-sensitive species require large areas of contiguous habitat for breeding and foraging. The specific habitat requirements vary by species.

Cooper's Hawk requires a minimum of 10 to 15 ha of dense, extensive mixed or deciduous forests, usually near pools of water or streams, woodlots interspersed with open fields, or floodplain forests and wooded swamps. They require a nesting territory of at least 6 ha with 60% to 70% canopy closure and a hunting territory that extends over 3 to 5 km². One Cooper's Hawk was observed in the agricultural fields on the second site visit.

Black-throated Green Warbler requires about 30 ha of preferably dense, mixed forest or coniferous or more open woods with a multi-layered canopy and a well-developed shrub layer. Two Black-throated Green Warblers were observed singing in the valleylands during the first survey and one individual was observed in the valleylands during the second survey.

Black-and-white Warbler breeds at edges of large contiguous stands of mature or old second growth deciduous or mixed forest, cedar swamps or bogs, or riparian habitat. They require in excess of 100 ha of contiguous forest. Two Black-and-white Warblers were observed singing in the valleylands and adjacent agricultural fields during the first survey and one individual was observed in the valleylands during the second survey.

American Redstart nests in deciduous or mixed woods with closed canopy of either tall shrubs or dense young trees or mature trees, woodland edges. It nests in both uplands and lowlands and requires >100 ha of forest habitat. One American Redstart was observed singing in the valleylands during the second survey.

Savannah Sparrow and Bobolink require tracts of grassland >50 ha. Four Savannah Sparrows were observed in the agricultural fields during the first survey and three were observed during the second survey. One male Bobolink was heard singing at an unknown distance northwest of the site.

Eastern Meadowlark requires >10 ha of open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches, cultivated land and weedy areas with trees, or old orchards with

adjacent open grassy areas. Two Eastern Meadowlark were observed singing at the site during both surveys. One singing male was observed in the anthropogenic lands associated with the old farmstead and another singing male was observed in an overgrown meadow area in the central part of the site.

No other SAR birds or area-sensitive birds were recorded on the subject property.

4.5 Snake Hibernacula Survey

The earlier observation of an Eastern Gartersnake (*Thamnophis sirtalis sirtalis*) in proximity of the storage building on the property triggered a survey to see if there was any evidence of this species using areas beneath the concrete slab of the storage building or the rubble around the remnants of the barn foundation as hibernacula. A spring survey, during a period when these snakes would be expected to be becoming active, was completed.

No snakes were observed during this survey to be emerging from the concrete slab around the metal storage building or in the rubble around the remnants of the stone barn foundation, with a closer examination of these areas indicating that they provide very limited opportunities for snakes to burrow into/beneath. It is concluded that no snake hibernaculum is present on the subject property.

4.6 Incidental Wildlife Observations

The 2020 and 2021 investigations resulted in observation of the following incidental wildlife species:

- Eastern Gartersnake – one individual observed near the existing storage building;
- Barn Swallow (*Hirundo rustica*) – one old, partially intact nest observed in the existing storage building;
- Herring Gull (*Larus argentatus*) – flyovers observed;
- American Crow (*Corvus brachyrhynchos*) – observed near the existing storage building;
- Black-capped Chickadee (*Poecile atricapillus*) – observed and heard singing throughout property;
- Dark-eyed Junco (*Junco hyemalis*) – observed and heard singing throughout property;
- Canada Goose (*Branta canadensis*) – tracks and feathers observed by the two-cell pond;

-
- European Starling (*Sturnus vulgaris*) – observed and heard singing throughout property;
 - Wild Turkey (*Meleagris gallopavo*) – feathers observed near the edge of the coniferous forest;
 - American Goldfinch (*Spinus tristis*) – observed and heard singing throughout property;
 - Bluejay (*Cyanocitta cristata*) – observed within coniferous forest;
 - American Woodcock (*Scolopax minor*) – observed within the coniferous forest;
 - White-tailed Deer (*Odocoileus virginianus*) – tracks observed near the coniferous forest;
 - Red Squirrel (*Tamiasciurus hudsonicus*) – observed within the coniferous forest;
 - Coyote (*Canis latrans*) – scat observed within the coniferous forest.
 - Wood Frog (*Lithobates sylvaticus*) - observed at the bottom of the seep in the spring.

Although evidence was not observed, it is expected that due to the expansive off-site natural lands, contiguous with identified on-site communities, other regionally common wildlife species are likely to utilize the subject property for various purposes (i.e., foraging, movement corridor). Such species may include, but are not limited to Raccoon (*Procyon lotor*) and Skunk (*Mephitis mephitis*).

4.7 Species at Risk

Based on a review of the NHIC database, OBBA, ORAA, OBA, and professional experience, a total of 20 SAR have been identified as having potential to occur within the general area of the subject property. Through vegetation community classification and field investigations for potentially suitable habitat and related features, a habitat screening and assessment of on-site habitat suitability was completed for each of these identified species, as detailed in **Table 2**. This includes a review of the habitats and current status of each species and whether general habitat or regulated habitat protection applies under Section 10 of the provincial *ESA*.

While a Bobolink was recorded during the breeding bird surveys, it was not recorded within/or directly adjacent to the subject property. Further, while an old Barn Swallow nest was observed in the metal storage building, no active nests were observed during the breeding bird season. Therefore, Bobolink and

Table 2: Species at Risk Screening.

NAME	SARA STATUS	SARO	COSEWIC	SCHEDULE	S-RANK	HABITAT REQUIREMENTS	SOURCE OF RECORD	POTENTIAL HABITAT PRESENT (Y/N)	RATIONALE	POTENTIAL IMPACTS AND MITIGATION
AVIFAUNA										
Bank Swallow (<i>Riparia riparia</i>)	THR	THR	THR	1	S4B	The bank swallow is threatened by loss of breeding and foraging habitat, destruction of nesting habitat and widespread pesticide use. Bank swallows are small songbirds. They nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposit, including banks of rivers and lakes, active sand and gravel pits or former ones where the banks remain suitable. The birds breed in colonies ranging from several to a few thousand pairs (Ministry of Natural Resources and Forestry, 2014).	OBBA	N	Lack of suitable banks or other vertical faces on the subject property.	None
Barn Swallow (<i>Hirundo rustica</i>)	THR	THR	THR	1	S4B	The barn swallow is a threatened species, is found throughout southern Ontario, and can range into the north as long as suitable nesting locations can be found. These birds prefer to nest within human made structures such as barns, bridges, and culverts. Barn swallow nests are cup-shaped and made of mud; they are typically attached to horizontal beams or vertical walls underneath an overhang. A significant decline in populations of this species has been documented since the mid-1980s, which is thought to be related to a decline in prey. Since the barn swallow is an aerial insectivore, this species relies on the presence of flying insects at specific times during the year. Changes in building practices and materials may also be having an impact on this species (Ministry of Natural Resources and Forestry, 2015).	OBBA	Y	One old Barn Swallow nest (falling apart) was observed within the existing barn on the subject property. However, no Barn Swallow were observed during breeding bird surveys.	None
Bobolink (<i>Dolichonyx oryzivorus</i>)	THR	THR	THR	1	S4B	The bobolink is found in grasslands and hayfields, and feeds and nests on the ground. This species is widely distributed across most of Ontario; however, are designated at risk because of rapid population decline over the last 50 years (Ministry of Natural Resources and Forestry, 2014). The historical habitat of the bobolink was tallgrass prairie and other natural open meadow communities; however, as a result of the clearing of native prairies and the post-colonial increase in agriculture, bobolinks are now widely found in hayfields. Due to their reproductive cycle, nesting habits, and use of agricultural areas, bobolink nests and young are particularly vulnerable to loss as a result of common agricultural practices (i.e. first cut hay).	OBBA	Y	One Bobolink was heard singing in lands adjacent to the subject property during the first 2020 breeding bird survey. Suitable breeding habitat for this species exists on site, however, no individuals were found on the subject property.	None
Canada Warbler (<i>Cardellina canadensis</i>)	THR	SC	THR	1	S4B	The Canada warbler is found in a variety of forest types, but is most abundant in moist, mixed forests with a well-developed, dense shrub layer. This species can also be locally abundant in regenerating forests following natural or anthropogenic disturbances. Nests are usually located on or near the ground on mossy logs, and along stream banks. In Canada, habitat loss due to conversion of swamp forests, agricultural activities and road development have contributed to the species' significant long-term decline, and its special concern designation. A reduction in forests with a well-developed shrub-layer has also likely impacted Canada warblers throughout their breeding range in Ontario (Committee on the Status of Endangered Wildlife in Canada, 2008).	OBBA	N	Lack of suitable moist, mixed forests with a well-developed shrub layer.	None
Chimney Swift (<i>Chaetura pelagica</i>)	THR	THR	THR	1	S4B,S4N	The Chimney Swift is a threatened species which breeds in Ontario and winters in northwestern South America. It is found mostly near urban areas where the presence of chimneys or other manmade structures provide nesting and roosting habitat. Prior to settlement, the chimney swift would mainly nest in cave walls and hollow trees. The chimney swift initially benefitted from human settlement; however, recent declines in flying insects and the modernization of chimneys are factors attributed to their current population declines. As a threatened species, the chimney swift receives protection for both species and habitat under the ESA (Ministry of Natural Resources and Forestry, 2014).	OBBA	N	Lack of suitable nesting structures on the subject property. No Chimney Swift were observed during 2020 surveys.	None
Common Nighthawk (<i>Chordeiles minor</i>)	THR	SC	THR	1	S4B	The Common Nighthawk is an extremely well camouflaged bird that inhabits gravel beaches, rock outcrops and burned woodlands, that have little to no ground vegetation. This species can also be found in highly disturbed locations such as clear cuts, mine tailings areas, cultivated fields, urban parks, gravel roads, and orchards. As an insectivore, the primary threat to this species is the widespread application of pesticides (Ministry of Natural Resources and Forestry, 2015). Special concern species do not receive habitat protection under the ESA.	OBBA	N	Unlikely, lack of rocky outcrops and bare areas with no ground vegetation.	None
Eastern Meadowlark (<i>Sturnella magna</i>)	THR	THR	THR	1	S4B	The eastern meadowlark is a bird that prefers pastures and hayfields, but is also found to breed in orchards, shrubby fields and human use areas such as airports and roadsides. Eastern meadowlarks can nest from early May to mid-August, in nests that are built on the ground and well-camouflaged with a roof woven from grasses. The decline in population of these species is thought to be at least partially related to habitat destruction and agricultural practices (Ministry of Natural Resources and Forestry, 2014).	OBBA	CONFIRMED	Observed during both rounds of 2020 breeding bird surveys.	Confirmed habitat present, subject to the ESA. Mitigation: based on the amount of proposed habitat loss, an ESA Notice of Activity Registry will be required for this species for ESA conformity. Areas of suitable habitat must be cleared outside of the May 1 to August 15 nesting period (i.e., clearing of these areas shall occur between August 16 and April 30).
Eastern Wood-Pewee (<i>Contopus virens</i>)	SC	SC	SC	1	S4B	The eastern wood-pewee is classified as a species of special concern by COSSARO. Their population has been gradually declining since the mid-1960's (The Cornell Lab of Ornithology, 2015). The eastern wood-pewee is a "flycatcher", a bird that eats flying insects, that lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It prefers intermediate-age forest stands with little understory vegetation. Threats to the population are largely unknown; however, causes may include loss of habitat due to urban development and decreases in the availability of flying insect prey (Ministry of Natural Resources and Forestry, 2014).	OBBA	N	Lack of deciduous or mixed forest.	None
Golden-winged Warbler (<i>Vermivora chrysoptera</i>)	THR	SC	THR	1	S4B	The golden-winged warbler is classified as a species of special concern by COSSARO. It is a small grey songbird, with yellow patches on its wings and forehead. Nests are built on the ground, in areas with young shrubs surrounded by mature forest. Threats to the species include habitat loss, hybridization with blue-winged warblers, and nest parasitism by brown-headed cowbirds (Ministry of Natural Resources and Forestry, 2014).	OBBA	N	Lack of sufficient mature forest on the subject property.	None
Grasshopper Sparrow (<i>Ammodramus savannarum</i>)	No Status	No Status	SC	X	S4B	Grasshopper Sparrow are specialized to open relatively short grassland habitat, preferably grasslands with relatively sparse cover such as those in areas of poor soils, including alvars, moraines, and sand plains and generally does not favour tall grass moist meadows. It will also breed in manmade hayfields and occasionally in cereals such as Rye (<i>Secale cereale</i>).	OBBA	N	Lack of sufficient sparsely vegetated habitat on and adjacent to the subject property.	None
Olive-sided Flycatcher (<i>Contopus cooperi</i>)	THR	SC	SC	1	S4B	The Olive-sided Flycatcher is most often found along natural forest edges and openings. It will use forests that have been logged or burned, if there are ample tall snags and trees to use for foraging perches. Olive-sided flycatchers' breeding habitat usually consists of coniferous or mixed forest adjacent to rivers or wetlands. In Ontario, Olive-sided Flycatchers commonly nest in conifers such as White and Black Spruce, Jack Pine and Balsam Fir.	OBBA	Y	Suitable coniferous habitat adjacent to watercourses are present on the subject property, however, none were observed during breeding bird surveys.	None

Table 2.

NAME	SARA STATUS	SARO	COSEWIC	SCHEDULE	S-RANK	HABITAT REQUIREMENTS	SOURCE OF RECORD	POTENTIAL HABITAT PRESENT (Y/N)	RATIONALE	POTENTIAL IMPACTS AND MITIGATION
Red-headed Woodpecker (<i>Melanerpes erythrocephalus</i>)	THR	SC	THR	1	S4B	The Red-headed Woodpecker is a medium-sized bird, with black and white colouring and a bright red head, neck, and breast. Adults often return to the same nesting site year after year. Between May and June, adults often return to the same nesting site and females lay from three to seven eggs. Habitat for the birds includes open woodland and woodland edges, often near man-made landscapes such as parks, golf courses and cemeteries. The red-headed woodpecker is widespread across southern Ontario but rare (Ministry of Natural Resource and Forestry, 2014).	OBBA	N	Lack of suitable deciduous, open woodland on and adjacent to the subject property.	None
Wood Thrush (<i>Hylocichla mustelina</i>)	THR	SC	THR	1	S4B	The Wood Thrush is a species of Special Concern because of habitat degradation or destruction by anthropogenic development. The wood thrush is a medium-sized songbird, generally rusty-brown on the upper parts with white under parts and large blackish spots on the breast and sides, and about 20 cm long. The wood thrush forages for food in leaf litter or on semi-bare ground, including larval and adult insects as well as plant material. They seek moist stands of trees with well-developed undergrowth in large mature deciduous and mixed (conifer-deciduous) forests. The wood thrush flies south to Mexico and Central America for the winter (Ministry of Natural Resources and Forestry, 2014).	OBBA	N	Lack of suitable deciduous or mixed forest habitat on or adjacent to the subject property.	None
HERPTILES										
Snapping Turtle (<i>Chelydra serpentina</i>)	SC	SC	SC	1	S3	The snapping turtle is a species of special concern in Ontario due to the potential for the species to become threatened or endangered as a result of biological factors or other identified threats. While not presently protected by law, the snapping turtle has been recognized as a species of special concern by COSSARO. Snapping turtles spend the majority of their lives in water and travel slightly upland to gravel or sandy embankments or beaches to lay their eggs (Ontario Ministry of Natural Resources and Forestry, 2014).	ORAA	N	Unlikely due to the absence of ponds or wetland habitat on the subject property.	None
VASCULAR PLANTS										
Butternut (<i>Juglans cinerea</i>)	END	END	END	1	S2?	The butternut is designated as endangered by COSSARO and is tracked by the NHIC as a species at risk. The tree is federally regulated by the Species at Risk Act (2002). Butternut belongs to the walnut family and produces edible nuts which are a preferred food source for wildlife. The range of butternut trees is south of the Canadian Shield on soils derived from calcium rich limestone bedrock. Butternut trees, which at one time were much more common to the south extending to the northern aspect of zone 6E, have been declining due to factors including forest loss and disease. Butternut trees suffer from a highly transmissible fungal disease called butternut canker. Butternut canker is causing very rapid decline in this tree species across its native range. The fungal disease is easily transmitted by wind and is very difficult to prevent. Trees often die within a few years of infection by butternut canker (Ministry of Natural Resource and Forestry, 2014).	Professional Experience	N	No Butternut were observed during field investigations.	None
MAMMALS										
Tri-colored Bat (Eastern Pipistrelle) (<i>Perimyotis subflavus</i>)	END	END	END	1	S3?	The eastern pipistrelle is a small bat that is widely distributed in eastern North America and whose range extends north to southern Ontario. The eastern pipistrelle is rare in this region of Ontario which is at the northernmost limit of the natural range for the species. These bats prefer to nest in foliage, tree cavities and woodpecker holes, and are occasionally found in buildings; though this is not their preferred habitat. Winter hibernation takes place in caves, mines and deep crevices. Eastern pipistrelles feed primarily on small insects and prefer an open forest habitat type in proximity to water (University of Michigan Museum of Zoology, 2004).	Professional Experience	N	Lack of suitable deciduous or mixed forest habitat and this species is not believed to utilise large isolated deciduous hedgerow trees to support maternity roosting habitat.	None
Eastern Small-footed Myotis (<i>Myotis leibii</i>)	No Status	END	No Status	Schedule	S2S3	The eastern small-footed myotis, a bat, are an endangered species threatened by a disease known as white nose syndrome, caused by a fungus from Europe. Eastern small-footed bat's fur has black roots and shiny light brown tips, giving it a yellowish-brown appearance. Its face mask, ears and wings are black, and its underside is grayish-brown, about 8 cm long in size and weighs 4-5 grams. In the spring and summer, eastern small-footed bats will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. They change their roosting locations daily and hunt at night for insects to eat, including beetles, mosquitos, moths, and flies. They hibernate in winter, often in caves and abandoned mines. They can be found from south of Georgian Bay to Lake Erie and east to the Pembroke area, and choose colder and drier sites (Ministry of Natural Resources and Forestry, 2014).	Professional Experience	Y	Lack of suitable deciduous or mixed forest habitat but some large isolated deciduous hedgerow trees with potential to support maternity roosting habitat may be present with.	Low potential for impacts. Mitigation: Minimize extent of forest removals. The primary mitigation is for the protection of maternity roosting. As SAR bats are typically active between early April and late September, and hibernate in caves outside of that period, tree removal should be carried out between October 1 and March 31. This will avoid harm or impacts to individuals.
Little Brown Myotis (<i>Myotis lucifugus</i>)	END	END	END	1	S4	Little brown myotis, a bat, are an endangered species threatened by a disease known as white nose syndrome, caused by a fungus from Europe. Little brown bats have glossy brown fur and usually weigh between four and 11 grams. Bats are nocturnal. During the day they roost in trees and buildings. They often select attics, abandoned buildings and barns for summer colonies where they can raise their young. Little brown bats hibernate from October or November to March or April, most often in caves or abandoned mines that are humid and remain above freezing – an ideal environment for the fungus to grow and flourish. The syndrome affects bats by disrupting their hibernation cycle, so that they use up body fat supplies before the spring when they can once again find food sources (Ministry of Natural Resources and Forestry, 2014).	Professional Experience	Y	Lack of suitable deciduous or mixed forest habitat but some large isolated deciduous hedgerow trees with potential to support maternity roosting habitat may be present with.	Low potential for impacts. Mitigation: Minimize extent of forest removals. The primary mitigation is for the protection of maternity roosting. As SAR bats are typically active between early April and late September, and hibernate in caves outside of that period, tree removal should be carried out between October 1 and March 31. This will avoid harm or impacts to individuals.
Northern Myotis (<i>Myotis septentrionalis</i>)	END	END	END	1	S3	The northern long-eared myotis, a bat, are an endangered species threatened by a disease known as white nose syndrome, caused by a fungus from Europe. Northern long-eared bats have dull yellow-brown fur with pale grey bellies. They are approximately eight cm long, with a wingspan of about 25 cm, and usually weigh six to nine grams. Northern long-eared bats can be found in boreal forests, roosting under loose bark and in the cavities of trees. These bats hibernate from October or November to March or April, most often in caves or abandoned mines (Ministry of Natural Resources and Forestry, 2014).	Professional Experience	Y	Lack of suitable deciduous or mixed forest habitat but some large isolated deciduous hedgerow trees with potential to support maternity roosting habitat may be present with.	Low potential for impacts. Mitigation: Minimize extent of forest removals. The primary mitigation is for the protection of maternity roosting. As SAR bats are typically active between early April and late September, and hibernate in caves outside of that period, tree removal should be carried out between October 1 and March 31. This will avoid harm or impacts to individuals.

Table 2.

NAME	SARA STATUS	SARO	COSEWIC	SCHEDULE	S-RANK	HABITAT REQUIREMENTS	SOURCE OF RECORD	POTENTIAL HABITAT PRESENT (Y/N)	RATIONALE	POTENTIAL IMPACTS AND MITIGATION
OTHER										
Monarch Butterfly (<i>Danaus plexippus</i>)	SC	SC	END	1	S2N,S4B	The monarch is an orange and black butterfly with small white spots and is classified as a species of special concern by COSSARO. The monarch relies on milkweed plants as a food source for growing caterpillars, but the adult butterflies forage in diverse habitats for nectar from wildflowers. The greatest threat to the monarch is loss of overwintering habitat in Mexico. Other threats include use of pesticides and herbicides throughout its range (Ministry of Natural Resources and Forestry, 2014).	OBA	Y	Open areas containing Common Milkweed are present on site, providing potential foraging habitat for this species but the species was not observed during field surveys	None

Notes:

- SC - Special Concern
- THR - Threatened
- END - Endangered
- S1 - Extremely rare in Ontario
- S2 - Very rare in Ontario
- S3 - Rare to uncommon in Ontario
- S4 - Considered to be common in Ontario
- S5 - Species is widespread in Ontario
- SH - Possibly extirpated
- S#S# - Indicates insufficient information exists to assign a single rank.
- S#? - Indicates some uncertainty with the classification due to insufficient data.
- S#N - Nonbreeding
- S#B - Breeding

Barn Swallow are deemed to be absent from the subject property and thus will not be addressed any further in this report.

Similarly, habitat for Monarch Butterfly (*Danaus plexippus*) and Olive-sided Flycatcher (*Contopus cooperi*), both species of Special Concern, was noted to be present on site, however they were not detected during field surveys, thus these species will not be addressed any further in this report.

Eastern Meadowlark, which was confirmed on the subject property during the 2020 breeding bird surveys, and endangered bats, which have potential habitat opportunities on the subject property, are addressed in greater detail below.

Eastern Meadowlark – Threatened: Based on the breeding bird survey records, this species is determined to have a probable breeding status. The Dry-Moist Old Field Cultural Meadow (CUM1-1) vegetation community may provide nesting habitat for Eastern Meadowlark. The adjacent Hedgerows (HR) and Anthropogenic lands (ANTH) with natural vegetation cover are also considered to provide suitable habitat (**Figure 3**).

The total amount of habitat available for eastern Meadowlark within the subject property is 5.98 ha. As further detailed in Section 5.6 of this report, a proponent is entitled, as of right, to remove up to 30 ha of habitat for this species providing they register this activity with the Province and include a habitat management plan to offset the loss; this activity does not require an approval under the *ESA*, although the decision on how such habitat losses are to be offset, and the implementation of such efforts, are subject to an audit process. As an additional mitigation measure, areas potentially supporting this species must be cleared/cut outside of the May – mid-August period during which this species may be utilizing such habitat.

Endangered Bats: Habitat opportunity for Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis (*Myotis lucifugus*) and Northern Myotis (*Myotis septentrionalis*) are primarily associated with the isolated trees that comprise the hedgerows throughout the entire subject property (MNRF, 2014). The hedgerows are comprised of mid-aged to mature deciduous trees, some of which have the potential to provide suitable bat maternity roost sites (e.g., cavities, seams, knot holes, cracks, and peeling bark); the limited number of hedgerows/suitable trees within the subject property substantially limits such habitat opportunities. The Dry White Cedar Coniferous Forest (FOC2-2) is not expected to provide suitable



LEGEND: Eastern Meadowlark Top of Slope (in-field delineation by Palmer) Watercourse Vegetation Communities Eastern Meadowlark Habitat Subject Property	Environmental Land Classification : Forest (FO) FOC2-2: Dry-Fresh White Cedar Coniferous Forest Cultural (CU) CUM1-1: Dry - Moist Old Field Meadow AG: Agricultural HR: Hedgerow ANTH: Anthropologic	METRE SCALE: 	NORTH: 	CLIENT:
		PRINT SCALE: 1:2750 PRINT SIZE: 11 x 17" DATUM: NAD 1983 PROJECTION: UTM Zone 17 DATE: May 28, 2021 DRAWN: KG CHECKED: AZ	PROJECT: Markdale Environmental Review	
PREPARED BY: 		TITLE: Eastern Meadowlark Habitat		REVISION: 1-1 PROJECT NO. 1603357
FIGURE 3				

maternity roosting habitat due to the forest tree composition and general absence of suitable maternity roosting snag trees.

Potential impacts on bats can be addressed by both protecting valleyland areas of the property and by the timing of the limited amount of tree removals that will be required to avoid the April 1 to September 30 period during which this species may be roosting in such trees.

4.8 Significant Wildlife Habitat

Significant Wildlife Habitat (SWH) can be difficult to appropriately determine at the site-specific level, as the assessment must incorporate information from a wide geographic area and consider other factors such as regional resource patterns and landscape effects. To help in more site level assessments, the MNRF has developed the *Significant Wildlife Habitat Criteria Schedules For Ecoregion 6E* (MNRF 2015).

The Natural Heritage Policies of the Provincial Policy Statement [Subsection 2.1.4 d)] identify four principal components of SWH as described in the *Significant Wildlife Habitat Technical Guide* (OMNR 2000). These are:

- a) Seasonal Concentration Areas of Animals;
- b) Rare Vegetation Communities or Specialized Habitat for Wildlife;
- c) Animal Movement Corridors; and,
- d) Habitats for Species of Conservation Concern.

Criteria for the identification of these features are also provided in the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (MNRF 2015). These criteria were used to provide a screening for wildlife habitat within the study area for potential SWH within and immediately adjacent to the proposed development footprint (**Appendix E**).

The following summary discusses the SWH components and Candidate SWH that were identified as having the potential to occur within the subject property limits:

Seasonal Concentration of Animals: Some species of animals gather together from geographically wide areas at certain times of year. This could be to hibernate or to bask (e.g., some reptiles), over-winter

(e.g., deer yards) or to breed (e.g., amphibians). Maintenance of the habitat features that result in these concentrations can be critical in sustaining local or sometimes even regional populations of wildlife.

The *Significant Wildlife Habitat Criteria Schedules For Ecoregion 6E* identifies several categories of seasonal concentration areas such as stopover and staging for waterfowl, migratory stopover areas for shorebirds, raptor and turtle wintering areas, habitat types for bats, snake hibernaculum, and habitat for colonially nesting birds. The evaluation criteria for each of these categories has been assessed based on background information, field investigations, ELC mapping and an assessment of habitat features and functions.

No suitable habitat for snake hibernaculum was observed based on the survey completed in April 2021. Nor were any other habitats associated with the seasonal concentration of animals identified on or adjacent to the subject lands.

Rare Vegetation Communities or Specialized Habitat for Wildlife: Rare vegetation communities apply to the maintenance of biodiversity and of rare plant communities (rather than individual rare species). Specialized habitat conditions can include species of breeding birds that are associated with large blocks of habitat such as larger grassland areas, which can be considered area sensitive habitat.

The *Significant Wildlife Habitat Criteria Schedules For Ecoregion 6E* identifies several vegetation community types that may qualify as rare vegetation communities for SWH designation. Examples of these include cliffs, talus slopes, sand barrens, alvars and savannah. No rare vegetation communities were noted to be present on the subject property.

Specialized habitat for wildlife include features which are necessary for certain wildlife species as part of their lifecycle requirements. The following has been identified as potential (Candidate Specialized wildlife habitat):

Woodland Raptor Nesting Habitat. One stick nest was observed in the coniferous forest within the valleyland during field surveys. It is noted that these coniferous forest areas are being protected as part of the proposed development plans.

As only one well-defined seepage area was observed in the valleyland area, this does not meet the criteria of candidate SWH, which requires the presence of two or more such features. Nevertheless, such seepage

areas, as well as the integrity of the valleylands themselves, are very important to protect because of the range of other ecological values associated with them; development plans protect the valleyland areas.

Habitats of Species of Conservation Concern: This category is potentially complex and includes species that may be locally rare or in decline, but that have not reached the level of rarity that is normally associated with Endangered or Threatened designations. The Significant Wildlife Habitat Technical Guide (MNRF, 2000) suggests that the highest priority for protection be provided to habitats of the rarest species (on a scale of global through to local municipality), and that habitats that support large populations of a species of concern should be considered significant. An additional eight criteria under the Species of Concern category are found in Appendix Q to MNRF's technical guide (OMNR 2000), with 28 guidelines within these criteria. The determination of SWH under this category (and under other categories) is a comparative process that must extend across the jurisdiction of the planning authority to be considered definitive.

The *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* identifies five categories consisting of Marsh Bird Breeding Habitat, Open Country Bird Breeding Habitat, Shrub/Early Successional Bird Breeding Habitat, Terrestrial Crayfish, and Special Concern and Rare Wildlife Species.

No habitat suitable for significant marsh, open country, or shrub/early successional bird breeding was identified on the subject property. No evidence of terrestrial crayfish was observed within the subject property. No Species of Special Concern or rare wildlife were recorded during field investigations.

Animal Movement Corridors: Landscape connectivity (often referred to as "wildlife corridors") is recognized as an important part of natural heritage planning and a wide range of benefits have been attributed to the maintenance or re-connection of the natural landscape. Corridors allow animals to move between areas of high habitat importance. Conservation of distinct habitat types to protect species is not effective unless the corridors between them are also protected. Areas of habitat fragmentation that effect wildlife movement are found in association with local and provincial road and railways, rural developments, and settlement areas.

This category includes wildlife habitats that have distinct passageways or well-defined natural features for movements between habitats required by a species to complete its life cycle. For the *Criteria Schedules for Ecoregion 6E* this specifically includes amphibian and deer movement corridors.

The valleylands of both the Rocky Saugeen River and its tributary provide local opportunities for wildlife movement. This is just one of a number of reasons that call for a high level of protection for these valleyland areas.

In summary, a review of candidate Significant Wildlife Habitat for the subject property clearly points to the importance of providing a high level of protection for both the valleyland of the Rocky Saugeen River and its tributary. The remainder of the subject property does not contribute to candidate SWH.

**5 COMMENTS AND RECOMMENDATIONS
ON DEVELOPMENT**

5.1 Site Suitability

Residential development is proposed within the tableland portion of the subject property. These tablelands are well-suited to residential development, having gentle to moderate terrain conditions and being able to be easily serviced. Much of this portion of the property is culturally modified, containing the remnants of an old homestead and agricultural lands. The valleyland areas within and adjacent to the property are very important features to protect, with all aspects of development, with the exception of a carefully designed stormwater outlet, all to be fully located away from these areas.

Along most of the valleylands, agricultural activities extended close to the top of slope, creating a well-defined boundary between those areas that are suitable for development and these areas needing to be protected. Over much smaller portions of the property, there is some woodland extending into tableland areas. In these areas, some lotting is proposed to extend into the woodland areas, while being careful to conserve a very broad, forested valleyland corridor which maintains a buffer of much more than 30 m from the adjacent Rocky Saugeen River and its tributary (**in all cases, the naturally vegetated buffer that is to be protected will exceed 60 m adjacent to the Rocky Saugeen River and 70 m adjacent to its tributary**). It is generally only the rear portions of lots which are to extend into the tableland woods, with no roads to extend into these areas; accordingly, there is an opportunity to retain a number of trees within these areas.

There are areas of hedgerows on the property that will need to be removed to accommodate proposed development. These hedgerow features do not support any important wildlife habitat functions, and there are no concerns (subject to the timing of tree removals to avoid potential impacts on birds and bats) with the removal of these hedgerows.

Although there are generally no concerns with development impacts on anthropogenic and culturally-modified habitats, the confirmation of the use of some of these habitats on the subject property by Eastern Meadowlark does require the registration of this activity with the Province, and the offset of the habitat loss, as further described in Section 5.6 of this report. It also requires that vegetation removal within these areas occur outside of the period during which this species' nests. However, it does not preclude or restrict development within these areas, which remains fully appropriate.

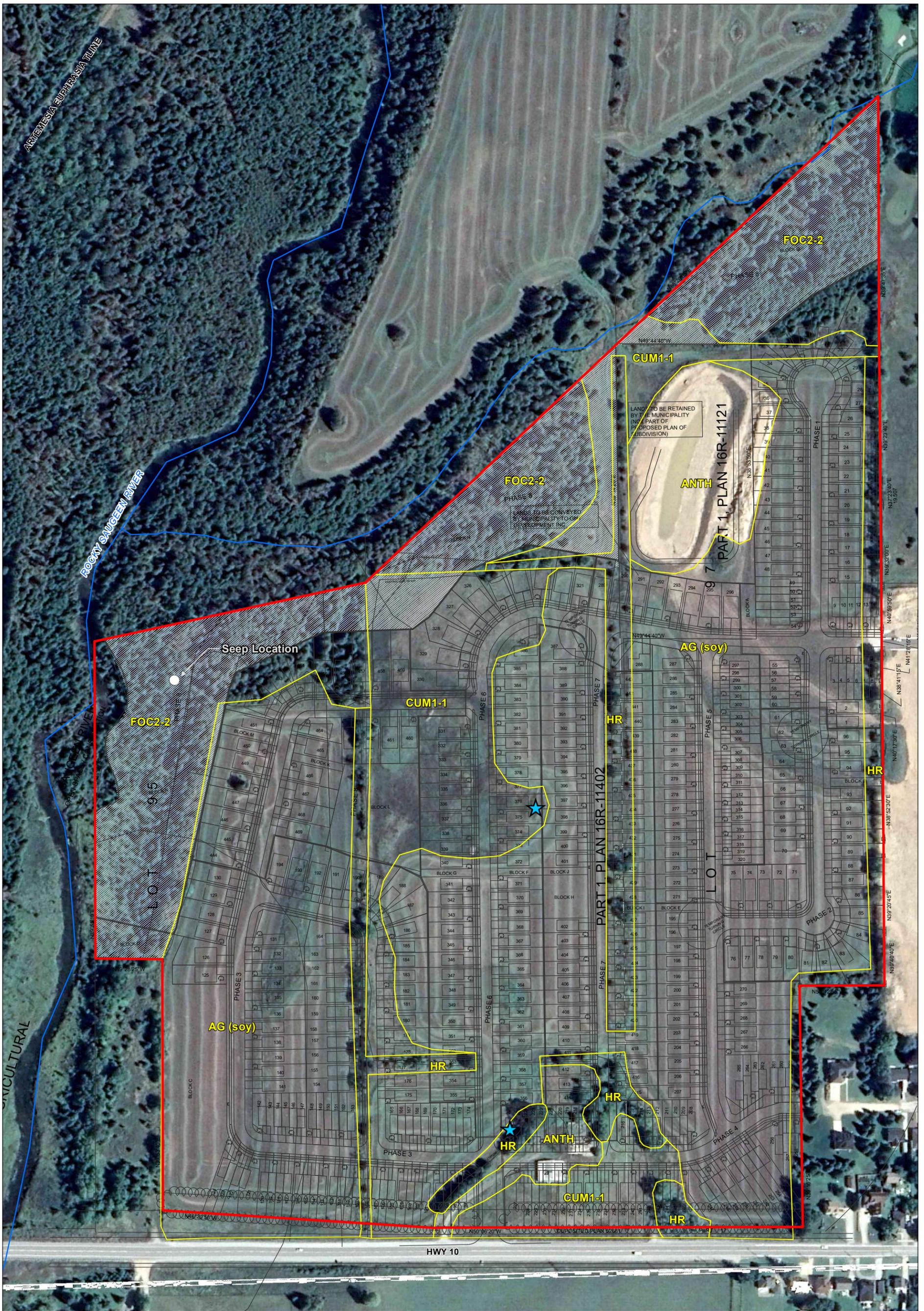
5.2 Valleyland Protection

As has been mentioned throughout this report, the subject property is adjacent to both the Rocky Saugeen River and a tributary to it, both of which are located within well-defined and quite deep valleylands. These features are the most important natural areas within or adjacent to the subject property, with their values including:

- the direct provision of fish habitat, which in both cases is anticipated to include coldwater habitat for Brook Trout;
- the presence of diffuse seepage, and in one area a well-defined seep, which contributes to the cold, clear baseflow in this system, important to both water quality and fish habitat;
- the provision of stable, treed and generally healthy valley systems, which help to maintain the quality, quantity and thermal characteristics of flows in this system, thereby making a positive contribution to the downstream fishery as well; and
- the provision of broad, wooded corridors which provide important wildlife habitat values (including providing habitat for certain area sensitive bird species and candidate SWH), and which contribute to local opportunities for wildlife movement.

As such, these valleyland areas are very important to protect. **Appendix A** shows the proposed development concept plan for this property, with that same drawing included as an overlay with site aerial photography/environmental features information on **Figure 4**; these drawings show that development is to be set back from both valleyland areas, with no proposed road crossings of the valleylands and with no roads in close proximity to it. While the existing stormwater facility will require some expansion, proposed expansion will be away from the valleyland and will not require any changes to the existing cooling trench outlet. The newly proposed stormwater block is to be located on the tableland, although will require the installation of a second cooling trench into the valleyland, to be located in an area where moderate grades facilitate construction and associated access for these works.

As has also been previously noted, a majority of the woodlands associated with the subject property are located within the valleyland areas, which are to be protected, although there are two small areas of woodland extending into the tableland above the top of valley slope. In this regard, **Figure 4** identifies the limits of valleyland in association with the subject property in a white tone, with the two small areas



LEGEND: Eastern Meadowlark Watercourse Vegetation Communities Subject Property Site Plan (Nov 5, 2021)	Environmental Land Classification : Forest (FO) FOC2-2: Dry-Fresh White Cedar Coniferous Forest Cultural (CU) CUM1-1: Dry - Moist Old Field Meadow AG: Agricultural HR: Hedgerow ANTH: Anthropologic	METRE SCALE: NORTH: 	CLIENT: Michalski Nielsen ASSOCIATES LIMITED
	PRINT SCALE: 1:2750 PRINT SIZE: 11 x 17" DATUM: NAD 1983 PROJECTION: UTM Zone 17 DATE: Nov 17, 2021 DRAWN: KG CHECKED: AZ PREPARED BY: 	PROJECT: Markdale Environmental Review Development Concept Plan with Environmental Features FIGURE 4 REVISION: 1-2 PROJECT NO. 1603357	

of tableland woodland visible beyond it. These valleyland limits were established by our office through a combination of desk-top review of detailed topographic mapping and site inspection. The boundary is intended to be very conservative (i.e., it generally includes sloped areas at the interface between the tableland and valleyland), and was field-verified (using GPS-based mapping) with the representative of Saugeen Valley Conservation who attended the site inspection with us. The degree of conservatism of this mapping is very evident in comparing it with Saugeen Valley Conservation's approximate regulation and screening areas mapping (**Appendix B**), which generally excludes those tableland areas that we have also excluded from the valleyland from its broader screening area (with quite minor exception). It also appears quite conservative in comparing it with the County of Grey's mapping of Significant Woodlands, with less than 0.1 ha of lands they had mapped as Significant Woodland occurring within the tableland area where development is being proposed. The rear limits of all proposed lots are outside of the identified valleyland area, allowing all trees within the valleyland to be protected during the grading of these lots and the installation of lot services.

While the protection of coldwater streams is typically achieved with a buffer width of 30 m, the nature of the adjacent valleylands and the extent of proposed tree protection is such that a minimum 60 m vegetated buffer will be retained/protected adjacent to the Rocky Saugeen River, with a minimum 70 m vegetated buffer to be retained/protected adjacent to its tributary; there are areas where these buffer limits will exceed 100 m.

It is noted that Saugeen Valley Conservation will be confirming the appropriateness of all of the proposed rear yard limits, as well as the proposed stormwater management facilities and the new outlet, as part of its technical review of this report and the associated engineering submissions.

5.3 Stormwater Management

A Functional Servicing Report has been prepared by Pinestone Engineering Ltd. and is being submitted under separate cover. As previously noted, much of the development will capitalize on an existing stormwater management pond within the subject property, with the western and southwestern portions of the site requiring the installation of a new stormwater pond within the southwest corner of the tablelands on the property. Some of the design criteria which have guided Pinestone's stormwater management plans include:

- peak flow attenuation to pre-development levels for all storms up to the 100 year event;

-
- conveyance of post-development peak flows in excess of the 100 year event safely from the site;
 - water quality enhancement to an Enhanced Level of protection, using a treatment train approach;
 - outletting treated flows through cooling trenches to control against negative thermal impacts on the watercourse;
 - using a level spreader beyond the cooling trenches to broadly disperse any flows that are not captured through the cooling trenches; and
 - preparation of a detailed erosion and sediment control and construction mitigation plan, to be implemented as part of the construction program.

The erosion and sediment control plan is to include the following measures:

- installation of silt fencing along the downgradient edge of all areas to be disturbed;
- filter cloth and stone placement over catch basins until such time as roads and parking areas are paved and vegetation is established;
- installation of temporary straw bale check dams in swales and ditches;
- installation of mulch mats at site entrances;
- ensuring any temporary stockpiling of materials occurs upgradient of silt controls; and
- regular monitoring of the controls by the contractor, with periodic inspection of controls, and advice to the owner on any required improvements, by the project engineer.

This plan appears consistent with the requirements of Saugeen Valley Conservation. Further to the above, and consistent with our discussions with Pinestone Engineering Ltd., Michalski Nielsen Associates Limited recommends that:

- **the outlet location for the new stormwater management pond is to take advantage of an area of moderate slope down into the valleyland of the Rocky Saugeen River, with the implementation of these works to include plans to properly restore areas of temporary construction disturbance; and**

-
- **the outlet for the new stormwater management facility terminate at a cooling trench with a level spreader, to be located a minimum 30 m back from the Rocky Saugeen River. The level spreader is to disperse any flows in excess of those captured through the cooling trench broadly across the riparian buffer area. These measures will promote additional filtration and attenuation (i.e., water quality polishing of this treated stormwater) prior to its entry into Rocky Saugeen River. This outlet structure is also to be equipped with a weir that is to allow flows in excess of the 10 year storm event to continue down an overflow spillway to the watercourse.**

It is expected the Saugeen Valley Conservation will be reviewing the Functional Servicing Report and providing its recommendations on final stormwater management and construction mitigation details prior to project implementation. It is important that both their office and ours contribute to the detailed design and location of the cooling trench/level spreader outlet for the new stormwater pond, ensuring this is designed and implemented in a manner that recognizes the sensitivities of the Rocky Saugeen River and its valley corridor.

5.4 Additional Aspects of Site Servicing

As described in the Functional Servicing Report prepared by Pinestone Engineering Ltd., road access to the proposed subdivision is to be provided directly from Highway 10, as well as from two road connections through the existing and adjacent subdivision to the east/southeast. Internal municipal roads will be constructed to the current Municipality of Grey Highlands urban standards. No road crossings of the valleylands are proposed, with use of the existing farm crossing of the tributary and its valley to be discontinued on construction of this subdivision. All roads will be set back a substantial distance from the top of the valleyland.

Municipal water services will be extended into the property from two road connections through the existing and adjacent subdivision to the east/southeast, eventually creating a looped system.

Municipal sewer services will be provided through two gravity sewers. One of these sewers will connect into the existing and adjacent subdivision to the east/southeast, discharging to an existing municipal pump station associated with that subdivision. The other gravity sewer, capturing flows from the western/southwestern portions of the property, will be a new pipe that crosses Highway 10 and outlets to the existing municipal sewage lagoon, located some distance south of that road.

All water and sanitary services, together with other services such as hydro and internet, will not cross watercourses and will be set back substantial distances from the top of the valleylands.

There are no concerns with any of those aspects of servicing from a natural environment perspective.

5.5 Construction Management

It is important that construction activities be timed and managed in a manner which avoids potential harm to local wildlife and which minimizes the potential for adverse physical or water quality impacts on surrounding areas. To this end, and in conjunction with the recommendations of the Functional Servicing Report prepared by Pinestone Engineering Ltd., Michalski Nielsen Associates Limited recommends that:

- **all tree cutting be undertaken between September 1 and April 30, so as to avoid impacts on breeding birds and any potential bat roosting;**
- **clearing of the areas of anthropogenic and old field habitats on the property which contribute to the habitat of Eastern Meadowlark, including grassy areas, is only to be undertaken after this work is registered with the Province (Section 5.6), and is then to occur between August 16 and April 30 in order to avoid the period when Eastern Meadowlark may be nesting;**
- **along the edge of the valleyland areas, clearing and grading limits are to be staked in the field, with input from Saugeen Valley Conservation if they desire. In general, there is to be no (or very minimal) grading within 8 m of the top of valley slopes, a setback which is more than adequate to protect mature trees on these slopes. Where there are trees that extend into the tableland area, tree removal in the rear yard areas is to be selectively undertaken, under the advice of an ecologist or arborist, and is to ensure new edges are cut in a manner that contributes to their resistance to wind throw and sun scald;**
- **at the onset of grubbing, and prior to any other earthworks, a heavy-duty silt fence is to be properly installed around the downgradient perimeter of all such works. The sediment fence is to be properly trenched into the ground (a minimum 0.2 m). A qualified individual is to provide certification that the silt fencing has been properly installed;**
- **additional sediment and erosion controls are to be installed, where deemed necessary by the project engineer, including such measures as temporary or permanent check dams at appropriate locations on any ditching;**
- **sediment and erosion controls are to be inspected daily by the contractor, and at least monthly by qualified members of the project team. Any deficiencies in these controls are to be remedied immediately;**

-
- once an area has been grubbed, works are to progress as quickly as possible, with all disturbed areas to be stabilized by grading, then by seeding or sodding, as soon as can be practically achieved;
 - sediment and erosion controls are to be left in place, and regularly monitored and repaired, until such time as the lands which have been disturbed are certified by a qualified individual as being stable; and
 - further consultation is to occur with the Municipality of Grey Highlands and Saugeen valley Conservation on the desirability and design of passive recreational (pedestrian) trails into the valleyland. If such trails are to be constructed, there are a number of locations where past tree harvesting has resulted in excavator cuts both down the valley slopes and within the lower portion of the valley; these already disturbed areas provide good opportunities for trail installation. Any additional pedestrian trails within the valleyland should be narrow and designed to be installed to avoid removal of larger trees. If any trails are being considered along wetter portions of the valley floor, raised boardwalk-style paths should be considered. In no case should trails within the valley include earthworks and fill placement, other than the very minimum requirements to create a safe and stable pathway.

5.6 Registration of Habitat Removals with the Ministry of the Environment, Conservation and Parks

Based on the field investigations, the territorial area potentially used by Eastern Meadowlark within the subject property for nesting, perching, feeding, etc., adds up to 5.98 ha. This was determined based on suitable vegetation communities identified near the observed locations of Eastern Meadowlark recorded during the breeding bird surveys. This includes 4.24 ha of Cultural Meadow (CUM1-1) and Hedgerow (HR) in the northern portion of the subject property and 1.74 ha of Cultural Meadow (CUM1-1), Hedgerow (HR), and Anthropogenic land (ANTH) with natural vegetation cover in the southern portion of the subject property (**Figure 3**).

For most species that are protected under the *Endangered Species Act*, the potential presence of a species and their habitat would create considerable uncertainty from a planning perspective. However, that is not the case for Eastern Meadowlark, specifically for those circumstances where development will result in the loss of 30 ha or less of their habitat. In this regard, Ontario Regulation 242/08 provides species-specific interpretation information on protection requirements under the *Endangered Species Act*. For Eastern Meadowlark, guidance is included under Section 23.6. Section 23.6 (2) reads as follows:

Clause 9 (1) (a) and subsection 10 (1) of the Act do not apply to a person who, while carrying out an activity described in subsection (1), kills, harms, harasses, captures or takes a bobolink or an eastern meadowlark, or damages or destroys its habitat, if,

- (a) the size of the area of habitat of bobolink or eastern meadowlark that is damaged or destroyed by the activity is equal to or less than 30 hectares; and
- (b) the person satisfies all of the conditions set out in subsection (4). O. Reg. 176/13, s. 14.

Accordingly, this regulation provides specific provision for damaging or destroying up to 30 ha of Bobolink or Eastern Meadowlark habitat, providing that all of the conditions of Section 14 of Ontario Regulation 176/13 are met. That section deals with the Environmental Registry for projects. In accordance with the MNRF's publication Bobolink and Eastern Meadowlark Habitats and Land Development (<http://www.ontario.ca/page/bobolink-and-eastern-meadowlark-habitats-and-land-development>), the proponent must:

- register the work and the affected species with the Ministry of Environment, Conservation and Parks (before work begins);
- prepare and follow a habitat management plan;
- create or enhance habitat, and manage that habitat;
- provide a written commitment (also called an undertaking) to the Ministry of Environment, Conservation and Parks that commits to managing the habitat over time;
- minimize effects to the protected species;
- avoid activities that are likely to affect habitat or the birds between May 1 – August 15 (e.g., do not excavate land or plough fields during this time);
- prepare and maintain records that relate to the work and the habitat; and
- report sightings of rare species (and update registration documents, if needed).

The area of Eastern Meadowlark habitat that will be impacted on this property is well under 30 ha, allowing for the owner to simply register the loss of habitat. This process does require the creation of offsetting habitat either on or off property. The owner will be required to complete this registration process prior to development proceeding on these lands. The registration process is self-administered,

and is most appropriately completed just prior to proceeding with construction work. No permit is required from the Province in order to proceed with the project.

The new or enhanced habitat must be located in the same ecoregion as the area where the development is to be carried out and the size of that area must be equal to the habitat for Eastern Meadowlark that the development activity is likely to damage or destroy (in this case, 5.98 ha). The new or enhanced habitat must be monitored for 5 years and managed for 20 years.

A recent Environmental Registry Notice (#019-2636) from the MECP proposes a Species at Risk Conservation Fund which, if approved, would provide an alternative approach to *ESA* conformity. Eastern Meadowlark is one of the species listed as being subject to this approach, providing a possibility that the owner may simply be able to contribute to a pool of funds that would be targeted towards habitat creation or enhancement for the species.

In summary, as it relates to Eastern Meadowlark habitat, there is an as-of-right opportunity to develop these lands and move forward with their development, subject to registering this activity. Providing that the project is registered, the requirements of the *Endangered Species Act* will be fully met. The registration process includes a provision that the clearing of lands occurs outside of the period during which Eastern Meadowlark are utilizing it. Registration of the activity is a proponent responsibility and municipal and conservation authority approvals should not be contingent on the completion of that process.

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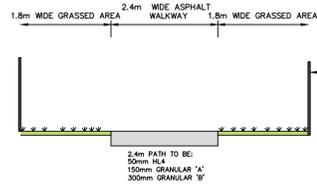
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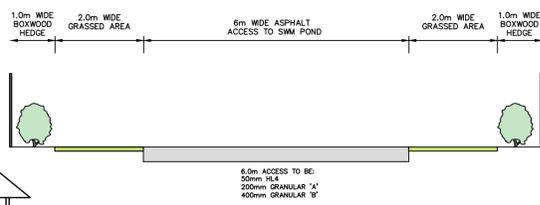
APPENDIX A – SITE DEVELOPMENT CONCEPT PLAN

CONCEPT PLAN LCDG GH1 DEVELOPMENT MARKDALE, ONTARIO SCALE 1:1250 NOVEMBER 24, 2021

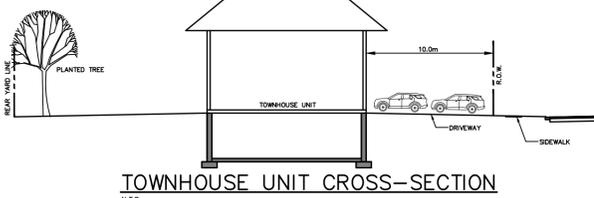
6.0 WALKWAY DETAIL



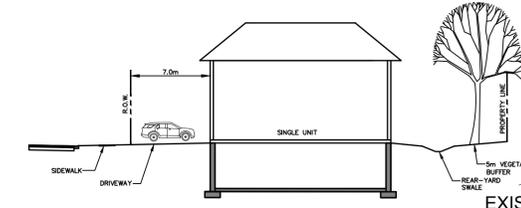
SWM POND ACCESS BLOCK DETAIL



TOWNHOUSE UNIT CROSS-SECTION

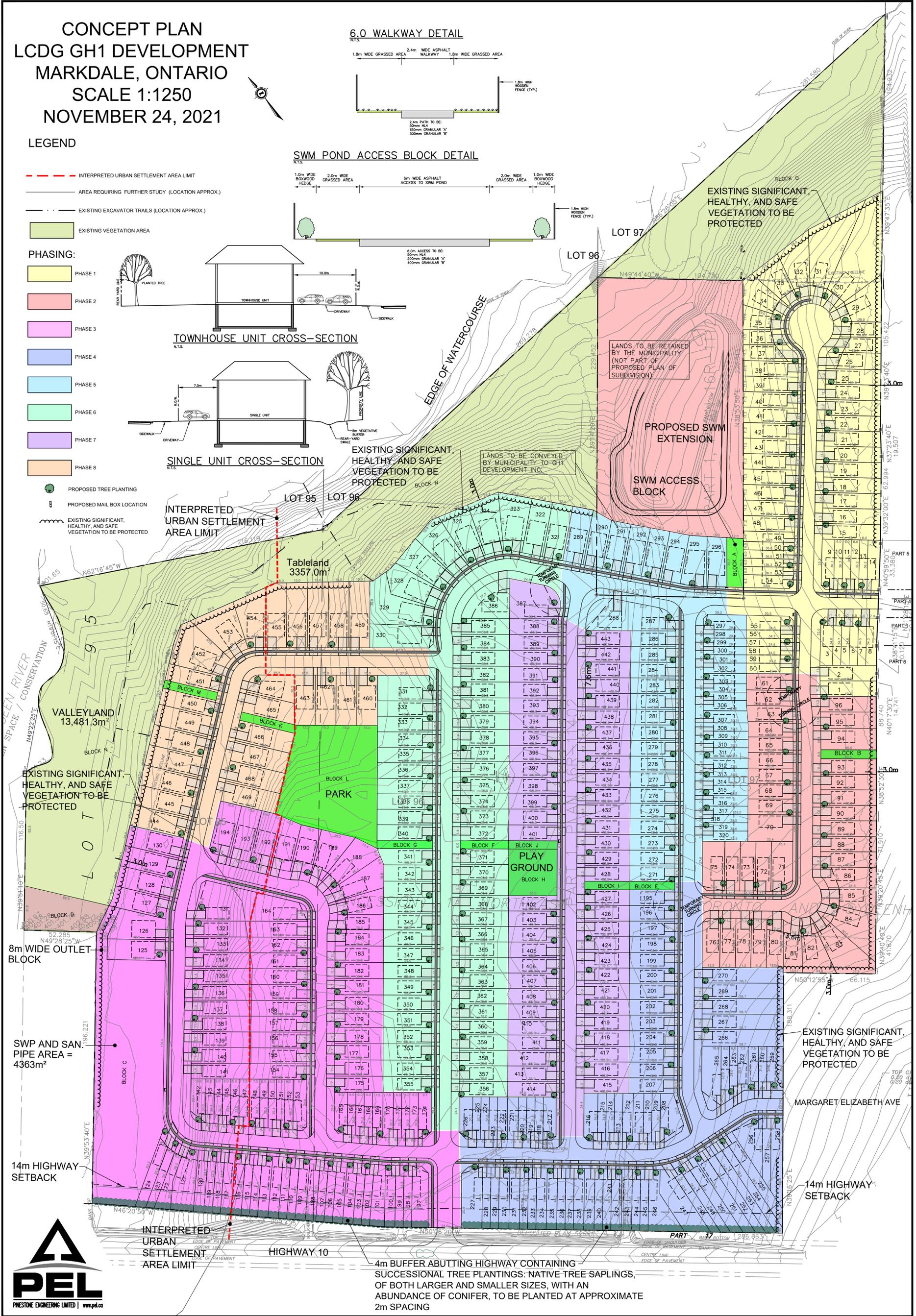


SINGLE UNIT CROSS-SECTION



LEGEND

- INTERPRETED URBAN SETTLEMENT AREA LIMIT
 - AREA REQUIRING FURTHER STUDY (LOCATION APPROX.)
 - EXISTING EXCAVATOR TRAILS (LOCATION APPROX.)
 - EXISTING VEGETATION AREA
- PHASING:**
- PHASE 1
 - PHASE 2
 - PHASE 3
 - PHASE 4
 - PHASE 5
 - PHASE 6
 - PHASE 7
 - PHASE 8
- PROPOSED TREE PLANTING
 - PROPOSED MAIL BOX LOCATION
 - EXISTING SIGNIFICANT, HEALTHY, AND SAFE VEGETATION TO BE PROTECTED



4m BUFFER ABUTTING HIGHWAY CONTAINING
SUCCESSIONAL TREE PLANTINGS: NATIVE TREE SAPLINGS,
OF BOTH LARGER AND SMALLER SIZES, WITH AN
ABUNDANCE OF CONIFER, TO BE PLANTED AT APPROXIMATE
2m SPACING

**APPENDIX B – SAUGEEN VALLEY CONSERVATION
AUTHORITY APPROXIMATE
REGULATED AND SCREENING AREAS**

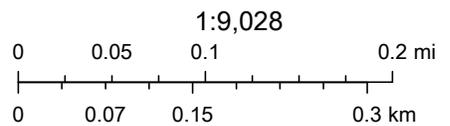
SVCA Approximate Regulated & Approximate Screening Areas



11/24/2021, 12:24:04 PM

 Property Boundary

 Saugeen Valley Conservation Authority



Esri Community Maps Contributors, Province of Ontario, Esri Canada, Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada, Maxar

APPENDIX C – MASTER LIST OF PLANTS

Appendix C. Master List of Plants.

Scientific Name	Common Name	Author	er Common names (synony	French Common Name	Provincially Tracked	Native/Exotic/Unranked
<i>Acer negundo</i>	Manitoba Maple	L.		érable à Giguère	N	N
<i>Acer platanoides</i>	Norway Maple	L.		érable de Norvège	N	E
<i>Acer saccharum</i>	Sugar Maple	Marsh.		érable à sucre	N	N
<i>Arctium minus</i>	Common Burdock	Bernh.		petite bardane	N	E
<i>Asclepias syriaca</i>	Common Milkweed	L.		asclépiade commune	N	N
<i>Bromus inermis</i>	Smooth Brome	Leyss.		brome inerme	N	E
<i>Carex hystericina</i>	Porcupine Sedge	Muhl. ex Willd.		carex porc-épic	N	N
<i>Carex interior</i>	Inland Sedge	Bailey		carex continental	N	N
<i>Carex pedunculata</i>	Long-stalked Sedge	Muhl. ex Willd.		carex pédonculé	N	N
<i>Centaurea jacea</i>	Brown Knapweed	L.		centaurée jacée	N	E
<i>Cicuta maculata</i>	Spotted Water-hemlock	L.		cicutaire maculée	N	N
<i>Cirsium sp.</i>	Thistle Species					
<i>Cirsium vulgare</i>	Bull Thistle	(Savi) Ten.		chardon vulgaire	N	E
<i>Clinopodium vulgare</i>	Wild Basil	L.	Field Basil	sarriette vulgaire	N	N
<i>Cornus sericea</i>	Red-osier Dogwood	L.		cornouiller hart-rouge	N	N
<i>Crataegus sp.</i>	Hawthorn Species					
<i>Daucus carota</i>	Wild Carrot	L.	Queen Anne's Lace	carotte potagère	N	E
<i>Echinochloa sp.</i>	Barnyard Grass Species					
<i>Elymus repens</i>	Quackgrass	(L.) Gould		chiendent commun	N	E
<i>Equisetum sp.</i>	Horsetail Species					
<i>Euphorbia helioscopia</i>	Sun Spurge	L.		euphorbe réveille-matin	N	E
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	(L.) Nutt.		verge d'or à feuilles de graminée	N	N
<i>Eutrochium maculatum</i>	Spotted Joe Pye Weed	(L.) E.E. Lamont		eupatoire maculée	N	N
<i>Fragaria vesca</i>	Woodland Strawberry	L.		fraisier des bois	N	N
<i>Geranium robertianum</i>	Herb-Robert	L.		géranium de Robert	N	N
<i>Glycine max</i>	Soybean	(L.) Merr.		soya	N	E
<i>Larix laricina</i>	Tamarack	(Du Roi) K. Koch		mélèze laricin	N	N
<i>Lotus corniculatus</i>	Garden Bird's-foot Trefoil	L.		lotier corniculé	N	E
<i>Nasturtium officinale</i>	Watercress	Ait.		cresson de fontaine	N	E
<i>Onoclea sensibilis</i>	Sensitive Fern	L.		onoclée sensible	N	N
<i>Phalaris arundinacea</i>	Reed Canarygrass	L.		alpiste roseau	N	N
<i>Picea glauca</i>	White Spruce	(Moench) Voss		épinette blanche	N	N
<i>Pinus strobus</i>	Eastern White Pine	L.		pin blanc	N	N
<i>Plantago lanceolata</i>	English Plantain	L.		plantain lancéolé	N	E
<i>Poa compressa</i>	Canada Bluegrass	L.		pâturin comprimé	N	E
<i>Populus alba</i>	White Poplar	L.		peuplier blanc	N	E
<i>Potentilla norvegica</i>	Rough Cinquefoil	L.		potentille de Norvège	N	N
<i>Potentilla recta</i>	Sulphur Cinquefoil	L.		potentille dressée	N	E
<i>Prunella vulgaris</i>	Common Self-heal	L.		brunelle commune	N	N
<i>Prunus serotina</i>	Black Cherry	Ehrh.	Wild Black Cherry	cerisier tardif	N	N
<i>Prunus sp.</i>	Cherry Species					
<i>Ranunculus acris</i>	Common Buttercup	L.	Tall Buttercup	renoncule âcre	N	E
<i>Rhamnus cathartica</i>	European Buckthorn	L.		nerprun cathartique	N	E
<i>Ribes sp.</i>	Currant Species					
<i>Rubus idaeus</i>	Red Raspberry	L.		framboisier rouge	N	N
<i>Rubus occidentalis</i>	Black Raspberry	L.		framboisier noir	N	N
<i>Rumex crispus</i>	Curled Dock	L.	Curly Dock	patience crépue	N	E
<i>Salix eriocephala</i>	Cottony Willow	Michx.	Heart-leaved Willow	saule à tête laineuse	N	N

Appendix C. Master List of Plants.

<i>Schoenoplectus acutus</i>	Hard-stemmed Bulrush	(Muhlenberg ex Bigelow) Löve & Löve		scirpe aigu	N	N
<i>Silene vulgaris</i>	Bladder Campion	(Moench) Garcke	Maiden's Tears	silène enflé	N	E
<i>Solanum dulcamara</i>	Bittersweet Nightshade	L.	Climbing Nightshade	morelle douce-amère	N	E
<i>Solidago altissima</i>	Tall Goldenrod	L.		verge d'or haute	P	N
<i>Sonchus asper</i>	Prickly Sow-thistle	(L.) Hill	Spiny-leaf Sowthistle	laiteron rude	N	E
<i>Sorbus sp.</i>	Mountain-ash Species					
<i>Symphotrichum novae-angliae</i>	New England Aster	(L.) Nesom		aster de Nouvelle-Angleterre	N	N
<i>Syringa vulgaris</i>	Common Lilac	L.		lilas commun	N	E
<i>Tanacetum vulgare</i>	Common Tansy	L.		tanaisie vulgaire	N	E
<i>Thuja occidentalis</i>	Eastern White Cedar	L.		thuya occidental	N	N
<i>Trifolium repens</i>	White Clover	L.		trèfle blanc	N	E
<i>Tussilago farfara</i>	Coltsfoot	L.		tussilage pas-d'âne	N	E
<i>Ulmus sp.</i>	Elm Species					
<i>Verbascum thapsus</i>	Common Mullein	L.		grande molène	N	E
<i>Viburnum lentago</i>	Nannyberry	L.		virone flexible	N	N
<i>Viburnum opulus</i>	Cranberry Viburnum	L.	Guelder-rose	virone obier	N	N
<i>Vitis riparia</i>	Riverbank Grape	Michx.		vigne des rivages	N	N

APPENDIX D – BREEDING BIRD SURVEY RESULTS

Appendix D. Breeding Birds on Markdale Property.

Common Name	Scientific Name	Status								Breeding Code	Locations			Observed on site visit	
		National Species at Risk COSEWICa	Species at Risk in Ontario Listing a	Provincial breeding season SRANK b	TRCA Status	CVC status	Regional Status	Area-sensitive (OMNR)c	1		2	3	28-Jun-20	05-Jul-20	
Canada Goose	<i>Branta canadensis</i>			S5	L5	yes			X			✓		1	
Mallard	<i>Anas platyrhynchos</i>			S5	L5	yes			X			✓	2		
Cooper's Hawk	<i>Accipiter cooperi</i>			S4	L4	yes		A	H	✓				1	
Wild Turkey	<i>Meleagris gallopavo</i>			S5	L3	yes			H	✓			4		
Killdeer	<i>Charadrius vociferus</i>			S5	L4	yes			H	✓			3		
Ring-billed Gull	<i>Larus delawarensis</i>			S5	L4	yes			X			✓	1	1	
Mourning Dove	<i>Zenaidura macroura</i>			S5	L5	yes			H	✓			1		
Belted Kingfisher	<i>Ceryle alcyon</i>			S4	L4	yes			X			✓		1	
Northern Flicker	<i>Colaptes auratus</i>			S4	L4	yes			P	✓				2	
Great Crested Flycatcher	<i>Myiarchus crinitus</i>			S4	L4	yes			S		✓		2		
Eastern Kingbird	<i>Tyrannus tyrannus</i>			S4	L4	yes			T	✓			1	1	
Tree Swallow	<i>Tachycineta bicolor</i>			S4	L4	yes			NY	✓				3	
Blue Jay	<i>Cyanocitta cristata</i>			S5	L5	yes			T	✓	✓		3	5	
American Crow	<i>Corvus brachyrhynchos</i>			S5	L5	yes			T	✓	✓		6	4	
Black-capped Chickadee	<i>Poecile atricapillus</i>			S5	L5	yes			T	✓	✓		4	5	
American Robin	<i>Turdus migratorius</i>			S5	L5	yes			NY	✓	✓		11	9	
Brown Thrasher	<i>Toxostoma rufum</i>			S4	L3	yes			P	✓				2	
Cedar Waxwing	<i>Bombycilla cedrorum</i>			S5	L5	yes			N	✓				2	
European Starling	<i>Sturnus vulgaris</i>			SE	L+	yes			H	✓		✓	9		
Black-throated Green Warbler	<i>Setophaga virens</i>			S5	L3	yes		A	S		✓		2	1	
Black-and-white Warbler	<i>Mniotilta varia</i>			S5	L2	yes		A	T	✓	✓		2	1	
American Redstart	<i>Setophaga ruticilla</i>			S5	L4	yes		A	S		✓			1	
Common Yellowthroat	<i>Geothlypis trichas</i>			S5	L4	yes			S	✓	✓		1	2	
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>			S4	L4	yes			H	✓			1		
Indigo Bunting	<i>Passerina cyanea</i>			S4	L4	yes			S	✓			3		
Chipping Sparrow	<i>Spizella passerina</i>			S5	L5	yes			CF	✓			4	4	
Vesper Sparrow	<i>Pooecetes gramineus</i>			S4	L3	yes			S		✓		1		
Savannah Sparrow	<i>Passerculus sandwichensis</i>			S4	L4	yes		A	A	✓			4	3	
Song Sparrow	<i>Melospiza melodia</i>			S5	L5	yes			FY	✓	✓	✓	21	18	
White-throated Sparrow	<i>Zonotrichia albicollis</i>			S5	L3	yes			A		✓		4	4	
Bobolink	<i>Dolichonyx oryzivorus</i>	THR	THR	S4	L2	yes		A	X			✓		1	
Red-winged Blackbird	<i>Agelaius phoeniceus</i>			S4	L5	yes			A	✓	✓	✓	13	14	
Eastern Meadowlark	<i>Sturnella magna</i>	THR	THR	S4	L3	yes		A	T	✓			2	2	
Common Grackle	<i>Quiscalus quiscula</i>			S5	L5	yes			X			✓		2	
Brown-headed Cowbird	<i>Molothrus ater</i>			S5	L5	yes			S		✓			1	
Baltimore Oriole	<i>Icterus galbula</i>			S4	L5	yes			P	✓				2	
American Goldfinch	<i>Carduelis tristis</i>			S5	L5	yes			T	✓	✓	✓	10	25	

Field Work Conducted On:	Date	Temp (C)	Wind speed (km/h)	Cloud cover (%)	Start time	End time	Level of effort (h:min)	Number of species observed
Site visit 1	28-Jun-20	14	7	fog	6:05	8:35	2h 30m	25
Site visit 2	05-Jul-20	14	7	60	6:55	9:20	2h 25m	28

USE/DELETE SECTIONS/CITATIONS BELOW AS DESIRED/NEEDED

- Location 1 - *Agricultural Fields*
- Location 2 - *Valleylands*
- Location 3 - *Flyovers and adjacent areas*

Number of Species:	37
Number of (provincial and national) Species at Risk:	2
Number of S1 to S3 (provincially rare) Species:	0

Appendix D. Breeding Bird Survey Results.

Common Name	Scientific Name	Status								Locations			Observed on site visit	
		National Species at Risk COSEWIC ^a	Species at Risk in Ontario Listing ^a	Provincial breeding season SRANK ^b	TRCA Status	CVC status	Regional Status	Area-sensitive (OMNR) ^c	Breeding Code	1	2	3	28-Jun-20	05-Jul-20
Number of Regionally Rare Species:		8												
Number of Area-sensitive Species:		7												
Location 1		Agricultural Fields												
Number of Species:		25												
Number of (provincial and national) Species at Risk:		1												
Number of S1 to S3 (provincially rare) Species:		0												
Number of Regionally Rare Species:		4												
Number of Area-sensitive Species:		4												
Location 2 -		Valleylands												
Number of Species:		15												
Number of (provincial and national) Species at Risk:		0												
Number of S1 to S3 (provincially rare) Species:		0												
Number of Regionally Rare Species:		4												
Number of Area-sensitive Species:		3												
Location 3 -		Flyovers and adjacent areas												
Number of Species:		10												
Number of (provincial and national) Species at Risk:		1												
Number of S1 to S3 (provincially rare) Species:		0												
Number of Regionally Rare Species:		0												
Number of Area-sensitive Species:		1												
KEY														
a COSEWIC = Committee on the Status of Endangered Wildlife in Canada														
a Species at Risk in Ontario List (as applies to ESA) as designated by COSSARO (Committee on the Status of Species at Risk in Ontario)														
END = Endangered, THR = Threatened, SC = Special Concern														
° SRANK (from Natural Heritage Information Centre) for breeding status if:														
S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure)														
SZB (breeding migrants or vagrants) and SR (reported as breeding, but no persuasive documentation) .														
SE (exotic, i.e. non-native)														
c Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide (Appendix G). 151 p plus appendices.														
d Toronto and Region Conservation Authority L rank:														
L1 to L3 Regional species of concern from highest to lowest; L4 Urban concern; L5 Secure through region														

**APPENDIX E – SIGNIFICANT WILDLIFE HABITAT
SCREENING**

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes and Species Observations
Seasonal Concentration Areas of Animals					
Waterfowl Stopover and Staging Areas (Terrestrial)	Ducks	CUM + CUT ecosites	Fields with sheet-water flooding mid-March to May	N	Wildlife species not recorded during field investigations and suitable habitat is absent.
Waterfowl Stopover and Staging Area (Aquatic)	Ducks, Geese	Ponds, Lakes, Inlets, Marshes, Swamps, Shallow Water Ecosites	Sewage & SWM ponds not SWH. Reservoir managed as a large wetland or pond/lake qualifies.	N	The man-made pond within the subject property limits is small.
Shorebird Migratory Stopover Area	Shorebirds	Beaches, Dunes, Meadow Marshes	Shorelines. Sewage treatment ponds and storm water ponds not SWH.	N	No habitat present within subject property boundaries.
Raptor Wintering Area	Eagles, Hawks, Owls	Hawks/Owls: Combination of both Forest and Cultural Ecosites Bald Eagle: Forest or swamp near open water (hunting ground)	Raptors: >20ha, with a combo of forest and upland. Meadow (>15ha) with adjacent woodlands. Eagles: open water, large trees & snags for roosting.	N	Lack of large forest habitat adjacent to open water.
Bat Hibernacula	Big Brown Bat, Tri-coloured Bat	Caves, Crevices, mines, karsts	Buildings and active mine sites not SWH.	N	No habitat present within subject property boundaries.
Bat Maternity Colonies	Big Brown Bat, Silver-haired Bat	Deciduous or mixed forests and swamps.	Mature deciduous and mixed forests with >10/ha cavity trees >25 cm DBH.	N	Lack of deciduous or mixed forests or swamps.
Turtle Wintering Area	Turtles (Midland, N. Map, Snapping)	SW, MA, OA, SA, FEO, BOO (requires open waters)	Free water beneath ice. Soft mud substrate. Permanent water bodies, large wetlands, bogs, fens with adequate DO.	N	Lack of large wetland or permanent water bodies on the subject property.
Reptile Hibernaculum	Snakes	Snakes: Any ecosite (esp. w/ rocky areas), other than very wet ones. Five-lined Skink: FOD and FOM, FOC1, FOC3 - with rock outcrops	Access below frost line: burrows; rock crevices, piles or slopes, stone fences or foundations. Conifer/shrubby swamps/swales, poor fens, depressions in bedrock w/ accumulations of sphagnum moss or sedge hummock ground cover.	N	One Eastern Garter Snake was observed by the old barn during October 2020 site visit but no snake was observed during the snake hibernaculum survey completed in April 2021.
Colonially-nesting Bird Breeding Habitat (Bank and Cliff)	Cliff Swallow, N. Rough-winged Swallow	Banks, sandy hills/piles, pits, slopes, cliff faces, bridge abutments, silos, barns.	Exposed soil banks, not a licensed/permitted aggregate area or new man-made features (2 yrs).	N	No habitat present within subject property boundaries.
Colonially-nesting Bird Breeding Habitat (Tree/Shrubs)	Great Blue Heron, Black-crowned NightHeron, Great Egret, Green Heron	SWM2, SWM3, SWM5, SWM6, SWD1 to SWD7, FET1	Nests in live or dead standing trees in wetlands, lakes, islands and peninsulas. Shrubs and emergents may be used. Nests in trees are 11 - 15 m from ground, near tree tops.	N	No habitat present within subject property boundaries.

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes and Species Observations
Colonially-nesting Bird Breeding Habitat (Ground)	Herring Gull, Great Black-backed Gull, Little Gull, Ring-billed Gull, Common Tern, Caspian Tern, Brewer's Blackbird	Gulls/Terns: Rocky island or peninsula in lake or river. Brewer's Blackbird: close to watercourses in open fields or pastures with scattered trees or shrubs.	Gulls/Terns: islands or peninsulas with open water or marshy areas. Brewers Blackbird colonies: on the ground in low bushes close to streams and irrigation ditches.	N	No habitat present within subject property boundaries.
Migratory Butterfly Stopover Area	Painted Lady, Red Admiral, Special Concern: Monarch	Combination of open (CU) and forested (FO) ecosites (need one from each).	≥10 ha, located within 5 km of Lake Ontario. Undisturbed sites, with preferred nectar species.	N	subject property is not within 5 km of Lake Ontario.
Landbird Migratory Stopover Areas	All migratory songbirds. All migrant raptor species.	Forest (FO) and Swamp (SW) ecosites	Woodlots >10 ha within 5 km of Lake Ontario. If multiple woodlands are along the shoreline, those <2 km from L. Ontario are more significant.	N	Woodlots are <10 ha and the subject property is not within 5 km of Lake Ontario.
Deer Yarding Areas	White-tailed Deer	Mixed or Conifer ecosites	Determined by MNRF - no studies	N	To be confirmed by MNRF.
Deer Winter Congregation Areas	White-tailed Deer	Mixed or Conifer ecosites	Determined by MNRF - no studies	N	To be confirmed by MNRF.
Rare Vegetation Communities					
Cliffs and Talus Slopes		TAO, TAS, CLO, CLS, TAT, CLT e.g., Niagara Escarpment (contact NEC)	Cliff: near vertical bedrock >3m Talus Slope: coarse rock rubble at the base of a cliff	N	No habitat present within subject property boundaries.
Sand Barren		SBO1, SBS1, SBT1	Sand Barrens >0.5 ha. Vegetation can vary from patchy and barren to tree covered, but <60%. <50% vegetation cover are exotic species.	N	No habitat present within subject property boundaries.
Alvar	<i>Carex crawei</i> , <i>Panicum philadelphicum</i> , <i>Eleocharis compressa</i> , <i>Scutellaria parvula</i> , <i>Trichostema brachiatum</i> , Loggerhead Shrike	ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2	Alvar >0.5 ha. Need 4 of the 5 Alvar Indicator Spp. <50% vegetation cover are exotic species.	N	No habitat present within subject property boundaries.

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes and Species Observations
Old Growth Forest	Trees >140 yrs; heavy mortality = gaps. Multi-layer canopy, lots of snags and downed logs	FOD, FOC, FOM, SWD, SWC, SWM	Woodland areas ≥30 ha with a≥10 ha interior habitat, assuming a 100 m buffer at edge of forest.	N	Forested communities within the subject property are <30 ha in size with < 10 ha of interior habitat.
Savannah	Prairie Grasses w/ trees	TPS1, TPS2, TPW1, TPW2, CUS2	A Savannah is a <u>tallgrass prairie</u> habitat that has tree cover of 25 – 60%. <50% cover of exotic species.	N	No habitat present within subject property boundaries.
Tallgrass Prairie	Prairies Grasses dominate	TPO1, TPO2	An <u>open Tallgrass Prairie</u> habitat has < 25% tree cover. Less than 50% cover of exotic species.	N	No habitat present within subject property boundaries.
Other Rare Vegetation Communities		Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of SWHTG.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	N	No provincially rare vegetation communities are present on the subject property.
Specialized Habitat for Wildlife					
Waterfowl Nesting Area	Ducks	Upland habitats adjacent to: MAS1 to MAS3, SAS1, SAM1, SAF1, MAM1 to MAM6, SWT1, SWT2, SWD1 to SWD4 (>0.5 ha open water wetlands, alone or collectively).	Extends 120 m from a wetland or wetland complex. Upland areas should be at least 120 m wide. Wood Ducks and Hooded Mergansers use cavity trees (>40 cm dbh).	N	Lack of wetland habitat within the subject property.
Bald Eagle & Osprey Nesting, Foraging and Perching Habitat	Osprey, Bald Eagle	FOD, FOM, FOC, SWD, SWM, SWC directly adjacent to riparian areas	Nesting areas are associated with waterbodies along forested shorelines, islands, or on structures over water.	N	The subject property possesses coniferous forest communities, however, lacks adjacent bodies of water.
Woodland Raptor Nesting Habitat	Barred Owl. Hawks: N. Goshawk, Cooper's, Sharp-shinned, Red-shouldered, Broad-winged.	Forests (FO), swamps (SW), and conifer plantations	>30 ha with > 10 ha interior habitat.	P	Woodlands within the subject property are <30 ha in size. One potential stick nest was observed during the October 2020 field
Turtle Nesting Areas	Midland Painted Turtle Special Concern: Snapping Turtle, Northern Map Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within: MAS1 to MAS3, SAS1, SAM1, SAF1, BOO1	Nest sites within open sunny areas with soil suitable for digging. Sand and gravel beaches.	N	Lack of wetland habitat within the subject property.
Seeps and Springs	Wild Turkey, Ruffed Grouse, Spruce Grouse, White-tailed Deer, Salamander spp.	Seeps/Springs are areas where ground water comes to the surface.	Any forested area within the headwaters of a stream/river system. (2 or more confirms SWH type).	N	Only 1 seep was observed within the subject property.
Amphibian Breeding Habitat (Woodland)	Woodland Frogs and Salamanders	FOC, FOM, FOD, SWC, SWM, SWD	Open water wetlands, pond or woodland pool of >500 m ² within or adjacent to wooded areas. Permanent ponds or holding water until mid-July preferred.	N	No pond or woodland pools were observed within the forested communities on the subject property.
Amphibian Breeding Habitat (Wetlands)	Toads, Frogs, and Salamanders	SW, MA, FE, BO, OA and SA. Typically isolated (>120m) from woodland ecosites, however larger wetlands may be adjacent to woodlands.	Open water wetland ecosites >500m ² isolated from woodland ecosites with high species diversity. Permanent water with abundant vegetation for bullfrogs.	N	No habitat present within subject property boundaries.

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes and Species Observations
Woodland Area-Sensitive Bird Breeding Habitat	Birds (area-sensitive species)	FOC, FOM, FOD, SWC, SWM, SWD	Large mature (>60 years) forest stands/woodlots >30 ha. Interior forest habitat >200m from forest edge.	N	Forest stands within the subject property are <30 ha and are mid-aged.
Habitat of Species of Conservation Concern					
Marsh Bird Breeding Habitat	Wetland Birds	MAM1 to MAM6, SAS1, SAM1, SAF1, FEO1, BOO1 Green Heron: SW, MA and CUM1	Wetlands with shallow water and emergent vegetation. Gr. Heron @ edges of these types w/ woody cover.	N	No habitat present within subject property boundaries.
Open Country Bird Breeding Habitat	Upland Sandpiper, Grasshopper Sparrow, Vesper Sparrow, N. Harrier, Savannah Sparrow, Short-eared Owl (SC)	CUM1, CUM2	Grassland/meadow >30 ha. Not being actively used for farming. Habitat established for 5 years or more.	N	Although two grassland indicator species were observed (i.e., Vesper Sparrow and Savannah Sparrow) CUM1 communities present on the subject property are <30 ha in size and adjacent to agricultural fields.
Shrub/Early Successional Bird Breeding Habitat	Brown Thrasher + Clay-coloured Sparrow (indicators) , Field Sparrow, Black-billed Cuckoo, E. Towhee, Willow Flycatcher, Yellow-breasted Chat, Golden-winged Warbler	CUT1, CUT2, CUS1, CUS2, CUW1, CUW2	Large field areas succeeding to shrub and thicket habitats > 10 ha. Areas not actively used for farming in the last 5 years.	N	No habitat present within subject property boundaries.
Terrestrial Crayfish	Chimney or Digger Crayfish; Devil Crayfish or Meadow Crayfish	MAM1 to MAM6, MAS1 to MAS3, SWD, SWT, SWM. CUM1 sites with inclusions of the aforementioned.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish (typc. protected by wetland setbacks).	N	No habitat present within subject property boundaries.
Special Concern and Rare Wildlife Species	Any species of concern or rare wildlife species	Any ELC code.	Presence of species of concern or rare wildlife species.	N	No Special Concern or rare species were observed during 2020 field surveys.
Animal Movement Corridors					
Amphibians	Amphibians	all ecosites assoc. w/ water	When Breeding Habitat - wetland confirmed	N	Wetland Breeding Habitat not confirmed.
Deer Movement	White-tailed Deer	all forested ecosites	When Deer Wintering Habitat confirmed	N	Deer Wintering Habitat not confirmed.
Exceptions for Ecoregion 6E					
Mast Producing: 6E-14	Black Bear	Forested Ecosites	>30 ha w/ mast producing species: Cherry (berries), Oak, Beech (nuts).	N	subject property is not within 6E-14.
Leks: 6E-17	Sharp-tailed Grouse	CUM, CUS, CUT	Grassland/meadow >15 ha adjacent to shrublands, >30 ha adjacent to woodlands. Low agricultural intensity.	N	subject property is not within 6E-17.