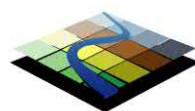




ENVIRONMENTAL IMPACT STATEMENT

Plan of Subdivision and Rezoning Applications
2060 Division Road, Township of Severn

November 2021



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ENVIRONMENTAL IMPACT STATEMENT

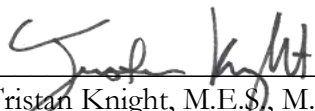
Plan of Subdivision Application
2060 Division Road, Township of Severn

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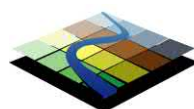
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10 November 2021

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1 INTRODUCTION

1.1 Study Background

Terrastory Environmental Consulting Inc. (hereinafter “Terrastory”) was retained by South Shore Homes to prepare this Environmental Impact Statement (EIS) in reference to a Plan of Subdivision and Zoning By-law Amendment (ZBA) applications at 2060 Division Road (hereinafter “Subject Property”) in Severn. The Subject Property is an approximately 12.7 hectare (31.4 acre) parcel with approximately 470 metres (m) of frontage on Division Road. The Subject Property is also bounded by a commercial parcel (west), utility corridor (north), and Carriage Court (east). The lands considered herein are currently vacant and were historically maintained in part for agricultural purposes; vestiges of this former use remain (e.g., fallowed and naturalizing fields, access trails used by farm machinery, stone/boulder fences, etc.). Natural features include a complex of woodland, wetland, and meadow. The location of the Subject Property within its broader landscape setting is shown in **Figure 1**.

The Subject Property is situated within the Bass Lake and Marchmont Settlement Areas and is designated Country Residential pursuant to Schedule A6 of the Township’s Official Plan (OP). The Settlement Area designation is also reflected on Schedule 5.1 of Simcoe County’s OP. By-Law No. 2017-77 amended the Township’s Comprehensive Zoning By-law in 2017 to facilitate rezoning of the Subject Property from Rural (RU) to Rural Holding Thirty-One (RU-H31).

The subdivision application considered herein proposes to create twenty-three (23) residential lots on private water (i.e., well) and wastewater (i.e., individual septic systems) servicing, supported by internal municipal roads (Streets A, B, C), a pedestrian footpath, and a stormwater management (hereinafter “SWM”) block. Lots 1-15 will be accessed from Division Road while the remaining Lots 16-23 will be accessed from Carriage Court. The County requested submission of this EIS in support of the applications through pre-application consultation (comment letter dated 13 March 2018). Fieldwork in support of this EIS originally commenced in 2018 by others (RiverStone Environmental Consulting Inc.) with responsibility for the study subsequently transferred to Terrastory. While the County’s pre-consultation comments identified the need for a Township and County approved Terms of Reference (ToR) to define the scope and content of this study, upon review of the documentation transferred to Terrastory an approved ToR does not appear to have been in place in advance of 2018 field activities undertaken by others.

This EIS report was originally prepared in October 2020 for submission. It is understood that the submission was delayed to allow for minor tweaks to the lot configuration (e.g., daylight triangles, etc.).

1.2 Study Purpose

The purpose of this study is to present a biophysical characterization of the Subject Property and Adjacent Lands as a means to assess the potential for adverse effects on the natural environment and natural heritage features stemming from the proposed development and site alteration activities. The scope and approach of this report address the requirements of Township OP policy E.4.1.15 and other applicable natural heritage policies at municipal, provincial, and federal levels. It is understood that this report will form part of the subdivision and ZBA application package to be submitted for consideration by the Township and County.

1.3 Other Technical Plans and Reports Reviewed

The following technical reports/plans which also form part of the application submission were reviewed, with their findings incorporated into this EIS as appropriate:

- Preliminary Stormwater Management Report (Tatham Engineering, 6 July 2020);
- Functional Servicing Report (Tatham Engineering, 18 June 2020); and
- Hydrogeological Assessment (Ian D. Wilson Associates Ltd., 15 November 2019).

2 APPROACH AND METHODS

This study is composed of five (5) discrete components which are bulleted below and further described in the following sections.

- **Acquiring background biophysical information and mapping** available for the local landscape surrounding the Subject Property (see **Section 2.1**).
- **Conducting site assessments and ecological surveys** to field-verify the accuracy of the acquired background biophysical information and collect additional biophysical information as necessary (see **Section 2.2**).
- **Assessing the significance** of the biophysical information collected and natural features identified within the context of applicable natural heritage and environmental policies (see **Section 2.3**).
- **Predicting the effects** of the application on the identified significant natural features and natural environment, particularly the net effects once mitigation measures and technical recommendations are implemented (see **Section 2.4**).
- **Determining whether the proposed application addresses applicable natural heritage and environmental policies** at municipal, provincial, and federal levels (see **Section 2.5**).

2.1 Background Biophysical Information Assessment

This study is supported by background biophysical information and mapping acquired and reviewed from a variety of sources which are listed below in **Table 1**.

Table 1. Background Biophysical Information Acquired and Reviewed.

Type of Information Acquired	Description
Ortho-rectified Aerial Photographs	<ul style="list-style-type: none"> • 1954, 1989, 1997, 2002, 2008-2009, 2011-2019.
Natural Feature Mapping	<ul style="list-style-type: none"> • Township of Severn Official Plan (September 2010) Schedule A6 and F. • County of Simcoe Official Plan (consolidated December 2016) Schedules 5.1 and 5.2.1-5.2.6. • Land Information Ontario (LIO) accessed via MNRF's "Make a Map" web-based platform (accessed 24 April 2019).

Type of Information Acquired	Description
Physiographic Resource Mapping and Datasets	<ul style="list-style-type: none"> • Topographic Survey of the Subject Property. • Well Records (publicly-available). • The Soils of Simcoe County (Hoffman et al. 1962). • Agricultural Information Atlas (accessed 24 April 2019). • Paleozoic Geology of Southern Ontario (Armstrong and Dodge 2007). • Surficial Geology of Southern Ontario (Ontario Geological Survey 2010). • Physiography of Southern Ontario (Chapman and Putnam 1984).
Ecological Resource Mapping and Datasets	<ul style="list-style-type: none"> • Natural Heritage Information Centre (NHIC) database accessed via MNRF’s “Make a Map” web-based platform (squares: 17PK1743, 17PK1843, 17PK1742, 17PK1741; accessed 13 March 2020). • iNaturalist “(NHIC) Rare species of Ontario” project (accessed 13 March 2020). • Ontario Breeding Bird Atlas (OBBA) database and the Atlas of the Breeding Birds of Ontario, 2001–2005 (Cadman et al. 2007) (square: 17PK14). • Ontario Reptile and Amphibian Atlas database (square: 17PK14; accessed 10 April 2019). • Ontario Butterfly Atlas database (square: 17PJ29; accessed 13 March 2020). • Aquatic Species at Risk Maps by Fisheries and Oceans Canada (accessed 13 March 2020). • Atlas of the Mammals of Ontario (Dobbyn 2005).
Natural Heritage Objectives and Strategies	<ul style="list-style-type: none"> • Great Lakes Conservation Blueprint for Terrestrial Biodiversity, Volume 2 (Henson and Brodribb 2005). • Great Lakes Conservation Blueprint for Aquatic Biodiversity, Volume 2 (Phair et al. 2005)

2.2 Site Assessments and Surveys

The acquired background information per **Table 1** helped direct several site assessments carried out by Terrastory staff (T. Knight) and others between June 2018 and August 2019. **Table 2** below indicates the primary assessments/surveys performed during each site visit, weather conditions, and time on-site.

Table 2. Site Assessments and Surveys performed on the Subject Property.

Date of Site Assessment	Assessments/Surveys Performed	Company (Staff)	Weather Conditions	Time On-site
5 June 2018	Bat Snag/Cavity Tree Assessment; Anuran Calling Survey.	RiverStone (C. Mann)	Air Temperature 10-11°C; Beaufort Wind 1; Cloud Cover overcast; drizzling/damp.	15:00-19:45; 21:30-22:00
21 June 2018	Breeding Bird Survey #1.	RiverStone (staff unknown)	Air Temperature 15°C; Beaufort Wind 1.	8:30-?
7 July 2018	Breeding Bird Survey #2; ELC Vegetation Mapping.	RiverStone (staff unknown)	Air Temperature 20°C; Beaufort Wind 1.	6:30-?

Date of Site Assessment	Assessments/Surveys Performed	Company (Staff)	Weather Conditions	Time On-site
27 September 2018	Wetland Boundary delineation (per OWES).	Terrastory (T. Knight)	Warm, no precipitation.	12:00-15:00
24 April 2019	OSAP Channel Morphology Assessment; Stick Nest Survey; Anuran Calling Survey #1, incidental observations.	Terrastory (T. Knight)	Air Temperature 6-9°C; Beaufort Wind 2-3; Cloud Cover 0-50%; No Precipitation.	16:15-19:00; 20:45-21:15
17 May 2019	Anuran Calling Survey #2, incidental observations.	Terrastory (T. Knight)	Air Temperature 11°C; Beaufort Wind 0; Cloud Cover 0%; Full Moon and No Precipitation.	21:00-21:45
13 August 2019	Updated ELC Vegetation Mapping, incidental observations.	Terrastory (T. Knight)	Warm, no precipitation.	11:30-16:45
10 October 2020	Confirm existing conditions in advance of application submission.	Terrastory (T. Knight)	Mild, mostly cloudy.	15:00-16:00

The site assessments and surveys centred on characterizing the land use (e.g., historical development patterns, existing built features, land maintenance, etc.), physiographic (e.g., topography, drainage, surface water features, etc.), and ecological (e.g., vegetation, wildlife, habitats, etc.) conditions and features of the Subject Property and (where appropriate) Adjacent Lands. All land-use, physiographic, and ecological information described for Adjacent Lands were collected from either current aerial photographs, observations from inside the Subject Property, and/or publicly-accessible areas (e.g., rights-of-way, etc.). The locations and boundaries of significant natural features and/or habitats were recorded on-site with a high-accuracy GPS (Mesa II) supported by representative photographs.

In addition to collecting general biophysical information, the following targeted assessments (i.e., feature- or species-specific surveys) were undertaken:

- Vegetation Mapping according to Ecological Land Classification (ELC):** Vegetation communities on the Subject Property were characterized and mapped according to Ecological Land Classification (Lee et al. 1998) and the 2008 update to the Vegetation Type List (Lee 2008). Vegetation communities were initially identified based on current aerial photographs and then verified and refined (as necessary) on-site. ELC mapping was scaled to the finest level of resolution deemed appropriate (i.e., either Ecosite or Vegetation Type).
- Wetland Boundaries:** Where wetlands were identified via ELC, their boundaries were delineated consistent with the “50% wetland vegetation rule” and presence of hydric soils per the procedures of the Ontario Wetland Evaluation System (OWES) (OMNRF 2014).
- Vascular Plant Survey:** A list of vascular plants was created based on an area search (“wandering transects”) within naturally-occurring (i.e., non-planted) or naturalizing areas of vegetation. Particular effort was paid to areas with the greatest potential to support significant vascular plants (i.e., designated Species at Risk, provincially rare, etc.) and areas with the greatest potential for impact based on the proposed development plan. Nomenclature and common names for the recorded vascular plant

species are generally consistent with the Southern Ontario Vascular Plant Species List (Bradley 2013) except where a name change has more recently been adopted by NHIC.

- **Anuran Calling Surveys according to the Marsh Monitoring Protocol:** Three rounds of Anuran calling surveys were conducted in accordance with the Marsh Monitoring Protocol (Bird Studies Canada et al. 2008). Surveys occurred within the appropriate season (April to June), time of day (between 30 minutes after sunset and 12:00am), and weather conditions (minimal to no rain, wind speed ≤ 3 on the Beaufort Wind Scale). The first two rounds of surveys (to capture early and mid-season breeders) were undertaken in 2019 by Terrastory while the third round (mid- to late-season breeders) was undertaken in early June by others. It is noted that the Anuran calling survey undertaken by others did not conform to the most appropriate timing window (June 15-30) and weather conditions ($>15^{\circ}\text{C}$) for surveying late season breeders; as such, a habitat-based approach is employed herein (supported by active visual searches for individuals in August 2019) to identify suitable breeding areas for Green Frog (*Litobates clamitans*) and American Bullfrog (*Litobates catesbeianus*) on the Subject Property.
- **Breeding Bird Surveys according to the Ontario Breeding Bird Atlas Protocol:** Two rounds of breeding bird surveys were conducted in accordance with the Ontario Breeding Bird Atlas (OBBA) protocol (Bird Studies Canada et al. 2001). Surveys occurred within the appropriate season (May 24–July 10), time of day (between dawn and approximately 5 hours after dawn), and weather conditions (no rain, wind speed ≤ 3 on the Beaufort Wind Scale). All formal breeding bird surveys were undertaken by others in 2018. Terrastory staff recorded additional bird species incidentally while undertaking other site assessments and ecological surveys in 2019.
- **Bat Roosting Habitat Assessment and Ultrasonic Acoustic Monitoring:** A targeted bat habitat survey within the Subject Property focused on identifying candidate maternity roost sites (e.g., snags, cavity trees, etc.) consistent with protocols outlined in the *Survey protocol for Species at Risk Bats within treed habitats: Little Brown Myotis, Northern Myotis and Tri-colored Bat* (MNRF 2017) was undertaken by others in 2018. Ultrasonic acoustic monitors were also deployed by others in 2018 to document the local bat community. Acoustic monitoring was completed between sunset and sunrise each day using a SM4BAT full spectrum digital song meter (Wildlife Acoustics Inc.) and an ultrasonic microphone. All recordings were analyzed manually by Terrastory with the assistance of Kaleidoscope Pro Analysis Software (Wildlife Acoustics Inc.).
- **Ontario Stream Assessment Protocol (OSAP):** Fish and aquatic habitat conditions within all on-site surface water features were assessed in accordance with the Ontario Stream Assessment Protocol (OSAP) (Stanfield 2010). A modified-version of the OSAP Section 4, Module 1 (Rapid Assessment Methodology for Channel Structure) was employed to collect the aquatic data. OSAP provides a standard assessment technique for characterizing watercourses and their attendant fish and aquatic habitat conditions at specific locations (stations). Information to collect includes bankfull and wetted widths, channel structure, evidence of erosion, instream cover, substrate type, stability, and aquatic and riparian vegetation, and other relevant characteristics.

2.3 Significance Assessment

2.3.1 Definitions and Criteria

“Significant natural features” as described herein represent natural features and habitats that have recognized status (and therefore policy significance) within the planning jurisdiction in which an application is proposed (i.e., Township of Severn and County of Simcoe). The Subject Property is

situated outside the Natural Heritage System (NHS) of the 2019 Growth Plan and the County's NHS (Greenlands System). As a result, the natural heritage policies of the Growth Plan are not applicable to this application. As such, "significant natural features" are defined herein to include those referenced in section 2.1 of the 2014 Provincial Policy Statement (PPS), namely:

- Significant Wetlands;
- Significant Woodlands;
- Significant Valleylands;
- Significant Wildlife Habitat (SWH);
- Significant Areas of Natural and Scientific Interest (ANSIs);
- Habitat of Endangered and Threatened Species; and
- Fish Habitat.

The County OP provides provisions that consider and/or protect additional significant natural features beyond the requirements of the PPS. The potential presence of these regionally/locally significant features are also considered herein and include:

- Evaluated Wetlands and Wetlands >2 ha designated by the Township OP; and
- Regionally Significant ANSIs.

Criteria used to determine the presence or absence of the above significant natural features within the Subject Property were considered from a variety of sources including the Township and County OPs, Natural Heritage Reference Manual (MNR 2010a), and (for Significant Wildlife Habitat) the Ecoregion 6E Criteria Schedule (MNRF 2015).

Like significant natural features, "significant species" represent individuals of wild species which have recognized status (and therefore policy significance) within the planning jurisdiction in which an application is proposed. Significant species are defined herein to include:

- Species designated Endangered, Threatened, or Special Concern under O. Reg. 230/08 pursuant to the provincial *Endangered Species Act, 2007*.
- Species designated Provincially Rare (i.e., S1, S2, or S3) by NHIC.

2.3.2 Determination

After collecting the background biophysical information and conducting the site assessments the data was interpreted to determine whether any significant natural features (i.e., provincially, regionally/locally), and/or significant species occur on the Subject Property and/or Adjacent Lands. If a natural feature or species met the significance criteria, it is considered "confirmed". If a natural feature or species may be present on the Subject Property and/or Adjacent Lands given the prevailing biophysical or habitat conditions but was not confirmed based on either background or site-specific biophysical data, it is considered potential or "candidate". Candidate significant natural features and species are treated as confirmed where no additional information is available.

2.4 Effects Assessment and Mitigation

The potential ecological effects of an application can be understood spatially as zones that radiate outward from the direct project footprint (i.e., building envelope, etc.) and associated areas of site alteration. While the greatest potential for effects typically occurs within areas directly subject to development or disturbance, surrounding areas may also be affected indirectly. Such indirect effects can include light or noise pollution that affects wildlife communities on Adjacent Lands, or degradation of water quality within a downstream receptor resulting from sediment runoff during construction.

The following five-pronged approach is employed herein to assess the effects of an application on significant natural features and species and (where warranted) the natural environment in general:

1. **Scope** the effects assessment to environmental components that warrant consideration. The effects assessment herein centres principally on significant natural features and species (i.e., those that have policy significance within the planning jurisdiction, as defined in **Section 2.3**) but may also consider general environmental effects where warranted.
2. **Identify the predicted direct and indirect effects** of the application on each significant natural feature or species during all project stages (i.e., pre- to -post-development) in the absence of mitigation. Direct effects are those where there is a cause-effect relationship between a proposed activity and an effect on natural feature or species (e.g., tree clearance within a building footprint, etc.). Indirect effects result when an activity is linked to a direct effect through a chain of foreseeable interactions or steps.
3. **Evaluate the significance** of the predicted effects for each environmental component based on their attributes (i.e., spatial extent, magnitude, timing, frequency, and duration) and likelihood (i.e., high, medium, low).
4. Where the potential for negative effects are anticipated, **recommend ecologically-meaningful mitigation measures** to avoid such impacts first (where possible), and where impacts cannot be avoided to minimize, compensate, and/or enhance as appropriate.
5. **Identify the predicted residual or net effects** of the application assuming implementation of all recommended mitigation measures.

Per step 4, mitigation measures are offered where the potential for negative effects are anticipated to a degree that cannot be supported given the prevailing policy context. Whenever possible Terrastory works iteratively with the project team as a means to identify development plan options that avoid negative effects. In general, avoidance measures that have already been incorporated into the application or project design are not duplicated as technical recommendations herein. The effects assessment and any recommended mitigation measures are provided in **Section 5**.

2.5 Natural Heritage Policy Context

There is an overlapping municipal, provincial, and federal policy framework respecting the protection of natural heritage features and areas in southern and central Ontario. These requirements are outlined as objectives, policies, and directives are principally contained in federal and provincial statutes, regulations, policy statements, Official Plans, and guidance documents. The overarching natural heritage policy framework directing development of the Subject Property is outlined below in **Table 3**. A determination of whether the application considered herein addresses such policies is provided in **Section 6**.

Table 3. Applicable Natural Heritage Policies.

Level of Government	Natural Heritage or Environmental Policy Requirements
Municipal	Township of Severn Official Plan (September 2010 office consolidation). County of Simcoe Official Plan (December 2016 office consolidation).
Provincial	Provincial Policy Statement 2014, pursuant to the <i>Planning Act</i> , R.S.O. 1990, c. P.13, including: <ul style="list-style-type: none"> Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005 (MNR 2010a). Significant Wildlife Habitat Technical Guide (MNR 2010b). Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNRF 2015). Significant Wildlife Habitat Mitigation Support Tool (MNRF 2014). Growth Plan 2019, pursuant to the <i>Places to Grow Act</i> , S.O. 2005, c. 13. <i>Endangered Species Act</i> (ESA), S.O. 2007, c. 6, including: <ul style="list-style-type: none"> Ontario Regulation 230/08 – Species at Risk in Ontario List. Ontario Regulation 242/08 – General. <i>Fish and Wildlife Conservation Act</i> , S.O. 1997, c. 41.
Federal	<i>Fisheries Act</i> , R.S.C. 1985, c. F-14, including: <ul style="list-style-type: none"> Fish and Fish Habitat Protection Policy Statement (DFO 2019). <i>Migratory Birds Convention Act</i> , S.C. 1994, c. 22, including: <ul style="list-style-type: none"> Migratory Birds Regulations, C.R.C., c. 1035.

3 EXISTING BIOPHYSICAL CONDITIONS

The following is a description of the biophysical features and conditions of the Subject Property, which are shown spatially on **Figure 2**. Representative photographs are provided in **Appendix 1**.

3.1 Land-use and Landscape Setting

The Subject Property is situated within the community of Marchmont just north of Bass Lake and east of Highway 12. The local landscape contains a mixture of low-density residential neighbourhoods, open areas maintained for agricultural purposes, and natural lands primarily comprised of woodland and swamp. Based on a review of historical aerial photographs, the Subject Property appears to have been maintained for agricultural purposes until (approximately) the 1990's. Fields that appeared to have been under cultivation (possibly for hay) in a 1989 aerial photograph are primarily restricted to areas characterized per 2019 vegetation mapping as meadows (see **Section 3.3.1**). The westernmost meadow on the Subject Property appears to have been ploughed in 2018 but was let fallow in 2019.

3.2 Physical Setting

Surficial geological mapping indicates that the soils on the Subject Property consist of silty sand to sandy glacial sediments associated with the Newmarket Till deposited near the terminus of the previous ice age (Ontario Geological Survey 2010). Simcoe County soils mapping characterizes the Subject Property as Tioga Sandy Loam and indicates this deposit is derived from calcareous outwash. (Hoffman et al. 1962). A soils investigation associated with ELC vegetation mapping

confirmed the preponderance of silty sand and sandy substrates within the Subject Property, with evidence of saturation (i.e., mottling) close to the surface in wetland areas.

Based on the topographic survey, the Subject Property is situated between 271.50-258.50 metres above sea level (masl) with an overall relief of 13 metres. Runoff is predominantly shed in a southeasterly direction. Wetland areas occur in the central portion of the Subject Property and along the southern property boundary (see **Section 3.3.1**). An ephemeral flow path aligned southward through the central wetlands (see **Figure 2**) was documented. Based on observations during spring and summer 2019 this flow path may only flow during the spring freshet when standing water levels in the adjacent wetlands are at their maximum. A swale that appears to have been created by “ditching” flows in an easterly direction from one of the southernmost wetlands (see **Figure 2**) and may have been constructed historically to promote drainage.

An intermittent watercourse is the primary surface water feature draining the Subject Property. This feature enters the Subject Property via culvert beneath Division Road, then flows eastward along the southern property boundary merging with a roadside ditch. Based on OSAP data collection on 24 April 2019 (see station location in **Figure 2**), the intermittent watercourse exhibited a bankfull width of 1.9 m, wetted width of 1 m, and maximum depth of 24 cm at the survey station shown on **Figure 2**. The intermittent watercourse exits the Subject Property via culvert beneath Carriage Court with flows continuing eastward past Wainman Line. Based on aerial photograph interpretation, it cannot be established whether the intermittent watercourse has a direct hydrological connection with the North River (or if its channel becomes ill-defined east of Wainman Line).

Publicly-accessible water well records from near the Subject Property indicate that bedrock is at least 60 m beneath the surface in the local landscape.

3.3 Ecological Setting

3.3.1 Vegetation Communities

Vegetation communities within the Subject Property are mapped on **Figure 2** and characterized in detail below. Certain upland seasonal pools denoted on **Figure 2** indicate areas of standing water with a short seasonal duration which lack sufficient vegetation (and/or are too small) to be appropriately mapped as wetlands.

The Subject Property contains a complex of wetland (swamp, marsh) and upland (forest and meadow) vegetation communities. The western third of the Subject Property is dominated by mixed meadows along a west-to-east moisture gradient from dry-fresh (MEMM3) to fresh-moist (MEMM4). The dry-fresh meadow community is dominated by Smooth Brome (*Bromus inermis*), New England Aster (*Symphotrichum novae-angliae*), Tall Goldenrod (*Solidago altissima*), Grass-leaved Goldenrod (*Euthamia graminifolia*), Wild Carrot (*Daucus carota*), and Kentucky Blue Grass (*Poa pratensis*). Based on a review of recent aerial photographs and preliminary vegetation mapping undertaken by others in summer 2018, the MEMM3 community appears to have been actively maintained for agricultural purposes (i.e., ploughed) in 2018 but was subsequently let fallow in 2019. The fresh-moist meadow is dominated by Reed-canary Grass (*Phalaris arundinacea*), Redtop (*Agrostis gigantea*), St. John’s Wort (*Hypericum perforatum*), Tall Goldenrod (*Solidago altissima*), Kentucky Bluegrass (*Poa pratensis*), and Lance-leaved Plantain (*Plantago lanceolata*). A few obligate wetland shrubs such as Slender Willow (*Salix petiolaris*) are scattered or in small clumps in this community near the

adjacent woodland edge. A gravel access road was recently constructed in the extreme southwest corner of the Subject Property.

A deciduous thicket swamp (SWTM5) was documented along the edge of the adjacent woodland and is dominated by Red-osier Dogwood (*Cornus sericea*), Slender Willow, and Narrow-leaved Meadowsweet (*Spiraea alba*), with Grass-leaved Goldenrod, Spotted Joe-pye Weed (*Eutrochium maculatum*), and Rough-leaved Goldenrod (*Solidago rugosa*) abundant in the herbaceous layer (see Photo 16 in **Appendix 1**).

The central portion of the Subject Property contains a mixture of mostly treed vegetation communities. An early-successional poplar deciduous forest (FODM8-1) dominated by Trembling Aspen (*Populus tremuloides*), Balsam Poplar (*Populus balsamifera*), and Green Ash (*Fraxinus pennsylvanica*) forms the western boundary of this area, which is topographically upslope of the adjacent wetlands to the east. The canopy is relatively open in certain places as a result of previous tree harvesting and canopy decline. Calico Aster (*Symphotrichum lateriflorum*), Tall Goldenrod, Wild Grape (*Vitis riparia*), Rough-leaved Goldenrod, Sensitive Fern (*Onoclea sensibilis*), and Graceful Sedge (*Carex gracillima*) dominate the herbaceous layer. North of this community and extending onto Adjacent Lands is a moist mixed forest (FOMM10-2) dominated by White Spruce (*Picea glauca*), White Birch (*Betula papyrifera*), Trembling Aspen, and White Elm (*Ulmus americana*). Late Goldenrod (*Solidago gigantea*), Poison-ivy (*Toxicodendron rydbergii*), Calico Aster, and Rough-leaved Goldenrod dominate the ground layer.

Downslope of the poplar and mixed forests is a broad wetland area with varying hydroperiods dictated by topographic position. The largest wetland community in this area is a mixed cedar-hardwood swamp (SWMM1-1) dominated by Eastern White Cedar (*Thuja occidentalis*) and Trembling Aspen with lesser amounts of Balsam Fir (*Abies balsamea*), Green Ash, and Red Maple (*Acer rubrum*). The ground layer is composed of Lady Fern (*Athyrium filix-femina*), Poison-ivy, Graceful Sedge, Rough-leaved Goldenrod, and (in places) Swamp Dewberry (*Rubus pubescens*). The boundary between this community and the adjacent moist upland forests was delineated based on OWES protocols (i.e., 50% wetland vegetation rule and presence of hydric soils); however, the boundary is generally diffuse and transitional. Portions of this community contain limited standing water during spring, though generally at a depth and duration that is insufficient to support wetland-specific wildlife (i.e., Anurans, etc.).

Reed-canary Grass dominated meadow marshes (MAMM1-3) occur in two separate locations. The northernmost MAMM1-3 community (see Photos 6 and 7 in **Appendix 1**) is subject to extensive flooding during spring and contains occasional Wool-grass (*Scirpus cyperinus*), Spotted Joe-pye Weed, Bittersweet Nightshade (*Solanum dulcamara*), Marsh Fern (*Thelypteris palustris*), and Slender Willow. Although much of this community lacked standing water by August 2019, an open water inclusion (see **Figure 2**) was documented which apparently contains permanent standing water (see Photo 8 in **Appendix 1**). This inclusion contained a surficial layer of freely floating aquatics including Northern Watermeal (*Wolffia borealis*), Columbia Watermeal (*Wolffia columbiana*), Great Duckweed (*Spirodela polyrrhiza*), Lesser Duckweed (*Lemna minor*), and algae, along with the submerged filamentous Stonewort (*Chara* spp.) and Floating-leaved Pondweed (*Potamogeton natans*). The northernmost MAMM1-3 is fringed by a deciduous thicket swamp (SWTM2-2) dominated by Silky Dogwood (*Cornus amomum*) and Slender Willow, with dense Reed-canary Grass beneath. A second Reed-canary Grass meadow marsh occurs about 50 m to the southeast, which acts as a large pond environment in early spring but was found to dry out significantly by August 2019 (see Photos 4 and

5 in **Appendix 1**). The configuration of this Reed-canary Grass meadow marsh (i.e., overall elliptical form) suggests it may be constructed (i.e., artificial or “dugout”), potentially to support historical agricultural activities. Portions of the northernmost Reed-canary Grass meadow marsh may also have been dugout historically, but this is not known with certainty.

Additional wetland communities occur along the southern property boundary at Division Road. This includes a third (potentially) constructed “pond” community that dries out significantly by mid summer. This community is described as a forb shallow marsh (MASM2-1) and contains Cyperus-like Sedge (*Carex pseudocyperus*), Water-parsnip (*Sium suave*), Marsh Bedstraw (*Galium palustre*), and Reed-canary Grass once water levels recede. The presence of Leafy Pondweed (*Potamogeton foliosus*) in this community suggests that it may retain minor standing water semi-permanently. A cattail shallow marsh (MASM1-1) parallels the roadside and appears to be supported primarily by ditch flows. Contiguous with this community to the north is a Freeman’s Maple (*Acer x freemanii*) deciduous swamp (SWDM3-3) containing abundant Silky Dogwood with Marsh Bedstraw and Reed-canary Grass in the herbaceous layer. To the east is a separate Freeman’s Maple swamp with occasional Trembling Aspen and Black Ash (*Fraxinus nigra*), with Wool-grass (*Scirpus cyperinus*), Fringed Sedge (*Carex crinita*), Marsh Bedstraw, and Hop Sedge (*Carex lupulina*).

East of the wetland complex is a separate poplar deciduous forest (FODM8-1) with a greater proportion of White Birch (*Betula papyrifera*) and American Basswood (*Tilia americana*). Along the northern boundary of the Subject Property is a late-successional forest dominated by Sugar Maple (*Acer saccharum*) with American Beech (*Fagus grandifolia*), White Ash (*Fraxinus americana*), Trembling Aspen, and occasional regeneration of Eastern White Cedar. Canada Honeysuckle (*Lonicera canadensis*) and Choke Cherry (*Prunus virginiana*) are the most abundant shrubs, while the herbaceous layer is dominated by Bracken Fern (*Pteridium aquilinum*), Poison-ivy, and Graceful Sedge. Review of a 1954 historical aerial photograph with consideration for the observed compositional and structural elements of this community indicates that it retains attributes of a mature (i.e., “older growth”) forest (see Photo 11 in **Appendix 1**).

To the south is a scrubby savannah (SVC) dominated by Scots Pine (*Pinus sylvestris*) with dense herbaceous flora characteristic of drier sites including Showy Tick-trefoil (*Desmodium canadense*) and Black-eyed Susan (*Rudbeckia hirta*), with Common Strawberry (*Fragaria virginiana*), Cow Vetch (*Vicia cracca*), Wild Carrot, and Tall Goldenrod. The contiguous meadow to the south is dominated by a similar assemblage of herbaceous flora.

3.3.2 Vascular Plants

A total of 167 vascular plant species were recorded within the Subject Property. A list of all vascular plant species recorded is provided in **Appendix 2**. No provincially rare vascular plants were documented. Black Ash was found in several locations (see **Section 4.4.1.2**)

3.3.3 Wildlife

The results of all wildlife-specific surveys undertaken in 2018 by others and 2019 by Terrastory are provided below.

3.3.3.1 Bats

Ultrasonic acoustic monitoring to characterize the assemblage of bat species that may be occupying the Subject Property was undertaken at two (2) stations (see **Figure 2**) between 4 June and 18 June

2018. The acoustic monitoring data was collected by others and analyzed individually by Terrastory with the assistance of Kaleidoscope Pro Analysis Software (Wildlife Acoustics Inc.); the results of which are provided below in **Table 4**. A small number of recordings were poor quality and/or exhibit amplitudes and frequencies which overlap amongst more than one species.

Acoustic detections of bats via recorded ultrasonic calls (including echolocation or “search” calls, social calls, and feeding “buzzes”) can be used to ascertain species presence and relative abundance of bats at a specific locality. Notwithstanding this, the number of detections (or “passes”) does not necessarily equate with the total number of individuals present at a particular station since the same individual may trigger the device several times while flying/foraging in the local area. Further, it is often not possible based on unattended (i.e., “passive”) monitoring to infer whether a recorded bat was interacting with the immediate habitat (i.e., foraging, roosting nearby, etc.) or simply making a short- or long-distance foray through the local landscape.

The greatest number of bat recordings were generated at station BA-1 (317). Big Brown Bat (*Eptesicus fuscus*) and/or Silver Haired Bat (*Lasionycteris noctivagans*) generated the greatest number species-specific recordings (53% of the recordings at BA-1). There is overlap in the amplitude and peak frequencies of Big Brown Bat and Silver-haired Bat calls such that many recordings cannot be reliably attributed to one species or the other. Only recordings with an amplitude ≥ 65 kHz can be attributed to Big Brown Bat, while mostly flat recordings with a peak frequency between 26-30 kHz are diagnostic for Silver-haired Bat (Humboldt State University Bat Lab 2011; Thorne 2017). Big Brown Bat and/or Silver-haired Bat were also the most abundant bat(s) recorded at BA-2 (63.8% of recordings); therefore, these two species appear to be in greatest abundance. Eastern Red Bat (*Lasiurus borealis*) and Hoary Bat (*Lasiurus cinereus*) were also recorded at BA-1 and BA-2.

A *Myotis* species triggered the acoustic monitors at BA-1 (21 detections) and BA-2 (10 detections). Given considerable overlap in the call amplitudes and frequencies of *Myotis* species, it is often not possible to attribute such calls to a particular species; however, the recorded signatures and prevailing habitat suggest that the calls were likely made by either Little Brown Myotis (*Myotis lucifugus*) or Northern Myotis (*Myotis septentrionalis*). The results of a survey for candidate bat maternity roosts (i.e., snags, cavity trees, exfoliating bark) completed by others in June 2018 is provided in **Appendix 3** with candidate roosts shown in **Figure 2**.

Table 4. Bats documented via Ultrasonic Acoustic Monitoring within the Subject Property.

Survey Station	Start Date	End Date	Species Detection (No. of Passes)
Bat 1	4 June 2018 (PM)	18 June 2018 (AM)	Big Brown Bat (1) Silver-haired Bat (45) Big Brown Bat / Silver-haired Bat (122) Eastern Red Bat (29) Hoary Bat (67) Little Brown Myotis / Northern Myotis (21) Call could not be confidently identified to species or genus (32) TOTAL PASSES (317)
Bat 2	4 June 2018 (PM)	18 June 2018 (AM)	Big Brown Bat (5) Silver-haired Bat (12) Big Brown Bat / Silver-haired Bat (126) Eastern Red Bat (2) Hoary Bat (54) Little Brown Myotis / Northern Myotis (10)

Survey Station	Start Date	End Date	Species Detection (No. of Passes)
			Call could not be confidently identified to species or genus (15) TOTAL PASSES (224)

3.3.3.2 Breeding Anurans

Anuran calling surveys were undertaken at five (5) stations on 5 June 2018, 24 April 2019, and 17 May 2019. The 5 June 2018 survey was undertaken by others and did not include AN-5. The locations of each survey station are shown on **Figure 2** while the full survey results are provided in **Appendix 4**. A general description of the Anuran communities present within the Subject Property is provided below.

Stations AN-1 and AN-5 surveyed the two (2) Reed-canary Grass meadow marshes (MAMM1-3) and their open water inclusions. Spring Peeper (*Pseudacris crucifer*) vocalizations at these stations were abundant (i.e., deafening), while Wood Frog (*Lithobates sylvaticus*) vocalizations appeared to be restricted to AN-1. Abundant Spring Peeper vocalizations were also recorded at stations AN-2 and AN-3 which targeted several wetland communities along Division Road.

It is noted that survey #1 (undertaken by others) occurred at a time period which was too late to comprehensively document early- and mid-season breeders (June 5) and too cool to document late-season breeders (11°C). A late-season Anuran survey (which would occur between approximately June 15-30 at temperatures $\geq 15^{\circ}\text{C}$) was not undertaken in 2019 as wetlands at four (4) of the calling stations (AN-1, AN-2, AN-3, AN-5) had already been confirmed as significant amphibian breeding habitat, and the one (1) additional station (AN-4) did not contain suitable habitat for significant populations of late-season breeding Anurans. Numerous Green Frog (*Lithobates clamitans*) and American Bullfrog (*Lithobates catesbeianus*) were documented in August 2019 in the open water inclusion associated with the northernmost Reed-canary Grass marsh, and as such this area is also considered significant breeding habitat for these species.

3.3.3.3 Breeding Birds

A total of twenty-two (22) bird species were recorded during the breeding bird surveys conducted in 2018 by others. The assemblage and abundance of birds recorded generally reflects the prevailing structure and composition of on-site vegetation communities (complex of meadow, forest, and swamp vegetation communities). The full breeding bird survey results indicating each species' breeding status by survey station can be found in **Appendix 5**. The locations of each survey station are shown in **Figure 2**. Based on documentation (i.e., field sheets) provided to Terrastory when the project was transferred, it appears that only BB-3 and BB-4 were surveyed twice (i.e., consistent with the OBBA protocol). BB-1 and BB-2 appear to have been surveyed once (21 June 2018), while BB-5 also appears to have been surveyed once (7 July 2018). As a result, most species are considered "possible" breeders. Additional bird species recorded incidentally by Terrastory are noted in **Section 3.3.3.4**.

One (1) significant bird species was recorded during the targeted breeding bird surveys by others in 2018: Wood Thrush (*Hylocichla mustelina*). A second significant bird species was recorded incidentally by Terrastory in 2019: Eastern Wood-pewee (*Contopus virens*). All documented locations of these species within the Subject Property along with their habitat requirements are described in **Section 4.3**.

3.3.3.4 Incidental Wildlife Recorded

Efforts to incidentally document wildlife were made during all site visits by Terrastory in 2019. In addition to the incidentally recorded Eastern Wood-pewee (see **Section 3.3.3.3**) several additional bird species were recorded by Terrastory which may breed within the Subject Property including American Woodcock (*Scolopax minor*) and Ruffed Grouse (*Bonasa umbellus*). An Osprey (*Pandion haliaetus*) was documented as a flyover (possibly nesting in the vicinity of Bass Lake) while Ruby-crowned Kinglet (*Regulus calendula*) and other early-migrant songbirds were documented in April 2019. A Barred Owl (*Strix varia*) was heard vocalizing on Adjacent Lands to the north of the Subject Property during the 24 April 2019 Anuran calling survey. A Dekay’s Brownsnake (*Storeria dekayi*) was documented as roadkill on Division Road west of AN-2. Limited Beaver (*Castor canadensis*) activity was documented, though the open water portions of the Reed-canary marshes are expected to dry out significantly by mid-summer under average rainfall conditions and probably do not support a permanent Beaver population.

4 SIGNIFICANCE ASSESSMENT

Based on the biophysical information collected during background information gathering (per **Table 1**) and the results of the site assessments and ecological surveys undertaken in 2018 and 2019 (per **Sections 2.2** and **3**), **Table 5** below provides a determination of whether or not significant natural features occur on the Subject Property. The shaded rows highlight features which may be present or are confirmed on the Subject Property or Adjacent Lands and are considered further as part of the effects assessment in **Section 5**. Significant natural feature mapping is provided in **Figure 3**.

Table 5. Summary of the Assessment of Significant Natural Features on the Subject Property and Adjacent Lands.

Significant Natural Feature	Status on the Subject Property	Status on Adjacent Lands (i.e., < 120 m from Subject Property)
PPS Significant Natural Features		
Significant Wetlands	<i>Absent.</i> See Section 4.1.	<i>Absent.</i> See Section 4.1.
Significant Woodlands	<i>Absent.</i> See Section 4.2.	<i>Absent.</i> See Section 4.2.
Significant Valleylands	<i>Absent.</i>	<i>Absent.</i>
Significant Wildlife Habitat	<i>Confirmed/ Candidate.</i> See Section 4.3.	<i>Confirmed/ Candidate.</i> See Section 4.3.
Significant Areas of Natural and Scientific Interest	<i>Absent.</i>	<i>Absent.</i>
Habitat of Endangered and Threatened Species (per ESA)	<i>Candidate.</i> See Section 4.4.	<i>Candidate.</i> See Section 4.4.
Fish Habitat (per <i>Fisheries Act</i>)	<i>Assumed.</i> See Section 4.4.1.2.	<i>Assumed.</i> Section 4.4.1.2.
Locally/Regionally Significant Natural Features (i.e., per Township and County OP)		
Evaluated Wetlands and Wetlands >2 ha designated by the Township OP	<i>Absent.</i> See Section 4.1.	<i>Absent.</i> See Section 4.1.
Regionally Significant Areas of Natural and Scientific Interest	<i>Absent.</i>	<i>Absent.</i>

4.1 Wetlands

Prior to the commencement of this study, no wetlands had been identified within the Subject Property based on municipal or provincial mapping. The results offered herein have confirmed the presence of several identified wetland communities including deciduous and mixed swamp, thicket swamp, and to a lesser extent shallow marsh and meadow marsh. The largest contiguous wetland unit exceeds 3 ha, while a smaller wetland in the western portion of the Subject Property (SWTM5) is less than 0.2 ha in size. All wetland communities are shown on **Figure 2**. None of the identified wetlands are currently considered Provincially Significant or Evaluated.

While the County OP provides additional consideration for wetlands >2 ha per policy 3.3.15(iii), this only applies to situations where a local OP has expressly identified such wetlands. No natural heritage features (wetlands or otherwise) are designated on Schedule A6 (Bass Lake and Marchmont Settlement Areas) of the Township's OP. On account of this, none of the wetlands occurring within the Subject Property are considered "significant" in the context of the definition offered in **Section 2.3.1**. Notwithstanding this, portions of these wetlands act as significant breeding habitat for amphibians (see **Section 4.3**).

4.2 Woodlands

Several "woodland" communities (i.e., forest and treed swamp) were documented during the site assessments and described in **Section 3.3.1**. Such communities are also identified in the provincial woodland spatial dataset available through Land Information Ontario. All woodland communities within the Subject Property are contiguous and form a single unit.

As outlined in **Section 2.3.2**, a determination of whether the woodland is significant should rely on a variety of criteria including those contained in the NHRM and local/County OP mapping. The woodland extends northward onto Adjacent Lands and is then bisected by an approximately 30 m wide (i.e., dripline to dripline) hydro-corridor per aerial photograph interpretation. The NHRM establishes that woodland openings greater than 20 m can be considered a dividing line between two separate woodland features. This guidance/criterion is a reasonable standard upon which to determine the overall size of the woodland within the Subject Property and Adjacent Lands.

As the hydro-corridor creates a 30 m gap/opening in the forest canopy, the woodland boundary is appropriately placed at the hydro-corridor. As such, Terrastory has determined that the woodland within the Subject Property (including its extension onto Adjacent Lands to the north) is approximately 9.8 ha. This areal estimate is conservative as it includes the meadow marsh and thicket swamp communities that are surrounded by woodland (i.e., either forest or treed swamp). In considering relevant woodland significance criteria, it has been determined that this feature is not appropriately considered a Significant Woodland per municipal and provincial direction for the following reasons:

- The Township of Severn appears to contain >60% of its land base in woodland cover, while portions of the Township situated in Ecoregion 6E are expected to be in 30-60% woodland cover. Per NHRM criteria, woodlands occurring in landscapes with the more conservative 30-60% woodland cover should be ≥ 50 ha in size and/or contain ≥ 8 ha of interior habitat to be considered significant. Neither of these conditions are met.
- Although the woodland does provide a linkage function and provides for water protection due to the presence of wetlands, the minimum size threshold (≥ 50 ha) has not been met. It

is emphasized that the overall woodland area is only 20% of the minimum threshold (≥ 50 ha) for attaining significance.

- The woodland does not contain provincially rare vegetation communities, is mostly (but not exclusively) defined by early-successional communities (i.e., poplar/ash), and only contains one highly conservative (i.e., CC = 8-10) species (Red Pine), which may have been planted and/or established from local plantings.
- The woodland is not identified as a significant feature in Schedule A6 (Bass Lake and Marchmont Settlement Areas) of the Township's OP nor on Schedule 5.1 (Land Use Designation) of the County's OP (i.e., is not part of the County Greenlands System). The woodland also does not meet woodland significance criteria offered in Policy 3.8.14 of the County OP. The Township OP provides no further criteria for establishing woodland significance.

Notwithstanding the lack of any Significant Woodlands within the Subject Property, it is emphasized that the woodland offers candidate/confirmed SWH (see **Section 4.3**) and may support limited foraging/roosting by Endangered Myotis bats (see **Section 4.4**).

4.3 Significant Wildlife Habitat

An assessment of the likelihood that any candidate or confirmed SWH features or areas occur within the Subject Property or Adjacent Lands is provided in **Appendix 6**. Based on the results of this assessment, three (3) SWH features are considered further:

- Rare Vegetation Communities or Specialized Habitats for Wildlife
 1. Amphibian Breeding Habitat (Wetlands and Woodlands)
- Habitat of Species of Conservation Concern
 2. Special Concern and Rare Wildlife Species
- Animal Movement Corridors
 3. Amphibian Movement Corridors

Also based on this assessment, a total of four (4) Special Concern or provincially rare species are considered to have a possible likelihood of occurrence on the Subject Property (or were confirmed):

- 1) Eastern Wood-pewee (*Contopus virens*)
- 2) Wood Thrush (*Hylocichla mustelina*)
- 3) Monarch (*Danaus plexippus*)
- 4) Yellow-banded Bumblebee (*Bombus terricola*)

The above SWH types and Special Concern species are described further below. An assessment of potential effects to the candidate/confirmed SWH features and Special Concern species associated with the proposed development plan is provided in **Section 5.3.1**.

4.3.1 Amphibian Breeding Habitat (Wetlands and Woodlands) and Movement Corridors

The results of the Anuran calling surveys are summarized in **Appendix 4** and indicate that the following wetland communities (swamps and marshes) contain significant breeding habitat for amphibians on account of large vocalizing populations of Spring Peeper and Wood Frog: MAMM1-3, SWTM2-2, MASM2-1, MASM1-1, SWDM3-3. The northernmost open water inclusion also supports significant congregations of late-season breeders including Green Frog and American

Bullfrog. All wetlands containing confirmed/candidate significant amphibian breeding habitat are shown on **Figure 3**. All natural areas between these features are considered movement corridors. Portions of the significant amphibian breeding habitats may also support mole salamander breeding (*Ambystoma* spp.).

4.3.2 Eastern Wood-pewee

Eastern Wood-pewee is designated Special Concern in Ontario per O. Reg. 230/08 pursuant to the ESA and is federally designated Special Concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). This species is most commonly associated with relatively open, deciduous and mixed forests of various sizes, as well as forest edges and other areas with relatively continuous canopy cover (e.g., parks, cemeteries, etc.). This species' preference for open forests and forest edges may be attributed to its aerial foraging behaviour (COSEWIC 2012). Territory sizes were shown to average approximately 1.75 ha (representing a circle with a radius of 75 m) in a study in southern Ontario (as cited in COSEWIC 2012).

Eastern Wood-pewee was not documented within the Subject Property during formal breeding bird surveys in 2018 by others. Notwithstanding this, a vocalizing male was recorded on 13 August 2019 during vegetation community mapping (ELC). Although many breeding bird species in Ontario significantly reduce the frequency of singing and other vocalizations in late July and August, in the experience of this report author Eastern Wood-pewee will routinely vocalize well beyond the peak breeding season while on territory. Since the habitat in which this individual was documented is suitable for breeding by this species, Eastern Wood-pewee is considered a possible breeder within the Subject Property. The approximate location in which this species was documented vocalizing is shown on **Figure 3**.

4.3.3 Wood Thrush

Wood Thrush is designated Special Concern in Ontario per O. Reg. 230/08 pursuant to the ESA and is federally designated Special Concern by COSEWIC. Wood Thrush is predominantly found in deciduous and mixed forests with a well-developed understorey of regenerating trees and shrubs. This species is more often found in larger forest blocks but may successfully breed within smaller forest fragments (Cadman et al. 2007). In a study in Pennsylvania, Wood Thrush territory sizes were shown to be 2.5 ha on average with a range of 1.5-4 ha (Evans et al. 2008).

Wood Thrush was documented as a possible breeder approximately 100 m northeast of BB-3 by others. This species was documented during the first breeding bird survey (21 June 2018) but not the second (7 July 2018). The approximate location in which this species was documented vocalizing (based on field sheets from others) is shown on **Figure 3**.

4.3.4 Monarch

Monarch is designated Special Concern in Ontario per O. Reg. 230/08 pursuant to the ESA and is federally designated Endangered by COSEWIC. Monarch is well-known to be host-specific and oviposits exclusively on species of milkweed (*Asclepias* spp.). This species is a generalist forager and may nectar in any area with wildflowers.

Monarch was observed within the Subject Property and is expected to be relatively common in the wider landscape. While no confirmed breeding via observations of ovipositing individuals, eggs, or caterpillars was documented, the presence of Common Milkweed (*Asclepias syriaca*) and Swamp

Milkweed (*Asclepias incarnata*) indicates that Monarch has the potential to breed within the Subject Property.

4.3.5 Yellow-banded Bumblebee

Yellow-banded Bumble Bee is designated Special Concern in Ontario per O. Reg. 230/08 pursuant to the ESA and is federally designated Special Concern by COSEWIC. This species occupies a range of open areas that contain nectaring sites and nests underground in abandoned rodent burrows or decomposing logs, typically in woodlands.

Current records of this generalist species (per iNaturalist) indicate that populations occur throughout south-central (i.e., GTA to approximately Orillia) and central (i.e., southern shield) Ontario. Given that the Subject Property provides potentially suitable nectaring, nesting, and overwintering habitat, and bumble bee surveys were not undertaken as part of this study, the Subject Property is assumed to contain suitable habitat for Yellow-banded Bumble Bee.

4.4 Habitat of Endangered and Threatened Species

An assessment of the likelihood that any Endangered and Threatened species or their habitats occur within the Subject Property or Adjacent Lands is provided in **Appendix 7**. A total of three (3) Endangered or Threatened species were documented within the Subject Property:

- 1) Little Brown Myotis (*Myotis lucifugus*)
- 2) Northern Myotis (*Myotis septentrionalis*)
- 3) Black Ash (*Fraxinus nigra*)

A general description of these Myotis bats and their habitat is offered below, with an assessment of potential effects to individuals or their habitat associated with the proposed development plan is provided in **Section 5.3.2**.

4.4.1.1 Little Brown Myotis and Northern Myotis

Per the assessment in **Appendix 7**, Little Brown Myotis and Northern Myotis have the potential to roost and forage within the Subject Property. Little Brown Myotis and Northern Myotis form maternity colonies that roost in large-diameter trees with cracks, crevices, and/or exfoliating bark; Little Brown Myotis will also frequently roost in buildings (e.g., attics, barns, etc.). Individuals (i.e., non-reproductive females and males) of both bat species may roost in smaller diameter trees and other spaces (e.g., beneath house siding, etc.) which are not occupied by maternity colonies. Overwintering habitat includes caves and mines that maintain temperatures above 0°C. White Nose Syndrome (a fungal disease caused by an introduced pathogen) has devastated populations of each species across their ranges. The fungus causes hibernating individuals to become dehydrated, leading to excessive arousal, depleted fat reserves, and ultimately emaciation and/or death.

Per the results of the 2018 ultrasonic acoustic monitoring provided in **Section 3.3.3.1**, a Myotis species (likely either Little Brown Myotis and/or Northern Myotis) was documented at BA-1 (21 detections) and BA-2 (10 detections). It is unknown with certainty whether either species roosted or fed in wooded portions of the Subject Property in 2018. The relatively low number of detections over the fourteen (14) day monitoring period suggests that Myotis bats may have been recorded on transit between habitats in the local landscape. Notwithstanding this, only two (2) bat monitoring

stations were established in 2018, and the possibility that *Myotis* bats are actively roosting within the Subject Property (maternity colonies or individuals) cannot be eliminated.

4.4.1.2 *Black Ash*

Black Ash is a shade-intolerant hardwood tree species occupying moist to wet habitats such as swamps, floodplains, moist forests, and riparian areas (particularly on mucky or peaty soils). This species was designated Endangered by the Committee on the Status of Endangered Species in Ontario (COSSARO). At this time, the provincial government is considering a temporary pause on protections for this species for a two-year period; however, this decision has not yet been finalized.

Black Ash is found in greatest abundance in wetlands occupying the southern portion of the Subject Property.

4.5 Fish Habitat

As described in **Section 3.2**, an intermittent watercourse flows through the southeast corner of the Subject Property in a predominantly northeast direction. Although this feature was found to be dry during the 13 August 2019 site assessment, and no fish were visually observed within the watercourse during the 2019 site assessments, the possibility that fish have seasonal access to this watercourse at higher water levels cannot be eliminated. For the purposes of this study, the intermittent watercourse is assumed to provide direct (seasonal) fish habitat.

5 EFFECTS ASSESSMENT AND MITIGATION

Based on the results of the assessments detailed in **Section 4** several significant natural features and species have been documented (or may occur) within the Subject Property. The following effects assessment provides an evaluation of the potential for the proposed subdivision application to result in negative effects to such environmental components and offers technical recommendations to mitigate such effects where warranted. Certain technical recommendations offered herein apply to several natural features (e.g., SWH and fish habitat, etc.) and/or species simultaneously; as such, all technical recommendations should read and considered in their entirety. The baseline or existing conditions against which the application is assessed are treated as the state of the Subject Property at the time of the site assessments. The effects assessment herein is based on the proposed lotting and stormwater management (SWM) plans provided in **Appendix 8**.

5.1 Application and Proposed Development Plan

The proposed development and site alteration activities associated with the subdivision and rezoning applications consist of the following elements:

- 23-lot residential subdivision accessed by new municipal roads (Streets A, B, and C) from Division Road (Lots 1-15) and Carriage Court (Lots 16-23);
- Private servicing (i.e., septic system and drilled well) for all 23 residential lots;
- Stormwater Management Block with SWM facility (forebay and constructed wetland design); and
- Ten (10) metre wide servicing easement (Block C, south of Lots 6 and 23) to convey surface runoff towards the SWM block.

Lots 1-9 and 20-23 will be subject to split drainage, in part to maintain surface water runoff to the adjacent wetlands. Rear to front grading will be provided on Lots 10 and 14-16, with front to rear grading will be provided on Lots 11-13, and 17-19.

5.2 Avoidance Measures incorporated into the Application

Since 2018 Terrastory has provided extensive feedback to and worked iteratively with the project team during formulation of the proposed lotting and SWM plans. These discussions have centred on the need to avoid/minimize impacts to and maintain ecologically/policy appropriate setbacks from the significant natural features identified herein. It is understood based on discussions with the project team that the Township would not be in a position to take possession of those portions of the Subject Property considered to exhibit significant natural heritage values through the subdivision application process. This precludes the creation of a discrete Open Space Block which could be transferred to public ownership. As a result, significant natural features will be protected from development through the establishment of EP Zones resulting in split-zoning for Lots 5-9 and 20-23. The existing EP Zone in the southeast corner of the Subject Property will be maintained to protect the intermittent drainage feature and potential fish habitat therein. Overall, the three (3) separate EP Zones total over 2.4 ha in area and capture the following habitats/functions:

- Confirmed significant amphibian breeding habitats for Wood Frog and Spring Peeper (along with overlapping breeding habitats for Green Frog and American Bullfrog).
- Overwintering habitat for Wood Frog and Spring Peeper (i.e., adjacent upland forests).
- Presumed amphibian movement corridors.
- Setback of no less than 15 m from the significant amphibian breeding habitats to be retained (resulting in a setback of >20 m for all proposed residences and septic envelopes, several of which have a setback of >30 m).
- An area of mature, late-successional deciduous forest which supports the functions of the adjacent amphibian breeding habitats (e.g., provides overwintering habitat, buffering, etc.) and represents the “oldest growth” wooded feature within the Subject Property.

Notwithstanding the significant increase in EP Zone through this application, it is recognized that the SWM block overlaps with an area identified as significant amphibian breeding habitat. It is understood that the SWM block must be sited in this location to allow for discharge to the adjacent intermittent watercourse and because it is the most topographically appropriate location. The SWM block will employ a “constructed wetland” design, and overall will support and enhance the ecological values of the adjacent EP Zones (which are contiguous to the east and west).

In recognizing the foregoing, an assessment of the potential for negative impacts on the identified significant natural features are further described below.

5.3 Feature-based Effects Assessment and Technical Recommendations

5.3.1 Significant Wildlife Habitat

Per the assessment in **Section 4.3**, a total of three (3) SWH features were considered further through this study:

- Rare Vegetation Communities or Specialized Habitats for Wildlife
 1. Amphibian Breeding Habitat (Wetlands and Woodlands)

- Habitat of Species of Conservation Concern
 2. Special Concern and Rare Wildlife Species
- Animal Movement Corridors
 3. Amphibian Movement Corridors

Also based on this assessment, a total of four (4) Special Concern or provincially rare species are considered to have a possible likelihood of occurrence on the Subject Property (or were confirmed):

- 1) Eastern Wood-pewee (*Contopus virens*)
- 2) Wood Thrush (*Hylocichla mustelina*)
- 3) Monarch (*Danaus plexippus*)
- 4) Yellow-banded Bumblebee (*Bombus terricola*)

An effects assessment for each candidate/confirmed SWH feature is provided below.

5.3.1.1 Amphibian Breeding Habitat (Wetlands and Woodlands) and Movement Corridors

Where development and/or site alteration activities are proposed within or adjacent to wetlands which support amphibian breeding populations, adverse effects may occur via the following pathways:

- Direct habitat removal, resulting in loss of breeding/feeding/etc. areas and their associated functions.
- Alterations to surface water and/or groundwater contributions to the wetland from construction (e.g., dewatering, etc.), grading that modifies the existing topography or drainage, and/or increased coverage of impervious surfaces (e.g., roads, roofs, etc.);
- Increased sediment loadings and/or nutrient enrichment within the wetland via runoff exiting from development areas during and post construction. This may alter wetland water quality and vegetation communities via increased turbidity, eutrophication, contamination by toxic substances, changes in pH, etc.
- Noise and/or light pollution that may adversely affect the ability of wetland wildlife to successfully carry out their life processes (e.g., breeding, feeding, etc.); and
- Increased human activity (i.e., encroachment) within the wetland which may result in soil compaction, dumping, etc.

The results of the Anuran calling surveys indicate several areas in which significant populations of Anurans (primarily Spring Peeper and Wood Frog) are breeding. Certain open water inclusions within the swamps and marshes may also support significant congregations of Green Frog and American Bullfrog. The most spatially extensive wetland community – a cedar-hardwood mixed swamp (SWMM1-1) – does not support significant congregations of breeding Anurans given insufficient standing water (i.e., depth and duration) during the breeding season. Significant amphibian breeding habitats are shown on **Figure 3**.

Five of the six wetland communities providing candidate/confirmed significant amphibian breeding habitat (78%) will be protected in full through the applications considered herein. Each of these habitats will be incorporated into EP Zones which include adjacent areas to a minimum distance of 15 m. Per section 333.2(a) of the Township's Comprehensive Zoning By-law, buildings and structures must be situated at least 3 m from an EP Zone boundary in Settlement Areas; as such, the full habitat setback will be a minimum of 18 m from all proposed buildings and structures. In fact,

EP Zones have been established with straightened (“regularized”) boundaries and thus extend as far as 30 m in certain locations from significant amphibian breeding habitats. Per Table 9.1 of the Township’s Comprehensive Zoning By-law, permissible uses within EP Zones are highly restricted and include (amongst others) conservation, forestry, and passive outdoor recreation. The following measure is recommended to facilitate protection of significant amphibian breeding areas and associated overwintering areas and movement corridors for the long-term.

- **Environmental Protection (EP) Zones will be established as shown on Figure 4. No development or site alteration will occur within any EP Zone (except as permitted by the Township’s Zoning By-law).**

One of the wetland communities providing confirmed significant breeding habitat for Spring Peeper and Wood Frogs conflicts with the proposed SWM Block and portions of the SWM facility. As noted in **Section 5.2**, Terrastory worked closely with the project team to consider all reasonable options that would allow for retention of this feature through the proposed development plan. Based on these discussions, protection of this feature is not considered feasible by the project team for the following reasons:

- The SWM block must be situated in the southeast corner of the Subject Property as this is the most topographically appropriate elevation and the SWM facility must discharge to the adjacent intermittent watercourse.
- The proposed “Street C” entrance from Carriage Court was specifically incorporated into the subdivision plan per a request from the Township to minimize the cul-de-sac length. It is understood that the entrance cannot be shifted northward due to concerns related to adjacent parcels on Carriage Court. As a result, the SWM block cannot be reconfigured or shifted northward to allow for protection of the SWH feature.

It is emphasized that the wider local landscape surrounding the Subject Property (particularly on lands to the north) is expected to provide relatively abundant breeding habitat for amphibians (in addition to those protected via new EP Zones through this application). As the SWM Block is situated immediately adjacent to other significant amphibian breeding habitats, a constructed wetland design is proposed for the SWM facility per the Preliminary SWM Report (Tatham Engineering). It is understood that the contouring and overall design of the constructed wetland will be finalized at detailed design. The following recommendations are offered to guide the SWM facility design:

- **The “constructed wetland” stormwater management facility will be designed in a way that provides suitable habitat for amphibians and incorporates a variety in pool depths.**
- **A Naturalization/Planting Plan consisting exclusively of species native to the Township of Severn will be devised through detailed design. The plantings shall consist of a variety of trees (upland areas), shrubs (constructed wetland perimeter), and herbaceous wetland species (constructed wetland margin). A native seed mix will be applied to all disturbed areas topographically above the wetland pool.**

The proposed 10 m wide service easement bisecting Lots 6/23 and Lot 5/SWM Block will modify drainage patterns somewhat post-construction. In particular, an ephemeral flow path (see **Figure 2**) will become captured by the proposed drainage swale along the service easement (to avoid obstructing drainage). Opportunities to convey the drainage feature completely below the service easement to maintain flows southward towards the wetlands along the Division Road were considered by the project Engineer; however, there is insufficient elevation to convey drainage in this manner. While this is expected to alter surface water inputs to certain downgradient significant amphibian habitats (SWDM3-3 and MASM1-1), based on discussions with the project Engineer it is believed that these features may be primarily supported by flows along the Division Road ditch. As such, redirection of the flow path away from the SWDM3-3 and MASM1-1 communities toward the SWM facility would not be expected to meaningfully alter their hydroperiods.

During construction it is anticipated that the proposed development areas will contain exposed soils, which are inherently unstable and have a greater potential for runoff into adjacent areas during rainfall events. The most effective erosion and sediment control system emphasizes the prevention of erosion first, minimizes sediment transport off-site through a multi-barrier approach, and involves regular inspection and maintenance. To protect the significant amphibian breeding habitats during construction, the following measures are recommended:

- **Comprehensive Sediment and Erosion Control Plans are to be prepared at detailed design. Such plans are to include the following (minimum) components as necessary:**
 - **Timing of works (e.g., avoidance of working during adverse weather, avoidance of vegetation removal during the bird breeding and bat activity periods, etc.).**
 - **Sediment and erosion control measures (e.g., heavy-duty silt fencing, etc.) placed at the limit of disturbance.**
 - **Measures to reduce the potential for erosion of stockpiles and/or temporarily stored topsoil, fill, or aggregate material (e.g., piled as low as practicable, etc.), and measures to situate these construction-related features as far from the EP Zones as practicable.**
 - **Measures to control and treat internal runoff during construction including temporary interceptor swales and/or sediment control basins (as necessary), which are to be stabilized (i.e., seeded) and maintained regularly.**
 - **Designated machinery servicing areas situated as far from the EP Zone as practicable.**
 - **Fill control measures (as necessary).**
 - **Dust suppression measures.**
 - **Spills reporting protocol.**

- **Catch-basin protection.**
- **Inspection, maintenance, and contingency measures.**
- **Decommissioning protocol (i.e., removal of non-biodegradable erosion and sediment control materials including accumulated sediment once construction is complete and disturbed areas are stabilized).**

Based on a review of the other technical studies/plans that support the applications considered herein, it is not known if dewatering is necessary during construction and/or servicing. Should dewatering be necessary, the following measure is recommended for detailed design:

- **Any construction-related dewatering (if necessary) must not negatively affect significant amphibian breeding habitats within the EP Zone.**

5.3.1.2 Eastern Wood-pewee and Wood Thrush

Eastern Wood-pewee and Wood Thrush are considered to be possible breeders within the Subject Property based on one (1) observation each of vocalizing males in suitable habitat during the breeding season. It is noted that Eastern Wood-pewee was not documented during formal breeding bird surveys in 2018 by others (vocalizing male was heard incidentally by Terrastory staff during vegetation characterization efforts on 23 August 2019).

The areas in which both Eastern Wood-pewee and Wood Thrush were documented are partially contained within the proposed EP Zone. Both species may shift their territories between breeding seasons, and it is noted that the EP Zones overall contain relatively extensive habitat for Eastern Wood-pewee. Neither species is considered rare in the local landscape (given the preponderance of woodlots and larger forest blocks), and a timing restriction on vegetation removal will be established (see **Section 5.3.5**) to ensure no nesting birds or bird nests (including Eastern Wood-pewee and Wood Thrush) are impacted during tree removal activities in support of construction.

5.3.1.3 Monarch and Yellow-banded Bumblebee

No specific recommendations are offered herein to minimize impacts to potential foraging and breeding habitat for Monarch or Yellow-banded Bumblebee. Both species are habitat generalists and abundant nectaring habitat exists within the wider landscape surrounding the Subject Property. Oviposition sites for Monarch (e.g., Common Milkweed, Swamp Milkweed), overwintering habitat for Yellow-banded Bumblebee, and general nectaring habitat for both species is present within the EP Zone and wider local landscape.

5.3.2 Habitat of Endangered and Threatened Species

Per the assessment in **Appendix 7** a total of three (3) Endangered or Threatened species have been confirmed on the Subject Property:

- 1) Little Brown Myotis (*Myotis lucifugus*)
- 2) Northern Myotis (*Myotis septentrionalis*)
- 3) Black Ash (*Fraxinus nigra*)

A total of twenty (20) of the thirty-eight (38) identified candidate maternity roosting sites identified by others (see **Figure 2**) are situated outside of the proposed EP Zone. Notwithstanding this, the results of the ultrasonic acoustic monitoring suggest that Little Brown Myotis and/or Northern Myotis roosting/foraging activity in the vicinity of the bat acoustic monitoring stations is low. To protect roosting Myotis bats (both maternity colonies and individuals) during site preparation (i.e., tree removal) and post-development, the following measures are recommended:

- **Any necessary tree removal within the proposed development envelopes will only take place between October 1 and April 30 to avoid the active season for bats.**
- **If construction activities occur during the active bat season (i.e., between May 1 and September 31), work will be restricted to daylight hours only and the use of artificial lighting will be avoided.**
- **Any lighting incorporated into the residences through detailed design should be directed downward (i.e., towards the ground) and/or away from the EP Zones to the extent practicable.**

Removal and/or injury to Black Ash is proposed as part of this application, particularly to support construction of the SWM facility. The precise abundance and distribution of this species on-site is not known with certainty as Black Ash was only determined to be Endangered by COSSARO in January 2021 (i.e., following fieldwork completion). While removal or injury to this species (or its habitat) is not currently protected under the ESA, and relevant provisions related to protection of the species and its habitat may be deferred until early 2023, the following measure is recommended:

- **Any removal or injury to Black Ash must be undertaken consistent with the requirements of the *Endangered Species Act*.**

5.3.3 Fish Habitat

Where development and/or site alteration activities are proposed adjacent to watercourses that support (or are assumed to support) fish and/or aquatic organisms, adverse effects may occur via the following pathways (amongst others):

- Alterations to surface water and/or groundwater contributions to the watercourse from construction (e.g., dewatering, etc.), grading that modifies the existing topography or drainage, and/or increased coverage of impervious surfaces (e.g., roads, roofs, etc.);
- Increased sediment loadings and/or nutrient enrichment within the watercourse via runoff exiting from development areas during and post construction. This may alter water quality and/or degrade habitat quality via increased turbidity, eutrophication, contamination by toxic substances, changes in pH, etc.
- Introduction of invasive species including aquatic organisms and aquatic plants.
- Increased human activity (i.e., encroachment) in the vicinity of the watercourse which may result in bank compaction, exploitation of fish, dumping, etc.

Per the assessment in **Section 4.4.1.2**, in the absence of further information, the intermittent watercourse is assumed to contain direct (seasonal) fish habitat. The intermittent watercourse and vicinity are currently zoned EP, which will be maintained through this application.

As outlined in the Preliminary SWM report (Tatham Engineering), the constructed wetland SWM facility will outlet through a Hickenbottom perforated riser to a 375 mm storm pipe. The storm pipe then outlets at a headwall into riprap for scour control, flowing eastward via a short swale and finally discharging to the intermittent watercourse. The following measures are recommended to restore the SWM facility outlet area post-construction.

- **Any disturbance associated with constructing the outlet of the SWM facility to the intermittent watercourse, along with Street C, will be addressed through detailed design by the inclusion of compensatory plantings and/or native seed mix (as appropriate).**

Comprehensive sediment and erosion control plans to be prepared at detailed design (as recommended to avoid construction-related impacts to the significant amphibian breeding habitats) will also serve to protect the intermittent watercourse and assumed fish habitat.

5.3.4 Other Natural Environment Considerations

Vegetation removal (both woody and herbaceous vegetation) is required to facilitate development. To minimize potential adverse effects to the natural environment and breeding birds during construction, the following measures are recommended:

- **The removal of trees outside the proposed EP Zones to facilitate construction (including grading and temporary stockpiles) will be minimized where possible through detailed design.**
- **All necessary vegetation removal (e.g., trees, meadow vegetation, etc.) will be completed outside the primary bird nesting period (i.e., to be completed between September 1 and March 31). Should minor vegetation removal be proposed during the bird nesting period, a bird nesting survey will be required to confirm the presence or absence of nesting birds or bird nests.**

5.3.5 Summary of Technical Recommendations

All technical recommendations provided in **Section 5.3** are reiterated in **Appendix 9**.

6 APPLICABLE NATURAL HERITAGE AND ENVIRONMENTAL POLICIES

The following sections summarize the various municipal, provincial, and federal environmental policies that may apply to the proposed development plan and describe how the recommendations provided in this study will address these policies (where applicable).

6.1 Township of Severn Official Plan (September 2010)

The Township's OP is a legal document prepared as required under section 14.7(3) of the *Planning Act*. An OP sets out goals, objectives, and policies that direct and manage land-use and future development activities and their effects on the social and natural environment of a municipality. Provincial plans that offer direction on matters of provincial interest (e.g., Growth Plan, etc.) are implemented principally through the Township's OP. Provided herein is a description of relevant environmental and natural heritage policies contained within the Township's OP and an assessment of whether the applications address such policies.

The Subject Property is situated within the Bass Lake and Marchmont Settlement Areas and is designated Country Residential pursuant to Schedule A6 of the Township's OP. Much of the lands are currently zoned Rural Holding Thirty-One (RU-H31) pursuant to Schedule 1 of By-law No. 2017-77, while a small EP zone confluent with the intermittent watercourse and its buffer occur in the southeast corner of the Subject Property. Other than the EP Zone for the intermittent watercourse there are no other natural environment related designations or zones currently established for the Subject Property.

A list of key natural heritage provisions of the Township's OP that pertain to the applications considered herein is provided below.

- **Policy A2** provides goals and objectives for the protection of natural heritage features, including the need to ensure that significant features and functions are considered in all land-use decisions (criteria a) and that other non-significant natural heritage features are considered on a site-specific basis (criteria i).
- **Policy A3.1** provides land use designations that comprise the Township's NHS, including Greenlands (mapped on Schedule A of the County OP) and Environmental Protection Areas (intermittent and permanent streams).
- **Policy B10.1** enables the Township to request an Environmental Impact Study as a means to assess the nature and importance of natural heritage features, to assess the potential impact on the features and functions of the NHS, and to identify appropriate mitigation measures in accordance with the local OP, County OP, and PPS.
- **Policy C1** outlines the NHS policies for the Township. The NHS is composed of Greenland and Environmental Protection Areas.
- **Policy C1.3.1** outlines the components of the Greenland designation, which includes (among others) evaluated wetlands, ANSIs, significant woodlands, fish habitat, and significant wildlife habitat.
- **Policy C1.3.2 criteria a** prohibits development and site alteration in significant wetlands, significant habitat of endangered and threatened species, and coastal wetlands.
- **Policy C1.3.2 criteria b** prohibits development and site alteration in ANSIs, significant woodlands, significant wildlife habitat, significant valley lands, environmental sensitive areas, and major lake/river/creek systems unless it has been demonstrated that no negative impacts on the natural features or ecological functions will occur via an EIS.
- **Policy C1.4.2** prohibits development and site alteration within EPA lands unless it can be demonstrated that no negative impacts on the natural features or ecological functions will occur via an EIS.

- **Policy C1.6** prohibits development and site alteration on adjacent lands to the natural features unless it has been demonstrated that no negative impacts on the natural features or ecological functions will occur via an EIS. Adjacent lands distances extend between 120 m (e.g., PSWs, etc.) and 50 m (e.g., significant woodlands, etc.).
- **Policy C1.7** outlines the scope of EIS reports, including their purpose, contents, tests (i.e., what the EIS should demonstrate), and mitigation opportunities.

The results of this study have established the presence of confirmed SWH (amphibian breeding habitats and movement corridors), candidate SWH (possible breeding habitat for Wood Thrush and Eastern Wood-pewee), potential roosting habitat for Endangered Myotis bats, and assumed fish habitat in the intermittent watercourse. Identified wetlands and woodlands have been characterized and mapped, but these features themselves are not considered “significant” based on applicable criteria and policy tests as defined in **Section 2.3.1**.

Provided that Terrastory’s recommended mitigation measures (summarized in **Appendix 9**) are carried out in full, no negative impacts are anticipated to the significant natural features. While it is recognized that development within a confirmed significant amphibian breeding habitat is proposed as part of constructing the SWM block, a detailed justification is provided in **Section 5.3.1.1**. Based on the preceding discussion, Terrastory can conclude that the proposed development plan appropriately addresses the natural heritage protection provisions of the Township’s OP.

6.2 County of Simcoe Official Plan (consolidated December 2016)

A list of key provisions from Simcoe County’s OP that pertain to the protection of natural heritage features and areas are provided below.

- **Policy 3.3.15** prohibits development and site alteration within significant wetlands and significant coastal wetlands.
- **Policy 3.3.15** also prohibits development and site alteration within significant woodlands, significant valleylands, significant wildlife habitat, significant areas of natural and scientific interest, coastal wetlands, and Adjacent Lands unless it has been demonstrated that there will be no negative impacts on the natural feature or its ecological function.
- **Policy 3.3.15** prohibits development and site alteration within fish habitat and endangered and threatened species habitat except in accordance with provincial and federal requirements.
- **Policy 3.8.9** asserts that Simcoe County’s natural heritage is to be protected by 1) the Greenlands Designation, and 2) natural heritage systems of local municipalities.
- **Policy 3.8.10** identifies Schedule 5.1 as the County’s Greenlands System, which consists of:
 - Habitat of endangered and threatened species
 - Significant wetlands, significant coastal wetlands, other coastal wetlands, and all wetlands 2.0 ha or larger in areas which have been determined to be locally significant, including but not limited to evaluated wetlands.
 - Significant woodlands
 - Significant valleylands
 - Significant wildlife habitat
 - Significant areas of natural and scientific interest (ANSI’s)
 - Regional areas of natural and scientific interest (ANSI’s)
 - Fish habitat

- Linkage areas in accordance with s. 3.3.16
- Public lands as defined in the *Public Lands Act*

County OP natural heritage policies are generally consistent with the Township's policies as described in **Section 6.1**. It is noted that no development or site alteration activities are proposed within the County's NHS (Greenlands System), which does not occur within the Subject Property. Notwithstanding this, several significant natural heritage features were identified as part of this study that warrant consideration, particularly confirmed/candidate SWH, potential Endangered Myotis habitat, and assumed fish habitat. Provided that Terrastory's technical recommendations (summarized in **Appendix 9**) are implemented in full, no impacts to any significant natural heritage feature protected by the County OP are anticipated. As such, the proposed development plan appropriately addresses the natural heritage components of Simcoe County's OP.

6.3 Provincial Policy Statement 2014, pursuant to the Planning Act, R.S.O. 1990, c. P. 13

The 2014 Provincial Policy Study (PPS) is promulgated under the *Planning Act* and provides direction to municipalities on matters of provincial interest related to land-use planning. Municipal OP's must be consistent with the PPS. Per its preamble, the PPS *provides for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural environment*.

The principal PPS policies that apply to natural heritage protection are outlined in section 2.1. The PPS instructs (s. 2.1.1) that *natural features and areas shall be protected for the long term* (Policy 2.1.1), that their diversity and connectivity be *maintained, restored or, where possible, improved* (Policy 2.1.2). In Ecoregion 6E the PPS separates significant features into three categories:

- 1) Those in which development and site alteration are not permitted, including 1) Provincially Significant Wetlands and 2) Significant Coastal Wetlands (Policy 2.1.4);
- 2) Those in which development and site alteration are not permitted unless it can be demonstrated that no negative impacts on the significant nature feature and/or its functions will occur, including: 1) Significant Woodlands, 2) Significant Valleylands, 3) Significant Wildlife Habitat, 4) Significant Areas of Natural and Scientific Interest, 5) Non-significant Coastal wetlands and 6) Adjacent Lands (Policy 2.1.5 and 2.1.8).
- 3) Those in which development and site alteration are not permitted except in accordance with federal/provincial requirements, including: 1) fish habitat (Policy 2.1.6) and 2) habitat of Endangered and Threatened Species (Policy 2.1.7).

In considering the aforementioned PPS policies, Terrastory has determined that the proposed development plan addresses relevant natural heritage provisions of the PPS for the following reasons:

- Per **Table 5** of this report, no provincially significant wetlands, ANSIs, woodlands, or valleylands are present within the Subject Property.
- Per **Section 5.3.1** of this report, no negative impacts to the significant amphibian breeding habitats and/or movement corridors are anticipated given the preponderance of such habitats in the local landscape and provided that the recommended mitigation measures are implemented in full.

- Per **Section 5.3.2** of this report, no negative impacts to foraging/roosting habitat for Endangered Myotis bats are anticipated given implementation of the proposed development plan provided that the recommended mitigation measures are implemented in full.
- Per **Section 5.3.3** of this report, no negative impacts to fish habitat are anticipated given implementation of the proposed development plan provided that the recommended mitigation measures are implemented in full.

6.4 Growth Plan 2019, pursuant to the *Places to Grow Act*, S.O. 2005, c. 13

The Growth Plan provides a framework for growth management across the Greater Golden Horseshoe. Provisions related to the protection of natural heritage features and areas are contained in sections 4.2.2 through 4.2.4. As the Subject Property is situated outside both the provincial NHS (as established through the Growth Plan) and County NHS (i.e., Greenlands System), the natural heritage policies of the Growth Plan are not applicable to the application and not considered further herein.

6.5 Provincial Endangered Species Act, S.O. 2007, c. 6

The *Endangered Species Act* (ESA) is administered by MECP and protects designated Endangered and Threatened species in Ontario from being killed, harmed, or harassed (s. 9) or having their habitat damaged or destroyed (s. 10). The protection afforded to Endangered and Threatened species “habitat” is either prescribed by O. Reg. 242/08, or (for those species that lack regulated habitat) is defined as *an area on which the species depends, directly or indirectly, to carry on its life processes, including life processes such as reproduction, rearing, hibernation, migration or feeding*. Activities that constitute habitat damage and/or destruction can only proceed subject to requirements of s. 17 or (in limited circumstances) an activity registration under O. Reg. 242/08.

A detailed assessment of potential Endangered and Threatened habitat within the Subject Property is provided in **Appendix 7**. Per this assessment, and the results of ultrasonic acoustic monitoring, Endangered Myotis bats (either Little Brown Myotis and/or Northern Myotis) were documented. Based on the limited number of detections recorded over a fourteen (14) day period, it appears that Myotis bat use of the Subject Property for roosting and/or feeding is low. Provided that the timing restriction on tree removal and other relevant technical recommendations outlined in **Section 5.3.2** are implemented in full, Terrastory has determined that the proposed development plan is consistent with the species and habitat protection provisions of the ESA. Further consideration for Black Ash and confirmation of ESA requirements (once determined by MECP) will be required.

6.6 Federal Fisheries Act, R.S.C. 1985, c. F-14

The amended federal *Fisheries Act* (Bill C-68) received Royal Assent in June 2019 while the updated fish and fish habitat protection provisions came into force in August 2019. Subsection 34.4(1) of the amended *Fisheries Act* prohibits all work, undertaking, or activity from causing the death of fish (other than fishing). Subsection 35(1) requires that project activities not result in the “*harmful alteration, disruption or destruction of fish habitat*” (HADD) unless undertaken in accordance with the requirements of a statutory exemption per subsection 35(2). Based on the Fish and Fish Habitat Protection Policy Statement (August 2019), HADD is interpreted by DFO to include “*any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat’s capacity to support one or more life processes of fish*”.

No in-water works or fill placement below the high-water mark of a surface water feature containing fish habitat is proposed as part of this application. Consistent with the assessment carried out in **Section 4.4.1.2** and provided that relevant technical recommendations outlined in **Section 5.3** are implemented in full, Terrastory has determined that the proposed development plan is consistent with the fish and fish habitat protection provisions outlined in the *Fisheries Act*.

6.7 **Federal Migratory Birds Convention Act, S.C. 1994, c. 22**

Section 6 of the Migratory Birds Regulations under the *Migratory Birds Convention Act, 1994* (MBCA) prohibits the disturbance or destruction of nests, eggs, or nest shelters of a migratory bird. The provincial *Fish and Wildlife Conservation Act, 1997* extends the protection of bird nests and eggs to certain species not listed under the Migratory Birds Regulations (e.g., Corvids, Strigids, Accipitrids, etc.).

Provided that the recommendations outlined in **Section 5.3.4** are implemented in full (i.e., prohibition on vegetation removal during the bird breeding season), no impacts to breeding birds or bird nests protected by the MBCA or FWCA are anticipated.

7 **CONCLUSIONS**

The preceding Environmental Impact Statement provides a detailed characterization of the natural environment occurring within and adjacent to 2060 Division Road in Marchmont. This EIS has been prepared in support of the Plan of Subdivision and Zoning By-law Amendment applications submitted to facilitate construction of a 23-lot residential community. Included herein is a comprehensive approach to identifying the presence or absence of several significant natural features afforded varying degrees of protection by applicable environmental policies. Potential negative impacts to the identified significant natural features are described with mitigation measures and technical recommendations offered to avoid or minimize such impacts and/or offer enhancements as appropriate.

Based on the findings presented in this report, the following significant natural features with policy significance have been identified:

- **Identified wetlands** including deciduous and mixed swamps, thicket swamps, shallow marsh, and meadow marsh. Portions of the meadow marshes contain open water inclusions which appear to hold standing water on a permanent or semi-permanent basis.
- **Candidate Significant Wildlife Habitat** including possible breeding habitat for Eastern Wood-pewee and Wood Thrush, potential nectaring/ovipositing habitat for Monarch, and potential nectaring/nesting/overwintering habitat for Yellow-banded Bumblebee.
- **Confirmed Significant Wildlife Habitat** for breeding amphibians, along with movement corridors to overwintering habitat and nearby breeding areas.
- **Confirmed Habitat for Endangered Myotis bats**, which appear to be occupying the Subject Property in low numbers (or were detected on transit between other habitats in the local landscape).
- **Assumed fish habitat** in the intermittent watercourse which forms part of the North River watershed.

It has been determined that no negative impacts to the above-noted features will occur provided that all technical recommendations (summarized in **Appendix 9**) are implemented in full. This includes (among other recommendations) incorporation of three (3) Environmental Protection zones (split zoning), use of a constructed wetland SWM facility design, timing restrictions on tree/vegetation removal, and preparation of comprehensive Erosion and Sediment Control plans for detailed design. It is advised that such technical recommendations be incorporated into any necessary development approvals that permit the applications.

8 REFERENCES

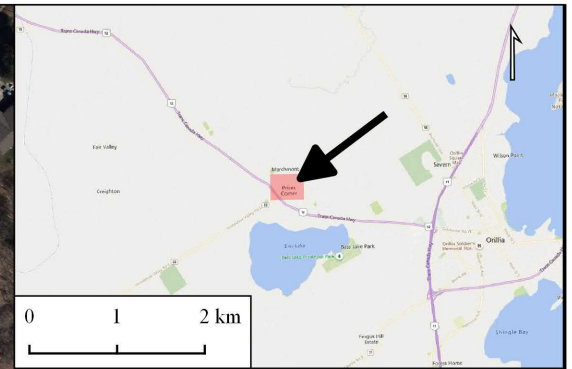
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Legend

Study Area

 Subject Property

 **TERRASTORY**
environmental consulting inc.

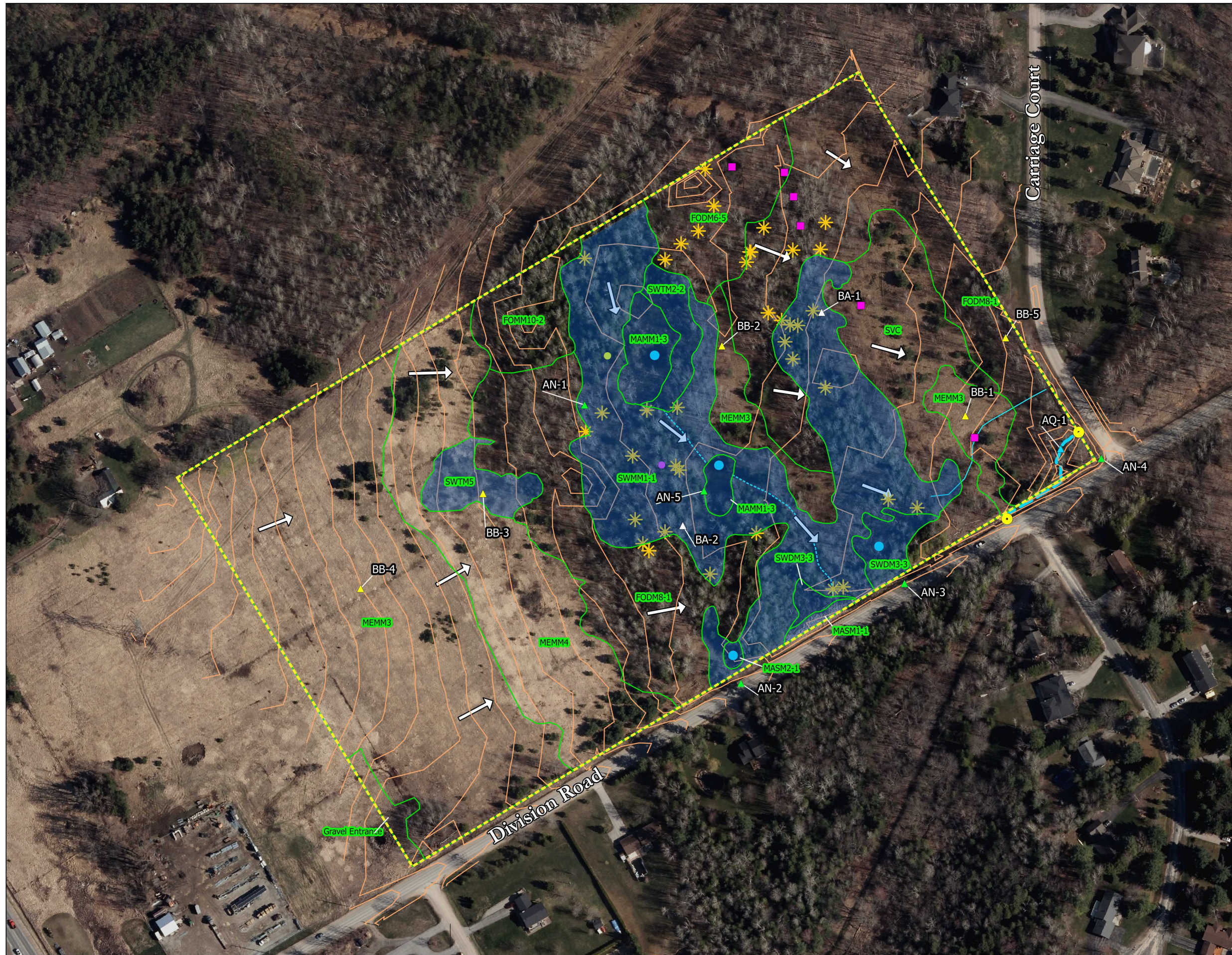
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	Project No.: 1847	By: TK	Date: 2020-10-03
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Orthophotograph Date: 2016 (Simcoe Maps).

Location: 2060 Division Road, Township of Severn.

Figure 1. Location of the Subject Property.



Legend

Study Area

- Subject Property

Built Structures and Infrastructure

- Culvert

Survey Stations

- Anuran Calling Stations
- Bat Acoustic Monitoring Stations
- Breeding Bird Survey Stations
- OSAP Channel Morphology Stations

Biophysical Conditions - Terrastory

- Vegetation Communities
- Wetland
- Permanent/Semi-Permanent Open Water Inclusions
- Seasonal Pools within Upland Areas
- Potential Bat Roosting Sites (i.e., >25 cm DBH Snags/Cavity Trees)
- Topographic Contours
- Drainage Direction

Surface Water Features

- Intermittent Watercourse
- Constructed Swale
- Flow Path

Vegetation Community Codes:

UPLAND

- FODM6-5: Fresh - Moist Sugar Maple - Hardwood Deciduous Forest
- FOMM10-2: Fresh-Moist White Spruce - Hardwood Mixed Forest
- FODM8-1: Fresh-Moist Poplar Deciduous Forest
- SVC: Coniferous Savanna
- MEMM3: Dry - Fresh Mixed Meadow
- MEMM4: Fresh - Moist Mixed Meadow

WETLAND / AQUATIC

- SWDM3-3: Swamp Maple Mineral Deciduous Swamp
- SWMM1-1: White Cedar - Hardwood Mineral Mixed Swamp
- SWTM2-2: Silky Dogwood Mineral Deciduous Thicket Swamp
- SWTM5: Mineral Deciduous Thicket Swamp
- MASM1-1: Cattail Mineral Shallow Marsh
- MASM2-1: Forb Mineral Shallow Marsh
- MAMM1-3: Reed-canary Grass Graminoid Mineral Meadow Marsh



N	Project No.:	By:	Date:
	1847	TK	2020-10-25

Orthophotograph Date: 2016 (Simcoe Maps).

Location: 2060 Division Road, Township of Severn.

Figure 2. Biophysical Features and Conditions.



Legend

- Study Area**
- Subject Property
- Built Structures and Infrastructure**
- Culvert
- Significant Natural Features - Terrastory**
- Eastern Wood-pewee (approximate location of vocalizing male)
 - Wood Thrush (approximate location of vocalizing male)
 - Seasonal Fish Habitat (Assumed)
 - Significant Amphibian Breeding Habitat
 - Mature, Late-successional Deciduous Forest

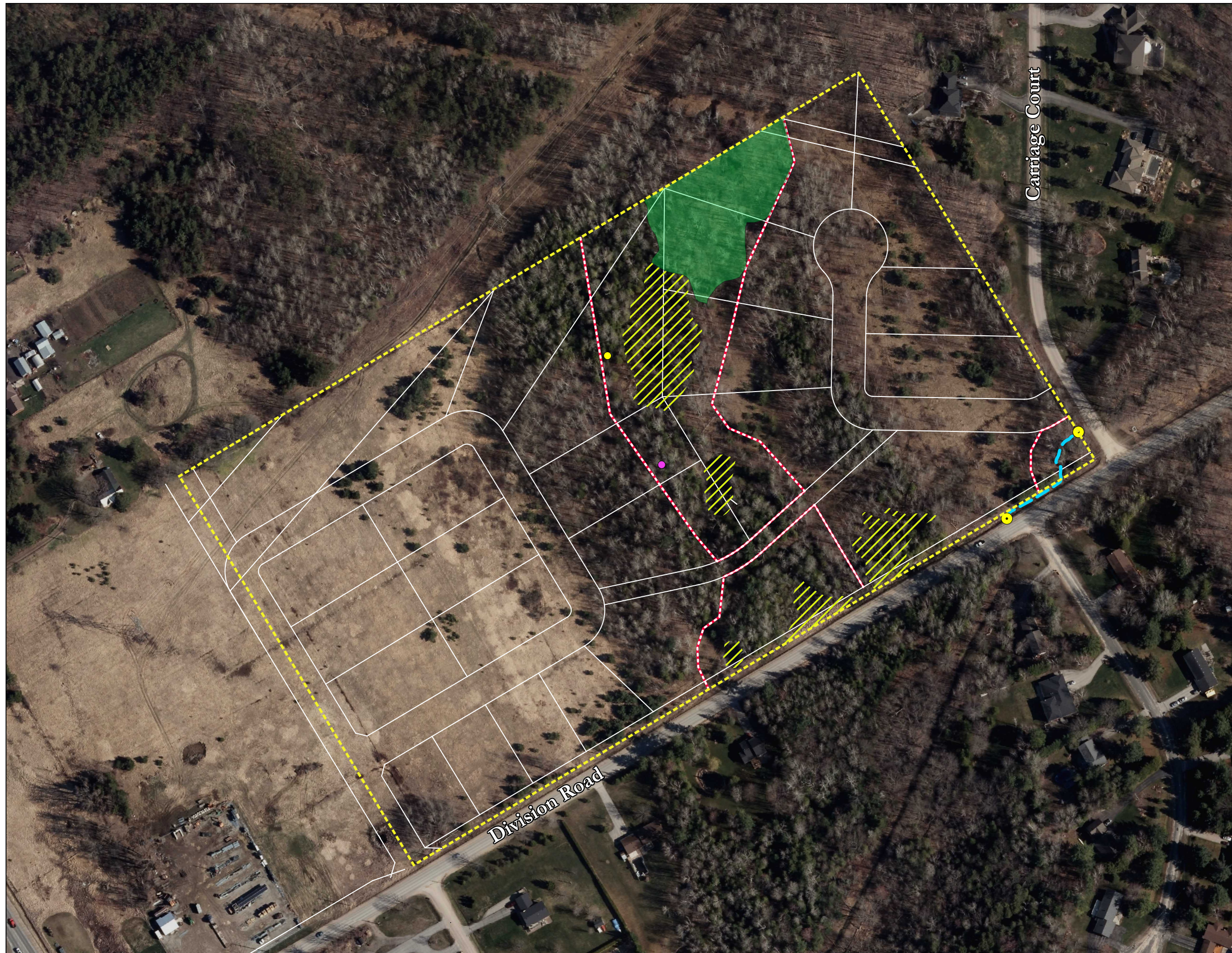


N	Project No.:	By:	Date:
	1847	TK	2020-10-03

Orthophotograph Date: 2016 (Simcoe Maps).

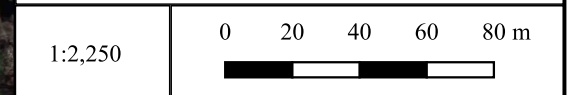
Location: 2060 Division Road, Township of Severn.

Figure 3. Significant Natural Features.



Legend

- Study Area**
- Subject Property
- Built Structures and Infrastructure**
- Culvert
- Significant Natural Features - Terrastory**
- Eastern Wood-pewee (approximate location of vocalizing male)
- Wood Thrush (approximate location of vocalizing male)
- - - Seasonal Fish Habitat (Assumed)
- Significant Amphibian Breeding Habitat
- Mature, Late-successional Deciduous Forest
- Proposed Activities**
- Lot, Street, and Easement Configuration
- Mitigation Measures Recommended**
- Recommended EP Zone Boundary



	Project No.: 1847	By: TK	Date: 2021-11-10
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Orthophotograph Date: 2016 (Simcoe Maps).

Location: 2060 Division Road, Township of Severn.

Figure 4. Development Overlay.

Appendix 1. Representative Photographs



Photo 1. Twin CSP culverts which convey the intermittent watercourse eastward beneath Carriage Court (24 April 2019).



Photo 2. Intermittent watercourse in spring (24 April 2019).



Photo 3. Intermittent watercourse dry by summer (13 August 2019).



Photo 4. Southernmost Reed-canary Grass meadow marsh flooded in spring (24 April 2019).



Photo 5. Same general area of the southernmost Reed-canary Grass meadow marsh shown in Photo 4 by summer (13 August 2019).



Photo 6. Northernmost Reed-canary Grass meadow marsh showing standing water in spring (24 April 2019).



Photo 7. Same general area of the northern Reed-canary Grass meadow marsh shown in Photo 6 by summer (13 August 2019).



Photo 8. Open water inclusion in the northernmost Reed-canary Grass meadow marsh (13 August 2019).



Photo 9. Freeman's Maple deciduous swamp north of Division Road (24 April 2019).



Photo 10. Portions of the treed swamp by summer (13 August 2019).



Photo 11. Mature deciduous forest (13 August 2019).

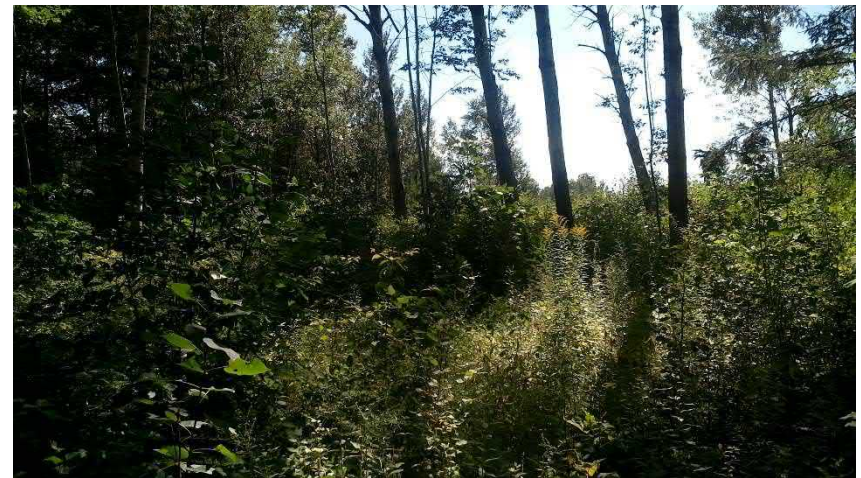


Photo 12. Poplar deciduous forest near the edge looking westward (13 August 2019).



Photo 13. Meadow in the eastern portion of the Subject Property (13 August 2019).



Photo 14. Scots Pine savannah in the eastern portion of the Subject Property (13 August 2019).



Photo 15. Meadow in the central portion of the Subject Property (13 August 2019).



Photo 16. Thicket swamp just west of the poplar deciduous forest (13 August 2019).

Appendix 2. Vascular Plant List

Scientific Name	Common Name	Family	Documented by Terrastory (2019)	Documented by RiverStone (2018)	S-Rank	Coefficient of Conservatism	Coefficient of Wetness
<i>Abies balsamea</i>	Balsam Fir	Pinaceae	x		S5	5	-3
<i>Acer rubrum</i>	Red Maple	Aceraceae	x		S5	4	0
<i>Acer x freemanii</i>	Freeman's Maple	Aceraceae	x		SNA	6	-5
<i>Achillea millefolium</i>	Common Yarrow	Asteraceae	x		SNA	n/a	3
<i>Actaea rubra</i>	Red Baneberry	Ranunculaceae	x		S5	6	3
<i>Agrimonia gryposepala</i>	Hooked Agrimony	Rosaceae	x		S5	2	3
<i>Agrostis gigantea</i>	Redtop	Poaceae	x		SNA	n/a	-3
<i>Agrostis perennans</i>	Upland Bentgrass	Poaceae	x		S4?	5	3
<i>Agrostis stolonifera</i>	Creeping Bentgrass	Poaceae	x		SNA	n/a	-3
<i>Alisma triviale</i>	Northern Water-plantain	Alismataceae	x		S5	1	-5
<i>Amelanchier laevis</i>	Smooth Serviceberry	Rosaceae	x		S5	5	5
<i>Anthoxanthum odoratum</i>	Sweet Vernalgrass	Poaceae	x		SNA	n/a	3
<i>Apocynum androsaemifolium</i>	Spreading Dogbane	Apocynaceae	x		S5	3	5
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	Araceae	x	x	S5	5	-3
<i>Asclepias incarnata</i>	Swamp Milkweed	Asclepiadaceae	x		S5	6	-5
<i>Asclepias syriaca</i>	Common Milkweed	Asclepiadaceae	x		S5	0	5
<i>Betula papyrifera</i>	Paper Birch	Betulaceae	x		S5	2	3
<i>Bromus inermis</i>	Smooth Brome	Poaceae	x		SNA	n/a	5
<i>Carex bebbii</i>	Bebb's Sedge	Cyperaceae	x		S5	3	-5
<i>Carex crinita</i>	Fringed Sedge	Cyperaceae	x	x	S5	6	-5
<i>Carex cristatella</i>	Crested Sedge	Cyperaceae	x		S5	3	-3
<i>Carex flava</i>	Yellow Sedge	Cyperaceae	x		S5	5	-5
<i>Carex gracillima</i>	Graceful Sedge	Cyperaceae	x	x	S5	4	3
<i>Carex intumescens</i>	Bladder Sedge	Cyperaceae	x	x	S5	6	-3
<i>Carex leptoneura</i>	Finely-nerved Sedge	Cyperaceae	x		S5	5	0
<i>Carex lupulina</i>	Hop Sedge	Cyperaceae	x		S5	6	-5
<i>Carex pedunculata</i>	Long-stalked Sedge	Cyperaceae	x		S5	5	3
<i>Carex projecta</i>	Necklace Sedge	Cyperaceae	x		S5	5	-3
<i>Carex pseudocyperus</i>	Cyperus-like Sedge	Cyperaceae	x		S5	6	-5
<i>Carex radiata</i>	Eastern Star Sedge	Cyperaceae	x		S5	4	0
<i>Carex scoparia</i>	Pointed Broom Sedge	Cyperaceae	x		S5	5	-3
<i>Carex stipata</i>	Awl-fruited Sedge	Cyperaceae	x		S5	3	-5
<i>Carex tenera</i>	Tender Sedge	Cyperaceae	x		S5	4	0
<i>Carex vulpinoidea</i>	Fox Sedge	Cyperaceae	x		S5	3	-5
<i>Celastrus scandens</i>	Climbing Bittersweet	Celastraceae	x		S5	3	3
<i>Chelone glabra</i>	White Turtlehead	Scrophulariaceae	x		S5	7	-5
<i>Circaea canadensis</i>	Broad-leaved Enchanter's Nightshade	Onagraceae	x		S5	2	3
<i>Cirsium vulgare</i>	Bull Thistle	Asteraceae	x		SNA	n/a	3
<i>Clematis virginiana</i>	Virginia Virgin's-bower	Ranunculaceae	x		S5	3	0

Scientific Name	Common Name	Family	Documented by Terrastory (2019)	Documented by RiverStone (2018)	S-Rank	Coefficient of Conservatism	Coefficient of Wetness
<i>Convallaria majalis</i>	European Lily-of-the-valley	Liliaceae	x		SNA	n/a	5
<i>Cornus amomum</i>	Alternate-leaved Dogwood	Cornaceae	x		S5	6	3
<i>Cornus canadensis</i>	Bunchberry	Cornaceae	x		S5	7	0
<i>Cornus stolonifera</i>	Red-osier Dogwood	Cornaceae	x	x	S5	2	-3
<i>Dactylis glomerata</i>	Orchard Grass	Poaceae	x		SNA	n/a	3
<i>Danthonia spicata</i>	Poverty Oatgrass	Poaceae	x		S5	5	5
<i>Daphne mezereum</i>	February Daphne	Thymelaeaceae	x		SNA	n/a	3
<i>Daucus carota</i>	Wild Carrot	Apiaceae	x		SNA	n/a	5
<i>Desmodium canadense</i>	Showy Tick-trefoil	Fabaceae	x		S4	5	0
<i>Dianthus armeria</i>	Deptford Pink	Caryophyllaceae	x		SNA	n/a	5
<i>Diervilla lonicera</i>	Northern Bush-honeysuckle	Caprifoliaceae	x		S5	5	5
<i>Dryopteris carthusiana</i>	Spinulose Wood Fern	Dryopteridaceae	x		S5	5	-3
<i>Epilobium ciliatum</i>	Northern Willowherb	Onagraceae	x		S5	3	-3
<i>Epipactis helleborine</i>	Eastern Helleborine	Orchidaceae	x		SNA	n/a	3
<i>Equisetum arvense</i>	Field Horsetail	Equisetaceae	x		S5	0	0
<i>Equisetum fluviatile</i>	Water Horsetail	Equisetaceae	x		S5	7	-5
<i>Equisetum hyemale</i>	Common Scouring-rush	Equisetaceae	x		S5	2	0
<i>Erigeron canadensis</i>	Canada Horseweed	Asteraceae	x		S5	0	3
<i>Erigeron philadelphicus</i>	Philadelphia Fleabane	Asteraceae	x		S5	1	-3
<i>Eupatorium perfoliatum</i>	Common Boneset	Asteraceae	x		S5	2	-3
<i>Eutrochium maculatum</i>	Spotted Joe Pye Weed	Asteraceae	x		S5	3	-5
<i>Fagus grandifolia</i>	American Beech	Fagaceae	x	x	S4	6	3
<i>Fragaria virginiana</i>	Wild Strawberry	Rosaceae	x	x	S5	2	3
<i>Fraxinus americana</i>	White Ash	Oleaceae	x	x	S4	4	3
<i>Fraxinus nigra</i>	Black Ash	Oleaceae	x	x	S4	7	-3
<i>Fraxinus pennsylvanica</i>	Green Ash	Oleaceae	x	x	S4	3	-3
<i>Galium asprellum</i>	Rough Bedstraw	Rubiaceae	x		S5	6	-5
<i>Galium palustre</i>	Marsh Bedstraw	Rubiaceae	x		S5	5	-5
<i>Galium triflorum</i>	Three-flowered Bedstraw	Rubiaceae	x		S5	4	3
<i>Gentiana andrewsii</i>	Closed Bottle Gentian	Gentianaceae	x		S4	6	-3
<i>Geum aleppicum</i>	Yellow Avens	Rosaceae	x		S5	2	0
<i>Glyceria striata</i>	Fowl Mannagrass	Poaceae	x		S5	3	-5
<i>Hypericum perforatum</i>	Common St. John's-wort	Clusiaceae	x		SNA	n/a	5
<i>Ilex verticillata</i>	Black Holly	Aquifoliaceae	x		S5	5	-3
<i>Juncus dudleyi</i>	Dudley's Rush	Juncaceae	x		S5	1	-3
<i>Juncus effusus</i>	Soft Rush	Juncaceae	x		S5	4	-5
<i>Larix laricina</i>	Tamarack	Pinaceae		x	S5	7	-3
<i>Lemna minor</i>	Lesser Duckweed	Lemnaceae	x		S5?	5	-5
<i>Lemna trisulca</i>	Star Duckweed	Lemnaceae	x		S5	6	-5

Scientific Name	Common Name	Family	Documented by Terrastory (2019)	Documented by RiverStone (2018)	S-Rank	Coefficient of Conservatism	Coefficient of Wetness
<i>Lobelia inflata</i>	Indian-tobacco	Campanulaceae	x		S5	3	3
<i>Lycopus americanus</i>	American Water-horehound	Lamiaceae	x		S5	4	-5
<i>Lycopus uniflorus</i>	Northern Water-horehound	Lamiaceae	x		S5	5	-5
<i>Lythrum salicaria</i>	Purple Loosestrife	Lythraceae	x		SNA	n/a	-5
<i>Maianthemum canadense</i>	Wild Lily-of-the-valley	Liliaceae	x	x	S5	5	3
<i>Malus pumila</i>	Common Apple	Rosaceae	x		SNA	n/a	5
<i>Mentha canadensis</i>	Canada Mint	Lamiaceae	x		S5	3	-3
<i>Mimulus ringens</i>	Square-stemmed Monkeyflower	Scrophulariaceae	x		S5	6	-5
<i>Mitchella repens</i>	Partridge-berry	Rubiaceae	x	x	S5	6	3
<i>Nasturtium officinale</i>	Watercress	Brassicaceae	x	x	SNA	n/a	-5
<i>Oenothera biennis</i>	Common Evening Primrose	Onagraceae	x		S5	0	3
<i>Onoclea sensibilis</i>	Sensitive Fern	Dryopteridaceae	x	x	S5	4	-3
<i>Osmunda claytoniana</i>	Interrupted Fern	Osmundaceae	x		S5	7	0
<i>Osmunda regalis</i>	Royal Fern	Osmundaceae	x		S5	7	-5
<i>Ostrya virginiana</i>	Eastern Hop-hornbeam	Betulaceae	x	x	S5	4	3
<i>Oxalis stricta</i>	Upright Yellow Wood-sorrel	Oxalidaceae	x		S5	0	3
<i>Parthenocissus vitacea</i>	Thicket Creeper	Vitaceae	x	x	S5	4	3
<i>Penstemon digitalis</i>	Foxglove Beardtongue	Scrophulariaceae	x		S4	6	0
<i>Phalaris arundinacea</i>	Reed Canary Grass	Poaceae	x	x	S5	0	-3
<i>Pbleum pratense</i>	Common Timothy	Poaceae	x		SNA	n/a	3
<i>Picea glauca</i>	White Spruce	Pinaceae	x	x	S5	6	3
<i>Pinus resinosa</i>	Red Pine	Pinaceae	x		S5	8	3
<i>Pinus strobus</i>	Eastern White Pine	Pinaceae	x	x	S5	4	3
<i>Pinus sylvestris</i>	Scots Pine	Pinaceae	x		SNA	n/a	3
<i>Plantago lanceolata</i>	English Plantain	Plantaginaceae	x		SNA	n/a	3
<i>Poa pratensis subsp. pratensis</i>	Kentucky Bluegrass	Poaceae	x		SNA	n/a	3
<i>Podophyllum peltatum</i>	May-apple	Berberidaceae	x		S5	5	3
<i>Populus alba</i>	White Poplar	Salicaceae	x		SNA	n/a	5
<i>Populus balsamifera</i>	Balsam Poplar	Salicaceae	x	x	S5	4	-3
<i>Populus tremuloides</i>	Trembling Aspen	Salicaceae	x	x	S5	2	0
<i>Potamogeton foliosus</i>	Leafy Pondweed	Potamogetonaceae	x		S5	4	-5
<i>Potamogeton natans</i>	Floating Pondweed	Potamogetonaceae	x		S5	5	-5
<i>Potentilla recta</i>	Sulphur Cinquefoil	Rosaceae	x		SNA	n/a	5
<i>Prunella vulgaris</i>	Heal-all	Lamiaceae	x		S5	0	0
<i>Prunus serotina</i>	Black Cherry	Rosaceae	x	x	S5	3	3
<i>Prunus virginiana</i>	Choke Cherry	Rosaceae	x		S5	2	3
<i>Pteridium aquilinum</i>	Bracken Fern	Dennstaedtiaceae	x	x	S5	2	3
<i>Pyrola elliptica</i>	Shinleaf	Pyrolaceae	x		S5	5	5
<i>Quercus rubra</i>	Northern Red Oak	Fagaceae	x	x	S5	6	3

Scientific Name	Common Name	Family	Documented by Terrastory (2019)	Documented by RiverStone (2018)	S-Rank	Coefficient of Conservatism	Coefficient of Wetness
<i>Ranunculus acris</i>	Tall Buttercup	Ranunculaceae	x	x	SNA	n/a	0
<i>Rhamnus cathartica</i>	Common Buckthorn	Rhamnaceae	x	x	SNA	n/a	0
<i>Rosa acicularis</i>	Prickly Rose	Rosaceae	x		S5	5	3
<i>Rosa multiflora</i>	Multiflora Rose	Rosaceae	x		SNA	n/a	3
<i>Rubus allegheniensis</i>	Allegheny Blackberry	Rosaceae	x		S5	2	3
<i>Rubus idaeus</i> ssp. <i>strigosus</i>	Wild Red Raspberry	Rosaceae	x		S5	2	3
<i>Rubus occidentalis</i>	Black Raspberry	Rosaceae	x		S5	2	5
<i>Rubus pubescens</i>	Dewberry	Rosaceae	x	x	S5	4	-3
<i>Rubus setosus</i>	Small Bristleberry	Rosaceae	x		S4	8	-3
<i>Rudbeckia hirta</i>	Black-eyed Susan	Asteraceae	x		S5	0	3
<i>Rumex crispus</i>	Curly Dock	Polygonaceae	x		SNA	n/a	0
<i>Salix bebbiana</i>	Bebb's Willow	Salicaceae	x		S5	4	-3
<i>Salix discolor</i>	Pussy Willow	Salicaceae	x		S5	3	-3
<i>Salix eriocephala</i>	Heart-leaved Willow	Salicaceae	x		S5	4	-3
<i>Salix petiolaris</i>	Meadow Willow	Salicaceae	x		S5	3	-3
<i>Scirpus atrovirens</i>	Dark-green Bulrush	Cyperaceae	x		S5	3	-5
<i>Scirpus cyperinus</i>	Cottongrass Bulrush	Cyperaceae	x	x	S5	4	-5
<i>Scirpus pendulus</i>	Rufous Bulrush	Cyperaceae	x		S5	3	-5
<i>Scutellaria lateriflora</i>	Mad Dog Skullcap	Lamiaceae	x		S5	5	-5
<i>Sium suave</i>	Hemlock Water-parsnip	Apiaceae	x		S5	4	-5
<i>Solanum dulcamara</i>	Bittersweet Nightshade	Solanaceae	x		SNA	n/a	0
<i>Solidago altissima</i>	Tall Goldenrod	Asteraceae	x	x	S5	1	3
<i>Solidago canadensis</i>	Canada Goldenrod	Asteraceae		x	S5	1	3
<i>Solidago gigantea</i>	Giant Goldenrod	Asteraceae	x		S5	4	-3
<i>Solidago rugosa</i> subsp. <i>rugosa</i>	Northern Rough-stemmed Goldenrod	Asteraceae	x		S5	4	0
<i>Sorbus aucuparia</i>	European Mountain-ash	Rosaceae	x		SNA	n/a	5
<i>Sparganium emersum</i>	Green-fruited Burreed	Sparganiaceae	x		SU	6	-5
<i>Spiraea alba</i>	White Meadowsweet	Rosaceae	x	x	S5	3	-3
<i>Spirodela polyrrhiza</i>	Great Duckweed	Lemnaceae	x		S5	4	-5
<i>Symphotrichum ciliolatum</i>	Lindley's Aster	Asteraceae	x		S5	6	5
<i>Symphotrichum lanceolatum</i> ssp. <i>lanceolatum</i>	Panicled Aster	Asteraceae	x		S5	3	-3
<i>Symphotrichum lateriflorum</i> var. <i>lateriflorum</i>	Calico Aster	Asteraceae	x		S5	3	0
<i>Symphotrichum novae-angliae</i>	New England Aster	Asteraceae	x		S5	2	-3
<i>Symphotrichum puniceum</i>	Swamp Aster	Asteraceae	x		S5	6	-5
<i>Symphotrichum urophyllum</i>	Arrow-leaved Aster	Asteraceae	x		S4	6	5
<i>Thelypteris palustris</i>	Marsh Fern	Thelypteridaceae	x	x	S5	5	-3
<i>Thuja occidentalis</i>	Eastern White Cedar	Cupressaceae	x		S5	4	-3
<i>Tilia americana</i>	American Basswood	Tiliaceae	x		S5	4	3
<i>Toxicodendron radicans</i> var. <i>rydbergii</i>	Western Poison Ivy	Anacardiaceae	x	x	S5	2	0

Scientific Name	Common Name	Family	Documented by Terrastory (2019)	Documented by RiverStone (2018)	S-Rank	Coefficient of Conservatism	Coefficient of Wetness
<i>Trillium grandiflorum</i>	White Trillium	Liliaceae	x	x	S5	5	3
<i>Typha angustifolia</i>	Narrow-leaved Cattail	Typhaceae	x	x	SNA	n/a	-5
<i>Typha latifolia</i>	Broad-leaved Cattail	Typhaceae	x	x	S5	1	-5
<i>Ulmus americana</i>	American Elm	Ulmaceae	x		S5	3	-3
<i>Verbena hastata</i>	Blue Vervain	Verbenaceae	x		S5	4	-3
<i>Veronica officinalis</i>	Common Speedwell	Scrophulariaceae	x		SNA	n/a	5
<i>Viburnum lentago</i>	Nannyberry	Caprifoliaceae	x		S5	4	0
<i>Viburnum opulus ssp. opulus</i>	Cranberry Viburnum	Caprifoliaceae	x		SNA	n/a	-3
<i>Vicia cracca</i>	Tufted Vetch	Fabaceae	x	x	SNA	n/a	5
<i>Vitis riparia</i>	Riverbank Grape	Vitaceae	x	x	S5	0	0
<i>Wolffia borealis</i>	Northern Watermeal	Lemnaceae	x		S4S5	4	-5

Appendix 3. Candidate Bat Maternity Roost Assessment

Snag/Cavity Tree Survey

FID	Species	DBH	Snag/Cavity	Height Class	Cavities	percent loose bark	Decay Class
0	Trembling Aspen		32 snag		4 few	5	5
1	Trembling Aspen		27 snag		2 few	5	3
2	Trembling Aspen	50+	snag		2 many	5	4
3	White Birch		32 snag		3 few	10	5
4	Trembling Aspen		41 snag		3 many	15	5
5	Trembling Aspen		28 snag		2 none	25	4
6	Trembling Aspen		32 snag		4 few	25	5
7	White Ash		44 snag		2 few	5	3
8	Trembling Aspen		38 snag		2 few	25	4
9	Trembling Aspen		30 snag		3 many	1	5
10	Trembling Aspen		41 snag		2 many	5	4
11	Trembling Aspen		41 cavity		2 few	0	1
12	Trembling Aspen		31 snag		2 few	2	4
13	Trembling Aspen		37 cavity		2 few	0	1
14	Trembling Aspen	50+	cavity		2 few	1	2
15	Trembling Aspen		41 cavity		2 few	0	1
16	Trembling Aspen		39 cavity		2 few	0	2
17	Trembling Aspen		35 cavity		2 few	0	1
18	Trembling Aspen		41 cavity		2 few	0	1
19	Trembling Aspen		40.5 snag		2 few	5	4
20	Trembling Aspen		40 cavity		2 many	0	2
21	Trembling Aspen		32 snag		3 many	5	5
22	Trembling Aspen		45 snag		2 many	10	5
23	Trembling Aspen		31 cavity		2 few	0	1
24	Trembling Aspen		41 snag		2 many	5	5
25	Trembling Aspen		41 snag		2 many	15	5
26	Trembling Aspen		28 snag		4 few	30	6
27	Trembling Aspen		27 snag		3 many	2	6
28	White Birch		28 snag		4 many	10	6
29	Trembling Aspen		29 snag		2 many	1	5
30	White Ash		38 cavity		2 few	0	1
31	Trembling Aspen		38 snag		2 many	15	4
32	White Birch		37 snag		4 few	40	5
33	Trembling Aspen		37 snag		3 few	25	5
34	Trembling Aspen		43 snag		2 many	2	3
35	Trembling Aspen		32 snag		4 few	5	5
36	Trembling Aspen		43 snag		2 none	1	3
37	Trembling Aspen		38 snag		2 few	1	3

Appendix 4. Anuran Calling Surveys

Station ID¹	Bearing (°)	Survey #1 (RiverStone) – 5 June 2018²	Survey #2 (Terrastory)– 24 April 2019²	Survey #3 (Terrastory) – 17 May 2019²	Comments²
AN-1	70	No calling anurans at this station.	Spring Peeper (3) Wood Frog (3)	Spring Peeper (3)	<p>Survey #1: n/a</p> <p>Survey #2: Spring Peeper vocalizations cacophonous. Barred Owl vocalizing on Adjacent Lands to the northwest. American Woodcock vocalizing in the meadow to the west.</p> <p>Survey #3: Spring Peeper vocalizations cacophonous. American Woodcock vocalizing in the meadow to the west.</p>
AN-2	336	Spring Peeper (1-2)	Spring Peeper (3) Wood Frog (3)	Spring Peeper (3)	<p>Survey #1: “centre of property”.</p> <p>Survey #2: Most calling activity emanating from the cattail marsh to the northeast. Less calling activity (and no Wood Frog calls) emanating from the small “pond” (MASM2-1) to the northwest.</p> <p>Survey #3: Spring Peeper vocalizations cacophonous.</p>
AN-3	348	No calling anurans at this station.	Spring Peeper (3) Wood Frog (3)	Spring Peeper (3)	<p>Survey #1: n/a</p> <p>Survey #2: Spring Peeper vocalizations cacophonous.</p> <p>Survey #3: Spring Peeper vocalizations cacophonous.</p>
AN-4	342	No calling anurans at this station.	No calling anurans at this station	No calling anurans at this station	<p>Survey #1: n/a</p> <p>Survey #2: Spring Peepers abundant (call code 3) to the southeast (south of Division Road) on Adjacent Lands. American Woodcock vocalizing to the north.</p> <p>Survey #3: Spring Peepers abundant (call code 3) to the southeast (south of Division Road) on Adjacent Lands.</p>
AN-5	68	n/a (not surveyed)	Spring Peeper (3)	Spring Peeper (3)	<p>Survey #2: Fewer Spring Peeper vocalizations than AN-1, though still considered call code 3.</p> <p>Survey #3: Fewer Spring Peeper vocalizations than AN-1, though still considered call code 3.</p>

¹Locations of Anuran Calling Stations are shown in **Figure 2**.

²**Call Code 1** = Individuals can be counted; calls not simultaneous; **Call Code 2** = Calls distinguishable; some simultaneous calling; **Call Code 3** = Full chorus; calls continuous and overlapping. Second number after the call code indicates the estimated number of individuals calling; no estimate of individuals is provided for Call Code 3.

Appendix 5. Breeding Bird Surveys

Common Name	Scientific Name	Breeding Bird Stations ¹ and Breeding Status ²				
		BI-1	BI-2	BI-3	BI-4	BI-5
American Crow	<i>Corvus brachyrhynchos</i>			Po		Po
American Goldfinch	<i>Spinus tristis</i>			Po	Po	
American Robin	<i>Turdus migratorius</i>		Po		Po	
Black-capped Chickadee	<i>Poecile atricapillus</i>	Po		Po		
Blue Jay	<i>Cyanocitta cristata</i>			Po	Po	
Chipping Sparrow	<i>Spizella passerina</i>			Po		
Common Grackle	<i>Quiscalus quiscula</i>				Po	
Common Yellowthroat	<i>Geothlypis trichas</i>	Po			Pr	Po
Eastern Phoebe	<i>Sayornis phoebe</i>			Po		
Gray Catbird	<i>Dumetella carolinensis</i>	Po				
House Wren	<i>Troglodytes aedon</i>					Po
Indigo Bunting	<i>Passerina cyanea</i>		Po			
Mourning Dove	<i>Zenaida macroura</i>	Po				
Northern Cardinal	<i>Cardinalis cardinalis</i>		Po			Po
Northern Flicker	<i>Colaptes auratus</i>			Po		
Ovenbird	<i>Seiurus aurocapilla</i>				Po	
Red-breasted Nuthatch	<i>Sitta canadensis</i>				Po	
Red-eyed Vireo	<i>Vireo olivaceus</i>	Po				
Red-winged Blackbird	<i>Agelaius phoeniceus</i>			Po	Po	
Song Sparrow	<i>Melospiza melodia</i>	Po	Po	Po	Po	
Tree Swallow	<i>Tachycineta bicolor</i>			Po		
Wood Thrush	<i>Hylocichla mustelina</i>			Po		

¹Locations of breeding bird survey stations are indicated on **Figure 2**. All breeding bird surveys conducted by others (RiverStone).

²**Co** = Confirmed Breeder; **Pr** = Probable Breeder; **Po** = Possible Breeder; **O** = Observed (no evidence of breeding). Breeding status determined based on the results of the formal breeding bird surveys. Additional bird species recorded outside of the formal breeding bird surveys are noted in the report text.

Appendix 6. Significant Wildlife Habitat Assessment

Ecoregion 6E	Do any Features, Habitats, or Areas on the Subject Property or Adjacent Lands meet relevant criteria (Ecoregion 6E Criteria Schedule) as Candidate SWH?	Do any Features, Habitats, or Areas on the Subject Property or Adjacent Lands meet relevant criteria (Ecoregion 6E Criteria Schedule) as Confirmed SWH?	Likelihood that Negative Effects to SWH (i.e., “degradation that threatens the health and integrity” as defined in the 2014 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities.
Seasonal Concentration Areas of Animals			
Waterfowl Stopover and Staging Areas (Terrestrial)	No. Meadows, fields, and/or thickets that annually flood during spring and could support significant congregations of migrating waterfowl are absent.	--	--
Waterfowl Stopover and Staging Areas (Aquatic)	Yes. Large surface water features (e.g., ponds, lakes, bays, coastal inlets, large watercourses, etc.) and/or wetlands that annually flood during spring and could support significant congregations of migrating waterfowl may be present.	No. Open water inclusions within the Reed-canary Grass meadow marshes may support small numbers of migrating waterfowl but are too small to support significant congregations. No migrating waterfowl were documented within the Subject Property during the 24 April 2019 site assessment.	--
Shorebird Migratory Stopover Areas	Yes. Unvegetated open areas adjacent to surface water features (e.g., shorelines, beaches, mudflats, etc.) which could support significant congregations of migrating shorebirds are may be present	No. Open water inclusions within the Reed-canary Grass meadow marshes which likely contain exposed mudflats during fall (once water levels recede) may support small numbers of migrating shorebirds but are too small to support significant congregations.	--
Raptor Wintering Areas	No. While forest and meadow habitats are present which may support wintering raptors, such habitats are too small to support significant congregations per Ecoregion 6E criteria. The western meadow (MEMM4) was ploughed as recently as 2018.	--	--
Bat Hibernacula	No. Features that could support hibernating bats (e.g., caves, mine shafts, karsts, etc.) are absent.	--	--
Bat Maternity Colonies	Yes. Mature deciduous and mixed forests with a high-density (i.e., >10/ha) of large-diameter (i.e., ≥25 cm DBH) trees containing cracks/cavities may be present.	No. Snag/cavity tree counts undertaken by others in 2018 as shown in Figure 2 revealed a density of about 5/ha (i.e., about 50% of the minimum density requirement per SWH criteria). Acoustic monitoring in 2018 suggests that Big Brown Bat and Silver-haired Bat may be roosting within the Subject Property but likely at numbers that would not be considered significant.	Note – irrespective of the absence of this SWH type, a timing window restriction will be applied to tree removal activities to avoid impacting roosting bats (individuals or maternity colonies).
Turtle Wintering Areas	Yes. Surface water features and/or wetlands with soft muddy substrate which do not freeze to the bottom during winter may be present.	No. Turtles were not recorded within the Subject Property during the 2018 and 2019 site assessments.	--
Reptile Hibernaculum	Yes. Features (e.g., small mammal burrows, rock crevices, etc.) and/or habitats (e.g., certain wetlands with a fluctuating water table, etc.) that could provide snakes with access below the frost line are present.	Unlikely. Stone/boulder walls are present within portions of the forest/swamp. These walls are generally quite shaded and offer limited opportunities for snake thermoregulation post emergence. It is possible that snakes are overwintering somewhere within the Subject Property, but (if so) it is unlikely that this is occurring at densities considered significant.	--
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)	No. Features that could support nesting by Cliff Swallow and Northern Rough-winged swallow (e.g., eroding banks, sandy hills, borrow pits, steep slopes, cliff faces, etc.) are absent.	--	--
Colonially - Nesting Bird Breeding Habitat Breeding Habitat (Tree/Shrubs)	Yes. Swamp communities are present.	No. Stick nests are absent.	--
Colonially - Nesting Bird Breeding Habitat (Ground)	No. Rocky islands or peninsulas along lakes or large rivers are absent.	--	--

Ecoregion 6E	Do any Features, Habitats, or Areas on the Subject Property or Adjacent Lands meet relevant criteria (Ecoregion 6E Criteria Schedule) as Candidate SWH?	Do any Features, Habitats, or Areas on the Subject Property or Adjacent Lands meet relevant criteria (Ecoregion 6E Criteria Schedule) as Confirmed SWH?	Likelihood that Negative Effects to SWH (i.e., “degradation that threatens the health and integrity” as defined in the 2014 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities.
Migratory Butterfly Stopover Areas	No. A mixture of fields and forests within 5 km from the shoreline of Lake Ontario are absent.	--	--
Landbird Migratory Stopover Areas	No. While migrating landbirds are expected to temporarily stopover on the Subject Property to feed and rest, it is unlikely the Subject Property supports significant congregations of migrating landbirds as it is greater than 5 km from the shoreline of Lake Ontario and/or other large inland waterbodies (i.e., Lake Simcoe).	--	--
Deer Yarding Areas	No. Subject Property lacks vegetation communities that could provide thermal cover and lower snow depths in winter (e.g., coniferous woodlands and plantations, etc.). MNR has not identified any deer yarding areas from the Subject Property or Adjacent Lands.	--	--
Deer Winter Congregation Areas	No. See above.	--	--
Rare Vegetation Communities or Specialized Habitats for Wildlife			
Cliffs and Talus Slopes	No. Cliffs and talus slope communities are absent.	--	--
Sand Barren	No. Sand barren communities are absent.	--	--
Alvar	No. Flora characteristic of alvars are absent.	--	--
Old Growth Forest	No. Much of the on-site woodlands and treed swamps are dominated by early successional species (poplar and ash). Woodland areas are <30 ha in size and contain negligible interior habitat.	--	Note – irrespective of the absence of this SWH type, an area of mature, late-successional deciduous forest has been incorporated into the proposed Environmental Protection Zone.
Savannah	No. Flora characteristic of savannahs are absent.	--	--
Tallgrass Prairie	No. Flora characteristic of tallgrass prairies are absent.	--	--
Other Rare Vegetation Community	No. Provincially rare vegetation communities are absent.	--	--
Waterfowl Nesting Area	Yes. Wetland communities are present which may support waterfowl nesting.	No. Nesting waterfowl were not documented during the 2018 breeding bird surveys nor incidentally during 2019. Open water inclusions within the Reed-canary Grass meadow marshes not considered to contain sufficient extent and duration of ponding for successful rearing of waterfowl.	--
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	No. Forest communities adjacent to large surface water features are absent.	--	--
Woodland Raptor Nesting Habitat	Yes. Stick and/or cavity nests associated with woodland raptors may be present.	Unlikely. While no stick nests were documented, tree cavities that may support Barred Owl are present. Barred Owl was documented vocalizing on Adjacent Lands to the north on 24 April 2019, but not from within the Subject Property. Barred Owl is considered area-sensitive and unlikely to be nesting within the Subject Property given the absence of interior forest (i.e., minimum of 100 m from an edge).	--

Ecoregion 6E	Do any Features, Habitats, or Areas on the Subject Property or Adjacent Lands meet relevant criteria (Ecoregion 6E Criteria Schedule) as Candidate SWH?	Do any Features, Habitats, or Areas on the Subject Property or Adjacent Lands meet relevant criteria (Ecoregion 6E Criteria Schedule) as Confirmed SWH?	Likelihood that Negative Effects to SWH (i.e., “degradation that threatens the health and integrity” as defined in the 2014 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities.
Turtle Nesting Areas	Yes. Exposed mineral soils adjacent to surface water features (e.g., lakes, ponds, etc.) and/or wetlands that may support turtles may be present.	No. Turtles were not recorded within the Subject Property during the 2018 and 2019 site assessments.	--
Seeps and Springs	No. Areas where groundwater emerges at the surface and may support specialized habitat for plants and wildlife appear to be absent.	--	--
Amphibian Breeding Habitat (Woodland and Wetlands)	Yes. Swamps, marshes, ponds, and/or pools that may support significant congregations of breeding amphibians (woodland or wetland) are present.	Yes. The following wetland communities are considered significant amphibian breeding habitat: MAMM1-3, SWTM2-2, MASM2-1, MASM1-1, SWDM3-3.	Negligible. Wetland communities which provide this SWH type will be protected through establishment of EP Zones. One community (easternmost SWDM3-3) is situated within the SWM block and will be replaced through a constructed wetland design. See report for greater details.
Woodland Area-Sensitive Bird Breeding Habitat	Yes. Interior forest interior conditions may be present.	No. While Ovenbird was documented as a possible breeder in 2018, the results of the breeding bird surveys confirm the absence of breeding areas for significant congregations of woodland area-sensitive species (i.e., presence of three or more of the listed indicator species). The spatial extent of woodland interior habitat within the Subject Property is negligible.	--
Habitat for Species of Conservation Concern			
Marsh Bird Breeding Habitat	Yes. Wetlands with shallow water and robust emergent vegetation may be present.	No. Marshes within the Subject Property do not contain suitable habitat for significant congregations of marsh breeding birds.	--
Open Country Bird Breeding Habitat	No. Meadow habitats of sufficient size are absent.	--	--
Shrub/Early Successional Bird Breeding Habitat	Yes. Shrub/early-successional habitats of sufficient size may be present.	No. The results of the breeding bird surveys confirm the absence of significant breeding areas for shrub/early successional bird species.	--
Terrestrial Crayfish	Yes. Marsh and swamp communities and/or wet fields are present	No. Terrestrial crayfish chimneys were not documented.	--
Special Concern and Rare Wildlife Species	Yes. See Table 2 below.	Yes. See Table 2 below.	Possible. See Table 2 below.
Animal Movement Corridors			
Amphibian Movement Corridors	Yes. Significant amphibian breeding habitat (woodlands and wetlands) is present, and by extension movement corridors may also be present.	Yes. Unimpeded areas between the significant amphibian breeding areas are considered suitable movement corridors.	Negligible. Movement corridors between the significant amphibian breeding habitats will be maintained. A narrow minimal use maintenance/walking trail (i.e., 10 m service easement) is proposed which bisects one of the north/south movement corridors, but this will not have an adverse affect on amphibian movements within the Subject Property.
Deer Movement Corridors	No. Deer Yarding Areas are absent, and by extension movement corridors are also absent.	--	--

Table 1. Results of the Special Concern and Provincially Rare Species Assessment.

Species	Status per O. Reg. 242/08 under the ESA and/or NHIC	Rationale for Consideration in this Study	General Description of Habitats and Features which the Species is Known to Occupy or Use within the Ecoregion in which this Study is Located	Likelihood that the Species Occupies the Area within or adjacent to proposed Development or Site Alteration ¹	Likelihood that Negative Effects to the Species or its Habitat (i.e., “degradation that threatens the health and integrity” as defined in the 2014 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities.
Amphibians					
Western Chorus Frog (<i>Pseudacris maculata</i>)	S3	Ont. Herp Atlas.	<ul style="list-style-type: none"> Generally breeds in fishless woodland ponds, bottomland swamps, damp meadows, marshes, and temporary ponds in both closed canopy and open areas Overwinters underground in terrestrial areas or under surface cover, such as fallen logs. 	Negligible. Species is absent based on the results of the Anuran calling surveys.	--
Birds					
Canada Warbler (<i>Cardellina canadensis</i>)	SC	Potentially suitable habitat present and Subject Property within species’ known distribution.	<ul style="list-style-type: none"> Breeds and forages in a wet thickets, swamps, and mature deciduous forest. 	Negligible. Species is absent based on the results of the breeding bird surveys.	--
Common Nighthawk (<i>Chordeiles minor</i>)	SC	OBBA	<ul style="list-style-type: none"> Breeds and forages in a variety of open habitats with sparse cover of woody vegetation. Also occupies urban areas and nests on flat roof tops. 	Unlikely. While crepuscular bird surveys were not undertaken, this species was not documented incidentally during any evening Anuran surveys nor through the course of other fieldwork in 2018-2019.	--
Eastern Wood-pewee (<i>Contopus virens</i>)	SC	OBBA	<ul style="list-style-type: none"> Breeds and forages in relatively open, deciduous and mixed forests of various sizes (including urban forest fragments) and along forest edges. 	Confirmed. Species not recorded during 2018 breeding bird surveys but recorded incidentally during 2019 vegetation mapping.	Negligible. Habitat in which this species was documented will partially be contained in the recommended EP Zone. Other portions of the EP Zone also provide suitable breeding habitat for this species. Species does not appear to have been breeding on the Subject Property in 2018 based on surveys by others. Breeding habitat for this species is relatively extensive in the local landscape. See report for greater details.
Golden-winged Warbler (<i>Vermivora chrysoptera</i>)	SC	Potentially suitable habitat present and Subject Property within species’ known distribution.	<ul style="list-style-type: none"> Breeds and forages in thickets and early-successional forests/thickets adjacent to deciduous or mixed forest. 	Negligible. Species is absent based on the results of the breeding bird surveys.	--
Grasshopper Sparrow (<i>Ammodramus saviarum</i>)	SC	OBBA	<ul style="list-style-type: none"> Breeds and forages in hayfields, savannahs, pastures, meadows, grasslands, and prairies. 	Negligible. Species is absent based on the results of the breeding bird surveys.	--
Olive-sided Flycatcher (<i>Contopus cooperi</i>)	SC	OBBA	<ul style="list-style-type: none"> Breeds and forages in open coniferous or mixed coniferous forests with tall trees, often located near water or wetlands 	Negligible. Species is absent based on the results of the breeding bird surveys.	--
Red-headed Woodpecker (<i>Melanerpes erythrocephalus</i>)	SC	Potentially suitable habitat present and Subject Property within species’ known distribution.	<ul style="list-style-type: none"> Breeds and forages in open forests, savannahs, and forest edges that tend to contain large, mature trees. 	Negligible. Species is absent based on the results of the breeding bird surveys.	--

Species	Status per O. Reg. 242/08 under the ESA and/or NHIC	Rationale for Consideration in this Study	General Description of Habitats and Features which the Species is Known to Occupy or Use within the Ecoregion in which this Study is Located	Likelihood that the Species Occupies the Area within or adjacent to proposed Development or Site Alteration ¹	Likelihood that Negative Effects to the Species or its Habitat (i.e., “degradation that threatens the health and integrity” as defined in the 2014 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities.
Wood Thrush <i>(Hylocichla mustelina)</i>	SC	OBBA	<ul style="list-style-type: none"> Breeds and forages in second-growth and mature deciduous and mixed forests with a well-developed understory. 	Confirmed. Species recorded as a “possible” breeder at BB-3.	Negligible. Habitat in which this species was documented will partially be contained in the recommended EP zone. Species was only recorded as a “possible” breeder during breeding bird surveys in 2018 by others. Breeding habitat for this species is relatively extensive in the local landscape. See report for greater details.
Fish					
Grass Pickerel (<i>Esox americanus vermiculatus</i>)	SC	DFO Aquatic SAR Mapping	<ul style="list-style-type: none"> Occupies coastal wetlands in the Great Lakes and portions of the Severn River system including Kahshe Lake and Bass Lake. 	Negligible. Habitat is absent. Species known to occur in Bass Lake.	--
Insects					
Monarch <i>(Danaus plexippus)</i>	SC	Potentially suitable habitat present and Subject Property within species’ known distribution.	<ul style="list-style-type: none"> Oviposits on Milkweeds (<i>Asclepias</i> spp.). Generalist foraging that nectars in most areas with wildflowers. 	Confirmed. Ovipositing sites (i.e., species in the genus <i>Asclepias</i>) are present, and species documented nectaring within the Subject Property.	Negligible. The landscape surrounding the Subject Property provides relatively abundant nectaring and ovipositing sites for this species. See report for greater details.
Yellow Banded Bumble Bee <i>(Bombus terricola)</i>	SC	Potentially suitable habitat present and Subject Property within species’ known distribution.	<ul style="list-style-type: none"> Occupies a range of open areas with nectaring sites. Nests underground in abandoned rodent burrows or decomposing logs. 	Possible. Species is a habitat generalist and occupies a wide range of areas.	Negligible. Proposed development and disturbance will not adversely affect nectaring opportunities for this species. See report for greater details.
Reptiles					
Eastern Ribbonsnake <i>(Thamnophis saurita)</i>	SC	Potentially suitable habitat present and Subject Property within species’ known distribution.	<ul style="list-style-type: none"> Occupies edges of shallow ponds, streams, marshes, swamps, or bogs bordered by dense vegetation. 	Unlikely. Species not recorded during any field activities in 2018-2019.	--
Eastern Musk Turtle <i>(Sternotherus odoratus)</i>	SC	Potentially suitable habitat present and Subject Property within species’ known distribution.	<ul style="list-style-type: none"> Occupies ponds, lakes, marshes, and rivers that are generally slow-moving, have abundant emergent vegetation, and muddy bottoms. Nests in exposed, usually coarse, friable substrate. 	Negligible. Subject Property does not support turtles. It is possible that an individual of this species could temporarily occupy the open water inclusions within the Reed-canary Grass meadow marshes (particularly during spring high-water levels), but these features are small, do not retain much water in summer under average conditions, and may not support overwintering.	--
Northern Map Turtle <i>(Graptemys geographica)</i>	SC	Ont. Herp Atlas	<ul style="list-style-type: none"> Occupies lakes and large rivers with slow moving currents. Nests in exposed, usually coarse, friable substrate. 	Negligible. Suitable habitat is absent.	--

Species	Status per O. Reg. 242/08 under the ESA and/or NHIC	Rationale for Consideration in this Study	General Description of Habitats and Features which the Species is Known to Occupy or Use within the Ecoregion in which this Study is Located	Likelihood that the Species Occupies the Area within or adjacent to proposed Development or Site Alteration ¹	Likelihood that Negative Effects to the Species or its Habitat (i.e., “degradation that threatens the health and integrity” as defined in the 2014 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities.
Snapping Turtle (<i>Chelydra serpentina</i>)	SC	Ont. Herp Atlas	<ul style="list-style-type: none"> • Occupies a variety of aquatic habitats with slow moving water. • Nests in exposed, usually coarse, friable substrate. • Known to make long-distance overland movements (i.e., several kilometers) between habitats. 	<p>Negligible. Subject Property does not support turtles. It is possible that an individual of this species could temporarily occupy the open water inclusions within the Reed-canary Grass meadow marshes (particularly during spring high-water levels), but these features are small, do not retain much water in summer under average conditions, and may not support overwintering.</p>	--

¹ Likelihood categories should be interpreted as follows:

Negligible: so limited that the assessed species can be assumed absent.

Unlikely: while theoretically conceivable, species presence very improbable or temporary based on available information (e.g., habitat conditions, range, abundance in local landscape, etc.).

Possible: species presence plausible based on available information; no convincing evidence suggesting species could not occur on-site.

Probable: while not confirmed, available information suggests species has a high likelihood of being present.

Confirmed: species observed and/or evidence of occupation (e.g., tracks, etc.) documented.

**Appendix 7. Endangered and Threatened Species
Assessment**

Species	Status per O. Reg. 230/08 of the ESA	Rationale for Consideration in this Study	General Description of Habitats and Features which the Species is Known to Occupy within the Ecoregion in which this Study is Located	Likelihood that the Species Occupies the Area within or adjacent to proposed Development or Site Alteration ¹	Likelihood that Negative Effects to the Species or its Habitat (i.e., “Damage” or “Destruction” as defined in the ESA) will occur based on the Proposed Development Plan and any related Site Alteration Activities
Birds					
Barn Swallow (<i>Hirundo rustica</i>)	THR	OBBA	<ul style="list-style-type: none"> Nests in barns, bridge/culvert undersides, awnings/overhangs on sides of buildings, and (historically) tree cavities. Forages in a variety of open areas including agricultural lands, meadows, prairies, woodland clearings, marshes, and above waterbodies. 	Negligible. Species not documented during breeding bird surveys and suitable nesting sites are absent.	--
Bobolink (<i>Dolichonyx oryzivorus</i>)	THR	OBBA	<ul style="list-style-type: none"> Breeds and forages in hayfields, pastures, meadows, grasslands, and prairies which are often (but not always) greater 4 ha. May be found in more marginal habitats (e.g., shrubby fields, smaller fields, etc.) during migration or following disturbance to breeding habitats (e.g., hay cutting). 	Negligible. Species not documented during breeding bird surveys.	--
Cerulean Warbler (<i>Setophaga cerulea</i>)	THR	Potentially suitable habitat present and Subject Property within species’ known distribution.	<ul style="list-style-type: none"> Breeds and forages in mature and second-growth deciduous forest with a relatively open understory. 	Negligible. Species not documented during breeding bird surveys.	--
Eastern Meadowlark (<i>Sturnella magna</i>)	THR	OBBA	<ul style="list-style-type: none"> Breeds and forages in hayfields, savannahs, pastures, meadows, grasslands, prairies, and shrubby fields. 	Negligible. Species not documented during breeding bird surveys.	--
Mammals					
Eastern Small-footed Myotis (<i>Myotis leibii</i>)	END	Potentially suitable habitat present and Subject Property within species’ known distribution.	<ul style="list-style-type: none"> Maternal roosting sites include exposed rock outcrops, crevices, and cliffs. Overwinters in caves and mines that maintain temperatures above 0°C. 	Unlikely. While species may feed above open habitats on the Subject Property or Adjacent Lands, potential maternal roosting habitat (e.g., rock outcrops, cliffs, etc.) is absent.	--
Little Brown Myotis (<i>Myotis lucifugus</i>)	END	Potentially suitable habitat present and Subject Property within species’ known distribution.	<ul style="list-style-type: none"> Maternal roosting sites include buildings and large diameter trees with cracks, crevices, and/or exfoliating bark. Overwinters in caves and mines that maintain temperatures above 0°C. 	Confirmed. A Myotis species (likely either Little Brown Myotis or Northern Myotis) was documented at BA-1 and BA-2 during ultrasonic acoustic monitoring in 2018. It is unknown if this species (maternity colonies or individuals) was roosting in wooded portions of the Subject Property in 2018.	Negligible. A timing window restriction will be applied to tree removal activities to avoid impacting roosting bats (individuals or maternity colonies). Additional mitigation measures for construction and detailed design are also provided See report for greater details.
Northern Myotis (<i>Myotis septentrionalis</i>)	END	Potentially suitable habitat present and Subject Property within species’ known distribution.	<ul style="list-style-type: none"> Maternal roosting sites include buildings and large diameter trees with cracks, crevices, and/or exfoliating bark. Overwinters in caves and mines that maintain temperatures above 0°C. 	Confirmed. A Myotis species (likely either Little Brown Myotis or Northern Myotis) was documented at BA-1 and BA-2 during ultrasonic acoustic monitoring in 2018. It is unknown if this species (maternity colonies or individuals) was roosting in wooded portions of the Subject Property in 2018.	Negligible. A timing window restriction will be applied to tree removal activities to avoid impacting roosting bats (individuals or maternity colonies). Additional mitigation measures for construction are also provided See report for greater details.
Tri-colored Bat (<i>Perimyotis subflavus</i>)	END	Potentially suitable habitat present and Subject Property within species’ known distribution.	<ul style="list-style-type: none"> Maternal roosting sites include Maple (<i>Acer</i> spp.) and Oak (<i>Quercus</i> spp.) with dead/dying leaf clusters. Overwinters in caves and mines that maintain temperatures above 0°C. 	Negligible. Species not documented during bat acoustic monitoring.	--

Species	Status per O. Reg. 230/08 of the ESA	Rationale for Consideration in this Study	General Description of Habitats and Features which the Species is Known to Occupy within the Ecoregion in which this Study is Located	Likelihood that the Species Occupies the Area within or adjacent to proposed Development or Site Alteration ¹	Likelihood that Negative Effects to the Species or its Habitat (i.e., “Damage” or “Destruction” as defined in the ESA) will occur based on the Proposed Development Plan and any related Site Alteration Activities
Plants					
American Ginseng <i>(Panax quinquefolius)</i>	END	Potentially suitable habitat	<ul style="list-style-type: none"> Occupies rich, relatively undisturbed deciduous forests. 	Negligible. Species not documented during vascular plant surveys or incidentally in 2018/2019.	--
Black Ash <i>(Fraxinus nigra)</i>	END (COSSARO)	Documented on-site	<ul style="list-style-type: none"> Swamps and moist sites, usually on mucky or peaty soils 	Confirmed. Species documented on-site.	Species not yet subject to <i>Endangered Species Act</i> requirements; see report for greater details..
Butternut <i>(Juglans cinerea)</i>	END	Potentially suitable habitat	<ul style="list-style-type: none"> Occupies a variety of treed habitats including mature forests, early-successional forests, and hedgerows. 	Negligible. Species not documented during vascular plant surveys or incidentally in 2018/2019.	--
Reptiles					
Blanding's Turtle <i>(Emydoidea blandingii)</i>	THR	Ont. Reptile and Amph. Atlas	<ul style="list-style-type: none"> Occupies freshwater lakes, permanent or temporary pools, slow-flowing streams, marshes, and swamps. <ul style="list-style-type: none"> Nests in exposed, usually coarse, friable substrate. Known to make long-distance overland movements (i.e., several kilometers) between habitats. 	Negligible. Turtles are absent from the Subject Property based on the results of 2018/2019 fieldwork.	--

¹ Likelihood categories are to be interpreted as follows:

Negligible: so limited that the assessed species can be assumed absent.

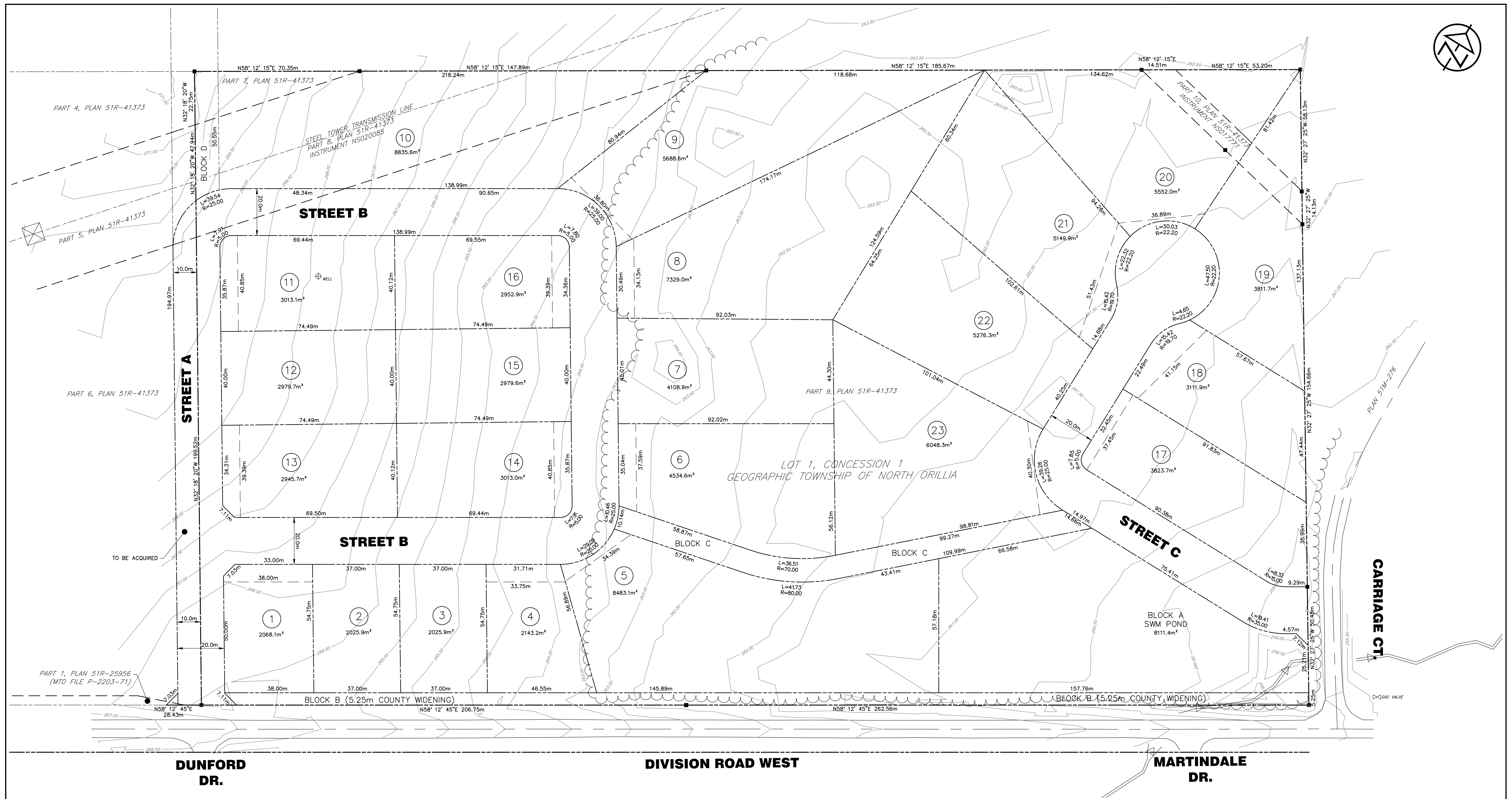
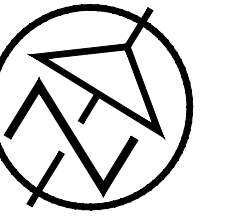
Unlikely: while theoretically conceivable, species presence very improbable or temporary based on available information (e.g., habitat conditions, range, abundance in local landscape, etc.).

Possible: species presence plausible based on available information; no convincing evidence suggesting species could not occur on-site.

Probable: while not confirmed, available information suggests species has a high likelihood of being present.

Confirmed: species observed and/or evidence of occupation (e.g., tracks, etc.) documented.

Appendix 8. Proposed Development Plans



LAND USE SCHEDULE

LAND USE	LOT/BLOCK No.	AREA(ha)
SINGLE FAMILY RESIDENTIAL (R1)	LOTS 1-23	9.80
SWM POND	BLOCK A	0.81
COUNTY ROAD WIDENING	BLOCK B	0.24
SWM EASEMENT	BLOCK C	0.20
FUTURE ROAD ALLOWANCE	BLOCK D	0.11
ROADS (STREET A,B,C)		1.88
TOTAL		13.04

LEGEND

■ DENOTES FOUND SURVEY MONUMENT

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

a) SHOWN ON PLAN
 b) SHOWN ON PLAN
 c) SEE KEY PLAN
 d) RESIDENTIAL
 e) SHOWN ON PLAN
 f) SHOWN ON PLAN
 g) SHOWN ON PLAN
 h) MUNICIPAL WATER
 i) SANDY LOAM
 j) SHOWN ON PLAN
 k) MUNICIPAL SERVICES
 l) NONE

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SURVEYOR'S CERTIFICATE

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

DATE _____ DARREN WALKER
 ONTARIO LAND SURVEYOR
 TULLOCH ENGINEERING

OWNER'S CERTIFICATE

I, THE UNDERSIGNED, BEING THE REGISTERED OWNER OF THE SUBJECT LANDS, HEREBY AUTHORIZE MORGAN PLANNING AND DEVELOPMENT INC. TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND TO SUBMIT SAME TO THE TOWNSHIP OF ORO-MEDONTE AND THE COUNTY OF SIMCOE FOR APPROVAL.

DATE _____ MR. RON CHESLOCK
 SOUTH SHORE HOMES INC.

DRAFT PLAN OF
PROPOSED SUBDIVISION
 PART OF LOT 1, CONCESSION 1,
 (GEOGRAPHIC TOWNSHIP OF NORTH ORILLIA)
 NOW IN THE
TOWNSHIP OF SEVERN
 COUNTY OF SIMCOE
 2020

NO.	REVISIONS		
1.	1ST SUBMISSION	MAY 2020	JM

LAND USE PLANNING CONSULTANTS

MORGAN PLANNING & DEVELOPMENT

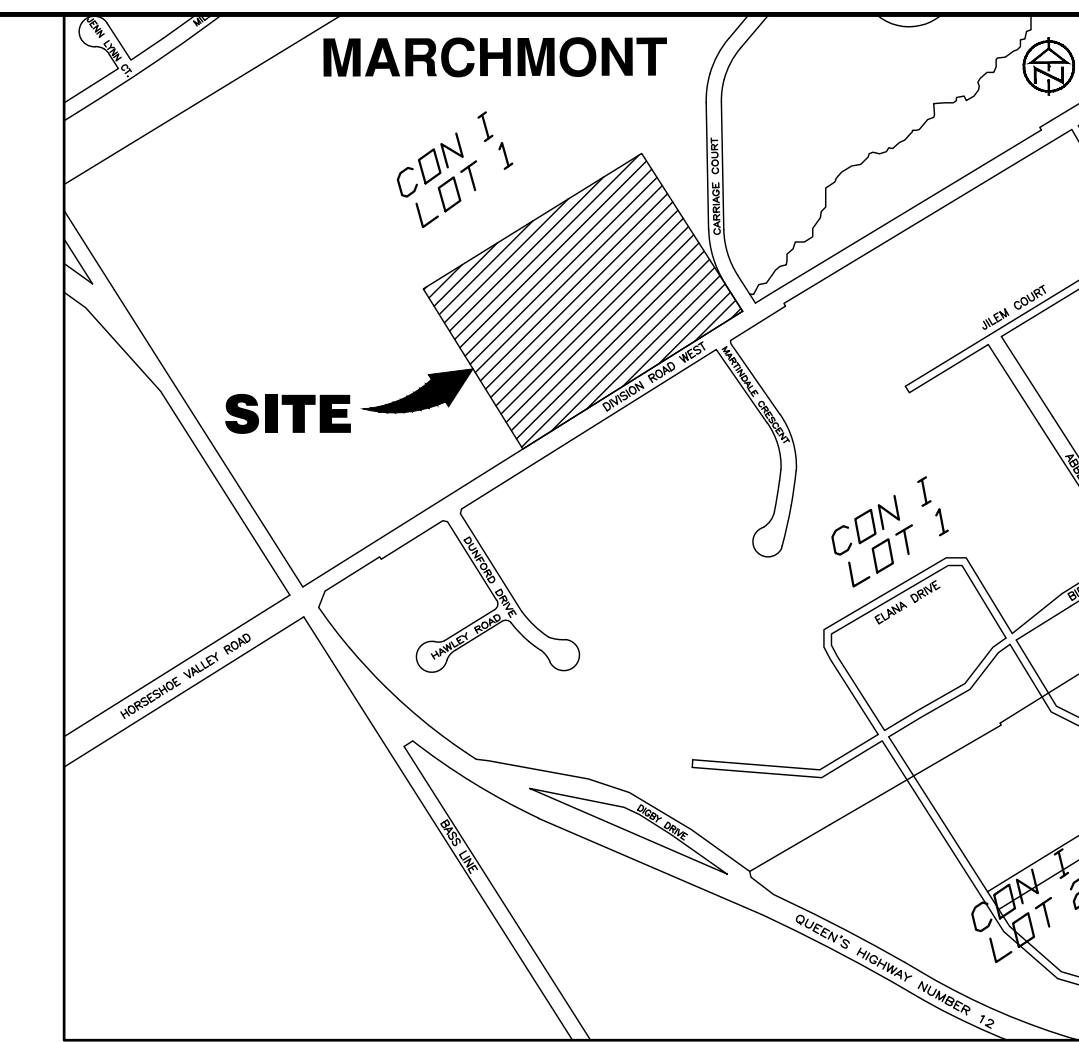
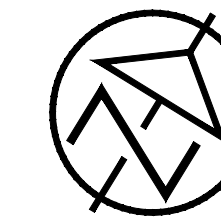
T 705-327-1873 BOX 834, ORILLIA, ON L3V 6K8
 WWW.MORGANPLANNING.CA

TATHAM ENGINEERING

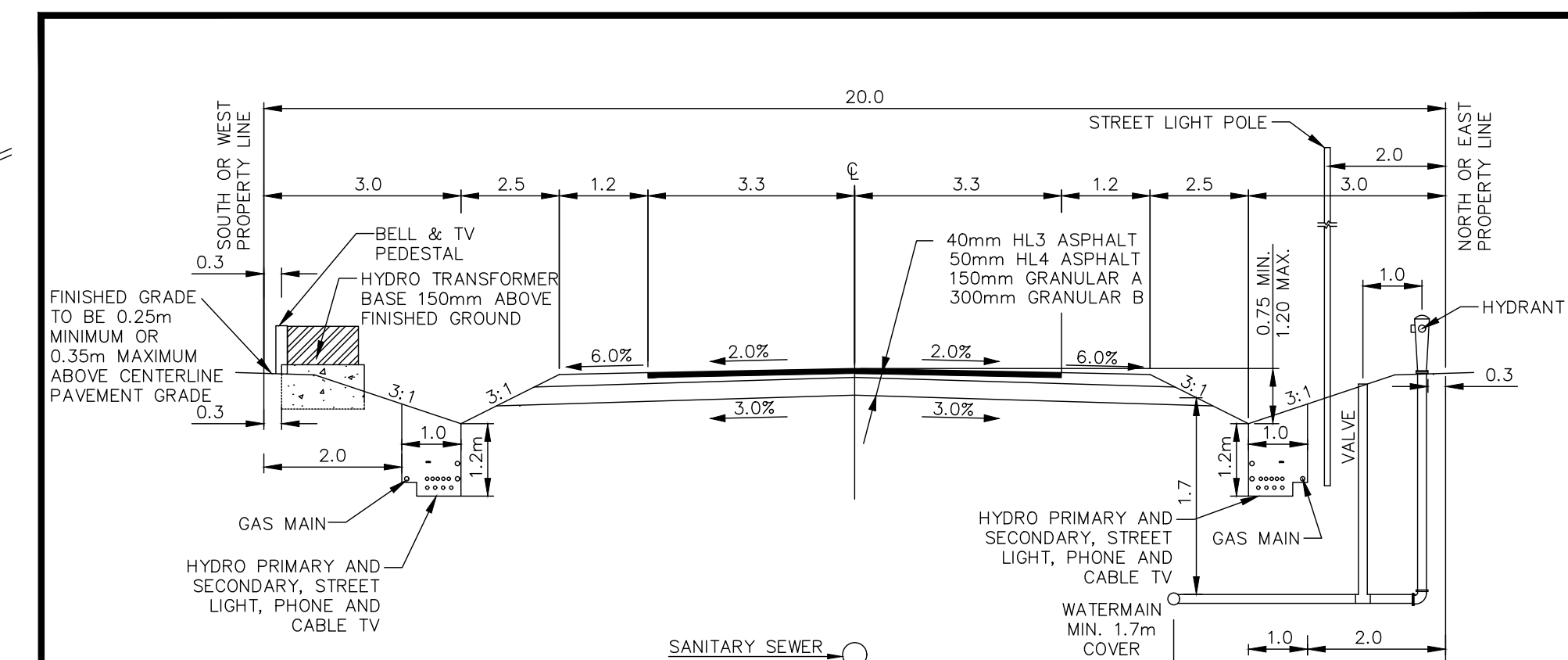
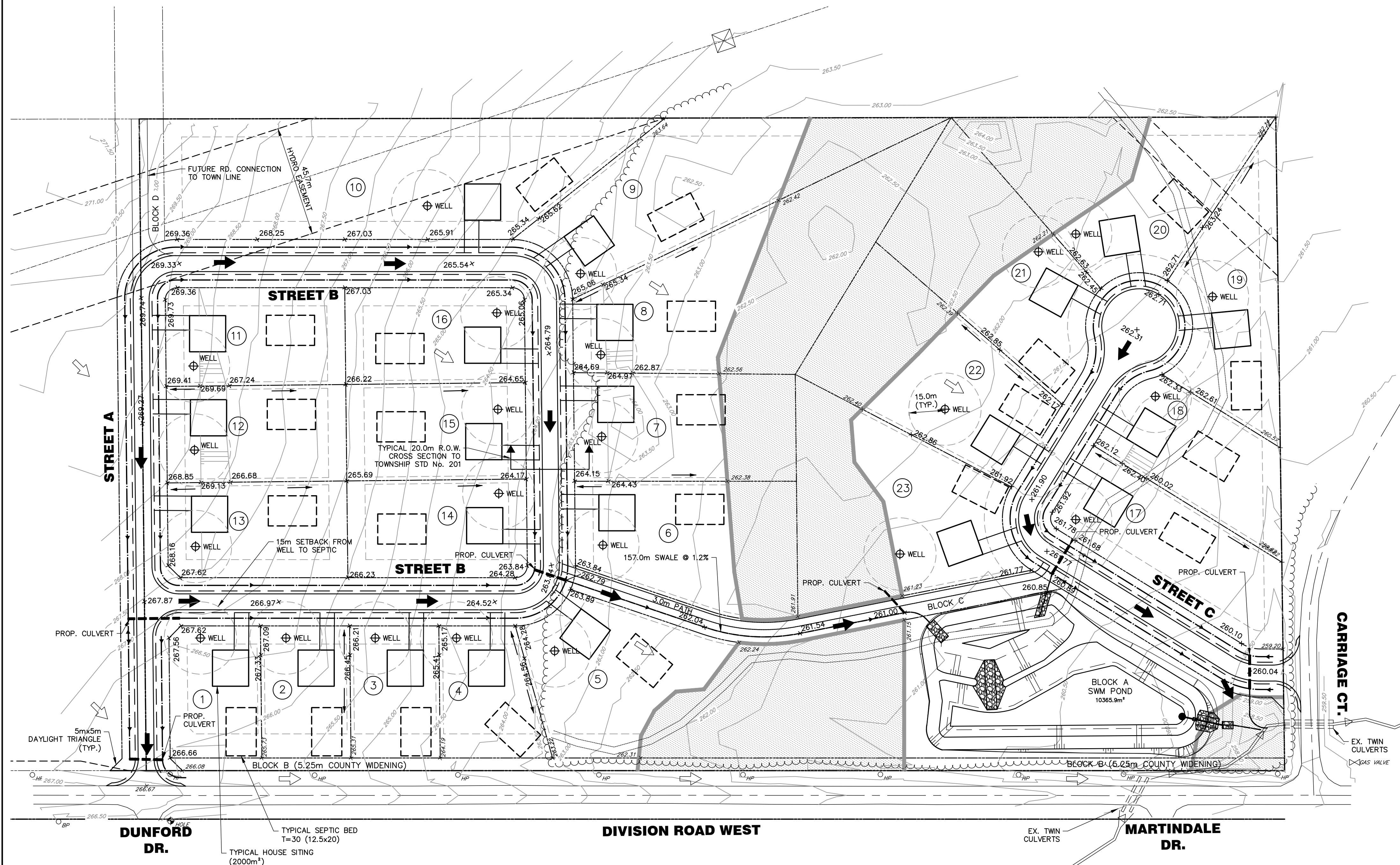
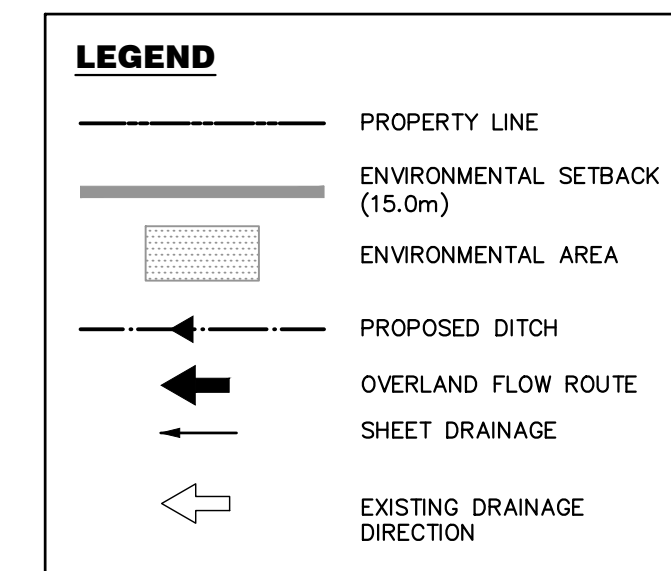
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 JOB NO. 319827

DESIGN: CU CHECKED: BL
 DRAWN: CU DATE: NOVEMBER 2015

DWG. **DP-1**



KEY PLAN - N.T.S.



- NOTES:
1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.
 2. MINIMUM PAVEMENT AND ROAD STRUCTURE DESIGN AS PER TOWNSHIP OF SEVERN ENGINEERING CRITERIA OR AS PER GEOTECHNICAL INVESTIGATION RECOMMENDATION.
 3. DITCH GRADE TO BE MIN. 0.5% MAX. 6.0% AND RESTORED WITH 100mm TOPSOIL & SOD.
 4. ALL SERVICE LOCATIONS SHOWN ARE FOR GUIDELINE PURPOSES ONLY AND MAY DEVIATE AS PER THE DIRECTION OF THE TOWNSHIP WHEN STANDARD LOCATION CANNOT BE ACHIEVED.
 5. ALL WATER CURB STOPS TO BE PLACED ON STREETLINE.
 6. A 3.0 m WIDE PLATFORM AREA SHALL BE CONSTRUCTED FOR EACH FIRE HYDRANT. THE MINIMUM CULVERT LENGTH SHALL BE 7.0 m AND THE MINIMUM DIAMETER SHALL BE 300mm. PLATFORM AREAS SHALL BE RESTORED WITH 100mm TOPSOIL AND SOD.
 7. SEE JOINT UTILITY TRENCH STANDARD DRAWING FOR 4 PARTY DETAILS.
 8. ALL HOUSE SERVICES TO BE MINIMUM 0.76m BELOW DITCH GRADE.

NO.	REVISION	APR'D	DATE	TOWNSHIP OF SEVERN	APR'D:	DATE: 2012
				SEMI-URBAN ROAD (OPEN DITCH)	DRAWN:	SCALE: NTS
				20.0m RIGHT OF WAY	STD. No.	201
				6.6m ASPHALT SURFACE		

DISCLAIMER AND COPYRIGHT
 CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.
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BENCHMARKS
 TBM1 - ELEVATION 267.684m
 COSINE MONUMENT LOCATED ROUGHLY 600m SOUTH OF THE SITE ALONG HIGHWAY 12.

NOTES

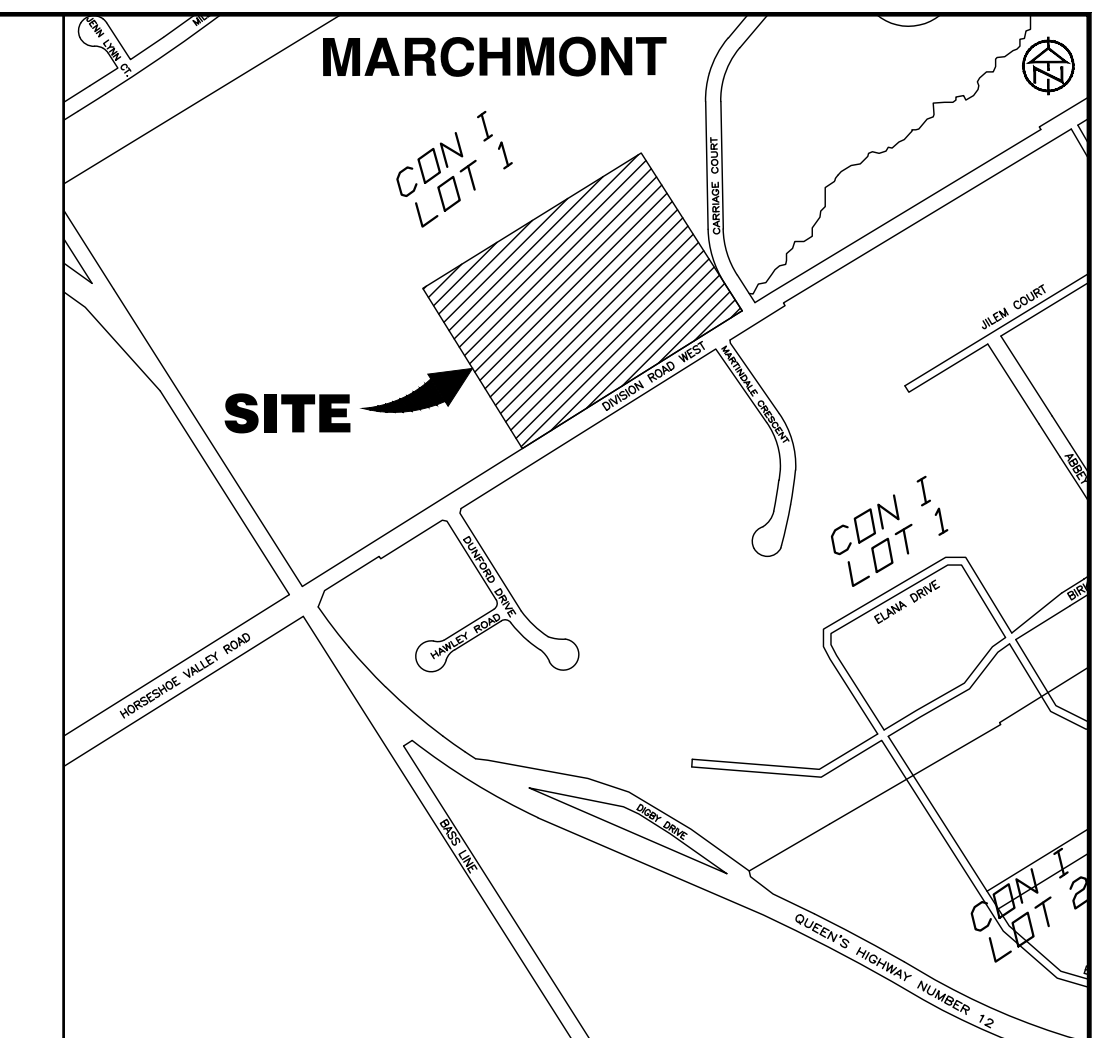
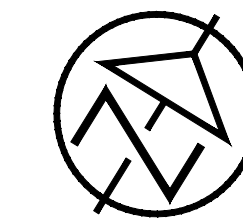
No.	REVISION DESCRIPTION	DATE	ENGINEER STAMP
1.	1ST SUBMISSION	OCT. 2021	

2060 DIVISION ROAD
TOWNSHIP OF SEVERN



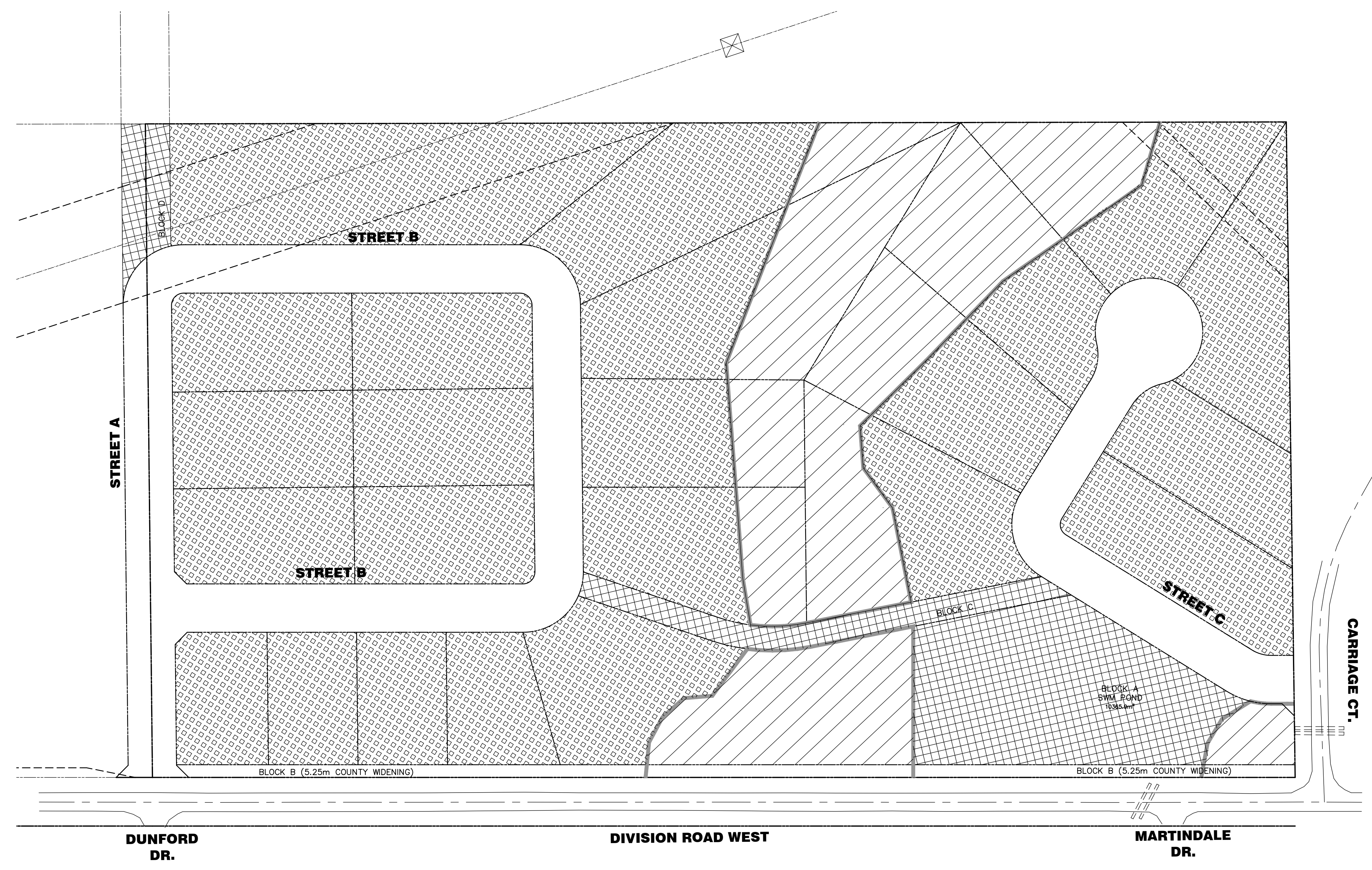
OVERALL DEVELOPMENT PLAN

DESIGN: CU	FILE: 319827	DWG:
DRAWN: CU	DATE: JUNE 2020	ODP-1
CHECK: BL	SCALE: 1:1000	



KEY PLAN - N.T.S.

LEGEND	
	PROPERTY LINE
	ENVIRONMENTAL SETBACK (15.0m)
	RESIDENTIAL ONE (R1) ZONE
	OPEN SPACE (OS) ZONE
	ENVIRONMENTAL PROTECTION (EP) ZONE



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NOTES

No.	REVISION DESCRIPTION	DATE	ENGINEER STAMP
1.	1ST SUBMISSION	OCT. 2021	

**2060 DIVISION ROAD
 TOWNSHIP OF SEVERN**

ZONE SCHEDULE PLAN

TATHAM ENGINEERING

DESIGN: CU	FILE: 319827	DWG:
DRAWN: CU	DATE: JUNE 2020	ZS-1
CHECK: BL	SCALE: 1:1000	

Appendix 9. Summary of Technical Recommendations

Natural Feature	Technical Recommendation
Significant Wildlife Habitat	<ul style="list-style-type: none"> ● Environmental Protection (EP) Zones will be established as shown on Figure 4. No development or site alteration will occur within any EP Zone (except as permitted by the Township’s Zoning By-law). ● The “constructed wetland” stormwater management facility will be designed in a way that provides suitable habitat for amphibians and incorporates a variety in pool depths. ● A Naturalization/Planting Plan consisting exclusively of species native to the Township of Severn will be devised through detailed design. The plantings shall consist of a variety of trees (upland areas), shrubs (constructed wetland perimeter), and herbaceous wetland species (constructed wetland margin). A native seed mix will be applied to all disturbed areas topographically above the wetland pool. ● Comprehensive Sediment and Erosion Control Plans are to be prepared at detailed design. Such plans are to include the following (minimum) components as necessary: <ul style="list-style-type: none"> ● Timing of works (e.g., avoidance of working during adverse weather, avoidance of vegetation removal during the bird breeding and bat activity periods, etc.). ● Sediment and erosion control measures (e.g., heavy-duty silt fencing, etc.) placed at the limit of disturbance. ● Measures to reduce the potential for erosion of stockpiles and/or temporarily stored topsoil, fill, or aggregate material (e.g., piled as low as practicable, etc.), and measures to situate these construction-related features as far from the EP Zones as practicable. ● Measures to control and treat internal runoff during construction including temporary interceptor swales and/or sediment control basins (as necessary), which are to be stabilized (i.e., seeded) and maintained regularly. ● Designated machinery servicing areas situated as far from the EP Zone as practicable. ● Fill control measures (as necessary). ● Dust suppression measures. ● Spills reporting protocol. ● Catch-basin protection. ● Inspection, maintenance, and contingency measures. ● Decommissioning protocol (i.e., removal of non-biodegradable erosion and sediment control materials including accumulated sediment once construction is complete and disturbed areas are stabilized). ● Any construction-related dewatering (if necessary) must not negatively affect significant amphibian breeding habitats within the EP Zone.
Habitat of Endangered and Threatened Species	<ul style="list-style-type: none"> ● Any necessary tree removal within the proposed development envelopes will only take place between October 1 and April 30 to avoid the active season for bats. ● If construction activities occur during the active bat season (i.e., between May 1 and September 31), work will be restricted to daylight hours only and the use of artificial lighting will be avoided. ● Any lighting incorporated into the residences through detailed design should be directed downward (i.e., towards the ground) and/or away from the EP Zones to the extent practicable. ● Any lighting incorporated into the residences through detailed design should be directed downward (i.e., towards the ground) and/or away from the EP Zones to the extent practicable. ● Any removal or injury to Black Ash must be undertaken consistent with the requirements of the <i>Endangered Species Act</i>.
Fish Habitat	<ul style="list-style-type: none"> ● Any disturbance associated with constructing the outlet of the SWM facility to the intermittent watercourse, along with Street C, will be addressed through detailed design by the inclusion of compensatory plantings and/or native seed mix (as appropriate).
Other Natural Environment Considerations	<ul style="list-style-type: none"> ● The removal of trees outside the proposed EP Zone to facilitate construction (including grading and temporary stockpiles) will be minimized where possible through detailed design. ● All necessary vegetation removal (e.g., trees, meadow vegetation, etc.) will be completed outside the primary bird nesting period (i.e., to be completed between September 1 and March 31). Should minor vegetation removal be proposed during the bird nesting period, a bird nesting survey will be required to confirm the presence or absence of nesting birds or bird nests.