



ENVIRONMENTAL IMPACT STUDY

Pomeroy Property
Hastings Highlands
November 2024



RIVERSTONE
ENVIRONMENTAL SOLUTIONS INC.



RIVERSTONE

ENVIRONMENTAL SOLUTIONS INC.

November 15, 2024
RS# 2024-240

Scott Pomeroy

***SUBJECT: Environmental Impact Study, 1879 Mink Lake, Municipality of Hasting Highlands,
Hastings County***

Dear Scott,

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 Environmental Impact Study		Date November 15, 2024
Project Manager Bev Wicks	Legal Description 1879 Mink Lake Road, Part of Lot 23, Concession 7, Geographic Municipality of Hastings Highlands, County of Hastings	Development Proposed Removal of existing shed and existing garage, and construction of new garage.
	Approval Authorities Municipality of Hastings Highlands, County of Hastings	Owner/Agent Scott Pomeroy

Report Summary

This Environmental Impact Study has been prepared as part of a Minor Variance application to remove two existing non-conforming structures (a garage and a metal shed) and to construct a new garage within 30 m of the water edge of Mink Lake, which has been identified as a Lake Trout Lake at capacity and is sensitive to new development. During the onsite review of existing conditions, it was determined that the subject property contained or was adjacent to the following natural heritage features:

1. An ephemeral drainage feature
2. Potential habitat of endangered and threatened species; and
3. Fish Habitat (Lake Trout Lake at capacity).

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 5** of this report (reiterated below).

RECOMMENDATIONS

- **A Site Plan Agreement or similar instrument that restricts further vegetation removal, site alteration and/or disturbance within the 30 m vegetation buffer and adjacent to the watercourse outside of the development envelope as shown on Figure 2 should be required.**
- **No further vegetation or trees outside of the development envelope should be removed within the buffer unless they are a safety hazard (assessed by an ISA certified arborist).**
- **Debris from clearing or materials to be used in construction will not be placed within the buffer.**
- **No additional structures should be permitted within the shoreline buffer.**

- **Revegetation of the area (50 m²) illustrated in Figure 3 must be completed with a mix of 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.**
- **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 tree saplings should be planted 3 m apart to increase rooting and provide stabilization.**
- **All installed trees are recommended to be a minimum of 1.2 m (~ 4ft) in height with a sufficiently developed root ball to sustain planting. Selecting trees of a variety of heights is strongly suggested.**
- **All tree installations should include rodent guards that are flush with the ground surface.**
- **Machinery must arrive on site in clean condition and is to be checked and maintained free of fluid leaks.**
- **Best management practices must 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.).**
- **Prior to any site alteration, sediment and erosion control works in the form of heavy-duty sediment fencing, be positioned according to Figure 3. These works must be maintained in good working order until the exposed soils have become revegetated.**
- **Sediment fencing must be constructed of heavy material and solids posts to ensure its integrity and be properly installed (trenched in) to maintain its integrity during inclement weather events.**
- **Machinery must be refueled, washed, and serviced within an 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 material must be set back from Mink Lake as far as possible and be contained by heavy-duty sediment fencing.**
- **Additional sediment fencing and appropriate control measures (e.g., silt fence) be available 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 must 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 exposed soils.**
- **Removal of non-biodegradable erosion and sediment control materials must occur once construction is complete, and the site is stabilized.**
- **Final development plans must include eaves-trough that direct rooftop leaders upslope into soakaway pits or infiltration trenches.**
- **For Site Plans, Low Impact Development (LID) measures (permeable pavers, limited pathways) where feasible, must be included in the development design to decrease any potential impact to the surrounding natural features.**
- **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.**
- **All installed shrubs are recommended to consist of potted material in 1-3 gallon pots.**
- **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 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.**

1 BACKGROUND

RiverStone Environmental Solutions Inc. (hereafter “RiverStone”) was retained by Scott Pomeroy to complete a scoped Environmental Impact Study (EIS) for the property located at 1879 Mink Lake Road with frontage on Mink Lake in the Municipality of Hastings Highlands (hereafter “subject property”) (**Figure 1**). It is RiverStone’s understanding that the proposal is to remove an existing garage structure and metal shed, both of which are non-conforming and replace them with a new garage with an increased setback of 12.5 m from Mink Lake.

Schedule B North of the County of Hastings Official Plan identifies the subject property within a Deer Wintering Area (Stratum 2) and a Moose Early Wintering Area. Appendix 6 also outlines Mink Lake as a “Lake Trout Lake At Capacity (LTL-AC). According to the Municipality of Hastings Highlands Zoning By-law 2004-35 (December 2020) the subject property is zoned Waterfront Residential (WR).

Based on communications with Planning Staff at the Municipality of Hastings Highlands, a Minor Variance is needed to address the reduced setback and the completion of an EIS is required with the application to assess the potential impacts of the development on identified natural heritage features is required. The EIS is scoped to an assessment of deer and moose wintering habitat, species at risk, fish habitat, and water quality. RiverStone has interpreted “species of concern” to include both endangered and threatened species.

This EIS is required to demonstrate how the proposed development of 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 County of Hastings Official Plan policies, the Lake Capacity Handbook, as well as the Provincial Policy Statement.

2 APPROACH AND METHODS

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

1. Identify a study area in which to focus assessment efforts (subject property and adjacent lands).
2. Assemble and review background biophysical information for the subject property and adjacent lands, to become familiar with any previously identified significant natural heritage feature (SNHF) and records of species at risk (SAR) prior to the site investigation.
3. Conduct a site investigation to field-verify the presence or absence of SNHFs, confirm the biophysical features and functions identified during background information gathering, and to collect additional field data (e.g., habitat information, etc.) that will assist with completing the report.
4. Determine the potential for negative impacts associated with implementation of the proposed development and provide recommendations on how identified negative impacts can be avoided, mitigated, minimized, and/or compensated (as necessary).
5. Provide an assessment of consistency and conformity of the proposed development plan with applicable municipal, provincial, and federal environmental policies.

2.1 Identification of Study Area

The focus of this assessment is the subject property on which development is proposed (see **Figure 1** and **Figure 2**). Informally, the study area also incorporates a minimum 120 m radius around the limits of the proposed development, a measure that is intended to ensure appropriate consideration for natural heritage features and functions of adjacent lands, consistent with direction in the Natural Heritage Reference Manual (NHRM) under the Provincial Policy Statement (PPS). The study area may also include consideration for adjacent privately-owned lands; however, assessment of such areas is informal and limited to a desktop review.

2.2 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
- **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: 17QL2815 accessed September 12, 2024 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 September 2024)
- **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: 17TQL21 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: 17QL21; accessed September 12, 2024, at <https://www.ontarioinsects.org/herp/>).
- **iNaturalist Mapping and Online Database** regarding citizen scientist observations documented in the vicinity of the subject lands accessed September, 2024 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 2.3.5**)

2.3 Site Assessment Methods

The sections below outline the various methods used to characterize and assess natural heritage features and associated functions within the subject property.

2.3.1 Habitat-based Wildlife Assessment

RiverStone's primary approach to site assessment is habitat-based. We first focus on evaluating the potential for natural heritage features and species within an area of interest, prior to undertaking any targeted assessments or surveys. 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 species of turtles use sandy shorelines for nesting, several species of bats use cavity trees as day roosts and maternity sites, etc.). If habitat features are demonstrably absent from a study area, then targeted surveys would not be considered warranted to further support conclusions of the assessment.

Physical attributes of a site that can be used to assess habitat function include structural characteristics (*e.g.*, age and composition of forest canopy, water depth), ecological community (*e.g.*, meadow marsh, rock barren, coldwater stream), and structural connectivity to other habitat features required by a species of interest or indicator 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), unpublished documents, and direct experience.

Evidence for the presence of a species (or use of an area by a species) was determined from visual and/or auditory documentation (*e.g.*, song, call) and/or observation of nests, tracks, burrows, browse, skins, and scats (where applicable). Significant natural heritage features (*e.g.*, wildlife habitat, fish habitat, etc.) were delineated in the field with a high accuracy GPS. Features of interest were photographed, and all information collected was catalogued for future reference. Overall, the level of effort expended on-site was deemed appropriate to document natural features and functions with recognized status given the location and scale of the proposed development plan. Representative photographs taken during the site investigation are provided in **Appendix 1**.

2.3.2 Targeted Wildlife Assessment

Where appropriate, RiverStone explores further species-specific assessments in accordance with applicable standard methods and protocols. Targeted survey efforts may be undertaken due to one or more triggers, such as a specific request from an approval authority, an existing record for a species of interest, or a limitation to the habitat-based assessment (*e.g.*, limited property access). Given the timing of study initiation and schedule for application submission, targeted survey methodologies were not undertaken for any specific group of wildlife for this property. All potential habitat functions are estimated based on review of background information and expert and conservative interpretation of on-site habitat structure, as discussed above.

2.3.3 Physical Assessment (Topography, Surficial Geology, & Drainage)

The geophysical setting of this property was determined using topographic, soils, and geological mapping, aerial photography, and descriptions gathered through on-site investigations. Drainage features were identified through the review of background mapping resources and/or delineated in the field.

2.3.4 Vegetation Community Assessment

All natural vegetation communities within the subject property were mapped according to the Great Lakes-St. Lawrence (GLSL) Ecosite Fact Sheets (Wester *et al.* 2015), otherwise known as the “Provincial” ELC system. The GLSL Ecosite factsheets represent refinements and a synthesis of several different protocols for describing vegetation communities (primarily forests) within Ecoregions 4 and 5 previously prepared by MNR in the 1990’s. ELC defines ecological units or “Ecosites” based on a hierarchy of influence involving several physical factors including climate (temperature, precipitation), flooding, disturbance regimes, and substrate (depth, texture, moisture, nutrients). ELC provides a common language to describe vegetation communities, which in turn facilitates the identification of vegetation communities likely to support features or functions of conservation interest.

Each Ecosite code consists of three (3) components. The first component is a 1-digit geographic range code; all Ecosites within the GLSL geographic range begin with the letter “G”. The second component is a 3-digit Ecosite number that corresponds to a specific vegetation community. The third component is a 1- or 2-digit vegetation cover modifier indicating whether the dominant vegetation is tall-treed (Tt), low-treed (Tl), shrub (S), not woody (N), or not vegetated (X). For example, “G153N” refers to a rock barren community that is dominated by non-woody vegetation occurring within the Great-Lakes St. Lawrence geographic range.

In our experience, the ELC classification key is not comprehensive and improvised classifications are occasionally used to describe communities, particularly for cultural, successional, or otherwise anthropogenic land cover. Vegetation communities were delineated via aerial photo interpretation and subsequently confirmed and refined in the field using a general wandering survey approach. The boundaries of any identified wetland boundaries were delineated in accordance with the “50% wetland vegetation rule” as directed by the Ontario Wetland Evaluation System (OWES), where feasible.

2.3.5 On-Site Investigations

The background information gathered as outlined in **Section 2.1** helped direct data collection during site investigations. The sites features were assessed on September 12, 2024, by Terin Robinson (Ecologist). Investigations were focused on collecting information pertaining to: (1) topography and drainage, (2) wetlands and vegetation communities, (3) habitat for endangered and threatened species, (4) significant wildlife habitat, and (5) fish habitat. 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 with recognized status given the location and scale of the proposed development.

2.4 Significant Natural Heritage Feature Assessment

Provincial and local planning policies employ varying terms for natural heritage features and designations that have recognized ‘statuses’ within the applicable planning jurisdiction. Where

relevant, this report employs the terminology of the Provincial Policy Statement (PPS) by referring to features with recognized status as Significant Natural Heritage Features (SNHF). Additionally, natural heritage features which do not constitute SNHF under the PPS but are considered relevant in the local land use planning context are considered in this discussion. A list of SNHF (applicable to Ecoregion 5E and/or the Municipality of Hastings Highlands) that were reviewed as potentially being present on the subject property include the following:

- Fish Habitat & Streams
- Significant Wildlife Habitat
- Significant Areas of Natural and Scientific Interest
- Habitat of Endangered and Threatened Species

The listed applicable features are assessed in accordance with applicable technical guidance documents, including the following:

- *County of Hastings Official Plan (Approved August 3, 2018).*
- *Natural Heritage Reference Manual (NHRM) for the Natural Heritage Policies of the Provincial Policy Statement (MNR 2010)*
- *Lakeshore Capacity Handbook (MOE et al. May 2010)*
- *Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (MNR 2015).*

In addition to the above references, the potential presence/absence of relevant species of conservation interest, such as endangered and threatened species, are assessed using a combination of the background information review outlined in **Section 2** and the habitat-based and targeted approach outlined in **Section 2.3.1**.

2.4.1 Fish Habitat and Streams

Potential fish habitat was assessed in the field using a habitat-based approach, based on guidance protocols and established criteria provided by both the Ministry of Natural Resources and Forestry (MNR) and Department of Fisheries and Oceans (DFO). Watercourses present were reviewed for features that would indicate habitat for fish and any barriers that would prevent migration. Where determined to be present, fish habitat is assigned to one of three potential categories, Type 1, Type 2, or Type 3 as outlined in **Table 1** below. Fish habitat mapping, fisheries records, thermal regime, and the known fish community of a lake or watercourse are used in conjunction with site-specific field evaluation, to determine which ‘type’ of habitat is present in any portion of a waterbody.

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 (<i>e.g.</i> , 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 (<i>e.g.</i> , 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 (<i>e.g.</i> , a portion of a waterbody, a channelized stream that has been highly altered physically).
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Any watercourses that were encountered were assessed. Key characteristics assessed include the physical dimensions of the channel, thermal regime, groundwater sources, and adjacent vegetation. The most comprehensive and widely applied habitat assessment protocol for wadeable creeks, streams, and rivers was developed by MNR. The Ontario Stream Assessment Protocol (Stanfield 2010) provides standard assessment techniques to identify key components of fish habitat at discrete locations. The entire protocol can be used to establish baseline conditions to address comprehensive academic questions, whereas individual components of the protocol can be used to provide site-specific information. Useful site-specific information to collect includes channel structure, instream cover, substrate type, stability, type and density of riparian vegetation, and location of groundwater upwellings. Following the methods described in *The Stream Permanency Handbook* (Bergmann et al. 2005), the flow characteristics (stream permanency) of any watercourses encountered were also assessed. To determine stream permanency, observations of flow duration, instream vegetation, established channel, water temperature, and the presence of aquatic invertebrates were evaluated.

These details allow the watercourse to be characterised and considered on the basis of requirements in the municipal Official Plans. These requirements generally relate to the buffer width and vegetation retention requirements. Wetlands can also be considered habitat for fish where there is suitable open water.

2.4.2 Significant Wildlife Habitat

The PPS (2020) protects SWH from development and site alteration unless it can be demonstrated that no negative impacts on the feature or its function will occur. As outlined in the SWH Technical Guide (OMNR 2000) and supporting Ecoregion Criteria Schedules (OMNRF 2015a, 2015b, 2015c), SWH is composed of four principal components:

1. Seasonal Concentration Areas of Animals;
2. Rare Vegetation Communities or Specialized Habitats;
3. Habitat of Species of Conservation Concern; and
4. Animal Movement Corridors.

The process for identifying SWH is outlined in s. 9.2.3 of the Natural Heritage Reference Manual (OMNR 2010). Step 1 considers the nature of the development application proposed and involves the assembly of background ecological information for the subject property and adjacent lands. If the application triggers a need to protect SWH (*e.g.*, a change in land use that requires approval under the Planning Act), a more thorough investigation of potential SWH features on the subject property or adjacent lands must occur. Any confirmed SWH for the subject property and adjacent lands as identified in relevant planning documents or by the MNRF should be noted at this stage (“Adjacent” can include proximate parts of the mainland where there could be a connection between features important to a species of concern).

Where a need to protect SWH is triggered, Step 2 involves undertaking a more thorough analysis of features, functions, and habitats on the subject property via ELC (see **Section 3.3**). The list of ELC Ecosite codes generated for the subject property is compared to those codes considered candidate SWH

in the relevant Ecoregion Criterion Schedule (i.e., 5E) in Step 3. Where a positive match between an ELC Ecosite and candidate SWH exists, the area is considered candidate SWH. In Step 4, two options are available for candidate SWH:

1. the area may be protected without further study, or
2. the area may be evaluated to ascertain whether confirmed SWH is present. Evaluation may involve generating more detailed maps of vegetation cover or conducting surveys of the wildlife population within the candidate SWH including reproductive, feeding, and movement patterns.

If the area is confirmed SWH, the final step in the process (Step 5) is the completion of an impact assessment to demonstrate that no negative impacts to the confirmed SWH or its function will occur. The impact assessment process is assisted by SWH Mitigation Support Tool (OMNRF 2014).

The scope of this project does not trigger a full review of SWH for the subject property; however, a Deer Wintering Area and a Moose Early Wintering Area were identified on the subject property, which falls under the Seasonal Concentration of Animals category. A full review of deer habitat is provided in **Section 4.5**.

2.4.3 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). The ESA includes prohibitions against killing, harming, harassing, capturing, or taking a living member of a species listed as extirpated, endangered, or threatened on the SARO List and against damaging or destroying the habitat of a species listed as endangered or threatened on the SARO List, without an exemption or authorization. Seeking an ESA authorization or exemption is a proponent-led process to ensure proposed development does not contravene the ESA. As described in **Section 2.3.1**, RiverStone's approach to site assessment is primarily habitat-based. The results of these assessments are provided in **Appendix 2**.

2.5 Impact Assessment

To carry out a rigorous and defensible ecological assessment of potential impacts associated with the proposed development, RiverStone employs the following approach.

1. *Predict* impacts to features and species of conservation interest on the subject property and adjacent lands based on the proposed development plan (from construction to post-completion), including both direct (*e.g.*, vegetation clearance) and indirect (*e.g.*, light pollution, encroachment post-development) impacts.
2. *Evaluate the significance* of predicted impacts to features and species of conservation interest based on their spatial extent, magnitude, timing, frequency, and duration.
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 the potential for negative impacts to features or species of conservation interest exist, ecologically meaningful mitigation measures are offered to avoid, minimize, and/or compensate for such impacts. RiverStone's impact assessment and recommended mitigation measures are provided in **Section 5**.

2.6 Assessment of Conformance with Applicable Environmental Policies

To assess whether the application is consistent or complies with the relevant municipal, provincial, and federal requirements with respect to the natural environment, the following policies (e.g., statutes, regulations, plans, guidance documents, etc.) that may be applicable to the proposed application were considered during both the field investigations and the impact analysis. An assessment of the proposed development's consistency and conformity with these policies is provided in **Section 6**.

- Federal *Fisheries Act*, R.S.C. 1985, c. F-14, amended on 2019-08-28 including:
 - *Applications for Authorization under Paragraph 35(2)(b) of the Fisheries Act Regulations*, S.O.R/2013-191
 - Fish and Fish Habitat Protection Policy Statement (August 2019)
- 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)
 - Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (MNR 2015).
- 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”
- Lakeshore Capacity Handbook (May 2010)
- County of Hastings *Official Plan* (December 19, 2017)
- Municipality of Hastings Highlands *Comprehensive Zoning By-law 2004-035* (Consolidated February 2024)

3 NATURAL HERITAGE FEATURES AND FUNCTIONS

3.1 General Site Conditions

At the time of our site visit on September 12, 2024, development on the subject property consisted of a driveway, a cottage with an attached deck, a garage, metal storage shed, wood storage structure a bunkie and a dock. The subject property is small and square shaped with frontage on Mink Lake to the east, Mink Lake Road to the west, and similar properties to the north and south. There was an ephemeral drainage feature that outlets to Mink Lake noted in the center of the property; it was dry at the time of the site visit. 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.

Field observations of topography on site reveal steep slopes (20-40%) in the western area of the subject property from the road to the edge of the forested area. The eastern area of the subject property where the development is proposed, and the existing buildings are situated, is relatively level (0-5%). Overland drainage is directed to the east towards Mink Lake (**Figure 2**).

3.3 Vegetation Communities

In general, the subject property contains a mix of upland mixedwood forest and anthropogenic areas. Ecological communities were characterized and delineated through a combination of field investigations and aerial photograph interpretation; these communities are described below and mapped on **Figure 2**. 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.

The subject property is a small shoreline property with a large, cleared amenity area in the central and eastern area of the subject property with mixed wood areas along the property boundary to the north and south and a large, treed area in the western area of the subject property adjacent to the road. The subject property is therefore primarily classified as Anthropogenic (ANTH) with small areas of Anthropogenic Mixedwood forests.

3.3.1 Terrestrial Vegetation Communities

Anth: Anthropogenic

Tree species present in the forested areas of the subject property included Eastern White Pine (*Pinus strobus*), White Spruce (*Picea glauca*), Trembling Aspen (*Populus tremuloides*), Eastern White Cedar (*Thuja occidentalis*), Sugar Maple (*Acer saccharum*), White Birch (*Betula pendula*), White Ash (*Fraxinus americana*), Balsam Fir (*Abies balsamea*), and Red Maple (*Acer rubrum*), Red Pine (*Pinus resinosa*), Black Cherry (*Prunus serotina*), Northern Red Oak (*Quercus rubra*) and Large-toothed Aspen (*Populus grandidentata*). Understory species noted throughout the property include Canada Mayflower (*Maianthemum canadense*), Northern Starflower (*Trientalis borealis*), Large-leaf Wood Aster (*Eurybia macrophylla*), Wild Sarsaparilla (*Aralia nudicaulis*), Spinulose Wood Fern (*Dryopteris carthusiana*), Ox-eye Daisy (*Leucanthemum vulgare*), Sensitive Fern (*Onoclea sensibilis*), Lily sp. (*Lilium sp.*), Calico Aster (*Symphyotrichum lateriflorum*), Red Raspberry (*Rubus idaeus*), Clubmoss sp. (*Lycopodium sp.*), Beaked Hazelnut (*Corylus cornuta*) Large False Solomon's-seal (*Maianthemum racemosum*), Common Dandelion (*Taraxacum officinale*) Tall Meadow-rue (*Thalictrum pubescens*) Broad Beech Fern (*Phegopteris hexagonoptera*) Brown-eyed Susan (*Rudbeckia triloba*), Sweet Gale (*Myrica gale*), Virginia Creeper (*Parthenocissus quinquefolia*), New England Aster (*Symphyotrichum novae-angliae*), Zigzag Goldenrod (*Solidago flexicaulis*), Mountain Holly (*Ilex mucronata*), and Indian Cucumber-root (*Medeola virginiana*).

3.4 Wildlife Habitat

Based on our assessment, the subject property has the potential to support habitat for various species of wildlife that are typical to the Canadian Shield landscape. It is reasonably assumed that wildlife in the local area would include those generally found on the local landscapes. We would expect occurrences for general mammalian species, including White-tailed Deer (*Odocoileus virginianus*), Coyote (*Canis latrans*), Eastern Cottontail (*Sylvilagus floridanus*), Raccoon (*Procyon lotor lotor*), Grey Squirrel (*Sciurus carolinensis*), etc. We expect that a wide variety of breeding birds (resident and migratory) would make use of the study area, including shoreline environments and woodlands. Targeted bird surveys were not conducted in the assessment area. This report makes conservative estimations on the potential presence of species that may be indicative of significant functions.

The NHIC database includes local element occurrences for at-risk species on the surrounding landscape. An assessment of potential wildlife species and/or habitat features, including individuals of species at risk or other species of conservation concern, is provided in **Section 4** of this report within the context of SNHFs. RiverStone assessed the potential for the subject property and adjoining lands to contain habitat for endangered and threatened species (**Appendix 2**) as well as significant wildlife habitat (deer wintering areas).

3.4.1 Fish Habitat

A drainage feature was identified on the subject property (**Figure 2**) that is best characterized as an ephemeral warm water feature. There was no water present at the time of the site visit. Bankfull width ranged from 0.25-0.46 m. The feature originates as accumulated overland flow from neighbouring properties and outlets into the Type 1 fish habitat in Mink Lake (**Figure 2**). Substrates consisted primarily of mud with small areas of sand and upland vegetation and roots present in parts of the watercourse. Given the ephemeral flows the watercourse provides indirect fish habitat.

The subject property has frontage on Mink Lake, which is a large cold-water Lake Trout Lake, that has been identified as at capacity for development. The fish community consists of several major fish species, including Lake Trout (*Salvelinus namaycush*), Brown Bullhead (*Ameiurus nebulosus*), Burbot (*Lota lota*), Pumpkinseed (*Lepomis gibbosus*), Smallmouth Bass (*Micropterus dolomieu*), and White Sucker (*Catostomus commersonii*).

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. Emergent aquatic vegetation is present along the southeastern area of the shoreline where a natural sand beach is also present. Substrates consist primarily of sand with sparse organic material and little to no overhanging vegetation. Patches of aquatic vegetation consisted of Pipewort (*Eriocaulon aquaticum*) and Water Lily sp. (*Nymphaea sp.*), Watershield (*Brasenia schreberi*) and Pickerlweed (*Pontederia cordata*). Onshore slopes are shallow in the range of 0-5 % in the area directly adjacent to the lake. Based on the conditions documented on site, the shoreline frontage is likely classified as a mix of Type 1 sensitive habitat and Type 2 habitat providing general movement and foraging habitat for a variety of fish species.

Mink Lake supports a Lake Trout population and has been identified as at capacity for development. 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.

4 SIGNIFICANT NATURAL HERITAGE FEATURES

Based on the biophysical information collected during background information gathering, and the summarized existing conditions of the subject property as described above, **Table 2** below identifies all SNHFs that are present (or potentially present) within the study area. Although we have identified many natural heritage features across the property, only those that are afforded protection through municipal, provincial, and federal policy and law are considered significant and are discussed further. RiverStone’s rationale for identifying such features is provided in the sections that follow.

Table 2. Summary of the Assessment of Significant Natural Heritage Features included in the scope of work and identified within the Study Area.

Significant Natural Heritage Feature	Presence/Absence within the Subject Property/Adjacent Lands
Fish Habitat & Streams	<i>Present.</i> See Section 4.1
Wetlands (Including PSWs)	<i>Absent.</i> See Section 4.2
Areas of Natural and Scientific Interest	<i>Absent.</i> See Section 4.3
Habitat of Endangered and Threatened Species	<i>Potentially Present.</i> See Section 4.4
Significant Wildlife Habitat	<i>Present.</i> See Section 4.5

Shaded rows denote significant natural heritage features that are present or have the potential to be present within the study area.

4.1 Fish Habitat & Streams

As noted in **Section Error! Reference source not found.**, there is a single drainage feature within the assessment area providing indirect fish habitat. The feature is connected to Mink Lake as mapped on **Figure 2** and described in **Section 3.4.1**. Based on criteria outlined in the *Stream Permanency Handbook* and the *Ontario Stream Assessment Protocol*, the watercourse would be most appropriately classified as an ephemeral feature. An assessment of potential impacts to the indirect/contributing fish habitat in the watercourse and Mink Lake that may result from implementation of the proposed development plan is provided in **Section 5.2**. Nearshore fish habitat along the subject property consisted of a Mix of type 1 and type 2 habitat. The type 2 habitat in the northwest area had no aquatic vegetation with a mix of sand and gravel substrates. The type 1 area to the southeast had emergent vegetation, a sandy beach area on shore and a mix of sand and gravel substrates. There was no organic material, downed trees or other detritus present in the nearshore area.

4.2 Wetlands

No areas of wetland vegetation were present on the subject property. No further assessment undertaken.

4.3 Areas of Natural and Scientific Interest (Life Science)

It is the responsibility of the Ministry of Natural Resources and Forestry (MNR) to designate and administer mapping for areas of natural and scientific interest (ANSIs). No ANSI features are mapped on the subject property. As a result, there is no expectation that development on the subject lands would impact ANSI features.

4.4 Habitat of Endangered and Threatened Species

To assess the potential presence of individuals and/or habitat for endangered and threatened species within the study area, RiverStone staff conducted the following:

- Review of the list of species designated as endangered and threatened in Ontario, as per Schedules 2 and 3 of Ontario Regulation 230/08 [(Species at Risk in Ontario List (SARO List)], located here: <https://www.ontario.ca/laws/regulation/080230>. In our experience, the potential presence of most provincially endangered and/or threatened species can be ruled out based on their limited geographical ranges in the province and/or a lack of specific habitat conditions which they require to carry out key life processes.
- Review of the NHIC database for existing records of element occurrences for endangered or threatened species (data squares 17QL2815 and adjacent squares). Databases of iNaturalist, OBBA, and ORAA were also reviewed as of September 2024.
- On-site investigations undertaken in 2024, during which vegetation conditions were characterized for detailed habitat-based assessment.

Information from the above assessment process was used to inform a site-specific screening, as contained in **Appendix 2**. Through this screening twenty-seven (27) species were identified that had the potential to be present or use vegetation communities on the subject property or on adjacent lands based on existing records and range mapping. This list of species was reduced to three (3) species that had the potential to be present on the subject property based on habitat availability noted during our site assessments.

Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*), may occur on the property based on the presence of suitable forested habitat. Each of these species are discussed below, and where relevant, potential development-related impacts to these species are discussed further in **Section 5.3**.

4.4.1 Endangered Bat Species (*Myotis lucifugus*, *M. septentrionalis*, *Perimyotis subflavus* - Endangered)

These species, assessed as a species guild (related species with similar habitat characteristics), include several bat species listed as endangered in Ontario. Bats are highly mobile; however, individuals and groups of the noted bat species are also recognized as having some degree of fidelity to suitable local sites for daily and seasonal ‘roosting’ activities. While some species (*i.e.*, *Myotis lucifugus*) exhibit a preference for roosting in anthropogenic structures, natural roosting sites are also important. Natural roosting sites are generally associated with mature forests containing a sufficient density of large trees in various stages of decay, otherwise known as ‘snags’. Snags provide features such as cavities and/or loose bark, on which bats rely for shelter and thermoregulation throughout the active season.

There is woodland cover in the western area of the subject property and while no formal quantitative evaluation of bat habitat was conducted to support this assessment, we estimate that there is potential for on-site trees/woodland to support roosting habitat for endangered bat species.

Current direction from MECP prescribes that targeted surveys of treed habitats/snags are not necessary to quantify the quality/extent of potential habitat for endangered bat species IF a project would involve removal of only a small number of potential maternity or day roost trees in treed habitats (or none at

all). This approach assumes that other appropriate mitigation measures (*i.e.*, timing windows) are employed to avoid impacts to individuals of endangered bat species. For our assessment, it is RiverStone’s opinion that potential significant habitat features for bats could occur and it is not possible to rule out the potential for *individuals* of endangered bat species (or other bat species) to be present during the active season in any individual trees (*i.e.*, through migration and regular daily movements). Further discussion, including an assessment of potential impacts to individuals of endangered bat species resulting from implementation of the proposed development, is provided in **Section 5.3.1**.

4.5 Significant Wildlife Habitat

Significant wildlife habitat (SWH) represents a range of habitat features that are recognized as providing specialized or otherwise important functions for various forms of wildlife. Designation of confirmed SWH is ultimately the responsibility of the relevant planning authority. Notwithstanding, candidate SWH can be identified on a site-specific basis, often triggered through a proposed change in land use or a large-scale development application. As per guidance provided in Section 9.3.2 of the provincial Natural Heritage Reference Manual, the current application for residential development on the subject property does not trigger a full site-specific SWH assessment; however, MNRF has previously identified Stratum 2 deer wintering habitat and early moose wintering habitat across the property. An assessment of this habitat is provided in **Section 4.5.1** and **4.5.2** respectively.

4.5.1 Deer Yarding Areas

MNRF mapping and Schedule C2: Natural Heritage Features and Areas of the Muskoka Official Plan has identified Stratum 2 deer wintering habitat on 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. The subject property is located in a Stratum 2 deer yard as outlined in the Land Information Ontario database. As described above, the Stratum 2 habitat typically surrounds Stratum 1 habitat and consists of mixed deciduous forest with plenty of understory shrubs and small trees for food.

While a formal deer wintering assessment was not conducted as part of RiverStone’s fieldwork on the subject property, review of air photos and field work including assessment of ELC communities was used to assess the potential for deer to use the property for over wintering. Based on the presence of young deciduous regeneration and deciduous shrub in scattered locations on the subject property, it can be concluded that small areas of potential Stratum 2 habitat is present.

4.5.2 Moose Early Wintering Area

Schedule B North: Natural Heritage Features and Areas of the County of Hastings Official Plan indicates the property is located within a Moose Early Wintering Area. This classification is not outlined in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E and no details are provided about this habitat within the County OP. An MNRF document titled “Moose Resource Report: Wildlife Management Unit 65” (2013) describes moose early winter habitat as “made up of mature or over-mature, open canopy, mixed-wood stands with less than 60 percent tree cover, as well

areas that had been burned or cutover about five to twenty years ago”. The subject property is within a shoreline area that is primarily an anthropogenic area with small areas of mixed wood throughout the property and on adjacent properties. In forested areas tree coverage is typically less than 60% cover; however, the areas are likely too small to be suitable for use by moose as an early wintering area. Furthermore, the proposed development requires minimal tree removal along the edge of a very small, forested area serving as a boundary with the neighbouring property any potential moose early wintering habitat has a low likelihood of being negatively impacted by the proposed development.

5 IMPACT ASSESSMENT AND RECOMMENDATIONS

5.1 Development Proposal

The development proposal being put forward is a Minor Variance Application to address a reduced setback from Mink Lake to accommodate a new garage. The existing development consists of a cottage, a bunkie, a wood storage structure, and a garage and shed both of which will be removed as part of the proposed development. **Figure 2 and Appendices 1 and 3** illustrates the existing development. The proposed development is to construct a new 72 m² (780sqft) garage with a larger set back than the existing shed and garage.

5.2 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 Mink 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
- 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.

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 there is sufficient watercourse and shoreline vegetation to offset any impacts from an increase in impervious surfaces caused by the installation of the larger garage.

Alteration Within Shoreline Buffer

The following recommendations related to development and site directly adjacent to Mink Lake including the existing cottage and shoreline amenity area:

- **A Site Plan Agreement or similar instrument that restricts further vegetation removal, site alteration and/or disturbance within the 30 m vegetation buffer and adjacent to the watercourse outside of the development envelope as shown on Figure 2 should be required.**

- **No further vegetation or trees outside of the development envelope should be removed within the buffer unless they are a safety hazard (assessed by an ISA certified arborist).**
- **Debris from clearing or materials to be used in construction will not be placed within the buffer.**
- **No additional structures should be permitted within the shoreline buffer.**

To improve the functioning of the shoreline buffer and ensure nutrient uptake and minimize erosion potential, RiverStone recommends:

- **Revegetation of the area (50 m²) illustrated in Figure 3 must be completed with a mix of 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.**
- **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 tree saplings should be planted 3 m apart to increase rooting and provide stabilization.**
- **All installed trees are recommended to be a minimum of 1.2 m (~ 4ft) in height with a sufficiently developed root ball to sustain planting. Selecting trees of a variety of heights is strongly suggested.**
- **All tree installations should include rodent guards that are flush with the ground surface.**
- **All installed shrubs are recommended to consist of potted material in 1-3 gallon pots.**
- **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 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.**

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	<i>Pinus strobus</i>	Conifer Tree	Dry to Moist – shade-sun
Red Pine	<i>Pinus resinosa</i>	Conifer Tree	Dry to Fresh – sun
Eastern White Cedar	<i>Thuja occidentalis</i>	Conifer Tree	Fresh to Moist – shade to sun
Eastern Hemlock	<i>Tsuga canadensis</i>	Conifer Tree	Fresh to Moist – shade
White Spruce	<i>Picea glauca</i>	Conifer Tree	Dry to Fresh – sun
Balsam Fir	<i>Abies balsamea</i>	Conifer Tree	Fresh to Moist – shade
Tamarack	<i>Larix laricina</i>	Conifer Tree	Fresh to Moist – sun
White Birch	<i>Betula papyrifera</i>	Deciduous Tree	Dry to Moist – sun
Red Maple	<i>Acer rubra</i>	Deciduous Tree	Dry to Moist – all
Red Oak	<i>Quercus rubra</i>	Deciduous Tree	Dry to Fresh – sun
White Oak	<i>Quercus alba</i>	Deciduous Tree	Dry to Fresh – sun
Yellow Birch	<i>Betula alleghaniensis</i>	Deciduous Tree	Fresh to Moist – shade
Sugar Maple	<i>Acer saccharinum</i>	Deciduous Tree	Dry to Moist – shade
Black Cherry	<i>Prunus serotina</i>	Deciduous Tree	Dry to Fresh – sun
Trembling Aspen	<i>Populus tremuloides</i>	Deciduous Tree	Dry to Fresh – sun

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

Table 3. Recommended Native Groundcover Species

Common Name	Scientific Name
Ostrich Fern	<i>Matteuccia struthiopteris</i>
Interrupted Fern	<i>Osmunda claytoniana</i>
Spinulose Wood Fern	<i>Dryopteris carthusiana</i>

Canada Mayflower	<i>Maianthemum canadense</i>
Northern Starflower	<i>Trientalis borealis</i>
Fireweed	<i>Chamerion angustifolium</i>
Wild Sarsaparilla	<i>Aralia nudicaulis</i>
Bunchberry	<i>Cornus canadensis</i>

5.2.1 Erosion and Hardened Surfaces

The proposed new garage will occur within 30 m of Mink Lake. Municipal and provincial setbacks are intended to protect sensitive natural heritage features from negative impacts due to development, which may result via the following processes:

- Stormwater runoff during construction activities
- Modification of drainage patterns or flow rates
- Increased runoff due to an increase in the extent of hard surfaces (e.g., rooftops, driveways, patios)
- Removal of stabilizing vegetation (e.g., site clearing activities)
- Disturbance of native soils (e.g., site clearing activities, foundation construction, installation of erosion control measures)
- Destabilization of slopes due to construction adjacent to unstable banks

The proposed development is within the required 30 m setback, however, it will be further away from the lake than the existing metal shed and garage structure. To ensure that water quality and fish habitat is not negatively impacted during construction activities, RiverStone recommends the following measures:

- **Machinery must arrive on site in clean condition and is to be checked and maintained free of fluid leaks.**
- **Best management practices must 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.).**
- **Prior to any site alteration, sediment and erosion control works in the form of heavy-duty sediment fencing, be positioned according to Figure 3. These works must be maintained in good working order until the exposed soils have become revegetated.**
- **Sediment fencing must be constructed of heavy material and solids posts to ensure its integrity and be properly installed (trenched in) to maintain its integrity during inclement weather events.**
- **Machinery must be refueled, washed, and serviced within an 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 material must be set back from Mink Lake as far as possible and be contained by heavy-duty sediment fencing.**
- **Additional sediment fencing and appropriate control measures (e.g., silt fence) be available 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 must 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 exposed soils.**
- **Removal of non-biodegradable erosion and sediment control materials must occur once construction is complete, and the site is stabilized.**

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 Mink 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 must include eves-trough that direct rooftop leaders upslope into soakaway pits or infiltration trenches.**
- **For Site Plans, Low Impact Development (LID) measures (permeable pavers, limited pathways) where feasible, must be included in the development design to decrease any potential impact to the surrounding natural features.**

As part of the impact analysis, the potential to cause harmful alteration, disruption or destruction (HADD) to fish habitat was assessed. Although the land use changes have the potential to have negative impacts on water quality, fish and fish habitat, it is RiverStone's opinion that the reduced setback will not impact fish and fish habitat. The measures recommended above can mitigate potential negative impacts that were associated with the construction of the garage and the removal of the shed

and the re-vegetation of the area within the shoreline provides and improvement over existing conditions.

5.3 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*), the Tricolored Bat (*Perimyotis subflavus*), and the Northern Myotis Bat (*Myotis septentrionalis*) have the potential to use features found on the property.

5.3.1 Endangered Bats

Potential habitat for three (3) endangered bats, (Little Brown Myotis, and Northern Myotis and Tricolored Bat, hereafter “endangered bats”) is located across the subject property in the White Pine – Red Pine forested communities, which contain both coniferous and deciduous species. In the absence of detailed site-specific data, and based on RiverStone’s professional experience, forested ecosites throughout the subject property 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).

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. No further development is proposed at this time so there are not impacts anticipated. Should tree clearing be necessary for access or for maintenance 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:

- **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.**

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.

5.4 Deer and Moose Wintering Habitat

With minimal tree removal required along the edge of a forested area proposed to accommodate the new garage no negative impacts on deer and moose wintering habitat are anticipated. No in water work or removal of aquatic vegetation is proposed as part of the development. The recommended mitigation measures limiting additional tree removal should be sufficient to address the potential for any negative impacts to deer or moose wintering habitat.

6 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.

6.1 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 proposed application is for a removal of two existing structures and replacing them with a single larger structure with an increased setback from Mink Lake does not impact fish or fish habitat. Should however 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*.

6.2 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 future clearing of vegetation to times outside of the period April 1 to August 31, will prevent contravention of Section 6 of the regulations.

6.3 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 and/or the adjoining lands. As outlined in Section 4.4, the likelihood of contravening the ESA can be reduced to an acceptable level by following RiverStone’s recommended mitigation measures.

6.4 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:

2.1.6 *Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.*

As per **Section 3.4.1** fish habitat was identified along the shoreline of the subject property fronting onto Mink Lake. Adherence to the recommendations outlined in **Section 5.2** 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 5** 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 5** 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.

6.5 Lake Capacity Handbook (MOE 2010)

The Lake Capacity Handbook outlines the practices and policies that are used to assess Lake Trout Lakes relative to capacity and the sorts of development that is permitted once a lake has reached capacity. Mink Lake has been identified as a Lake Trout Lake at Capacity. The proposed development does not include an increase in septic capacity or the creation of a new lot which would be restricted by the at capacity status of Mink Lake. The proposed development will have an increased setback from Mink Lake compared with existing conditions and the recommended area of re-vegetation should further serve to improve water quality.

6.6 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 waterbodies 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 waterbodies 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 garage will not have living quarters or require a septic hookup and is therefore not anticipated to cause any adverse effects on the Lake Trout fishery. This is consistent with Lake Trout policies in place in both the Lake Capacity Handbook and the Official Plan.

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

The subject property is currently zoned Waterfront Residential (WR) which requires a 30 m setback from the lake. The current application is for a Minor Variance which is required to seek approval for the construction of a garage within 30 m of a cold-water lake trout lake which has been identified as at capacity for development.

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 is not required. The proposed new garage will replace two existing non-conforming structures that will be removed and will ultimately increase the setback from the lake when compared with existing conditions which is consistent with the intent of this legislation.

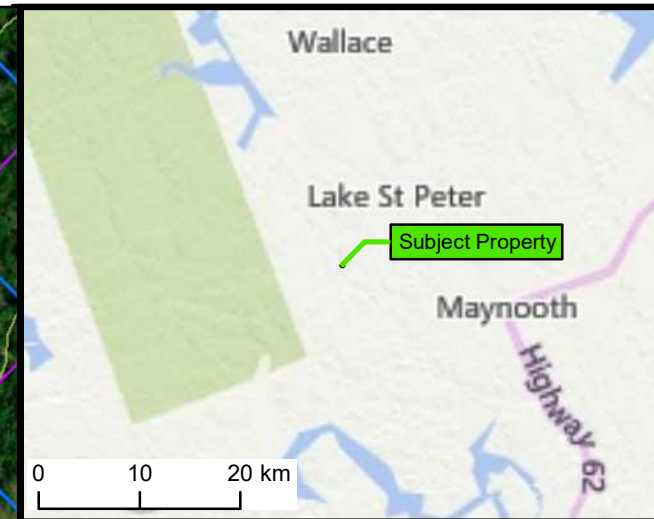
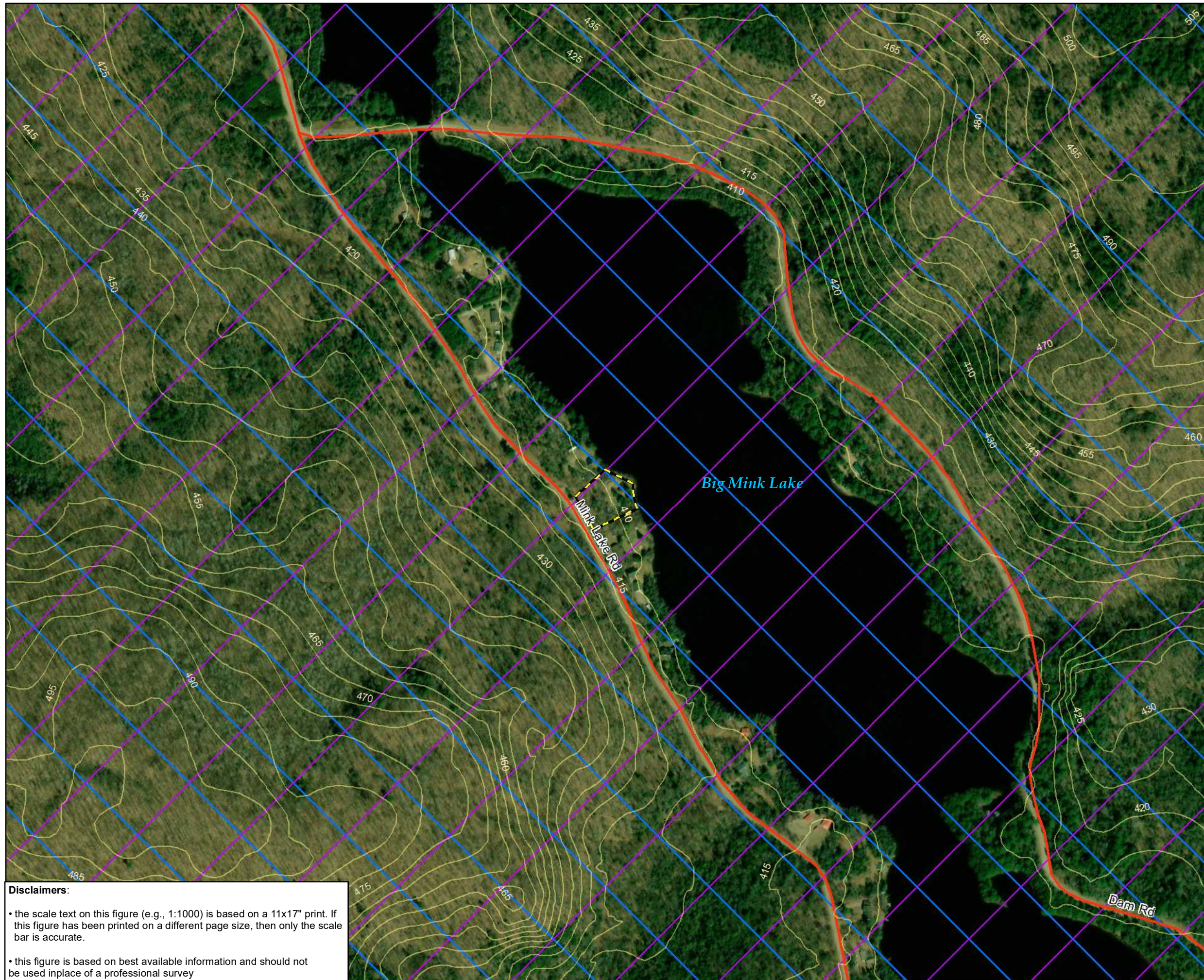
7 CONCLUSIONS

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 or similar instrument for the subject property.

8 REFERENCES

- Cadman, M. D., D. A. Sutherland, G. G. Beck, D. Lepage, and A. R. Couturier.** 2007. Atlas of the Breeding Birds of Ontario, 2001–2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, Ontario Nature, Toronto.
- COSEWIC.** 2012a. COSEWIC assessment and status report on the Eastern Wood-pewee *Contopus virens* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 39 pp. .
- COSEWIC.** 2012b. COSEWIC assessment and status report on the Wood Thrush *Hylocichla mustelina* in Canada. Ottawa. ix + 46 pp. pp.
- Henson, B. L. and K. E. Brodribb.** 2005. Great lakes conservation blueprint for terrestrial biodiversity, volume 2: ecodistrict summaries. 344 pp.
- OMNR.** 2010. Natural heritage reference manual for natural heritage policies of the provincial policy statement, 2005. Second Edition. Toronto: Queen's Printer for Ontario. 248 pp.
- Wester, M., P. Uhlig, W. Bakowsky, and E. Banton.** 2009. Great Lakes-St. Lawrence Ecosite Fact Sheets (third draft)



Legend

Ontario Base Mapping (OBM)

- Roads
- 5 m Contours

Planning Boundaries

- Subject Property

Natural Heritage Features - Identified by the Province

- Deer Wintering Area (Stratum 2)
- Moose Early Wintering Area

Orthorectified aerial photo - spring 2018

Scale	RS Project No.	Date Last Updated	By
1:5,000	2024-240	Oct 03, 2024	JG

0 75 150 Metres

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.
- this figure is based on best available information and should not be used in place of a professional survey

Figure 1. Location of Subject Property
 1879 Mink Lake Road, Municipality of Hastings Highlands, Hastings County

Prepared for: Scott Pomeroy

Inset: General Location of Subject Property

Big Mink Lake



Legend

Ontario Base Mapping (OBM)

- Roads
- 5 m Contours

Planning Boundaries

- Subject Property

Natural Heritage Features - Identified by the Province

- Structure
- Structure To Be Removed

Natural Heritage Features - Identified by RiverStone

- Direction of Overland Flow
- Ephemeral Spring Drainage Runoff
- Type 1 Fish Habitat
- Type 2 Fish Habitat

Ecological Communities

- ANTH - Anthropogenic
- ANTH - Anthropogenic (Wooded)



Orthorectified aerial photo - spring 2018

Scale	RS Project No.	Date Last Updated	By
1:500	2024-240	Oct 10, 2024	JG

0 7.5 15 Metres

Figure 2. Existing Development
 1879 Mink Lake Road, Municipality of Hastings
 Highlands, Hastings County

Prepared for: Scott Pomeroy

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.
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Big Mink Lake

Legend

Ontario Base Mapping (OBM)

— Roads

Planning Boundaries

▭ Subject Property

Natural Heritage Features - Identified by RiverStone

➔ Direction of Overland Flow

➔ Ephemeral Spring Drainage Runoff

▭ Type 1 Fish Habitat

▭ Type 2 Fish Habitat

Development Setbacks Required by Relevant Approval Authorities

▭ Shoreline Setback 30m (Hastings Highlands By-law 27.72)

▭ Vegetation Buffer 30m From Lake (Hastings Highlands By-law 5.9.3 iii)

Measures Recommended by RiverStone to Prevent and/or Reduce Impacts

✕✕ Erosion and Sediment Control Fencing

▭ Area to be Revegetated (~50 m²)

Proposed Development and Site Alteration

▭ Garage

Drawing:
 Courtesy of Client
 SITE PLAN
 1879 Mink Lake Road
 Project: GARAGE
 Drawing no: 1

Orthorectified aerial photo - spring 2018

Scale	RS Project No.	Date Last Updated	By
1:500	2024-240	Oct 10, 2024	JG



Figure 3. Proposed Development
 1879 Mink Lake Road, Municipality of Hastings Highlands, Hastings County

Prepared for: Scott Pomeroy

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.
- this figure is based on best available information and should not be used in place of a professional survey

Appendix 1. Select Photos from Site Visit





Photo 1. Existing cottage (September 12th, 2024).



Photo 2. Bunkie (September 12th, 2024).



Photo 3. Existing wood storage structure (September 12th, 2024).



Photo 4. Existing garage and metal shed to be removed (September 12th, 2024).



Photo 5. Existing shoreline conditions and dock (September 12th, 2024).



Photo 6. Existing shoreline conditions and Type 1 fish habitat (September 12th, 2024).



Photo 7. Sand beach area and Type 1 fish habitat (September 12th, 2024).



Photo 8. Existing shoreline vegetation (September 12th, 2024).

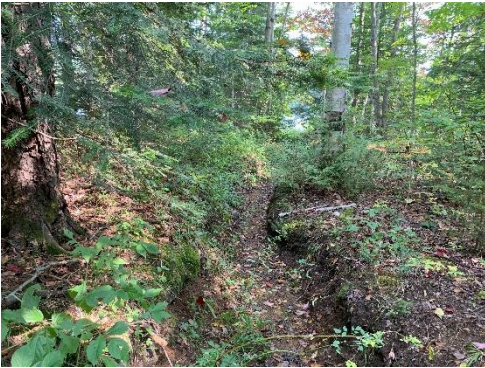


Photo 9. Ephemeral drainage path (September 12th, 2024).



Photo10. View of proposed development envelope for garage (September 12th, 2024).

Appendix 2. Assessment of Habitat of Endangered and Threatened Species



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 Ginseng (<i>Panax quinquefolius</i>)	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	Suitable habitat is present on the local and regional landscape; however, the forest community present does not provide the potential to provide habitat. No species were observed during site assessments using a wandering transect. No further assessment undertaken.
Bank Swallow (<i>Riparia riparia</i>)	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	The OBBA contains a possible breeding record for the associated 10km ² data square. No local records are present in NHIC or iNaturalist. No suitable habitat was observed on the subject property. No further assessment undertaken.
Black Ash (<i>Fraxinus nigra</i>)	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	POSSIBLE	Suitable habitat is not present on the local landscape and the forest community present does not provide the potential to provide habitat. No species were observed during site assessments using a wandering transect. No further assessment undertaken.
Blanding's Turtle (<i>Emydoidea blandingii</i>)	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	NO	NO	NO	Suitable wetland habitat with appropriate water depths and water plants was not present to support this species. No further assessment provided.
Bobolink (<i>Dolichonyx oryzivorus</i>)	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	No local records are present in NHIC, OBBA or iNaturalist and the subject property does not contain hayfield or pastureland that would provide suitable breeding habitat. No further assessment provided.
Butternut (<i>Juglans cinerea</i>)	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	While suitable habitat may be present where soil depths are deeper, this species was not observed during the site investigation. No further assessment provided.
Cerulean Warbler (<i>Setophaga cerulea</i>)	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	While deciduous species are present on the subject property, the property does not contain the large continuous tract of forest habitat required to support Cerulean Warbler. No further assessment undertaken.

¹Highlighted species are present on or are likely to be present on the subject property.

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
Chimney Swift <i>(Chaetura pelagica)</i>	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	No local records are present in NHIC or iNaturalist and the subject property does not contain vertical structures or surfaces that would provide suitable habitat. No further assessment provided.
Eastern Hog-nosed Snake <i>(Heterodon platirhinos)</i>	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	Suitable habitat is present on the local and regional landscape; however, the limited forest community present does not provide the potential to provide habitat. No species were observed during site assessments. No further assessment undertaken.
Eastern Meadowlark <i>(Sturnella magna)</i>	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	NO	NO	NO	The subject property or adjacent lands do not contain meadows or grasslands that would provide suitable breeding habitat. No further assessment provided.
Eastern Prairie White-fringed Orchid <i>(Platanthera leucophaea)</i>	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.	YES	NO	NO	NO	Suitable habitat is present on the local and regional landscape; however, the forest community present does not provide the potential to provide habitat. No species were observed during site assessments. No further assessment undertaken.
Eastern Small-footed Myotis <i>(Myotis leibii)</i>	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	The assessment area and adjacent lands lack rocky habitat with table rocks or talus and anthropogenic structures that would support this species. This species is not anticipated to use the subject property or adjacent lands. No further assesemnt provided.
Lake Sturgeon <i>(Acipenser fulvescens)</i>	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	The subject property does not contain river or lake habitat suitable for Lake Sturgeon.

¹Highlighted species are present on or are likely to be present on the subject property.

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
Least Bittern (<i>Ixobrychus exilis</i>)	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	No local records are present in NHIC or iNaturalist and the subject property does not contain wetland habitat with emergent vegetation that would be suitable for this species. No further assessment provided.
Lesser Yellowlegs (<i>Tringa flavipes</i>)	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 OBBA, NHIC, or iNaturalist database records for this species within the respective data squares and the subject property does not contain wetland communities dominated by softstem bulrush and smooth cordgrass that would be suitable habitat for this species. No further assessment provided.
Little Brown Myotis (<i>Myotis lucifugus</i>)	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	The assessment area contains wooded habitat containing trees appropriate for roosting by this species. While no development is currently proposed for the subject property in the wooded area the tree removal required it could result in the removal of potential habitat. Further assessment provided in report.
Loggerhead Shrike (<i>Lanius ludovicianus</i>)	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	No local records are present in NHIC or iNaturalist and the subject property does not contain grassland or edge habitat that would be suitable for this species. No further assessment provided.
Northern Myotis/Northern Long-eared Bat (<i>Myotis septentrionalis</i>)	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	The assessment area contains wooded habitat containing trees appropriate for roosting by this species. While no development is currently proposed for the subject property in the wooded area the tree removal required could result in the removal of potential habitat. Further assessment provided in report.
Ogden's Pondweed (<i>Potamogeton ogdenii</i>)	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	YES	YES	YES	The subject property is located within the range for this species and there is a record in NHIC for this species within the respective data squares were noted. No in waterwork is proposed as part of the development and therefore no impacts are anticipated. No further assessment provided.
Red-Headed Woodpecker (<i>Melanerpes erythrocephalus</i>)	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 records of occurrence for this species. This species can be found in many generic locations, the assessment area does not support any open areas with large numbers of dead-standing trees that would represent ideal habitat. In general, there is no expectation that the assessment area is supporting functional habitat for this species. No further assessment provided.

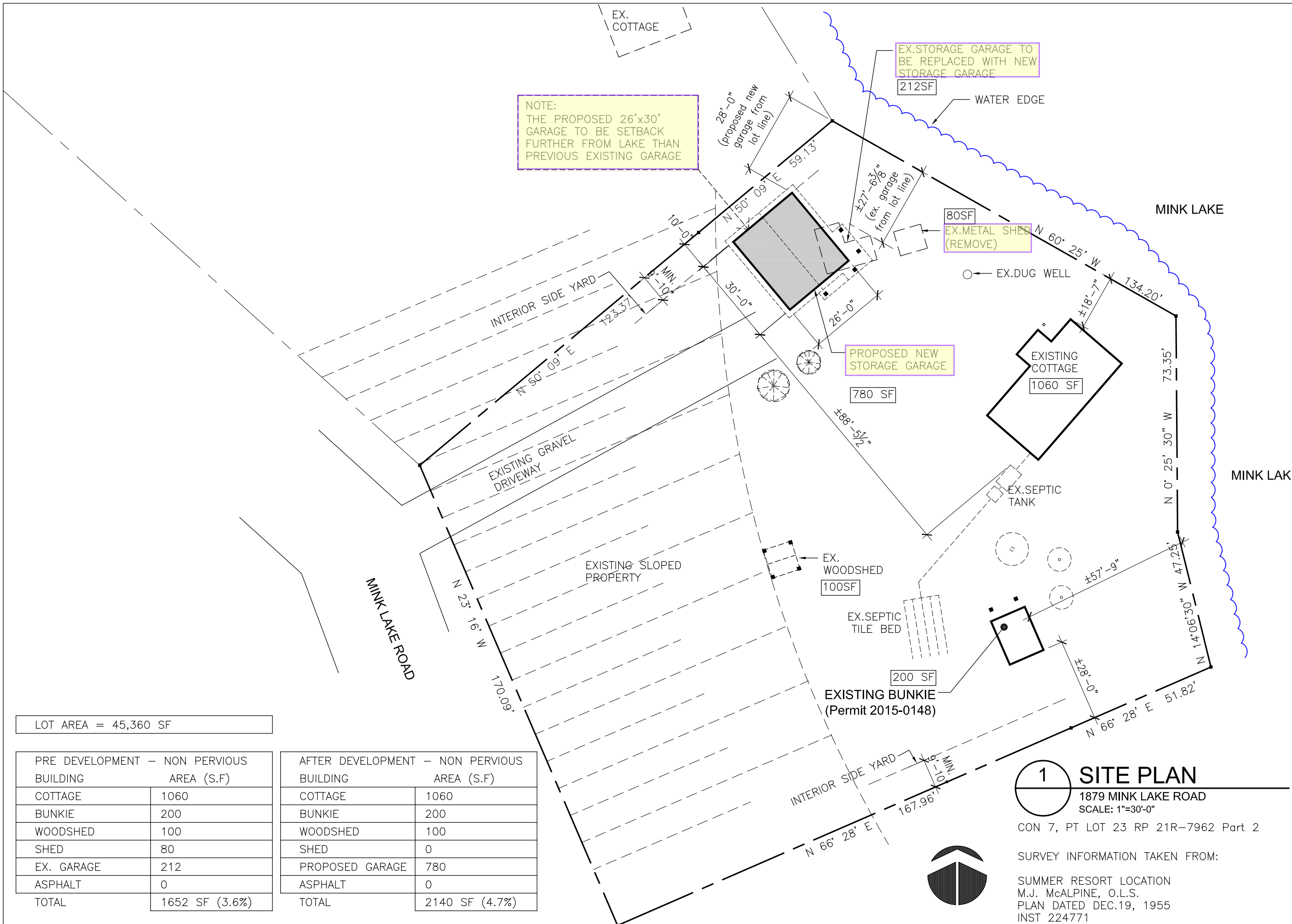
¹Highlighted species are present on or are likely to be present on the subject property.

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
Short-eared Owl	THR	The Short-eared Owl breeds in northern Ontario and is found year-round in southern Ontario. They use open habitats (tundra, grassland, pasture) to nest on the ground and overwinter in open areas with nearby roosting trees. They shelter from inclement weather in conifers and emergent wetland vegetation.	YES	NO	NO	NO	There are no OBBA, NHIC, or iNaturalist database records for this species within the respective data squares and the subject property does not contain open habitats (tundra, grassland, pasture) that would be suitable for this species. No further assessment provided.
Shortnose Cisco (<i>Coregonus reighardi</i>)	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	The subject property is not located within one of the Great Lakes where Shortnose Cisco has been found.
Small White Lady's-slipper (<i>Cypripedium candidum</i>)	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	There are no NHIC, or iNaturalist database records for this species within the respective data squares for the property. The subject property contains forested terrestrial habitat along the shoreline of Bartlett Lake which does not include calcareous sandy loam soil suitable for this species. No further assessment provided.
Spotted Turtle (<i>Clemmys guttata</i>)	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 NHIC, Herp Atlas, or iNaturalist database records for this species within the respective data squares for the property. The subject property contains a mix of terrestrial and aquatic habitats including shoreline; however, the combination of suitable aquatic and terrestrial habitat was absent and the range for this species is typically found around Georgian Bay and isolated spots in southern Ontario.
Tricolored Bat (<i>Perimyotis subflavus</i>)	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	YES	YES	The assessment area contains wooded habitat containing trees appropriate for roosting by this species. While no development is currently proposed for the subject property in the wooded area if tree removal is required it could result in the removal of potential habitat. Further assessment provided in report.

¹Highlighted species are present on or are likely to be present on the subject property.

Appendix 3. Site Plan





NOTE:
THE PROPOSED 26'x30'
GARAGE TO BE SETBACK
FURTHER FROM LAKE THAN
PREVIOUS EXISTING GARAGE

LOT AREA = 45,360 SF

PRE DEVELOPMENT – NON PERVIOUS BUILDING AREA (S.F)	
COTTAGE	1060
BUNKIE	200
WOODSHED	100
SHED	80
EX. GARAGE	212
ASPHALT	0
TOTAL	1652 SF (3.6%)

AFTER DEVELOPMENT – NON PERVIOUS BUILDING AREA (S.F)	
COTTAGE	1060
BUNKIE	200
WOODSHED	100
SHED	0
PROPOSED GARAGE	780
ASPHALT	0
TOTAL	2140 SF (4.7%)

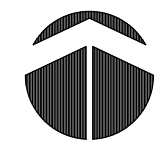
1 SITE PLAN

1879 MINK LAKE ROAD
SCALE: 1"=30'-0"

CON 7, PT LOT 23 RP 21R-7962 Part 2

SURVEY INFORMATION TAKEN FROM:

SUMMER RESORT LOCATION
M.J. McALPINE, O.L.S.
PLAN DATED DEC.19, 1955
INST 224771



scale	orientation
drawn by	
date	
acad file	drawing no.
project no.	1

no.	date	revision description
project		
GARAGE		
1879 MINK LAKE ROAD		
LAKE ST PETER, ONTARIO		