SITE EVALUATION REPORT AND ENVIRONMENTAL IMPACT STUDY

Wallings Road, Head Lake
Village of Haliburton
March 2024

RIVERSTONE
ENVIRONMENTAL SOLUTIONS INC.

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Via e-mail: svahed@evansplanning.com

***SUBJECT*: Site Evaluation Report – 77 Wallings Road, Municipality of Dysart et al**

Dear Shyan,

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

NON-TECHNICAL SUMMARY

Type of Study Site Evaluation Report/Environmental Impact Study		**Date** February 23, 2024
Project Manager Bev Wicks	**Civic Address** 77 Wallings Road, Dysart et al.	**Development Proposed** Glamping
	Planning Authority County of Haliburton, Municipality of Dysart et al.	**Client / Agent** Eugene Shcolyar

Report Summary

The purpose of this study is to assess natural heritage features and potential impacts associated with a proposed glamping and amenity area development at 77 Wallings Road. Based on both a desktop assessment and on-site investigation, RiverStone has determined that:

1. The subject property contains several existing structures and is represented primarily by maintained, anthropogenic areas. A small area of woodland/plantation is present, a deer wintering yard (stratum 2) has been identified in association with the local landscape, and several species of conservation concern (*e.g.*, endangered/threatened species) have been previously documented in the area.
2. In general, Significant Natural Heritage Features determined to be relevant to this proposal include fish habitat and potential occurrences of individuals of endangered species (bats).
3. Consistent with the assessment carried out in **Section 5**, negative impacts on Significant Natural Heritage Features are not anticipated if the recommendations outlined in this report are implemented at all stages of construction and post-construction, including maintaining, protecting, and buffering key features.

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1 BACKGROUND

RiverStone Environmental Solutions Inc. (hereafter "RiverStone") was retained to complete an Environmental Impact Study/Site Evaluation Report (EIS/SER) for 77 Wallings Road, Haliburton Village, Dysart et al. (hereafter, "subject property"). The EIS/SER is intended to describe existing environmental conditions of the subject property and assess potential impacts of a proposed glamping and amenity area waterfront development. The proposed development would involve grading, the construction of glamping pads, an infiltration trench, a retaining wall, a path to the lake and re-naturalization of the shoreline area (see accompanying naturalization plan).

The subject property (as depicted in **Figure 1**) is located within a settlement area designated in the County of Haliburton Official Plan (2017; OP). Schedule A to the Municipality of Dysart et al OP (2017) further designates the subject property as part of a broader Urban Residential Area. As per Schedule A to the Municipality's Zoning Bylaw (2005), the subject property is currently zoned as Rural Institution, related to former use of the site as a Ministry of Natural Resources and Forestry (MNRF) firebase. The property has frontage on Head Lake and is abutted by other developed properties.

RiverStone understands that the County of Haliburton and/or Municipality of Dysart et al. requires the submission of an EIS/SER, the general structure of which is outlined in Section 17.5.3 of the Dysart et al. OP. RiverStone prepared and submitted proposed Terms of Reference for our study to the County of Haliburton on July 21, 2021 (Cesare Pittelli, Evans Planning to Les Jagoda, County of Haliburton and Steve Stone, Dysart et al.). While a formal response has not yet been received, RiverStone has prepared this EIS/SER in fulfillment of the proposed Terms of Reference (see **Appendix 1**).

2 APPROACH AND METHODS

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

1. Gathering background biophysical information for the study area to become familiar with existing natural heritage feature mapping and records of features and species of conservation interest prior to the site investigation.

2. Conducting an on-site investigation to field-verify the presence or absence of natural heritage features identified during background information gathering, and to identify any additional significant features (if present).

3. Determining whether implementation of the proposed development plan will result in adverse impacts to natural heritage features, and to identify ways in which such impacts can be mitigated via avoidance, minimization, and/or compensation measures.

4. Providing an assessment of consistency and conformity of the proposed development plan with applicable municipal, provincial, and federal environmental policies.

2.1 Background Information Review

Background biophysical information pertaining to the study area was collected from a variety of sources. These include:

- **County of Haliburton Official Plan** (April 2017)

- **Municipality of Dysart et al Official Plan** (November 2017)
- **Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) Natural Heritage Areas and Natural Heritage Information Centre (NHIC)** database regarding information on occurrences of SAR and provincially tracked species (squares: 17PK9491, 17PK9591, 17PK9490, 17PK9590); accessed Feb 4, 2024, at: http://www.giscoeapp.lrc.gov.on.ca/Mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US).
- **Species at Risk (SAR) range maps** (accessed Dec 9, 2021 at: http://www.ontario.ca/environment-and-energy/species-risk-ontario-list).
- **Ontario Breeding Bird Atlas (OBBA) database and the Atlas of the Breeding Birds of Ontario, 2001–2005** (Cadman et al. 2007) (accessed at: Feb 2024 http://www.birdsontario.org/atlas/squareinfo.jsp)
- **Ontario Reptile and Amphibian Atlas** (accessed Feb , 2024 at: http://www.ontarioinsects.org/herpatlas/herp_online.html).
- **Distribution of Aquatic Species at Risk** mapping generated by Fisheries and Oceans Canada in 2015 (accessed at: http://www.conservation-ontario.on.ca/what-we-do/watershed-stewardship/aquatic-species-at-risk).
- **MNRF Fish Online** for details regarding lake characteristics, fish community, and stocking history (Accessed Feb 2024): https://www.gisapplication.lrc.gov.on.ca/FishONLine/Index.html?site=FishONLine&viewer=FishONLine&locale=en-US
- **Great Lakes Conservation Blueprint for Terrestrial Biodiversity, Volume 2** (Henson and Brodribb (2005) regarding terrestrial biodiversity within Ecodistrict 5E.
- **Digital Ontario Base Maps** (OBMs; 1:10,000) to ascertain topography.
- **Colour aerial photography** of the property (digital orthophotos: leaf-off, spring 2013).

2.2 Site Investigation

The results of the screening exercise outlined above informed the scoping of two site visits conducted by RiverStone Ecologists in 2021 (July 14, Sept 21). These investigations focused on characterizing and delineating natural heritage features that exist on the property including fish habitat, wildlife habitat, topography, slope, drainage features, woodlands, and potential habitat for endangered and/or threatened species. As part of the initial site visit, RiverStone staff conducted a dawn breeding bird survey to support our general assessment of on-site habitat functions. Representative photographs taken during the site investigation are assembled in **Appendix 2**. Overall, the on-site data collection effort was considered appropriate given the location and scale of the proposed development plan.

2.2.1 Habitat-based Approach

RiverStone's primary approach to site assessment is habitat-based. We first focus on evaluating the potential for 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 turtles of

conservation interest use sandy shorelines for nesting, numerous fish species use areas of aquatic vegetation for nursery habitat).

Physical attributes of a site that can be used as indicators of its potential to function as habitat for a species include structural characteristics (e.g., physical dimensions of rock fragments or trees, water depth), ecological community (e.g., meadow marsh, rock barren, coldwater stream), and structural connectivity to other habitat features required by the species. Species-specific habitat preferences and/or affinities are determined from status reports produced by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), Cadman et al. (2007), published and unpublished documents, and direct experience.

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

Although observations of fauna and flora of interest were recorded, they are not reported herein unless the observation was important for the determination of habitat potential for species of conservation interest. Evidence for the presence of a species or use of an area was determined from visual and/or auditory observation (e.g., song, call) and observation of nests, tracks, burrows, browse, skins, and scats. High level Ecological Land Classification vegetation mapping (**Section 3.4**) that was completed also provides information regarding the likelihood that plant species of conservation interest may be present (for example, most rare plants have strong affinities for specific ecological communities). Natural features of interest (e.g., vegetation community boundaries) and survey markers were delineated in the field with a high accuracy GPS. Features of interest were photographed, and all information collected was catalogued for future reference.

2.2.2 Topography, Surficial Geology, and Drainage

The geophysical setting of the study area was determined using topographic mapping, geological mapping, aerial photography, and the on-site investigation. Drainage features (where present) are identified through the review of background mapping resources and/or delineated in the field.

2.2.3 Ecological Communities

Vegetation communities on the subject property were delineated according to Ecological Land Classification (ELC) community tables (Lee et al. 1998). Due to the anthropogenic nature and general lack of vegetation cover on the subject property, the codes described in the southern ELC manual were considered most appropriate for identifying vegetation communities.

2.2.4 Water Quality and Fish Habitat

Our field approach for fish habitat is also habitat-based. Significant habitat features are identified and characterized through site visits during the summer months when habitat features are visible and are classified according to type (**Table 1**). Riverstone does not directly observe the use of shoreline habitat by fishes throughout their life cycle to determine which features are significant.

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

The key habitat features of Head Lake, including the riparian vegetation, are documented and recorded during onsite assessments and compared with the specific and general habitat requirements of the fish that are known to occur, in order to establish the fish habitat type (**Table 1**). Where available, our classification is compared with that of the MNRF. For the subject property, mapping was not available from the MNRF for this section of shoreline. These details allow the lake to be characterised and considered based on requirements in the Township and County Official Plans. These requirements relate to the buffer width and vegetation retention requirements.

Table 1. Classification of Fish Habitat Types.

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

2.3 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. The terminology used in this report is consistent with the Provincial Policy Statement, including reference to relevant features as 'significant natural heritage features' (SNHF). RiverStone conducted a review of the background information sources identified in **Section 2.1** to determine if SNHF have been identified in association with the subject property by the province and/or local planning authority. SNHFs that may be relevant to this proposal in this jurisdiction include the following:

- Provincially Significant Wetlands
- Areas of natural and scientific interest (life science)
- Habitat of endangered and threatened species
- Significant wildlife habitat (includes habitat for rare and special concern species)
- Fish habitat

RiverStone assesses the potential presence of each of the above SNHF in accordance with applicable technical guidance documents, including the following:

- *Natural Heritage Reference Manual (NHRM) for the Natural Heritage Policies of the Provincial Policy Statement* (MNRF 2010)
- *Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E* (MNRF 2015).

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 2.1** and the habitat-based approach outlined in **Section 2.2.1**. Our assessment of SNHF is provided in **Section 4** of this report.

2.4 Impact Assessment

RiverStone employs the following approach to carry out a standardized assessment of impacts associated with the proposed development (as described in **Section 5**):

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

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

2.5 Assessment of Conformance with Applicable Environmental Policies

There are several relevant environmental policies (*e.g.*, statutes, regulations, plans, guidance documents, etc.) that may apply to the study area and proposed development, which are listed below. An assessment of the proposed development's consistency and conformity with these environmental policies is offered in **Section 5.**.

- Federal *Migratory Birds Convention Act*, S.C. 1994, c. 22, including:
    - Migratory Birds Regulations.
- Federal *Fisheries Act*, R.S.C. 1985, c. F-14, including:
    - *Applications for Authorization under Paragraph 35(2)(b) of the Fisheries Act Regulations*, S.O.R/2013-191
    - Fisheries Protection Policy Statement (Oct. 2013)
- *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)
- Provincial *Endangered Species Act* (ESA), S.O. 2007, c. 6, including:
    - Ontario Regulation 230/08: Species at Risk in Ontario List

  - Ontario Regulation 242/08: "Exemption Regulation"
- County of Haliburton *Official Plan* (2017)
- Municipality of Dysart et al *Official Plan* (2018)
- Municipality of Dysart et al *Comprehensive Zoning By-law* (Office Consolidation January 2018)

3 EXISTING CONDITIONS

3.1 General Site Conditions

The subject property consists of a cleared area with existing structures, a driveway, parking area, and a small woodlot to the north and west areas of the property. There are four existing structures on the subject property. Three of the buildings were previously used as the MNRF firebase and a fourth smaller structure was used as storage for combustible materials (see **Appendix 2** for site photos). The property has frontage on Head Lake and is abutted by developed properties on both sides. Further biophysical details are provided in the following sections.

3.2 Topography, Physiography and Drainage

Topography within the subject property is variable, with areas of table land in the north and steeper slopes toward the south. The entire property is generally sloping toward Head Lake; however, the portion of the property that is proposed for development is relatively flat. The soil composition within the study area is unknown. Most of the property is assumed to be well-draining. The sloped area of the property creates a high potential for surface runoff towards the lake. The lake shoreline is delineated in **Figure2**, and potential ecological functions (*e.g.*, fish habitat) are discussed in further detail below.

3.3 Fish & Wildlife Habitat Overview

The cumulative results of RiverStone's background review and on-site assessment indicate that portions of the subject property and adjacent lands are likely to provide limited habitat for wildlife. Given the location in the Haliburton Village and the existing developed nature of the subject property, habitat opportunities are inherently limited to generic, urban-tolerant species. Staff noted species such as Red Squirrel (*Sciurus vulgaris*), White-tailed Deer (*Odocoileus virginianus*), and Eastern Chipmunk (*Tamias striatus*) while conducting on-site investigations. Staff also conducted an early morning calling bird survey on July 14th (2021), documenting the following common species: Blue Jay (*Cyanocitta cristata*), Common Grackle (*Quiscalus quiscula*), Red-eyed Vireo (*Vireo olivaceus*), Chipping Sparrow (*Spizella passerina*), Yellow-bellied Sapsucker (*Sphyrapicus varius*), Black-capped Chickadee (*Poecile atricapillus*), and Common Loon (*Gavia immer*).

A search of the local area through the NHIC database identifies element occurrences for several wildlife species of conservation concern. Likewise, adjacent Head Lake is known to support a thriving fish community. A discussion on fish and wildlife species and/or habitat features, including individuals of species at risk, is provided in **Section 5** of this report within the context of SNHF.

3.4 Vegetation Communities

Existing vegetation communities within the subject property were assessed during the on-site investigation. A desktop exercise was undertaken to map vegetation community boundaries using background information sources and current aerial photographs; the mapped vegetation communities were then ground-truthed and refined during the on-site investigation. Vegetation community mapping

in accordance with Lee et al. (1998) is provided on **Figure 2.** Use of the Southern Ontario ELC manual would not be considered typical in this area of the province; however, the property contains only a single naturalized vegetation community (i.e., pine plantation), and codes for this community type are not available in the ELC manual for Central Ontario (Banton et al, 2009). In addition to a single naturalized vegetation community, manicured/landscaped (anthropogenic) areas represent the predominant cover throughout the subject property. Details pertaining to the vegetation communities present on the subject property are provided below.

ANTH: Anthropogenic/Manicured Amenity Space

The area classified as ANTH includes maintained/manicured amenity areas surrounding the existing structures including the access driveway, parking area and areas of manicured lawn. Scattered landscape trees are present throughout this area, including Scots Pine (*Pinus sylvestris*), Red Pine (*Pinus resinosa*), Jack Pine (*Pinus banksiana*), White Ash (*Fraxinus americana*), and Black Cherry (*Prunus serotina*). The area also encompasses the slope to the shoreline, including a narrow strip of successional meadow along the direct shore. In general, all areas within this classification exhibit a clear history of anthropogenic influence and/or ongoing maintenance.

CUP3-3: Scots Pine Coniferous Plantation Type

This community occurs in the northwest portion of the subject property. It is represented by a small area of unmanaged mixed pine plantation, with Scots Pine and Red Pine being dominant. Successional growth of Basswood (*Tilia americana*) and White Ash is present throughout, and particularly along the edges. Groundcover is sparse, including Mayflower (*Maianthemum canadense*), Bracken (*Pteridium aquilinum*), and hardwood seedlings. The entire feature, including portions extending onto the adjacent residential property, measures less than 0.5 ha. No significant features or functions were identified in association with this community.

4 SIGNIFICANT NATURAL HERITAGE FEATURES

Based on the biophysical information collected during background information gathering and the results of RiverStone's site investigation, **Table 2** below identifies all SNHF, as defined by the PPS, that are present (or potentially present) within the study area. RiverStone's rationale for identifying such features is provided in the sections that follow. Relevant mapping is shown in **Figure 2**.

Table 2. Summary of the Assessment of Significant Natural Heritage Features Potentially Associated with the Subject Property.

Significant Natural Heritage Features	**Presence or Absence within the Subject Property and/or Adjacent Lands.**
Provincially Significant Wetlands	*Absent*. See **Section 4.1**
Areas of Natural and Scientific Interest (Life Science)	*Absent*. See **Section 4.2**
Habitat of Endangered and Threatened Species	*Potentially Present*. See **Section 4.3**
Significant Wildlife Habitat	*Potentially Present*. See **Section 4.4**

Significant Natural Heritage Features	Presence or Absence within the Subject Property and/or Adjacent Lands.
Fish Habitat	*Present*. See **Section 4.5**

[1] - Shaded rows denote Significant Natural Heritage Feature that are present or have the potential to be present within the study area.

4.1 Provincially Significant Wetlands

It is the responsibility of MNRF to designate and administer mapping for Provincially Significant Wetlands (PSWs). Based on available background mapping, it is our understanding that no PSWs have been identified on the subject property or adjacent lands. No further assessment undertaken.

4.2 Areas of Natural and Scientific Interest (Life Science)

It is the responsibility of the MNRF to designate and administer mapping for areas of natural and scientific interest (ANSIs). Based on available background mapping there are no ANSIs present on the subject property or adjacent lands. No further assessment undertaken.

4.3 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 a 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. RiverStone further reviews the NHIC database for existing records of element occurrences for endangered or threatened species (data squares 17PK9491, 17PK9591, 17PK9490, 17PK9590). Databases of the OBBA and ORAA are also reviewed. Background information review is followed by on-site investigation, during which vegetation conditions are characterized for further habitat-based assessment.

The species contained within the list below were either identified through our background review or otherwise identified by staff as having the potential to be present within the subject property or adjacent lands. Where the likely or confirmed presence of an individual species and/or its habitat was supported by our field assessment and background review, these species are discussed further in the impact assessment in **Section 5**.

4.3.1 Black Ash (*Fraxinus nigra*)

Black Ash was added to the SARO List as of January 27, 2022; however, a minimum two-year moratorium has been established before any species- or habitat-level protections are provided under Regulation 242/08 of the ESA. Regulatoins 6/24 and 7/24 identify houw the prohibitions in sections 9 and 10 of the Endangered Species Act, 2007 apply to Black and Ash and its habitat. The current protections afforded to Black Ash are specific to certain municipalities in Ontario; the County of Haliburton is not included in this list. NHIC's database contains a record of element occurrence for Black Ash for one of the 1 km grid squares associated with the subject property. In general, this

species requires wetland habitat conditions to carry out key life processes, and such conditions are absent within the subject property or adjacent lands. No further assessment undertaken.

4.3.2 Blanding's Turtle (*Emydoidea blandingii*)

The Ontario Reptile and Amphibian Atlas database contains a record of occurrence for Blanding's Turtle around the subject property. In general, this species requires wetland or open water habitat conditions to carry out key life processes. This species may make use of the open water habitat in Head Lake; however, the developed shoreline area associated with the subject property provides minimal natural cover, and near-shore open water areas are highly influenced by regular boat traffic. These factors make it very unlikely that Blanding's Turtle would utilize local shoreline areas. The subject property itself provides no functional habitat for this species. No further assessment undertaken.

4.3.3 Bobolink (*Dolichonyx oryzivorous*)

NHIC's database contains a record of element occurrence for Bobolink for two of the 1 km grid squares associated with the subject property (17PK9591, 17PK9590). In general, this species requires open grassland-type habitat conditions to carry out key life processes, and such conditions are absent within the subject property or adjacent lands. No further assessment undertaken.

4.3.4 Chimney Swift (*Chaetura pelagica*)

NHIC's database contains a record of element occurrence for Chimney Swift for two of the 1 km grid squares associated with the subject property (17PK9591, 17PK9590). In general, this species tends to occur around settlement areas where they nest and roost in chimneys or other man-made structures. No evidence of individual chimney swift or suitable potential habitat was observed during our site visit. No further assessment was undertaken.

4.3.5 Eastern Hognose Snake (*Heterodon platirhinos*)

The Ontario Reptile and Amphibian Atlas database contains a record for Eastern Hognose Snake associated with the10 km^2 grid square that contains the subject property. This species prefers sandy, well-drained habitats such as beaches and dry forests where they can lay their eggs and hibernate. Eastern Hognose Snake also tend to be associated with large swaths of natural cover, and generally do not thrive in proximity to urban centers and dense road networks. The subject property is situated within an urban area, with natural cover essentially absent and no specialized habitat features available for this species. In general, there is no expectation that this species would occur within the subject property or directly adjacent lands. No further assessment undertaken.

4.3.6 Eastern Meadowlark (*Sturnella magna*)

NHIC's database contains a record of element occurrence for Eastern Meadowlark for one of the 1 km grid squares associated with the subject property. In general, this species requires open grassland-type habitat conditions to carry out key life processes, and such conditions are absent within the subject property or adjacent lands. No further assessment undertaken.

4.3.7 Endangered Bat Species (*Myotis lucifugus, Myotis septentrionalis, Perimyotis subflavus*)

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.

Current direction from MECP prescribes that targeted surveys of treed habitats/snags for endangered bat species are not necessary 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 (MECP 2021). Notwithstanding, during our on-site investigation, RiverStone staff conducted a general qualitative assessment of potential bat habitat. Trees within the area of woodland directly adjacent to the subject property appeared to be in generally good health, with no prominent concentrations or clusters of dead trees or trees with obvious cavity features. The existing structures may support seasonal roosting activity, although staff did not observe any evidence of bat usage while on site (e.g., guana on sides of buildings). Regardless of this assessment, 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. Further discussion, including an assessment of potential impacts to individuals of endangered bat species resulting from implementation of the proposed development plan, is provided in **Section 5.3.**

4.4 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; however, it is recognized that SWH features and functions are generally impractical to identify and designate on a broad scale, and can require review on a site-specific basis. Therefore, RiverStone has reviewed applicable technical guidance on the identification of specific SWH features and functions as contained in the SWH Criteria Schedules for Ecoregion 5E (MNRF 2015). A preliminary assessment of the criteria schedules is provided in **Appendix 3**, and SWH features that have been confirmed or have the potential to occur within the subject property were identified as follows:

4.4.1 Deer Wintering Area

OP Schedule B -Natural Heritage Areas and Features (Dysart et al.) identifies a broad layer of deer wintering habitat (stratum 2) that encompasses a large swath of the surrounding landscape, including the subject property. The subject property was evaluated during field investigations to determine vegetation cover, etc. related to the ability of the property to function as a deer wintering area.

As outlined in Section 4.4.1 of the Significant Wildlife Habitat Technical Guide (2000), White-tailed Deer do not move well in deep snow, and they therefore move to sheltered areas for the winter months. Deer show a high fidelity to these gathering areas, returning each year. This specialized habitat is considered SWH as deer rely on the thermal cover and food found in these wintering yards. Deer yards consist of a core area (Stratum 1), comprised of primarily coniferous trees (pines, hemlock, cedar, spruce) with a canopy cover of more than 60%. The core area provides shelter, ease of movement, and protection from predators during the winter months. The land surrounding the core area is usually mixed or deciduous forest. Understorey shrubs and small trees, especially Eastern White Cedar,

provide winter food (Stratum 2). Deer tend to use the same yards year after year, and they make up about 10% of the summer deer range.

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 an area mapped as Stratum 2 deer yard. As described above, the Stratum 2 habitat typically surrounds Stratum 1 habitat and consists of mixed or deciduous forest with plenty of understory shrubs and small trees for food.

The key element of this habitat function is the presence of blocks of woodland with understory shrubs and small trees that provide a stable food source. The subject property provides negligible woodland cover and is located in a local urban area. While it is possible that woodland areas elsewhere on the local landscape contribute to this habitat function, there is no expectation that the subject property is supporting this habitat function. No further assessment undertaken.

4.4.2 Special Concern and Rare Wildlife Species

RiverStone staff have conducted a review of the list of species designated as special concern in Ontario, as per Schedule 4 of Ontario Regulation 230/08, located here: https://www.ontario.ca/laws/regulation/080230. Through a review of background and on-site information, as well as application of staff knowledge and experience, RiverStone noted the following special concern and/or rare wildlife species as being potentially present within the subject property:

4.4.2.1 Canada Warbler (*Cardellina canadensis*; Special Concern)

NHIC's database contains a record of element occurrence for Canada Warbler for two of the 1 km grid squares that overlap the subject property (data squares 17PK9591, 17PK9590). This species can be found in many types of forests; however, they are most commonly located in cool, damp, mixed deciduous-coniferous forests with well-developed shrub layers. Females tend to choose areas ridden with dense ferns, mosses and fallen logs or tree stumps to build their nests. Such conditions are absent within the subject property or adjacent lands. No further assessment undertaken.

4.4.2.2 Eastern Ribbonsnake (*Thamnophis sauritus;* Special Concern)

NHIC's database contains a record of element occurrence for Eastern Ribbonsnake for the 1 km grid squares overlapping the subject property (data square 17PK9590). In general, this species requires sheltered wetlands to carry out key life processes. This species may be present in other portions of Head Lake and within wetlands on the surrounding landscape; however, the subject property provides no functional habitat for this species. No further assessment undertaken.

4.4.2.3 Midland Painted Turtle (*Chrysemys picta marginata;* Special Concern)

NHIC's database contains a record of element occurrence for Midland Painted Turtle for the 1 km grid squares overlapping the subject property (data square 17PK9490).. In general, this species requires wetland or open water habitat conditions to carry out key life processes. This species may make use of the open water habitat in Head Lake; however, it is unlikely that the subject property provides any functional habitat for this species. No further assessment undertaken.

4.4.2.4 Snapping Turtle (*Chelydra serpentina;* Special Concern)

NHIC's database contains a record of element occurrence for Snapping Turtle for the 1 km grid squares overlapping the subject property (data square 17PK9591, 17PK9590). In general, this species requires wetland or open water habitat conditions to carry out key life processes, and such conditions are absent within the subject property or adjacent lands. No further assessment undertaken.

4.4.2.5 Wood Thrush (*Hylocichla mustelina;* Special Concern)

NHIC's database contains a record of element occurrence for Wood Thrush for the 1 km grid squares overlapping the subject property (data square 17PK9591, 17PK9590). Conditions within the subject property do not offer potentially suitable habitat for this species. Wood thrush prefer large mature deciduous and mixed (conifer-deciduous) forests with well-developed undergrowth which are absent on the subject property. No further assessment undertaken.

4.5 Fish Habitat

Head Lake is considered a warm water lake, with a mixed community of pan fish and sport fish. Documented fish species include Cisco (*Coregonus artedi*), Muskellunge (*Esox masquinongy*), Pumpkinseed (*Lepomis gibbosus*), Smallmouth Bass (*Micropterus dolomieu*), White Sucker (*Catostomus commersonii*) and Yellow Perch (*Perca flavescens*). Head Lake also contains Walleye (*Sander vitreus*) which were stocked by the MNRF from 2012-2015.

During our site assessment, we reviewed the entire shoreline of the property to determine the type of fish habitat present. Habitat characteristics were generally consistent across the frontage based on substrates, aquatic vegetation, and nearshore slopes. Substrates within the nearshore area primarily included areas of cobble immediately adjacent to the shoreline. Through the central frontage, conditions were characterized as having moderate nearshore depths (1 m depth approximately 3 m from shore), overhanging vegetation (western boundary), and at least one partially submerged/fallen tree. Dense aquatic macrophytes consisting of a mix of submerged and floating aquatic vegetation (e.g., *Myriophyllum sp*., *Pontederia cordata*; see **Appendix 2**) extended from the western property boundary east towards the remnant docking location. On the eastern property boundary, a large fallen tree provides additional in-water structure.

Based on the conditions documented on site, areas with structural cover (*i.e.*, submerged fallen trees, macrophytes) are best classified as Type 1 habitat, which may provide spawning opportunities for smallmouth bass and would be expected to provide nursery and foraging opportunities for a variety of species. The remainder of the shoreline is best classified as Type 2 fish habitat given the evidence of disturbance and reduced abundance of aquatic vegetation.

5 IMPACT ASSESSMENT AND RECOMMENDATIONS

As previously discussed, the subject property contains existing structures and mixed manicured amenity space. The proposed development would involve grading within the development envelope, construction of a cement pad, installation of glamping platforms, the construction of an infiltration trench and a retaining wall as well as plan for the re-naturalization of the shoreline. The resulting waterfront development would include a total of six glamping pads in addition to the existing structures on site.

The impact assessment provided below is intended to review how the proposed development may impact the integrity and function of identified natural features. We provide feature-specific mitigation

measures to avoid or minimize the potential for impacts where appropriate and feasible, including a discussion of suitable setbacks to features.

5.1 Water Quality

As part of the analysis, potential impacts on water quality in Head Lake were assessed. In general, negative impacts on water quality can result via the following processes:

- stormwater runoff during construction activities
- modification of drainage patterns or flow rates
- inappropriately located sewage treatment systems that increase nutrient (phosphorous) loading to water bodies
- increased runoff due to additional extent of hard surfaces (e.g., driveways)
- construction of in-water structures (e.g., docks, culverts)
  changes to onshore structural features (e.g., removal of vegetation or soil, importation of aggregates)

Based on our assessment, the potential for impacts to water quality in Head Lake are limited. It is our understanding that the proposed development would be serviced via connection to the municipal sanitary network and, therefore, require no on-site septic infrastructure. Redevelopment will require stormwater management, which will be provided under a separate cover. Sediment and erosion control measures will be provided through the Site Plan or other design drawings that include an environmental plan.RiverStone has reviewed the existing conditions on the subject property and provides the following recommendations for incorporation into the design and site servicing plans and to direct any future development that would be permitted through this application:

- **Development of structures should be set back a minimum of 30 m from the high-water mark of Head Lake.**
- **All existing vegetation within 30 m of the shoreline should be maintained and protected through appropriate tree protection measures.**
- **Additional planting of native species (trees, shrubs, groundcover) should be undertaken in accordance with the naturalization plan which accompanies this report.**
- **Impervious surfaces should not be installed within 30 m of the shoreline, except for a pathway to any potential future docking structures. Any pathway should be constructed of permeable substances (*e.g.* clean gravel, mulch).**

Installation of an infiltration trench should be installed fronting on grading for glamping pads per engineering drawing Figure 1 Project 21-7010 November 2023

- **To ensure that water quality is not negatively impacted by stormwater runoff during construction activities (e.g., land clearing, grading, and general construction), RiverStone recommends the following measures related to sediment and erosion control be included in the environmental plans:**
  - **When the native soil is exposed, sediment and erosion control works, in the form of heavy-duty sediment fencing, be positioned in locations shown on Figure 3..**
  - **Temporary storage locations of aggregate material be located no less than 30 m from the lake. This material is to be contained by heavy-duty sediment fencing.**

- **The sediment fencing must be constructed of heavy material and solid posts to ensure its integrity and be properly installed (trenched in) to maintain its integrity during inclement weather events.**
- **Additional sediment fencing and appropriate control measures (e.g., material for check dams, erosion blanket) should be available on site so that any breach can be immediately repaired through construction of check dams and blanketing.**
- **Regular inspection and monitoring will be necessary to ensure that the structural integrity and continued functioning of the sediment control measures is maintained (i.e., proper installation is not the only action necessary to satisfy the mitigation requirements).**
- **Inspections of sediment and erosion control measures be completed within 24 hours of the onset of a storm event.**
- **Sediment control measures be maintained in good working order until vegetation has been established on the exposed soils.**

5.2 Fish Habitat

The fish and fish habitat protection provisions of the *Fisheries Act* include:

- a prohibition against causing the death of fish, by means other than fishing (section 34.4)
- a prohibition against causing the harmful alteration, disruption or destruction of fish habitat (section 35)
- ministerial powers to ensure the free passage of fish or the protection of fish or fish habitat with respect to existing obstructions (section 34.3)

The nearshore area fronting the subject property was primarily identified as Type 1 (critical) fish habitat, with a section in the center where the remnants of a previous docking structure remain classified as Type 2 (general) fish habitat. Type 2 (general) fish habitat does not contain specialized habitat for fish, while Type 1 (critical) fish habitat may support sensitive features such as spawning habitat or feeding, refugia, *etc*.

It is our understanding that the current site plan includes no specific proposal for a docking envelope; however, in general, we recommend restricting the placement of any in-water structures such as docks to areas generally identified in **Figure 3**. The area indicated for a future docking reflects the section of shoreline that was historically utilized for docks. Further review of habitat structure and function may be warranted in the future pending more detailed plans for a docking structure. Additionally, based on the current proposal, the requirement to have structures setback from the shoreline 30 m, and the enhancement and maintenance of a natural buffer is suitable to protect impacts to fish habitat. Additional mitigation recommendations are outlined in **Appendix 4** to guide any future planning for a docking structure on the subject property.

5.3 Endangered and Threatened Species

Areas of identified habitat for any endangered or threatened species are protected from destruction as per Section 10 of the ESA. Additionally, individuals of endangered or threatened species cannot legally be killed, harmed, or harassed as per Section 9 of the ESA. In many cases, mitigation planning is sufficient to ensure that development can occur in a manner that is consistent with the above provisions. It is RiverStone's opinion that the property is unlikely to support any habitat for

endangered or threatened species; however, individuals of endangered bat species have the potential occur throughout the active season.

As discussed in **Section 4.3.7**, it is RiverStone's opinion that the subject property is unlikely to support significant concentrations of features that support habitat for endangered bats (*i.e.*, cavity trees, snags). Additionally, no evidence was observed to indicate that on-site structures are supporting bat roosting activity. Notwithstanding, it is possible that individuals of endangered bat species may be present within individual trees and/or within buildings during the active season. Therefore, mitigation measures are warranted to ensure that any potential future development of the subject property will not result in harm to individual bats and contravene Section 9 of the ESA.

The development, as proposed, will inherently require removal of a small number of individual trees. As such, efforts should be made to ensure removal of trees is minimized to the extent feasible. For scenarios involving small-scale tree removal, current direction from MECP regarding impact avoidance for endangered bats includes strict adherence to vegetation removal timing windows. By limiting the window in which trees can be removed to outside of the active season for bats, development activities can avoid incidental harm to individuals of endangered bat species. If the measure below is implemented, it is RiverStone's opinion that proposed development will not result in a negative impact to endangered bats. There is no expectation that the proposal will result in a contravention of the ESA.

- **Tree clearing only occur in the fall, winter, and early spring (from October 15 to April 1). This timeframe is outside of the maternal roosting period for endangered bats. This timing restriction also protects migrating and breeding birds.**

- **Prior to demolition the existing structures should be checked for the presence of bat species. If evidence of bat activity is observed within on-site buildings prior to or during demolition, the proponent must contact a qualified biologist and/or the MECP for further direction.**

6 CONFORMANCE WITH APPLICABLE ENVIRONMENTAL POLICIES

The following sections summarize the federal, provincial, and municipal environmental policies that are considered applicable to the proposed development application.

6.1 Federal Fisheries Act (R.S.C., 1985, amended 2013-11-25)

The *Federal Fisheries Act* states that:

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

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

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

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

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

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 clearing of vegetation for the proposed development to times outside of the period April 15 to August 31, will prevent contravention of Section 6 of the regulations.

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

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

The ESA protects designated endangered and threatened species in Ontario from being killed, harmed, or harassed (s. 9) or having their habitat damaged or destroyed (s. 10). **Section 4.3** identified one or more species having the potential to occur within or adjacent to the subject properties. **Section 5.3** provided a subsequent discussion of potential impacts to such species and associated habitat features, should those species be present within or adjacent to the subject properties. Based on this assessment, and assuming full implementation of mitigation measures (where recommended), it is RiverStone's opinion that no endangered or threatened species or their habitat are expected to be negatively impacted by implementation of the development proposal. On this basis, there is no expectation that the proposal will result in a contravention of the ESA. It is noted that this assessment does not represent 'clearance' with respect to ESA compliance. It remains a proponent's continued and sole responsibility to ensure that a project does not result in a contravention to the ESA.

6.4 Provincial Policy Statement, 2020 (PPS)

The PPS is promulgated under the *Planning Act* and provides direction to municipalities on matters of provincial interest related to land-use planning. The PPS was updated in 2020. Municipal OP's must be consistent with the PPS. Key natural heritage-related provisions of the PPS, as assessed in this report, are listed below:

> **2.1.4** Development and site alteration shall not be permitted in:
>
> a) significant wetlands in Ecoregions 5E, 6E, and 7E; and
> b) significant coastal wetlands.

2.1.5 Development and site alteration shall not be permitted in:

a) significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;
b) significant woodlands in Ecoregions 6E and 7E;
c) significant valleylands in Ecoregions 6E and 7E;
d) significant wildlife habitat;
e) significant areas of natural and scientific interest; and
f) coastal wetlands in Ecoregions 5E, 6E and 7E[1] that are not subject to policy 2.1.4(b)

unless it has been demonstrated that there will be *no negative impacts on the natural features or their ecological functions.*

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

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.

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.

Based on the results of RiverStone's impact assessment, and contingent on the implementation of the recommendations outlined in **Section 5** of this report, it is RiverStone's opinion that the development as proposed is consistent with Sections 2.1.4 to 2.1.8 of the PPS..

6.5 County of Haliburton Official Plan (2017)

The County of Haliburton's OP provides broader guidance for the development and use of land than that contained in Dysart et al.'s OP. Haliburton's OP generally defers to lower-tier OP's to identify natural heritage features and other significant features and set appropriate development standards. As such, conformance with the Municipality of Dysart et al OP (as stated below in **Section 6.6**) implies conformance with Haliburton County's OP.

The County of Haliburton outlines the Shoreline Tree Preservation By-law 3505 (2012), which states:

> Being a by-law to *conserve, prohibit, protect, restrict, and regulate* the protection, preservation and removal of trees on shoreline properties in the County of Haliburton.

To ensure conformity with this by-law, any direct shoreline trees included in the 30 m shoreline buffer, as depicted on **Figure 3** are to be retained.

6.6 Municipality of Dysart et al Official Plan (November 2017)

Section 5 of the Official Plan provides direction regarding natural resources within the Township. Section 5.1 discusses policy related to water resources, which include lakes, rivers, and groundwater. Regarding lakes and rivers, the setback for buildings and structures (including tile fields) is 30 m. This

section also encourages owners to leave the lands within the shoreline setbacks substantially undisturbed and if already disturbed, to rehabilitate the property to a natural state.

Section 5.2 of the OP provides direction related to lake capacity. As noted in Table 1, Head Lake is classified as being Not at Capacity.

Section 5.3.4 of the Official Plan discusses the identification and protection of significant natural features, including significant habitat of endangered and threatened species, critical fish habitat, provincially significant wetlands and other wetlands, significant wildlife habitat and significant areas of natural and scientific interest. Schedule B Natural Heritage Features and Areas does not designate any significant natural features on the property.

The details provided in the analysis above meet the criteria set out in the Official Plan regarding water quality and natural features. Contingent on implementation of the recommendations provided in **Section 5** of this report, the proposed waterfront development is not expected to result in negative impacts on the evaluated ecological features and functions.

6.7 Township of Dysart et al Zoning By-law 2005-120 (Office Consolidation 2021)

The subject property is currently zoned Rural Institutional in the Township of Dysart et al. Zoning By-law (2005-120). Provisions provided in Section 6.2 of the Zoning By-law confirm that buildings and structures are to be setback a minimum of 30 m for development and site alteration.

The details provided by the client with respect to the proposed location for development structures on the property conform with the zone provisions outlined in the zoning by-law.

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 proposed development on the subject property is not expected to result in a negative impact to any significant natural heritage features and functions. Where negative impacts on the natural environment are anticipated, these can be avoided or acceptably minimized. We advise that the recommendations in this report be incorporated into the development agreements for the subject property.

8 REFERENCES

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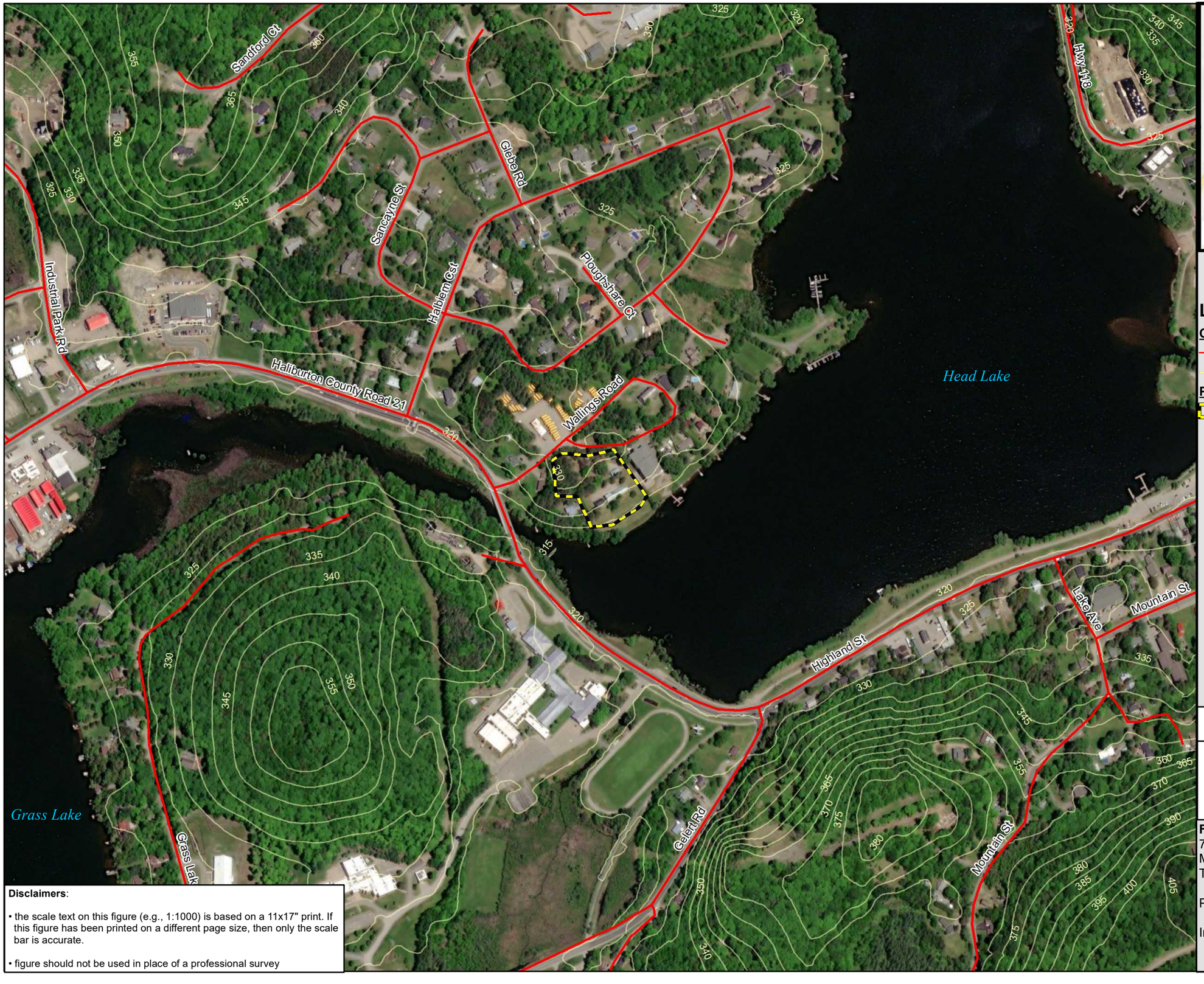

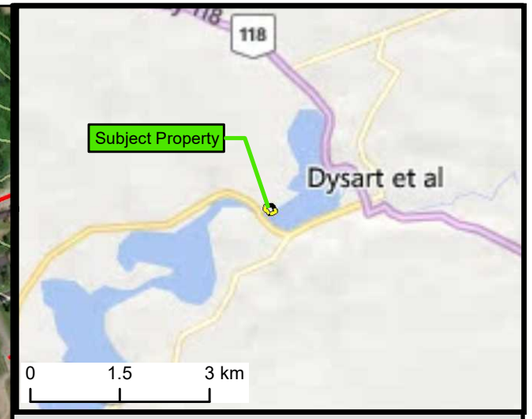

N

Legend

Ontario Base Mapping (OBM)

- Roads
- 5 m Contours

Planning Boundaries

- Subject Property

Orthorectified aerial photo - n.d.

Scale	RS Project No.	Date Last Updated	By
1:5,000	2021-175	Feb 05, 2024	JG

0 75 150 Metres

RiverStone Environmental Solutions Inc.

Figure 1. Location Of Subject Property
77 Wallings Road, Part of Lot 14, Concession 8, Municipality of Dysart et al., County of Haliburton, Town of Haliburton

Prepared for: Mr. Eugene Shcolyar

Inset: General Location Of Subject Property

Disclaimers:

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

Legend

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Ontario Base Mapping (OBM)

- Roads

Planning Boundaries

- Subject Property

Man-made Features Existing at Time of Site Visit (Sept 28, 2021)

- Dock Structure Remnants
- Building

Biophysical Features+Functions-RiverStone

- Fish Habitat

Ecological Communities

- ANTH: Anthropogenic/Maintained Amenity
- CUP3-3: Scots Pine Coniferous Plantation Type

Features with Natural Heritage Value - Identified by RiverStone

- Shoreline

Orthorectified aerial photo - spring 2018.

Scale	RS Project No.	Date Last Updated	By
1:750	2021-175	Jan 26, 2022	JG

0 10 20 Metres

RiverStone Environmental Solutions Inc

Figure 2. Existing Conditions
77 Wallings Road, Town of Haliburton

Prepared for: Mr. Eugene Shcolyar

Disclaimers:

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

Legend

N

Ontario Base Mapping (OBM)

- Roads

Planning Boundaries

- Subject Property

Features Taken from Existing Survey

- Water's Edge As Surveyed On June 13, 2021
- Permeable Pathway (< 1.8 m Wide)

Man-made Features Existing at Time of Site Visit (Sept 28, 2021)

- Dock Structure Remnants

Features with Natural Heritage Value - Identified by RiverStone

- Type 1 Fish Habitat
- Type 2 Fish Habitat

Development Setbacks Required by Relevant Approval Authorities

- 30m Shoreline Setback (5.3.6.2 County of Haliburton Official Plan) / Minimum Water Setback (Comprehensive Zoning -Bylaw Dysart et al. 2005 120 Section 6.2)

Measures Recommended by RiverStone to Prevent and/or Reduce Impacts

- Erosion And Sediment Control Fencing
- Revegetation Area

Proposed Development and Site Alteration

- Dock Envelope

Site Plan:
APLIN MARTIN
Aplin And Martin Consultants Ltd
2784805 Ontario Inc.
Proposed Glamping Development
Site Grading And Servicing Site
Date: November, 2023
Project No: 21-7010
Drawing No: C01, Rev:1

Orthorectified aerial photo - spring 2018.

Scale	RS Project No.	Date Last Updated	By
1:600	2021-175	Mar 05, 2024	JG

0 9 18 Metres

RIVERSTONE ENVIRONMENTAL SOLUTIONS INC.

Figure 3. Proposed Development And Recommendations
77 Wallings Road, Town of Haliburton

Prepared for: Mr. Eugene Shcolyar

Disclaimers:

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

Appendix 1. Proposed Terms of Reference

RIVERSTONE
ENVIRONMENTAL SOLUTIONS INC.

RIVERSTONE
ENVIRONMENTAL SOLUTIONS INC.

July 20, 2021
RS# 2021-175

Planning Department
County of Haliburton
11 Newcastle St.
Minden, ON
K0M 2K0

C/O Cesare Pittelli
Evans Planning Inc.
8481 Keele Street, Unit 12
Vaughan, Ontario L4K 1Z7

Via email: cpittelli@evansplanning.com

***SUBJECT*: Terms of Reference – Environmental Impact Study/SER, 77 Wallings Road, Town of Haliburton**

RiverStone Environmental Solutions Inc. (hereafter, "RiverStone") has been retained to complete an Environmental Impact Statement (EIS) and Site Evaluation Report (SER) as part of a development application for the above captioned property (hereafter 'subject property') in the Town of Haliburton.

It is RiverStone's understanding that the applicant is seeking approvals to construct a townhouse development in two phases on the subject property. The property is located in a "Settlement Area" as designated by the County of Haliburton Official Plan and is the site of the former Ministry of Natural Resources and Forestry (MNRF) firebase. It has frontage on Head Lake and Wallings Road and is abutted by other developed properties. The Town of Haliburton has identified the requirement for an EIS/SER and Species at Risk (SAR) study to support the application for development of the proposed structures.

Where natural heritage features are present, an EIS represents a standard requirement to support applications for development. Preparation of a study Terms of Reference (TOR) is standard practise to ensure that approval agencies support the proposed structure and work plan for the study. RiverStone has prepared this TOR for review and approval of Town/County staff.

To date, RiverStone has undertaken a background desktop review of the subject property, followed by an on-site assessment exercise to identify any natural heritage features and functions. RiverStone further proposes to complete several targeted tasks as part of the EIS/SER for the subject property. This TOR has been prepared based on the information provided to date by the proponent, available secondary information sources, and site-specific data collected through a single comprehensive site assessment exercise. The following sections outline the proposed scope of our work plan to complete the EIS.

Task 1: Acquisition and Review of Background Information

We will acquire background biophysical information for the subject property and adjacent lands, as well as aerial photographs, topographic, and natural resource feature maps, and related information for SAR and

significant wildlife habitat from several sources such the (MNRF), Ministry of Environment, Fisheries and Oceans Canada (DFO) and Conservation and Parks (MECP). All acquired information will be reviewed and any data gaps or necessary site-specific information will be identified. The aerial photographs will be integrated into a base map that will be used during on-site site investigations and for report mapping.

Task 2: Field Data Collection

Two (2) site visits will be conducted to review the existing biophysical features and functions of the property, including a targeted dawn breeding bird survey to inform our assessment of potential SAR breeding bird activity. Note that only a single targeted breeding bird survey is proposed, as on-site vegetation composition and general landscape context suggests that habitat availability on site for SAR birds is low. However, if any species of conservation concern are noted during the single survey, additional works may be warranted to further characterize habitat use and subsequently inform impact assessment and mitigation planning. Additionally, vegetation communities and other on-site features will be reviewed and characterized to identify any potential sensitive habitat features. An assessment of the Head Lake shoreline will also be conducted to determine fish habitat potential and sensitivity to disturbance.

To represent on-site conditions accurately, natural features will be digitized and delineated in the field using a high-accuracy GPS. A photographic record of natural features will be included in our report.

Task 3: Preparation of EIS Report

After evaluating the features and functions on site we will generate the EIS report, which will include the following components:

- Background information including existing use on subject property and adjacent lands;
- Development proposal and rationale;
- Description of EIS submission requirements;
- Approach and methodology;
- Description of site conditions (e.g. fish and wildlife habitat and SAR, existing vegetation, soils, slope, drainage, etc.) and identification and description of any significant natural heritage features;
- Mapping identifying the ecological constraints and site opportunities;
- Assessment of direct and indirect impacts on the natural features (including Head Lake) as related to the proposed development;
- Recommendations and mitigation measures to avoid, minimize, and/or compensate for any potential impacts on identified natural features (where required);
- Identify opportunities to enhance the buffer between the proposed development and identified natural features; and
- Conclusions, including conformity with the applicable municipal, provincial, and federal environmental policies.

We trust that the information provided in this TOR satisfies the Town's requirements for an EIS and provides a template for how the study will be undertaken. Should there be any questions related to this TOR, please do not hesitate to call us directly.

RiverStone Environmental Solutions Inc.

Per:

Bex Wicks, Ph.D.
Senior Ecologist/Principal

Appendix 2. Select Photos from Site Visit

RIVERSTONE
ENVIRONMENTAL SOLUTIONS INC.

Photo 1. Facing east from parking area beside existing buildings. Multi-story building on adjacent parcel.

Photo 2. Facing north-west from existing driveway. Utility building and small area of pine plantation (CUP).

Photo 3. Facing west across northern section of property. Existing driveway and manicured grass area with landscape trees.

Photo 4. General composition of remnant pine plantation area.

Photo 5. View southwest across central area of property. Existing driveway and structures.

Photo 6. View south along eastern lot line. Existing structure and Head Lake in background.

Photo 7. View north from shoreline. Existing structures and grassed slope.

Photo 8. Facing northeast along shoreline and adjacent slope. Manicured grass along slope and successional vegetation along direct shore.

Photo 9. Facing west from southeast corner of property. Manicured grass along slope; hedgerow vegetation in background along western property line.

Photo 10. Facing east along shoreline; abrupt transition to cobble substrate; moderate coverage of floating aquatic vegetation in near-shore area.

Photo 11. Facing west along shoreline; cobble substrate and remnants of former shoreline docking structure.

Photo 12. Facing southwest along shoreline and nearshore area; sparse floating aquatic vegetation and single overhanging tree.

Appendix 3. Assessment of Significant Wildlife Habitat

RIVERSTONE
ENVIRONMENTAL SOLUTIONS INC.

Ecoregion 5E	Candidate Significant Wildlife Habitat*	ELC Ecosites	Do site-specific attributes (e.g., ecological system and landscape configuration) assessed from available information sources and on-site assessment indicate that candidate SHW might be present?
Seasonal Concentration Areas of Animals			
Waterfowl Stopover and Staging Areas (Terrestrial)	Fields with sheet water during Spring (mid March to May) Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. Agricultural fields with waste grains are commonly used by waterflow, these are not considered SWH unless they have spring sheet water available.	These field/meadow ELC ecosites with appropriate soils and vegetation: G060-062, G077-079, G093-095, G109-111 Plus evidence of annual spring flooding from melt water or run-off.	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Waterfowl Stopover and Staging Areas (Aquatic)	Ponds, marshes, lakes, bays, coastal inlest, and watercourses used during migration. Sewage treatment Ponds and storm water Ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. These habitats have an abundance food supply (mostly aquatic invertebrates and vegetation in shallow water)	ELC Ecosites: G142-G152	The subject property does have frontage on Head Lake; however, there is a low likelihood that the assessment area is associated with significant aquatic waterfowl stopover and staging areas. The local area is subject to regular boat traffic, and the lake depth is likely not conducive to providing abundant aquatic invertebrate forage. No further assessment undertaken.
Shorebird Migratory Stopover Areas	Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a SWH.	ELC Ecosites: G005-G006, G160-G162, G170-G172, G176-G178, G186-G188, G204-G214	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Raptor Winter Feeding and Roosting Areas	The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. Raptor wintering sites need to be > 20 ha with a combination of forest and upland. Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands Field area of the habitat is to be wind swept with limited snow depth or accumulation.	A combination of meadow/field and forest/woodland ecosites. Need to have a forest ELC Ecosite: G011-G19, G023-G028, G033-G043, G048-G059, G064-G076, G081-G092, G097-G108, G133-G125 or Central Ontario FEC Ecosites ES11–ES35 **AND** a meadow/field ELC Ecosite: G020-022, G029-G032, G044-G047, G060-G063, G077-080, G093-096, G109-G113	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Bat Hibernacula	Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. Active mine sites are not SWH. The locations of bat hibernacula are relatively poorly known.	Bat Hibernacula may be found in association with components of cliffs and rock talus in these ELC Ecosites: G158-G159, G164, G180-G181 Or Central Ont. FEC: ES4, ES5 Note: buildings are not considered to be SWH	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (January 2015)

Ecoregion 5E	Candidate Significant Wildlife Habitat*	ELC Ecosites	Do site-specific attributes (e.g., ecological system and landscape configuration) assessed from available information sources and on-site assessment indicate that candidate SHW might be present?
Bat Maternal Colonies	Maternity colonies can be found in tree cavities, vegetation and often in buildlings (buildings are not considered to be SWH). Maternity roosts are not found in caves and mines in Ontario Maternity colonies located in Mature (dominant trees > 80yrs old) deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees Female Bats prefer wildlife trees (snags) in early stages of decay, class 1-3 . Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are	Maternity colonies considered SWH are found in forested Ecosites. ELC Ecosites: G016-G019, G028, G040-G043, G055-G059, G070-G076, G088-G092, G103-G108, G118-G125 or: Central Ontario Forest Ecosites: ES14, ES17, ES18, ES23, ES24, ES25, ES26, ES27, ES28, ES29, ES30	Sparse tree cover is present on the subject property; however, on-site investigations did not document any trees with cavities or other features which may function as bat roosting habitat. No further assessment undertaken.
Turtle Wintering Areas	-For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. -Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen -Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH.	For Snapping and Midland Painted turtles; ELC Ecosites: G128-G135 G140-G152 For Northern Map Turtle - Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	Areas of Head Lake may be expected to support turtle wintering areas' however, substrates documented along the shoreline of the assessment area did not contain soft mud substrates, and wetland communties are absent from the assessment area. Therefore, it is unlikely that the immediate area contains turtle wintering habitat.
Snake Hibernaculum	-For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. -Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line -Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. -Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures.	For all snakes, habitat may be found in any forested ecosite in central Ontario other than very wet ones. Talus, Rock Barren, Crevice and Cave, and Alvar sites may be directly related to these habitats. The existence of rock piles or slopes, stone fences, and crumbling foundations assist in identifing candidate SWH. For Five-lined Skink; Central Ontario Forest Ecosites: ES14.2, ES17 – ES20, ES23 – ES30 Or; ELC Ecosites: G056-G059 G070-G076 G087-G092 G103-G108 G118-G125	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)	-Any site or areas with exposed soil banks, sandy hills, borrow pits, steep slopes, and sand piles that are undisturbed or naturally eroding that is not a licensed/permitted aggregate area. -Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. -Does not include a licensed/permitted Mineral Aggregate Operation.	Eroding banks, sandy hills, borrow pits, steep slopes, sand piles, cliff faces, bridge abutments, silos, barns. Habitat found in the following ELC Ecosites: G001-G004 G007-G008 G020-G021 G029-G031 G044-G046 G060-G062 G077-G079 G093-G095 G109-G111 G173-G175 G201-G203 G210-G212	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (January 2015)

Ecoregion 5E	Candidate Significant Wildlife Habitat*	ELC Ecosites	Do site-specific attributes (e.g., ecological system and landscape configuration) assessed from available information sources and on-site assessment indicate that candidate SHW might be present?
Colonially - Nesting Bird Breeding Habitat Breeding Habitat (Tree/Shrubs)	-Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. -Most nests in trees are 11 to 15 m from ground, near the top of the tree.	ELC Ecosites: G064-G076 G081-G092 G097-G108 G113-G125 G128-G136 Central Ontario Forest Ecosites: ES11.2 ES12.2 ES13.2 ES14.2 ES15.2 ES16.2 ES17.2 ES18.2 ES19.2 ES20.2 ES21.2 ES23.2 ES24.2 ES25.2 ES26.2 ES27.2 ES28.2 ES29.2 ES30.2 ES31 ES32 ES33 ES34 ES35	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Colonially - Nesting Bird Breeding Habitat (Ground)	-Nesting colonies of gulls and terns are on islands or peninsulas (natural or artificial) associated with open water, marshy areas, lake or large river (two-lined on a 1;50,000 NTS map). -Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands.	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) G001-G004 G007-G008 G020-G021 G029-G031 G044-G046 G060-G062 G077-G079 G093-G095 G109-G111 G142-G145	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Deer Yarding Areas	-Deer wintering areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. -The Core of a deer yard (Stratum I) is located within Stratum II and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. -OMNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual". -Woodlots with high densities of deer due to artificial feeding are not significant.	May be found in all Tall Treed forest and swamp ELC Ecosites; G12-G15 G23-G27 G33-G38 G48-G54 G64-G69 G81-G87 G97-G103 G113-G118 G128-G129 Central Ontario Forest Ecosites: ES11 ES14 ES16 ES18 ES20 ES21 ES22 ES27 ES28 ES30 ES31 ES32 ES33 ES34 Note: OMNRF to determine this habitat.	**A deer wintering area has been identified on the subject property and adjacent lands by MNDMNRF. See report for further discussion.**
Rare Vegetation Communities			
Beach / Beach Ridge / Bar / Sand Dunes	Vegetation can vary from patchy and barren to tree cover but less than 60%. Characterised by unstable sand. **Indicator Spp.** Marram Grass (*Ammophila breviligulata*), Beach Pea (*Lathyrus japonicus*)	Central Ontario FEC: ES1, ES2 ELC Ecosites: G005-G006, G166-G168, G182-G184, G213-G214	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Shallow Atlandtic Coastal Marsh	Shallow marsh occurs on shallow mineral (sand) or mineral organic (sandy peat) shoreline subject to low wave energy, on inland lakes and beaver ponds particularly those that experience fluctuating water levels from year to year (i.e. some years with exposed shorelines in summer /fall). **Indicator Spp.:** Virginia Meadowbeauty (*Rhexia virgininica*) **Other Associated Spp:** *Rhynchospora capitellata, Xyris difformis, Panicum spretum, Triadenum virginicum, Polygonum careyi* and *Juncus militaris* .	ELC Ecosites: G143-G145, G148-G152	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (January 2015)

Ecoregion 5E	Candidate Significant Wildlife Habitat*	ELC Ecosites	Do site-specific attributes (e.g., ecological system and landscape configuration) assessed from available information sources and on-site assessment indicate that candidate SHW might be present?
Cliffs and Talus Slopes	Vegetation can vary from patchy and barren to tree cover but less than 60%. Cliffs and talus slopes in 5E are primarily Precambrian rock and are typically sparsely vegetated. Characteristic flora for cliffs and talus slopes include: lichen, such as Rock Tripe *Umbilicaria* spp., and ferns *Polypodium virginianum* , *Cystopteris fragilis* and *Woodsia ilvensis, Cryptogramma stelleri, Woodsia alpina* , and *Saxifraga paniculata* .	ELC Ecosites: G158-G159, G166-G168, G173, G175, G182-G184, G201-G203	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Rock Barren	Vegetation can vary from patchy and barren to tree cover but less than 60%. Rock barrens are characterized by extensive areas of exposed granitic rock bedrock sparsely vegetated. Characteristic flora for Rock Barrens include: lichens *Cladina* spp. and mosses *Polytrichum* spp.), sparse grasslands of *Danthonia spicata* and *Deschampsia flexuosa* , low shrubs (*Juniperus communis, Vaccinium angustifolium, Comptonia peregrina* , and stunted open grown trees *Quercus alba, Quercus rubra* and *Pinus strobus* . Also, *Pteridium aquilinum, Aralia hispida, Spiranthes casei, Saxifraga virginiensis, Gaylussacia baccata, Corydalis sempervirens, Prunus pensylvanica* , and *Comandra umbellata* .	ELC Ecosites: G163-G165, G179-G181 Central Ontario Forest Ecosites: ES8	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Sand Barren	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. They have little or no soil and the underlying rock protrudes through the surface. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%. Characteristic plant species of sand barrens in 5E include: *Cladina* spp., *Carex houghtoniana, Carex merrittfernaldii, Comptonia peregrina, Rubus flagellaris, Selaginella rupestris,* and *Viola labradorica, Polygonella articulata,* and *Stipa spartea* .	ELC Ecosites: G007, G215 Central Ontario Forest Ecosite: ES10	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Alvar	An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars may be complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plant. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animals species. Vegetation cover varies from patchy to barren with a less than 60% tree cover. 5E Alvar Plant Indicator species: *Penstemon hirsutus, Panicum philadelphicum, Scutellaria parvula, Rhus aromatica, Monarda fistulosa, Senecio pauperculus* .	Southern Ontario ELC Ecosites: ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2 Central Ontario Forest Ecosites on very shallow soils: ES13.1, ES14.1, ES16.1, ES21.1, ES9	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (January 2015)

Ecoregion 5E	Candidate Significant Wildlife Habitat*	ELC Ecosites	Do site-specific attributes (e.g., ecological system and landscape configuration) assessed from available information sources and on-site assessment indicate that candidate SHW might be present?
Old Growth Forest	Old Growth forests are characterized by exhibiting the greatest number of old-growth characteristics, such as mature forest with large trees that has been undisturbed. Heavy mortality or turnover of overstorey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	Long-lived forest spp. within these Central Ontario Forest Ecosites: ES11, ES12, ES14, ES20, ES21, ES22, ES23, ES24, ES25, ES26, ES27 ES28 ES29 ES30 or ELC Ecosites: G011-G15, G017-G018, G023, G027, G033, G036, G039-G042, G048, G051, G054-G058, G064, G066, G069, G071-G075, G081, G084, G087, G089-G091, G103, G105-G107, G113, G115, G118, G120-G124.	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Bog	Bogs are nutrientpoor, acid peatlands dominated by peat mosses (Sphagnum sp.), ericaceous shrubs and sedges (Cyperaceae). The water table is at or near the surface in spring and slightly lower the remainder of the year and is vitually isolated from mineral soil waters.	ELC Ecosites: G126, G137-G138	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Tallgrass Prairie	Tallgrass Prairie is an open vegetation with less than < 25% tree cover, and dominated by prairie species, including grasses. **Indicator Spp.** *Andropogon gerardii* and *Spartina pectinata* **Characteristic Spp.** *Bromus kalmii, Ceanothus herbaceus, Lechea intermedia, Monarda fistulosa, Penstemon hirsutus, Polygala polygama, Rudbeckia hirta, Sorghastrum nutans, Viola fimbriatula* .	Southern ELC Ecosites: TPO1, TPO2 Central Ontario Ecosite: ES10	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Savannah	A Savannah is related to tallgrass prairie, but includes trees, which vary from 25 – 60% canopy cover. The open areas between the trees are dominated by prairie species, while forest species are found beneath the tree canopy.	Southern ELC Ecosites: TPS1, TPS2, TPW1, TPW2, CUS2	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Rare Forest Type - Red Spruce	Red Spruce is a valued wildlife cover tree. Historically red spruce was much more abundant then it is now within the Ecoregion 5e forests. Red spruce is a shade tolerant conifer that evolved within tolerant hardwood forests. Red spruce grows best in a cool, moist climate. It will grow in shallow, till soils (ave. of 46 cm) and may grow on sites unfavourable for other species such as organic soils over rock, steeper slopes, and wet bottomlands, although poorly drained sites will inhibit growth.	ELC Ecosites: G036, G051, G066, G084, G086, G100, G102, G116, G117 Central Ontario Forest Ecosites: ES 30.1, ES 30.2	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Rare Forest Type - White Oak	White oak is a valued wildlife mast producing tree. The mast produced by the white oak tree is often preferred over the more common red oak acorn. Forest stands containing white oak trees are uncommon in the Great Lakes St. Lawrence Forest.	ELC Ecosites: G017, G041, G057, G072, G090, G106, G121 Central Ont. FEC: ES 14.1, ES14.2	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (January 2015)

Ecoregion 5E	Candidate Significant Wildlife Habitat*	ELC Ecosites	Do site-specific attributes (e.g., ecological system and landscape configuration) assessed from available information sources and on-site assessment indicate that candidate SHW might be present?
Specialized Habitats for Wildlife			
Waterfowl Nesting Area	A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. Wood Ducks, Bufflehead, Common Goldeneye and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites.	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: G129-G135, G142-G152 Note: includes adjacency to provincially Significant Wetlands	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms).	Forest communities directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Woodland Raptor Nesting Habitat	All natural or conifer plantation woodland/forest stands. Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Merlin or Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore islands. Includes nest sites within tree cavities for Barred Owl and sometime Great Horned Owls and Merlin. In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest.	May be found in all forested ELC Ecosites in Community Class: TR May also be found in the forested swamp ELC Ecosites: G128-G133	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Turtle and Lizard Nesting Areas	Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. For an area to function as a turtle nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. Skinks will nest under logs, in stumps or under loose rock in partially wooded areas.	Turtle Nesting areas may be adjacent to these ELC Ecosites: G138, G140-149 For Five-lined Skink - Central Ontario Forest Ecosites: ES14.2, ES17–ES20, ES23–ES30 or; ELC Ecosites: G056-G059, G070-G076, G087-G092, G103-G108, G118-G125	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Seeps and Springs	Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system. Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species.	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (January 2015)

Ecoregion 5E	Candidate Significant Wildlife Habitat*	ELC Ecosites	Do site-specific attributes (e.g., ecological system and landscape configuration) assessed from available information sources and on-site assessment indicate that candidate SHW might be present?
Aquatic Feeding Habitat	MNRF maps these location on Crown land and rates the site on a scale of 0 – 4, with 4 being the best. Feeding sites classed 3 or 4 are potential/candidate significant. Where Moose Aquatic Feeding Areas (MAFA) habitat is in low supply, class 2 MAFA habitat could also be considered potential/candidate significant. Wetlands and isolated embayments in rivers or lakes which provide an abundance of submerged aquatic vegetation such as pondweeds, water milfoil and yellow water lily are preferred sites. Adjacent stands of lowland conifer or mixed woods will provide cover and shade.	Habitat may be found in all forested ecosites adjacent to water.	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Mineral Lick	This habitat component is found in upwelling groundwater and the soil around these seepage areas. It typically occurs in areas of sedimentary and volcanic bedrock. In areas of granitic bedrock, the site is usually overlain with calcareous glacial till.	Habitat may be found in all forested ecosites.	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Denning Sites and Mink, Otter, Martin, Fisher, and Eastern Wolf	Mink prefer shorelines dominated by coniferous or mixed forests with dens usually underground. Mink will sometimes use old muskrat lodges. Otters prefer undisturbed shorelines along water bodies that support productive fish populations with abundant shrubby vegetation and downed woody debris for denning. They often use old beaver lodges or log jams and crevices in rock piles. Marten and fisher share the same general habitat, requiring large tracts of coniferous or mixed forests of mature or older age classes. Denning sites are often in cavities in large trees or under large downed woody debris.	Habitat may be found in all forested ecosites.	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Amphibian Breeding Habitat (Woodland)	Presence of a wetland or pond >500 m^2 (about 25 m diameter) within or adjacent (within 120m) to a woodland (no minimum size). The wetland, lake or pond and surrounding forest, would be the Candidate SWH. Some small wetlands may not be mapped and may be important breeding pools for amphibians. Breeding ponds within the woodland or the shortest distance from forest habitat are more significant because of reduced risk to migrating amphibians and more likely to be used. Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat.	All forested, ELC Ecosites; The wetland breeding ponds (including vernal pools) may be permanent, seasonal, ephemeral, large or small in size and could be located within or adjacent to the woodland.	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Amphibian Breeding Habitat (Wetlands)	Wetlands and pools (including vernal pools) >500 m^2 (about 25 m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators.	ELC Ecosites: G129-G135,G142-G152 Typically these wetland ecosites will be isolated (>120 m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g., Bull Frog) may be adjacent to woodlands.	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (January 2015)

Ecoregion 5E	Candidate Significant Wildlife Habitat*	ELC Ecosites	Do site-specific attributes (e.g., ecological system and landscape configuration) assessed from available information sources and on-site assessment indicate that candidate SHW might be present?
Mast Producing Areas	Most important areas are mature forests >0.5 ha containing numerous large beech and red oak trees that supply the energy-rich mast that wildlife prefer. Other significant tree species include hickory, basswood, black cherry, ironwood, mountain ash, pin cherry, and butternut. Significant shrub species include blueberries, wild black berry, serviceberry, raspberry, beaked hazel, choke cherry and hawthorn. Sites providing long-term, relatively stable food supplies, forest openings or barrens >1 ha provide excellent sites for mast producing shrubs. Sites such as clear-cuts or burns are temporary source of food and are less significant.	ELC Ecosites: G015, G017, G019, G027-G028, G041-G043, G057, G059, G072, G090, G106, G108, G121, Central Ontario Forest Ecosites: ES14, ES17.1, ES23, ES24, ES25, ES26	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (January 2015)

Ecoregion 5E	Candidate Significant Wildlife Habitat*	ELC Ecosites	Do site-specific attributes (e.g., ecological system and landscape configuration) assessed from available information sources and on-site assessment indicate that candidate SHW might be present?
Habitat for Species of Conservation Concern (not including Endangered or Threatened Species)			
Marsh Bird Breeding Habitat	Nesting occurs in wetlands. All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water.	ELC Ecosites: G138-G152 For Green Heron: above Ecosites plus G129-G136.	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Open Country Bird Breeding Habitat	Large grassland areas (includes natural and cultural fields and meadows) >30 ha Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e., no row cropping or intensive hay or livestock pasturing in the last 5 years). Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species.	ELC Ecosites: G008-G009, G020-G021, G029-G031, G044-G046, G060-G062, G077-G079, G093-G095, G109-G111	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Shrub/Early Successional Bird Breeding Habitat	Large field areas succeeding to shrub and thicket habitats >30 ha in size. Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e., no row-cropping, haying or livestock pasturing in the last 5 years). Larger shrub thicket habitats (>30 ha) are most likely to support and sustain a diversity of these species. Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or lightly grazed pasturelands.	ELC Ecosites: G009-G010, G021-G022, G031-G032, G046-G047, G062-G063, G079-G080, G095-G096, G111-G112, G134-G135 Patches of shrub ecosites can be complexed into a larger habitat for some bird species.	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.
Special Concern and Rare Wildlife Species	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. All plant and animal element occurrences (EO) within a 1 or 10 km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or Provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites	**Areas of natural cover associated with the subject property or adjacent lands have the potential to support habitat for one or more special concern and rare wildlife species. See report for further discussion.**
Animal Movement Corridors			
Amphibian Movement Corridors	Corridors may be found in all ecosites associated with water. Corridors will be determined based on identifying the significant breeding habitat	Movement corridors between breeding habitat and summer habitat. Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Amphibian Breeding Habitat –Wetland (see above)	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (January 2015)

Ecoregion 5E	Candidate Significant Wildlife Habitat*	ELC Ecosites	Do site-specific attributes (e.g., ecological system and landscape configuration) assessed from available information sources and on-site assessment indicate that candidate SHW might be present?
Cervid Movement Corridors	Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH (see above), Moose Aquatic Feeding Area, or Mineral Lick Habitat are identified. A deer wintering habitat identified by the OMNRF as SWH will have corridors that the deer use during fall migration and spring dispersion. Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges). Corridors will be multifunctional (i.e., these will function for any smaller mammal species as well)	Corridors may be found in all forested ecosites.	**Deer wintering habitat has been identified in the local area by the province, indicating that associated movement corridors may be present. See report for further discussion.**
Furbearer Movement Corridor	Mink and Otter den sites are typically found within a riparian area of a lake, river, stream or wetland. The den site will potentially have a movement corridor associated with it. All Mink or Otter den sites identified under the habitat of Denning Sites for Mink, Otter, Marten Fisher and Eastern Wolf (see above) are to be considered for an animal	All Forested Ecosite Codes adjacent to or within shoreline habitats.	Applicable criteria not met. Relevant features, biophysical parameters, and/or indicator species not identified through background review and/or site assessment. No further assessment undertaken.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (January 2015)

Appendix 4. DFO Docks and Boathouse Mitigation Summary

RIVERSTONE
ENVIRONMENTAL SOLUTIONS INC.

Measures to Protect Fish and Fish Habitat for

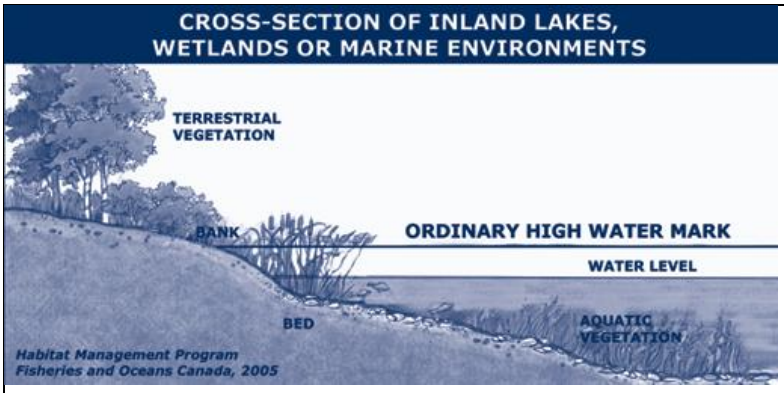
Dock & Boathouse Construction

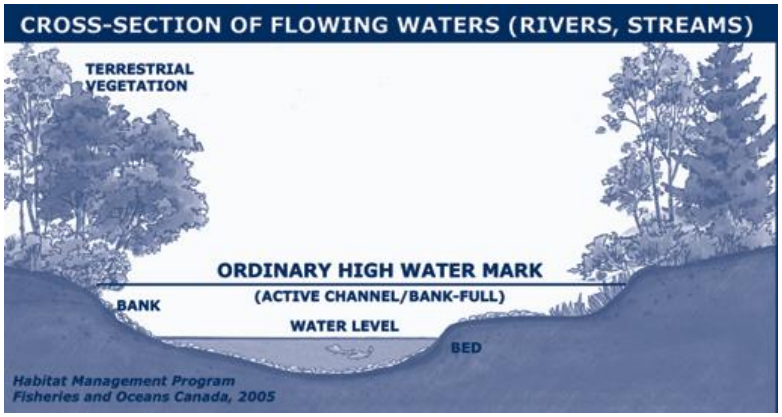
1. The construction of boathouses above the HWM is strongly encouraged in order to minimize impacts to fish habitat.
2. Floating, cantilever and post docks, and marine railways on posts for boathouse access, can be installed at any time.
3. No temporary or permanent increase in existing footprint below the high water mark.
4. Construct cribs in an open-faced manner and fill with large rocks that provide crevices for fish and other small organisms. Leave enough space between cribs (two metres) and locate them at least two metres from the HWM to allow near shore water to circulate.
5. Do not take materials (e.g., rock, logs) to build the dock from the shoreline, from below the HWM or from any water body.
6. Use untreated materials (e.g. cedar, tamarack, hemlock, rocks, plastic, etc.) as supports for dock structures that will be submerged in water. Treated lumber may contain compounds that can be released into the water and become toxic to the aquatic environment.
7. Use only treated lumber that is environmentally friendly for dock structures that are above water. Consult your local lumber supply company.
8. Cut, seal and stain all lumber away from the water using only environmentally-friendly stains (see definition below). All sealed and stained lumber should be completely dry before being used near water.
9. Ensure plastic barrel floats are free of chemicals inside and outside of the barrel before they are placed in water.
10. If a concrete abutment is needed to secure your dock to land install it entirely on land, above the HWM. The concrete is to be pre-cast and cured away from the water before use to prevent seepage of potentially toxic substances into the water body.
11. Maintain an undisturbed vegetated riparian zone between areas of on-land activity and the High Water Mark of any water body.
    11.1. Use existing trails, roads or cut lines wherever possible.
    11.2. Avoid tree removal.
    11.3. Use methods to prevent substrate compaction (e.g., swamp mats, pads).
12. Limit impacts on riparian vegetation to those approved for the work, undertaking or activity.
    12.1. Limit access to banks or areas adjacent to waterbodies.
    12.2. Prune or top the vegetation instead of grubbing/uprooting.
    12.3. Limit grubbing on watercourse banks to the area required for the footprint of works, undertaking or activity.
    12.4. Construct access points and approaches perpendicular to the watercourse or waterbody.
    12.5. Remove vegetation or species selectively and in phases.
    12.6. Vegetate any disturbed areas by planting and seeding preferably with native trees, shrubs or grasses and cover such areas with mulch to prevent erosion and to help seeds germinate. If there is insufficient time remaining in the growing season, the site should be stabilized (e.g., cover exposed areas with erosion control blankets to keep the soil in place and prevent erosion) and vegetated the following spring.

13. Salvage, reinstate or match habitat structure (e.g., large wood debris, boulders, instream aquatic vegetation/substrate) to its initial state.
14. Replace/restore any other disturbed habitat features and remediate any areas impacted by the work, undertaking or activity.
15. Time the installation of crib docks to prevent disruption of sensitive fish life stages by adhering to appropriate fisheries timing windows. Timing windows can be found at https://www.dfo-mpo.gc.ca/pnw-ppe/timing-periodes/index-eng.html.
16. Develop and implement an Erosion and Sediment Control Plan to minimize sedimentation of the waterbody during all phases of the work, undertaking or activity.
    16.1. Inspect and maintain regularly the erosion and sediment control measures and structures during all phases of the project.
    16.2. Use biodegradable erosion and sediment control materials whenever possible.
    16.3. Remove all exposed non-biodegradable sediment control materials once site has been stabilized.
    16.4. Operate machinery on land, or from barges or on ice.
    16.5. Use methods to prevent substrate compaction (e.g., swamp mats, pads).
17. Do not deposit any deleterious substances in the water.
18. Develop and implement a response plan to avoid a spill of deleterious substances.
    18.1. Stop work, contain sediment-laden water and other deleterious substances and prevent their further migration into the watercourse.
    18.2. Keep an emergency spill kit on site during the work, undertaking or activity.
    18.3. Report any spills of sewage, oil, fuel or other deleterious material, whether near or directly into a water body.
    18.4. Ensure clean-up measures are suitably applied so as not to result in further alteration of the bed and/or banks of the watercourse or waterbody.
    18.5. Clean-up and appropriately dispose of the sediment-laden water and deleterious substances
    18.6. Plan activities near water such that materials such as paint, primers, blasting abrasives, rust solvents, degreasers, grout, poured concrete or other chemicals do not enter the watercourse.
    18.7. Maintain all machinery on site in a clean condition and free of fluid leaks.
    18.8. Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water.
    18.9. Dispose all construction, demolition or commercial logging materials waste above the high water mark of nearby waterbodies to prevent re-entry.

Ordinary high water mark (HWM) – The usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to change the characteristics of the land. In flowing waters (rivers, streams) this refers to the "active channel/bank-full level" which is often the 1:2 year flood flow return level. In inland lakes, wetlands or marine environments it refers to those parts of the water body bed and banks that are frequently flooded by water so as to leave a mark on the land and where the natural vegetation changes from predominately aquatic vegetation to terrestrial vegetation (excepting water tolerant species). For reservoirs this refers to normal high operating levels (Full Supply Level).

For the Great Lakes this refers to the 80th percentile elevation above chart datum as described in DFO's *Fish Habitat and Determining the High Water Mark on Lakes*.


CROSS-SECTION OF INLAND LAKES,
WETLANDS OR MARINE ENVIRONMENTS
TERRESTRIAL
VEGETATION
BANK
ORDINARY HIGH WATER MARK
WATER LEVEL
BED
AQUATIC
VEGETATION
Habitat Management Program
Fisheries and Oceans Canada, 2005


CROSS-SECTION OF FLOWING WATERS (RIVERS, STREAMS)
TERRESTRIAL
VEGETATION
ORDINARY HIGH WATER MARK
(ACTIVE CHANNEL/BANK-FULL)
BANK
WATER LEVEL
BED
Habitat Management Program
Fisheries and Oceans Canada, 2005