



FINAL

Scoped Environmental Impact Study

Concession 2 Lot 14, Brockville, Ontario

Prepared for:

Wellings 2019 Inc.

2962 Carp Road
Carp, ON K0A 1L0

Attn: Angela Mariani

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1.0 INTRODUCTION

Pinchin Ltd. (Pinchin) was retained by Wellings 2019 Inc. (Client) to conduct a Scoped Environmental Impact Study (EIS) for the subject property located at Concession 2 Lot 14, Brockville, Ontario (Site). The location of the Site with general surrounding area is shown on Figure 1 in **Appendix A**. The Scoped EIS was required as part of the Official Plan and Zoning By-law Amendment and Draft Plan of Subdivision Applications requirements for the proposed residential development. The Client intends to develop the Site into a seniors independent living community in phases known as Wellings of Brockville, consisting of townhouses centered around a community clubhouse with associated amenities.

The Site and its immediate surrounding area of 120 m as the identified Study Area for this Scoped EIS can be seen on Figure 2 in **Appendix A**. The Site consists of an approximately 6.00-ha parcel of land. Currently the Site is vacant with the exception of two residential dwellings on the south side of the Site along Parkdale Avenue. The Site is located on Parkdale Avenue and is bounded by Stewart Boulevard to the east, Chelsea Street to the north, woodlands and residential area to the west and a golf course to the south. As shown on Figure 2, the Study Area can be visualized as primarily naturalized meadow and woodland communities with potential wetlands to the northwest of the Site. The natural vegetated areas are dominated primarily by successional and non-native species. The Site has a history of previous land-uses, which likely contributes to the amount of disturbance observed throughout the Site. Natural heritage features on the Site include grassland, woodland and unevaluated wetlands north of the Site, regulated by Cataraqui Region Conservation Authority (CRCA).

This Scoped EIS report was prepared to: identify key natural heritage features present on or immediately adjacent to the Site and characterize their ecological functions; evaluate the environmental effects of the development proposal that might reasonably be expected to have an impact on the natural features; and provide recommendations of mitigation measures to avoid or minimize the potential impacts. This Scoped EIS report will be prepared in general accordance with the City of Brockville Official Plan and CRCA's Environmental Impact Assessment Guidelines.

2.0 POLICY CONTEXT

The following provincial, regional, and municipal legislation and policies were reviewed prior to an evaluation of the natural heritage features and functions of the Site and adjacent area was undertaken:

- Provincial Policy Statement (2020);
- City of Brockville Official Plan (2019 Consolidation); and
- Ontario Regulation 148/06.

The sections below provide a summary of the above legislation and policies applicable to the development planning of the Site.



2.1 Provincial Policy Statement

The Provincial Policy Statement 2020 (PPS) sets a policy foundation for regulating development and land use in the Province of Ontario. It sets out guidelines for development while protecting resources of interest to the province, public health and safety and the quality of the natural environment (Ministry of Municipal Affairs and Housing, 2020). The PPS does support development and improved land use for planning, management and growth, but it does so in ways to enhance communities through efficient land use and environmental management and protection. The PPS states that Site alteration shall not be permitted unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions (MMAH, 2020).

2.2 City of Brockville Official Plan

The City of Brockville Official Plan (CBOP) designates the Site as 'City-Wide Parks', 'Mixed Use and Commercial Area', 'Neighbourhood Area', and 'Parks and Open Space Area'. Additionally, it should be noted that there is a 'Significant Woodland' within 120 m to the northwest of the Site as shown in Schedule 3 in **Appendix B**. As stated in the CBOP, development and site alteration shall not be permitted on land adjacent to a Significant Woodland feature unless it has been demonstrated that there will no negative impacts on the feature or their ecological functions (Brockville, 2019). As such, a Scoped EIS is required to prove that there will be no impacts to the existing natural features. The maps referenced can be seen in **Appendix B**.

2.3 Ontario Regulation 148/06

In accordance with Section 28 of the Conservation Authorities Act, 1990, CRCA is authorized to implement and enforce the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (Ontario Regulation 148/06). This Regulation states that development in or on areas defined in the regulation area (e.g. river or stream valleys, hazardous land, wetlands) requires permission from the CRCA. The CRCA may grant permission for development in or on these areas if the control of flooding, erosion, dynamic beaches, pollution or the conservation of land will not be affected by the development.

The Regulation also states that it is prohibited to straighten, change, divert or interfere in any way the existing channel of a river, creek, stream or watercourse or change or interfere in any way with the wetland without the permission from the CRCA. Unevaluated wetlands are located along the northwestern portion of the Site, as such a Scoped EIS is required to prove that there will be no negative impact on the natural features around the Site.

3.0 STUDY METHODOLOGY

3.1 Background Review and Agency Consultation

A desktop background review of the natural heritage features present on and around the Site, including woodland, wetland, watercourse, valleyland, and other natural areas, as well as other available information sources relating to the Study Area was conducted prior to a site assessment. Included in the review were natural heritage features present on the Site and in the surrounding area, historical species occurrences available from the Natural Heritage Information Centre (NHIC), existing wildlife data records, Species of Conservation Concern lists and other relevant information. Information and documents available from the Client including site history and Site plan were also reviewed for this Site. This document references the Ministry of Northern Development, Mines, Natural Resources and Forestry's (NDMNRF) Natural Heritage Reference Manual (NDMNRF, 2010) which was reviewed for this report.

Based on the pre-consultation report from the City of Brockville for the Official Plan Amendment, Zoning By-law Amendment, Draft Plan of Subdivision Applications and review comments from the CRCA, a Scoped EIS report was requested as part of the approval requirements for the proposed residential development. Based on Pinchin's understanding of the regulatory requirements, a Scoped EIS report will need to be conducted according to the City of Brockville Official Plan (2019 Consolidation) and will need to be completed in consistency with the provincial and regional policies including the PPS (2020), Ontario Regulation 148/06 under the Conservation Authorities Act (1994) and Endangered Species Act (2007). Additionally, CRCA planning staff was consulted by Pinchin in the Spring of 2022 prior to the completion of this Scoped EIS.

Natural heritage resources with the potential to be present on the Study Area were identified through the following information sources:

- An assessment of habitat through aerial photographs and online mapping:
 - Land Information Ontario (MNR, 2020a); and
 - Google Earth.
- A review of historical occurrence records for Species of Conservation Concern within or adjacent to the Study Area:
 - Natural Heritage Information Centre (MNR, 2020b);
 - Atlas of the Breeding Birds of Ontario (BSC, 2020);
 - Atlas of the Mammals of Ontario (Dobbyn, 1994);
 - Ontario Reptile and Amphibian Atlas (ON, 2020);
 - Ontario Butterfly Atlas (TEA, 2020);

- Ontario Regulation 230/08 Species at Risk in Ontario List (COSSARO, 2020); and
- Provincial and federal assessments, recovery strategies, and management plans.

3.2 Field Assessment

Pinchin conducted field studies to characterize the natural heritage features present on the Site and in the surrounding landscape. A summary of methodologies for the field work completed by Pinchin is provided below for reference.

3.2.1 Vegetation Surveys

Vegetation communities within the Study Area were assessed and described using the provincial Ecological Land Classification system. The *Ecological Land Classification for Southern Ontario: First Approximation and its Application* (Lee et al., 1998) was referenced to classify the habitats to ecosite. Ecosites classified within the Study Area were then applied to Ecological Land Classification (ELC) polygons mapped using aerial imagery.

The vegetation communities for fall were sampled for their structure, species composition and habitat characteristics. This information was supplemented by floristic surveys at the time of each visit. Species names generally follow the nomenclature of Flora Ontario (Newmaster and Ragupathy, 2012) and the NHIC.

3.2.2 Wetland Assessment

Assessment of the Study Area followed the criteria outlined in the *Ontario Wetland Evaluation System* (OWES) 3rd Edition (MNR, 2013). Although the area in question on the Site is too small to be properly evaluated using the OWES framework, the evaluation criteria therein provide an appropriate benchmark to work from. In particular, soil classification, the “50% rule” and the presence of wetland species and wetland indicator species form a useful basis for evaluation of the upland-wetland transition on the Site. According to the OWES, the “50% rule” is defined as that if 50% or more of the relative vegetation cover in a given area consists of wetland plants (including wetland tolerant species and wetland indicator species), then the area should be considered a “wetland”. Wetland indicator species are plant species that cannot live in upland areas, as compared with wetland species which include wetland indicator species and plant species that can tolerate both wetland and upland habitats. Additionally, the Coefficient of Wetness (CW) was used in our assessment. This CW is an indicator varying from -5 (obligate wetland) to 5 (obligate upland) that describes the tolerances to wetness of an individual plant species.

3.2.3 Breeding Bird Surveys

Breeding bird surveys were carried out during the breeding bird season according to the Ontario Breeding Bird Atlas (OBBA; Cadman and Kopysh, 2001) protocol. Surveys were conducted between dawn and five hours after dawn during appropriate weather and consisted of both standardized 5-minute point counts at six pre-determined sites within the property and active searching for evidence of breeding birds according to the OBBA breeding evidence guidelines.

Point count sites were selected to minimize overlap and to incorporate a variety of habitat types. During the five-minute period, the surveyor recorded all birds seen or heard from the stationary position and indicated whether individuals were within a 100 m radius.

In addition, the surveyor recorded any breeding behaviours (i.e. nest building, courtship displays, etc.) that were observed on Site. Two breeding bird surveys, one week apart, were conducted on the Site as part of the field assessment program.

3.2.4 Bat Habitat and Acoustic Surveys

There are a number of bat species, potentially occurring in the Study Area that are listed as *Endangered*. These are Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), Eastern Small-footed Myotis (*Myotis leibii*) and Eastern Pipistrelle (*Pipistrellus subflavus*). These mammal species receive species and general habitat protection under the *Endangered Species Act* 2007. For these four species, summer roost and maternity sites are associated with mature trees that support cracks, crevices, holes and cavities, as well as loose bark and clusters of old leaves, including squirrel nests (COSWIC 2015). Leaf on/off snag surveys followed the NDMNRF Guelph District's Survey Protocol for Species at Risk Bats within Treed Habitats (NDMNRF, 2017). This protocol is used to define suitable maternity roost trees for Species at Risk bats listed above. All trees with a diameter at breast height (DBH) of 10 cm or greater were assessed with respect to presenting potential roosting/maternity habitat. All snag or cavity trees observed were provided a unique code and the following parameters were documented: species, location, canopy class, DBH, number of cavities, approximate height of cavities and decay class (tree condition).

As a result of the leaf on/off snag surveys for potential Species at Risk bat habitats, subsequent acoustic surveys for bats were carried out in June 2022 according to the same NDMNRF's Survey Protocol. Acoustic surveys are used to determine the presence, absence and abundance of Little Brown Bat, Eastern Small-footed Myotis, Northern Myotis, and Tri-colored Bat within treed habitats. Acoustic data loggers were set up in areas identified with abundant 'snags' which may be concentrated areas for bats within the Site. Once collected, the data recorded was analyzed using SonoBat 4.4.5 North America classifier. This software is able to analyze calls and render high resolution sonograms of each call pulse and automated classification (GeoProcess, 2021).



3.2.5 *Species at Risk*

The *Endangered Species Act (ESA) 2007* provides protection from harm, harassment, or captures to species listed as extirpated, endangered, or threatened on the Species at Risk Ontario List. Additional protection is provided to the habitat of endangered or threatened species on the Species at Risk Ontario List. Species habitat includes anywhere the species depends on for reproduction, rearing, hibernation, migration, or feeding; or prescribed habitat as defined in Ontario Regulation 242/08 of the General Regulation.

The likelihood of occurrence for Species at Risk was assessed qualitatively based on the ability of the habitat to meet one or more life requisites for each Species at Risk identified during the desktop assessment. If habitat suitable for Species at Risk was identified, additional survey effort was applied in that area. If incidental Species at Risk were observed, they were recorded throughout the field assessment within and adjacent to the Site.

3.2.6 *Incidental Wildlife Observations*

Wildlife was surveyed as part of general wildlife surveys during the Site visit. These surveys involved general coverage recording all species observations and signs, including tracks / trails, scat, burrows, dens, browse, and vocalizations. The wildlife surveys occurred during the coincident surveys for vegetation communities and vascular plants. Significant wildlife habitat was assessed according to the MNRF Natural Heritage Reference Manual (MNRF 2010) and the MNRF Significant Wildlife Habitat Technical Guide (MNRF 2000).

4.0 **EXISTING CONDITIONS**

4.1 **Landform, Physiology, and Geology**

The Site is bounded by Parkdale Avenue to the south, commercial businesses to the east, and residential and natural areas to the north and west. The surrounding area is primarily developed with residences and businesses with a golf course to the southwest. The Ontario Geological Survey classifies the bedrock of the Study Area as being of Proterozoic origin and part of the Grenville Supergroup and Flinton Group (Clastic metasedimentary rocks) (Ontario Geological Survey, 1991).

The Site has a gradual slope towards the north side of the Site. The south side of the Site has an elevation of approximately 115 msl and gradually lowers to 110 msl, and to 109 msl at the northeast corner of the Site. The elevation would suggest that most runoff flows to the northeast and northwest areas of the Site, likely collecting in the unevaluated wetlands.

The Study Area is situated in ecodistrict 6E-11, also known as the Smith Falls Ecodistrict. This ecodistrict reaches from Highway 417 in the north to Upper Beaverley Lake in the south, this ecodistrict includes 353,567-ha of cropland, pastures and deciduous forests. This ecodistrict was formed by glaciers that removed large amounts of sediment, leaving behind a shallow calcareous morainal material (NDMNRF, 2018). The soils in the Study Area are classified by Agriculture Canada and the Ministry of Agriculture and Food as primarily brunisols with some organics (Soils of Canada, 2021).

A detailed review and analysis on the vegetation communities and potential natural heritage features on and surrounding the Site are provided below.

4.2 Vegetation Surveys

4.2.1 Vascular Plants

Spring and summer season assessments were completed on May 25, 2022 and July 20, 2022 on the Site and within the surrounding Study Area. On May 25, 2022, the weather was sunny with a high of 24 degrees Celsius. On July 20, 2022, the weather was sunny with scattered clouds and very humid, with a high of 33 degrees Celsius. A total of 42 plant species were identified within the Study Area from the vegetation surveys. A full vascular plant species inventories as observed on the Study Area during the field assessment program surrounding the Site is catalogued in Table 1 in **Appendix C**.

4.2.2 Vegetation Communities

In total, twelve vegetation communities were identified in the Study Area as a result of the surveys conducted. These communities present include Low Density Residential, Business Sector, Church, Golf Course, Green Ash Deciduous Woodland, Goldenrod Forb Meadow, Fresh – Moist Poplar Deciduous Woodland, Fresh – Moist Manitoba Maple Lowland Deciduous Forest, Green Ash Mineral Deciduous Swamp, Dry – Fresh Sugar Maple – Ironwood Deciduous Forest, Dry – Fresh Honey Locust Forest and Intermittent Drainage Course. These vegetation communities with their ELC polygons surveyed and the surrounding area are mapped on Figure 3 in **Appendix A**. Selected site photographs of the vegetation communities are included in **Appendix D** for reference.

Low Density Residential (CVR_1): This community is found in patches throughout the Study Area and includes a number of residences both on and off the Site. These communities are developed with residential homes and common landscape trees and manicured lawns. The edges of some of these communities also include some mature trees associated with the neighboring vegetated communities.

Business Sector (CVC_1): This community is found in patches on either side of both Parkdale Avenue and Chelsea Street. These patches are developed with commercial, retail and industrial businesses, including Seaway Motors, Grocery Outlet, Swiss Chalet and Krown Brockville to name a few. The patches of this community are developed with structures, associated parking and manicured lawns and few landscape trees such as Sugar Maple (*Acer saccharum*) and Norway Maple (*Acer platanoides*).

Church (CVS_1): This community is found east of the Site along Stewart Boulevard and includes a developed area including the Church structure and associated parking area, and manicured lawn with common landscape trees.

Golf Course (CGL_1): This community is found south of the Site and includes maintained greenlands and hedgerows. Primarily this community is composed of manicured lawns with naturalized hedgerows consisting of native mature trees such as Sugar Maple, Blue Spruce (*Picea pungens*) and Eastern White Pine (*Pinus strobus*).

Green Ash Deciduous Woodland (WODM4-2): This vegetated community is found on the south side of the Site and adjacent to Parkdale Avenue. It is bounded by Low Density Residential and Parkdale Avenue to the south, Fresh – Moist Manitoba Maple Lowland Deciduous Forest to the east and north, and Goldenrod Forb Meadow to the west. This community is primarily dominated by Green Ash (*Fraxinus pennsylvanica*), throughout the community there are a number of dead standing or dying Green Ash trees. Also present throughout this community are some White Ash (*Fraxinus americana*) and Manitoba Maple (*Acer negundo*). There is little to no subcanopy, but the groundcover includes dense amounts of Canada Goldenrod (*Solidago canadensis*), with Wild Parsnip (*Pastinaca sativa*) and Common Red Raspberry (*Rubus idaeus*). Based on aerial imagery from Google Earth (2022), this community has regenerated and naturalized since previously being cleared as recently as 1994.

Goldenrod Forb Meadow (MEFM1-1): This vegetated community is found centrally and on the south side of the Site. It is bounded by the Green Ash Deciduous Woodland described above to the east and south, Fresh – Moist Poplar Deciduous Woodland to the west and Dry – Fresh Manitoba Maple Lowland Deciduous Forest to the north. This community is primarily dominated with Canada Goldenrod with large amounts of Wild Parsnip throughout. Spread sparsely throughout the meadow there are some dead-standing Green Ash and Eastern White Pines and some poplars, indicative of the neighboring communities. Similar to the woodland described above, based on Google Earth imagery this community has naturalized from previously being cleared in 1994.

Fresh – Moist Poplar Deciduous Woodland (WODM5-1): This vegetated community is found on the west side of the Site. It is bounded by the meadow described above to the east, Fresh – Moist Manitoba Maple Lowland Deciduous Forest to the west and north and residential area to the south. Similar to other communities described above, this community appears to have naturalized from previously being cleared. This community is primarily dominated by species of poplars, namely Trembling Aspen (*Populus tremuloides*) with Balsam Poplar (*Populus balsamifera*) and Large-toothed Aspen (*Populus grandidentata*). Other species observed include Manitoba Maple, Green Ash and Eastern White Pine. The ground cover throughout this community is primarily composed of similar species observed in the neighboring meadow, namely Canada Goldenrod.

Fresh – Moist Manitoba Maple Lowland Deciduous Forest (FODM7-7): This vegetated community is the largest community observed as it is present throughout much of the Study Area. This community is primarily composed of Manitoba Maple with Green Ash observed in low-lying areas. Other species observed in drier areas include Ironwood, Black Cherry (*Prunus serotina*), and White Ash. The subcanopy is primarily composed of Common Buckthorn (*Rhamnus cathartica*) and Alternate-leaved Dogwood (*Cornus alternifolia*). The groundcover is dominated by Purple-flowering Raspberry (*Rubus odoratus*) found in large dense groupings with some Canada Goldenrod observed throughout. The soil within this community is composed of a fibric loam layer with pebbles and rocks to a depth of 29 cm before transitioning into a silty clay throughout the extent of the soil core to 79 cm. Abundant amounts of gravel prevented the soil core from continuing deeper. Within the silty clay mottles and gleys were observed at depths of 42 and 52 cm respectively, indicative of moist soil conditions.

Green Ash Mineral Deciduous Swamp (SWDM2-2): This vegetated community is found throughout the northwest corner of the Study Area. It is bounded by Fresh – Moist Manitoba Maple Lowland Deciduous Forest to the east and south and patches of meadow and Dry – Fresh Honey Locust Forest to the northeast. This community is primarily dominated by Green Ash with either moist or fully saturated conditions on the ground. Along the edges of this community other species observed include American Elm (*Ulmus americana*) and Willow species (*Salix spp.*). The ground layer is dominated Creeping Jenny (*Lysimachia nummularia*), Sensitive Fern (*Onoclea sensibilis*), Purple-flowering Raspberry (*Rubus odoratus*) and Cranberry Viburnum (*Viburnum opulus*). Throughout the west side of this community there is standing water that appears to be draining from the north. This standing water continues to the east side of the community until meeting a beaver dam, which then slowly drains east towards the intermittent Drainage course behind the northern commercial area. The soil in this community is composed of an organic layer to about 28 cm where the water table can be observed at 16 cm, then continues to sandy clay loam to the extent of the soil core at 56 cm. Mottles and gleys were observed at 33 and 38 cm respectively, indicative of moist soil conditions within the swamp.

Dry – Fresh Sugar Maple – Ironwood Deciduous Forest (FODM5-4): This vegetated community is found on the northwest side of the Site and continues outside of it to the west. It is primarily composed of Sugar Maple and Ironwood (*Ostrya virginiana*) with very little subcanopy. The groundcover is composed of Spotted Jewelweed (*Impatiens capensis*) and Common Red Raspberry with saplings sparsely observed. This Forest community has been designated as a ‘Significant Woodland’ mapped in the City of Brockville Official Plan. Although it is located marginally within 120 m to the Site, it is not anticipated to be impacted due to the adjacent Green Ash Mineral Deciduous Swamp being entirely protected from development.

Dry – Fresh Honey Locust Forest (FODM4-11): This vegetated community is found on the north side of the Site and is bounded by Business Sector and patches of meadow to the east and Green Ash Mineral Deciduous Swamp to the south and west. This community is primarily dominated by Honey-locust (*Gleditsia triacanthos*) with other species including Manitoba Maple, Sugar Maple and some American Elm. The subcanopy is composed of dense patches of Common Buckthorn and the groundcover is dominated by Canada Goldenrod and Wild Parsnip. Throughout the community there are large deposits of waste and materials, namely bricks, gravel and concrete slabs. Based on the amount of deposited materials throughout the Site and aerial imagery, it appears that the community has naturalized from previous land uses. This likely also contributes to the number of non-native species found within the community such as Wild Parsnip and Common Buckthorn.

Watercourse/Drainage (Intermittent) (OAO): This intermittent drainage feature is found on the north side of the Site and flows east through the Fresh – Moist Manitoba Maple Lowland Deciduous Forest into a culvert adjacent to Stewart Boulevard outside of the Study Area. The drainage appears to originate from the south side of the Business sector. Based on aerial imagery from Google Earth, it appears to be associated with the existing developments along Chelsea Street. The drainage and runoff likely accumulate from the ditch surrounding the business sector and from the slow drainage from the beaver dam observed west of the business sector within the Green Ash Mineral Deciduous Swamp, before flowing east towards Stewart Boulevard.

4.3 Wetland Assessment

Following the criteria from OWES and ELC, the Low Density Residential (**CVR_1**), Business Sector (**CVC_1**), Church (**CVS_1**), Golf Course (**CGL_2**), Green Ash Deciduous Woodland (**WODM4-2**), Goldenrod Forb Meadow (**MEFM1-1**), Fresh – Moist Poplar Deciduous Woodland (**WODM5-1**), Fresh – Moist Manitoba Maple Lowland Deciduous Forest (**FODM7-7**), Dry – Fresh Sugar Maple – Ironwood Deciduous Forest (**FODM5-4**) and Dry – Fresh Honey Locust Forest (**FODM4-11**) communities are considered to be “upland”. There are minimal wetland indicator species present, with those wetland species covering much less than 50% of the relative area. Analysis of the Green Ash Mineral Deciduous Swamp (**SWDM2-2**) are similarly unambiguous, with many wetland indicator species present and covering well over 50% of the area.

Furthermore, soil core samples under ELC methodology were taken from each vegetation community following OWES protocol, with the results matching the vegetation survey. In total, six soil core samples were conducted throughout the Site, with sampling locations being picked at random for representative results and at least one soil core sample was taken from each vegetated community. These soil samples were used to support the analysis of wetland presence at the northwestern portion of the Site and Study Area.

4.4 Breeding Bird Surveys

Based on OBBA survey protocol, a total of 22 avian species were seen or heard within the breeding season within or in the vicinity of the Site as observed during site visits on May 26th and June 18th, 2022. The survey route and point count locations are shown on Figure 4 in **Appendix A**.

Of the 22 species observed, six species were observed, and sixteen species were possible breeders. None of the avian species observed on Site are listed under the federal *Species at Risk Act 2002* (SARA) or Ontario *ESA 2007*.

The statuses of observed species, their provincial NHIC rank (S-Rank), and the likelihood of their breeding at the Site are summarized in Table 1 in **Appendix E**.

4.5 Bat Habitat Suitability and Acoustic Surveys

The targeted species of the Species at Risk bat surveys were the Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), Eastern Small-footed Myotis (*Myotis leibii*) and Eastern Pipistrelle (*Pipistrellus subflavus*). In the Spring of 2022, snag surveys were conducted based on the NDMNRF Bat Survey Protocol's Phase II Identification of Suitable Maternity Roost Trees. A total of seven snag trees were identified and is summarized in Table 2 in **Appendix E**. The snag trees were primarily found on the east side of the Site. The results of the snag surveys indicated that the next phase of the NDMNRF's Bat Survey Protocol's Phase III Acoustic Monitoring was required to determine if any endangered species of bats are present. The results of Acoustic Monitoring were summarized below and provided by Geoprocess in a technical memo available for reference in **Appendix F** (Geoprocess, 2022).

Three data collectors were stationed in proximity to suitable snag trees over the course of the survey from June 20th to June 30th, allowing for a full ten nights (Geoprocess, 2022). The Monitoring Area is located on the eastern half of the Site where a number of snags were identified as shown on Figure 4 of **Appendix A**. The acoustic data collectors were placed near areas of concentrated snags, while still offering coverage of the entire Monitoring Area.

Over the course of these ten nights, a total of four species of bats were heard. These included recorded calls of Big Brown Bats (*Eptesicus fuscus*), Hoary Bats (*Lasiurus cinereus*), Silver-haired Bats (*Lasionycteris noctivagans*) and Eastern Red Bats (*Lasiurus borealis*). The collected data suggests that these four species are likely roosting either on the Site or nearby as they were recorded between sunset and 23:00 hrs (Geoprocess, 2022).

No Species at Risk bats including the Little Brown Bat, Northern Myotis, Small-footed Bat and Tri-colored Bat were confirmed recorded during the acoustic surveys. Therefore, no further consultations with the NDMNRF/MECP are required based on the NDMNRF protocol and MECP guidelines (NDMNRF, 2017; MECP, 2019). Recommended mitigation measures with timing windows for tree removal to avoid or minimize impacts to non-Species at Risk bats are included in Section 7.0 below.

4.6 Incidental Wildlife Observations

The following incidental wildlife were observed based on their sound, sight and/or scat during the subsequent surveys for vegetation:

- American Crow (*Corvus brachyrhynchos*);
- American Redstart (*Setophaga ruticilla*);
- Common Yellowthroat (*Geothlypis trichas*);
- Chestnut-sided Warbler (*Dendroica pensylvanica*);
- Eastern Cottontail (*Sylvilagus floridanus*);
- Gray Squirrel (*Sciurus carolinensis*);
- Indigo Bunting (*Passerina cyanea*);
- Northern Cardinal (*Cardinalis cardinalis*);
- Northern Mockingbird (*Mimus polyglottos*);
- Red Fox (*Vulpes vulpes*);
- White-tailed Deer (*Odocoileus virginianus*); and
- Yellow Warbler (*Dendroica petechia*).

All of these species are common given the variety of ecosites in the area and have adapted to various habitats. Within these incidental observations, the avian species were also recorded in the breeding bird surveys.

4.7 Species at Risk Screening

Upon a comprehensive Species at Risk (SAR) screening, a total of 24 SAR was identified as having potential occurrence on the Study Area, resulting from the background review of the NHIC records and other available data sources for the Study Area surrounding the Site. The details on these 24 species screened, including the listing status, last observed date and sources used to identify their presence in the Study Area, and their habitat requirements are all summarized in the Species at Risk Screening Table in **Appendix G**. Based on the background review and field assessment, 21 SAR were determined to have suitable habitat within the Study Area, with only one of these species having confirmed observations in the Study Area.

The herbaceous meadow in the Study Area could provide suitable habitat to three SAR, including the Bobolink (*Dolichonyx oryzivorus*), Eastern Meadowlark (*Sturnella magna*), and Monarch (*Danaus plexippus*). These avian species utilize long grasses for nesting and breeding while the Monarch makes use of meadows and open areas with milkweed as this is a vital food source. The Bobolink and Eastern Meadowlark rely on similar habitat requirements.

These species may find suitable habitat on the Site; however, the size is under the minimum required area for suitable breeding habitat which suggests a minimum of 5-ha. None of these species were observed during the assessment or following targeted survey for birds on this Site.

Man-made structures and buildings in the area act as suitable habitat for three more avian SAR, including the Barn Swallow (*Hirundo rustica*), Common Nighthawk (*Chordeiles minor*) and Chimney Swift (*Chaetura pelagica*). These species utilize structures for nesting, the residential area provides suitable habitat within the Study Area, but none were observed (birds, nests, etc.) during the vegetation surveys or subsequent targeted breeding bird surveys.

The deciduous swamp within the Study Area may act as suitable habitat for four other SAR, including the Blanding's Turtle (*Emydoidea blandingii*), Common Musk Turtle (*Sternotherus odoratus*), Common Snapping Turtle (*Chelydra serpentina*) and Western Chorus Frog (*Pseudacris triseriata*). These turtles utilize large bodies of water with abundant vegetation while the Western Chorus Frog prefers moist woodlands and ponds, both of which can be found within the swamp community in the Study Area. None of these species were observed during the assessments on the Site.

The woodlands throughout the Study Area may offer suitable habitat to seven SAR, including the Canada Warbler (*Cardellina canadensis*), Cerulean Warbler (*Dendroica cerulea*), Eastern Wood-pewee (*Contopus virens*), Golden-winged Warbler (*Vermivora chrysoptera*), Red-shouldered Hawk (*Buteo lineatus*), Wood Thrush (*Hylocichla mustelina*) and Gray Fox (*Urocyon cinereoargenteus*). These birds utilize different layers in the canopy or ground cover throughout the woodland for nesting habitat while the Gray Fox prefers dense thickets and areas within woodlands to build its den. Although the woodlands throughout the Study Area may offer suitable habitat to these species, none of them were observed during the surveys conducted within the Study Area.

Three species of endangered bats have potential to occur on the Site. During the day, bats roost in trees, and in buildings. These include the Little Brown Bat (*Myotis lucifugus*), Eastern Pipistrelle (*Pipistrellus subflavus*) and Northern Myotis (*Myotis septentrionalis*). They often will roost in attics, abandoned buildings, barns and dead trees/snags where they can raise their young. The structures and snag trees could allow for suitable habitat with openings in attics and crevices in trees. None of these species were observed during the vegetation survey on the Site or during the subsequent targeted acoustic survey. Potential impacts to the above avian and bat species can be avoided or minimized by timing restrictions of tree removals on the Site as indicated in Section 7.0 below.



4.8 Natural Heritage System and Ecological Connectivity

The Site within the Study Area is located in a parks and open spaces area and residential area, surrounded by roadways, businesses and residential areas to the north, east and south, and residential and green spaces to the west. The Site consists of Low Density Residential, Business Sector, Church, Golf Course, Green Ash Deciduous Woodland, Goldenrod Forb Meadow, Fresh – Moist Poplar Deciduous Woodland, Fresh – Moist Manitoba Maple Lowland Deciduous Forest, Green Ash Mineral Deciduous Swamp, Dry – Fresh Sugar Maple – Ironwood Deciduous Forest, Dry – Fresh Honey Locust Forest and Intermittent Drainage Course

Looking at the surrounding landscape, the Site includes portions of naturalized developed area, woodlands, meadows, a portion of wetland to the northwest and significant woodland outside of the Site to the northwest. The Site is partially separated from other designated natural features as shown in **Appendix B**. The Site includes meadow and woodland habitat for birds and small mammals but is likely disturbed from traffic by the nearby roadways and highway. The communities within the central and southern portions of the Site are fairly disturbed based on previous land uses. The northern communities and woodlands further northwest such as those considered significant likely offer much more habitat to nearby wildlife. As a result, the meadow community likely acts as a source of habitat for some species in the surrounding area.

For these reasons it is recognized that the meadow and woodland communities throughout the Site and within the Study Area has moderate ecological values to plants and wildlife, as well as human residents in this region.

5.0 PROPOSED DEVELOPMENT

The Site consisting of an approximately 6.00-hectare parcel of land is currently vacant with the exception of two 2-storey residential dwellings at the southeast corner. The natural heritage features found on the Site includes meadows, deciduous woodlands, and a swamp. The Client intends to develop the Site in a series of phases into a seniors independent living community as Wellings of Brockville, with Phase 1 consisting of 86 townhouse dwellings centered around a 550 sq. m community clubhouse with associated amenities and a stormwater management pond. The Concept Plan of the proposed development is available for reference in **Appendix H**. The proposed development will likely impact the southern portion of the Site which has been previously managed as primarily agricultural land.

The purpose of this Scoped EIS is to understand the current constraints on the Site and within the Study Area for the proposed development, as well as the impacts from development in those areas. The following impact assessment in Section 6.0 is based on the proposed Concept Plan brought forth by the Client.

5.1 Development Constraints

It is noteworthy that the Study Area (within 120 m from the Site) contains designated Significant Woodland from the City of Brockville as shown in **Appendix B**. As such, the Site is subject to the submittal of a Scoped EIS that states the development plans and an assessment of the natural features and impacts on the Site and the surrounding Study Area. However, it should be noted that a majority of the proposed Phase 1 development will take place outside of a 120 m setback. The only exception to this will be the development associated with the stormwater management pond on the northeast side of the Site, but it should also be noted that the Significant Woodland is upgradient of the proposed development. Based on this in addition to the imposed 30 m setback from the unevaluated wetland now identified and mapped, it is anticipated that there will be no adverse impacts to the natural heritage features on the northwest side of the Site. Hence, both of the wetland and Significant Woodland are preserved from the proposed development,

It is anticipated that the meadow, and deciduous woodlands on the south side of the Site will be impacted in order to accommodate Phase 1 of the proposed development as shown in **Appendix H**. However, it is not anticipated that the wetlands on the Site or adjacent Significant Woodland will be impacted. A number of direct and indirect impacts have been identified below as a result of the proposed development of residential buildings and associated roadways.

6.0 IMPACT ASSESSEMENT

There are potential direct and indirect impacts to the natural heritage features on and adjacent to the Site from the development proposal, as described in Sections 6.1 and 6.2 below.

6.1 Direct Impacts

The proposed development will be contained within the existing footprint of the Site Plan. The potential direct impacts from Site construction on the natural heritage features (i.e. primarily meadow and woodlands) as a result of the proposed development on the Site will include the following:

- Stripping of vegetation and topsoil throughout the Site;
- Removal of trees and shrubs on the Site; and
- Displacement of wildlife on the Site.

To accommodate the proposed development, the stripping of vegetation and topsoil will take place throughout the central and southern portions of the Site. The meadow and woodlands on the Site potentially provide seasonal habitat to birds, bats and other wildlife that may use it seasonally for foraging and feeding. They will be displaced from the proposed future construction and immediately surrounding areas as a result of construction and site alteration. The impact to wildlife can be avoided by properly timing the vegetation and topsoil removal.

Trees and shrubs will need to be removed throughout portions of the Site in order to accommodate the proposed development. As such, a Tree Removal Inventory Memo has been completed by Cambium Inc (2022). Throughout the vegetated communities within the Site, it is estimated that approximately 250 trees will need to be removed in order to accommodate the proposed development with most of these taking place within the Fresh – Moist Manitoba Maple Lowland Deciduous Forest (Cambium, 2022). It should be noted that this proposed removal will respect the appropriate setback of 30 m from wetland features on the Site. These mature trees over 10 cm diameter at breast height (DBH) required for removal will primarily include species such as Trembling Aspen, Eastern White Pine, Manitoba Maple and Green Ash. It is recommended that along with this memo, preservation and protection strategies should be implemented for the remaining trees, namely the designation of Tree Protection Zones and the use of tree protection fencing.

Much of the woodlands throughout the Site will be impacted from the proposed development but it should be noted that the woodlands found centrally and adjacent to the large meadow appear to be successional. As such they do not offer the ecological benefits a mature woodland offers, such as those found to the northwest of the Site. Additionally, it is recommended that a Landscape Plan or Restoration Planting Plan be developed in order to ensure that any impacts to the existing natural heritage features be mitigated by offsetting vegetation removals.

6.2 Indirect Impacts

The potential indirect impacts to the natural heritage features (i.e. meadow, woodlands and swamp) based on the development proposals may include the following:

- Effects on plants and wildlife by construction noise, dust and vibration;
- Sedimentation of the woodlands and wetland by construction activities; and
- Alteration of water quality and flow regime in the adjacent wetland and drainage.

Indirect impacts on the communities throughout the Site and adjacent wetlands and their associated plants and wildlife are likely limited to the species located within the Site. It is likely that during the construction periods, wildlife including birds, mammals and amphibians that seasonally use the meadow, woodlands and swamp for foraging and breeding may be disrupted and are likely to abandon the disturbed edges due to indirect impacts of noise and vibration. The wildlife living in the meadow and woodland habitats will be disturbed temporarily, while over time the wildlife will likely return to nearby habitats on and surrounding the Site.



Stormwater runoff from the construction on the Site, if uncontrolled, is likely to have potential impacts to the meadow and woodland from surface runoffs during construction due to their close proximity to construction activities. The successful establishment of Erosion and Sediment Control (ESC) measures may act as a sufficient barrier to protect these adjacent natural heritage features. To this end, a Servicing and Stormwater Management Report has been conducted to address stormwater concerns including water quality and water quantity controls (Stantec, 2022). In order to address Stormwater quality, the end-of-pipe facility as part of the Stormwater Management Pond has been designed in order to achieve an 'enhanced' level of treatment to urban runoff by removing 80 % of total suspended solids (TSS) (Stantec, 2022). Stormwater quantity controls have been addressed by the implementation and design of the Stormwater Management Pond to attenuate post-development peak flows. As part of the Servicing and Stormwater Management Plan, the ESC Plan includes sediment controls in order to mitigate potential impacts associated with Site construction. Recommendations and mitigation measures for the potential impacts are detailed in Section 7.0 below.

6.3 Residual and Cumulative Effects Assessment

Residual environmental effects are any permanent, non-mitigable change in an identified valued ecosystem component. As residual environmental effects on the natural environment cannot be completely addressed through mitigation, they are likely to persist following project completion. Residual effects may result in cumulative effects through the interaction between residual effects of the project and those associated with other identified project and/or activities. Due to the short-term, local construction of the proposed residential community development within the Site surrounded by woodlands, roadways, residential developments, parkland, and businesses, the residual effects from the Site construction are projected to be low significance in magnitude, geographic extent, duration and frequency. Residual adverse effects are not expected from the proposed development on the Site as all of the direct and indirect impacts identified above can be addressed through appropriate mitigation.

With sufficient mitigation measures implemented prior to the construction activities, no cumulative impacts are anticipated as a result of the proposed residential development. This further supports the Provincial Policy Statement rule regarding no negative impacts to the Key Features present on the Site. Recommendations and mitigation measures for the potential impacts are detailed in Section 7.0 below.

7.0 RECOMMENDED AVOIDANCE AND MITIGATION MEASURES

Based upon the above impact assessment according to the City of Brockville and CRCA's guidelines and consultation comments provided by the City of Brockville, there are identified direct impacts and indirect impacts on the natural environment, including the meadow, woodlands and adjacent wetland present on the Site and within the Study Area.

Proposed mitigation measures, including recommendations for timing windows or other specifications for implementation, for all potential negative impacts will need to be included in the Scoped EIS.

Furthermore, mitigation measures relating to the protection of setbacks and buffers during onsite works (such as fencing) must be implemented prior to the commencement of those works. Therefore, exclusion fencing to the sensitive natural features should be established and protected from the proposed development.

As shown on the Site Plan in **Appendix H**, a 30 m setback will be implemented from the swamp as a protective measure to wetland present on the Site and adjacent Significant Woodland further to the northwest. Additionally, a minimum 10 m setback is recommended from the drainage feature present on the north of the Site. Protective ESC fencing and/or tree barriers should be established so that no development activities including Site grading and construction will take place. The following recommendations are provided for the protection of the above key features prior to construction or site alteration.

Additionally, restoration and enhancement plans must be timely developed and effectively implemented on the Site to ensure that no negative impacts will occur to the woodland post construction.

Tree and vegetation removal:

- The extent of potential tree and vegetation removal within the Site is restricted to the construction footprint as necessary.
- To minimize or avoid impacts to breeding birds and roosting bats, the removal of vegetation will be outside of the associated breeding periods for birds and bat species between April 1 and September 30. If vegetation removal needs to occur within this timing constraint window, a qualified Avian Biologist should be deployed to conduct breeding bird surveys and ongoing monitoring prior to vegetation removal.
- A Tree Inventory Removal Memo has been developed for the Site and will need to be approved by the regulatory agencies prior to construction and site alteration (Cambium Inc., 2022).
- The removal of non-native or invasive plants should be conducted by a Professional Landscaper who is familiar with the procedures of invasive plant control and removal.
- The movement of weed-infested soil should be limited. Construction vehicles and equipment arriving and leaving the Site should be clean of invasive plants and seeds.

Erosion and sediment control:

- A Servicing and Stormwater Management Report with Erosion and Sediment Control (ESC) measures has been completed by Stantec (2022) and will need to be approved by the appropriate agencies. These control measures will be implemented with protection measures of natural features for the construction of the Site.
- Prior to construction and site alteration, adequate erosion and sediment control (ESC) measures including a sediment fencing should be established around the Site upgradient from the natural heritage features until the disturbed area is restored upon construction completion. Sufficient buffers to the adjacent natural features through protection zones will be established.
- If required, repairs and maintenance of the installed ESC measures are conducted regularly until construction completion. Disturbed areas should be stabilized immediately post construction to prevent site erosion and/or sedimentation.

Wildlife and Species at Risk encounter protocol:

- If wildlife are encountered during construction, work should cease immediately and allow the animal to naturally move out of the construction zone. If the animal does not leave the area for a prolonged period of time, please consult with a qualified Biologist for possible response or mitigation measures.
- If an animal is injured or deceased or if a Species at Risk is found on the Site, the Ministry of Environment, Conservation and Parks will be contacted for guidance and handling.

Restoration and enhancement:

- A Landscape Plan with planting details of trees and shrubs and associated locations on the Site prior to the construction of the new residential development has been developed for the enhancement of the remaining woodland on the Site (Levstek Consultants, 2022).
- A Restoration Planting Plan is recommended in order to ensure that there are no adverse impacts to the existing natural features on the Site. The 30 m buffer to the wetland is an identified potential planting area for restoration and enhancement additional to the Landscape Plan area.
- The removed trees will be restored with the planting of native deciduous tree and shrub species on the Site to provide for enhanced natural habitats and vegetative buffer to the adjacent heritage feature.

8.0 CONCLUSION

There are environmental opportunities and constraints identified on the Site as outlined in this Scoped EIS report. The assessed impacts, including direct and indirect impacts, can be avoided or mitigated through effective stormwater and environmental management measures. With the implementation of the environmental plans sought out in this Scoped EIS, a Landscape Plan and a forthcoming Restoration Planting Plan post construction on the Site, the proposed development would preserve the ecological functions of the adjacent natural features and enhance natural landscape on the Site through the installation of planned restoration and enhancement measures on the Site post construction.

With the above recommendations taken into account and diligently implemented on the Site, no adverse negative impacts to the ecological integrity of the Site will result from the proposed residential development with associated roadways.

9.0 CLOSURE

The enclosed Environmental Impact Study report has been prepared to assess the natural heritage features including the terrestrial and aquatic conditions on the Site within the Study Area. The information contained herein as a result of the EIS regarding the proposed residential development is solely provided to the Client and approval agencies as a reference only.

In the event that clarifications or further information is required by the Client and approval agencies, please do not hesitate to contact the primary Pinchin contact indicated in the contact page of this document.

10.0 REFERENCES

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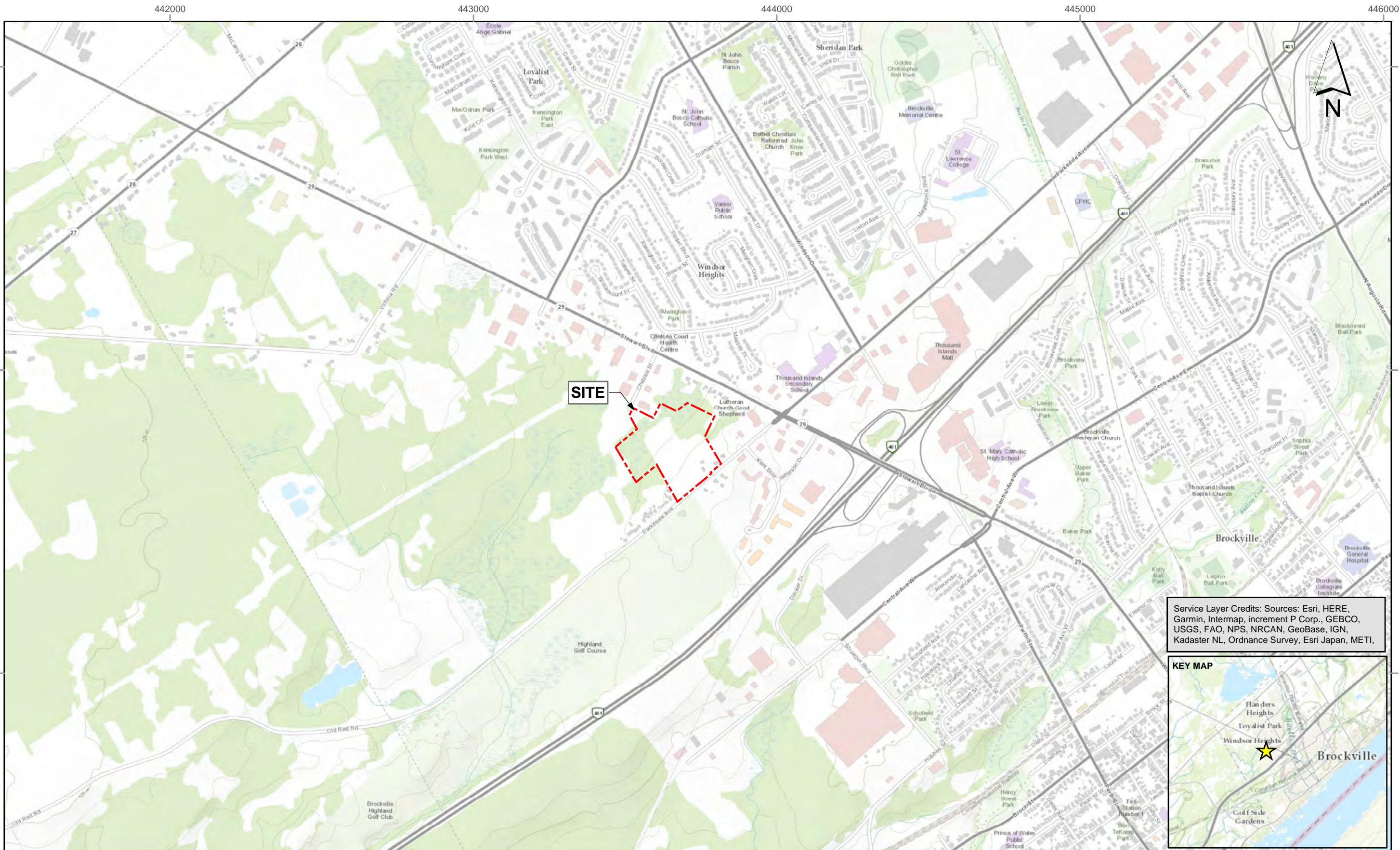


11.0 LIMITATIONS

This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project. Information provided by Pinchin is intended for Client and agency use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

308198 FINAL Scoped Environmental Impact Study Concession 2 Lot 14 Brockville ON Aug 29 2022.docx

**APPENDIX A
FIGURES**



Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI,



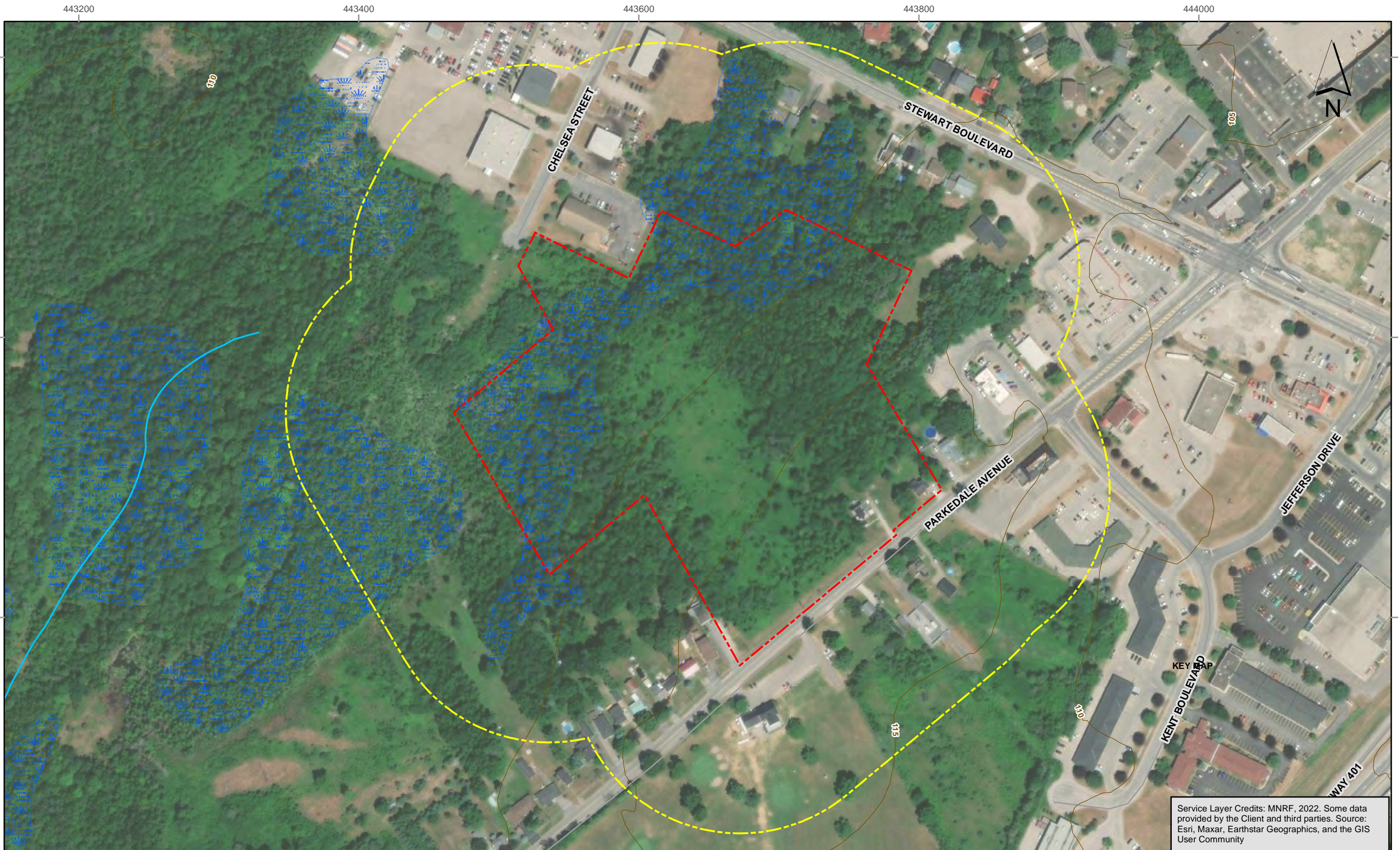
PROJECT NAME: Scoped Environmental Impact Study
CLIENT NAME: Wellings 2019 Inc.
PROJECT LOCATION: Concession 2 Lot 14, Brockville, Ontario
FIGURE NAME: Site Location

PROJECT NO. 308198.000
DATE: August 2022
SCALE: 1:12,000
FIGURE NO. 1

LEGEND
 Site Boundary

NOTES
 1. All features and measurements are approximate and subject to field verification. This map is for planning purposes only
 2. Use dimensions as shown, do not scale drawing
 3. This map is not to be used for legal purposes

0 120 240 480
 Metres
 Coordinate System: NAD 1983 CSRS UTM Zone 18N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 DRAWN BY: MH REVIEWED BY: SR REVISION: 3



Service Layer Credits: MNRF, 2022. Some data provided by the Client and third parties. Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



PROJECT NAME: Scoped Environmental Impact Study
CLIENT NAME: Wellings 2019 Inc.
PROJECT LOCATION: Concession 2 Lot 14, Brockville, Ontario
FIGURE NAME: Study Area

PROJECT NO.: 308198.000
DATE: August 2022
SCALE: 1:2,600
FIGURE NO.: 2

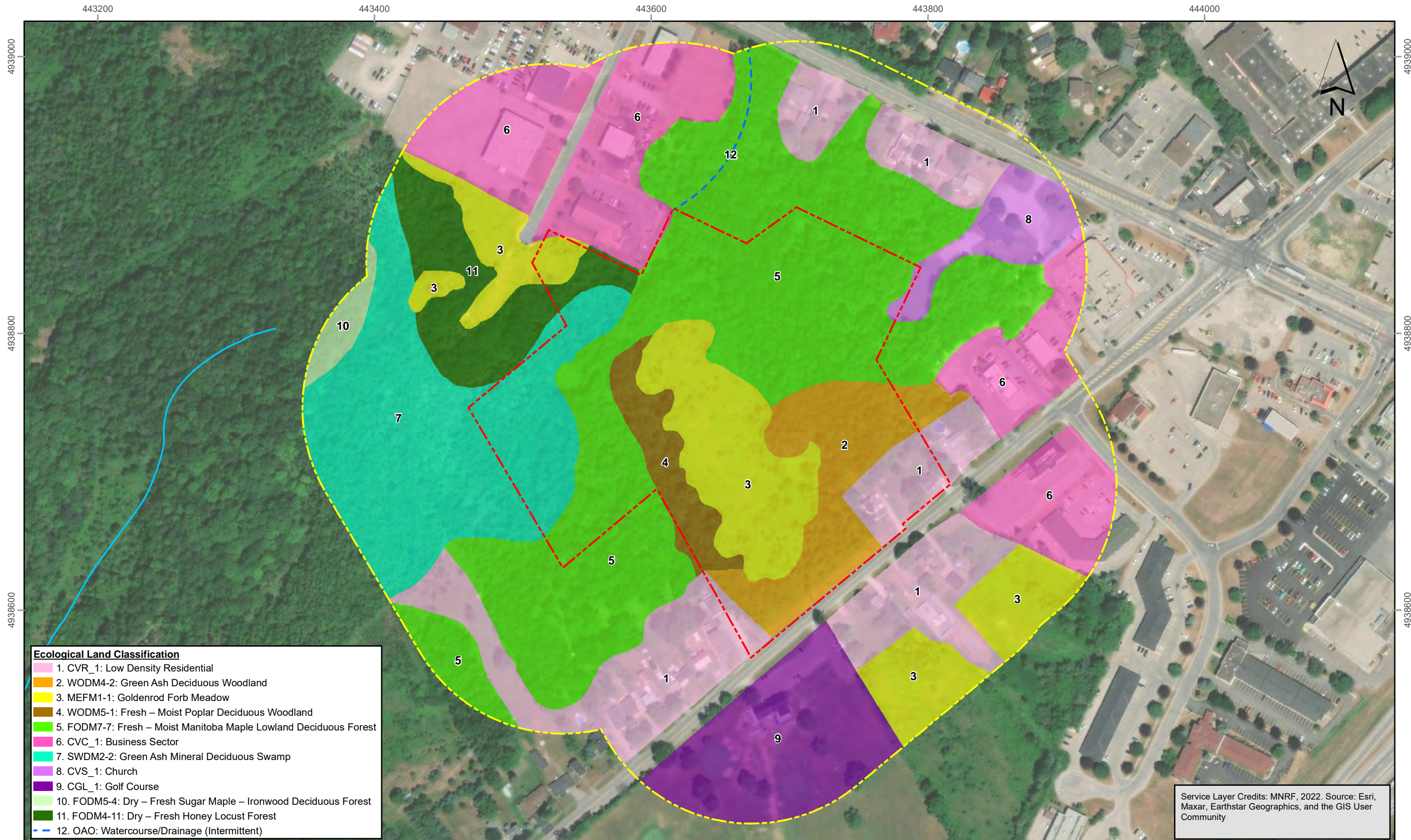
LEGEND	
Site Boundary	Roadway
Study Area (120 m)	Watercourse
Wetland (Unevaluated)	Topography Contours (5 m)

NOTES
 1. All features and measurements are approximate and subject to field verification. This map is for planning purposes only
 2. Use dimensions as shown, do not scale drawing
 3. This map is not to be used for legal purposes

0 25 50 100 Metres

Coordinate System: NAD 1983 CSRS UTM Zone 18N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS

DRAWN BY: MH REVIEWED BY: SR REVISION: 3



Ecological Land Classification

1. CVR_1: Low Density Residential
2. WODM4-2: Green Ash Deciduous Woodland
3. MEFM1-1: Goldenrod Forb Meadow
4. WODM5-1: Fresh – Moist Poplar Deciduous Woodland
5. FODM7-7: Fresh – Moist Manitoba Maple Lowland Deciduous Forest
6. CVC_1: Business Sector
7. SWDM2-2: Green Ash Mineral Deciduous Swamp
8. CVS_1: Church
9. CGL_1: Golf Course
10. FODM5-4: Dry – Fresh Sugar Maple – Ironwood Deciduous Forest
11. FODM4-11: Dry – Fresh Honey Locust Forest
12. OAO: Watercourse/Drainage (Intermittent)

Service Layer Credits: MNR, 2022. Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



PROJECT NAME:	Scoped Environmental Impact Study
CLIENT NAME:	Wellings 2019 Inc.
PROJECT LOCATION:	Concession 2 Lot 14, Brockville, Ontario
FIGURE NAME:	Ecological Land Classification

PROJECT NO.	308198.000
DATE:	August 2022
SCALE:	1:2,600
FIGURE NO.	3

LEGEND

	Site Boundary
	Roadway
	Topography Contours (5 m)
	Watercourse

NOTES

- All features and measurements are approximate and subject to field verification. This map is for planning purposes only
- Use dimensions as shown, do not scale drawing
- This map is not to be used for legal purposes

0 25 50 100 Metres

Coordinate System: NAD 1983 CSRS UTM Zone 18N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS

DRAWN BY: MH REVIEWED BY: SR REVISION: 0

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Service Layer Credits: MNR, 2022. Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



PROJECT NAME: Scoped Environmental Impact Study
CLIENT NAME: Wellings 2019 Inc.
PROJECT LOCATION: Concession 2 Lot 14, Brockville, Ontario
FIGURE NAME: Breeding Bird Survey and Bat Snag Survey

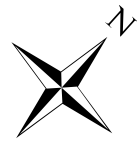
PROJECT NO.: 308198.000
DATE: August 2022
SCALE: 1:1,600
FIGURE NO.: 4

LEGEND
 Site Boundary
 Roadway
 Bat Snag Locations
 Breeding Bird Survey Locations
 Breeding Bird Survey Route

NOTES
 1. All features and measurements are approximate and subject to field verification. This map is for planning purposes only
 2. Use dimensions as shown, do not scale drawing
 3. This map is not to be used for legal purposes

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 Coordinate System: NAD 1983 CSRS UTM Zone 18N
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 DRAWN BY: MH REVIEWED BY: SR REVISION: 0

**APPENDIX B
SUPPLEMENTARY INFORMATION**









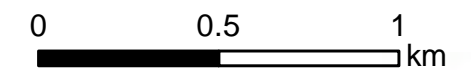
Schedule 1
City Structure

Land Use Designations

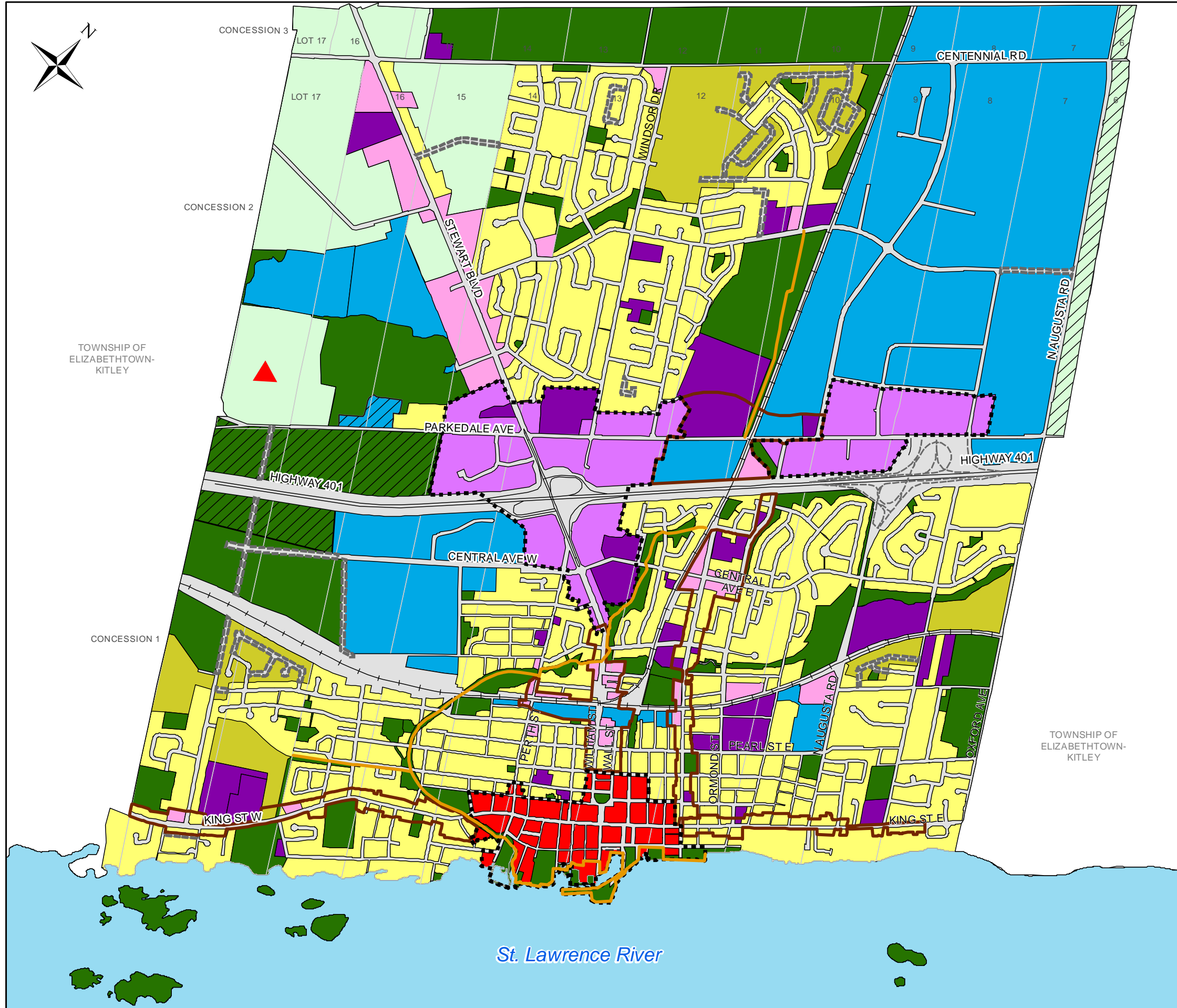
-  Downtown and Central Waterfront Area (See Section 4.2)
-  Neighbourhood Area (See Section 4.3)
-  Neighbourhood Development Area (See Section 4.4)
-  Mixed Use and Commercial Area (See Section 4.5)
-  Corridor Commercial Area (See Section 4.6)
-  Employment Area (See Section 4.7)
-  Institutional Area (See Section 4.8)
-  Parks and Open Space Area (See Section 4.9)
-  Urban Reserve Area (See Section 4.10)

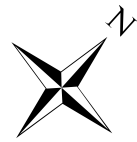
Legend

-  Mixed Use Node (See Section 3.2.2.1)
-  Mixed Use Corridor (See Section 3.2.2.1)
-  Future Employment
-  Waste Disposal Site (See Section 5.4)
-  Provincial Highway
-  Future Roads
-  Railway
-  Brock Trail



Interpretation Note: This Schedule will be read and interpreted in conjunction with the Official Plan in its entirety.





Schedule 3

Natural Heritage System, Open Space & Constraints

Parks and Open Space (See Section 3.5.3.1)

- N Neighbourhood Parks
- C Community Parks
- W City-Wide Parks
- PR Private Recreational Areas
- CI City Island
- PI Private Island
- S Existing and Proposed Elementary or Secondary School Sites (See Section 3.6.5)

Natural Heritage Features

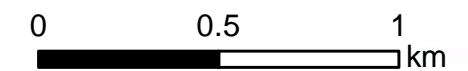
- Provincially Significant Wetlands
- Significant Woodlands (See Section 3.7.1)

Natural Hazards

- Flood Hazards

Legend

- Screening Area for the Cataraqui Region Conservation Authority
- ▲ Waste Disposal Site
- Provincial Highway
- Future Roads
- Railway
- Watercourses and Waterbodies



Interpretation Note: This Schedule will be read and interpreted in conjunction with the Official Plan in its entirety.



APPENDIX C
VEGETATION INVENTORY

Table 1: Vegetation Inventory for Study Area

Scientific Name	Common Name	Srank	CC	CW
<i>Cornus alternifolia</i>	Alternate-leaved Dogwood	S5	6	3
<i>Ulmus americana</i>	American Elm	S5	3	-3
<i>Populus balsamifera</i>	Balsam Poplar	S5	4	-3
<i>Prunus serotina</i>	Black Cherry	S5	3	3
<i>Picea pungens</i>	Blue Spruce	SNA		3
<i>Solidago canadensis</i>	Canada Goldenrod	S5	1	3
<i>Rhamnus cathartica</i>	Common Buckthorn	SNA		0
<i>Taraxacum officinale</i>	Common Dandelion	SNA		3
<i>Syringa vulgaris</i>	Common Lilac	SNA		5
<i>Asclepias syriaca</i>	Common Milkweed	S5	0	5
<i>Rubus idaeus</i>	Common Red Raspberry	S5	2	3
<i>Vicia sativa</i>	Common Vetch	SNA		3
<i>Viburnum opulus</i>	Cranberry Viburnum	S5	5	-3
<i>Lysimachia nummularia</i>	Creeping Jennie	SNA		-3
<i>Ostrya virginiana</i>	Eastern Hop-hornbeam	S5	4	3
<i>Pinus strobus</i>	Eastern White Pine	S5	4	3
<i>Equisetum arvense</i>	Field Horsetail	S5	0	0
<i>Cornus racemosa</i>	Gray Dogwood	S5	2	0
<i>Spirodela polyrhiza</i>	Great Duckweed	S5	4	-5
<i>Fraxinus pennsylvanica</i>	Green Ash	S4	3	-3
<i>Gleditsia triacanthos</i>	Honey-locust	S2?	8	0
<i>Poa pratensis</i>	Kentucky Bluegrass	S5	0	3
<i>Populus grandidentata</i>	Large-toothed Aspen	S5	5	5
<i>Acer negundo</i>	Manitoba Maple	S5	0	0
<i>Viburnum lentago</i>	Nannyberry	S5	4	0
<i>Typha angustifolia</i>	Narrow-leaved Cattail	SNA		-5
<i>Acer platanoides</i>	Norway Maple	SNA		5
<i>Rubus odoratus</i>	Purple-flowering Raspberry	S5	3	5
<i>Phalaris arundinacea</i>	Reed Canary Grass	S5	0	-3
<i>Vitis riparia</i>	Riverbank Grape	S5	0	0
<i>Onoclea sensibilis</i>	Sensitive Fern	S5	4	-3
<i>Bromus inermis</i>	Smooth Brome	SNA		5
<i>Impatiens capensis</i>	Spotted Jewelweed	S5	4	-3
<i>Rhus typhina</i>	Staghorn Sumac	S5	1	3
<i>Acer saccharum</i>	Sugar Maple	S5	4	3
<i>Lonicera tatarica</i>	Tartarian Honeysuckle	SNA		3
<i>Populus tremuloides</i>	Trembling Aspen	S5	2	0
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	S4?	6	3
<i>Fraxinus americana</i>	White Ash	S4	4	3
<i>Pastinaca sativa</i>	Wild Parsnip	SNA		5
<i>Fragaria virginiana</i>	Wild Strawberry	S5	2	3
<i>Salix spp.</i>	Willow Sp.			

**APPENDIX D
SELECTED SITE PHOTOGRAPHS**

SELECTED SITE PHOTOGRAPHS

(All photos captured on May 25 and July 20, 2022)



Photo 1 – View of the vacant Low Density Residential on the south side of the Site.



Photo 2 – View of the Green Ash Deciduous Woodland along the south side of the Site.



Photo 3 – View of the Goldenrod Forb Meadow with abundant amounts of Canada Goldenrod and Wild Parsnip.



Photo 4 – View of the Green Ash Mineral Deciduous Swamp.



Photo 5 – View of deposited materials observed within the Dry – Fresh Honey Locust Forest.

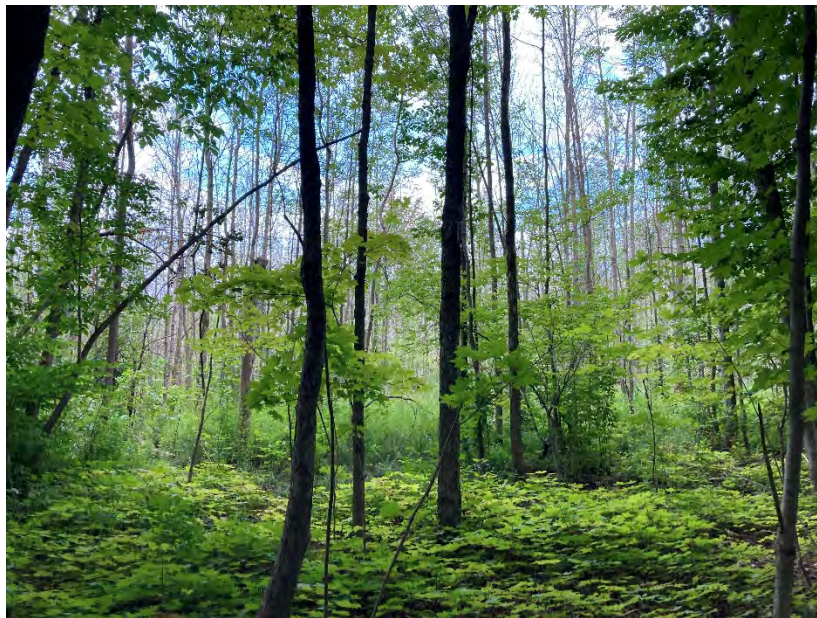


Photo 6 – View of the Dry – Fresh Sugar Maple – Ironwood Deciduous Forest transitioning to Green Ash Mineral Deciduous Swamp.



Photo 7 – View of the dense Fresh – Moist Manitoba Maple Lowland Deciduous Forest.



Photo 8 – View of the Fresh – Moist Poplar Deciduous Woodland.

APPENDIX E
BREEDING BIRD SURVEY AND BAT HABITAT SURVEY RESULTS

Table 1: Breeding Bird Survey Observations for the Study Area

SCIENTIFIC NAME	ENGLISH COMMON NAME	S RANK	SARO STATUS	COSEWIC STATUS	SARA STATUS	Breeding Likelihood and observed activities
<i>Corvus brachyrhynchos</i>	American Crow	S5	---	---	---	X
<i>Spinus tristis</i>	American Goldfinch	S5	---	---	---	X
<i>Setophaga ruticilla</i>	American Redstart	S5B	---	---	---	S
<i>Turdus migratorius</i>	American Robin	S5	---	---	---	S
<i>Cyanocitta cristata</i>	Blue Jay	S5	---	---	---	S
<i>Toxostoma rufum</i>	Brown Thrasher	S4B	---	---	---	S
<i>Setophaga pensylvanica</i>	Chestnut-sided Warbler	S5B	---	---	---	S
<i>Geothlypis trichas</i>	Common Yellowthroat	S5B,S3N	---	---	---	S
<i>Sayornis phoebe</i>	Eastern Phoebe	S5B	---	---	---	S
<i>Pipilo erythrophthalmus</i>	Eastern Towhee	S4B,S3N	---	---	---	S
<i>Sturnus vulgaris</i>	European Starling	SNA	---	---	---	S
<i>Troglodytes aedon</i>	House Wren	S5B	---	---	---	S
<i>Charadrius vociferus</i>	Killdeer	S4B	---	---	---	X
<i>Anas platyrhynchos</i>	Mallard	S5	---	---	---	X
<i>Cardinalis cardinalis</i>	Northern Cardinal	S5	---	---	---	S
<i>Vireo olivaceus</i>	Red-eyed Vireo	S5B	---	---	---	S
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	S5	---	---	---	S
<i>Larus delawarensis</i>	Ring-billed Gull	S5	---	---	---	X
<i>Columba livia</i>	Rock Pigeon	SNA	---	---	---	X
<i>Corthylio calendula</i>	Ruby-crowned Kinglet	S5B,S3N	---	---	---	S
<i>Melospiza melodia</i>	Song Sparrow	S5	---	---	---	S
<i>Melospiza georgiana</i>	Swamp Sparrow	S5B,S4N	---	---	---	S

NHIC Srank (Subnational) Legend

- S4 Apparently secure, at fairly low risk of extirpation.
- S5 Secure, at low or no risk of extirpation.
- SNA Not applicable because species is not a suitable target for conservation activities, e.g., non-native species.
- S#B Conservation status refers to breeding population.
- S#N Conservation status refers to non-breeding population.

Table 1: Breeding Bird Survey Observations for the Study Area

OBBA Breeding Codes

OBSERVED

X Species observed during its breeding season, but NOT in suitable nesting habitat (no breeding evidence found). Note that this code is rarely used as birds tend to occupy nesting habitat during the breeding season. Do not use for species known to be migrants.

POSSIBLE

S Singing male or adult producing other sounds associated with breeding (e.g., calls or drumming) in suitable nesting habitat during the species' breeding season.

Point Count Form: time bands only

Atlasser's name

MIDNIGHT



Atlas square

18TNIQ43

Year

2011

Instructions: Record the Designated Number for designated on-road stations. Record Coordinates only for off-road locations. Record Breeding Evidence (BE) other than "Possible" (S or H).

Month 05 Day 26 Start time (24h) 06:02 WELLHEAD
 Designated number* 1 OR Easting/Latitude** 0443678 Northing/Longitude** 41938703
WP102

Species	Minutes 1-3	Minutes 4-5	BE
ESTO	SI		S
COYT	SI		S
AMRE	SI		S
NOCA	SI		S
CSWA	SI		S
REWA	SI		S
REVB	SI		S
SOSP	SI		S
EADH	SI		S
HOUR		SI	
REVI		SI	

Month 05 Day 26 Start time (24h) 06:12 WP105
 Designated number* 1 OR Easting/Latitude** 04435157 Northing/Longitude** 41938775

Species	Minutes 1-3	Minutes 4-5	BE
COYT			S
CSWA			S
ROKI			S
SWSP			S
ESTO			S
SOSP			S
AMCR			S
AMGO	FLY OVER		FLY X
REVI			S
AMRE			S
EADH		SI ✓	S

Month 05 Day 26 Start time (24h) 06:29 ELM
 Designated number* 1 OR Easting/Latitude** 04431740 Northing/Longitude** 41935147
WP104

Species	Minutes 1-3	Minutes 4-5	BE
AMCR	FLY OVER		X
AMRE	S		S
REVI	S		S
HOUR	S		S
CSWA	S		S
NOCA	S		S
KILL	FLY OVER		XFLY OVER
BLJA		✓ SI	2FC

Month Day Start time (24h) :
 Designated number* OR Easting/Latitude** Northing/Longitude**

Species	Minutes 1-3	Minutes 4-5	BE

* For road-side points only ** For off-road points only BE (Breeding Evidence)

Point Count Form: time bands only

BROCKVILLE

Atlasser's name



Instructions: Record the Designated Number for designated on-road stations. Record Coordinates only for off-road locations. Record Breeding Evidence (BE) other than "Possible" (S or H).

Atlas square Year

Month Day Start time (24h) WELL
 Designated number* OR Easting/Latitude ** Northing / Longitude **

Month Day Start time (24h)
 Designated number* OR Easting/Latitude ** Northing / Longitude **

Species	Minutes 1-3	Minutes 4-5	BE
YELWA	✓		S
AMGO	FLY OVER		X
RGLI			S
AMRE			S
RBGU	FLY OVER		X
RODO	FLY OVER		X
NOCH	✓		S
MALL	FLY OVER		X
SOSP	✓		S
BRTH	✓		S

Species	Minutes 1-3	Minutes 4-5	BE
ESTO	✓		SI.
COYT	✓		S
REST	✓		S

Month Day Start time (24h) QM
 Designated number* OR Easting/Latitude ** Northing / Longitude **

Month Day Start time (24h)
 Designated number* OR Easting/Latitude ** Northing / Longitude **

Species	Minutes 1-3	Minutes 4-5	BE
AMGO	✓		S
NOCH	✓		S
AMKO	✓		S
RBGU	FLY OVER		X
YELWA	✓		S
AMGR	✓		S
ESTO	✓		S
AMRE	✓		S

Species	Minutes 1-3	Minutes 4-5	BE

* For road-side points only ** For off-road points only BE (Breeding Evidence)

Table 2: Bat Maternity Roost Habitat Snag Survey

Tree #	Species		DBH (cm)	Height Class	Cavity	Loose bark	Crack	Knot holes	Other snag within 10m	Decay class 1-3?	Notes
1	Black Cherry	<i>Prunus serotina</i>	58	2	X					X	Cavity @ 0-1m, deadwood with cavity
2	Manitoba Maple	<i>Acer negundo</i>	38/32	2			X			X	Hollow cylinder failure, top leaning in another tree
3	Black Cherry	<i>Prunus serotina</i>	35	4	X	X					Decay Class 5, Multiple cavities, horizontal crack
4	Butternut	<i>Juglans cinera</i>	45	1	X						Decy class 4, cavity 4m, decay with holes
5	Manitoba Maple	<i>Acer negundo</i>	35	4	X		X	X		X	Old tear out with woodpecker holes
6	Manitoba Maple	<i>Acer negundo</i>	72	1	X		X	X	X	X	Broken Limbs with cracks and decay
7	Sugar Maple	<i>Acer saccharum</i>	46	1		X				X	Broken limb with crack

APPENDIX F
ACOUSTIC SURVEY RESULTS



MEMO

August 26, 2022

Rocky Yao
Pinchin Ltd.
2470 Milltower Court.
Mississauga, ON
L9H 6Y6

**Re: Acoustic Data Collection
Concession 2 Lot 14, Brockville, Ontario.**

GeoProcess Research Associates Inc. (GRA) was retained by Pinchin Ltd. to complete a Bat Acoustic Data Collection survey for lands located at Concession 2 Lot 14 in Brockville, Ontario. This herein is referred to as the study area (Map 1). The study area is approximately 6 ha and is dominated by a woodland feature that also beyond the property boundaries. The general land use surrounding the study area includes a mix of woodlands, highway networks, commercial, retail, and residential uses.

The purpose of this assessment is to determine if bats are occupying the woodland habitat within the study area during the bat maternity roosting window, and to determine whether there is habitation of bats listed as under the Endangered Species Act (ESA). The target species of this assessment includes four (4) provincially and federally listed Species at Risk (SAR):

- Little Brown Myotis (*Myotis lucifugus*);
- Northern Myotis (*Myotis septentrionalis*);
- Eastern Small-footed Myotis (*Myotis leibii*); and,
- Tri-colored Bat (*Perimyotis subflavus*).

The four species listed above are managed by the Ministry of Environment, Conservation and Parks (MECP).

1. Methodology

1.1. Protocol

GRA's assessment followed the *Survey Protocol for Species at Risk Bats Within Treed Habitat* (MNRF, 2017). This protocol is used to define suitable maternity roost trees for the Little Brown Myotis, Northern Myotis, Eastern Small-footed Myotis, and Tri-colored Bat. Prior to conducting acoustic surveys, a "Snag Survey" was completed (Pinchin Ltd.) to determine potential suitable roosting trees. Where snag trees were identified,

accurate placement of acoustic data collectors was undertaken. Acoustic surveys are used to determine the absence or presence of SAR bats within suitable treed habitats.

Pinchin Ltd. provided Snag Survey data that identified 7 candidate maternity bat roosting trees (Figure 1) within the Study Area. Acoustic data collectors were installed in areas with a high density of potential roost locations.



Figure 1. Potential Bat Maternity Roost Trees

1.2. Survey Timing

Acoustic data collection surveys were conducted from June 20th to June 30th 2022. Three (3) acoustic monitors (Recorder 1, Recorder 2, and Recorder 3) were installed within the study area in proximity to where suitable snag trees were identified. The acoustic data collectors were set to record audios from sunset to sunrise (subject to triggering).

1.3. Equipment

1.3.1. Song Meter Mini Bat Ultrasonic Recorders

The Song Meter Mini Bat Ultrasonic Recorders records audio files within the frequency range of bats. Each time the recorder is triggered, a sound file is created and saved to an SD memory card. All sound files are downloaded from the recorder at the end of the monitoring period and analyzed in the office using a software package which identifies bat calls from the sound files. A summary file is also created and saved to the SD card.

The summary file is a text file and contains the following information:

- Date
- Time
- Latitude
- Longitude
- Power (V)
- Temp (C)
- # FS files
- # ZC files
- # Scrubbed noise files

1.3.2. Analysis Software

The sound files from each acoustic data collector were downloaded and inputted into SonoBat 4.4.5 North America classifier. The software uses the individual audio files to extract and analyze the full spectrum data, rendering high resolution sonograms of each call pulse and automatic species identification. SonoBat categorizes applicable audio files as either a high frequency call (HiF) or a low frequency call (LoF), indicating whether a bat species was detected and not something else (e.g., traffic noise, bird). Two values are outputted from the automatic species identification function to confirm species presence. The first is a value of “fully accepted identifications” (number). A call needs to have an acceptable call quality greater than 60% and a sequence decision threshold of at least 90% to be accepted. The second value is a “maximum likelihood estimate” (MLE) which is a percentage that indicates the statistical probability of species presence. The MLE is calculated from comparative species sums of fully accepted identifications.

1.4. Data Analysis

Using the fully accepted identification value, mean bat passes per night with standard deviation(σ) was calculated to compare the amount of variation in nightly activity. It should be noted that the number of fully accepted audio files does not reflect the number of bats in the area (this value can not be calculated), as the same bat flying in the local area for a given period of times can be recorded multiple times. If a species MLE percentage was greater than 90 it was considered present in the Study Area. To confirm habitat roosting potential of the Study Area, the individual audio file time stamps were analyzed. If several (>10) time stamps were noted between 21:00-23:00 hrs it was assumed that the species was roosting in the area, as these calls were recorded at sunset, meaning the bats likely are originating from a location close to the acoustic recorders. If calls are recorded later in the night, it is assumed that bats are flying into the Study Area from some other location.

Data was grouped and analyzed based on the two Monitoring Areas. Nightly high (Hi) and low (Lo) temperatures were averaged using data from timeanddate.com for Brockville, Ontario, Canada and provided in Table 2, Table 3 and Table 4.

The following species codes are used throughout this memo:

Table 1. Bat Species codes and corresponding common and scientific names

4-letter Code	Scientific Name	Common Name
Epfu	<i>Eptesicus fuscus</i>	Big Brown Bat
Laci	<i>Lasiurus cinereus</i>	Hoary Bat
Lano	<i>Lasionycteris noctivagans</i>	Silver-haired Bat
Labo	<i>Lasiurus borealis</i>	Eastern red bat

2. Results

Acoustic data analysis resulted in the identification of four (4) bat species, none of which are listed as a Species at Risk. The Big Brown Bat (*Eptesicus fuscus*), Hoary Bat (*Lasiurus cinereus*), Silver-haired Bat (*Lasionycteris noctivagans*), and the Eastern Red Bat (*Lasiurus borealis*) were detected within the study area. All four species demonstrated MLE values of 100%, indicating a high level of confidence with the identifications. The Eastern Red Bat emits a high frequency echolocation call compared to the low frequency call of the other three species that were recorded within the Study Area (Szewczak et al., 2011).

2.1. Recorder 1

A total of 7802 audio files were recorded by Recorder 1 with 667 files accurately detecting bat activity, of which 624 audio files were LoF calls and 43 audio files were HiF calls. SonoBat accepted 28 passes as the Big Brown Bat, 23 passes as the Hoary Bat, 28 passes as the Silver-haired Bat, and 7 passes as the Eastern Red Bat.

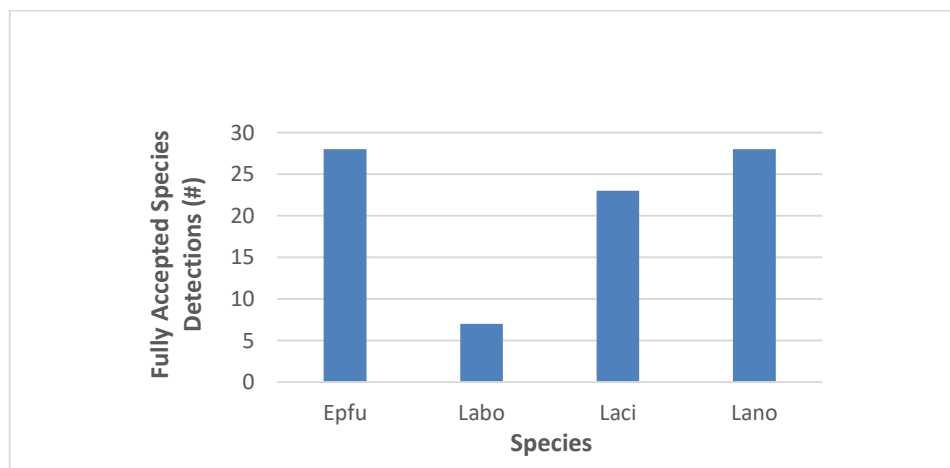


Figure 2. Number of accepted SonoBat species detection for Recorder 1.

The acoustic monitor successfully classified and average of 3 ($\sigma = 1.2$) bats calls per night with the highest number (15) being recorded on June 30th, and the second and third highest on June 22nd (14) and June 25th (14). Refer to Table 2 for accepted SonoBat species detections per night with corresponding average nightly temperatures. Time stamps indicated that most audio files were recorded between 21:00-24:00 hours, indicating these species are likely roosting in the study area.

Table 2. Summary of species detections per night for Recorder 1.

Date	Jun 20	Jun 21	Jun 22	Jun 23	Jun 24	Jun 25	Jun 26	Jun 27	Jun 28	Jun 29	Jun 30	Grand Total
Temperature °C	18.5	18	23	18.5	21	22	21	17.5	17	17	19	-
Epfu	1	1	10	4	3	4	2	0	1	0	2	28
Laci	1	0	2	5	3	4	2	1	0	0	5	7
Lano	7	1	2	3	1	6	4	2	0	1	1	23
Labo	0	0	0	0	0	0	0	0	0	0	7	28
Total	9	2	14	11	7	14	8	3	1	1	15	-

2.2. Recorder 2

There were 4187 audio files were recorded by Recorder 2 with 534 passes accurately detecting bat activity, of which 527 were LoF calls and 7 HiF calls. Of the audio files, SonoBat accepted 56 as the Big Brown Bat and 159 as the Hoary Bat and had an MLE value of 100%. Sonobat accepted 28 files of Silver-haired Bat at a MLE value of 96% demonstrating a high confidence in the species identification.

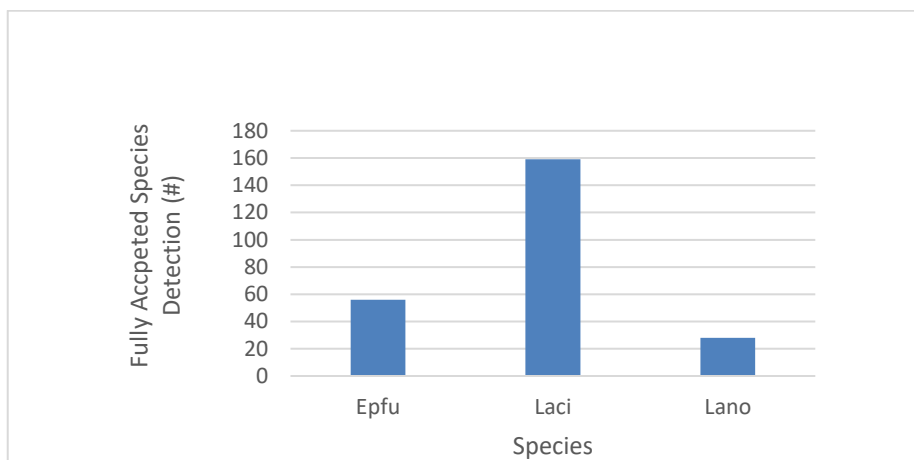


Figure 3. Number of accepted SonoBat species detections for Recorder 2.

The acoustic monitor successfully classified an average of 8 ($\sigma = 5$) accepted bat calls per night with the highest number of calls on June 27 (40), and the second highest recorded on June 21st (33). Refer to Table 3 for accepted SonoBat species detections per night and average nightly temperatures. Time stamps indicated that the three species identified by Recorder 2 detected passes between 21:00-23:00 hrs, indicating that the species were likely roosting in the study area.

Table 3. Summary of species detections per night for Recorder 2

Date	Jun 20	Jun 21	Jun 22	Jun 23	Jun 24	Jun 25	Jun 26	Jun 27	Jun 28	Jun 29	Jun 30	Grand Total
Temp (°C)	18.5	18	23	18.5	21	22	21	17.5	17	17	19	-
Epfu	1	5	3	12	6	13	6	7	0	2	1	56
Laci	10	25	24	10	7	12	5	32	24	6	4	159
Lano	3	3	0	2	2	7	7	1	0	1	2	28
Total/night	14	33	27	24	15	32	18	40	24	9	7	-

2.3. Recorder 3

There were 8499 audio files recorded by Recorder 3, with 2208 passes accurately detecting bat activity, of which 66 passes were HiF and 2142 passes were LoF. Sonobat accepted 295 passes as Big Brown Bat, 1 pass as Eastern Red Bat, 216 passes as the Hoary Bat, and 112 passes as Silver-haired Bat. The Eastern Red Bat had an MLE of 21%, however this is likely due to the insufficient sample size for reliability.

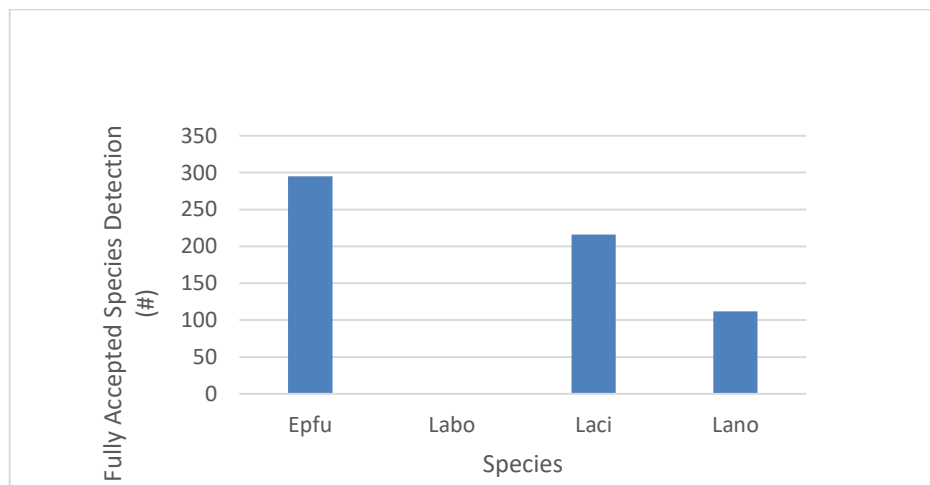


Figure 4. Number of accepted Sonobat species detection for Recorder 3.

The acoustic monitor successfully classified an average of 25 ($\sigma = 19$) accepted bat calls per night with the highest number of calls on June 26th (125), and the second highest recorded on June 25th (112). Refer to Table 4 for accepted SonoBat species detections per night and average nightly temperatures. Time stamps indicated that the three species identified by Recorder 6 detected passes between 21:00-23:00 hrs, indicating that the species were likely roosting in the study area.

Table 4. Summary of species detections per night for Recorder 3.

Date	Jun 20	Jun 21	Jun 22	Jun 23	Jun 24	Jun 25	Jun 26	Jun 27	Jun 28	Jun 29	Jun 30	Grand Total
Temp (°C)	18.5	18	23	18.5	21	22	21	17.5	17	17	19	-
Epfu	5	19	45	50	44	61	68	3	-	-	-	295
Labo	-	-	1	-	-	-	-	-	-	-	-	1
Laci	10	35	42	34	16	36	39	4	-	-	-	216
Lano	36	8	18	6	8	15	18	3	-	-	-	112
Total/night	51	62	106	90	68	112	125	10	0	0	0	-

3. Discussion and Conclusion

The study area was monitored for a total of 10 nights and the presence of (4) bat species was confirmed. In total, there were 379 Big Brown Bat, 398 Hoary Bat, 168 Silver-haired Bat and 8 Eastern Red Bat sound files that were accepted. The four (4) species were all documented between sunset and 23:00 hrs, indicating that roosting locations were likely nearby the acoustic monitors within the study area. Passes of the four (4) species also occurred after 23:00 hrs, indicating that it is possible that some files were from bats that were passing through from another location. There was no Species Acceptance detections for any of the 4 listed Species at Risk bats at all three acoustic monitoring locations, indicating that it is unlikely that SAR bats occur within the study area.



4. Closing

Thank-you for providing GRA the opportunity to present this Acoustic Data Collection survey for lands for Concession 2, Lot 14 in Brockville, ON. If you have any questions regarding this submission, do not hesitate to contact us.

Regards,

GEOPROCESS RESEARCH ASSOCIATES INC



Gillian Leava, BSc., ERJ
Ecologist



Ken Glasbergen, MSc., ERPG
Senior Ecologist, Principal

Author

Senior Review

References:

Szewczak J.M., A. Corcoran, and JP. Kennedy. 2011. Echolocation call Characteristics of Eastern US Bats. Humbolt State University Bat Lab.

APPENDIX G
SPECIES AT RISK SCREENING TABLE

Table 1. Species at Risk Screening for the Study Area

Type	Common Name	Scientific Name	Srank	SARO Status	COSEWIC Status	Last Obs Date	Background Information Source					Notes on Preferred Habitat ¹	Suitable Habitat on Site	Confirmed observation on Site			
							NHIC Grid 18VQ4338	Atlas of Ontario Mammals (Dobbyn 1994)	Atlas of the Breeding Bird of Ontario (Cadman 2009)	eBird Canada (eBird, 2022)	Ontario Butterfly Atlas (Macnoughton 2018)				Rare Vascular Plants of Ontario (Oldham & Brinker 2009)		
TREE	Butternut	<i>Juglans cinerea</i>		END	END							•	Grows alone or in small groups in deciduous forests. Prefers moist, well-drained soil and is often found along streams.	Yes, suitable habitat is present within the forests in the Study Area.	Yes		
BIRDS	Bank Swallow	<i>Riparia riparia</i>	S4B	THR	THR	2001-2005							•	•	Can be found in burrows throughout natural or man-made vertical faces of mineral deposits. Such as bluffs, cliffs or banks of rivers.	No, no suitable habitat is present within the Study Area.	No
	Barn Swallow	<i>Hirundo rustica</i>	S4B	THR	THR	2001-2005							•	•	Nest along human-made structures such as open barns, under bridges and in culverts. Attracted to open structures to build their nests, including ledges. They prefer rough-cut wood structures as the mud nests adheres better.	Yes, suitable habitat is present within strutures and crevices of trees throughout the Study Area.	No
	Bobolink	<i>Dolichonyx oryzivorus</i>	S4B	THR	THR	2001-2005							•		Can be found in tallgrass prairie, open meadows, hayfields, and dense grasses. They build their nests on the ground amongst the dense vegetation .	Yes, suitable habitat is present within the meadow in the Study Area.	No
	Common Nighthawk*	<i>Chordeiles minor</i>	S4B	SC	THR	2001-2005							•	•	Rocky areas with little vegetation and clearings. Can use gravel roads, flat roofs, and fields. ³	Yes, suitable habitat may be present on structures within the Study Area.	No
	Canada Warbler	<i>Cardellina canadensis</i>	S3B	SC	THR	2001-2005							•		Breeds in deciduous and coniferous, wet forest types with a well-developed shrub layer. They nest on the ground on mossy logs or roots, along stream banks or on hummocks.	Yes, suitable habitat is present within the forest and swamp communities within the Study Area.	No
	Cerulean Warbler	<i>Dendroica cerulea</i>	S3B	THR	END	2001-2005							•		Can often be found in mature, deciduous forests with an open subcanopy.	Yes, suitable habitat is present within the woodlands throughout the Study Area.	No
	Chimney Swift	<i>Chaetura pelagica</i>	S4B, S4N	THR	THR	2001-2005							•	•	Historically have nested on cave walls and in hollow trees, but are more likely to be found in urban settlements nesting in chimneys and manmade structures. They tend to stay close to water where flying insects congregate for foraging.	Yes, suitable habitat may be present in structures and cavities of trees within the Study Area.	No

Table 1. Species at Risk Screening for the Study Area

Type	Common Name	Scientific Name	Srank	SARO Status	COSEWIC Status	Last Obs Date	Background Information Source					Notes on Preferred Habitat ¹	Suitable Habitat on Site	Confirmed observation on Site	
							NHIC Grid 18VQ4338	Atlas of Ontario Mammals (Dobbyn 1994)	Atlas of the Breeding Bird of Ontario (Cadman 2009)	eBird Canada (eBird, 2022)	Ontario Butterfly Atlas (Macnoughton 2018)				Rare Vascular Plants of Ontario (Oldham & Brinker 2009)
BIRDS	Eastern Meadowlark	<i>Sturnella magna</i>	S4B	THR	THR	2001-2005	•		•	•			Breed primarily in moderately tall grasslands such as pastures, hayfields and weedy borders of croplands, roadsides and other open areas.	Yes, suitable habitat may be present within the meadow in the Study Area.	No
	Eastern Wood-pewee	<i>Contopus virens</i>	S4B	SC	SC	2001-2005			•	•			Live in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundantly found in intermediate-age mature forest stands with little understory vegetation.	Yes, suitable habitat may be present within the woodlands throughout the Study Area.	No
	Golden-winged Warbler*	<i>Vermivora chrysoptera</i>	S4B	SC	THR	2001-2005			•	•			Can be found in areas with young shrubs, surrounded by mature forest that has recently been disturbed.	Yes, suitable habitat may be present along the woodland or meadow edges within the Study Area.	No
	Olive-sided Flycatcher	<i>Contopus cooperi</i>	S3B	SC	THR	2006-2010				•			Often found in coniferous swamps and bogs with open water. Known for its call that sounds like 'Quick Three Beer'.	No, no suitable habitat is present within the Study Area.	No
	Red-shouldered Hawk*	<i>Buteo lineatus</i>	S4B	---	SC	2001-2005			•	•			Can be found in deciduous woodlands, near watercourses. Nest in stick nests at the crook of large trees.	Yes, suitable habitat may be present within the woodlands throughout the Study Area.	No
	Wood Thrush	<i>Hylocichla mustelina</i>	S4B	SC	THR	2001-2005	•		•	•			Prefers to live in mature deciduous and mixed forests with a moist and developed undergrowth.	Yes, suitable habitat may be present within the woodlands throughout the Study Area.	No
REPTILE	Blanding's turtle	<i>Emydoidea blandingii</i>	S3	THR	THR	1989	•				•		Can be found in shallow water in large wetlands and shallow lakes with abundant water vegetation. During nesting season they can be found utilizing sandy and gravelly areas.	Yes, suitable habitat may be present within the swamps within the Study Area.	No
	Common musk turtle	<i>Sternotherus odoratus</i>	S3	THR	THR	2013					•		Tend to be found in ponds, lakes, marshes and rivers that are slow-moving. Prefer lots of emergent vegetation and muddy bottoms that allow them to burrow for the duration of winter.	Yes, suitable habitat may be present within the swamps within the Study Area.	No

Table 1. Species at Risk Screening for the Study Area

Type	Common Name	Scientific Name	Srank	SARO Status	COSEWIC Status	Last Obs Date	Background Information Source					Notes on Preferred Habitat ¹	Suitable Habitat on Site	Confirmed observation on Site	
							NHIC Grid 18VQ4338	Atlas of Ontario Mammals (Dobbyn 1994)	Atlas of the Breeding Bird of Ontario (Cadman 2009)	eBird Canada (eBird, 2022)	Ontario Butterfly Atlas (Macnoughton 2018)				Rare Vascular Plants of Ontario (Oldham & Brinker 2009)
REPTILE	Common Snapping Turtle*	<i>Chelydra serpentina</i>	S4	SC	SC	2009						•	Prefer shallow, slow-moving waters with abundant vegetation, but can also live in deeper water habitats. During the nesting season June-July, they can be found on gravel or sandy areas on land.	Yes, suitable habitat may be present within the swamps within the Study Area.	No
	Map Turtle*	<i>Graptemys geographica</i>	S3	SC	SC	2019						•	Inhabits rivers and lakeshores, bask on emergent rocks and felled trees in the spring and summer. They will hibernate in the winter months on the bottom of slow-moving sections of river. High quality water is preferred as they prey on molluscs.	No, although aquatic habitats are present within the Study Area, the water does not appear to be high-quality or to support molluscs.	No
AMPHIBIAN	Western Chorus Frog* (Great Lakes-St. Lawrence Population)	<i>Pseudacris triseriata</i>	S3	---	THR	2013						•	Inhabits forest openings around woodland ponds but can also be found in or near damp meadows, marshes, bottomland swamps and temporary ponds in open rural or urban areas.	Yes, suitable habitat is present within the swamp and moist woodlands throughout the Study Area.	No
INSECT	Monarch	<i>Danaus plexippus</i>	S2N,S4B	SC	SC	2021						•	Caterpillars feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adults forage on a variety of wildflowers and milkweed.	Yes, suitable habitat may be present within the meadows with Common Milkweed in the Study Area.	No
MAMMAL	Little Brown Myotis	<i>Myotis lucifugus</i>	S4	END	END			•					Roosts in trees and buildings. Often found in attics, abandoned barns and crevices in trees.	Yes, suitable habitat may be present within the crevices of trees and structures within the Study Area.	No
	Northern Myotis	<i>Myotis septentrionalis</i>	S3	END	END			•					Can be found in boreal forests, often under loose bark strips and in tree cavities.	Yes, suitable habitat may be present within the crevices of trees and structures within the Study Area.	No
	Eastern Pipistrelle*	<i>Pipistrellus subflavus</i>	S3?	END	END			•					Can be found in forested habitats. Makes maternity colonies in older forests and occasionally in barns and other structures.	Yes, suitable habitat may be present within the crevices of trees and structures within the Study Area.	No
	Gray Fox	<i>Urocyon cinereoargenteus</i>	S1	THR	THR			•					Often found in deciduous woodlands and marshes. Prefers to build dens in shrub thickets near water sources.	Yes, suitable habitat may be present within the woodlands throughout the Study Area.	No

Table 1. Species at Risk Screening for the Study Area

Type	Common Name	Scientific Name	Srank	SARO Status	COSEWIC Status	Last Obs Date	Background Information Source					Notes on Preferred Habitat ¹	Suitable Habitat on Site	Confirmed observation on Site
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SARO Species at Risk Ontario (O. Reg. 230/08)
 COSEWIC Committee on the Status of Endangered Wildlife in Canada

Definitions

Endangered (END) Species facing imminent extirpation or extinction
 Threatened (THR) Species likely to become endangered if nothing is done to reverse the factors leading to their extirpation or extinction
 Special Concern (SC) Species that may become threatened or endangered because of a combination of biological characteristics and identified threats
 Extirpated (EXR) Species which no longer exist in the wild in Ontario, but exist elsewhere in the world
 DD Data deficient
 Not at Risk (NAR) Not at risk

NHIC Srank (Subnational) Legend

S1 Critically imperiled, at very high risk of extirpation.
 S2 Imperiled, at high risk of extirpation.
 S3 Vulnerable, at moderate risk of extirpation.
 S4 Apparently secure, at fairly low risk of extirpation.
 S5 Secure, at low or no risk of extirpation.
 B Conservation status refers to breeding population.
 N Conservation status refers to non-breeding population.

References

- 1 Ministry of Natural Resources (MNR). 2000. Significant Wildlife Habitat Technical Guide. Peterborough: Queen's Printer for Ontario.
- 2 Government of Canada. 2018. Species at Risk Act: COSEWIC Assessments and Status Reports. Accessed February 2019. <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports.html>.
- 3 Government of Canada. 2011. Species at Risk Public Registry: A to Z Species Index. Ottawa: Government of Canada. Accessed February 2019. http://sararegistry.gc.ca/sar/index/default_e.cfm.
- 4 Ministry of the Environment, Conservation and Parks. 2018. Species at Risk in Ontario. Accessed February 2019. <https://www.ontario.ca/page/species-risk-ontario#section-3>.
- 5 Butterflies of Ontario. 2019. Red-disked Alpine. Accessed February 2019. <http://www.ontariobutterflies.ca/families/nymphalidae/red-disked-alpine>.
- 6 Butterflies and Moths of North America. 2018. Red-disked Alpine. Accessed February 2019. https://www.butterfliesandmoths.org/sighting_details/1053970.
- 7 Oldham, M. J. and S. R. Brinker. 2009. Rare Vascular Plants of Ontario, Fourth Edition. Natural Heritage Information Centre, Ontario Ministry of Natural Resources. Peterborough, Ontario. 188 pp.

**APPENDIX H
PROPOSED SITE PLAN**

LAND AREA & LOT COVERAGE SUMMARY

ORIGINAL LAND AREA = 55,871.7 SQM (13.8 ACRES)
 ADDITIONAL LAND ADDED = 11,123.4 SQM (2.7% ACRES)
 TOTAL LAND AREA = 66,995.1 SQM (16.5 ACRES) — TOTAL COVERAGE = 100.000%

DEVELOPMENT F.P. ZONE & PHASE AREAS:

PHASE 1 AREA = 25,045.4 SQM
 PHASE 2 AREA = 9,265.8 SQM
 PHASE 3A AREA = 5,302.3 SQM
 PHASE 3B AREA = 27,749.8 SQM
 C.P. E.P. ZONE = 17,703 SQM

BUILDING AREAS AND LOT COVERAGES:

AREA OF BLOCK OF 2 TOWNHOUSES = 179.75 SQM (0.044 ACRES) * 0 BLOCKS = 000.00 SQM = 0.000%
 AREA OF BLOCK OF 4 TOWNHOUSES = 312.28 SQM (0.077 ACRES) * 17 BLOCKS = 5,309 SQM = 7.9%
 AREA OF BLOCK OF 5 TOWNHOUSES = 401.55 SQM (0.099 ACRES) * 9 BLOCKS = 3,614 SQM = 5.4%
 AREA OF BLOCK OF 6 TOWNHOUSES = 444.82 SQM (0.110 ACRES) * 2 BLOCKS = 890 SQM = 1.3%
 AREA OF CLUBHOUSE = 546.20 SQM (0.135 ACRES) = 0.8%

TOTAL LOT COVERAGE BY ALL BUILDINGS (BLOCKS + CLUBHOUSE) = 10,359.2 SQM = 15.4%

PARKING SPACES:

CLUBHOUSE - 28 TOTAL SPACES (4 ACCESSIBLE CLOSE TO BUILDING INCLUDED)

RESIDENTIAL VISITOR PARKING:

P1: 6 SPACES
 P2: 3 SPACES
 P3: 4 SPACES
 P4: 5 SPACES
 P5: 8 SPACES
 TOTAL 32 PROVIDED (10 REQ'D BASED ON 0.35 SPACES PER UNIT)

RESIDENTIAL UNIT & TOTAL AREA COUNT SUMMARY

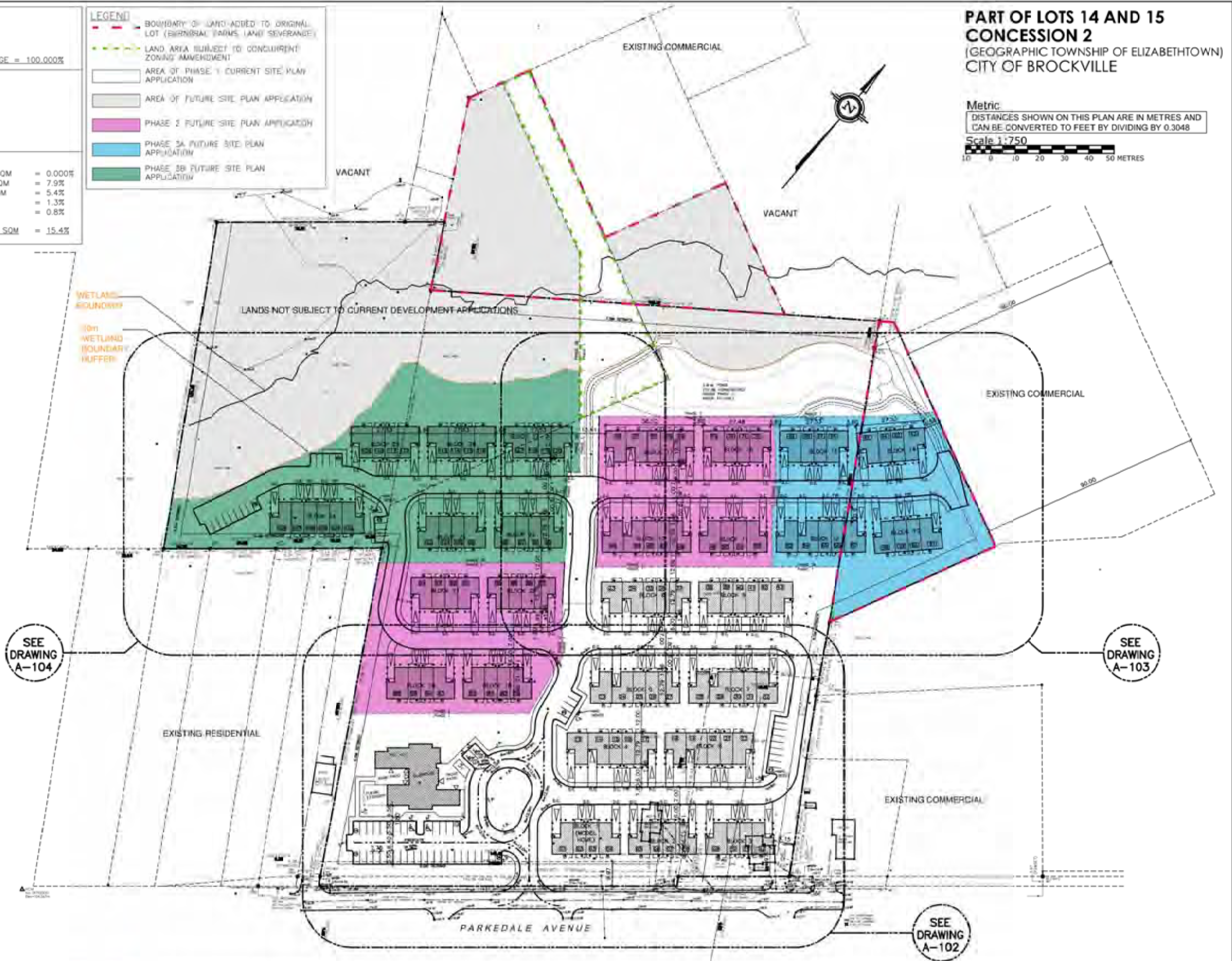
TOTAL RESIDENTIAL UNITS = 120 UNITS
 58 = 1-BEDROOM = 48%
 62 = 2-BEDROOM = 52%

CLUBHOUSE IN PHASE 1
 ALL UNITS AND CLUBHOUSE ARE 1-STORY

RESIDENTIAL UNIT BREAKDOWN

BLOCK #	1 BDRM	2 BDRM	TOTALS
PHASE 1			
BLOCK 1	2	2	4
BLOCK 2	2	2	4
BLOCK 3	2	2	4
BLOCK 4	2	2	4
BLOCK 5	2	2	4
BLOCK 6	2	2	4
BLOCK 7	2	2	4
BLOCK 8	2	2	4
BLOCK 9	2	2	4
PHASE 1 TOTAL	20	23	43
PHASE 2			
BLOCK 10	4	4	8
BLOCK 11	4	4	8
BLOCK 16	4	4	8
BLOCK 17	4	4	8
BLOCK 18	4	4	8
BLOCK 19	4	4	8
BLOCK 20	4	4	8
BLOCK 21	4	4	8
PHASE 2 TOTAL	16	18	34
PHASE 3A			
BLOCK 12	4	4	8
BLOCK 13	4	4	8
BLOCK 14	4	4	8
BLOCK 15	4	4	8
PHASE 3A TOTAL	0	16	16
PHASE 3B			
BLOCK 22	4	4	8
BLOCK 23	4	4	8
BLOCK 24	4	4	8
BLOCK 25	4	4	8
BLOCK 26	4	4	8
BLOCK 27	4	4	8
PHASE 3B TOTAL	14	12	26
TOTAL	58	62	120

- LEGEND**
- BOUNDARY OF LAND ADDED TO ORIGINAL LOT (BIRNBRAL TOWNSHIP LAND SEVERANCE)
 - LAND AREA SUBJECT TO CONCURRENT ZONING AMENDMENT
 - AREA OF PHASE 1 CURRENT SITE PLAN APPLICATION
 - AREA OF FUTURE SITE PLAN APPLICATION
 - PHASE 2 FUTURE SITE PLAN APPLICATION
 - PHASE 3A FUTURE SITE PLAN APPLICATION
 - PHASE 3B FUTURE SITE PLAN APPLICATION



PART OF LOTS 14 AND 15 CONCESSION 2
 (GEOGRAPHIC TOWNSHIP OF ELIZABETHTOWN)
 CITY OF BROCKVILLE

Metric
 DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

Scale 1:750

DEVELOPER INFORMATION:
 NLGC Inc.
 2962 Carp Road, Ottawa, ON, K0A 1L0

OWNER INFORMATION:

ARCHITECT'S INFORMATION:

REVISIONS

1	ISSUED FOR CONCEPTUAL REVIEW	JAN1521
2	ISSUED FOR CONCEPTUAL REVIEW	MAR221
3	REVISED PER STANTEC COMMENTS	APR721
4	REVISED PER STANTEC COMMENTS	AUG221
5	REV'D W/ ADD'L LAND AT NW CORNER	AUG221
6	REV'D TO SITE EXIST GRADING	NOV21
7	REV'D PER DTM MEETING	NOV21
8	REV'D PER CIVIL	JAN1022
9	PH 3B REV'D FOR 30M WETLAND BUFFER	JAN122
10	STAMPED SERVICE ACCESS - BLOCKS 14 & 27 REV'D	JAN2422

PROJECT: WELLINGS OF BROCKVILLE

ISSUE DATE: MAR 2020

SCALE: 1:750

DRAWN BY: M.W./T.S.L.

PROJECT NO.: 1913

DRAWING NO.: A101

DRAWING: OVERALL SITE PLAN