

2501563 ONTARIO INC.

SCOPED ENVIRONMENTAL IMPACT STUDY SAUGEEN CEDAR HEIGHTS WEST

NOVEMBER 27, 2020





SCOPED ENVIRONMENTAL IMPACT STUDY

SAUGEEN CEDAR HEIGHTS WEST

2501563 ONTARIO INC.

PROJECT NO.: 171-09117-00
DATE: NOVEMBER 2020

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November 27, 2020

2501563 Ontario Inc.
302300 Concession 2 SDR
RR #1
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Dear Mr. Weller,

Subject: Scoped Environment Impact Study
Saugeen Cedar Heights West
Town of Hanover, Grey County, Ontario

WSP Canada Inc. is pleased to provide you with our scoped Environmental Impact Study for the Saugeen Cedar Heights West development lands. The site is located west of Grey Road 28 and south of the Saugeen River within the Town of Hanover, Grey County, Ontario.

This report outlines the existing conditions in the Site at the time of the site investigations and provides an assessment of the potential impacts associated with the proposed development. We have also provided recommendations to mitigate potential impacts. Please find the document attached for your records.

Thank you for the opportunity to complete this assignment. Please contact the undersigned with questions or comments.

Yours truly,

A handwritten signature in black ink, appearing to read 'E. Fitz'.

Erin Fitzpatrick, M.Sc.
Project Ecologist

SR/ham

WSP ref.: 171-09117-00
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1 INTRODUCTION

WSP Canada Inc. (WSP) has been retained to complete a Scoped Environmental Impact Study (EIS) for the site known as the Saugeen Cedar Heights West development lands. The site is located west of Grey Road 28 and south of the Saugeen River, and identified as Part of Lots 9 and 10, Concession 1 and 2, Town of Hanover, Grey County, herein referred to as the “Site”. Refer to Figure 1 for site location details.

This study was conducted to determine the presence and extent of natural heritage features and associated constraints in the vicinity of the Site. Surveys of the natural environment focused on lands within the 120 m area of influence surrounding the Site.

This report describes the existing conditions in the Site as determined through consultation with relevant authorities, reviews of secondary source information, and direct observation during the site investigations, an impact analysis, and a discussion of mitigation measures to minimize or eliminate the identified impacts, to an acceptable level.

2 ENVIRONMENTAL POLICY CONTEXT

2.1 PROVINCIAL POLICY STATEMENT

The Provincial Policy Statement (PPS) (Ontario Ministry of Municipal Affairs and Housing (OMMAH, 2020) is a planning document that provides a framework for and governs development within, the Province of Ontario. To preserve various ecological resources deemed significant in the Province, development lands must be assessed for the presence of natural heritage features prior to construction. These natural heritage features (listed below) are both defined and afforded protections under the PPS. Linkages between natural heritage features, surface water and groundwater features are also recognized and afforded similar protections under the policy. *Section 2.1.2* of the PPS also requires that the diversity and connectivity of all natural heritage features and the long-term ecological function of natural heritage systems be maintained, restored or improved where possible. Further to this, natural heritage systems within Ecoregions 6E and 7E are to be identified as per *Section 2.1.3* (OMMAH, 2020).

Under the PPS (OMMAH, 2020), development or site alteration is prohibited within Significant Wetlands in Ecoregions 5E, 6E and 7E and in Significant Coastal Wetlands, but may be allowed adjacent to these features provided the adjacent lands have been evaluated and it has been demonstrated that there will be no negative impacts to these features or their ecological functions. Development may be permitted in or adjacent to Significant Wetlands north of Ecoregions 5E, 6E and 7E, Significant Woodlands and Significant Valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary’s River), Significant Wildlife Habitat, and Areas of Natural and Scientific Interest, provided there will be no negative impacts to these features or their ecological function due to the proposed undertaking. In addition, development and site alteration is not permitted in Fish Habitat unless in accordance with provincial and federal legislation.

Natural heritage features as defined by the PPS (OMMAH, 2020) include:

- A) *Fish Habitat;*
- B) *Habitats of Endangered and Threatened Species;*
- C) *Significant Areas of Natural and Scientific Interest (ANSI);*
- D) *Significant Wetlands;*
- E) *Significant Coastal Wetlands;*
- F) *Other Coastal Wetlands in Ecoregions 5E, 6E and 7E;*

- G) *Significant Wildlife Habitat*;
 - H) *Significant Woodlands* in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River); and,
 - I) *Significant Valleylands* in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River).
-

2.2 CONSERVATION AUTHORITIES ACT

The *Conservation Authorities Act* (Government of Ontario, 1990) gives individual conservation authorities the power to regulate development and activities in or adjacent to a river or stream valleys, Great Lakes and large inland lakes and shorelines, watercourses, hazardous lands and wetlands. Regulations made under the Conservation Authorities Act specify the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulations managed by individual Conservation Authorities. These regulations apply to lands within a river or stream valleys, flood plains, wetlands, watercourses, lakes, hazardous lands or lands within 120 m of a Provincially Significant Wetland (PSW) or wetlands greater than 2 hectares (ha), or lands within 30 m of non-provincially significant wetlands. Development or site alteration within these regulated areas may be permitted provided development is conducted in accordance with existing policies.

The Site is located within the Saugeen Valley Conservation Authority (SVCA) jurisdiction. Ontario Regulation (O. Reg.) 169/06 made under the Act specifies the *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulations* managed by the SVCA. Development or site alteration within these regulated areas may be permitted by the SVCA if, in its opinion, the control of flooding, erosion, dynamic beaches, pollution, or the conservation of land will not be affected by the development.

2.3 COUNTY OF GREY OFFICIAL PLAN

The County of Grey Official Plan (CGOP) (County of Grey, 2019) is a document that provides a policy framework to encourage growth and prosperity within the County, while maintaining and enhancing the County's physical resources.

Section 7 of the Official Plan focuses on the policies as they relate to the natural environment. The goal of these policies is to identify lands containing environmental constraints/sensitive features, restrict development to only those areas where suitable, and ensure that natural heritage features are protected.

The CGOP Land Use Types (*Schedule A, Map 3*) (County of Grey, 2019) classifies the Site as a mix of Primary Settlement Area and Hazard Land. Under the CGOP Constraint Mapping (*Appendix B; Map3*) (County of Grey, 2019) the Hazard Lands for the Site overlap with the area mapped as Significant Woodland that flanks the Saugeen River.

Hazard Lands include floodplains, steep or erosion-prone slopes, organic or unstable soils, poorly drained areas, and lands along the Georgian Bay shoreline (County of Grey, 2019). These lands can be impacted by flooding, erosion, and/or dynamic beach hazards or have poor drainage, or any other physical condition that is severe enough to pose a risk for the occupant, property damage, or social disruption if developed (County of Grey, 2019). For the Site, this includes the Regional Floodplain of the Saugeen River and its tributary that runs parallel to the south boundary of the Site. These areas are regulated by the SVCA and are subject to Ontario Regulation 169/06. The proponent may be required to produce engineering reports or other information to SVCA to ensure the proposed development within or adjacent to Hazard Lands has been adequately assessed. This assessment is not covered in this EIS.

Under the CGOP (County of Grey, 2019) new development shall generally be directed away from flood-prone Hazard Lands and no development shall be permitted within 30 m of the banks of a stream, river, or lake. However, under the Town of Hanover Official Plan (Town of Hanover, 2016), where an EIS is prepared and concludes that setbacks may be reduced and/or where it has been determined by the SCVA that setbacks may be reduced, development may be permitted with

coordination of relevant agencies including the MNR and their Natural Hazards Technical Guidelines, as well as the SVCA permitting regulations, and policies (Town of Hanover, 2016).

Additional constraints that may apply to the Site include features which have not been mapped in the CGOP (County of Grey, 2019) including:

- Significant Wildlife Habitat; and
- Habitat of Endangered/Threatened Species.

For the constraints listed above, the policies of *Section 7* of the CGOP (County of Grey, 2019) apply. No development or site alteration may occur within Significant Woodlands, Significant Wildlife Habitat, or Habitat of Endangered/Threatened Species. However, the County recognizes where the County has identified a settlement area land use type as a focus of growth, but also mapped Significant Woodlands for protection, the two (2) objectives may appear to conflict. As a result, natural features within Settlement Areas will not be considered prohibitive to development, except where otherwise prohibited by legislation, habitat regulation, or through prohibitions in the PPS (OMMAH, 2020) (e.g. PSW). Site-specific matters will be considered when dealing with planning applications in Settlement Areas, which also overlap with a natural feature or its adjacent lands (County of Grey, 2019). Site alteration may occur adjacent to these lands if it has been demonstrated through an EIS that there will be no negative impacts on the natural features or their ecological functions (County of Grey, 2019).

2.4 TOWN OF HANOVER OFFICIAL PLAN

The Town of Hanover Official Plan (HOP) (Town of Hanover, 2016) provides a long-term strategy for managing growth and development within the Town of Hanover, within the planning horizon of the CGOP (County of Grey, 2019). Schedule 'A' Land Use of the HOP (Town of Hanover, 2016) classifies the Site as Residential and Hazard Land. Land immediately adjacent to the Saugeen River and the tributary to the Saugeen River at the southern limit of the Site are classified as Hazard Lands (*Schedule A*) (Town of Hanover, 2016); while the remainder is residential. Hazard lands have physical characteristics that may result in property damage, loss of life, or social disruption if developed upon (Town of Hanover, 2016), and as such are regulated by the SVCA along with valley slopes, wetlands, watercourses, and adjacent lands. Development or site alteration within areas regulated by the SVCA is subject to the requirements under O.Reg. 169/06 and will require a permit. Engineering reports or other studies may be required by the SVCA (refer to Section 2.2) to address concerns related to hazard lands and flooding; these are not covered in this EIS.

Schedule 'B' - Constraints of the HOP (Town of Hanover, 2016), which maps streams/rivers, Significant Woodlands, and other wetlands, shows the Saugeen River and a Significant Woodland within the northern extent of the Site. There are no other constraints mapped. The Significant Woodland identified in the HOP (Town of Hanover, 2016) does not include the treed area south of the Hanover Community Trail system as identified in the CGOP (County of Grey, 2019). However, this woodland block may contribute to the Significant Woodland area as it is contiguous with the mapped Significant Woodland to the north, creating a contiguous woodland until approximately 14 ha in size. To be considered significant within a settlement area, woodlands need to be at least 4 ha in size. For this project, the HOP (Town of Hanover 2016) mapped Significant Woodland was identified in figures and was used along with other site-specific constraints to set development limits.

2.5 FISHERIES ACT

The *Federal Fisheries Act* (Government of Canada, 1985) provides guidance for the management, protection, and use of fish, as well as the protection of fish habitat and waters used by fish. The Act is regulated by the Department of Fisheries and

Oceans Canada, (DFO). Fish habitat is defined in the Federal Fisheries Act as the “spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes.” Section 35 of the Act prohibits the harmful alteration, disruption, or destruction (HADD) of fish habitat whereby the physical attributes of the system become less suitable for fish production.

As of November 25, 2013, DFO has implemented a proponent-driven self-assessment process. The self-assessment process applies to on-going projects currently under review by the Conservation Authority; applications where permits have not yet been issued, and any future permit applications that would normally have involved Conservation Authority review under the Act. Projects related to fisheries outside the scope of the Act review and requirements will continue to be reviewed by the Conservation Authority, as previously.

The review focus is to protect the productivity of recreational, commercial and Aboriginal fisheries by focusing protection on real and significant threats to fish and the habitat that supports them. The Act sets clear standards and guidelines for routine projects conducted in or near waterbodies and watercourses that support fish that are part of, or that support a, commercial, recreational or Aboriginal fishery. If the proposed works fall within fish habitat (below the ordinary high water mark), a review under the Act is required.

Following the passage of Bill C-68, new fish and fish habitat protection provisions of the Fisheries Act are in force as of August 28, 2019. The new provisions are:

- provide protection for all fish and fish habitats;
- restore the prohibition against HADD; and,
- prohibit activities, other than fishing, that cause ‘the death of fish’.

In the event that a project cannot be feasibly relocated or redesigned to eliminate the harmful alteration, disruption, or destruction of fish habitat, mitigation measures and or habitat compensation may be required. Common mitigation measures include, but are not limited to, working within fisheries timing windows to minimize interference with fish migration and spawning, ensuring fish passage around obstructions during and after construction, implementing measures to control siltation at construction sites, and choosing the least harmful equipment and methods necessary for the proposed project.

Any activities taking place in waterbodies and watercourses that DFO has determined are exempt, or can follow the DFO prescribed Measures to Protect Fish and Fish Habitat to avoid causing a HADD in fish habitat, the activity may proceed without DFO review. Any activity which is assessed to cause a potential HADD in fish habitat must be submitted to DFO for review, to determine requirements for an Authorization under the FA. The need for a Request for Review will be determined once the design of the crossing has been developed and impacts can be assessed.

3 INFORMATION RESOURCES

Relevant information resources were consulted over the course of the report preparation. Full references are provided in the References section of this report.

- Aerial photographs;
- Aquatic Resource Area Polygon and Line Segment Layers (Government of Ontario, 2015);
- Atlas of the Breeding Birds of Ontario online (Bird Studies Canada et al., 2006);
- Conservation Authorities Act, Ontario Regulation 169/06: Saugeen Valley Conservation Authority;
- County of Grey Official Plan (County of Grey, 2019);
- Ebird (Cornell Lab of Ornithology, 2020);
- Ecological Land Classification for Southern Ontario: 1st approximation (Lee et al. 1998);
- Ecological Land Classification for Southern Ontario: 2nd approximation (Lee, 2008);

- Ecoregion 6E Significant Wildlife Habitat Criterion Schedule (OMNRF, 2015b);
- Endangered Species Act, 2007 (Government of Ontario, 2007);
- Fisheries Act (DFO, 2013);
- iNaturalist (iNaturalist Network, 2020)
- Natural Heritage Information Centre (NHIC) Mapping and Databases (OMNRF, 2015a and 2020);
- Natural Heritage Reference Manual for Natural Heritage Policies of the PPS, 2005 (OMNR, 2010);
- Ontario Ministry of Natural Resources and Forestry (OMNRF), Midhurst District Office;
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2017 and 2019);
- PPS (OMMAH, 2020);
- Significant Wildlife Habitat: Technical Guide (OMNR, 2000);
- Species at Risk Act in Canada (SARA) list (Government of Canada, 2020);
- Species at Risk in Ontario (SARO) list (OMNRF, 2020); and,
- Town of Hanover Official Plan (Town of Hanover, 2016).

4 AGENCY CONSULTATION

A request for information was submitted to the Ontario Ministry of Natural Resources and Forestry (OMNRF) Midhurst District Office in 2017 prior to conducting the field visits to ensure natural heritage features with the potential to be within the Site were identified. The SVCA was also contacted in 2017 to identify the scoping required for the EIS. The SVCA provided their EIS guidelines, and also indicated that the Site may contain the following natural heritage features: Significant Woodlands, Significant Valleylands, Fish Habitat and potentially Habitat of Endangered or Threatened species.

Following a pause on the project, WSP contacted SVCA again in 2020 to confirm the requirements for a 2020 submission of the EIS. Based on SVCA guidance, supplemental surveys were completed in the spring of 2020 to complete amphibian calling surveys, document spring plant species, and to verify existing conditions on the Site. A copy of email correspondence from the regulatory agencies is provided in Appendix A.

4.1 SITE DESCRIPTION

The Site has been identified as Part of Lots 9 and 10, Concession 1 and 2, Town of Hanover, Grey County. Refer to Figure 1 for location details. The Site is an irregular-shaped parcel bounded to the east by Grey Road 28, to the north and northwest by the Saugeen River, and to the south and southwest by a residential subdivision. Schedule A of the HOP (Town of Hanover, 2016) denotes the Land Use mapping within the Town. The majority of the Site has been designated as Residential. The Saugeen River flows from east to west along the north boundary of the Site, while a tributary of the Saugeen River occurs near the south boundary of the Site, flowing west and northwest before draining into the Saugeen River approximately 80 m west of the Site.

The Saugeen River and the tributary, as well as their associated floodplains, have been identified as Hazard Lands. According to *Schedule A* of the HOP (Town of Hanover, 2016), the Site is zoned primarily as Residential. Portions of the Site south of the Hazard Lands associated with the Saugeen River have been zoned as Residential Type 1, and Open Space near the western Site boundary. Currently, a part of the Hanover Community Trail runs within 40 m and 80 m of the Saugeen River, roughly parallel to its south bank within the Site. It is understood that this portion of the trail will be removed as part of the subdivision development.

4.2 PROPOSED DEVELOPMENT

The client is proposing to develop a residential subdivision and servicing roads within an area designated as a Primary Settlement Area (*Schedule A, Map 3*) (County of Grey, 2019) and Residential (*Schedule A*) (Town of Hanover, 2016). In accordance with the HOP (Town of Hanover, 2016), the proponent will need to provide municipal water and wastewater services for the proposed subdivision. The development includes the construction of a road over the tributary to the Saugeen River to connect the proposed subdivision to 17th Street within the residential subdivision directly south.

4.3 SITE INVESTIGATIONS

Site investigations were conducted between June 2017 and May 2020. The purpose of the site investigations were to confirm the presence of natural heritage features and determine the general characteristics of the Site. WSP biologists identified existing landforms and landscapes, land uses, vegetation composition and structure, wildlife usage, and the presence and extent of natural heritage features in or within 120 m of the Site.

Breeding bird surveys were completed on June 27 and July 13, 2017, and botanical inventories and vegetation community mapping using the Ecological Land Classification (ELC) were completed on July 21, 2017, and May 26, 2020, with additional observations taken during surveys in June 2017 and November 2017. Amphibian surveys were completed on June 28, 2017, April 30, 2020, and May 26, 2020. Site visit details are provided in Table 4-1, below.

Table 4-1 Site Visit Details

DATE	WEATHER CONDITIONS	SURVEYS COMPLETED
June 27, 2017	Overcast skies, ±17°C, light breeze, periods of light drizzle	Breeding Birds, and general vegetation
June 28, 2017	Overcast skies, ±23°C, gentle breeze, no trace of precipitation	Amphibian
July 13, 2017	Overcast skies, ±20°C, light breeze, no trace of precipitation	Breeding Birds
July 21, 2017	Clear skies, ±25°C, light breeze, no trace of precipitation	Botanical Inventory / Ecological Land Classification
November 7, 2017	Mostly overcast skies, ±3°C, gentle breeze, no trace of precipitation	Watercourse
April 30, 2020	Overcast skies, ±8C, light breeze, periods of light drizzle	Amphibian Survey
May 26, 2020	Partly cloudy, ±25C, slight breeze, no precipitation and night, light precipitation during the day	Amphibian Survey Botanical Inventory / Ecological Land Classification update

Prior to commencing the site investigations, a review of background information, satellite images, and topographical maps was conducted to identify the presence of natural heritage features, available habitat, and the potential for species of conservation concern in the Site. During the site investigations, photographs of the Site were taken and observations of wildlife, vegetation and natural features were recorded. A record of species observed during the site investigations is provided in Appendix B.

4.4 FIELD OBSERVATIONS

4.4.1 VEGETATION

As a part of the field surveys, the following work was completed:

- A search for Butternut (*Juglans cinerea*) trees;
- An inventory of flora within the Site; and
- ELC for the vegetation communities found in the Site.

RARE FLORA SPECIES SUMMARY

A list of vascular plant species recorded during WSP field investigations is provided in Appendix B. Based on the data collected, a total of 121 plant species have been identified within the Site. An additional 17 plant species were identified to genus-level only.

Of the 121 species recorded by WSP, 91 (75%) are native, and 30 (25%) are non-native. Many of the non-native species are typical of disturbed areas. The initial botanical inventory and ELC mapping was completed on June 21, 2017, and an update was completed on May 26, 2020. The update did not significantly increase the species list, with the exception of a few spring ephemerals, which indicates the majority of species within the Site were identified during the initial July survey. Based on the species-level identifications for most of the fall-flowering species (e.g. goldenrod and aster), it is WSP's opinion that a targeted fall botanical survey was not warranted as it would not appreciably increase the species count for the Site.

There were no plant species of conservation concern identified during the survey. All native species identified had a provincial ranking of S4 or S5 (apparently secure [S4] or secure [S5] in Ontario) and are not listed under the ESA.

Black Ash (*Fraxinus nigra*), now considered Threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), was observed in low abundance in the following vegetation communities Scots Pine Conifer Plantation (CUP3-3), Mineral Cultural Woodland (CUW1), and likely occurs in low numbers in the Fresh - Moist Sugar Maple - Lowland Ash Deciduous Forest (FOD6-1) (Figure 3). Although this species has been identified as Threatened by COSEWIC it is not identified as a SAR under the Ontario ESA or federal SARA. While Black Ash preservation is encouraged to protect Ontario's biodiversity, it is not required under current regulation. Black Ash was observed in abundance in the surrounding area, outside the boundaries of the Site. This included a large wetland east of the Site and along the Saugeen River. Therefore, mitigation for Black Ash within the Site will not be recommended for the proposed development and will not be discussed further in this report.

A Coefficient of Conservation (CC) rank (0 to 10) describes how closely associated a species is to a specific natural habitat. A high CC means that the species in question is more closely tied to a specific habitat, while species with a low CC can adapt to multiple habitats, including altered or disturbed habitats. The following species observed in the Site have high CC values: American Golden-saxifrage (*Chrysosplenium americanum*) (CC:8) and Woolly-fruited Sedge (*Carex lasiocarpa*) (CC:8). Both species were found near watercourse edges within the floodplain at the north and west limits of the Site (Figure 3; FOM3-1 and FOC4-1) and are not expected to be impacted by the proposed development.

VEGETATION COMMUNITY SUMMARY

Vegetation communities within the Site have been mapped (Figure 3) using the standardized Ecological Land Classification (ELC) for southern Ontario – first approximation (Lee et al., 1998). For vegetation communities where the first approximation ELC does not provide an adequate description, the pending 2008 second approximation description has been used (Lee, 2008). Mapping for the Site has been completed at a larger scale than the criteria for ELC (1:10,000) and polygons are sometimes smaller than the 0.5 ha minimum size criteria; however, this scale is appropriate for the management and development of the existing conditions in the Site.

A total of seventeen (17) communities were identified within the Site, including seven (7) forest communities, four (4) wetland communities, and six (6) cultural communities. These communities are listed and described in greater detail below:

Forest:

- Fresh - Moist White Cedar Coniferous Forest (FOC4-1);
- Dry - Fresh Sugar Maple - Eastern Hemlock Mixed Forest (FOM3-2);
- Fresh - Moist Hemlock Hardwood Mixed Forest (FOM6-2);
- Fresh - Moist Sugar Maple Hardwood Deciduous Forest (FOM6-5);
- Fresh - Moist White Cedar - Hardwood Mixed Forest (FOM7-2);
- Fresh - Moist White Cedar Coniferous Forest (FOD4-1); and,
- Fresh - Moist Sugar Maple - Lowland Ash Deciduous Forest (FOD6-1).

Wetland:

- Narrow-leaved Sedge Mineral Meadow Marsh Mosaic (MAM2-5) / Red Top - Graminoid Mineral Meadow Marsh (MAM2-3);
- Mixed Forb Meadow Marsh (MAM2-10); and,
- Mixed Forb Organic Meadow Marsh (MAM3-9).

Cultural:

- Scots Pine Conifer Plantation (CUP3-3);
- Conifer Plantation (CUP3);
- Mineral Cultural Woodland (CUW1);
- Mineral Cultural Thicket (CUT)
- Dry - Moist Old Field Cultural Meadow (CUM1-1); and,
- Annual Row Crops (OAGM1).

Within the Site, between the south bank of the watercourse and the Hanover Community Trail, several forest communities were present. The northwest portion of the Site was identified as Fresh - Moist White Cedar Coniferous Forest (FOC4-1). Eastern White Cedar (*Thuja occidentalis*) was the dominant tree species, while occasional Black Cherry (*Prunus serotina*), American Elm (*Ulmus americana*), Green Ash (*Fraxinus pennsylvanica* var. *lanceolata*), Basswood (*Tilia americana*) and Yellow Birch (*Betula alleghaniensis*) were also noted. The understorey was relatively sparse but contained a variety of species including Zig-zag Goldenrod (*Solidago flexicaulis*), Early Meadow-rue (*Thalictrum dioicum*), Bulblet Bladder Fern (*Cystopteris bulbifera*) and Wood Nettle (*Laportea canadensis*).

Continuing east and along the south bank of the Saugeen River, the forest transitioned into Dry - Fresh Sugar Maple - Eastern Hemlock Mixed Forest (FOM3-2). Sugar Maple (*Acer saccharum*) and Eastern Hemlock (*Tsuga canadensis*) were the dominant tree species, while occasional Black Cherry, American Beech (*Fagus grandifolia*), Ironwood (*Ostrya virginiana*), Eastern White Cedar, White Ash (*Fraxinus americana*) and Basswood were also identified. The subcanopy included occasional Eastern White Cedar, while the understorey contained Canada Goldenrod (*Solidago canadensis*), Bracken Fern (*Pteridium aquilinum*) and Bush Honeysuckle (*Diervilla lonicera*). A variety of groundcover species were present including

Zig-zag Goldenrod, False Solomon's Seal (*Maianthemum racemosum*), Rose Twisted Stalk (*Streptopus roseus*) and Blue Cohosh (*Caulophyllum thalictroides*) among other, less common species.

Continuing east, the forest transitioned into a Fresh - Moist White Cedar - Hardwood Mixed Forest (FOM7-2), located in the northeast corner of the Site. White Ash and Trembling Aspen (*Populus tremuloides*) were commonly noted within this ecotype, while Eastern White Cedar, Green Ash, Sugar Maple, Basswood and Yellow Birch were also present. European Highbush Cranberry (*Viburnum opulus*) was a common understorey species, while Riverbank Grape (*Vitis riparia*), Fly Honeysuckle (*Lonicera canadensis*) and Choke Cherry (*Prunus virginiana*) were also noted. Some of the groundcover species identified included False Solomon's Seal, Canada Mayflower (*Maianthemum canadense*), Fringed Polygala (*Polygala paucifolia*) and Wild Mint (*Mentha arvensis*).

In the western half of the Site the forests flanking the Saugeen River, as described above, extended south for approximately 70 m beyond the river, to just south of the Hanover Community Trail. However, within the eastern half of the Site, the forests extended further to the south, reaching the approximate center of the Site. The predominant ecotype of these forests was Fresh - Moist White Cedar Coniferous Forest (FOD4-1). Eastern White Cedar was the dominant tree species within this forest. However, the trees were younger and the community less diverse when compared to the forest flanking the Saugeen River. The Eastern White Cedar was so dense that few other tree species were noted in the canopy and sub-canopy. Occasional gaps in the canopy allowed other species to take hold, including Green Ash, American Elm, Sugar Maple, Yellow Birch and Ironwood. Groundcover species were generally limited, but included Wild Ginger (*Asarum canadense*), Zig-zag Goldenrod and Helleborine (*Epipactis helleborine*), while Red-osier Dogwood (*Cornus stolonifera*) and European Highbush Cranberry were also noted in forest gaps.

Along the western portion of the Fresh - Moist White Cedar Coniferous Forest, the ecotype transitioned first into Fresh - Moist Hemlock Hardwood Mixed Forest (FOM6-2) before giving way to Fresh - Moist Sugar Maple - Lowland Ash Deciduous Forest (FOD6-1). A small patch was also identified as Fresh - Moist Sugar Maple Hardwood Deciduous Forest (FOM6-5). Sugar Maple, Green Ash, Eastern White Cedar, Basswood, Trembling Aspen and Ironwood were noted in each of these ecotypes, while Eastern Hemlock was commonly found in the FOM6-2 ecotype. Groundcover species were relatively sparse in the FOM6-2 ecotype, and included Coltsfoot (*Tussilago farfara*), Violet (*Viola* sp.), Bittersweet Nightshade (*Solanum dulcamara*) and Field Horsetail (*Equisetum arvense*). The FOD6-1 and FOM6-5 ecotypes exhibited a more diverse groundcover layer, including Herb Robert (*Geranium robertianum*), Panicked Aster (*Aster lanceolatus*), Yellow Avens (*Geum aleppicum*), Sensitive Fern (*Onoclea sensibilis*) and Orchard Grass (*Dactylis glomerata*) among other species. European Highbush Cranberry and Wild Red Raspberry (*Rubus idaeus*) were occasionally noted in the understorey along with Wild Cucumber (*Echinocystis lobata*) and Riverbank Grape.

Within the forest immediately south of the Saugeen River, several patches of Mixed Forb Meadow Marsh (MAM2-10) were identified. These wetland patches occurred in areas where changes in the topography occurred for the creation of the hydro corridor and trail. The water table was observed at the ground level, however, pools of standing water were not noted, and if occur, are likely ephemeral in nature. Common species identified within these wetland patches included Spotted Jewel-weed (*Impatiens capensis*), Purple-stem Aster (*Aster puniceus*), Spotted Joe-pye-weed (*Eupatorium maculatum*), Fringed Loosestrife (*Lysimachia ciliata*), Fowl Blue Grass (*Poa palustris*) and Reed Canary Grass (*Phalaris arundinacea*).

The majority of the central portion of the Site consisted of Annual Row Crops (OAGM1). This field appeared to be a former wheat field that had begun to go fallow. Around the edges of the field, several common weedy species had begun to grow, including Common Dandelion (*Taraxacum officinale*), Common St. John's-wort (*Hypericum perforatum*), Common Ragweed (*Ambrosia artemisiifolia*) and Heal-all (*Prunella vulgaris*).

A tributary of the Saugeen River is located along the southern boundary of the Site, running west and northwest before flowing into the Saugeen River approximately 80 m west of the Site. Several meadow marsh ecotypes were identified within the riparian corridor of the tributary, a conifer plantation was located north of the creek in the southeast corner of

the Site, and several woodlands and forest patches were found adjacent to the tributary past the southwest corner of the Site and near the confluence with the Saugeen River.

The riparian corridor of the tributary consisted predominately of several meadow marsh ecotypes. Both Mixed Forb Mineral Meadow Marsh (MAM2-10) and Mixed Forb Organic Meadow Marsh (MAM3-9) were identified within the riparian corridor, while a small area identified as Narrow-leaved Sedge Mineral Meadow Marsh Mosaic (MAM2-5) / Red Top - Graminoid Mineral Meadow Marsh (MAM2-3) was located in the southeast corner of the Site, just north of the creek. The MAM2-5 / MAM2-3 ecotype contained a variety of rush and sedge species, while Redtop Grass (*Agrostis gigantea*), Panicked Aster, Narrow-leaved Cattail (*Typha angustifolia*) and Northern Water-horehound (*Lycopus uniflorus*) were also noted. Species composition within the MAM2-10 and MAM3-9 ecotypes was relatively similar. Common species within these meadow marshes included Spotted Jewel-weed, Common Boneset (*Eupatorium perfoliatum*), Purple-stem Aster, Spotted Joe-pye-weed, Fringed Loosestrife, Reed Canary Grass, Giant Goldenrod (*Solidago gigantea*) and Wild Mint (*Mentha arvensis*), among a variety of other graminoids and forbs. Occasionally noted species included Black Bulrush (*Scirpus atrovirens*), Softstem Bulrush (*Scirpus validus*), Marsh Fern (*Thelypteris palustris*), Virgin's Bower (*Clematis virginiana*), Water Avens (*Geum rivale*), Porcupine Sedge (*Carex hystericina*) and Fox Sedge (*Carex vulpinoidea*).

A Scots Pine Conifer Plantation (CUP3-3) covering approximately 0.7 ha was located in the southeast portion of the Site, north of the tributary of the Saugeen River. Scots Pine (*Pinus sylvestris*) was the dominant tree species within the plantation, while natural succession had led to several other species becoming established in low numbers in the southern half of the Conifer Plantation (CUP3), including Eastern White Cedar, Black Ash and Black Cherry. The understory had begun to fill in as well with shrubby species, including Red-osier Dogwood and Alternate-leaved Dogwood (*Cornus alternifolia*). A small polygon southeast of the plantation was identified as Mineral Cultural Woodland (CUW1) due to the higher number of exotic species present, which included a dominant canopy of Manitoba Maple (*Acer negundo*). Basswood, Green Ash and Black Ash were also present in variable abundance. The understory consisted of abundant Alternate-leaved Dogwood with occasional invasive honeysuckle (*Lonicera* sp.) species and European Highbush Cranberry, while groundcover species included Panicked Aster, Lily-of-the-valley (*Convallaria majalis*), Heal-all and Ox-eye Daisy (*Chrysanthemum leucanthemum*).

Some of the open portions of the Site have been identified as Dry - Moist Old Field Cultural Meadow (CUM1-1). In general, a mix of graminoids and forbs comprised the groundcover, while occasional shrubs were also noted. Most of the species found are common and widespread, often easily adapting to disturbed environments. Some of the common plant species found within the CUM1-1 ecotype included Giant Goldenrod, Canada Goldenrod, Ox-eye Daisy, Wild Carrot (*Daucus carota*), Common St. John's Wort and several Sedges (*Carex* sp.) and Asters (*Aster* sp.).

INVASIVE PLANTS

An invasive species is a species that is not native/exotic to an ecosystem and results in the degradation of the environment once established. Invasive species are known to outcompete native biota for resources within an ecosystem and are difficult to remove once introduced. The primary method to combat these species is to prevent their spread into a new area.

Within this Site, three (3) invasive species were observed in low abundance including Glossy Buckthorn (*Frangula alnus*), Purple Loosestrife (*Lythrum salicaria*) and species of invasive honeysuckle (*Lonicera* spp.) (e.g. *L. tatarica*, *L. maackii*, *L. morrowii* and *L. bella*). These species were observed in the wetlands and treed edges abutting the west and south side of the agricultural field. Common Reed (*Phragmites australis*) was also observed in moderate abundance adjacent to the Site. Common Reed was observed in the wetland east of Grey Road 28 (off site) and vegetation community MAM2-5/MAM2-3 (Figure 3).

Due to the low abundance of these species within the Site, the likelihood that these species will spread to adjacent habitats as a result of site preparation and construction is considered to be low.

4.4.2 AMPHIBIAN CALLING SURVEY

SURVEY METHODOLOGY

Amphibian calling surveys were completed as part of the 2017 and 2020 field program. Supplemental observations of reptiles and amphibians were recorded during other surveys undertaken as part of this study. The amphibian breeding activity was assessed using the Marsh Monitoring Program (MMP) Amphibian Calling Survey Protocol (Bird Studies Canada, 2008). Surveys were completed by qualified, experienced staff under appropriate conditions (i.e., dusk / evening survey with suitable air temperatures, relative humidity and wind strength) on June 28, 2012, April 30, 2020, and May 26, 2020, with a total field effort of approximately 9 person-hours .

Surveys were completed three (3) times during the spring and early summer, at least fifteen (15) days apart. Each survey was conducted at dusk / early evening under appropriate weather conditions (i.e., suitable air temperatures and low wind). Nighttime air temperatures were $\geq 5^{\circ}\text{C}$ for the 'first' survey, $\geq 10^{\circ}\text{C}$ for the 'second' survey and $\geq 17^{\circ}\text{C}$ for the 'third' survey.

During the surveys, the species heard over the course of the 3-minute survey period were documented, in addition to the call level code. The Call Code is used to describe the calling intensity and is summarized as one of three (3) codes:

- Code 1 – Individuals can be counted;
- Code 2 – Calls distinguishable with some simultaneous calling; and,
- Code 3 – Full chorus, with continuous and overlapping calls.

Using air photo interpretation and field observations, a total of four (4) stations were established adjacent to wetlands (Figure 2).

RESULTS

Results of the amphibian calling surveys indicated breeding habitat is located in the MAM2-5 wetland, north of the Hanover Community Trail where Spring Peepers (*Pseudacris crucifer*) were heard in abundance (calling code 3, count n/a) during the April 30, 2020 call survey. Spring Peepers were also heard calling in abundance outside the Site, east of Grey Road 28, which is connected to the tributary located at the south limit of the Site. Although there is some potential for frogs to travel from the wetlands east of Grey Road 28 into the Site via the tributary, wetlands within the southern portion of the Site are thought to be poorly suited for amphibian breeding habitat due to the fast flowing water and absence of ponded water.

Though not recorded as part of the calling survey, two (2) Gray Treefrogs (*Hyla versicolor*) were heard calling during the day on May 26, 2020, during the ELC update survey. One (1) frog was calling adjacent to the tributary within the MAM2-10 and one (1) was in the MAM2-10 in the central treed area, north of FOM6-2 (Figure 3).

No other amphibian calling was heard at Stations 1 to 4 during the surveys, which further suggests that other wetlands within the Site are unlikely to provide significant amphibian breeding habitat.

Under Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (OMNRF, 2015), significant amphibian breeding habitat is confirmed if studies confirm:

- Presence of breeding population of one (1) or more of the listed newt/salamander species or two (2) or more of the listed frog/toad species [Table 1.2.2 Specialized Habitats of Wildlife considered SWH, OMNRF, 2015] with at least twenty (20) individuals (adults or eggs masses) or two (2) or more of the listed frog/toad species [Table 1.2.2 Specialized Habitats of Wildlife considered SWH, OMNRF, 2015] with Call Level Codes of 3; or,
- Wetlands with confirmed breeding Bullfrogs are significant.

Based on these criteria the wetlands within the Site are not considered SWH (Refer to Section 5.6).

4.4.3 BIRD POPULATIONS

SURVEY METHODOLOGY

Breeding bird survey protocols were designed and completed based on recommendations given by the Forest Bird Monitoring Protocol (FBMP) and Ontario Breeding Bird Atlas (OBBA). The Forest Bird Monitoring Protocol recommends completing standardized point counts to survey an area for breeding birds. A total of five (5) point counts were completed throughout the Site, separated by approximately 100-150 m (Figure 2). In addition to the point counts, an active search was completed which involved looking and listening for birds while moving between the different habitats in the Site.

Breeding bird surveys were conducted on June 27 and July 13, 2017. In accordance with accepted protocols, at least six (6) days separated each site visit, and the surveys were completed within 5 hours after sunrise.

Breeding evidence was noted for each species observed on the Site. Breeding evidence is divided into four (4) categories: confirmed (CONF), probable (PROB), possible (POSS), and none (NONE). Confirmed breeding evidence includes observations involving young or eggs; observations of adult birds carrying food, nesting material, or a fecal sac; observations of adult birds involved in a distraction display; or observations of adult birds exhibiting physiological evidence of a brood patch. Probable breeding evidence includes observations of a bird occupying territory for at least 7 days, visiting a nest site, or exhibiting territorial behaviour; observations of a pair in appropriate habitat; or observations of a pair copulating. Possible breeding evidence includes observations of a singing male or observations of a bird in suitable breeding habitat. Migrant or vagrant birds are considered to have no breeding evidence.

RESULTS

A cumulative total of 35 bird species were observed at the Site over the two (2) survey periods. Breeding was confirmed for 4 species, considered probable for 12 species, and considered possible for 16 species (Appendix B). Breeding evidence was not identified for 3 species.

A Wood Thrush (*Hylocichla mustelina*), a species of Special Concern under the ESA, was heard calling along the banks of the Saugeen River within the Site during the May 26, 2020 site visit (Figure 2).

4.4.4 OTHER WILDLIFE OBSERVATIONS

Visual observations of area wildlife (including mammals and insects) were recorded during the site investigation. Wildlife observations were based on incidental contact, scat evidence, and tracks, and were consistent with species known to occupy this area. There were no SAR observed within the Site during the site investigation. Incidental wildlife observations for the Site are provided in Appendix B.

General reptile surveys were completed by visual observation during each site visit, including an assessment of the potential for reptile hibernacula. Field surveys were conducted along the edges of the hedgerows, in the ditches, adjacent to wetland areas and alongside Grey Road 28. Debris, logs, and other suitable cover objects were randomly lifted and inspected.

Reptiles observed within the Site included the observation of a single Eastern Gartersnake (*Thamnophis sirtalis*) during the June 27, 2017 site visit. No SAR reptiles were noted within the Site.

4.4.5 AQUATIC HABITAT

The mapped watercourses within and adjacent to the Site included the Saugeen River and a tributary of the Saugeen River that runs parallel to the south boundary of the Site.

The Saugeen River flows west, then north at Walkerton, into Lake Huron. This river supports a large number of fish species and is the main system for surface water conveyance within the Saugeen Watershed.

Within the vicinity of the Site, the tributary flows northwest across the landscape from a large wetland east of Grey Road 28, eventually joining the Saugeen River approximately 25 m west of the northwest corner of the Site. Culverts were noted at Grey Road 28 and the Hanover Community Trail. The channel was observed to be relatively narrow (< 2 m wide) and shallow (< 0.5 m deep) and the banks of the tributary were generally characterized by bands of wetland vegetation along the edge of residential lawns to the south and the agricultural field to the north. Drainage from the lawns and agricultural field is expected to contribute to the watercourse through surface flows and tile drainage, the latter evidenced by a number of seeps and drainage pathways observed at the edge of the field-wetland interface.

5 NATURAL HERITAGE FEATURE ASSESSMENT

The following sections outline the natural heritage features (NHF) identified within 120 m of the Site during EIS investigations. The Site is located within a settlement area and is not located in the Natural Heritage System identified in the GCOP (County of Grey, 2019).

5.1 FISH HABITAT AND WATERCOURSES

The Saugeen River has been identified as a cold water system that provides habitat for a variety of species including: Brook Trout (*Salvelinus fontinalis*), Brown Trout (*Salmo trutta*), Northern Brook Lamprey (*Ichthyomyzon fossor*), Pumpkinseed (*Lepomis gibbosus*), Rainbow Trout (*Oncorhynchus mykiss*), Rock Bass (*Ambloplites rupestris*), Smallmouth Bass (*Micropterus dolomieu*), Suckers and Perches (Ontario, 2015). This watercourse will be provided with a minimum 30 m buffer as shown in Figure 4.

The tributary of the Saugeen River located south of the Site provides habitat for an assemblage of cool and warm water species including: Black Bullhead (*Ameiurus melas*), Bluntnose Minnow (*Pimephales notatus*), Brook Stickleback (*Culaea inconstans*), Common Shiner (*Luxilus cornutus*), Creek Chub (*Semotilus atromaculatus*), Iowa Darter (*Etheostoma exile*), Least Darter (*Etheostoma microperca*), Northern Redbelly Dace (*Phoxinus eos*), Rainbow Trout, White Sucker (*Catostomus commersonii*), and baitfish (Ontario, 2015). A buffer of 15 m is proposed between the tributary and the development limit (Figure 4). Further information is provided in Section 5.8.

5.2 AREA OF NATURAL AND SCIENTIFIC INTEREST

An ANSI is defined as area of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study or education (OMMAH, 2014). ANSIs can be ranked as Provincially or Regionally significant.

The OMNRF NHIC (OMNRF, 2015a and 2020) was searched for the presence of ANSIs within 120 m of the Site. ANSIs were not identified in or within 120 m of the Site.

5.3 SIGNIFICANT HABITAT OF ENDANGERED OR THREATENED SPECIES

The PPS (OMMAH, 2020) defines the habitat of Endangered or Threatened species as the habitat, as approved by the OMNRF, that is necessary for the maintenance, survival and/or the recovery of a naturally occurring or reintroduced population of Endangered or Threatened species as listed in the *Endangered Species Act, 2007 (ESA)*, and where those areas of occurrences are occupied or habitually occupied by the species during all or any part(s) of their life cycle.

As part of the initial desktop review completed in 2017, a search of the OMNRF Natural Heritage Information Centre (NHIC) database (OMNRF, 2015a) was conducted to determine the existence and approximate location of recorded occurrences of Endangered (END) or Threatened (THR) species in the general area. Two (2) one (1) square kilometre (1 km²) quadrats (17MJ9989, 17MH9990) surrounding the Site were checked to ensure potential SAR were accounted for in the search. One (1) restricted species had element occurrences within the areas searched, and no THR or END species were identified during this search. The OMNRF indicated that the restricted species is the Spotted Turtle (*Clemmys guttata*). The NHIC database was reviewed again in 2020; there were no records for the 1 km² squares surrounding the Site. Records for Hungerford's Crawling Water Beetle (*Brychius hungerfordi*) (END) and Snapping Turtle (*Chelydra serpentina*) (SC) exist for a square (17MJ9689) approximately 1 km west of the Site.

In addition to a search of the NHIC database, the Ontario Breeding Bird Atlas (OBBA) (Bird Studies Canada et al., 2006) and Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature, 2017) were consulted to determine if there were SAR species known to be present within the vicinity of the Site. The OBBA uses 100 km by 100 km blocks, further subdivided into 10 km by 10 km squares to compartmentalize geographical areas. The Site lies in the squares identified as 17MJ99 and 17MH98. Chimney Swift (*Chaetura pelagica*) (THR), Eastern Whip-poor-will (*Caprimulgus vociferus*) (THR), Bank Swallow (*Riparia riparia*) (THR), Barn Swallow (*Hirundo rustica*) (THR), Bobolink (*Dolichonyx oryzivorus*) (THR), and Eastern Meadowlark (*Sturnella magna*) (THR) had breeding evidence values within this square. The ORAA, which also uses 10 km by 10 km squares, had no Endangered or Threatened species records for the square surrounding the Site.

Midhurst District OMNRF was contacted for information pertaining to SAR in the general area. The OMNRF provided a list of SAR known from west Grey County, which included the following SAR species: Barn Swallow (THR), Bank Swallow (THR), Bobolink (THR), Chimney Swift (THR), Eastern Meadowlark (THR), Eastern Whip-poor-will (THR), Redside Dace (*Clinostomus elongatus*) (END), Hungerford's Crawling Water Beetle (END), American Badger (*Taxidea taxus*) (END), Eastern Small-footed Myotis (*Myotis leibii*) (END), Little Brown Myotis (*Myotis lucifugus*) (END), Northern Myotis (*Myotis septentrionalis*) (END), Tricolored Bat (*Perimyotis subflavus*) (END) and Butternut (END).

Based on the available habitat throughout the general area, the following species may find habitat within the Site: Eastern Small-footed Myotis (END), Little Brown Myotis (END), Northern Myotis (END), Tricolored Bat (END) and Butternut (END).

Refer to Table 2 below for an assessment of habitat potential in or within 120 m of the Site for the above mentioned Endangered or Threatened species. Species of Special Concern (SC) are treated in Section 5.6.4 of this report.

Table 5-1 Endangered and Threatened species with potential to be within 120 m of the Site

SPECIES NAME	SARO ¹	COSEWIC ²	HABITAT DESCRIPTION ³	HABITAT AND SPECIES' PRESENCE POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
Bank Swallow	THR	THR	Bank Swallows nest in burrows in natural and man-made settings, wherever there are silt or sand deposits. Nests are often along riverbanks and in aggregate pits.	Low	This species was not observed and suitable nesting habitat, such as sandy or muddy riverbanks was not identified within 120 m of the Site. Bank Swallows are found in the general area and may occasionally forage over the Site.
Barn Swallow	THR	THR	Barn Swallows often live in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges and in culverts. This species forages over a wide area.	Low	This species was not observed during the Site investigations, and suitable nesting structures were not identified within the Site. Barn Swallows are found in the general area and may opportunistically forage over the Site.
Bobolink	THR	THR	This species builds its nests on the ground in dense grasses, such as those found in hayfields, tallgrass prairies and open meadows.	Low	This species was not observed during the Site investigations, and suitable habitat was not identified within the Site. The only option part of the Site was dominated by Annual Row Crops (OAGM1), and suitable pastures or meadows were not identified. Bobolinks nest in the general area and may pass through the Site during their spring and autumn migration.

SPECIES NAME	SARO ¹	COSEWIC ²	HABITAT DESCRIPTION ³	HABITAT AND SPECIES' PRESENCE POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
Butternut	END	END	The species is found in deciduous forests in areas with rich, moist, well-drained soils and is often found along streams. Due to its low tolerance for shade, this species is typically found in sunny openings or along forest edges.	Low	This species was not observed during the vegetation surveys on the Site. Ideal rich deciduous forest ecotypes with well-drained soils were not identified within the Site. The Dry - Fresh Sugar Maple - Eastern Hemlock Mixed Forest (Figure 3; FOM3-2) along the south bank of the Saugeen River suitable habitat for Butternut however, the species was not observed.
Chimney Swift	THR	THR	The species feeds in flocks around waterbodies due to a large number of insects present. Nesting occurs in large, hollow trees or in the chimneys of houses in urban and rural areas.	Low	This species was not observed and suitable habitat was not identified within the vicinity of the Site. Chimney Swifts nest in the general area and likely forage over the Site.
Eastern Meadowlark	THR	THR	This species prefers native grasslands, pastures and savannahs though will use a variety of other grassland habitats such as hayfields, weedy meadows, etc.	Low	This species was not observed during the Site investigations, and suitable habitat was not identified within the Site. The only option part of the Site was dominated by Annual Row Crops (Figure 3; OAGM1), and suitable pastures or meadows were not identified. Eastern Meadowlarks nest in the general area and may pass through the Site during their spring and autumn migration.

SPECIES NAME	SARO ¹	COSEWIC ²	HABITAT DESCRIPTION ³	HABITAT AND SPECIES' PRESENCE POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
Eastern Small-footed Myotis	END	-	This species roosts in a variety of habitats including rock outcrops, in buildings, under bridges, in caves, and in hollow trees. During the winter they hibernate, most often in caves and abandoned mines.	Moderate	This species was not observed and suitable man-made structures were not identified at the Site. Potential for maternity roost habitat may be present within the treed area in the centre of the Site (Figure 3; FOD6-1 and Figure 4). The preferred species (mature > 25 cm DBH <i>Acer</i> sp. and <i>Quercus</i> sp.) were observed during field investigations including cavities and loose bark.
Eastern Whip-poor-will	THR	THR	This species avoids exposed, open areas or closed-canopy forests, and prefers rock or sand barrens with scattered trees, savannahs, and open conifer plantations.	Low	This species was not observed and suitable habitat was not identified within 120 m of the Site.
Hungerford's Crawling Water Beetle	END	END	This beetle is found in small to medium-sized streams with cool, high quality, fast-flowing water, often immediately downstream from beaver dams, culverts and man-made barriers.	Moderate to High	This species was not observed, but suitable habitat may be found in the Saugeen River.

SPECIES NAME	SARO ¹	COSEWIC ²	HABITAT DESCRIPTION ³	HABITAT AND SPECIES' PRESENCE POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
Little Brown Myotis	END	END	During the summer, this species roosts in trees, abandoned buildings, attics, and barns close to water. This species overwinters in large groups in warm, moist caves or abandoned mines.	Moderate	This species was not observed and suitable man-made structures were not identified at the Site. Potential for maternity roost habitat may be present within the treed area in the centre of the Site (Figure 3; FOD6-1 and Figure 4). The preferred species (mature > 25 cm DBH <i>Acer</i> sp. and <i>Quercus</i> sp.) were observed during field investigations including cavities and loose bark.
Northern Myotis	END	END	This mainly solitary species is most commonly associated with the boreal forest where they roost in tree cavities or under loose bark. Over-wintering occurs in caves or abandoned mines that remain above freezing.	Moderate	This species was not observed. Suitable man-made structures were not identified on the Site. Potential for maternity roost habitat may be present within the treed area in the centre of the Site (Figure 3; FOD6-1 and Figure 4). The preferred species (mature > 25 cm DBH <i>Acer</i> sp. and <i>Quercus</i> sp.) were observed during field investigations including cavities and loose bark.
Redside Dace	END	END	Generally found in pools and slow-moving areas of small headwater streams with a moderate to high gradient.	Low	Suitable habitat for this species was not found on or adjacent to the Site. Furthermore a review of the DFO SAR mapping indicates that the Saugeen River and its tributary in the vicinity of the Site have not been identified as critical or potential habitat for this species (2019).

SPECIES NAME	SARO ¹	COSEWIC ²	HABITAT DESCRIPTION ³	HABITAT AND SPECIES' PRESENCE POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
Spotted Turtle	END	END	This species prefers ponds, marshes, bogs and even ditches with slow-moving, unpolluted water and an abundant supply of aquatic vegetation. It is known from a few small, scattered populations, likely numbering less than 2000 individuals.	Low	This species was not observed. Suitable wetland habitats were not observed within the vicinity of the Site.
Tri-colored Bat	END	END	Tri-colored Bats are found in a variety of mature forested habitats. Maternal colonies are usually in large trees and occasionally in man-made structures such as barns.	Moderate	This species was not observed and suitable man-made structures were not identified at the Site. Potential for maternity roost habitat may be present within the treed area in the centre of the Site (Figure 3; FOD6-1 and Figure 4). The preferred species (mature > 25 cm DBH <i>Acer</i> sp. and <i>Quercus</i> sp.) were observed during field investigations including cavities and loose bark.

Protection status: ¹ SARO - SAR in Ontario and ² COSEWIC - Committee on the Status of Endangered Wildlife in Canada: END - Endangered, THR - Threatened, SC - Special concern, "-" - Not listed. ³ Habitat Description Source: COSEWIC reports and/or SAR in Ontario (SARO) List.

The SAR screening completed in Table 5-1 suggests that the Site and adjacent lands have moderate to high potential to provide habitat for SAR bats and Hungerford's Crawling Water Beetle. SAR bats were identified as having moderate potential for habitat in or within 120 m of the Site, particularly within the FOD6-1 community in the approximate centre of the Site. The Saugeen River is thought to have moderate to high potential for Hungerford's Crawling Water Beetle. No other habitat for THR and/or END SAR was identified to be present within the Site. Impacts and mitigation for these species are provided in Section 6.2.

5.4 SIGNIFICANT WETLANDS

Wetlands are defined in the PPS (OMMAH, 2020) as lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. There are four (4) major wetland types; which are classified as swamps, marshes, bogs, and fens. A significant wetland is defined as an area identified as provincially significant by the Ministry of Natural Resources using evaluation procedures established by the Province, as amended from time to time (OMMAH, 2014). Accordingly, it is the responsibility of the OMNRF to both identify and classify wetlands as significant in Ontario.

No significant wetlands were identified within 120 m of the Site. A review of the NHIC mapping (OMNRF, 2015a and 2020) did not identify provincially significant wetlands (PSW) in or within 120 m of the Site. Based on mapping within the HOP (Town of Hanover, 2016) and CGOP (County of Grey, 2019) wetlands of local significance are not known to occur within or adjacent to the Site.

Available mapping (OMNRF, 2020), showed an unevaluated wetland in the southeast quadrant of the Site (Figure 2). This wetland appeared to be associated with the tributary of the Saugeen River. Fieldwork completed by WSP resulted in revisions to this wetland feature and further delineation of unmapped wetlands using ELC (Figure 3). A Mixed Forb Mineral Meadow Marsh (MAM2-10), Mixed Forb Organic Meadow Marsh (MAM3-9) and Coniferous Swamp (SWC) were identified within the riparian corridor of the tributary of the Saugeen River south of the agricultural field (Figure 3). A Narrow-leaved Sedge Mineral Meadow Marsh (MAM2-5) / Red Top - Graminoid Mineral Meadow Marsh (MAM2-3) was also observed in the southeast corner of the Site adjacent to Grey Road 28. The northern extent of these wetlands is suspected to be partially influenced by tile drains in the agriculture field, as evidenced by seeps and drainage pathways observed at the field-wetland interface.

Field investigations also identified several small, wetlands pockets within the northern part of the Site. Pocket wetlands included a Mixed Forb Meadow Marsh (MAM2-10) and A Narrow-leaved Sedge Mineral Meadow Marsh (MAM2-5) south of the Saugeen River, adjacent to the Hanover Community Tail system; and a Mixed Forb Meadow Marsh (MAM2-10) identified within the central treed area in the northeast quadrant.

The wetland pockets adjacent to the trail system are likely the result of anthropogenic activities within the hydro-corridor that have created compacted soils and topographic depressions where water pools seasonally. Spring Peepers were observed calling in abundance in the center of this area, however, the wetlands do not meet the criteria for SWH for amphibian breeding (Refer to Section 4.4.2 and 5.6).

The central wetland is suspected to be groundwater fed due to the presence of Marsh Marigold (*Caltha palustris*) and watercress (*Nasturtium sp.*). This wetland may also be influenced by agricultural tile drainage as it occurs in an upland area and is not located within the floodplain.

Wetlands within the Site were relatively small, did not contain fish habitat or SWH, and did not appear to contain other characteristics that would qualify them as significant. Furthermore, they were not mapped as locally significant wetlands in the HOP (Town of Hanover, 2016) or CGOP (County of Grey, 2019).

An assessment of impacts and recommended mitigation for wetlands is provided in Section 6.3

5.5 SIGNIFICANT COASTAL WETLANDS

Wetlands are defined in the PPS (OMMAH, 2020) as lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. There are four (4) major wetland types; which are classified as swamps, marshes, bogs, and fens. Coastal wetlands are wetlands located on one (1) of the Great Lakes or their connecting channels, or any other wetland that lies on a tributary to any of the above specified waterbodies and lies, either wholly or in part, downstream of a line located 2 km upstream of the 1:100 year floodline of the detention pond in which the tributary is connected.

A review of the NHIC mapping (OMNRF, 2015a and 2020) did not identify significant coastal wetlands within 120 m of the Site.

5.6 SIGNIFICANT WILDLIFE HABITAT

Wildlife habitat is defined as areas where plants, animals, and other organisms live and find adequate amounts of food, water, shelter, and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where

species concentrate at a vulnerable point in their annual life cycle; and areas that are important to migratory or non-migratory species (OMMAH, 2014).

Wildlife habitat is referred to as significant if it is 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 (OMMAH, 2014).

Guidelines and criteria for the identification of SWH are detailed in the Significant Wildlife Habitat: Technical Guide (OMNR, 2000), and the Significant Wildlife Habitat Criterion Schedule for Ecoregion 6E (OMNRF, 2015b). SWH is described under four main categories:

- Seasonal concentrations of animals;
- Rare vegetation communities or specialized habitats for wildlife;
- Wildlife movement corridors; and,
- Habitats of species of conservation concern.

5.6.1 SEASONAL CONCENTRATIONS OF ANIMALS

Areas of seasonal concentrations of animals are defined as “areas where animals occur in relatively high densities at specific periods in their life cycle and/or particular seasons.” At these times, species are vulnerable to ecological interferences or weather impacts. Areas of seasonal concentration are typically small in comparison to the larger habitat areas used by species at other times of the year. Examples include migrant stopover areas for birds, winter deer yards, bird breeding colonies, amphibian concentration areas, and hibernacula for snakes or bats. The identification of habitats associated with seasonal concentrations of species is typically based on known occurrences (MNR, 2000).

An assessment was carried out to determine the potential for wildlife concentration areas in the Site. Resources and protocols outlined in the Significant Wildlife Habitat Technical Guide (OMNR, 2000) and the Significant Wildlife Criterion Schedule for Ecoregion 6E (OMNRF, 2015) were utilized to evaluate the potential for species concentration area occurrence. Seasonal concentration areas with the potential to be on or within 120 m of the Site are examined in Table 3, below.

Table 5-2 Seasonal Concentration Areas within 120 m of the Site

HABITAT TYPE	CANDIDATE SWH CRITERIA AND SITE INVESTIGATION RESULTS
Waterfowl Stopover and Staging Areas (Terrestrial)	Habitat is not present. Open meadows or fields that appeared to flood seasonally were not identified in or within 120 m of the Site.
Waterfowl Stopover and Staging Areas (Aquatic)	Waterbodies of a suitable size were not identified in or within 120 m of the Site.
Shorebird Migratory Stopover Area	Habitat was not identified and shorebirds were not observed. Un-vegetated shoreline habitats, mudflats, and sandbars were not present surrounding the water features in and within 120 m of the Site.
Raptor Wintering Area	Habitat is not present. Raptor wintering sites consist of a combination of fields and woodlands > 20 ha in size. Candidate species were not identified, and woodlands of suitable size were not identified in or within 120 m of the Site.
Bat Hibernacula	Habitat is not present. No caves, mine shafts, underground foundations or karsts were found in or within 120m of the Site.
Bat Maternity Colonies	Potential for maternity roost habitat may be present within the FOD6-1 vegetation community in the approximate centre of the Site (Figure 3). Preferred species (mature > 25 cm DBH <i>Acer</i> sp. and <i>Quercus</i> sp.) with cavities and loose bark were present.
Turtle Wintering Areas	Habitat is not present. The wetlands in the Site do not provide suitable overwintering habitat.
Reptile Hibernacula	Areas of bedrock and rock fissures most commonly associated with snake hibernacula were not identified in or within 120 m of the Site. The Site is unlikely to represent a significant seasonal concentration area for reptiles.
Colonially-nesting Bird Breeding Habitat (Bank/Cliff)	Habitat is not present.
Colonially-nesting Bird Breeding Habitat (Tree/Shrub)	Habitat is not present. Nests within live or dead trees, shrubs or emergent vegetation that would signify the area is used by colonial tree/shrub-nesting birds were not observed within wetland areas in the Site.
Colonially-nesting Bird Breeding Habitat (Ground)	Habitat is not present. The Site does not contain areas with rocky islands or peninsulas that are suitable for colonial ground-nesting birds such as gulls and terns. In addition, the preferred nesting habitat for Brewer's Blackbird (<i>Euphagus cyanocephalus</i>), which includes agricultural fields close to clear, flowing water was not present.
Migratory Butterfly Stopover Areas	Habitat not present. The Site is not within 5 km of Lake Ontario or Lake Erie.
Landbird Migratory Stopover Areas	Habitat not present. The Site is not within 5 km of Lake Ontario or Lake Erie.
Deer Yarding Areas	OMNRF determines this habitat. No records of Deer Yarding Areas in or within 120m of the Site were identified by the OMNRF during the information request.
Deer Winter Congregation Areas	OMNRF determines this habitat. No records of Deer Winter Congregation Areas were identified by the OMNRF during the information request.

There is potential for Bat Maternity Colonies SWH within the Site (refer to Section 5.3). Impacts and mitigation for bats are provided in Section 6.2. MECP should be consulted to confirm whether approvals and/or permitting under the ESA is required for the removal of this habitat.

5.6.2 RARE VEGETATION COMMUNITIES/ SPECIALIZED HABITATS FOR WILDLIFE

Rare or specialized habitats include rare vegetation communities or concentrations of rare plant species. In Ecoregion 6E rare vegetation communities include cliff and talus slopes, alvars, sand barrens, savannahs, tallgrass prairies and old-growth forests. These specialized habitats may also support rare animal species (OMNR, 2000). None of the vegetation communities identified in the Site are designated as rare or threatened in this region.

Rare or specialized habitats include rare vegetation communities or concentrations of rare plant species. These specialized areas may also support rare animal species. The Site lacked significant old-growth forest features which, if present, might provide specialized habitats and food sources for other species dependent on these features. The vegetation communities identified within 120 m of the Site were not designated as rare or threatened in Ontario. An assessment of the presence/absence of rare vegetation communities and specialized wildlife habitat for this ecoregion is provided in Tables 4 and 5, below.

Table 5-3 Rare Vegetation Communities within 120 m of the Site

HABITAT TYPE	CANDIDATE SWH CRITERIA AND SITE INVESTIGATION RESULTS
Cliffs and Talus Slopes	Habitat is not present.
Sand Barren	Habitat is not present.
Alvar	Habitat is not present. Calcareous bedrock is not present in this area. Furthermore, characteristic alvar plant species were not observed in or within 120 m of the Site.
Old Growth Forest	Habitat is not present.
Tallgrass Prairie	Habitat is not present. Tallgrass Prairie and associated plant species were not identified in or within 120 m of the Site.
Savannah	Habitat is not present. Savannah vegetation communities were not observed in or within 120 m of the Site.
Other Rare Vegetation Communities	Habitat is not present. The Site was not identified as a Rare Vegetation Community within OMNRF searches or through the site investigations.

None of the above-noted rare vegetation communities were observed in or within 120 m of the Site.

Table 5-4 Specialized Wildlife Habitats within 120 m of the Site

HABITAT TYPE	CANDIDATE SWH CRITERIA AND SITE INVESTIGATION RESULTS
Waterfowl Nesting Area	Habitat is not present. The combination of habitats in and within 120 m of the Site are not consistent with habitat criteria; furthermore, target wildlife species were not observed during the site investigations.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Habitat is not present. The forested banks of the Saugeen River may provide suitable habitat; however, stick nests were not observed in or within 120 m of the Site. Furthermore, there were no Bald Eagles or Osprey observed during the field investigations.
Woodland Raptor Nesting Habitat	Habitat not present. Woodlands > 30 ha in size, with > 10 ha of interior habitat are not present in or within 120 m of the Site. Furthermore, there were no stick nests or raptors observed during the site investigations.
Turtle Nesting Areas	Habitat is not present. Suitable nesting areas were not observed in or within 120 m of the Site. There is some potential for turtle nesting along the banks of the Saugeen River, however, the lack of suitable wetlands (i.e., shallow marsh, open bog or fen) within the Site make it unlikely that turtles utilize the Site for significant portions of their life cycle.
Seep / Spring	Seeps identified (Figure 2) did not meet criteria for SWH. The presence 2 or more seeps/springs adjacent to each other is to be considered SWH, however, human-made seeps (e.g. created by tile drainage) are not to be considered SWH. The treed sloped located north of the Hanover Community Trail may contain additional seeps then observed. Impacts to this slope and corresponding seep are not expected as a 30 m setback from the Saugeen River will be applied to protect this area.
Amphibian Breeding Habitat (Woodland)	Habitat is not present. Wetlands within the Site were surveyed for the presence of breeding amphibians. Results from the surveys indicate that the threshold for significance was not met (i.e., only one of the listed frog species, Spring Peeper, was found to have at least 20 individuals or call level code of 3).
Amphibian Breeding Habitat (Wetlands)	Habitat is not present. Wetlands within the Site are within 120 m of woodlands. Refer to above criteria.
Woodland Area-Sensitive Bird Breeding Habitat	Habitat is not present. Interior woodland habitat is not present in or within 120 m of the Site and only one of the listed species (Red-breasted Nuthatch) was identified within the Site.

None of the above-noted specialized wildlife habitats were observed in or within 120 m of the Site.

5.6.3 ANIMAL MOVEMENT CORRIDORS

Animal Movement Corridors are defined as “elongated, naturally vegetated parts of the landscape used by animals to move from one habitat to another. They exist at different scales and frequently link or border natural areas. Animal Movement Corridors encompass a wide variety of landscape features including riparian zones and shorelines, wetland buffers, stream and river valleys, woodlands, and anthropogenic features such as hydro and pipeline corridors, abandoned road and rail allowances, and fencerows and windbreaks. The Natural Heritage Component of the PPS states that the diversity and connectivity of natural features should be maintained, restored or improved, where possible (OMMAH, 2020). In southern Ontario, Animal Movement Corridors often consist of vegetated areas that run through more developed areas. Other

examples include undeveloped lake shorelines, forested river valleys, and riparian vegetation. Within Ecoregion 6E, candidate animal movement corridors include Amphibian Movement Corridors. Amphibian movement corridors are only determined if amphibian breeding habitat (wetlands) is confirmed as SWH. As no candidate areas of amphibian breeding habitat (wetlands) were identified within 120 m of the Site, amphibian movement corridors do not apply.

5.6.4 HABITATS OF SPECIES OF CONSERVATION CONCERN

Species of Conservation Concern generally include the groups listed below:

- Species defined as Special Concern in Ontario;
- Species that are listed as rare or historical in Ontario based on records kept by the NHIC;
- Species whose populations are known to be experiencing significant declines in Ontario; and
- Species that have a high percentage of their global population in Ontario and are rare or uncommon in the subject area.

For Endangered or Threatened refer to Section 5.3.

A search of the OMNRF NHIC database (OMNRF, 2015a) was conducted to determine the existence and approximate location of recorded occurrences of Species of Conservation Concern (SCC) within the general area. Two (2) one square kilometre (1 km²) quadrats (17MJ9989, 17MH9990) surrounding the Site were checked to ensure potential SCC were accounted for in the search. The NHIC database was reviewed again in 2020; there were no records for the 1 km² squares surrounding the Site. A record for Snapping Turtle (SC) exists for a square (17MJ9689) approximately 1 km west of the Site.

In addition to a search of the NHIC database, the OBBA (Bird Studies Canada et al., 2006) and ORAA (Ontario Nature, 2017) were consulted to determine if there were species of Special Concern (SC) known to be present within the vicinity of the Site. The OBBA uses 100 km by 100 km blocks, further subdivided into 10 km by 10 km squares to compartmentalize geographical areas. The Site lies in the squares identified as 17MJ99 and 17MH98. Red-shouldered Hawk (*Buteo lineatus*) (SC), Common Nighthawk (*Chordeiles minor*) (SC), Red-headed Woodpecker (*Melanerpes erythrocephalus*) (SC), Eastern Wood-Pewee (*Contopus virens*) (SC), Wood Thrush (*Hylocichla mustelina*) (SC) and Grasshopper Sparrow (*Ammodramus savannarum*) (SC) had breeding evidence values within this square. The ORAA also uses 10 km by 10 km squares, which indicated no SC with records from the square surrounding the Site.

Midhurst District OMNRF was contacted for information pertaining to SAR in the general area. The OMNRF provided a list of SAR known from west Grey County, which included the following species of SC: Canada Warbler (*Cardellina canadensis*), Common Nighthawk, Eastern Wood-Pewee, Golden-winged Warbler (*Vermivora chrysoptera*), Grasshopper Sparrow, Red-headed Woodpecker, Wood Thrush, Monarch (*Danaus plexippus*), Rainbow Mussel (*Villosa iris*), Hart's Tongue Fern (*Asplenium scolopendrium*), Eastern Ribbonsnake (*Thamnophis sauritus*) and Snapping Turtle.

An assessment of the habitat potential for the above-mentioned species in and within 120 m of the Site is provided in Table 6, below. These species were given special consideration during the site investigations. A Wood Thrush was the only SCC observed/heard during the site investigations.

Table 5-5 Special Concern and Rare Wildlife Species with the Potential to be within 120 m of the Site

SPECIES NAME	SARO ¹	COSEWIC ²	HABITAT DESCRIPTION ³	HABITAT AND SPECIES' PRESENCE POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
Canada Warbler	SC	THR	The species is found in a variety of forest types but is most abundant in wet, mixed deciduous-coniferous forests with a well-developed shrub layer. Also found in riparian shrub forests.	Low	This species was not observed during the breeding bird surveys (Section 4.3.2) or at any other point during the site investigations. Suitable forest ecotypes were not identified within 120 m of the Site. The forests along the south bank of the Saugeen River (FOM3-2, FOM7-2) exhibited some habitat potential; however, this species generally prefers a dense shrub layer and wetland associated ecosystems, which was not observed within the Site.
Common Nighthawk	SC	THR	The species nests in areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings and open rock barrens.	Low	This species was not observed and suitable habitat was not identified in or within 120 m of the Site.
Eastern Ribbonsnake	SC	SC	Eastern Ribbonsnakes are predominately found along the edges of large wetlands containing an abundance of shrubby vegetation. They can also be found in open woodlands that are adjacent to these wetlands.	Low	This species was not observed. Suitable large, shrubby wetlands adjacent to upland forest ecotypes were not identified in or within 120 m of the Site.
Eastern Wood-Pewee	SC	SC	Eastern Wood-Pewees prefer deciduous and mixedwood forests. They are often observed sallying to capture flying insects from an exposed perch high in the canopy.	Moderate	This species was not observed during the breeding bird surveys (Section 4.3.2) or at any other point during the site investigations. The forest ecotypes along the south bank of the Saugeen River (FOM3-2, FOM7-2) and the treed area south of the Hanover Community Trail (FOD6-1) provide moderate habitat for Eastern Wood-Pewee.

SPECIES NAME	SARO ¹	COSEWIC ²	HABITAT DESCRIPTION ³	HABITAT AND SPECIES' PRESENCE POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
Golden-winged Warbler	SC	THR	Golden-winged Warblers are found in shrubby areas surrounded by woodlands, such as utility right-of-ways, field edges, and logged areas.	Low	This species was not observed during the breeding bird surveys (Section 4.3.2) or at any other point during the site investigations. Suitable habitat was not identified in or within 120 m of the Site.
Grasshopper Sparrow	SC	SC	Grasshopper Sparrows prefer open grassland with well-drained sandy soils. They can also be found in hayfields, pastures, alvars, prairies, and occasionally grain crops such as barley.	Low	This species was not observed during the breeding bird surveys (Section 4.3.2) or at any other point during the site investigations. Suitable habitat is not identified in or within 120 m of the Site.
Hart's Tongue Fern	SC	SC	This species prefers calcareous rocks located in areas of deep shade in deciduous forest, preferring maple-beech forest.	Low	This species was not observed and suitable habitats were not present in or within the Site.
Monarch	SC	SC	The species is commonly found in abandoned fields, along roadsides and in other habitats where Milkweed, Goldenrod, Asters and Purple Loosestrife exist.	Low	Habitat potential for Monarchs can be found throughout the cultural areas of the Site. While Common Milkweed (host plant) was observed during the site investigations, only small numbers were noted. The majority of cultural and agricultural areas that would support Monarch host plants were observed to be frequently mowed/tilled.
Rainbow Mussel	SC	SC	This species prefers medium to large rivers with a moderate to strong current and with sandy, gravel or rock substrates. It is often found near riffles and along edges of vegetation in water less than 1 m in depth.	Moderate	Rainbow Mussel is known to be present in the Saugeen River, and there is moderate potential that this species may occur in the reach of the river near the Site.

SPECIES NAME	SARO ¹	COSEWIC ²	HABITAT DESCRIPTION ³	HABITAT AND SPECIES' PRESENCE POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
Red-headed Woodpecker	SC	THR	Red-headed Woodpeckers are found in open deciduous or mixed woodlands, preferring areas with many dead trees including golf courses, cemeteries and parks.	Low	This species was not observed and suitable habitat, such as open woodland with standing dead trees, was not identified in or within 120 m of the Site.
Red-shouldered Hawk	-	SC	This species prefers deciduous or mixed forest containing shade tolerant deciduous trees close to wetland areas.	Low	This species was not observed during the breeding bird surveys (Section 4.3.2) or at any other point during the site investigations. Suitable forest ecotypes were not identified in or within 120 m of the Site.
Snapping Turtle	SC	SC	The species is generally associated with shallow ponds, shallow lakes and streams with abundant vegetation. Suitable nesting habitat includes gravely or sandy areas along streams, gravel shoulders along roadsides, dams and aggregate pits.	Moderate	This species was not observed during the site investigations. The preferred habitat was not identified within the Site. The Saugeen River running along the north boundary of the Site likely contains suitable habitat for foraging, overwintering, and basking. Although high quality habitat does not occur in the Site, Snapping Turtles can be found in the general area and may wander through the Site from time to time.
Wood Thrush	SC	THR	This species is strongly associated with woodlands containing tall trees, usually deciduous forests but occasionally mixed wood forests as well. The presence of a thick understorey is usually a prerequisite for site occupancy.	Moderate to High	This species was heard calling during the May 26, 2020 site visit, in the treed area between the Saugeen River and the Hanover Community Trail; however, it was not documented during the breeding bird surveys (Section 4.3.2). Suitable habitat can be found in FOM3-2, FOM7-2 FOM6-2 and FOD6-1 (Figure 3).

Protection status: ¹ SARO - SAR in Ontario and ² COSEWIC - Committee on the Status of Endangered Wildlife in Canada: END – Endangered, THR – Threatened, SC – Special concern, “-“- Not listed. ³ Habitat Description Source: COSEWIC reports and/or SAR in Ontario (SARO) List.

Based on the assessment there is moderate potential for Eastern Wood-Pewee, Snapping Turtle and Rainbow Mussel within the Site, and moderate to high potential for Wood Thrush. Descriptions are as follows:

- The woodlands present within the Site are relatively fragmented; however, moderate potential still exists for Eastern Wood-Pewee and Wood Thrush, in particular in the woodlands in the north extent of the Site (Figure 3: FOM3-2, FOM7-2, FOM6-2 and FOD6-1). Wood Thrush was heard along the Saugeen River during field investigations, whereas Eastern Wood-Pewee was not observed or heard.
- Snapping Turtle was not observed during the site investigations and preferred wetland habitats are not found within the Site. However, the Saugeen River running along the north boundary of the Site likely contains suitable habitat (e.g. foraging, overwintering, basking) and may result in Snapping Turtles wandering through the Site from time to time. Rainbow Mussel, while not identified during the site investigations, is known to be present within the Saugeen River, and has moderate habitat potential in the reach of the Saugeen River within the vicinity of the Site.
- Species categorized as SC on the SARO list, including Eastern Wood-Pewee, Wood Thrush, Snapping Turtle and Rainbow Mussel, do not receive habitat protection under the ESA (Government of Ontario, 2007). Eastern Wood-Pewee and Wood Thrush are protected under the *Migratory Birds Convention Act, 1994* (Government of Canada, 1994) (MBCA). Potential impacts to these species can be mitigated by implementing the general mitigation measures outlined in Section 6.7.

Other Habitats of Species of Conservation Concern may be found in Ecoregion 6E. An assessment is provided in Table 5-6, below.

Table 5-6 Habitats of Species of Conservation Concern in or within 120 m of the Site

HABITAT TYPE	CANDIDATE SWH CRITERIA AND SITE INVESTIGATION RESULTS
Marsh Breeding Bird Habitat	Habitat is not present. Suitable wetland ecosites (MAM) occur within the Site; however, listed species were not observed during the site investigations.
Open Country Bird Breeding Habitat	Habitat is not present. Large grassland areas, cultural fields or meadows > 30 ha in size are not present in or within the Site. Furthermore, listed species were not observed during the site investigations.
Shrub / Early Successional Bird Breeding Habitat	Habitat is not present. Large field areas > 10 ha in size succeeding to thicket were not present in or within 120 m of the Site. Listed species were not observed during the site investigations.
Terrestrial Crayfish	Habitat is not present. Suitable wetland ecosites (MAM) occur within the Site; however, evidence of burrows or chimneys were not observed during the site investigations.

None of these habitats were identified in or within 120 m of the Site.

5.7 SIGNIFICANT WOODLANDS

Significant Woodlands are defined as treed areas that provide environmental and economic benefits such as erosion prevention, water retention, and provision of habitat, recreation, and the sustainable harvest of woodland products (OMMAH, 2020). Woodlands include treed areas, woodlots or forested areas and vary in their level of significance. The

identification and assessment of Significant Woodlands is the responsibility of the local planning bodies and should be identified using criteria established by the OMNRF. Woodland significance is typically determined by evaluating key criteria that relate to woodland size, ecological function, uncommon woodland species, and economic and social value.

Significant Woodlands are depicted in *Appendix B* of the CGOP (County of Grey, 2019). These woodland boundaries were developed by Grey County with assistance from the OMNRF using Geographic Information Systems. *Section E1.1.3* of the CGOP (County of Grey, 2019) specifies the criteria that must be met in order for a woodland to be considered significant; criteria include woodland size, proximity to other Significant Woodlands, overlap with other NHF, and the size of the interior habitat. Significant Woodlands are also mapped within *Schedule B* of the HOP (Town of Hanover, 2016), in conjunction with the mapping provided in the CGOP (County of Grey, 2019). Both Official Plans specify that woodlands within settlement areas need to be a minimum of 4 ha in size to be considered significant.

The Town of Hanover identifies Significant Woodlands within the Site between the south bank of the Saugeen River and the Hanover Community Trail (Figure 2). The northwest portion of this woodland was identified as Fresh - Moist White Cedar Coniferous Forest (FOC4-1). Continuing east and along the south bank of the Saugeen River, the forest transitioned into Dry - Fresh Sugar Maple - Eastern Hemlock Mixed Forest (FOM3-2), before transitioning again to a Fresh - Moist White Cedar - Hardwood Mixed Forest (FOM7-2), located in the northeast corner of the Site.

Additional forested portions of the Site included the Fresh-Moist White Cedar Coniferous Forest (FOC4-1) and adjacent deciduous and mixed forest ecotypes (FOD6-1, FOM6-2, FOM6-5) located south of the Hanover Community Trail in the northeast portion of the Site. This woodland block is identified in the CGOP (County of Grey, 2019) as significant, but has not yet been adopted as significant in the HOP (Town of Hanover, 2016). Although separated from the Significant Woodland by the old hydro corridor and trail system, the gap is less than 20 m and these units would be considered contiguous with the Significant Woodland, creating a woodland approximately 14 ha in size.

Other wooded areas include the Cultural Woodland (CUW1) and adjacent forest fragments (FOD7-2, FOC4-1) in the southwest corner of the Site, and the Scots Pine Conifer Plantation (CUP3-3) and adjacent Mineral Cultural Woodland (CUW1) located north of the tributary of the Saugeen River in the southeast corner of the Site. These woodland blocks do not qualify as Significant Woodland because they are less than four (4) ha in size.

Expected impacts and mitigation for woodlands is provided in Section 6.4

5.8 SIGNIFICANT VALLEYLANDS

The PPS (OMMAH, 2020) refers to a Significant Valleyland as a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year and is ecologically important in terms of features, functions, representation or amount, and contributes to the quality or diversity of an identifiable geographic region or natural heritage system. The local planning authority is responsible for identifying and evaluating Significant Valleylands.

The County of Grey Official Plan (2019) identifies Significant Valleylands in Appendix B – Constraint Mapping, and while portions of the Saugeen River valleyland are mapped as significant, including the segment east of County Road 28, the portion within the Site is not. Significant Valleyland mapping was completed as part of the 2017 Natural Heritage System Study for the County (NRSI, 2017).

Significant Valleylands have not been mapped by the Town of Hanover; however, streams and rivers are shown on *Schedule B* of the HOP. As specified in Section E.1.1.4 of the HOP (Town of Hanover, 2016), no development shall be permitted within 30 m of the banks of a stream, river, or lake, unless an EIS has been prepared and concludes that the setbacks may be reduced, and / or where it has been determined by the SVCA that these setbacks may be reduced (Town of Hanover, 2016). The Saugeen River has been identified on *Schedule B* of the HOP (Town of Hanover, 2016), and it will be afforded a 30 m buffer.

The tributary of the Saugeen River was identified in the OMNRF's NHIC (OMNRF, 2015a) and was ground-truthed during
the
site

investigations. This watercourse was identified as a permanent stream providing fish habitat to an assemblage of cool and warm water species (Ontario, 2015). Due to the disturbed nature of the riparian corridor, the presence of a subdivision to the immediate south and the low flow of the stream, the tributary provides few ecological and geomorphic functions to the surrounding environment and is unlikely to be used as a wildlife movement corridor. Surface water functions appear to be low due to the low flow rate, and the catchment area for the creek is much smaller than the 50 ha or greater recommended in the Natural Heritage Reference Manual to the Provincial Policy Statement (OMNR, 2010). The tributary of the Saugeen River and its riparian corridor have a low landform prominence with poorly defined valley morphology and is not considered significant. The setback to this feature is determined by the greater of the floodplain or the 15 m setback to the watercourse (Figure 4).

There are no Significant Valleylands within the Site, and as such, specific mitigation measures are not provided. The Saugeen River valley east of County Road 28 is considered significant; however, as it is upstream of the Site impacts to this portion of the valley will not occur as a result of the proposed development, and mitigation is not provided.

5.9 SIGNIFICANT FEATURE SUMMARY

A summary of the significant NHF identified within 120 m of the Site is provided in Table 7, below. This summary is based on a review of available documentation pertaining to the Site and adjacent lands, consultation with regulating agencies, and the completion of the site investigations. Potential impacts and mitigation for impacts to these features is provided in Section 5-7.

Table 5-7 Significant Feature Summary

FEATURE	PRESENT	COMMENT
Fish Habitat	Yes	The Saugeen River along the north boundary of the Site has been identified as cold water fish habitat. A tributary of the Saugeen River is located along the southern boundary of the Site, running west and northwest before flowing into the Saugeen River approximately 80 m west of the Site. It supports an assemblage of cool and warm water fish species.
Habitats of Endangered or Threatened Species	Yes	SAR Bats (END) were determined to have moderate habitat potential within the treed area in the centre of the Site (Figure 3; FOD6-1). Hungerford's Crawling Water Beetle is thought to have moderate to high potential to occur within the Saugeen River.
Areas of Natural and Scientific Interest (ANSI)	No	ANSIs were not identified within 120 m of the Site.
Significant Wetlands	No	A review of the NHIC mapping (OMNRF, 2015a) and official plans did not identify significant wetlands within 120 m of the Site. An unevaluated wetland associated with the tributary of the Saugeen River and several other pocket wetlands were observed during the site investigations. These wetlands are not significant.
Significant Coastal Wetlands	No	Significant Coastal Wetlands were not identified within 120 m of the Site.
Significant Wildlife Habitat	Yes	Based on the assessment there is moderate potential for Eastern Wood-Pewee, Snapping Turtle and Rainbow Mussel within or adjacent to the Site. Wood

		Thrush was heard in the forest adjacent to the Saugeen River and is thought to have moderate to high potential to occur in and within 120 m of the Site.
Significant Woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River)	Yes	A Significant Woodland was identified within the Site and included part of the forest ecotypes between the south bank of the Saugeen River and the Hanover Community Trail.
Significant Valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River)	Yes	Significant Valleylands were not identified within the Site. Significant Valleyland mapping for the County of Grey (County of Grey, 2019), indicates that the Saugeen River valley, east of County Road 28 is considered significant.

6 IMPACT AND MITIGATION MEASURE DISCUSSION

Fish Habitat, Significant Habitat for Endangered or Threatened Species, wetlands (non-significant), SWH (Habitat of Species of SC), Significant Woodlands, and Significant Valleylands were identified within and/or adjacent to the Site. The Saugeen River valley east of County Road 28 is considered significant; however, as it is upstream of the Site impacts to this portion of the valley will not occur as a result of the proposed development and mitigation is not provided.

The following impact assessment and mitigation discussion is based on the preliminary lot design and configuration presented in Figure 4. The extent of development, associated impacts to identified NHFs and specific mitigation recommendations will be fine-tuned during the later stages of approval for this project. General mitigation measures (Section 6.7) have also been provided to address typical construction-related impacts.

It is WSP's opinion that this report demonstrates that development of the Site can occur in a manner that conforms with the applicable Provincial, County and Municipal policies. Mitigation actions provided below are considered appropriate to avoid, minimize, mitigate and/or compensate for the anticipated impacts to natural features on or adjacent to the Site.

6.1 FISH HABITAT

Fish are sensitive to environmental impacts that physically alter, destroy, or reduce the size of preferred habitats or spawning areas. Impacts that reduce fringe vegetation required for reproduction processes will also significantly affect species viability. Fish are also intolerant of substantial variations in temperature, substrate siltation, water toxicity, oxygen depletion, or turbidity.

The MNRF recommends the establishment and/or retention of natural vegetated cover for the protection of fish habitat. A minimum buffer of 15 m is required for all warm water fish habitat, while extended buffers of at least 30 m are required as setbacks from cold water fish habitat (OMNR, 2010). The Saugeen River supports a cold water fishery, and as such a minimum 30 m setback is required from the normal high-water mark. No development is proposed within 30 m of the river; however, to further ensure that fish habitat is not negatively impacted by the proposed development, the following mitigation measures are recommended:

Direct impacts on the Saugeen River are not expected given in-water works or works within the riparian habitat are not likely to occur. Indirect impacts include the potential for sedimentation and erosion entering the Saugeen River including deleterious substances such as sediment, fuel, oil, and lubricants associated with the use of heavy machinery/grading at the stable top of the slope (Figure 4).

Impacts on the south tributary focus on the creation of the road connection from 17th Street to the proposed subdivision and

the creation of structures (e.g. houses) adjacent to the regional floodplain limit. Direct impacts include encroachment into the tributary's riparian and/or in-stream vegetation and the temporary disruption of flow/potential fish passage during the construction of the crossing. Indirect impacts include temperature changes based on runoff/tile drainage entering the stream and potential sedimentation and erosion entering the tributary. General mitigation for potential impacts to fish and fish habitat are provided below; however, it is understood that a more detailed mitigation plan will need to be developed at later stages of design (e.g. detailed design) once more information for the crossing is available.

Both watercourses are within Hazard Lands under the HOP (Town of Hanover, 2016) and CGOP (County of Grey, 2019). Fish Habitat setbacks incorporate the stable top of slope and Regional Floodplain, and are expected to be sufficient to encompass the lands identified as Hazard Lands. Additional studies requested by the SVCA for Hazard Land compliance may be required.

6.1.1 FISH HABITAT MITIGATION

Recommended mitigation measures include:

- Setbacks of 30 m and 15 m are proposed for the Saugeen River and tributary to the Saugeen River, respectively (Figure 4). Naturally vegetated buffers between the development limit and fish habitat will provide controls and ecological benefits with respect to the transport of sediments, nutrients, contaminants, and increased turbidity.
- In-water works will be required to construct the road across the tributary. A detailed mitigation plan will need to be prepared at later stages of design once the final footprint of impact and construction details are understood. The MNRF should be consulted to confirm the in-water works timing window prior to engaging in any works.
- Develop and implement an ESC and de-watering (e.g. discharge/tile drainage decommission) plan for the site that minimizes the risk of sedimentation and/or temperature changes on the watercourses during all phases of the project. As part of this plan, temporary heavy-duty siltation fencing should be employed between the areas of the proposed development and the Saugeen River and tributary to the Saugeen River to reduce or eliminate the transport of sediments, nutrients, contaminants, and increased turbidity on these features. Siltation fencing should be installed before work on the Site begins, and removed after the threat of siltation effects has ceased.
- Ensure a Spills Management Plan (including materials, instructions regarding their use, education of contract personnel, emergency contact numbers) is onsite at all times for implementation in event of an accidental spill during construction. Adequate measures to prevent or capture and contain debris and spills resulting from construction activities should be kept onsite in sufficient quantities. Staff should be orientated as to the location of materials and their proper use and disposal. All measures and procedures should conform to pertinent provincial requirements.

6.2 SIGNIFICANT HABITAT OF ENDANGERED OR THREATENED SPECIES

Endangered and Threatened species and their habitat are protected under the ESA. SAR bats (END) were identified to have a moderate likelihood to have a habitat and be present within the Site. Potential for maternity roost habitat may be present within the treed area in the centre of the Site, south of the Hanover Community Trail system (Figure 3; FOD6-1), however, bat use was not confirmed. No observations of bats occurred during field investigations and targeted bat surveys were not completed. Moderate potential was assigned due to the presence of mature (> 25 cm dbh) *Acer sp.* and *Quercus sp.* with cavities and loose bark within the FOD6-1 community. These potential roost trees were observed in low abundance

during field investigations. Grading and site preparation activities are expected to result in the removal of the entire FOD6-1 community (approximately 0.8 ha) based on the proposed subdivision lot design (Figures 2 and 4). Removal of this potential habitat is expected to have a minimal impact on the species given the large forest extent in the surrounding area, specifically along the Saugeen River.

Occurrences of Hungerford's Crawling Water Beetle have been documented within the Saugeen River in the vicinity of the Site, and it is assumed that there is moderate to high potential for suitable habitat for this species adjacent to the Site. Mitigation measures provided to avoid impacts to fish and fish habitat associated with the Saugeen River will provide additional protection for this species and its habitat. Additional mitigation is not provided.

6.2.1 BAT MITIGATION

To compensate for the potential habitat loss associated with the FOD6-1 removal, the following mitigation measures are proposed:

- To offset the removal of approximately 0.8 ha of FOD6-1 woodland, mitigation in the form of habitat replacement at a minimum 1:1 ratio by land area is recommended through appropriate native plantings. Plantings may be completed at an off-site location but should be located as close to the Site as possible. Native species that tend to provide suitable roosting habitat (e.g. *Acer sp.* and *Quercus sp.*) should feature prominently within the planting plan where bat replacement habitat is proposed.
- Installation of a large rocket bat box (typically houses 200 to 300 bats) within the Site (e.g. within the floodplain to the tributary of the Saugeen River) or at an off-site location.
- Vegetation removal shall occur between October 1st and March 31st of any given year to ensure that no direct harm occurs to SAR bat individuals (including potential day-roosting bats).

Consultation with MECP is recommended to confirm the proposed compensation is sufficient to address potential impacts to bats and bat habitat. Additional studies may be required by the MECP to ensure compliance with the ESA.

6.3 WETLANDS (NON-SIGNIFICANT)

No significant wetlands were identified within 120 m of the Site. Wetlands identified within the Site included those associated with the tributary of the Saugeen River and pocket wetlands, including one within the central forest area south of the Hanover Community Tail system, and several within the hydro-corridor adjacent to the Hanover Community Trail system (refer to Section 5.4 and Figure 3).

To achieve the appropriate unit density for the subdivision, it is anticipated that unavoidable impacts to some of these wetlands will occur. Anticipated impacts include the removal of the following wetland areas:

- The north edge of the wetland along the tributary;
- Wetlands associated with the road connection to 17th Street along the south tributary;
- Wetland pockets within the hydro-corridor; and,
- The central wetland pocket within the forested area, south of the Hanover Community Tail system (Figure 4).

The CGOP (County of Grey, 2019) Section 3.5.5 states that for the Town of Hanover, it is recommended that a minimum development density of 25 units per hectare be achieved for all new developments. In this case, the limit of development has been determined by the 30 m setback to the Saugeen River, and the greater of the 15 m setback to the tributary and the regional flood limit. These buffers balance the protection of sensitive fish habitat and a large proportion of the wetlands within the Site, while improving the density threshold for this development.

The northern edge of the wetlands along the tributary are thought to be partially influenced by the tile/intermittent surface drainage from the agriculture field, which was evidenced by seeps and drainage pathways observed at the field-wetland interface. The north limit of these wetlands may shift when the agricultural tile drainage is removed as part of the proposed development. Alterations to the floodplain are not proposed as part of this development, and as such, it is

anticipated that seasonal flooding will continue to contribute to the maintenance of wetland areas closest to the tributary and within the floodplain. Functions associated with flood attenuation are not expected to be impacted by the proposed removals. Native shrub planting at the edge of the retained wetlands is recommended to delineate the wetland limit and prevent future impacts by residents (e.g. mowing, structure encroachment). Compensation for loss of wetlands north of the Regional Floodplain limit for lot grading and development, and road access to 17th Street is recommended.

The wetland within the hydro-corridor consists of cultural vegetation that is likely the result of anthropogenically compacted soil. This area is not considered SWH and adds limited value to adjacent significant ecological systems within the Site (e.g. the Significant Woodland). Compensation for this area is therefore not recommended.

The central wetland is likely the result of agricultural drainage and changes in the topography which causes the water table to be at the surface. This wetland is proposed to be removed to facilitate the development of the northeasterly lots (39, 40 and 41). Compensation for removal of this wetland is recommended.

In total, approximately 2,198.2 sq. m. of wetland habitat is proposed to be removed from within the Site (Figure 4). These wetlands did not appear to contain characteristics that would qualify them as significant (i.e., they did not contain ecologically sensitive wildlife [including fish] or flora species) and did not provide significant hydrological functions, though they likely contribute to flood attenuation. Nevertheless, it is recommended that the wetland removals be offset through off-site wetland compensation.

6.3.1 WETLAND MITIGATION

To mitigate impacts to remaining wetlands, and compensate for wetland removals, the following measures are recommended:

- The development limit along the southern boundary of the subdivision is based on the greater of the 15 m setback to the tributary of the Saugeen River and its floodplain (Figure 4). Tree and vegetation removal is prohibited beyond the development limit, to preserve and protect the ecological and hydrological functions of Saugeen River tributary and associated wetlands. The proposed development limit will protect the majority of the wetlands within the riparian corridor.
- Minimize vegetation clearing to the extent possible. Clearly delineate vegetation clearing zones and vegetation retention zones (i.e. using silt fencing or other temporary fencing) on both the construction drawings and in the field with the Contractor prior to clearing and grading.
- Ensure that a spills management plan is in effect for the construction area.
- Implement an Erosion and Sedimentation Control (ESC) plan to minimize the risk of potential impacts from sedimentation on the water quality and quantity within wetlands and surface water features.
- Changes to existing land contours and drainage patterns due to grading should be minimized to ensure that significant changes to site hydrology do not occur.
- Native shrub plantings are recommended along the limit of the retained wetlands to delineate the wetland boundary and deter residents from mowing or gardening within the wetland limit
- Compensation for wetland removals should occur at a minimum 1:1 ratio by land area, whereby at least 2,198.2 sq. m. of wetland is created off-site.

6.4 SIGNIFICANT WILDLIFE HABITAT

SWH identified within 120 m of the Site included roosting habitat for bat (Refer to Section 6.2) and for SCC, including Eastern Wood-Pewee, Wood Thrush Snapping Turtle and Rainbow Mussel. These species were each identified as having moderate habitat or occurrence potential within the vicinity of the Site.

As SC species on the SARO List these species do not receive habitat protection under the ESA (Government of Ontario, 2007), but Eastern Wood-Pewee and Wood Thrush are protected under the federal MBCA (Government of Canada, 1994).

Vegetation removal and disturbance to nests pose the greatest risk to this species. The use of timing windows for vegetation removals is recommended to protect migrating nesting birds.

Snapping Turtle and Rainbow Mussel habitat is limited to the Saugeen River. Impacts are not anticipated as this habitat will be protected by the minimum buffer of 30 m required to protect cold water fish habitat of the Saugeen River.

Impacts to other wildlife may occur if they travel into the construction zone, construction staging areas or other work zones. Opportunistic travel into the area is most likely to occur by SAR birds and Snapping Turtles. It is unlikely that wildlife will enter and stay for long in these areas, especially during active construction, when noise and activity are likely to temporarily deter wildlife away from the Site.

6.4.1 SPECIAL CONCERN SPECIES MITIGATION

To limit potential impacts to the above-mentioned species the general mitigation measures are as follows:

- No work is permitted to proceed that would result in the destruction of active nests (nests with eggs or young birds), or the wounding or killing of birds species protected under the MBCA and / or Regulations under that Act.
- To comply with the MBCA and to limit disturbance to Eastern Wood-Pewee, Wood Thrush and other bird species, vegetation removal should be restricted during their most vulnerable period (i.e. the breeding bird season April 1st to August 31st), unless a survey by a qualified individual, with knowledge of bird biology and habitat, confirms that there are no active nests within the tree(s) and/or vegetation to be removed.
- Construction fencing should be installed around the perimeter of the construction area to reduce access by wandering wildlife.
- Gravel and sand required for construction should not be placed or stockpiled in areas that are accessible to nesting turtles.
- In the event an animal is found within the construction area, it should remain undisturbed and be allowed to leave on its own. Photos for identification should be taken of animals observed onsite, if possible. Though unexpected, if a Threatened or Endangered species are discovered during site preparation or construction activities will stop, or be modified to avoid negative impacts to Species at Risk until further direction is provided by the MECP. The MECP SAR Branch should be contacted promptly upon the discovery of a Threatened or Endangered species within the construction area.

6.5 SIGNIFICANT WOODLANDS

Significant Woodlands were identified within the Site and included part of the forest ecotypes between the south bank of the Saugeen River and the Hanover Community Trail. The Significant Woodland mapping is shown in Figure 2 and ELC mapping is shown in Figure 3. The extent of the Significant Woodland in the report figures is consistent with the HOP (Town of Hanover, 2016); however, based on the contiguous nature of the woodland units south of the trail, it is anticipated that they would also be considered part of the Significant Woodland.

To develop the lots in the northern extent of the subdivision, adjacent to the Saugeen River, approximately 2,121.2 sq. m. of the south edge of the Significant Woodlands mapped by the Town of Hanover will be removed to ensure there is enough space to build a structure within each of the proposed lots (Figure 4). Under the HOP (Town of Hanover, 2016), development and site alteration in and adjacent to Significant Woodlands may be permitted in coordination with relevant agencies including the MNR and SVCA, and if an EIS concludes no negative impacts on the woodland or its ecological functions will occur (Town of Hanover, 2016).

The limit of woodland removal has been determined to be up to the southern extent of the 30 m buffer required for cold water fish habitat for the Saugeen River, which also corresponds to the limit of the stable top of slope (Figure 4). These buffers are expected to protect the majority of the Significant Woodland habitat while improving the density threshold requirements (25 units per hectare) for the development as per Section 3.5.5 of the CGOP (County of Grey, 2019).

The section of Significant Woodland being removed abuts disturbed vegetation types associated with the hydro-corridor and Hanover Community Trail. The removals will create a new woodland edge; however, the composition of the removed area is

expected to consist of a mix of cultural species (i.e. invasive and exotics) and a dense growth of young White Cedar trees. With the implementation of an edge management plan, it is unlikely that permanent negative impacts on the Significant Woodland or its ecological functions will occur.

The contiguous woodland unit comprised of the Fresh-Moist White Cedar Coniferous Forest (FOC4-1) and adjacent deciduous and mixed forest ecotypes (FOD6-1, FOM6-2, FOM6-5) located south of the Hanover Community Trail in the northeast portion of the Site will be impacted by the proposed development. It is anticipated that these woodland units will be removed in their entirety. Impacts to the Significant Woodlands and contiguous woodland parcel south of the Hanover Community Trail can be further minimized by implementing the mitigation measures outlined in Section 6.5.2, below.

6.5.1 OTHER WOODLANDS

Most of the Cultural Woodland (CUW1), Scots Pine Conifer Plantation (CUP3-3), and a Mineral Cultural Woodland (CUW1) in the southeast corner of the Site is expected to be removed to permit lot development and road access (Figure 4). These woodland areas are less than 4 ha in size and are therefore not considered Significant Woodland. These culturally influenced areas were not identified as SWH and provide limited ecological systems within the Site (e.g. the Significant Woodland/wetlands) due to their cultural and disturbed nature. Mitigation in the form of replacement plantings is not proposed for these areas.

6.5.2 WOODLAND MITIGATION

The following mitigation measures are recommended to minimize impacts on the remaining woodlands located on and adjacent to the Site.

- Minimize vegetation clearing to the extent possible;
- Clearly delineate vegetation clearing zones and vegetation retention zones (i.e. using tree protection fencing) on both the construction drawings and in the field with the Contractor prior to clearing and grading;
- Tree protection fencing should be installed at the limit of the proposed development envelope or as close to the woodland dripline as possible to reduce the potential for physical damage to trees and their root systems;
- The following activities are prohibited beyond the tree protection fencing: storage or stockpiling of materials including fill, top soil, construction equipment and debris; disposal of liquids; and operation of heavy machinery;
- Changes to existing land contours and drainage patterns due to grading should be minimized to ensure that significant changes to the existing woodland moisture regime do not occur;
- An edge management plan using native species shall be created for the south limit of the Significant Woodland (Town of Hanover, 2016) where removals will create a new woodland edge; and
- To offset for the removals of the Significant Woodland and contiguous woodland parcel south of the Hanover Community Trail, mitigation in the form of habitat replacement at a minimum 1:1 ratio by land area is recommended through plantings of appropriate native species. Replacement habitat should be created as close to the site of impact as possible, and preferably within the same subwatershed. Plantings should strive to meet woodland densities for trees and shrubs and should include the establishment of a healthy understory. Note that replacement for removal of the FOD6-1 community as potential bat habitat is to be included in this plan (i.e., replacement is at a 1:1 ratio).

6.6 GENERAL MITIGATION MEASURES

General mitigation measures for works within the Site should include the following:

- Erosion control fencing should be placed at the limit of grading to protect sensitive features (e.g. watercourses, retained wetlands/woodland areas) as well as, and adjacent to, temporary storage locations for supplies, excavated materials and imported fill. Fencing should be properly installed to the engineer's specifications and inspected daily and after significant rain events to confirm it is functioning properly. Fencing should be regularly cleared of silt accumulation to ensure the integrity of erosion prevention/sediment containment measures. While also limiting erosion, this fencing will also help prevent Snapping Turtle, a species of SC with moderate habitat potential, from accessing the construction zone.
- Areas of exposed soil, especially newly graded areas that cannot be immediately stabilized with the final surface treatments should be appropriately treated to minimize erosion (e.g., straw mulch, erosion blanket, sod, or hydroseed).
- Changes to existing land contours and drainage patterns due to grading should be minimized to ensure that significant changes to the existing woodland moisture regime and site hydrology do not occur.
- Impacts on vegetation, particularly trees, should be minimized where possible to maintain the function of the forests within the Site as habitat for birds and other wildlife.
- Ensure a Spills Management Plan (including materials, instructions regarding their use, education of contract personnel, emergency contact numbers) is onsite at all times for implementation in event of an accidental spill during construction. Adequate measures to prevent or capture and contain any debris and spills resulting from construction activities should be kept onsite in sufficient quantities. Staff should be orientated as to the location of materials and their proper use and disposal. Measures and procedures should conform to pertinent provincial requirements.
- Operating, refuelling and maintenance of construction equipment and the handling and storage of toxic materials (e.g. fuel, lubricants, and other chemicals) must be carried out in such a way as to avoid contamination of soils, groundwater and surface waters.
- All parts of equipment shall be free of fluid leaks and externally cleaned/degreased offsite, in a contained environment.

7 CONCLUSIONS

WSP Canada Inc. (WSP) has been retained to complete a Scoped EIS for the site known as the Saugeen Cedar Heights West development lands. The site is located west of Grey Road 28 and south of the Saugeen River and identified as Part of Lots 9 and 10, Concession 1 and 2, Town of Hanover, Grey County. The client is proposing to develop a residential subdivision and servicing roads within an area designated as a Primary Settlement Area (*Schedule A, Map 3*) (County of Grey, 2019) and Residential (*Schedule A*) (Town of Hanover, 2016).

The Site is composed of a mixture of forests and agricultural land and is surrounded by residential properties, the Saugeen River and a tributary to the Saugeen River. The Site also contains lands classified as Hazard Lands and Significant Woodland (Town of Hanover, 2016 and County of Grey, 2019). Fish Habitat, Significant Habitat for END or THR Species, wetlands (non-significant), SWH (Habitat of Species of SC) and Significant Valleylands were also identified in or within 120 m of the Site. A detailed examination of natural features present on or adjacent to the Site is provided in Section 5.0.

Impacts and mitigation of natural features or SAR identified to be present within the Site are provided in Section 6. A final assessment of the impacts and specific mitigation recommendations should be completed during the later stages of this project (e.g. detailed design) when additional design details are available.

A summary of the potential impacts associated with the proposed development footprint (Figure 4) are as follows:

- Potential for sedimentation and erosion entering the Saugeen River, tributary and wetlands;
- Potential for impacts to fish and Fish Habitat;
- Removal of potential SAR Bat habitat;
- Loss of 2,198.2 sq. m of wetland (non-significant);
- Potential impacts to SWH for SC species (Eastern Wood-Pewee, Wood Thrush, Snapping Turtle);
- Potential impacts to migratory bird nesting habitat;
- Loss of 2,121.2 sq. m of the south edge of the Significant Woodlands mapped by the Town of Hanover;
- Removal of contiguous mixed forest ecotypes (FOD6-1, FOM6-2, FOM6-5) adjacent to the Significant Woodland; and,
- Removal of non-significant culturally-influenced woodland ecotypes within the southern extent of the Site.

Mitigation measures focus on off-site habitat replacement for woodlands and wetlands, bat roosting habitat replacement, ESC measures, vegetation timing removal windows for birds and bats, buffers/setbacks to fish habitat, and the incorporation of an edge management plan. It is WSP's opinion that this report demonstrates that development of the Site can occur in a manner that conforms with the applicable Provincial, County and Municipal policies. Mitigation actions provided in Section 6 are considered appropriate to avoid, minimize, mitigate and/or compensate for the anticipated impacts to natural features on or adjacent to the Site.

8 CLOSURE

This report was produced by WSP Canada Inc. The assessment represents the conditions at the subject property only at the time of the assessment and is based on the information referenced and contained in the report. The conclusions presented herein respecting current conditions represent the best judgment of the assessors based on current environmental standards. WSP Canada Inc. attests that to the best of our knowledge, the information presented in this report is accurate. The information in this report should be evaluated, interpreted, and implemented only in the context of the assignment. The use of this report or any of its parts for other projects without written permission of the Client and WSP Canada Inc. is solely at the user's own risk. This report must be reviewed and approved by the relevant regulating agencies prior to being relied on for planning and/or construction purposes.

Thank you for the opportunity to complete this report. We trust that this information is satisfactory for your current requirements. Please contact us if we can be of further assistance.

9 REFERENCES

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FIGURES

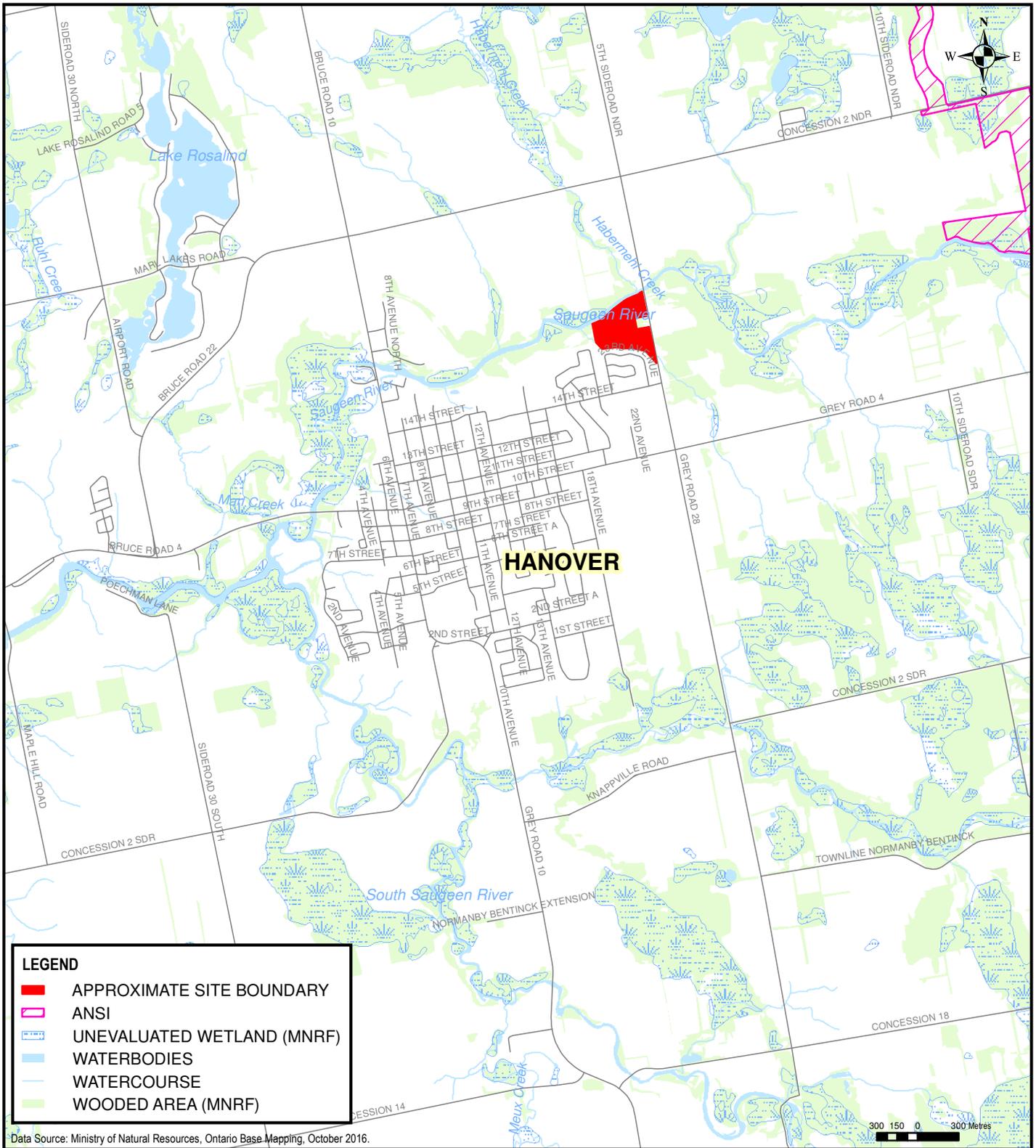
FIGURE 1 : SITE LOCATION

FIGURE 2 : NATURAL HERITAGE FEATURES

FIGURE 3 : ECOLOGICAL LAND CLASSIFICATION

FIGURE 4 : SITE PLAN





Data Source: Ministry of Natural Resources, Ontario Base Mapping, October 2016.

 <p>126 DON HILLOCK DRIVE, UNIT 2 AURORA, ONTARIO CANADA L4G 0G9 TEL.: 905-750-3080 FAX: 905-727-0463 WWW.WSP.COM</p>	PROJECT:	ENVIRONMENTAL IMPACT STUDY SAUGEEN CEDAR HEIGHTS WEST HANOVER, ONTARIO	SCALE: 1:40,000
	TITLE:	SITE LOCATION MAP	DRAWN BY: TP CHECKED BY: EF
	CLIENT:	COBIDE ENGINEERING INC.	PROJECT NO: 171-09117-00
			DATE: AUGUST 2020
			REV.: -



126 DON HILLOCK DRIVE, UNIT 2
 AURORA, ONTARIO CANADA L4G 0G9
 TEL.: 905-750-3080 | FAX: 905-727-0463 | WWW.WSP.COM

LEGEND

- APPROXIMATE SITE BOUNDARY
- WETLANDS (MNR, 2020)
- WOODED AREA (MNR, 2019)
- WATERBODIES (MNR, 2019)
- WATERCOURSE (MNR, 2019)
- REGIONAL FLOODPLAIN
- POTENTIAL BAT HABITAT (7,878 sq.m.)
- BREEDING BIRD SURVEY LOCATION
- AMPHIBIAN SURVEY LOCATION
- SEEP
- SAR: WOOD THRUSH (*Hylocichla mustelina*)



20 10 0 20 Metres

Data Source: Ministry of Natural Resources, Ontario Base Mapping, October 2016.
 Imagery, Grey County, 2015.

CLIENT:

COBIDE ENGINEERING INC.

PROJECT:

ENVIRONMENTAL IMPACT STUDY
 SAUGEEN CEDAR HEIGHTS WEST
 HANOVER, ONTARIO

PROJECT NO:
 171-09117-00 101

DATE:
 AUGUST 2020

DESIGNED BY:

DRAWN BY:
 T.P.

CHECKED BY:

FIGURE NO:
 2

SCALE:
 1:2,200

TITLE:

NATURAL HERITAGE FEATURES

DISCIPLINE:

ENVIRONMENT

ISSUE:

REV.:

- ELC COMMUNITIES:
- CUM1-1 DRY - MOIST OLD FIELD CULTURAL MEADOW
 - CUP3 - CULTURAL PLANTATION
 - CUP3-3 - SCOTS PINE CONIFER PLANTATION
 - CUW1 - MINERAL CULTURAL WOODLAND
 - CUT - CULTURAL THICKET
 - CVR_1 - LOW DENSITY RESIDENTIAL
 - CVR_4 - RURAL PROPERTY
 - FOC4-1 - FRESH - MOIST WHITE CEDAR CONIFEROUS FOREST
 - FOD6-1 - FRESH - MOIST SUGAR MAPLE - LOWLAND ASH DECIDUOUS FOREST
 - FOD7-2 - FRESH - MOIST GREEN ASH - HARDWOOD LOWLAND DECIDUOUS FOREST
 - FOM3-2 - DRY - FRESH SUGAR MAPLE - HEMLOCK MIXED FOREST
 - FOM6-2 - FRESH - MOIST HEMLOCK - HARDWOOD MIXED FOREST
 - FOM6-5 - FRESH - MOIST SUGAR MAPLE - HARDWOOD DECIDUOUS FOREST TYPE
 - FOM7-2 - FRESH - MOIST WHITE CEDAR - HARDWOOD MIXED FOREST
 - MAM2-10 - MIXED FORB MINERAL MEADOW MARSH
 - MAM2-5 - NARROW-LEAVED SEDGE MINERAL MEADOW MARSH
 - MAM2-3 - RED TOP - GRAMINOID MINERAL MEADOW MARSH
 - MAM3-9 - MIXED FORB - ORGANIC MEADOW MARSH
 - OAGM1 - ANNUAL ROW CROPS
 - SWC - CONIFEROUS SWAMP



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LEGEND

- APPROXIMATE SITE BOUNDARY
- WATERBODIES
- WATERCOURSE
- REGIONAL FLOODPLAIN
- ECOLOGICAL LAND CLASSIFICATION



20 10 0 20 Metres

Data Source: Ministry of Natural Resources, Ontario Base Mapping, October 2016.
 Imagery, Grey County, 2015.

CLIENT:

COBIDE ENGINEERING INC.

PROJECT:

ENVIRONMENTAL IMPACT STUDY
 SAUGEEN CEDAR HEIGHTS WEST
 HANOVER, ONTARIO

PROJECT NO:
 171-09117-00 101

DATE:
 AUGUST 2020

DESIGNED BY:

DRAWN BY:

T.P.

CHECKED BY:

FIGURE NO:

3

SCALE:

1:2,200

TITLE:

ECOLOGICAL LAND CLASSIFICATION

DISCIPLINE:

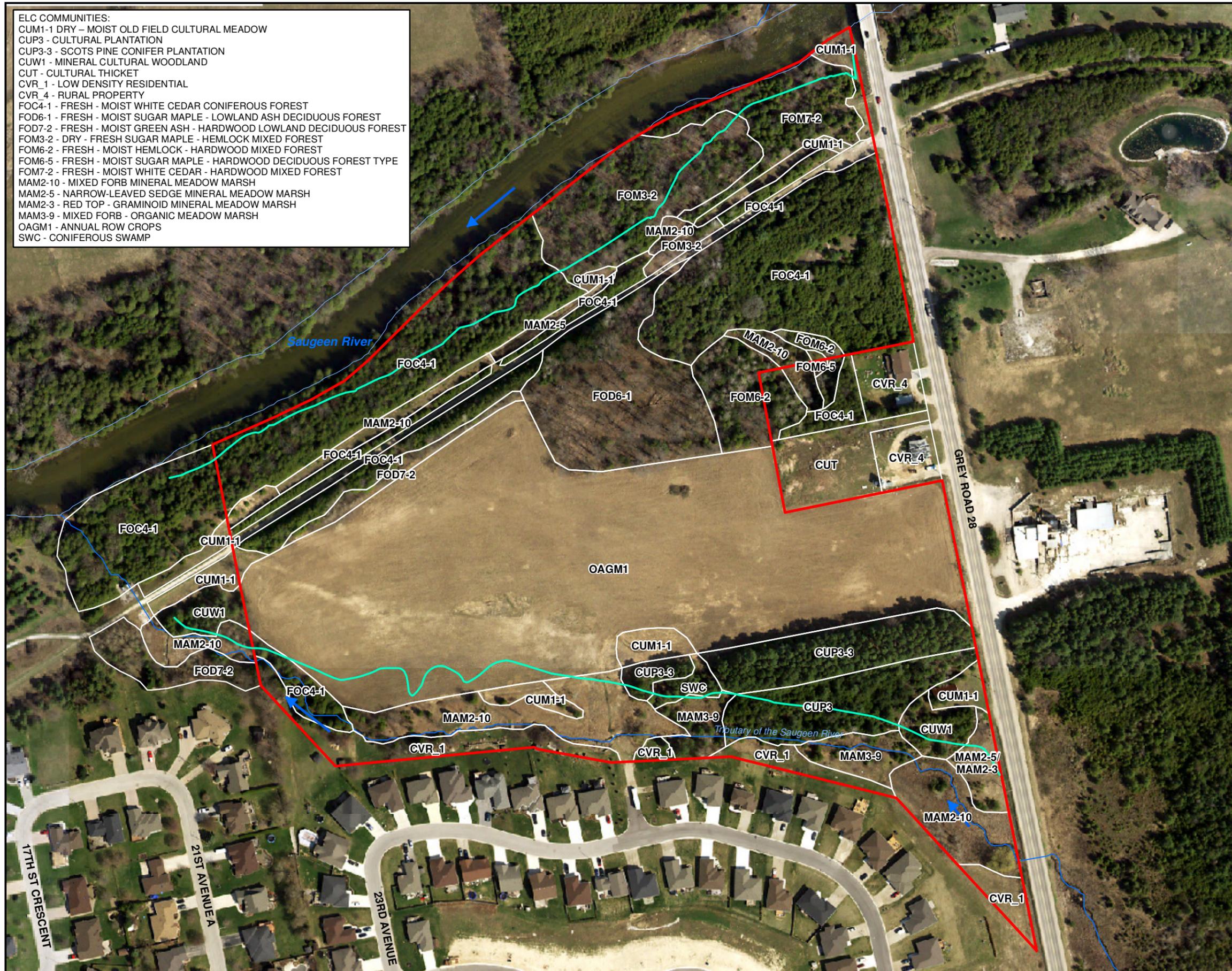
ENVIRONMENT

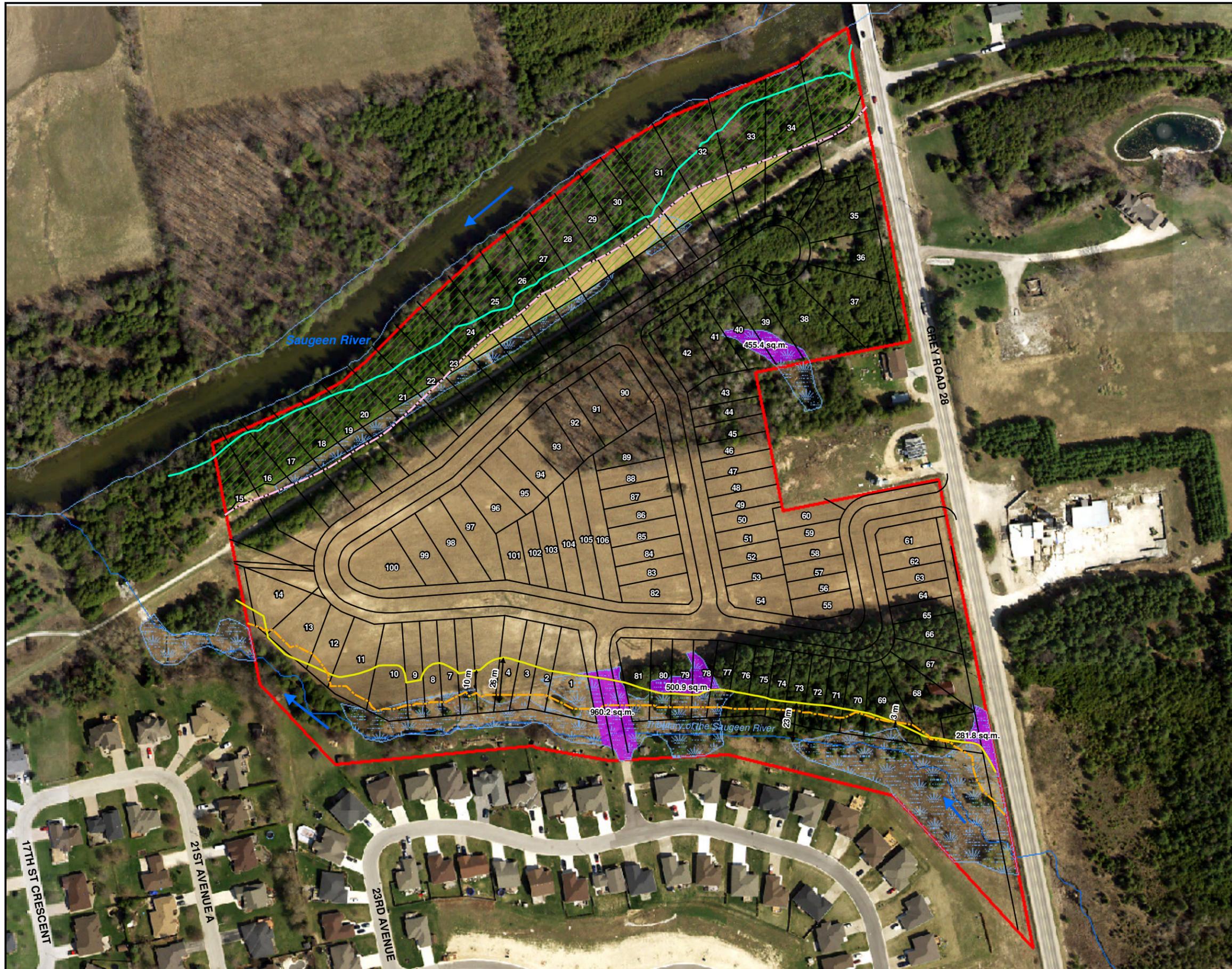
ISSUE:

-

REV.:

-





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LEGEND

- APPROXIMATE SITE BOUNDARY
- PROPOSED DEVELOPMENT
- WATERBODIES
- WATERCOURSE
- REGIONAL FLOODPLAIN (NORTH)
- WETLANDS (AS MAPPED BY WSP, 2020)
- WETLAND COMPENSATION (2,198.3 sq.m.)
- SIGNIFICANT WOODLANDS - TOWNSHIP OF HANOVER OFFICIAL PLAN (2016)
- SIGNIFICANT WOODLAND LOSS (2,121.2 sq.m.)

DEVELOPMENT LIMIT

- STABLE TOP OF SLOPE / 30 m WATERCOURSE SETBACK
- REGIONAL FLOODPLAIN (SOUTH)
- 15 m WATERCOURSE BUFFER

20 10 0 20 Metres



Data Source: Ministry of Natural Resources, Ontario Base Mapping, October 2016. Imagery, Grey County, 2015.

CLIENT:

COBIDE ENGINEERING INC.

PROJECT:

ENVIRONMENTAL IMPACT STUDY
 SAUGEEN CEDAR HEIGHTS WEST
 HANOVER, ONTARIO

PROJECT NO:
 171-09117-00 101

DATE:
 NOVEMBER 2020

DESIGNED BY:

DRAWN BY:
 T.P.

CHECKED BY:

FIGURE NO:
 4

SCALE:
 1:2,200

TITLE:

SITE PLAN

DISCIPLINE:

ENVIRONMENT

ISSUE:

REV.:

APPENDIX

A

AGENCY

CONSULTATION

Fitzpatrick, Erin

From: Brandi Walter <b.walter@svca.on.ca>
Sent: Tuesday, May 12, 2020 11:22 AM
To: Fitzpatrick, Erin
Subject: RE: Saugeen Cedar Heights West - EIS scoping
Attachments: SVCA_EIS_Guidelines_AppendixF_PolicyManual_2018.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Good Morning Erin,

I am just following up with you on our email chain below. I have finally had a chance to review the file history, and your right, not too much in the way of direction regarding the EIS ToR. As such, I am satisfied our correspondence below covers what SVCA requires, in general, for a three season EIS. Also, for your information, I have attached SVCA's EIS guidelines. The guidelines should be referenced for your study.

Ideally, I like to review the draft EIS prior to final submission. In the event SVCA requires more information.

Feel free to contact me directly if you have anymore questions.

Kind Regards,



Brandi Walter, Environmental Planning Coordinator
1078 Bruce Rd. 12, Box 150 Formosa ON N0G 1W0
519-367-3040 Ext. 236 Fax 519-367-3041
b.walter@svca.on.ca
www.svca.on.ca

Please note: As a result of COVID 19, please be aware that as March 17th, our office will be closed to the general public until further notice. Staff are still available for essential services and would be happy to help you over the phone or by email. We thank you for your cooperation and patience.

From: Fitzpatrick, Erin <Erin.Fitzpatrick@wsp.com>
Sent: April 27, 2020 11:22 AM
To: Brandi Walter <b.walter@svca.on.ca>
Subject: RE: Saugeen Cedar Heights West - EIS scoping

Hi Brandi,

Thank you for confirming. Your timing is perfect. I was just emailing our project contact now. 😊

I look forward to working on this file with you!

Kind Regards,
Erin

Erin Fitzpatrick, M.Sc.

T +1 289-984-0412

M +1 289-380-2552



From: Brandi Walter [<mailto:b.walter@svca.on.ca>]
Sent: Monday, April 27, 2020 11:18 AM
To: Fitzpatrick, Erin <Erin.Fitzpatrick@wsp.com>
Subject: RE: Saugeen Cedar Heights West - EIS scoping

Hi Erin,

That approach is fine.

Thank you,

Brandi

From: Fitzpatrick, Erin [<mailto:Erin.Fitzpatrick@wsp.com>]
Sent: Monday, April 27, 2020 10:47 AM
To: Brandi Walter
Subject: RE: Saugeen Cedar Heights West - EIS scoping

Hi Brandi,

Thank you very much for the email. I have a few questions inserted into you email below in **green**.

Kind Regards,
Erin

Erin Fitzpatrick, M.Sc.

T +1 289-984-0412

M +1 289-380-2552



From: Brandi Walter [<mailto:b.walter@svca.on.ca>]
Sent: Monday, April 27, 2020 10:23 AM
To: Fitzpatrick, Erin <Erin.Fitzpatrick@wsp.com>
Subject: RE: Saugeen Cedar Heights West - EIS scoping

Hi Erin,

I am acknowledging receipt of your email. I am working from home and will need to pick the file up from the office today and familiarize myself with it. **Super – thank you!** However, I won't be able to have a close look until later this week. **Understood.** But to give you a head start seeing the spring season is upon us, SVCA asks that an EIS should be at

least three seasons (if not a scoped EIS) and I am assuming this was requested from the applicant in 2017. I wasn't involved on the file at the time, but the emails I have seen are not explicit in this regard. I can appreciate the need, so we will propose additional visits to cover off the three seasons. It appears more site visits are required to cover all three seasons. You will need to build on the information you have obtained to date, but also verifying the data collected is still applicable being it has been three years. Typically, SVCA asks that an EIS three years or older be reviewed and updated with current data and field verification that site conditions have not changed, so I ask this be done for the information obtained to date. Aside from the requirements for a 3 -season EIS which will necessitate additional visits, we were planning to complete a visit to confirm the general habitat conditions through a review of ELC / general site recon. Assuming site conditions have not changed substantially, we were not expecting the need to redo breeding bird surveys or the June amphibian survey. When you refer to 'review and update with current data' is that approach sufficient, or were you envisioning a repeat of all surveys completed to date?

Hope this helps.

Kind Regards,

Brandi Walter
Environmental Planning Coordinator
Saugeen Conservation

From: Fitzpatrick, Erin [<mailto:Erin.Fitzpatrick@wsp.com>]
Sent: Wednesday, April 22, 2020 5:18 PM
To: Brandi Walter
Subject: Saugeen Cedar Heights West - EIS scoping

Hello Brandi,

I hope this finds you well.

A few years ago WSP was approached to complete an EIS for a proposed subdivision in north Hanover referred to as Saugeen Cedar Heights West. The property can be described as Part of Lots 9 & 10, Concessions 1 & 2 N.D.R., Town of Hanover. Please see the attached figure for location details. WSP completed the preliminary steps in our EIS (background review, agency consultation, and field surveys) in 2017, then the client opted to temporarily halt work on the project. We have recently been called upon to start work on the project again. As several years have passed and there have been staffing changes at the SVCA, I wanted to reach out to you to confirm our approach to the EIS.

The following surveys were completed following project commencement in mid-June 2017:

- One amphibian survey (June 28, 2017);
- botanical inventory and ELC mapping (June 27, 2017 and July 21, 2017);
- breeding bird surveys (June 27, 2017 and July 13, 2017); and,
- incidental wildlife observations during all surveys.

To my knowledge, wetland boundaries were not staked or field-verified with SVCA staff, but were mapped by WSP using ELC.

I'd like to confirm if the data gathered during our field surveys in 2017 will be accepted by the SVCA, and/or if additional surveys will be required this season. **I would appreciate feedback at your earliest convenience, particularly as the amphibian survey window has started.**

The EIS work program also included (but was not fully completed):

- agency consultation and background review;
- screening for habitat for SAR and significant wildlife habitat;
- broad scale assessment of linkages and corridors;
- Preparation of an EIS report using information obtained through reviews of background information, existing technical studies and reports, and field observations. The report will include:
 - A background review of existing mapping and secondary source information;
 - A brief overview of applicable policies;
 - A general description of the methodology and dates for the ecologist surveys (species lists will be provided in the report appendix);
 - A detailed description of identified natural heritage features, their functions and the broader natural heritage system of which they are a part;
 - Mapping of vegetation communities and other environmental features on current high-quality ortho images;
 - An overview of the property and proposed undertaking, including a site plan showing the proposed development plan in relation to existing natural heritage features, built structures, and lot/property lines;
 - A detailed description of anticipated environmental impacts, direct or indirect, based on the proposed development. Focus will be on the natural features and ecological functions that are identified on or adjacent to the development footprint, or deemed significant; and,
 - Descriptions of measures that may be used to avoid, minimize or mitigate potential impacts on identified natural heritage features or functions, including, but not limited to, the recommendation of setbacks, timing windows, plantings, etc., as appropriate.

I would appreciate it if you could confirm if the work program as detailed above is considered sufficiently comprehensive to meet the SVCA's requirements.

If there is additional information that I could provide to assist with this request, please do not hesitate to contact me.

Kind Regards,
Erin

Erin Fitzpatrick, M.Sc.
Ecologist, Environment



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-LAEmHhHzdJzBITWfa4Hgs7pbKl

Fitzpatrick, Erin

From: Reeves, Dan
Sent: Friday, April 17, 2020 9:40 AM
To: Fitzpatrick, Erin
Subject: FW: Saugeen Heights Proposed Development
Attachments: EIS Guidelines.pdf

Dan Reeves



T+ 1 705-712-0181

From: Candace Hamm [mailto:c.hamm@SVCA.ON.CA]
Sent: Wednesday, August 02, 2017 3:18 PM
To: Reeves, Dan <Dan.Reeves@wsp.com>
Subject: RE: Saugeen Heights Proposed Development

Hi Dan,

RE: Saugeen Cedar Heights West Development
Part Lot 9 & 10, Concession 1 & 2 NDR
Town of Hanover

My apologies for the delay in responding. Further to our telephone conversation earlier today, please find attached the SVCA Environmental Impact Study (EIS) Guidelines, as per the SVCA Environmental Planning and Regulations Policies Manual, Approved May 16, 2017.

Based on the preliminary screening by SVCA staff, it is our opinion that the following natural heritage features affect the subject property: Significant Woodlands, Significant Valleylands, Fish Habitat, and potentially the Habitat of Endangered Species and Threatened Species. In accordance with Provincial Policy Statement (PPS, 2014), the EIS should demonstrate that there will be no negative impacts to any natural heritage features, or their ecological functions, as a result of the proposed development.

If you have any questions, please do not hesitate to contact me directly.

Kind regards,

Candace



Candace Hamm, Environmental Planning Coordinator
1078 Bruce Rd. 12, Box 150 Formosa ON N0G 1W0
519-367-3040 Ext. 236 Fax 519-367-3041
c.hamm@svca.on.ca
www.svca.on.ca



From: Reeves, Dan [<mailto:Dan.Reeves@wsp.com>]
Sent: Wednesday, August 2, 2017 2:00 PM
To: Jennifer Prenger <j.prenger@SVCA.ON.CA>
Subject: RE: Saugeen Heights Proposed Development

Hi Jennifer,

Just following up on this request.

Thanks,

Dan

Dan Reeves, M.Sc.
Ecologist, Environment



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M+ 1 705-716-1811

wsp.com

From: Reeves, Dan
Sent: Thursday, June 22, 2017 11:58 AM
To: j.prenger@svca.on.ca
Subject: Saugeen Heights Proposed Development

Hi Jennifer, hope all is well!

We have been retained to complete an Environmental Impact Study on some lands just northeast of Hanover, Ontario – see attached .kmz (google earth) and preliminary Site Plan.

We are looking to come up with a formalized scope for the work in order to move forward. Any information you could provide on the lands and surrounding area would certainly be helpful, and hopefully we can come up with a work plan to ensure we've got everything covered off.

Please let me know if my inquiry should be directly elsewhere within the organization and/or you require additional site information in order to scope properly.

Thanks, and I look forward to working with you on this file.

Regards,

Dan

Dan Reeves, M.Sc., ISA Certified Arborist
Ecologist, Environment



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M+ 1 705-716-1811

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Barrie, ON
L4N 9Y3

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APPENDIX

B

SPECIES LISTS



Appendix B: Flora Species List

COMMON NAME	SCIENTIFIC NAME	CC 1	CW1	G_RANK	N_RANK	S_RANK	COSEWIC	SARA	SARO	NATIVE STATUS	AUTHOR
Sugar Maple	<i>Acer saccharum</i>	4	3	G5	N5	S5				N	Marsh.
Redtop	<i>Agrostis gigantea</i>		-3	G4G5	NNA	SNA				I	Roth
Wild Leek	<i>Allium tricoccum</i>	7	3	G5	N5	S4				N	Ait.
Canada Anemone	<i>Anemonastrum canadense</i>	3	-3	G5	N5	S5				N	L.
Spreading Dogbane	<i>Apocynum androsaemifolium</i>	3	5	G5	N5	S5				N	L.
Jack-in-the-pulpit	<i>Arisaema triphyllum</i>	5	-3	G5	N5	S5				N	(L.) Schott
Wormwood species	<i>Artemisia</i> sp.										L.
Canada Wild Ginger	<i>Asarum canadense</i>	6	5	G5	N5	S5				N	L.
Common Milkweed	<i>Asclepias syriaca</i>	0	5	G5	N5	S5				N	L.
Yellow Birch	<i>Betula alleghaniensis</i>	6	0	G5	N5	S5				N	Britt.
Southern Shorthusk	<i>Brachyelytrum erectum</i>	7	3	G4G5	N3N5	S4				N	(Schreb. ex Spreng.) Beauv.
Smooth Brome	<i>Bromus inermis</i>		5	G5	NNA	SNA				I	Leysser
Bluejoint Reedgrass	<i>Calamagrostis canadensis</i> var. <i>canadensis</i>	4	-5	G5T5	N5	S5				N	(Mich.) Palisot de Beauv.
Yellow Marsh Marigold	<i>Caltha palustris</i>	5	-5	G5	N5	S5				N	L.
Drooping Woodland Sedge	<i>Carex arctata</i>	5	5	G5	N5	S5				N	Boott ex Hook.
Woodland Sedge	<i>Carex blanda</i>	3	0	G5	N5	S5				N	Dewey
Bristle-leaved Sedge	<i>Carex eburnea</i>	6	3	G5	N5	S5				N	Boott ex Hook.
Graceful Sedge	<i>Carex gracillima</i>	4	3	G5	N5	S5				N	Schwein.
Porcupine Sedge	<i>Carex hystericina</i>	5	-5	G5	N5	S5				N	Muhl. ex Willd.

COMMON NAME	SCIENTIFIC NAME	CC 1	CW1	G_RANK	N_RANK	S_RANK	COSEWIC	SARA	SARO	NATIVE STATUS	AUTHOR
Woolly-fruited Sedge	<i>Carex lasiocarpa</i>	8	-5	G5	N5	S5				N	Ehrh.
Long-stalked Sedge	<i>Carex pedunculata</i>	5	3	G5	N5	S5				N	Muhl. ex Willd.
Sedge sp.	<i>Carex sp.</i>										L.
Burreed Sedge	<i>Carex sparganioides</i>	5	3	G5	N5	S4S5				N	Muhl. ex Willd.
Hybrid Yellowish Sedge	<i>Carex x flavicans</i>		-5	GNA	NNA	SNA				N	F. Nyl. (pro sp.)
Blue Cohosh	<i>Caulophyllum thalictroides</i>	5	5	G5	N5	S5				N	(L.) Michx.
American Golden-saxifrage	<i>Chrysosplenium americanum</i>	8	-5	G5	N5	S4				N	Schwein. ex Hook.
Spotted Water-hemlock	<i>Cicuta maculata</i> var. <i>maculata</i>	6	-5	G5T5	N5	S5				N	L.
Canada Thistle	<i>Cirsium arvense</i>		3	G5	NNA	SNA				I	(L.) Scop.
Bull Thistle	<i>Cirsium vulgare</i>		3	GNR	NNA	SNA				I	(Savi) Ten.
Virginia Clematis	<i>Clematis virginiana</i>	3	0	G5	NNR	S5				N	L.
European Lily-of-the-valley	<i>Convallaria majalis</i>		5	G5	NNA	SNA				I	L.
Goldthread	<i>Coptis trifolia</i>	7	-3	G5	N5	S5				N	(L.) Salisb.
Alternate-leaved Dogwood	<i>Cornus alternifolia</i>	6	3	G5	N5	S5				N	L. f.
Red-osier Dogwood	<i>Cornus sericea</i>	2	-3	G5	N5	S5				N	L.
Squash sp.	<i>Cucurbita Sp.</i>										
Bulblet Bladder Fern	<i>Cystopteris bulbifera</i>	5	-3	G5	N5	S5				N	(L.) Bernh.
Brittle Fern sp.	<i>Cystopteris sp.</i>										Berhardi
Orchard Grass	<i>Dactylis glomerata</i>		3	GNR	NNA	SNA				I	L.
Wild Carrot	<i>Daucus carota</i>		5	GNR	NNA	SNA				I	L.
Northern Bush-honeysuckle	<i>Diervilla lonicera</i>	5	5	G5	N5	S5				N	P. Mill.
Common Viper's Bugloss	<i>Echium vulgare</i>		5	GNR	NNA	SNA				I	L.

COMMON NAME	SCIENTIFIC NAME	CC 1	CW1	G_RANK	N_RANK	S_RANK	COSEWIC	SARA	SARO	NATIVE STATUS	AUTHOR
Broad-leaved Helleborine	<i>Epipactis helleborine</i>		3	GNR	NNA	SNA				I	(L.) Crantz
Field Horsetail	<i>Equisetum arvense</i>	0	0	G5	N5	S5				N	L.
Annual Fleabane	<i>Erigeron annuus</i>	0	3	G5	N5	S5				N	(L.) Pers.
Yellow Trout Lily	<i>Erythronium americanum</i>	5	5	G5	N5	S5				N	Ker-Gawl.
Common Boneset	<i>Eupatorium perfoliatum</i>	2	-3	G5	N5	S5				N	L.
Boneset sp.	<i>Eupatorium sp.</i>										L.
Large-leaved Aster	<i>Eurybia macrophylla</i>	5	5	G5	N5	S5				N	(L.) Cass.
American Beech	<i>Fagus grandifolia</i>	6	3	G5	N5	S4				N	Ehrh.
Wild Strawberry	<i>Fragaria virginiana</i>	2	3	G5	N5	S5				N	Duchesne
Glossy Buckthorn	<i>Frangula alnus</i>		0	GNR	NNA	SNA				I	P. Mill.
White Ash	<i>Fraxinus americana</i>	4	3	G5	N5	S4				N	L.
Green Ash	<i>Fraxinus pennsylvanica</i>	3	-3	G5	N5	S4				N	Marsh.
Geranium sp.	<i>Geranium sp.</i>										L.
Yellow Avens	<i>Geum aleppicum</i>	2	0	G5	N5	S5				N	Jacq.
Water Avens	<i>Geum rivale</i>	7	-5	G5	N5	S5				N	L.
Avens sp.	<i>Geum sp.</i>										L.
Fowl Mannagrass	<i>Glyceria striata</i>	3	-5	G5	N5	S5				N	(Lam.) A.S. Hitchc.
Daylily sp.	<i>Hemerocallis Sp.</i>										
Common St. John's-wort	<i>Hypericum perforatum</i>		5	GNR	NNA	SNA				I	L.
Spotted Jewelweed	<i>Impatiens capensis</i>	4	-3	G5	N5	S5				N	Meerb.
Rush sp.	<i>Juncus sp.</i>										L.
Lettuce sp.	<i>Lactuca sp.</i>										L.
Michigan Lily	<i>Lilium michiganense</i>	7	-3	G5	N5	S4				N	Farw.
Great Blue Lobelia	<i>Lobelia siphilitica</i>	6	-3	G5	NNR	S5				N	L.
Canada Fly-honeysuckle	<i>Lonicera canadensis</i>	6	3	G5	N5	S5				N	Bartr. ex Marsh.
Honeysuckle sp.	<i>Lonicera sp.</i>										L.
Bell's Honeysuckle	<i>Lonicera x bella</i>		3	GNA	NNA	SNA				I	Zabel

COMMON NAME	SCIENTIFIC NAME	CC 1	CW1	G_RANK	N_RANK	S_RANK	COSEWIC	SARA	SARO	NATIVE STATUS	AUTHOR
Garden Bird's-foot Trefoil	<i>Lotus corniculatus</i>		3	GNR	NNA	SNA				I	L.
Northern Water-horehound	<i>Lycopus uniflorus</i>	5	-5	G5	N5	S5				N	Michx.
Purple Loosestrife	<i>Lythrum salicaria</i>		-5	G5	NNA	SNA				I	L.
Wild Lily-of-the-valley	<i>Maianthemum canadense</i> ssp. <i>canadense</i>	5	3	G5T5	N5	S5				N	Desfontaines
Large False Solomon's-seal	<i>Maianthemum racemosum</i>									N	(L.) Link
Star-flowered False Solomon's-seal	<i>Maianthemum stellatum</i>	6	0	G5	N5	S5				N	(L.) Link
Common Apple	<i>Malus pumila</i>		5	G5	NNA	SNA				I	P. Mill.
Ostrich Fern	<i>Matteuccia struthiopteris</i>	5	0	G5	N5	S5				N	(L.) Todaro
Black Medick	<i>Medicago lupulina</i>		3	GNR	NNA	SNA				I	L.
Mint sp.	<i>Mentha</i> sp.										L.
Wild Bergamot	<i>Monarda fistulosa</i>	6	3	G5	N5	S5				N	L.
True Forget-me-not	<i>Myosotis scorpioides</i>		-5	G5	NNA	SNA				I	L.
Watercress sp.	<i>Nasturtium</i> sp.										Ait.
Sensitive Fern	<i>Onoclea sensibilis</i>	4	-3	G5	N5	S5				N	L.
Eastern Hop-hornbeam	<i>Ostrya virginiana</i>	4	3	G5	N5	S5				N	(P. Mill.) K. Koch
Grass-of-Parnassus sp.	<i>Parnassia</i> sp.										L.
Reed Canarygrass	<i>Phalaris arundinacea</i> var. <i>arundinacea</i>	0	-3	G5TNR	NNR	S5				N	L.
Common Reed	<i>Phragmites australis</i>	0	-3	G5	N5	S4?				N	(Cavan.) Trinius ex. Steudel
Eastern Ninebark	<i>Physocarpus opulifolius</i>	5	-3	G5	N5	S5				N	(L.) Maxim.
Eastern White Pine	<i>Pinus strobus</i>	4	3	G5	N5	S5				N	L.
Scots Pine	<i>Pinus sylvestris</i>		3	GNR	NNA	SNA				I	L.

COMMON NAME	SCIENTIFIC NAME	CC 1	CW1	G_RANK	N_RANK	S_RANK	COSEWIC	SARA	SARO	NATIVE STATUS	AUTHOR
Kentucky Bluegrass	<i>Poa pratensis</i>		3	G5	N5	S5				I	L.
Fringed Milkwort	<i>Polygaloides paucifolia</i>	6	3	G5	NNR	S5				N	(Willd.) J.R. Abbott
Trembling Aspen	<i>Populus tremuloides</i>	2	0	G5	N5	S5				N	Michx.
Silvery Cinquefoil	<i>Potentilla argentea</i>		3	GNR	NNA	SNA				I	L.
Lance-leaved Self-heal	<i>Prunella vulgaris</i> ssp. lanceolata		0	G5T5	N5	S5				N	(W. Bart.) Hulten
Black Cherry	<i>Prunus serotina</i>	3	3	G5	N5	S5				N	Ehrh.
Chokecherry	<i>Prunus virginiana</i>	2	3	G5	NNR	S5				N	L.
Bracken Fern	<i>Pteridium aquilinum</i>	2	3	G5	N5	S5				N	(L.) Kuhn
European Buckthorn	<i>Rhamnus cathartica</i>		0	GNR	NNA	SNA				I	L.
Gooseberry sp.	<i>Ribes</i> sp.										L.
Red Raspberry	<i>Rubus idaeus</i>	2	3	G5	N5	S5				I	L.
Black-eyed Susan	<i>Rudbeckia hirta</i>	0	3	G5	N5	S5				N	L.
Cottony Willow	<i>Salix eriocephala</i>	4	-3	G5	N5	S5				N	Michx.
Hybrid White Willow	<i>Salix x fragilis</i>		0	GNA	NNA	SNA				I	Linnaeus
Common Elderberry	<i>Sambucus canadensis</i>	5	-3	G5	NNR	S5				N	L.
Dark-green Bulrush	<i>Scirpus atrovirens</i>	3	-5	G5	N5	S5				N	Willd.
Bladder Champion	<i>Silene vulgaris</i>		5	GNR	NNA	SNA				I	(Moench) Garcke
Greenbrier sp.	<i>Smilax</i> sp.										L.
Eastern Tall Goldenrod	<i>Solidago altissima</i> var. altissima	1	3	G--T5	N5	S5				N	L.
Canada Goldenrod	<i>Solidago canadensis</i> var. canadensis	1	3	G5T5	N5	S5				N	L.
Zigzag Goldenrod	<i>Solidago flexicaulis</i>	6	3	G5	N5	S5				N	L.
Early Goldenrod	<i>Solidago juncea</i>	3	5	G5	N5	S5				N	Ait.
Rough-stemmed Goldenrod	<i>Solidago rugosa</i>	4	0	G5	N5	S5				N	Miller
Rose Twisted-stalk	<i>Streptopus lanceolatus</i>	7	3	G5	N5	S5				N	(Aiton) Reveal

COMMON NAME	SCIENTIFIC NAME	CC 1	CW1	G_RANK	N_RANK	S_RANK	COSEWIC	SARA	SARO	NATIVE STATUS	AUTHOR
White Heath Aster	<i>Symphytotrichum ericoides</i>	4	3	G5	N5	S5				N	(L.) Nesom
Panicled Aster	<i>Symphytotrichum lanceolatum</i>	3	-3	G5	N5	S5				N	(Willdenow) Nesom
Calico Aster	<i>Symphytotrichum lateriflorum</i>	3	0	G5	N5	S5				N	(L.) Love & Love
New England Aster	<i>Symphytotrichum novae-angliae</i>	2	-3	G5	N5	S5				N	(L.) Nesom
Purple-stemmed Aster	<i>Symphytotrichum puniceum</i>	6	-5	G5	N5	S5				N	(L.) A. & D. Löve
Aster sp.	<i>Symphytotrichum sp.</i>										Nees
Common Dandelion	<i>Taraxacum officinale</i>		3	G5	N5	SNA				I	G.H. Weber ex Wiggers
Purple Meadow-rue	<i>Thalictrum dasycarpum</i>	5	-3	G5	NNR	S4?				N	Fisch. & Ave-Lall.
Marsh Fern	<i>Thelypteris palustris</i>	5	-3	G5	N5	S5				N	Schott
Eastern White Cedar	<i>Thuja occidentalis</i>	4	-3	G5	N5	S5				N	L.
Basswood	<i>Tilia americana</i>	4	3	G5	N5	S5				N	L.
Eastern Poison Ivy (Climbing)	<i>Toxicodendron radicans</i> var. <i>radicans</i>	2	0	G5T5	N4	S5				N	(L.) Kuntze
Red Trillium	<i>Trillium erectum</i>	6	3	G5	N5	S5				N	L.
White Trillium	<i>Trillium grandiflorum</i>	5	3	G5	N5	S5				N	(Michx.) Salisb.
Eastern Hemlock	<i>Tsuga canadensis</i>	7	3	G5	N5	S5				N	(L.) Carr.
Coltsfoot	<i>Tussilago farfara</i>		3	GNR	NNA	SNA				I	L.
Narrow-leaved Cattail	<i>Typha angustifolia</i>		-5	G5	N5	SNA				I	L.
Broad-leaved Cattail	<i>Typha latifolia</i>	1	-5	G5	N5	S5				N	L.
White Elm	<i>Ulmus americana</i>	3	-3	G5	N5	S5				N	L.
Common Mullein	<i>Verbascum thapsus</i>		5	GNR	NNA	SNA				I	L.
Cranberry Viburnum	<i>Viburnum opulus</i> ssp. <i>opulus</i>		-3	G5TNR	NNA	SNA				I	L.
Tufted Vetch	<i>Vicia cracca</i>		5	GNR	NNA	SNA				I	L.

COMMON NAME	SCIENTIFIC NAME	CC 1	CW1	G_RANK	N_RANK	S_RANK	COSEWIC	SARA	SARO	NATIVE STATUS	AUTHOR
Downy Yellow Violet	<i>Viola pubescens</i>	5	3	G5	N5	S5				N	Ait.
Woolly Blue Violet	<i>Viola sororia</i>	4	0	G5	N5	S5				N	Willd.
Violet sp.	<i>Viola sp.</i>										L.
Riverbank Grape	<i>Vitis riparia</i>	0	0	G5	N5	S5				N	Michx.

PLANT LIST LEGEND

Scientific Name, Common Name, and Family

Based on *Vascan* (Dec. 2018) and *NHIC* (Apr. 18, 2018)

Vascan: <http://data.canadensys.net/vascan/search>

NHIC: http://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/ProvincialServices/Ontario_Vascular_Plants.xlsx

Coefficient of Conservatism (CC) and Coefficient of Wetness (CW)

Oldham, M. J., W. D. Bakowsky and D. A. Sutherland. 1995. Floristic Quality Assessment System for Southern Ontario. Natural Heritage Information Centre, Ministry of Natural Resources. Peterborough, Ontario.

CC: Coefficient of Conservatism. Rank of 0 to 10 based on plants degree of fidelity to a range of synecological parameters: (0-3) Taxa found in a variety of plant communities; (4-6) Taxa typically associated with a specific plant community but tolerate moderate disturbance; (7-8) Taxa associated with a plant community in an advanced successional stage that has undergone minor disturbance; (9-10) Taxa with a high fidelity to a narrow range of synecological parameters.

CW: Coefficient of Wetness. Value between 5 and -5. A value of -5 is assigned to Obligate Wetland (OBL) and 5 to Obligate Upland (UPL), with intermediate values assigned to the remaining categories.

G-Rank (Global)

Global Status from Nature Serve (via NHIC, 2017)

Nature Serve: <http://explorer.natureserve.org/>

NHIC: http://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/ProvincialServices/Ontario_Vascular_Plants.xlsx

Global ranks are assigned by a consensus of the network of Conservation Data Centres (CDCs), scientific experts, and the Nature Conservancy to designate a rarity rank based on the range-wide status of a species, subspecies, or variety.

Global (G) Conservation Status Ranks

- G1: Extremely rare – usually 5 or fewer occurrences in the overall range or very few remaining individuals; or because of some factor(s) making it especially vulnerable to extinction.
- G2: Very rare – usually between 5 and 20 occurrences in the overall range or with many individuals in fewer occurrences; or because of some factor(s) making it vulnerable to extinction.
- G3: Rare to uncommon – usually between 20 and 100 occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances.
- G4: Common – usually more than 100 occurrences; usually not susceptible to immediate threats.
- G5: Very common – demonstrably secure under present conditions.
- G#G#: Range Rank – A numeric range rank (e.g., G2G3, G1G3) is used to indicate the range of uncertainty about the exact status of a taxon or ecosystem type. Ranges cannot skip more than two ranks (e.g., GU should be used rather than G1G4).
- GU: Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends. NOTE: Whenever possible (when the range of uncertainty is three consecutive ranks or less), a range rank (e.g., G2G3) should be used to delineate the limits (range) of uncertainty.
- GNR: Unranked – Global rank not yet assessed
- GNA: Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
- ?: Inexact Numeric Rank – Denotes inexact numeric rank; this should not be used with any of the Variant Global Conservation Status Ranks or GX or GH.

S-Ranks (Provincial)

Provincial Status from the NHIC (2017)

NHIC: http://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/ProvincialServices/Ontario_Vascular_Plants.xlsx

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.

Provincial/Sub-national (S) Conservation Status Ranks

- S1: Critically Imperiled – Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
- S2: Imperiled – Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
- S3: Vulnerable – Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4: Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- S5: Secure – Common, widespread, and abundant in the nation or state/province.
- S#S#: Range Rank – A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
- SNR: Unranked – Nation of state/province conservation status not yet assessed.
- SNA: Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
- ?: Inexact or Uncertain - Denotes inexact or uncertain numeric rank.

COSEWIC (Committee on the Status of Endangered Wildlife in Canada)

The federal review process is implemented by COSEWIC (Status as of Feb. 2018)

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is an independent advisory panel to the Minister of Environment and Climate Change Canada that meets twice a year to assess the status of wildlife species at risk of extinction.

<https://www.canada.ca/en/environment-climate-change/services/committee-status-endangered-wildlife.html>

COSEWIC Conservation Status Ranks

- END: Endangered – A species facing imminent extirpation or extinction.
- THR: Threatened – A species likely to become endangered if limiting factors are not reversed.
- SC: Special Concern (formerly vulnerable) – A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
- NAR: Not At Risk – A species that has been evaluated and found to be not at risk of extinction given the current circumstances.

SARA (Species at Risk Act) Status and Schedule

Federal status from the Government of Canada's Species at Risk Public Registry (Status as of Feb. 2018)

<http://www.registrelep-sararegistry.gc.ca/>

The Act establishes Schedule 1, as the official list of species at risk in Canada. It classifies those species as being either Extirpated, Endangered, Threatened, or a Special Concern. Once listed, the measures to protect and recover a listed species are implemented.

SARA Conservation Status Ranks

- END: Endangered – A species that is facing imminent extirpation or extinction.

- THR: Threatened – A species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
- SC: Special Concern – A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

Schedule 1: is the official list of species that are classified as extirpated, endangered, threatened, and of special concern.

Schedule 2: species listed in Schedule 2 are species that had been designated as endangered or threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

Schedule 3: species listed in Schedule 3 are species that had been designated as special concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

The Act establishes Schedule 1 as the official list of species at risk. However, please note that while Schedule 1 lists species that are extirpated, endangered, threatened and of special concern, the prohibitions do not apply to species of special concern. Species that were designated at risk by COSEWIC prior to October 1999 (Schedule 2 & 3) must be reassessed using revised criteria before they can be considered for addition to Schedule 1 of SARA. After they have been assessed, the Governor in Council may on the recommendation of the Minister, decide on whether or not they should be added to the List of Species at Risk.

SARO (Species at Risk in Ontario)

Provincial status from MNRF (Status as of Feb. 2018)

<https://www.ontario.ca/environment-and-energy/species-risk-ontario-list>

The provincial review process is implemented by the MNR's Committee on the Status of Species at Risk in Ontario (COSSARO). COSSARO is an independent advisory panel to the Ontario Ministry of Natural Resources and Forestry that assesses the status of species at risk of extinction.

MNRF Conservation Status Ranks

- END: Endangered – A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's Endangered Species Act (ESA).
- THR: Threatened – A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
- SC: Special Concern (formerly Vulnerable) – A species with characteristics that make it sensitive to human activities or natural events.
- NAR: Not at Risk – A species that has been evaluated and found to be not at risk.

Regional Status

- n/a in this area

Appendix B: Wildlife Species List

Common Name	Scientific Name	Grank ¹	Srank ²	SARO (ESA) Status ³	COSEWIC Status ⁴	SARA Status ⁵	SARA Schedule ⁵	MNR Area Sensitive ⁶	Area Sensitive Birds - Ecoregion 6E ⁶	Habitat Use ⁷	Dependency on Wetlands ⁸	NHIC Tracked	Protected Under MBCA	Observations ⁹
Birds														
American Crow	<i>Corvus brachyrhynchos</i>	G5	S5B							E		N		T
American Goldfinch	<i>Spinus tristis</i>	G5	S5B							E		N	x	T
American Redstart	<i>Setophaga ruticilla</i>	G5	S5B					X		I		N	x	T
American Robin	<i>Turdus migratorius</i>	G5	S5B							E		N	x	CF
American Woodcock	<i>Scolopax minor</i>	G5	S4B							E		N	x	S/H
Black-and-white Warbler	<i>Mniotilta varia</i>	G5	S5B					X		I		N	x	T
Black-capped Chickadee	<i>Poecile atricapillus</i>	G5	S5							I/E		N	x	T
Blue Jay	<i>Cyanocitta cristata</i>	G5	S5							I/E		N		T
Brown-headed Cowbird	<i>Molothrus ater</i>	G5	S4B							E		N		S/H
Cedar Waxwing	<i>Bombycilla cedrorum</i>	G5	S5B							E		N	x	T
Chipping Sparrow	<i>Spizella passerina</i>	G5	S5B							E		N	x	S/H
Common Grackle	<i>Quiscalus quiscula</i>	G5	S5B							E		N		T
Common Yellowthroat	<i>Geothlypis trichas</i>	G5	S5B							I/E	D	N	x	T
Downy Woodpecker	<i>Picoides pubescens</i>	G5	S5							I/E		N	x	T
Eastern Phoebe	<i>Sayornis phoebe</i>	G5	S5B							I/E		N	x	T
Eastern Wood-pewee	<i>Contopus virens</i>	G5	S4B	SC	SC	SC	1			I/E		N	x	S/H
European Starling	<i>Sturnus vulgaris</i>	G5	SNA							E		N		S/H
Gray Catbird	<i>Dumetella carolinensis</i>	G5	S4B							I/E		N	x	S/H
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	G5	S4B							I/E		N	x	T
Hairy Woodpecker	<i>Picoides villosus</i>	G5	S5					X		I	P	N	x	S/H
Herring Gull	<i>Larus argentatus</i>	G5	S5B,S5N									N	x	X
House Wren	<i>Troglodytes aedon</i>	G5	S5B							E		N	x	S/H
Indigo Bunting	<i>Passerina cyanea</i>	G5	S4B							E		N	x	T
Killdeer	<i>Charadrius vociferus</i>	G5	S5B,S5N									N	x	S/H

Common Name	Scientific Name	Grank ¹	Srank ²	SARO (ESA) Status ³	COSEWIC Status ⁴	SARA Status ⁵	SARA Schedule ⁵	MNR Area Sensitive ⁶	Area Sensitive Birds - Ecoregion 6E ⁶	Habitat Use ⁷	Dependency on Wetlands ⁸	NHIC Tracked	Protected Under MBCA	Observations ⁹
Mourning Dove	<i>Zenaida macroura</i>	G5	S5							E		N	x	T
Mourning Warbler	<i>Geothlypis philadelphia</i>	G5	S4B							E	P	N	x	S/H
Northern Cardinal	<i>Cardinalis cardinalis</i>	G5	S5							I/E		N	x	T
Northern Flicker	<i>Colaptes auratus</i>	G5	S4B							I/E		N	x	S/H
Pileated Woodpecker	<i>Dryocopus pileatus</i>	G5	S5					X		I		N	x	X
Purple Finch	<i>Carpodacus purpureus</i>	G5	S4B							I/E		N	x	S/H
Red-breasted Nuthatch	<i>Sitta canadensis</i>	G5	S5					X	X	I		N	x	S/H
Red-eyed Vireo	<i>Vireo olivaceus</i>	G5	S5B							I/E		N	x	T
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	G5	S4							E	P	N		T
Rock Pigeon	<i>Columba livia</i>	G5	SNA									N	x	S/H
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	G5	S4B							I/E		N	x	T
Ruffed Grouse	<i>Bonasa umbellus</i>	G5	S4							I/E		N		S/H
Song Sparrow	<i>Melospiza melodia</i>	G5	S5B							E		N	x	T
Turkey Vulture	<i>Cathartes aura</i>	G5	S5B									N		X
Wood Thrush	<i>Hylocichla mustelina</i>	G5	S4B	SC	THR	THR	1			I/E		N	x	S/H
Yellow Warbler	<i>Setophaga petechia</i>	G5	S5B							E	P	N	x	S/H
Herpetiles														
American Toad	<i>Anaxyrus americanus</i>	G5	S5									N		OB
Gray Treefrog	<i>Hyla versicolor</i>	G5	S5									N		OB
Green Frog	<i>Lithobates clamitans</i>	G5	S5									N		OB
Spring Peeper	<i>Pseudacris crucifer</i>	G5	S5									N		VO
Mammals														
Eastern Chipmunk	<i>Tamias striatus</i>	G5	S5									N		OB/VO
Eastern Cottontail	<i>Sylvilagus floridanus</i>	G5	S5									N		OB/VO
Grey Squirrel	<i>Sciurus carolinensis</i>	G5	S5									N		OB/VO
Red Fox	<i>Vulpes vulpes</i>	G5	S5									N		HO
Red Squirrel	<i>Tamiasciurus hudsonicus</i>	G5	S5									N		OB/VO

Common Name	Scientific Name	Grank ¹	Srank ²	SARO (ESA) Status ³	COSEWIC Status ⁴	SARA Status ⁵	SARA Schedule ⁵	MNR Area Sensitive ⁶	Area Sensitive Birds - Ecoregion 6E ⁶	Habitat Use ⁷	Dependency on Wetlands ⁸	NHIC Tracked	Protected Under MBCA	Observations ⁹
White-tailed Deer	<i>Odocoileus virginianus</i>	G5	S5									N		CA
Insects														
Cabbage White	<i>Pieris rapae</i>	G5	SNA									N		OB
Ebony Jewelwing	<i>Calopteryx maculata</i>	G5	S5									N		OB

WILDLIFE LIST LEGEND

¹G-Rank (global)

Global ranks are assigned by a consensus of the network of Conservation Data Centres (CDCs), scientific experts, and the Nature Conservancy to designate a rarity rank based on the range-wide status of a species, subspecies, or variety.

- G1 Extremely rare - usually 5 or fewer occurrences in the overall range or very few remaining individuals; or because of some factor(s) making it especially vulnerable to Extinction.
- G2 Very rare - usually between 5 and 20 occurrences in the overall range or with many individuals in fewer occurrences; or because of some factor(s) making it vulnerable to Extinction.
- G3 Rare to uncommon - usually between 20 and 100 occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances.
- G4 Common - usually more than 100 occurrences; usually not susceptible to immediate threats.
- G5 Very common - demonstrably secure under present conditions.

²S-Rank (provincial)

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.

- S1 Critically Imperiled - Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
- S2 Imperiled - Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
- S3 Vulnerable - Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4 Apparently Secure - Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- S5 Secure - Common, widespread, and abundant in the nation or state/province.
- S#S# Range Rank - A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
- SAN Non-breeding accidental.
- SE Exotic - not believed to be a native component of Ontario's fauna.
- SZN Non-breeding migrants/vagrants.
- SZB Breeding migrants/vagrants.

³SARO (Species at Risk in Ontario) Status

Provincial status from MECP (Status as of Jan 2020)

<https://www.ontario.ca/page/species-risk-ontario>

The provincial review process is implemented by the Committee on the Status of Species at Risk in Ontario (COSSARO). COSSARO is an independent advisory panel to the Ontario Ministry of Environment, Conservation and Parks (MECP) that assesses the status of species at risk of extinction.

MECP Conservation Status Ranks

- EXT Extinct - A species that no longer exists anywhere in the world.
- EXP Extirpated - A species that lives somewhere in the world, lived at one time in the wild in Ontario, but no longer lives in the wild in Ontario.
- END Endangered - A species that is facing imminent Extinction or extirpation.
- THR Threatened - A species that is likely to become Endangered if steps are not taken to address factors threatening to lead to its Extinction or extirpation.
- SC Special Concern – A species that may become Threatened or Endangered because of a combination of biological characteristics and identified threats.

⁴COSEWIC (Committee on the Status of Endangered Wildlife in Canada)

The federal review process is implemented by COSEWIC (Status as of Jan 2020)

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is an independent advisory panel to the Minister of Environment and Climate Change Canada that meets twice a year to assess the status of wildlife species at risk of extinction.

<https://www.canada.ca/en/environment-climate-change/services/committee-status-endangered-wildlife.html>

COSEWIC Conservation Status Ranks

- EXT Extinct - A species that no longer exists.
- EXP Extirpated - A species no longer existing in the wild in Canada, but occurring elsewhere.
- END Endangered - A species facing imminent extirpation or Extinction.
- THR Threatened - A species likely to become Endangered if limiting factors are not reversed.
- SC Special Concern (formerly vulnerable) - A species that may become a Threatened or an Endangered species because of a combination of biological characteristics and identified threats.
- NAR Not At Risk - A species that has been evaluated and found to be not at risk of Extinction given the current circumstances.
- DD Data Deficient (formerly Indeterminate) - Available information is insufficient to resolve a species' eligibility for assessment or to permit an assessment of the species' risk of Extinction.

⁵SARA (Species at Risk Act) Status and Schedule

Federal status from the Government of Canada's Species at Risk Public Registry (Status as of Jan 2020)

<https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>

The Act establishes Schedule 1, as the official list of wildlife species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or a Special Concern. Once listed, the measures to protect and recover a listed wildlife species are implemented.

- EXT Extinct - A wildlife species that no longer exists.
- EXP Extirpated - A wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
- END Endangered - A wildlife species that is facing imminent extirpation or Extinction.
- THR Threatened - A wildlife species that is likely to become Endangered if nothing is done to reverse the factors leading to its extirpation or Extinction.
- SC Special Concern - A wildlife species that may become a Threatened or an Endangered species because of a combination of biological characteristics and identified threats.

Schedule 1: is the official list of species that are classified as Extirpated, Endangered, Threatened and Special Concern.

Schedule 2: species listed in Schedule 2 are species that had been designated as Endangered or Threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

Schedule 3: species listed in Schedule 3 are species that had been designated as Special Concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

The Act establishes Schedule 1 as the official list of wildlife species at risk. However, please note that while Schedule 1 lists species that are Extirpated, Endangered, Threatened and Special Concern, the prohibitions do not apply to species of Special Concern.

Species that were designated at risk by COSEWIC prior to October 1999 (Schedule 2 & 3) must be reassessed using revised criteria before they can be considered for addition to Schedule 1 of SARA. After they have been assessed, the Governor in Council may on the recommendation of the Minister, decide on whether or not they should be added to the List of Wildlife Species at Risk.

6 MNR Area Sensitive Species

Area Sensitivity is defined as species requiring large areas of suitable habitat in order to sustain population numbers

From: Ministry of Natural Resources. 2000. Significant Wildlife Habitat Technical Guide. Fish and Wildlife Branch, Wildlife Section. Science Development and Transfer Branch, Southcentral Science Section. 151pp. + appendices.

AND/OR

From: Ministry of Natural Resources and Forestry. 2015. Significant Wildlife Habitat Criteria Schedules For Ecoregion 6E. January, 2015. Regional Operations Division, Southern Region Resources Section. 39pp.

7 Habitat Use

I=interior species, I/E=interior edge species, E=edge species (Freemark and Collins, 1989); M/F=Marsh/Fen, S/B=Treeed Swamp/Bog. Interior bird species require habitat which is often found 100m from the forest edge while Interior/Edge species are found within both interior and edge habitat. Often Interior and Interior/Edge are more sensitive to urban encroachment as they require these large, relatively undisturbed forest habitats to support viable populations. The increasing urbanization of rural areas often results in increased parasitism and predation as well as disturbance from human recreational activities (e.g. illegal bike trails, dumping and pets.) (Freemark, K. and Collins, B. 1989. *Landscape ecology of birds breeding in temperate forest fragments.* – In: Hagan III, J. M. and Johnston, D. W. (eds), *Ecology and conservation of neotropical migrant landbirds.* Smithsonian Inst. Press, pp. 443–454)

8 Dependancy on Wetlands

Wetlands are home to many species of birds. Wetland birds are determined by the kind of habitat and the seasonal movement of migrating species.

Dependant (D) - These species depend on wetlands for their survival. Most nest within wetlands, a few such as the Great Blue Heron, nest elsewhere but feed extensively in wetlands, and other such as the Wood Duck, nest away from wetlands but rear their young in marshes and fens.

Partially Dependant (P) - These species use wetlands habitats extensively for breeding or feeding, as well as other types of habitat.

Van Patter, Mark and Stewart Hilts. 1985. Some Important Wetlands of Ontario South of the Precambrian Shield. Federation of Ontario Naturalists.

9 Ontario Breeding Bird Atlas - Breeding Evidence Codes

OBSERVED

X Species observed in its breeding season (no breeding evidence).

POSSIBLE

H Species observed in its breeding season in suitable nesting habitat.

S Singing male(s) present, or breeding calls heard, in suitable nesting habitat in breeding season.

PROBABLE

P Pair observed in suitable nesting habitat in nesting season.

T Permanent territory presumed through registration of territorial behaviour (song, etc.) on at least two days, a week or more apart, at the same place.

D Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation.

V Visiting probable nest site

A Agitated behaviour or anxiety calls of an adult.

B Brood Patch on adult female or cloacal protuberance on adult male.

N Nest-building or excavation of nest hole.

CONFIRMED

DD Distraction display or injury feigning.

NU Used nest or egg shells found (occupied or laid within the period of the survey).

- FY Recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight.
- AE Adult leaving or entering nest sites in circumstances indicating occupied nest.
- FS Adult carrying fecal sac.
- CF Adult carrying food for young.
- NE Nest containing eggs.
- NY Nest with young seen or heard.

⁹ Wildlife Evidence Codes

- BE Bedding Evidence
- CA Carcass
- DP Distinctive Parts
- FE Feeding Evidence
- HO House/Den
- OB Observed
- RK Roadkill
- SC Scat
- TK Tracks
- VO Vocalization