RECLAIM
ENVIRONMENTAL

Natural Heritage Evaluation

Lot 6, Concession 16,
Trent Lakes, Ontario

Project ID: RE2024-004

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Prepared For:
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Common Acronyms

Acronym	Full Form
ANSI	Area of Natural and Scientific Interest
APU	Assessment of past uses
ARU	Automated Recording Unit
SAP	Sampling and Analysis Plan
SCR	Soil Characterization Report
ESDAR	Excess Soil Destination Assessment Report
RPPA	Resource Productivity & Recovery Authority
APEC	Area of Potential Environmental Concern
COPC	Contaminant of potential concern
ECA	Environmental Compliance Approval
ha	Hectare
km	Kilometre
m	Metre(s)
MECP	Ontario Ministry of the Environment, Conservation and Parks
MNRF	Ministry of Natural Resources
DFO	Department of Fisheries and Oceans
O. Reg.	Ontario Regulation
PCA	Potentially contaminating activity
EC/SAR	Electrical Conductivity / Sodium Adsorption Ratio
SAR	Species at Risk
RAM	Rapid Assessment Method
NHIC	Natural Heritage Information Center (Ontario)
PIN	Property identification number
RE	Reclaim Environmental
ARA	Aggregate Resources Act
Soil Rules	Rules for Soil Management and Excess Soil Quality Standards, 2022

1.0 Introduction

This document presents a Natural Heritage Evaluation (NHE) for the property situated at Lot 6, Concession 16, within the municipality of Trent Lakes. The NHE was prepared by Reclaim Environmental (RE) on behalf of Troy Toms Carpentry Ltd., the proponent of the proposed development. The purpose of the NHE is to assess the existing natural features and functions on a portion of the property and adjacent to the property, identify the potential impacts of the proposed development on the natural heritage system, and provide recommendations for mitigation and enhancement measures to protect and improve the ecological integrity of the site and its surroundings.

The NHE was conducted in accordance with the relevant policies and guidelines, including the following:

- Peterborough County Official Plan (2023)
- Municipality of Trent Lakes Zoning By-Law B2014-070 (as amended)
- Provincial Policy Statement (2020)
- Growth Plan for the Greater Golden Horseshoe (2019)
- Natural Heritage Reference Manual (2010)
- Ontario Wetland Evaluation System (2013)
- Ecological Land Classification for Southern Ontario (1998)

The NHE involved a desktop background review, two site visits, and an environmental impact assessment. The background review included the analysis of existing documents, surveys, and online resources related to the natural heritage features and functions on and adjacent to the property.

The first site visit was conducted on April 11th, 2024, by RE personnel, who performed a preliminary assessment of the site conditions and the natural heritage features. The second site visit was conducted on June 4th, 2024, by RE personnel, who performed an Ecological Land Classification (ELC) and a Rapid Assessment Method (RAM) for woodlots, wetlands and watercourse; including flora/fauna identification.

A Remotely Piloted Aircraft System (RPAS) (Transport Canada Registration Number: C-2413948795) was used to assist with the ELC and general mapping.

2.0 Site Setting

The subject property is located at the northeast corner of the intersection of Bear Creek Rd and Elim Lodge Rd. at Lot 6, Concession 16, within the municipality of Trent Lakes. The current property size is approximately 20.84 hectares (ha). The property is undeveloped and exists in a natural state, except for a small portion at the southwest corner that contains two existing residential lots, zoned as Residential Rural (RR).

An updated aerial image of the study area is available below, no notable variance from publicly available satellite imagery were noted, see below a photo of the updated imagery overlaid on existing satellite imagery:

Figure 1. Study Area Aerial Imagery

2. 1 Ecoregion and Ecodistrict

The subject property is located within the Lake Simcoe - Rideau ecoregion, which is part of the Mixedwood Plains ecozone. This ecoregion covers a large area of southern Ontario and extends into Quebec. It encompasses several natural regions, such as the Frontenac Axis, the Canadian Shield, the Great Lakes-St. Lawrence Lowlands, and the Niagara Escarpment. The ecoregion is characterized by a humid continental climate with warm summers and cold winters. The vegetation is mainly deciduous forest in the south and mixed forest in the north, with some coniferous forest and wetland patches. The ecoregion supports a high diversity of wildlife, including many species at risk.

Within the Lake Simcoe - Rideau ecoregion, the subject property belongs to the Havelock ecodistrict, which has the code 6E-9. This ecodistrict covers an area of about 3,327 km2 and includes parts of Peterborough, Haliburton, and Hastings counties. The ecodistrict lies on the southern fringe of the Canadian Shield and is underlain by Precambrian bedrock, mainly granite and gneiss. The topography is rolling to hilly, with elevations ranging from 150 to 350 m above sea level. The soils are mostly sandy loam or loamy sand, derived from glacial till or outwash deposits. The dominant land cover is mixed forest, composed of sugar maple, red maple, yellow birch, white

pine, red pine, and hemlock. The ecodistrict also contains numerous lakes, rivers, and wetlands, such as bogs, fens, swamps, and marshes. The ecodistrict provides habitat for a variety of wildlife species, such as moose, black bear, beaver, otter, loon, osprey, and bald eagle.

3.0 Surrounding Land Uses

The properties surrounding the subject property within a 250-meter radius exhibit various designations and uses:

Rural Residential (RR) Lots:
Two lots fall under the Rural Residential (RR) designation. These each accommodate a single-family dwellings or other residential uses.

Undeveloped Land:
Some adjacent parcels remain undeveloped and in a natural state.

Agricultural Use:
Other nearby properties are utilized for agricultural purposes. These lands may support farming, crop cultivation, or related activities.

4.0 Existing Zoning

The Municipality of Trent Lakes Zoning By-law B2014-070 and available mapping designate the subject property as falling within both the Rural Zone (RU) and the Environmental Protection (EP) zones.
Within the RU zone, permitted land uses include:

- Single-family detached dwellings
- Conservation uses
- Farms or nurseries
- Accessory buildings
- And more

Within the EP Zone, development is generally prohibited, except for land uses involving:

- Agricultural use
- Conservation use
- Recreation use
- Forestry use
- Public parks

4.1 Greenbelt / Oak Ridges Moraine

The property is not located within the Greenbelt Plan Area, or the Oak Ridges Moraine Conservation Plan.

4. 2 Provincial Policy Statement

The 2020 Provincial Policy Statement (PPS) and the Growth Plan for the Greater Golden Horseshoe, 2019 (GPGGH) are applicable to the property.

Due to the severed parcels being within 120 meters of a Provincially Significant Wetland (PSW), an Environmental Impact Study (EIS) will be required to consider site alterations within a distance of 120 meters to 30 meters from the PSW's mapped boundaries.

5.0 Natural Heritage Mapping

Based on the Land Information Ontario Natural Heritage Areas tool, two land Parcel Identification Numbers (PINs) were identified and associated with the property: ***17QK0031*** and ***17QK0131***.

Within the property boundaries, there are two notable wetland areas:

Provincially Significant Wetland (PSW):

Verification Status Date: June 8, 1998

- The PSW holds significant ecological value and is subject to specific regulations and protections.

Un-Evaluated Wetland:

Further assessment is needed to evaluate the ecological significance of this wetland area.

Species at Rick mapping:

Additionally, the review identified several potential Species at Risk (SAR) within the property, a table of these identified species is provided below:

Table 1. List of Potential Species at Risk (N/A - Not applicable, NAR – Not at Risk, SC – Special Concern, THR – Threatened, END – Endangered)

Common Name	Scientific Name	S-Rank	SARO Status	COSEWIC Status
Common Gallinule	*Gallinula galeata*	S3B	N/A	N/A
Common Nighthawk	*Chordeiles minor*	S4B	SC	SC
Wood Thrush	*Hylocichla mustelina*	S4B	SC	THR
Eastern Wood- pewee	*Contopus virens*	S4B	SC	SC
Canada Warbler	*Cardellina*	S5B	SC	SC
Snapping Turtle	*Chelydra serpentina*	S4	SC	SC
Eastern Whip-poor-will	*Antrostomus vociferus*	S4B	THR	THR

Red-headed Woodpecker	*Melanerpes erythrocephalus*	S3B	END	END
Black Ash	*Fraxinus nigra*	S4	END	THR
Least Bittern	*Ixobrychus exilis*	S4B	THR	THR
Eastern Meadowlark	*Sturnella magna*	S4B,S3N	THR	THR
Bobolink	*Dolichonyx oryzivorus*	S4B	THR	THR
Eastern Milksnake	*Lampropeltis triangulum*	S4	NAR	SC

6.0 Methodologies Section

To assess the natural features and functions of the property, the following methodologies were applied:

- Ecological Land Classification (ELC): A standardized system for describing and mapping vegetation communities in Ontario. The ELC follows a hierarchical approach that classifies vegetation types based on floristic, structural, and environmental characteristics. The ELC utilized field surveys, aerial imagery, and topographic maps. The ELC identified multiple vegetation communities on the property, which were mapped and described according to the ELC manual.
- Rapid Assessment Method (RAM): A tool for evaluating the ecological condition and function of wetlands in Ontario. The RAM uses a set of indicators that reflect various aspects of ecosystem health, such as species, habitat quality, vegetation, soils, and wildlife encounters. The RAM also identified potential threats and stressors affecting the wetland.

6.1 Flora and Fauna Investigations

A series of surveys and inventories to document the plant and animal species present on the property were conducted, the flora and fauna investigations included the following components:

- Ecosystem Health Assessment: A low-impact assessment of all vascular plant species observed on the property, including their abundance, distribution, and habitat. The vegetation assessment was conducted by RE using standard botanical methods and reference materials.
- Wildlife Inventory: An automated recording unit was utilized to assist with auditory identification of wildlife. Wandering transects coupled with point information from concentration areas was utilized to capture wildlife information, including incidental encounters.
- Species at Risk Screening: A targeted survey for any species at risk or species of conservation concern that may occur on the property, based on habitat suitability, known occurrences, and expert knowledge. The species at risk screening was conducted by RE using appropriate survey protocols and reporting guidelines.

- Normalized Difference Vegetation Index (NDVI) mapping was utilized to assist with large scale ELC determinations. NDVI score was utilized as a metric to observe ecosystem health and understand vegetation density. It is calculated as a ratio between the red and near-infrared values, with higher values indicating healthier and denser vegetation The NDVI value ranges between -1 and 1, where negative values typically correspond to water, values close to zero to barren areas, and higher positive values to dense, healthy vegetation.

7.0 Field Investigation Results

Based on the ELC and RAM conducted by RE, the property contains the following natural features and functions:

7.1 Provincially Significant Wetland (PSW)

RE confirmed the presence of a PSW on the property, with a diverse plant community and signs of a mature wetland ecosystem. The NVRI revealed dead standing trees, indicating a climax stage of succession. The plant species observed included *Salix sp*. (willow), *Nuphar variegata* (yellow pond lily), *Solidago canadensis* (Canada goldenrod), and other native species typical of wetlands.

The PSW appeared to be intact and functional, with no visible impacts from human activities. The culvert on Elim Lodge Road provided a connectivity feature for the wetland.

The RE also recorded various wildlife species using the PSW, including some SAR bird species that were heard from deeper within the wetland. The access to the interior of the PSW was limited by the dense vegetation and wet ground conditions.

A photograph of the PSW located on site is available below:

Figure 2. PSW Aerial Image

7.2 Un-Evaluated Wetland

Un-Evaluated Wetland (UEW): A small wetland area that covers about 0.5 ha of the property. The UEW is a shallow marsh community that is dominated by emergent vegetation. The UEW provides similar functions to the PSW, but to a lesser extent. The UEW has not been evaluated by the Ontario Ministry of Natural Resources and Forestry and its significance is unknown.

The dominant ELCs within the UEW are a Thicket Swamp (SWMT) & Coniferous Mineral Mixed Swamp (SWMC).

Visible characteristics of the UEW included visible pooling of water, dead standing mature trees, dark saturated soils, visible minerology (bedrock), emergent hydric vegetation such as Horsetail (Equisetum spp.), Willow (Salix spp.), and Riverbank Grape (Vitis riparia).

A photo of the conditions of the UEW onsite is available below:

Figure 3. UEW and Saturated Soils

7.3 Woodlands

Upland Forest: This is a mixed forest of deciduous and coniferous trees that occupies about 6.5 ha of the property. It has several types of ecological land classification (ELC) communities, such as dry-fresh mixed forest, fresh-moist mixed forest, and fresh-moist hemlock forest. The upland forest performs important ecological functions, such as stabilizing the soil, improving the air quality, regulating the climate, providing habitat for wildlife, and supporting biodiversity.

The forest canopy is mainly composed of fir (Abies spp.) and trembling aspen (Populus tremuloides), while the forest floor is covered with coniferous leaf litter and hosts various plant species that are typical of mature forests, such as: Canada mayflower (Maianthemum canadense), common bracken (Pteridium aquilinum), wild sarsaparilla (Aralia nudicaulis), Canadian bunchberry (Cornus canadensis), sensitive fern (Onoclea sensibilis), blue cohosh (Caulophyllum thalictroides), early meadow-rue (Thalictrum dioicum), and fragrant bedstraw (Galium triflorum).

A photo of typical Woodland conditions on site is available below:

Figure 4. General woodlands on site

7.4 ELC, Elevation & NDVI Mapping

ELC, Elevation and NDVI mapping results for the ecosystems described above is presented in the figures below:

Figure 5. ELC Mapping

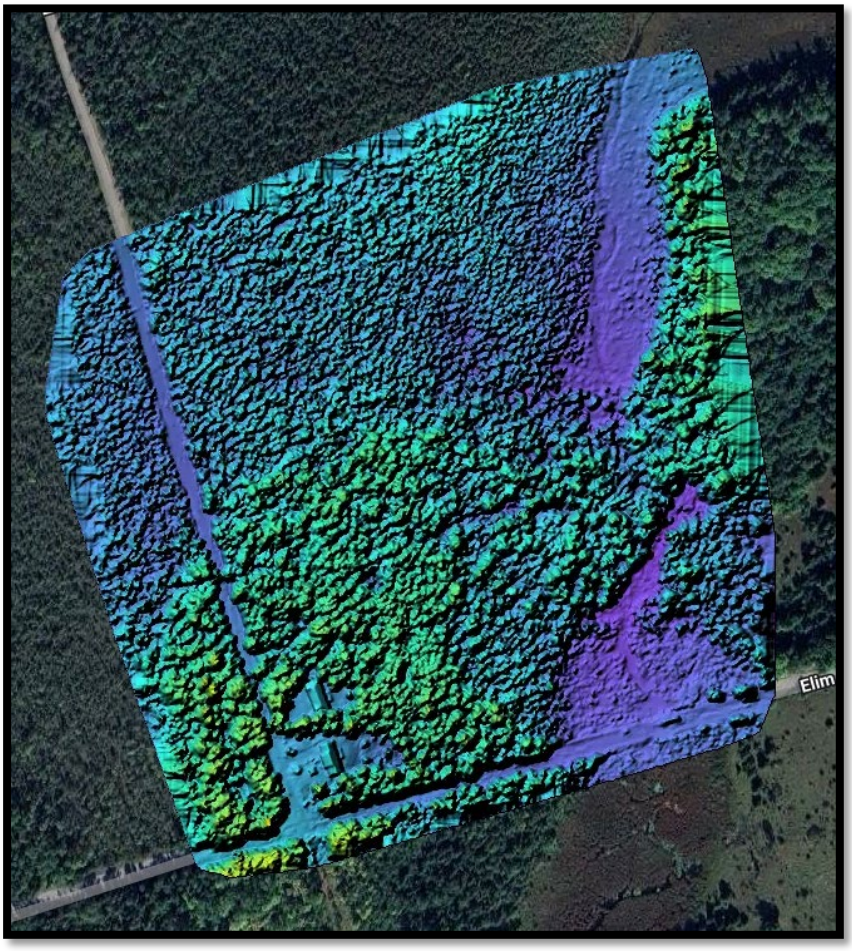


Figure 6. Site Elevation and Canopy Mapping (Purple = Lowest Elevation, Yellow/Green = Highest)

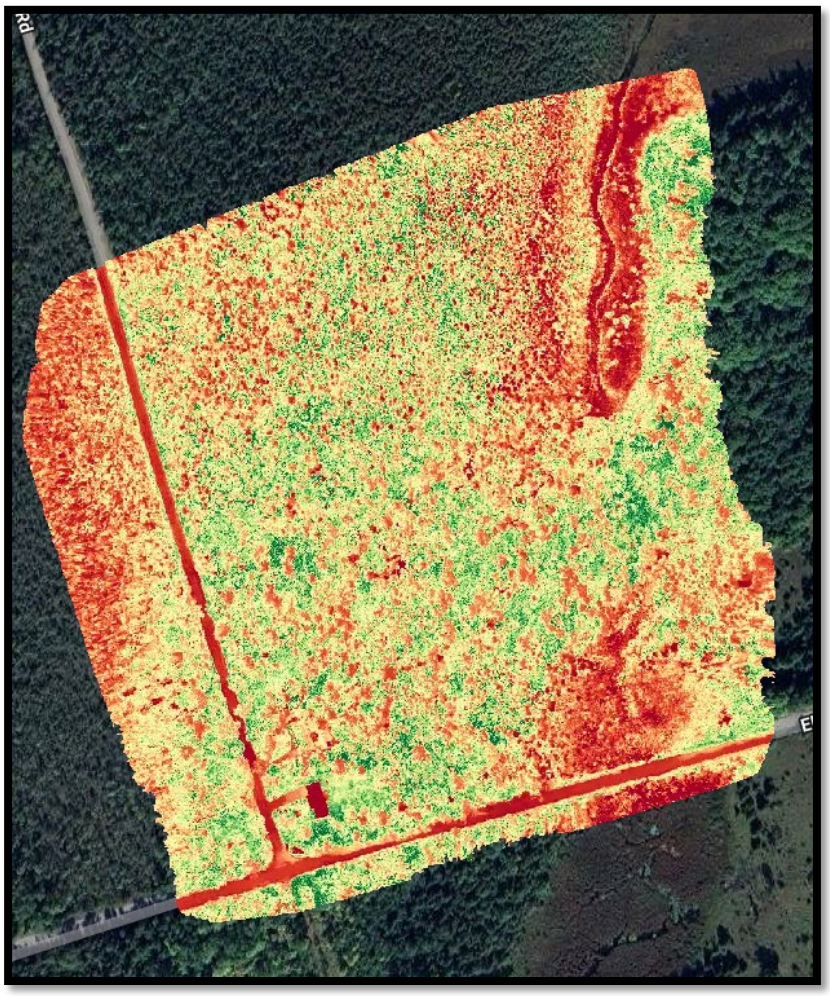


Figure 7. NDVI Mapping (Green = 1, Red = -1).

7.5 Fauna and Species at Risk

Fauna species either incidentally observed or recorded on an Automated Recording Unit are presented below:

Table 2. Wildlife Encountered Visually or Auditorily (N/A - Not applicable, NAR – Not at Risk, SC – Special Concern, THR – Threatened, END – Endangered)

Common Name	Scientific Name	S-Rank	SARO Status	COSEWIC Status
Red-eyed Vireo	*Vireo olivaceus*	S5B	N/A	N/A
Red Winged Blackbird	*Agelaius phoeniceus*	S5B	N/A	N/A
Wood Thrush	*Hylocichla mustelina*	S4B	SC	THR
Yellow Warbler	*Setophaga petechia*	S5B	N/A	N/A
Canada Warbler	*Cardellina canadensis*	S5B	SC	SC
Swamp Sparrow	*Melospiza georgiana*	S5B	N/A	N/A
Common Yellowthroat	*Geothlypis trichas*	S5B	N/A	N/A

Eastern Meadowlark	*Sturnella magna*	S4B	THR	THR
Chipping Sparrow	*Spizella passerina*	S5B	N/A	N/A
Great Crested Flycather	*Myiarchus crinitus*	S5B	N/A	N/A
Veery	*Catharus fuscescens*	S5B	N/A	N/A
Common Raven	*Corvus corax*	S5	N/A	N/A
American Robin	*Turdus migratorius*	S5B	N/A	N/A
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	S5B	N/A	N/A
Hermit Thrush	*Catharus guttatus*	S5B	N/A	N/A
Norther Waterthrush	*Parkesia noveboracensis*	S5B	N/A	N/A
Canada Goose	*Branta canadensis*	S5	N/A	N/A
Ovenbird	*Seiurus aurocapilla*	S5B	N/A	N/A
Black and White Warbler	*Mniotilta varia*	S5B	N/A	N/A
Black-capped Chickadee	*Poecile atricapillus*	S5	N/A	N/A
Cedar Waxwing	*Bombycilla cedrorum*	S5B	N/A	N/A
American Goldfinch	*Spinus tristis*	S5B	N/A	N/A
Eastern Kingbird	*Tyrannus tyrannus*	S5B	N/A	N/A
Field Mouse	*Apodemus sylvaticus*	S5	N/A	N/A
Common Skunk	*Mephitis mephitis*	S5	N/A	N/A
Green Frog	*Lithobates clamitans*	S5	N/A	N/A
Ring Billed Gull	*Larus delawarensis*	S5B	N/A	N/A
Common Chipmunk	*Tamias striatus*	S5	N/A	N/A

8.0 Potential Impacts of the Proposed Development

The proposed development for the subject property involves the following key elements:

- Severance of the Property: The property will be divided to create two additional residential lots and one retained lot, with an area of approximately 19.2 ha.
- Construction of Residential Dwellings: Two residential dwellings are planned for the property, one on each of the severed lots. These dwellings will serve as homes for future occupants.
- Driveway Construction: A driveway will be constructed to provide property access for the severed lots. This driveway will facilitate entry and exit for residents and visitors.

The potential impacts of the proposed development on the natural heritage system are summarized below:

8.1 Loss of Natural Habitat

The proposed development will result in the loss of natural habitat, namely upland forest, due to the clearing and grading of the land for the residential dwellings and the driveway. This will reduce the amount and quality of habitat available for wildlife and biodiversity on the property.

8.2 Fragmentation of Natural Habitat

The proposed development may create a linear disturbance that will fragment the natural habitat on the property. This may reduce the connectivity and functionality of the natural heritage system and increase the edge effects, such as increased exposure to light, noise, wind, and invasive species.

8.3 Alteration of Hydrology and Water Quality

The proposed development may increase the amount of impervious surfaces on the property, such as roofs, driveways, and patios. This may reduce the infiltration of rainwater and snowmelt into the ground and increase the surface runoff. This may alter the hydrology and water quality of the wetlands and the downstream watercourses, potentially affecting their hydroperiod, water level, water temperature, nutrient balance, and sediment load.

8.4 Loss Significant Wildlife Habitat

Due to the concentration of avian species identified. The development of the property may lead to a loss in the overall amount of Significant Wildlife Habitat available on the property.

9.0 Recommendations for Mitigation and Enhancement Measures

To avoid, minimize, or compensate for the potential impacts of the proposed development on the natural heritage system, the following mitigation and enhancement measures are recommended:

9.1 Severed Lot Placement

It is recommended that the severed lots be located within the developable limits presented in **Figure 8**, which are based on the zoning by-law and the natural heritage policies. Potential lot locations are also displayed within **Figure 8**. This will assist in avoiding any direct impacts on the PSW and the UEW and their adjacent lands and minimize potential impacts on the upland forest.

9.2 Minimization of the Development Footprint

It is recommended that the residential dwellings and the driveway be designed and constructed to minimize the development footprint and the impervious surfaces on the property. This will reduce the loss and fragmentation of natural habitat and the alteration of hydrology and water quality.

9.3 Implementation of Best Management Practices

It is recommended that best management practices be implemented during and after the construction of the proposed development, such as erosion and sediment control, stormwater management, vegetation protection, waste management, and invasive species management. This will prevent or reduce the negative effects of the development activities on the natural heritage system. Where possible, Low Impact Design (LID) features (such as permeable pavement) are recommended to be considered during the design phase.

9.4 Creation of a Natural Heritage Buffer

It is recommended that a natural heritage buffer be created along the boundary of the natural heritage features, such as the PSW, the UEW, and the upland forest. The buffer should have a minimum width of 30 meters and consist of native vegetation that is compatible with the adjacent natural communities. The buffer should be protected from any development or disturbance and maintained in a natural state. The buffer will provide a transition zone between the development and the natural heritage system and enhance the ecological functions, such as habitat, connectivity, and water quality.

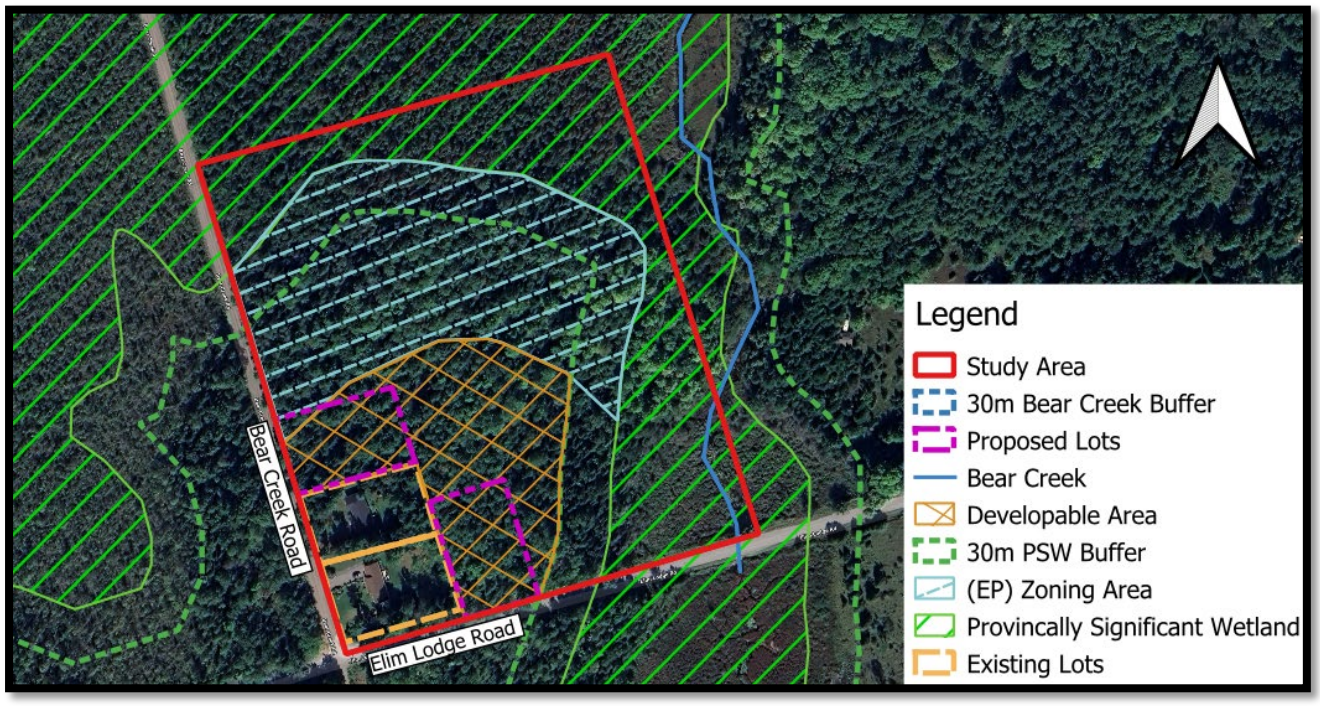
9.5 Construction Timing

Due to the high number of migratory bird species identified within the study area, any tree clearing, or vegetation removal is recommended to occur outside of the migratory bird window to April 1 – August 31.

9.6 Ecosystem protection

Due to the size of the retain parcel in relation to the new lot creations, no impacts on the surrounding ecosystem functions are anticipated; implementing above recommendations will help preserve the ecosystem's health and function and provide adequate of habitat for plants and animals.

Figure 8. Developable area mapping



10.0 Summary and Final Recommendations

The main findings and recommendations of this report are:

- The proposed development is not anticipated to impact the provincially significant wetlands (PSW) or unevaluated wetlands (UEW) on the property, as these features will be retained in a separate parcel and protected by a 30 m buffer zone.
- The proposed development is recommended to develop stormwater management methods, by providing adequate quantity and quality control for runoff and minimizing the risk of flooding and erosion.
- The proposed development is recommended to implement best management practices for soil erosion and sedimentation control during and after construction, such as silt fences, straw bales, sediment traps, and revegetation of disturbed areas.
- The proposed development is recommended minimize the loss of vegetation and wildlife habitat where possible
- The proposed development is recommended to protect the ecosystem functions and services provided by the PSW and UEW by implementing the recommendations and mitigation strategies outlined in Section 9.

Based on the assessment, it is concluded that the proposed development can proceed with minimal or no anticipated long-term environmental impacts, provided that the mitigation measures recommended in this report are followed and the necessary permits and approvals are obtained from the relevant authorities.

11.0 Limitations

This report is prepared for the sole use of Troy Toms Carpentry Ltd; Any use by a third party is the sole responsibility of such third parties. Reclaim Environmental (RE) relied on the data and information provided by the consultants and contractors identified in this report, and on other materials as noted. RE assumes the information provided by identified consultants, contractors, and other referenced materials is factual and accurate. RE is not liable for any errors or inaccuracies arising from omissions, misinterpretations, or fraudulent acts by those contacted.

Yours Truly,

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