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Environmental Impact Statement
Proposed Addition to Existing Building
1981 Century Road
Ottawa, Ontario

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Submitted to:

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Environmental Impact Statement
Proposed Addition to Existing Building
1981 Century Road
Ottawa, Ontario

July 9, 2024
Project: 102326.001

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EXECUTIVE SUMMARY

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by Brunstad Christian Church Ottawa to carry out an Environmental Impact Statement (EIS) for the property located at 1981 Century Road in Ottawa, Ontario. This EIS has been completed in support of a proposed addition to an existing building was completed in accordance with all federal, provincial and municipal policies and guidelines, as applicable.

In support of this EIS, a desktop review and a single field investigation was completed in spring 2023 to identify the presence or absence of natural heritage features and species at risk (SAR) on-site. The focus of the site investigation was to describe, in general, the natural and physical setting of the subject property with a focus on confirming the presence or absence of natural heritage features and potential SAR or their habitat as identified in the desktop review.

Following completion of the desktop review and the field investigation, the following natural heritage features were identified on-site or within the study area: fish habitat and special concern and rare wildlife habitat (eastern wood-pewee, wood thrush and snapping turtle). The following SAR and their habitat were identified as having a potential to occur on-site: bobolink, eastern meadowlark, eastern small-foot myotis, little brown myotis, tri-colored bat, and butternut. No regulated habitat was identified on-site for bobolink or eastern meadowlark. No butternut trees were observed on-site.

Potential impacts to the natural heritage features were primarily associated with loss of meadow and forest edge habitat and indirect impacts to the Mud Creek tributary and its riparian area, fish habitat and associated significant wildlife habitat. Indirect impacts include potential alterations to water quality and quantity through increased nutrient and sediment loading and stormwater runoff.

Potential impacts to natural heritage features on-site are likely to be mitigated through the implementation of development setbacks from surface water features. A 15 m setback from the on-site watercourse in addition to undertaken a planting plan of the buffer area is proposed. The setback and landscape plantings are sufficient to provide protection for the majority of SWH on-site as well as providing protection to fish habitat.

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. Furthermore, to ensure compliance with all applicable legislation, all best management practices outlined in Section 7 should be followed to ensure no negative impacts occur to natural heritage features on-site.

The proposed project complies with the natural heritage policies of the Provincial Planning Statement and the City of Ottawa Official Plan.

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1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by Brunstad Christian Church Ottawa to carry out an Environmental Impact Statement (EIS) in support for the proposed construction of an addition to the existing building and expansion of the parking lot located at 1981 Century 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 the requirements of the City of Ottawa Official Plan (Ottawa, 2021) an EIS is required demonstrating that the proposed construction of an addition 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 2024 Provincial Planning Statement (MMAH, 2024) 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 2024 Provincial Planning 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 Planning Statement (MMAH, 2024), on the subject property and within the broader study area and; 2) to assess the potential impacts from the proposed building addition 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 Planning Statement (MMAH, 2024);
- Endangered Species Act (Ontario, 2007);
- Conservation Authorities Act (Ontario, 1990);
- Natural Heritage Reference Manual (OMNR, 2010);
- City of Ottawa Official Plan (Ottawa, 2021); and
- City of Ottawa EIS Guidelines (Ottawa, 2023).

1.3 Physical Setting

The subject site is located at 1981 Century Road, in Ottawa, Ontario. The subject property currently consists of a church, parking lot, park and cultural meadow. Natural vegetation on-site is primarily confined to the cultural meadow in the north and the riparian areas of the Mud Creek Municipal Drain tributary that flows along the north and east property boundaries.

The subject site is bound to the north and east by farmland occurring over portions of Lot 5, Concession 2, township of North Gower. To the south the site is bound Century Road. To the west the site is bound by 5735 Third Line Road North.

1.4 Land Use Context

The subject property is situated within a broader rural agricultural. The existing land use designation from the City of Ottawa Official Plan is Agricultural Resource Area. The City of Ottawa zoning by-law is rural institutional (RI5). The City of Ottawa and the Rideau Valley Conservation Authority (RVCA) have also identified flood plain over the north portion of the subject property.

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, 2022a);
- Land Information Ontario (OMNR, 2011);
- City of Ottawa Official Plan (Ottawa, 2021);
- Ontario Geological Survey (OGS, 2019);
- Natural Heritage Information Centre Biodiversity Explorer (OMNRF, 2022b);
- Breeding Bird Atlas of Ontario (Cadman et al., 2007)
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2020);
- Wildlife Values Area (OMNRF, 2023a);
- Wildlife Values Site (OMNRF, 2023b);
- GeoOttawa Portal (undated);
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019); and
- Species at Risk in Ottawa (Ottawa, 2024).

2.2 Field Investigations

A single field investigation was undertaken to describe, in general, the natural and physical setting of the subject property with a focus on identifying natural heritage features and any potential SAR or their habitat that may exist at the subject property.

The field investigation was conducted on May 18, 2023 from 11:00 to 11:45. Conditions during the site investigation were as follows, 9°C, no cloud cover, Beaufort wind 4, noise 2, no precipitation. Given the small size of the site and the relative absence of natural heritage features, a single site visit is suitable for the purposes of this report. Photographs of site features taken during field investigations are provided in Appendix B. A summary of all wildlife observed during the field investigation is provided in Table C.1 of Appendix C.

2.2.1 Ecological Land Classification

Vegetation communities on the subject property were delineated during the desktop review stage of this EIS using publicly available air photos and confirmed in the field on May 18, 2023 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 and the dominant soil types within each community.

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 Study Area Land Use

Figure 1 below provides an illustration of the temporal changes in land use within the study area from 1976, 1999, 2005, and 2022 aerial imagery taken from GeoOttawa.

In 1976, the subject property and surrounding lands were primarily populated with agricultural fields, farmhouses, and some fallow fields. By 1999, the main building present on-site had been constructed. The fields to the west had been abandoned and the farmhouse demolished. By 2005, an additional detached building had been constructed on-site. Agricultural land to the west continued to be abandoned and reclaimed by woodlands. By 2022, land use has not changed significantly, and the remaining surrounding lands are in present day configuration.

Figure 1 – Temporal Changes in Land Use within Study Area

3.2.1 Mud Creek Subwatershed Study

The Mud Creek Subwatershed Study (Ottawa, 2015) was completed, in part, to provide initial guidance on approaches required to protect and restore environmental values within the Mud Creek Subwatershed. The Mud Creek Subwatershed encompasses an area of approximately 6,351 ha surrounding Manotick, west of the Rideau River, and extends west to Malakoff Road, south to Pollock Road and north to Trail Road. The Mud Creek Subwatershed Study (MCSS) identifies opportunities and constraints for improvement of the Mud Creek Subwatershed while providing a series of recommendations that may be implemented in order to protect, enhance or restore the environment.

The desktop review has identified a tributary of Mud Creek as occurring on-site and the MCSS has classified it as a cool-water system. As such, under the recommendations provided by the MCSS, the watercourse should receive a setback as outlined in the Ottawa Official Plan, which as outlined in the City Official Plan is the greater of the following:

a) Development limits as established by the conservations authority's 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 the Council- approved Slope Stability Guidelines for Development Applications;

c) 30 meters 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 meters from the existing stable top of slope, where there is defined valley slope or ravine.

3.3 Landforms, Soils and Bedrock Geology

The topography of the site is relatively flat with a gentle downward slope from a topographical high of 93 mASL along Century Road to a topographical low of 90 mASL in the northwestern corner.

A single physiographical landform, as mapped by Chapman and Putnam (1984) is described on site; clay plains of the North Gower Drumlin Field physiographic region.

Geological information obtained from the Ontario Geological Survey (OGS, 2019) during the desktop review identifies two surficial soil units of the subject property: fine-textured glaciomarine deposits and till. The fine-textured glaciomarine deposits, occurring throughout the majority of the property, consist of silt and clay, with minor sand and gravel. The till only occurs in the southeastern corner of the property and consists of stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain.

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

3.4 Surface Water and Fish Habitat

Surface water on-site consists of a tributary of the Mud Creek Municipal Drain, which runs along the northern and eastern property boundary and associated flood plain.

As identified by GeoOttawa mapping and the RVCA geoportal, portions of the 1:100 year flood plain for Mud Creek Drain extend on-site. However, a topographical survey has been completed in association with the project and the updated flood plain is illustrated on Figure A.2 in Appendix A.

A fisheries assessment was not conducted as part of this EIS however, based on the connectivity to the Mud Creek Drain, available instream habitat and sustained water levels observed during the field investigation, it is assumed that the watercourse may provide fish habitat for a variety of small-bodied fish species.

3.5 Vegetation Communities

Vegetation communities on-site were confirmed by GEMTEC in 2023, 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 and a cultural meadow with a treed hedgerow along the north, east and west property boundaries comprising the riparian vegetation along the watercourse. Table 3.1 below provides a summary of the various vegetation communities identified on-site while Figure A.3 in Appendix A provides an illustration of the various vegetation communities.

Table 1.1 Vegetation Communities On-site

ELC Community Type	Description	Size (ha)
Commercial and Institutional (CVC)	Occurring in the southern corner of the property is a church and parking lot.	0.96
Recreational (CGL_4)	Occurring in central and southeastern corner of the property is a maintained grass landscape and park.	1.20
Cultural Meadow (CUM)	Occurring in the northwest of the property is a cultural meadow dominated by grass (*Poaceae*). Lesser constituents included willow species (*Salix* sp.). Treed hedgerow included trembling poplar (*Populus tremuloides*), American elm (*Ulmus americana*), Manitoba maple (*Acer negundo*), bur oak (*Quercus macrocarpa*), apple (*Malus* sp.), white ash (*Fraxinus americana*) and Norway spruce (*Picea abies*).	1.48

3.6 Wildlife

Wildlife observed on-site and within the study area during field investigations completed in 2023 are summarized in Table C.1 in Appendix C.

4.0 NATURAL HERITAGE FEATURES

Natural heritage features are defined in the PPS as "features and 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 an institutional area with a meadow 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). The City of Ottawa provides criteria within the *Environmental Impact Study Guidelines* (Ottawa, 2023) to evaluate valleylands.

To be considered significant within the Ottawa planning area, valleylands must have a slope greater than 15% for a length of more than 50 m, with water present for some period of the year.

Based on a review of topographical surveys completed for the subject property, and based on observations from the site investigations, the watercourse on-site does not have a valleyland associated with it. As such, significant valleylands are not present on-site and they are not discussed or evaluated further in this EIS.

4.4 Flood Plain

While significant valleylands were not identified on-site during the desktop review or during the site investigation, portions of the 1:100 year flood plain for Mud Creek, as discussed in Sections 1.4 and 3.4 above, have been identified on-site by RVCA mapping and GeoOttawa mapping. In accordance with City of Ottawa and RVCA policies, no development is permitted within the 1:100 year flood plain.

Impacts to the 1:100 year flood plain are discussed in Section 6 below.

4.5 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.

4.6 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.2, C.3, C.4 and C.5 in Appendix C, provide the screening rationale for each category of significant wildlife habitat, respectively.

4.6.1 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.2 in Appendix C, including a brief description of the rationale as to why or why they are not assessed further in this EIS.

Following review of Table C.2 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.

4.6.2 Rare Vegetation Communities

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

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

4.6.3 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.3 in Appendix C.

Following review of Table C.3 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.

4.6.4 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.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, one habitat of species of conservation concern has been identified on-site, habitat for special concern and rare wildlife species for wood thrush and snapping turtle.

4.6.4.1 Special Concern and Rare Wildlife Species SWH

Based on observational data from the field investigation combined with occurrence data from various online databases (i.e., NHIC, DFO SAR Maps, Ontario HerpAtlas), three species of special concern have been identified on-site or within the broader study area: eastern wood-pewee, wood thrush and snapping turtle. No other species of special concern or rare wildlife species were identified on-site or within the broader study area.

Eastern Wood-pewee

The eastern wood-pewee is a small flycatcher bird with an S-rank of S4B (breeding is uncommon but not rare) in Ontario; the most recent Ontario Breeding Bird Atlas indicated that the eastern wood-pewee has a probability of occurrence of over 80% (Cadman et al, 2007). Furthermore, the

area extending from Ottawa to Lake Ontario is considered to have some of the highest density of wood-pewee in Ontario (Cadman et al, 2007). Eastern wood-pewee is a woodland species that is often found near clearings and edges. Given the availability of forest and open habitat within the study area, there is a moderate potential for eastern wood-pewee or suitable habitat to occur on-site.

Wood Thrush

The wood thrush is a medium-sized songbird with an S-rank of S4B (breeding is uncommon but not rare) in Ontario; the most recent Ontario Breeding Bird Atlas indicated that the wood thrush populations in Ontario have shown a significant annual increase of 4.4% between the first and second atlas (Cadman et al., 2007). The NHIC has identified historic observations for the subject property and surrounding study area. Wood thrush is a woodland species often found in moist, deciduous hardwood or mixed forests stands, with dense deciduous undergrowth and tall trees. Furthermore, wood thrush was observed on-site during field investigations. Given the availability of forest habitat within the study area, there is a moderate chance of wood thrush or suitable habitat to occur on-site.

Snapping Turtle

The snapping turtle is a highly aquatic turtle species with an S-rank of S3 (rare to uncommon) and is listed as a species of special concern in Ontario. The NHIC identified snapping turtle as having occurred within 1 km of the site. Snapping turtles are aquatic generalists, found in a variety of wetlands, water bodies and watercourses. As a highly aquatic species, snapping turtles prefer wetlands and waterbodies to be permanently flooded. The watercourse on-site may provide suitable habitat conditions for snapping turtle. Given the availability of potentially suitable aquatic habitat on-site there is a moderate potential for snapping turtle and its habitat to occur on-site.

4.6.5 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 C11B 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.6 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.6 in Appendix C, no animal movement corridors are present on-site, accordingly, animal movement corridors are not discussed further in this EIS.

4.7 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 conducted as part of this EIS, however as discussed in Section 3.3, the watercourse is assumed to provide direct fish habitat for small-bodied fish species, due to the presence of permanent water and connectivity to the Mud Creek Drain.

Impacts to fish habitat resulting from the proposed development are further discussed in Section 6.

4.8 Species at Risk

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

Table C.7 in Appendix C, provides a summary of all species at risk which were determined to have the potential to occur on-site or within the broader study area, their protection status under the provincial Endangered Species Act (Ontario, 2007), their regional distribution, their probability of occurrence and a brief rationale of that probability. Impacts to endangered or threatened SAR determined to have a moderate or high potential to occur on-site or within the broader study area are discussed further in 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 the construction of an addition to the existing building located at 1981 Century Road. The proposed development related to site features is illustrated on Figure A.4 in Appendix A.

The proposed project is understood to include a partial two storey addition to the existing building developing 2.5 ha of the property and the extension of the parking lot constructing 76 new spaces.

Future components of the potential development considered in the impact assessment presented in Section 6 include: tree clearing and vegetation grubbing, fill placement and elevation grading, excavation and pouring of foundation, construction of an institutional building 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 4 of this report as present or likely to be present are discussed in the subsections below.

Potential effects to the natural environment from the proposed development outlined in Section 5 include: loss of vacant open area, increased stormwater generation, a potential increase in nutrient loading to adjacent surface water features, increase in impervious surface and short-term increases in sedimentation and/or erosion.

6.1 Flood Plain

As discussed in Section 4.3, the 1:100 year flood plain is present on-site as mapped by RVCA and City of Ottawa. A topographical survey was completed for the project and the updated 1:100 flood plain is illustrated on Figure A.2 in Appendix A.

In accordance with RVCA and City of Ottawa policies, no development is permitted within the 1:100 year floodplain. Figure A.4 illustrates the updated 1:100 year flood plain on-site and proposed development concept, demonstrating all development will occur outside of the 1:100 year flood plain.

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

Avoidance and mitigation measures intended to protect the flood plain are provided in Section 7.

6.2 Significant Wildlife Habitat

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

Potential impacts to each type of significant wildlife habitat are discussed in greater detail in the following subsections, while mitigation measures intended to prevent such impacts are presented in Section 7.

6.2.1 Significant Wildlife Habitat of Special Concern and Rare Wildlife Species

Eastern Wood-Pewee

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

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

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

The proposed development will result in no loss of suitable woodland habitat on-site. Impacts from increased human presence are anticipated to be negligible given the availability of suitable habitat on-site and within the greater study area.

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

Wood Thrush

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

In Ontario, the wood thrush breeding range extends from southern Ontario north to northern Georgian Bay and eastern Lake Superior (COSEWIC, 2012b). While wood thrush populations

have declined over most of its North American range, between 1981 and 2005, breeding bird data indicates populations in Ontario have increased by 4%, likely due to increases in woodland cover south of the Canadian Shield (Cadman et al., 2007). The probability of occurrence in Ontario however, has decreased by 15% between the first and second breeding bird atlas (Cadman et al., 2007). The wood thrush is listed as a species of special concern in Ontario.

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

Impacts to wood thrush and their habitat on-site from the proposed development is limited to the riparian/hedgerow wooded habitat on-site, which may provide nesting and foraging habitat. Impacts to wood thrush habitat may include loss of forest habitat and increased human presence.

The proposed development will result in no loss of suitable woodland habitat on-site. Impacts from increased human presence are anticipated to be negligible given the availability of suitable habitat on-site and within the greater study area.

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

Snapping Turtle

Snapping turtle is the largest freshwater turtle found in Canada; in central Ontario males average 32 cm in carapace length and have an average mass of 9.3 kg (COSEWIC, 2008). The carapace is keeled and can be brown, black or olive in colour (COSEWIC, 2008). The plastron is cross-shaped and is small, leaving the limbs and sides of the body exposed (COSEWIC, 2008). The head of a snapping turtle is large with a hooked upper jaw, relatively long neck and tail that can be as long as the carapace (COSEWIC, 2008). In Ontario the snapping turtle is listed as a species of special concern.

Threats to snapping turtle are primarily related to their life-history, their slow recruitment, late maturity, long lifespan and high adult survival make them extremely vulnerable to a variety of anthropogenic impacts (COSEWIC, 2008). Short, cool summers also reduce hatching success. In Canada, snapping turtles are most impacted by events that increase adult mortality, such as harvesting of adults, persecution and road mortality (COSEWIC, 2008). Other threats include loss of habitat, environmental contamination and nest predation (COSEWIC, 2008).

Snapping turtle were not observed on-site during any of the site investigations.

As no in-water work is proposed as part of the future development, impacts to snapping turtle are anticipated to be temporary and only associated with short duration construction impacts, including: heavy machinery encroachment, fill placement and long-term human disturbance such as increased road mortality, human-wildlife conflict, noise generation, dumping of refuse and trampling.

Mitigation measures to protect snapping turtle and their habitat from the proposed development are presented in Section 7.

6.3 Fish Habitat

According to the Provincial Planning Statement (MMAH, 2024), “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.”

Under the Fisheries Act, protection is afforded to all fish and fish habitat, not just those that support either a recreational, commercial or Aboriginal fishery. Under the Fisheries Act, work that is conducted in or near waterbodies must avoid “the death of fish, other than by fishing” (Canada, 1985). Furthermore, the new Fisheries Act states that work must avoid “the harmful alteration, disruption or destruction (HADD) of fish habitat” (Canada, 1985).

When activities are unable to avoid or mitigate harm to fish or 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 is proposed, direct impacts to fish habitat are not anticipated. However, considering the scope of the project and abundance of available habitat, impacts are anticipated to be minimal, mostly indirect and temporary in nature.

Potential indirect impacts to surface water features resulting from construction activities and from increased runoff following construction may include alterations to water quality, increased storm water runoff, overland flow and concomitant sediment transport caused by an increase in impervious surface area and vegetation loss, as well as increased nutrient loading through both overland and subsurface pathways, and landscaping practices. However, impacts are anticipated to be negligible when considering the scope of the project, surrounding existing land use, and abundance of habitat available downstream of site.

Other potential impacts include short duration construction impacts, including: heavy machinery encroachment, fill placement and long term human disturbance such as noise generation, dumping or refuse and yard waste and trampling.

Mitigation measures, intended to protect fish habitat on-site are presented in Section 7.

6.4 Species at Risk

As outlined in the Endangered Species Act (ESA) (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 the subsections below.

6.4.1 Bobolink

Bobolink (*Dolichonyx oryzivorus*) are small, omnivorous songbirds with large, somewhat flat heads, short necks and short tails. The male bobolink has a white back, black underside and a straw-yellow coloured patch on the back of the head. Female bobolinks have a non-descript buff and brown plumage not unlike most species of sparrows.

In Ontario, bobolink are restricted to southern Ontario and occur south of the Highway 17 corridor between North Bay and Sault Ste. Marie. Scattered populations exist in correlation with Clay Belt areas in Timiskaming, Cochrane and Thunder Bay areas. Between the first and second breeding bird atlas, the probability of bobolink observations declined by 28% province wide (Cadman et al., 2007).

Bobolink breed primarily in hayfields and other grasslands with tall vegetation that provides cover for nests which are established on the ground (Cadman et al., 2007). The bobolink is generally sensitive to vegetation structure and composition within its habitat; its preferred habitat structure is generally found in old (> 8 years old) forage crops. Abundance and density are positively correlated with a moderate litter depth, high lateral litter cover, high grass-to-legume rations, an abundance of small shrubs and a high percentage of forb cover (COSEWIC, 2010a). Bobolinks typically avoid nesting in habitats that are dominated by overly dense shrub vegetation with an overly deep littler layer or a high percentage of bare soil (COSEWIC, 2010a).

The cultural meadow (CUM) on-site may provide appropriate vegetation structure for suitable bobolink habitat, however bobolink are area sensitive and require grassland habitat to be larger than their defended territory. Research suggests that the minimum area required to support bobolink could be from 5-10 ha to 30-50 ha (OMNRF, 2013c). The total cultural meadow habitat on-site is approximately 1.41 ha and provides little to no interior grassland habitat (measured from 100 m from the edge). As such the cultural meadow habitat on-site does not meet the recommended size criteria for bobolink as outlined in the bobolink General Habitat Description and is unlikely to provide sufficient protection to reduce edge effects (OMNRF, 2013c; provided

in Appendix D). Therefore, the site is unlikely to provide suitable nesting habitat for bobolink on-site. As such, no negative impacts are anticipated to occur to bobolink or their habitat from the proposed development and mitigation measures are not provided in Section 7 for the protection of bobolink or their habitat and they are not discussed or evaluated further in this EIS.

6.4.2 Eastern Meadowlark

Eastern meadowlark (*Sturnella manga*) is a chunky, medium-sized grassland songbird, with a short tail, and a long spear-shaped bill. The colour pattern of the species is pale brown marked with black, the underside is bright yellow and a bold black 'V' pattern across the chest.

The eastern meadowlark was once well established in southern Ontario, however, due to the natural succession of abandoned agricultural fields transitioning back to forested habitat on the Canadian shield and through the northern portion of the Lake Simcoe-Rideau region, along with intensive farming practices and expanding of urbanization in southwestern and eastern Ontario, the eastern meadowlark has suffered significant habitat loss (Cadman et al., 2007). Between the first and second breeding bird atlas, the probability of observation declined by 13% province wide (Cadman et al., 2007). The current distribution of eastern meadowlark is concentrated through the Lake Simcoe-Rideau region, primarily from Kingston to Lake Simcoe.

The eastern meadowlark prefers native grassland, pasture and savannah habitat, however it is known to use a variety of anthropogenic grassland habitats including hayfields, weedy meadows, young orchards, grain fields and herbaceous fence rows (COSEWIC, 2011). Preferred grassland habitat typically contains moderately tall (25 to 50 cm) grass species with abundant litter cover, with a high proportion of grass, moderate to high forb density a low percent of shrub cover (typically <5%) and low percent cover of bar ground (COSEWIC, 2011).

The cultural meadow (CUM) on-site may provide appropriate vegetation structure for suitable eastern meadowlark habitat, however eastern meadowlark are area sensitive and require grassland habitat to be larger than their defended territory. Research suggests that the minimum area required to support eastern meadowlark could be from 5-10 ha to 30-50 ha (OMNRF, 2013c). The total cultural meadow habitat on-site is approximately 1.41 ha and provides little to no interior grassland habitat (measured from 100 m from the edge). As such the cultural meadow habitat on-site does not meet the recommended size criteria for eastern meadowlark as outlined in the eastern meadowlark General Habitat Description and is unlikely to provide sufficient protection to reduce edge effects (OMNRF, 2013c; provided in Appendix D). Therefore, the site is unlikely to provide suitable nesting habitat for eastern meadowlark on-site. As such, no negative impacts are anticipated to occur to eastern meadowlark or their habitat from the proposed development and mitigation measures are not provided in Section 7 for the protection of eastern meadowlark or their habitat and they are not discussed or evaluated further in this EIS.

6.4.3 Eastern Small-footed Myotis

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

The eastern small-footed Myotis is found throughout eastern North America. In Ontario the species has been observed in the areas sough of Lake Superior across to the Ontario-Quebec border (Humphrey, 2017).

Eastern small-footed myotis overwinter primarily in caves and abandoned mines with low humidity and temperatures and stable microclimates (Humphrey, 2017). In comparison to other Ontario bat species, they are able to tolerate much colder temperatures, drier conditions and draftier locations for hibernating (Humphrey, 2017). During the spring and summer months, they utilize a variety of habitats for roosting, including under rocks or rock outcrops, in buildings, under bridges, or in caves, mines or hollow trees (Ontario, 2021a).

While the on-site treed area is unlikely to support bat maternity colonies, given the availability of suitable habitat and potentially suitable anthropogenic buildings within the study area, there is a potential for eastern small-footed Myotis to occur on the property, for foraging and non-maternal roosting. Impacts to eastern small-footed Myotis are primarily associated with encroachment and increased wildlife-human interaction. Mitigation measures intended to protect eastern small-footed myotis from impacts of the proposed development are discussed in Section 7.

6.4.4 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).

While the on-site treed area is unlikely to support bat maternity colonies, given the availability of suitable habitat and potentially suitable anthropogenic buildings within the study area, there is a potential for eastern little brown Myotis to occur on the property, for foraging and non-maternal roosting. Impacts to little brown Myotis are primarily associated with encroachment and increased wildlife-human interaction. Mitigation measures intended to protect little brown Myotis from impacts of the proposed development are discussed in Section 7.

6.4.5 Tri-Colored Bat

Tri-colored bat (*Perimyotis subflavos*) is a small (typically 5-7 g), insectivorous bat. The fur is uniformly coloured on the ventral and dorsal sides, however when parted fur shows three distinct colour bands. The base of the hair is blackish, with a blonde middle and brownish tip. The snout of the tri-coloured bat is also distinct, with swollen bulbous glands present (Fraser, MacKenzie & Davy, 2007).

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

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

While the on-site treed area is unlikely to support bat maternity colonies, given the availability of suitable habitat and potentially suitable anthropogenic buildings within the study area, there is a potential for eastern tri-colored bat to occur on the property, for foraging and non-maternal roosting. Impacts to tri-colored bat are primarily associated with encroachment and increased wildlife-human interaction. Mitigation measures intended to protect tri-colored bat from impacts of the proposed development are discussed in Section 7.

6.4.6 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 within 1 km grid square of the site however, no butternut trees were observed on-site during the field 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.

6.5 Cumulative Impacts

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

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

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

7.0 RECOMMENDED AVOIDANCE AND MITIGATION MEASURES

The following avoidance and mitigation measures have been recommended by GEMTEC in order to minimize or eliminate potential environmental impacts identified in Section 6.

For the purpose of this report, a setback is defined as the minimum required distance between any structure, development or disturbance and a specified line. A buffer, for the purpose of this report, is defined as the area located between a natural heritage feature and the prescribed setback. For the purpose of the following subsections, buffers should be located between NHFs 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.

In the context of this report, buffers have been illustrated from the top of bank as identified by the site's topographical survey. The top of bank has been identified in accordance with the policies of the City of Ottawa Official Plan. While the City of Ottawa Official Plan references top of bank for determining setbacks, the Zoning-by Law references setbacks be drawn from the Ordinary High Water Mark (OHWM). The OHWM is outdated language with respect to the 2021 City of Ottawa Official Plan. For the context of this EIS report, and to ensure consistency with the Zoning By-Law and Planning Rationale, the Ordinary High Water Mark for this site is considered to be synonymous with the top of bank identified by the topographical survey, and referenced in the sections below.

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). Buffers recommended in the following subsections and illustrated on Figure A.6. In the subsections below, where possible, literature references for studies used as the basis of the recommended buffer widths are provided.

7.1 Flood Plain

In accordance with RVCA and City of Ottawa policy, no development, including filling and lot grading is permitted within the floodplain. All development on-site is proposed to occur outside of the 1:100 year flood plain. To mitigate impacts to the floodplain during redevelopment of the site, in addition to the recommendations provided below, the flood plain extents should be delineated with silt fence to limit encroachment and stockpiling of material within the flood plain. Following construction, no permanent mitigation measures are necessary for protection of the flood plain.

7.2 Fish Habitat

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

Beacon Environmental Review of Ecological Buffers (2012), provides a range for buffer widths to protect various natural heritage features based on the current science. The buffers are presented in a way that determines the risk of not achieving the desired buffer function (i.e. high, moderate and low). The functions analysed include water quantity, water quality, screening or human disturbance/changes in land use, hazard mitigation zone and core habitat protection. Impacts to the fish habitat on-site were identified to include potential impacts to water quality, human disturbance and core habitat protection (for snapping turtle). Watercourse buffer widths have a moderate risk of not providing adequate mitigation for water quality impacts at widths between 11 m and 30 m. Watercourse buffer widths have a moderate risk of not providing adequate mitigation for human disturbance/land use change impacts at widths between 11 m and 30 m and low risk at widths of 31 m to 60 m. Watercourse buffer widths have a moderate risk of not providing adequate mitigation for core habitat protection at widths between 21 m and 60 m. A minimum 15 m setback is recommended from the watercourses associated with fish habitat on-site, as illustrated on Figure A.5.

In consideration of the MCSS as summarized in Section 3.2.1, and the requirements of the Official Plan which suggest a minimum 30 m setback is required for the on-site watercourse; given the constraints posed by the nature of the small site, the nature of the watercourse (minor tributary at the uppermost end of its reach), and the absence of adequately vegetated buffers along the remainder of the tributaries reach, it is GEMTEC opinion that a 15 m setback from top of bank, coupled with a robust landscape plantings will meet the intent of the City's Official Plan and the recommendations of the MCSS. Specifically, to support a reduced setback to 15 m, GEMTEC recommends that a landscape plan be prepared that includes the provision of native landscape stock that will achieve canopy coverage of the full 15 m setback at maturity, a robust shrub layer consisting of quickly maturing species to provide short term benefits to thermal regulation within the watercourse and a herb/ground cover layer that is comprised of native grasses and pollinator species that will provide effective mitigation against overland flow and sediment transport from the site to the tributary.

No negative impacts on the ecological function of the watercourse associated with the fish habitat are anticipated as a result of this project if the setback proposed above and all mitigation measures and best management practices recommended below are adhered to.

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

- Buffers should be comprised of a mixture of native, self-sustaining trees, shrubs and tall grasses.
- All future development and construction activities within the study area, including ditching, culvert installation, erosion and sediment control and storm water management should be completed in accordance with Ontario Provincial Standard Specification 182 and OPSS 805.
- No in-water work should occur between July 16 and September 30 of any year to protect spawning fish habitat adjacent to the development area. All in-water habitat features, including aquatic vegetation, natural woody debris and boulders should be left in their current locations. Riparian areas within the 30 m buffer should remain in a natural state.
- 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.
- Silt fencing should be installed along all setbacks to provide visual demarcation of the setbacks to prevent machinery encroachment and sediment transport.
- Erosion and Sediment Control (ESC) fencing is recommended at the limit of the development to reduce impacts to the adjacent watercourse. No construction activities (i.e. grading, equipment storage, vegetation removal, refueling, etc.) are to be completed beyond the limits of the ESC fencing.
- Schedule work to avoid wet, windy and rainy periods.
- Maintain erosion and sediment control measures until all disturbed ground has been permanently stabilized, suspended sediment has resettled, and runoff water is clear.
- Ensure that the water being pumped/diverted from the site is filtered prior to release;
- Stabilize shoreline or banks disturbed by any project activity to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site.
- Operate machinery on land above the high watermark, in a manner that minimizes disturbance to the banks and bed of the municipal drain;
- In order to protect fish habitat from contamination during construction, it is recommended that all machinery be maintained in good working order;
- The development plan should include road side ditches designed to promote infiltration.
- Downspouts should be directed towards road side ditches and not adjacent surface water features.
- 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 highwater 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.

- Maintain as much of the natural vegetation as possible within and around the construction project. Post-construction, degraded vegetation within the disturbed areas should be replaced by planting of native plant species, or seeded, as to prevent further soil erosion.

7.3 Significant Wildlife Habitat

7.3.1 Habitats of Special Concern and Rare Wildlife Species

7.3.1.1 Eastern Wood-Pewee and Wood Thrush

Impacts to eastern wood-pewee and wood thrush primarily concern increased human disturbance, the 15 m setback presented above to protect the watercourse is sufficient to protect special concern and rare wildlife habitat which is primarily provided by the wooded hedgerow/riparian habitat from increased disturbance during on-site construction. To further minimize the impact of the proposed development on common nighthawk, eastern wood-pewee, and wood thrush habitat, vegetation removal should occur outside the key breeding bird period (typically March 31 to August 31) as identified by Environment Canada for the protection of nesting and foraging eastern wood-pewee and wood thrush and to avoid contravention of the Migratory Bird Convention Act. If vegetation clearing activities must take place during the aforementioned timing window than a nest survey shall be conducted by a qualified professional.

7.3.1.2 Snapping Turtle

The 30 m setback presented above, to protect the watercourse and fish habitat, is sufficient to protect *candidate* special concern and rare wildlife habitat (snapping turtle).

To protect snapping turtle that may transit the site, prior to any site work, reptile and amphibian exclusion fencing should be installed around the entire perimeter of the development area to prevent the migration of snapping turtles and other wildlife into the construction zone. The temporary exclusion fencing will also provide a visual demarcation of the development area for workers during construction. Exclusion 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).

Additionally, all stockpiled material should be covered with a geotextile to prevent turtles from nesting in the material between May 1 and August 1 of any year.

7.4 Species at Risk

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

In addition to no SAR observations, no critical habitat for SAR bats (cave, crevice or maternity roosts) were identified on-site. In accordance with MECP best management practices, to protect roosting and foraging bats, tree removal where required should take place outside of the spring and summer active season (typically March 15 to November 30), when bats are more likely to be

using forest habitat. If vegetation clearing must be conducted during the spring and summer timing window than a roost survey should be conducted be a qualified professional.

In GEMTECs experience on similar development applications and consultation with the MECP for projects and properties of similar size and scale, the above mitigation/avoidance measures are sufficient to ensure no negative impacts to SAR bats. In eastern Ontario habitat is not a limiting factor, as such the MECP recommends the use of avoidance timing window for clearing of trees (>10cm in diameter) in order to avoid impacts to SAR bat species. As long as timing windows can be adhered to, the project will not impact SAR bats, and it is GEMTECs opinion that no further consultation with the MECP is required to address impacts to SAR bats.

Should any components of the proposed project require tree clearing within between March 15 and November 30, further consultation with the MECP may be required.

7.5 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 During Construction, from the City of Ottawa (Ottawa, 2022b), and Bird-Safe Design Guidelines from the City of Ottawa (Ottawa, 2022a)
- Vegetation removal should occur outside of March 15 to November 30 to avoid the key breeding bird period, bat summer active season, and reptile and amphibian active season. The timing windows provides protection of migratory birds, roosting bats, migrating reptiles and amphibians 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.
- Reptile exclusion fencing should be installed around the entire construction area prior to construction commencing to prohibit the movement of turtles and amphibians into the construction area. Reptile exclusion fencing should follow guidelines established in *Species at Risk Branch Best Practices Technical Note – Reptile and Amphibian Exclusion Fencing* (OMNRF, 2013b).
- Cover all stock piled material with a geotextile to prevent turtles from nesting in the material between May 1 and August 1 of any year.
- Perform daily pre-work sweeps of 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.

7.6 Best Practice Measures for Mitigation of Cumulative Impacts

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

- To protect trees identified to be retained during construction, the Critical Root Zone (CRZ) should be identified and fenced. The CRZ is defined as 10 cm from the base of the tree for every centimetre in diameter of the tree trunk measured at breast height.
- Maintain as much permeable surface as possible in development plans to minimize the generation of storm water runoff.
- Silt fencing should be installed along all setbacks to provide visual demarcation of the setbacks and to prevent machinery encroachment and sediment transport.
- Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized.
- In effort to offset the effect of vegetation clearing, consideration should be given to landscape planting with native tree species indicative of the Great Lakes – St. Lawrence Forest Region, such as white cedar, white spruce, red maple and red oak.

8.0 CONCLUSIONS

The proposed project supported by this EIS is the construction of an addition to the existing building and expansion of the parking lot located at 1981 Century Road, Ottawa Ontario.

Based on the results of the impact analysis, impacts to the natural heritage features are anticipated to be minimal. Provided that mitigation measures recommended in Section 7 are implemented as proposed, no significant residual negative impacts are anticipated from the proposed 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, significant wildlife habitat or habitats of species at risk are anticipated as a result of future industrial development.
- The proposed project complies with the natural heritage policies of the Provincial Planning Statement.
- The proposed development complies with the natural heritage policies of the City of Ottawa Official Plan.

9.0 LIMITATION OF LIABILITY

This report and the work referred to within it have been undertaken by GEMTEC Consulting Engineers and Scientists Ltd (GEMTEC), and prepared for Brunstad Christian Church Ottawaand is intended for the exclusive use of Brunstad Christian Church Ottawa. This report may not be relied upon by any other person or entity without the express written consent of GEMTEC and Brunstad Christian Church Ottawa. 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 the undersigned.

Sincerely,

Taylor Warrington, B.Sc.
Biologist

Drew Paulusse, B.Sc.
Senior Biologist

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APPENDIX A

Report Figures

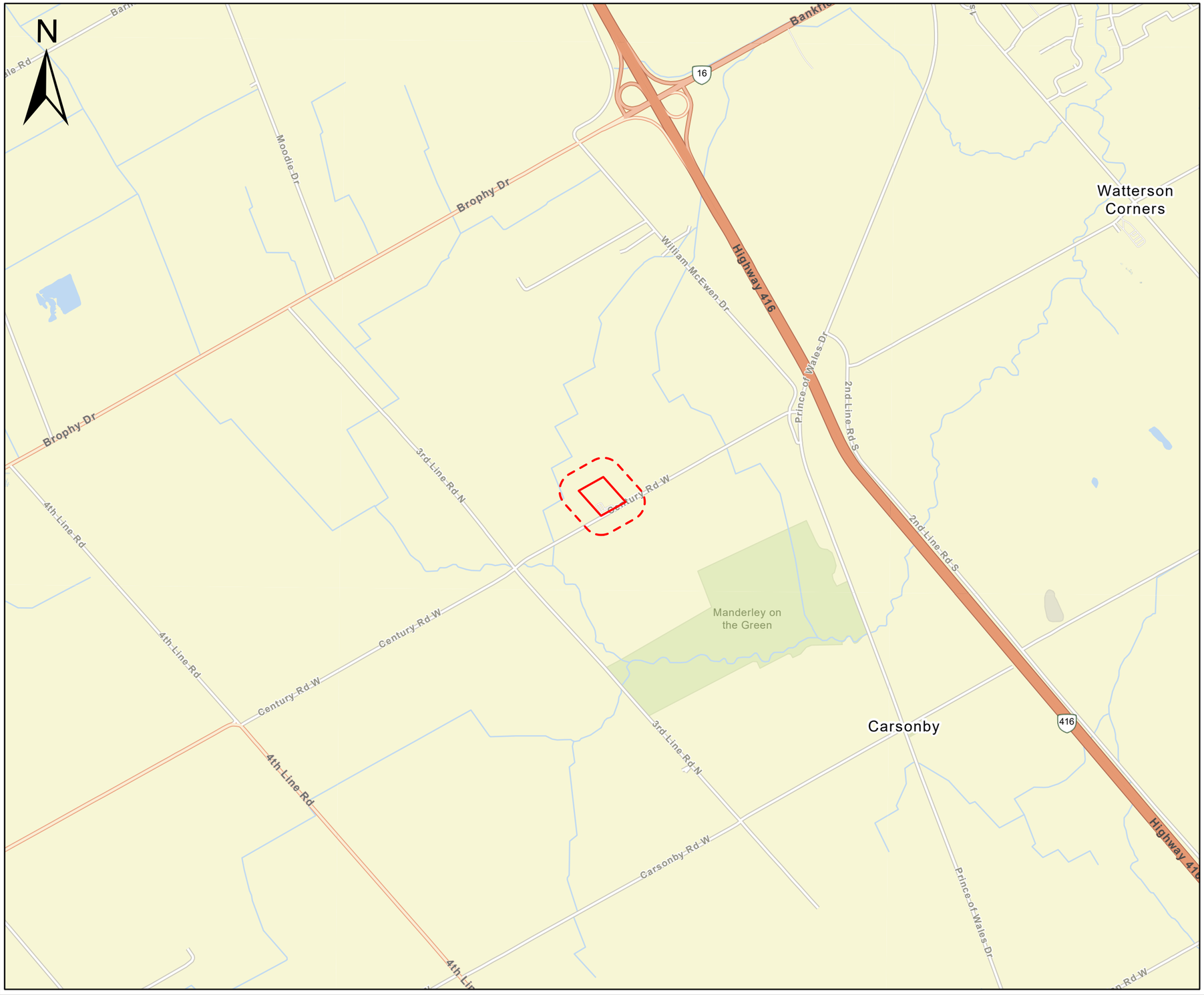
A.1 – Site Location

A.2 – Site Layout

A.3 – Vegetation Communities

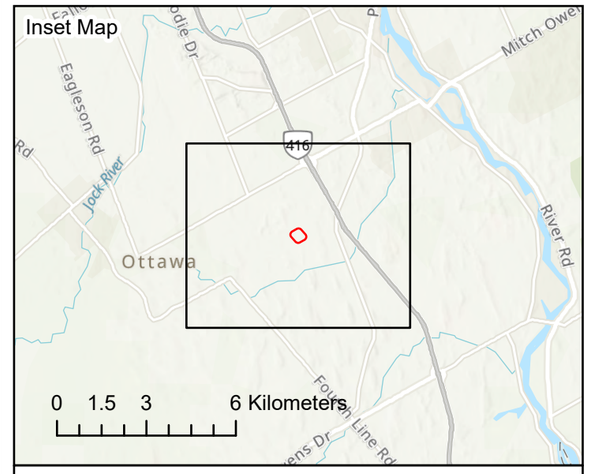
A.4 – Development Concept

A.5 – Mitigation Measures



Legend

- Property Boundary
- Study Area



Scale
1:25,000
0 200 400 800 1,200 1,600 Meters

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Client:	Project:
Brunstad Christian Church Ottawa	102326.001

Location
1981 Century Road
Ottawa, Ontario

Drwn By:	Chkd By:	
E.P.	T.W.	Site Location

Date: July 2024	Rev.	
	0	Figure A.1

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Street Map: City of Ottawa, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada
World Topographic Map: City of Ottawa, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, NRCan, Parks Canada

Legend

- Property Boundary
- Study Area
- Watercourse
- 1:100 Year Floodplain

Scale
1:2,000
0 25 50 100 150 Meters

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Client: Brunstad Christian Church Ottawa	Project: 102326.001
Location: 1981 Century Road, Ottawa, Ontario	
Drwn By: E.P. / Chkd By: T.W.	Site Layout
Date: January 2025	Rev. 1
	Figure A.2

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Maxar, Microsoft
Hybrid Reference Layer: Esri Community Maps Contributors, City of Ottawa, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada

Legend

- Property Boundary
- Study Area
- Watercourse
- Vegetation Community

CVC = Commercial and Institutional
CGL_4 = Recreational
CUM = Cultural Meadow

Scale
1:2,000
0 25 50 100 150 Meters

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Client: Brunstad Christian Church Ottawa

Project: 102326.001

Location
1981 Century Road
Ottawa, Ontario

Drwn By: E.P.
Chkd By: T.W.

Vegetation Communities

Date: July 2024

Rev. 0

Figure A.3

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Maxar, Microsoft
Hybrid Reference Layer: Esri Community Maps Contributors, City of Ottawa, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada

Legend

- Property Boundary
- Study Area
- Watercourse
- 1:100 Year Floodplain
- Existing Development

Development Concept

- Proposed Building
- Proposed Parking
- Proposed Paved Area
- Proposed Septic

Scale
1:2,000
0 25 50 100 150 Meters

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Client: Brunstad Christian Church Ottawa

Project: 102326.001

Location: 1981 Century Road
Ottawa, Ontario

Drwn By: E.P.

Chkd By: T.W.

Development Concept

Date: January 2025

Rev. 1

Figure A.4

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Maxar, Microsoft
Hybrid Reference Layer: Esri Community Maps Contributors, City of Ottawa, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada

Legend

- Property Boundary
- Study Area
- 1:100 Year Floodplain
- Watercourse
- Top of Bank
- Existing Development
- Proposed Development Concept
- Top of Bank 15 m Setback

Scale
1:2,000
Meters
0 25 50 100 150

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Client: Brunstad Christian Church Ottawa

Project: 102326.001

Location
1981 Century Road
Ottawa, Ontario

Drwn By: E.P.

Chkd By: T.W.

Mitigation Measures

Date: January 2025

Rev. 1

Figure A.5

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Maxar, Microsoft
Hybrid Reference Layer: Esri Community Maps Contributors, City of Ottawa, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada

APPENDIX B

Site Photographs

Site Photograph 1 – Commercial and Institutional (CVC)

Site Photograph 2 – Commercial and Institutional (CVC)

Site Photograph 3 – Recreational (CGL_4)

Site Photograph 4 – Recreational (CGL_4)

GEMTEC Consulting Engineers and Scientists	Project Environmental Constraints Statement Proposed Addition to Existing Building 1981 Century Road Ottawa, Ontario	**ATTACHEMNT B** File No. 102326.001	**Site Photographs**

Site Photograph 5 – Cultural Meadow (CUM)

Site Photograph 6 – Cultural Meadow (CUM)

Site Photograph 7 – Watercourse

Site Photograph 8 – Watercourse

GEMTEC Consulting Engineers and Scientists	Project Environmental Constraints Statement Proposed Addition to Existing Building 1981 Century Road Ottawa, Ontario	**ATTACHEMNT B** File No. 102326.001	**Site Photographs**

APPENDIX C

Report Summary Tables

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

Common Name	Scientific Name	S-Rank	Evidence
Avian Species			
American crow	*Corvus brachyrhynchos*	S5	Observed on-site
American goldfinch	*Spinus tristis*	S5	Observed on-site
American robin	*Turdus migratorius*	S5	Observed on-site
Black-capped chickadee	*Poecile atricapillus*	S5	Observed on-site
Blue jay	*Cyanocitta cristata*	S5	Observed on-site
Chestnut-sided warbler	*Setophaga pensylvanica*	S5B	Heard calling
Chipping sparrow	*Spizella passerina*	S5B,S3N	Heard calling
European starling	*Sturnus vulgaris*	SNA	Observed on-site
Gray catbird	*Dumetella carolinensis*	S5B,S3N	Heard calling
Red-winged blackbird	*Agelaius phoeniceus*	S5	Heard calling
Song sparrow	*Melospiza melodia*	S5	Observed on-site
Swamp sparrow	*Melospiza georgiana*	S5B,S4N	Heard calling

Notes:

* Denotes a Species at Risk

Subnational Conservation Status Ranks:

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

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

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

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

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

Qualifiers:

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

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

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

TABLE C.2
SCREENING RATIONALE FOR HABITATS OF SEASONAL CONCENTRATION AREAS

Wildlife Habitat	Further Considered in EIS	Rationale
Deer Yarding Areas and Winter Congregation Areas	No	While there are stands of coniferous woodlands on-site, as outlined in the the Signficant Wildlife Habitat Criteria Schedules (OMNRF, 2015) winter deer yards and deer managment are an MNRF responsibility. Based on review of publically available data from the OMNRF on Land Information Ontario Geo-hub, no Stratum I deer yards, Stratum II deer yards, or winter congregation areas have been identified on-site or within the broader study area.
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	The site does not contain both forest and upland habitat.
Bat Hibernacula	No	Cave and crevice habitat is not present on-site or within the study area.
Bat Maternity Colonies	No	Woodlands on-site do not meet minimum snag density (>10 snags/hectare) requirement to be considered SWH for bat maternity colonies.
Turtle Wintering Area	No	No potentially suitable wetlands are present on-site to support turtle wintering areas.
Reptile Hibernaculum	No	No structures such as large rock piles, bedrock outcrops, cervices or other karstic features have been identified on-site.
Migratory Butterfly Stopover Area	No	The site is not located within 5 km of Lake Ontario and therefore does not meet the defining criteria.
Landbird Migratory Stopver Area	No	The site is not located within 5 km of Lake Ontario and therefore does not meet the defining criteria.

TABLE C.3
SCREENING RATIONALE FOR SPECIALIZED WILDLIFE HABITATS

Specialized Wildlife Habitat	Further Considered in EIS	Rationale
Waterfowl Nesting Area	No	Upland habitat present on-site is not adjacent to any wetlands.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	No	The site is located >120 m from any habitat which could support foraging bald eagles or osprey. Nesting sites for these species are uncommon in Ecoregion 6E (MNRF, 2012).
Woodland Nesting Raptor Habitat	No	Nesting may occur in any ecosite and species preference is towards mature forest stands >30 ha with >10 ha of interior habitat with a 200 m buffer. Contiguous forest stands >30 ha are not present and no sticks nests were observed on-site.
Turtle Nesting Habitat	No	No suitable habitat (exposed mineral soil with minimal vegetation conver) is present within 100 m on-site.
Seeps and Springs	No	No seeps or springs are present on-site.
Woodland Amphibian Breeding Habitat	No	No wetland habitat adjacent to a woodland occurs on-site to support woodland amphibian breeding habitat.
Wetland Amphibian Breeding Habitat	No	No suitable wetland occurs on-site which may support wetland amphibian breeding habitat.
Woodland Area-Sensitive Bird Breeding Habitat	No	Woodland area-senstive birds require interior forest habitat located >200 m from the forest edge in large (>30 ha) forest stands. Woodlands on-site and adjacent to the site do not meet the defining criteria.

TABLE C.4
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 to support marsh breeding bird habitat.
Open Country Breeding Bird Habitat	No	No suitable meadow habitat on-site to support open country bird breeding due to recent (< 5 years) agricultural disturbances.
Shrub/Early Successional Breeding Bird Habitat	No	Candidate early successional breeding bird habitat typically includes fallow fields transitioning to early successional forest habitats that are > 10 ha but have not been actively used for farming. No thickets on-site to support early successional breeding bird habitat.
Terrestrial Crayfish Habitat	No	Terrestrial crayfish are only found within southwestern Ontario (MNRF, 2012).
Special Concern and Rare Wildlife Species	Yes	Based on occurrence data from the Herp Atlas and NHIC the following species of special concern have also occurred on-site and/or the surorunding area: eastern wood pewee, wood thrush and snapping turtle.

TABLE C.5
SCREENING RATIONALE FOR HABITATS OF SPECIES OF CONSERVATION CONCERN

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.6
SCREENING RATIONALE FOR POTENTIAL SPECIES AT RISK ON-SITE OR WITHIN STUDY AREA

Species	ESA Status	Distribution	Habitat Use	Probability of Occurrence On-Site or Within	Rationale
Avian					
Bank Swallow	Threatened	12 confirmed, 2 probable and 8 possible nests in recent OBBA.	Colonial nester, burrows in eroding silt, to sand banks, sand pit walls, etc.	Low	Site lacks suitable habitat for nesting colonies. No colonies or individuals were noted during field investigation.
Barn Swallow	Special Concern	33 confirmed, 2 probable, and 3 possible nests in recent OBBA.	Nests in barns and other semi-open structures. Forages over open fields and meadows.	Low	No suitable grassland habitat available for foraging on-site or structures within the broader study area to provide nesting habitat. No historical data records for species within the study area. Species was not observed on-site during field investigation.
Bobolink	Threatened	Widespread, confirmed or probable nests found in 39 of 40 local atlas squares during recent OBBA. Critical habitat identified in northwestern, southern and eastern Ottawa.	Nests in dense tall grass fields and meadows, low tolerance for woody vegetation.	Moderate	Suitable grassland habitat available on-site. NHIC data indicates species has been observed within 1 km of the site. Species was not observed on-site during field investigation.
Canada Warbler	Special Concern	1 confirmed, 2 probable, 6 possible nests during recent OBBA. No critical habitat identified in region.	Prefers wet forests with dense shrub layers	Low	No suitable forest habitat on-site to support Canada warbler.No historical data records for species within the study area. Species was not observed on-site during field investigation.
Cerulean Warbler	Threatened	No nests reported during recent OBBA. SARO and SARA range maps include part of Ottawa.	Prefers mature deciduous forest habitat.	Low	No suitable forest habitat on-site to support cerulean warbler. No historical data records for species within the study area. Species was not observed on-site during field investigation.
Chimney Swift	Threatened	3 confirmed, 2 probable, and 11 possible nests in recent OBBA.	Nests in traditional-style open brick chimneys.	Low	Suitable nesting structures are present within the broader study area. No historical data records for species within the study area. Species was not observed on-site during field investigation.
Common Nighthawk	Special Concern	6 probable, 5 possible nests reported in recent OBBA. No critical habitat identified in Ottawa region.	Nests in a variety of open sites: beaches, fields and gravel rooftops.	Low	No suitable habitat on-site to support common nighthawk. No historical data records for species within the study area. Species was not observed on-site during field investigation.
Eastern Meadowlark	Threatened	22 confirmed, 11 probable and 3 possible nests reported in recent OBBA. Critical habitat identified in northwestern Ottawa.	Nests and forages in dense tall grass fields and meadows, higher tolerance to woody vegetation.	Moderate	Suitable grassland habitat available on-site. NHIC data indicates species has been observed within 1 km of the site. Species was not observed on-site during field investigation.

TABLE C.6
SCREENING RATIONALE FOR POTENTIAL SPECIES AT RISK ON-SITE OR WITHIN STUDY AREA

Eastern Whip-poor-will	Threatened	7 squares with probable nests and 10 with possible nests in recent OBBA. Critical habitat tentatively identified in 4 squares in western Ottawa.	Nests on the ground in open deciduous or mixed woodlands with little underbrush, and bedrock outcrops.	Low	No suitable woodlands on-site for eastern whip-poor-will. No historical data records for species within the study area. Species was not observed on-site during field investigation.
Eastern Wood-Pewee	Special Concern	4 possible, 15 probable and 19 confirmed nests in recent OBBA for Ottawa area	Woodland species, often found near clearings and edge habitat.	Moderate	Suitable habitat on-site and within the study area to support eastern wood pewee. NHIC data indicates species has been observed within 1 km of the site. Species was not observed on-site during field investigation.
Evening Grosbeak	Special Concern	5 confirmed, 6 probable, 8 possible nests in recent OBBA.	Nests in trees or large shrubs, preference to large coniferous forests, will use deciduous. Overwinters in Ottawa.	Low	Suitable coniferous forest habitat does not occur on-site. Spceies was not observed during site investigation.
Golden-winged Warbler	Special Concern	1 confirmed, 1 probable nest in recent OBBA. Critical habitat identified in Quebec, northwest of Ottawa.	Ground nesting, edge species. Breeds in successional scrub habitats surrounded by forests.	Low	No suitable scrub habitat surrounded by forest is present on-site. No historical data records for species within the study area. Species not observed during field investigation.
Grasshopper Sparrow	Special Concern	4 confirmed, 5 probable and 2 possible nests in recent OBBA.	Ground-nesting grassland species. Prefers fields with low sparse vegetation on sand, alvars or poor soils.	Low	No suitable grassland habitat on-site or within the study area to support grasshopper sparrow. No historical data records for species within the study area. Species was not observed on-site during field investigations.
Least Bittern	Threatened	Confirmed nesting in 1 square, 3 probable and 4 possible in recent OBBA. Mississippi Snye identified as critical habitat.	Prefers marshes, shrub swamps, usually near cattails	Low	No suitable habitat on-site and within the study area to support least bittern. No historical data records for species within the study area. Species was not observed on-site during field investigations.
Loggerhead Shrike	Endangered	Possible nests in Burnt Lands Provincial Park and Richmond area. Critical habitat in Montague Township, however no confirmed nests since 2002.	Prefers grazed pastures with short grass and scattered shrubs, especially hawthorn.	Low	Preferred pasture habitat and shrub vegetation does not occur on-site. No historical data records for species within the study area. Species was not observed on-site during field invetigations.
Olive-sided Flycatcher	Special Concern	1 probable, 1 possible nest in recent OBBA.	Forest edge species, forages in open areas from high vantage points in trees.	Low	Preferred habitat present on-site and within the study area. Species was not observed during the field investigation, nor through any online databases.

TABLE C.6
SCREENING RATIONALE FOR POTENTIAL SPECIES AT RISK ON-SITE OR WITHIN STUDY AREA

Peregrine Falcon	Special Concern	1 confirmed nest in recent OBBA and second nest established in 2011 in the Ottawa downtown.	Nests on cliffs near water and on more anthropogenic structures such as tall buildings, bridges, and smokestacks.	Low	Site lacks suitable nesting structure for peregrine falcon.
Red-headed Woodpecker	Endangered	1 confirmed, 1 probable and 2 possible during recent OBBA. Critical habitat identified in western Ottawa. Nesting pair reported from village of Constance Bay in recent years.	Prefers open deciduous woodlands, particularly those dominated by oak and beech.	Low	Suitable habitat may be present on-site for red-headed woodpecker. No historical data records for species within the study area. Species was not observed during the field investigations.
Rusty Blackbird	Special Concern	No nests in recent OBBA. Primarily observed during migration.	Wet wooded or shrubby areas (nests at edges of Boreal wetlands)	Low	Suitable habitat does occur on-site or within the study area. No historical data records for species within the study area. Species was not observed on-site during field investigations.
Short-eared Owl	Threatened	1 confirmed, 2 probable, 2 possible nests in recent OBBA.	Ground nester, prefers open habitats, fields and marshes.	Low	Suitable field habitat not present on-site or within the study area. Species not observed on-site. No historical occurrence records for species on-site or within the study area.
Wood Thrush	Special Concern	5 possible, 15 probable, and 16 confirmed nests in recent OBBA for Ottawa area.	Prefers deciduous or mixed woodlands.	Moderate	Suitable woodland habitat available on-site and within the broader study area. NHIC data indicates species has been observed within 1 km of the site. Species was not observed on-site during field investigations.
Mammalian					
Eastern small-footed Myotis	Endangered	Historical record in downtown Ottawa.	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 and forest habitat adjacent to site. Available habitat on-site may meet bat maternity colony requirements and provide foraging and non-maternal roost habitat.

TABLE C.6
SCREENING RATIONALE FOR POTENTIAL SPECIES AT RISK ON-SITE OR WITHIN STUDY AREA

Little Brown Myotis	Endangered	Various sites in central and western parts of City. Critical habitat (hibernacula) identified to northwest of Ottawa.	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 and forest habitat adjacent to site. Available habitat on-site may meet bat maternity colony requirements and provide foraging and non-maternal roost habitat.
Northern myotis (Northern Long-eared Bat)	Endangered	Historical record in downtown Ottawa, more recent sites in east (Orleans, Clarence-Rockland). Critical habitat (hibernacula) identified to northwest of Ottawa.	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	Unknown; historical records from sites in urban Ottawa, Lanark County. Critical habitat (hibernacula) identified to northwest of Ottawa.	Roosts in trees, rock crevices and occasionally buildings during summer. Overwinters in caves and mines.	Moderate	Potentially suitable anthropogenic structures and forest habitat adjacent to site. Available habitat on-site may meet bat maternity colony requirements and provide foraging and non-maternal roost habitat.
Reptilian					
Blanding's Turtle	Threatened	Scattered throughout, with numerous sites in western half of City. Critical habitat present in Ottawa.	Inhabits quiet lakes, streams and wetlands with abundant emergent vegetation. Frequently occurs in adjacent upland forests.	Low	No occurrence data from NHIC for species within 2 km of the site. According to the Herp Atlas (Ontario Nature, 2019), Blanding's turtle have been observed once in 2018 within the 10 km² grid that encompasses the site. The site may provide potentially suitable transient aquatic habitat for Blanding's turtle.
Snapping Turtle	Special Concern	Widespread	Highly aquatic species, found in a wide variety of wetlands, water bodies and watercourses.	Moderate	Based on data obtained from to the Herp Atlas (Ontario Nature, 2019), the species has been detected 5 times between 2011 and 2019 within the 10km² grid that encompasses the site. The site does provide potentially suitable aquatic habitat for snapping turtle.
Plants					

TABLE C.6
SCREENING RATIONALE FOR POTENTIAL SPECIES AT RISK ON-SITE OR WITHIN STUDY AREA

American Ginseng	Endangered	Various. Critical habitat broadly identified in Ottawa area.	Rich, moist, relatively mature deciduous forests.	Low	Woodlands on-site are unlikely to support habitat requirements for American ginseng growth.
Black Ash	Endangered	Scattered throughout.	Predominantly a wetland species, found in swamps, floodplains and fens.	Low	No suitable wet forest habitat present on-site. Species was not observed on-site during field investigation.
Butternut	Endangered	Widespread	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 database indicates species to be present within 1 km. Species was not observed on-site during the site investigations.

experience • knowledge • integrity

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

expérience • connaissance • intégrité