GEMTEC
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Environmental Impact Statement
Zoning By-law Amendment
910 March Road
Ottawa, Ontario

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Submitted to:

Canadian Rental Development Services Inc.
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Ottawa, Ontario
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Environmental Impact Statement
Zoning By-law Amendment
910 March Road
Ottawa, Ontario

December 21, 2022
Project: 100011.014

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EXECUTIVE SUMMARY

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by Canadian Rental Development Services Inc. to carry out an Environmental Impact Statement (EIS) for the property located at 910 March Road in Ottawa, Ontario. This EIS has been completed in support of development applications for the above noted property 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 six field investigations were 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 2021. The focus of the field 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 the field investigation, the following natural heritage features were identified on-site or within the study area: fish habitat. The following SAR and their habitat were identified as having a potential to occur on-site: barn swallow, eastern small-foot myotis, little brown myotis, tri-colored bat, Blanding's turtle, and butternut. No regulated habitat was identified on-site for barn swallow. No butternut trees were observed on-site.

Potential impacts to natural heritage features were primarily associated with the loss of early successional vegetation communities, primarily for the use of avian species and indirect impacts to fish habitat. The majority of impacts to natural heritage features on-site can be mitigated through the implementation of general mitigation measures provided in Section 7. Due to the confirmed regulated habitat for Blanding's turtle on-site an Information Gathering Form has been submitted to the MECP to determine whether the project is likely to contravene the ESA.

To provide 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 zoning amendment to permit a mixed-use development complies with the natural heritage policies of the Provincial Policy Statement (2020) and the City of Ottawa Official Plan (2022). 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 are followed.

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1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by Canadian Rental Development Services Inc. to carry out an Environmental Impact Statement (EIS) in support of a proposed zoning amendment to permit a mixed-use development of the property located at 910 March Road, Ottawa, 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

Based on *Section 4.8 – Natural Heritage, Greenspace and the Urban Forest* of the City of Ottawa new Official Plan (Ottawa, 2022) an EIS is required demonstrating that the zoning by-law amendment and future development on-site 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 properties and the extents of the study area are illustrated on Figure A.2 in Appendix A.

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 on any natural heritage features identified and to recommended appropriate and defensible mitigation measures to ensure the long-term protection of any natural heritage features identified.

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

- Provincial Policy Statement (MMAH, 2020);
- Endangered Species Act (Ontario, 2007);
- Conservation Authorities Act (Ontario, 1990);
- Natural Heritage Reference Manual (OMNR, 2010);
- City of Ottawa Official Plan (Ottawa, 2022);
- City of Ottawa EIS Guidelines (Ottawa, 2012);

- Shirley's Brook and Watts Creek Subwatershed Study (Dillion, 1999);
- Kanata North Community Design Plan (CDP) (Novatech, 2016a); and
- Kanata North Community Design Plan – Environmental Management Plan (EMP) (Novatech, 2016b).

1.3 Physical Setting

The subject site is located at 910 March Road, in Ottawa, Ontario. The subject property currently consists of a vacant lot. Natural vegetation on-site is primarily confined to the riparian areas of the Shirley's Brook tributaries that flow along the north and east property boundaries. A stormwater outfall and associated watercourse is present, off-site, immediately adjacent to the south.

The subject site is bound to the north by the Kanata North Urban Expansion Area (KNUEA) lands occurring over Lot 12, Concession 4. To the south the site is bound by the commercial property at 886 March Road. To the east the site is bound by public open space at 349 Maxwell Bridge Road and KNUEA lands for future development located on Lot 12, Concession 4. To the west the site is bound by March Road.

1.4 Land Use Context

The subject property is situated at the north end of the established, built-up area of Kanata, immediately south of the lands collectively known as the KNUEA. The existing land use designation from the City of Ottawa Official Plan is Mainstreet Corridor. Surrounding land use designations are Mainstreet Corridor, Evolving Neighbourhood and Greenspace. The zoning for the subject site is *Rural* (RU) and *Development Reserve* (DR) and *Flood Plain Overlay*. The subject site includes areas identified on Schedule C15 of the City of Ottawa OP as *floodplain* . The subject site is located within the boundaries of the Shirley's Brook/Watts Creek Subwatershed Study (Dillon, 1999).

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, 2011b);
- City of Ottawa Official Plan (Ottawa, 2022);
- Shirley's Brook/Watts Creek Subwatershed Study (Dillon, 1999);
- Combined Environmental Impact Statement & Tree Conservation Report 910/920 March Road Development (Revised) (McKinley, 2020);
- Ontario Geological Survey (OGS, 2019);
- Breeding Bird Atlas of Ontario (Cadman et al., 2007)
- Atlas of Mammals of Ontario (Dobbyn, 1994);
- Ontario Herpetofaunal Atlas (Oldham and Weller, 2000);
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2020); and
- Species at Risk in Ottawa (Ottawa, 2021).

2.2 Field Investigations

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

Field investigations completed in support of this EIS are outlined in Table 2.1 below. Photographs of site features taken during field investigations are provided in Appendix A. A summary of all wildlife observed during the site investigation is provided in Table C.1 of Appendix A.

Table 2.1 Summary of Field Investigations

Date	Time	Weather	Purpose
July 30, 2021	10:00 – 11:45	14°C, sunny (2/10 cloud cover), moderate wind (Beaufort 4), no precipitation	Ecological Land Classification
September 24, 2021	10:00 – 11:00	17°C, cloudy, windy (Beaufort 4), no precipitation	Fish Habitat Assessment, Ecological Land Classification
October 7, 2021	10:00 – 11:30	17°C, cloudy, light wind (Beaufort 2), no precipitation	Site Meeting with Matthew Hailey (City of Ottawa), Erica Ogden (MVCA), and Julie Styles (MVCA)
July 29, 2022	10:00 – 10:30	22°C, overcast (40% cloud cover), no wind, no precipitation	Barn Swallow Habitat Monitoring
August 12, 2022	09:30 – 10:00	17°C, clear skies (0% cloud cover), light wind (Beaufort 1), no precipitation	Barn Swallow Habitat Monitoring
August 31, 2022	09:00 – 09:30	17°C, mostly clear (10% cloud cover), light wind (Beaufort 2), no precipitation	Barn Swallow Habitat Monitoring

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, previous site specific investigations (McKinley, 2020) and confirmed in the field on July 30, 2021, 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 within 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 gentle downward slope from a topographical high of 79 mASL along March Road to a topographical low of 74 mASL along the eastern property boundary.

A single physiographical landform, as mapped by Chapman and Putnam (1984) is described on site; clay plains of the Ottawa Valley Clay Plains physiographic region.

Geological information obtained from the Ontario Geological Survey (OGS, 2019) during the desktop review identifies a single surficial soil unit of the subject property: fine-textured glaciomarine deposits. The fine-textured glaciomarine deposits consist of silt and clay, with minor sand and gravel.

Bedrock at the site, as mapped by the Ontario Geological Survey (OGS, 2019), is comprised of the Beekmantown Group, consisting of dolostone and sandstone.

3.3 Study Area Land Use

Figure 1 below provides an illustration of the temporal changes in land use within the study area from 1976, 1999, 2008 and 2021, based on aerial imagery from GeoOttawa.

In 1976, the study site and surrounding lands were primarily populated with agricultural fields and small single family rural-residential dwellings buildings. Most development in the area was centred along March Road and Dunrobin Road. Most of Kanata's urban area was not yet developed.

By 1999, significant development occurred south of the study area in the urban area of Kanata. Smaller subdivisions were also being developed to the west, south and north of the study area.

By 2008, intensification within the Kanata Urban area to the south had reached present day extents. Development of smaller subdivisions continued to the west, south and north of the subject property.

By 2021, the remaining surrounding lands are in present day configuration.

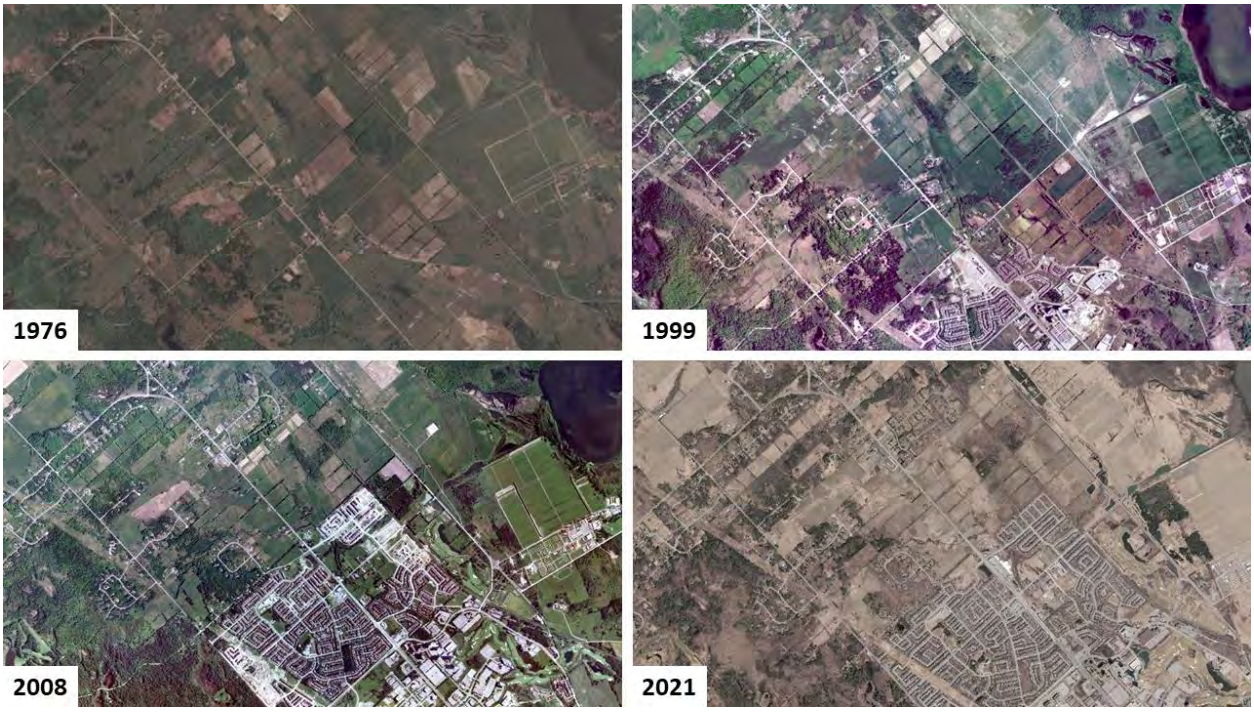


Figure 1 – Temporal Changes in Land Use within Study Area

3.3.1 Shirley's Brook and Watts Creek Subwatershed Study

The Shirley's Brook and Watts Creek Sub-watershed Study (SWS) (Dillon, 1999) was completed, in part, to ensure that planning of future development proceeds in an environmentally sound manner. Specifically, the SWS aims to achieve this objective though making recommendations relating to how water resources and sub-watershed features, including their ecological functions are protected.

The SWS identified six key issues for future development to address in order to ensure protection of water resources and sub-watershed features:

- Flooding and Erosion;
- Lack of Comprehensive Stormwater Management Strategies;
- Poor Water Quality;
- Degraded Fish and Aquatic Habitat;
- Loss of Terrestrial Habitat and Linkages; and,
- Groundwater Supply and Quality Constraints.

The subject site is identified in the Shirley's Brook and Watt's Creek SWS within the SB3 catchment area, which is described as a warmwater, tolerant system with no sensitive, threatened or endangered species (Dillon, 1999). The portion of Shirley's Brook that is located within the study area of this report was documented to have a lack of substantive riparian vegetation along all components of the drainage network which had resulted in decreased bank stability and increased erosion. These issues were partially attributable to former agricultural activities on-site which had previously occurred within or close to the watercourse boundaries (Dillon, 1999).

3.3.2 Kanata North Community Development Plan and Environmental Management Pan

The EMP (Novatech, 2016) has been reviewed in conjunction with the completion of this EIS, and recommendations of the KNUEA CDP and EMP are referred to throughout this report. Reliance on recommendations of the KNUEA CDP and EMP is justified based on the proximity of the KNUEA to the subject-site and the ecosystem continuum principals as most natural heritage features addressed in the KNUEA CDP and EMP are extension of features found on-site and within the study area.

In 2016, a large scale, multi-disciplinary study was completed on approximately 181 hectares (ha) of land collectively known as the KNUEA. Located north of the established urban communities of Morgan's Grant, Briarbrook and Brookside, the KNUEA extends north from the urban portion of Kanata along both sides of March Road (Novatech, 2016b). Extensive environmental surveys and inventories were completed in preparation of an Environmental Management Plan (EMP) (Novatech, 2016b) to be included as a component of the Community Design Plan (CDP) (Novatech, 2016a) for KNUEA and to ensure that the CDP is completed in accordance with the goals, objectives and policies of the Draft City of Ottawa Official Plan (Ottawa, 2021).

Development within the KNUEA is anticipated to include approximately 3,000 residential dwellings, a mixed-use core, schools and various parks and trails (Novatech, 2016a). The KNUEA will also incorporate an integrated open space system, which will include riparian corridors around the existing tributaries of Shirley's Brook. For ease of reference, the tributaries of Shirley's Brook are referred to throughout this report using the same terminology as the KNUEA CDP and EMP (Novatech, 2016a and 2016b).

The KNUEA CDP and EMP were approved by Ottawa City Council in 2016. Although the subject site is not located within the KNUEA, all adjacent developing areas to the north and west of the site are within the KNUEA. As such the recommendations established by the KNUEA CDP and EMP will dictate new development requirements throughout the area surrounding the site and are likely to influence the development of the site and therefore referenced throughout this report. Notably, the KNUEA EMP establishes a minimum 40 m wide corridor of vegetated habitat, which is to retained and/or enhanced surrounding the tributaries of Shirley's Brook (Novatech, 2016b).

3.4 Surface Water and Fish Habitat

Surface water on-site consists of two tributaries of Shirley's Brook, one along the north property boundary (Tributary 3) and one along the east property boundary (Tributary 2). One additional surface water feature was identified off-site but within the study area to the south (Tributary 4).

3.4.1 Tributary 2

Tributary 2 originates to the northwest of the property, within Concession 2, Lot 15, and flows through the northwest quadrant of the KNUEA, crosses over March Road, and turns south through the east side of the KNUEA. On-site Tributary 2 enters the property in the northeast corner, flowing off-site to the south-east corner.

As outlined above, Tributary 2 enters the site from the north, flowing through multiple developing subdivisions within the KNUEA. On-site, Tributary 2 remains in a naturalized state. No evidence of significant erosion or sedimentation was observed within Tributary 2. Flow within Tributary 2 was observed during all site investigations and ranged from interstitial to moderate flow rates. A barrier to fish migration was observed within Tributary 2, approximately 20 m south of the northern property boundary where a pronounced bedrock outcrop creates an in-stream vertical barrier of approximately 0.3 m.

Tributary 2 was populated with in-stream vegetation including cattail, reed canary grass, purple loosestrife, willow and northern arrowhead. Riparian vegetation along the banks of Tributary 2 included reed canary grass, purple loosestrife, nightshade and spotted jewelweed. In-stream structure observed within Tributary 2 included undercut banks and minimal rock/log habitat. No pool-run-riffle sequences were observed, but Tributary 2 was characterised by permanent slow flow with deeper pool areas. Sediment was primarily composed of silty clay over hardpan.

3.4.2 Tributary 3

Tributary 3 originates off-site to the southwest, on Lot 10, Concession 2 and Lot 12, Concession 1. Tributary 3 flows through the southwest quadrant of the KNUEA before crossing under March Road. Within the KNUEA, Tributary 3 flows through several concrete weir structures that have created in-line ponds behind each weir. On-site, Tributary 3 enters the property at the northwest corner and flows along the northern property boundary before it reaches a confluence with Tributary 2 in the northeast corner of the site.

As outlined above, Tributary 3 enters the site from the west from two culverts that carry flow from the southwest quadrant of the KNUEA under March Road. Downstream of March Road, Tributary 3 remains in a naturalized state. Some evidence of erosion and sedimentation was noted along the banks of Tributary 3. Flow within Tributary 3 ranged from standing water to moderate flow. No barriers to fish migration were observed within Tributary 3.

No in-water vegetation was observed. Riparian vegetation along the banks of Tributary 3 included Manitoba maple, American elm, Scots pine, and crack willow in the canopy. The subcanopy included saplings of crack willow, green ash, American elm and common buckthorn. Herbaceous vegetation included garlic mustard, nightshade, spotted jewelweed, raspberry, and thicket creeper. Sediment within Tributary 3 was noted to be comprised of hardpan and silty clay with little to no in-water structure. No pool-run-riffle sequences were identified.

3.4.3 Tributary 4

Tributary 4, identified as a ditch (Channel G) in the KNUEA EMP (Novatech, 2016b), is a stormwater swale located off-site to the south of the site. Tributary 4 serves as the stormwater outlet for a portion of the Marchbrook Circle subdivision, where it originates, as well as an outlet for the Morgan's Grant Stormwater Management Facility (SWMF), located west of March Road. Flow from the facility is conveyed to the swale by underground piping that discharges from a culvert east of March Road. East of March Road, Tributary 4 flows adjacent to the southern property boundary before it reaches a confluence with Tributary 2, just southeast of the property boundary. Just prior to this confluence, stormwater, from adjacent property 886 March Road, outlets into Tributary 4.

As outlined above, Tributary 4 enters the site at the base of March Road where two culverts discharge from a concrete headwall structure; one culvert conveys flows from the Morgan's Grant SWMF while the other conveys stormwater flows from Marchbrook Circle. Immediately downstream of March Road, Tributary 4 becomes very entrenched as it flows eastwards towards the confluence with Tributary 2. Significant erosion and sedimentation was noted along the banks and throughout Tributary 4. Flow within Tributary 4 ranged from dry to moderate, depending on the preceding weeks precipitation events. During periods of flow, a barrier to fish migration consisting of a bedrock ledge or large boulder which Tributary 4 flows over, was observed approximately 5 m upstream of the confluence with Tributary 2.

No in-water vegetation was observed and aside from the presence of a dense thicket of Manitoba maples along the north and south banks, no terrestrial vegetation was observed along the banks until immediately upstream of Tributary 2 where reed-canary grass dominates both banks. Sediment within Tributary 4 was noted to be comprised of hardpan and silty clay with little to no in-water structure. No pool-run-riffle sequences were identified.

3.4.4 Fish Habitat

Fish sampling was completed for the KNUEA EMP (Novatech, 2016b) and the Shirley's Brook and Watts Creek SWS (Dillon, 1999). The later describes the on-site and offsite tributaries as well entrenched, warmwater, tolerant streams with no rare, threatened or endangered aquatic species.

Tributary 2 and 3 were confirmed to provide direct fish habitat. A total of ten species were caught in Tributary 2 and 3: white sucker, central mudminnow, northern redbelly dace, finescale dace, longnose dace, blacknose dace, fathead minnow, creek chub, brook stickleback and

pumpkinseed. All of these species are commonly found in degraded systems and areas of low quality fish habitat.

Tributary 4 was completed immediately west of March Road as part of the KNUEA EMP, no evidence of fish was observed within Tributary 4. Tributary 4 was observed to be dry during two visits for the McKinley EIS (2020) and during two of the three GEMTEC site visits completed in 2021. During the October 7, 2021 site investigation, flow was observed within Tributary 4. Water was observed to be very silty/cloudy during the October 7, 2021 site investigation. Fish habitat was not assessed during the 2022 site visits to monitor barn swallow habitat. Due to the intermittent flow regime which is dependent on stormwater discharge from upstream developments and the presence of a downstream barrier to fish migration, Tributary 4 does not provide permanent fish habitat.

3.5 Vegetation Communities

Vegetation communities on-site were confirmed by GEMTEC in 2021, following protocols utilized in the Southern Ontario Ecological Land Classification System (Lee et al., 2008). Vegetation at the site is dominated by a maintained grass landscape with a cultural meadow comprising the riparian vegetation along the various watercourses and a treed hedgerow along the north and south property boundaries.

The majority of the property consists of vacant land, dominated by regenerative vegetation including common mullein, cow's vetch, goldenrod, wild carrot, red clover, buttercup, ragweed, chicory, oxeye daisy, common burdock, common milkweed, wild parsnip, grape, Virginia creeper, brome and reed canary grass. Trees and shrubs throughout the property were scattered but included Manitoba maple saplings, lilac shrubs, and eastern cottonwood saplings.

Along the riparian zone, reed canary grass dominated, along with purple loosestrife, nightshade and spotted jewelweed. In-stream vegetation was not present in Tributary 3 or 4. Within Tributary 2 in-stream vegetation included cattail, reed canary grass, purple loosestrife, and northern arrowhead.

Along the north property boundary, the treed hedgerow included Manitoba maple, white willow, crack willow, American elm, black walnut and Scots pine. Shrubs included green ash, crack willow, glossy buckthorn and common buckthorn. Along the southern property boundary, the treed hedgerow included Manitoba maple and green ash. Shrubs included common buckthorn.

3.6 Wildlife

Wildlife observed on-site and within the study area during the field investigation consisted of common peri-urban avian species: American goldfinch, American robin, common grackle, eastern phoebe, gray catbird, ring-billed gull. None of the wildlife observed during the site investigations are designated as threatened or endangered species at risk.

4.0 NATURAL HERITAGE FEATURES

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

4.1 Significant Wetlands

As described in the Natural Heritage Reference Manual (OMNR, 2010), wetlands “mean lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface.” In the PPS 2020, *significant* with 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 significant wetlands were identified on-site or within the study area during the desktop review or the site investigation. Additionally, no local wetlands were identified on-site or within the study area during the desktop review or the site investigation. As no significant or local wetlands occur on-site or within the study area, significant wetlands are not evaluated or discussed further in this EIS.

4.2 Significant Woodlands

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

At the local scale, significant woodlands are defined and designated by the local planning authority. Generally, most planning authorities have defined significant woodlands as any woodland that contains any of the four criteria listed in Section 7.2 of the natural heritage reference manual (OMNR, 2010), including: woodland size, ecological functions, uncommon characteristics and economic and social functional values. Furthermore, the City of Ottawa provides a supplementary document *Significant Woodland: Guidelines for Identification, Evaluation, and Impact Assessment* (Ottawa, 2020) to evaluate woodlands and ensure compliance with the city’s policies.

However, as outlined in Section 3.5 above, the site is primarily vacant residential area with a narrow riparian zone and treed hedgerows. No woodland or forest communities have been identified on-site during the desktop review or site investigation. As such, significant woodlands

are not present on-site or within the study area and they are not discussed or evaluated 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 with no notable topographical features; as such, significant valleylands are not discussed or evaluated further in this EIS.

4.4 Significant Areas of Natural and Scientific Interest

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

No ANSI have been identified on-site or adjacent to the site during the desktop review or during site investigations. Therefore, 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 evaluated potential significant wildlife habitat on-site. Significant wildlife habitat is broadly categorized as habitats of seasonal concentration of animals, rare vegetation communities, specialized habitats for wildlife, habitats of species of conservation concern and animal movement corridors. Table C.1, C.2, C.3 and C.4 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) identify 11 types of seasonal concentration habitats that may be considered significant wildlife habitat. These 11 types of seasonal habitat are presented in Table C.1 in Appendix B, 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.1 in Appendix C, no *candidate* habitat of seasonal concentration of animals are present on-site, accordingly, habitats of seasonal concentrations of animals is not discussed further in this EIS.

4.5.2 Rare Vegetation Communities

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

The vegetation communities identified on-site and described in Section 3.5 of this report are not ranked by the NHIC as S1, S2 or S3 and are therefore not considered to be rare vegetation communities. Accordingly, 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.2 in Appendix B.

Following review of Table C.2 in Appendix C, no *candidate* specialized habitats for wildlife are present on-site, accordingly this category of significant wildlife habitat is not discussed further in this EIS.

4.5.4 Habitats of Species of Conservation Concern

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

Based on the guidance provided in the Significant Wildlife Habitat Ecoregion Criterion Schedules (OMNRF, 2015), when a plant or animal element occurrence is recorded for any species with an

S-rank of S1 (extremely rare), S2 (very rare), S3 (rare to uncommon) or SH (historically present), the corresponding vegetation ecosite is considered to provide *candidate* habitat for species of conservation concern and further consideration within the EIS is warranted.

The Significant Wildlife Habitat Ecoregion Criterion Schedules (OMNRF, 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.3 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.3 in Appendix C, no habitat of species of conservation concern are present on-site, accordingly, habitat of species of conservations concern are not discussed 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 OMNRF, 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.

With respect to the later, the City of Ottawa through their Natural Landscape Linkage Analysis (Ottawa, *undated*) identifies natural linkage feature that qualify as part of the City's natural heritage system. These features are described as consisting of remnant woodlands or floodplains lying within existing or potential natural linkage areas. Review of Schedule C11A indicates that natural linkages, as defined by the City of Ottawa, are not present on-site or within the study area.

The two animal movement corridors for Ecoregion 6E-11 are provided in Table C.4 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.4 in Appendix C, no animal movement corridors are present on-site, accordingly, animal movement corridors are not discussed further in this EIS.

4.6 Fish Habitat

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

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

A fisheries assessment was not completed as part of this EIS. However as discussed in Section 3.4 above, Tributary 2 and 3 are known to provide direct fish habitat and contribute to downstream fish habitat.

Due to the limited hydroperiod and lack of permanency and connectivity, off-site Tributary 4 is not considered to provide direct fish habitat but is likely to contribute to downstream fish habitat, particularly during the spring freshet and following large storm events. This conclusion is supported by field data collected during fish sampling completed as part of the KNUEA study, where no fish species were collected within Tributary 4.

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 B.7 in Appendix B, 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 recirculated zoning amendment to permit the future construction of a mixed-use development. The purpose of this EIS is to support the zoning amendment and a future site plan application for a mid-rise mixed use (primarily residential) apartment building.

Future development is proposed to include a mixed-use apartment building with road access via March Road.

Stormwater management for quality and quantity of stormwater will be provided. Due to the proposed nature of the building layout, the exterior grassed areas between the building and property limit where run-off will generate from grassed areas and patios, is assumed to be clean water. Accordingly, run-off from these outside areas is proposed to sheet drain towards the prospective property boundaries and tributary. Along the west side of the building, run-off will sheet drain to March Road. Along the south side of the building, run-off will sheet drain into Tributary 4. Along the east side of the building, run-off will sheet drain into Tributary 2. Along the north side of the building, run-off will sheet drain into Tributary 3.

Pre- and post-construction in these areas will see a minor change in the run-off coefficient. Roof drainage along with drainage from the interior grassed courtyard area is assumed to be clean and will be collected in an underground tank that will be gravity fed to discharge into Tributary 2. As run-off from the exterior grassed sides of the building, the roof and courtyard are assumed to be clean there is no required quality control provided for these sources.

Run-off generated in the parking lot and road on-site is not considered clean, and is required to have both quality and quantity control. Water generated in the parking lots will be collected into a secondary underground storage tank. Road generated water will be collected on the surface. Both the roadway surface water and underground parking lot tank will flow through an oil-grit separator (OGS). The OGS will outlet to Tributary 2 via storm sewer that is gravity fed.

Additional components of the future development will include: tree clearing and vegetation grubbing, fill placement and elevation grading, and general landscaping activities.

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 5 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: loss of vacant open area, a minor loss of riparian vegetation, an increase in impervious surface, increase in storm water generation, potential short-term increases in sedimentation and/or erosion and a short-term increase in noise generation.

6.1 Fish Habitat

According to the Provincial Policy Statement (MMAH, 2020), “development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.” Fish habitat as defined in the Fisheries Act (Canada, 1985) means “spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes.”

When activities are unable to avoid or mitigate “the harmful alteration, disruption or destruction (HADD) of fish habitat” from typical project impacts such as temperature change, sedimentation, infilling, reduction of nutrient and food supply, etc., an authorization under Subsection 35 (2) of the Fisheries Act is required for the project to proceed without contravening the Act.

As no in-water work will occur, potential impacts to fish habitat on-site are anticipated to be indirect and primarily associated with changes to the surface water and groundwater water balance through increased storm water runoff resulting from an increase in the 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 and fill placement.

Mitigation measures to protect fish habitat are provided in Section 7.

6.2 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.

Due to the potential impacts to SAR and their regulated habitat on-site preliminary consultation with the Ministry of Environment, Conservation and Parks (MECP) is on-going. In 2020, an EIS was completed by McKinley Environmental Solutions (McKinley) for the property, identifying barn swallow and Blanding's turtle habitat. As part of the original 2020 McKinley EIS, a Notice of Activity was submitted to address barn swallow habitat on-site, registering the building demolition for a conditional exemption under O.Reg 242/08.

To address impacts to regulated Blanding's habitat, an Information Gathering Form (IGF) was submitted to the MECP for review and comment in 2021. Preliminary responses were received in summer 2022, instructing the project to move to an Alternatives and Avoidance Form (AAF). AAF preparation is on-going.

6.2.1 Barn Swallow

The barn swallow (*Hirondo rustico*) is a medium-sized, insectivorous bird with a slightly flattened head and broad shoulders that taper to long, pointed wings. The forked tail is long and extends beyond wingtips when perched. Barn swallows have blue-black coloured wings and tail, with a whitish to orange underside and dark rufus throat.

While most abundant in Ontario south of the Shield, the breeding range for barn swallow in Ontario extends from the Carolinian region in extreme southwest Ontario to the Hudson Bay Lowlands (Cadman et al., 2007). In Ontario, breeding bird survey data demonstrated a decline in barn swallow populations of 60-75% between the first and second breeding bird atlas.

Barn swallows typically build their nests out of mud on ledges or walls on barns or other human made structures. Natural sites, including cliffs and caves are not rarely used for nesting (Cadman et al., 2007). Foraging occurs fields and ponds. Barn swallows are less common in highly urban area and areas with higher forest cover (Cadman et al., 2007).

As discussed above, the site registered for a conditional exemption under O.Reg. 242/08 to address impacts to barn swallow habitat due to building demolition. A replacement structure was built on the property, within the riparian zone of Tributary 2 in the northeast corner of the site. Habitat monitoring of the structure is on-going in accordance with the regulatory policies of O.Reg. 242/08. To date no barn swallow have been observed nesting in the structure.

Currently, suitable habitat for barn swallow nesting on-site is limited to the replacement habitat structure built as compensational requirement for the Notice of Activity registered for the site. No other suitable nesting habitat for barn swallow is present on-site.

As no suitable habitat is present, outside of the compensation structure, and the compensation structure is not anticipated to be destroyed, moved or otherwise impacted by the development, no negative impacts are anticipated to occur to the species or habitat from the proposed development on-site. Additionally, the MECP is satisfied with the on-going compensation requirements of the barn swallow Notice of Activity (submitted 2020), and information provided in the IGF. The MECP has not indicated any other compensation or mitigation will be required to address impacts to barn swallow outside of the on-going Notice of Activity requirements.

As such no negative impacts are anticipated to occur to barn swallow or their habitat and no mitigation measures are provided in Section 7 for the protection of barn swallow, and they are not discussed or evaluated further in this EIS.

6.2.2 Eastern Small-footed Myotis

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

The eastern small-footed Myotis is found throughout eastern North America. In Ontario the species has been observed in the areas 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, 2019a).

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

6.2.3 Little Brown Myotis

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

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

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

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

6.2.4 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).

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

6.2.5 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, 2005). This turtle species occurs primarily in shallow water; adults are generally found in open or partially vegetated sites, whereas 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, 2005).

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."

In consultation with the Ontario Ministry of Natural Resources and Forestry (OMNRF), mapping of Blanding's Turtle habitat in the Kanata North region was developed to support the KNUEA EMP (DST, 2015; Novatech, 2016). The habitat mapping was based on a documented occurrence of a Blanding's Turtle within Shirley's Brook, approximately 750 m northwest of the site and an observation along March Road, immediately north of the subject site (McKinley, 2020).

Targeted Blanding's surveys were not completed in support of the EIS or IGF/AAF submissions. However, as regulated Blanding's turtle habitat extends up to 2 km from an observation, based conservatively on the NHIC observation data, the KNUEA EMP, and observation data from the McKinley EIS (2020), the subject site contains regulated Category 2 and Category 3 habitat for Blanding's turtle.

The subject site Is not considered to provide Category 1 habitat (overwintering and nesting areas), as there are no suitable wetlands or ponds on-site or within the study area, and Blanding's turtles do not typically overwinter in flowing watercourses. Additionally, the site lacks areas of loose sandy fill or gravel that would provide suitable nesting habitat. Tributaries 2 and 3 have been established as providing regulated Category 2 and 3 habitat. Tributary 4 is not considered to provide regulated habitat due to the absence of permanent aquatic habitat, absence of in-stream

vegetation, the presence of hardpan substrates, the significantly entrenched nature and the absence of migratory pathways to upstream environments.

The on-site extents of Blanding's Turtle habitat, as shown by DST (2015), has previously been reviewed and approved by the OMNRF Kemptville District. Regulated Category 2 and Category 3 habitat for Blanding's Turtle on-site is illustrated on Figure A.3 in Appendix A. As illustrated the entire Site lies within areas that qualify as either Category 2 or 3 habitat for Blanding's Turtle.

As discussed above, an IGF has been submitted to the MECP to assess impacts of the proposed development on Blanding's turtle and their habitat. Following the first round of MECP review of the IGF, an Alternatives and Avoidance Form (AAF) was submitted to the MECP. The following impacts were provided to the MECP in the IGF.

Any future development on-site is has the potential to impact Category 2 habitat on-site while development on-site is unable to avoid Category 3 habitat as Category 3 habitat extends over the entirety of the site. Impacts associated with development within the Category 2 and Category 3 habitat will include vegetation loss, excavation, building construction, roadway and underground parking construction, landscaping and human-disturbance on-site.

Potential impacts to water quality include sediment transport from increased imperviousness and increased stormwater runoff associated with parking lot and roadway catchment. A stormwater management (SWM) plan will be required to provide SWM quantity control for the proposed development. At a minimum it is anticipated that pre- and post-construction stormwater flows to Shirley's Brook tributaries will remain the same. Quality control of stormwater, where necessary, will be provided through the installation of an oil grit separator unit.

Potential direct impacts to individual Blanding's turtles will be more likely during migratory and nesting periods, while turtles are more transitory. 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 take place between late May to early July.

Avoidance and mitigation measures intended to prevent harm to Blanding's turtles who have the potential to occur on-site are presented in Section 7.

6.2.6 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 pattern. 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.

Butternut observation records were provided by the NHIC for the 1 km grid squares that encompasses the site. However, no butternut trees were observed on-site or within the study area during the site investigation. As no butternuts were documented on-site no mitigation measures are provided in Section 7 in relation to butternut and they are not discussed or evaluated further in this EIS.

6.3 Cumulative Impacts

Potential cumulative impacts associated with the proposed project include an increase in storm water generation, and the loss of roadside vacant lands, 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 land use in the surrounding project area and the network of unofficial trails that bisect the subject site.

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

7.0 RECOMMENDED AVOIDANCE AND MITIGATION MEASURES

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

For the purpose of this report, a setback is defined as the minimum required distance between any physical structural footprint (excluding the portion of a structure that is overhanging or otherwise projecting above a buffer), 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.

Proposed overhanging projections or building elements above the ground surface (i.e. those with no physical footprint) are not considered to encroach within the proposed buffers, as overhanging projections or building elements above ground surface are not anticipated to contribute to vegetation loss, soil compaction or fill placement within the proposed setback. As outlined in the stormwater management plan, runoff from overhang projections are considered clean and will not impact quantity or quality of stormwater discharging into adjacent tributaries. Provided that buffers are appropriately vegetated at ground level, and overhanging projections or building elements above the ground do not interfere with tree canopy cover within the setback, these features are not considered to require a buffer, as there is no anticipated impact to adjacent natural heritage features, including surface water features.

7.1 Official Plan, Planning Studies and Kanata North Urban Expansion Area

Buffers recommended in the following subsections and illustrated on Figure A.6, are done so within the context of the City of Ottawa Official Plan (2022), the Shirley's Brook and Watts Creek SWS (Dillon, 1999), the KNUEA CDP (Novatech, 2016a) and EMP (Novatech, 2016b), existing species at risk permits for upstream developments and industry best management practices, while also considering the existing environment of the site.

The subsections below provide an overview of the above noted policies, guidelines and reports that exist in relation to the outcome of development of lands on-site and within the adjacent study area, and how each resource influences the mitigation and avoidance measures proposed for the development on-site.

7.1.1 City of Ottawa Official Plan

As outlined in the City of Ottawa Official Plan (2022), the minimum setback from a surface water feature shall be the development limits as established by a Council-approved watershed, sub-

watershed, subwatershed, and environmental management plan. Where a council-approved watershed, subwatershed or environmental management plan does not exist, or provides incomplete recommendations, the minimum setback shall be the greater of the following:

a. Development limits as established by the Conservation Authorities hazard limit, which includes the regulatory flood line, geotechnical hazard limit and meander belt;
b. Development limits as established by the geotechnical hazard limit, in keeping with Council-approved Slope Stability Guidelines for Development Applications;
c. 30 metres from the top of bank, or the maximum point to which water can rise within the channel before spilling across the adjacent land; and
d. 15 metres from the existing top of slope, where the is a defined valley slope or ravine.

The Official Plan further outlines that exceptions to the above policies will be considered by the City in consultation with the Conservation Authority in situations where development is proposed on existing lots where, due to the historical development in the area, it is impossible to achieve the minimum setback because of the size or location of the lot, approved or existing use on the lot or other physical constraint, providing the following conditions are met to the City's satisfaction:

a. The ecological function of the site is restored and enhanced, to the greatest extent possible, through naturalization with native, non-invasive vegetation and bioengineering techniques to mitigate erosion and stabilize soils; and
b. Buildings and structures are located, or relocated, to an area within the existing lot that improves the existing setback, to the greatest extent possible, and does not encroach closer to the surface water feature.

In consideration of the site-specific characteristics pertaining to the exception above, development in the area and upstream of the tributaries on-site (i.e. KNUEA) is adhering to a 40 m corridor along tributaries of Shirley's Brook (i.e. 20 m setback on each side from the centreline of the watercourse). Given the size and magnitude of the KNUEA, application of similar mitigation on the relatively smaller-scale development proposed for the subject property is defensible. Furthermore, establishment of a 30 m setback from top of bank from all tributaries on-site is not feasible from a development yield perspective, given the size of the subject site. A 30 m setback from top of bank from all tributaries on-site is unfeasible as site limitations from a 30 m setback from top of bank limit unduly constrain the site for mixed-use development with appropriate servicing proposal to move forward.

In consideration of the site-specific characteristics and ecological functions pertaining to point (a) above, Tributary 4 is an artificial stormwater flow channel, that's primary function is to convey stormwater flows from the Morgan's Grant SWMF and Marchbrook Circle to Tributary 2. Flow within Tributary 4 ranged from dry to moderate, depending on the preceding weeks precipitation events. Furthermore, Tributary 4 has been demonstrated to not to provide fish habitat or

Blanding's turtle habitat (in accordance with MNRF correspondence and the general habitat description for Blanding's turtle). As such a reduced setback from Tributary 4 is not unreasonable.

In consideration of the City of Ottawa's official plan policies, GEMTEC offers the following site-specific considerations and ecological functions of each tributary to address the setback exceptions (point a above) for restoring and enhancing the ecological function as outlined in the City of Ottawa Official Plan, as summarized in Table 2 below.

Table 7.1 Summary of Tributaries Ecological Functions

City of Ottawa Official Plan Setback Ecological Function	Site-Specific Considerations
Slope and Bank Stability	Tributaries 2 and 3 of Shirley's Brook on-site include a gradual slope, and no evidence of erosion. While erosion was noted within Tributary 4, no hazardous slope, slope stability or bank stability hazards have been identified for the subject property. Tree and vegetation planting within the proposed buffers, as discussed in Section 7 below will restore and further enhance slope stability and prevent future erosion.
Natural Vegetation and Ecological Function of the Setback Area	The hedgerow around Tributary 2 and the north property boundary, and the line of trees along Tributary 4 will be preserved within the proposed tributary setbacks. Existing riparian vegetation on-site is comprised of a mix of herbaceous grasses and forbs, as well as sparse shrubs and trees. As discussed in Section 3.5, the northern hedgerow, and thin strip of trees along Tributary 4 comprise the majority of tree cover on-site. Implementation of the 20 m setback from the centreline of the watercourse for Tributary 2 and 3, and the 10 m top of slope setback from Tributary 4 will thereby preserve the majority of tree cover on-site. Tree and vegetation planting within the proposed setbacks, as discussed in Section 7 below will help to restore riparian areas and further enhance and rehabilitate the natural and ecological function of the riparian setback area.
Functions of the Waterbody and the Presence of the Floodplain	City of Ottawa floodplain mapping shows the floodplain of Tributaries 2 and 3, extending approximately 20 m into the northeast portion of the property (along Tributary 2 and 3), and only a few meters into the eastern part of the property (along Tributary 3 and 4). The floodplain is captured by the proposed 20 m setback from the centreline of the watercourse for Tributary 2 and 3. Floodplain within Tributary 4, is limited to the immediate vicinity of the confluence of Tributary 4 and Tributary 2 and is captured by the 20 m setback from Tributary 2. Additionally, Tributary 4 is almost entirely fed

City of Ottawa Official Plan Setback Ecological Function	Site-Specific Considerations
	by stormwater flow from Morgan's Grant SWMF, Marchbrook Circle and the adjacent commercial development, addressed as 886 March Road. The proposed setbacks and vegetation plantings will further restore and enhance the overall function of the waterbody and floodplain area.
Fish Habitat	As discussed above, Tributaries 2 and 3 both provide fish habitat. Fish species observed within Tributary 2 and 3 during sampling for the KNUEA EMP were all indicative of degraded systems and are commonly found in areas of low quality fish habitat. No fish SAR were observed and no high-quality fish habitat, such as spawning beds were observed. Fish habitat within Tributary 2 and 3 are well protected by the proposed 20 m setback from the centreline of the watercourse, as well as the construction mitigation presented in section 7.2 below. Tributary 4 is an artificial stormwater flow channel, that has not been shown to provide habitat for fish or regulated habitat for Blanding's turtle. Fish species were not observed within Tributary 4 during sampling for the KNUEA. Furthermore, during a period of flow, a barrier to fish migration consisting of a bedrock ledge or large boulder which Tributary 4 flows over, was observed approximately 5 m upstream of the confluence with Tributary 2. No fish SAR were observed and no high-quality fish habitat, such as spawning beds were observed. Tributary 4 was observed to be dry during two visits in 2020 (McKinley, 2020) as well as during all three 2022 site visits completed by GEMTEC. Due to the absence of standing and/or flowing water and the presence of a barrier to fish, Tributary 4 does not provide permanent fish habitat. As such no negative impacts to fish habitat are anticipated to occur with respect to Tributary 4.

7.1.2 Ecological Buffer Guideline Review, Beacon 2012

The overall function of a buffer, as outlined in Beacon (2012) is "*to try and insulate a protected natural area from the impacts of adjacent land uses (usually land use changes) so that the area can continue to provide the same, or a comparable range of ecological goods and services as it did prior to the change in land use/development*". Beacon outlines five functions of ecological buffers:

- **Water Quality** (attenuation of storm water flows);
- **Water Quality** (Sediment attenuation, nutrient attenuation, fecal coliform attenuation, toxin and heavy metal attenuation, and water temperature moderation);

- **Screening of human disturbance and changes in land use** (wind and noise attenuation, light dampening, and screening from physical disturbances);
- **Hazard mitigation zone** (Stream bank/slope stabilization, and mitigate consequences of large branch or tree fall); and
- **Core aquatic habitat protection** (maintaining microclimate conditions, contributing nutrients, large woody debris or cover, and maintenance of protected areas biotic integrity).

With respect to watercourse buffers, Beacon (2012) offers the following overview of recommended buffer widths:

- **Water Quantity Functions** – insufficient evidence to draw conclusions on a recommended average buffer;
- **Water Quality Functions** – average ranges between 10 m and 40 m, average recommendation of 30 m. Sediment and phosphorus can generally be well-attenuated at narrower buffers than nitrogen, sediment can generally be attenuated at buffers of 10 m and that a combination of herbaceous and woody vegetation is most effective for overall nutrient attenuation;
- **Screening of Human Disturbance/Changes in Land Use** – No empirically based buffer recommendations, waterbird protection buffers range from 15 m to 100 m for nesting sites (Beacon notes these recommendations have a narrow application). Screening functions related to abiotic impacts can be achieved between 15 m and 50 m;
- **Hazard Mitigation Zone** – Limited studies related to buffers providing hazard reduction. No conclusive evidence that a vegetated buffer will help mitigate this hazard;
- **Core Aquatic Habitat Protection** – Average ranges between 10 m and 75 m. An average recommendation of 50 m. Buffer width is species-specific.

Beacon notes that while the approximate ranges and averages above are useful from an overview perspective, it is important to recognize the wide variability in recommended buffer widths in different context and the need to consider site-specific factors as well as some aspects of landscape context in riparian buffer determination.

In consideration of the watercourses on-site, and review of Beacon Environmental Ecological Buffer Guideline Review (2012), GEMTEC offers site-specific considerations for the tributaries on-site in Table 3 below.

Table 7.2 Summary of Site Specific Buffer Function Considerations

Buffer Function	Site-Specific Considerations
Water Quantity Functions	No minimum buffer recommendation, as the proposed stormwater management plan for the site matches pre- and post-construction flows to

	Tributary 2, Tributary 3 and Tributary 4, mitigating impacts related to water quantity for all three tributaries.
Water Quality Functions	No minimum buffer recommendation, as the segregation of clean stormwater (i.e., roof top) and impacted stormwater (i.e., road surface) with treatment of the later by way of integrated oil/grit separator, addresses concerns relating to impairment of water quality as a result of the proposed development. The proposed 20 m setback from the centreline of the watercourse for Tributary 2 and 3, and 10 m setback from top of slope for Tributary 4, will help to slow, filter and absorb any overland stormwater flow not captured by the stormwater management system.
Screening of Human Disturbance/Land Use Change	Existing trees, in addition to proposed tree and vegetation planting within the proposed setbacks will protect watercourses from edge effects including noise, pollution, and other forms of human disturbance.
Hazard Mitigation Zone	No slope stability hazards have been identified in association with Tributary 2, 3 or 4. Proposed tree and vegetation planting within the proposed setbacks will help to minimize and prevent erosion and stabilize banks.
Core Habitat Protection	Tributary 2 and 3 remain in a fairly naturalized and are known to provide suitable habitat for fish, as well as regulated Category 2 habitat for Blanding's Turtle. The proposed 20 m setback from the centreline of the watercourse for Tributary 2 and 3 will provide protection to both fish and Blanding's turtle habitat, while also providing habitat for general wildlife and wildlife movement. While both Tributary 2 and 3 provide fish habitat they are not likely to support habitat for breeding amphibians (i.e. no wetland habitat or adjacent woodlands) or turtle overwintering areas. Blanding's turtle, a reptilian SAR are known to frequent the area. As discussed in Section 6, the site is not considered to provide suitable overwintering or nesting areas. As such habitat within Tributaries 2 and 3 are considered Category 2 habitat. Tributary 4 is an artificial stormwater flow channel, that has not been shown to provide habitat for fish or regulated habitat for Blanding's turtle. Fish species were not observed within Tributary 4 during sampling for the KNUEA. Furthermore, no fish SAR were observed and no high-quality fish habitat, such as spawning beds were observed. Tributary 4 was observed to be dry during two visits in 2020 (McKinley, 2020) as well as during all three 2022 site visits completed by GEMTEC. Due to the absence of standing and/or flowing water and a barrier to fish migration, Tributary 4 does not provide permanent fish habitat, nor does it support habitat for breeding amphibians (i.e. no wetland habitat or adjacent woodlands) or turtle overwintering areas. Blanding's turtle, a reptilian SAR are known to frequent the area but the site is not considered to provide suitable overwintering or nesting areas. However, as outlined in Section 6,given the absence of suitable permanent aquatic habitat, Tributary 4 is not considered to provide regulated Blanding's turtle habitat.

Proposed tree and vegetation planting within the proposed buffer will provide additional shade to help cool surface water temperatures, as well as enhanced absorption and filtration of overland stormwater flow. As discussed in Section 3.5 above, the majority of the proposed development area is devoid of tree cover; the southside of Tributary 3, west side of Tributary 2 and northside of Tributary 4 have very little tree cover currently. The proposed tree and vegetation planting within the proposed setbacks will further enhance the functionality of the riparian corridor compared to existing conditions.

Table 7 in the 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 buffer ranges are presented in such a way that determines whether a buffer has a high, moderate or low risk potential to achieve the desired function. The functions analysed include water quantity, water quality, screening for human disturbance/changes in land use, hazard mitigation zone and core habitat protection. As outlined above in Table 7.2, the main impacts for tributaries 2 and 3 on-site are screening for human disturbance/changes in land use, and core habitat protection. The main impact for tributary 4 on-site is screening for human disturbance/changes in land use. Water quality and quantity impacts will be addressed through the proposed stormwater management plan for the site, which will match pre- and post-construction flows to Tributary 2, Tributary 3 and Tributary 4. Additionally, the segregation of clean stormwater (i.e., roof top) and impacted stormwater (i.e., road surface) with treatment of the later by way of integrated oil/grit separator, addresses concerns relating to impairment of water quality as a result of the proposed development.

As outlined in Table 7 of Beacon's Ecological Buffer Review, watercourse setbacks between 11 m and 30 m have a moderate potential of addressing impacts of human disturbance/land-use changes. With respect to core habitat functions, watercourse setbacks between 11 – 20 m have a low probability of addressing impacts associated with core habitat protection, whereas buffers between 21 – 30 m have a moderate probability of addressing impacts associated with core habitat function.

Beacon Environmental, notes that there is a broad consensus in the scientific literature that because of the number of site-specific variables that require consideration it is impossible to recommend a single width buffer that will be appropriate for most sites. In addition to site specific biophysical features, Adamus (2007, in Beacon Environmental), asserts that buffer widths must be determined with consideration for:

- Adjacent land use activities;
- The amount and configuration of development in the adjacent lands and landscape;
- The structure and type of vegetation in the buffer; and
- The particular species the buffer is being designed to protect.

With respect to site-specific variables for adjacent land use-activities and amount/configuration of adjacent development, adjacent land-use activities are anticipated to become heavily developed over the next few years. Development to the north and west within the KNUEA lands will include three subdivisions, with approximately 3,000 residential dwellings, among other urban amenities. Development within the KNUEA will maintain and enhance upstream segments of Tributary 2 and 3, as well as maintain a 40 m wide corridor around both tributaries throughout the entire KNUEA.

On-site a similar setback is proposed for tributaries 2 and 3, 20 m setback from the centreline of watercourse. Additional planting within the setbacks are proposed to include trees, shrubs and herbaceous vegetation. 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).

Tributaries 2 and 3 are known to provide habitat for a variety of small bodied fish species, and Blanding's turtle. As such the 20 m setback from the centreline of the watercourse, in conjunction with the proposed stormwater management plan for the property is recommended to address impacts associated with water quality, water quantity and human disturbance/land use changes, while also mirroring development applications within the surrounding lands. With respect to core habitat protections, the proposed 20 m buffer from the centreline of the watercourse is recommended, given the low quality nature of fish habitat within both Tributary 2 and 3. The 20 m buffer (from the centreline of the watercourse) is also consistent with the setbacks for the KNUEA directly north of the site. As such a 20 m setback from the centre of the watercourse is recommended to protect fish habitat within Tributary 2 and Tributary 3, as long as all the general mitigation measures outlined below are enacted. The 20 m setback from the centre of the watercourse is illustrated on Figure A.4 in Appendix A.

With respect to Tributary 4, a reduced, 10 m setback from top of slope is proposed. Tributary 4 is a constructed stormwater swale, collecting stormwater from two adjacent developments to the west and southwest. Surrounding land use activities include two subdivision developments and a commercial fast food development south of the subject property. Additionally, Tributary 4 is not considered to provide any core habitat functions. As such impacts to core habitat function and impacts as a result of human disturbance are not anticipated and do not require any mitigation. As outlined in Table 7 of Beacon's Ecological Buffer Review, watercourse setbacks between 5 – 10 m have a low probability of addressing impacts associated with water quantity, screening of human disturbance/land-use changes and core habitat functions. The proposed 10 m setback in conjunction with the proposed stormwater management plan is recommended to mitigate impacts to water quantity and water quality due to the change in land use. As Tributary 4 is not considered to provide any core habitat functions, impacts to core habitat functions and impacts as a result of human disturbance are not anticipated and do not require any mitigation.

7.1.3 Shirley's Brook and Watts Creek Subwatershed Study

As summarized in Section 3.3.1, the Shirley's Brook and Watts Creek SWS (Dillon, 1999) was completed, in part, to ensure that planning future development proceeds in an environmentally sound manner. The SWS identified six key issues for future development to address in order to ensure protection of water resources and sub-watershed features:

- Flooding and Erosion;
- Lack of Comprehensive Stormwater Management Strategies;
- Poor Water Quality;
- Degraded Fish and Aquatic Habitat;
- Loss of Terrestrial Habitat and Linkages; and,
- Groundwater Supply and Quality Constraints.

To address key issues relating to flooding and erosion, lack of comprehensive stormwater management strategies and poor water quality, the proposed stormwater management plan for the site matches pre- and post-construction flows to Tributary 2, Tributary 3 and Tributary 4. Additionally, the segregation of clean stormwater (i.e., roof top) and impacted stormwater (i.e., road surface) with treatment of the later by way of integrated OGS, addresses concerns relating to impairment of water quality as a result of the proposed development.

Lastly, maintenance of 10 m wide natural vegetation buffer strip between the top-of-slope of Tributary 4 and landscaping along the southern portion of the proposed building will provide an improvement of the existing riparian vegetation conditions along the north side of Tributary 4. Considering the narrow strip of undeveloped space between the top-of-slope of Tributary 4, post-development, which is to remain vegetated, it is not anticipated that stormwater generation and subsequent overland flows will result in erosion forces along the top of bank and top of slope of Tributary 4. However; to meet the functional objective of the minimum 15 m setback to minor tributaries, as recommended in the SWS, an enhanced vegetation buffer consisting of robust and dense, native grassy herbaceous vegetation and shrubby or woody vegetation is recommended to dissipate overland flows and prevent sedimentation during storm events.

To ensure that key issues relating to degraded fish and aquatic habitat and terrestrial linkages are addressed, the proposed development will adhere to a 20 m setback from the centreline of the watercourse for Tributary 2 and Tributary 3. The combined impact of a 20 m setback from the centreline of the watercourse for Tributary 2 and Tributary 4 is a 40 m buffer and corresponding corridor along these two tributaries of Shirley's Creek. It is anticipated that as a condition of MECP approvals relating to Blanding's turtle habitat, further in-water habitat creation will be required. Any creation of habitat for Blanding's turtle will also have inherent benefits for warmwater, tolerant fish species who inhabit Shirley's Creek. It is anticipated that habitat improvements may include the following features: creation of deep pools and/or shallow pans, installation of hard substrate habitat features, and seeding of wetland areas with a native wetland restoration mix. Habitat

creation/enhancement targeted for Blanding's turtles will also enhance in-stream fish habitat and provide areas for fish refuge within Tributary 2 and 3 compared to current conditions.

With respect to key issues relating to groundwater supply and quality constraints, it was noted in the Shirley's Brook and Watts Creek SWS that no areas of near surface groundwater movement from bedrock into the creek were identified (Dillon, 1999). As the proposed development is not anticipated to impact the relationship between groundwater and surface water, specifically, groundwater inputs to Tributary 2 and Tributary 3, and considering that existing baseflows (i.e., pre-development) are to remain unchanged post-development, no impacts are anticipated to the groundwater-surface water balance as a result of the proposed development.

7.1.4 Kanata North Urban Expansion Area Environmental Management Plan

While the KNUEA lands were primarily vacant during the site investigations completed for this EIS report, at the time of this EIS writing, registration of three subdivisions within the KNUEA is well underway and lots of development will be present on the adjacent KNUEA lands in the near future. Development within the KNUEA is anticipated to include approximately 3,000 residential dwellings, a mixed-use core, schools and various ponds, parks, open space and trails (Novatech, 2016a).

The KNUEA EMP established a minimum 40 m wide corridor around retained and/or enhanced habitat of the Tributaries of Shirley's Brook (Novatech, 2016b). Setbacks in this EIS from Tributary 2 and 3 will conform to the recommendations of the KNUEA EMP, by recommending a 20 m setback from the centreline of the watercourse for tributaries 2 and 3 on-site. Assuming that the adjacent landowner to the north implements a similar setback during development, as established in the KNUEA EMP, this would create a 40 m wide corridor around Tributary 3. To the east of the site, the adjacent City of Ottawa watercourse corridor is a minimum of 35 m wide, this corridor in conjunction with the on-site 20 m setback from the centreline of the watercourse for Tributary 2, ensures that the total corridor width is a minimum of 40 m following development.

Adjacent land use activities, currently include, active agriculture fields to the north (will become residential development as part of KNUEA), existing residential development to the east, and existing commercial development to the south. Currently a 40 m wide corridor (20 m buffer on each side) is proposed for Tributary 2 and Tributary 3 throughout the KNUEA lands.

Development to the north and northeast of the subject property, as well as within the upstream reaches of Tributary 2 and 3 has been initiated now that three of the subdivision located north of the site are in the process of either detailed design or under construction. The development of this area is anticipated to intensify throughout the development of the KNUEA. Within the upstream reaches of Tributary 4, surrounding land use includes vacant agricultural fields (developing as part of the KNUEA) and the existing subdivision for Marchbrook Circle, as well as an outlet for the Morgan's Grant Stormwater Management Facility. Development to the east and

south is existing and considered low density (primarily detached or semi-detached single family homes).

7.1.5 Blanding's Turtle Overall Benefit Permits

As part of the KNUEA development, a total of three (3) Overall Benefit Permits (OBP) were issued by the MECP (ERO#019-2509, ERO#019-2824, and ERO#019-2808). A main component of all three issued OBP was the overall benefit of retained a 40 m wide corridor for all the Shirley's Brook tributaries, while enhancing and realigning the existing tributaries. Work within the 40 m corridor included creation of new Category 1 and Category 2 habitat throughout the tributaries in the KNUEA. Furthermore installation of wildlife passage culverts, and permanent fencing to reduce the risk of road mortality were included as components of the overall benefit to Blanding's turtle.

Overall, for the KNUEA a total of 99.18 ha of Blanding's turtle habitat will be impacted by development, and a total of 0.41 ha of Category 1 habitat (overwintering), 5.04 ha of Category 2 habitat will be created or enhanced throughout the development. To reduce impacts from road mortality, 1 wildlife passage culvert, and 1,113 m of permanent exclusion fencing will be installed throughout the KNUEA.

Monitoring of the overall benefit actions is required to ensure their effectiveness.

7.2 Fish Habitat

While no in-water work is proposed as part of the development application, it is anticipated that as a condition of MECP approvals relating to Blanding's turtle habitat, in-water habitat creation will be required. It is anticipated that habitat improvements may include the following features: creation of deep pools and/or shallow pans, installation of hard substrate habitat feature installation, and seeding of wetland areas with native wetland restoration mix.

Any required in-water work to address Blanding's turtle habitat will be done in accordance with DFO, MECP and MVCA best management practices, and all applicable permits for in-water work will be submitted in advance.

No negative impacts on the integrity of fish habitat are anticipated as a result of the proposed development if all mitigation measures recommended below area enacted and best management practices followed. Watercourses on-site can be protected against potential impacts of the proposed development through the implementation of erosion and sediment control measures during construction and maintaining the watercourse setbacks.

7.2.1 Tributary 2 and Tributary 3

In consideration of the subject properties biophyiscal features and considerations outlined above, GEMTEC proposes a 20 m setback from the centreline of the watercourse for Tributary 2 and 3.

As discussed in Section 6 above, impacts to fish habitat within the project area are associated with increased to stormwater runoff, encroachment, soil compaction, vegetation loss and fill placement.

Impacts from increased stormwater runoff will be mitigated through the implementation of a stormwater management plan, as outlined in Section 5. The proposed stormwater management plan will address both stormwater quantity and quality concerns for the proposed development. Clean water from the roof and interior grassed courtyard area will be collected in underground tanks, and controlled for quantity before discharging to Tributary 2 at the rear of the site. Contaminated water generated from parking lots and roads on-site and will have both quality and quantity control. Contaminated water will be fed through an OGS unit before discharging into Tributary 2 Stormwater from grassed areas around the outside of the property (between the building and property limit/tributaries) will sheet drain across the grassed setback area and drain directly into the adjacent tributaries. Impacts from encroachment, soil compaction, vegetation loss and fill placement can be mitigated through the implementation of a setback. In consideration of the watercourse on-site, a 20 m setback from the centreline of the watercourse is proposed for Tributary 2 and Tributary 3 on-site.

7.2.2 Tributary 4

In consideration of the subject properties biophyiscal features and considerations outlined in Section 7.1 above, GEMTEC proposes a 10 m setback from top of slope for Tributary 4.

As Tributary 4 is not considered to provide any core habitat functions, impacts to core habitat and impacts as a result of human disturbance are not anticipated and do not require mitigation. The proposed conceptual 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 adjacent watercourse a 10 m setback from the top of slope is proposed for Tributary 4.

As such a 10 m setback from the top of slope is recommended to protect Tributary 4, as long as all the general mitigation measures outlined below are enacted. The 10 m setback from top of slope is illustrated on Figure A.4 in Appendix A.

7.2.3 General Mitigation Measures for Fish Habitat

The following general mitigation measures are provided for the protection of off-site water quality and fish habitat:

- 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 the property boundary to provide visual demarcation of the construction area and to prevent machinery encroachment and sediment transport to downstream surface water features.
- 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 Species at Risk

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

As outlined in the IGF provided to the MECP, in order to protect roosting and foraging bats, tree removal where required should take place outside of April 1 to September 30 to avoid the spring and summer active season, when bats are more likely to be using forest habitat. If vegetation clearing must be conducted during the spring and summer timing window then a roost survey should be conducted be a qualified professional.

As outlined in the MECP IGF response, if trees cannot be removed outside of the bat active season, impacts to SAR bats will require authorization and should be addressed through the AAF submission.

7.3.2 Blanding's Turtle

As outlined in Section 6.2 above, an IGF has been submitted to the MECP to address impacts to regulated habitat for Blanding's turtle. In the IGF submission, the 20 m setback from the centreline of the watercourse for Tributary 2 and Tributary 3, and a 10 m setback from top of slope was submitted to the MECP. Consultation with the MECP is on-going, an AAF is being prepared for review and comment by the MECP.

At this time the following mitigation has been provided to the MECP and is anticipated to be required as part of any future development at the site:

- 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 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 stockpiled 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.

7.4 Wildlife

The following avoidance and mitigation measures are provided in effort to minimize impacts to on-site and off-site wildlife:

- To protect wildlife during construction, construction should be completed in accordance with the best practices outlined in Protocols for Wildlife Protection During Construction, from the City of Ottawa (Ottawa, 2015) and Bird-Safe Design Guidelines from the City of Ottawa (Ottawa, 2020).

- 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 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 roost survey shall be conducted by a qualified professional.
- Installation of silt fence barriers around the entire construction envelope of each future residential dwelling to prohibit the emigration of wildlife into the construction area during lot-level construction.
- Perform daily pre-work sweeps of each lot 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.

7.5 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;

- Stormwater generated from the proposed development is to be managed on-site such that dewatering discharge during construction and discharge to watercourse post-development, are both equal to pre-development discharge rates. Site stormwater management should also be treated to achieve a reduction of 80% TSS prior to discharge.
- 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 development plans to minimize the generation of storm water runoff.
- 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 recirculated zoning amendment application for 910 March Road. The purpose of this EIS is to support the zoning amendment and a revised site plan control application for a mixed-use development.

Based on the results of the impact analysis, impacts to the natural environment are anticipated; however within the local and regional context, impacts to the natural environment, primarily the loss of vacant lands is 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 fish habitat, and habitats of species at risk are anticipated as a result of future development.
- The proposed project complies with the natural heritage policies of the Provincial Policy Statement (2020) and conforms to the City of Ottawa Official Plan (2022) to support natural systems and encourage responsible development within designated settlement areas.

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 Canadian Rental Development Services Inc.and is intended for the exclusive use of Canadian Rental Development Services Inc.. This report may not be relied upon by any other person or entity without the express written consent of GEMTEC and Canadian Rental Development Services Inc.. Nothing in this report is intended to provide a legal opinion.

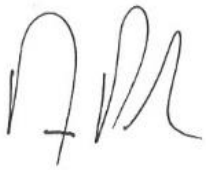
The investigation undertaken by GEMTEC with respect to this report and any conclusions or recommendations made in this report reflect the best judgements of GEMTEC based on the site conditions observed during the investigations undertaken at the date(s) identified in the report and on the information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

Taylor Warrington, B.Sc.
Biologist



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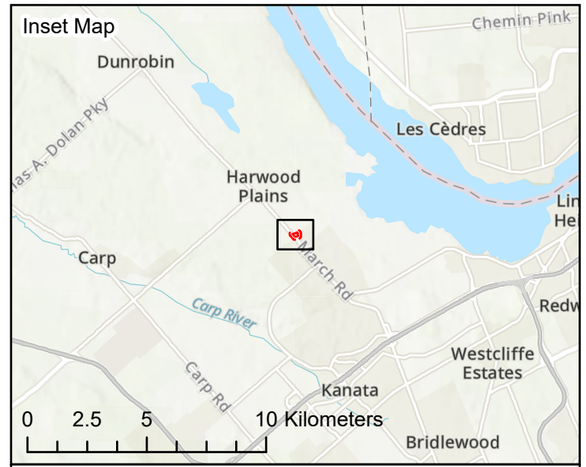
APPENDIX A

Report Figures
A.1 – Site Location
A.2 – Site Layout
A.3 – Natural Heritage Features
A.4 – Mitigation Measures

Legend

- Property Boundary
- Study Area



Scale
1:5,000
0 20 40 80 120 160 Meters

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Client: Canadian Rental Development Services Inc.	Project: 100011.014
Location: 910 March Road, Ottawa, Ontario	
Drwn By: TW / Chkd By: DP	Site Location
Date: October 2022	Rev. 0
	Figure: A.1

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: MVC DRAPE 2019 Imagery: Rideau Valley Conservation Authority (RVCA)
World Topographic Map: Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Legend

- Property Boundary
- Study Area
- Watercourse
- Storm Inlet
- Storm Outlet
- Public Stormwater Pipe
- Private Stormwater Pipe
- Storm Inlet Lead

Scale
1:2,000

0 25 50 100 150 Meters

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Client: Canadian Rental Development Services Inc.	Project: 100011.014
Location: 910 March Road, Ottawa, Ontario	
Drwn By: TW / Chkd By: DP	Site Layout
Date: December 2022	Rev. 0

Figure: A.2

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

Legend

- Property Boundary
- Study Area
- Top of Slope
- Stormwater Management Swale
- Fish Habitat

Blanding's Turtle Regulated Habitat

- Category 2 Habitat (30m Radius)
- Category 3 Habitat (250m Radius)

Scale
1:2,000

0 25 50 100 150 Meters

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Location: 910 March Road, Ottawa, Ontario	
Drwn By: TW / Chkd By: DP	Natural Heritage Features
Date: December 2022	Rev. 0
	Figure: A.3

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

Legend

- Property Boundary
- Study Area
- Top of Slope
- Stormwater Management Swale
- Fish Habitat

Blanding's Turtle Regulated Habitat

- Category 2 Habitat (30m Radius)
- Category 3 Habitat (250m Radius)
- 10m Setback from Top of Slope
- 20m Setback from Centreline of Watercourse

Scale
1:2,000

0 25 50 100 150 Meters

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Client: Canadian Rental Development Services Inc.	Project: 100011.014
Location: 910 March Road, Ottawa, Ontario	
Drwn By: TW / Chkd By: DP	Mitigation Measures
Date: December 2022	Rev. 0
	Figure: A.4

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

APPENDIX B

Site Photographs

Site Photograph 1 – Tributary 2

Site Photograph 2 – Tributary 2

Site Photograph 3 – Tributary 2 Riparian

Site Photograph 4 – Tributary 2 Riparian

GEMTEC Consulting Engineers and Scientists	Project Environmental Impact Statement 910 March Road Ottawa, Ontario	**APPENDIX B** File No. 100011.014	**Site Photographs**

Site Photograph 5 – Tributary 3

Site Photograph 6 – Tributary 3

Site Photograph 7 – Tributary 3 Riparian

Site Photograph 8 – Riparian Confluence for Tributary 2 and 3

Site Photograph 9 – Inlet for Tributary 4

Site Photograph 10 – Barn Swallow Habitat Compensation

Site Photograph 11 – Previous Development On-site

Site Photograph 12 – Previous Development On-site

APPENDIX C

Report Summary Tables

TABLE C.1
SCREENING RATIONALE FOR HABITATS OF SEASONAL CONCENTRATION AREAS

Wildlife Habitat	Further Considered in EIS	Rationale
Winter Deer Yard	No	No stands of coniferous woodlands occur on-site. Based on review of publicly 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 1.5 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 woodlands on-site 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	No suitable woodlands on-site to support bat maternity roost colonies.
Turtle Wintering Area	No	Shirley's Brook tributaries are not of sufficient depth, or substrate (i.e. rock beds) to provide suitable conditions to support turtle wintering area.
Reptile Hibernaculum	No	Structures such as large rock piles, bedrock outcrops, and cervices have not 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.2
SCREENING RATIONALE FOR SPECIALIZED WILDLIFE HABITATS

Specialized Wildlife Habitat	Further Considered in EIS	Rationale
Waterfowl Nesting Area	No	No suitable habitat is present on-site or within study area to support waterfowl nesting.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	No	No suitable habitat is present on-site or within study area to support bald eagle and osprey, nesting, foraging or perching habitat.
Woodland Nesting Raptor Habitat	No	No suitable woodland habitat present on-site or within study area to support woodland raptor nesting habitat.
Turtle Nesting Habitat	No	No suitable habitat (exposed mineral soil with minimal vegetation cover) adjacent to wetland habitat is present on-site or within study area to support turtle nesting habitat.
Seeps and Springs	No	No seeps or springs were identified on-site.
Woodland Amphibian Breeding Habitat	No	No suitable woodland habitat present on-site.
Wetland Amphibian Breeding Habitat	No	No suitable wetland habitat present on-site.
Woodland Area-Sensitive Bird Breeding Habitat	No	No suitable woodland habitat present on-site or within study area to support woodland area-sensitive bird breeding habitat.

TABLE C.3
SCREENING RATIONALE FOR HABITAT FOR SPECIES OF CONSERVATION CONCERN

General Habitats of Species of Conservation Concern	Further Considered in EIS	Rationale
Marsh Breeding Bird Habitat	No	No suitable marsh habitat present on-site or within study area to support marsh breeding bird habitat.
Open Country Breeding Bird Habitat	No	No suitable meadow habitat on-site to support open country bird breeding as upland habitat does not meet the minimum size criteria of > 30 ha.
Shrub/Early Successional Breeding Bird Habitat	No	No suitable shrub or early successional habitat present on-site or within the study area.
Terrestrial Crayfish Habitat	No	Terrestrial crayfish are only found within southwestern Ontario (MNRF, 2012).
Special Concern and Rare Wildlife Species	No	Occurrence data from the NHIC does not indicate the presence of any rare wildlife or species of special concern within the study area. No rare wildlife or species of special concern were observed during the site investigation.

TABLE C.4
SCREENING RATIONALE FOR ANIMAL MOVEMENT CORRIDORS

General Habitats of Species of Conservation Concern	Further Considered in EIS	Rationale
Amphibian Movement Corridor	No	No *confirmed* 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.5
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				
Bank Swallow	Threatened	Colonial nester; burrows in eroding silt to sand banks, sand pit walls, etc.	Low	No suitable nesting structures located on-site.
Barn Swallow	Threatened	Nests in barns and other semi-open structures. Forages over open fields and meadows.	Moderate	Suitable nesting structures may be located on-site.
Black Tern	Special Concern	Breeds in loose colonies in shallow marshes, particularly cattails.	Low	Site does not contain suitable habitat to support species.
Bobolink	Threatened	Nests in dense tall grass fields and meadows, low tolerance for woody vegetation.	Low	Suitable grassland habitat not present on-site. May be present in broader study area.
Canada Warbler	Special Concern	Prefers wet forests with dense shrub layers.	Low	No suitable woodlands on-site for Canada Warbler.
Cerulean Warbler	Threatened	Prefers mature, deciduous forests	Low	No suitable woodlands on-site for Cerulean Warbler.
Chimney Swift	Threatened	Nests in traditional-style open brick chimneys.	Low	No suitable nesting structures within the broader study area.
Common Nighthawk	Special Concern	Nests in a wide variety of open sites, including beaches, fields and gravel rooftops.	Moderate	Open fields and rocky habitats may provide suitable nesting habitat for species.
Eastern Meadowlark	Threatened	Nests and forages in dense tall grass fields and meadows, higher tolerance to woody vegetation.	Low	Suitable grassland habitat not present on-site. May be present in broader study area.
Eastern Whip-poor-will	Threatened	Nests on the ground in open deciduous or mixed woodlands with little underbrush, and bedrock outcrops.	Low	No suitable woodlands on-site for eastern whip-poor-will.
Eastern Wood-pewee	Special Concern	Woodland species, often found near clearings and edges.	Moderate	Site may provide suitable habitat for eastern wood-pewee.
Evening Grosbeak	Special Concern	Nests in trees or large shrubs, prefers mature coniferous forests but will also use deciduous forests, parklands and orchards.	Moderate	Site may provide suitable habitat for evening grosbeak.
Golden-winged Warbler	Special Concern	Ground nesting edge species.	Low	No suitable habitat on-site for golden-winged warbler.
Henslow's Sparrow	Endangered	Prefers open, moist tallgrass fields.	Low	No suitable grassland habitat to support Henslow's sparrow nesting on-site.
Loggerhead Shrike	Endangered	Prefers grazed pastures with short grass and scattered shrubs, especially hawthorn.	Low	No suitable habitat on-site for Loggerhead shrike.
Red-headed Woodpecker	Endangered	Open woodland and woodland edges, and is often found in parks, golf courses and cemeteries. These areas typically have many dead trees, which the bird uses for nesting and perching.	Low	No suitable habitat on-site for red-headed woodpecker.
Wood Thrush	Special Concern	Prefers deciduous or mixed woodlands	Low	No suitable woodland habitat on-site for wood thrush.
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 in broader study area. 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 in broader study area. 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 in broader study area. 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	No known occurrence of Blanding's turtle on-site, however Blanding's turtle are known to occur in the surrounding area. The site does provide potentially suitable aquatic habitat for Blanding's turtle, primarily in Tributary 2 and Tributary 3.
Snapping Turtle	Special Concern	Highly aquatic species, found in a wide variety of permanent ponds, lakes, marshes and rivers.	Moderate	Based on data obtained from the Herp Atlas (Ontario Nature, 2019), snapping turtle have been observed three times between 2011 and 2014 within the 10 km2 grid square that encompasses the site. NHIC data does indicate occurrences for snapping turtles on-site. The site does provide potentially suitable aquatic habitat for snapping turtle.
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	No suitable woodland habitat on-site for American ginseng.
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. NHIC indicates species within 1km of site. 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 with recent surveys at historically occupied sites recording no specimens event though the NHIC indicates species within 1km of the site.

TABLE C.5
SCREENING RATIONALE FOR POTENTIAL SPECIES AT RISK ON-SITE OR WITHIN STUDY AREA

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.
Mottled Duskywing	Endangered	Larval food plant, New Jersey Tea, is found in sandy areas and alvars.	Low	Preferred habitat of sandy areas and alvars present on-site however, the population occurs only throughout southern Ontario.
Nine-spotted Lady Beetle	Endangered	Habitat generalist	Low	No recent occurrence reports in the area, thought to be locally extirpated.
Rapids Clubtail	Endangered	Distribution in Ottawa not know. Occurs along Mississippi River in Blakeney/Pakenham area upstream of City. One of two extant populations in Ontario (and Canada).	Low	No suitable aquatic habitat on-site.
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.

experience • knowledge • integrity

civil	civil
geotechnical	géotechnique
environmental	environnementale
field services	surveillance de chantier
materials testing	service de laboratoire des matériaux

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