



# GEMTEC

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**Environmental Impact Statement  
Proposed Forest and Nature School  
411 Corkstown Road  
Ottawa, Ontario**

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Proposed Forest and Nature School  
411 Corkstown Road  
Ottawa, Ontario**

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## 1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by CSV Architects to carry out an Environmental Impact Statement (EIS) for a portion of the property addressed as 411 Corkstown Road, in the City of Ottawa, Ontario (hereafter referred to as “the subject property”). The extents of the property subjected to this EIS has been scoped to include the proposed area of development. The general location of the subject property is illustrated on Figure A.1 in Appendix A.

### 1.1 Purpose

The proponent is seeking to construct an Andrew Fleck Forest and Nature School on the subject property. Based on *Section 4.7 – Environmental Protection* of the City of Ottawa Official Plan (OP; Ottawa, 2012a) an EIS is required showing that the proposed development will not negatively impact any natural heritage features which may be present within the study area. The study area is defined as the development area and the adjacent lands encompassing an area of 120 m beyond the development area. The subject project and the extents of the study area are illustrated on Figure A.2, in Appendix A.

### 1.2 Objective

The 2020 Provincial Policy Statement (MMARH, 2020) issued under Section 3 of the Planning Act states that “development and site alteration shall not be permitted in: significant wetlands, significant woodlands, significant valleylands, significant areas of natural and scientific interest and significant wildlife habitat unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.” Similarly, the 2020 Provincial Policy Statement states that development and site alteration shall not be permitted in habitat of endangered and threatened species and fish habitat, except in accordance with provincial and federal requirements.

The objective of the work presented herein is twofold; 1) to identify and evaluate the significance of any natural heritage features, as defined in the Provincial Policy Statement (MMARH, 2020), on the subject property and within the broader study area and; 2) to assess the potential impacts from the proposed development on any natural heritage features identified and to recommended appropriate and defensible mitigation measures to ensure the long-term protection of any natural heritage features identified.

To meet these objectives, the EIS presented herein has been completed in accordance with the following federal, provincial and municipal policies and guidelines:

- Provincial Policy Statement (MMARH, 2020);
- Endangered Species Act (Ontario, 2007);
- Species at Risk Act (Canada, 2002)

- Conservation Authorities Act (Ontario, 1990);
- Natural Heritage Reference Manual (OMNR, 2010);
- City of Ottawa Official Plan (Ottawa, 2012a); and
- City of Ottawa EIS Guidelines (Ottawa, 2012b).

### **1.3 Physical Setting**

The subject property is located on part of Lots 4 and 5, Concession 1 ON Ottawa River, in the City of Ottawa and is municipally addressed as 411 Corkstown Road. As indicated in Section 1.0, the subject property has been scoped to focus on the proposed area of development, abutting Wesley Clover Parks and Corkstown Road. The subject property is bound to the southeast by Corkstown Road, and to the southwest by neighbouring agricultural fields. To the northeast and northwest the site is bound by the Wesley Clover Parks Campground.

#### **1.3.1 Land Use Context**

The subject property is located within the Greenbelt and is owned by the National Capital Commission (NCC); however, the property is currently managed by the Wesley Clover Foundation through a long-term lease agreement with the NCC. The subject property currently consists of a campground with associated support and administrative buildings. The site is located in a forested area, atop a northwest – southwest oriented bedrock ridge, and is approximately 81 hectares in size. The subject property contains elements of the City's natural heritage system as identified in the City of Ottawa Official Plan. The City of Ottawa zoning by-law is Environmental Protection Zone.

## **2.0 METHODOLOGY**

### **2.1 Desktop Review**

A desktop information gathering exercise was completed to aid in the scoping of field investigations and to gather information relating to natural heritage features which may be present on the subject project or within 1 km of the subject property. An additional component of the desktop review was to assess the potential presence of SAR to occur on the subject property or within the study boundary based on a review of publicly accessible element occurrence records and a review of SAR habitat requirements and range maps.

Following changes to the Ministry of Natural Resources and Forestry (MNRF) natural heritage information request process, as of 2019, the MNRF is no longer providing responses to these requests. As such, an information request was not submitted for this project. In lieu of a request response, the Natural Heritage Information Request Guide (OMNRF, 2018) was consulted and the data resources listed below were reviewed for relevant natural heritage feature and SAR data relating to the site.

Information regarding the potential presence of natural heritage features and SAR within the vicinity of the site was obtained from the following sources:

- Make a Map: Natural Heritage Areas (OMNRF, 2014a)
- Land Information Ontario (OMNRF, 2011);
- City of Ottawa Official Plan (City of Ottawa, 2012a)
- Ontario Geological Survey (OGS, 2019);
- Fisheries and Oceans Canada SAR Maps (DFO, 2019);
- Natural Heritage Information Centre Biodiversity Explorer (OMNRF, 2013);
- Breeding Bird Atlas of Ontario (Cadman, et al., 2007)
- Atlas of Mammals of Ontario (Dobbyn, 1994);
- Ontario Herpetofaunal Atlas (Oldham and Weller, 2000);
- Ontario Ordonata Atlas (OMNR, 2005); and
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2015).

## 2.2 Field Investigations

Field investigations were undertaken to describe in general, the natural and physical setting of the subject property with a focus on natural heritage features and to identify any potential SAR or their habitat that may exist at the subject property.

Field investigations completed in support of this EIS are outlined in Table 2.2 below. Photographs of site features taken during field investigations are provided in Appendix B.

**Table 2.1 Summary of Field Investigations**

Date	Time	Weather	Purpose
May 10, 2019	11:55 – 12:45	14°C, light rain, overcast, Beaufort wind 3	Western Chorus Frog Survey, Species at Risk Habitat Assessment
May 14, 2019	12:50 – 14:55	10°C, light rain, overcast, Beaufort wind 3	Western Chorus Frog Survey, Bat Maternity Roost Survey
May 14, 2019	20:30 – 21:25	8°C, partly cloudy, Beaufort wind 2, no precipitation	Amphibian Breeding Survey
May 16, 2019	20:45 – 21:25	12°C, overcast, Beaufort wind 1, no precipitation	Amphibian Breeding Survey
May 22, 2019	22:00 – 22:35	17°C, overcast, Beaufort wind 1, light rain	Amphibian Breeding Survey
May 29, 2019	14:55 – 15:30	14°C, partly cloudy, Beaufort wind 3, no precipitation	Western Chorus Frog Survey, Ecological Land Classification
June 4, 2019	05:25 – 05:55	23°C, partly cloudy, Beaufort wind 3, no precipitation	Breeding Bird Survey

Date	Time	Weather	Purpose
June 18, 2019	09:10 – 09:30 & 10:50 – 14:45	18°C, few clouds, Beaufort wind 1, no precipitation	Breeding Bird Survey, Tree Inventory & Ecological Land Classification
June 24, 2019	05:25 – 05:40	13°C, partly cloudy, Beaufort wind 1, no precipitation	Breeding Bird Survey
June 26, 2019	13:35 – 15:40	22°C, partly cloudy, Beaufort wind 3, no precipitation	Tree Inventory
July 3, 2019	13:10 – 15:15	29°C, few clouds, Beaufort wind 2, no precipitation	Tree Inventory
October 31, 2019	13:00 – 14:00	10°, overcast, Beaufort wind 3, light precipitation	Ecological Land Classification, Vernal Pool Mapping

### 2.2.1 Ecological Land Classification

Vegetation communities on the subject property were delineated during the desktop review stage of this EIS using publicly available air photos and confirmed in the field on May 29. June 18 and October 31, 2019, following the Ecological Land Classification System for Southern Ontario (Lee et al, 2008). Vegetation communities were confirmed in the field by employing the random meander methodology while documenting dominant vegetation species within the various vegetation community forms.

### 2.2.2 Tree Inventory

A tree inventory was conducted to identify all trees with a Diameter at Breast Height (DBH) over 10 cm within the proposed development area. Information including the location of the tree, DBH, species, health status and whether it was a wildlife tree or significant tree were all recorded. The tree inventory completed by Lashley + Associates Corporation (Lashley) is provided in Appendix C. The Butternut Health Assessment completed by Lashley is provided in Appendix D.

### 2.2.3 Breeding Bird Surveys

Breeding bird surveys were conducted on three occasions at one point count location; the breeding bird survey location is provided on Figure A.3 in Appendix A. Breeding bird surveys generally followed protocols from the Canadian Breeding Bird Surveys (Downes and Collins, 2003) and the Ontario Breeding Bird Atlas (Cadman, et al. 2007). Point count locations were established to cover representative habitats on-site including forest habitat. Surveys were conducted no earlier than 30 minutes before sunrise and were completed within 5 hours of sunrise, to encompass peak song bird activity. Breeding bird surveys consisted of 5 minutes of passive listening in which all birds heard or seen within the survey period were recorded, including species, sex and breeding behaviour, if possible. A list of all avian species identified on-site is provided in Table E.1 in Appendix E.

#### 2.2.4 Nocturnal Amphibian Breeding Surveys

Nocturnal breeding amphibian surveys were conducted on three occasions at three point count locations; breeding amphibian survey locations are provided on Figure A.3. Breeding amphibian surveys followed protocols from the Marsh Monitoring Program (Bird Studies Canada, 2008). Point count locations were established in representative habitats on-site, targeting areas of vernal pooling within the forest. Surveys were conducted no earlier than one half-hour after sunset and concluded by midnight, to encompass peak amphibian calling activity. The first survey was conducted when night air temperatures were minimum 5°C, the second survey was conducted when night air temperatures were a minimum of 10°C, and the third when night air temperatures were a minimum of 17°C. Breeding amphibian surveys consisted of 3 minutes of passive listening, in which all amphibians heard within the survey period were recorded, along with an estimation of abundance. A list of all amphibian species identified on-site is provided in Table E.1 in Appendix E.

#### 2.2.5 Western Chorus Frog Surveys

Daytime breeding amphibian surveys were conducted on three occasions at the same three point count locations the nocturnal surveys were conducted at; breeding amphibian survey locations are provided on Figure A.3. Daytime breeding amphibian surveys were conducted to target Western Chorus Frogs and followed protocols from the *Draft Western Chorus Frog Detection Survey Protocol for Ontario* (Blazing Star Environmental, undated). Point count locations were established in representative habitats on-site, targeting areas of vernal pooling within the forest. Surveys were conducted between 10:00 and 18:00, when air temperatures were 10°C or above, with little to no wind, and light to no rain. Western chorus frog surveys consisted of 5 minutes of passive listening, in which all amphibians heard within the survey period were recorded, along with an estimation of abundance. A list of all amphibian species identified on-site is provided in Table E.1 in Appendix E.

### 2.3 Data Analysis

An evaluation of the significance of natural heritage features, the sensitivity of identified flora and fauna and the potential impacts posed by the proposed development was undertaken through an analysis of desktop and field investigation data using the approaches and criteria outlined in the following documents:

- Natural Heritage Reference Manual (OMNR, 2010);
- Significant Wildlife Habitat Technical Guide (OMNR, 2000);
- Significant Wildlife Habitat Ecoregion Criterion Schedules (OMNRF, 2015); and
- Significant Wildlife Habitat Mitigation Support Tool (OMNRF, 2014b).

### **3.0 EXISTING ENVIRONMENT**

#### **3.1 Ecoregion**

The site is situated Ecoregion 6E-11 (Lake Simcoe-Rideau), which extends from Lake Huron in the west to the Ottawa River in the east. The climate of Ecoregion 6E is categorized as humid, high to moderate temperate ecoclimate with a mean annual temperature range of 4.9°C to 7.8°C an annual precipitation ranging between 759 mm to 1,087 mm (Crins et al., 2009).

The eastern portion of the Ecoregion, which the subject property is located, is underlain by glaciomarine deposits as a result of the brief post-glacial incursion of salt water from the Champlain Sea along the St. Lawrence Valley. This Ecoregion falls with Rowe's (1972) Great Lakes – St. Lawrence Forest Region, including its Huron-Ontario and Upper St. Lawrence sections and a small part of the Middle Ottawa Forest section (Crins et al., 2009).

#### **3.2 Landforms, Soils and Bedrock Geology**

The topography of the site is relatively flat, with a topographical high of 118 mASL to a topographical low of 115 mASL.

A single topographical landform, as mapped by Chapman and Putman (1984) is described on the subject property, limestone plains within the Ottawa Valley Clay plains physiographic region.

The Ontario Geological Survey (OGS, 2019) identifies a single surficial soil unit on the subject property, Paleozoic bedrock. As mentioned in Section 1.3.1 a bedrock escarpment is mapped within the subject property.

Bedrock at the site is composed of dolostone and sandstone of the Beekmantown Group.

#### **3.3 Surface Water, Groundwater and Fish Habitat**

Surface water on the subject property consists of a series of three vernal pools to the west of the proposed development area. No other watercourses or permanent waterbodies were identified on-site during the desktop review or during the any of the site investigations.

A local wetland occurs in the northeast corner of the study area within Wesley Clover Parks property. This wetland is not hydrologically connected to any surface water features on-site.

A fisheries assessment was not conducted as part of this EIS, however based on observations made during the site investigation, the vernal pools are isolated from other bodies of water and are not considered to provide or contribute to fish habitat.

Groundwater investigations were not completed in support of this EIS.

### 3.4 Vegetation Communities

Vegetation communities on-site were characterized by GEMTEC in 2019, following protocols utilized in the Southern Ontario Ecological Land Classification System (Lee et al., 2008). Vegetation at the site consisted of a mixed forest. Table 3.4 below provides a summary of the vegetation communities identified on-site.

**Table 3.1 Vegetation Communities**

ELC Type	Description	Size (ha)
Dry – Fresh White Pine – Hardwood Mixed Forest (FOM2)	<p>The entire site consisted of a dry-fresh white pine – hardwood mixed forests. Mixed forests are vegetation communities where both conifer tree species and deciduous tree species each cover more than 25% of the canopy cover. Dominant species in this community included white pine (<i>Pinus strobus</i>), red oak (<i>Quercus rubra</i>), and red maple (<i>Acer rubrum</i>). Lesser constituents included sugar maple (<i>Acer saccharum</i>), green ash (<i>Fraxinus pensylvanica</i>), largetooth aspen (<i>Populus grandidentata</i>), trembling aspen (<i>Populus tremuloides</i>), basswood (<i>Tilia americana</i>), bitternut hickory (<i>Carya cordiformis</i>), ironwood (<i>Ostrya virginiana</i>) and American elm (<i>Ulmus americana</i>). The canopy was mostly closed, with minimal understory and minimal herbaceous vegetation. The understory was primarily populated by saplings of the dominant tree species. Herbaceous vegetation included trillium (<i>Trillium sp.</i>), moss (<i>Sphagnum spp.</i>). The site had complex microtopography, and an extensive mosaic of hummocks, hollows and vernal pooling.</p> <p>In areas of low microtopographic, vernal pooling occurred. These areas were populated with vegetation species more tolerant of wetter moisture regimes. In more upland microtopographic areas, more dry moisture regime species dominated.</p> <p>A tree inventory conducted by Lashley identified a total of 208 trees with a Diameter at Breast Height (DBH) greater than 10 cm. A total of twelve tree species larger than 10 cm DBH were identified within the study area including: American elm, red oak, bitternut hickory, white pine, serviceberry, trembling aspen, butternut, red maple, bitternut hickory, basswood, white ash, ironwood and sugar maple species. Of the 208 trees surveyed, one tree was considered to potentially provide suitable cavity habitat for bats or other wildlife. The candidate wildlife tree is to be retained under the proposed development. Of the 208 trees surveyed, 13 trees were considered significant (i.e. &gt;50 cm DBH). Under the proposed development, nine of the significant trees are to be retained,</p>	4



ELC Type	Description	Size (ha)
	and 4 are to be removed. Only one plant Species at Risk was identified on-site, Butternut, listed as threatened under the Species at Risk Act.	
	The Tree Inventory conducted by Lashley is provided in Appendix C. The tree inventory provides a summary table of tree species identified on-site, their condition, size and whether they are retainable under the proposed development plan.	
	The Butternut Health Assessment, completed by Lashley is provided in Appendix D.	

Vegetation communities are illustrated on Figure A.3 in Appendix A.

### 3.5 Wildlife

Wildlife observed on-site and within the study area during field investigations completed in 2019 are summarized in Table E.1 in Appendix E.

## 4.0 NATURAL HERITAGE FEATURES

Natural heritage features are defined in the PPS as “features and areas, including *significant wetlands, significant coastal wetlands, fish habitat, significant woodlands south and east of the Canadian Shield, significant valleylands south and east of the Canadian shield, significant habitats of endangered species and threatened species, significant wildlife habitat and significant areas of natural and scientific interest*, which are important for their environmental and social values as a legacy of the natural landscape of an area”.

### 4.1 Significant Wetlands

As described in the Natural Heritage Reference Manual (OMNR, 2010), wetlands mean “lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface.” While *significant* in regards to wetlands means “an area identified as provincially significant by the Ontario Ministry of Natural Resources and Forestry using evaluation procedures established by the Province, as amended from time to time.”

No provincially significant wetlands were identified during the desktop review, nor were they identified during the site investigations. As no PSW’s have been identified on-site or within 120 m for the site, PSWs are not present within the study area and are not discussed or evaluated further in this EIS.

## 4.2 Significant Woodlands

Significant woodlands are defined in the natural heritage reference manual (OMNR, 2010) as “an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history.”

At the local scale, significant woodlands are defined and designated by the local planning authority. Generally, most planning authorities have defined significant woodlands as any woodland that contains any of the four criteria listed in Section 7.2 of the Natural Heritage Reference Manual (OMNR, 2010), including: woodland size, ecological functions, uncommon characteristics and economic and social functional values. Furthermore, the City of Ottawa provides a supplementary document *Significant Woodland: Guidelines for Identification, Evaluation, and Impact Assessment* (Ottawa, undated b) to evaluate woodlands and ensure compliance with the city's policies.

As outlined in *Significant Woodlands: Guidelines for Identification, Evaluation and Impact Assessment* (Ottawa, undated b), all urban area woodlands are to be considered significant if they are greater than 60 years old and greater than 0.8 ha in size. Furthermore, Table E.2 in Appendix E, presents the screening rationale for significant woodlands from the natural heritage resource manual (OMNR, 2010), that were applied in this EIS. For comparison of woodland criteria used in Table E.2, it is assumed that the woodland coverage within the planning area (City of Ottawa) is between 30% and 60% of the land area, therefore the minimum woodland size for determining significance is 50 ha or greater, based on the guidance outlined in the natural heritage reference manual (OMNR, 2010).

Based on the criteria of the City of Ottawa urban woodlands and on results of the significant woodland screening presented in Table E.2, significant woodlands are present on-site due to their size and ecological function.

Significant woodlands are shown on Figure A.4 in relation to other site features. Impacts to significant woodlands on-site are discussed in Section 6.1.

## 4.3 Significant Valleylands

Valleylands are defined in the natural heritage reference manual (OMNR, 2010) as ‘a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of time’. The identification and evaluation of significant valleys lands in Ontario is based on the recommended criteria from the MNRF and is the responsibility of local planning authorities.

In Southern Ontario, conservation authorities have identified valleylands as part of their regulation mapping (i.e., floodplain mapping); however, where valleys lands have not been defined, their physical boundaries are generally determined as the 'top-of-bank' or 'top-of-slope' associated with a watercourse. For less well-defined valleys, the physical boundary may be defined by riparian vegetation, flooding hazard limits, ordinary high water marks or the width of the stream meander belt (OMNR, 2010).

As discussed in Section 1.3, the site is relatively flat and no valleylands have been identified during the desktop review or during any of the site investigations. As such, no significant valleylands have been identified on-site or within the study area and they are not discussed or evaluated further in this EIS.

#### **4.4 Significant Areas of Natural and Scientific Interest**

The MNRF identifies two types of areas of natural and scientific interest (ANSI) in Ontario: life sciences ANSIs which typically represent significant segments of Ontario's biodiversity and natural landscapes, while earth science ANSIs typically represent significant examples of bedrock, fossils or landforms in Ontario (OMNR, 2010).

The desktop review identified the Queensway Road Cut as a Provincially Significant Earth Science ANSI within the study area. The Queensway Road Cut is an area of exposed Nepean (Potsdam) sandstone that is proposed as a reference section for the Nepean (Potsdam Formation). The Queensway Road Cut is located approximately 2 km east of Eagleson Road, an occurs both north and south of the Queensway/Highway 417 corridor, and is approximately 760 m long.

The Queensway Road Cut Provincially Significant Earth Science ANSI is shown on Figure A.4 in relation to other site features. Impacts to ANSI area discussed in Section 6.2.

#### **4.5 Significant Wildlife Habitat**

The natural heritage reference manual (OMNR, 2010), in combination with the significant wildlife habitat technical guide (OMNR, 2000) and the significant wildlife habitat ecoregion criterion schedules (OMNRF, 2015) were used to identify and evaluate potential significant wildlife habitat on-site. Significant wildlife habitat is broadly categorized as habitats of seasonal concentration of animals, rare vegetation communities, specialized habitats for wildlife, habitats of species of conservation concern and animal movement corridors. Table E.3, E.4, E.5 and E.6 in Appendix E, provide the screening rationale for each category of significant wildlife habitat, respectively.

##### **4.5.1 Habitats of Seasonal Concentrations of Animals**

Seasonal concentration areas are habitats where large numbers of species congregate at one particular time of the year. The significant wildlife habitat technical guide (OMNR, 2000) and significant wildlife habitat ecoregion criterion schedules (OMNRF, 2015) identify 12 types of

seasonal concentration habitats that may be considered significant wildlife habitat. These 12 types of seasonal habitat are presented in Table E.3 in Appendix E, including a brief description of the rationale as to why they are or are not assessed further in this EIS.

Following review of Table E.3 in Appendix E, no habitats of seasonal concentrations of animals have been identified on-site or within the study area. As such habitats of seasonal concentrations of animals are not discussed or evaluated further in this EIS.

#### **4.5.2 Rare Vegetation Communities**

Rare vegetation communities in the province are described generally as those with an S1 to S3 ranking by the NHIC, and typically include communities such as sand barrens, alvars, old growth forests, savannahs and tallgrass prairies.

The vegetation communities identified on-site and described in Section 3.4 of this report are not ranked by the NHIC as S1, S2 or S3 and are therefore not considered to be rare vegetation communities. As such, rare vegetation communities are not discussed or evaluated further in this EIS.

#### **4.5.3 Specialized Habitats for Wildlife**

##### **Specialized Habitats for Wildlife**

Specialized wildlife habitats are microhabitats that provide a critical resource to some groups of wildlife. The significant wildlife habitat technical guide (OMNR, 2000), defines eight specialized habitats that may constitute significant wildlife habitat, these eight types of specialized wildlife habitats are evaluated in Table E.4 in Appendix E.

Following review of Table E.4 in Appendix E, one specialized habitats for wildlife has been identified on-site or within the study area, woodland breeding amphibian habitat.

##### **4.5.3.1 Woodland Amphibian Breeding Habitat**

*Candidate* woodland amphibian breeding habitat was identified on-site in the vernal pooling that occurs throughout the on-site woodland, west of the proposed development.

To evaluate the potential for the vernal pools to provide woodland amphibian breeding habitat, a series of amphibian breeding surveys were conducted. Woodland amphibian breeding habitat provides critically important breeding habitat for the following wildlife species; eastern newt, blue-spotted salamander, gray tree frog, spring peeper, western chorus frog and wood frog (MNRF, 2012). The defining criteria for confirmed woodland amphibian breeding significant wildlife habitat is the presence of breeding populations of two or more of the listed frog species with at least 20 individuals, or two or more of the listed species with call level codes of 3 (MNRF, 2012).

Following review of Table 4.5 below, the vernal pools within the white pine – hardwood mixed forest do not provide significant wildlife habitat for woodland breeding amphibians

**Table 4.1 Summary of Amphibian Call Survey Results**

Survey Location	Breeding Habitat	Species / Highest Call Code / Date	Confirmed SWH
Station A	Woodland	SPPE / 3 / April 14	No
Station B	Woodland	SPPE / 3 / April 16	No
Station C	Woodland	SPPE / 3 / April 16	No

Notes: SPPE = Spring Peeper. Call Codes: the first number indicates the call code where: (1) number of individuals can be accurately counted, (2) individuals can be readily estimated, (3) calls are continuous and overlapping such that estimates of individuals are not reliably estimated. The second number identifies the number of individuals calling. Call codes of 3 do not have a second number, as individual estimates are not possible.

As no specialized habitats for wildlife were identified on-site or within the project area, they are not discussed or evaluated further in this EIS.

#### 4.5.4 Habitats of Species of Conservation Concern

Provincial rankings are used by the Natural Heritage Information Centre to set protection priorities for rare species, similar to those described in Section 4.5.2 above for vegetation communities. Provincial rankings (S-ranks), are not legal designations such as those used to define the various protection statuses of species at risk, they are only intended to consider factors within the political boundaries of Ontario that might influence a particular species abundance, distribution or population trend.

Based on the guidance provided in the Significant Wildlife Habitat Ecoregion Criterion Schedules (OMNRF, 2015), when a plant or animal element occurrence is recorded for any species with an S-rank of S1 (extremely rare), S2 (very rare), S3 (rare to uncommon) or SH (historically present), the corresponding vegetation ecosite is considered to provide *candidate* habitat for species of conservation concern and further consideration within the EIS is warranted.

The Significant Wildlife Habitat Ecoregion Criterion Schedules (OMNRF, 2015a), provides five general habitat types known to support a wide range of species of conservation concern in Ontario. The five general habitat types for Ecoregion 6E-11 are provided in Table E.5 in Appendix E, including a brief rationale as to why they are or are not considered further in this EIS.

Following review of Table E.5 in Appendix E, one habitat of species of conservation concern has been identified on-site, habitat for special concern and rare wildlife species due to the presence of eastern wood-pewee on-site.

#### **4.5.4.1 Special Concern and Rare Wildlife Species SWH**

Based on observation data from the field investigations, one species of special concern has been identified on-site or within the broader study area, the wood pewee. No other species of special concern or rare wildlife species were identified on-site or within the broader study area.

The eastern wood-pewee is a small flycatcher bird with an S-rank of S4 (uncommon but not rare) in Ontario. Eastern wood-pewee is a woodland species that is often found near clearings and edges. Given the mosaic of woodland and open habitat on-site and the eastern wood-pewee's affinity for clearings and edges, there is a moderate chance of the eastern wood-pewee or suitable habitat to occur on-site. Eastern wood-pewee were observed calling on-site during the site investigations.

Impacts to eastern wood-pewee and their habitat on-site is discussed in Section 6.

#### **4.5.5 Animal Movement Corridors**

Animal movement corridors are elongated areas used by wildlife to move from one habitat to another and allow for the seasonal migration of animals (OMNRF, 2015). The Significant Wildlife Habitat Ecoregion Criterion Schedules for Ecoregion 6E-11 (OMNRF, 2015), identifies two types of animal movement corridors: amphibian movement corridors and deer movement corridors. As per guidance presented in MNRF, 2015, animal movement corridors should only be identified as significant wildlife habitat when a *confirmed or candidate* significant wildlife habitat has been identified by the MNRF district office or by the regional planning authority.

No animal movement corridors have been identified by the MNRF, furthermore, no animal movement corridors were identified during the desktop review, during the site investigations or following review of Table E.6 in Appendix E. As such, animal movement corridors are not evaluated or discussed further in this EIS.

#### **4.6 Fish Habitat**

The protection of fish and fish habitat is a federal responsibility and is administered by the Department of Fisheries and Oceans Canada (DFO). Fish habitat as defined in the Fisheries Act (Canada, 1985) means, "spawning grounds and nursery, rearing food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes."

When development is unable to avoid or mitigate serious harm to fish from typical project impacts such as temperature change, sedimentation, infilling, reduction of nutrient and food supply, etc., an authorization under the Fisheries Act is required for the project to proceed.

As discussed in Section 3.3, surface water on-site consists of a series of vernal pools that are isolated from other bodies of water and are not considered to provide fish habitat.

As no fish habitat has been identified on-site or within the study area, fish habitat is not assessed or evaluated further in this EIS.

#### **4.7 Species at Risk**

The probability of occurrence for species at risk to occur on-site and within the broader study area was determined through the desktop review stage of this EIS, as described in Section 2.1, and through the site specific surveys conducted as part of this EIS, outlined in Section 2.2.

Table E.7 in Appendix E, provides a summary of all species at risk which were determined to have the potential to occur on-site or within the broader study area, their protection status under the provincial Endangered Species Act (ESA; Ontario, 2007), their protection status under the federal Species at Risk Act (SARA; Canada, 2002), their regional distribution, their probability of occurrence and a brief rationale of that probability. Impacts to endangered or threatened SAR determined to have a moderate or high potential to occur on-site or within the broader study area are discussed further in the Section 6.3.

For the purpose of this report, only species associated with mixed forests and vernal pooling habitat were considered in Table E.7 in Appendix E. Due to the lack of permanent aquatic habitat on-site (waterbodies, watercourses, and wetlands) aquatic species, including turtles, fish and aquatic birds, listed under the ESA and/or SARA are not considered in the screening as there is no suitable habitat on-site to support their life processes.

### **5.0 PROPOSED PROJECT**

The proposed project assessed for potential impacts on the natural heritage features determined to be present within the broader study area includes the development of a two-storey building with childcare area on the ground floor and research area on the second floor totalling 737 m<sup>2</sup> with no basement. Additionally a 113 m<sup>2</sup> parking area comprised of a gravel surface is proposed to service the childcare and research building and will provide access to Corkstown Road via Wesley Clover Parks..

Development for the project will include the following components: tree clearing and vegetation grubbing, fill placement and elevation grading, excavation and pouring of foundations, the construction of a two-story building and general landscape activities. The proposed forest and nature school will be on municipal services.



The project will consist of four stages, which are outlined below, along with a list of activities to be conducted during each phase:

1. Site Preparation

- Installation of wildlife exclusion measures;
- Installation of sediment and erosion control measures;
- Grubbing, and vegetation removal, as required;
- Creation of a construction access point and staging area: The existing campground access will be used and a new access laneway will be created to access the school via the campground. The staging area will be located in the proposed parking lot area to minimize areas of disturbance; and
- Installation of pedestrian and traffic exclusion measures.

2. Construction

- Heavy machinery operation;
- Excavation and earth movement;
- Sewer line access;
- Pouring of a new foundation;
- Building construction;
- Landscaping; and
- Paving.

3. Post-Construction and Remediation

- Revegetation of disturbed areas;
- Removal of erosion/sediment control measures;
- Removal of wildlife exclusion measures;
- Removal of pedestrian and traffic exclusion measures;
- Waste disposal;
- Decommissioning of staging area; and
- Reinstate pedestrian access to forest.

4. Operations

- General maintenance of trails, parking lot, Forest and Nature School, as required.

### 5.1.1 Site Servicing and Stormwater Management

Novatech Engineering Consultants (Novatech) developed the preliminary site servicing and stormwater management report and grading plan (2020), the report and site grading plan are provided in Appendix F.

The site will be serviced by a series of private utilities extending from the development out to existing services. A private watermain will be extended from the development to the existing municipal watermain along Corkstown Road; electrical utilities will also be connected to existing



infrastructure along Corkstown Road. A private sanitary sewer will be extended to an existing private sanitary sewer located on Wesley Clover Parks campground property. All utilities will be installed using an open trench method; trenches will be dug, pipes laid and then backfilled over. This method will minimize impacts to existing vegetation, by only impacting surrounding vegetation in the short term and negating the need to open up a utility corridor through the forest.

As outlined in the Novatech grading plan (2020), the existing site drainage flows in a northwestern direction from the proposed development area towards the vernal pool on-site. As the site is in a natural setting, the stormwater management plan aimed to minimize disruption to the site; existing grade and flow patterns were maintained as much as possible. The entrance road and parking area will be constructed of gravel and the walking pathway of stone dust to minimize impervious surfaces. Both will hug existing grade. The finished floor elevation of the new building will be as close as possible to the existing grade, founded on shallow bedrock.

Stormwater generated from the impervious building will be collected from the roof through a series of eavestroughs and downspouts which will discharge water into four 8-gallon rain barrels around the building's perimeter. The rain barrels will be fitted with perforated spitter hoses to slowly discharge stormwater to the ground surface. When the barrels reach capacity, overflow will be captured in two engineered, linear bioswales. The bioswales will be permanently vegetated, they will have a combined length of 180 m, a width of 1 m, a slope of 3:1 and a depth of 100 mm. The bioswales will allow runoff to slowly percolate into the ground. The combination of rain barrels and bioswales will provide quantity control for a 25 mm storm event.

Runoff from the roof is assumed to be free from contaminants. Runoff from the remainder of the site will generate from undisturbed areas, gravel road and stone dust pathway. These areas will be naturally maintained (i.e. no desalting agents will be used in the winter). As such, water quality issues from runoff generated by the proposed project are not anticipated.

## **6.0 IMPACT ASSESSMENT**

Potential impacts to natural heritage features on-site and within the broader study area are assessed for direct, indirect and cumulative effects based on the proposed project outlined in Section 5. Natural heritage features identified in Section 4 of this report as present or likely to be present are discussed in the subsections below.

Potential effects to the natural environment from the proposed development outlined in Section 5 include: vegetation removal, disturbance of the natural soil mantle, increased noise generation, increased human disturbance, and increased storm water generation.

## 6.1 Significant Woodlands

As discussed in Section 4.2, the woodlands on-site are considered significant due to their size and ecological function (woodland interior). Potential impacts to significant woodlands on-site may include the loss of forest habitat and increased human disturbance.

If woodlands are clear cut without any mitigation or established development area, full build out of the available property may result in the loss of a large portion of the 108 ha of significant woodlands on-site. Furthermore, placement of the proposed development within the woodland may impact the availability of interior forest habitat and ecological functions that the forest currently provides, as well as impacting animal movement through the forest.

To ensure that only the area required to accommodate the development of the forest and nature school, site control by way of prescribed development area is recommended. This prescribed development area is presented in Section 7.1 below, and minimizes the amount of trees required to be cleared and the total loss of significant woodlands on-site to 0.41 ha.

Mitigation measures to further protect significant woodlands are presented in Section 7.1.

The tree inventory is illustrated on Figure A.5 and Figure A.6, in relation to the proposed development. To assist with identifying trees to be retained, and ones that conflict with development, the critical root zone for each tree identified during the tree inventory is displayed.

## 6.2 Significant Areas of Natural and Scientific Interest

As discussed in Section 4.4, the Queensway Road Cut Provincially Significant Earth Science ANSI is located south of the subject property within the study area. As outlined in the natural heritage feature reference manual, Earth Science ANSIs are generally less sensitive to development and site alteration than Life Science ANSI (MNRF, 2010). The distance for considering potential negative impacts from an earth science ANSI, as outlined in the natural heritage feature reference manual, is 50 m (MNRF, 2010). As development is proposed to occur more than 50 m north of the Queensway Road Cut Earth Science ANSI, no negative impacts are anticipated to occur to it. As such, mitigation measures are not provided in Section 7 for the protection of ANSI and they are not discussed further in this EIS.

## 6.3 Significant Wildlife Habitat

### 6.3.1 Special Concern and Rare Wildlife Species – Eastern Wood-Pewee

Eastern wood-pewee (*Contopus virens*) is a small, avian insectivore, that lives in a variety of deciduous, mixed and to a lesser extent, coniferous woodland habitat (COSEWIC, 2012). Adult eastern wood-pewee are grey-olive with pale wing-bars, the breast and sides are slightly darker green than the wings. It is best identified by its three-phrased song, often paraphrased as a whistled 'pee-ah-wee' (COSEWIC, 2012). In Ontario, the eastern wood-pewee is listed as a species of special concern.

Threats to eastern wood-pewee are not well understood, however, loss of suitable forest habitat does not appear to be a significant issue across their Canadian breeding range (COSEWIC, 2012). Furthermore, research indicates that the species is not very sensitive to forest fragmentation effects or forest size (COSEWIC, 2012). Eastern wood-pewee may be sensitive to human habitation, in Ontario they occur less frequently in woods with surrounding development than those without houses (COSEWIC, 2012). Other threats to eastern wood-pewee may include changes in the availability of aerial insects, mortality during migration and/or wintering, nest predation and habitat changes due to white-tailed deer browsing (COSEWIC, 2012).

Impacts to eastern wood-pewee and their habitat on-site from the proposed development is limited to the wooded and forest habitat on-site (FOM2-1), which may provide nesting and foraging habitat. Impacts to eastern wood-pewee habitat may include loss of forest habitat, increased fragmentation, and increased human presence.

The proposed development may result in some loss of suitable forested habitat on-site however, suitable habitat is readily available within the broader study area. Research also indicates that eastern wood-pewee are not negatively impacted by the loss of forest habitat, increased fragmentation or smaller woodlot size (COSEWIC, 2012). Impacts from increased human presence are anticipated to be negligible given the existing development surrounding the subject property and availability of suitable habitat within the greater study area.

Mitigation measures intended to prevent negative impacts to nesting and foraging eastern wood-pewee are presented in Section 7.

#### **6.4 Species at Risk**

As outlined in the Endangered Species Act (Ontario, 2007), only species listed as threatened or endangered and their general habitat receive automatic protection. When a species-specific recovery strategy is developed, a specific habitat regulation will be established, which eventually replaces the automatic habitat protection. Species of special concern and their habitat do not receive protection under the ESA.

Similarly, SARA protects threatened and endangered species listed under Schedule 1 and their general habitat. After a species is listed under Schedule 1, a recovery strategy and an action plan is prepared to protect the species and their critical habitat. Species of special concern are not protected by the general prohibitions outlined in SARA.

Potential impacts associated with the proposed project to threatened or endangered species identified as having a moderate or high potential to occur on-site in Section 4.7, are discussed on a species-by-species basis in the subsections below.

#### 6.4.1 Wood Thrush

The wood thrush (*Hylocichla mustelina*) is a medium-sized songbird, similar in shape to an American robin but slightly smaller. Generally wood thrush plumage is distinct from other thrush species, with rusty-brown upper parts, white under parts and large blackish spots on the breast and sides.

In Ontario, the wood thrush breeding range extends from southern Ontario north to northern Georgian Bay and eastern Lake Superior (COSEWIC, 2012). While wood thrush populations have declined over most of its North American range, between 1981 and 2005, breeding bird data indicates populations in Ontario have increased by 4.4%, likely due to an increase in woodland cover south of the Shield (Cadman et al., 2007). The probability of occurrence in Ontario however has decreased by 15% between the first and second breeding bird atlas (Cadman et al., 2007). The wood thrush is listed as threatened under SARA; it is not listed under the ESA.

During the breeding season the wood thrush is found in moist, deciduous, hardwood or mixed forest stands, often in previously disturbed sites, with dense deciduous undergrowth and tall trees that are used as singing perches (COSEWIC, 2012). For wood thrush, habitat selection is based more on the structure of the forest, preferring sites with lower elevations, trees taller than 16 m, closed canopy (>70%), with a high variety of deciduous species, moist soil and decaying leaf litter (COSEWIC, 2012).

No wood thrush were observed or heard calling during any of the site investigations or breeding bird surveys on-site. Furthermore, no wood thrush observation records were provided by the NHIC for any of the four 1 km grid squares that encompass the site. As no wood thrush were documented on-site, no mitigation measures are provided in Section 7 in relation to wood thrush, and they are not discussed or evaluated further in this EIS.

#### 6.4.2 Eastern Small-footed Myotis

Eastern small-footed Myotis (*Myotis leibii*) is the smallest (typically 3-5 g), insectivorous bat found in Ontario. The fur of an eastern small-footed Myotis is golden-brown in colour, with a distinct black mask across the face. The eastern small-footed Myotis is very similar in appearance to the little brown Myotis, and is distinguishable by their small foot and keeled calcar (Fraser, MacKenzie & Davy, 2007).

The eastern small-footed Myotis is found throughout eastern North America. In Ontario the species has been observed in the areas south of Lake Superior across to the Ontario-Quebec border (Humphrey, 2017). The eastern small-footed myotis is listed as endangered under the ESA. It is not listed under SARA.

Eastern small-footed Myotis overwinter primarily in caves and abandoned mines with low humidity and temperatures and stable microclimates (Humphrey, 2017). In comparison to other Ontario bat species, they are able to tolerate much colder temperatures, drier conditions and draftier

locations for hibernating (Humphrey, 2017). During the spring and summer months, they utilize a variety of habitats for roosting, including under rocks or rock outcrops, in buildings, under bridges, or in caves, mines or hollow trees (Ontario, 2019a).

Although the forest habitat on-site does not meet the requirements to support bat maternity colonies, given the availability of habitat and buildings on-site and within the study area, there is a potential for eastern small-footed *Myotis* to occur on the property, primarily for foraging or non-maternal roosting. Impacts to eastern small-footed *Myotis* are primarily associated with habitat loss, encroachment and increased wildlife-human interaction. Mitigation measures intended to protect eastern small-footed *Myotis* from impacts of the proposed development are discussed in Section 7.

#### 6.4.3 Little Brown Myotis

Little Brown Myotis (*Myotis lucifugus*) is a small (typically 4-11 g), insectivorous bat. The fur of a Little Brown Myotis is bi-coloured; fur is a glossy brown with a darker coloured base. The tragus of the Little Brown Myotis is long and thin, with a rounded tip (Fraser, MacKenzie & Davy, 2007).

In Canada, Little Brown Myotis' occur throughout all of the provinces and territories (except Nunavut), with its range extending south through the majority of the United States as well. In Ontario, the Little Brown Myotis is widespread in southern Ontario and has been found as far north as Moose Factory and Favourable Lake (Ontario, 2019b). The little brown bat is listed as endangered under the ESA and under SARA.

Little Brown Myotis overwinter in caves and abandoned mines, they require highly humid conditions and temperatures that remain above the freezing mark (Ontario, 2019b). During the summer months, maternity colonies are often located in buildings or large-diameter trees. Little Brown Myotis roost in trees and buildings. Foraging occurs over water and along waterways, forest edges and in gaps in the forest. Open fields and clear-cuts are not typically utilized for foraging (COSEWIC, 2013b).

Although the forest habitat on-site does not meet the requirements to support bat maternity colonies, given the availability of habitat and buildings on-site and within the study area, there is a potential for little brown Myotis to occur on the property, primarily for foraging or non-maternal roosting. Impacts to little brown Myotis are primarily associated with habitat loss, encroachment and increased wildlife-human interaction. Mitigation measures intended to protect little brown Myotis from impacts of the proposed development are discussed in Section 7.

#### 6.4.4 Tri-colored Bat

Tri-colored bat (*Perimyotis subflavus*) is a small (typically 5-7 g), insectivorous bat. The fur is uniformly coloured on the ventral and dorsal sides, however when parted fur shows three distinct colour bands. The base of the hair is blackish, with a blonde middle and brownish tip. The snout

of the tri-coloured bat is also distinct, with swollen bulbous glands present (Fraser, MacKenzie & Davy, 2007).

In Canada, the tri-colored bat has only been recorded in southern parts of Nova Scotia, New Brunswick, Quebec and central Ontario. In Ontario it occurs primarily from the southern edge of Lake Superior across to the Ontario-Quebec border and south (COSEWIC, 2013). The tri-colored bat is listed as endangered under the ESA and under SARA.

Tri-colored bat overwinter in caves or mines, and have very rigid habitat requirements; they typically roosting the deepest parts where temperatures are the least variable, and have the strongest correlation with humidity levels and warmer temperatures (COSEWIC, 2013). In the spring and summer, tri-colored bat utilize trees, rock crevices and buildings for maternity colonies. Foraging is mainly done over watercourses and streamside vegetation (COSEWIC, 2013).

Although the woodlands on-site do not meet minimum snag density requirements to support bat maternity colony habitat, given the availability of habitat on-site there is a potential for tri-colored bat to occur on the property, primarily for foraging or non-maternal roosting. Impacts to tri-colored bat are primarily associated with habitat loss, encroachment and increased wildlife-human interaction. Mitigation measures intended to protect tri-colored bat from impacts of the proposed development are discussed in Section 7.

#### **6.4.5 Western Chorus Frog**

The western chorus frog (*Pseudacris triseriata*), is a small tree frog, approximately 2.5 cm long and weighing approximately 1 g. Its colour can range from brown to grey to olive and it has three dark lines along its back and one larger line on each flank. Its most distinguishing feature is its call, that resembles a fingernail running along a plastic comb, which is readily identified during the breeding season.

In Canada, western chorus frogs have populations throughout southern Ontario and southwestern Quebec. Genetic distinctions occur between two geographic distributions of western chorus frogs, as such two distinct populations are recognized: the Carolinian population and the Great Lakes/St. Lawrence – Canadian Shield population. Only the Great Lakes/St. Lawrence Shield population is listed as threatened under the Species at Risk Act (Canada, 2002), primarily due to ongoing habitat loss. Surveys in Ontario indicate a 30% decline in abundance over the past decade (COSEWIC, 2008). The western chorus frog is listed as threatened under SARA; it is not listed under the ESA.

WCF requires vernal pooling and/or wetlands for breeding. The WCF typically breeds in small or shallow aquatic habitats, most commonly temporary ponds and wetlands that become dry in summer (COSEWIC, 2008). Breeding habitats may include ditches, marshes, flooded fields and pastures, temporal ponds and pools and swamps (COSEWIC, 2008). Western chorus frogs are known to occupy a variety of lowland habitats that have an open or discontinuous canopy



(Environment Canada, 2014). Vegetation in breeding habitats typically consists of herbaceous vegetation (e.g. cattails, sedges, reed canary grass), shrub species (red osier dogwood, willows, speckled alder) and partially submerged trees (black ash, red maple) but assemblages can vary (Environment Canada, 2014). During breeding periods western chorus frogs are generally found in temporary rather than permanent wetlands, due to the absence of predators (Environment Canada, 2014).

SARA defines critical habitat as "the habitat that is necessary for the survival or recovery of a listed wildlife species." Critical habitat for western chorus frog is based on two criteria: habitat occupancy and habitat suitability. Habitat occupancy is established based on occurrence records and refers to geographic areas where there is evidence of recurrent use by WCF. Habitat suitability refers to biophysical attributes of habitats where individuals can meet the needs associated with various stages of their life cycle. The recovery strategy also includes dispersal habitats as part of the critical habitat, in order to maintain connectivity between local populations and sustain metapopulations. The identification of critical habitat, as outlined in the recovery strategy for WCF is a responsibility of Environment Canada.

The National Capital Commission (NCC) has identified breeding WCF in a wetland occurring off-site, approximately 130 m to the northeast of the subject property. As such the species has the potential to occur on-site. However following the completion of targeted western chorus frog breeding surveys, WCF were not documented within the on-site vernal pools during targeted WCF surveys in 2019 or during any of the other 2019 site investigation.

The Residence Description for Western Chorus Frog (Canada, 2017), identifies two types of residences for WCF – breeding sites and hibernating sites. Breeding sites occupy limited areas within a given wetland, but may be distributed throughout the wetland; any wetland known to have been occupied by WCF is considered to contain at least one occupied breeding site residence. While the entire wetland is not considered part of the residence, it is required to maintain the function of individual breeding sites. Hibernation sites are considered to occur in terrestrial habitats within a 300 m radius of an occupied wetland. Similar to breeding sites, the hibernating site occupies very limited areas within the broader 300 m radius of terrestrial habitat, but areas occupied or known to have been occupied by WCF are considered to contain at least one occupied residence. While the entire 300 m terrestrial habitat surrounding the occupied wetland is not considered as part of the residence, the area is needed to maintain the function of hibernating sites.

Based on the WCF residence description, habitat for WCF on-site is limited to terrestrial hibernating sites; breeding sites have not been identified on-site. Breeding sites have been identified off-site to the northeast, but within the project area.

Habitat for WCF identified on-site is illustrated on Figure A.4 in Appendix A.

As discussed in the Novatech Stormwater Management Report (2020) and in Section 3.1.2 above, no major changes are anticipated for site grading and overland flow of the property. The building, roadway and pathway will hug the existing grade and the combined use of rain barrels and bioswales will allow for overland to the vernal pools to continue at pre-development levels. Additionally, no water quality issues from runoff are anticipated as a result of the proposed development.

Utility installation may disrupt terrestrial habitat WCF utilizes throughout the year. The installation of utilities should be timed to avoid impact WCF habitat, hibernation and dispersal.

To provide a conservation assessment of the potential loss of WCF dispersal habitat as a result of the project, the dispersal habitat associated with the confirmed off-site breeding habitat is assumed to be at a minimum 282,743 m<sup>2</sup> in size (assuming 300m dispersal buffer from a single point), the proposed development is anticipated to result in the loss of approximately of approximately 1,476 m<sup>2</sup> or 0.5%. Of the 1,476 m<sup>2</sup> development foot print, the proposed building will have a footprint of 706 m<sup>2</sup> which will present a migration barrier for WCF. The remaining 48% of the development footprint will be constructed at grade or near grade to minimize to the greatest extent possible, grade raises which may present migration barriers for dispersing WCF.

As the vernal pools on-site have been found to provide suitable habitat for WCF, in order to protect WCF and their habitat on-site, ECCC has been consulted and will issue a letter of advice detailing applicable mitigation measures to be enacted prior to the commencement of construction.

#### **6.4.6 Butternut**

Butternut (*Juglans cinerea*) is a short lived, medium-sized tree that can reach up to 30 m in height. Butternut is easily recognized by its compound leaves, made up of 11 to 17 leaflets, each 9 to 15 centimetres long, arranged in a feather-like pattern. The bark is grey and smooth in younger trees, and becomes rigid with age. Butternut is a member of the walnut family and produces edible nuts in the fall.

The range of butternut trees in Canada extends from southern Ontario into southern Quebec and New Brunswick (COSEWIC, 2003). It is shade intolerant and prefers riparian habitats or sites with rich, moist, well-drained loams and gravels with limestone origin. Common associates for butternut include: basswood, black cherry, beech, black walnut, elm, hickory, oak, red maple, sugar maple, yellow poplar, white ash and yellow birch. Butternut is listed as endangered under the ESA and under SARA.

A single butternut tree was identified within the subject property during the site investigations. The location of the butternut is illustrated on Figure A.4 in Appendix A. A Butternut Health Assessment (BHA) for the property was conducted by Lashley and is provided in Appendix C. The results concluded the butternut on-site is a Category 1 tree. Category 1 trees may be killed, harmed or taken after the 30-day period that follows the submission of the BHA report to the



MECP district manager, unless the results of an MECP examination indicate that the assessment has not been conducted in accordance with the document entitled “Butternut Assessment Guidelines of Butternut Tree Health for the Purposes of the *Endangered Species Act, 2007*”. After 30 days from the BHA report submission, the butternut tree on-site may be removed.

## **6.5 Cumulative Impacts**

Potential cumulative impacts associated with the proposed project include an increase in storm water generation, and the loss of 0.42 ha of forest habitat, primarily for avian species.

Cumulative impacts to the natural environment at the site due to increased human presence are expected to be negligible given the nature of the development; a single-storey education building, and the surrounding land use; active campground and maintained trail network.

Cumulative impacts anticipated to occur to the natural heritage feature overlay are anticipated to be minimal, and are limited to the loss of 0.42 ha of forest habitat, and minor increase in wildlife human interactions and disturbance.

There are no anticipated impacts on the integrity or ecological function of the significant woodland as the proposed development is not likely to increase fragmentation or impact interior woodland habitat.

Cumulative impacts such as those listed above can be mitigated by implementing the proposed setbacks and recommended mitigation measures outlined in Section 7 below.

## **7.0 RECOMMENDED AVOIDANCE AND MITIGATION MEASURES**

The following avoidance and mitigation measures have been recommended by GEMTEC in order to minimize or eliminate potential environmental impacts identified in Section 6. As such, the following avoidance and mitigation measures should be enforced throughout the development through application of Site Plan Controls.

### **7.1 Significant Woodlands**

To ensure that only the area required to accommodate the development of the forest and nature school, site control by way of prescribed development area is recommended.

The proposed development area is illustrated on Figures A.2 through A.4. The development area is positioned in such a manner as to reduce impacts on the integrity of the significant woodlands, reduce vegetation clearing and habitat loss, maintain habitat connection, and reduce fragmentation.

As established in the Lashley Tree Inventory (provided in Appendix C), the tree preservation fence will act to establish a restricted development area. By restricting development and disturbance to within the fence, the maximum loss of significant woodlands is only 0.42 ha or 0.36% of the

108 ha of significant woodlands on-site. Additionally, as the development area is proposed to be sited along a pre-existing edge habitat, the proposed development is not negatively impacting the availability of interior habitat within the continuous woodlands. As the establishment of a restricted development area maintains the minimum size criteria and the ecological functions (interior habitat) classifying the woodlands as significant, no negative impacts on the ecological function of the significant woodlands are anticipated as a result of this project if the development envelope proposed above are enacted, and all mitigation measures and best management practices recommended below are adhered to.

## **7.2 Significant Wildlife Habitat**

Impacts to eastern wood-pewee primarily concern habitat loss and increased fragmentation, which have not been shown to be a limiting factor for eastern wood-pewee. To further minimize the impact of the proposed development on eastern wood-pewee habitat, vegetation removal should occur outside the key breeding bird period (typically April 15 to August 15) as identified by Environment Canada for the protection of nesting and foraging eastern wood-pewee and to avoid contravention of the Migratory Bird Convention Act. If vegetation clearing activities must take place during the aforementioned timing window then a nest survey shall be conducted by a qualified professional.

## **7.3 Species at Risk**

### **7.3.1 Eastern Small-footed Myotis, Little Brown Myotis & Tri-colored Bat**

To protect roosting and foraging bats, tree removal where required should take place outside of the spring and summer active season (typically May 1 to September 1), when bats are more likely to be using forest habitat. If vegetation clearing must be conducted during the spring and summer timing window then a roost survey should be conducted by a qualified professional.

### **7.3.2 Western Chorus Frog**

The following mitigation measures are provided to protect western chorus frog and their habitat on-site:

- Prior to any site activity, mitigation measures provided by ECCC in their forthcoming letter of advice shall be implemented to ensure the protection of western chorus frogs.
- Install and maintain demarcation to delineate the construction zone, prohibit encroachment, prohibit the migration of wildlife into the construction zone and minimize sediment transport to adjacent vernal pools.
- Time construction to avoid migration periods prior to breeding (March 20 to June 11 of a given year, Environment Canada, 2015) and migration periods prior to hibernation (hibernation typically begins around October 1 and continues to March 20, Environment Canada, 2015).

- Perform daily pre-construction sweeps for wildlife before construction activities begin. If wildlife is found within the work area that requires removal, a qualified professional shall be contacted. Should any species at risk be discovered throughout the course of the proposed works, the Kemptville district MECP should be contacted immediately and operations modified to avoid any negative impacts to SAR or their habitat until further direction is provided by the MECP.
- Impacts associated with increased human-wildlife interactions are anticipated to be minimal given the surrounding land use (i.e. Wesley Clover Parks Campground).
- Amphibian breeding surveys specifically targeting western chorus frog were conducted on-site, western chorus frogs were not detected on-site during any of the site visits. Critical habitat for western chorus frogs has been identified on-site, due to the presence of suitable dispersal habitat within 300 m of confirmed breeding habitat.
- To avoid creating barriers to migration, grade raises for the proposed development should be kept to a minimum. Travel corridors should be incorporated into landscape design (e.g. incorporating vegetated corridors into drainage swale design) to facilitate migration and mitigate potential migration barriers as well as minimize human-wildlife interaction.
- Tree clearing should be limited to maintain as much canopy cover as possible.

#### 7.4 Butternut

As discussed in Section 6.4.6, the butternut tree on-site was identified as a Category 1 tree. Category 1 trees may be killed, harmed or taken **after** the 30 day period that follows the submission of the BHA report to the MECP district manager, unless the results of an MECP examination indicate that the assessment has not been conducted in accordance with the document entitled “Butternut Assessment Guidelines of Butternut Tree Health for the Purposes of the *Endangered Species Act, 2007*”. After 30 days from the BHA report submission, the butternut tree on-site may be removed if required.

#### 7.5 Wildlife

Although no habitat of provincially protected species at risk have been identified on-site, the following avoidance and mitigation measures are provided in effort to minimize impacts to on-site and off-site wildlife:

- Vegetation removal should occur outside the key breeding bird period (typically April 15 to August 15) as identified by Environment Canada for the protection of migratory birds and to avoid contravention of the Migratory Bird Convention Act. If vegetation clearing activities must take place during the aforementioned timing window then a nest survey shall be conducted by a qualified professional.
- Installation of silt fence barriers around the entire construction envelope of each future residential dwelling to prohibit the emigration of wildlife into the construction area.
- Cover all stock piled material with a geotextile to prevent turtles from nesting in the material between May 1 and August 1 of any year.

- Perform daily pre-work sweeps of the construction area to ensure no species at risk are present and to remove any wildlife from inside the construction area.
- Should any species at risk be discovered throughout the course of the proposed works, the species at risk biologist with the local MECP district should be contacted immediately and operations modified to avoid any negative impacts to species at risk or their habitat until further direction is provided by the MECP.

## 7.6 Best Practice Measures for Mitigation of Cumulative Impacts

The following best practice measures are provided for the mitigation of cumulative impacts resulting from general construction and development activities;

- To protect trees identified to be retained during construction, the Critical Root Zone (CRZ) should be identified and fenced. The CRZ is defined as 10 cm from the base of the tree for every centimetre in diameter of the tree trunk measured at breast height.
- Tree removal should follow all of the regulations from the City of Ottawa outlined in 'Tree Conservation – Urban' (By-law No. 2009-200). All necessary permits for vegetation removal must be obtained from the city.
- Maintain as much permeable surface as possible in future development plans to minimize the generation of stormwater runoff.
- Silt fencing should be installed along all setbacks to provide visual demarcation of the setbacks and to prevent machinery encroachment and sediment transport.
- Run-off from roofs should be directed towards swales, rain gardens, soak-away pits and/or infiltration trenches
- Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized.
- In effort to offset the effect of vegetation clearing, consideration should be given to landscape planting with native tree species indicative of the Great Lakes – St. Lawrence Forest Region, such as white cedar, white pine, sugar maple, and red oak.

## 8.0 CONCLUSIONS

The proposed project supported by this EIS is the development of a two-storey building with a 737 m<sup>2</sup> footprint, for a future forest and nature school.

Based on the results of the impact analysis, impacts to the natural environment are anticipated to be minimal. Provided that mitigation measures recommended in Section 7 are implemented as proposed, no significant residual negative impacts are anticipated from the proposed future development.

Following review of the information pertaining to the natural heritage features of the site, the following general conclusions are provided by GEMTEC in regards to the Environmental Impact Statement.

- No significant negative impacts to natural heritage features identified on-site, including significant woodlands, ANSI, and the natural heritage features overlay from future construction are anticipated.
- The proposed project complies with the natural heritage policies of the Provincial Policy Statement.
- The proposed development complies with the natural heritage policies of the City of Ottawa Official Plan.

## 9.0 LIMITATION OF LIABILITY

This report and the work referred to within it have been undertaken by GEMTEC Consulting Engineers and Scientists Ltd (GEMTEC), and prepared for CSV Architects and is intended for the exclusive use of CSV Architects. This report may not be relied upon by any other person or entity without the express written consent of GEMTEC and CSV Architects. Nothing in this report is intended to provide a legal opinion.

The investigation undertaken by GEMTEC with respect to this report and any conclusions or recommendations made in this report reflect the best judgements of GEMTEC based on the site conditions observed during the investigations undertaken at the date(s) identified in the report and on the information available at the time the report was prepared.

This report has been prepared for the application noted and it is based, in part, on visual observations made at the site, all as described in the report. Unless otherwise stated, the findings contained in this report cannot be extrapolated or extended to previous or future site conditions, or portions of the site that were unavailable for direct investigation

Should new information become available during future work or other studies, GEMTEC should be requested to review the information and, if necessary, re-assess the conclusions presented herein.

We trust this report provides sufficient information for your present purposes. If you have any questions concerning this report, please do not hesitate to contact our office.

Sincerely,



Taylor Warrington, B.Sc.  
Biologist



Drew Paulusse, B.Sc.  
Senior Biologist

## 10.0 REFERENCES

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## **APPENDIX A**

### Report Figures

Figure A.1 – Site Location

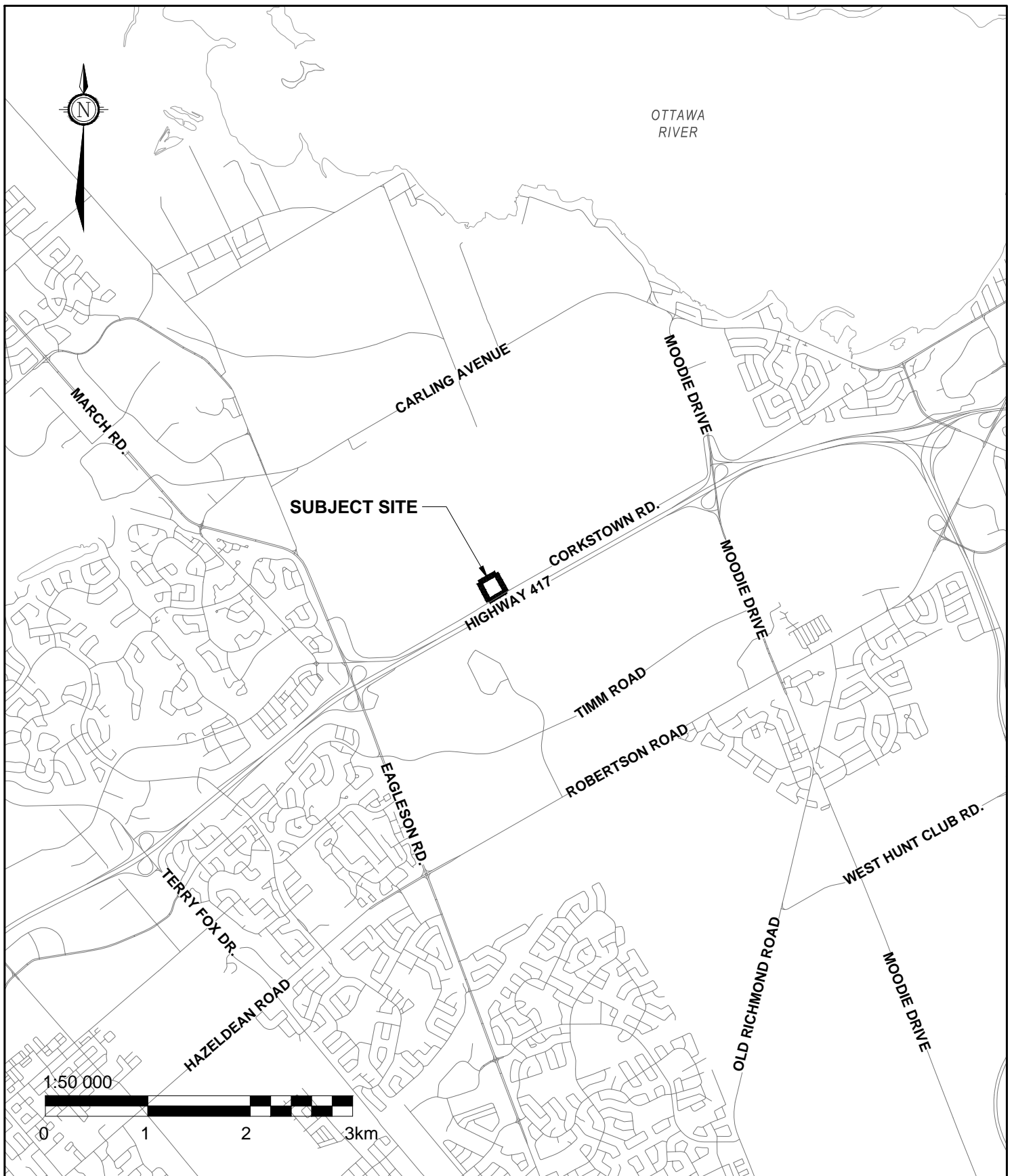
Figure A.2 – Site Layout

Figure A.3 – Survey Locations

Figure A.4 – Natural Heritage Features

Figure A.5 – Tree Inventory

Figure A.6 – Tree Inventory



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Project  
ENVIRONMENTAL IMPACT STATEMENT  
411 CORKSTOWN ROAD  
OTTAWA, ONTARIO

Drawing

SITE LOCATION

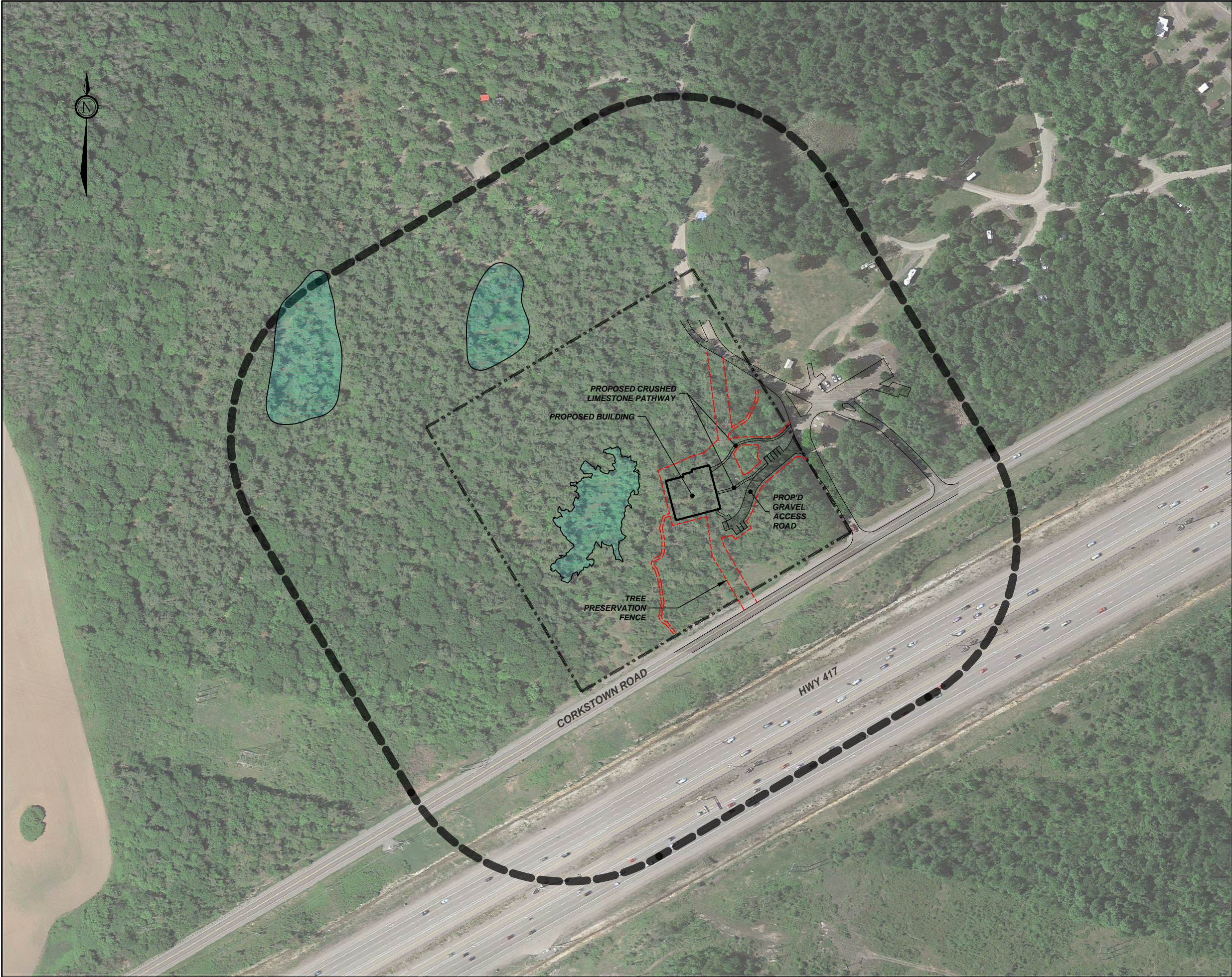
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P.C.	T.W.	MAY 2020

Project No.
62177.14

Revision No.
1

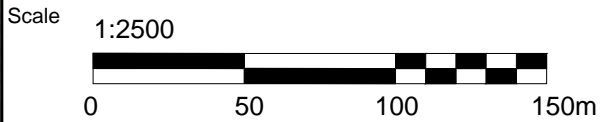
**FIGURE A.1**





**LEGEND**

- APPROXIMATE DEVELOPMENT AREA
- STUDY AREA
- VERNAL POOLS



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Ottawa, ON K2K 2A9  
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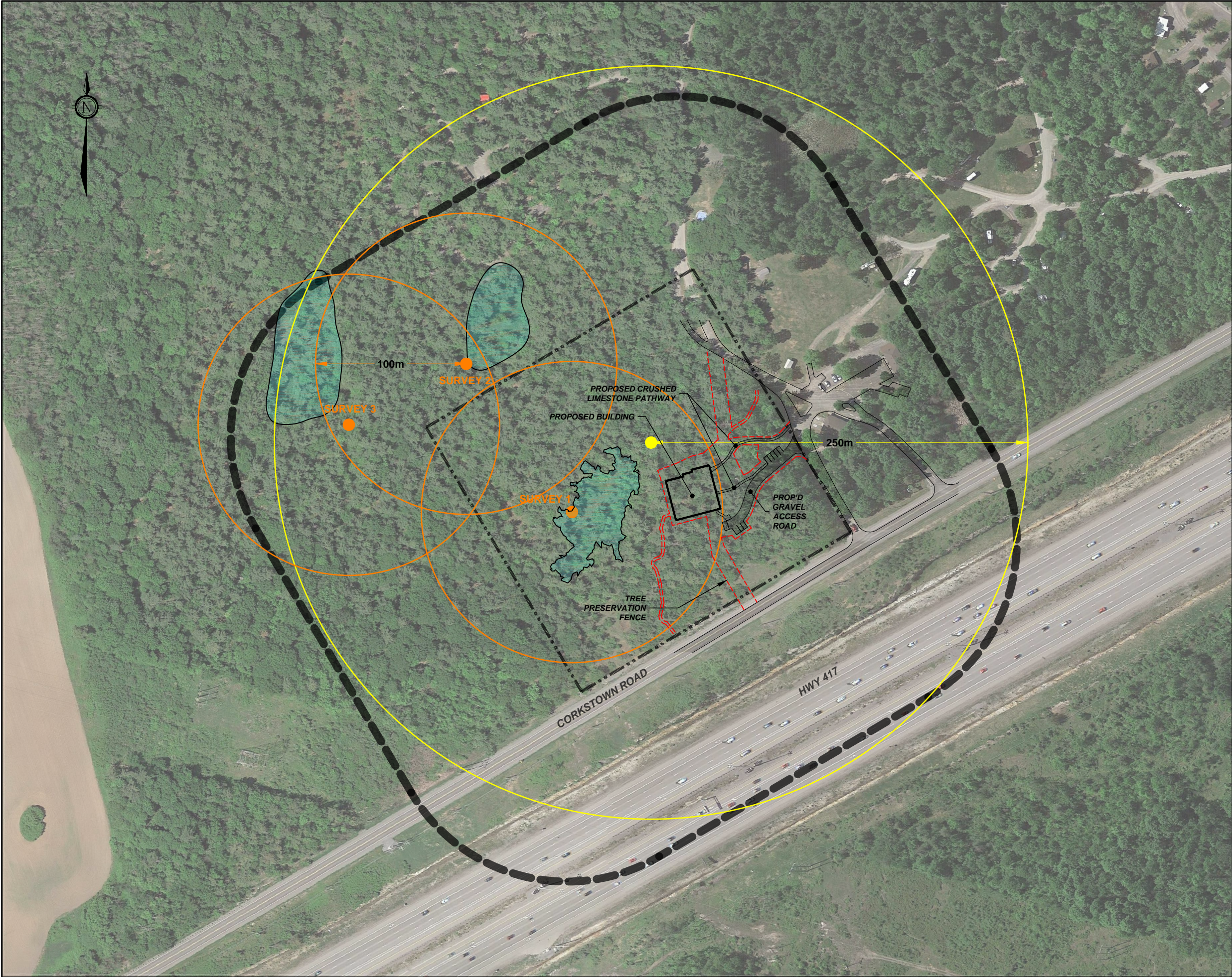
Drawing  
SITE LAYOUT

Client  
CSV ARCHITECTS

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Drwn by P.C.	

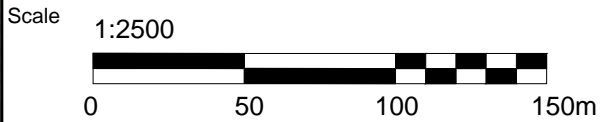
Date MAY 2020	Rev. 1	FIGURE A.2
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**LEGEND**

- APPROXIMATE DEVELOPMENT AREA
- STUDY AREA
- VERNAL POOLS
- BREEDING BIRD SURVEY
- AMPHIBIAN SURVEY
- LISTENING RADIUS





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Drawing

SURVEY LOCATIONS

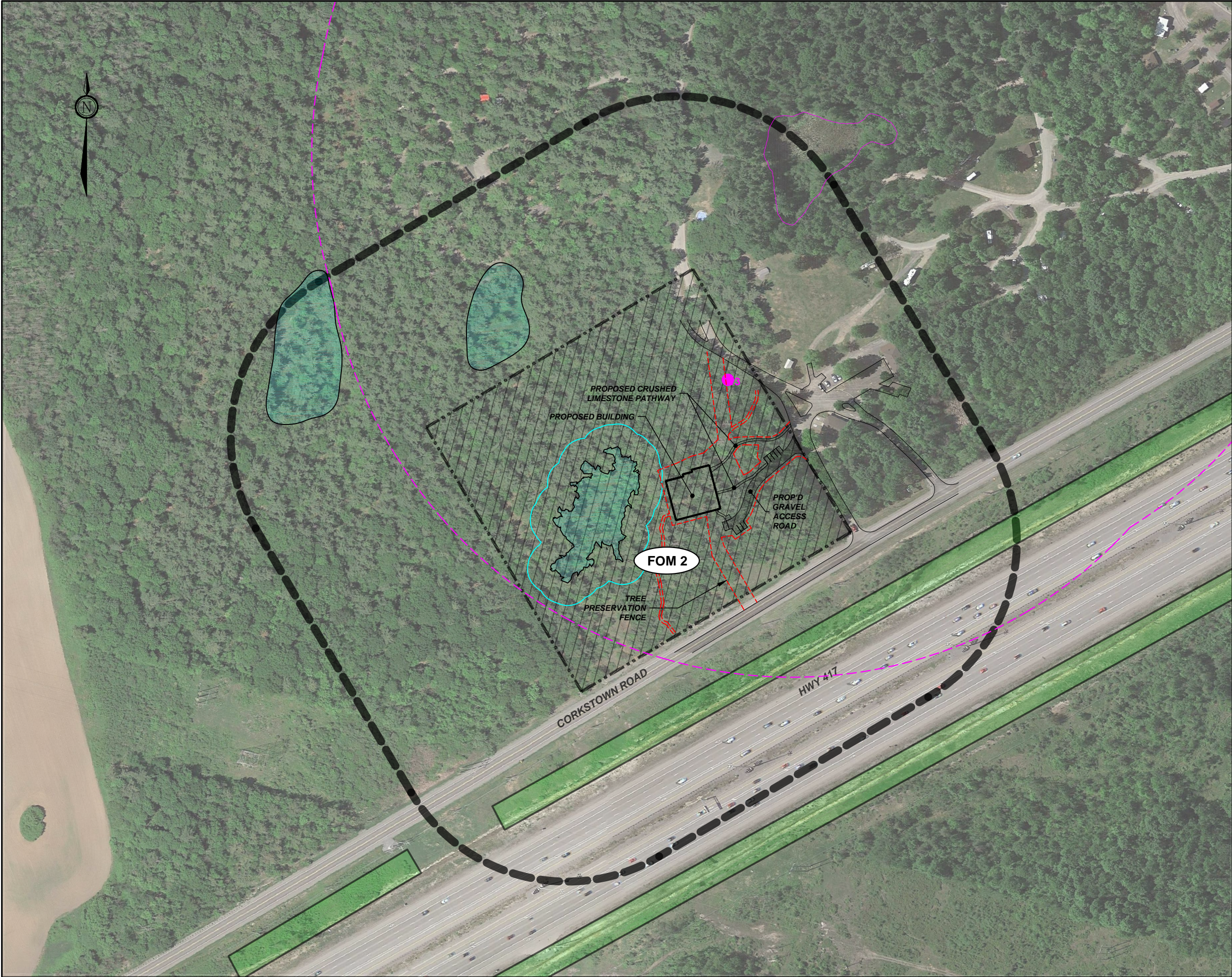
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CSV ARCHITECTS

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Chkd by	T.W.	

Date	MAY 2020	Rev.	1	FIGURE A.3
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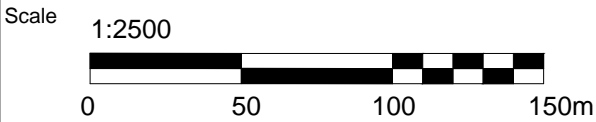


LEGEND

- APPROXIMATE DEVELOPMENT AREA
- STUDY AREA
- AREA OF NATURAL AND SCIENTIFIC INTERESTS
- SIGNIFICANT WOODLANDS
- VERNAL POOLS
- 15 METRE SETBACK
- BUTTERNUT TREE
- LOCAL WETLAND & WCF BREEDING SITE
- HIBERNATING SITE (300m RADIUS)

VEGETATION COMMUNITY

- FOM 2 WHITE PINE - HARDWOOD MIXED FOREST





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Drawing

NATURAL HERITAGE FEATURES

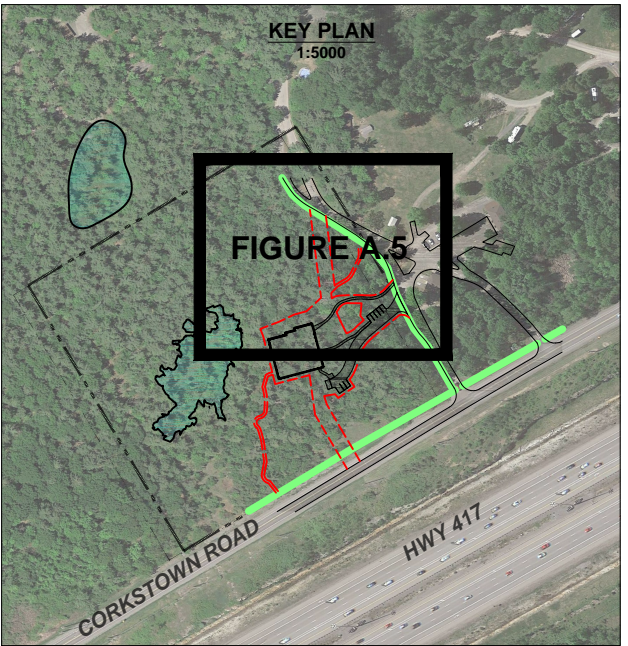
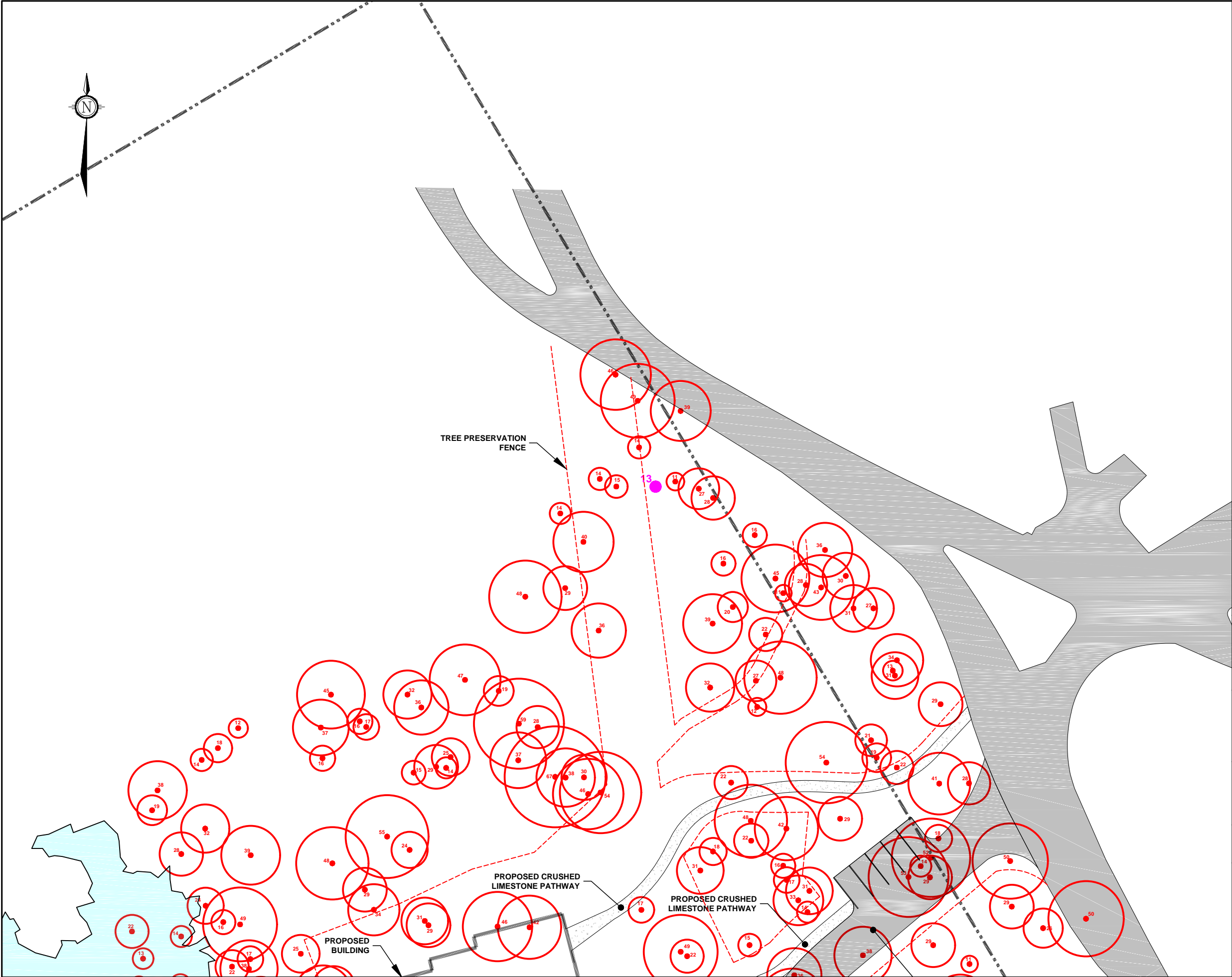
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CSV ARCHITECTS

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Chkd by	T.W.	

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**LEGEND**

- APPROXIMATE DEVELOPMENT AREA
- STUDY AREA
- BUTTERNUT TREE
- DEAD TREE
- TREE & DIAMETER AT BREAST HEIGHT (DBH) IN CENTIMETRES
- VERNAL POOLS

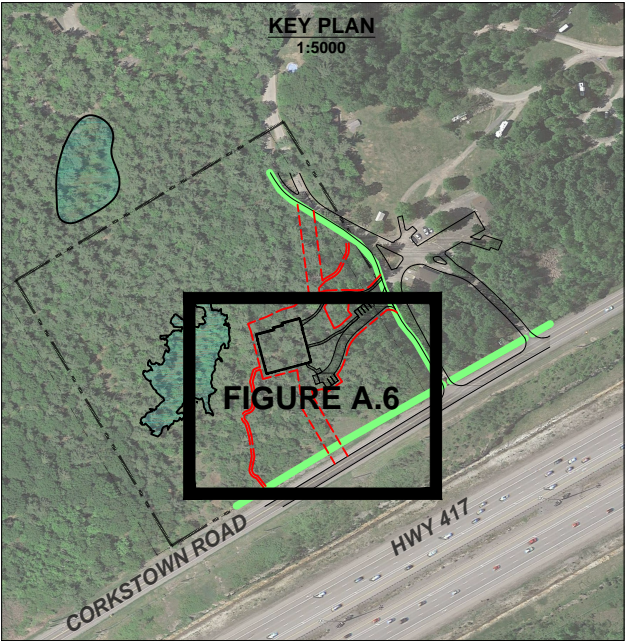
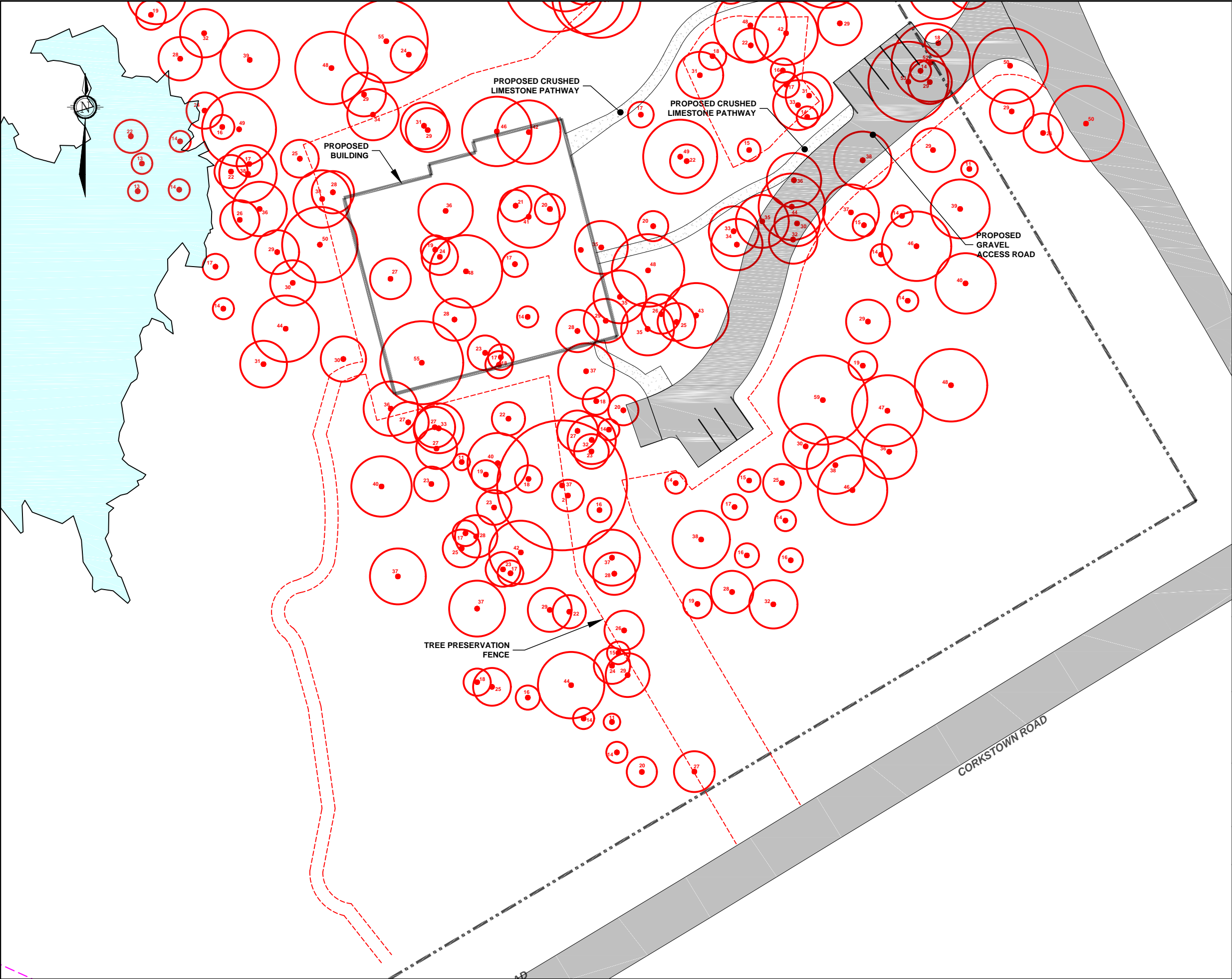
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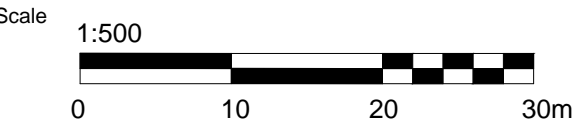
32 Steacie Drive  
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Drawing		TREE INVENTORY	
Client		CSV ARCHITECTS	
Project	62177.14	ENVIRONMENTAL IMPACT STATEMENT 411 CORKSTOWN RD. OTTAWA, ONTARIO	
Drwn by	P.C.	Chkd by	T.W.
Date	MAY 2020	Rev.	1
		FIGURE A.5	



**LEGEND**

- APPROXIMATE DEVELOPMENT AREA
- STUDY AREA
- BUTTERNUT TREE
- DEAD TREE
- TREE & DIAMETER AT BREAST HEIGHT (DBH) IN CENTIMETRES
- VERNAL POOLS



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Drawing		TREE INVENTORY	
Client		CSV ARCHITECTS	
Project	62177.14	ENVIRONMENTAL IMPACT STATEMENT 411 CORKSTOWN RD. OTTAWA, ONTARIO	
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Date	MAY 2020	Rev.	1
		FIGURE A.6	





## **APPENDIX B**

### Site Photographs



Site Photograph 1 – White Pine – Hardwood  
Mixed Forest (May 10, 2019)



Site Photograph 2 – Vernal Pool Adjacent to  
Proposed Development Area (May 10, 2019)



Site Photograph 3 – Vernal Pool Within White  
Pine – Hardwood Mixed Forest (May 10, 2019)



Site Photograph 4 – Vernal Pool Within White  
Pine – Hardwood Mixed Forest (May 10, 2019)





Site Photograph 5 – White Pine – Hardwood Mixed Forest (May 14, 2019)



Site Photograph 6 – Vernal Pool Adjacent to Proposed Development Area (May 14, 2019)



Site Photograph 7 – Vernal Pool Within White Pine – Hardwood Mixed Forest (May 14, 2019)



Site Photograph 8 – Vernal Pool Within White Pine – Hardwood Mixed Forest (May 14, 2019)



## **APPENDIX C**

Tree Inventory (Lashley + Associates)





TREE INVENTORY ANDREW FLECK FOREST SCHOOL SITE				
NO.	TREE SPECIES	DBH (cm)	CONDITION	COMMENTS
929	American Elm/Ulmus americana	20	Good	
930	Red Oak/Quercus rubra	27	Good	
931	White Pine/Pinus strobus	14	Poor	
931A	Red Oak/Quercus rubra	11	Good	
932	Red Oak/Quercus rubra	14	Good	
933	White Pine/Pinus strobus	44	Poor	
934	Red Oak/Quercus rubra	24	Good	
935	Red Oak/Quercus rubra	16	Good	
936	Red Oak/Quercus rubra	18	Good	3 stems 18, 12, 11
937	Silver Birch/Betula pendula	25	Good	
938	Red Oak/Quercus rubra	22	Good	
939	White Pine/Pinus strobus	29	Fair	
940	Red Oak/Quercus rubra	17	Good	
941	Red Oak/Quercus rubra	23	Good	
942	White Pine/Pinus strobus	42	Good	
943	Red Oak/Quercus rubra	23	Good	
944	White Pine/Pinus strobus	28	Good	
945	Red Oak/Quercus rubra	17	Good	
946	Red Oak/Quercus rubra	19	Good	
948	White Pine/Pinus strobus	40	Poor	
949	Red Oak/Quercus rubra	23	Good	
950	Red Oak/Quercus rubra	11	Good	
951	White Pine/Pinus strobus	32	Good	
952	Red Oak/Quercus rubra	22	Good	
953	Red Oak/Quercus rubra	18	Good	
956	Trembling Aspen/Populus tremuloides	14	Fair	
957	Red Oak/Quercus rubra	14	Good	
957	White Pine/Pinus strobus	32	Good	
958	White Pine/Pinus strobus	48	Fair	
959	White Pine/Pinus strobus	20	Good	
970	White Pine/Pinus strobus	45	Good	
972	Butternut/Juglans cinerea	13	Poor	
973	White Pine/Pinus strobus	39	Fair	1 dead stem
974	White Pine/Pinus strobus	22	Good	
982	White Pine/Pinus strobus	50	Good	
985	White Pine/Pinus strobus	25	Good	
986	White Pine/Pinus strobus	38	Good	
987	White Pine/Pinus strobus	49	Fair	Woodpecker holes
988	Trembling Aspen/Populus tremuloides	24	Good	
989	White Pine/Pinus strobus	39	Good	
990	White Pine/Pinus strobus	48	Good	
991	White Pine/Pinus strobus	29	Good	
992	White Pine/Pinus strobus	55	Fair	
993	Red Oak/Quercus rubra	24	Good	
994	Red Oak/Quercus rubra	31	Fair	
995	White Pine/Pinus strobus	29	Fair	
997	White Pine/Pinus strobus	34	Good	
1003	White Pine/Pinus strobus	54	Fair	
1004	White Pine/Pinus strobus	28	Good	
1005	White Pine/Pinus strobus	37	Good	
1006	White Pine/Pinus strobus	67	Fair	
1007	White Pine/Pinus strobus	29	Good	
1008	White Pine/Pinus strobus	32	Good	
1009	White Pine/Pinus strobus	36	Good	
1010	White Pine/Pinus strobus	45	Good	
1011	White Pine/Pinus strobus	37	Poor	
1012	White Pine/Pinus strobus	36	Fair	
1013	White Pine/Pinus strobus	31	Good	
1014	White Pine/Pinus strobus	44	Good	
1015	Trembling Aspen/Populus tremuloides	15	Fair	
1016	White Pine/Pinus strobus	30	Good	
1018	Trembling Aspen/Populus tremuloides	15	Fair	
1019	White Pine/Pinus strobus	40	Good	
1020	White Pine/Pinus strobus	37	Good	
1021	Red Oak/Quercus rubra	25	Good	
1022	White Pine/Pinus strobus	37	Good	
1023	Red Oak/Quercus rubra	29	Good	
1024	Red Oak/Quercus rubra	15	Good	
1043	White Pine/Pinus strobus	27	Good	
1044	White Pine/Pinus strobus	27	Fair	
1045	White Pine/Pinus strobus	30	Good	
1046	White Pine/Pinus strobus	22	Good	
1047	White Pine/Pinus strobus	17	Good	
1048	Red Oak/Quercus rubra	16	Good	
1049	Red Maple/Acer rubrum	14	Good	
1050	Red Maple/Acer rubrum	13	Good	
1051	White Pine/Pinus strobus	13	Fair	
1052	Red Oak/Quercus rubra	14	Good	
1053	White Pine/Pinus strobus	22	Fair	
1054	White Pine/Pinus strobus	26	Good	
1054	White Pine/Pinus strobus	29	Good	
1054	White Pine/Pinus strobus	24	Good	
1054	White Pine/Pinus strobus	29	Good	
1054	White Pine/Pinus strobus	15	Good	
1054	White Pine/Pinus strobus	27	Good	
1054	White Pine/Pinus strobus	31	Good	
1054	White Pine/Pinus strobus	33	Good	
1054	White Pine/Pinus strobus	35	Good	
1054	White Pine/Pinus strobus	36	Good	
1054	White Pine/Pinus strobus	30	Good	
1054	White Pine/Pinus strobus	32	Fair	
1054	White Pine/Pinus strobus	37	Good	
1054	White Pine/Pinus strobus	38	Good	
1054	White Pine/Pinus strobus	29	Good	
1054	White Pine/Pinus strobus	31	Good	
1054	White Pine/Pinus strobus	14	Good	
1054	Red Oak/Quercus rubra	15	Good	
1054	White Pine/Pinus strobus	27	Poor	Topped
1054	White Pine/Pinus strobus	28	Good	

1143	White Pine/Pinus strobus	36	Good	
1144	White Pine/Pinus strobus	18	Good	
1145	White Pine/Pinus strobus	30	Good	
1146	White Pine/Pinus strobus	32	Fair	
1147	Red Maple/Acer rubrum	18, 18, 15	Poor	
1148	White Pine/Pinus strobus	25	Poor	Topped
1149	Red Maple/Acer rubrum	32	Poor	
1150	White Pine/Pinus strobus	38	Good	
1151	White Pine/Pinus strobus	45	Good	
1152	White Pine/Pinus strobus	50	Fair	
1153	White Pine/Pinus strobus	28	Good	
1155	White Pine/Pinus strobus	31	Good	
1156	White Pine/Pinus strobus	27	Good	
1157	Red Oak/Quercus rubra	23	Good	
1158	White Pine/Pinus strobus	28	Good	
1159	Red Oak/Quercus rubra	27	Good	
1160	White Pine/Pinus strobus	18	Good	
1161	White Pine/Pinus strobus	20	Good	
1162	White Pine/Pinus strobus	22	Fair	
1163	White Pine/Pinus strobus	24, 16	Fair	
1164	White Pine/Pinus strobus	23	Good	
1165	White Pine/Pinus strobus	26	Good	
1166	Red Oak/Quercus rubra	30	Good	
1167	White Pine/Pinus strobus	35	Fair	
1168	Red Oak/Quercus rubra	16	Good	
1169	Red Oak/Quercus rubra, White Pine/Pinus strobus, Red Maple/Acer rubrum	Varies	Varies	Grouping

ANDREW FLECK FOREST SCHOOL TREES 10-40cm DBH TO BE REMOVED				
NO.	TREE SPECIES	DBH (cm)	CONDITION	COMMENTS
947	White Pine/Pinus strobus	37	Fair	
954	White Pine/Pinus strobus	18	Good	
955	White Pine/Pinus strobus	23	Good	
956	Trembling Aspen/Populus tremuloides	14	Fair	
958	White Pine/Pinus strobus	28	Fair	
959	White Pine/Pinus strobus	28	Fair	
960	White Pine/Pinus strobus	36	Good	
961	Red Oak/Quercus rubra	20	Good	
962	White Pine/Pinus strobus	22	Good	
964	Red Oak/Quercus rubra	17	Good	
965	White Pine/Pinus strobus	31	Fair	
966	Sugar Maple/Acer saccharum	22	Good	
975	White Pine/Pinus strobus	17	Good	
977	White Pine/Pinus strobus	24	Good	
978	White Pine/Pinus strobus	19	Good	
979	White Pine/Pinus strobus	28	Fair	
981	Red Oak/Quercus rubra	27	Good	
983	Red Oak/Quercus rubra	28	Good	
984	White Pine/Pinus strobus	38	Good	
996	White Pine/Pinus strobus	36	Good	
1001	White Pine/Pinus strobus	21	Good	
1002	White Pine/Pinus strobus	20	Good	
1017	White Pine/Pinus strobus	36	Good	
1025	White Pine/Pinus strobus	26	Good	
1026	Red Oak/Quercus rubra	28	Good	
1027	White Pine/Pinus strobus	37	Fair	
1028	Red Oak/Quercus rubra	16	Good	
1029	Red Oak/Quercus rubra	21	Fair	leaner
1030	White Pine/Pinus strobus	23	Good	
1031	White Pine/Pinus strobus	32	Good	
1032	White Pine/Pinus strobus	27	Fair	
1033	White Pine/Pinus strobus	18	Good	
1034	White Pine/Pinus strobus	14	Good	
1035	White Pine/Pinus strobus	20	Fair	
1036	White Pine/Pinus strobus	37	Good	
1037	White Pine/Pinus strobus	29	Good	
1038	White Pine/Pinus strobus	26	Good	
1039	White Pine/Pinus strobus	35	Good	
1040	White Pine/Pinus strobus	25	Good	
1042	White Pine/Pinus strobus	34	Good	
1056	White Pine/Pinus strobus	33	Good	
1057	Red Oak/Quercus rubra	35	Good	
1058	White Pine/Pinus strobus	36	Fair	
1060	White Pine/Pinus strobus	30	Good	
1061	White Pine/Pinus strobus	32	Fair	
1062	White Pine/Pinus strobus	37	Good	
1063	White Pine/Pinus strobus	38	Good	
1069	White Pine/Pinus strobus	29	Good	
1073	White Pine/Pinus strobus	31	Good	
1074	White Pine/Pinus strobus	14	Good	
1076	White Pine/Pinus strobus	29	Good	
1077	White Pine/Pinus strobus	14	Good	
1079	White Ash/Fraxinus americana	18	Good	
1082	Red Oak/Quercus rubra	28	Good	
1083	Sugar Maple/Acer saccharum	22	Good	
1093	American Elm/Ulmus americana	27	Good	
1106	Trembling Aspen/Populus tremuloides	14	Good	
1108	Red Oak/Quercus rubra	14	Good	
1109	Red Oak/Quercus rubra	15	Good	
1154	White Pine/Pinus strobus	27	Poor	
1158	White Pine/Pinus strobus	28	Good	Topped

ANDREW FLECK FOREST SCHOOL TREES >40cm DBH TO BE REMOVED				
NO.	TREE SPECIES	DBH (cm)	CONDITION	COMMENTS
963	White Pine/Pinus strobus	49	Poor	
971	White Pine/Pinus strobus	49	Good	
976	White Pine/Pinus strobus	48	Good	
980	White Pine/Pinus strobus	55	Good	
998	White Pine/Pinus strobus	46	Good	
999	White Pine/Pinus strobus	42	Good	
1000	White Pine/Pinus strobus	41	Good	
1041	Red Oak/Quercus rubra	48	Good	
1055	Red Oak/Quercus rubra	40, 43	Good	
1059	White Pine/Pinus strobus	44	Good	
1075	White Pine/Pinus strobus	53	Good	
1078	White Pine/Pinus strobus	52	Good	
1081	White Pine/Pinus strobus	41	Good	
1107	White Pine/Pinus strobus	46	Good	
1118	White Pine/Pinus strobus	56	Dead	
1136	White Pine/Pinus strobus	50	Good	
1139	Sugar Maple/Acer saccharum	50	Poor	Broken Top, tree senescing



KEY MAP, NTS

L-TP1 GENERAL NOTES

- All general site information and conditions compiled from architect's and engineer's plans and surveys.
- Do not scale this drawing.
- Report any discrepancies prior to commencing work. No responsibility is born by the Landscape Architect for unknown subsurface conditions.
- Reinstall all areas and items damaged as a result of construction activities to the satisfaction of the Landscape Architect.
- Drawing may not be used for construction until signed by Landscape Architect as issued for construction.
- The accuracy of the position of utilities is not guaranteed.
- Individual utility co. must be contacted for confirmation of utility existence and location prior to digging.
- This drawing is an instrument of service and requires the permission of the Landscape Architect for use. Copyright is reserved by the Landscape Architect, David M. Lashley.

4	2020/05/01	ISSUED FOR 66% REVIEW
3	2020/04/10	ISSUED FOR NCC REVIEW
2	2019/11/26	ISSUED FOR REVIEW
1	2019/10/24	ISSUED FOR REVIEW

NO.	DATE	DESCRIPTION
SEAL:		NORTH:



CONSULTANT:

PROJECT:

**ANDREW FLECK FOREST SCHOOL**  
CORKSTOWN ROAD  
KANATA, ONTARIO

DRAWING TITLE:

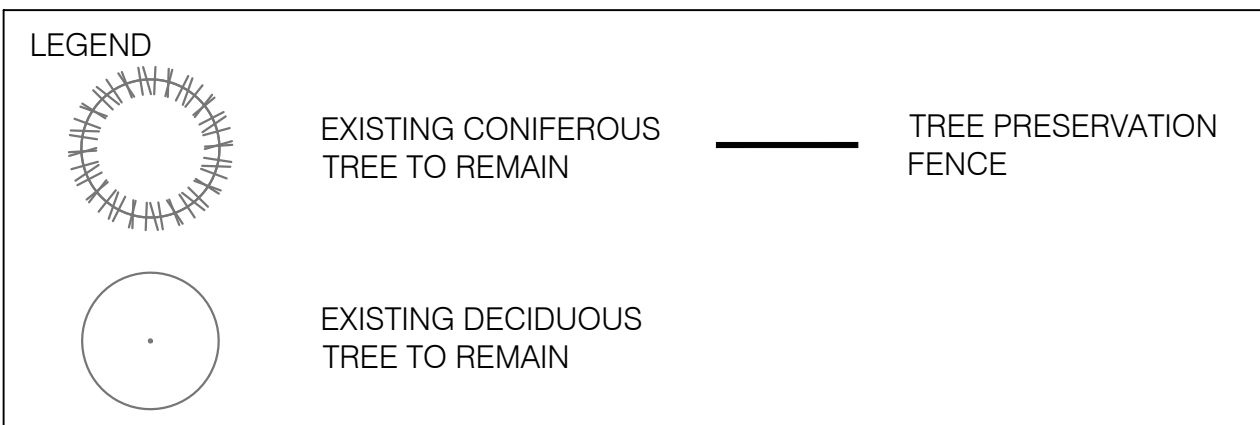
**PRE DEVELOPMENT VEGETATION MAP**

DATE: 2020/04/10  
SCALE: AS NOTED  
DRAWN BY: RP/EL  
LA PROJECT NO. 19742-1

DRAWING NO.:

**L-TP1**





1143	White Pine/ <i>Pinus strobus</i>	36	Good	
1144	White Pine/ <i>Pinus strobus</i>	16	Good	
1145	White Pine/ <i>Pinus strobus</i>	30	Good	
1146	White Pine/ <i>Pinus strobus</i>	32	Fair	
1147	Red Maple/ <i>Acer rubrum</i>	18, 18.15	Poor	
1148	White Pine/ <i>Pinus strobus</i>	25	Poor	Topped
1149	Red Maple/ <i>Acer rubrum</i>	32	Poor	
1150	White Pine/ <i>Pinus strobus</i>	38	Good	
1151	White Pine/ <i>Pinus strobus</i>	45	Good	
1152	White Pine/ <i>Pinus strobus</i>	50	Fair	
1153	White Pine/ <i>Pinus strobus</i>	38	Good	
1155	White Pine/ <i>Pinus strobus</i>	31	Good	
1156	White Pine/ <i>Pinus strobus</i>	27	Good	
1157	Red Oak/ <i>Quercus rubra</i>	23	Good	
1158	White Pine/ <i>Pinus strobus</i>	28	Good	
1159	Red Oak/ <i>Quercus rubra</i>	27	Good	
1160	White Pine/ <i>Pinus strobus</i>	16	Good	
1161	White Pine/ <i>Pinus strobus</i>	20	Good	
1162	White Pine/ <i>Pinus strobus</i>	22	Fair	
1163	White Pine/ <i>Pinus strobus</i>	24, 16	Fair	
1164	White Pine/ <i>Pinus strobus</i>	23	Good	
1165	White Pine/ <i>Pinus strobus</i>	26	Good	
1166	Red Oak/ <i>Quercus rubra</i>	30	Good	
1167	White Pine/ <i>Pinus strobus</i>	38	Fair	
1168	Red Oak/ <i>Quercus rubra</i>	16	Good	
1169	Red Oak/ <i>Quercus rubra</i> , White Pine/ <i>Pinus strobus</i> , Red Maple/ <i>Acer rubrum</i>	Varies	Varies	Grouping

ANNUAL FLECK FOREST SCHOOL TREES 10-40cm DBH TO BE REMOVED				
NO.	TREE SPECIES	DBH (cm)	CONDITION	COMMENTS
947	White Pine/Pinus strobus	37	Fair	
954	White Pine/Pinus strobus	18	Fair	
955	White Pine/Pinus strobus	23	Good	
965	Trembling Aspen/Populus tremuloides	14	Fair	
958	White Pine/Pinus strobus	28	Fair	
959	White Pine/Pinus strobus	28	Fair	
960	White Pine/Pinus strobus	36	Good	
961	Red Oak/Quercus rubra	20	Good	
962	White Pine/Pinus strobus	22	Good	
964	Red Oak/Quercus rubra	17	Good	
965	White Pine/Pinus strobus	31	Fair	
966	Sugar Maple/Acer saccharum	22	Good	
975	White Pine/Pinus strobus	17	Good	
977	White Pine/Pinus strobus	24	Good	
978	White Pine/Pinus strobus	19	Good	
979	White Pine/Pinus strobus	28	Fair	
981	Red Oak/Quercus rubra	27	Good	
983	Red Oak/Quercus rubra	28	Good	
984	White Pine/Pinus strobus	38	Good	
996	White Pine/Pinus strobus	36	Good	
1001	White Pine/Pinus strobus	21	Good	
1002	White Pine/Pinus strobus	20	Good	
1017	White Pine/Pinus strobus	36	Good	
1025	White Pine/Pinus strobus	26	Good	
1026	Red Oak/Quercus rubra	28	Good	
1027	White Pine/Pinus strobus	37	Fair	
1029	Red Oak/Quercus rubra	16	Good	
1029	Red Oak/Quercus rubra	21	Fair	leaner
1030	White Pine/Pinus strobus	23	Good	
1031	White Pine/Pinus strobus	32	Fair	
1032	White Pine/Pinus strobus	27	Good	
1033	White Pine/Pinus strobus	18	Good	
1034	White Pine/Pinus strobus	14	Good	
1035	White Pine/Pinus strobus	20	Fair	
1036	White Pine/Pinus strobus	37	Good	
1037	White Pine/Pinus strobus	39	Good	
1038	White Pine/Pinus strobus	26	Good	
1039	White Pine/Pinus strobus	30	Good	
1040	White Pine/Pinus strobus	25	Good	
1042	White Pine/Pinus strobus	34	Good	
1056	White Pine/Pinus strobus	33	Good	
1057	Red Oak/Quercus rubra	35	Good	
1058	White Pine/Pinus strobus	36	Fair	
1060	White Pine/Pinus strobus	30	Good	
1061	White Pine/Pinus strobus	32	Fair	
1062	White Pine/Pinus strobus	37	Good	
1063	White Pine/Pinus strobus	38	Good	
1068	White Pine/Pinus strobus	29	Good	
1073	White Pine/Pinus strobus	31	Good	
1074	White Pine/Pinus strobus	14	Good	
1076	White Pine/Pinus strobus	22	Good	
1077	Bitternut Hickory/Carya cordiformis	14	Good	
1079	White Ash/Fraxinus americana	18	Good	
1082	Red Oak/Quercus rubra	26	Good	
1083	Sugar Maple/Acer saccharum	22	Good	
1093	American Elm/Ulmus americana	27	Good	
1106	Trembling Aspen/Populus tremuloides	14	Good	
1108	Red Oak/Quercus rubra	14	Good	
1109	Red Oak/Quercus rubra	15	Good	
1154	White Pine/Pinus strobus	27	Poor	Topped
1158	White Pine/Pinus strobus	28	Good	


ANDREW FLECK FOREST SCHOOL TREES >40cm DBH TO BE REMOVED				
NO.	TREE SPECIES	DBH (cm)	CONDITION	COMMENTS
963	White Pine/Pinus strobus	49	Poor	
971	White Pine/Pinus strobus	49	Good	
976	White Pine/Pinus strobus	48	Good	
980	White Pine/Pinus strobus	55	Good	
998	White Pine/Pinus strobus	46	Good	
999	White Pine/Pinus strobus	42	Good	
1000	White Pine/Pinus strobus	41	Good	
1041	Red Oak/Quercus rubra	48	Good	
1055	Red Oak/Quercus rubra	40 43	Good	
1059	White Pine/Pinus strobus	44	Good	
1075	White Pine/Pinus strobus	53	Good	
1078	White Pine/Pinus strobus	42	Good	
1081	White Pine/Pinus strobus	51	Good	
1107	White Pine/Pinus strobus	46	Good	
1118	White Pine/Pinus strobus	56	Dead	
1136	White Pine/Pinus strobus	50	Good	
1139	Sugar Maple/Acer saccharum	50	Poor	Broken Top, tree senescing

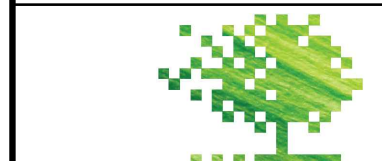
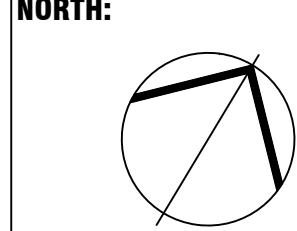


## L-TP2 GENERAL NOTES

1. All general site information and conditions compiled from architect's and engineer's plans and surveys.
2. Do not scale this drawing.
3. Report any discrepancies prior to commencing work. No responsibility is born by the Landscape Architect for unknown subsurface conditions.
4. Reinstall all areas and items damaged as a result of construction activities to the satisfaction of the Landscape Architect.
5. Drawing may not be used for construction until signed by Landscape Architect as issued for construction.
6. The accuracy of the position of utilities is not guaranteed.
7. Individual utility co. must be contacted for confirmation of utility existence and location prior to digging.
8. This drawing is an instrument of service and requires the permission of the Landscape Architect for use. Copyright is reserved by the Landscape Architect, David M. Laszley.

4	2020/05/01	ISSUED FOR 66% REVIEW
3	2020/04/10	ISSUED FOR NCC REVIEW
2	2019/11/21	ISSUED FOR REVIEW
1	2019/10/24	ISSUED FOR REVIEW

NO.	DATE	DESCRIPTION
SEAL:		NORTH:



**LASHLEY**  
+ASSOCIATES  
LANDSCAPE ARCHITECTURE

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OTTAWA, ON K1Y 3E6  
T 613 233 8579  
F 613 233 4061  
W [LashleyLA.com](http://LashleyLA.com)

AND SITE ENGINEERING

**PROJECT:**

**ANDREW FLECK**  
**FOREST SCHOOL**  
CORKSTOWN ROAD  
KANATA, ONTARIO

**DRAWING TITLE**

## POST DEVELOPMENT VEGETATION MAP

**DATE:** 2020/04/10

**SCALE:** AS NOTED

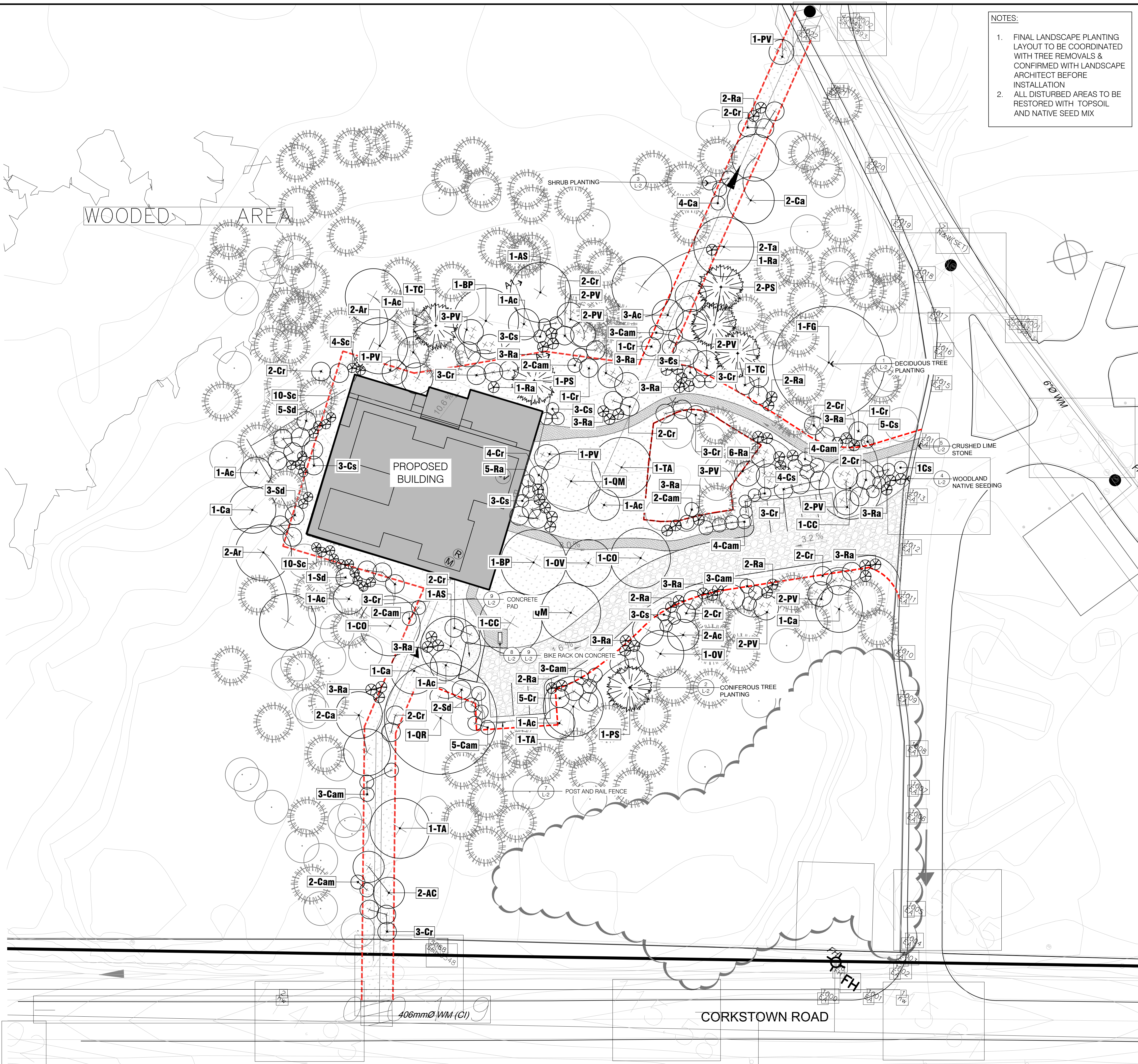
**DRAWN BY:** DB/EL

<b>LA PROJECT NO.</b>	19742-1
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**DRAWING NO.:**

## L-TP2





- NOTES:
1. FINAL LANDSCAPE PLANTING LAYOUT TO BE COORDINATED WITH TREE REMOVALS & CONFIRMED WITH LANDSCAPE ARCHITECT BEFORE INSTALLATION
  2. ALL DISTURBED AREAS TO BE RESTORED WITH TOPSOIL AND NATIVE SEED MIX

LEGEND

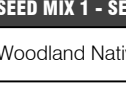
- PROPOSED DECIDUOUS TREE
- PROPOSED DECIDUOUS TREE
- PROPOSED SHRUBS
- TREE PROTECTION FENCE
- POST AND RAIL FENCE
- WOODLAND NATIVE SEED MIXTURE
- GRAVEL
- CRUSHED LIME STONE
- CONCRETE PAD

L-2 PLANT LIST

LARGE CONIFEROUS TREES					
KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	COMMENTS
PS	4	<i>Pinus strobus</i>	Eastern White Pine	180cm Ht. W.B.	
TC	2	<i>Tsuga canadensis</i>	Eastern Hemlock	180cm Ht. W.B.	
DECIDUOUS TREES					
AS	2	<i>Acer saccharum</i>	Sugar Maple	50mm Cal. W.B.	
BA	2	<i>Betula alleghaniensis</i>	Yellow Birch	50mm Cal. W.B.	
CC	2	<i>Carpinus caroliniana</i>	Blue Beech	50mm Cal. W.B.	
CO	2	<i>Coryla ovata</i>	Shagbark Hickory	250cm Ht. 15 Gal Potted	
FG	1	<i>Fagus grandifolia</i>	American Beech	50mm Cal. W.B.	
OV	2	<i>Ostrya virginiana</i>	Ironwood	50mm Cal. W.B.	
PV	21	<i>Prunus virginiana</i>	Common Chokecherry	175cm Ht. 10 Gal Potted	Multistem
OM	2	<i>Quercus macrocarpa</i>	Burr Oak	50mm Cal. W.B.	Spring Planting Only
OR	1	<i>Quercus rubra</i>	Red Oak	50mm Cal. W.B.	Spring Planting Only
TA	5	<i>Tilia americana</i>	Basswood	50mm Cal. W.B.	
LARGE SHRUBS					
Ar	4	<i>Alnus rugosa</i>	Speckled Alder	200cm Ht. Potted	
Ac	21	<i>Amelanchier canadensis</i>	Serviceberry	125cm Ht. Potted	Multistem
Ca	7	<i>Cornus alternifolia</i>	Alternate Leaf Dogwood	125cm Ht. Potted	Multistem
Sc	24	<i>Sambucus canadensis</i>	American Elderberry	125cm Ht. Potted	Multistem
SHRUBS					
Cr	53	<i>Cornus racemosa</i>	Grey Dogwood	50cm Ht. Potted	
Cs	26	<i>Cornus sericea</i>	Red Osier Dogwood	50cm Ht. Potted	
Cam	37	<i>Corylus americana</i>	American Hazelnut	80cm Ht. Potted	
Ra	59	<i>Rubus allegheniensis</i>	Alleghany Blackberry	50cm Ht. Potted	
Sd	11	<i>Salix discolor</i>	Pussy Willow	60cm Ht. Potted	

SEED MIX 1 - SEED @ 2.5g/m<sup>2</sup>

Woodland Native Seed Mixture (OSC Seeds 8275)

KEY	%	BOTANICAL NAME	COMMON NAME	QTY (m <sup>2</sup> )
	50	<i>Poa palustris</i>	Fowl Bluegrass	2,234
	30	<i>Desmodium canadense</i>	Showy Tick Trefoil	
	10	<i>Penstemon digitalis</i>	Foxglove Beardtongue	
	5	<i>Geum canadense</i>	White Avens	
	2	<i>Canada Anemone</i>	Anemone canadensis	
	1	<i>Glyceria striata</i>	Fowl Mannagrass	
	1	<i>Carex crinita</i>	Nodding/Fringed Sedge	
	1	<i>Eupatorium maculatum</i>	Spotted Joe Pye Weed	
COVER CROP				
Annual Rye Seed 22-25 kg/ha				



- KEY MAP, NTS
- L-1 GENERAL NOTES
1. All general site information and conditions compiled from architect's and engineer's plans and surveys.
  2. Do not scale this drawing.
  3. Report any discrepancies prior to commencing work. No responsibility is born by the Landscape Architect for unknown subsurface conditions.
  4. Reinstatement all areas and items damaged as a result of construction activities to the satisfaction of the Landscape Architect.
  5. Drawing may not be used for construction until signed by Landscape Architect as issued for construction.
  6. The accuracy of the position of utilities is not guaranteed.
  7. Individual utility co. must be contacted for confirmation of utility existence and location prior to digging.
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3	2020/05/01	ISSUED FOR 66% REVIEW
2	2020/04/10	ISSUED FOR NCC REVIEW
1	2019/12/17	ISSUED FOR REVIEW

NO. DATE DESCRIPTION

SEAL: NORTH:

LASHLEY + ASSOCIATES

LANDSCAPE ARCHITECTURE AND SITE ENGINEERING

200-200 GLADSTONE AVENUE  
OTTAWA, ON K1T 4G6  
T 613 233 8570  
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W LashleyA.com  
E MLashleyA.com

CONSULTANT:

PROJECT:

ANDREW FLECK  
FOREST AND NATURE SCHOOL  
411 CORKSTOWN ROAD  
KANATA, ONTARIO

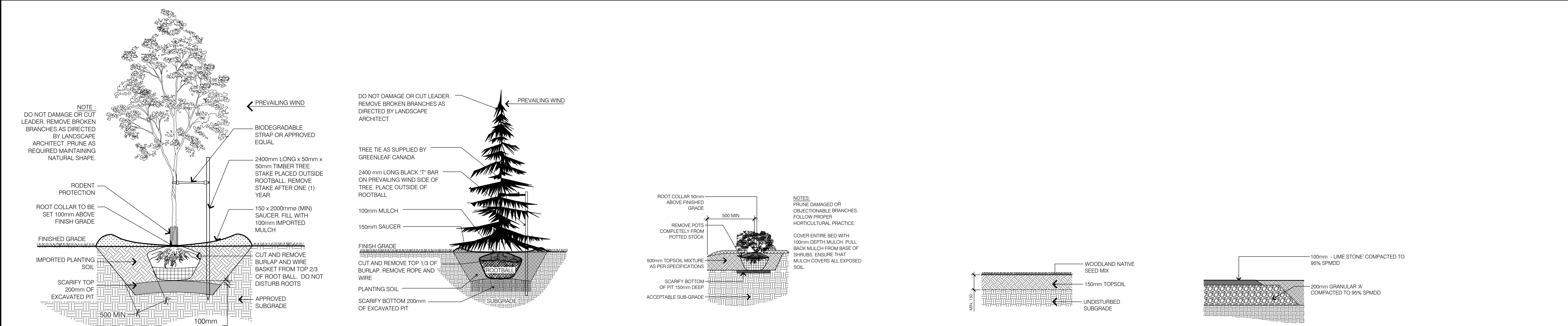
DRAWING TITLE:

LANDSCAPE PLAN

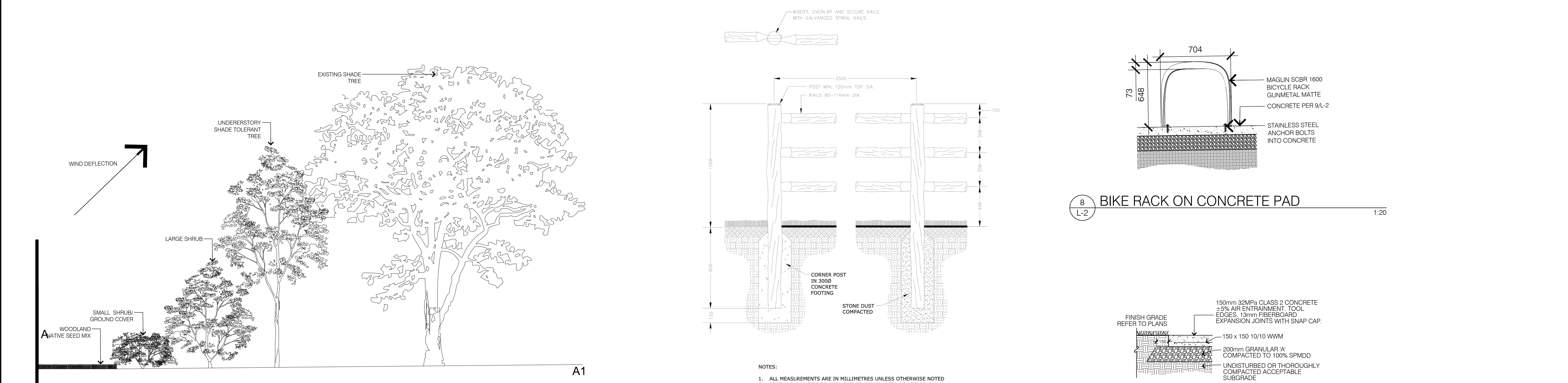
DATE: 2020/04/10  
SCALE: AS NOTED  
DRAWN BY: EL  
LA PROJECT NO. 19742-1

DRAWING NO.: L-1





1 DECIDUOUS TREE PLANTING 1:35 2 CONIFEROUS TREE PLANTING 1:35 3 SHRUB PLANTING 1:35 4 WOODLAND NATIVE SEEDING 1:20 5 CRUSHED LIME STONE 1:20



6 CROSS SECTION OF PLANTING GRADATION 1:45 7 POST AND RAIL FENCE N.T.S. 8 BIKE RACK ON CONCRETE PAD 1:20 9 CONCRETE PAD 1:20



- L-2 GENERAL NOTES**
- All general site information and conditions complied from architect's and engineer's plans and surveys.
  - Do not scale this drawing.
  - Report any discrepancies prior to commencing work. No responsibility is born by the Landscape Architect for unknown subsurface conditions.
  - Reinstate all areas and items damaged as a result of construction activities to the satisfaction of the Landscape Architect.
  - Drawing may not be used for construction until signed by Landscape Architect as issued for construction.
  - The accuracy of the position of utilities is not guaranteed.
  - Individual utility co. must be contacted for confirmation of utility existence and location prior to digging.
  - This drawing is an instrument of service and requires the permission of the Landscape Architect, David M. Lashley, is reserved by the Landscape Architect, David M. Lashley.

- L-2 LANDSCAPE NOTES**
- Plant material shall be No. 1 Grade and shall comply with the Metric Guide Specifications for Nursery stock (latest edition), published by Canadian Nursery Trades Association.
  - Plant substitutions shall not be permitted unless approved by the Landscape Architect.
  - Obtain approval of planting prior to digging.
  - Topsoil shall be garden soil mixture sandy loam with min. 5% organic matter and peat moss added at ratio of 1:10, topsoil to be approved by Landscape Architect.

3	2020/05/01	ISSUED FOR 66% REVIEW
2	2020/04/10	ISSUED FOR NCC REVIEW
1	2019/12/17	ISSUED FOR REVIEW

NO.	DATE	DESCRIPTION
SEAL:		NORTH:

**LASHLEY + ASSOCIATES**  
LANDSCAPE ARCHITECTURE  
AND SITE ENGINEERING  
205-200 GLADSTONE AVENUE  
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**CONSULTANT:**

**PROJECT:**

**ANDREW FLECK**  
**FOREST AND NATURE SCHOOL**  
411 CORKSTOWN ROAD  
KANATA, ONTARIO

**DRAWING TITLE:**

DETAILPLAN

<b>DATE:</b>	2020/04/10	<b>DRAWING NO.:</b>	
<b>SCALE:</b>	AS NOTED		
<b>DRAWN BY:</b>	EL		
<b>LA PROJECT NO.</b>	19742-1		

**L-2**





## **APPENDIX D**

### Butternut Health Assessment (Lashley)



19 November 2019

File No. 19742-1

CSV Architects  
100 - 190 O'Connor Street  
Ottawa Ontario  
K2P 2R3

Attention: Jessie Smith, Principal  
OAA, M.Arch, MRAIC, LEED®AP BD+C, GGP

Re: Butternut Health Assessment Report 728742  
Proposed Andrew Fleck Forest School Development

Dear Jessie,

A single butternut tree was identified within the proposed development area for the Andrew Fleck Forest School site. A Butternut Health Assessment was performed on August 29<sup>th</sup>, 2019 and the full Butternut Health Assessment report has been attached, following the required template by the Ministry of Natural Resources and Forestry. Photos of the Butternut tree are also attached.

If you require clarification or have any questions regarding this assessment, please contact me.

Regards,

LASHLEY + Associates Corporation

Ryan Paliga  
Landscape Architect + Arborist  
Butternut Health Assessor #728

Enclosures:

1. Information from the Ministry of Natural Resources and Forestry about Butternut and the *Endangered Species Act, 2007*
2. Butternut Health Assessor's Report
3. Original data forms
4. Electronic and printed copies of the Excel data spreadsheet (BHA Tree Analysis)

202 950 GLADSTONE AVENUE  
OTTAWA, ON K1Y 3E6

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F 613 233 4051

W LashleyLA.com  
E Mail@LashleyLA.com



The enclosed Butternut Health Assessor's Report documents the results of the Butternut health assessment that was conducted by the designated Butternut Health Assessor (BHA) identified in the top section of the report. If there are other Butternut trees (of any size or age) at the site that may be affected by the activity and they are not identified in the enclosed BHA Report, they too must be assessed by a designated BHA.

Butternut is listed as an endangered species on the Species at Risk in Ontario List, and as such, it is protected under the *Endangered Species Act, 2007* (ESA) from being killed, harmed, or removed. If you are planning to undertake an activity that may affect Butternut, you may be eligible to follow the requirements set out in section 23.7 of Ontario Regulation 242/08 under the ESA, or you may need to seek an authorization under the ESA (e.g., a permit).

Please visit e-laws at the link provided below for the legal requirements of eligible activities under section 23.7 of Ontario Regulation 242/08 and conditions that must be fulfilled. Information about Butternut is also available at: <http://www.ontario.ca/environment-and-energy/butternut-trees-your-property>.

If you are eligible to kill, harm or take Butternut under section 23.7 of the regulation, your first step is to submit the BHA Report and the original data forms enclosed in this package to the local Ministry of Natural Resources and Forestry (MNRF) District Manager. Note that MNRF cannot accept photocopies or scanned electronic copies of the data forms.

#### **Note regarding changes:**

If the enclosed BHA Report does not identify which Butternut tree(s) are proposed to be killed, harmed, or taken in Table 1 (i.e., if "unknown" is indicated in the second last column of Table 1), or, if the information in the last two columns of Table 1 has changed since the date this BHA Report was produced, **do not make any edits to the BHA Report**. Instead, please attach a cover letter that identifies which Butternut tree(s) are proposed to be killed, harmed, or taken (by referencing the tree identification numbers) when you submit the enclosed BHA Report to the local MNRF District Manager.

The BHA Report must be submitted at least 30 days prior to registering an eligible activity to kill, harm, or remove a Butternut tree. During this 30 day period, no Butternut trees (of any category) may be killed, harmed, or removed, and MNRF may contact you for an opportunity to examine the trees. If MNRF chooses to examine the trees, a representative of MNRF will contact you using the information you supplied when you submitted the BHA Report.

If you are eligible to follow the rules in regulation under section 23.7, you may register your activity using the “Notice of Butternut Impact” form on the [MNRF Registry](#) **after the 30 day period has elapsed.**

If you are **not** eligible to follow the rules in regulation under section 23.7, please contact the local MNRF district office to determine whether you will need to seek an authorization (e.g., a permit). A link to the directory of MNRF offices is provided below.

Note that municipal by-laws and legislation other than the ESA may also be applicable to the removal or harming of trees.

Please retain this information and a copy of the BHA Report (including copies of all data forms) for your records, along with any other documentation you may receive from MNRF should an examination of the trees occur. If you have any questions, please contact your local MNRF district office.

**Links:**

*Endangered Species Act, 2007:*

[http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_07e06\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_07e06_e.htm)

*Ontario Regulation 242/08 (refer to section 23.7):*

[http://www.e-laws.gov.on.ca/html/regs/english/elaws\\_regs\\_080242\\_e.htm](http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_080242_e.htm)

MNRF Office Locations:

<https://www.ontario.ca/government/ministry-natural-resources-and-forestry-regional-and-district-offices>

## Butternut Health Assessor's Report Number: 728742

Ryan Paliga, BHA Number 728  
202 – 950 Gladstone Avenue  
Ottawa, Ontario  
K1Y 3E6  
613-233-8579;110  
rpaliga@lashleyla.com

CSV Architects  
100-190 O'Connor Street  
Ottawa, Ontario  
K2P 2R3  
613-564-8118  
info@csv.ca

Site location: 411 Corkstown Road, Ottawa, Ontario

Date(s) of Butternut health assessment: August 29, 2019

Date BHA Report prepared: November 18, 2019

Map datum used: X NAD83 ☐ WGS84

Total number of trees assessed in this BHA Report: 1

The assessed trees were numbered on site using White Paint. The numbers at the site correspond to the tree numbers referenced in this report.

This BHA Report includes the following tables:

- Table 1: Butternut Trees Assessed
- Table 2: Trees Determined by BHA to be Butternut Hybrids
- Table 3: Summary of Assessment Results

*Note to BHAs: add/remove table rows as necessary*

Table 1: Butternut Trees Assessed

Tree #	UTM coordinates	Category <sup>1</sup> (1, 2, or 3 <sup>2</sup> )	dbh <sup>3</sup> (cm)	Cultivated? (Y/N)	Proposed to be: (enter one: unknown <sup>4</sup> , killed, harmed or taken)	If tree is proposed to be killed, harmed, or taken, indicate reason tree is proposed to be killed, harmed or taken:
1	18 431964 5019971	1	15	N	Killed	Sewer Connection

<sup>1</sup> The extent to which the tree is affected by Butternut Canker is presented in the Excel document titled, "BHA Tree Analysis" that accompanies this BHA Report.

<sup>2</sup> Category 3 trees are not eligible to be killed, harmed or taken under section 23.7 of Ontario Regulation 242/08.

<sup>3</sup> dbh: diameter at breast height, rounded to nearest cm (if tree is shorter than breast height, enter zero)

<sup>4</sup> In this column, "unknown" indicates that at the time of assessment, there are no proposals to kill, harm or take this tree that are known to the BHA.

Tree #	UTM coordinates	Category <sup>1</sup> (1, 2, or 3 <sup>2</sup> )	dbh <sup>3</sup> (cm)	Cultivated? (Y/N)	Proposed to be: (enter one: unknown <sup>4</sup> , killed, harmed or taken)	If tree is proposed to be killed, harmed, or taken, indicate reason tree is proposed to be killed, harmed or taken:

Table 2: Trees Determined by BHA to be Butternut Hybrids

Tree #	UTM coordinates	Method used (genetic testing or field identification):
0	None	

Table 3: Summary of Assessment Results

Result:	Total #:	Important information for persons planning activities that may affect Butternut:
Category 1	1	<ul style="list-style-type: none"> <li>A Category 1 tree is one that is affected by butternut canker to such an advanced degree that retaining the tree would not support the protection or recovery of butternut in the area in which the tree is located; and is considered “non-retainable”.</li> <li>During the 30 day period that follows your submission of this BHA Report to the MNRF District Manager, no Butternut trees (of Category 1, 2, or 3) may be killed, harmed, or taken, and MNRF may contact you for an opportunity to examine the trees.</li> <li>Category 1 trees may be killed, harmed or taken <b>after</b> the 30 day period that follows submission of this BHA Report to the MNRF District Manager, unless the results of an MNRF examination indicate that the assessment has not been conducted in accordance with the document entitled “Butternut Assessment Guidelines: Assessment of Butternut Tree Health for the Purposes of the <i>Endangered Species Act, 2007</i>”.</li> </ul>
Category 2	0	<ul style="list-style-type: none"> <li>A Category 2 tree is one that is not affected by Butternut Canker, or is affected by Butternut Canker but the degree to which it is affected is not too advanced and retaining the tree could support the protection or recovery of butternut in the area in which the tree is located, and is considered “retainable”.</li> <li>During the 30 day period that follows your submission of this BHA Report to the MNRF District Manager, no Butternut trees (of Category 1, 2, or 3) may be killed, harmed, or taken, and MNRF may contact you for an opportunity to examine the trees.</li> <li>Activities that may kill, harm or take up to a <b>maximum of ten (10)</b> Category 2 trees may be eligible to follow the rules in section 23.7 of Ontario Regulation 242/08, in accordance with the conditions and requirements set out in the regulation.</li> </ul>

Result:	Total #:	Important information for persons planning activities that may affect Butternut:
		<ul style="list-style-type: none"> <li>Refer to e-Laws for the legal requirements of eligible activities under section 23.7 of Ontario Regulation 242/08 and conditions that must be fulfilled: <a href="http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_080242_e.htm">http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_080242_e.htm</a></li> <li>Activities that may kill, harm or take more than ten (10) Category 2 trees are not eligible to follow the rules in section 23.7 of Ontario Regulation 242/08. Contact the local MNRF district office for information on how to seek an ESA authorization (e.g., a permit) or consider an alternative that would be eligible for the regulation.</li> </ul>
Category 3	0	<ul style="list-style-type: none"> <li>A Category 3 tree is one that may be useful in determining sources of resistance to Butternut Canker, and is considered "archivable".</li> <li>Category 3 trees are not eligible to be killed, harmed or taken under section 23.7 of Ontario Regulation 242/08.</li> <li>Contact the local MNRF district office for information on how to seek an ESA authorization, or consider an alternative that will avoid killing, harming or taking any Category 3 trees.</li> </ul>
Cultivated	0	<ul style="list-style-type: none"> <li>An activity that involves killing, harming, or taking a cultivated Butternut tree that was not required to be planted to fulfill a condition of an ESA permit or a condition of a regulation, may be eligible for the exemption provided by subsection 23.7 (11) of O. Reg. 242/08.</li> <li>Prior to undertaking the activity, the owner or occupier of the land on which the Butternut is located (or person acting on their behalf) will need to determine whether the exemption for cultivated trees is applicable by determining whether or not the tree was cultivated as a result of the requirements for an exemption under O. Reg. 242/08 or a condition of a permit issued under the ESA. This information can be accessed by contacting the local MNRF district office.</li> <li>The owner or occupier of the land on which the Butternut is located (or person acting on their behalf) is encouraged to append the details regarding whether the tree was planted to satisfy a requirement (e.g., the permit number or registration number) to this BHA Report for their records.</li> </ul>
Hybrid	0	<ul style="list-style-type: none"> <li>Hybrid Butternut trees are not protected under the ESA, but their removal may be subject to municipal by-laws and other legislation.</li> </ul>

#### Butternut Health Assessor's Comments:

*Only 1 Butternut was identified in the subject area, although others are known on the extensive site.*

This concludes the summary of the BHA Report. A complete BHA Report must also include:

1. All original (hard copy) data forms (i.e., all completed sets of Form 1 and Form 2), and
2. Electronic and printed copies of the Excel data analysis spreadsheet.

0cm

3cm

15cm

## Butternut Data Collection Form 1 - 2010 Edition

Surveyor ID  
or BHA # 0728

(PLEASE USE BLOCK LETTERS)

Date (dd/mm/yyyy)

29 - 08 - 2019

Shaded fields are mandatory for Butternut Health Assessments

Surveyor  
Contact

First

RYAN

Last

PALIGA

Email

rpaliga@Lashleyla.com

Telephone ( ) ( ) ( ) ( ) ( ) ( )

Telephone Other ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )

(613) 233-8579 x110

Property  
Owner

First

Last

or Company

NATIONAL CAPITAL COMMISSION

Email

Christopher.hetherington@ncc-ccn.ca

Telephone ( ) ( ) ( ) ( ) ( ) ( )

Telephone Other ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )

(613) 239-5678 x5619

Property Owner's Mailing address

Address

202 40' ELGIN STREET

Postal Code

K1P1C7

Prov.

ON

City

OTTAWA

Tree Location (if different from mailing address)

Address/(911#)

411 CORKSTOWN ROAD

Township

Lot

Con

City

OTTAWA

Directions

OFF CORKSTOWN ROAD, NORTH ON WESLEY CLOVER ENTRANCE ROAD. AFTER ENTRANCE: EXIT  
DRIVES MERGE 10m TO LEFT IN BUSH.
☒ Yes ☐ No Can Share Location Information with other Butternut Recovery Organizations?  
☒ Yes ☐ No Site visits OK? (prior arrangements will always be made for a site visit)

 > (Greater than)  
 < (Less than)

## Butternut Trees Tally by Diameter Class

(Do a dot tally in blank space; write total# in box for each)

Tree Condition	< 3 cm	3-15 cm	16-30cm	>30 cm
Vigorous: > 50% Live Crown Minor or no cankers	00	01	00	00
Poor Vigor: <50% Live Crown or >50% Live Crown + heavily cankered stem	00	00	00	00
Dead	00	00	00	00

Historically, do some trees produce seeds? ☐ Y ☐ N ☒ UnknownEstimated area containing butternut  
for properties > 1 acre (0.4 hectares): ☐ Acres ☐ HectaresOverall Property Description  
(area(s) containing Butternut)

- ☐ Rolling Upland ☐ Bottomland  
☐ Valley Slope ☐ Variable  
☒ Tableland ☐ Unknown

## Vegetation Community/ies

- ☐ Open ☐ Fencerow  
☐ Shrubland ☐ Roadside  
☐ Deciduous Forest ☐ Quarry  
☐ Conifer Forest ☐ Urban Yard  
☒ Mixed Forest ☐ Urban Park

Other

## Soil Drainage

- ☒ Well Drained  
☐ Moderately Drained  
☐ Poorly Drained  
☐ Unknown

## Soil Texture

- ☐ Clay ☐ Sand  
☐ Clay Loam ☒ Variable  
☐ Loam ☐ Unknown  
☐ Loamy Sand

## Soil Depth

- ☐ > 1metre  
☐ 30 - 99cm  
☐ < 30cm  
☐ Variable  
☒ Unknown

Please enter matching numerical page link code on forms 1 and 2

Page Link

431964

(Contact information follows all applicable  
privacy policies and guidelines)
 Please return forms to:  
 Forest Gene Conservation Association  
 Suite 233, 266 Charlotte St.  
 Peterborough, ON, K9J 2V4  
 www.fgca.net

49731



Fill when Form 1 indicates canker is well  
established. The information on Form 2  
must be filled out for all trees when doing a  
Butternut Health Assessment

**Shaded fields are mandatory for Butternut Health Assessments**

Site Code(A,B,...Z, AA...)

Surveyor ID  
or BHA # 0728

Date (dd/mm/yyyy)

29 - 08 - 2019

Surveyor Last Name PALIGA

Tree ID Numbering: 1,2,3,...Starting from 1 for each site

Tree # Zone Easting Northing  
001 1 843 1964 5019971

Crown Class 070 Live Crown % 07 Main Stem Length(m)  
Below crown Seed  
☒ Twig Dieback ☒ Branch Dieback 1 #Stems  
☐ Defoliation 015 DBH(cm)  
☐ Discolouration Butternut  
☒ Natural ☐ Planted ☐ Unknown ☐ Male Flowers  
☐ Female Flowers ☐ Seed Set ☒ None

Assess below live crown  
#Epic-Live 00 #Epic-Dead 00  
Bark Type S # Callused Wounds 00  
Root #Open #Sooty  
=<2m 00 00  
>2m 00 00

Metres from badly cankered tree  
☐ < 40 ☐ > 40 ☐ None Found

Competing Species  
PwMrp  
Hpor

UN-HEALED, SOOTY BRANCH SCAR ; ROT ASSESSED IN BUTTERESS ROOT (SEE PHOTOS)

Tree # Zone Easting Northing  
1

Crown Class Live Crown % Main Stem Length(m)  
Below crown Seed  
☐ Twig Dieback ☐ Branch Dieback #Stems  
☐ Defoliation DBH(cm)  
☐ Discolouration Butternut  
☐ Natural ☐ Planted ☐ Unknown ☐ Male Flowers  
☐ Female Flowers ☐ Seed Set ☐ None

Assess below live crown  
#Epic-Live #Epic-Dead  
Bark Type # Callused Wounds  
Root #Open #Sooty  
=<2m  
>2m

Metres from badly cankered tree  
☐ < 40 ☐ > 40 ☐ None Found

Competing Species

Tree # Zone Easting Northing  
1

Crown Class Live Crown % Main Stem Length(m)  
Below crown Seed  
☐ Twig Dieback ☐ Branch Dieback #Stems  
☐ Defoliation DBH(cm)  
☐ Discolouration Butternut  
☐ Natural ☐ Planted ☐ Unknown ☐ Male Flowers  
☐ Female Flowers ☐ Seed Set ☐ None

Assess below live crown  
#Epic-Live #Epic-Dead  
Bark Type # Callused Wounds  
Root #Open #Sooty  
=<2m  
>2m

Metres from badly cankered tree  
☐ < 40 ☐ > 40 ☐ None Found

Competing Species

Tree # Zone Easting Northing  
1

Crown Class Live Crown % Main Stem Length(m)  
Below crown Seed  
☐ Twig Dieback ☐ Branch Dieback #Stems  
☐ Defoliation DBH(cm)  
☐ Discolouration Butternut  
☐ Natural ☐ Planted ☐ Unknown ☐ Male Flowers  
☐ Female Flowers ☐ Seed Set ☐ None

Assess below live crown  
#Epic-Live #Epic-Dead  
Bark Type # Callused Wounds  
Root #Open #Sooty  
=<2m  
>2m

Metres from badly cankered tree  
☐ < 40 ☐ > 40 ☐ None Found

Competing Species

Tree # Zone Easting Northing  
1

Crown Class Live Crown % Main Stem Length(m)  
Below crown Seed  
☐ Twig Dieback ☐ Branch Dieback #Stems  
☐ Defoliation DBH(cm)  
☐ Discolouration Butternut  
☐ Natural ☐ Planted ☐ Unknown ☐ Male Flowers  
☐ Female Flowers ☐ Seed Set ☐ None

Assess below live crown  
#Epic-Live #Epic-Dead  
Bark Type # Callused Wounds  
Root #Open #Sooty  
=<2m  
>2m

Metres from badly cankered tree  
☐ < 40 ☐ > 40 ☐ None Found

Competing Species

Please enter matching page link code on forms 1 and 2

Page Link

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(Contact information follows all applicable  
privacy policies and guidelines)

Please return forms to:  
Forest Gene Conservation Association  
Suite 233, 266 Charlotte St.  
Peterborough, ON, K9J 2V4  
www.fgca.net

49731

This table is to be completed by a designated Butternut Health Assessor (BHA).

BHA Report #		728742		Assessment Date(s)		29-Aug-19										Total # Butternut Trees in BHA Report				
BHA ID #		728		BHA Name		Ryan Paliga														
Landowner / Client Name																				
Property Location				411 Corkstown Road, Ottawa																
input field data										automatic calculations from field data							Categories: 1: non-retainable, 2: retainable, 3: archivable			
Tree #	Live Crown %	Tree dbh (cm)	# bole cankers				# root flare (RF) cankers		# of cankered tree? (Y or N)	Circ. (cm) = Pi x dbh	total bole canker width (sooty x 2.5 + open x 5)	total RF canker width (sooty x 2.5 + open x 5)	bole canker % of circ.	RF canker % of circ.	total bole & root canker % of 2xCirc					
			S ≤2 m	S >2 m	O ≤2 m	O >2 m										RF S	RF O	Circ (cm)	BC (cm)	RC (cm)
1	70	15	1	0	0	0	0	0	N	47.1	2.5	0.0	5.3	0.0	2.7	1	1	1	1	
2										0	0.0	0.0	#####	#####	#####	####	####	###	##	
3										0	0.0	0.0	#####	#####	#####	####	####	###	##	
4										0	0.0	0.0	#####	#####	#####	####	####	###	##	
5										0	0.0	0.0	#####	#####	#####	####	####	###	##	
6										0	0.0	0.0	#####	#####	#####	####	####	###	##	
7										0	0.0	0.0	#####	#####	#####	####	####	###	##	
8										0	0.0	0.0	#####	#####	#####	####	####	###	##	
9										0	0.0	0.0	#####	#####	#####	####	####	###	##	
10										0	0.0	0.0	#####	#####	#####	####	####	###	##	
11										0	0.0	0.0	#####	#####	#####	####	####	###	##	
12										0	0.0	0.0	#####	#####	#####	####	####	###	##	
13										0	0.0	0.0	#####	#####	#####	####	####	###	##	
14										0	0.0	0.0	#####	#####	#####	####	####	###	##	
15										0	0.0	0.0	#####	#####	#####	####	####	###	##	
16										0	0.0	0.0	#####	#####	#####	####	####	###	##	
17										0	0.0	0.0	#####	#####	#####	####	####	###	##	
18										0	0.0	0.0	#####	#####	#####	####	####	###	##	
19										0	0.0	0.0	#####	#####	#####	####	####	###	##	
20										0	0.0	0.0	#####	#####	#####	####	####	###	##	
21										0	0.0	0.0	#####	#####	#####	####	####	###	##	
22										0	0.0	0.0	#####	#####	#####	####	####	###	##	
23										0	0.0	0.0	#####	#####	#####	####	####	###	##	
24										0	0.0	0.0	#####	#####	#####	####	####	###	##	
25										0	0.0	0.0	#####	#####	#####	####	####	###	##	
26										0	0.0	0.0	#####	#####	#####	####	####	###	##	
27										0	0.0	0.0	#####	#####	#####	####	####	###	##	
28										0	0.0	0.0	#####	#####	#####	####	####	###	##	
29										0	0.0	0.0	#####	#####	#####	####	####	###	##	
30										0	0.0	0.0	#####	#####	#####	####	####	###	##	
31										0	0.0	0.0	#####	#####	#####	####	####	###	##	
32										0	0.0	0.0	#####	#####	#####	####	####	###	##	
33										0	0.0	0.0	#####	#####	#####	####	####	###	##	



*Figure 1: Butternut trunk showing some rot at root flare*



*Figure 2: Sooty canker <2m*





*Figure 3: Un-healed branch union showing internal rot*



*Figure 4: Crown*



## **APPENDIX E**

### Report Summary Tables

**TABLE E.1**  
**SUMMARY OF WILDLIFE OBSERVED ON-SITE AND WITHIN THE STUDY AREA**

Common Name	Scientific Name	S-Rank	Evidence
<b>Avian Species</b>			
American crow	<i>Corvus brachyrhynchos</i>	S5B	Heard calling
American goldfinch	<i>Spinus tristis</i>	S5B	Heard calling
American robin	<i>Turdus migratorius</i>	S5B	Heard calling
Black-capped chickadee	<i>Poecile atricapillus</i>	S5	Heard calling
Blue jay	<i>Cyanocitta crsitata</i>	S5	Heard calling
Eastern phoebe	<i>Sayornis phoebe</i>	S5B	Heard calling
Eastern wood-pewee	<i>Contopus virens</i>	S4B	Heard calling
Great crested flycatcher	<i>Myiarchus crinitus</i>	S4B	Heard calling
Red eyed vireo	<i>Vireo olivaceus</i>	S5B	Heard calling
Veery	<i>Catharus fuscenscens</i>	S4B	Heard calling
<b>Amphibian Species</b>			
Spring peeper	<i>Pseudacris crucifer</i>	S5	Heard calling
<b>Reptilian Species</b>			
Eastern gartersnake	<i>Thamnophis sirtalis sirtalis</i>	S5	Observed basking on-site

Notes:

Subnational Conservation Status Ranks:

S1 - Critically Impedriled, at very high risk of extirpation, very few populations or occurences or very steep population decline

S2 - Imperiled, at high risk of extirpation, few populations or occurences or steep population decline

S3 - Vulnerable, at moderate risk of extirpation, relatively few populations or occurences, recent and widespread population decline

S4 - Apparently Secure, at a failly low risk of extirpation, many populations or occurences, some concern for local population decline

S5 - Secure, at very low or no risk of extirpation, abundant populations or occurrences, little to no concern for population decline

Qualifiers:

S#B - Conservation status refers to the breeding population of the species

S#N -Conservation status referes to the non-breeding population of the species

S#M - Migrant species, conservation status refers to the aggregating transient population of the species

**TABLE E.2**  
**SCREENING RATIONALE FOR SIGNIFICANT WOODLANDS**

Woodland Criteria	Further Considered in EIS	Rationale
Woodland Size	Yes	Woodland's on-site are contiguous with off-site woodlands that are larger than 50 ha.
Ecological Functions		
a) Woodland Interior	Yes	Woodlands on-site provide more than 8 hectares of interior habitat.
b) Proximity	No	Woodland's on-site are not proximate to any other natural heritage features.
c) Linkages	No	Woodland's on-site do not provide a linkage between other natural heritage features.
d) Water Protection	No	Woodland's on-site do not meet minimum size criteria.
e) Diversity	No	Woodland's on-site do not meet minimum size criteria.
Uncommon Characteristics	No	Woodland's on-site do not meet minimum size criteria.
Economical and Social Functional Values	No	Woodland's on-site do not meet minimum size criteria.

**TABLE E.3**  
**SCREENING RATIONALE FOR HABITATS OF SEASONAL CONCENTRATION OF ANIMALS**

Wildlife Habitat	Further Considered in EIS	Rationale
Winter Deer Yard	No	No significant stands of mast producing trees, no large coniferous forest stands on-site to provide protection and cover from winter elements.
Colonial Bird Nesting Habitat	No	No suitable habitat located on-site or within the study area to support colonial bird nesting (i.e. no eroding banks, cliff faces, sandy hills, swamps, rocky islands/peninsula, etc.).
Waterfowl Stopover and Staging Areas	No	No suitable habitat located on-site or within the study area to meet the defining use criteria for waterfowl use (i.e. no fields with sheet water).
Shorebird Migratory Stopover Area	No	Shorebird stopover sites are typically well-known and have a long history of use. The site does not contain suitable shoreline habitat for shorebird foraging.
Raptor Wintering Area	No	The site does not contain a suitable mix of forest and upland habitat to meet the defining use criteria for raptor wintering.
Bat Hibernacula	No	Cave and crevice habitat is not present on-site or within the study area.
Bat Maternity Colonies	No	Woodlands on-site do not meet the minimum density requirements to provide suitable habitat for bat maternity colonies.
Turtle Wintering Area	No	No suitable wetlands or waterbodies are present to support turtle wintering and provide protection from winter conditions.
Reptile Hibernaculum	No	No structures such as large rock piles, bedrock outcrops, crevices or other karstic features have been identified on-site.
Migratory Butterfly Stopover Area	No	The site is not located within 5 km of Lake Ontario and therefore does not meet the defining criteria.
Landbird Migratory Stopover Area	No	The site is not located within 5 km of Lake Ontario and therefore does not meet the defining criteria.



**TABLE E.4**  
**SCREENING RATIONALE FOR SPECIALIZED WILDLIFE HABITATS**

Specialized Wildlife Habitat	Further Considered in EIS	Rationale
Waterfowl Nesting Area	No	The site lacks suitable upland habitat adjacent to wetlands necessary to support waterfowl nesting.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	No	The site lacks suitable forest community adjacent to a riparian area to support nesting, foraging and perching habitat for Bald Eagle and Osprey.
Woodland Nesting Raptor Habitat	No	No suitable forested habitat has been identified on-site.
Turtle Nesting Habitat	No	Vegetation and soil on-site does not provide suitable nesting habitat for turtles.
Seeps and Springs	No	No seeps or spring were identified on-site during the site investigations.
Woodland Amphibian Breeding Habitat	Yes	Vernal pooling within the woodlands on-site may provide suitable woodland amphibian breeding habitat.
Wetland Amphibian Breeding Habitat	No	No suitable wetland habitat has been identified on-site to support wetland amphibian breeding habitat.
Woodland Area-Sensitive Bird Breeding habitat	No	No woodlands of adequate size occur on-site to support woodland area-sensitive bird breeding habitat. Needs large mature forest > 30 ha, with interior habitat at least 200 m from forest edge

**TABLE E.5**  
**SCREENING RATIONALE FOR HABITAT FOR SPECIES OF CONSERVATION CONCERN**

General Habitats of Species of Conservation Concern	Further Considered in EIS	Rationale
Marsh Breeding Bird Habitat	No	No suitable wetlands have been identified on-site or adjacent to site to support marsh breeding bird habitat.
Open Country Breeding Bird Habitat	No	No suitable meadow habitat on-site to support open country bird breeding.
Shrub/Early Successional Breeding Bird Habitat	No	No suitable habitat on-site to support shrub/early successional breeding bird habitat.
Terrestrial Crayfish Habitat	No	Terrestrial crayfish are only found within southwestern Ontario (MNRF, 2012).
Special Concern and Rare Wildlife Species	Yes	Eastern wood-pewee, a species of special concern was observed calling on-site during the site investigations. No other species of special concern or rare wildlife species were observed during the site investigations. No other species of special concern or rare wildlife have been documented on-site according to NHIC occurrence data.

**TABLE E.6**  
**SCREENING RATIONALE FOR ANIMAL MOVEMENT COORIDORS**

Animal Movement Cooridor	Further Considered in EIS	Rationale
Amphibian Movement Cooridor	No	No wetland or woodland amphibian breeding habitat has been identified on-site or within the study area.
Deer Movement Cooridor	No	Deer movement cooridors have not been identified on-site.

**TABLE E.7**  
**SCREENING RATIONALE FOR POTENTIAL SPECIES AT RISK ON-SITE OR WITHIN STUDY AREA**

Species	ESA Status	SARA Status	Regional Distribution	Habitat Use	Probability of Occurrence On-Site or Within Study Area	Rationale
<b>Avian</b>						
Bald Eagle	Special Concern	Not Currently Listed	Confirmed nest at Shirley's bay since 2012.	Nest in mature forests near open water	Low	Site lacks suitable forest habitat adjacent to open water and foraging area to support Bald Eagle activity
Bank Swallow	Threatened	Threatened	12 confirmed, 2 probable and 8 possible nests in recent OBBA.	Colonial nester, burrows in eroding silt, to sand banks, sand pit walls, etc.	Low	No suitable nesting habitat located on-site or within study area. Preferred foraging field habitat is not located on-site.
Barn Swallow	Threatened	Threatened	33 confirmed, 2 probable, and 3 possible nests in recent OBBA.	Nests in barns and other semi-open structures. Forages over open fields and meadows.	Low	No suitable nesting habitat or structures located on-site. Potentially suitable nesting habitat/structures located within study area. Preferred foraging field habitat is not located on-site.
Bobolink	Threatened	Threatened	Widespread in the Ottawa region, confirmed and probable nests found in 39 or 40 local atlas squares during recent OBBA.	Nests in dense tall grass fields and meadows, low tolerance for woody vegetation.	Low	Potentially suitable grassland habitat adjacent to site in agricultural fields but no suitable tall grass habitat on-site to support Bobolink.
Canada Warbler	Special Concern	Threatened	1 confirmed, 2 probable, 6 possible nests during recent OBBA. No critical habitat identified in Ottawa region.	Prefers wet forests with dense shrub layers.	Low	Forest structure is unlikely to provide preferred habitat. Species was not observed or detected during any of the site investigations.
Cerulean Warbler	Threatened	Endangered	No nests reported during recent OBBA. SARO and SARA range maps both include parts of Ottawa.	Prefers mature deciduous forests.	Low	Forest composition is unlikely to provide preferred habitat. Species was not observed or detected during any of the site investigations.
Chimney Swift	Threatened	Threatened	3 confirmed, 2 probable and 11 possible nests in recent OBBA. No critical habitat identified in Ottawa.	Nests in traditional-style open brick chimneys.	Low	No suitable nesting habitat on-site to support chimney swift.
Common Nighthawk	Special Concern	Threatened	6 probable, 5 possible nests reported in recent OBBA. No critical habitat identified in Ottawa region.	Nests in a variety of open sites: beaches, fields, and gravel rooftops.	Low	Suitable habitat does not occur on-site.
Eastern Meadowlark	Threatened	Threatened	Sporadic occurrences in Ottawa region, more common in rural areas with pasture or fallow fields.	Nests and forages in dense tall grass fields and meadows, higher tolerance to woody vegetation.	Low	Potentially suitable grassland habitat adjacent to site in agricultural fields but no suitable tall grass habitat on-site to support Eastern Meadowlark.
Eastern Whip-poor-will	Threatened	Threatened	Primary breeding range located east, west and south of the Precambrian shield. 7 probable and 10 possible nests in recent OBBA. Critical habitat tentatively identified in 4 squares in western Ottawa.	Nests on the ground in open deciduous or mixed woodlands with little underbrush, and bedrock outcrops.	Low	No suitable woodland habitat occurs on-site or within study area.
Eastern Wood-Pewee	Special Concern	Special Concern	4 possible, 15 probable and 19 confirmed nests in recent OBBA for Ottawa area	Woodland species, often found near clearings and edge habitat.	High	Woodlands on-site provide suitable habitat for eastern wood-pewee. Eastern wood-pewee were observed calling during the during the site investigation.
Golden Eagle	Endangered	Not Currently Listed	Migrant only in the Ottawa area.	Nests on remote, bedrock cliffs overlooking large burns, lakes or tundra.	Low	Suitable nesting habitat does not occur on-site.
Golden-winged Warbler	Special Concern	Threatened	1 confirmed, 1 probable nest in recent OBBA. Critical habitat identified in Quebec, northeast of Ottawa.	Ground nesting, edge species. Breeds in successional scrub habitats surrounded by forests.	Low	Site is unlikely to provide suitable habitat for golden-winged warblers due to the lack of successional scrub habitat.
Grasshopper Sparrow	Special Concern	Special Concern	4 confirmed, 5 probable, 2 possible nests in recent OBBA	Area-sensitive grassland species, nests on ground	Low	Potentially suitable grassland habitat adjacent to site in agricultural fields but no suitable grassland habitat to support grasshopper sparrow nesting on-site.
Evening Grosbeak	Special Concern	Special Concern	5 confirmed, 6 probable, 8 possible nests in recent OBBA.	Nests in trees or large shrubs, preference to large coniferous forests, will use deciduous. Overwinters in Ottawa.	Moderate	Woodlands on-site may provide suitable habitat for evening grosbeak.
Henslow's Sparrow	Endangered	Endangered	No nests in recent OBBA	Prefers open, moist tallgrass fields.	Low	Potentially suitable grassland habitat adjacent to site in agricultural fields but no suitable grassland habitat to support Henslow's sparrow nesting on-site.
Loggerhead Shrike	Endangered	Endangered	1 possible nest in recent OBBA. Critical habitat in Montague Township, however no confirmed nests from MNRF since 2002, and the MNRF do not consider Ottawa to include any significant habitat	Prefers grazed pastures with short grass and scattered shrubs, especially hawthorn.	Low	Preferred pasture habitat and shrub vegetation does not occur on-site.
Olive-sided Flycatcher	Special Concern	Threatened	1 probable, 1 possible nest in recent OBBA.	Forest edge species, forages in open areas from high vantage points in rees.	Low	Site is unlikely to provide suitable habitat for olive-sided flycatcher due to lack of open areas for foraging.
Peregrine Falcon	Special Concern	Special Concern	1 confirmed nest in recent OBBA and second nest established in 2011 in the Ottawa downtown.	Nests on cliffs near water and on more anthropogenic structures such as tall buildings, bridges and smokestacks	Low	Site lacks suitable nesting structure for peregrine falcon
Red Knot	Endangered	Endangered	Migrant only, Ottawa River shores, area lagoons, etc.	Nests in the far north, shorelines and lagoons of the Ottawa River	Low	Site does not provide suitable habitat for migrant Red Knot
Red-headed Woodpecker	Special Concern	Threatened	1 confirmed, 1 probable and 1 possible during recent OBBA. Nesting pair reported from village of Constance Bay in recent years.	Prefers open deciduous woodlands.	Low	Mixed woodlands on-site do not provide preferred habitat and structure for nesting red-headed woodpeckers.
Rusty Blackbird	Special Concern	Special Concern	No nests in recent OBBA, primarily observed during migration	Wet wooded or shrubby areas (nests at edges of Boreal wetlands)	Low	Suitable habitat does not occur on-site
Short-eared Owl	Special Concern	Special Concern	1 confirmed, 2 probable, 2 possible nests in recent OBBA.	Ground nester, prefers open habitats: fields and marshes	Low	No suitable open field or open marsh habitat on-site.
Wood Thrush	Special Concern	Threatened	5 possible, 15 probable, and 16 confirmed nests in recent OBBA for Ottawa area.	Prefers deciduous or mixed woodlands.	Moderate	Woodlands on-site may provide suitable mixed woodlands to support wood thrush
<b>Mammalian</b>						
Eastern small-footed Myotis	Endangered	Not Listed	Rare throughout its range. Historical records in downtown Ottawa.	Roosts in rock crevices, barns and sheds. Overwinters in abandoned mines. Summer habitats are poorly understood in Ontario, elsewhere pregers to roost in open, sunny rocky habitat and occasionally in buildings (Humphrey, 2017).	Moderate	Potentially suitable anthropogenic structures adjacent to site. Woodlands are suitable in size and structure to support candidate maternity roost habitat.

**TABLE E.7**  
**SCREENING RATIONALE FOR POTENTIAL SPECIES AT RISK ON-SITE OR WITHIN STUDY AREA**

Little Brown Myotis	Endangered	Endangered	Various sites in central and western parts of the Ottawa area. No critical habitat (hibernacula) identified in Ottawa to date.	Maternal colonies known to use buildings, may also roost in trees during summer. Affinity towards anthropogenic structures for summer roosting habitat and exhibit high site fidelity (Environment Canada, 2015).	Moderate	Potentially suitable anthropogenic structures adjacent to site. Woodlands are suitable in size and structure to support candidate maternity roost habitat.
Northern myotis (Northern Long-eared Bat)	Endangered	Endangered	Historical records in downtown Ottawa, more recently in sites to east (Orleans, Clarence-Rockland). No critical habitat (hibernacula) identified in Ottawa to date. Ottawa and region is at southern most limit of range.	Occurs throughout eastern North America in associated with Boreal forests. Roosts mainly in trees, occasionally anthropogenic structures during summer (Environment Canada, 2015). Overwinters in caves and abandoned mines.	Low	Species affinity is for Boreal forests and species rarely roosts in anthropogenic structures.
Tri-colored Bat	Endangered	Endangered	Provincially Uncommon, only 26 documented occurrences in Ontario from pre-1980 to present (MNRF, 2016). Unknown distribution in Ottawa; historical records from sites in urban Ottawa and Lanark County.	Roosts in trees, rock crevices and occasionally buildings during summer. Overwinters in caves and mines.	Moderate	Potentially suitable anthropogenic structures adjacent to site. Woodlands are suitable in size and structure to support candidate maternity roost habitat.
<b>Amphibian</b>						
Western Chorus Frog	Not Listed	Threatened	Scattered throughout the western half of the city. Critical habitat identified in several atlas squares in western Ottawa.	Requires vernal pools for breeding.	High	Extensive vernal pooling within the woodlands on-site may provide suitable breeding habitat for western chorus frog. Critical breeding habitat, as defined in the WCF Recovery Strategy has been identified in the off-site wetland, northeast of the subject property. Vernal pooling on-site has been identified as providing critical dispersal habitat for WCF.
<b>Plants</b>						
Butternut	Endangered	Endangered	Range is confined to eastern and southern Ontario. Widespread in Ottawa and region.	Inhabits a wide range of habitats including upland and lowland deciduous and mixed forests.	High	Butternut were identified on-site and within the study area during the site investigations and tree inventory.
<b>Lichens</b>						
Flooded Jellyskin	Not at Risk	Threatened	Stony Swamp, Marlborough Forest	Seasonally flooded woodlands, deciduous swamps	Low	Preference is for vernal pooling and deciduous forests/swamps, mixed forests on-site is unlikely to provide suitable habitat
Pale-bellied Frost Lichen	Endangered	Endangered	Historical records in downtown , however locally extirpated. No critical or regulated habitat identified in Ottawa		Low	Species believed to be extirpated from the Ottawa area.
<b>Insects</b>						
Bogbean Buckmoth	Endangered	Endangered	Richmond Fen	Preferred food plant is bog bean, present in a variety of wetlands including bogs, swamps and fens.	Low	Preferred wetland habitat is not present on-site.
Gypsy Cuckoo Bumble Bee	Endangered	Endangered	Historic occurrences only. Range in Ontario uncertain.	Inhabits a wide range of habitats: open meadows, agricultural and urban areas, boreal forests and woodlands.	Low	Currently the only known population is in Pinery Provincial Park
Monarch Butterfly	Special Concern	Special Concern	Widespread in the Ottawa area	Caterpillars require milkweed plants confined to meadow and open areas. Adult butterflies use more diverse habitat with a variety of wildflowers	Low	No suitable foraging vegetation available for Monarch on-site.
Mottled Duskywing	Endangered	Not Currently Listed	Constance Bay area, Burnt Lands Alvar	Larval food plant (New Jersey Tea) found in sandy areas and alvars.	Low	Sandy areas and alvars not present in the study area.
Nine-spotted Lady Beetle	Endangered	Not Currently Listed	Historically present but no reports in Ontario since mid-1990s	Habitat generalist	Low	No recent occurrence reports in the area, thought to be locally extirpated
Rusty-patched Bumble Bee	Endangered	Endangered	Historic records in Ottawa and Gatineau	Habitat generalist	Low	Currently the only known population is in Pinery Provincial Park
Traverse Lady Beetle	Endangered	Special Concern	Unknown in Ottawa region. No southern Ontario records since 1985	Habitat generalist	Low	No new records of Traverse Lady Beetle in Ontario, species thought to be absent in former habitats.
West Virginia White Butterfly	Special Concern	Not Currently Listed	Unknown. No NESS or NHIC records. SARO range map includes Ottawa.	Requires mature moist deciduous woods with larval host plant toothwort.	Low	Necessary vegetation and toothwort plant not present on-site or within study area
Yellow-banded Bumble Bee	Special Concern	Special Concern	Unknown. Historic occurrences and a few recent occurrences in Eastern Ontario/Western Quebec region.	Habitat generalist; mixed woodlands, variety of open habitat	Moderate	Mixed woodlands on-site may provide habitat for yellow-banded bumble bee.



## **APPENDIX F**

### **Preliminary Site Servicing and Stormwater Management Report, Grading and Servicing Plan (Novatech)**



Engineers, Planners & Landscape Architects

#### Engineering

Land / Site  
Development  
Municipal  
Infrastructure  
Environmental /  
Water Resources  
Traffic /  
Transportation  
Structural  
Recreational

#### Planning

Land / Site  
Development  
Planning Application  
Management  
Municipal Planning  
Documents &  
Studies  
Expert Witness  
(OMB)  
Wireless Industry

#### Landscape

#### Architecture

Urban Design &  
Streetscapes  
Open Space, Parks &  
Recreation Planning  
Community &  
Residential  
Developments  
Commercial &  
Institutional Sites  
Environmental  
Restoration



## Forest and Nature School 411 Corkstown Road

### Preliminary Site Servicing and Stormwater Management Report

Engineering excellence. Planning precision. Inspired landscapes.



**Forest and Nature School**

**411 Corkstown Road**

**City of Ottawa**

**Preliminary Site Servicing and  
Stormwater Management Report**

Prepared By:

**NOVATECH**

Suite 200, 240 Michael Cowpland Drive  
Ottawa, Ontario  
K2M 1P6

April 15, 2020

Novatech File: 119045  
Ref: R-2020-055

April 15, 2020

City of Ottawa  
Planning, Infrastructure and Economic Development Department  
110 Laurier Avenue West  
Ottawa, ON K1P 1J1

Attention: Eric Surprenant, Project Manager Infrastructure Approvals

Dear Eric:

**Reference: 411 Corkstown Road – Forest and Nature School  
Site Servicing and Stormwater Management Report  
Our File No.: 119045**

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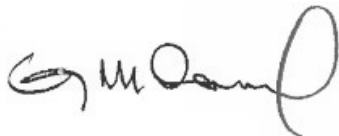
Please find enclosed the preliminary Site Servicing and Stormwater Management Brief for the proposed Forest and Nature School located on the site of the existing Wesley Clover Campground at 411 Corkstown Road in the City of Ottawa.

This report is submitted in support of a Site Plan Control application.

Please contact the undersigned, should you have any questions or require additional information.

Sincerely,

**NOVATECH**



Greg MacDonald, P.Eng.  
Director, Land Development and Public Sector Infrastructure

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## Appendices

Appendix A – Correspondence

Appendix B – Site Plan

Appendix C – Water Demand and FUS Calculations

Appendix D – Sanitary Demand Calculations and Existing Sanitary Sewer Plan

## Figures

Figure 1 - Aerial Plan

## Plans

119066-GS – Grading and Servicing Plan

## 1.0 INTRODUCTION

Andrew Fleck Children's Services is proposing to develop a new childcare facility building, approximately 420m<sup>2</sup> in area, adjacent to the existing campground facility on the site located at 411 Corkstown Road. This site is within the Greenbelt owned by the National Capital Commission (NCC) in the City of Ottawa. Novatech has been retained by CSV Architects to complete a Site Servicing and Stormwater Management report for the proposed development.

This report addresses the approach to site servicing and stormwater management for the proposed development and is being submitted in support of a site plan control application.

### 1.1 Location and Site Description

The subject site is located within the property known as 411 Corkstown Road in the City of Ottawa (Ward 7-Bay), as shown in **Figure 1 (Aerial Plan)**. The subject site is situated in the Greenbelt and falls within the jurisdiction and responsibility of the National Capital Commission (NCC). The area of land leased from the NCC is approximately 81.2 ha with 844 metres of frontage along Corkstown Road. There is an existing campground facility on the subject property, operated by Wesley Clover Foundation who have a long-term lease agreement with the NCC.

The property is bounded by Corkstown Road (and Highway 417) to the south, the Canadian National Railway corridor and Trans Canada Trail to the north, and the edge of a forested ridge to the west as shown on **Figure 1**. The site of the proposed development is located to the west of the existing Wesley Clover Campground.

**Figure 1 - Aerial Plan** provides an aerial view of the site.



The site of the proposed development is currently undeveloped.

## 1.2 Pre-application Meetings

Pre-consultation meetings were held with staff from the City of Ottawa on April 30, 2019 as well as the NCC on May 1, 2019 to discuss the details of the proposed development. Refer to **Appendix A** for a summary of the correspondence related to the proposed development.

## 2.0 PROPOSED DEVELOPMENT

The proposed development will consist of a two (2) storey childcare facility building, proposed to cater for a total of 49 students, 12 staff members and 14 research facility staff. A two-way access road with two parking bays is proposed to connect the proposed building to the existing Wesley Clover campground access road.

Refer to **Appendix B** for a copy of the latest Site Plan (by CSV Architects) showing the general layout of the proposed development.

## 3.0 SITE SERVICING

The objective of the site servicing design is to conform to the requirements of the City of Ottawa, to provide suitable sewage outlets and to ensure that a domestic water supply and appropriate fire protection are provided for the proposed development.

Servicing criteria and expected sewage flows and water demands for the proposed development have been established using the City of Ottawa design guidelines for sewer systems and water distribution.

### 3.1 Proposed Servicing Overview

In general, the proposed development will be serviced for water by extending a new private water service to the existing municipal watermain in Corkstown Road, and for sanitary by extending a new private sanitary sewer to the existing private sanitary sewer system in Wesley Clover Campground. The stormwater management approach for the proposed development is described in the stormwater section of this report.

Refer to the subsequent sections of the report and to the attached Grading and Servicing Plan (**119066-GS**) for further details.

## 4.0 WATER

There is an existing 406mm dia. municipal watermain located adjacent to the site in Corkstown Road. There is also an existing 150 mm dia. private watermain in the Wesley Clover campground access road.

The proposed development will be serviced by extending a new private 150mm dia. watermain from the proposed development to the existing 406mm dia. municipal watermain in Corkstown Road. The proposed watermain will be 150mm dia. up to a proposed private fire hydrant, then a 50mm dia. water service to the proposed building.

### 4.1 Water Demands

The theoretical domestic water demands for the proposed development are given in **Table 4.1**. Refer to **Appendix C** for the design criteria used, taken from Section 4 of the Ottawa Design Guidelines – Water Distribution.

**Table 4.1: Theoretical Water Demands for Proposed Development**

Average Water Demand (L/s)	Maximum Day Demand (L/s)	Peak Hour Demand (L/s)
0.12	0.18	0.32

#### 4.2 Water Supply for Fire-Fighting

The Fire Underwriters Survey (FUS) was used to estimate fire flow requirements for the proposed development. The following building construction details were confirmed with the architect:

- Wood frame construction
- 2-storey
- Non-combustible occupancy type
- Non-sprinklered

It should be noted that fire flow requirements calculated using the FUS method tend to generate higher values when compared to flows being calculated using the Ontario Building Code (OBC).

The calculated fire flow demand for the proposed residential building is 183 L/s (11,000L/min). Refer to **Appendix C** for a copy of the FUS fire flow calculations.

There is one (1) existing municipal fire hydrant and one (1) existing private fire hydrant within 150m of the proposed building. A new private fire hydrant is proposed near the proposed building, with fire truck access provided by the proposed access road. Refer to attached drawing **119066-GS** for their locations.

#### 4.3 Municipal Boundary Conditions

The preliminary water demand and fire flow calculations presented above will be used to request municipal watermain network boundary conditions and multi hydrant analysis results from the City of Ottawa.

Detailed fire flow analysis will be completed during detailed design.

It is expected that the existing municipal watermain system can provide adequate water supply (domestic and fire) to the proposed development.

### 5.0 SANITARY SEWER

#### 5.1 Existing Sanitary Infrastructure

There is no existing municipal sanitary sewer system within the vicinity of the proposed development. There is an existing private sanitary sewer system on the subject site that services the Wesley Clover Campground.

## 5.2 Proposed Sanitary Servicing

The proposed development will be serviced by extending a new private 200mm dia. sanitary sewer from the proposed building to the existing 200mm dia. private sewer in the Wesley Clover Campground access road.

The theoretical sanitary flows for the proposed development are summarized below in **Table 5.1**. Refer to **Appendix D** for detailed calculations and design criteria.

**Table 5.1: Sanitary Design Flows for the Proposed Development**

Building Area	Design Population (people)	Average Flow <sup>1</sup>	Peak Flow <sup>2, 3</sup>
700 m <sup>2</sup>	49 x students 26 X staff	0.13 L/s	0.23 L/s

<sup>1</sup> Average Dry Weather Flow

<sup>2</sup> Peak Wet Weather Flow, includes an infiltration allowance of 0.33 L/s/gross ha over 0.16 ha.

<sup>3</sup> Institutional Peaking Factor = 1.5

Based on Manning's Equation, a 200mm dia. sanitary gravity sewer at a slope of 0.5% has a full flow conveyance capacity of approximately 24 L/s, which is sufficient to convey the theoretical sanitary design flows calculated above.

## 6.0 STORMWATER MANAGEMENT

### 6.1 Existing Site Conditions

Under existing conditions, the drainage area within the subject area sheet drains in a northwesterly direction towards a low wet area considered a vernal pool, as shown on the attached drawing **119045-GS** (existing overland flow arrows).

From the geotechnical report <sup>1</sup>, soils on site are generally described as follows:

- 100 mm topsoil
- 100 mm – 500 mm thick layer of sand and gravel
- Grey brown slightly weathered sandstone bedrock at depths beyond 500 mm below surface.

The site is currently treed and undeveloped. The pre-development runoff coefficient is estimated to be 0.20.

### 6.2 Stormwater Management Approach

As the site is a natural setting, the approach to stormwater management will be to minimize the disruption to the site as much as possible. In this regard, existing grades and flow patterns will be maintained as much as possible.

<sup>1</sup> Geotechnical Investigation Proposed Forest and Nature Child Care Centre 411 Corkstown Road, by Gemtec, dated April 14, 2020



The entrance road and parking will hug existing grades and will be constructed of gravel rather than asphalt. The pathways will be constructed of stone dust and hug existing grades as much as possible. The finished floor elevation (FFE) of the new building will be as close as possible to existing grade, founded on the shallow bedrock.

Roof drainage will be collected by eavestroughs and downspouts which will discharge into rain barrels around the perimeter of the building. These rain barrels are proposed to be fitted with perforated spitter hoses that would slowly discharge the collected stormwater to the surface. Once the capacity of the rain barrels is reached, they will overflow to long, linear vegetated bioswales. The bioswales will be shallow (100 mm depth) and will slowly allow the runoff to percolate into the ground. This low impact stormwater management approach would also be an educational experience for the children.

### **6.3 Stormwater Management Criteria**

The above-noted stormwater management approach will adhere to the draft NCC Stormwater Management Implementation and Application Policy (April 2018), summarized as follows.

#### **Stormwater Quality**

Objectives:

- To maintain or improve surface water and groundwater quality, minimize sediment loading to surface water and groundwater, and maintain or enhance existing thermal watercourse regimes.
- To ensure pollutants contained in stormwater runoff are removed to a sufficient degree to avoid degradation of water quality and aquatic habitats in receiving watercourse systems.
- To guide stormwater management solutions aimed at maintaining the existing water quality where development is proposed.
- To recommend the use of natural processes (i.e. infiltration/filtration) to treat stormwater runoff where feasible.

Implementation Strategy:

- Treatment of stormwater runoff (equivalent to long term average removal of 80% Total Suspended Solids)
- Mitigate the thermal impacts related to temperature of stormwater runoff.
- That water quality design be developed in accordance with a treatment train approach.
- That water quality design utilizes Low Impact Development techniques.
- Implementing these measures will also ensure that erosion and sediment control requirements are satisfied.

Stormwater from the roof is assumed to be free from contaminants and not require quality treatment. Roof runoff will be captured in rain barrels and slowly released to the natural existing surfaces using spitter hoses. Runoff from the remaining site will be from undisturbed areas, gravel entrance and stone dust pathways. These areas will be naturally maintained without use of desalting agents in winter. As a result, water quality issues are not anticipated.

## **Quantity Control**

### Objectives:

- To minimize the volume of uncontrolled stormwater discharged directly onto federal land, either via surface flow or into watercourses.
- To ensure that development projects do not increase flood risk in both upstream and downstream directions.

### Implementation:

- Control post-development peak flows to as close as possible to pre-development peak flows given the unique setting of the site
- Ensure no downstream negative impact on buildings, structures or features

The proposed rain barrels and bioswales will also provide quantity control for runoff generated from a 25mm storm. The combination of the rain barrels and the bioswales will be designed to control a 25mm rainfall depth over the roof area of the building. Preliminary calculations are provided below.

## **Preliminary Stormwater Quantity Control Calculations**

Preliminary calculations are as follows:

### Storage Volume Required

Roof Area = 700 m<sup>2</sup>

25 mm rainfall depth volume = 700 m<sup>2</sup> x 0.025 m = 17.5 m<sup>3</sup>

Estimated pre-development runoff volume = 700 m<sup>2</sup> X .025 m x 0.20 (runoff co-efficient)  
= 3.5m<sup>3</sup>

Storage Volume Required: 17.5 – 3.5 = 14.0 m<sup>3</sup>

### Storage Volume Provided

Four x 80-gallon rain barrels = 1.2 m<sup>3</sup>

180 m bioswale, 1 m wide bottom, 3:1 side slopes, 100 mm depth = 23.4 m<sup>3</sup>

Total Volume Provided: 24.6 m<sup>3</sup>

## **Water Balance**

### Objective:

- To minimize the impacts of urbanization activities on alteration of the natural hydrologic cycle and existing water balance.

### Implementation:

- To ensure development does not reduce the amount of rainfall available to recharge groundwater.
- To ensure development does not result in changes to the water available for ecological processes necessary for natural features proper functioning and survival.
- To require stormwater management approaches that encourage water to infiltrate into the ground, to promote evapotranspiration, and/or to be re-used, in order to sustain

groundwater resources and manage flow to natural features that are reliant on these inflows.

- To require volume control stormwater management approaches that seek to replicate the volume pattern and distribution of water to natural features, to maintain hydro periods, moisture regimes, and seasonal fluctuations.

The proposed rain barrel and bioswale system will also promote infiltration, minimising changes to the existing water balance.

## 7.0 GEOTECHNICAL INVESTIGATION

A Geotechnical Investigation Report <sup>1</sup> has been prepared by Gemtec. Refer to the Geotechnical Report for sub-surface conditions, construction recommendations and geotechnical inspection requirements.

## 8.0 EROSION AND SEDIMENT CONTROL

Erosion and sediment control measures will be implemented during construction in accordance with the "Guidelines on Erosion and Sediment Control for Urban Construction Sites" (Government of Ontario, May 1987):

- All erosion and sediment control measures are to be installed to the satisfaction of the engineer, the municipality and the conservation authority prior to undertaking any site alterations (filling, grading, removal of vegetation, etc.) and remain present during all phases of site preparation and construction.
- A qualified inspector should conduct daily visits during construction to ensure that the contractor is working in accordance with the design drawings and that mitigation measures are being implemented as specified:
  - A light duty silt fence is to be installed as per OPSS 577 and OPSD 219.110 along the surrounding construction limits.
  - Street sweeping and cleaning will be performed, as required, to suppress dust and to provide safe and clean roadways adjacent to the construction site.
  - After complete build-out, all sewers are to be inspected and cleaned and all sediment and construction fencing is to be removed.
- The contractor shall immediately report to the engineer or inspector any accidental discharges of sediment material into any ditch or sewer system. Appropriate response measures shall be carried out by the contractor without delay.

The proposed temporary erosion and sediment control measures will be implemented prior to construction and will remain in place during all phases of construction.

## 9.0 CONCLUSIONS

This preliminary report has been prepared in support of a site plan control application for the proposed Canadian Centre for Outdoor Plan at 411 Corkstown Road. The proposed development will consist of a 2-storey childcare facility building, with access via a new two-way access from Wesley Clover Campground.

The conclusions are as follows:

- The proposed development will be serviced for water by extending a new private 150mm dia. watermain from the proposed building to the existing 405mm dia. municipal watermain located in Corkstown Road. A new private fire hydrant will be provided close to the proposed building.
- It is expected that the existing municipal watermain system can provide adequate water supply (domestic and fire) to the proposed development.
- The proposed development will be serviced for sanitary by extending a new 200mm dia. private sanitary sewer from the proposed building to the existing 200mm dia. private sanitary sewer in Wesley Clover Campground access road.
- The theoretical peak flow from the proposed development is minimal (0.23 L/s). As such the existing sanitary sewer system has sufficient capacity to accommodate the proposed development.
- The stormwater management approach for the proposed development will be to minimize the disruption to the site as much as possible. Existing grades and flow patterns will be maintained as much as possible, and the access road and parking will be gravel and the pathways will be constructed of stone dust to minimize imperviousness.
- Runoff from the roof of the proposed building will be collected and discharged into rain barrels fitted with perforated spitter hoses that slowly discharge the stormwater to the surface. Once the capacity of the rain barrels is reached, they will overflow to long, linear vegetated bioswales that allow the runoff to slowly percolate into the ground.
- The stormwater management design will be developed further during detailed design.
- Temporary erosion and sediment controls will be provided during construction.

## NOVATECH

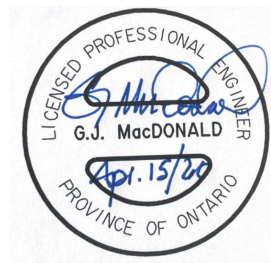
Prepared by:



*LBolam*  
*Apr-15-2020*

Lydia Bolam, P. Eng.  
Project Engineer

Prepared/Reviewed by:



Greg MacDonald, P. Eng.  
Director | Land Development and  
Public Sector Infrastructure

## **Appendix A**

**Subject:** RE: Pre-Consultation Follow-up: 411 Corkstown Road  
**Date:** Monday, May 6, 2019 at 4:20:22 PM Eastern Daylight Time

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**From:** Robert Tran  
**Sent:** Monday, May 06, 2019 11:53 AM  
**To:** Kim Hiscott <[khiscott@afchildrensservices.ca](mailto:khiscott@afchildrensservices.ca)>; [smith@csv.ca](mailto:smith@csv.ca); [froom@csv.ca](mailto:froom@csv.ca)  
**Cc:** Greg Winters <[G.Winters@novatech-eng.com](mailto:G.Winters@novatech-eng.com)>  
**Subject:** FW: Pre-Consultation Follow-up: 411 Corkstown Road

Hello all,

Please see the email below for the comments from the pre-consult with the City. Thanks.

**Robert Tran**, M.P.L., Planner

**NOVATECH** Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext. 272 | Fax: 613.254.5867

The information contained in this email message is confidential and is for exclusive use of the addressee.

---

**From:** McCreight, Laurel <[Laurel.McCreight@ottawa.ca](mailto:Laurel.McCreight@ottawa.ca)>  
**Sent:** Monday, May 6, 2019 10:59 AM  
**To:** Robert Tran <[r.tran@novatech-eng.com](mailto:r.tran@novatech-eng.com)>  
**Cc:** Greg Winters <[G.Winters@novatech-eng.com](mailto:G.Winters@novatech-eng.com)>  
**Subject:** Pre-Consultation Follow-up: 411 Corkstown Road

Hello Robert,

Please refer to the below regarding the Pre-Application Consultation Meeting held on Tuesday April 30, 2019 for the property at 411 Corkstown Road for a Site Plan Control Application and a Lifting of a Holding Provision in order to allow the development of a childcare facility and office space. I have also attached the required Plans & Study List for application submission.

Below are staff's preliminary comments based on the information available at the time of pre-consultation meeting:

### **Planning**

- Site currently zoned for proposed uses
- A Lifting of Holding By-law is required as per Rural Exception 868 that requires an EIS to be submitted that demonstrates that any future expansion will not pose any negative effects on the natural environment area and its features
- Scope of site to be determined once the concept plan has been finalized

-

### **Engineering**

- Water connection is available on Corkstown Road
  - FUS calculations, hydrants
- Storm to be directed to ditches on Corkstown Road
  - To be controlled pre-development to post-development
- Discussion regarding sanitary onsite and whether or not it exists
  - Applicant to confirm with NCC
  - Connecting to the Tri-Township Trunk is not an option to connect into
  - Private servicing is an option (refer to sections 2.3.2 and 4.4 in the Official Plan) as there is no public service in the area for sanitary
- If more than 10,000 Litres/day, an ECA will be required as well as a reasonable use study

Please contact Infrastructure Project Manager, [Eric Surprenant](#) for follow-up questions.

### **Transportation**

- Follow Traffic Impact Assessment Guidelines
  - Traffic Impact Assessment will be required
  - Start this process as soon as possible
  - Applicant advised that their application will not be deemed complete until the submission of the draft step 1-4, including the functional draft RMA package (if applicable) and/or monitoring report (if applicable)
- ROW protection on Corkstown between March and Moodie is G - signifies Greenbelt for which unique rights-of-way protection policy apply as follows: For arterial road segments located entirely within the Greenbelt, the right-of-way requirements vary depending on: the number and width of travel lanes; the treatment of curbs, medians, and road drainage; and other amenities to be provided in the corridor
  - On this basis, the right-of-way to be acquired by the City and the means to acquire the land will be determined with involvement of the National Capital Commission on a case-by-case basis as road modifications are being planned
  - In the event that a portion of Greenbelt land is conveyed to another owner, a minimum road-widening requirement of 42.5 m shall apply for an arterial road segment adjacent to that land.
- For segments adjacent to the Greenbelt along only one side, the ROW dimension for the urban area

side should be protected, with an additional 5.0 m widening requested along the Greenbelt side (to construct the wider rural cross-section)

- As always, the widening requirements are to be measured from the existing road centerline
- Noise Impact Studies required for the following:
  - Road
- On site plan:
  - Turning templates will be required for all accesses showing the largest vehicle to access the site; required for internal movements and at all access (entering and exiting and going in both directions).
  - Show all curb radii measurements; ensure that all curb radii are reduced as much as possible
  - Show lane/aisle widths

Please contact Transportation Project Manager, [Rosanna Baggs](#) for follow-up questions.

### **Environmental**

- An Environmental Impact Statement will be required in order to lift the hold
  - The EIS must discuss significant woodlands, wildlife habitat, species at risk, natural landscape linkages, wetlands associated with the woodlands
  - Scope of the EIS to be agreed upon once location of the building is determined
- Will be in contact with the NCC regarding the EIS

Please contact Environmental Planner, [Sami Rehamn](#) for follow-up questions.

### **Forestry**

- A permit is not required because the land is federally owned
- A Tree Conservation Report (TCR) must be supplied for review along with the various other plans/reports required by the City; an approved TCR is a requirement for Site Plan approval
- The removal of City-owned trees will require the permission of Forestry Services who will also review the submitted TCR
- In this case, the TCR may be combined with the EIS
- The TCR must list all trees on site by species, diameter and health condition; similar groupings (stands) of trees can be combined using averages by species, diameter class
- The TCR must address all trees with a critical root zone that extends into the developable area – all trees that could be impacted by the construction that are outside the developable area need to be addressed.
- Trees with a trunk that crosses/touches a property line are considered co-owned by both property owners; permission from the adjoining property owner must be obtained prior to the removal of co-owned trees
- If trees are to be removed, the TCR must clearly show where they are, and document the reason they can not be retained – please provide a plan showing retained and removed tree areas
- All retained trees must be shown and all retained trees within the area impacted by the development process must be protected as per City guidelines listed on [Ottawa.ca](#)
- Please ensure newly planted trees have an adequate soil volume for their size at maturity. The following is a table of recommended minimum soil volumes:

Tree Type/Size	Single Tree Soil Volume (m3)	Multiple Tree Soil Volume (m3/tree)
----------------	------------------------------	-------------------------------------



Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

- The City requests that all efforts are made to retain trees – trees should be healthy, and of a size and species that can grow into the site and contribute to Ottawa’s urban forest canopy

For more information on the TCR process or help with tree retention options, contact [Mark Richardson](#)

#### **Other**

- You are encouraged to contact the Ward Councillor, Councillor xx, at [email] about the proposal. You may also consider contacting the [xx] Community Association at [email].

Please refer to the links to “[Guide to preparing studies and plans](#)” and [fees](#) for general information. Additional information is available related to [building permits, development charges, and the Accessibility Design Standards](#). Be aware that other fees and permits may be required, outside of the development review process. You may obtain background drawings by contacting [informationcentre@ottawa.ca](mailto:informationcentre@ottawa.ca).

These pre-consultation comments are valid for one year. If you submit a development application(s) after this time, you may be required to meet for another pre-consultation meeting and/or the submission requirements may change. You are as well encouraged to contact us for a follow-up meeting if the plan/concept will be further refined.

Please do not hesitate to contact me if you have any questions.

Regards,  
Laurel

**Laurel McCreight MCIP, RPP**

Planner  
Development Review West  
Urbaniste  
Examen des demandes d'aménagement ouest

City of Ottawa | Ville d'Ottawa

☎ 613.580.2424 ext./poste 16587

[ottawa.ca/planning](http://ottawa.ca/planning) / [ottawa.ca/urbanisme](http://ottawa.ca/urbanisme)

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**From:** Hoyt, Christopher <christopher.hoyt@ncc-ccn.ca>  
**Sent:** Tuesday, June 11, 2019 5:41 PM  
**To:** Robert Tran  
**Cc:** Moroz, Marek; Chakraborty, Bina; Hetherington, Christopher; Katic, Eva; Lalonde, Sylvie  
**Subject:** Wesley Clover - Forest School Building and Parking Proposal

Dear Robert,

Thanks for initiating federal approval for this concept. As requested at our recent approval kick off meeting, NCC staff have done an initial very quick high level review of the information provided and the below represents combined comments on this proposal:

The Greenbelt is identified in the NCC's 2013 Canada's Capital Greenbelt Master Plan as being a "... magnificent, publicly-owned landscape [that] exists thanks to past efforts to shape the future of the Capital. Without the vision and courage of those who planned and conserved the Greenbelt, many treasured landscapes would have been lost to the urban sprawl characteristic of many North American cities. Research and analysis of the Greenbelt's current condition reveal that these 20,600 hectares of forests, wetlands, farms and streams represent a rich and predominantly natural environment that hosts over 3.5 million visits per year for various recreational activities. Canada's Capital Greenbelt is unique in being the largest publicly-owned Greenbelt in the world and the most ecologically diverse landscape within an urban area".

#### Alignment with NCC Plans for the Greenbelt

- Existing plans don't anticipate buildings, with the exception of the 2012 amendment which shows a small building on stilts
- Daycare use not referenced
- New parking not referenced

#### Alignment with Lease Agreement

- Lease has been recently amended and allows for the proposed use

#### Alignment with Municipal Zoning and Bylaw

- Need to better understand City's proposed application of Environmental Protection zoning
- City planning report indicates; "At the current time, there is no immediate need for a structure or building as the Forest and Nature School currently utilizes existing indoor space within the campground during inclement weather. "

#### Alignment with Previous Approvals

- 1996 Master Plan amended in 2012
  - allowed Soccer Fields

- showed a very small building (the size of a duck blind?) on stilts for the future forest school
- 2018 Approval
  - Demonstration plan, included equestrian uses
  - Forest School use identified without specifics around size of building or specific location

#### Environmental and Environmental Assessment Comments

- Need to demonstrate no damage to habitat connectivity
- Need to demonstrate no impact on species at risk – western chorus frog and butternut trees
- Need to see building footprint located on specific site

#### Site Servicing

- It is currently unknown whether existing connections to municipal services will be adequate for the proposed use

#### Building Proposed

- Unclear why environmental certification (LEED or other) would not be pursued given this proposed use
- Need to see building in a proposed location - difficult to evaluate without a 'site'.
- Footprint is significantly larger than was anticipated by 2012 Master Plan amendment
- Design should reflect the use - Forest School is quite a unique use - find an architectural vocabulary more specific to the proposal

#### Land Uses

- Forest School use is understood to be environmentally oriented, educational, and an excellent education vehicle for students that attend
- A more ambitious proposal from an environmental and design point of view with a 'lighter' presence in nature could be more easily supported
- Large additional paved areas are difficult to support for the proposed site

#### Analysis

- Concurrence with appropriateness of this proposal is not currently high among staff surveyed
- With the exception of the NCC's lease with the proponent, policies do not seem to support his proposal as it is currently understood

- Proposals for new buildings and structures in the Greenbelt are hard to support; but should be positioned as being innovative from both an environmental and design excellence point of view
- Proponent is encouraged to return with a proposal that is better aligned with the existing NCC and municipal approved plans and policies
- The 'Forest School' concept is understood to be a largely outdoor endeavor - daycare use requirement is not currently supported for this location
- Other neighboring sites might be more suitable but further study is required

We're happy to meet with you to discuss further, but we recommend that further study is needed to demonstrate alignment.

Best Regards,

Chris



**Christopher Hoyt, AIA, OAA, MRAIC**

Senior Architect Design and Land Use  
Architect principale Design et utilisation des sols

[christopher.hoyt@ncc-ccn.ca](mailto:christopher.hoyt@ncc-ccn.ca)

☎ 613-239-5678, ext. / poste 5769

---

National Capital Commission  
Commission de la capitale nationale

Canada

## **Appendix B**



## **Appendix C**

# Forest and Nature School

## WATER DEMAND CALCULATIONS

JOB NO. 119045

Water Demand					
Use	School		Demands (L/s)		
	Number of Students	Number of Employees	Average Day	Max. Daily	Peak Hour
Proposed Forest and Nature School	49	26	0.12	0.18	0.32

### Notes:

#### Avg. Day Demand (from City of Ottawa Guidelines):

- School 30 L/day/person (8-hour day assumed)  
(Assumed to be the same as the average sanitary flow for day school without cafeteria of gym and showers)
- Employee 75 L/day/person (8-hour day assumed)

#### Max. Daily Demand:

- Institutional 1.5 x Avg. Day

#### Peak Hour Demand:

- Institutional 1.8 x Max. Day



## FUS - Fire Flow Calculations

As per 1999 Fire Underwriter's Survey Guidelines



Engineers, Planners &amp; Landscape Architects

Novatech Project #: 119045  
 Project Name: Forest and Nature School  
 Date: 31/03/2020  
 Input By: LGB  
 Reviewed By: GJM

Legend

Input by User

No Information or Input Required

Building Description: 2-storey wooden building  
 Wood frame

Step			Input		Value Used	Total Fire Flow (L/min)	
<b>Base Fire Flow</b>							
1	<b>Construction Material</b>  <b>C</b>	Wood frame	Yes	1.5	1.5		
		Ordinary construction		1			
		Non-combustible construction		0.8			
		Modified Fire resistive construction (2 hrs)		0.6			
		Fire resistive construction (> 3 hrs)		0.6			
2	<b>Floor Area</b>  <b>A</b>	Building Footprint (m <sup>2</sup> )	706		1,412		
		Number of Floors/Storeys	2				
		Area of structure considered (m <sup>2</sup> )					
	<b>F</b>	<b>Base fire flow without reductions</b>				12,000	
		$F = 220 C (A)^{0.5}$					
<b>Reductions or Surcharges</b>							
3	<b>Occupancy hazard reduction or surcharge</b>  <b>(1)</b>	Non-combustible			-25%	0%	12,000
		Limited combustible			-15%		
		Combustible		Yes	0%		
		Free burning			15%		
		Rapid burning			25%		
4	<b>Sprinkler Reduction</b>  <b>(2)</b>	Adequately Designed System (NFPA 13)		No	-30%	-10%	-1,200
		Standard Water Supply		Yes	-10%		
		Fully Supervised System		No	-10%		
		<b>Cumulative Total</b>		-10%			
5	<b>Exposure Surcharge (cumulative %)</b>  <b>(3)</b>	North Side		> 45.1m		0%	0
		East Side		> 45.1m		0%	
		South Side		> 45.1m		0%	
		West Side		> 45.1m		0%	
		<b>Cumulative Total</b>		0%			
<b>Results</b>							
6	<b>(1) + (2) + (3)</b>	<b>Total Required Fire Flow, rounded to nearest 1000L/min</b>			L/min	11,000	
		(2,000 L/min < Fire Flow < 45,000 L/min)			or	L/s	183
					or	USGPM	2,906
7	<b>Storage Volume</b>	Required Duration of Fire Flow (hours)			Hours	2	
		Required Volume of Fire Flow (m <sup>3</sup> )			m <sup>3</sup>	1320	

## **Appendix D**

Designed:	LGB
Checked:	GJM
Date:	14/4/2020

A hand-drawn map of a coastal area, likely a campsite or a small town. A yellow line traces a path through the map, starting from the bottom left, moving up and to the right, then curving back down and to the left. The path is marked with small black dots. The map includes several labels and features:

- TENT & TRAILER CAMP**: A large, irregularly shaped area in the center of the map, outlined in black.
- AVENUE CON**: A label on the right side of the map, near the bottom, pointing to a road.
- STREET LIGHTS**: A label on the right side of the map, near the top, pointing to a cluster of small circles.
- View of map across the Camp area**: A handwritten note on the right side of the map, pointing to a specific area.
- Map Orientation**: A north arrow is located in the top right corner, pointing towards the top right.
- Other Labels**: Various other labels are scattered throughout the map, including "AVENUE CON", "STREET LIGHTS", and "View of map across the Camp area".

[illegible]

D.W. Graham and Associates Limited  
Landscape Architects      Ottawa  
J.L. Richards and Associates, Limited  
Engineers      Ottawa  
Edward J. Cuhaci  
Architect      Ottawa  
**THE OTTAWA AND NEPEAN  
MUNICIPAL TENT AND TRAILER PARK**  
Twp. of Nepean Project No. 1095

## **Attached Plan**





## **APPENDIX G**

CVs for Key Personnel

## **Drew Paulusse, B.Sc.**

Senior Biologist / Manager of Environmental Services

Mr. Paulusse has over 12 years of experience in the environmental consulting industry, providing private industry and municipal and federal government clients with cost effective solutions to manage environmental constraints associated with land development proposals and infrastructure projects. Mr. Paulusse's expertise, as it relates to land development proposals and infrastructure projects is field assessment and regulatory permitting associated with species at risk, fish habitat and wetlands.

### **Education**

- B.Sc., Biology, Trent University, 2007
- Environmental Technician, Fleming College, 2004

### **Professional Experience**

<b>2018-date</b>	<b>GEMTEC Consulting Engineers and Scientists Limited</b> <i>Manager of Environmental Services</i>	<b>Ottawa, Ontario</b>
<b>2011-2018</b>	<b>Geofirma Engineering Limited</b> <i>Senior Biologist</i>	<b>Ottawa, Ontario</b>
<b>2007-2011</b>	<b>INTERA Engineering Limited</b> <i>Biologist</i>	<b>Ottawa, Ontario</b>
<b>2007</b>	<b>Canadian Wildlife Service, Environment Canada</b> <i>Wetland Conservation Officer</i>	<b>Burlington, Ontario</b>
<b>2005</b>	<b>Centre for Inland Waters, Environment Canada</b> <i>Junior Marine Technologist</i>	<b>Burlington, Ontario</b>

### **Professional Affiliations and Technical Training**

- Canadian Society of Environmental Biologists
- Ontario Association for Impact Assessment
- MTO/DFO/MNRF Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings. Ministry of Transportation. 2018
- Ontario Wetland Evaluation System Certification Course. Ministry of Natural Resources and Forestry. 2017
- Headwater Drainage Feature Assessment Training Course. Rideau Valley Conservation Authority. 2017







# GEMTEC

- Ecological Land Classification System Certification Course. Ministry of Natural Resources and Forestry. 2015
- Ontario Benthic Biomonitoring Network Certification Course. Ministry of Environment, Conservation and Parks. 2011

## Project Highlights

- ***DFO Self-Assessment and Preparation of Tender Special Provisions, Osceola Culvert Replacement, County of Renfrew, Ontario (2019):*** Project manager and technical lead responsible for the evaluation of the significance of fish habitat and species at risk, and completion of a DFO self-assessment. Work included aquatic habitat assessments, pathway of effects evaluation, culvert design recommendations and reporting.
- ***Biological Inventory, Ontario Power Generation Incorporated, Bath, Ontario (2018):*** Project manager and technical lead responsible for conducting a three-season inventory of avian and amphibian species at the Lennox Provincially Significant Wetland. Work included conducting presence and abundance surveys following the Canadian Wildlife Service marsh monitoring protocol and Bird Studies Canada breeding bird surveys, statistical analysis of species data trends and reporting.
- ***Wetland Management Plan, Ontario Power Generation Incorporated, Bath, Ontario (2018):*** Project manager and technical lead responsible for the development of an adaptive wetland management plan for the Lennox Provincially Significant Wetland. Work included a synthesis of historical data, statistical analysis of data trends, vegetation assessment, air photo interpretation, development of short-term and long-term management objectives and development of a standardized monitoring program.
- ***Environmental Compliance Monitoring, Petrie Island Causeway Rehabilitation Project, Ottawa, Ontario (2018):*** Project manager and technical lead responsible for monitoring constructor compliance with various Department of Fisheries and Oceans, Ministry of Natural Resources and Conservation Authority permit conditions during the Petrie Island Causeway Rehabilitation Project within the Ottawa River. Work included species at risk surveys, fish salvage, exclusion fence inspection, monitoring of sediment and erosion control measures, turbidity monitoring, regulatory agency consultation and weekly reporting.
- ***Wetland Delineation and Wetland Function Assessment, National Capital Commission, Ottawa, Ontario (2018):*** Project manager and technical lead responsible for the delineation of wetland pockets within the LeBreton Flats Redevelopment Area and the assessment of wetland function for the purpose of evaluating compensation requirements. Work was completed following both the federal and provincial wetland evaluation frameworks.





- ***Environmental Impact Statement, Code Drive Development, Smiths Falls, Ontario (2018):*** Project manager and technical lead responsible for the completion of an Environmental Impact Statement in support of a severance application for the creation of eight residential lots within a significant woodland and adjacent to a large local wetland. Work included targeted surveys for species at risk, breeding amphibians and marsh birds, impact assessment, development of lot-specific mitigation measures and agency consultations.
- ***Tree Conservation Report, Royal LePage Team Realty, Ottawa, Ontario (2018):*** Mr. Paulusse completed an inventory of all trees located on an urban commercial lot for the purpose of identify significant retainable trees and trees in conflict with the proposed site redevelopment. Work included, site inventory, tree removal permit preparation and reporting.
- ***Environmental Compliance Monitoring, Airport Parkway Culvert Rehabilitation Project, Ottawa, Ontario (2018):*** Project manager and technical lead responsible for monitoring constructor compliance with Ministry of Natural Resources and Conservation Authority permit conditions. Work included species at risk surveys, exclusion fence inspection, monitoring of sediment and erosion control measures and weekly reporting.
- ***Tier I and II Natural Environment Report, Crain's Construction, Ottawa, Ontario (2018):*** Project manager and technical lead responsible for completing an inventory of site flora and fauna, completion of species at risk surveys, regulatory agency consultation, impact assessment and reporting.
- ***Species at Risk Assessment, National Capital Commission, Gatineau, Quebec (2018):*** Project manager responsible for the completion of avian species at risk surveys to determine the presence or absence of chimney swift and barn swallows at a contaminated site. Work was undertaken to support an Ecological Risk Assessment.
- ***Fish Habitat Assessment, Various Culvert Replacements, Ottawa, Ontario (2018):*** Project manager and technical lead responsible for the evaluation of the significance of fish habitat at three culvert crossings in rural Ottawa. Work included aquatic habitat assessments, pathway of effects evaluation, culvert design recommendations and reporting.
- ***Environment Effects Evaluation Assessment, Britannia Wall Rehabilitation Project, Ottawa, Ontario (2018):*** Project manager and technical lead responsible for completing a comprehensive tree inventory, wetland boundary delineation, significant wildlife habitat assessment and evaluation of effects associated with the rehabilitation of the Britannia Wall, a 600-metre-long community flood protection structure.
- ***Environmental Compliance Monitoring, Petrie Island Beach Head Rehabilitation Project, Ottawa, Ontario (2018):*** Project manager and technical lead responsible for monitoring constructor compliance with various Department of Fisheries and Oceans, Ministry of Natural Resources and Conservation Authority permit conditions during the Petrie Island





Beach Head Rehabilitation Project within the Ottawa River. Work included species at risk surveys, exclusion fence inspection, monitoring of sediment and erosion control measures, and reporting.

- ***Provincially Significant Wetland Boundary Evaluation and Mitigation Plan, Town and County Chrysler, Smiths Falls, Ontario (2018):*** Project manager and technical lead responsible for revising the wetland boundary associated with a provincially significant wetland and development of a mitigation plan to enable the redevelopment of an adjacent commercial lot. Work included wetland vegetation delineation, regulatory technical document submissions, agency consultations, mitigation measure development and reporting.
- ***Environmental Impact Statement and Headwater Drainage Feature Assessment, Swank Construction Limited, Morrisburg, Ontario (2017-2018):*** Project manager and technical lead responsible for the completion of an Environmental Impact Statement with Headwater Drainage Feature Assessment for a 100-lot residential subdivision. Work included ecological land classification, breeding bird surveys, impact assessment and a three season assessment of hydrological conditions and their contributions to downstream fish habitat.
- ***Natural Heritage Inventory and Environmental Impact Assessment, Combermere Lodge Limited, Barry's Bay, Ontario (2017-2018):*** Project manager and technical lead responsible for the completion of a Natural Heritage Inventory and Environmental Impact Assessment completed in support of a 54-lot condominium development located in an environmentally sensitive area. Work included wetland boundary delineation, identification of significant wildlife habitat, application of the significant wildlife habitat mitigation support tool, completion of a two-year survey of site flora and fauna, impact assessment and town hall presentations.
- ***Lake Capacity Assessment, Combermere Lodge Limited, Barry's Bay, Ontario (2017-2018):*** Project manager and technical lead responsible for the predictive assessment of septic effluent impacts relating to the operation of a 54-lot condominium development on three adjacent waterbodies. Work included limnological investigations over two seasons, application of the provincial lakeshore capacity model, hydrogeological investigations, mass flux analysis, mitigation measure development and reporting.
- ***Detailed Quantitative Ecological Risk Assessment, National Capital Commission, Gatineau, Quebec (2016 to 2018):*** Project manager and technical lead for the completion of a Detailed Quantitative Ecological Risk Assessment completed for a former landfill property located adjacent to the Ottawa River. Work included aquatic habitat assessment, benthic community characterization, species at risk surveys, terrestrial wildlife surveys and analysis of site-specific aquatic toxicity data.
- ***Environmental Compliance Monitoring, Carp Snow Dump, Ottawa, Ontario (2017):*** Project manager and technical lead responsible for monitoring constructor compliance with a Ministry of Natural Resources overall benefit permit for blanding's turtle associated with the





construction of the Carp Snow Dump. Work included weekly exclusion fence inspection and weekly reporting to the contract administrator.

- ***Fish Habitat Assessment, Little Bark Bay Properties, Barry's Bay, Ontario (2017):*** Project manager and technical lead responsible for the identification and evaluation of significance of fish habitat within and adjacent to a proposed plan of subdivision. Work included aquatic habitat assessments, pathway of effects evaluation, application of the Department of Fisheries and Oceans self-assessment process and reporting.
- ***Species at Risk and Migratory Bird Screening Assessment, City of Ottawa, New Edinburg Park Redevelopment Project, Ottawa, Ontario (2017):*** Project manager and technical lead responsible for the completion of a species at risk and migratory bird screening assessment to assist in bid tender package preparation for the re-development of New Edinburg Park. Work included a general habitat assessment, a probability of occurrence assessment, follow-up pre-construction surveys and reporting.
- ***Fish Habitat Assessment, Highway 417 Culvert Replacement Project, Ottawa, Ontario (2017):*** Project manager and technical lead responsible for the evaluation of the significance of fish habitat at two culvert crossings Ottawa. Work included aquatic habitat assessments, pathway of effects evaluation, application of the Department of Fisheries and Oceans self-assessment process and reporting.
- ***Fish Habitat and Headwater Drainage Feature Assessment, Private Landowner, Ottawa, Ontario (2017):*** Project manager and technical lead responsible for the completion of a two-season hydrological assessment of on-site water courses and assessment of fish habitat. Work completed in support of a permit required to develop an unopened road allowance.
- ***Environmental Impact Statement and Wetland Boundary Assessment, Town and Country RV, Perth, Ontario (2016-2017):*** Project manager and technical lead responsible for delineation of a provincially significant wetland and impact assessment associated with the expansion of an existing commercial enterprise. Work included ecological land classification, identification of significant wildlife habitat, species at risk surveys, wetland vegetation assessment, impact assessment and development of site-specific mitigation measures.
- ***Environmental Impact Statement, Blueberry Creek Veterinary Clinic, Perth, Ontario (2016):*** Project manager and technical lead responsible for delineation of a provincially significant wetland and impact assessment associated with the development of a commercial lot. Work included ecological land classification, identification of significant wildlife habitat, species at risk surveys, wetland vegetation assessment, impact assessment and development of site-specific mitigation measures.



## Taylor Warrington, B.Sc.

### Biologist

Ms. Warrington has 4 years of experience in the environmental consulting industry, providing private industry and municipal and federal government clients with cost effective solutions to manage environmental constraints associated with land development proposals and infrastructure projects.

### Education

- B.Sc., Life Sciences, McMaster University, 2015
- Graduate Certificate, Ecosystem Restoration, Niagara College, 2016

### Professional Experience

<b>2020-date</b>	<b>GEMTEC Consulting Engineers and Scientists Limited</b> <i>Biologist</i>	<b>Ottawa, Ontario</b>
<b>2019-2020</b>	<b>GEMTEC Consulting Engineers and Scientists Limited</b> <i>Junior Biologist</i>	<b>Ottawa, Ontario</b>
<b>2017-2019</b>	<b>Geofirma Engineering Limited</b> <i>Junior Biologist/Scientist</i>	<b>Ottawa, Ontario</b>
<b>2016</b>	<b>Dillon Consulting</b> <i>Junior Field Biologist</i>	<b>Little Current, Ontario</b>
<b>2014</b>	<b>McMaster University</b> <i>Laboratory-Research Assistant; URBAN Project Coordinator</i>	<b>Hamilton, Ontario</b>

### Professional Affiliations and Technical Training

- Ottawa Conservation Partners Workshop: How to Prepare and Environmental Impact Statement. 2020.
- Class 2 Backpack Electrofishing Crew Leader Certification Course. June, 2019.
- Ontario Reptile and Amphibian Survey Course. Blazing Star Environmental, Natural Resource Solutions Inc., and Ontario Nature. 2018
- Ontario Benthic Biomonitoring Network Certification Course. Ministry of Environment, Conservation and Parks. 2016

### Project Highlights

- ***Tier I and II Natural Environment Report, Crain's Construction, Lanark County, Ontario.*** Biologist responsible for completing on-going surveys in support of a proposed





quarry application. Surveys include winter mammal and ungulate use surveys, bat maternity roost surveys, ecological land classification, breeding bird surveys, turtle basking surveys, amphibian breeding surveys and targeted species at risk surveys for American ginseng and eastern whip-poor-will.

- ***Botanical Surveys, Ontario Power Generation Incorporated, Hydroelectric Generating Stations throughout Central and Eastern Ontario.*** Biologist responsible for completing on-going botanical surveys at 12 hydroelectric generating stations to update existing records. Botanical surveys will include a combination of field survey protocols including random meander, transects and quadrant sampling methods to identify vascular plant species present at each site.
- ***Foresters Falls Dam Removal, Renfrew County, Ontario.*** Biologist responsible for conducting a species at risk screening assessment to identify the presence of species at risk within the project area and evaluate the potential impacts on SAR and their habitat if the dam is removed. On-going surveys including targeted turtle basking surveys, and terrestrial wildlife and vegetation surveys.
- ***Environmental Impact Statement, Subdivision Development, Lanark County, Ontario.*** Biologist responsible for the completion of an Environmental Impact Statement for a proposed 25-lot subdivision application. Work included ecological land classification surveys, targeted surveys for species at risk, breeding amphibians and birds, basking turtle surveys, bat maternity roost surveys, headwater drainage feature assessment, butternut health assessment, impact assessment, development of lot-specific mitigation measures and agency consultation.
- ***Wetland Evaluation and Significant Wildlife Habitat Surveys, Ontario Power Generation Incorporated, Bath, Ontario (2019).*** Biologist responsible for conducting a wetland evaluation and significant wildlife habitat surveys at the Lennox Provincially Significant Wetland. Work included conducting turtle basking surveys, reptile hibernacula surveys, targeting species at risk surveys for Least Bittern and a wetland evaluation following the MNRF's Ontario Wetland Evaluation System.
- ***Environmental Impact Statement, Proposed Subdivision Development, Hawksbury, Ontario (2019).*** Biologist responsible for the completion of an Environmental Impact Statement in support of a proposed 272-lot subdivision application. Work included ecological land classification surveys, targeted surveys for breeding birds, bat maternity roost surveys, headwater drainage feature assessment, impact assessment and development of lot-specific mitigation measures.
- ***Surface Water Impact Assessment, Green Lake Development, Barry's Bay, Ontario (2019):*** Biologist responsible for the completion of a surface water impact assessment supporting two residential lot severances. Work included a review of existing data on Green







Lake, application of the provincial lakeshore capacity model, mitigation measure development and reporting.

- ***Biological Inventory, Ontario Power Generation Incorporated, Bath, Ontario (2018):*** Field Biologist responsible for conducting a three-season inventory of avian and amphibian species at the Lennox Provincially Significant Wetland. Work included conducting presence and abundance surveys following the Canadian Wildlife Service marsh monitoring protocol and Bird Studies Canada breeding bird surveys, statistical analysis of species data trends and reporting.
- ***Environmental Compliance Monitoring, Petrie Island Causeway Rehabilitation Project, Ottawa, Ontario (2018):*** Field biologist responsible for monitoring constructor compliance with various Department of Fisheries and Oceans, Ministry of Natural Resources and Conservation Authority permit conditions during the Petrie Island Causeway Rehabilitation Project within the Ottawa River. Work included species at risk surveys, fish salvage, exclusion fence inspection, monitoring of sediment and erosion control measures, turbidity monitoring, regulatory agency consultation and weekly reporting.
- ***Environmental Impact Statement, Code Drive Development, Smiths Falls, Ontario (2018):*** Field Biologist responsible for the completion of an Environmental Impact Statement in support of a severance application for the creation of eight residential lots within a significant woodland and adjacent to a large local wetland. Work included targeted surveys for species at risk, breeding amphibians and marsh birds, impact assessment, development of lot-specific mitigation measures and agency consultations.
- ***Tier I and II Natural Environment Report, Crain's Construction, Ottawa, Ontario (2018):*** Field biologist responsible for completing an inventory of site flora and fauna, completion of species at risk surveys, bat exit surveys, regulatory agency consultation, impact assessment and reporting.
- ***Species at Risk Assessment, National Capital Commission, Gatineau, Quebec (2018):*** Field biologist responsible for the completion of avian species at risk surveys to determine the presence or absence of chimney swift and barn swallows at a contaminated site. Work was undertaken to support an Ecological Risk Assessment.
- ***Environment Effects Evaluation Assessment, Britannia Wall Rehabilitation Project, Ottawa, Ontario (2018):*** Field Biologist responsible for completing a comprehensive tree inventory, wetland boundary delineation, significant wildlife habitat assessment and evaluation of effects associated with the rehabilitation of the Britannia Wall, a 600-metre-long community flood protection structure.
- ***Environmental Compliance Monitoring, Petrie Island Beach Head Rehabilitation Project, Ottawa, Ontario (2018):*** Field biologist responsible for monitoring constructor





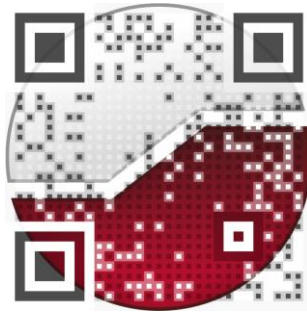
compliance with various Department of Fisheries and Oceans, Ministry of Natural Resources and Conservation Authority permit conditions during the Petrie Island Beach Head Rehabilitation Project within the Ottawa River. Work included species at risk surveys, exclusion fence inspection, monitoring of sediment and erosion control measures, and reporting.

- ***Natural Heritage Inventory and Environmental Impact Assessment, Combermere Lodge Limited, Barry's Bay, Ontario (2017-2018):*** Field biologist responsible for the completion of a Natural Heritage Inventory and Environmental Impact Assessment completed in support of a 54-lot condominium development located in an environmentally sensitive area. Work included wetland boundary delineation, identification of significant wildlife habitat, application of the significant wildlife habitat mitigation support tool, completion of a two-year survey of site flora and fauna, and impact assessments.
- ***Species at Risk and Migratory Bird Screening Assessment, City of Ottawa, New Edinburg Park Redevelopment Project, Ottawa, Ontario (2017):*** Field biologist responsible for the completion of a species at risk and migratory bird screening assessment to assist in bid tender package preparation for the re-development of New Edinburg Park. Work included a general habitat assessment, a probability of occurrence assessment, follow-up pre-construction surveys and reporting.
- ***Post-Construction Windfarm Monitoring for Wildlife Impacts, Little Current, Ontario (2016):*** Field biologist responsible for the completion of post-construction monitoring of a windfarm for avian and mammalian fatalities. Work included fatality surveys, vegetation surveys, and wildlife scavenger surveys.
- ***Long-term Changes in Ecosystem Health, Frenchman's Bay, Pickering, Ontario (2015):*** Field biologist responsible for evaluating the long-term changes in ecosystem health of Frenchman's Bay. Work included: data review, analysis of data trends, watershed and land-use mapping, digitization of wetland vegetation cover and analysis of changes over time, reporting and symposium presentation.





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field services  
materials testing

civil  
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surveillance de chantier  
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