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Environmental Impact Statement
Proposed Residential Development
Part Lot 3, Concession 1
Geographic Township of Drummond
Perth, Ontario

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Submitted to:

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Proposed Residential Development
Part Lot 3, Concession 1
Geographic Township of Drummond
Perth, Ontario

Date: March 23, 2023
Project: 100227.058

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EXECUTIVE SUMMARY

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by Multirex Capital to carry out an Environmental Impact Statement (EIS) for the property located on Part of Lot 3, Concession 1, in the Geographic Township of Drummond, Perth, Ontario. This EIS has been completed in support of a development permit approval with the construction of a 3-storey, 54-unit apartment building and was completed in accordance with all federal, provincial and municipal policies and guidelines, as applicable.

In support of this EIS a desktop review and a single field investigation was completed to identify the presence or absence of natural heritage features and species at risk (SAR) on-site. The field investigation was completed in summer 2022. The focus of the site investigation was to describe, in general, the natural and physical setting of the subject property with a focus on confirming the presence or absence of natural heritage features and potential SAR or their habitat as identified in the desktop review.

Following completion of the desktop review and site investigation, the following natural heritage features were identified on-site or within the study area: local wetlands, and the following *candidate* significant wildlife habitat: special concern and rare wildlife habitat (eastern wood-pewee). The following SAR and their habitat were identified as having a potential to occur on-site: eastern small-foot myotis, little brown myotis, tri-colored bat, and Blanding's turtle. Regulated Category 3 habitat was identified on-site for Blanding's turtle. No butternut trees were observed on-site.

Potential impacts to the natural heritage features were primarily associated with the loss of cultural meadow habitat and deciduous woodland habitat, primarily for avian species and indirect impacts to local wetlands. Potential impacts to natural heritage features are likely to be mitigated through the implementation of a 10 m setback from the local wetlands, as well as a ensuring that all future development occurs outside of the 1:100 year floodplain.

To provide additional protection to potential SAR and their habitat on-site, reptile and amphibian exclusion fencing should be installed around all future construction areas prior to any development or site alteration. Additionally, vegetation clearing should be completed outside of bird nesting and bat roosting seasons. Should any SAR be discovered throughout the course of any development on-site, operations should stop and the species at risk biologist with the local MECP district should be contacted immediately for further direction.

The proposed severance application and construction complies with the natural heritage policies of the Provincial Policy Statement, Town of Perth Official Plan and the Lanark County Official Plan. No negative impacts to identified natural heritage features or their ecological functions are anticipated as a result of the proposed development as long as all mitigation measures in Section 7 are enacted and best management practices followed.

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1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by Multirex Capital to carry out an Environmental Impact Statement (EIS) for the property located on Part of Lot 3, Concession 1, in the Geographic Township of Drummond, Perth, Ontario (hereafter referred to as "the subject property"). The general location of the subject property is illustrated on Figure A.1 in Appendix A.

1.1 Purpose

The proponent is seeking a development permit approval for a proposed 3-storey, 54-unit apartment building. Based on Section 5 of the Lanark County Official Plan (Lanark County, 2012) an EIS is required showing that the project will not negatively impact any potential natural heritage features which may be present within the study area. The study area is defined as the property boundary and the adjacent lands encompassing an area of 120 m beyond the property boundary. The subject project and the extents of the study area are illustrated on Figure A.2.

1.2 Objective

The 2020 Provincial Policy Statement (MMAH, 2020) issued under Section 3 of the Planning Act states that "development and site alteration shall not be permitted in: habitats of species at risk, significant wetlands, significant woodlands 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 dictates that 'development and site alteration shall not be permitted in 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 (MMAH, 2020), on the subject property and within the broader study area, and; 2) to assess the potential impacts from the proposed development and construction on any natural heritage features identified and to recommend 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 provincial and municipal regulations, policies and guidelines:

- Provincial Policy Statement (MMAH, 2020);
- Endangered Species Act (Ontario, 2007);
- Conservation Authorities Act (Ontario, 1990);
- Town of Perth Official Plan (Perth, 2019);
- Natural Heritage Reference Manual (OMNR, 2010); and
- Lanark County Official Plan (Lanark County, 2012).

1.3 Physical Setting

The subject property is located on part of Lot 3, Concession 1, in the Geographic Township of Drummond, Perth, Ontario. The site is comprised of deciduous woodlands, cultural thickets and local wetlands. The subject property is bound to the east by neighbouring properties of Lot 4, Concession 1. To the north and south the site is bound by vacant land of Lot 3, Concession 1. To the west the site is bound by properties municipally addressed as 32 Brock Street West, and 34 Brock Street West, and neighbouring vacant properties of Lot 3, Concession 1.

1.4 Land Use Context

The subject property is situated within the town of Perth. The existing land use designation from the Lanark County Official Plan is settlement area and floodplain. The land-use from the Town of Perth is residential, environmental protection and flood plain, the zoning by-law from the village is residential fourth density (R4) and environmental protection area (EPA).

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 occurrence records, and review of SAR habitat requirements and range maps.

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 (OMNR, 2011c);
- Town of Perth Official Plan (Perth, 2019);
- 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, 2019).

2.2 Field Investigations

A single field investigation was undertaken to describe, in general, the natural and physical setting of the subject property with a focus on identifying natural heritage features and any potential SAR or their habitat that may exist at the subject property. In addition, all trees greater than 10 cm in diameter were recorded and critical rootzone calculated in order to facilitate the retention of trees during development. A copy of the tree conservation report is provided in Appendix E of this report.

A single field investigation was completed on July 14, 2022 from 09:45 – 14:45. Conditions during the investigation were as follows, 19°C, 10% cloud cover, Beaufort 2, no precipitation.

Photographs of site features taken during field investigations are provided in Appendix B.

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 July 14, 2022, 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.

2.3 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 between 4.9°C to 7.8°C and 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 136 mASL in the northwest and a topographical low of 132 mASL along the southeast property border.

A single topographical landform, as mapped by Chapman and Putnam (1984) is described on the subject property, the limestone plains of the Smiths Falls Limestone Plains physiographic region.

The Ontario Geological Survey (OGS, 2019) identifies one surficial soil unit on the subject property, fine-textured glaciomarine deposits consisting of silt and clay, minor sand and gravel being massive to well laminated which covers the entire property.

Bedrock at the site, as described by OGS (2019) consists entirely of the Beekmantown Group comprised of dolostone and sandstone.

3.3 Surface Water, Groundwater and Fish Habitat

Surface water on the subject property consists of a single local wetland, located in the south half of the property. Furthermore, a portion of the site is within the 1:100 year floodplain. The local wetland on-site occurs within the 1:100 year floodplain. The local wetland was dry to surface damp at the time of the site investigation, no open water areas were observed. Based on floodplain mapping and vegetation, however it is likely that the site experiences seasonal flooding during large storm events (i.e. 1:100 floods), and following spring freshet. Vegetation within the local wetland was consistent with species less tolerant of prolonged flooding, including a mix of facultative, facultative wetland and obligate wetland plants. Outside of a flood period the wetland on-site has no surface water connectivity to upstream or downstream habitat. Given the limited hydroperiod and seasonality of the flooding, the local wetland is not likely to provide significant wildlife habitat or fish habitat.

One off-site watercourse was identified to the southeast of the property. A fisheries assessment was not conducted as part of this EIS, however based on observations from the site investigation, the local wetland does not have any surface water or hydrologic connectivity to downstream or upstream fish habitat. As such the local wetland on-site is not considered to provide fish habitat.

Groundwater investigations were not completed in support of this EIS.

3.4 Vegetation Communities

Vegetation communities on-site were confirmed by GEMTEC in 2022, following protocols utilized in the Southern Ontario Ecological Land Classification System (Lee et al., 2008). Vegetation at the site represents a mosaic of deciduous woodlands, cultural thicket and local wetlands.

Table 3.1 below provides a summary of the various vegetation communities identified on-site while Figure A.3 in Appendix A provides an illustration of the various vegetation communities.

Table 3.1 Vegetation Communities On-site

ELC Type	Description	Size (ha)
Dry-Fresh Manitoba Maple Deciduous Forest (FODM4-5)	Located throughout the majority of the property dominating the north is a Manitoba maple deciduous forest. The community was dominated by Manitoba maple (*Acer negundo*). Lesser constituents included green ash (*Fraxinus pensylvanica*), black ash (*Fraxinus nigra*), American elm (*Ulmus americana*), black cherry (*Prunus serotina*) and common buckthorn (*Rhamnus cathartica*). The shrub layer included common buckthorn, hawthorn sp (*Crataegus* sp.)., black ash and green ash. The herbaceous layer included red hailstone (*Thladiantha dubia*) and Virginia creeper (*Parthenocissus quinquefolia*).	1.13
Cultural Meadow (CUM)	Located in the middle of the property is a cultural meadow. This community was dominated by herbaceous forb species with little tree and shrub growth which included Manitoba maple, black walnut, hawthorn sp., green and black ash. The community contained black walnut saplings, cow vetch, thistle sp., Virginia creeper, goldenrod (*Solidago* sp.) and various grass species.	0.21
Meadow Marsh (MAM)	In the south of the property is a meadow marsh. This community was dominated by reed canary grass (*Phalaris arundinacea*). Scattered along the edge of the marsh are Manitoba maple and common buckthorn. The herbaceous layer included cattail sp. (*Typha* sp.), spotted touch-me-not (*Impatiens capensis*), spotted joe-pye weed (*Eutrochium maculatum*), poison parsnip (*Pastinaca sativa*), cow vetch (*Vicia cracca*) and thistle sp. (*Cirsium* sp.).	0.29

ELC Type	Description	Size (ha)
	This community was dry to surface damp at the time of the site investigation.	

As a component of the EIS, a Tree Conservation Report was prepared for the site. The Tree Conservation Report is provided in Appendix E of this report.

3.5 Wildlife

Wildlife observed on-site and within the study area during the field investigation completed in 2022 are summarized in Table C.1 in Appendix C.

4.0 NATURAL HERITAGE FEATURES

Natural heritage features are defined in the PPS as “features and area, 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, *habitats of endangered species and threatened species, significant wildlife habitat* and *significant areas of natural and scientific interest*, which are important for their environmental an 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 PSWs were identified on-site during the desktop review, nor were they identified on-site. A single local wetland occurs in the south of the property. Local wetlands are illustrated on Figure A.4 in Appendix A. As discussed in Section 3.3, local wetland on-site and adjacent to site were dry to surface damp at the time of the site investigation.

Impacts to local wetlands from the proposed project are discussed in Section 6.

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.

Table C.2 in Appendix C, presents the screening rationale for significant woodlands applied in this EIS. Based on the guidance outlined in the natural heritage reference manual (OMNR, 2010) and the Town of Perth Official Plan, it is assumed that the woodland coverage within the planning area 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 results of the significant woodland screening presented in Table C.2, significant woodlands are not present on-site. Furthermore, the Town of Perth Official Plan does not identify the on-site woodlands as significant.

As such, significant woodlands are not discussed further in this EIS.

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 3.2, the site is relatively flat, however mapping from the RVCA and Perth Official Plan identify that portions of the property occur within the 1:100 year floodplain. In accordance with RVCA and Perth Official Plan policies, no development is permitted within the 1:100 year floodplain.

Impacts to significant valleylands associated with the 1:100 year floodplain are discussed in Section 6 below.

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 typically represent significant segments of Ontario's biodiversity and natural landscapes, while earth science ANSIs typically represent significant examples or bedrock, fossils or landforms in Ontario (OMNR, 2010).

No ANSI have been identified on-site or adjacent to the site during the desktop review or during site investigations. As such, ANSI are not discussed or evaluated further in this EIS.

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. The 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 C.3, C.4, C.5 and C.6 in Appendix C, 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 guides (OMNR, 2000) and significant wildlife habitat ecoregion criterion schedules (OMNRF, 2015) identifies 11 types of seasonal concentration habitats that may be considered significant wildlife habitat. These 11 types of seasonal habitat are presented in Table C.3 in Appendix C, including a brief description of the rationale as to why or why they are not assessed further in this EIS.

Following review of Table C.3 in Appendix C, no *candidate* habitats of seasonal concentration of animals have been identified on-site.

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 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 wild habitat are evaluated in Table C.4 in Appendix C.

Following review of Table C.4 in Appendix C, no *candidate* specialized habitat for wildlife has been identified on-site or within the broader study area. As such specialized habitats for wildlife 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 (MNRF, 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, 2015), 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 C.5 in Appendix C, including a brief rationale as to why they are or are not considered further in this EIS. Following review of Table C.5 in Appendix C, one habitat for species of conservation concern has been identified on-site: habitat for special concern and rare wildlife species for eastern wood-pewee, eastern musk turtle and snapping turtle. The *candidate* SWH are discussed in detail in the subsection below.

4.5.4.1 Special Concern and Rare Wildlife Species SWH

Based on occurrence data from the NHIC and Ontario Breeding Bird Atlas and observation data taken during field investigations, three species of special concern have been identified on-site or within the broader study area, eastern wood-pewee, wood thrush and snapping turtle. No other species of special concern or rare wildlife species were identified on-site or within the broader study area.

Eastern Wood-pewee

The eastern wood-pewee is a small flycatcher bird with an S-rank of S4 (uncommon but not rare) in Ontario; the most recent Ontario Breeding Bird Atlas indicated that the eastern wood-pewee has a probability of occurrence of over 80% (Cadman et al, 2007). Furthermore, the national capital region is considered to have some of the highest density of wood-pewee in Ontario, indicating a stable, healthy population (Cadmen et al, 2007). Eastern wood-pewee is a woodland species that is often found near clearings and edges. Eastern wood-pewee were observed on-site during the site investigation, as such there is a high chance of eastern wood-pewee or suitable habitat to occur on-site.

Eastern Musk Turtle

Eastern musk turtles are found in ponds, lakes, marshes and rivers that are generally slow-moving have abundant emergent vegetation and muddy bottoms that they burrow into for winter hibernation. Nesting habitat is variable, but it must be close to the water and exposed to direct sunlight. The eastern musk turtle is of special concern and ranked as S3 (rare to uncommon) in Ontario. While the NHIC occurrence data indicates that eastern musk turtle is present in the area,

there is no suitable aquatic habitat on-site to support eastern musk turtle. Given the lack of suitable aquatic habitat, the site and surrounding area do not provided suitable foraging or nesting habitat for eastern musk turtle. As such eastern musk turtle are not likely to occur on-site and the proposed development is not anticipated to negatively impact eastern musk turtle or their habitat. As such habitats of species of conservation concern for eastern musk turtle are not discussed or evaluated further in this EIS.

Snapping Turtle

The snapping turtle is a highly aquatic turtle species with an S-rank of S3 (rare to uncommon) and is listed as a species of special concern in Ontario. The NHIC identified snapping turtle as having occurred within 1 km of the site. Snapping turtles are aquatic generalists, found in a variety of wetlands, water bodies and watercourses. While the NHIC occurrence data indicates that snapping turtle is present in the area, there is no suitable aquatic habitat on-site to support snapping turtle.. As a highly aquatic species, snapping turtles prefer permanently flooded wetlands and waterbodies. As such for the local wetland on-site is not considered to provide suitable habitat for snapping turtle and they are not likely to occur on-site, nor is the proposed development anticipated to negatively impact snapping turtle or their habitat. As such habitats of species of conservation concern for snapping turtle are not discussed or evaluated further in this EIS.

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 corridor: 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.

Following review of Table C.6 in Appendix C, no animal movement corridors have been identified on-site. Furthermore, the Official Plan of the Town of Perth has not identified any animal movement corridors on-site. As such, animal movement corridors are not discussed further in this EIS.

4.6 Fish Habitat

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 C.7 in Appendix C, 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 (Ontario, 2007), 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 Section 6.

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, is a land severance application and development permit approval for a proposed 3-storey, 54-unit apartment building for the property located on Part of Lot 3, Concession 1, in the Geographic Township of Drummond, Perth. It is proposed that the development will front to Provost Street. It is proposed that the unit will be on municipal services. The proposed development is illustrated on Figure A.4 in Appendix A.

Future components of the proposed project considered in the impact assessment presented in Section 6 include: tree clearing and vegetation grubbing, fill placement and elevation grading, road construction, parking lot construction, excavation and pouring of foundation, construction of apartment building and general landscaping activities.

Creation of a new lot is not anticipated to negatively impact the natural heritage features on-site. At this time development for the severed parcel is unknown, but is likely to include residential development. A conceptual development envelope has been illustrated on Figure A.6 to show that future development on the site will not be constrained by the natural heritage features identified in this report. If future development at the site is proposed to occur outside of this development envelope an addendum to this EIS will be required.

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, increase storm water generation and potentially increased nutrient loading to adjacent surface water features.

As discussed in Section 5 above, the severance application and creation of a new lot is not anticipated to impact the natural heritage features of the property. As development on the severance parcel is currently unknown, a conceptual development envelope has been illustrated on Figure A.6 to illustrate that future development on the created lot is viable.

The remainder of this EIS report, including the impact assessment and mitigation measures (Section 7) are focused on the proposed development of the 54-unit apartment building on the retained lands described in Section 5 above.

6.1 Local Wetlands

As no in-water work is anticipated as part of the proposed development, impacts to local wetlands are anticipated to be indirect in nature.

Potential indirect impacts to on-site wetlands are primarily anticipated to be associated with changes to the surface water and groundwater water balance through increased stormwater runoff resulting from increased impervious surface area and encroachment resulting in compaction of soils and vegetation loss. Other potential impacts include short duration construction impacts including: heavy machinery encroachment, fill placement and long term human disturbance such as noise generation, dumping of refuse and trampling.

Mitigation measures to protect local wetlands from development impacts are provided in Section 7.

6.2 Significant Valleylands - Floodplain

As discussed in Section 4.3, significant valleylands are present on-site in conjunction with RVCA and Town of Perth Official Plan mapping for the 1:100 year floodplain.

In accordance with RVCA and Perth Official Plan policies, no development is permitted within the 1:100 year floodplain. To confirm the location of the floodplain and provide updated mapping, a

site survey was completed to confirm the extents of the 1:100 year floodplain on-site. Figure A.5 illustrates the floodplain elevation (132.49 contour).

No development is proposed to occur within the 1:100 year floodplain. As such no negative impacts to significant valleylands – floodplain are anticipated as a result of the proposed development.

6.3 Significant Wildlife Habitat

The potential presence of significant wildlife habitat on-site and within the study area was evaluated in Section 4.5, as a result of this assessment one types of significant wildlife habitat were determined to be present on-site or within the study area: habitats of special concern and rare wildlife species.

Potential impacts to significant wildlife habitats are discussed in greater detail in the following subsections, while mitigation measures indented to prevent such impacts are presented in Section 7.

6.3.1 Habitats of Special Concern and Rare Wildlife Species SWH

Eastern Wood-Pewee

Eastern wood-pewee (*Contupus virens*) is a small, avian insectivore, that lives in a variety of deciduous, mixed and to a lesser extent, coniferous woodland habitat (COSEWIC, 2012a). 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, 2012a). 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, 2012a). Furthermore, research indicates that the species is not very sensitive to forest fragmentation effects or forest size (COSEWIC, 2012a). 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, 2012a). 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, 2012a).

Impacts to eastern wood-pewee and their habitat on-site from the proposed development is limited to the wooded and forest habitat on-site (ELC codes FODM4-5 on Figure A.4), 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 the 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, 2012a). Impacts from increased human presence are anticipated to be negligible given the 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.

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 subsections below.

6.4.1 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 sough of Lake Superior across to the Ontario-Quebec border (Humphrey, 2017).

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, 2021a).

While the forest habitat on-site is unlikely to meet the requirements to support bat maternity colonies, given the availability of suitable habitat and potentially suitable anthropogenic buildings within the study area, there is a potential for eastern small-footed Myotis to occur on the property, primarily for foraging and non-maternal roosting. Impacts to eastern small-footed Myotis are primarily associated with 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.

6.4.2 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, 2021b).

Little brown Myotis overwinter in caves and abandoned mines, they require highly humid conditions and temperatures that remain above the freezing mark (Ontario, 2021b). 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 clearcuts are not typically utilized for foraging (COSEWIC, 2013).

While the forest habitat on-site is unlikely to meet the requirements to support bat maternity colonies, given the availability of suitable habitat and potentially suitable anthropogenic buildings within the study area, there is a potential for eastern little brown Myotis to occur on the property, primarily for foraging and non-maternal roosting. Impacts to little brown Myotis are primarily associated with 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.

6.4.3 Tri-Colored Bat

Tri-colored bat (*Perimyotis subflavos*) 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).

Tri-colored bat overwinter in 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).

While the forest habitat on-site is unlikely to meet the requirements to support bat maternity colonies, given the availability of suitable habitat and potentially suitable anthropogenic buildings within the study area, there is a potential for eastern tri-colored bat to occur on the property, primarily for foraging and non-maternal roosting. Impacts to tri-colored bat are primarily associated with 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.

6.4.4 Blanding's Turtle

Blanding's turtles (*Emydoidea blandingii*) have a highly domed, smooth black carapace with small, irregular tan or yellow flecking. The most distinctive characteristic of this species is the bright yellow chin and throat. Their hinged plastron is yellow with a large dark blotch in the corner of each scute, but may also be entirely black (Oldham and Weller, 2000).

In Canada, Blanding's turtles are found throughout southern and south-central Ontario from south of Manitoulin Island to western Quebec. In Ontario, Blanding's turtles are often observed utilizing eutrophic habitats with clear water (COSEWIC, 2005a). This turtle species occurs primarily in shallow water; adults are generally found in open or partially vegetated sites, where as juveniles prefer areas that contain thick aquatic vegetation. Blanding's turtles are known to make large overland journeys between connected lakes, rivers, streams, marshes or ponds, upwards of 6 km in a single active season. Overwintering occurs in permanent pools that average about one metre in depth, or slow flowing streams (COSEWIC, 2005a).

As outlined in the MNRF general habitat description for Blanding's turtle, Category 1 habitat is defined as "the nest and the area within 30 m of the nest or overwintering sites and the area within 30 m of the site", Category 2 habitat is defined as "the wetland complex (i.e. all suitable wetlands or waterbodies within 500 m of each other) that extends up to 2 km from an occurrence and the area within 30 m around those suitable wetlands or waterbodies" and Category 3 habitat is defined as "the area between 30 m and 250 m around suitable wetlands and waterbodies identified as Category 2, within 2 km of an occurrence." The MNRF general habitat description for Blanding's turtle is provided in Appendix D.

Blanding's turtle nests (Category 1 habitat) are created in open habitats with low vegetation cover, loose soils, and high sun exposure such as in forest clearings, meadows, shorelines, beaches and gravel roads (Ontario, 2021) and (COSEWIC, 2016). Suitable Blanding's turtle overwintering habitat typically includes permanent bogs, fens, marshes, ponds, channels or other habitats with free (unfrozen) shallow water. Blanding's turtle may also hibernate within graminoid shallow marsh areas of larger marsh complexes by burying into substrates in areas of pooled water.

Blanding's turtle may also overwinter in seasonal pools or small excavated areas with standing water (Ontario, 2021).

Suitable Category 2 habitat for Blanding's turtles during the active season includes a variety of wetlands such as marsh, swamps, ponds, fens, bogs, slow-flowing streams, shallow bays of lakes or rivers, as well as graminoid shallow marsh and slough forest habitats that are adjacent to larger marsh complexes (Ontario, 2021). Suitable wetlands used during the active season are typically eutrophic (mineral or organic nutrient-rich), shallow with a soft substrate composed of decomposing materials, and often have emergent vegetation, such as water lilies and cattails (Ontario, 2021) and (COSEWIC, 2016).

Although wetlands and ponds are used as movement corridors when available, females make extensive movements through upland habitat to access nesting sites (Ontario, 2021). Blanding's turtles also make regular overland movements between wetlands throughout the active season in order to access Category 1 and 2 habitats within their home range (Ontario, 2021). Category 3 habitat provides essential movement corridors of up to 500 m between wetlands, which will encompass the areas that are most likely to be used for overland movement (Ontario, 2021).

During the site investigation Blanding's turtles were not detected on-site. Review of NHIC occurrence data indicates the species has been observed within 1 km of the site.

While the NHIC observations are likely in conjunction with the Tay River (and its associated wetlands to the south), as regulated Blanding's turtle habitat extends up to 2 km from an observation, based conservatively on the NHIC observation data, the site has the potential for Blanding's turtle or their habitat to occur on-site. However, based on field observations and the lack of standing water within the on-site wetland, the on-site meadow marsh does not provide suitable aquatic habitat (i.e. no surface water) to support Category 1 or Category 2 habitat. Furthermore no suitable nesting habitat is present on-site. As such, no Category 1 or Category 2 habitat has been confirmed on-site. Based on the NHIC observation data the entire site provides Category 3 habitat.

As outlined in the General Habitat Description, activities in Blanding's turtle habitat that are generally compatible include small-scale alterations to land cover that do not impede overland movements or impair nesting sites. Generally incompatible activities include significant draining, infilling, dredging or significant wetland alteration, and significant alteration of shorelines.

As described above, the proposed development will not result in any alteration to wetlands or shorelines or impair nesting sites.

As no in-water work will occur on the subject property, potential impacts to the wetland and off-site watercourse are anticipated to be indirect and primarily associated with changes to the surface water and groundwater water balance through increased stormwater runoff resulting from

an increase in the impervious surface area and encroachment resulting in compaction of soils and vegetation loss. This increase in storm water runoff and flow rates has the potential to result in increased sedimentation and erosion downstream.

Indirect impacts to water quality may include increased overland flow and concomitant sediment transport caused by an increase in impervious surface area, as well as increased nutrient loading through both overland and subsurface pathways resulting from landscaping practices. Other potential impacts include short duration construction impacts, including: heavy machinery encroachment, fill placement and long term human disturbance such as noise generation, dumping or refuse and yard waster and trampling and increased road mortality, particularly during nesting season, when turtles are more transient.

Potential direct impacts to Blanding's turtles are anticipated to be associated with a loss of Category 3 habitat and increased interactions between transient Blanding's turtles. The proposed development has the potential to impact up to 1.12 ha of Category 3 habitat on-site. Development within Category 3 habitat will include a direct loss of vegetation cover within these areas.

In consideration of the proposed project, and considering that the majority of Category 3 habitat on-site will be maintained, the proposed development is not anticipated to impede overland movements of Blanding's turtle or the function of the remaining Category 3 habitat on-site and off-site. As such, negative impacts to regulated Blanding's turtle habitat are not anticipated. Potential impacts to individual Blanding's turtle are anticipated to be minimal and are limited to increased interactions with transient Blanding's turtles, particularly during migratory periods. Migration and dispersal take place after the start of the active season, following ice-off, and in September when turtles return to their overwintering habitat. Nesting typically takes place between late May to early July.

Given the proposed development and minimal impact potential to Blanding's turtle and their habitat, it is GEMTEC's opinion that standard avoidance and mitigation measures will be sufficient to mitigate impacts of the proposed project and no ministry consultation is required.

General mitigation measures and best practices intended to Blanding's turtles from negative impacts are discussed in Section 7.

6.4.5 Butternut

Butternut (*Juglans cinerea*) is a relatively short lived, medium-sized tree that can reach heights of up to 30 m. It is easily distinguished by its compound leaves, made up of 11 to 17 leaflets, arranged in a feather-like patter. Each leaflet is 9 to 15 centimetres in length. The bark is grey and smooth on young trees, becoming more ridged with age. Butternut is a member of the walnut family and produces edible nuts in the fall.

The Canadian range for Butternut extends through southern Ontario into southern Quebec, and New Brunswick (COSEWIC, 2003). Butternut is a shade intolerant tree that is commonly found in riparian habitats, and sites in a regenerative state. Butternut can also be found on rich, moist, well-drained gravels, favouring those of limestone origin. Common associates of Butternut trees include: basswood, black cherry, beech, black walnut, elm, hickory, oak, red maple, sugar maple, yellow poplar, white ash and yellow birch.

No butternut trees were observed on-site during any of the site investigations. Furthermore, no butternut observation records were provided by the NHIC for the single 1 km grid square that encompasses the site. As no butternuts were documented on-site, no mitigation measures are provided in Section 7 concerning butternut, and they are not discussed or evaluated further in this EIS.

6.5 Cumulative Impacts

Potential cumulative impacts associated with the proposed project include an increase in storm water generation, increases in nutrient loading to aquatic features, and the loss of forest habitat, primarily for avian species.

Cumulative impacts to the natural environment at the site due to increased human presence, increased wildlife and human interaction and increased noise, are expected to be negligible given the existing residential and agricultural land use in the surrounding project area.

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.

For the purpose of this report, a setback is defined as the minimum required distance between any structure, development or disturbance and a specified line. A buffer, for the purpose of this report, is defined as the area located between a natural heritage feature and the prescribed setback. For the purpose of the following subsections, buffers should be located between natural heritage features and lands subject to development or alteration, be permanently vegetated by native or non-invasive, self sustaining vegetation and protect the natural heritage feature against the impact of the adjacent land use.

Vegetated buffers, particularly buffers that are vegetated with a mix of grassy herbaceous vegetation and shrubby or woody vegetation are most effective in mitigating impacts associated with anthropogenic activities in adjacent lands (Beacon, 2012). In the subsections below, where

possible, literature references for studies used as the basis of the recommended buffer widths are provided.

7.1 Environmental Protection Zoning

As discussed in Section 1.4, a portion of the site has been identified as Environmental Protection on the Town of Perth Zoning maps. In review of the Perth Official Plan and Zoning By-laws, environmental protection zones are identified for the following three areas:

- Lands within the 1:100 year regulatory flood level (flood plain and flood plain constraint);
- Lands characterized by a Natural Heritage Feature such as Provincially Significant wetlands and wildlife habitat; or
- Any update to the Plan will add to this designation areas of unstable soils, slopes or areas of forest types for wildland fires where they are identified.

Following the site investigation and completion of this EIS report, it is GEMTECs opinion that the Environmental Protection zoning for the property was drawn in association with the 1:100 year regulatory floodplain mapping. The most recent survey of the property identified the 132.49 contour as the most current mapping of the 1:100 year floodplain on-site.

No provincially significant wetlands or significant wildlife habitat (with the exception of eastern wood-pewee habitat) has been identified on-site. In eastern Ontario, eastern wood-pewee is wide spread and is tolerant to development.

Habitat outside of the floodplain elevation (132.49 contour) is not considered to require environmental protection zoning, as such it is recommend that the Environmental Protection Zoning be amended to follow the updated survey of the floodplain elevation (132.49 contour). The updated floodplain elevation (132.49 contour) will protect portions of the on-site woodlands for eastern wood-pewee, as well as the entirety of the meadow marsh local wetland.

7.2 Local Wetlands

No negative impacts on the integrity of the local wetlands are anticipated as a result of the proposed development if all mitigation measures recommended below area enacted and best management practices followed. Wetlands on-site can be protected against potential impacts of the proposed development through the implementation of a construction setback.

Beacon Environmental Review of Ecological Buffers (2012), provides a range for buffer widths to protect various natural heritage features based on the current science. The buffers are presented in a way that determines the risk of not achieving the desired buffer function (i.e. high, moderate and low). The functions analysed include water quantity, water quality, screening or human disturbance/changes in land use, hazard mitigation zone and core habitat protection. Impacts to the local wetlands on-site were identified to include potential impacts to water quality, human

disturbance and core habitat protection (*candidate* woodland amphibian breeding habitat and *candidate* marsh breeding bird habitat). Wetland buffer widths have a moderate risk of not providing adequate mitigation for water quality impacts at widths between 11 m and 50 m. Wetland buffer widths have a moderate risk of not providing adequate mitigation for human disturbance/land use change impacts at widths between 11 m and 30 m and low risk at widths of 31 m to 50 m. Wetland buffer widths have a moderate risk of not providing adequate mitigation for core habitat protection at widths between 21 m and 60 m.

As the on-site wetland is not considered to provide any core habitat functions (i.e. fish habitat, significant wildlife habitat, etc.), impacts to core habitat and impacts as a result of human disturbance are not anticipated and do not require mitigation. A stormwater management plan is recommended to provide both water quality and water quantity control.

Impacts from encroachment, soil compaction, vegetation loss and fill placement can be mitigated through the implementation of a setback. In consideration of the local wetland a 10 m setback from the local wetland is proposed.

A minimum 10 m setback from the local wetland is recommended, as illustrated on Figure A.6. The recommended 10 m setback provides sufficient protection for mitigating water quality impacts and human disturbances, as long as all the general mitigation measures outlined below are enacted.

General mitigation measures recommended for the protection of water quality and wetland habitat include:

- Buffers should be comprised of a mixture of native, self-sustaining trees, shrubs and tall grasses.
- All future development and construction activities within the study area, including ditching, culvert installation, erosion and sediment control and storm water management should be completed in accordance with Ontario Provincial Standard Specification 182 and OPSS 805.
- Silt fencing should be installed along all setbacks to provide visual demarcation of the setbacks to prevent machinery encroachment and sediment transport.
- When native soil is exposed, sediment and erosion control work in the form of heavy-duty sediment fencing shall be positioned along the down gradient edge of any construction envelopes adjacent to waterbodies.
- Install and maintain effective sediment and erosion control measures before starting work.
- Schedule work to avoid wet, windy and rainy periods.
- When native soil is exposed, sediment and erosion control work in the form of heavy-duty sediment fencing shall be positioned along the down gradient edge of any construction envelopes adjacent to waterbodies.

- Maintain as much permeable surface as possible in future development plans to limit the generation of stormwater runoff.
- Stormwater generated from the development is to be managed on-site such that discharge to adjacent surface water features is equal to pre-development.
- Stormwater generated from the development that is not considered clean, is to be treated to achieve a reduction of 80% of TSS prior to discharge
- In order to protect fish habitat from contamination, it is recommended that all machinery be maintained in good working condition and that all machinery be fueled a minimum of 30 m from the high water mark.
- Any temporary storage of aggregate material shall be set back from the water's edge by no less than 40 m and be contained by heavy-duty silt fencing.

7.3 Significant Valleylands – Floodplain

All development is proposed to occur outside of the 1:100 year flood line, as identified as the floodplain elevation (132.49 contour) on Figure A.6 in Appendix A.

7.4 Significant Wildlife Habitat

7.4.1 Habitats of Special Concern and Rare Wildlife Species – Eastern Wood-Pewee

Impacts to eastern wood-pewee primarily concern habitat loss and increased fragmentation, however given the available habitat on-site and within the study area, the minor loss is not anticipated to impact the function of the remaining habitat.

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 March 15 – August 31) as identified by the Ministry of Environment, Conservation and Parks and 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 than a nest survey shall be conducted by a qualified professional.

7.5 Species at Risk

7.5.1 Eastern Small-footed Myotis, Little Brown Myotis, and Tri-Colored Bat

To protect roosting and foraging bats, tree removal where required should take place outside of the spring and summer active season (March 15 – November 30), when bats are more likely to be using forest habitat. If vegetation clearing must be conducted during the spring and summer timing window than an acoustic and roosting survey should be conducted be a qualified professional.

7.5.2 Blanding's Turtle

As discussed in Section 6.4.7, it is GEMTECs opinion that the proposed project will not negatively impact the function of regulated habitat on-site. As such it is GEMTECs opinion that standard

avoidance and mitigation measures will be sufficient to mitigate impacts of the proposed project and no ministry consultation is required.

The 10 m setback from the local wetland on-site is sufficient to protect wetland habitat from encroachment and habitat loss. Furthermore, the 10 m wetland setback will protect adjacent Category 2 habitat associated with off-site surface water features. Blanding's turtle and association habitat will be further protected by having all proposed development occur outside the floodplain elevation (132.49 contour). In areas where the 10 m wetland setback and floodplain elevation (132.49 contour) cross the larger of the two constraints should be applied.

Through the use of the proposed 10 m setback and the establishment of the updated floodplain elevation (132.49 contour), total impacted Category 3 habitat is reduced from 1.12 ha to 0.69 ha. Implementation of the setback and floodplain elevation ensures that the migratory function of the Category 3 habitat associated with the local wetland and upland areas within the floodplain will not be negatively impacted, Blanding's turtle will still be able to utilize the area for overland movement.

The following best practice measures should be implemented to avoid impacts to transient Blanding's turtles:

- Prior to any site work, silt fencing should be installed around the entire construction area to prohibit the potential migration of Blanding's Turtles, and other wildlife into the construction area. Silt fencing should follow the protocols outlined in the Species at Risk Branch: Best Practices Technical Note: Reptile and Amphibian Exclusion Fencing Version 1.1 (MNRF, July 2013). Temporary fencing should be installed prior to the start of the active season and remain in place throughout the active season of each year of construction.
- Temporary exclusion fencing should be inspected by a designated staff member once per week between April 15 and October 15 of any year. The designated staff member should be trained by a Qualified Professional. Any damage to temporary fencing should be repaired by the end of the business day when the damage is observed.
- Each day of construction a daily pre-work sweep of the construction area should occur to ensure no SAR are present and to remove any wildlife from inside the construction area.
- All staff working on-site should be provided Species at Risk training to identify species at risk which a potential to occur on-site including: Blanding's turtle. Training will also outline the stop work procedures and MECP reporting/consultation prior to resuming work
- During construction if any SAR is identified on-site all work should stop and a qualified professional and the MECP should be contacted for next steps. Sightings should be reported to the MECP and the NHIC.
- Heavy-duty silt fencing should be installed and maintained during construction and whenever soil is exposed.

- Tree clearing and vegetation removal will be undertaken outside of the active season (April 1 – October 31) for Blanding's turtles. Prior to vegetation removal a sweep will be completed to ensure Blanding's turtles are absent from the 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.
- To protect aquatic habitat for Blanding's turtles, machinery should be maintained in good working condition and all machinery should be fueled a minimum of 30 m from the high water mark.
- To protect aquatic habitat for Blanding's turtles, machinery should be maintained in good working condition and all machinery should be fueled a minimum of 30 m from the high water mark.

7.6 Wildlife

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 of March 15 to November to avoid the key breeding bird period, bat summer active season, and turtle active. The timing windows provides protection of migratory birds, roosting bats and avoids contravention of the Migratory Bird Convention Act and Endangered Species Act. If vegetation clearing activities must take place during the aforementioned timing window than a nest and acoustic/roost survey shall be conducted by a qualified professional.
- Installation of silt fence barriers around the entire construction envelope to prohibit the emigration of wildlife into the construction area, silt fencing should be checked daily and following each precipitation event.
- 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.

7.7 Best Practice Measures for Mitigation of Cumulative Impacts

The following best management 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.
- Maintain as much permeable surface as possible in future development plans to minimize the generation of storm water runoff.
- Silt fencing should be installed along all setbacks to provide visual demarcation of the setbacks and to prevent machinery encroachment and sediment transport.
- 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 spruce, red maple and red oak.

8.0 CONCLUSIONS

The proposed project supported by this EIS is a land severance application to create one new lot, with the future construction of 54-unit apartment building on the retained lands.

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 impacts are anticipated from the proposed 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 impacts to natural heritage features identified on-site, including local wetlands, significant woodlands, significant wildlife habitat or habitats of species at risk are anticipated as a result of future residential development.
- 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 Lanark County Official Plan and the Town of Perth 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 Multirex Capital and is intended for the exclusive use of Multirex Capital. This report may not be relied upon by any other person or entity without the express written consent of GEMTEC and Multirex Capital. 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, including excavations, borings 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.

Emily Young, B.Sc.
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Biologist

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APPENDIX A

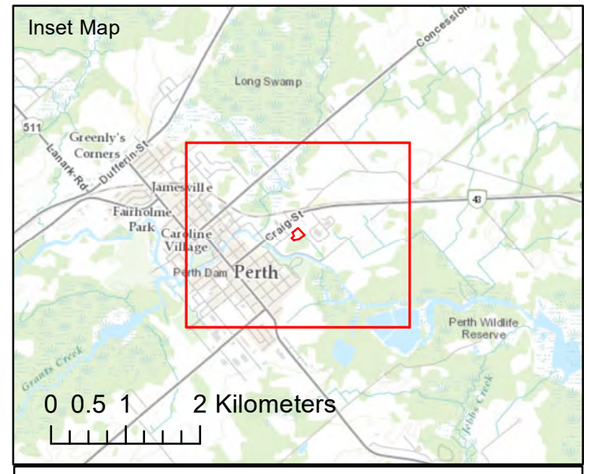
Report Figures

N

Legend

- Property Boundary
- Study Area

Inset Map



Scale
1:10,000
0 70 140 280 420 560 Meters

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Client: Multirex Capital

Project: 100227.058

Location
Part of Lot 13, Concession 1 (Drummond)
Perth, Ontario

Drwn By:	Chkd By:	Site Location
EP	TW	

Date: August 2022

Rev. 0

Figure A.1

C:\Users\Emily.pentz\OneDrive - GEMTEC\Desktop\GIS\Projects\100227.058_Brock\MXD\100227.058_A1_Location.mxd
Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Legend

- Property Boundary
- Study Area
- Proposed Severance
- Proposed Building
- Proposed Parking Lot
- Proposed Walkway
- Proposed Rain Garden
- Wetland
- Environmental Protection Zoning
- Waterbody
- Watercourse

Scale
1:2,000
0 25 50 100 Meters

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Project: 100227.058

Location: Part of Lot 13, Concession 1 (Drummond)
Perth, Ontario

Drwn By: TW | Chkd By: DP | Proposed Development

Date: March 2023

Rev. 0

Figure: A.4

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
RVCA DRAPE 2019 Imagery: Rideau Valley Conservation Authority (RVCA)

Legend

- Property Boundary
- Study Area
- Proposed Severance
- Local Wetland
- Environmental Protection Zoning
- Waterbody
- Watercourse

Scale
1:2,000
0 25 50 100 Meters

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Client:	Project:
Multirex Capital	100227.058

Location
Part of Lot 13, Concession 1 (Drummond)
Perth, Ontario

Drwn By:	Chkd By:	
TW	DP	Site Layout

Date: March 2023	Rev.	
	0	Figure: A.2

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
RVCA DRAPE 2019 Imagery: Rideau Valley Conservation Authority (RVCA)

Legend

- Property Boundary
- Study Area
- Proposed Severance
- Waterbody
- Watercourse
- Vegetation Community

FOD4-5 = Manitoba Maple Deciduous Forest
CUM = Cultural Meadow
MAM = Meadow Marsh

Scale
1:2,000
0 25 50 100 Meters

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Client:	Project:
Multirex Capital	100227.058

Location
Part of Lot 13, Concession 1 (Drummond)
Perth, Ontario

Drwn By:	Chkd By:	
TW	DP	Vegetation Communities

Date: March 2023	Rev.	
	0	Figure: A.3

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
RVCA DRAPE 2019 Imagery: Rideau Valley Conservation Authority (RVCA)

Legend

- Property Boundary
- Study Area
- Proposed Severance
- Local Wetland
- Environmental Protection Zoning
- Waterbody
- Category 2 Blanding's Turtle Habitat (30m Radius)
- Category 3 Blanding's Turtle (250m Radius)
- Watercourse
- Floodplain Elevation (132.49m Contour)

Scale
1:2,000
0 25 50 100 Meters

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Client:	Project:
Multirex Capital	100227.058

Location
Part of Lot 13, Concession 1 (Drummond)
Perth, Ontario

Drwn By:	Chkd By:	
TW	DP	Natural Heritage Features

Date: March 2023	Rev.	
	0	Figure: A.5

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
RVCA DRAPE 2019 Imagery: Rideau Valley Conservation Authority (RVCA)

Legend

- Property Boundary
- Study Area
- Proposed Severance
- Proposed Building
- Proposed Parking Lot
- Proposed Walkway
- Proposed Rain Garden
- Conceptual Development Envelope (0.2 ha)
- Local Wetland
- Waterbody
- Category 2 Blanding's Turtle Habitat (30m Radius)
- Category 3 Blanding's Turtle (250m Radius)
- Watercourse
- Floodplain Elevation (132.49m Contour)
- 10m Setback

Scale
1:2,000
0 25 50 100 Meters

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Project: 100227.058

Location: Part of Lot 13, Concession 1 (Drummond)
Perth, Ontario

Drwn By: TW | Chkd By: DP

Mitigation Measures

Date: March 2023

Rev. 0

Figure: A.6

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
RVCA DRAPE 2019 Imagery: Rideau Valley Conservation Authority (RVCA)

APPENDIX B

Site Photographs

Site Photograph 1 – Dry-Fresh Manitoba Maple Deciduous Forest (FODM4-5)

Site Photograph 2 – Dry-Fresh Manitoba Maple Deciduous Forest (FODM4-5)

Site Photograph 3 – Dry-Fresh Manitoba Maple Deciduous Forest (FODM4-5)

Site Photograph 4 – Dry-Fresh Manitoba Maple Deciduous Forest (FODM4-5)

GEMTEC Consulting Engineers and Scientists	Project Environmental Impact Statement Proposed Residential Development Part of Lot 3, Concession 1 (Drummond) Perth, Ontario	**ATTACHEMNT B** File No. 100227.058	**Site Photographs**

Site Photograph 5 – Cultural Meadow (CUM)

Site Photograph 6 – Cultural Meadow (CUM)

Site Photograph 7 – Cultural Meadow (CUM)

Site Photograph 8 – Cultural Meadow (CUM)

GEMTEC Consulting Engineers and Scientists	Project Environmental Impact Statement Proposed Residential Development Part of Lot 3, Concession 1 (Drummond) Perth, Ontario	**ATTACHEMNT B** File No. 100227.058	**Site Photographs**

Site Photograph 9 – Meadow Marsh (MAM)

Site Photograph 10 – Meadow Marsh (MAM)

Site Photograph 11 – Meadow Marsh (MAM)

Site Photograph 12 – Meadow Marsh (MAM)

GEMTEC Consulting Engineers and Scientists	Project Environmental Impact Statement Proposed Residential Development Part of Lot 3, Concession 1 (Drummond) Perth, Ontario	**ATTACHEMNT B** File No. 100227.058	**Site Photographs**

APPENDIX C

Report Summary Tables

TABLE C.1
SUMMARY OF WILDLIFE OBSERVED ON-SITE AND ADJACENT TO SITE

Common Name	Scientific Name	S-Rank	Evidence
Avian Species			
American crow	*Corvus brachyrhynchos*	S5B	Heard calling
American goldfinch	*Spinus tristis*	S5B	Heard calling
American redstart	*Setophaga ruticilla*	S5B	Heard calling
American robin	*Turdus migratorius*	S5B	Heard calling
Black-and-white warbler	*Mniotilta varia*	S5B	Heard calling
Black-capped chickadee	*Poecile atricapillus*	S5	Heard calling
Blue jay	*Cyanocitta cristata*	S5	Heard calling
Brown creeper	*Certhia americana*	S5B	Heard calling
Cedar waxwing	*Bonbycilla cedrorum*	S5B	Heard calling
Common grackle	*Quiscalus quiscalus*	S5B	Heard calling
Common raven	*Corvus corax*	S5	Heard calling
Common yellowthroat	*Geothlypis trichas*	S5B	Heard calling
Downy woodpecker	*Picoides pubescencs*	S5	Heard calling
Eastern wood-pewee	*Contopus virens*	S4B	Heard calling, observed foraging
Great crested flycatcher	*Myiarchus crinitus*	S4B	Heard calling
Gray catbird	*Dumetella carolinensis*	S4B	Heard calling
House wren	*Troglodytes aedon*	S5B	Heard calling
Marsh wren	*Cistothorus palustris*	S4B	Heard calling
Mourning dove	*Zenaida macroura*	S5	Heard calling
Northern cardinal	*Cardinalis cardinalis*	S5	Heard calling
Osprey	*Pandion haliateus*	S5B	Heard calling
Rose-breasted grosbeak	*Pheucticus ludovicianus*	S4B	Heard calling
Song sparrow	*Melospiza melodia*	S5B	Heard calling
Swamp sparrow	*Melospiza georgiana*	S5B	Heard calling
Turkey vulture	*Cathartes sura*	S5B	Heard calling
White-breasted nuthatch	*Sitta carolinensis*	S5	Heard calling
Yellow-bellied sapsucker	*Sphyrapicus varius*	S5B	Heard calling
Mammalian Species			
Eastern cottontail	*Sylvilagus floridanus*	S5	Observed on-site
White-tailed deer	*Odocoileus virginianus*	S5	Observed signs on-site

Notes:
Subnational Conservation Status Ranks:
S1 - Critically Imperilled, at very high risk of extirpation, very few populations or occurrences or very steep population decline
S2 - Imperiled, at high risk of extirpation, few populations or occurrences or steep population decline
S3 - Vulnerable, at moderate risk of extirpation, relatively few populations or occurrences, recent and widespread population decline
S4 - Apparently Secure, at a family low risk of extirpation, many populations or occurrences, 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 refers to the non-breeding population of the species
S#M - Migrant species, conservation status refers to the aggregating transient population of the species

TABLE C.2
SCREENING RATIONALE FOR SIGNIFICANT WOODLANDS

Woodland Criteria	Further Considered in EIS	Rationale
Woodland Size	No	Contiguous woodlands on-site do not meet the minimum size requirement for the planning area (> 50 ha).
Ecological Functions		
a) Woodland Interior	No	Interior woodlands on-site does not meet the minimum size requirement for the planning area (> 8 ha).
b) Proximity	No	Woodlands on-site are proximate to local wetlands however, they do not meet minimum size function.
c) Linkages	No	The woodlands on-site do not provide linkages to other natural heritage features.
d) Water Protection	No	Woodlands on-site are proximate to local wetlands however, they do not meet minimum size function.
e) Diversity	No	Species composition within the on-site woodland is well represented on the landscape and no rare species communities were observed on-site.
Uncommon Characteristics	No	The woodlands on-site do not have a unique species composition, vegetation communities with a ranking of S1, S2 or S3, or a mature size structure.
Economical and Social Functional Values	No	The woodlands on-site do not contain high productivity in terms of economically valuable products, high social value such as recreational use, identified historical cultural or educational values.

TABLE C.3
SCREENING RATIONALE FOR HABITATS OF SEASONAL CONCENTRATION AREAS

Wildlife Habitat	Further Considered in EIS	Rationale
Winter Deer Yard	No	While there are stands of coniferous woodlands on-site, as outlined in the the Signficant Wildlife Habitat Criteria Schedules (OMNRF, 2015) winter deer yards and deer managment are an MNRF responsibility. Based on review of publically available data from the OMNRF on Land Information Ontario Geo-hub, no Stratum I deer yards, Stratum II deer yards, or winter congregation areas have been identified on-site or within the broader study area. The closest deer yard to site is a patch of Stratum I deer yard located approximately 19 km to the southwest.
Colonial Bird Nesting Habitat	No	No suitable habitat located on-site or within the study area to support colonial bird nesting.
Waterfowl Stopover and Staging Areas	No	No suitable habitat located on-site or within the study area to support waterfowl stopover and staging areas.
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	No suitable habitat located on-site or within the study area to support raptor wintering area.
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 minimum snag density (>10 snags/hectare) requirement to be considered SWH for bat maternity colonies.
Turtle Wintering Area	No	No potentially suitable wetlands with adequate water depth are present on-site to support turtle wintering areas.
Reptile Hibernaculum	No	No structures such as large rock piles, bedrock outcrops, cervices 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 Stopver Area	No	The site is not located within 5 km of Lake Ontario and therefore does not meet the defining criteria.

TABLE C.4
SCREENING RATIONALE FOR SPECIALIZED WILDLIFE HABITATS

Specialized Wildlife Habitat	Further Considered in EIS	Rationale
Waterfowl Nesting Area	No	Upland habitat is present adjacent to potential wetland ELC ecosites on-site however, no waterfowl were observed nesting on-site.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	No	The site is located >120 m from any habitat which could support foraging bald eagles or osprey. Nesting sites for these species are uncommon in Ecoregion 6E (MNRF, 2012).
Woodland Nesting Raptor Habitat	No	Nesting may occur in any ecosite and species preference is towards mature forest stands >30 ha with >10 ha of interior habitat with a 200 m buffer. Neither contiguous forest stands >30 ha or interior habitat >10 ha occurs on-site. No sticks nests were observed on-site.
Turtle Nesting Habitat	No	No suitable habitat (exposed mineral soil with minimal vegetation conver) is present within 100 m on-site.
Seeps and Springs	No	No seeps or springs are present on-site.
Woodland Amphibian Breeding Habitat	No	Due to the limited hydroperiod, and seasonality of flooding the site is not likely to support amphibian breeding habitat.
Wetland Amphibian Breeding Habitat	No	Due to the limited hydroperiod, and seasonality of flooding the site is not likely to support amphibian breeding habitat.
Woodland Area-Sensitive Bird Breeding Habitat	No	Woodland area-senstive birds require interior forest habitat located >200 m from the forest edge in large (>30 ha) forest stands. Woodlands on-site and adjacent to the site do not meet the defining criteria.

TABLE C.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	Due to the limited hyroperiod of the wetland and connectivity to open water areas, the wetland community on-site is unlikely to support marsh breeding bird habitat. None of the listed indicator species were observed while on-site.
Open Country Bird Breeding Habitat	No	No suitable habitat to support open country breeding bird habitat occurs on-site.
Shrub/Early Successional Bird Breeding Habitat	No	Candidate early successional breeding bird habitat typically includes fallow fields transitioning to early successional forest habitats that are > 10 ha but have not been actively used for farming. No habitat suitable for shrub/early successional breeding bird habitat occurs on-site.
Terrestrial Crayfish Habitat	No	Terrestrial crayfish are only found within southwestern Ontario (MNRF, 2012).
Special Concern and Rare Wildlife Species	Yes	The following species of special concern were identified on-site during the site investigation: eastern wood-pewee. Occurrence data for the NHIC also indactes the following species of special concern to have occurred on-site and/or the surorunding area: snapping turtle and eastern musk turtle.

TABLE C.6
SCREENING RATIONALE FOR ANIMAL MOVEMENT CORRIDORS

General Habitats of Species of Conservation Concern	Further Considered in EIS	Rationale
Amphibian Movement Corridor	No	No wetland amphibian breeding habitat has been identified on-site.
Deer Movement Corridor	No	No winter deer yards have been identified on-site by the OMNRF.

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

Species	ESA Status	Habitat Use	Probability of Occurrence On-Site or Within Study Area	Rationale
Avian				
Barn Swallow	Threatened	Nests in barns and other semi-open structures. Forages over open fields and meadows.	Low	Barn swallow were not observed foraging on-site and no suitable nesting structures on-site or within the broader study.
Bobolink	Threatened	Nests in dense tall grass fields and meadows, low tolerance for woody vegetation.	Low	Suitable grassland habitat was not available on-site or within study area. Species has not been observed on-site however, NHIC data indicates species has been observed within 1 km of the site.
Chimney Swift	Threatened	Nests in traditional-style open brick chimneys.	Low	Suitable habitat is not present on-site. Species has been observed within the broader study area. Suitable nesting structures within the broader study area.
Eastern Meadowlark	Threatened	Nests and forages in dense tall grass fields and meadows, higher tolerance to woody vegetation.	Low	Suitable grassland habitat was not available on-site or within study area. Species has not been observed on-site however, NHIC data indicates species has been observed within 1 km of the site.
Eastern Whip-poor-will	Threatened	Nests on the ground in open deciduous or mixed woodlands with little underbrush, and bedrock outcrops.	Low	Woodlands and cultural lands on-site do not provide suitable habitat conditions for eastern whip-poor-will. Species was not detected calling on-site during site investigations.
Eastern Wood-pewee	Special Concern	Woodland species, often found near clearings and edges.	High	Species was observed on-site during site investigations. Suitable woodland habitat occurs on-site.
Mammalian				
Eastern Small-footed Myotis	Endangered	Roosts in rock crevices, barns and sheds. Overwinters in abandoned mines. Summer habitats are poorly understood in Ontario, elsewhere prefers to roost in open, sunny rocky habitat and occasionally in buildings (Humphrey, 2017).	Moderate	Potentially suitable anthropogenic structures adjacent to site. Available habitat on-site does not meet bat maternity colony requirements however the site and surrounding area may provide foraging and non-maternal roost habitat.
Little Brown Myotis	Endangered	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. Available habitat on-site does not meet bat maternity colony requirements however the site and surrounding area may provide foraging and non-maternal roost habitat.
Northern myotis (Northern Long-eared Bat)	Endangered	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 rarely roosts in anthropogenic structures.
Tri-colored Bat	Endangered	Roosts in trees, rock crevices and occasionally buildings during summer. Overwinters in caves and mines.	Moderate	Potentially suitable anthropogenic structures adjacent to site. Available habitat on-site does not meet bat maternity colony requirements however the site and surrounding area may provide foraging and non-maternal roost habitat.
Reptilian				
Blanding's Turtle	Threatened	Inhabits quiet lakes, streams and wetlands with abundant emergent vegetation. Frequently occurs in adjacent upland forests.	Moderate	Historic occurrence data for species within 1 km of the site (NHIC), and according to the Herp Atlas (Ontario Nature, 2019), the species has been detected 6 times between 2013 and 2019 within the 10km2 grid square that encompasseses the site.
Eastern Musk Turtle	Special Concern	Permanent ponds, lakes, marshes and rivers.	Low	The site does not provide potentially suitable habitat for eastern musk turtle. Suitable habitat is present in the broader surrounding area. Historic occurrence data for species within 1 km of the site (NHIC), and according to the Herp Atlas (Ontario Nature, 2019), the species has been detected 20 times between 2010 and 2015 within the 10km2 grid square that encompasses the site.
Gray Ratsnake	Threatened	On the Frontenac Axis, preference to a mosaic of forest and open habitats (fields; bedrock outcrops) with a high amount of edge habitat. In summer, seeks shelter in standing snags, hollow logs, and rock crevices. Nesting occurs inside standing snags, logs, stumps, compost piles. Overwinters in below ground hibernacula.	Low	Historic occurrence data for the species within 1 km of the site (NHIC), according to Herp Atlas data, the observations provided in the NHIC was observed in 1976; no present day observations for the north grid square that encompasses the north half of the site. Gray ratsnake have been observed in the 10 km2 grid square that encompasses the southern half of the property 24 times between 2019 and 1979, however, no NHIC observations are provided for Gray ratsnake on-site or within 3 km of the site to the south. Based on present day occurrence data (post-1996), the current range maps for gray ratsnake does not include the subject property (COSEWIC, 2018).
Snapping Turtle	Special Concern	Highly aquatic species, found in a wide variety of permanent ponds, lakes, marshes and rivers.	Low	The site does not provide potentially suitable habitat for snapping turtle. Suitable habitat is present in the broader surrounding area. Historic occurrence data for species within 1 km of the site (NHIC), and according to the Herp Atlas (Ontario Nature, 2019), the species has been detected 8 times between 2010 and 2018 within the 10km2 grid square that encompasses the site.
Plants				
American Ginseng	Endangered	Grows in rich, moist but well-drained and relatively mature, deciduous woodlands dominated by sugar maple, white ash and American basswood.	Low	Woodlands on-site are mixed and are unlikely to support habitat requirements for American ginseng growth.
Butternut	Endangered	Inhabits a wide range of habitats including upland and lowland deciduous and mixed forests.	Moderate	Large portions of the site are open and in a regenerative state. Species was not observed on-site during the site investigations.
Insects				
Bogbean Buckmoth	Endangered	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	Inhabits a wide range of habitats: open meadows, agricultural and urban areas, boreal forests and woodlands.	Low	Currently the only known Ontario population occurs in Pinery Provincial Park.
Monarch Butterfly	Special Concern	Caterpillars required milkweed plants that are confined to meadows and open areas. Adult butterflies use more diverse habitats with a variety of wildflowers.	Moderate	Potentially suitable foraging vegetation available for Monarch on-site.

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

Mottled Duskywing	Endangered	Larval food plant, New Jersey Tea, is found in sandy areas and alvars.	Low	Preferred habitat of sandy areas and alvars not present in the study area.
Nine-spotted Lady Beetle	Endangered	Habitat generalist	Low	No recent occurrence reports in the area, thought to be locally extirpated.
Rusty-patched Bumble Bee	Endangered	Habitat generalist	Low	Currently the only known Ontario population occurs in Pinery Provincial Park.
Traverse Lady Beetle	Endangered	Habitat generalist	Low	No new records in Ontario, species thought to be absent in former habitats.
West Virginia White Butterfly	Special Concern	Requires mature moist, deciduous woods, with larval host plant, toothwort.	Low	Necessary vegetation and toothwort plant are not present on-site or within study area.
Yellow-banded Bumble Bee	Special Concern	Habitat generalist: mixed woodlands, variety of open habitat.	Moderate	Potentially suitable foraging habitat available for yellow-banded bumble bee on-site.

APPENDIX D

MNRF General Habitat Description – Blanding's Turtle

General Habitat Description for the Blanding's Turtle (*Emydoidea blandingii*)

A general habitat description is a technical document that provides greater clarity on the area of habitat protected for a species based on the general habitat definition found in the Endangered Species Act, 2007. General habitat protection does not include an area where the species formerly occurred or has the potential to be reintroduced unless existing members of the species depend on that area to carry out their life processes. A general habitat description also indicates how the species' habitat has been categorized, as per the policy "Categorizing and Protecting Habitat Under the Endangered Species Act", and is based on the best scientific information available.

HABITAT CATEGORIZATION

1	Nest and the area within 30 m or Overwintering sites and the area within 30 m
2	The wetland complex (i.e. all suitable wetlands or waterbodies within 500 m of each other) that extends up to 2 km from an occurrence, and the area within 30 m around those suitable wetlands or waterbodies
3	Area between 30 m and 250 m around suitable wetlands/waterbodies identified in Category 2, within 2 km of an occurrence

Category 1

Nest sites and overwintering sites are essential features and along with the 30 m area surrounding them are considered to have the lowest tolerance to alteration. Blanding's Turtles depend on these areas for sensitive life processes including egg-laying, incubation, hatching of young, and hibernation. A 30 m radius (average tree height) buffer around nesting and overwintering sites is important to maintain the microclimate conditions (e.g., thermal, vegetative and lighting features). These areas are habitually used and may support concentrations of individuals.

Nesting Sites

Blanding's Turtle nests are created in open habitats with low vegetation cover and high sun exposure such as in forest clearings, meadows, shorelines, beaches, rock outcrops, cornfields, gravel roads, road shoulders, ploughed fields, gardens, powerline rights-of-ways, yards and abandoned railroad beds (Linck *et al*. 1989, Ross and Anderson 1990, Kiviat 1997, Standing *et al*. 1999, Joyal *et al*. 2001, Congdon *et al*. 2008, Downing *et al*. 2010, Refsnider and Linck 2012). Females often show high fidelity to the same general nesting areas (Congdon *et al*. 1983, McNeil 2002, Congdon *et al*. 2011).

Overwintering Sites

Overwintering sites are typically occupied for at least six months during the overwintering period in Ontario (Edge *et al*. 2009, Edge *et al*. 2010, Davy 2011 unpublished data, Paterson unpublished data 2013, NHIC 2013). Blanding's Turtles display overwintering site fidelity, using some sites year after year (Power 1989, McNeil 2002, Caverhill 2006 in Newton and Herman 2009, Edge *et al*. 2009). Many individuals may aggregate at one site while overwintering (Anderson 1990, St-Hilaire 2003 in COSEWIC 2005, Ross and, Congdon *et al*. 2008, Edge *et al*. 2009).

Suitable Blanding's Turtle overwintering habitat typically includes permanent bogs, fens, marshes, ponds, channels or other habitats with free (unfrozen) shallow water (Joyal *et al*. 2001, Edge 2010, Seburn 2010). Blanding's Turtles studied in Algonquin Provincial park overwintered in wetlands with free water depths of 7 cm - 50 cm (Edge *et al*. 2009).This species may also hibernate within graminoid shallow marsh areas of larger marsh complexes by burying into substrates in areas of pooled water (Gillingwater unpublished data 2013). Blanding's Turtle's may also overwinter in seasonal pools or small excavated areas with standing water (Joyal *et al*. 2001, Rouse unpublished data 2012).

Category 2

The wetland complex that extends up to 2 km from an occurrence and 30 m around these suitable wetlands/waterbodies (Category 2) will be considered to have a moderate level of tolerance to alteration before their function is compromised. For the purpose of general habitat protection for Blanding's Turtle, a wetland complex is defined as all wetlands that are within 500 m of each other. This definition is based on the biology of the species and its documents movement patterns between adjacent suitable wetlands/waterbodies. In cases where an occurrence is not within suitable aquatic habitat, the nearest wetland should be considered the starting point for delineating the wetland complex.

Blanding's Turtles depend on these wetlands and the surrounding habitat throughout their home range for life processes including feeding, mating, thermoregulation, movement, and protection from predators.

Blanding's Turtle home range sizes and lengths in Ontario vary significantly between individuals within the same population and between different populations. In Algonquin Provincial Park, the average range length of radio-tracked Blanding's Turtles was 1.8 km (1.2 standard deviation), with a maximum of 4.3 km (Edge 2013 unpublished data). Recent Ontario studies documented a 90th percentile home range length of radio-tracked Blanding's Turtles in Parry Sound District and Bancroft District of 2.0 and 2.3 km, respectively (Rouse unpublished data 2013, Cameron unpublished data 2013). Average range length of a population on Grenadier Island, Ontario, was 813 m, with a maximum range length just over 2 km. In a Minnesota population, average range length was just over 1.6 km, with a maximum range length just over 5 km (Pappas *et al*. 2000).

Blanding's Turtles regularly move between wetlands or other aquatic areas in order to access mates, overwintering sites, nesting sites, other seasonally required resources and thermoregulation sites (Congdon *et al*. 2008, Edge *et al*. 2010). In a study from Algonquin Provincial Park, Blanding's Turtles made an average of four movements between wetlands each year with an average movement distance of 231 m for males and 497 m for females (Edge *et al*. 2010). Average interwetland movement distances of a population in Maine was 680 ± 550 m (Joyal *et al*. 2001). Rouse and Cameron (unpublished data 2013) found that Blanding's Turtles primarily moved through wetlands and other water and were rarely located more than 200 m from water. Since interwetland movements tend to average about 500 m, wetlands that are separated by more than 500 m from other suitable wetlands have a lower likelihood of being occupied.

A 30 m radius (average tree height) buffer around suitable wetlands helps to maintain microclimate conditions. Buffers of 30 m are widely recognized as providing a range of functional benefits to aquatic features and wetlands such as maintaining water quality by filtering sediment and nutrients, input of woody debris, and cooling water temperatures by shading and infiltrating surface runoff (OMNR 2010). Blanding's Turtles have also been shown to generally bask within 30 m of wetlands (Joyal *et al*. 2001).

Suitable habitat for Blanding's Turtles during the active season includes a variety of wetlands such as marsh, swamps, ponds, fens, bogs, slow-flowing streams, shallow bays of lakes or rivers, as well as graminoid shallow marsh and slough forest habitats that are adjacent to larger marsh complexes (Joyal *et al*. 2001, Gillingwater 2001, Gillingwater and Piraino 2004, 2007, Congdon *et al*. 2008, Edge *et al*. 2010; Seburn 2010). Suitable wetlands used during the active season are typically eutrophic (mineral or organic nutrient-rich), shallow with a soft substrate composed of decomposing materials, and often have emergent vegetation, such as water lilies and cattails (COSEWIC 2005, Congdon *et al*. 2008).

Category 3

The area between 30 m and 250 m around suitable Category 2 wetlands/waterbodies will be considered to have the highest tolerance to alteration. Blanding's Turtles depend on these areas as movement corridors between wetlands, which are essential for carrying out life processes associated with Category 1 and 2 habitats.

Blanding's Turtle nests are typically close to permanent wetlands and reported average distances between nests and the nearest wetland range from 99.5 to 242 m, with maximum distances of 256 m to just over 400 m (Joyal *et al*. 2001, Beaudry *et al*. 2010, Congdon *et al*. 2011, Paterson *et al*. 2012, Refsnider and Linck 2012). Consequently, the area within 250 m of suitable aquatic habitat provides critical movement corridors through with hatchling Blanding's Turtles access wetlands after hatching. This habitat is also used by some hatchlings as overwintering habitat in their first year (Paterson *et al*. 2012).

Although Blanding's Turtles nest close to water, they often travel considerable distances from their wetland of origin during nesting migrations, with movements of 6 km being documented in some Ontario populations (Edge *et al*. 2010). Although wetlands and ponds are used as movement corridors when available, females make extensive movements through upland habitat to access nesting sites (Congdon *et al*. 2008). As mentioned in the previous section (see Category 2), Blanding's Turtles also make regular overland movements between wetlands throughout the active season in order to access Category 1 and 2 habitats within their home range. Category 3 habitat provides essential movement corridors of up to 500 m between wetlands, which will encompass the areas that are most likely to be used for overland movement.

Activities in Blanding's Turtle habitat

Activities in general habitat can continue as long as the *function of these areas for the species is maintained and individuals of the species are not killed, harmed, or harassed.*

Generally compatible:

- Recreational use of the water such as swimming, boating, and fishing.
- Small-scale alterations to land cover that do not impede overland movements or impair nesting sites.

Generally not compatible:*

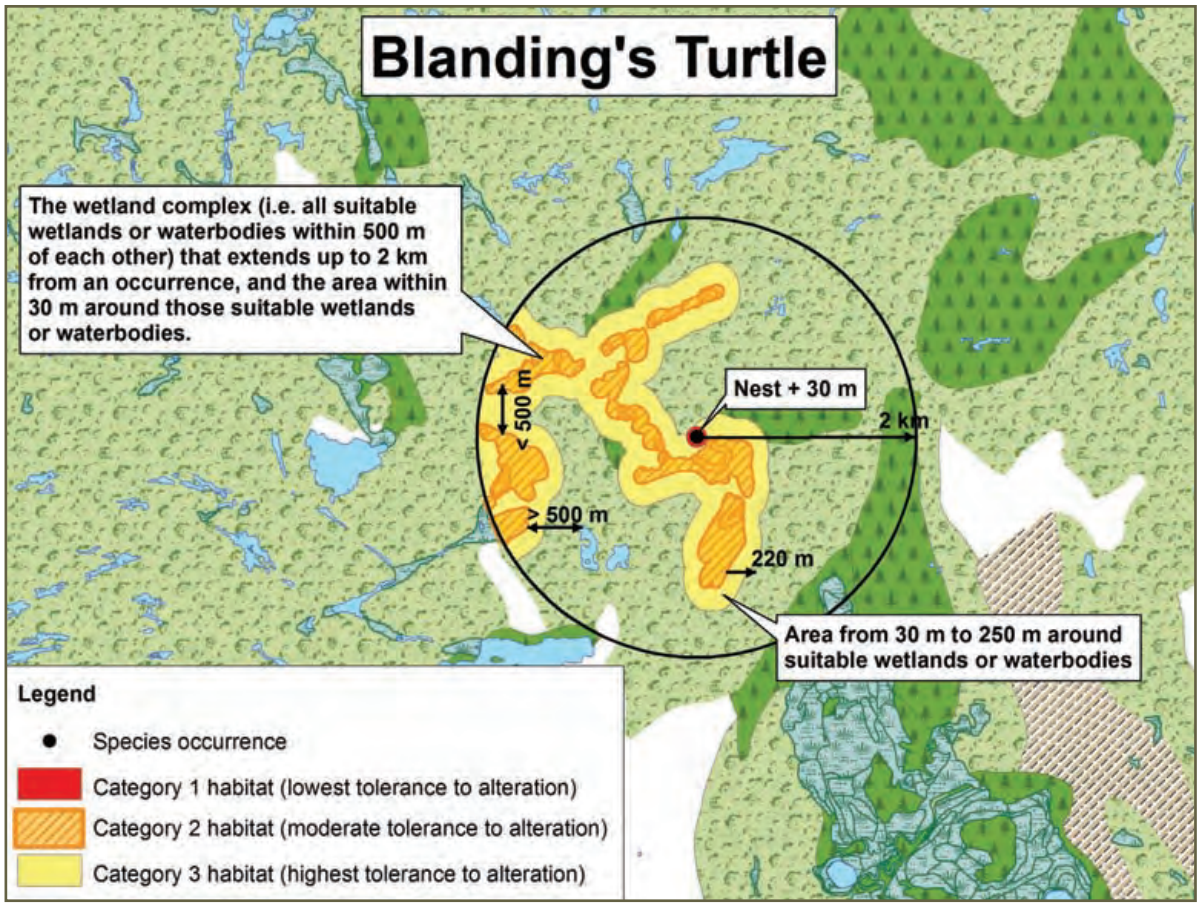
- Significant draining, infilling, dredging, or other significant alteration of wetlands or other suitable waterbodies.
- Significant alteration of shorelines, especially hardening (e.g. the use of gabion baskets, rip-rap, and rock armour).

* If you are considering an activity that may not be compatible with general habitat, please contact your local MNR office for more information.

Key terms:

- **Thermoregulation:** Some animals, such as turtles, use thermoregulation to alter their internal body temperature through behavioural patterns, such as basking in the sun to increase body temperature or seeking out cool areas to lower body temperature.

Sample application of the general habitat protection for Blanding's Turtle



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APPENDIX E

Tree Conservation Report

GEMTEC
www.gemtec.ca

Tree Preservation Plan
Proposed Residential Development
Part of Lot 3, Concession 1
Geographic Township of Drummond
Perth, Ontario

GEMTEC
www.gemtec.ca

Submitted to:

Multirex Capital
205 Drummond Street East
Merrickville, Ontario
K0G 1N0

Tree Preservation Plan
Proposed Residential Development
Part of Lot 3, Concession 1
Geographic Township of Drummond
Perth, Ontario

March 23, 2023
Project: 100227.058

experience • knowledge • integrity

TABLE OF CONTENTS

LIST OF TABLES

No table of figures entries found.

LIST OF APPENDICES

1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by Multirex Capital to carry out a Tree Preservation Plan (TPP) for the property located on Part of Lot 3, Concession 1, in the Geographic Township of Drummond, Perth, Ontario, hereafter referred to as the "subject property". The site location is provided in Figure A.1 in Appendix A.

1.1 Purpose

The proponent is seeking to develop a 3-storey, 54-unit apartment building on an approximately 1.64 ha vacant property. In preparation for Development Permit Approval with the Township, and in accordance with the Township of Perth By-Law's, a Tree Preservation Plan is required to identify trees to be retained and protected under future development scenarios and, where feasible, identify opportunities to offset the loss of trees that cannot be retained.

The existing site layout and proposed development plan is provided in Figure A.2 in Appendix A.

1.2 Definitions

Terms and abbreviations used throughout the remainder of this report are summarized below.

Diameter at Breast Height (DBH), is defined as the diameter of the tree trunk measured at a height of 1.2 metres above ground surface for trees of 10 centimeters in diameter and greater.

Critical Root Zone (CRZ), is defined as the ground area within a circumference around the tree trunk calculated as 10 centimeters from the trunk of the tree for every one centimeter of tree truck diameter at breast height.

2.0 METHODOLOGY

2.1 Desktop Review

To complete the TCR, digital colour air photos of the site available from Google Earth were reviewed from 2005 to 2022 to identify natural features, including historical trees, present on-site and in the vicinity of the site.

2.2 Field Investigations

In addition to the completion of a desktop review of historical air photos, a site visit was conducted on July 14 2022, from 09:45 to 14:45, to document and identify all trees on-site with a DBH greater than 10 cm. The site investigation utilized transects bisecting the property to document the health of each tree greater than 10 cm in DBH, the trees location and the tree species.

Site conditions during the site investigation were as follows: 19°C, 10% cloud cover, Beaufort 2 and no precipitation.

Site photographs taken during the field investigations are provided in Appendix B.

3.0 RESULTS

3.1 Existing Conditions

The site is currently vacant and consists deciduous woodlands, cultural thickets, local wetlands and various dilapidated anthropogenic structures. Other existing features on the property include an existing road access to Brock Street North, and a small gravel driveway. In the center of the property is a bedrock outcrop.

The proposed development is to take place within the woodlands on-site fronting Provost Street North. Numerous trees are present on the property, primarily along the property lines, a summary of all trees on-site is provided in Section 3.2 below.

The existing land use designation from the Lanark County OP is settlement area and floodplain. The land-use from the Town of Perth is residential, environmental protection and flood plain. Following completion of the desktop review and site investigation, the following natural heritage features were identified on-site or within the study area: local wetlands, and the following *candidate* significant wildlife habitat: wetland amphibian breeding habitat, marsh breeding bird habitat and special concern and rare wildlife habitat (eastern wood-pewee). Natural heritage features are discussed in detail within the accompanying EIS.

Based on a review of historical air photos, the site and surrounding area has been consistent since at least 2005. No alterations to land use were noted during review.

3.2 Tree Inventory Summary

A tree inventory was conducted on July 14, 2022. Trees on-site were identified, enumerated and assessed for visual signs of distress and disease. Table C.1 in Appendix C provides a summary of all tree specimens on-site whose DBH was greater than 10 cm. CRZ values for trees with DBH greater than 10 cm are also present in Table C.1 in Appendix C. Critical Root Zones were not calculated for dead trees. The square root of the sum of squares method was used to calculate the DBH of trees with multiple stems. All trees with a DBH greater than 10 cm and their CRZ are illustrated on Figure A.3, in Appendix A. In general, the tree community assemblage can be described as containing a few semi-mature and mature trees. Many of the trees observed had wilted leaves and were in poor condition, making the species difficult to determine.

A total of 12 trees larger than 50 cm DBH were identified on-site.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on a review of the information summarized in Section 3.2, Table C.1 in Appendix C and the proposed development concept illustrated on Figure A.2, the following conclusions are provided:

- Out of 176 trees identified on-site with a DBH greater or equal to 10 cm, 106 trees were identified as retainable, and 70 trees as non-retainable;
- A total of 16 trees on-site were larger than 50 cm DBH, three of which are identified as not retainable under the current development plan, and 13 of which are identified as retainable;
- All trees identified to be retained will have their existing elevations around the critical root zone maintained;
- A total of 14 wildlife trees were identified within the development area, two of which are identified as not retainable under the current development plan, and 12 of which are identified as retainable;
- Trees on-site are of a typical urban species, typically planted in the Town of Perth;
- 78 trees are in good/healthy condition and 98 trees are dead, dying or poor condition; and
- None of the 176 trees present on site represent exceptional native tree specimens, nor do they provide any significant conservation value.

4.1 Tree Conservation Recommendations

Opportunities exist along the perimeter of the proposed development, specifically in the northwest of the property to offset the loss of trees that are not retainable under the proposed development concept. 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 spruce, red maple and red oak. Tree planting and maintenance should follow the standards of the International Society of Arborits, the Canadian Nursery Trades Association or Landscape Ontario.

4.2 Recommended Mitigation Measures

The following mitigation measures and best practice recommendations are provided by GEMTEC in order to minimize and eliminate negative impacts to trees identified in Appendix C as retainable. Construction contractors shall apply the following measures outlined below to prevent damage to trees identified to be retained in the redevelopment plan for the site;

- All trees identified to be retained should be clearly marked with signage attached that identifies the purpose of the fence and not to move it until construction is complete.
- If trees to be removed overlap with the CRZ of trees to be retained, cut roots at the edge of the retained CRZ and grind down stumps after tree removal, do not pull out stumps. If

roots must be cut, roots 20 cm or larger should be cut at right angles with clean, sharp, horticultural tools, without tearing, crushing, or pulling;

- Do not place any material or equipment within the CRZ of any tree identified to be retained;
- Do not attach any signs, notices or posters to any tree identified to be retained;
- Do not damage the root system, trunk, or branches or any tree identified to be retained;
- Ensure that exhaust fumes from all equipment are directed away from tree canopy;
- To protect Habitats of Species at Risk identified on-site, vegetation removal should occur outside of April 1 to September 30 to avoid the key breeding bird period and bat summer active season. The timing window provides protection of migratory birds, roosting bats and avoids contravention of the Migratory Bird Convention Act and Endangered Species Act. If vegetation clearing activities must take place during the aforementioned timing window than a nest and roost survey shall be conducted by a qualified professional

5.0 CLOSURE

This letter and the work referred to within it have been undertaken by GEMTEC Consulting Engineers and Scientists Ltd. (GEMTEC), and was prepared for Multirex Capital and is intended for the exclusive use of Multirex Capital. This report may not be relied upon by any other person or entity without the express written consent of GEMTEC and Multirex Capital. 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 letter has been prepared for the application notes and it is based in part, on visual observations made at the site, all as described in the report. Unless otherwise states, the findings contained in this report cannot be extrapolates or extended to previous or future site conditions or for 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 present 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,

Emily Young, B.Sc.
Junior Biologist

Taylor Warrington, B.Sc.
Biologist

6.0 REFERENCES

Town of Perth Official Plan (TPOP). 2019. Official Plan. April 2019.

APPENDIX A

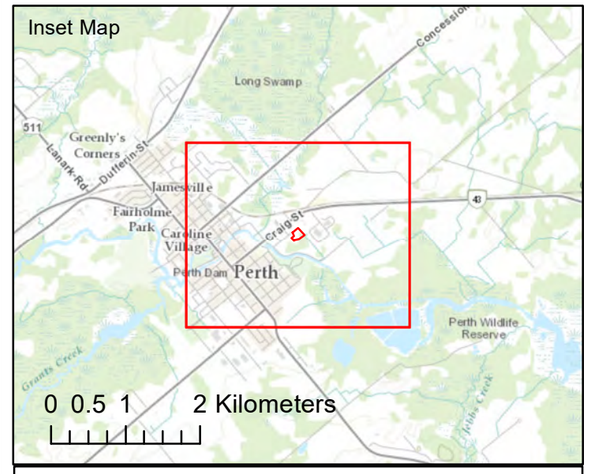
Report Figures

N

Legend

- Property Boundary
- Study Area

Inset Map



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Client: Multirex Capital

Project: 100227.058

Location
Part of Lot 13, Concession 1 (Drummond)
Perth, Ontario

Drwn By:	Chkd By:	Site Location
EP	TW	

Date: August 2022

Rev. 0

Figure A.1

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Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Legend

- Property Boundary
- Study Area
- Proposed Severance
- Proposed Building
- Proposed Parking Lot
- Proposed Walkway
- Proposed Rain Garden
- Waterbody
- Watercourse

Scale
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Client:	Project:
Multirex Capital	100227.058

Location
Part of Lot 13, Concession 1 (Drummond)
Perth, Ontario

Drwn By:	Chkd By:	
TW	DP	Site Layout

Date: March 2023	Rev.	
	0	Figure: A.2

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
RVCA DRAPE 2019 Imagery: Rideau Valley Conservation Authority (RVCA)

Legend

- Property Boundary
- Study Area
- Proposed Severance
- Proposed Building
- Proposed Parking Lot
- Proposed Walkway
- Proposed Rain Garden
- Waterbody
- Watercourse
- Tree Number (Critical Root Zone [cm])
- Retainable Tree
- Non-Retainable Tree
- Dead Tree

Scale
1:650
0 10 20 40 Meters

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Location
Part of Lot 13, Concession 1 (Drummond)
Perth, Ontario

Drwn By:	Chkd By:	
TW	DP	Tree Inventory

Date: March 2023	Rev. 0	Figure: A.3

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
RVCA DRAPE 2019 Imagery: Rideau Valley Conservation Authority (RVCA)

APPENDIX B

Site Photographs

Site Photograph 1 – Dry-Fresh Manitoba Maple Deciduous Forest (FODM4-5)

Site Photograph 2 – Dry-Fresh Manitoba Maple Deciduous Forest (FODM4-5)

Site Photograph 3 – Dry-Fresh Manitoba Maple Deciduous Forest (FODM4-5)

Site Photograph 4 – Dry-Fresh Manitoba Maple Deciduous Forest (FODM4-5)

GEMTEC Consulting Engineers and Scientists	Project Environmental Impact Statement Proposed Residential Development Part of Lot 3, Concession 1 (Drummond) Perth, Ontario	**ATTACHEMNT B** File No. 100227.058	**Site Photographs**

Site Photograph 5 – Cultural Meadow (CUM)

Site Photograph 6 – Cultural Meadow (CUM)

Site Photograph 7 – Cultural Meadow (CUM)

Site Photograph 8 – Cultural Meadow (CUM)

GEMTEC Consulting Engineers and Scientists	Project Environmental Impact Statement Proposed Residential Development Part of Lot 3, Concession 1 (Drummond) Perth, Ontario	**ATTACHEMNT B** File No. 100227.058	**Site Photographs**

Site Photograph 9 – Meadow Marsh (MAM)

Site Photograph 10 – Meadow Marsh (MAM)

Site Photograph 11 – Meadow Marsh (MAM)

Site Photograph 12 – Meadow Marsh (MAM)

GEMTEC Consulting Engineers and Scientists	Project Environmental Impact Statement Proposed Residential Development Part of Lot 3, Concession 1 (Drummond) Perth, Ontario	**ATTACHEMNT B** File No. 100227.058	**Site Photographs**

APPENDIX C

Tree Inventory Summary Table

TABLE C.1
TREE INVENTORY

Tree Number	Common Name	Scientific Name	Diameter (cm DBH)	Critical Root Zone (cm)	Condition	Retainable or Conflict	Signficant Tree (> 50 cm)	Wildlife Tree
1	Manitoba Maple	*Acer negundo*	97	970	Healthy	Retainable	Yes	No
2	Manitoba Maple	*Acer negundo*	78	780	Healthy	Non-retainable	Yes	No
3	Manitoba Maple	*Acer negundo*	53	530	Healthy	Non-retainable	Yes	No
4	Hawthorn sp.		14	140	Healthy	Retainable	No	No
5	Black Walnut	*Juglans nigra*	48	476	Good	Non-retainable	No	No
6	Black Walnut	*Juglans nigra*	32	320	Good	Non-retainable	No	No
7	Manitoba Maple	*Acer negundo*	47	470	Healthy	Non-retainable	No	No
8	Manitoba Maple	*Acer negundo*	56	560	Healthy	Retainable	Yes	No
9	Manitoba Maple	*Acer negundo*	60	600	Healthy	Retainable	Yes	No
10	Manitoba Maple	*Acer negundo*	76	760	Healthy	Retainable	Yes	Yes
11	Manitoba Maple	*Acer negundo*	32	318	Healthy	Retainable	No	No
12	Manitoba Maple	*Acer negundo*	26	255	Healthy	Retainable	No	No
13	Manitoba Maple	*Acer negundo*	86	855	Good	Retainable	Yes	Yes
14	Manitoba Maple	*Acer negundo*	45	450	Healthy	Retainable	No	Yes
15	Manitoba Maple	*Acer negundo*	102	1020	Healthy	Retainable	Yes	Yes
16	Manitoba Maple	*Acer negundo*	34	340	Healthy	Retainable	No	Yes
17	American Elm	*Ulmus americana*	23	233	Healthy	Retainable	No	No
18	Manitoba Maple	*Acer negundo*	77	770	Healthy	Retainable	Yes	Yes
19	Manitoba Maple	*Acer negundo*	46	460	Healthy	Retainable	No	No
20	Manitoba Maple	*Acer negundo*	35	350	Healthy	Retainable	No	No
21	Manitoba Maple	*Acer negundo*	24	238	Healthy	Retainable	No	No
22	Manitoba Maple	*Acer negundo*	44	440	Healthy	Retainable	No	No
23	Manitoba Maple	*Acer negundo*	55	550	Healthy	Retainable	Yes	Yes
24	Manitoba Maple	*Acer negundo*	62	618	Healthy	Retainable	Yes	No
25	American Elm	*Ulmus americana*	59	594	Healthy	Retainable	Yes	No
26	Manitoba Maple	*Acer negundo*	30	295	Healthy	Retainable	No	No
27	Manitoba Maple	*Acer negundo*	42	418	Healthy	Retainable	No	No
28	Green Ash	*Fraxinus pennsylvanica*	22	--	Dead	Non-retainable	No	No
29	Common Buckthorn	*Rhamnus cathartica*	22	215	Healthy	Retainable	No	No
30	Common Buckthorn	*Rhamnus cathartica*	13	133	Healthy	Retainable	No	No
31	Common Buckthorn	*Rhamnus cathartica*	15	154	Healthy	Retainable	No	No
32	Common Buckthorn	*Rhamnus cathartica*	19	192	Healthy	Retainable	No	No
33	Common Buckthorn	*Rhamnus cathartica*	13	131	Healthy	Retainable	No	No
34	Common Buckthorn	*Rhamnus cathartica*	20	200	Healthy	Retainable	No	No
35	Common Buckthorn	*Rhamnus cathartica*	15	148	Healthy	Retainable	No	No
36	Common Buckthorn	*Rhamnus cathartica*	21	210	Healthy	Retainable	No	No
37	Common Buckthorn	*Rhamnus cathartica*	14	135	Healthy	Retainable	No	No
38	Common Buckthorn	*Rhamnus cathartica*	21	212	Healthy	Retainable	No	No

TABLE C.1
TREE INVENTORY

Tree Number	Common Name	Scientific Name	Diameter (cm DBH)	Critical Root Zone (cm)	Condition	Retainable or Conflict	Signficant Tree (> 50 cm)	Wildlife Tree
39	Common Buckthorn	*Rhamnus cathartica*	18	180	Healthy	Retainable	No	No
40	Common Buckthorn	*Rhamnus cathartica*	17	167	Healthy	Retainable	No	No
41	Black Ash	*Fraxinus nigra*	33	--	Dead	Non-retainable	No	No
42	Green Ash	*Fraxinus pennsylvanica*	23	--	Poor	Non-retainable	No	No
43	Common Buckthorn	*Rhamnus cathartica*	12	--	Healthy	Retainable	No	No
44	Common Buckthorn	*Rhamnus cathartica*	35	--	Healthy	Retainable	No	No
45	Common Buckthorn	*Rhamnus cathartica*	20	--	Good	Retainable	No	No
46	Common Buckthorn	*Rhamnus cathartica*	28	--	Good	Retainable	No	Yes
47	Common Buckthorn	*Rhamnus cathartica*	36	--	Healthy	Retainable	No	No
48	Common Buckthorn	*Rhamnus cathartica*	16	--	Good	Retainable	No	No
49	Common Buckthorn	*Rhamnus cathartica*	23	--	Poor	Retainable	No	No
50	Green Ash	*Fraxinus pennsylvanica*	18	--	Poor	Retainable	No	No
51	Green Ash	*Fraxinus pennsylvanica*	35	--	Poor	Retainable	No	No
52	Green Ash	*Fraxinus pennsylvanica*	32	--	Poor	Retainable	No	No
53	Green Ash	*Fraxinus pennsylvanica*	11	--	Poor	Retainable	No	No
54	Green Ash	*Fraxinus pennsylvanica*	14	--	Poor	Non-retainable	No	No
55	Green Ash	*Fraxinus pennsylvanica*	15	--	Poor	Non-retainable	No	No
56	Green Ash	*Fraxinus pennsylvanica*	33	--	Poor	Non-retainable	No	No
57	Scots Pine	*Pinus sylvestris*	20	--	Poor	Non-retainable	No	No
58	Scots Pine	*Pinus sylvestris*	14	--	Poor	Non-retainable	No	No
59	Green Ash	*Fraxinus pennsylvanica*	17	--	Poor	Non-retainable	No	No
60	Green Ash	*Fraxinus pennsylvanica*	17	--	Poor	Non-retainable	No	No
61	Green Ash	*Fraxinus pennsylvanica*	14	--	Poor	Non-retainable	No	No
62	Green Ash	*Fraxinus pennsylvanica*	10	--	Poor	Non-retainable	No	No
63	Green Ash	*Fraxinus pennsylvanica*	17	--	Poor	Non-retainable	No	No
64	Green Ash	*Fraxinus pennsylvanica*	16	--	Poor	Non-retainable	No	No
65	Green Ash	*Fraxinus pennsylvanica*	21	--	Poor	Non-retainable	No	No
66	Green Ash	*Fraxinus pennsylvanica*	11	--	Poor	Non-retainable	No	No
67	Black Ash	*Fraxinus nigra*	14	--	Poor	Non-retainable	No	No
68	Black Ash	*Fraxinus nigra*	21	--	Poor	Non-retainable	No	No
69	Black Ash	*Fraxinus nigra*	19	--	Poor	Non-retainable	No	No
70	Green Ash	*Fraxinus pennsylvanica*	22	--	Poor	Retainable	No	No
71	Green Ash	*Fraxinus pennsylvanica*	25	--	Poor	Retainable	No	No
72	Green Ash	*Fraxinus pennsylvanica*	20	--	Poor	Retainable	No	No
73	Common Buckthorn	*Rhamnus cathartica*	23	--	Healthy	Retainable	No	No
74	Apple sp.	*Malus* sp.	24	--	Healthy	Retainable	No	No
75	Green Ash	*Fraxinus pennsylvanica*	15	--	Good	Retainable	No	No
76	Common Buckthorn	*Rhamnus cathartica*	20	--	Healthy	Retainable	No	No
77	Common Buckthorn	*Rhamnus cathartica*	16	--	Healthy	Retainable	No	No

TABLE C.1
TREE INVENTORY

Tree Number	Common Name	Scientific Name	Diameter (cm DBH)	Critical Root Zone (cm)	Condition	Retainable or Conflict	Signficant Tree (> 50 cm)	Wildlife Tree
78	Common Buckthorn	*Rhamnus cathartica*	16	--	Healthy	Retainable	No	No
79	Common Buckthorn	*Rhamnus cathartica*	14	--	Healthy	Retainable	No	No
80	Common Buckthorn	*Rhamnus cathartica*	13	--	Healthy	Retainable	No	No
81	Green Ash	*Fraxinus pennsylvanica*	16	--	Dead	Non-retainable	No	No
82	Common Buckthorn	*Rhamnus cathartica*	14	--	Healthy	Retainable	No	No
83	Common Buckthorn	*Rhamnus cathartica*	13	--	Healthy	Retainable	No	No
84	Black Ash	*Fraxinus nigra*	32	--	Poor	Retainable	No	No
85	Black Ash	*Fraxinus nigra*	19	--	Poor	Retainable	No	No
86	Black Ash	*Fraxinus nigra*	33	--	Poor	Retainable	No	No
87	Black Ash	*Fraxinus nigra*	19	--	Poor	Retainable	No	No
88	Green Ash	*Fraxinus pennsylvanica*	23	--	Poor	Retainable	No	No
89	Green Ash	*Fraxinus pennsylvanica*	18	--	Poor	Retainable	No	Yes
90	Green Ash	*Fraxinus pennsylvanica*	18	--	Poor	Retainable	No	No
91	Green Ash	*Fraxinus pennsylvanica*	15	--	Poor	Retainable	No	No
92	Green Ash	*Fraxinus pennsylvanica*	14	--	Poor	Retainable	No	No
93	Blask Ash	*Fraxinus nigra*	18	--	Poor	Retainable	No	No
94	Green Ash	*Fraxinus pennsylvanica*	15	--	Poor	Retainable	No	No
95	Black Ash	*Fraxinus nigra*	14	--	Poor	Retainable	No	No
96	Black Ash	*Fraxinus nigra*	11	--	Poor	Retainable	No	No
97	Green Ash	*Fraxinus pennsylvanica*	14	--	Dead	Non-retainable	No	No
98	Green Ash	*Fraxinus pennsylvanica*	11	--	Poor	Retainable	No	No
99	Black Ash	*Fraxinus nigra*	10	--	Dead	Non-retainable	No	No
100	Green Ash	*Fraxinus pennsylvanica*	10	--	Poor	Non-retainable	No	No
101	Green Ash	*Fraxinus pennsylvanica*	11	--	Dead	Non-retainable	No	No
102	Black Cherry	*Prunus serotina*	13	--	Healthy	Non-retainable	No	No
103	Green Ash	*Fraxinus pennsylvanica*	11	--	Poor	Non-retainable	No	No
104	Green Ash	*Fraxinus pennsylvanica*	13	--	Poor	Non-retainable	No	No
105	Green Ash	*Fraxinus pennsylvanica*	12	--	Poor	Non-retainable	No	No
106	Green Ash	*Fraxinus pennsylvanica*	14	--	Dead	Non-retainable	No	No
107	Black Cherry	*Prunus serotina*	18	--	Healthy	Non-retainable	No	No
108	Green Ash	*Fraxinus pennsylvanica*	16	--	Dead	Non-retainable	No	No
109	Green Ash	*Fraxinus pennsylvanica*	13	--	Dead	Non-retainable	No	No
110	Green Ash	*Fraxinus pennsylvanica*	22	--	Poor	Non-retainable	No	No
111	Black Ash	*Fraxinus nigra*	18	--	Dead	Non-retainable	No	No
112	Green Ash	*Fraxinus pennsylvanica*	14	--	Dead	Non-retainable	No	No
113	Green Ash	*Fraxinus pennsylvanica*	18	--	Dead	Non-retainable	No	No
114	Black Ash	*Fraxinus nigra*	12	--	Dead	Non-retainable	No	No
115	Green Ash	*Fraxinus pennsylvanica*	18	--	Dead	Non-retainable	No	No
116	Black Ash	*Fraxinus nigra*	21	--	Poor	Retainable	No	No
117	Black Ash	*Fraxinus nigra*	16	--	Poor	Retainable	No	No
118	Common Buckthorn	*Rhamnus cathartica*	17	--	Healthy	Retainable	No	No
119	Black Ash	*Fraxinus nigra*	17	--	Poor	Retainable	No	No
120	Black Ash	*Fraxinus nigra*	13	--	Poor	Non-retainable	No	No
121	Green Ash	*Fraxinus pennsylvanica*	27	--	Dead	Non-retainable	No	No
122	Apple sp.	*Malus sp.*	40	--	Poor	Retainable	No	Yes

TABLE C.1
TREE INVENTORY

Tree Number	Common Name	Scientific Name	Diameter (cm DBH)	Critical Root Zone (cm)	Condition	Retainable or Conflict	Signficant Tree (> 50 cm)	Wildlife Tree
123	Green Ash	*Fraxinus pennsylvanica*	27	--	Dead	Non-retainable	No	No
124	Common Buckthorn	*Rhamnus cathartica*	18	--	Healthy	Non-retainable	No	No
125	Green Ash	*Fraxinus pennsylvanica*	16	--	Dead	Non-retainable	No	No
126	Green Ash	*Fraxinus pennsylvanica*	12	--	Dead	Non-retainable	No	No
127	Green Ash	*Fraxinus pennsylvanica*	18	--	Poor	Non-retainable	No	No
128	Apple sp.	*Malus sp.*	16	--	Healthy	Non-retainable	No	No
129	Black Ash	*Fraxinus nigra*	21	--	Poor	Non-retainable	No	No
130	Black Ash	*Fraxinus nigra*	33	--	Dead	Non-retainable	No	No
131	Black Ash	*Fraxinus nigra*	19	--	Poor	Non-retainable	No	No
132	Black Ash	*Fraxinus nigra*	19	--	Dead	Non-retainable	No	No
133	Black Ash	*Fraxinus nigra*	20	--	Poor	Non-retainable	No	No
134	Black Ash	*Fraxinus nigra*	24	--	Dead	Non-retainable	No	No
135	Blask Ash	*Fraxinus nigra*	28	--	Poor	Non-retainable	No	No
136	Black Ash	*Fraxinus nigra*	27	--	Dead	Non-retainable	No	No
137	Black Ash	*Fraxinus nigra*	23	--	Dead	Non-retainable	No	No
138	Black Ash	*Fraxinus nigra*	20	--	Dead	Non-retainable	No	No
139	Black Ash	*Fraxinus nigra*	29	--	Dead	Non-retainable	No	No
140	Black Ash	*Fraxinus nigra*	18	--	Dead	Non-retainable	No	No
141	Green Ash	*Fraxinus pennsylvanica*	14	--	Dead	Non-retainable	No	No
142	Green Ash	*Fraxinus pennsylvanica*	19	--	Dead	Non-retainable	No	No
143	Common Buckthorn	*Rhamnus cathartica*	15	--	Healthy	Retainable	No	No
144	Black Ash	*Fraxinus nigra*	17	--	Dead	Non-retainable	No	No
145	Green Ash	*Fraxinus pennsylvanica*	24	--	Dead	Non-retainable	No	No
146	Common Buckthorn	*Rhamnus cathartica*	14	--	Healthy	Retainable	No	No
147	Common Buckthorn	*Rhamnus cathartica*	12	--	Healthy	Retainable	No	No
148	Common Buckthorn	*Rhamnus cathartica*	16	--	Healthy	Retainable	No	No
149	Green Ash	*Fraxinus pennsylvanica*	18	--	Poor	Retainable	No	No
150	Black Ash	*Fraxinus nigra*	19	--	Dead	Non-retainable	No	No
151	Apple sp.	*Malus sp.*	27	--	Healthy	Retainable	No	Yes
152	Black Ash	*Fraxinus nigra*	18	--	Poor	Retainable	No	No
153	Black Ash	*Fraxinus nigra*	18	--	Dead	Non-retainable	No	No
154	Manitoba Maple	*Acer negundo*	28	--	Poor	Retainable	No	No
155	Green Ash	*Fraxinus pennsylvanica*	26	--	Dead	Non-retainable	No	No
156	Green Ash	*Fraxinus pennsylvanica*	16	--	Dead	Non-retainable	No	No
157	Black Ash	*Fraxinus nigra*	27	--	Poor	Retainable	No	No
158	Black Ash	*Fraxinus nigra*	19	--	Poor	Retainable	No	No
159	Black Ash	*Fraxinus nigra*	19	--	Poor	Retainable	No	No
160	Green Ash	*Fraxinus pennsylvanica*	25	--	Poor	Retainable	No	No
161	Manitoba Maple	*Acer negundo*	48	--	Healthy	Retainable	No	No
162	Manitoba Maple	*Acer negundo*	38	--	Healthy	Retainable	No	Yes
163	Bur Oak	*Quercus macrocarpa*	58	--	Dead	Non-retainable	Yes	No
164	Manitoba Maple	*Acer negundo*	34	--	Healthy	Retainable	No	No
165	Green Ash	*Fraxinus pennsylvanica*	31	--	Dead	Non-retainable	No	No
166	Apple sp.	*Malus sp.*	29	294	Good	Retainable	No	No
167	Manitoba Maple	*Acer negundo*	37	372	Healthy	Retainable	No	Yes
168	Manitoba Maple	*Acer negundo*	63	630	Healthy	Retainable	Yes	No

TABLE C.1
TREE INVENTORY

Tree Number	Common Name	Scientific Name	Diameter (cm DBH)	Critical Root Zone (cm)	Condition	Retainable or Conflict	Signficant Tree (> 50 cm)	Wildlife Tree
169	Manitoba Maple	*Acer negundo*	63	630	Healthy	Retainable	Yes	No
170	Manitoba Maple	*Acer negundo*	33	326	Healthy	Retainable	No	Yes
171	Manitoba Maple	*Acer negundo*	44	440	Healthy	Retainable	No	No
172	Manitoba Maple	*Acer negundo*	47	465	Healthy	Retainable	No	No
173	Manitoba Maple	*Acer negundo*	28	276	Healthy	Retainable	No	No
174	American Elm	*Ulmus americana*	28	280	Healthy	Retainable	No	No
175	Manitoba Maple	*Acer negundo*	36	357	Poor	Non-retainable	No	No
176	Manitoba Maple	*Acer negundo*	56	560	Healthy	Non-retainable	Yes	No

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civil	civil
geotechnical	géotechnique
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