ENVIRONMENTAL IMPACT STUDY/ SITE EVALUATION REPORT

Belcastro Property
Hastings Highlands
April 2024

RIVERSTONE
ENVIRONMENTAL SOLUTIONS INC.

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Amended April 17, 2024
RS# 2023-326

Matt Belcastro

***SUBJECT*: Environmental Impact Study, 1799 North Baptiste Lake Road, Municipality of Hasting Highlands, Hastings County**

Dear Mr. Belcastro,

RiverStone Environmental Solutions Inc. is pleased to provide you with the attached report.

Please contact us if there are any questions regarding the report, or if further information is required.

Best regards,

RiverStone Environmental Solutions Inc.

Bev Wicks, Ph. D.
Principal / Senior Ecologist

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REPORT SUMMARY

Type of Study		**Date**
Environmental Impact Study		Amended April 17, 2024
Project Manager	**Legal Description**	**Development Proposed**
Bev Wicks	1799 N Baptiste Lake Road, Part Lot 15, Concession 7, Municipality of Hastings Highlands, County of Hastings	Redevelopment of two existing cottages into a single larger cottage.
	Approval Authorities	**Owner/Agent**
	Municipality of Hastings Highlands, County of Hastings	Matt Belcastro

Report Summary

This Environmental Impact Study has been prepared as part of a development application to demolish two cottages and rebuild a new larger cottage within 30 metres of the high-water mark of Baptiste Lake. During the onsite review of existing conditions, it was determined that the subject property contained or were adjacent to the following natural heritage features:

1. Nearshore and Deepwater Fish habitat
2. Potential habitat of endangered and threatened species.
3. Deer Wintering Habitat

Potential impacts of the proposed application on the identified natural heritage features and species of conservation interest were evaluated. Potential negative impacts resulting from the proposed development can be mitigated using the recommendations contained within **Section 4** of this report (reiterated below).

RECOMMENDATIONS

Water Quality and Fish Habitat

- **All new development and site alteration should be set back 10 m from Baptiste Lake given features documented onsite (Figure 2).**

Alteration Within Shoreline Buffer

- **A naturalization plan should be prepared for the area (286 m^2) depicted on Figure 3.**
- **Revegetation with native species should occur in the area shown on Figure 3. This is to be completed with a mix of locally native tree, shrub, and groundcover species. A list of suitable species is provided below in Table 2 and Table 3. Following planting, these areas are to be left unmaintained, to restore the shoreline buffer.**
- **Shrubs and groundcover should be installed between 0.3 to 1.5 m apart depending on size (small-0.3 m, medium 0.8 m, and large 1.5 m).**

- **All installed woody plants (i.e., trees and shrubs) should be native to Hastings Highlands and suitable to site conditions (e.g., light regime, moisture regime, etc.). Table 2 below lists tree, shrub, and ground cover species native to Hastings Highlands.**

- **All installed shrubs are recommended to consist of potted material in 1-3 gallon pots.**

- **All woody plants should be installed such that the root crown/trunk flare is exposed above the soil surface to ensure proper oxygenation of the rooting zone (see Appendix 2 for Planting Guide).**

- **All installed woody plants should be watered (deep soaking) following installation.**

- **The optimal time for woody plant installations is the spring (i.e., May) or fall (i.e., mid-September to early-October).**

- **The shoreline buffer areas are to be planted so that seasonal maintenance is not required and will be left to fill in and naturalize through succession.**

- **Groundcover planting "pods" can be created between tree and shrub plantings to naturalize and fill in open areas and create a naturalized look to the property. Suggested species for the subject property are included in Table 3.**

- **The property owner is required to submit dated photographs of the shoreline buffer and riparian areas to the Township on a yearly basis, taken from the same locations, for a period of 10 years.**

Erosion and Hardened Surfaces

- **Final development plans should include eves-trough that directs rooftop leaders upslope into soakaway pits or infiltration trenches.**

- **Low Impact Development (LID) measures (permeable and limited pathways) where feasible, should be included in the development design to decrease any potential impact to the surrounding natural features.**

- **Following revegetation of recommended areas, if a paths to the water from the rental cottages are required, all hardened surfaces (e.g., patios, trails, shoreline access) should employ permeable materials (woodchips, pea gravel, permeable pavers or equivalent) that allow for infiltration of stormwater and prevent channelization. Surfaces should be graded to drain away from the shoreline and, where possible, into areas with deep soils and dense vegetation.**

- **Machinery should arrive on site in clean condition and is to be checked and maintained free of fluid leaks.**

- **Best Management practices should be utilized with all machinery and fill being imported to the site to ensure that material and tracks are free from invasive species (*Phragmites australis*, etc.).**

- **Before native soils are exposed, sediment and erosion control works, in the form of sediment fencing, should be installed in the location shown on Figure 3. These works should be maintained in good working order until the exposed soils have become re-vegetated.**
- **The sediment fencing should be constructed of heavy fabric and solid posts and should be properly trenched to maintain its integrity during weather events.**
- **Machinery must be refueled, washed, and serviced within the area isolated by sediment fencing away from all waterbodies.**
- **Locate all fuel and other potentially deleterious substances within the area isolated by sediment fencing.**
- **Temporary storage locations of aggregate materials shall be located in the parking area on the west side of the road and shall not be located in any vegetated areas. =. This material is to be contained by heavy-duty sediment fencing.**
- **Additional sediment fencing and appropriate control measures (e.g., silt fence) be stockpiled on site so that any breach can be immediately repaired through construction of check dams.**
- **Regular inspection and monitoring will be necessary to ensure that the structural integrity and continued functioning of the sediment control measures is maintained (i.e., proper installation is not the only action necessary to satisfy the mitigation requirements).**
- **Inspections of sediment and erosion control measures be completed within 24 hours of the onset of a storm event.**
- **Sediment control measures be maintained in good working order until vegetation has been established on the exposed soils.**
- **Removal of non-biodegradable erosion and sediment control materials should occur once construction is complete, and the site is stabilized.**
- **A plan be prepared that illustrates rooftop leaders and outlets, location, materials and extent of all hardened surfaces, and location and detail of sediment and erosion control fencing.**
- **DFO should be notified immediately if a situation occurs or if there is imminent danger of an occurrence that could cause serious harm to fish. If there is an occurrence, corrective measures must be implemented. This may occur during construction or otherwise.**
- **All in-water habitat features, including aquatic vegetation, natural woody debris and boulders should be left in their current locations in the nearshore area.**

<u>Endangered and Threatened Species</u>

Endangered Bats

- **Demolition of the existing cabins for the purposes of development proposed only occur in the fall, winter and early spring (from October 1 to April 1). This timeframe is outside of the maternal roosting period for endangered bats.**

- **Tree clearing is not anticipated, however, if required, trees should only be removed from October 1st to April 1st.**
- **If tree clearing or demolition must occur between April 1 and October 1, a qualified professional should complete a combination of snag surveys and acoustic monitoring, with technical guidance from the MECP, for the area where tree clearing is proposed.**
- **Limit any tree clearing to condensed development envelope, avoid unnecessary tree removals, and retain trees that are in poor health but do not represent a hazard.**
- **Consider the installation of bat nesting boxes in trees along the perimeter of building envelope to aid with insect control and promote local bat populations.**

1 BACKGROUND

RiverStone Environmental Solutions Inc. (hereafter "RiverStone") was retained by Matt Belcastro to complete an Environmental Impact Study (EIS) for the property located at 1799 N Baptiste Lake Road, with frontage on Baptiste Lake in the Municipality of Hasting Highlands. The legal description of the property is Part Lot 15, Concession 7, Geographic Township of Herschel, Municipality of Hastings Highlands, County of Hastings (hereafter "subject property") (**Figure 1**).

According to the Municipality of Hastings Highlands Zoning By-law 2004-35 (December 2020) the subject property is zoned Rural Commercial (RC). It is RiverStone's understanding that the proposal is to demolish two existing non-conforming cottages 96.4m^2 (16 by 32 ft) and replace them with a single cottage with a larger footprint of 119 m^2 (40 by 32 ft), and that the proposed development is set back 10 m (32 ft) from Baptiste Lake. The subject property is located within the east basin of the lake, outside of the area that has been identified as at capacity for development.

Based on communications with Planning Staff at the Municipality of Hastings Highlands, the minor variance application requires the completion of an EIS to assess the potential impacts of the proposal. The EIS is scoped to include vegetation classification, and the assessment of species at risk, and fish habitat. RiverStone has interpreted "species of concern" to include both endangered and threatened species and deer wintering habitat.

This EIS is required to demonstrate how the re-building of the cottage can occur while still protecting the components of the natural environment that require protection and provide mitigation measures to minimize impacts to natural features and the ecological functions. RiverStone has prepared this EIS as scoped above, to address the requirements outlined in the Municipality and County policies, as well as the Provincial Policy Statement.

2 APPROACH AND METHODS

The general approach used to complete this EIS involved the following:

1. Gather background biophysical information for the subject property and adjacent lands (~ 120 m from subject property boundaries) to become familiar with existing mapping of natural heritage features and occurrences of species of conservation interest prior to the site investigation.
2. Conduct site investigations to field-verify the presence or absence of natural heritage features and/or habitat for species of conservation interest identified during background information gathering, and to identify any additional significant features (where present).
3. Determine the potential for negative impacts associated with implementation of the proposed development and provide recommendations on how identified negative impacts can be mitigated via avoidance, minimization, and/or compensation measures (as necessary).
4. Determine whether the proposed application addresses applicable municipal, provincial, and federal environmental policies.

2.1 Information Sources Used to Assess Site Conditions

Background biophysical information pertaining to the subject property and adjacent lands was collected from a variety of sources. This includes:

- **County of Hastings Official Plan (December 2017)** for natural features mapping including:
    - Schedule B – Natural Heritage Features and Areas
- **Municipality of Hasting Highlands Comprehensive Zoning By-law** (2004-035) (Consolidated February, 2024) for applicable zoning and environmental protection areas mapping
- **Ministry of the Environment, Conservation and Parks (MECP) information request** for occurrences of species at risk in and adjacent to the subject property.
- **MNRF Natural Areas Mapping and Natural Heritage Information Centre (NHIC) database** regarding information on occurrences of species at risk (SAR), provincially tracked species, and natural heritage features near the subject property (square: 18TR6601, 18TR6602 accessed November 11, 2023 at https://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US)
- **Species at Risk in Ontario List** as provided by Ministry of the Environment, Conservation and Parks: https://www.ontario.ca/page/species-risk-ontario (last accessed December 2023)
- **Ontario Breeding Bird Atlas (OBBA) database and the Atlas of the Breeding Birds of Ontario, 2001–2005** (Cadman et al. 2007) regarding birds that were documented to be breeding near the Site between 2001–2005 (square: 18TTR60 accessed at: http://www.birdsontario.org/atlas/squareinfo.jsp).
- **Ontario Reptile and Amphibian Atlas** database regarding records of reptiles and amphibians that have been observed within the vicinity of the subject property (square: 18TR60; accessed December 14, 2023, at https://www.ontarioinsects.org/herp/).
- **iNaturalist Mapping and Online Database** regarding citizen scientist observations documented in the vicinity of the subject lands accessed December 14, 2023 at: https://inaturalist.ca/projects/nhic-rare-species-of-ontario
- **Atlas of the Mammals of Ontario** (Dobbyn 1994) regarding mammals recorded near the subject property.
- **Great Lakes Conservation Blueprint for Terrestrial Biodiversity, Volume 2** (Henson and Brodribb (2005) regarding terrestrial biodiversity within Ecodistrict 5E.
- **Great Lakes Conservation Blueprint for Aquatic Biodiversity, Volume 2** (Phair et al. (2005) regarding aquatic biodiversity.
- **Physiography of Southern Ontario** (Chapman and Putnam 2007) for information pertaining to the physiography and soils within and adjacent to the subject property.
- **Digital Ontario Base Maps** (OBMs; 1:10,000).
- **Historical and Current Aerial Photographs** of the subject property and adjacent lands.
- RiverStone's **in-house databases and reference collections**.
- On-site investigations by RiverStone staff (see **Section 2.2**)

2.2 Site Investigation

2.2.1 General Approach

The results of background information gathering outlined above in **Section 2.1** helped direct on-site data collection activities associated with a site investigation carried out on December 14, 2023, by C. Mann (Ecologist). Data collection was focused on reviewing existing vegetation communities, identifying natural features that exist on the property (upland vegetation communities, potential species at risk (SAR) and fish habitat) as well as site physical features (topography, slope, soil). Representative site photos taken during this investigation are assembled in **Appendix 1**. Overall, the level of effort expended on-site was deemed appropriate to document the features and functions given the location and scale of the proposed development.

2.2.1.1 Habitat-based Approach

RiverStone's primary approach to site assessment is habitat-based. This means that our field investigations first focus on evaluating the potential for features within an area of interest to function as habitat for species considered potentially present, rather than searching for live specimens. An area is considered potential habitat if it satisfies several criteria, usually specific to a species, but occasionally characteristic of a broader group (e.g., several turtles of conservation interest use sandy shorelines for nesting, numerous fish species use areas of aquatic vegetation for nursery habitat). Physical attributes of a site that can be used as indicators of its potential to function as habitat for a species include structural characteristics (e.g., physical dimensions of rock fragments or trees, water depth), ecological community (e.g., meadow marsh, rock barren, coldwater stream), and structural connectivity to other habitat features required by the species. Species-specific habitat preferences and/or affinities are determined from status reports produced by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), Cadman et al. (2007), published and unpublished documents, and direct experience.

In instances where habitat features are such that either (i) a species presence cannot be easily determined through an assessment of habitat feature alone, or (ii) habitat features are such that they suggest a species may be present in an area where development is proposed and impacts are likely, RiverStone adds an additional level of rigor to our work by completing further species-specific assessments in accordance with industry standard methods and protocols.

Natural features of interest (e.g., vegetation community boundaries) and survey markers were delineated in the field with a high accuracy GPS. Features of interest were photographed, and all information collected was catalogued for future reference.

2.2.2 Terrain, Drainage, and Soils

Geology is a significant factor in the formation of soil, the physical characteristics of a watershed, and ultimately surface water quality. The bedrock and overlying deposits influence surface runoff and infiltration, directly influencing the nutrient balance of receiving water bodies. Knowledge of the existing terrain in a study area is important in understanding how a property and its associated natural environment will respond to development pressures. The geophysical setting of the property was reviewed using OBMs, soils mapping, and aerial photography, and subsequently verified on-site with a soil probe for depth. Soil conditions are generally related to the suitability for septic system.

2.2.3 Water Quality and Fish Habitat

Our field approach for fish habitat is also habitat-based. That is, we do not conduct site visits to observe fish use of the shoreline habitat over their entire life cycle to conclude whether the habitat is used or is significant. Instead, we conduct a site visit during the time of year when habitat features are visible, to document feature characteristics and types (**Table 1**).

While some habitats are specifically used by individual species at key times in their life history (e.g., rocky wind-swept shoals exposed to wind used by lake trout for spawning), other habitats are used by several species at various important times in their development (e.g., aquatic vegetation is used by various species for spawning, nursery, and/or feeding habitat). Characteristics of the open water shoreline that relate to habitat use by fish include substrate type, slope / water depth, presence of woody debris / fallen trees and large boulders, aquatic vegetation, confluence with watercourses, and exposure to the wind. During our assessment, these features are surveyed from land and/or the water, taking note of the key habitat features described above.

Existing information on Baptiste Lake was reviewed based on data published through the Ministry of Natural Resources (MNRF). The key habitat features, along with the state of the riparian vegetation, are documented and recorded during onsite assessments and compared with the specific and general habitat requirements of the fish that are known to occur, to establish the fish habitat type (**Table 1**). Where available, our classification is compared with that of the MNRF. For the subject property, mapping was not available from the MNRF for this section of shoreline.

Generally, where watercourses are encountered, they are assessed for several important characteristics, including the physical dimensions of the channel, substrates, invertebrates, thermal regime, groundwater sources and adjacent vegetation. These details allow the creek to be characterised and considered on the basis of requirements in the Township Official Plans. These requirements relate to the buffer width and vegetation retention requirements. Wetlands can also be considered habitat for fish where there is suitable open water.

Table 1. Classification of Fish Habitat Types.

Classification Type	Description
Type 1	Habitats have high productive capacity, are rare, in space and/or time, are highly sensitive to development, or have a critical role in sustaining fisheries (*e.g.*, spawning and nursery areas for some species, and ground water discharge areas for summer and/or winter thermal refuges).
Type 2	Habitats are moderately sensitive to development and, although important to the fish population, are not considered critical (*e.g.*, feeding areas and open water habitats of lakes).
Type 3	Habitats have low productive capacity or are highly degraded, and do not currently contribute directly to fish productivity. They often have the potential to be improved significantly (*e.g.*, a portion of a waterbody, a channelized stream that has been highly altered physically).

2.2.4 Endangered and Threatened Species

This report considers those species listed as endangered or threatened on the Ontario Species at Risk List (*O. Reg*. 230/08) that receive protection under s.9 and s.10 of the provincial *Endangered Species*

Act, 2007 (ESA). As described in **Section 2.2.1.1**, RiverStone's approach to site assessment is primarily habitat-based. The results of these assessments are provided in **Appendix 2**.

2.3 Impact Assessment

RiverStone employs the following approach to carry out a standardized assessment of impacts associated with the proposed development (as described in **Section 4**):

1. *Predict* impacts to existing biophysical features and functions on site based on the proposed development plan (from construction to post-completion), including both direct (e.g., vegetation clearance, etc.) and indirect (e.g., light pollution, encroachment post-development, etc.) impacts.
2. *Evaluate* the significance of predicted impacts to existing biophysical features and functions based on their spatial extent, magnitude, timing, frequency (how often), and duration (how long).
3. Assess the *probability* or likelihood that the predicted impacts will occur at the level of significance expected (e.g., high, medium, low probability).

In instances where a reasonable potential exists for negative impacts to a significant feature with recognized status, opportunities to mitigate (avoid, minimize, compensate) and/or enhance such features are provided.

2.4 Assessment of Conformance with Applicable Environmental Policies

The relevant municipal and environmental policies that apply to the subject property and proposed development are listed below. Based on the results of the background information gathering, site investigation, impact assessment, and recommendations, RiverStone has advised the extent to which the proposed development conforms to all applicable environmental policies in **Section 5**.

- Federal *Migratory Birds Convention Act*, S.C. 1994, c. 22, including:
    - Migratory Birds Regulations.
- *Provincial Policy Statement*, 2020, pursuant to the *Planning Act*, R.S.O. 1990, c. P.13, including:
    - Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005 (OMNR 2010)
    - The Lakeshore Capacity Assessment Handbook (May 2010)
- Provincial *Endangered Species Act* (ESA), S.O. 2007, c. 6, including:
    - Ontario Regulation 230/08: Species at Risk in Ontario List
    - Ontario Regulation 242/08: "Exemption Regulation"
- County of Hastings *Official Plan* (December 19, 2017)
- Municipality of Hastings Highlands *Comprehensive Zoning By-law 2004-035* (Consolidated February 2024)

3 BIOPHYSICAL FEATURES AND FUNCTIONS

3.1 General Site Conditions

At the time of our site visit on December 14, 2023, development on the subject property consisted of a large, cleared area that contained a commercial rental business that includes a residence/general store, five rental cottages, and a dock. The subject property is rectangular shaped with little space between the road and Baptiste Lake and is bisected by Baptiste Lake Road to the west, bound by Baptiste Lake to the east and similar properties to the north, south and west. No watercourses or wetland features were noted on the subject property. Representative photographs taken during the site investigation are provided in **Appendix 1**.

3.2 Terrain, Drainage, and Soils

The subject property is situated within the central portion of Ecodistrict 5E-11 (Bancroft). Soils on the subject property are the result of the advance and retreat of the last continental glaciation of North America. Soils in this region tend to be shallow; however, the depth to bedrock can vary considerably over short distances. In general, soils are stony, sandy, and acidic in nature. Areas of bare bedrock are common at higher elevations where the glacier was thinner and less morainal sediment was deposited. Areas of typically acidic bare bedrock and very shallow mineral material are more common in the south (Wester, et al, 2018). Prominent bedrock knobs and ridges are common in the region and dominate features in some areas. The Precambrian landform expression strongly influences the topographic patterns of the region as well as the local overland drainage characteristics.

Topographic information available for the property, supplemented with field observations, reveal that the property is relatively level in the area adjacent to Baptiste Lake with steeper slopes (20-40%) located in the area between the western property boundary and Baptiste Lake Road. Contour lines on the subject property are included in **Figure 2**. There are areas of the property where formations have created a steep slope, however this topography is to the west of North Baptiste Lake Road and not considered a constraint to the proposed development. Overland drainage is directed to the east towards Baptiste Lake.

3.3 Vegetation Communities

Existing vegetation communities within the subject property were assessed through a combination of background review and on-site investigation. A desktop exercise was undertaken to map vegetation community boundaries using background information sources and current aerial photographs; the mapped vegetation communities were then ground-truthed to a high level and refined where necessary during the site investigation. Vegetation community mapping with classifications generally based on Lee et al (1998) and descriptions are provided below. Each description includes a list of representative plant species within each community. All species observed within the study area are considered common locally and provincially.

3.3.1 Terrestrial Vegetation Communities

The subject property primarily consists of one large anthropogenic area with some trees planted in areas noted on **Figure 2**. The area consists primarily of a residential amenity area which is a large maintained/landscaped area surrounding the existing residential dwellings and access driveway. Vegetation cover is generally limited to grass and planted gardens and scattered trees, including White Birch (*Betula papyrifera*), Red Maple (*Acer rubrum*), Black Cherry (*Prunus serotina*), Balsam Fir

(*Abies* balsamea), Sugar Maple (*Acer saccharinum*), White Spruce (Picea glauca), Eastern White Cedar (*Thuja occidentalis*). On the west side of the road there is a steep cliff and a small cluster of trees along the western property boundary best described as Dry to Fresh, Coarse: Red Pine-White Pine Mixedwood (G054Tt/TI) and consisting of American Beech (*Fagus americana*), Largetooth Aspen (*Populus grandidentata*), White Ash (*Fraxinus americana*), Eastern White Cedar (*Thuja occidentalis*), Beaked Hazel (*Corylus cornuta*), Bayberry (*Myrica pensylvanica*), and Staghorn Sumac (*Rhus typhinia*).

3.4 Fish Habitat

The subject property has frontage on Baptiste Lake, which is a large cold-water Lake Trout lake, the western basin of which has been identified as at capacity for development. The fish community consists of several major fish species, including Lake Trout (*Salvelinus namaycush*), Black Crappie (*Pomoxis nigromaculatus*), Blue Gill (*Lepomis macrochirus*), Brown Bullhead (*Ameiurus nebulosus*), Burbot (*Lota lota*),Cisco (*Coregonus artedi*), Lake Whitefish (*Coregonus clupeaformis*), Largemouth Bass (*Micropterus salmoides*), Muskellunge (*Esox masquinongy*), Northern Pike (*Esox lucius*), Pumpkinseed (*Lepomis gibbosus*), Rock Bass (*Ambloplites rupestris*), Smallmouth Bass (*Micropterus dolomieu*), Walleye (*Stizostedion vitreum*), White Sucker (*Catostomus commersonii*), and Yellow Perch (*Perca flavescens*).

During our site assessment, we reviewed the entire shoreline of the property to determine the type of nearshore fish habitat present, given the expected fish community. Habitat characteristics are consistent across the frontage. The nearshore habitat features fronting the shoreline of the subject property observed through the ice consist of a mix of gravel and sand substrates. Onshore slopes are gentle in the range of 0-5% in the area directly adjacent to the cottage.

Riparian vegetation observed on site primarily consisted of grass with treed/vegetated areas consisting of juvenile White Birch (*Betula papyrifera*), Red Pine (*Pinus resinosa*), Balsam Fir (*Abies* balsamea), White Spruce (Picea glauca), Beaked Hazel (*Corylus cornuta*), Sensitive Fern (*Onoclea sensibilis*), Staghorn Sumac (*Rhus typhinia*), Raspberry sp. (*Rubus sp.*), Hydrangea (*Hydrangea macrophylla*). Along the property boundary at the shoreline is a small area of vegetation consisting of Eastern White Cedar (*Thuja occidentalis*), White Birch (*Betula papyrifera*) and a few White Spruce (Picea glauca).

Based on the conditions documented on site, the shoreline frontage is likely classified as Type 2 habitat providing general movement and foraging habitat for a variety of fish species, however, note that an assessment of aquatic vegetation and nearshore fish habitat during the growing season (June 15-September 15) was not completed.

Baptiste Lake supports a Lake Trout population. The impact assessment and mitigation measures section, therefore, focuses on potential impacts to water quality related to the development on the subject property. Lake Trout are sensitive to development activities that decrease water quality; attributed to both increase in phosphorous and decreases in dissolved oxygen in deep water habitat. The subject property is located in the east basin of Baptiste Lake which is currently classified as not at capacity for development.

3.5 Wildlife Habitat

As noted above, RiverStone assessed the potential for the subject property and adjacent lands to contain habitat for endangered and threatened species (**Appendix 2**).

3.5.1 Endangered and Threatened Species

The results of RiverStone's desktop, habitat-based, and targeted assessments for endangered and threatened species and their habitat are provided in **Appendix 2**. The preliminary screening identified the potential for thirty-two (32) endangered or threatened species to be present on the subject property based on existing records and/or range maps. Based on the results of the onsite habitat assessment, RiverStone identified the potential for two (2) endangered species to be present on the subject property; these species include Little Brown Bat (*Myotis lucifugus*) and Northern Myotis (*Myotis septentrionalis*). An impact assessment is provided for these species in **Section 4.3**.

3.5.2 Deer Wintering Areas

MNRF mapping and Schedule B Natural Heritage Features of the County of Hastings Official Plan has identified Stratum 1 deer yard and wintering habitat covering the property, which is considered SWH. White-tailed Deer concentrate during the winter, after snow accumulates. Deer show a high fidelity to these gathering areas, returning each year. This specialized habitat is considered Significant Wildlife Habitat as deer rely on the thermal cover and food found in these wintering yards. To confirm that an area is being used for deer wintering, it requires suitable vegetation for both thermal cover and food (deciduous shrub, saplings and/or Eastern White Cedar and Eastern Hemlock) in addition to having a history of deer use. During field assessment, signs of deer activity are recorded, as well as type and quantity of vegetation cover and the quality of habitat. Based on the species present and the current use of the subject property as a highly developed commercial rental property with minimal vegetation and very high levels of human activity along with a lack of tree cover in the eastern area of the property and steep slopes with a small, forested area in the western area, the subject property lacks the necessary features to function as deer habitat. It is therefore not suitable vegetation to function as a deer yard.

4 IMPACT ASSESSMENT AND RECOMMENDATIONS

4.1 Development Proposal

The current landowners are proposing to demolish two existing non-conforming rental cottages that are located 10 m from the lake and replace it with a single new cottage with a larger footprint. The proposed new dwelling will be 10 m from the shoreline of Baptiste Lake. **Figure 3** illustrates the proposed development.

4.2 Water Quality and Fish Habitat

In general, development and site alteration present a series of common potential impacts to water quality, and fish habitat. Mitigation planning for protection of all these features and functions involves similar actions, and so the impact assessment for these natural heritage features is provided under a single section. Negative impacts to near shore and deep-water fish habitat associated with Baptiste Lake resulting from proposed development have the potential to occur via the following processes:

- stormwater runoff during construction activities resulting in increase sediment and nutrient loading
- modification of drainage patterns or flow rates
- inappropriately located sewage treatment systems that increase nutrient (phosphorous) loading to waterbodies
- increased runoff due to an increase in the extent of hard surfaces (e.g., rooftops, patios, pathways)

- changes to terrestrial vegetation and structural features (e.g., removal of vegetation or soil, importation of aggregates) resulting in increased erosion and reduced nutrient uptake.
- construction of in-water structures (e.g., culverts, docks, bridges)
- changes to in-water structural features (e.g., substrates, woody debris, aquatic vegetation)

Although the land use changes during the construction process have the potential to have negative impacts on water quality and deep-water fish habitat, it is RiverStone's opinion that the mitigation measures recommended below can reduce the risk of negative impacts to an acceptable level. To ensure that the adjacent waterbody is not negatively impacted by development activities on the proposed lot, RiverStone recommends the following measures:

- **All new development and site alteration should be set back 10m from Baptiste Lake given features documented onsite (Figure 2).**

Alteration Within Shoreline Buffer

The following recommendations related to development and site alteration within the eastern area of the subject property adjacent to Baptiste Lake around the commercial rental cabins and shoreline amenity area:.

- **A naturalization plan should be prepared for the area (286 m^2) depicted on Figure 3.**
- **Revegetation with native species should occur in the area shown on Figure 3. This is to be completed with a mix of locally native tree, shrub, and groundcover species. A list of suitable species is provided below in Table 2 and Table 3. Following planting, these areas are to be left unmaintained, to restore the shoreline buffer.**
- **Shrubs and groundcover should be installed between 0.3 to 1.5 m apart depending on size (small-0.3 m, medium 0.8 m, and large 1.5 m).**
- **All installed woody plants (i.e., trees and shrubs) should be native to Hastings Highlands and suitable to site conditions (e.g., light regime, moisture regime, etc.). Table 2 below lists tree, shrub, and ground cover species native to Hastings Highlands.**
- **All installed shrubs are recommended to consist of potted material in 1-3 gallon pots.**
- **All woody plants should be installed such that the root crown/trunk flare is exposed above the soil surface to ensure proper oxygenation of the rooting zone (see Appendix 2 for Planting Guide).**
- **All installed woody plants should be watered (deep soaking) following installation.**
- **The optimal time for woody plant installations is the spring (i.e., May) or fall (i.e., mid-September to early-October).**
- **The shoreline buffer areas are to be planted so that seasonal maintenance is not required and will be left to fill in and naturalize through succession.**

- **Groundcover planting "pods" can be created between tree and shrub plantings to naturalize and fill in open areas and create a naturalized look to the property. Suggested species for the subject property are included in Table 3.**

- **The property owner is required to submit dated photographs of the shoreline buffer and riparian areas to the Township on a yearly basis, taken from the same locations, for a period of 10 years.**

Table 2. Native Plant List. Species selected for planting should match the moisture regime and light level in the location of planting (highlighted species are recommended for subject property).

Common Name	Scientific Name	Form	Moisture Regime – Light Level
Tree Species			
White Pine	*Pinus strobus*	Conifer Tree	Dry to Moist – shade-sun
Red Pine	*Pinus resinosa*	Conifer Tree	Dry to Fresh – sun
Eastern White Cedar	*Thuja occidentalis*	Conifer Tree	Fresh to Moist – shade to sun
Eastern Hemlock	*Tsuga canadensis*	Conifer Tree	Fresh to Moist – shade
White Spruce	*Picea glauca*	Conifer Tree	Dry to Fresh – sun
Balsam Fir	*Abies balsamea*	Conifer Tree	Fresh to Moist – shade
Tamarack	*Larix laricina*	Conifer Tree	Fresh to Moist – sun
White Birch	*Betula papyrifera*	Deciduous Tree	Dry to Moist – sun
Red Maple	*Acer rubra*	Deciduous Tree	Dry to Moist – all
Red Oak	*Quercus rubra*	Deciduous Tree	Dry to Fresh – sun
White Oak	*Quercus alba*	Deciduous Tree	Dry to Fresh – sun
Yellow Birch	*Betula alleghaniensis*	Deciduous Tree	Fresh to Moist – shade

Common Name	Scientific Name	Form	Moisture Regime – Light Level
Sugar Maple	*Acer saccharinum*	Deciduous Tree	Dry to Moist – shade
Black Cherry	*Prunus serotina*	Deciduous Tree	Dry to Fresh – sun
Trembling Aspen	*Populus tremuloides*	Deciduous Tree	Dry to Fresh – sun
Shrub Species			
Nannyberry	*Viburnum lentago*	Shrub	Moist to Wet – all
Northern Wild Raisin	*Viburnum cassinoides*	Shrub	Moist to Wet – sun
Alternate-leaved Dogwood	*Cornus alternifolia*	Shrub	Fresh to Moist – shade
Common Ninebark	*Physocarpus opulifolius*	Shrub	Dry to Wet –all
Serviceberry	*Amelanchier spp*	Shrub	Dry to Fresh – all
Red-osier Dogwood	*Cornus stolonifera*	Shrub	Dry to Wet –all
Staghorn Sumac	*Rhus hirta*	Shrub	Dry to Fresh – all
Choke Cherry	*Prunus virginiana*	Shrub	Dry to Moist – sun
Common Elderberry	*Sambucus canadensis*	Shrub	Fresh to Moist – sun
Speckled Alder	*Alnus incana*	Shrub	Fresh to Moist – sun
Bush honeysuckle	*Diervilla lonicera*	Shrub	Dry to Fresh – all
Sweetgale	*Myrica gale*	Shrub	Damp to Moist – sun
Narrow-leaved Meadowsweet	*Spirea alba*	Shrub	Dry to Moist – any

Table 3. Recommended Native Groundcover Species

Common Name	Scientific Name
Ostrich Fern	*Matteuccia struthiopteris*
Interrupted Fern	*Osmunda claytoniana*
Spinulose Wood Fern	*Dryopteris carthusiana*
Canada Mayflower	*Maianthemum canadense*
Northern Starflower	*Trientalis borealis*
Fireweed	*Chamerion angustifolium*
Wild Sarsaparilla	*Aralia nudicaulis*
Bunchberry	*Cornus canadensis*

4.2.1 Erosion and Hardened Surfaces

Stormwater runoff from hard surfaces, particularly rooftops, extensive flagstone patios, stairways and walkways, have the potential to impact the water quality and deep-water fish habitat of Baptiste Lake in the long term. To address the potential for erosion and reduced nutrient uptake that results from soil coverage and hardened surfaces RiverStone would provide the following commentary. The potential for erosion can be reduced if concentrated flow from the rooftops is avoided by directing rooftop drainage through downspouts into in-ground infiltration chambers. Infiltration chambers are shallow excavations with perforated pipe cut in half, convex side up, covered with filter fabric and topped with stone to create underground reservoirs. The runoff gradually percolates through the chamber and into the surrounding soil. The chambers reduce the volume of overland runoff, can provide ground water recharge, and are able to remove suspended solids and phosphorus. The flow from infiltration chambers should be directed away from the shoreline setback, toward vegetated portions of the lot to increase nutrient uptake. Eves-trough should not be piped directly to the lake. Regarding the above, RiverStone recommends that:

-

- **Final development plans should include eves-trough that directs rooftop leaders upslope into soakaway pits or infiltration trenches.**

- **Low Impact Development (LID) measures (permeable and limited pathways) where feasible, should be included in the development design to decrease any potential impact to the surrounding natural features.**

- **Following revegetation of recommended areas, if a paths to the water from the rental cottages are required, all hardened surfaces (e.g., patios, trails, shoreline access) should employ permeable materials (woodchips, pea gravel, permeable pavers or equivalent) that allow for infiltration of stormwater and prevent channelization. Surfaces should be graded to drain away from the shoreline and, where possible, into areas with deep soils and dense vegetation.**

To ensure that water quality and fish habitat is not negatively impacted by stormwater runoff during construction activities (e.g., site clearing activities, construction and installation of erosion control measures), RiverStone recommends the following measures:

- **Machinery should arrive on site in clean condition and is to be checked and maintained free of fluid leaks.**
- **Best Management practices should be utilized with all machinery and fill being imported to the site to ensure that material and tracks are free from invasive species (*Phragmites australis*, etc.).**
- **Before native soils are exposed, sediment and erosion control works, in the form of sediment fencing, should be installed in the location shown on Figure 3. These works should be maintained in good working order until the exposed soils have become re-vegetated.**
- **The sediment fencing should be constructed of heavy fabric and solid posts and should be properly trenched to maintain its integrity during weather events.**
- **Machinery must be refueled, washed, and serviced within the area isolated by sediment fencing away from all waterbodies.**
- **Locate all fuel and other potentially deleterious substances within the area isolated by sediment fencing.**
- **Temporary storage locations of aggregate materials shall be located in the parking area on the west side of the road and shall not be located in any vegetated areas. This material is to be contained by heavy-duty sediment fencing.**
- **Additional sediment fencing and appropriate control measures (e.g., silt fence) be stockpiled on site so that any breach can be immediately repaired through construction of check dams.**
- **Regular inspection and monitoring will be necessary to ensure that the structural integrity and continued functioning of the sediment control measures is maintained (i.e., proper installation is not the only action necessary to satisfy the mitigation requirements).**
- **Inspections of sediment and erosion control measures be completed within 24 hours of the onset of a storm event.**
- **Sediment control measures be maintained in good working order until vegetation has been established on the exposed soils.**
- **Removal of non-biodegradable erosion and sediment control materials should occur once construction is complete, and the site is stabilized.**
- **A plan be prepared that illustrates rooftop leaders and outlets, location, materials and extent of all hardened surfaces, and location and detail of sediment and erosion control fencing.**

As part of the impact analysis, the potential to cause serious harm to fish, including fish habitat, was assessed. Although the land use changes and construction practices that are proposed have the potential to have negative impacts on water quality, fish and fish habitat, it is RiverStone's opinion that the

measures recommended above can mitigate potential negative impacts, so that there is no serious harm to fish in the open water feature.

To ensure that fish habitat is not negatively impacted by the proposed development and is in compliance with the *Fisheries Act*, RiverStone recommends the following measures:

- **DFO should be notified immediately if a situation occurs or if there is imminent danger of an occurrence that could cause serious harm to fish. If there is an occurrence, corrective measures must be implemented. This may occur during construction or otherwise.**
- **All in-water habitat features, including aquatic vegetation, natural woody debris and boulders should be left in their current locations in the nearshore area.**

4.3 Endangered and Threatened Species

Appendix 2 presents our assessment of potential impacts on species and ecological communities of conservation interest. The results of our analysis suggest that Little Brown Myotis (*Myotis lucifugus*) and the Northern Myotis Bat (*Myotis septentrionalis*) had the potential to use features found on the property.

4.3.1 Endangered Bats

Potential habitat for two (2) endangered bats, (Little Brown Myotis, and Northern Myotis, hereafter "endangered bats") is located across the subject property in the forested communities west of the road which consist of very steep slopes and a mixedwood forest and in the old buildings/cottages. In the absence of detailed site-specific data, and based on RiverStone's professional experience, forested ecosites on the edges of the subject property in addition to the rental cabins may be expected to support some level of seasonal bat activity, which may include endangered bat species. These communities contain snag trees that could support maternal roosting habitat for each of the endangered bats. As endangered species, individuals cannot legally be killed, harmed, or harassed as per Section 9 of Ontario's *Endangered Species Act* (ESA). RiverStone provides a simple mitigation approach below (*i.e.*, restrictive vegetation clearing windows) to ensure that individual endangered bats are not killed, harmed, or harassed through the development process (should they be present).

Pregnant and lactating females will move from roost to roost each morning in responses to changes in thermal conditions and prey (insect) availability. Areas containing a high density of snags increases the chances of use by endangered bats as these areas provide a variety of microhabitat conditions. Changes within the forest community adjacent to maternal roosts have the potential to reduce the suitability of a given snag or cavity tree by changing the extent of shading by adjacent trees, which can result in changes to thermal conditions within the roost. Additionally, as roosting trees inherently exhibit some level of decay, removal of trees surrounding roosts may increase the potential for wind-throw of both the roost itself and surrounding trees, thereby damaging or destroying the habitat feature.

Habitat for endangered or special concern bats is prevalent throughout Hastings County. As a predominantly forested area, habitat for maternal roosting bats is not limited across the landscape. The primary reason for these species of bats being listed under the *ESA* is the prevalence of White-nose Syndrome, which is a fungus that infects bats as they hibernate over winter. This fungus grows on their muzzle, ears and wing-membranes, continually waking them from hibernation and causing dehydration, resulting in mortality.

Bats predictably depart maternity roosts for hibernacula sites in the fall of any given year, meaning that timing restrictions will reliably avoid any direct harm to individuals. Tree clearing, site alteration, and the construction of structures are all proposed as part of the development associated with the current application. To prevent impacts upon the habitat of endangered bats that may be utilizing the forest communities for maternal roosting habitat on the subject property, RiverStone recommends the following for future development:

- **Demolition of the existing cabins for the purposes of development proposed only occur in the fall, winter and early spring (from October 1 to April 1). This timeframe is outside of the maternal roosting period for endangered bats.**
- **Tree clearing is not anticipated, however, if required, trees should only be removed from October 1st to April 1st.**
- **If tree clearing or demolition must occur between April 1 and October 1, a qualified professional should complete a combination of snag surveys and acoustic monitoring, with technical guidance from the MECP, for the area where tree clearing is proposed.**
- **Limit any tree clearing to condensed development envelope, avoid unnecessary tree removals, and retain trees that are in poor health but do not represent a hazard.**
- **Consider the installation of bat nesting boxes in trees along the perimeter of building envelope to aid with insect control and promote local bat populations.**

With the implementation of the above-noted mitigation measures, it is RiverStone's opinion that the development plan will not result in adverse impacts to any endangered bat species or the availability of their habitat on the local landscape.

5 CONFORMANCE WITH APPLICABLE ENVIRONMENTAL POLICIES

The following commentary summarizes the municipal environmental legislation and policies that are relevant to the proposal being evaluated here and describes how the recommendations provided in this report will permit the proposed land-use changes to comply with these provisions.

5.1 Federal Fisheries Act (R.S.C., 1985, amended 2019-08-28)

The *Federal Fisheries Act* states that:

34.4 (1) No person shall carry on any work, undertaking or activity, other than fishing, that results in the death of fish.

35. (1) No person shall carry on any work, undertaking or activity that results in harmful alteration, disruption or destruction of fish habitat.

DFO further states that "under subsection 35(1) a person may carry on such works, undertakings or activities without contravening this prohibition, provided that they are carried on under the authority of one of the exceptions listed in subsection 35(2), and in accordance with the requirements of the appropriate exception. In most cases, this exception would be Ministerial authorizations granted to

proponents in accordance with the *Authorizations Concerning Fish and Fish Habitat Protection Regulations."*

The recommendations included in this report will keep development and site alteration away from all fish habitat identified on the subject property. As such, it is the opinion of RiverStone that activities proposed on the property will not contravene the *Fisheries Act*, and that an Authorization under the Section 35(2) is not likely required. Should however, during this project, situations arise and lead to occurrences that result in a HADD, persons responsible for the project have a "duty to notify" DFO, take corrective actions, and provide written reports under Section 38 of the *Act*.

5.2 Federal *Migratory Birds Convention Act, 1994* (MBCA)

Section 6 of the Migratory Birds Regulations under the MBCA makes it an offence to "disturb, destroy or take a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird."

Restricting clearing of vegetation for the proposed development to times outside of the period April 1 to August 31, will prevent contravention of Section 6 of the regulations.

If development and site alteration is going to occur during this period, a nest survey should be conducted by a qualified avian biologist prior to commencement of construction activities to identify and locate active nests of migratory bird species covered by this Act. If a nest is located or evidence of breeding noted, then a mitigation plan should be developed to address any potential impacts on migratory birds or their active nests. Mitigation may require establishing appropriate buffers around active nests or delaying construction activities until the conclusion of the nesting season.

5.3 Provincial *Endangered Species Act, 2007* (ESA)

The *Endangered Species Act, 2007* (ESA) came into effect June 30, 2008, and replaced the previous provincial *Endangered Species Act*. The following excerpt from the explanatory note provided with the Act summarizes the protection afforded to species:

> If a species is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species, the Bill prohibits killing, harming, harassing, capturing, taking, possessing, transporting, collecting, buying, selling, leasing, trading or offering to buy, sell, lease or trade a member of the species, or selling, leasing, trading or offering to sell, lease or trade anything that is represented to be a member of the species.

Protection afforded to habitats of species is described as follows:

> If a species is listed on the Species at Risk in Ontario List as an endangered or threatened species, the Bill prohibits damaging or destroying the habitat of the species. This prohibition also applies to an extirpated species if the species is prescribed by the regulations. The regulations may specifically prescribe an area as the habitat of a species but, if no habitat regulation is in force with respect to a species, "habitat" is defined to mean an area on which the species depends, directly or indirectly, to carry on its life processes. With respect to certain species that were classified before first reading of the Bill, the prohibition on damaging or destroying habitat does not apply until the earlier of the date a regulation prescribing the habitat of the species comes into force and the fifth anniversary of the date the requirement to establish the Species at Risk in Ontario List comes into existence.

Appendix 2 lists the species protected under provisions of the ESA that have the potential to occur on the subject property or on the adjoining lands. As detailed therein, the likelihood of contravening the ESA, should the proposed activities be implemented, can be reduced to an acceptable level by following RiverStone's recommended mitigation measures.

5.4 Provincial Policy Statement, 2020, pursuant to the *Planning Act*, R.S.O. 1990, c. P.13.

The significant natural features documented on the subject property include potential significant wildlife habitat. Based on this identified feature the following provisions from Section 2.1 of the 2020 PPS are relevant to this assessment:

> **2.1.4** Development and site alteration shall not be permitted in:
>
> a) significant wetlands in Ecoregions 5E, 6E, and 7E1;
>
> **2.1.5** Development and site alteration shall not be permitted in:
>
> a) significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E[1];
> b) significant woodlands in Ecoregions 6E and 7E;
> c) significant valleylands in Ecoregions 6E and 7E;
> d) significant wildlife habitat;
> e) significant areas of natural and scientific interest; and
> f) coastal wetlands in Ecoregions 5E, 6E and 7E[1] that are not subject to policy 2.1.4(b)
>
> unless it has been demonstrated that there will be *no negative impacts on the natural features or their ecological functions.*
>
> **2.1.6** *Development* and *site alteration* shall not be permitted in *fish habitat* except in accordance with *provincial* and *federal requirements*.

As per **Section 3.4** fish habitat was identified along the shoreline of the subject property fronting onto Baptiste Lake. Adherence to the recommendations outlined in **Section 4.2** of this report will ensure there are no negative impacts to fish habitat.

> **2.1.7** *Development* and *site alteration* shall not be permitted in habitat of endangered species and threatened species, except in accordance with *provincial and federal requirements*.

The impact assessment provided in **Section 4** provides recommendations to avoid impacts to endangered and threatened species. Adherence to the recommendations outlined therein will ensure that these activities do not occur in areas that could be considered habitat of endangered or threatened species which is consistent with policy 2.1.7.

> **2.1.8** *Development* and *site alteration* shall not be permitted on *adjacent lands* to the *natural heritage features and areas* identified in policies 2.1.4, 2.1.5 and 2.1.6 unless the *ecological function* of the *adjacent lands* has been evaluated and it has been demonstrated that there will be no *negative impacts* on the natural features or on their *ecological functions*.

The extent of the area evaluated for negative impacts on potentially significant natural heritage features as described in in **Section 4** and the associated appendices are more than sufficient to ensure that impacts on adjacent lands were appropriately assessed. Careful evaluation of the ecological function of the lands potentially affected by the permissible development and site alteration on the subject property indicates that the activities will be consistent with policy 2.1.8, as long as the recommended mitigation measures are followed.

5.5 Hastings County Official Plan (August 2018)

The Hastings Official Plan provides recommendations regarding the protection of the natural environment across Hastings County. Many of the recommendations parallel the requirements set out in the ESA and PPS; consequently, the preceding discussion of how a development on the subject property would comply with those requirements similarly applies to policies in the Hastings Official Plan.

Section 4.2.4. of the Official Plan outlines the policies related to fish habitat.

4.2.4.1 Fish habitat provides food, cover and conditions for successful reproduction and support of a species throughout its lifecycle. Lakes, rivers, streams, ponds, shoreline areas and many wetlands provide fish habitat. Intermittent and seasonally flooded areas can also provide important habitat for some fish species at certain times of the year. In addition, in-water structures such as logs, stumps and other woody debris, pools and riffle areas, riparian and aquatic vegetation and ground water recharge/discharge areas also provide habitat. Habitat includes the watercourses that act as corridors that allow fish to move from one area to another.

4.2.4.3 New development and/or site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements. New development and/or site alteration shall not be permitted on adjacent lands within 120 metres of fish habitat unless it has been determined in an approved Environmental Impact Statement (EIS) pursuant to Part A - Section 7.8.6 of this Plan that there will be no negative impacts on the natural features or its ecological functions.

4.2.4.6 The policies of Part A - Section 5.4.5 apply to development and/or site alteration along Waterfront areas and are intended to ensure sensitive development adjacent to fish habitat in the County will not negatively impact on natural features or their ecological functions.

4.2.5 Lakes Managed for Lake Trout

4.2.5.1 The County acknowledges the importance of cold water bodies in sustaining salmonoid fish species, such as lake trout, and the sensitivity to physical, thermal Hastings County Official Plan – December 2017 Prepared by the Hastings County Planning Department 81 and chemical changes to such waterbodies. Cold water bodies are less common than other water habitats and are relatively reliant on groundwater discharge/recharge, undisturbed shoreline areas and other naturally occurring dynamics that maintain water quality, base flows and temperatures. Lake trout have two basic water quality requirements, low water temperatures and high levels of dissolved oxygen. Phosphorus loading that tends to promote growth of plants and algae is the key pollutant that can most jeopardize the two key noted water quality requirements.

4.2.5.2 The County and Member Municipalities shall permit development to take place adjacent to lakes managed for lake trout and their associated streams only in a manner that has no adverse effects on habitat essential to the maintenance of a healthy lake trout fishery.

Interpretation: The proposed development will increase the footprint within the 30 m setback of Baptiste Lake. The recommended re-vegetation will improve nearshore fish habitat compared to existing conditions prior to redevelopment. The subject property is located on a lake that is managed for Lake Trout but within a basin that is not classified as at capacity for development.

5.6 Municipality of Hastings Highlands Zoning By-law 2014-14 (Consolidated February 2024)

The subject property is currently zoned Rural Commercial (RC), with the current application to remove two existing non-conforming cottages and replace them with a single dwelling with a larger footprint.

Section 5.9 of the Zoning By-law outlines the requirements for "lands adjacent to waterbodies, watercourses, embankments, floodplains and environmentally sensitive lands". Section 5.9.2 states that no building, structure, or septic tank installation including the weeping tile field ('no development') shall be located: i) within 30 metres (98.4 ft.) of the highwater mark of a waterbody or permanent watercourse.

Interpretation: A new septic system is not required as part of the proposed development and the existing septic system will continue to be used. Given the constraints on the subject property including the limited lot size and the existing development, there are not alternative locations where the proposed development could be located. The proposed development will replace two existing nonconforming dwellings with a single dwelling within the 30 m setback.

6 CONCLUSIONS

Based upon the findings presented in this report and contingent upon the implementation of the recommendations made herein, it is our conclusion that the proposed development application on the subject property will have a very low likelihood of negatively impacting any significant natural heritage features and functions features protected under relevant municipal, provincial, or federal environmental policies as outlined. RiverStone is of the opinion that the proposed development is consistent with the relevant environmental legislation and policies. We suggest that the recommendations in this report be incorporated into the development and site plan agreement for the subject property. Finally, these conclusions are also dependent upon the recommended preventative measures being implemented through a development plan that is subsequently enforced with appropriate by-laws.

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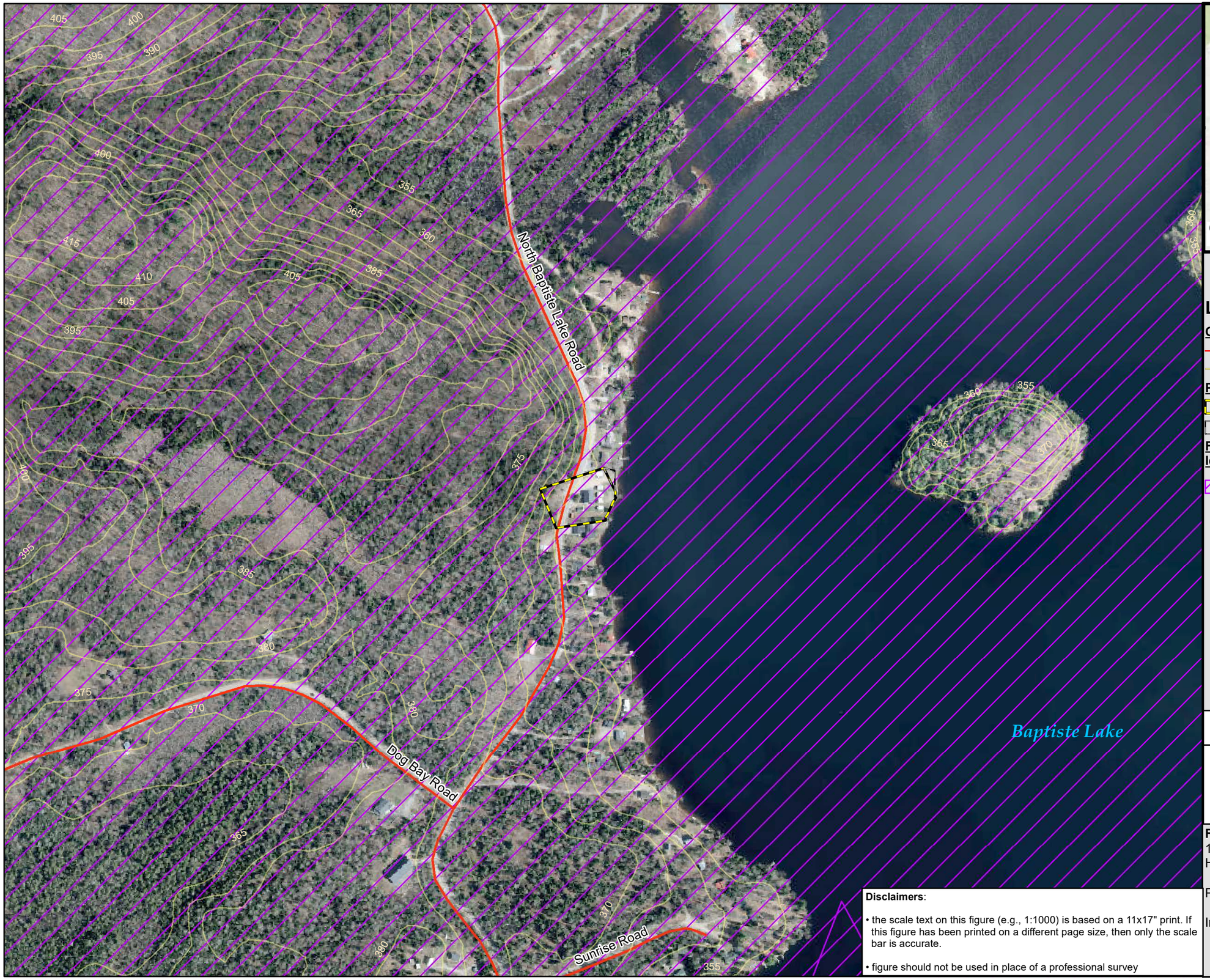

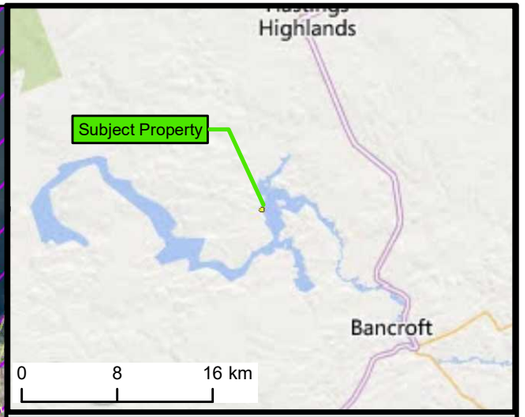

N

Legend

Ontario Base Mapping (OBM)

- Roads
- 5 m Contours

Planning Boundaries

- Subject Property
- Subject Property Crown??

Features with Natural Heritage Value - Identified by the Province

- Deer Wintering Area (Deer Yard - Stratum 1 (OMNRF))

Orthorectified aerial photo - spring 2018

Scale	RS Project No.	Date Last Updated	By
1:5,000	2023-326	Jan 24, 2024	JG

0 75 150 Metres

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Disclaimers:

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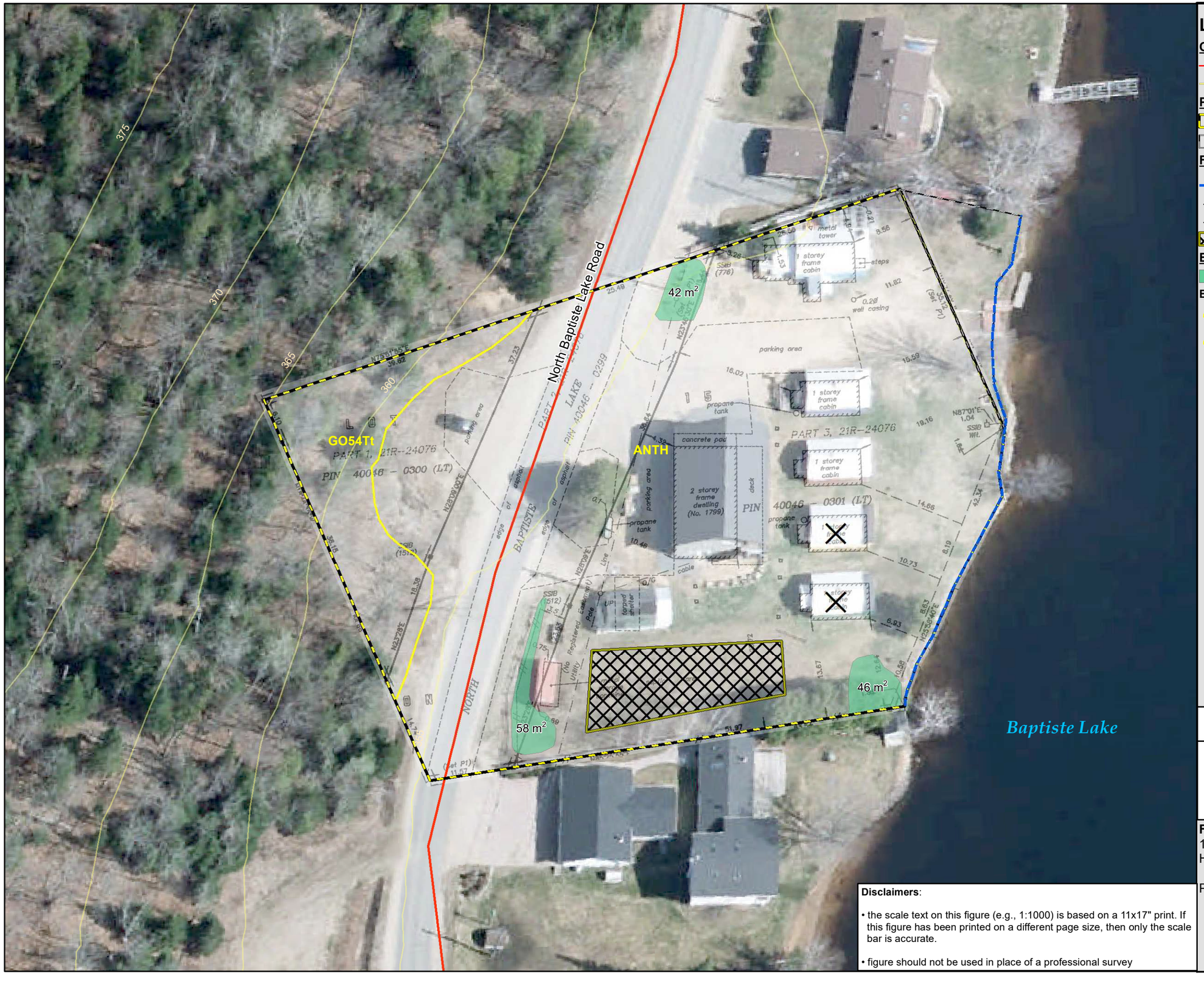
- figure should not be used in place of a professional survey

Figure 1. Location Of Subject Property
1799 North Baptiste Lake Road, Municipality of Hastings Highlands

Prepared for: Matt Belcastro

Inset: General Location Of Subject Property



Legend

Ontario Base Mapping (OBM)

- Roads
- 5 m Contours

Planning Boundaries

- Subject Property
- Crown Land

Features Taken from Existing Survey

- Maximum Controlled Water's Edge (Contour Elevation 351.82 cgvd28)
- Cottage (To Be Removed)
- Septic Bed

Biophysical Features+Functions-RiverStone

- Planted Area By Landowner

Ecological Communities

- GO54Tt - Dry to Fresh, Coarse: Red Pine-White Pine Mixedwood
- ANTH - Anthropogenic

Survey:
P.A. Miller Surveying Limited
Surveyor's Real Property Report
Date Drawn: April 08, 2024,
23-11724

Orthorectified aerial photo - spring 2018

Scale	RS Project No.	Date Last Updated	By
1:500	2023-326	Apr 16, 2024	JG

0 7.5 15 Metres

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Figure 2. Existing Conditions
1799 North Baptiste Lake Road, Municipality of Hastings Highlands

Prepared for: Matt Belcastro

Legend

Ontario Base Mapping (OBM)

- Roads

Planning Boundaries

- Subject Property
- Subject Property (Crown)

Features Taken from Existing Survey

- Maximum Controlled Water's Edge (Contour Elevation 351.70 cgvd28)

Biophysical Features+Functions-RiverStone

- Planted Area By Landowner

Measures Recommended by RiverStone to Prevent and/or Reduce Impacts

- Erosion And Sediment Control Fencing
- Area To Be Revegetated

Proposed Development and Site Alteration

- Cottage

Survey:
P.A. Miller Surveying Limited
Surveyor's Real Property Report
Date Drawn: April 08, 2024,
23-11724

Orthorectified aerial photo - spring 2018

Scale	RS Project No.	Date Last Updated	By
1:500	2023-326	Apr 16, 2024	JG

0 7.5 15 Metres

RIVERSTONE ENVIRONMENTAL SOLUTIONS INC.

Disclaimers:

- the scale text on this figure (e.g., 1:1000) is based on a 11x17" print. If this figure has been printed on a different page size, then only the scale bar is accurate.
- figure should not be used in place of a professional survey

Figure 3. Proposed Development And Recommendations
1799 North Baptiste Lake Road, Municipality of Hastings Highlands

Prepared for: Matt Belcastro

Appendix 1. Select Photos from Site Visit

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Photo 1. Existing conditions along shoreline cottages in the background (December 14, 2023).

Photo 2. Existing shoreline conditions and location of proposed naturalisation (December 14, 2023)

Photo 3. Existing amenity area and shoreline conditions (December 14, 2023).

Photo 4. Existing shoreline vegetation community (December 14, 2023).

Photo 4. Steep slopes and forested area in the Western area of the property(December 14, 2023).

Photo 5. Location of existing cottages (December 14, 2023).

Appendix 2. Assessment of Habitat of Endangered and Threatened Species

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Species	ESA Status	General Description of Habitat and Range	Is the study area within the current known range of the species.	Do applicable databases contain records for this species within or adjacent to the study area.	Is suitable habitat present within the study area.	Is suitable habitat present within lands adjacent to the study area.	Discussion of relevance to proposal
American Eel (*Anguilla rostrata*)	END	The American Eel migrates up the St. Lawrence River into the Ottawa River and Lake Ontario. They are habitat generalists and use benthic habitats with stones, debris, and vegetation for cover. Their distribution has been severely limited by human development and damming rivers.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
American Ginseng (*Panax quinquefolius*)	END	American Ginseng requires well-drained but moist acidic to neutral soils overlying limestone or marble bedrock. They are obligate understory plants found in undisturbed mature deciduous and mixed forests, and occasionally in coniferous forests and swamps.	YES	NO	NO	NO	No individuals of this species were observed within the study area. No further assessment undertaken.
Bank Swallow (*Riparia riparia*)	THR	The Bank Swallow is a small aerial insectivore bird that nests colonially in burrows they excavate within banks. Colonies will nest in bluffs, riverbanks, aggregate pits, roadside embankments, and topsoil piles near open habitat that provides a steady source of insects. Colony sites must also be near roosting areas in wetland, reed, or cane beds.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Black Ash (*Fraxinus nigra*)	END	The Black Ash grows everywhere in Ontario except the Far North. These trees require moisture, and are commonly found in northern swampy woodlands, from eastern Manitoba, throughout Ontario, and as far east as Newfoundland.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Blanding's Turtle (*Emydoidea blandingii*)	THR	Blanding's Turtle are semi-aquatic and use wetland habitats with shallow water and abundant vegetation. Their habitat includes a broad range of wetlands, forest clearings, and meadows. They breed in aquatic habitat and nest in open natural and anthropogenic upland areas.	YES	YES, Herp Atlas	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Bobolink (*Dolichonyx oryzivorus*)	THR	Nests and forages in meadows, grasslands, hayfields, and pastureland. Fields must have 25% or less woody plant cover. They typically require large fields (>4ha) and avoid small, fragmented habitats. They also avoid habitat within 75 m of a forest edge.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Butternut (*Juglans cinerea*)	END	Butternut is shade intolerant and grows in rich, moist, well-drained loams often along streambanks. Butternut is also found in well-drained gravel sites. It is often found at forest edges where it can access abundant sunlight.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.

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Cerulean Warbler (*Setophaga cerulea*)	THR	Found in two small breeding clusters in the Carolinian Forest and the Frontenac Axis. They breed in hilly, mature deciduous forests with a preference for oak and/or maple dominated forests with swampy bottomlands. They are area and edge-sensitive and require large continuous tracts of forest.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Chimney Swift (*Chaetura pelagica*)	THR	The Chimney Swift historically nested and roosted in large hollow trees, rock walls, and other vertical surfaces. They now use human-made structures like uncapped chimneys and have high site fidelity to nesting chimneys. 95% of nests are within 1 km of a waterbody.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Eastern Hog-nosed Snake (*Heterodon platirhinos*)	THR	Eastern Hog-nosed snakes require a mosaic of habitats with sandy, well-drained soil and open vegetation close to water with a supply of American Toads. Their Ontario distribution is limited by climate and soil to the French River/Lake Nipissing and Carolinian areas.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Eastern Meadowlark (*Sturnella magna*)	THR	Nests and forages in meadows, grasslands, shrubby fields, hayfields and pastureland. Prefers habitat with >80% grass cover. Needs a minimum of 5 ha of continuous habitat.	YES	YES, OBBA	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Eastern Prairie White-fringed Orchid (*Platanthera leucophaea*)	END	The Eastern Prairie Fringed Orchid grows in open fens and wet prairies within southern Ontario. They require high sun exposure as well as high moisture. Populations are sparse, with most locations well documented.	NO	NO	NO	NO	No individuals of this species were observed within the study area. No further assessment undertaken.
Eastern Small-footed Myotis (*Myotis leibii*)	END	Eastern Small-footed Myotis overwinter in caves and mines in Ontario and do not disperse far from their hibernacula during the summer. They can be found roosting in rocky habitats singly or in groups but will also use human structures as day roosts. They are aerial insectivores and forage in forests, rocky habitats, and ponds.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Eastern Whip-poor-will (*Antrostomus vociferus*)	THR	The Eastern Whip-poor-will forages in open natural and anthropogenic habitats and nests in semi open forests and forest edges with well-drained soils and moderate vegetation cover. Habitat immediately at the nest will be a short herbaceous plant, shrub, or sapling providing cover and shade with nearby perches for adults.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.

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Henslow's Sparrow (*Ammodramus henslowii*)	END	Henslow's Sparrows' current breeding habitat is generally limited to Prince Edward County and the Regional Municipality of Halton. Their habitat is open grasslands with dense vegetation at least 30 cm tall, thick standing dead material, <1% shrub cover, and intermediate moisture. They prefer larger, continuous grasslands and are sensitive to edge effects.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Juniper Sedge (*Carex juniperorum*)	END	Juniper Sedge is a small perennial sedge that grows in dense tufted clumps. It is found in five populations in Ontario, four by Napanee and one in Selkirk Provincial Park. It grows in shallow, alkaline soil underlain by limestone in alvar or upland deciduous forest habitats. It cannot tolerate full sun or full shade and prefers 50 to 70% canopy closure.	YES	NO	NO	NO	No individuals of this species were observed within the study area. No further assessment undertaken.
King Rail (*Rallus elegans*)	END	The King Rail is found on Great Lakes shorelines and inland in Bruce and Simcoe counties. They use large marshes (>231 ha) with low shrub cover, emergent vegetation, and open water. Breeding habitat is wetlands with shallow water and dense emergent vegetation to weave nests. Foraging habitat is shallow wetlands and mudflats.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Lake Sturgeon (*Acipenser fulvescens*)	END/THR	Lake Sturgeon need large continuous habitats in river and lake systems to provide for spawning, larval, juvenile, sub-adult, and adult habitat. Spawning takes place in shallow fast flowing headwaters where a natural or man-made barrier occurs. Spawning substrates are gravel, rock, hardpan, or sand. Larval and juvenile fish use clayey substrate habitats and older fish inhabit deep pools.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Least Bittern (*Ixobrychus exilis*)	THR	Breeds in large marshes within Southern Ontario. Creates nest platforms from tall, dense emergent vegetation within 10m of water and prefers Typha spp. Will use other emergent vegetation. Needs 200 ha of wetland for nesting and foraging but does not need to be continuous wetland. Prefers complexes of smaller wetlands. Will avoid marshes surrounded by >30% forest cover or containing large trees.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.

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Lesser Yellowlegs (*Tringa flavipes*)	THR	Lesser Yellowlegs migrate through southern Ontario, stopping in wetlands, flooded fields, river and lake shorelines, and sewage lagoons. They prefer marshes dominated by Softstem Bulrush and Smooth Cordgrass. During migration they form flocks ranging from a few dozen to several thousand birds. They may form mixed flocks with Greater Yellowlegs and Solitary Sandpiper.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Little Brown Myotis (*Myotis lucifugus*)	END	Their hibernacula are within caves and abandoned mines, wells, and tunnels. Maternity colonies are within a few kilometers of hibernacula within snag trees, rock crevices, exfoliating tree bark, and anthropogenic structures. Roosts and swarming sites are in similar areas around the hibernacula.	YES	NO	YES	YES	See report for discussion.
Loggerhead Shrike (*Lanius ludovicianus*)	END	The Loggerhead Shrike forages in open grasslands and edge habitats. They require scattered trees and bushes in their habitat for perches and nest sites, and vegetation with large thorns or barbed wire to impale prey. Breeding habitat is exceedingly rare in Ontario, and most extant habitat is well documented.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Mottled Duskywing (*Erynnis martialis*)	END	The Mottled Duskywing's host plants are Prairie Redroot and New Jersey Tea. Their habitat must have dry, sandy, or well-drained soils. Their host plants grow in woodlands, roadsides, riverbanks, oak savannahs, shady hillsides, tall grass prairies, and alvars. They are mostly found along the Great Lakes shorelines.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Nine-spotted Lady Beetle (*Coccinella novemnotata*)	END	The Nine-spotted Lady Beetle is found in Southern Ontario and was last seen along the Great Lakes shorelines and may be extirpated. They are habitat generalists that use open habitats and feed on aphids.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Northern Myotis/Northern Long-eared Bat (*Myotis septentrionalis*)	END	Northern Myotis are found below the tree line in Canada and are mostly absent from the prairies. They use live and dead trees near water in forest habitats when active and migrate to caves and abandoned mines for hibernation.	YES	NO	YES	YES	See report for discussion.

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Ogden's Pondweed (*Potamogeton ogdenii*)	END	Ogden's Pondweed is an annual, submerged aquatic plant with threadlike rigid stems and no rhizome. They are found only in Hastings County in Ontario. They grow in clear, slow moving water within streams, beaver ponds, and lakes. They prefer alkaline water.	YES	NO	YES	YES	Summer photos show sandy substrates with minimal submerged aquatic vegetation. Shoreline is heaviy used for recreational activities associated with resort use. It is unlikely that this species is present, and no in water work is proposed and development is unlikely to impact habitat. No further assessment undertaken.
Red-Headed Woodpecker (*Melanerpes erythrocephalus*)	END	The Red-headed Woodpecker lives in open woodland and woodland edges and is often found in parks, golf courses and cemeteries. These areas typically have many dead trees, that the bird uses for nesting and perching. The Red-headed Woodpecker is found across southern Ontario, where it is widespread but rare.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Shortnose Cisco (*Coregonus reighardi*)	END	The Shortnose Cisco is found in Lakes Ontario, Huron, and Michigan. Very little is known about their habitat requirements, but they are found at 22 to 92 m and spawn at depth in the spring. They feed on freshwater crustaceans in clear, cold water.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Small White Lady's-slipper (*Cypripedium candidum*)	END	Small White Lady's-slipper is found in Hastings County and on Walpole Island First Nation. They grow on moist, imperfectly drained, calcareous sandy loam to loam soils in remnant prairie or savannah, or in fens. They require periodic fire or grazing disturbance.	YES	NO	NO	NO	No individuals of this species were observed within the study area. No further assessment undertaken.
Spotted Turtle (*Clemmys guttata*)	END	The Spotted Turtle uses a mix of terrestrial and aquatic habitats. Aquatic habitats include wetlands, ponds, vernal pools, creeks, streams, sheltered bay edges, stormwater ponds, and man-made channels. Their terrestrial habitats are shorelines, rocky outcrops, upland forests, open fields, and meadows.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.
Suckley's Cuckoo Bumble Bee (*Bombus suckleyi*)	END	Suckley's Cuckoo Bumble Bee is a nest parasite of the Western Bumble Bee and Yellow-banded Bumble Bee. It is mainly a western species but has occasional records throughout Ontario. They are habitat generalists found in most areas Ontario, and generalist nectar foragers. The bees they parasitize tend to build nests in abandoned rodent burrows.	YES	NO	YES	YES	This species is a habitat generalist, while there are urban areas on the subject property, the property is very heavily used and has been for many years as a cabin/resort and it is highly unlikely habita for this species is on site. If habita is present the development will not alter current use and no reduction in habitat is anticipated. No further assessment undertaken.

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Tricolored Bat (*Perimyotis subflavus*)	END	The Tri-colored Bat have a scattered distribution and are found as far north as Sudbury. They are found in a variety of forested habitats They overwinter alone in caves and mines and roost in dead vegetation clumps and lichen in forested habitats near water.	YES	NO	NO	NO	There are no areas of suitable habitat for this species within the study area. No further assessment undertaken.

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RIVERSTONE

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