



FINAL

Environmental Impact Study

Vacant Parcel at Southeast Corner of Oakwood Drive, Niagara Falls, Ontario

Prepared for:

**Branthaven Belmont
Oakwood Inc.**

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Attn: Dave Madeira, Director of Land Development

December 20, 2022

Pinchin File: 308990



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1.0 INTRODUCTION

Pinchin Ltd. (Pinchin) was retained by Branthaven Belmont Oakwood Inc. (Client) to complete an Environmental Impact Study (EIS) to assess the potential natural heritage features for the subject property located on a Vacant Parcel at the Southeast Corner of Oakwood Drive, Niagara Falls, Ontario (Site). The location of the Site with general surrounding area is shown on Figure 1 in **Appendix A**. The Region of Niagara identified the need for a Constraints Analysis and a subsequent EIS in the pre-consultation process participated by the Client along with the Region of Niagara Falls, City of Niagara Falls, and Niagara Peninsula Conservation Authority (NPCA). Pinchin initially conducted the Constraints Analysis and subsequently determined that an EIS would be required to support the development application for the Site as per the Region's Official Plan (Policy 7.B.1.8).

The Site is a 5.40-hectare property in the City of Niagara Falls that is currently undeveloped. The Site contains vegetation patches, including woodlots, thickets, meadows, and unevaluated wetlands. The Client intends to develop the Site into 33 blocks of townhouses with associated amenities. The Site and its immediate surrounding environment, as the identified Study Area of 120 m around the Site for this EIS, can be seen on Figure 2 in **Appendix A**. The EIS will be required as part of the approval requirements by the municipal and regional governments for the proposed residential development.

This EIS report was conducted to assess the vegetation communities on the Site to determine if natural heritage features are present and are sufficiently significant to be included in the Core Natural Heritage System under the Region's Official Plan. This EIS report was prepared in general accordance with the Region of Niagara Official Plan (2014), City of Niagara Falls Official Plan (2019), and NPCA's Environmental Impact Studies Guidelines (2012).

2.0 POLICY CONTEXT

The following provincial, regional, and municipal legislation and policies were reviewed prior to an assessment of the vegetation patches of the Site and adjacent area was undertaken:

- Provincial Policy Statement (2020);
- Region of Niagara Official Plan (2014/2022);
- City of Niagara Falls Official Plan (2019); and
- Ontario Regulation 155/06 (1990).

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



2.1 Provincial Policy Statement

The Provincial Policy Statement (PPS) 2020 sets a policy foundation for regulating development and land use. 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.

2.2 Region of Niagara Official Plan

The new Region of Niagara Official Plan came into effect on November 4, 2022. Pre-construction Screening and Terms of Reference were completed in consultation with the Region of Niagara prior to the adoption of this new Official Plan. For this reason, the 2014 consolidation of the Official Plan will be used for this EIS. The Site is designated as an “Urban Area” under Schedule A of the Regional Official Plan, included in **Appendix B** (Region of Niagara, 2014). A full range of residential, commercial, and industrial uses are permitted generally within this designation.

Policy 7.B was reviewed to identify that Core Natural Heritage System consists of four areas including: a) *Core Natural Areas including Environmental Protection Areas or Environmental Conservation Areas;* b) *potential natural heritage corridors connecting the Core natural Areas,* c) *Greenbelt Natural Heritage and Water Resources Systems;* and d) *fish habitat.* Schedule C does not show the Site as being a part of the Core Natural Heritage System. Policy 7.B.1.8 states that if there are environmental features or functions that have not been adequately evaluated, the areas shall be evaluated by a qualified biologist in consultation with the Region and other relevant agencies. If the evaluation finds one or more natural heritage features meeting the criteria for identification as Core Natural Heritage System components, the appropriate policies shall apply. As a result of the Region’s request on review and comments received from the Region, the City and NPCA, a Constraints Analysis and an EIS were completed to assess the vegetation patches on the Site, with the results presented in Section 4.0 below.

2.3 City of Niagara Falls Official Plan

The City of Niagara Falls Schedule A of the Official Plan shows the Site designated as “Major Commercial” and “Tourist Commercial”. The predominant land uses for this designated area include commercial and residential uses, as well as Environmental Conservation Area the vicinity of the Study Area (City of Niagara Falls, 2019). Schedule A-1 does not show any Natural Heritage Features present on the Site and within the Study Area. These maps are available for reference in **Appendix B**. The Official Plan states that environmentally sensitive areas including woodlands, wetlands and fish habitats will be required to be protected through proper building orientations, setbacks, stormwater management, and complementary landscaping practices.



2.4 Ontario Regulation 155/06

Pursuant to the *Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*, any development in or on areas defined in the regulation area (e.g., river or stream valleys, hazardous land, wetlands) requires permission from the Niagara Peninsula Conservation Authority under Ontario Regulation 155/06 (Government of Ontario, 2013). NPCA 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 NPCA. NPCA mapping received in the pre-consultation process initially identified meadows and marshes on the Site.

3.0 STUDY METHODOLOGY

3.1 Background Review and Agency Consultation

A desktop background review of available information sources relating to the Study Area was conducted prior to a site reconnaissance. Included in the review were natural heritage features present on the Site and in the surrounding area, historical species occurrences available from the Ministry of Northern Development, Mines, Natural Resources and Forestry's (NDMNRF) 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. Applicable policies and guidelines including the City and Region Official Plans were reviewed. These document references the NDMNRF's Natural Heritage Reference Manual (NDMNRF, 2010) and the PPS which were both reviewed for this report.

In addition, a scoping exercise with the Region, the City, and the NPCA was conducted by the Client in the pre-consultation prior to the completion of this EIS report. As required by the Region, a Constraints Analysis was completed prior to this report as step one of the EIS with a conclusion that if an encroachment or impact to the wetland is anticipated, an EIS and potentially an Ecological Offsetting Plan may be required in order to ensure that there are no negative impacts to the natural heritage features on the Site. This Constraints Analysis is appended in **Appendix B** for reference.

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.

- Review of historical occurrence records for Species of Conservation Concern within or adjacent to the Study Area:
 - Natural Heritage Information Centre (MNR, 2022b);
 - Ontario Regulation 230/08 Species at Risk in Ontario List (COSSARO, 2022); Atlas of the Breeding Birds of Ontario (BSC, 2022);
 - Atlas of the Mammals of Ontario (Dobbyn, 1994);
 - Ontario Reptile and Amphibian Atlas (TEA, 2022);
 - Ontario Butterfly Atlas (TEA, 2022); 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 were sampled in fall for their structure, species composition and habitat characteristics. This information was supplemented by floristic surveys at the time of the visit. Species names generally follow the nomenclature of Flora Ontario (Newmaster and Ragupathy, 2012) and the NHIC.

3.2.2 Wetland Assessment

Wetland assessment in the Study Area followed the criteria outlined in the *Ontario Wetland Evaluation System* (OWES) 3rd Edition (MNR, 2013). The OWES framework evaluation criteria therein provide an appropriate benchmark to work from. 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. The OWES also has guidelines on feature size and complexing criteria. The OWES defines a wetland as greater than 2 ha but features greater than 0.5 ha can be included with justifications. Although OWES further allows features smaller than 0.5 ha to be evaluated, it is only for a feature having a specialized habitat. For wetland complexing, biological and hydrological features, functions and values are considered in the evaluation on and off the feature or site.

3.2.3 Woodland Assessment

Assessment of the Site followed the criteria outlined in the Niagara Region's Official Plan Chapter 7: Natural Environment (Niagara Region, 2014). To be identified as Significant Woodlands one or more of the following criteria must be met:

- a) Contain threatened, endangered or species of concern;
- b) In size, be equal to or greater than:
 - a. 2 hectares, if located within or overlapping Urban Area Boundaries
 - b. 4 hectares, if located outside Urban Areas and north of the Niagara Escarpment
 - c. 10 hectares, if located outside Urban Areas and south of the Escarpment
- c) Contain interior woodland habitat at least 100 metres in from the woodland boundaries
- d) Contain older growth forest and be 2 hectares or greater in area
- e) Overlap or contain one or more of the other significant natural heritage features listed in Policies 7.B.1.3 or 7.B.1.4; or
- f) Abut or be crossed by a watercourse or water body and be 2 or more hectares in area.

Each of these woodland evaluation criteria will be discussed in Section 4.0 below. The woodland edge will be staked by a qualified Ontario Land Surveyor and shown on the relevant topographic survey, if available.

3.2.4 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.

3.2.5 Incidental Wildlife Observations

Wildlife was surveyed as part of general wildlife surveys during the Site visits. 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, Physiography, and Geology

The Site is bounded by Oakwood Drive to the north and west, a municipal pumping station and a hydro canal to the east, and an industrial area to the south. North of Oakwood drive there is also a commercial area, and west of Oakwood drive is the Queen Elizabeth Way. From analysis of aerial imagery, the Site has been disturbed by heavy machinery and soil has been stockpiled on the western portions of the Site (Soil-Mat Engineers & Consulting Ltd, 2020). Disturbance is evident in 2002, 2006, 2010, and 2020 based on aerial photos, where sections of the wetlands on the Site have been driven through and damaged. In 2020, test pits and trenches were dug on the Site and stockpiles were formed.

The Study Area is situated within Ecodistrict 7E-5 (Mixedwood Plains). The soils in the Study Area have not been classified by Agriculture Canada and the Ministry of Agriculture and Food; however, soil samples taken at the time of visit indicated primarily silty clay loam and clay soils. Wetland indicators (mottles and gley) were found within meadow marsh vegetation communities described below. Gley occurs when the oxygen in the soil becomes depleted (due to water saturation) resulting in the iron being completely reduced taking on a blue-grey colouration.

This reduced iron is also mobile and can re-oxidize, producing reddish, yellow, or orange spotting, which is known as mottling. Both are indicators of wetland presence due to the water table being close to the surface.



The Ontario Geological Survey classifies the bedrock underlying the Study Area as consisting of Middle and Lower Silurian sandstone, shale, dolostone, and siltstone of the Lockport Formation (Ontario Geological Survey, 1991). A site-based water balance may be needed to understand the recharge potential of the Site and stormwater infiltration requirements to guide the stormwater management designs with pre and post construction water balance, as well as sufficient water quantity and quality controls on the Site.

A detailed review and analysis on the vegetation communities associated with the vegetation patches on the Site are provided in Section 4.2 below.

4.2 Vegetation Surveys

4.2.1 Vegetation Communities

The vegetation surveys were conducted in the summer season on June 28, 2022, and subsequently in the fall season on October 19, 2022 after the Constraints Analysis completion. The weather was sunny during the summer survey with a temperature of 22° Celsius and was cloudy and 4° Celsius in the fall survey. Totalling 48 vascular plant species were observed on the Site within the Study Area, as shown on **Appendix C**. A total of six vegetation communities were identified on the Site. These vegetation communities were observed during the Site investigations and can be visualized on Figure 3 in **Appendix A**. Selected Site photographs of the vegetation communities are included in **Appendix D**.

Dry – Fresh Mixed Meadow (MEMM3): This vegetated community is one of the largest communities on the Site and is found in two patches, one on the west side of the Site and another along the eastern edge. The western patch is bounded by Oakwood Drive to the north and west and the Common Reed Graminoid Mineral Meadow Marsh to the east. This community is composed of common meadow species, namely Kentucky Bluegrass (*Poa pratensis*), Canada Goldenrod (*Solidago canadensis*), Common Mullein (*Verbascum Thapsus*), Yellow Sweet-clover (*Melilotus officinalis*), Oxeye Daisy (*Leucanthemum vulgare*) and Reed Canary Grass (*Phalaris arundinacea*). Throughout the meadow there are also several Manitoba Maple (*Acer negundo*) and Large-toothed Aspen (*Populus grandidentata*) saplings. This community has several areas that have been disturbed, along the edges of Oakwood Drive there are deposited materials and clear signs of dumping and in the northwest corner of the Site there were a small group of people observed to be living in tents. Another clear sign of disturbance within this community is the raised areas in elevation, coming from the north side of the Site where there is a road access, the meadow appears to have naturalized over an intended roadway or access as there is a ridge which is approximately 10 m higher than the rest of the meadow which appears to be humanmade.



Common Reed Graminoid Mineral Meadow Marsh (MAMM1-12): This vegetated community is another large community within the Site and is found primarily on the eastern portion of the Site, with other small patches found to the west. This community is almost entirely composed of Common Reed (*Phragmites australis*) with a few immature Large-toothed Aspen and Bebb's Willows (*Salix bebbiana*) found throughout. Common Reed is identified as an invasive species in Ontario and this Region. A soil core was taken within this community showing a layer of silty clay loam which continued to a depth of 59 cm before transitioning into a saturated clay which continued for the extent of the core which ended at a depth of 108 cm. Mottles and gley were observed within this core sample, at a depth of 70 cm and 75 cm respectively. When the community was revisited in October 2022, there was between 5-30 cm deep of standing water throughout the marsh.

Gray Dogwood Deciduous Shrub Thicket (THDM2-4): This vegetated community is found in patches along the edges of the Site. This thicket community is primarily composed of Gray Dogwood. To a lesser extent, other species observed within this thicket community include Common Buckthorn (*Rhamnus cathartica*), Staghorn Sumac (*Rhus typhina*) and Fireberry Hawthorn (*Crataegus chrysoarpa*). The groundcover within this community is composed of Kentucky Bluegrass and dense patches of Canada Goldenrod,

Sumac Deciduous Shrub Thicket (THDM2-1): This vegetated community is found on the southwest side of the Site and is bounded by the Dry – Fresh Mixed Meadow to the west, north and east, and the Fresh – Moist Manitoba Maple Deciduous Woodland to the south. This community is dominated by Staghorn Sumac with Common Buckthorn while the groundcover is almost entirely composed of Canada Goldenrod. Also observed within this community is a row of sediment fencing which has been left to deteriorate, along this disposed fencing there appears to be a small amount of drainage accumulating.

Fresh – Moist Manitoba Maple Deciduous Woodland (WODM5-3): This wooded community is found immediately south of the Thicket community described above. It is primarily composed of early successional Manitoba Maple with some Sugar Maple. The trees in this community are young, with the oldest trees being 10-15 years old. The young age of this woodland means that it is not suitable habitat for forest obligate birds and bats. Along the edges of this community there are dense patches of Gray Dogwood (*Cornus racemosa*), and Sugar Maple (*Acer saccharum*) and Green Ash (*Fraxinus pennsylvanica*) saplings. The groundcover is sparse within this woodland area.

Fresh – Moist Poplar Deciduous Woodland (WODM5-1): This last community is found along the northern edge of the Site, adjacent to Oakwood Drive. This community is primarily composed of Large-toothed Aspen and Trembling Aspen (*Populus tremuloides*) while the understory is densely packed with Common Buckthorn and Gray Dogwood.



4.3 Wetland Assessment

Niagara Region noted that an OWES evaluation and complex review may be required for the wetland pockets on the Site to determine if they should be complexed in with the Niagara Falls Slough Forest Wetland Complex, a Provincially Significant Wetland (PSW) in the vicinity. A review of the Niagara Falls Slough Forest Wetland Complex and a characteristics comparison of it with the wetland pockets onsite have been conducted based on NDMNRF's OWES including biological, social and/or hydrological functions, as well as watersheds, distance, and lacustrine wetlands (NDMNRF, 2013). Further, important features to note include whether the wetlands are within 750 m from each other and in the same headwater area (NDMNRF, 2013).

Based on these guidelines, the Common Reed Graminoid Mineral Meadow Marsh (**MAMM1-12**) within the Study Area makes up about 1.78 ha. The wetlands within the site boundary are smaller at 1.74 ha. Generally, wetlands under 2 ha are not considered to be significant but, any wetland greater than the 0.5 ha can be evaluated using OWES criteria. Secondly, from a complexing perspective it is approximately 600 m from the nearest PSW, namely Niagara Falls Slough Forest Wetland Complex to the east. Despite the proximity, the wetland on Site does not likely share headwaters with the PSW as they are separated by a large Hydro Canal. The wetland on Site is also very different in species composition from the PSW as it is a meadow marsh with little to no trees, and the PSW is a slough forest. The wetland is dominated by over 90% Common Reed which is not considered to be a wetland indicator under OWES, therefore it does not pass the 50% rule. Additionally, the wetland pockets on Site do not contain any plant or wildlife Species of Conservation Concern. However, the presence of mottles and gley within the soil, and the presence of 30cm deep standing water in the marsh confirms that the marsh is a wetland.

As a result of this analysis, it does not qualify as a significant wetland under OWES and does not need to be complexed with other adjacent, larger wetlands that met OWES evaluation criteria. The marsh is considered "Other Evaluated Wetland" and not a PSW by the Niagara Region.

4.4 Woodland Assessment

Following the criteria from the Niagara Region Official Plan (i.e., Policy 7.B.1.8 as per the Regional Staff), at this time the Fresh – Moist Manitoba Maple Deciduous Woodland and Fresh – Moist Poplar Deciduous Woodland would not be considered significant. The details of this woodland assessment are described in the table below.

Criteria	Assessment
Contain threatened, endangered, or other species of concern	No threatened, endangered, or special concern species and their evidence were observed at the time of Site visit or subsequent targeted surveys.
In size, be equal or great than 2 hectares	No, woodland is less than 0.5 hectare.



Criteria	Assessment
Contain Interior woodland habitat at least 100 meters from the woodland boundaries	No, woodland does not contain interior habitat as it is less than 50 m at its widest.
Contain older growth forest and be 2 hectares of greater in area	No, woodland is less than 2 hectares.
Overlap or contain one or more of the other Significant Natural Heritage Features listed in Policies 7.B.1.3 or 7. B.1.4	No other Significant Natural Heritage Features overlapped or contained in the woodland.
Abut or be crossed by a watercourse of water body and be 2 or more hectares in area	No, no watercourse or waterbody present and the area is less than 2 hectares in size.

As shown in the table above, at this time the woodland would not qualify as a Significant Woodland under the Policy 7.B.1.8 in the Niagara Region Official Plan. Hence, it does not warrant to be included in the Core Natural Heritage System indicated in Policy 7.B.1.8. The woodlands on the Site are all under 2 hectares in size and do not contain any species of conservation concern. The small size of the woodlands means that they do not provide adequate habitat for forest obligate species, as these species require more forest interior that is farther from the edges and other disturbances. The woodland communities on the Site are also very isolated and do not make up a larger forest network, making them unlikely to be used as a wildlife corridor.

4.5 Incidental Wildlife Observations

Only a limited number of incidental wildlife was noted during field surveys on the Site likely due to the previously extensive disturbances on the Site and surrounding roadways. The following incidental wildlife were observed during the field surveys for vegetation:

- American Robin (*Turdus migratorius*);
- Barn Swallow (*Hirundo rustica*);
- Common Yellowthroat (*Geothlypis trichas*);
- Mourning Dove (*Zenaida macroura*);
- Red-winged Blackbird (*Agelaius phoeniceus*);
- Song Sparrow (*Melospiza melodia*); and
- Yellow Warbler (*Dendroica petechia*).

All of these species are common in this suburban area and well adapted to a variety of habitats.



4.6 Species at Risk Screening

A total of 37 Species at Risk (SAR) were identified as having potential occurrence on the Site, resulting from the background review of the NHIC records and other available sources for the Study Area. These 37 species, their listing status, the last observed date, and the sources used to identify their presence in the Study Area are all summarized in **Appendix E**. Based on the background and field assessments, 6 SAR were determined to have suitable habitat on the Site. None of the listed species were observed or recorded on the Site.

One SAR amphibian, Western Chorus Frog (*Pseudacris triseriata*) was determined to have potential habitat on the Site. This species is found in roadside ditches, temporary ponds in fields, swamps, wet meadow, moist woodlands, and temporary pools. The meadow marsh community on the Site could provide suitable habitat for this species. Two SAR reptiles, Blanding's Turtle (*Emydoidea blandingii*) and Northern Ribbon Snake (*Thamnophis sauritus septentrionalis*) were determined to have suitable habitat on the Site. The Blanding's Turtle is found in shallow water marshes, bogs, ponds, or swamps. The meadow marsh on the Site could provide suitable habitat for this species. The Northern Ribbon Snake is found in sunny grassy area with low density vegetation near bodies of shallow permanent water, wet meadows, marshes, or bogs. The meadow communities bordering the meadow marsh on the Site could provide suitable habitat for this species. One insect, Monarch Butterfly (*Danaus plexippus*), was determined to have potential habitat on the Site. This insect species has potential to be found in the meadow where there is Milkweed present. Two SAR birds were determined to have potential habitat on the Site, Red-headed Woodpecker (*Melanerpes erythrocephalus*) and Barn Owl (*Tyto alba*). The Red-headed Woodpecker is found in fields with scattered trees, small woodlands, and forest edges. The meadows and woodlands on the Site provide potential suitable habitat. The Barn Owl is found in open areas such as field with scattered woodlots, sedge meadows, and marshes. The meadow, woodland, and marsh communities could provide suitable habitat for this species. Despite suitable habitat being present for all these species, none of these species were observed during the Site visit. Due to the historical human disturbances on the Site, invasive species presence, and early successional vegetation in nature, the likelihood of presence for the above amphibian, reptile, insect and bird SAR are low on the Site.

4.7 Natural Heritage System and Ecological Connectivity

To protect the diversity and connectivity of natural features and long-term ecological function of the area, an ecological function assessment needs to be completed. This ecological function assessment assesses the Site by its ecological functions by providing avenues in which plants and animals can propagate, move, and replenish from other natural areas.



The Site consists of a meadow marsh, mixed meadow, woodland, and thicket communities. The Site is surrounded by developed areas in all cardinal directions. To the east of the Site is a municipal pumping station and hydro canal. Beyond these developments further east, there is a forest and wetland complex identified as a part of the Niagara Falls Slough Forest Wetland Complex. To the north and south of the Site are commercial areas, and to the west is a major highway, the Queen Elizabeth Way.

Further east of the Site, on the other side of the Canal, is the Niagara Falls Slough Forest Wetland Complex. The Site is about 75 0m from this feature and is separated by roads and commercial developments. Due to this fragmentation, the communities on this Site are not associated with the Wetland Complex. Along the banks of the Hydro Canal are greenspaces and forested areas. The vegetation communities on the Site are separated from the canal by a small access road, a fence, and manicured lawn. The canal and it's associated riparian area provide important habitat for wildlife and act as a corridor for wildlife passage. As the surrounding area is highly developed, this aquatic and riparian corridor is highly important. The vegetation communities within the Site could provide supporting habitat for wildlife using the canal and its riparian area.

However, the vegetation communities on the Site have been historically disturbed. Analysis of historical aerial imagery shows that the Site has been disturbed by heavy machinery and soil has been stockpiled on the Site. Disturbance is evident in 2002, 2006, 2010, and 2020, where section of the wetlands and meadows on the Site have been driven through and damaged. Currently there is evidence of wide-spread garbage dumping along the edges of the Site. The wetlands and forest likely used to be connected to the riparian forest patches to the east of the Site; however, they are no longer connected to each other. It is possible that some species such as birds that can traverse major roadways, or other species that are adapted to urban areas could utilize the habitat on this Site.

Overall, there is little linkage or connectivity provided by the Site due to its degree of disturbance and disconnection from other vegetation patches by major roads and developments. The Site is only connected to greenspaces to the east where sufficient habitat already exists for wildlife passage. These features on the Site are not significant and do not warrant to be included in the Core Natural Heritage System indicated in Region's Official Plan Policy 7.B.1.8.

5.0 PROPOSED DEVELOPMENT

Pinchin understands that the proposed development is to construct a residential development consisting of 33 blocks of townhouses with associated amenities. The 33 buildings will include 236 units in total. Fire routes will be added throughout the property with entrances to Oakwood drive to the north and west. A 7.0 m servicing easement will be applied to the eastern boundary of the Site, a 21.34 m servicing easement will be applied to the southern boundary of the Site. A 0.114 ha amenity area will be located in the center of the Site, and a 0.087 ha amenity will be located in the southeast corner of the Site. A Site Plan showing the proposed development infrastructures and amenities can be seen in **Appendix F**.



6.0 IMPACT ASSESSMENT

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

Should the development be taking place to the area outlined above and in **Appendix F**, the direct impacts from the development proposals on natural heritage features (i.e., woodland, wetlands, and meadow) would include the following:

- Stripping of vegetation and topsoil on the entirety of the Site;
- Removal of trees and small wetlands on the Site; and
- Displacement of wildlife on the Site

The proposed development should have all direct impacts contained to the footprint of the Site. Due to the nature of the proposed development construction, the entire Site will be cleared of vegetation for construction of the Site. The Site potentially provides seasonal habitat to birds and other wildlife that may use it seasonally for foraging and feeding. They will be displaced from the proposed construction and immediate surrounding areas as a result of construction and site alteration. The impacts to wildlife can be avoided by properly timing vegetation and topsoil removal around peak activity and breeding seasons.

Tree inventories and removals are detailed separately in a Tree Protection Plan (Adesso Design Inc, 2022). The TPP identified 52 trees within the Study Area. Of these trees, 45 are planned for removal and the remaining 7 trees will be protected. In order to protect the remaining trees, a number of recommendations and mitigation measures will be implemented, namely the installation of a tree protection zone.

The two small wetlands contained on the Site will be directly impacted, being removed to accommodate the proposed building constructions. The NPCA has ecological offsetting guidelines under Policy 8.2.2.8 for wetland offsetting (NPCA, 2018) and it should be consulted and reviewed to determine the ecological offsetting strategy. At this point, the ecological offsetting and planting through a Landscape Plan is recommended in order to restore and offset the impacts from the clearing of the trees and wetlands on the Site.

A Landscape Plan with native planting of tree and shrub species was developed for the Site (Adesso Design Inc, 2022). Plantings will occur along the edges of the Site and between the buildings. A total of 882 shrubs and trees will be planted throughout the Site with 55 of these being native species to Ontario. Additional grasses and forbs will be planted throughout the Site. A detailed Landscape Plan with planting species, location, quantities, etc. will be provided in the detailed design stage for review by relevant agencies.



6.2 Indirect Impacts

The potential indirect impacts on natural heritage features (i.e., woodland, wetlands, and meadow) from the development proposal may include the following:

- Effects on plants and wildlife by construction noise, dust, and vibration; and
- Alteration of water quality and flow regime in the adjacent natural and drainage features

Very few indirect impacts are expected for this Site given that the surrounding areas are all urbanized. The Site is bounded by roadways on three sides and a commercial area to the south. Therefore, there are very few natural heritage features that should be directly impacted from runoff or sedimentation from the Site. Further east of the Site is a hydro canal, runoff should be controlled to prevent negative effects to the water quality of this drainage feature. Sediment and erosion control measures should be installed on the Site to limit any potential impacts off-site due to sediment-laden water from entering to other natural and drainage features.

It is possible that additional noise and vibration from the construction will impact local wildlife populations in the area; however, the area is already urbanized, and the local wildlife are likely adapted to the noises of the city. It is likely that during construction periods, wildlife including birds and mammals that occasionally use the wetland and meadows as habitats will be disrupted and will migrate to other areas, such as the riparian area to the east.

Hydrologic impacts were assessed in a separate Functional Servicing & Stormwater Management Report detailing stormwater management strategies for the surface water quantity and quality controls on the Site and within the Study Area. HydroStorm HS8 oil/grit separator units will be installed to remove TSS from the stormwater on the Site before it flows into the nearby Hydro Canal (S.Llewellyn & Associates Limited, 2022). Geotechnical impacts were evaluated for the soils and bedrocks on the Site through a Geotechnical Investigation and Considerations Report. 12 test pits, 6 slot trenches were dug on the Site. These tests determined that the soils on the site consist of silty clay soils, with variable inclusions of gravel and cobbles, and occasional organics. Bedrock on the site is believed to be at depths 11 – 16 m based on previous investigations. During the geotechnical evaluation, groundwater was only observed at Test Pit No. 10, located in the northwest portion of the Site within the meadow marsh community, at a depth of 1.2 m, based on the report it is believed that groundwater levels on the Site range from about 1.5-3.5 m (Soil-Mat Engineers & Consulting Ltd, 2020). Due to the depth of the groundwater, it is unlikely that the wetlands on the Site are groundwater fed.

Recommendations and mitigation measures for the potential impacts of development on the Site are detailed in Section 7.0 below.



7.0 RECOMMENDATIONS AND MITIGATION MEASURES

This EIS report detailed the review of the Niagara Region Official Plan Policy 7.B and assessment of the vegetation patches including woodlands, meadows, and wetlands contained within. The policy framework under Policy 7.B.1.8 for either woodland and wetland feature has not been met on this Site based on the desktop review and field assessment. As a result, it is Pinchin's opinion that the vegetation patches are not significant and do not warrant to be included in the Core Natural Heritage System indicated in Policy 7.B.1.8. Furthermore, no SAR or their signs were observed on the Site during field visits in the spring and fall.

Based upon the above impact assessment, there are identified direct impacts and indirect impacts mainly on general plants and wildlife within the vegetation patches. Recommendations for timing windows or other specifications for implementation for the potential negative impacts are included in the EIS. Furthermore, mitigation measures relating to onsite works (such as fencing) must be implemented prior to the commencement of construction. The proposed development will be mitigated to avoid potential impacts to natural features outside of the Site such as drainage features. The natural features within the Site do not provide high quality habitat as they are highly disturbed from the surrounding urbanization and busy roads.

These features will be removed entirely with the exception of 7 trees that have been identified for protection of different species. Due to the direct impacts, ecological offsetting and planting through a Landscape Plan is recommended to be developed in order to restore and offset the impacts from the clearing of the trees and wetlands on the Site. It is recommended that the Landscape Plan consider offsetting to make up for the impacts of removing the trees and vegetation on the Site.

The following recommendations are provided for the construction and alteration of the Site.

Tree and vegetation removal:

- The extent of potential tree and vegetation removal within the vegetation patches and on the Site is restricted to the construction footprint within the Site as necessary.
- To minimize or avoid impacts to breeding birds, the removal of vegetation within the Site will be outside of the associated breeding periods for bird species between April 1 and August 30. If tree removal needs to occur within this timing constraint window, a qualified Biologist should be deployed to conduct amphibian salvage and bird nest survey prior to any tree and vegetation removal, as well as ongoing monitoring should they be confirmed to be present.
- A Tree Inventory and Protection Plan will be developed for the Site and should be approved by the reviewing agencies prior to construction and site alteration.



- An invasive species management program will be developed for the removal of the invasive Common Reed within the wetland to reduce the possible spread to other areas within the Site and Study Area.

Erosion and sediment control:

- An Erosion and Sediment Control Plan as part of the Functional Servicing & Stormwater Management Report was developed with protection measures of the surrounding natural features for the construction on the Site.
- Prior to construction and site alteration, adequate erosion, and sediment control (ESC) measures including silt fencing along the outer boundary of the Site, silt sacks in proposed and existing catch basins, and hydroseeding/sodding will be implemented per the Erosion & Sediment Control Plan to meet City of Niagara Falls and NPCA requirements (S.Llewellyn & Associates Limited, 2022).
- HydroStorm HS8 oil/grit separators will be installed as per the Preliminary Servicing Plan to provide efficient stormwater quality control (S.Llewellyn & Associates Limited, 2022).
- 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 is 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 measures:

- A Landscape Plan has been developed for the Site (Adesso Design Inc, 2022) and needs to be approved by the reviewing agencies prior to construction and site alteration.
- The detailed Landscape Plan includes the planting of 55 native species of trees and shrubs on the Site. A variety of trees, shrubs, forbs, and grasses will also be planted throughout the Site.



8.0 CONCLUSION

There are environmental opportunities and constraints identified on the Site as outlined in this EIS report. The assessed impacts, including direct and indirect impacts, are mainly on general plants and wildlife that are not Species at Risk. Effective stormwater and environmental management measures have been considered for the proposed residential development. With the implementation of the environmental and engineering plans sought out in the EIS, Tree Inventory and Protection Plan, Landscape Plan, and Functional Servicing Report prior and post construction on the Site, the proposed development would preserve the ecological functions of the adjacent natural features and enhance surrounding natural landscape by the planting of native trees and shrubs post construction.

With the above recommendations considered and diligently implemented on the Site, no adverse negative impacts to the ecological integrity of the adjacent natural heritage features will result from the proposed residential infrastructures with associated amenities.

9.0 CLOSURE

The enclosed Environmental Impact Study report has been prepared to assess the natural heritage features including the terrestrial and wetland 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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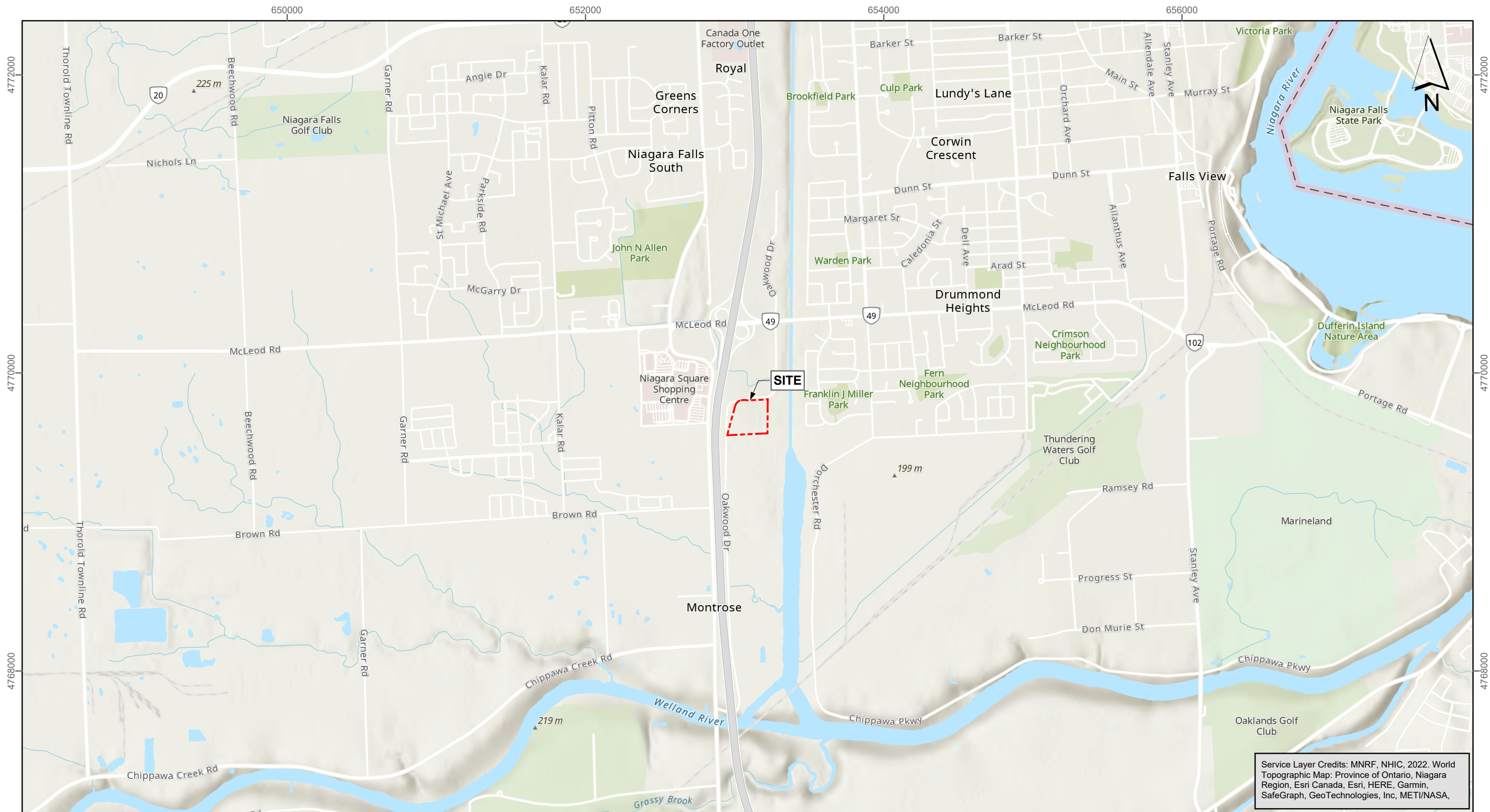
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11.0 LIMITATIONS

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 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.

308990 FINAL Environmental Impact Study Oakwood Drive Niagara Falls ON Dec 20 2022.docx

APPENDIX A
FIGURES



Service Layer Credits: MNRF, NHIC, 2022. World Topographic Map: Province of Ontario, Niagara Region, Esri Canada, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA,



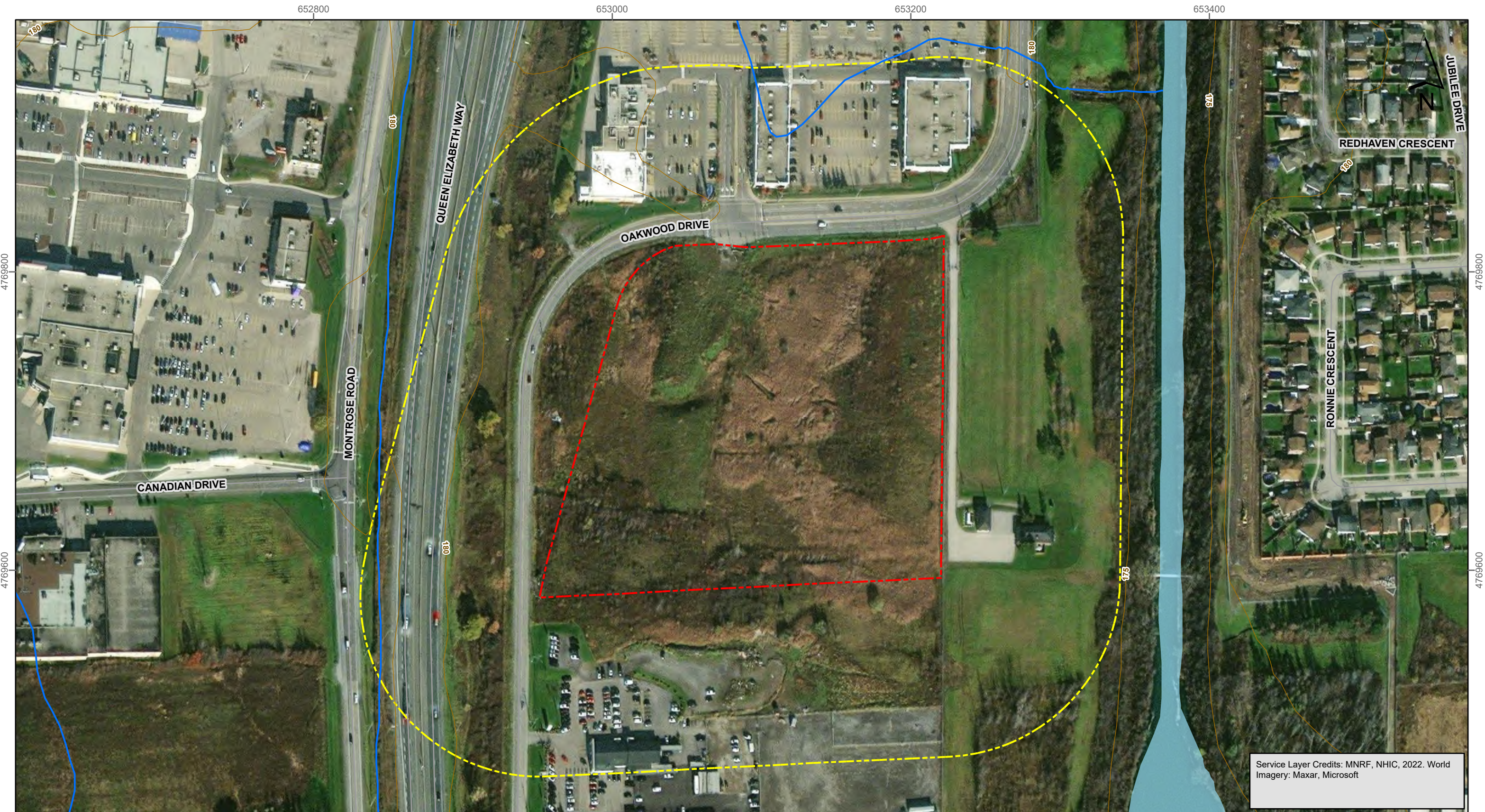
PROJECT NAME: Constraints Analysis and Scoped Environmental Impact Study
CLIENT NAME: Branthaven Belmont Oakwood Inc.
PROJECT LOCATION: Vacant Parcel at Southeast Corner of Oakwood Drive, Niagara Falls, Ontario
FIGURE NAME: Site Location

PROJECT NO. 308990.000
DATE: June 2022
SCALE: 1:24,000
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.

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 Coordinate System: NAD 1983 CSRS UTM Zone 17N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 DRAWN BY: MH REVIEWED BY: SR REVISION: 0



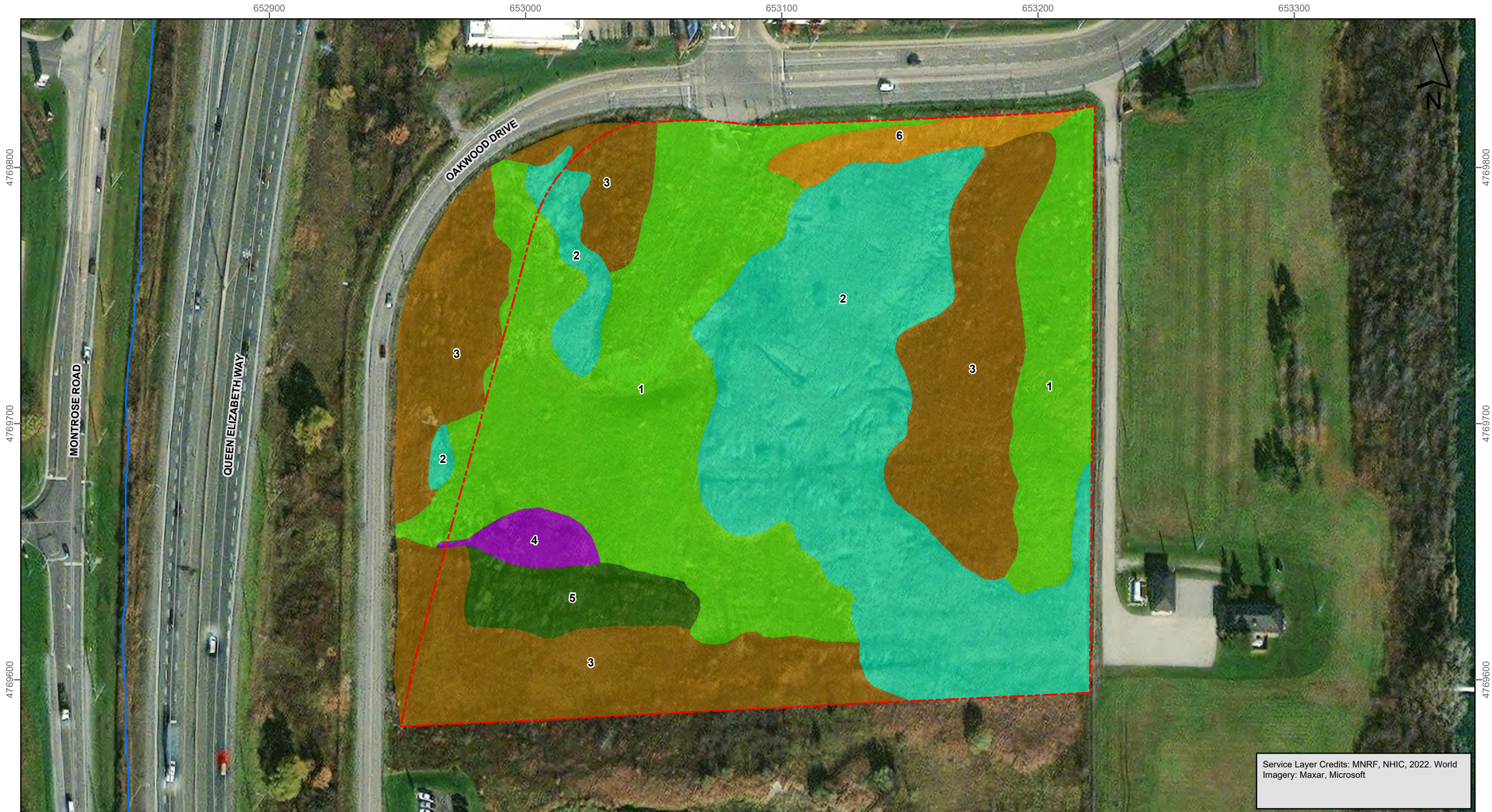
PROJECT NAME: Constraints Analysis and Scoped Environmental Impact Study
CLIENT NAME: Branthaven Belmont Oakwood Inc.
PROJECT LOCATION: Vacant Parcel at Southeast Corner of Oakwood Drive, Niagara Falls, Ontario
FIGURE NAME: Study Area

PROJECT NO. 308990.000
DATE: June 2022
SCALE: 1:2,400
FIGURE NO. 2

LEGEND
 Site Boundary
 Study Area (120 m)
 Waterbody
 Roadway
 Watercourse
 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.

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 Coordinate System: NAD 1983 CSRS UTM Zone 17N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 DRAWN BY: MH REVIEWED BY: SR REVISION: 0



Service Layer Credits: MNR, NHIC, 2022. World Imagery: Maxar, Microsoft



PROJECT NAME: Constraints Analysis and Scoped Environmental Impact Study
CLIENT NAME: Brantaven Belmont Oakwood Inc.
PROJECT LOCATION: Vacant Parcel at Southeast Corner of Oakwood Drive, Niagara Falls, Ontario
FIGURE NAME: Ecological Land Classification

PROJECT NO. 308990.000
DATE: October 2022
SCALE: 1:1,400
FIGURE NO. 3

LEGEND	
Site Boundary	Ecological Land Classification
Roadway	1. MEMM3 Dry - Fresh Mixed Meadow
Watercourse	2. MAMM1-12 Common Reed Graminoid Mineral Meadow Marsh
	3. THDM2-4 Gray Dogwood Deciduous Shrub Thicket
	4. THDM2-1 Sumach Deciduous Shrub Thicket
	5. WODM5-3 Fresh - Moist Manitoba Maple Deciduous Woodland
	6. WODM5-1 Fresh - Moist Poplar Deciduous Woodland

NOTES

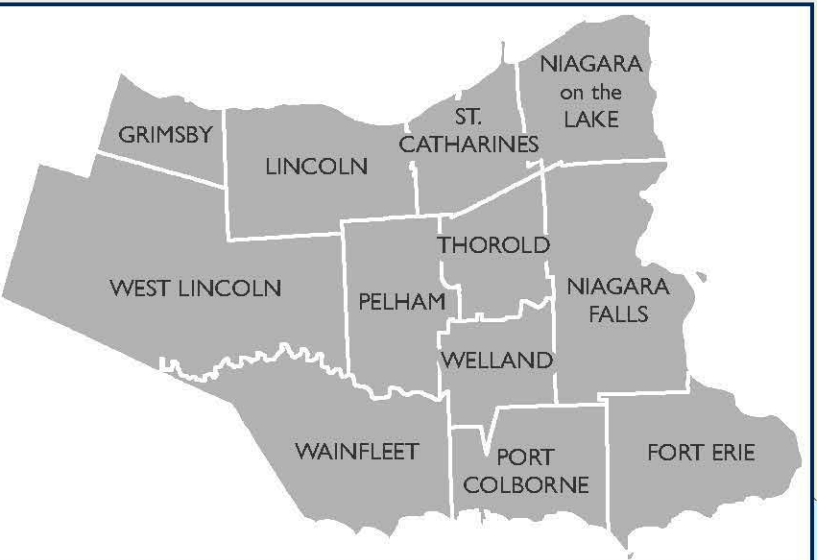
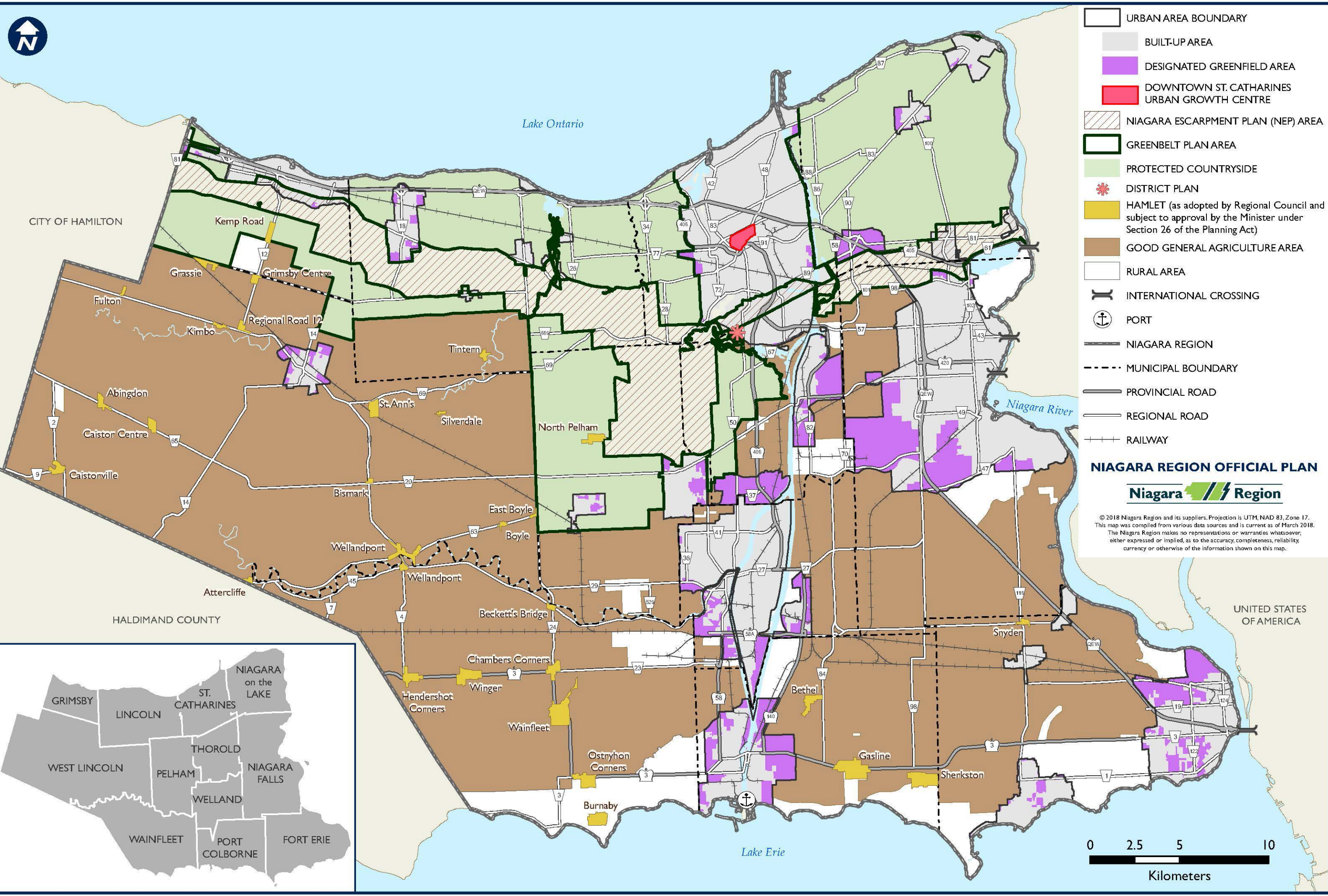
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- Use dimensions as shown, do not scale drawing.
- This map is not to be used for legal purposes.

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Coordinate System: NAD 1983 CSRS UTM Zone 17N
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 Datum: North American 1983 CSRS

DRAWN BY: MH REVIEWED BY: EO REVISION: 0

APPENDIX B
SUPPLEMENTARY INFORMATION





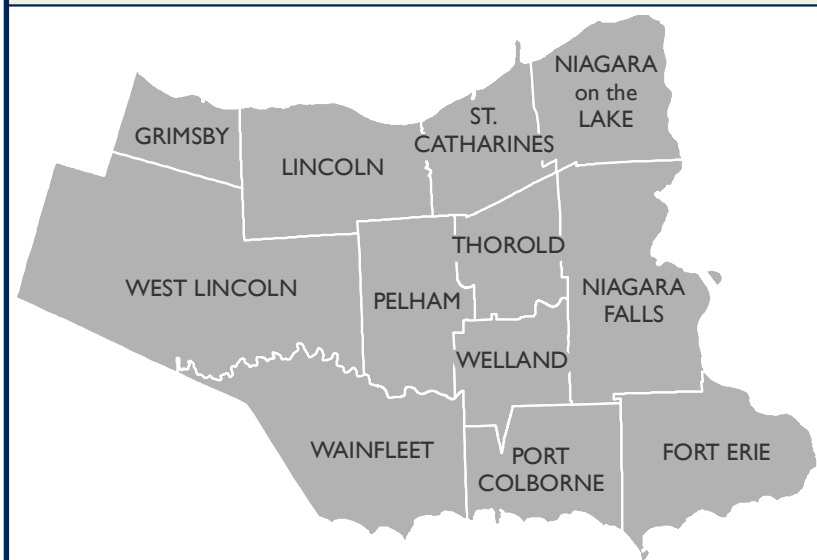
Lake Ontario

CITY OF HAMILTON

HALDIMAND COUNTY

UNITED STATES OF AMERICA

Lake Erie

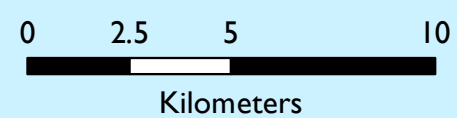


- ENVIRONMENTAL PROTECTION AREA
- ENVIRONMENTAL CONSERVATION AREA
- GREENBELT PLAN
- GREENBELT NATURAL HERITAGE SYSTEM
- NIAGARA ESCARPMENT PLAN (NEP) AREA
- EARTH SCIENCE ANSI
- FISH HABITAT
- FISH HABITAT
- MUNICIPAL DRAIN
- POTENTIAL NATURAL HERITAGE CORRIDOR
- URBAN AREA
- NIAGARA REGION
- MUNICIPAL BOUNDARY
- PROVINCIAL ROAD
- REGIONAL ROAD

NIAGARA REGION OFFICIAL PLAN



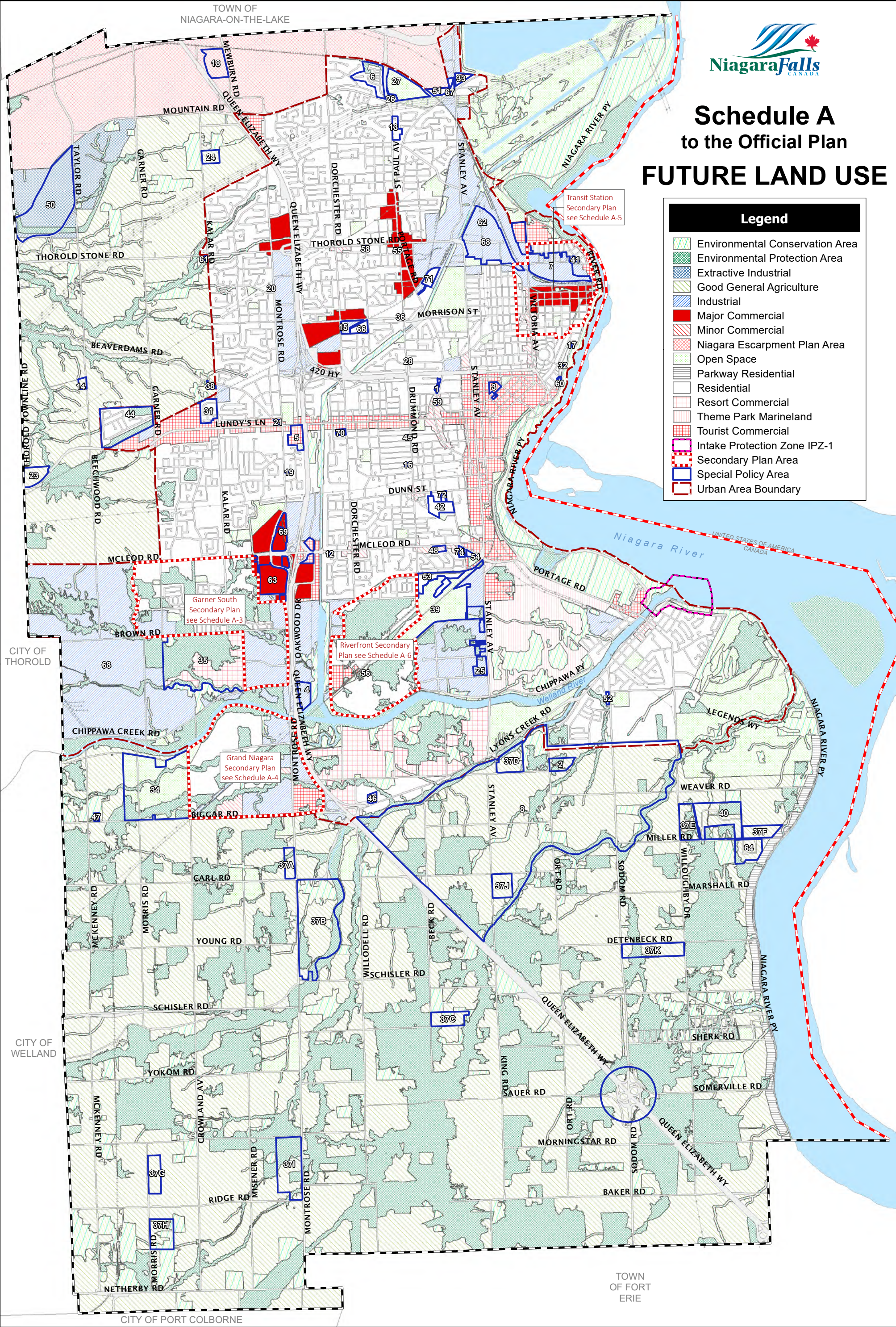
© 2015 Niagara Region and its suppliers. Projection is UTM, NAD 83, Zone 17.
 This map was compiled from various data sources and is current as of November 2015.
 The Niagara Region makes no representations or warranties whatsoever,
 either expressed or implied, as to the accuracy, completeness, reliability,
 currency or otherwise of the information shown on this map.



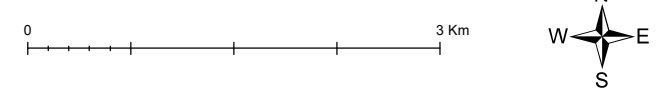
Schedule A to the Official Plan FUTURE LAND USE

Legend

- Environmental Conservation Area
- Environmental Protection Area
- Extractive Industrial
- Good General Agriculture
- Industrial
- Major Commercial
- Minor Commercial
- Niagara Escarpment Plan Area
- Open Space
- Parkway Residential
- Residential
- Resort Commercial
- Theme Park Marineland
- Tourist Commercial
- Intake Protection Zone IPZ-1
- Secondary Plan Area
- Special Policy Area
- Urban Area Boundary



NOTE: THIS MAP MUST BE READ IN CONJUNCTION WITH THE WRITTEN TEXT OF THE OFFICIAL PLAN APPROVED OCTOBER 1993
UPDATED TO November 2019

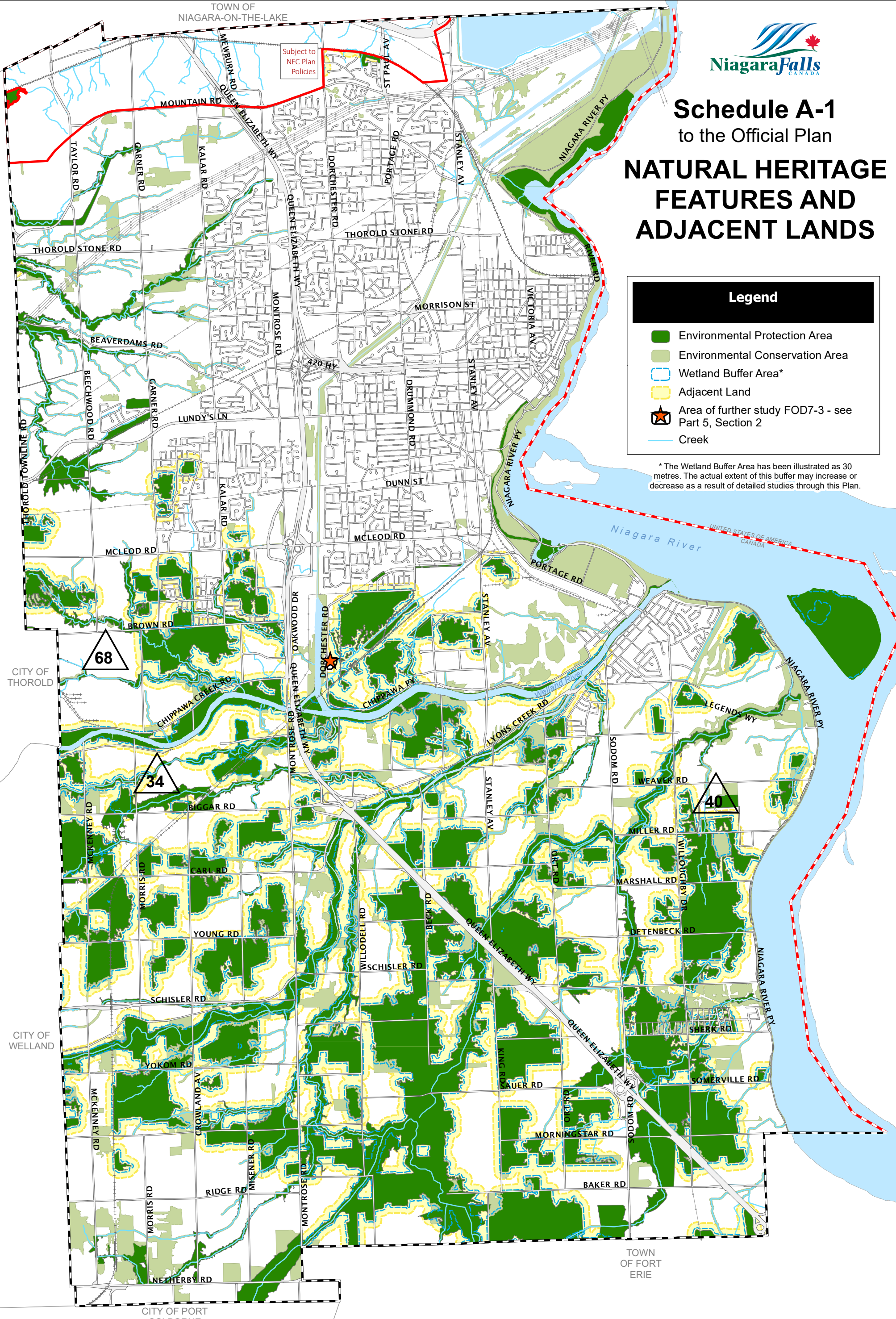


Schedule A-1 to the Official Plan NATURAL HERITAGE FEATURES AND ADJACENT LANDS

Legend

- Environmental Protection Area
- Environmental Conservation Area
- Wetland Buffer Area*
- Adjacent Land
- Area of further study FOD7-3 - see Part 5, Section 2
- Creek

* The Wetland Buffer Area has been illustrated as 30 metres. The actual extent of this buffer may increase or decrease as a result of detailed studies through this Plan.



NOTE: THIS MAP MUST BE READ IN CONJUNCTION WITH THE WRITTEN TEXT OF THE OFFICIAL PLAN APPROVED OCTOBER 1993
UPDATED TO November 2019





October 14, 2022

Branthaven Belmont Oakwood Inc.
c/o Brant Haven Development
720 Oval Court
Burlington, ON L7L 6A9

Email: dmadeira@branthaven.com

Attention: Dave Madeira, Director of Land Development

Re: Natural Heritage Constraints Analysis
Vacant Parcel at Southeast Corner of Oakwood Drive, Niagara Falls, Ontario
Pinchin File: 308990

As requested by Branthaven Belmont Oakwood Inc. (Client), Pinchin Ltd. (Pinchin) is pleased to submit the following Natural Heritage Constraints Analysis (NHCA) to assess the development constraints of potential natural heritage features for the subject property located at the southeast corner of Oakwood Drive, Niagara Falls, Ontario (Site).

1.0 BACKGROUND AND OBJECTIVE

It is Pinchin's understanding that the Site of an approximately 5.40-hectare parcel of land is currently vacant in the City of Niagara Falls. The Site and immediately surrounding area are shown on Figure 1 in **Appendix A**. Natural heritage features on the Site potentially include meadows and marshes according to the Niagara Peninsula Conservation Authority (NPCA) mapping. The Client proposes to construct a residential development on the Site consisting of 33 blocks of townhouses with associated amenities. According to the Client's pre-consultation with the City of Niagara Falls and Region of Niagara on December 2, 2021, a Constraints Analysis was required by the Region for the proposed development. In order to support the development application, a Constraints Analysis for the unevaluated wetlands as per the Regional of Niagara Official Plan (Policy 7.B.1.8) is required to determine if it is significant or requires further study, and if determined significant or requiring further study, then a subsequent Scoped EIS as per the Regional Official Plan (Policy 7.B.2) will be required as part of the approval requirement by the municipal and regional governments for the proposed residential development.



2.0 POLICY CONTEXT

2.1 Region of Niagara Official Plan

The Site is designated as an “Urban Area” under Schedule A of the Regional Official Plan (Region of Niagara, 2014). A full range of residential, commercial and industrial uses are permitted generally within this designation. Policy 7.B was reviewed to identify that Core Natural Heritage System consists of four areas including: a) *Core Natural Areas including Environmental Protection Areas or Environmental Conservation Areas*; b) *potential natural heritage corridors connecting the Core natural Areas*, c) *Greenbelt Natural Heritage and Water Resources Systems*; and d) *fish habitat*. Schedule C does not show the Site as being a part of the Core Natural Heritage System.

Policy 7.B.1.8 states that if there are environmental features or functions that have not been adequately evaluated, the areas shall be evaluated by a qualified biologist in consultation with the Region and other relevant agencies. If the evaluation finds one or more natural heritage features meeting the criteria for identification as Core Natural Heritage System components, the appropriate policies shall apply. As a result of the Region’s request on review and comments received from the Region, the City and NPCA, a Constraints Analysis was completed to assess the wetlands and vegetated communities on the Site, with the results presented in Section 4.0 below.

3.0 STUDY METHODOLOGY

3.1 Vegetation Surveys

Vegetation communities within the Study Area with feasible access were assessed and described using the provincial Ecological Land Classification (ELC) 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 polygons and mapped using aerial imagery and Geographic Information System.

The vegetation communities were sampled for their structure, species composition, and habitat characteristics. This information was supplemented by floristic surveys at the time of the Site visit. Species names generally follow the nomenclature of Flora Ontario (Newmaster and Ragupathy, 2012) and the NHIC from the Ministry of Natural Resources and Forestry (MNRF, 2018a).

3.2 Woodland Assessment

Assessment of the Site followed the criteria outlined in the Niagara Region’s Official Plan Chapter 7: Natural Environment (Niagara Region, 2015). To be identified as Significant Woodlands, one or more of the following criteria must be met:

- a) Contain threatened, endangered or species of concern.



- b) In size, be equal to or greater than:
 - a. 2 hectares, if located within or overlapping Urban Area Boundaries
 - b. 4 hectares, if located outside Urban Areas and north of the Niagara Escarpment
 - c. 10 hectares, if located outside Urban Areas and south of the Escarpment
- c) Contain interior woodland habitat at least 100 metres in from the woodland boundaries
- d) Contain older growth forest and be 2 hectares or greater in area
- e) Overlap or contain one or more of the other significant natural heritage features listed in Policies 7.B.1.3 or 7.B.1.4; or
- f) Abut or be crossed by a watercourse or water body and be 2 or more hectares in area.

Each of these woodland evaluation criteria will be discussed in Section 4.0 below. The woodland edge will be staked by a qualified Ontario Land Surveyor and shown on the relevant topographic survey, if available.

3.3 Wetland Assessment

Wetland assessment in the Study Area followed the criteria outlined in the *Ontario Wetland Evaluation System* (OWES) 3rd Edition (MNR, 2013). The OWES framework 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. The OWES also has guidelines on feature size and complexing criteria. The OWES defines a wetland as greater than 2 ha but features greater than 0.5 ha can be included with justifications. Although OWES further allows features smaller than 0.5 ha to be evaluated, it is only for a feature having a specialized habitat. For wetland complexing, biological and hydrological features, functions and values are considered in the evaluation on and off the feature or site.



4.0 SURVEY RESULTS

4.1 Vegetation Survey

The vegetation surveys were conducted in the summer season on June 28, 2022. The weather during the Site assessment was sunny, with a temperature of 22° Celsius. A total of six vegetation communities and 48 plant species were identified on the Site. These vegetation communities were observed during the Site investigations and can be visualized on Figure 2 in **Appendix A**. Selected Site photographs of the vegetation communities are included in **Appendix B**.

Dry – Fresh Mixed Meadow (MEMM3): This vegetated community is one the largest on the Site and is found in two patches, one on the west side of the Site and another along the eastern edge. The western patch is bounded by Oakwood Drive to the north and west and the Common Reed Graminoid Mineral Meadow Marsh to the east. This community is composed of common meadow species, namely Kentucky Bluegrass (*Poa pratensis*), Canada Goldenrod (*Solidago canadensis*), Common Mullein (*Verbascum Thapsus*), Yellow Sweet-clover (*Melilotus officinalis*), Oxeye Daisy (*Leucanthemum vulgare*) and Reed Canary Grass (*Phalaris arundinacea*). Throughout the meadow there are also several Manitoba Maple (*Acer negundo*) and Large-toothed Aspen (*Populus grandidentata*) saplings. This community has several areas that have been disturbed, along the edges of Oakwood Drive there are deposited materials and clear signs of dumping and in the northwest corner of the Site there were a small group of people observed to be living in tents. Another clear sign of disturbance within this community is the raised areas in elevation, coming from the north side of the Site where there is a road access, the meadow appears to have naturalized over an intended roadway or access as there is a ridge which is approximately 10 m higher than the rest of the meadow which suggests historical disturbance.

Common Reed Graminoid Mineral Meadow Marsh (MAMM1-12): This vegetated community is another large community within the Site and is found primarily on the eastern portion of the Site, with other small patches found to the west. This community is almost entirely composed of Common Reed (*Phragmites australis*) with a few immature Large-toothed Aspen and Bebb's Willows (*Salix bebbiana*) found throughout. A soil core was taken within this community showing a layer of silty clay loam which continued to a depth of 59 cm before transitioning into a saturated clay which continued for the extent of the core which ended at a depth of 108 cm. Mottles and gleys were observed within this core sample, at a depth of 70 cm and 75 cm respectively.

Gray Dogwood Deciduous Shrub Thicket (THDM2-4): This vegetated community is found in patches along the edges of the Site. This thicket community is primarily composed of Gray Dogwood (*Cornus racemose*). To a lesser extent, other species observed within this thicket community include Common Buckthorn (*Rhamnus cathartica*), Staghorn Sumac (*Rhus typhina*) and Fireberry Hawthorn (*Crataegus chrysoarpa*). The groundcover within this community is composed of Kentucky Bluegrass and dense patches of Canada Goldenrod.



Sumac Deciduous Shrub Thicket (THDM2-1): This vegetated community is found on the southwest side of the Site and is bounded by the Dry – Fresh Mixed Meadow to the west, north and east, and the Fresh – Moist Manitoba Maple Deciduous Woodland to the south. This community is dominated by Staghorn Sumac with Common Buckthorn while the groundcover is almost entirely composed of Canada Goldenrod. Also observed within this community is a row of sediment fencing which has been left to deteriorate, along this disposed fencing there appears to be a small amount of drainage accumulating.

Fresh – Moist Manitoba Maple Deciduous Woodland (WODM5-3): This wooded community is found immediately south of the Thicket community described above. It is primarily composed of early successional Manitoba Maple with some Sugar Maple. Along the edges of this community there are dense patches of Gray Dogwood, and Sugar Maple (*Acer saccharum*) and Green Ash (*Fraxinus pennsylvanica*) saplings. The groundcover is sparse within this woodland area.

Fresh – Moist Poplar Deciduous Woodland (WODM5-1): This last community is found along the northern edge of the Site, adjacent to Oakwood Drive. This community is primarily composed of Large-toothed Aspen and Trembling Aspen (*Populus tremuloides*) while the understory is densely packed with Common Buckthorn and Gray Dogwood.

4.2 Wetland Assessment

Niagara Region noted that an OWES evaluation and complex review may be required for the wetland pockets on the Site to determine if they should be complexed in with the Niagara Falls Slough Forest Wetland Complex, a Provincially Significant Wetland (PSW) in the vicinity. A review of the Niagara Falls Slough Forest Wetland Complex and a characteristics comparison of it with the wetland pockets onsite have been conducted based on NDMNRF's OWES including biological, social and/or hydrological functions, as well as watersheds, distance and lacustrine wetlands (NDMNRF, 2013). Further, important features to note include whether the wetlands are within 750 m from each other and in the same headwater area (NDMNRF, 2013).

Based on these guidelines, the Common Reed Graminoid Mineral Meadow Marsh (**MAMM1-12**) is greater than the 0.5 ha required by the OWES to be evaluated as a significant wetland. Secondly, from a complexing perspective it is approximately 600 m from the nearest PSW, namely Niagara Falls Slough Forest Wetland Complex to the east. Despite the proximity, the wetland on Site does not likely share headwaters with the PSW as they are separated by a large Hydro Canal. The wetland on Site is also very different species composition from the PSW as it is a meadow marsh with little to no trees, and the PSW is a slough forest. The wetland is dominated by over 90% invasive Common Reed which is not considered to be a wetland indicator under OWES, therefore it does not pass the 50% rule. Additionally, the wetland pockets on Site do not contain any plant or wildlife Species of Conservation Concern. However, the presence of mottles and gley within the soil, and the presence of 30 cm deep standing water in the marsh confirms that the marsh is a wetland.



As a result of this analysis, it does qualify as a wetland to be evaluated under OWES and does not need to be complexed with other adjacent, larger wetlands that met OWES evaluation criteria. The marsh will likely be considered “Other Evaluated Wetland” and not a PSW by the Niagara Region and An EIS is required if development will directly alter this community or adjacent communities within 30m.

4.3 Woodland Assessment

Following the criteria from the Niagara Region Official Plan (i.e. Policy 7.B.1.8 as per the Regional Staff), at this time the woodlands would not be considered significant. The details of this woodland assessment are described in the table below.

Criteria	Assessment
Contain threatened, endangered, or other species of concern	No threatened, endangered or special concern species and their evidence were observed at the time of Site visit or subsequent targeted surveys.
In size, be equal or great than 2 hectares	No, woodland is less than 0.5 hectare.
Contain Interior woodland habitat at least 100 meters from the woodland boundaries	No, woodland is less than 50 metres at its widest.
Contain older growth forest and be 2 hectares of greater in area	No. the woodland is less than 2 hectares and the trees are early successional.
Overlap or contain one or more of the other Significant Natural Heritage Features listen in Policies 7.B.1.3 or 7.B.1.4	No other Significant Natural Heritage Features overlapped or contained in the woodland.
Abut or be crossed by a watercourse of water body and be 2 or more hectares in area	No, no watercourse or waterbody present and the area is less than 2 hectares in size.

As shown in the table above, at this time the woodland would not qualify as a Significant Woodland under the Policy 7.B.1.8 in the Niagara Region Official Plan. Hence, it does not warrant to be included in the Core Natural Heritage System indicated in Policy 7.B.1.8. The woodlands on the Site are all under 2 hectares in size and do not contain any species of conservation concern. The small size of the woodlands means that they do not provide adequate habitat for forest obligate species, as these species require more forest interior that is farther from the edges and other disturbances. The woodland communities on the Site are also very isolated and do not make up a larger forest network, making them unlikely to be used as a wildlife corridor.



5.0 CONCLUSION AND RECOMMENDATION

Ecological analysis of the survey data from the field assessment conducted on June 28, 2022, by Pinchin concludes that the vegetation communities present on the Site represent a Mixed Meadow, Common Reed Graminoid Mineral Marsh, Gray Dogwood Deciduous Shrub Thicket, Sumac Deciduous Shrub Thicket, Manitoba Maple Deciduous Woodland, and a Poplar Deciduous Woodland. The woodland and wetland communities on the Site were further evaluated under the Niagara Region Core Natural Heritage System. The woodlands were determined to not be significant according to the evaluation criteria due to their small size and lack of species of concern.

Due to the large size of the wetland, a staking exercise may be required in order to determine the extent of the wetland within the Site. In addition to this, if an encroachment or impacts to the wetland are anticipated, an EIS and potentially an Ecological Offsetting Plan may be required in order to ensure that there are no negative impacts to the natural heritage features within the Site. To accommodate future development, alternative design options may be considered to properly utilize the Site for development potentials without an Ecological Offsetting Plan. Nonetheless, the wetland on the Site primarily consists of Common Reed that are invasive species in Ontario and this Region. It is recommended that an invasive management program is to be put in place for the removal of this wetland if an encroachment or impact to the wetland is required to accommodate the proposed development.

6.0 TERMS AND LIMITATIONS

The enclosed Natural Heritage Assessment has been prepared to assess the potential natural heritage features, on the Site within the Study Area in order to determine the development limit on this Site. The information contained herein as a result of the natural heritage features regarding the proposed residential development is solely provided to the Client as a reference only.

Conclusions derived are specific to the immediate area of study and cannot be extrapolated extensively away from the study location. Field surveys have been analyzed for the specific features within a limited time frame that are expected to be present at the Site, and the absence of information relating to a specific feature does not indicate that it is not present.

No environmental assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions on a property. Performance of this Natural Heritage Assessment to the standards established by Pinchin is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions on the Site and recognizes reasonable limits on time and cost.

This work was performed subject to the Terms and Limitations presented or referenced within the duly authorized proposal for this project. Information provided by Pinchin is intended for Client 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.

7.0 REFERENCES

- Government of Ontario. 2013. O.Reg. 155/06: Niagara Peninsula Conservation Authority: Regulation of Development, Interference with Wetland and Alterations to Shorelines and Watercourses. Retrieved in October 2022 at: <https://www.ontario.ca/laws/regulation/060155>
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- Niagara Region. 2014. Region of Niagara Official Plan. Accessed in October 2022 at: <https://www.niagararegion.ca/living/icp/policy-plan.aspx>



8.0 CLOSURE

Should you have any questions or concerns regarding the contents of this technical letter, please do not hesitate to contact the undersigned.

Yours truly,

Pinchin Ltd.

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Reviewed by:

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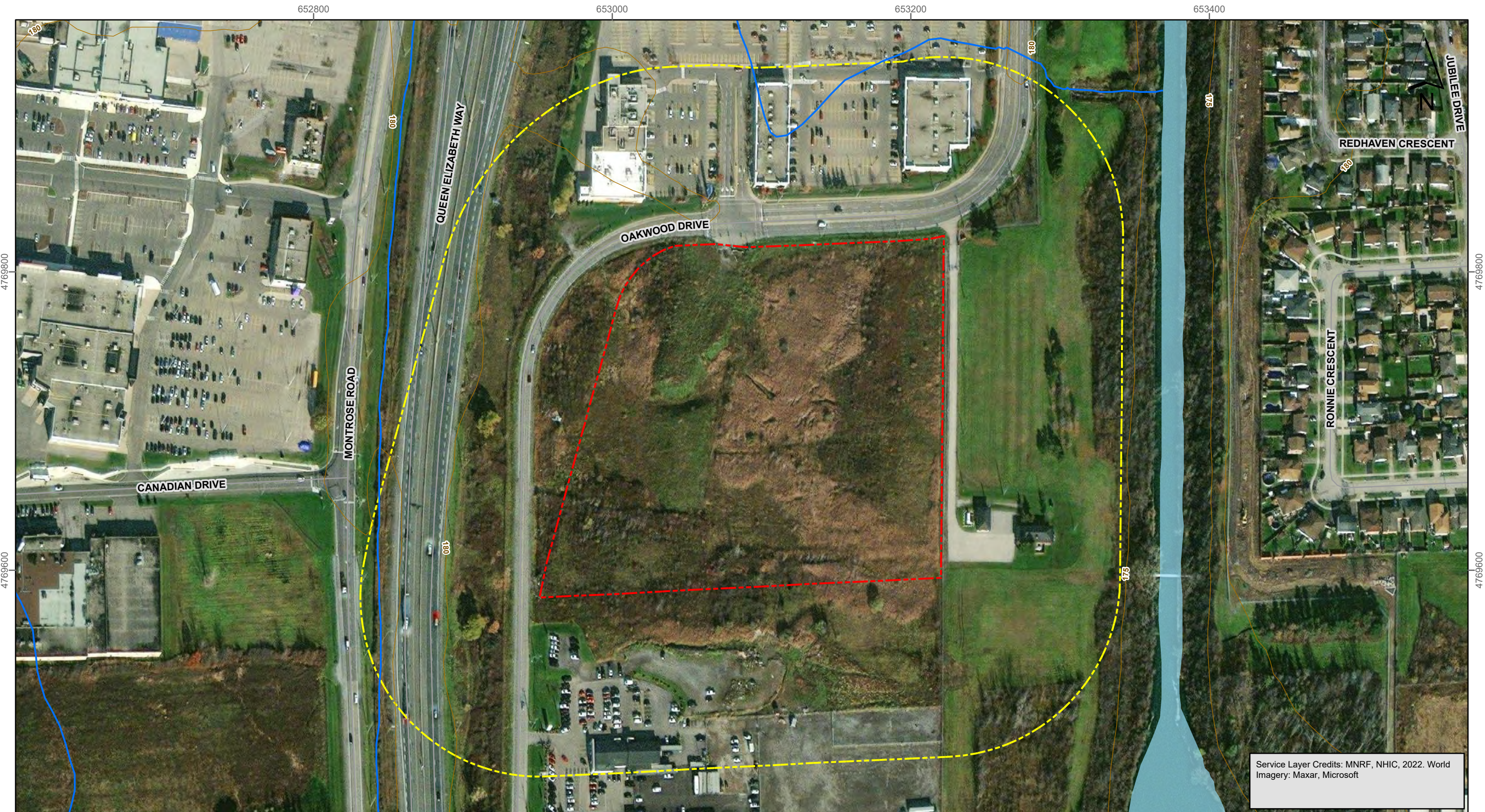
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Encl: Appendix A – Site Figures

Appendix B – Site Photographs

308990 Natural Heritage Constraints Analysis Oakwood Dr Niagara Falls ON Oct 14 2022.docx

**APPENDIX A
SITE FIGURES**



Service Layer Credits: MNR, NHIC, 2022. World Imagery: Maxar, Microsoft

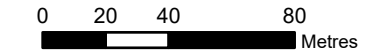


PROJECT NAME: Constraints Analysis and Scoped Environmental Impact Study
CLIENT NAME: Brantven Belmont Oakwood Inc.
PROJECT LOCATION: Vacant Parcel at Southeast Corner of Oakwood Drive, Niagara Falls, Ontario
FIGURE NAME: Study Area

PROJECT NO. 308990.000
DATE: June 2022
SCALE: 1:2,400
FIGURE NO. 1

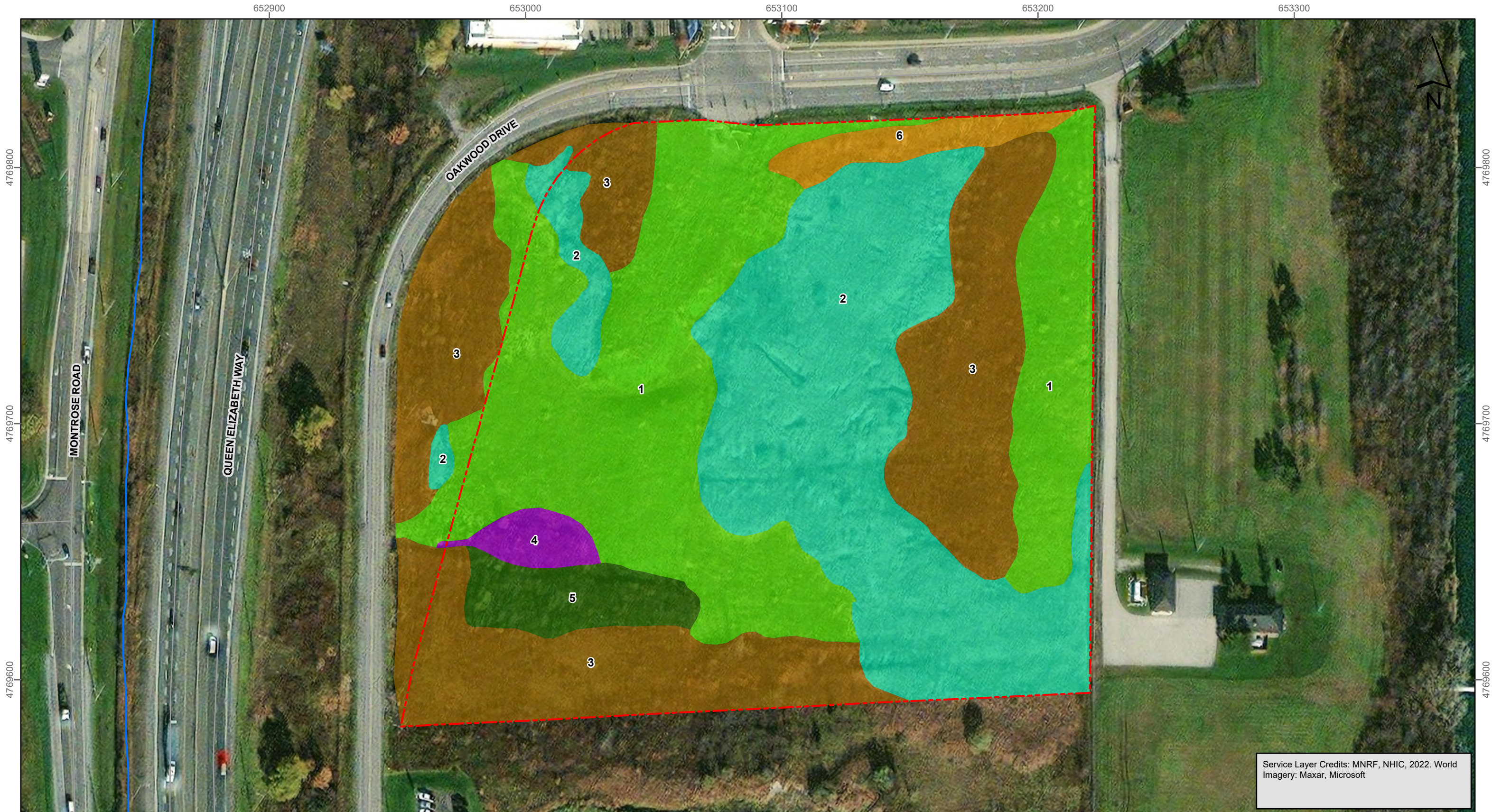
LEGEND
 Site Boundary
 Study Area (120 m)
 Waterbody
 Roadway
 Watercourse
 Topography Contours (5 m)

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.



Coordinate System: NAD 1983 CSRS UTM Zone 17N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS

DRAWN BY: MH REVIEWED BY: SR REVISION: 0



Service Layer Credits: MNRF, NHIC, 2022. World Imagery: Maxar, Microsoft



PROJECT NAME: Constraints Analysis and Scoped Environmental Impact Study
CLIENT NAME: Branthaven Belmont Oakwood Inc.
PROJECT LOCATION: Vacant Parcel at Southeast Corner of Oakwood Drive, Niagara Falls, Ontario
FIGURE NAME: Ecological Land Classification

PROJECT NO. 308990.000
DATE: October 2022
SCALE: 1:1,400
FIGURE NO. 2

LEGEND	
Site Boundary	Ecological Land Classification
Roadway	1. MEMM3 Dry - Fresh Mixed Meadow
Watercourse	2. MAMM1-12 Common Reed Graminoid Mineral Meadow Marsh
	3. THDM2-4 Gray Dogwood Deciduous Shrub Thicket
	4. THDM2-1 Sumach Deciduous Shrub Thicket
	5. WODM5-3 Fresh - Moist Manitoba Maple Deciduous Woodland
	6. WODM5-1 Fresh - Moist Poplar Deciduous Woodland

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 10 20 40 Metres

Coordinate System: NAD 1983 CSRS UTM Zone 17N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS

DRAWN BY: MH REVIEWED BY: EO REVISION: 0

**APPENDIX B
SELECTED SITE PHOTOGRAPHS**

SELECTED SITE PHOTOGRAPHS

(All photos taken on June 28, 2022)



Photo 1. View of the Common Reed Graminoid Mineral Marsh Meadow



Photo 2. View of the Dry – Fresh Mineral Mixed Meadow



Photo 3. View of Fresh – Moist Manitoba Maple Deciduous Woodland



Photo 4. View of Sumac Deciduous Shrub Thicket

APPENDIX C
VEGETATION INVENTORY

Scientific Name	Common Name	S-Rank	Coefficient Conservatism	Coefficient Wetness
<i>Rubus allegheniensis</i>	Allegheny Blackberry	S5	2	3
<i>Elaeagnus umbellata</i>	Autumn Olive	SNA		3
<i>Salix bebbiana</i>	Bebb's Willow	S5	4	-3
<i>Robinia pseudoacacia</i>	Black Locust	SNA		3
<i>Setaria verticillata</i>	Bristly Foxtail	SNA		3
<i>Centaurea jacea</i>	Brown Knapweed	SNA		5
<i>Linaria vulgaris</i>	Butter-and-eggs	SNA		5
<i>Solidago canadensis</i>	Canada Goldenrod	S5	1	3
<i>Cirsium arvense</i>	Canada Thistle	SNA		3
<i>Cichorium intybus</i>	Chicory	SNA		5
<i>Rhamnus cathartica</i>	Common Buckthorn	SNA		0
<i>Arunus dioicus</i>	Common Goatsbeard	SNA		3
<i>Hieracium vulgatum</i>	Common Hawkweed	SNA		5
<i>Asclepias syriaca</i>	Common Milkweed	S5	0	5
<i>Verbascum thapsus</i>	Common Mullein	SNA		5
<i>Plantago major</i>	Common Plantain	SNA		3
<i>Phragmites australis</i>	Common Reed	S4?	0	-3
<i>Dipsacus fullonum</i>	Common Teasel	SNA		3
<i>Vicia sativa</i>	Common Vetch	SNA		3
<i>Achillea millefolium</i>	Common Yarrow	SNA		3
<i>Populus deltoides</i>	Eastern Cottonwood	S5	4	0
<i>Crataegus monogyna</i>	English Hawthorn	SNA		3
<i>Crataegus chrysoarpa</i>	Fireberry Hawthorn	S5	4	5
<i>Cornus racemosa</i>	Gray Dogwood	S5	2	0
<i>Fraxinus pennsylvanica</i>	Green Ash	S4	3	-3
<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>Lotus tenuis</i>	Narrow-leaved Bird's-foot	SNA		3
<i>Symphyotrichum novae-angliae</i>	New England Aster	S5	2	-3
<i>Quercus ellipsoidalis</i>	Northern Pin Oak	S3	9	5
<i>Leucanthemum vulgare</i>	Oxeye Daisy	SNA		5
<i>Salix humilis var. humilis</i>	Prairie Willow	S5	7	3
<i>Salix discolor</i>	Pussy Willow	S5	3	-3
<i>Trifolium pratense</i>	Red Clover	SNA		3
<i>Festuca rubra</i>	Red Fescue	S5		3
<i>Cornus sericea</i>	Red-osier Dogwood	S5	2	-3
<i>Phalaris arundinacea</i>	Reed Canary Grass	S5	0	-3
<i>Vitis riparia</i>	Riverbank Grape	S5	0	0
<i>Prunella vulgaris</i>	Self-heal	S5	0	0
<i>Bromus inermis</i>	Smooth Brome	SNA		5
<i>Rhus typhina</i>	Staghorn Sumac	S5	1	3
<i>Acer saccharum</i>	Sugar Maple	S5	4	3
<i>Populus tremuloides</i>	Trembling Aspen	S5	2	0

Scientific Name	Common Name	S-Rank	Coefficient Conservatism	Coefficient Wetness
<i>Persicaria amphibia</i>	Water Smartweed	S5	5	-5
<i>Symphotrichum ericoides</i>	White Heath Aster	S5	4	3
<i>Melilotus albus</i>	White Sweet-clover	SNA		3
<i>Melilotus officinalis</i>	Yellow Sweet-clover	SNA		3

APPENDIX D
SELECTED SITE PHOTOS

SELECTED SITE PHOTOGRAPHS

(All photos taken on June 28 and October 19, 2022)



Photo 1. View of the Common Reed Graminoid Mineral Marsh Meadow



Photo 2. View of the standing water within the Common Reed Graminoid Mineral Marsh Meadow in fall



Photo 3. View of the Dry – Fresh Mineral Mixed Meadow



Photo 4. View of the variable topography of the Dry – Fresh Mineral Mixed Meadow caused by human disturbance.



Photo 5. View of Fresh – Moist Manitoba Maple Deciduous Woodland



Photo 6. View of Sumac Deciduous Shrub Thicket and garbage dumped at the Site.

APPENDIX E
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					Aquatic Species at Risk (DFO, 2022)	Notes on Preferred Habitat ¹	Suitable Habitat on Site	Confirmed observation on Site
							NHIC Grid 17PH5269 & 17PH5369	Atlas of Ontario Mammals (Dobbyn 1994)	Atlas of the Breeding Bird of Ontario (cadman 2009)	Ontario Butterfly Atlas (Macnoughton 2018)	Rare Vascular Plants of Ontario (Oldham & Brinker 2009)				
Molluscs	Round Hickorynut	<i>Obovaria subrotunda</i>	S17	END	END		•					found in rivers with clay, sand, or gravel bottoms. It also lives in shallow areas of lakes with firm sand.	No, suitable habitat is not found on the Site	No	
	Eastern Pondmussel	<i>Ligumia nasuta</i>	S1	END	SC		•					found in sheltered areas of lakes and in slow-moving areas of rivers and canals with sand or mud bottoms.	No, suitable habitat is not found on the Site	No	
Fish	Grass Pickerel	<i>Esox americanus</i>	S3	SC	SC		•					Found in wetlands, ponds, slow-moving streams and shallow bays of larger lakes with warm, shallow, clear water and abundant aquatic plants	No, suitable habitat is not found on the Site	No	
Plants	Deerberry	<i>Vaccinium stamineum</i>	S1	THR	THR		•				•	Found predominately in dry open woods on sandy and well-drained soils growing under oaks, Pitch Pine or White Pine.	No, suitable habitat is not found on the Site	No	
	American Chestnut	<i>Castanea dentata</i>	S152	END	END		•				•	The American Chestnut prefers dryer upland deciduous forests with sandy, acidic to neutral soils. The species grows alongside Red Oak, Black Cherry, Sugar Maple, American Beech and other deciduous tree species.	No, suitable habitat is not found on the Site	No	
Birds	Barn Swallow	<i>Hirundo rustica</i>	S4B	THR	THR	2001-2005			•			farmlands or rural areas; cliffs, caves, rock niches; buildings or other man-made structures for nesting; open country near body of water	No, suitable habitat is not found on the Site	No	
	Bobolink	<i>Dolichonyx oryzivorus</i>	S4B	THR	THR	2001-2005			•			large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland >50 ha	No, suitable habitat is not found on the Site	No	
	Chimney Swift	<i>Chaetura pelagica</i>	S4B, S4N	THR	THR	2001-2005			•			commonly found in urban areas near buildings; nests in hollow trees, crevices of rock cliffs, chimneys; highly gregarious; feeds over open water	No, suitable habitat is not found on the Site	No	
	Eastern Meadowlark	<i>Sturnella magna</i>	S4B	THR	THR	2001-2005			•			open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent, open grassy areas >10 ha in size	No, suitable habitat is not found on the Site	No	
	Eastern Wood-pewee	<i>Contopus virens</i>	S4B	SC	SC	2001-2005	X		•			open, deciduous, mixed or coniferous forest; predominated by oak with little understory; forest clearings, edges; farm woodlots, parks	No, suitable habitat is not found on the Site	No	
	Hooded Warbler*	<i>Wilsonia citrina</i>	S3B	THR	SC	2001-2005			•			favours mature, deciduous forest (Carolinian), particularly along stream bottoms, ravine edges and where saplings and shrubby grow; nests above ground in small shrubs; feeds on or near ground	No, suitable habitat is not found on the Site	No	
	Northern Bobwhite	<i>Colinus virginianus</i>	S152	END	END	2001-2005	•						grassland, prairie or hay fields with woody cover in form of thickets, tangles of vines, shrubs, fence rows or woodland edges; cropland growing corn, soybeans or small grains and clover or grass; well-drained sandy or loamy soil; pond edges	No, suitable habitat is not found on the Site	No
	Wood Thrush	<i>Hylocichla ustellata</i>	S4B	SC	THR	2001-2005			•				Carolinian and Great Lakes-St. Lawrence forest zones; undisturbed moist mature deciduous or mixed forest with deciduous sapling growth; near pond or swamp; hardwood forest edges; must have some trees higher than 12 m	No, suitable habitat is not found on the Site	No
	Canada Warbler	<i>Wilsonia canadensis</i>	S4B	SC	THR	2001-2005			•				an interior forest species; dense, mixed coniferous, deciduous forests with closed canopy, wet bottomlands of cedar or alder; shrubby undergrowth in cool moist mature woodlands; riparian habitat; usually requires at least 30 ha	No, suitable habitat is not found on the Site	No
	Cerulean Warbler	<i>Dendroica cerulea</i>	S3B	THR	END	2001-2005			•				mature deciduous woodland of Great Lakes- St. Lawrence and Carolinian forests, sometimes coniferous; swamps or bottomlands with large trees; area sensitive species needing extensive areas of forest (>100 ha)	No, suitable habitat is not found on the Site	No
Grasshopper Sparrow	<i>Ammodramus saviannorum</i>	S4B, S2N	SC	SC	2001-2005			•				well-drained grassland or prairie with low cover of grasses, taller weeds on sandy soil; hayfields or weedy fallow fields; uplands with ground vegetation of various densities; perches for singing; requires tracts of grassland > 30 ha	No, suitable habitat is not found on the Site	No	

Birds	Bald Eagle	<i>Haliaeetus leucocephalus</i>	S4B, S2N	SC		2001-2005							require large continuous area of deciduous or mixed woods around large lakes, rivers; require area of 255 ha for nesting, shelter, feeding, roosting; prefer open woods with 30 to 50% canopy cover; nest in tall trees 50 to 200 m from shore; require tall, dead, partially dead trees within 400 m of nest for perching	No, suitable habitat is not found on the Site	No
	Bank Swallow	<i>Riparia riparia</i>	S4B	THR	THR	2001-2005							sand, clay or gravel river banks or steep riverbank cliffs; lakeshore bluffs of easily crumbled sand or gravel; gravel pits, road-cuts, grassland or cultivated fields that are close to water; nesting sites are limiting factor for species presence	No, suitable habitat is not found on the Site	No
	Acadian Flycatcher	<i>Empidonax virens</i>	S2B53B	END	END	2001-2005							mature, shady, deciduous forests; heavily wooded ravines; creek bottoms or river swamps; availability of good quality habitat is limiting factor; needs at least 30 ha of forest	No, suitable habitat is not found on the Site	No
	Peregrine Falcon	<i>Falco peregrinus</i>	S2S3B, 2N	SC	THR	2001-2005							rock cliffs, crags, especially situated near water; tall buildings in urban centres;	No, suitable habitat is not found on the Site	No
	Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	S4B	END	END	2001-2005							open, deciduous forest with little understorey; fields or pasture lands with scattered large trees; wooded swamps; orchards; small woodlots or forest edges; groves of dead or dying trees; feeds on insects and stores nuts or acorns for winter; loss of habitat is limiting factor; requires cavity trees with at least 40 cm dbh; require about 4 ha for a territory	Yes, suitable habitat is found throughout the Site	No
	Short-eared owl	<i>Asio flammeus</i>	S2N, S4B	SC	SC	2001-2005							grasslands, open areas or meadows that are grassy or bushy; marshes, bogs or tundra; both diurnal and nocturnal habits; requires 75-100 ha of contiguous open habitat	No, suitable habitat is not found on the Site	No
	Barn Owl	<i>Tyto alba</i>	S1	END	END	2001-2005							open areas such as fields, agricultural lands with scattered woodlots, buildings and/or orchards; grasslands, sedge meadows, marshes; nests in hollow trees and live trees >46 cm dbh; also nests in barns, abandoned buildings	Yes, suitable habitat is found throughout the Site	No
	Least Bittern	<i>Ixobrychus exilis</i>	S4B	THR	THR	2001-2005							deep marshes, swamps, bogs; marshy borders of lakes, ponds, streams, ditches; dense emergent vegetation of cattail, bulrush, sedge; nests in cattails; intolerant of loss of habitat and human disturbance	No, suitable habitat is not found on the Site	No
	Common Nighthawk	<i>Chordeiles minor</i>	S4B	SC	THR	2001-2005							open ground; clearings in dense forests; ploughed fields; gravel beaches or barren areas with rocky soils; open woodlands; flat gravel roofs	No, suitable habitat is not found on the Site	No
Whip-poor-will	<i>Caprimulgus vociferus</i>	S4B	THR	THR	2001-2005							dry, open, deciduous woodlands of small to medium trees; oak or beech with lots of clearings and shaded leaf litter; wooded edges, forest clearings with little herbaceous growth; pine plantations; associated with >100 ha forests;	No, suitable habitat is not found on the Site	No	
Reptiles	Blanding's turtle	<i>Emydoidea blandingii</i>	S3	THR	THR	2011							shallow water marshes, bogs, ponds or swamps, or coves in larger lakes with soft muddy bottoms and aquatic vegetation; basks on logs, stumps, or banks; surrounding natural habitat is important in summer as they frequently move from aquatic habitat to terrestrial habitats; hibernates in bogs	Yes, suitable habitat is found in the marsh communities on the Site.	No
	Common musk turtle	<i>Sternotherus odoratus</i>	S3	THR	THR	2011							aquatic, except when laying eggs; shallow slow moving water of lakes, streams, marshes and ponds; hibernate in underwater mud, in banks or in muskrat lodges; eggs are laid in debris or under stumps or fallen logs at waters edge; often share nest sites; sometimes congregate at hibernation sites	No, suitable habitats is not found on the Site as the marsh community does not have a current.	No
	Common Snapping Turtle*	<i>Chelydra serpentina</i>	S4	SC	SC	2019							permanent, semi-permanent fresh water; marshes, swamps or bogs; rivers and streams with soft muddy banks or bottoms; often uses soft soil or clean dry sand on south-facing slopes for nest sites; may nest at some distance from water; often hibernate together in groups in mud under water	No, suitable habitat is not found on the Site as the marshes are seasonal and not semi-permanent.	No
	Map Turtle*	<i>Graptemys geographica</i>	S3	SC	SC	2015							large bodies of water with soft bottoms, and aquatic vegetation; basks on logs or rocks or on beaches and grassy edges; will bask in groups; uses soft soil or clean dry sand for nest sites; may nest at some distance from water;	No, suitable habitat is not found on the Site	No
	Northern ribbon snake*	<i>Thamnophis sauritus septentrionalis</i>	S3	SC	SC	2012							sunny grassy areas with low dense vegetation near bodies of shallow permanent quiet water; wet meadows, grassy marshes or sphagnum bogs; borders of ponds, lakes or streams	Yes, suitable habitat is found in the meadow marsh community on the Site	No

Amphibians	Western Chorus Frog* (Great Lakes-St. Lawrence Population)	<i>Pseudacris triseriata</i>	S3	THR	---	2019							roadside ditches or temporary ponds in fields; swamps or wet meadows; woodland or open country with cover and moisture; small ponds and temporary pools	Yes, suitable habitat is found in the meadow marsh community on the Site.	No
Insects	Monarch	<i>Danaus plexippus</i>	S2N,S4B	SC	SC	2021							Only the caterpillars feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers.	Yes, suitable habitat is found in the meadow communities on the Site.	No
Mammals	Little Brown Myotis	<i>Myotis lucifugus</i>	S4	END	END								uses caves, quarries, tunnels, hollow trees or buildings for roosting; winters in humid caves; maternity sites in dark warm areas such as attics and barns; feeds primarily in wetlands, forest edges	No, suitable habitat is not found on the Site	No
	Gray Fox	<i>Urocyon cinereoargenteus</i>	S1	THR	THR								hardwood forests with a mix of fields and woods; swamps; wooded, brushy or rocky habitats; woodland farmland edge; old fields with thickets; dens in hollow log or tree	No, suitable habitat is not found on the Site	No
	Eastern Pipistrelle*	<i>Pipistrellus subflavus</i>	S37	END	---								open woods near water; roosts in trees, cliff crevices, buildings or caves; hibernates in damp, draft-free, warm caves, mines or rock crevices	No, suitable habitat is not found on the Site	No
	Woodland Vole*	<i>Microtus pinetorum</i>	S37	SC	SC								mature deciduous forest in the Carolinian forest zone, with loose sandy soil and deep humus; grasslands, meadows and orchards with groundcover of duff or grass	No, suitable habitat is not found on the Site	No


APPENDIX F
PROPOSED SITE PLAN

THE QUEEN ELIZABETH WAY
OAKWOOD DRIVE



**16' 3S RL, 20' 3S RL TOWNS - RM3 S.4.1.261.2b
BUILDINGS 10-13, 17, 18, 29, 30**

REGULATION	REQUIRED	PROPOSED	COMPLY
MAXIMUM LOT (MINIMUM)	250 sq.m / DWELLING	80.51 sq.m.	NO
LOT FRONTAGE (MINIMUM)	30.0 m	181.31 m	YES
FRONT YARD DEPTH (MINIMUM)\DWELLING	6.0 m	3.10 m	NO
REAR YARD DEPTH (MINIMUM)	7.5 m	0.00 m	NO
INTERIOR SIDE YARD (MINIMUM)	1/2 BUILDING HGT. (5.10 m)	1.25 m	NO
EXTERIOR SIDE YARD (MINIMUM)	7.50 m	14.05 m	YES
LOT COVERAGE (MINIMUM)	35%	70.41%	NO



**BRANTHAVEN
HOMES
OAKWOOD
INC.**

STATUS: SITE PLAN APPROVAL
 PROJECT: OAKWOOD TOWNHOMES
 FOLDER: OAKWOOD
 FILE: 14869 - Oakwood Site Plan3.mxd
 SCALE: 1:500
 DRAWN BY: KSR
 DATE: MARCH, 2022
 REVISED: _____
 JOB No: _____

TITLE: **SITE PLAN**

SHEET No. **A1.01**

DATE	NO.	REVISION
22/03	1	SUBMITTED FOR CLIENT REVIEW