THE CORPORATION OF THE MUNICIPALITY OF TEMAGAMI
COMMITTEE OF ADJUSTMENT

AGENDA

Thursday, March 27, 2025, 11:00 A.M.

An audio recording of the Open Session of this meeting is being made and will be available through the Municipal Website as a public service to further enhance access to municipal government services and to continue to promote openness and transparency. As a visitor, your presence along with your name and address, may be recorded revealed during certain parts of the meeting. Any comments made at a meeting will become part of the public record.

Pages

1. CALL TO ORDER / ROLL CALL

2. ADOPTION OF THE AGENDA

   Draft Motion:
   BE IT RESOLVED THAT the Committee of Adjustment agenda, dated March 27, 2025 be adopted as presented.

3. MEETING PROCEDURES

4. DECLARATION OF CONFLICT OF INTEREST

5. ADOPTION OF THE MINUTES

5.1 **Adoption of the Minutes from the** 1

   Draft Motion:
   BE IT RESOLVED THAT the minutes from May 2, 2024 Committee of Adjustment meeting be adopted as presented.

6. DEFERRED APPLICATIONS

7. ADJOURNED APPLICATIONS

8. NEW APPLICATIONS

8.1 **Consent 25-01 Kilbourne** 5

   Draft Motion:
   BE IT RESOLVED THAT the Committee of Adjustment has received the Planning Report from MHBC dated March 27, 2025.

   AND FURTHER THAT the Committee of Adjustment approve the recommendation from MHBC regarding C-25-01.

9. OTHER BUSINESS

10. ADJOURNMENT

    Draft Motion:
    BE IT RESOLVED THAT this meeting be adjourned at X:XX

THE CORPORATION OF THE MUNICIPALITY OF TEMAGAMI

COMMITTEE OF ADJUSTMENT

DRAFT MINUTES

May 2, 2024, 11:00 A.M.

PRESENT:	A. North, N. Brooker, M. Youngs, B. Rice, S. Campbell, E. Lewis
ABSENT:	J. Koistinen, J. Hodgins
STAFF:	N. Claveau, Patrick Townes MHBC

CALL TO ORDER / ROLL CALL

The Chair called the meeting to order at 11:03 p.m.
There were 9 people in the audience viewing the meeting.
The Chair called the roll.

ADOPTION OF THE AGENDA

24-015
MOVED BY: M. Youngs
SECONDED BY: E. Lewis

BE IT RESOLVED THAT the agenda dated May 2, 2024 be adopted as presented.

CARRIED

MEETING PROCEDURES

This is a Public Hearing of the Committee of Adjustment for the Municipality of Temagami. The Committee Members have been appointed by Council to consider applications for minor variance and consents within the jurisdiction of the Planning Act. An overview of the process of the meeting is as follows.

1. The Chair person will introduce the proposed applications.

2. The Planning Consultant will provide an overview of the applications and make a presentation to the Committee and members of the public.

3. Any correspondence received after the agenda packages were assembled will be read out by the Municipal Clerk.

4. The Agent or Applicant may speak to the committee regarding the application and proposal if they wish.

5. If members of the public are in attendance at the public hearing, they will be asked if they have comments in favor or in opposition of the proposed applications. It is reminded that all persons addressing committee must state their full name and must direct their comments through the Chair.

6. The Committee Members may ask questions.

7. Once the public hearing for the application is complete, discussion will take place between the Chair and Members with respect to a decision.

8. A motion will be made to either grant, defer or refuse the applications and state the reasons for the decision.

9. The Chair person will then read out the decisions of the committee.

10. A copy of the notice of decisions will be sent to those prescribed under the Planning Act, including those who have requested a copy of the decision. The notice of decision will include details of the applications and the decision made by the Committee and also will include instructions on how to submit an appeal to the Local Planning Appeal Tribunal if desired.

DECLARATION OF CONFLICT OF INTEREST

There were no declarations of conflict or pecuniary interest made at the meeting and none were reported to the office.

ADOPTION OF THE MINUTES

April 3, 2024 - Committee of Adjustment - Minutes DRAFT

24-016
MOVED BY: E. Lewis
SECONDED BY: B. Rice

BE IT RESOLVED THAT the minutes of the Committee of Adjustment meeting held April 3, 2024 be adopted presented.

CARRIED

DEFERRED APPLICATIONS

There are no deferred applications

ADJOURNED APPLICATIONS

There are no adjourned applications.

NEW APPLICATIONS

MV 24-02 Cameron

24-017
MOVED BY: M. Youngs
SECONDED BY: A. North

BE IT RESOLVED THAT the Committee of Adjustment has received the Planning Report from MHBC dated May 2, 2024.

AND FURTHER THAT the Committee of Adjustment approve the recommendation from MHBC regarding MV 24-02.

CARRIED

C 24-02 Camp Wabun

Authorized Agent, Paul Goodridge spoke on behalf of application C 24-02 Camp Wabun.

24-018
MOVED BY: M. Youngs
SECONDED BY: B. Rice

BE IT RESOLVED THAT the Committee of Adjustment has received the Planning Report from MHBC dated May 2, 2024.

AND FURTHER THAT the Committee of Adjustment approve the recommendation from MHBC regarding C 24-02.

CARRIED

C 24-03 Reid

24-019
MOVED BY: S. Campbell
SECONDED BY: E. Lewis

BE IT RESOLVED THAT the Committee of Adjustment has received the Planning Report from MHBC dated May 2, 2024.

AND FURTHER THAT the Committee of Adjustment approve the recommendation from MHBC regarding C 24-03.

CARRIED

OTHER BUSINESS

ADJOURNMENT

24-020
MOVED BY: A. North
SECONDED BY: B. Rice

BE IT RESOLVED THAT the Committee of Adjustment meeting be adjourned at 11:53p.m.

CARRIED

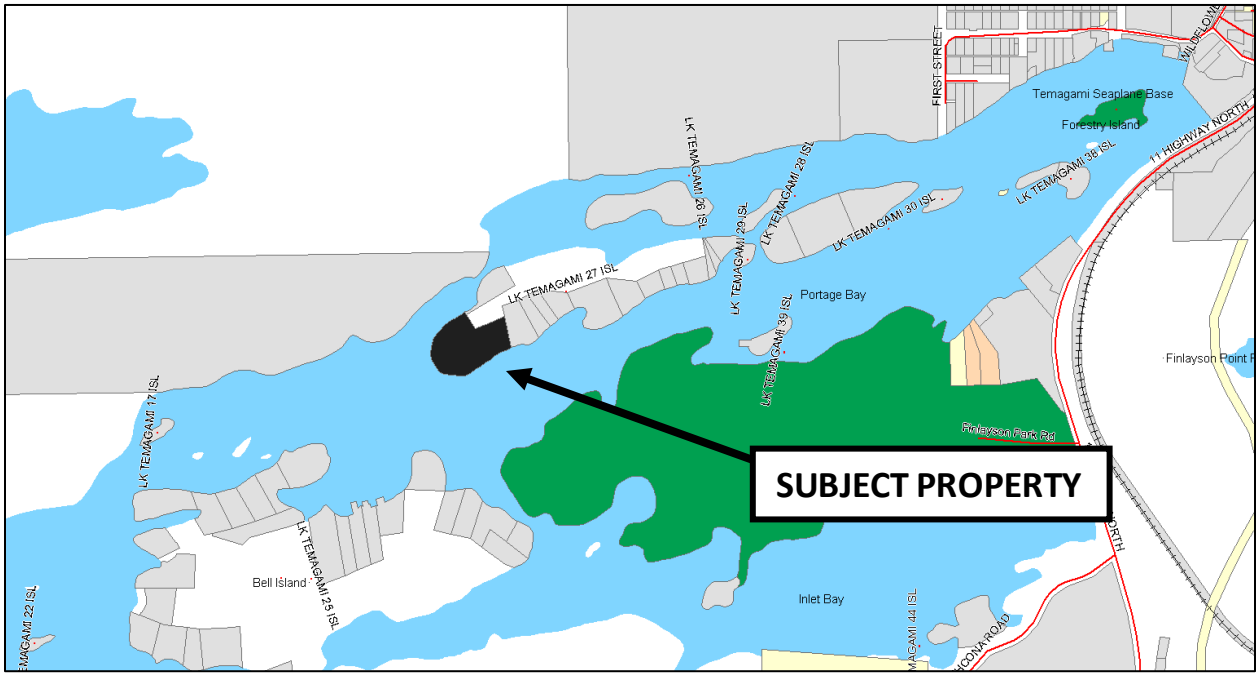
MUNICIPALITY OF TEMAGAMI			
Report Prepared For:	Nicole Claveau, Secretary Treasurer for Committee of Adjustment	**Application Number:**	C-25-01
Report Prepared By:	Jamie Robinson, BES, MCIP, RPP and Patrick Townes, BA, BEd	**Owners:**	Michael Kilbourne, Joseph Murgel and Brenda Norwich
Location:	188 Lake Temagami Island Unit 27	**Applicant:**	Michael Kilbourne
Report Date:	March 27, 2025	**Application Type:**	Consent

A. PROPOSAL/BACKGROUND

A Consent application to create one new lot has been submitted by the owners of the subject property, located at 188 Lake Temagami Island Unit 27. The subject property is owned by Michael Kilbourne, Joseph Murgel and Brenda Norwich and the application submission was made by Michael Kilbourne.

The subject property is located within the Lake Temagami Neighbourhood and is designated as Special Management Area in the Official Plan (2013) which is currently in effect. The subject property is located within the Remote Residential (R1) Zone – Lake Temagami in the Zoning By-law. The location of the subject property is shown in black on Figure 1.

Figure 1: Subject Property

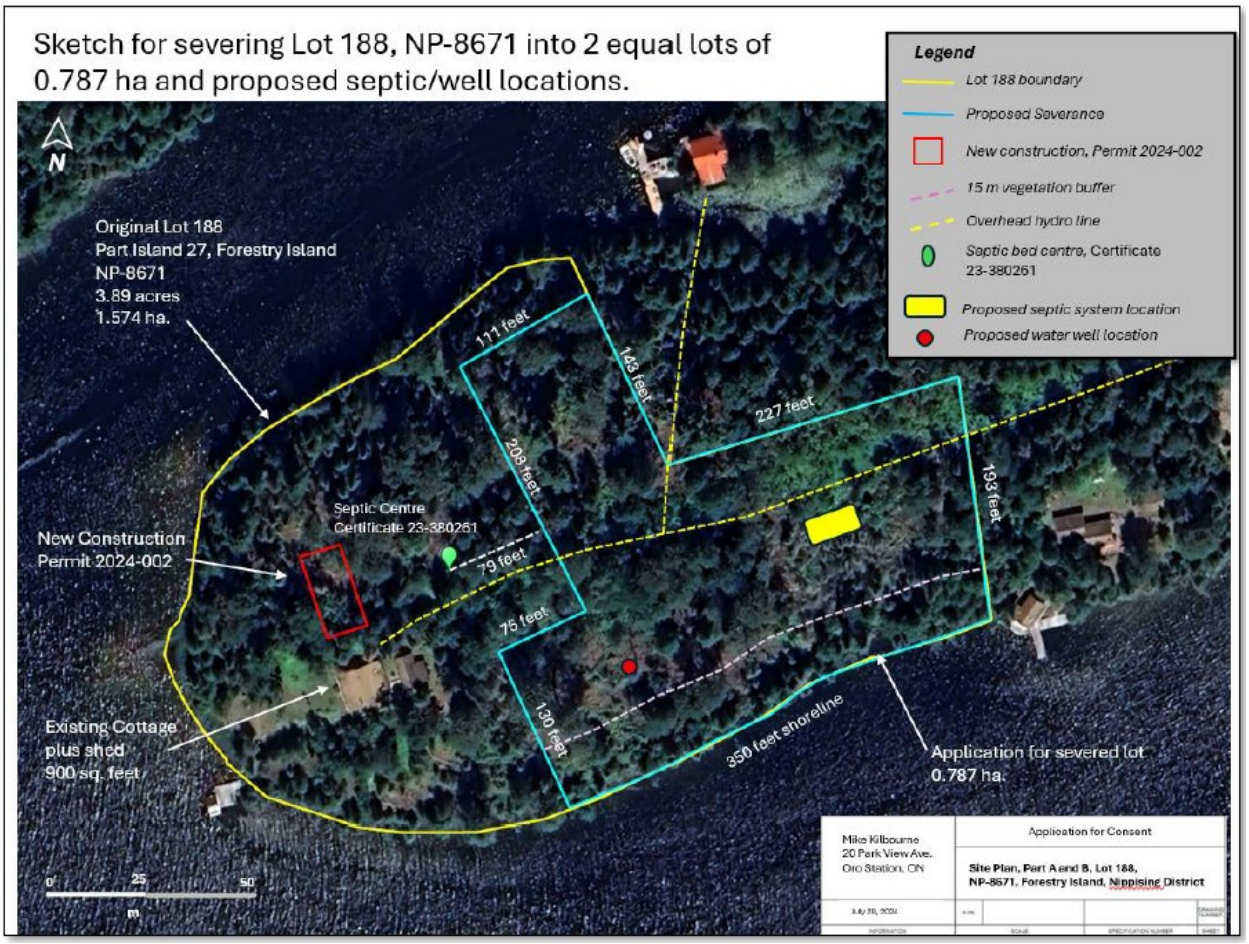


The subject property has a lot area of approximately 1.574 hectares (3.89 acres) based on the information submitted in the application package and is located on the western portion of an island that contains other shoreline residential properties. The subject property is currently developed with an existing dwelling and the owners have obtained a building permit for a new dwelling on the subject property (refer to Figure 2 for locations).

B. PROPOSED CONSENT

The purpose of the Consent application is to create one new lot on the subject property, for a total of two lots. The proposed retained lot is outlined in yellow on Figure 2 and is proposed to contain the existing development on the subject property. The proposed severed lot is outlined in blue on Figure 2 and is proposed to be vacant and to be used for shoreline residential uses.

Figure 2: Proposed Lot Configuration



The proposed retained lot is to have a lot area of approximately 0.787 hectares (1.9 acres) and a lot frontage of 130 metres; and the proposed severed lot is to have a lot area of approximately 0.787 hectares (1.9 acres) and a lot frontage of 106 metres based on the information submitted with the application.

From a servicing perspective, it is understood that the proposed retained lot and the proposed severed lot will be serviced by an individual private well and a septic system.

During the pre-consultation process with the owners, it was determined that the following were required to support the application for the Consent:

1) Hydrogeological Assessment – Required due to the lots being slightly less than 0.8 hectares (2 acres).

2) Environmental Impact Study – To confirm the presence of any natural heritages features and functions.

3) Archaeological Assessment – To confirm if there were any archaeological resources on the subject property.

The owners submitted the above material, and the reports have been reviewed by municipal staff and Temagami First Nation. The findings and conclusions of the above material is summarized in the analysis sections of this Report.

C. COMMENTS RECEIVED

The following is a summary of the comments that were received prior to the finalization of this Report:

- Temagami First Nation: No concerns as long as the recommendations of the Environmental Impact Study are implemented with respect to the minimum setback from the shoreline and the timing restrictions on tree and vegetation removal. There was also a request to keep Temagami First Nation informed regarding the process of the application.

- Municipal Fire Chief: No concerns and noted that civic addressing can be completed following approval of the application.

- Ministry of Natural Resources: Note to ensure that the Lake Trout Lake policies are reviewed.

- Ministry of Transportation: No concerns.

D. POLICY AND REGULATORY CONSIDERATIONS

The following is a review of the relevant policy and regulatory considerations that pertain to the proposed Consent application.

Provincial Policy Statement

The Provincial Planning Statement (PPS) was approved by the Ministry of Municipal Affairs and Housing in October of 2024 and replaced the Provincial Policy Statement which was in place since May of 2020. The subject property is located on rural lands in the context of the PPS. Section 2.6.1 of the PPS recognizes resource-based recreational development, such as recreational dwellings, as a permitted use on rural lands.

Section 3.6.4 of the PPS contains policies that permit individual on-site sewage services and individual on-site water services where municipal services are not available, provided that the site conditions are suitable for the long-term provision of such services. It is understood that the existing development on the proposed retained lot is serviced by an existing individual well and septic system. Future development on the proposed severed lot is also to be serviced by an individual private well and septic system, as indicated in the Hydrogeological Assessment that was prepared by Michael Kilbourne. The Hydrogeological Assessment was requested to demonstrate that both the proposed lots could be appropriately serviced with water and sewage services, despite the proposed lot areas being slightly less than 0.8 hectares (2 acres). The Assessment concluded that there is adequate space for these services to be provided, based on the proposed lot configuration and lot areas.

Section 4.1 of the PPS includes policies to protect natural heritage features, including wetlands, significant woodland, significant wildlife habitat, significant areas of natural and scientific interest, fish habitat and habitat of endangered and threatened species. An Environmental Impact Study was submitted with this application by BAE Environmental. The Study addressed the items listed above and concluded that the proposed Consent can proceed while avoiding negative impacts on the natural heritage features and functions on the subject property and on adjacent lands. The Study did recommend the following mitigation measures to ensure this conclusion is upheld:

1) Minimum 30 meter shoreline setback to protect shoreline values in addition to confirmed Blanding's turtle, snapping turtle, and fish habitat.

2) Site clearing, tree and vegetation removal shall occur outside April 1 to September 30 (the active season) of any given year which encompasses migratory birds and bats.

It is recommended that a Zoning By-law Amendment be required as a condition of provisional Consent to require a minimum setback of 30 metres for the proposed severed lot.

It is also recommended that the owners be required as a condition of provisional Consent to enter into a Consent Agreement with the Municipality to implement the recommendations of the Environmental Impact Study, including the recommended restrictive site clearing timing window.

Section 4.6 of the PPS includes policies regarding cultural heritage and archaeology. Section 4.6.2 states:

> *"Development and site alteration shall not be permitted on lands containing archaeological resources or areas of archaeological potential unless significant archaeological resources have been conserved."*

A Stage 1 and 2 Archaeological Assessment was submitted by Root Treks Archaeological Consulting and concluded that there were no archaeological resources discovered on the subject property. The Assessment was reviewed by Temagami First Nation and submitted to the Ministry of Citizenship and Multiculturalism.

It is also recommended that the owners be required as a condition of provisional Consent to enter into a Consent Agreement with the Municipality to implement the recommendations of the Archaeological Assessment, including instructions on what to do if something was ever discovered on the proposed lots.

Section 3.1 of the PPS includes policies regarding natural hazards and the protection of new development. There are no known hazards on the subject property.

The proposed Consent is consistent with the PPS.

Northern Ontario Growth Plan

The Northern Ontario Growth Plan recognizes that tourism is an important component of the economy of Northern Ontario. The applicability to this document in regards to the proposed Consent application is limited, however the development of resource-based recreational lots could be considered to conform to the policies of the Growth Plan.

Municipality of Temagami Official Plan

The subject property is located within the Special Management Area designation and is located within the Lake Temagami Neighbourhood in the Official Plan. Section 5.2 of the Official Plan sets out the principles and goals for the Lake Temagami Neighbourhood and states that new development in the Lake Temagami Neighbourhood shall primarily take the form of new residential and tourist commercial lots.

Section 5.3.2 provides that permanent or seasonal dwelling units on islands in Lake Temagami are permitted along with sleeping cabins, accessory uses such as boat houses, docks and storage sheds are also permitted. In accordance with Section 5.3.2, both the proposed lots are permitted to be developed with a future dwelling.

Section 5.3.3 provides policies relating to rural residential and remote residential development. These policies require that the development impact by existing and new lots should be mitigated to the extent possible in order to conserve wilderness and semi-wilderness values.

Uses permitted within the Special Management Area land use designation in the Lake Temagami Neighbourhood are limited to existing and new private residential development on islands, in accordance with the policies of Section 5.3.3 Rural and Remote Residential and Section 9.7 Development Applications, and other relevant policies of the Official Plan.

Section 5.3.3.2 of the Official Plan includes policies that apply to the creation of new lots in the Lake Temagami Neighbourhood. Table 1 provides a summary of these policies.

Table 1: Lot Creation Policies in the Lake Temagami Neighbourhood

Section 5.3.3.2 - Remote Residential - Lot Creation Through Consents on Private Land	Comments on Conformity
The intended use of the lot conforms to the intent and policies of the Plan and the provisions of the Zoning By-law;	The proposed uses and lot creation are permitted in the Lake Temagami Neighbourhood.
The Municipality will not assume responsibility for access, snow removal, road maintenance or service by school busses;	The proposed lots are water access only.
The Municipality shall not assume any responsibility for the provision of municipal services such as fire fighting, ambulance, water supply, sewage treatment and garbage collection to remote residential properties;	The proposed lots are water access only and therefore all municipal services are not available.
In creating the lot, conformity with this Plan's policies is required respecting any natural heritage features and areas identified in this Plan;	In order to evaluate the proposed new lots, an Environmental Impact study was prepared and provided recommendations for future development.
The applicant, when required, shall provide a study or studies acceptable to the Municipality that include an inventory of all existing natural and cultural heritage features both on the site and in the water adjacent to the site, including the shoreline characteristics such as type of littoral community and physical characteristics, the anticipated impact of the development and any measures proposed to satisfactorily mitigate the anticipated impacts of the development on the features otherwise, the Municipality will not approve the consent;	The owners submitted an Environmental Impact Study and an Archaeological Assessment.
The soil, drainage, and slope conditions on the lot are suitable or can be made suitable for the proper siting of buildings and the installation of an approved water supply and Class IV sewage disposal system;	The soil, drainage and slope conditions on the subject property are not proposed to be altered as a result of the Consent application. The proposed retained lot is already developed, and the proposed severed lot is to be developed in accordance with the recommendations contained within the Hydrogeological Assessment and the Environmental Impact Study.
Where a water well is proposed, the well shall be established and quality and quantity standards proven prior to final consent is granted;	There is a new well to be located on the proposed severed lot. The Hydrogeological Assessment addresses the installation and location of the new well.

The fisheries habitat, cultural heritage features, steep or unstable soils, environmentally sensitive areas, and other bio-physical aspects of the consent are not negatively impacted by the development;	The Environmental Impact Study did not identify any critical fish habitat along the immediate shoreline of the subject property. The Study identified mitigation measures for the proposed severed lot in terms of a minimum setback from the shoreline. The mitigation measures from the Environmental Impact Study will be implemented in the recommended Consent Agreement.
The lot is not within 500m of a known sanitary landfill site;	Yes. We are not aware of any landfill sites in the area.
Where access to the lot is by water, adequate long term parking and docking facilities and a receiver for garbage shall be secured to the satisfaction of the Municipality;	Yes. The subject property is located on an island and accessible by water. Access can be provided by the Lake Temagami Access Point or the Temagami Marine.
Demonstrated ability that the dock locations are suitable by study and/or approval by the appropriate authority;	The Environmental Impact Study did not confirm the presence of fish habitat therefore no specific dock locations were referenced.
The lot shall be subject to site plan control which shall include: • Visual screening, setbacks, protection of vegetation, and landscaping; • Utilization of existing vegetation and topography to minimize visual impacts; • Buildings and structures located in the shoreline activity area; • Lots with sparse or no vegetative buffer where the siting of buildings or structures have the potential for significant visual impact; • Rehabilitation of vegetation disturbed due to construction; and • Mitigation techniques to minimise impacts on surrounding development and uses.	The lots are currently vacant, and any future development will be subject to the recommendations of the Environmental Impact Study. The recommendations of the Study are to be implemented through a Consent Agreement.

In addition to the above Consent policies that apply to the Lake Temagami Neighbourhood, the Official Plan includes additional Consent policies that apply on a municipal-wide basis. Table 2 provides a summary of these policies.

Table 2: General Consent Policies

Section 9.7.1 - Consents to Sever Patented Land	Does the Consent application Conform?
The intended use of the severed and retained parcels conform to the intent and policies of this plan.	Yes. The existing and intended use of the proposed lots conform to the Official Plan.
Generally the number of lots created does not exceed three.	Yes. The Consent application is to create one new lot.
A registered plan of subdivision is not required.	Yes. A Plan of subdivision is not required.
The size and dimensions of the severed and retained parcels conform to the provisions of the Zoning By-law.	The proposed lot frontages comply to the Zoning By-law. A site specific amendment is recommended to capture the slightly reduced proposed lot areas.
The application represents an orderly and efficient use of land and the severance would not hinder development of the retained lands.	Yes, the severance would not hinder development of the proposed retained or severed lots.
The size and dimensions of the severed parcel and the retained parcel, are adequate to accommodate the proposed use or uses.	Yes, the proposed retained lot is already developed, and the owners have demonstrated that the proposed severed lot can accommodate future shoreline residential development.
Demonstrated ability that the dock locations are suitable by study and/or approval by the appropriate authority.	Yes, the Environmental Impact Study did not identify any fish habitat and therefore no dock locations were recommended.
Site Plan Control	Yes. The proposed lots will be subject to a Consent Agreement, rather than Site Plan Control.
Adequate access to the severed and retained parcel can be provided.	Yes. The subject property is located on an island and accessible by water. Access can be provided by the access point or by one of the marinas.
The severed parcel is not within 500 metres of a known sanitary landfill site.	Yes. We are not aware of any landfill sites in the area.
Where central sewage and water facilities are not available, it has been established that the soil and drainage conditions on the severed and retained parcels are suitable or can be made suitable to permit the proper siting of buildings and the installation of an approved water supply and Class IV or VI sewage disposal systems.	Yes. The proposed retained lot is already developed, and the proposed severed lot is to contain an individual private well and septic system in accordance with the Hydrogeological Assessment. Future approvals and building permits will be required.
Where a water well is proposed, the well shall be established and quality and quantity	Based on size of the lot, there are no concerns for water supply in the future for the proposed

standards proven prior to final consent is granted.	severed lot in accordance with the Hydrogeological Assessment.
The applicant, when required, has provided a study or studies acceptable to the Municipality that include an inventory of all existing natural and cultural heritage features both on the site and in the water adjacent to the site, including the shoreline characteristics such as type of littoral community and physical characteristics, the anticipated impact of the development and any measures proposed to mitigate the anticipated impacts of the development on the features.	Yes, the applicant provided an Environmental Impact Study and an Archaeological Assessment.
The financial impacts on the Municipality have been considered.	Yes. There are no anticipated financial impacts on the Municipality.

Further to the review of the policy framework in the Official Plan regarding lot creation, the policies within Section 2.14 and Section 9.24 regarding cultural heritage features have been reviewed. It is recommended that the recommendation of the Environmental Impact Study and the Archaeological Assessment be implemented in a Consent Agreement, that is to be registered on title for the proposed severed and retained lots.

Section 2.9 of the Official Plan includes policies regarding services and utilities. The minimum lot size for new single lot creation proposed on a private septic system and individual drilled well is encouraged to have a minimum lot size of 1 hectare (2.5 acres) unless a smaller lot size can be supported by a Hydrogeological Assessment. The owners submitted the appropriate assessment and concluded that the proposed lot configuration and lot area for the severed lot can accommodate future development and servicing.

Section 9.15 of the Official Plan references cash-in-lieu of parkland. The Municipality recently passed a By-law to require owners who create new lots to contribute funds to the Municipality to be used for parkland purposes in the future, i.e. purchase of land for new parks or updating existing parks. Cash-in-lieu of parkland is authorized under Section 42 of the *Planning Act* for park or public recreational uses.

The proposed Consent conforms to the Official Plan.

Municipality of Temagami Zoning By-law

The subject property is located within the Remote Residential (R1) Zone – Lake Temagami Zone. Permanent and seasonal dwelling units are included under Section 7.4.1 of the Zoning By-law and are permitted in the R1 Zone. The minimum lot frontage for the R1 Zone is 90 metres and the minimum lot area is 0.8 hectares (no drilled well) or 1 hectare (with a drilled well).

The proposed lot frontages for both the retained lot and the severed lot exceed the minimum requirement for lot frontage. The proposed lot areas for the retained lot and the severed lot are

both less than 1 hectare, both being approximately 0.787 hectares in accordance with the material submitted with the application. It is recommended that the owners obtain approval of a Zoning By-law Amendment to permit a conservative minimum lot area of 0.7 hectares to ensure the new lots comply to the site specific zoning. In terms of the proposed minimum lot areas, other shoreline residential properties on the island are smaller than the proposed lots, some as small as approximately 0.3 hectares.

It is also recommended that the site specific zoning include a minimum setback for a dwelling for the proposed severed lot of 30 metres which is a recommendation in the Environmental Impact Study for new development.

E. RECOMMENDATION

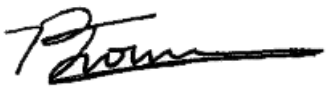
Based on the review of the Consent application C-2025-01 submitted by Michael Kilbourne, the application is consistent with the PPS, conforms to the Growth Plan and the Municipality's Official Plan. It is recommended that the Consent application be provisionally approved in accordance with the application sketch and subject to the following conditions of provisional Consent:

1) Preparation of a Reference Plan, in substantial compliance with the application sketch, to the satisfaction of the Municipality;
2) That a Consent Agreement be entered into between the owners and the Municipality to implement the recommendations and mitigation measures contained within the Environmental Impact Study, Hydrogeological Assessment and the Archaeological Assessment, as required by the Municipality;
3) That the owners obtain approval of a Zoning By-law Amendment application to implement a minimum setback from the shoreline of 30 metres for the proposed severed lot and to recognize the proposed lot areas;
4) That the owner submit payment of cash-in-lieu of parkland in accordance with By-law 25-1798;
5) That the owner and the Municipality establish 911 and civic addresses to the satisfaction of the Municipality; and,
6) Any other standard conditions of the Municipality (if any).

Respectfully Submitted,

MHBC Planning

Jamie Robinson, BES, MCIP, RPP
Partner



Patrick Townes, BA, BEd
Associate

Stage 1 and 2 Archaeological Assessment

Forestry Island Property

Lot 188, Forestry Island, Nipissing District

Part of the municipality of Temagami, Ontario

1.574 ha (3.89 acres) total – Proposed severance is 0.787 ha (1.95 acres)

PIF Number: P350-0048-2024

Licensee: Ibrahim Noureddine (P350)

Prepared for:

Mike Kilborne, BSc. (Hons), P. Geo

15 Spencer St. PVT,

Bracebridge, Ontario,

P1L-0B7

Submitted by:

Root Treks Archaeological Consulting

8 Havenhurst Cres. Ottawa, Ontario, K1T 3E8

Project No. 240701

November 11, 2024

Executive Summary

The Executive Summary highlights key points from the report only; for complete information and findings, as well as the limitations, the reader should examine the complete report.

A Stage 1-2 archaeological assessment was conducted for Lot 188, Forestry Island, Nipissing District, Ontario (Map 1). The total study area covered approximately 1.574 hectares (ha), with 0.787 ha proposed for severance (Maps 1-2). The assessment aimed to determine the presence of archaeological resources within the proposed severance area and to recommend further actions if any resources were encountered. Root Treks Archaeological Consulting was retained by Mike Kilbourne in September 2024 to conduct the assessment in accordance with the Planning Act and Section 2.6.2 of the Provincial Policy Statement. The client provided permission to access the property.

This study was conducted following the Ministry of Citizenship and Multiculturalism's (MCM) *Standards and Guidelines for Consultant Archaeologists* (2011) and in support of the Ontario Heritage Act. The assessment involved reviewing relevant documents, including historical maps, aerial photographs, and local histories, as well as consulting provincial databases, such as the Ontario Public Register of Archaeological Reports (OPRAR) and the Ontario Archaeological Sites Database (OASD). Fieldwork included a property inspection and test pit survey.

The Stage 1 assessment identified archaeological potential due to the study area's proximity to a primary water source and the presence of well-drained, sandy, elevated soils (Map 2). Consequently, a Stage 2 archaeological assessment was undertaken to identify and document any archaeological materials. A test pit survey at 5-meter intervals was deemed appropriate due to the island's conditions, including dense tree cover, which precluded ploughing and a pedestrian survey in these areas.

Fieldwork for the Stage 1 assessment took place on September 4, followed by the Stage 2 assessment on September 5-6, 2024. During the Stage 2 survey, all test pits were excavated at 5-meter intervals and the soils screened through a 6 mm mesh. All test pits were backfilled upon completion (Map 5). The test pit survey revealed no artifacts or archaeological features.

Recommendations

1. No further archaeological assessment is required within the Stage 2 study area as depicted in Maps 1 and 5.

Recommendations are subject to the conditions detailed in Section 5.0 of this report and to the MCM's review and acceptance of this report into the provincial registry. Once accepted, the MCM may issue a letter indicating no further archaeological assessment is necessary for the study area.

This report is submitted to the MCM as a licensing condition under Part VI of the Ontario Heritage Act, R.S.O. 1990, c. 0.18. It is subject to review to confirm that the licensed consultant archaeologist has met the licensing terms and conditions, and that the archaeological fieldwork and report recommendations comply with conservation standards.

The MCM is requested to review the report and provide a letter of concurrence with the results and recommendations, per the *2011 Standards and Guidelines for Consultant Archaeologists*, and to enter the report into the Ontario Public Register of Archaeological Reports.

Contents

Project Personnel

Client Contact:	Mike Kilbourne, BSc. (Hons), P.Geo
Field Crew:	Ibrahim Noureddine Ph.D.(P350), Field Director
	Joanne Bison
	John Jones
Report Preparation:	Alex Ailles, Ibrahim Noureddine
Administrative Support:	Suzanne EL Oud
Geographic Services:	Alan D.K Armstrong
Senior Review:	Ibrahim Noureddine

1.0 Project Context

1.1 Development Context

Root Treks Archaeological Services was contacted by Mike Kilbourne to conduct a Stage 1 and 2 Archaeological Assessment for a property located on Lot 188, Forestry Island, Nipissing District, Ontario (Map 1). The proposed severance of the property triggered the need for an archaeological assessment, in accordance with the Ontario *Planning and Development Act*, 1994, as part of the site development plan approval.

1.1.2 Stage 1 Background Study

Methods and Sources

The Stage 1 background study was conducted to assess the extant information known about the subject area as well as the potential archaeological resources within the local vicinity. The Province of Ontario's 2011 Standards and Guidelines for Consultant Archaeologists, directs that a Stage 1 background study must include a review of:

- an up-to-date listing of sites from the Ontario Archaeological Sites Database (OASD) of archaeological sites with 1 km of the Project area;
- reports of previous archaeological fieldwork within a radius of 50 m;
- topographic maps at 1:10,000 (recent and historical) or the most detailed scale available;
- historic settlement maps (e.g., historical atlas, surveys);
- archaeological management plans or other archaeological potential mapping (when available); and
- commemorative plaques or monuments on or near the Project area. The following was undertaken to meet or exceed the requirements set out in the Standards and Guidelines:
- a search of the registered archaeological sites within 3 kilometers (km) of the Project area undertaken with the Ministry of Citizenship and Multiculturism (MCM) Past Portal system (completed August, 2024);
- a review of prior archaeological reports for the Project area and its surroundings (it should be noted that the MCM does not currently keep a publicly accessible records of archaeological assessments carried out within the Province of Ontario, therefore the inventory of prior assessments may not be complete);
- mapping provided by the client was reviewed; and,
- a series of historic maps were reviewed related to post-1800 land settlement.

Additional sources of information included local history accounts, Ontario Land Registry records, along with soils and physiographic data provided by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA).

The Stage 1 background information, once compiled, is used to create a summary of the characteristics of the subject area and to evaluate its archaeological potential. The Province of

Ontario (MCM 2011 – Section 1.3.1) has defined the criteria that identify archaeological potential and any lands within 300 m of the defined indicators of potential are considered to have potential for the discovery of archaeological resources. Similarly, the Province has also defined some of the factors that negate the potential for intact archaeological deposits (MCM 2011 - Section 1.3.2)

Stage 1 Archaeological Assessments generally determine the potential for Pre- and Post- Contact sites independently, because of the differences in land use patterns observed by archaeologists and its impact on archaeological potential.

1.2 Historical Context

1.2.1 Regional Indigenous History

Archaeological research in central Ontario has been fairly limited in comparison to southern Ontario and northern New York State, which has resulted in a limited understanding of the pre-contact settlement history of this part of the province in relation to other areas. While not as numerous, there are studies that have informed our understanding of human occupation in this area. Table 1 provides a breakdown of the pre-contact cultural and temporal history of past occupations of central Ontario.

Archaeological Period	Culture	Time Period	Comments
Paleo	Plano	8,000 – 4,500 BC	▪ Lancolate biface tools ▪ Big game hunters on relic lake shores north of Upper Great Lake
Archaic	Shield	5,400 – 250 BC	▪ Slight reduction in territory size ▪ Introduction of copper tools ▪ Broad spectrum seasonal resource exploitation ▪ Highly mobile ▪ Introduction of bow ▪ Domestication of dog
Middle Woodland	Laurel	550 BC – AD 950	▪ Introduction of pottery ▪ Horticultural production ▪ Large earthen mounds
Late Woodland	Blackduck Selkirk	AD 750 - 1650	▪ Diverse ceramics – out-flaring vessel rims, textile impressions, punctates ▪ Communal burials
Contact Aboriginal	Northern Ojibway	AD 1650-1875	▪ Early written records and treaties ▪ European trade
Euro-Canadian		AD 1749-present	▪ European settlement

Table 1. Pre-contact Settlement Chronology *Taken from Dawson, 1984; Wright, 1981*

The first human settlement in this area can be traced back 10,000 years as the glaciers receded from the land. These earliest well-documented groups are referred to as Paleo, which literally translates to old or ancient. The tool assemblage is dominated by finely made lanceolate-shaped, sometimes fluted, projectile points, or spear tips. Paleo-Indian people were non-agriculturalists who depended on hunting and gathering of wild food stuffs. They would have moved their encampments on a regular basis to be in the locations where these resources naturally became available and the size of the groups occupying any particular location would vary depending on the nature and size of the available food resources (Ellis and Deller, 1990; Wright 1974). The retreat of the glaciers allowed for Spruce dominated boreal forests to move quickly north, occupying the once open tundra (Hinshelwood, 2004; Phillips 1993). By 10,000 years ago the closed Spruce forest gave way to the rapid introduction of Jack Pine and White Birch as a result of the increasingly warm, dry and windy environment (Julig 1994; Phillips 1993; Wright 1974). Raw materials obtained from bedrock outcrops were used in the production of tools such as distinctive unfluted, ribbon flaked, lanceolate spear points and knives. The picture that has emerged for early and late Paleo- Indian people is of groups at low population densities who

were residentially mobile and made use of large territories during annual cycles of resource exploitation (Ellis and Deller, 1990; Julig 1994).

The next major cultural period following the Paleo-Indian is termed the Archaic, where a change in technological and stylistic representations of the projectile points occurred in the archaeological record marking the beginning of the Archaic Period (Dawson 1983b). Wright (1972) referred to it as the Shield Archaic to indicate a long-lived tradition that encompassed much of the Canadian Shield from northern Quebec to southwest Northwest Territories. Dawson (1983) also refers to the Shield Archaic as a northern expression of the Archaic Tradition within the Precambrian Shield. The Archaic period in Northern Ontario is defined by notched projectile points, the use of native copper, and more frequent recovery of woodworking tools such as wedges and adzes (Dawson 1983; Fox 1977; Hinshelwood 2004). There is much debate on how the term Archaic is employed; general practice bases the designation off assemblage content as there are marked differences in artifact suites from the preceding Paleo- Indian and subsequent Woodland periods. As Ellis *et al.* (1990) note, from an artifact and site characteristic perspective, the Archaic is simply used to refer to non-Paleo-Indian manifestations that pre-date the introduction of ceramics.

The Archaic occupation is poorly understood in central and northern Ontario because of the underrepresentation of Archaic sites. This is a result of the complex timing for the transition from late Paleo-Indian to Archaic that occurred when lake levels in the Great Lakes Basin were lower than they are today. As lake levels rose this caused the destruction of any shoreline sites, as they have been submerged or are present under sediments deposited post- 8,000 years ago (Hinshelwood 2004). Another contributing factor to the underrepresentation of Archaic sites in central and northern Ontario is the degree of difficulty in determining between Archaic and Woodland period lithics. Throughout the Archaic period the natural environment warmed and vegetation changed from closed conifer- dominated vegetation cover, to mixed coniferous and deciduous forest to the mixed coniferous and deciduous forest in the north and deciduous vegetation we see in Ontario today (Ellis *et al.*, 1900). During the Archaic period there are indications of increasing populations and decreasing size of territories exploited during annual rounds; fewer moves of residential camps throughout the year and longer occupations at seasonal campsites; continuous use of certain locations on a seasonal basis over many years; increasing attention to ritual associated with the deceased; and, long range exchange and trade systems for the purpose of obtaining valued and geographically localized resources (Ellis *et al.*, 1990; Hinshelwood 2004).

The Woodland period is distinguished from the Late Archaic period primarily by the addition of ceramic technology, which provides a useful demarcation point for archaeologists, but is expected to have made less difference in the lives of the Woodland peoples. Unlike southern Ontario where the Woodland period is divided into three distinct phases, the Woodland period of central and northern Ontario observes only two distinct phases, the Middle and Late Woodland periods. The introduction of pottery is believed to have made its way into central and northern Ontario cultures from the southwest and east, creating the Laurel culture within the Boreal Shield stretching from Saskatchewan to Northern Quebec. Laurel ceramics are dominated by conical

styled, tapered base pottery manufactured using the coil method adorned with decoration across the upper portion of the vessel's exterior surface.

Along with the introduction of pottery, the bow and arrow appears as the dominant hunting tool in the Middle Woodland period. This resulted in an increase in projectile points and scrapers developed using stone chipped technology (Wright 1995:272, 274). During the Middle Woodland groups would come together into large macro- bands through the spring-summer at lakeshore or marshland areas to take advantage of spawning fish; in the fall inland river valleys were occupied for deer and nut harvesting and groups split into small micro-bands for winter survival (Spence *et al.,* 1990).

The Late Woodland period in central Ontario differed significantly from the settlement and subsistence shift that occurred in southern Ontario with the increasing reliance on maize horticulture. The climate and landscape of the Canadian Shield prohibited the agricultural shift occurring in the south and consisted of continued reliance on fish and large game as in previous periods. Population growth was also restricted by the Canadian Shield environment and settlement patterns were similar to those of the Middle Woodland with large summer camps located close to fish resources and typically located on level, well drained ground with access to canoe landing beaches. Throughout the entirety of occupation in central and northern Ontario First Nations people utilized the many rivers and lakes as transportation routes, using birch bark canoes in the warmer seasons and as trails when frozen in the winter.

Within the Late Woodland period two distinct cultures arise; the Blackduck complex and the Selkirk complex. The Blackduck culture is identified by contrasting pottery tradition to the Laurel. Pottery vessels were large globular and were created using the paddle and anvil technique with decoration being horizontal and/or oblique lines along with circular indentations or puncates found on the neck, rim and inner rim. The Blackduck culture is considered to occur through central Ontario.

The Selkirk culture is defined by its pottery style as well, with manufacturing technique similar to that of the Blackduck culture but with a distinct variation in decoration. The Selkirk style of pottery, if decorated, was simple with a single row of puncates or impressed with a cord wrapped stick (Dawson 1983). Selkirk pottery is found predominantly in the north portion of Northern Ontario close to Manitoba.

In the 17th century two major language families, Algonquian and Iroquoian, were represented by the diverse people of North America. Iroquoian speaking people were found in Southern Ontario and New York State, with related dialects spoken in the mid-Atlantic and interior North Carolina, while Algonquian speaking peoples were located along the mid- Atlantic coast into the Maritimes, throughout the Canadian Shield of Ontario and Quebec and much of the central Great Lakes region (Ellis *et al*., 1990). Linguists and anthropologists have attempted to trace the origin and development of these two language groups and usually place their genesis during the Archaic (Ellis *et al.*, 1990).

1.2.2 *Anishinabek Creation Story*

There is more than one Creation Story for Indigenous peoples in North America, including more than one story for each nation, which are often similar versions generally adapted by the people in different areas. The version the Creation Story HIFN has chosen to adapt comes from Darlene Johnston, a Professor of Law at the University of Toronto, in a report prepared for the Ipperwash Commission of Inquiry; "*Connecting People to Place: Great Lakes Aboriginal History in Cultural Context*". Below is the story told on the HIFN website (n.d.).

> *The birds, animals and fish were created before human beings. Human beings were created after the big flood. While the earth was flooded, the land animals floated upon a large wooden raft. The leader, the Great Hare "Michabous", knew there was land somewhere under the water, and the animals needed it if they were to survive. Michabous asks many animals to dive into the water to bring up only a little soil. He promises that if he can get but a small grain, he will be able to make enough land to support all the animals.*
>
> *First, Beaver is asked to dive for the sand, after a long time, he comes up empty-handed. Next Otter is called upon. Otter is also unsuccessful. Finally, Muskrat volunteers to dive down for sand. Since Beaver and Otter are strong and failed, the other animals don't have much faith in Muskrat.*
>
> *Muskrat dives, and stays under water for a whole day, and finally shows up at the edge of the raft, nearly drowned. The animals pull him onto the raft, and open all his tightly closed paws. In the last paw they find a grain of sand.*
>
> *Good to his promise, Michabous, took the grain of sand, and let it fall on the raft, where it grew in size. Once it began to grow, the Great Hare took more grains from there, and scattered them about, which caused the mass of soil to grow larger and larger. It grew to the size of a mountain, and Michabous walked around it to enlarge it still. When he thought it large enough, he sent Wagosh (Fox) to inspect the work, with power to enlarge it more, Wagosh obeyed, and*

> *found the place was large enough for him to hunt his own prey, and told Michabous the place was large enough for all the animals. Upon hearing this, the Great Hare toured his own creation and found it incomplete, and since then he hasn't been able to trust any of the other animals, and to this day he continues to increase what he's made and is on constant move around the earth.*
>
> *After Michabous' creation of the earth, the other animals found places most favoured by them for pasture or hunting prey. When the first ones died, Michabous caused the birth of men from their carcasses. Appropriately, those early men derived their origins from a bear, others from a moose and still others from various animals. Our Clans and historical connections to the land and each other [are] revealed in the study of the Clan system, and the threads it weaves through our Band and families to this day.*

Other Creation Stories are similar to the one recounted by Dr. Johnston, containing similar elements to a version by Anishinabek scholar and author Basil Johnston, of Cape Croker. For example, a flood and a grain of sand are a common thread, along with Muskrat being the successful diver of that grain of sand. The difference in Basil Johnston's story, is in the beginning, a pregnant Sky Woman lands on Giant Turtle's back, and rubs the rim of Turtle's back with the grain of sand from Muskrat, creating 'Turtle Island' or what is now, North America, where she gives birth to twins – the Anishinabek.

1.2.3 Archaic Period

During the Early Archaic Period (9, 950 – 7,950 BP), the jack and red pine forests that characterized the Late Paleo environment were replaced by forests dominated by white pine with some associated deciduous trees (Ellis et al. 1990:68-69). One of the more notable changes in the Early Archaic Period is the appearance of side and corner-notched projectile points. Other significant innovations include the introduction of ground stone tools such as celts and axes, suggesting the beginnings of a simple woodworking industry. The presence of these often large and not easily portable tools suggests there may have been some reduction in the degree of seasonal movement, although it is still suspected that population densities were quite low, and band territories large.

During the Middle Archaic Period (7,950 – 4,450 BP) the trend to more diverse toolkits continued, as the presence of netsinkers suggest that fishing was becoming an important aspect of the subsistence economy. It was also at this time that "bannerstones" were first manufactured.

Bannerstones are carefully crafted ground stone devices that served as a counterbalance for atlatls or spear throwers. Another characteristic of the Middle Archaic Period is an increased reliance on local, often poorer quality, chert resources for the manufacturing of projectile points and other stone tools. It seems that during earlier periods, when groups occupied large territories, it was possible for them to visit a primary outcrop of high-quality chert at least once during their seasonal round. However, during the Middle Archaic Period, groups inhabited smaller territories that often did not encompass a source of high-quality raw material. In these instances, lower quality materials which had been deposited by the glaciers in the local till and river gravels were utilized.

This reduction in territory size was probably the result of gradual region-wide population growth which led to the infilling of the landscape. This process forced a reorganization of Indigenous subsistence practices, as more people had to be supported from the resources of a smaller area. During the latter part of the Middle Archaic Period, technological innovations such as fish weirs have been documented as well as stone tools especially designed for the preparation of wild plant foods.

It is also during the latter part of the Middle Archaic Period that long distance trade routes began to develop, spanning the northeastern part of the continent. In particular, native copper tools manufactured from a source located northwest of Lake Superior were being widely traded (Ellis et al. 1990:66). By 4,450 BP the local environment had stabilized and began to reflect the more modern landscape (Ellis et al. 1990:69).

During the Late Archaic Period (4,450 – 2,900 BP) the trend towards decreased territory size and a broadening subsistence strategy continued. Late Archaic sites are far more numerous than either Early or Middle Archaic sites, and it seems that the local population had expanded. It is during the Late Archaic Period that the more formal cemeteries appear. Before this time it is thought that individuals were interred close to the location where they died. During the Late Archaic Period, if an individual died while his or her group happened to be at some distance from their group cemetery, the bones would be kept until they could be placed in the cemetery. Consequently, it is not unusual to find disarticulated skeletons, or even skeletons lacking minor elements such as fingers, toes or ribs, in Late Archaic burial pits.

The appearance of cemeteries during the Late Archaic Period has been interpreted as a response to increased population densities and competition between local groups for access to resources. It is argued that cemeteries would have provided strong symbolic claims over a local territory and its resources. These cemeteries are often located on heights of well-drained sandy/gravel soils adjacent to major watercourses.

This suggestion of increased territoriality is also consistent with the regionalized variation present in Late Archaic Period projectile point styles. It was during the Late Archaic Period that distinct local styles of projectile points appear, and the trade networks that had been established during the Middle Archaic Period continued to flourish. Native copper from northern Ontario and marine shell artifacts from as far away as the Mid-Atlantic coast are frequently encountered as grave goods at southern Ontario sites. Other artifacts such as polished stone pipes and banded slate gorgets also appear on Late Archaic sites in southern Ontario. One of the more unusual and interesting of the Late Archaic Period artifacts is the birdstone, which are small, bird-like effigies usually manufactured from green banded slate.

1.2.4 Woodland Period

The Early Woodland Period (2,900 – 2,350 BP) is distinguished from the Late Archaic Period primarily by the addition of ceramic technology. While the introduction of pottery provides a useful demarcation point for archaeologists, it may have made less difference in the lives of the Early Woodland peoples. The first pots were thick walled and are often friable when found archaeologically. It has been suggested that they were used in the processing of nut oils by boiling crushed nut fragments in water and skimming off the oil. These vessels were not easily portable, and individual pots likely did not have a long use life. There have also been numerous Early Woodland sites located at which no pottery was found, suggesting that these poorly constructed undecorated vessels had yet to assume a central position in the day-to-day lives of Early Woodland peoples.

Other than the introduction of this limited ceramic technology, the life-ways of Early Woodland peoples show a great deal of continuity with the preceding Late Archaic Period. For instance, birdstones continue to be manufactured, although the Early Woodland varieties have "pop-eyes" which protrude from the sides of their heads.

Likewise, the thin, well-made projectile points which were produced during the terminal part of the Archaic Period continue in use. However, the Early Woodland Period variants were side-notched rather than corner-notched, giving them a slightly altered and distinctive appearance.

The trade networks which were established in the Middle and Late Archaic Periods also continued to function, although there does not appear to have been as much trade in marine shell during the Early Woodland Period. During the last 200 years of the Early Woodland Period, projectile points manufactured from high quality raw materials from the American Midwest begin to appear on sites in southwestern Ontario.

In terms of settlement and subsistence patterns, the Middle Woodland Period (2,350 – 1,400 BP) provides a major point of departure from the Archaic and Early Woodland Periods. While Middle Woodland peoples still relied on hunting and gathering to meet their subsistence requirements, fish were becoming an even more important part of the diet.

In addition, Middle Woodland peoples relied much more extensively on ceramic technology. Middle Woodland vessels are often heavily decorated with hastily impressed designs covering the entire exterior surface and upper portion of the vessel interior. Consequently, even very small fragments of Middle Woodland vessels are easily identifiable.

It is also at the beginning of the Middle Woodland Period that rich, densely occupied sites appear along the margins of major rivers and lakes. While these areas had been utilized by earlier peoples, Middle Woodland sites are significantly different in that the same location was occupied off and on for as long as several hundred years and large deposits of artifacts often accumulated. Unlike earlier seasonally utilized locations, these Middle Woodland sites appear to have functioned as base camps, occupied off and on over the course of the year. There are also numerous small upland Middle Woodland sites, many of which can be interpreted as special purpose camps from which localized resource patches were exploited. This shift towards a greater degree of sedentism continues the trend witnessed from at least Middle Archaic times and provides a prelude to the developments that follow during the Late Woodland Period.

The Late Woodland began with a shift in settlement and subsistence patterns involving an increasing reliance on corn horticulture (Fox 1990:185; Smith 1990; Williamson 1990:312). Corn may have been introduced into southwestern Ontario from the American Midwest as early as 1,550 BP or a few centuries before. Corn did not become a dietary staple, however, until at least three to four hundred years later, when the cultivation of corn gradually spread into south-central and southeastern Ontario.

During the early Late Woodland Period, particularly within the Princess Point Complex (circa 1,450 -900 BP), a number of archaeological material changes have been noted including the appearance of triangular projectile point styles, first seen during this period beginning with the Levanna form; cord-wrapped stick decorated ceramics using the paddle and anvil forming technique evolving from the mainly coil-manufactured and dentate stamped and pseudo-scallop shell impressed ceramics; and if not appearance, increasing use of maize (Zea mays) as a food source (e.g., Bursey 1995; Crawford et al. 1997; Ferris and Spence 1995:103; Martin 2004 [2007]; Ritchie 1971:31-32; Spence et al. 1990; Williamson 1990:299).

The Late Woodland Period is widely accepted as the beginning of agricultural life ways in south-central Ontario. Researchers have suggested that a warming trend during this time may have encouraged the spread of maize into southern Ontario, providing a greater number of frost-free days (Stothers and Yarnell 1977). Further, shifts in the location of sites have also been identified with an emphasis on riverine, lacustrine and wetland occupations set against a more diffuse use of the landscape during the Middle Woodland.

One such site, located on the Grand River near Cayuga, Ontario is the Grand Banks site (AfGx-3). As of 1997, 40 maize kernels and 29 cupules had been recovered at this site (Crawford et al. 1997). The earliest AMS radiocarbon assay run on maize from paleosol II produced a date of approximately AD 500 (Crawford et al. 1997:116). This site is interpreted as a long-term

basecamp that may have been used year-round or nearly yearround (Crawford and Smith 1996:785). This growing sedentism is seen as a departure from Middle Woodland hunting and gathering and may reflect growing investment in the care of garden plots of maize (Smith 1997:15). The riverine location of Grand Banks (AfGx-3) may have also provided light, nutrient-rich soil for agriculture (Crawford et al. 1997). While Levanna projectile points are formal tools, Princess Point Complex toolkits are predominantly characterized by informal or expedient flake tools and ground stone and bone artifacts are rare (Ferris and Spence 1995:103; Shen 2000). At Grand Banks, experimental archaeology suggests that chert flakes were put to a variety of useful tasks, from butchering to bone-working to wood-working to plant-working. Formal bifaces and projectile points had less evidence of usewear (Shen 2000).

Local cherts appear to have been used, although Onondaga, albeit also a local resource, was preferred at Grand Banks (AfGx-3) (Shen 1997). The first agricultural villages in southern Ontario date to the 10th century A.D. Unlike the riverine base camps of the Middle Woodland Period, these sites are located in the uplands, on well-drained sandy soils. Categorized as Early Late Woodland (Table 1) (1,050 – 650 BP) many archaeologists believe that it is possible to trace a direct line from the Iroquoian groups which later inhabited southern Ontario at the time of first European contact, back to these early villagers.

Village sites dating between 1,050 – 650 BP share many attributes with the historically reported Iroquoian sites, including the presence of longhouses and sometimes palisades. However, these early longhouses were actually not all that large, averaging only 12.4 m in length (Dodd et al. 1990:349; Williamson 1990:304-305). It is also quite common to find the outlines of overlapping house structures, suggesting that these villages were occupied long enough to necessitate re-building.

The Jesuits reported that the Huron moved their villages once every 10 – 15 years, when the nearby soils had been depleted by farming and conveniently collected firewood grew scarce (Pearce 2010). It seems likely that Early Ontario Iroquoians occupied their villages for considerably longer, as they relied less heavily on corn than did later groups, and their villages were much smaller, placing less demand on nearby resources.

Judging by the presence of carbonized corn kernels and cob fragments recovered from sub-floor storage pits, agriculture was becoming a vital part of the Early Ontario Iroquoian economy. However, it had not reached the level of importance it would in the Middle Late and Late Late Woodland Periods. There is ample evidence to suggest that more traditional resources continued to be exploited and comprised a large part of the subsistence economy. Seasonally occupied special purpose sites relating to deer procurement, nut collection, and fishing activities, have all been identified. While beans are known to have been cultivated later in the Late Woodland Period, they have yet to be identified on Early Late Woodland sites.

The Middle Late Woodland Period (650 – 550 BP) witnessed several interesting developments in terms of settlement patterns and artifact assemblages. Changes in ceramic styles have been

carefully documented, allowing the placement of sites in the first or second half of this 100-year period. Moreover, villages, which averaged approximately 0.6 ha in extent during the Early Late Woodland Period, now consistently range between one and two hectares in size.

House lengths also change dramatically, more than doubling to an average of 30 m, while houses of up to 45 metres (m) have been documented. This increase in longhouse length has been variously interpreted. The simplest possibility is that increased house length is the result of a gradual, natural increase in population (Dodd et al. 1990:323, 350, 357; Smith 1990). However, this does not account for the sudden shift in longhouse lengths around 1300 A.D. Other possible explanations involve changes in economic and socio-political organization (Dodd et al. 1990:357). One suggestion is that during the Middle Late Woodland Period small villages were amalgamating to form larger communities for mutual defence (Dodd et al. 1990:357). If this was the case, the more successful military leaders may have been able to absorb some of the smaller family groups into their households, thereby requiring longer structures. This hypothesis draws support from the fact that some sites had up to seven rows of palisades, indicating at least an occasional need for strong defensive measures. There are, however, other Middle Late Woodland villages which had no palisades present. More research is required to evaluate these competing interpretations.

The lay-out of houses within villages also changes dramatically by 650 years ago. During the Early Late Woodland Period villages were haphazardly planned, with houses oriented in various directions. During the Middle Late Woodland Period villages are organized into two or more discrete groups of tightly spaced, parallel aligned, longhouses. It has been suggested that this change in village organization may indicate the initial development of the clans which were a characteristic of the historically known Iroquoian peoples (Dodd et al. 1990:358).

Initially at least, the Late Late Woodland Period (550 – 350 BP) continues many of the trends which have been documented for the proceeding century. For instance, between 550 and 500 years ago house lengths continue to grow, reaching an average length of 62 m. One longhouse excavated on a site southwest of Kitchener was an incredible 123 m (Lennox and Fitzgerald 1990:444-445). After this time house lengths begin to decrease, with houses dating between 450 – 370 BP averaging 30 m in length.

Why house lengths started to decrease roughly 450 years ago is poorly understood, although it is believed that the even shorter houses witnessed on Historical Period sites can be at least partially attributed to the population reductions associated with the introduction of European diseases such as smallpox (Lennox and Fitzgerald 1990:405, 410).

Village size also continues to expand throughout the Late Late Woodland Period, with many of the larger villages showing signs of periodic expansions. The Middle Late Woodland Period and the first century of the Late Late Woodland Period was a time of village amalgamation. One large village situated just north of Toronto has been shown to have expanded on no fewer than five occasions. These large villages were often heavily defended with numerous rows of wooden

palisades, suggesting that defence may have been one of the rationales for smaller groups banding together. Late Late Woodland village expansion has been clearly documented at several sites throughout southwestern and south-central Ontario. The excavations at the Lawson site, a large Late Iroquoian village located in southwestern Ontario, has shown that the original village was expanded by at least twenty percent to accommodate the construction of nine additional longhouses (Anderson 2009).

During the late 1600s and early 1700s, the French explorers and missionaries reported a large population of Iroquoian peoples clustered around the western end of Lake Ontario. The area which was later to become Halton Region was known to have been occupied by ancestors of two different Late Late Woodland groups who evolved to become the historically known Neutral and Huron. (Lennox and Fitzgerald 1990; Smith 1990:283).

1.2.5 Post-Contact Euro-Canadian Context

The first European in the area was likely Samuel de Champlain, who travelled with the Huron to Georgian Bay and then back to the Saint Lawrence River via the Otonabee River and Rice Lake in 1615. The first map of the Kawartha Lakes was drawn by Champlain in 1632. Champlain set up a trading post on Georgian Bay which set about a series of changes to the area and the lives of the indigenous people who lived there. War between the French and English spread to the Kawarthas. The Huron sided with the French while the Mohawk, who lived southeast of the Peterborough area, allied with the English. To cut off French trade routes the Mohawk raided Huron villages so that by 1650 no Huron remained in the area. The Mohawk took over the region and lived there until 1700 when the Anishnaabe (also called Mississaugas), an Algonquin group, fought the Mohawk and reopened the French trade routes.

The first significant European settlement of the region did not occur until almost 200 years following Champlain's visit. The area continued to be used as a fur trade route and in 1793 Jacob Herkimer established a trading post at Hiawatha on Rice Lake (Adams & Taylor 1985: 99). Prior to the mid-1800s the only method of transportation into the area was by river and portage. The lack of roads hindered the settlement of the region; however, in the early nineteenth century there was an initiative to bring settlers to the area and settlers gradually moved further inland.

1.3 Study Area Specific History

1.3.1 Lake Temagami

Lake Temagami was free from the Wisconsinan ice sheet by 12150 BP (Veillette 1988). The early boreal forest began to repopulate the area.

Hudson Bay Company had a trading post in 1820 on Temagami Island under a Chief Trader named Richard Hardisty. It closed in the 1830's and re-opened in the 1870's on Bear Island.

The Teme-Augama Anishnabai claim to have used the area for over 9,000 year, there is evidence to support this. The glaciers had retreated by 12000BP. The oldest site in the area is the 3 pines

site, which is dated to 7500 years before present. There is evidence nearby at Fox lake of occupation <8000 years old.

Temagami is connected to many watersheds and the study area is part of the northeast arm, which while blocked today by the rail embankment/causeway, was previously navigable into Caribou Lake and beyond.

Because of this, the Temagami area was selected as an area to be investigated for its viability post- war of 1812 as a new capital because of the vulnerabilities exposed of Lake Ontario and the St. Lawrence to attack. In 1837 David Taylor and a party were tasked with navigating the area for this purpose, and likely passed through the northeast arm by the study area.

A map made in the 1990's based on oral histories of canoe routes for both settlers and indigenous peoples alike pointed to frequent use of Bell island, which is directly south of the study area. Given the party sizes passing through the Northeast arm were usually larger than just a few people, it would be likely that trips to the study area were made.

In recent times the Ontario MNR (as it were) kept warehouses on the islands. (Maddonanld, Pers comm 2024). These warehouses have since been removed at the time of this assessment.

1.3.2 Town of Temagami

The townsite of Temagami is located 1.5 km east from the study area. Beginning in the 1890's, the current townsite began to be used as a gateway to the lake for cottagers, campers and other outdoor enthusiasts. In 1903, Dan O'Connor set up a shop at the townsite location and expanded it over the next several years to the point of 3 hotels in 1905. The Temiskaming and Northern Ontario Railway connected to Temagami in that same year of 1905, allowing a greater influx of people and services.

At present the rail line that runs up through the town of Temagami had a causeway created which block the connection from Temagami to further lakes that go up to Lake Timiskaming, but this was only created in the early 1900's when the railway went through.

2.0 Archaeological Context

The study area covers a total of 1.574 hectares (3.89 acres), with the proposed severance occupying 0.787 hectares (1.95 acres). A small cottage structure is located on the western portion of the island, outside of the proposed severance area (Maps 1-2).

2.1 Physiography & Geology

Lake Temagami is a narrow lake where the longest span is oriented north to south. It has 5 "arms" which extend from a central location. The lake has a total area of 128 km. It has 592 km of shoreline (the 1200 islands add another 320 m).

Lake Temagami lies at the junction of 3 structural geological provinces of the Precambrian Canadian Sheild, with the oldest in the northwest and the youngest in the southeast (Burbidge, 1988). Temagami has rocks that are igneous, metamorphic and sedimentary. The sedimentary rocks in the Superior province arose some 2.5 billion years ago, and are importantly a source of chert. There is an outcropping at the head of Lake Temiskaming called the Temiscaming Outlier. It is made of limestones, dolomites and shale rocks. It contained a grey and tan coloured chert. This chert is often found in pebbles and cobbles on the shores of Lake Temagami beaches, having presumably come from this outlier (Burbridge; Gordon) (Map 3).

2.2 Current Conditions

Lake Temagami lies south of the Great Lakes-St. Lawrence Mixed Forest and the Boreal Forest ecological zones, in a region classified as the 'Temagami Forest Region' (ONMNR). The regions primary forest cover includes white pines, red pines, some white birch and white spruce. It is common to see mixes of birch, pine, balsam fir and aspen. Some areas may have sugar maple, red maple and yellow birch groves. The interior forests off the lake have been logged extensively, but forests at the edge of the lake have been maintained. Lake Temagami has some of the remaining old growth forests in Ontario.

2.3 Previous Archaeological Assessments

There are no recorded archaeological assessments for the subject property found in the Ontario Public Register of Archaeological Reports.

2.4 Registered Archaeological Sites and Commemorative Plaques

A search of the Ontario Archaeological Sites Database for archaeological sites within a 0.5km radius of the property (1.1-1 of the Standards and Guidelines) shows there are no sites within 50m of the study area, there are no sites within 1km of the study area.

2.5 Plaques

Plaque	Location
Grey Owl 1888-1938	24 Finlayson Park Rd. & Highway 11

3.0 Analysis

3.1 Assessing Archaeological Potential

The MCM Standards and Guidelines identifies (S&G 17) the following factors: previously recorded archaeological sites, natural water courses and shorelines both primary and secondary, past shorelines and glacial beds, elevated topography, proximity to resources, well drained sandy soils, distinctive land formations, and areas of early Euro-Canadian settlement as indicators of archaeological potential.

Distance to water is an essential factor in archaeological potential modeling. When evaluating distance to water it is important to distinguish between water and shoreline, as well as natural and artificial water sources, as these features affect site location and type to varying degrees. The MCM categorizes water sources in the following manner:

- Primary water sources: lakes, rivers, streams, creeks;
- Secondary water sources: intermittent streams and creeks, springs, marshes and swamps;
- Past water sources: glacial lake shorelines, relic river or stream channels, cobble beaches, shorelines of drained lakes or marshes; and
- Accessible or inaccessible shorelines: high bluffs, swamp or marshy lake edges, sandbars stretching into marsh.

3.1.1 Specific to the Canadian Shield.

There may be small pockets (e.g., sand plains, clay plains, glacial beach ridges, etc.) that possess a higher degree of potential and differing characteristics from most of the surrounding environment that should still be considered to have potential. Where such areas of higher potential are identified, undertake a complete assessment and systematic survey.

In recommending a Stage 2 property survey based on determining archaeological potential for an area in northern Ontario, the MCM stipulates the following:

Where an identified feature of archaeological potential is a modern water source, test pitting at 5 m intervals is required between 0 m to 50 m from the feature. Survey beyond 50 m is not required.

For features of archaeological potential other than modern water sources (e.g., historical water sources such as glacial shorelines), test pitting at 5 m intervals is required between 0 m to 50 m from the feature and at 10 m intervals between 50 m and 150 m from the feature. Survey beyond 150 m is not required.

3.2 Features Indicating Archaeological Potential Has Been Removed

Archaeological potential can be determined to have been removed when an area has been subject to extensive and deep land alterations that severely damaged the integrity of archaeological resources, including:

- Quarrying
- Major landscaping involving grading below topsoil
- Building footprints
- Infrastructure development

The study area is located in Temagami's northeastern arm. It is just west of the townsite of Temagami, and on a traditional canoe route that has been used for up to thousands of years (MacDonald, 1993)

Due to the northern location and physiographic features of Northern Ontario, there are specific factors to be considered in assessing archaeological potential in these areas. These factors are on top of the typical archaeological potential indicators in the *Standards and Guidelines*. These specific factors to northern areas include: seasonal preference for southern exposure to protect from cold winds and storms, well-drained soils and easily accessible shorelines. Conversely, seasonal preference for wind exposed shorelines during warmer months would be preferred because of the intense insect activity during spring and summer (Gordon; 103).

Many precontact locales continued to be used during the historic period (Gordon 103)

It was indicated that the Ontario Ministry of Natural Resources allegedly had storage on the island at some point but has since been removed (Macdonald, Pers Comm 2024).

3.4 Archaeology Potential of the Study Area

Based on the above criteria, parts of the study area have been identified as having archaeological potential due to their proximity (within 150 m) to navigable water sources (Map 4). Additionally, the presence of a primary and navigable water source, along with other identified factors, indicates potential for Aboriginal archaeological resources within the study area.

4.0 Field Methods

The Stage 1 and 2 Archaeological Assessment was conducted under PIF P350-0048-2024, issued to Ibrahim Noureddine, Ph.D., by the Ministry of Citizenship and Multiculturalism (MCM). The Stage 1 property inspection took place on September 4, 2024, to gain firsthand knowledge of the geography, topography, and current conditions, and to evaluate and map the archaeological potential of the subject property prior to development and the Stage 2 assessment. All fieldwork was conducted under the direction of Ibrahim Noureddine (P350).

Weather conditions during the assessment were suitable, ranging from full sun to overcast with light rain, with temperatures between 13 to 16 degrees Celsius. At no point did field or weather conditions impede the recovery of archaeological materials. The property inspection involved a visual review of the subject property with random spot-checking across all accessible areas, following Section 1.2, Property Inspection, Standard 1 of the *Standards and Guidelines for Consultant Archaeologists* (2011).

The study area, approximately 1.57 hectares in size, primarily consists of treed areas with a few small, cleared spaces on Forestry Island (Images 1 and 2). The Stage 2 survey was conducted on September 5-6, 2024. Map 5 illustrates the assessment methods, photograph locations and directions, and Table 2 summarizes weather and field conditions during the Stage 2 survey.

Date	Field director	Activity	Weather	Ground conditions
September 4, 2024	Ibrahim Noureddine P350	Property Inspection	Sun and clouds 15°	N/A
September 5, 2024	Ibrahim Noureddine P350	test pit survey	Sunny 13°-16°	Dry, well drained
September 6, 2024	Ibrahim Noureddine P350	test pit survey	Clouds, light rain 16°	Dry, well drained

Table 2: Weather and Field Conditions during the Stage 1 property inspection and Stage 2 Survey

The subsurface archaeological investigation consisted of the hand excavation of 30 x 30 centimeter (cm) diameter test pits at 5 meter (m) intervals, with the backdirt screened through 6 millimeter mesh, and each test pit backfilled upon completion. Every test pit was hand excavated into subsoil at least 5 cm, with each individual test pit examined for stratigraphy, cultural features and evidence of fill or previous disturbances.

The following documents were created in the field:

- Field Notes (2 pages)
- Site Photographs (22)

4.1 Record of Finds

The island is predominantly forested, with sloped areas located along the edges of the study area, particularly on its northern and southern sides (Image 3). Approximately 20% of the study area consists of slopes greater than 30% and was excluded from testing. 5% of the area includes the construction site and the existing cottage (Map 5). The remainder of the study area was shovel-tested at 5-meter intervals in non-sloped areas (Image 4 and Map 5). The soil primarily consists of loose yellow-brown sandy soils over a compacted reddish-yellow sand subsoil (Image 5). A small section had been clear-cut, featuring a manicured lawn (Image 6) and a disturbed area near the cottage (Images 7-8). The average depth of test pits reaching subsoil was about 17 cm, with some sections having a thin 5 cm layer of sandy topsoil over bedrock (Image 9). Sloped areas were documented with photographs but were not tested.

No artifacts or archaeological features were identified during the Stage 2 field assessment.

5.0 Recommendations

Based on the absence of artifacts or archaeological features identified during the Stage 2 archaeological assessment, the following recommendation is made:

1) No further archaeological assessment is required within the Stage 2 study area, as depicted on Maps 1 and 5.

These recommendations are subject to the conditions outlined in Section 5.0 of this report and to the Ministry of Citizenship and Multiculturalism's (MCM) review and acceptance of this report into the provincial registry. Following this review, the MCM may issue a letter stating that no further archaeological assessment is required for the study area.

This report is submitted to the MCM as a condition of licensing, in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c. 0.18. The purpose of the review is to ensure that the licensed consultant archaeologist has met the terms and conditions of their archaeological license, and that the archaeological fieldwork and report recommendations adhere to the conservation, protection, and preservation standards for Ontario's cultural heritage.

The MCM is requested to review this report and provide a letter indicating their satisfaction with the results and recommendations, in line with the 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licenses. Additionally, the MCM is asked to enter this report into the Ontario Public Register of Archaeological Reports.

6.0 Advice and Compliance with Legislation

This report is submitted to the Ministry of Citizenship and Multiculturalism, as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario.

When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ontario MCM, a letter will be issued by the Ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.

The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33, requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ontario Ministry of Consumer Services is also immediately notified.

Reports recommending further archaeological fieldwork or protection for one or more archaeological sites must include the following standard statement: “Archaeological sites recommended for further archaeological fieldwork or protection remains subject to Section 48 (1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological licence”.

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Signature Page:

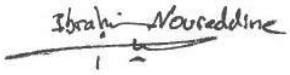
We trust that this report meets your current needs. If you have any questions, or if we may be of further assistance, please don't hesitate to contact the undersigned.

Root Treks

Archaeological Consulting

Alexander Ailles, A1085

Archaeologist



Ibrahim Noureddine, PhD

Senior Archaeologist

8.0 Images

Image 1: Northern Shore of the Study area facing east.

Image 2: Southern Shore of the Study area facing north.

Image 3: Area of slope in the central west section of the study area facing northeast.

Image 4: Western edge of the study area showing crew test pitting facing northeast.

Image 5: Representative test pit showing sandy soils.

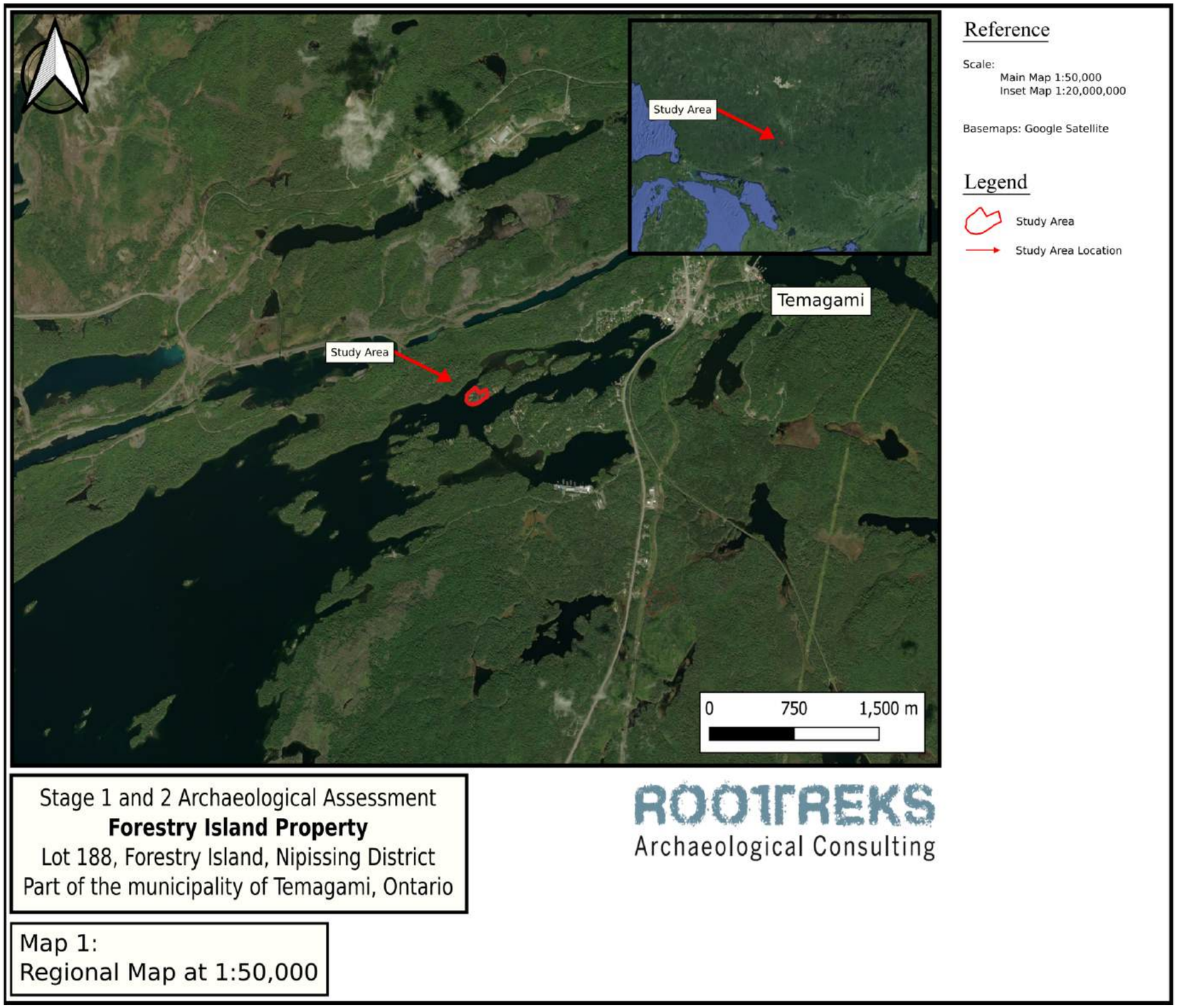
Image 6: Lawn on the western section of the study area showing crew test pitting facing west.

Image 7: Disturbed area near the cottage facing northwest.

Image 8: Cottage showing disturbed clear area facing west.

Image 9: Representative test pit of areas with thin topsoil followed by bedrock.

9.0 Maps


Study Area
Temagami
Study Area
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750
1,500 m
Reference
Scale:
Main Map 1:50,000
Inset Map 1:20,000,000
Basemaps: Google Satellite
Legend
Study Area
Study Area Location
Stage 1 and 2 Archaeological Assessment
Forestry Island Property
Lot 188, Forestry Island, Nipissing District
Part of the municipality of Temagami, Ontario
Map 1:
Regional Map at 1:50,000
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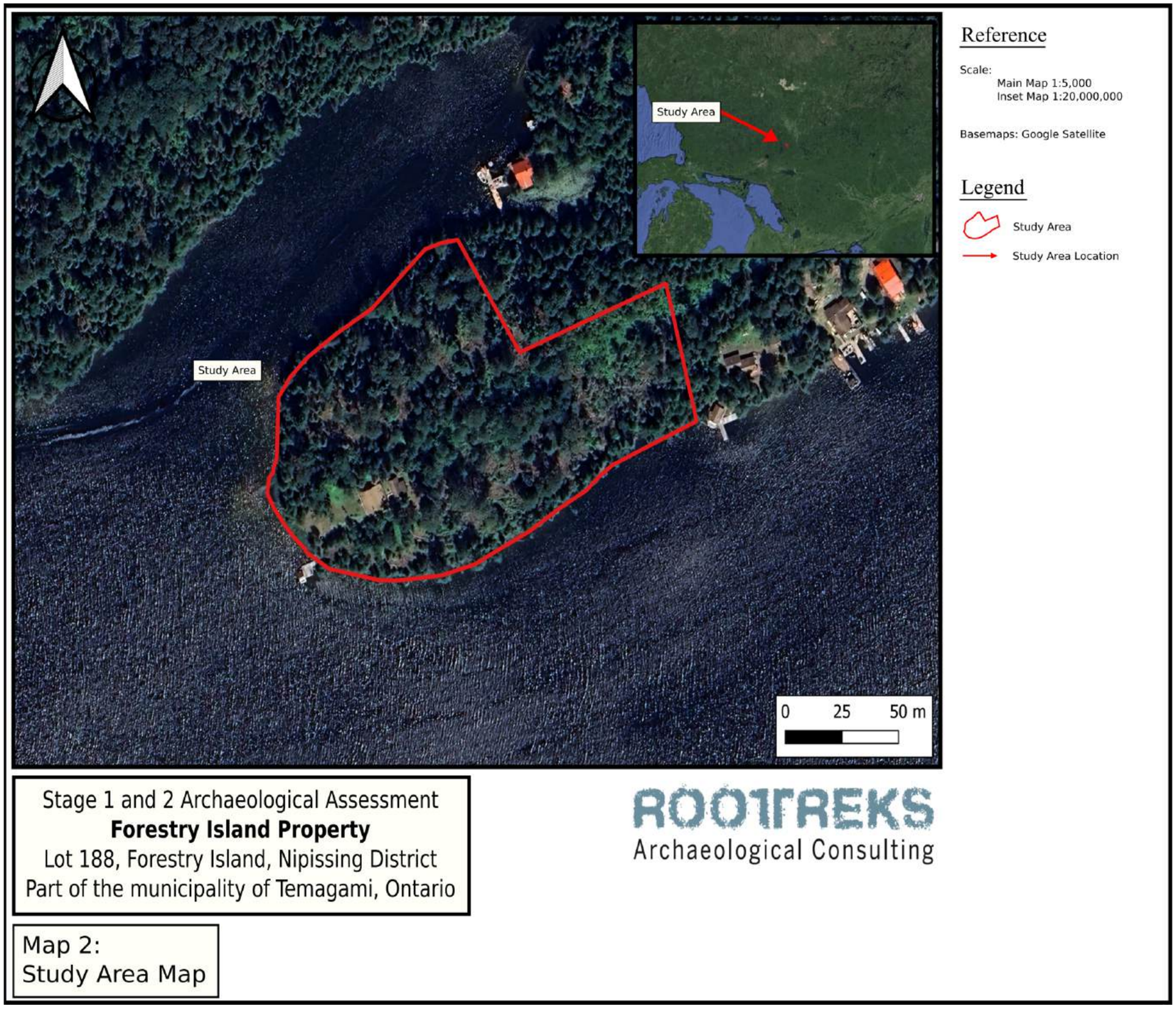

Stage 1 and 2 Archaeological Assessment
Forestry Island Property
Lot 188, Forestry Island, Nipissing District
Part of the municipality of Temagami, Ontario

Map 2:
Study Area Map

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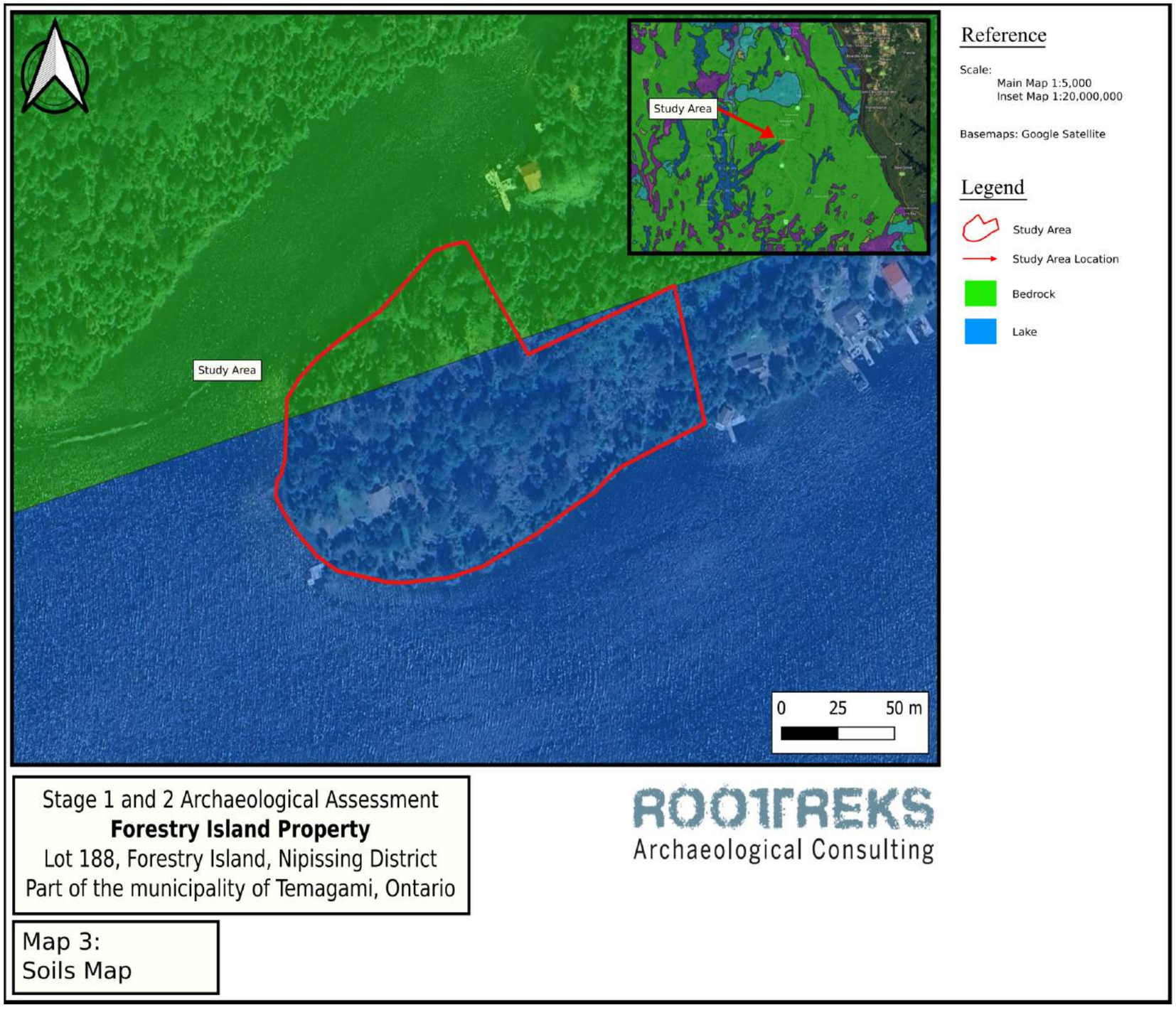

Stage 1 and 2 Archaeological Assessment
Forestry Island Property
Lot 188, Forestry Island, Nipissing District
Part of the municipality of Temagami, Ontario

Map 3:
Soils Map

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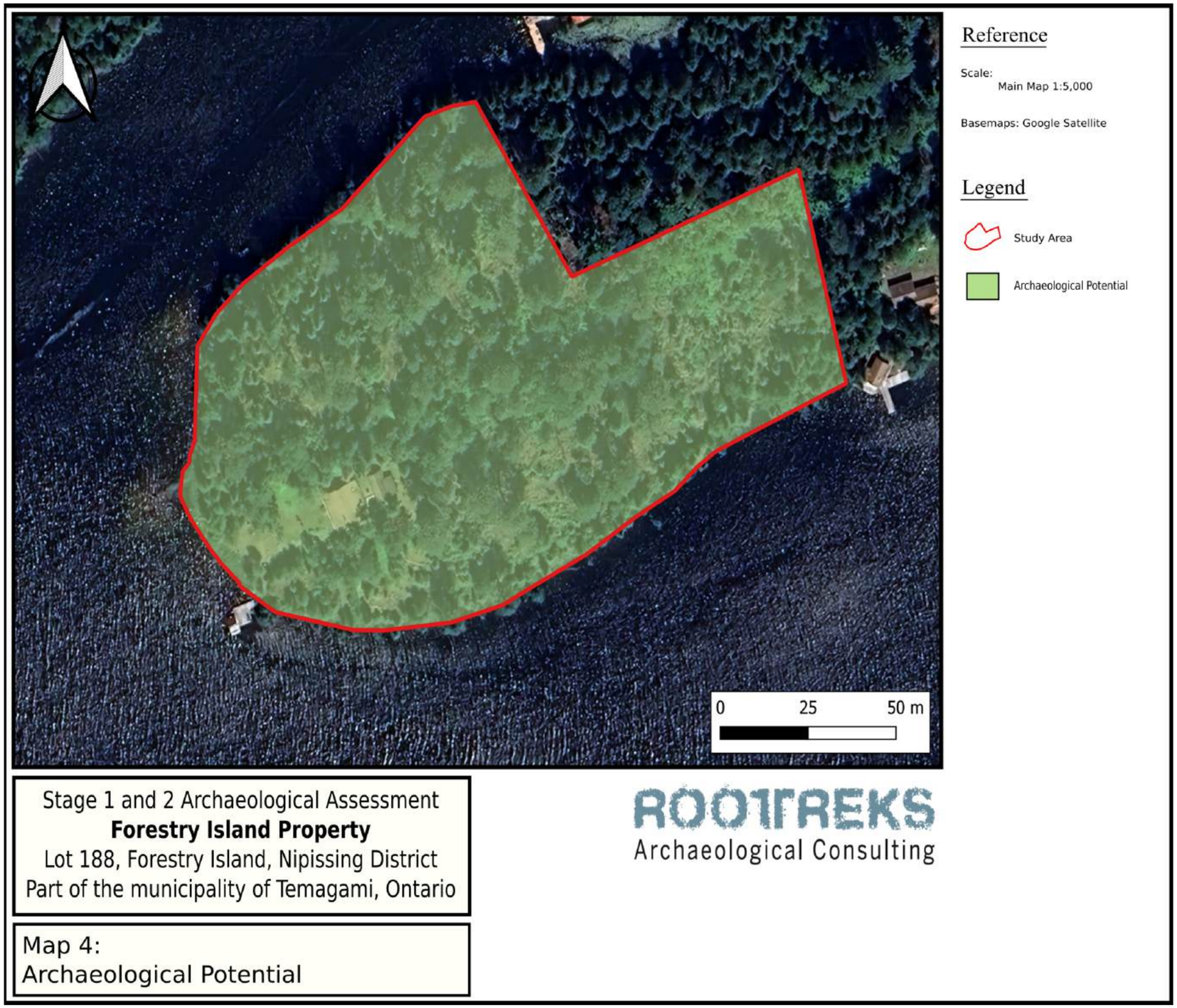
Reference
Scale:
Main Map 1:5,000
Basemaps: Google Satellite
Legend
Study Area
Archaeological Potential
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50 m
Stage 1 and 2 Archaeological Assessment
Forestry Island Property
Lot 188, Forestry Island, Nipissing District
Part of the municipality of Temagami, Ontario
Map 4:
Archaeological Potential
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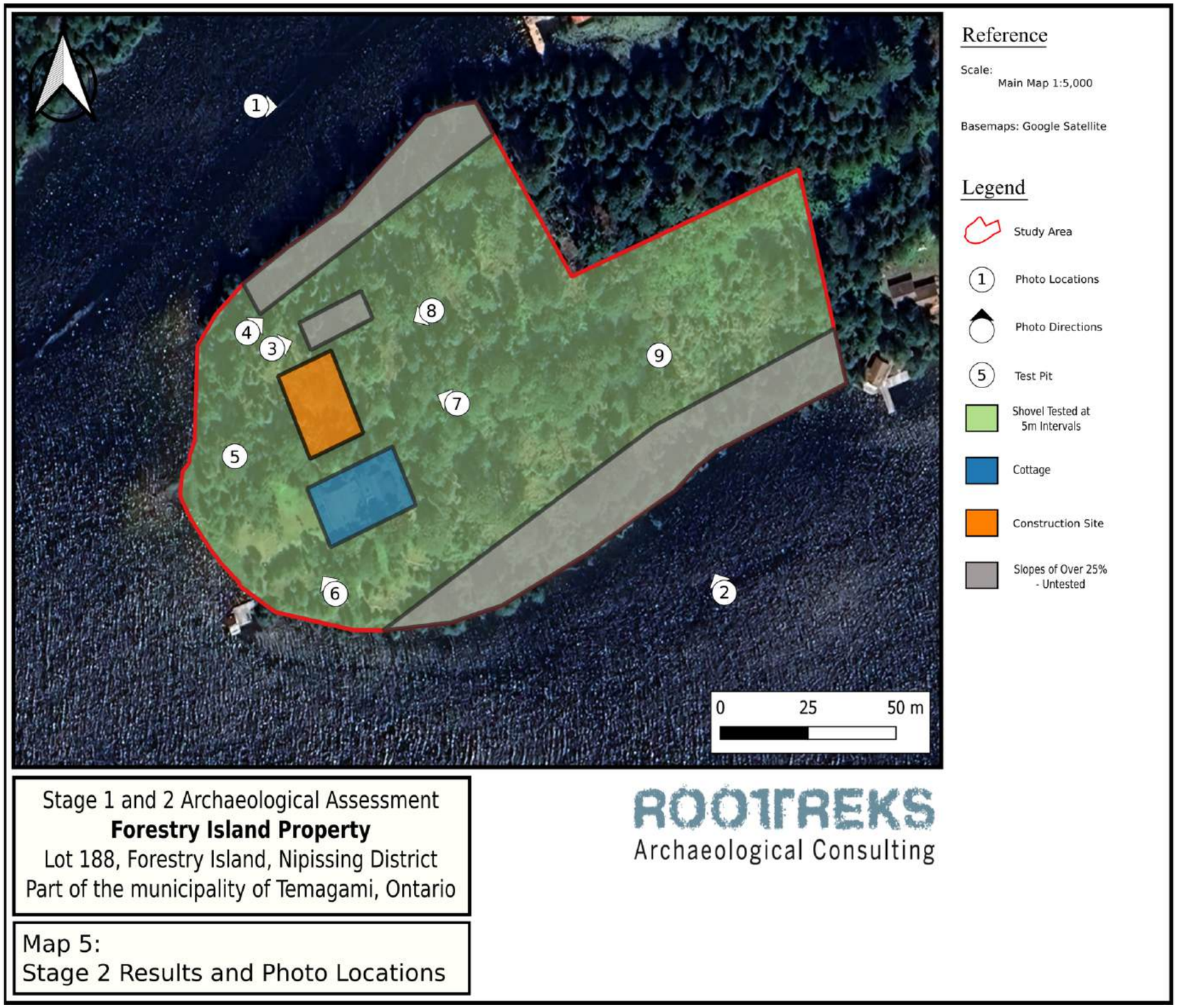
Archaeological Consulting



Stage 1 and 2 Archaeological Assessment
Forestry Island Property
Lot 188, Forestry Island, Nipissing District
Part of the municipality of Temagami, Ontario

Map 5:
Stage 2 Results and Photo Locations

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Archaeological Consulting

HYDROGEOLOGICAL ASSESSEMENT

NP-8671, Lot 188, Forestry Island

in the Municipality of Temagami, Ontario

Prepared for

Kilbourne-Murgel Cottage

Temagami, Ontario
47.05°N, -79.81°W

Prepared by:

Michael Kilbourne, P.Geo.
Effective Date January 22, 2025

Table of Contents

Figures

1.0 SUMMARY

This report, titled "Hydrogeological Assessment NP-8671, Lot 188, Strathcona or Forestry Island, in the Municipality of Temagami, Ontario (the "Report") was prepared by Michael Kilbourne, P.Geo. (the "Author"). The purpose of this Report is to review the geological environment, hydrogeological nature and physiography of Forestry Island, namely Lot 188, (the "Property") for assessment and approval of severing an existing lot NP-8671.

1.2 AUTHOR AND SITE INSPECTION

This report was prepared by Michael Kilbourne, BSc. Hons., P.Geo. of Bracebridge, Ontario.

The Author is part owner of the Property.

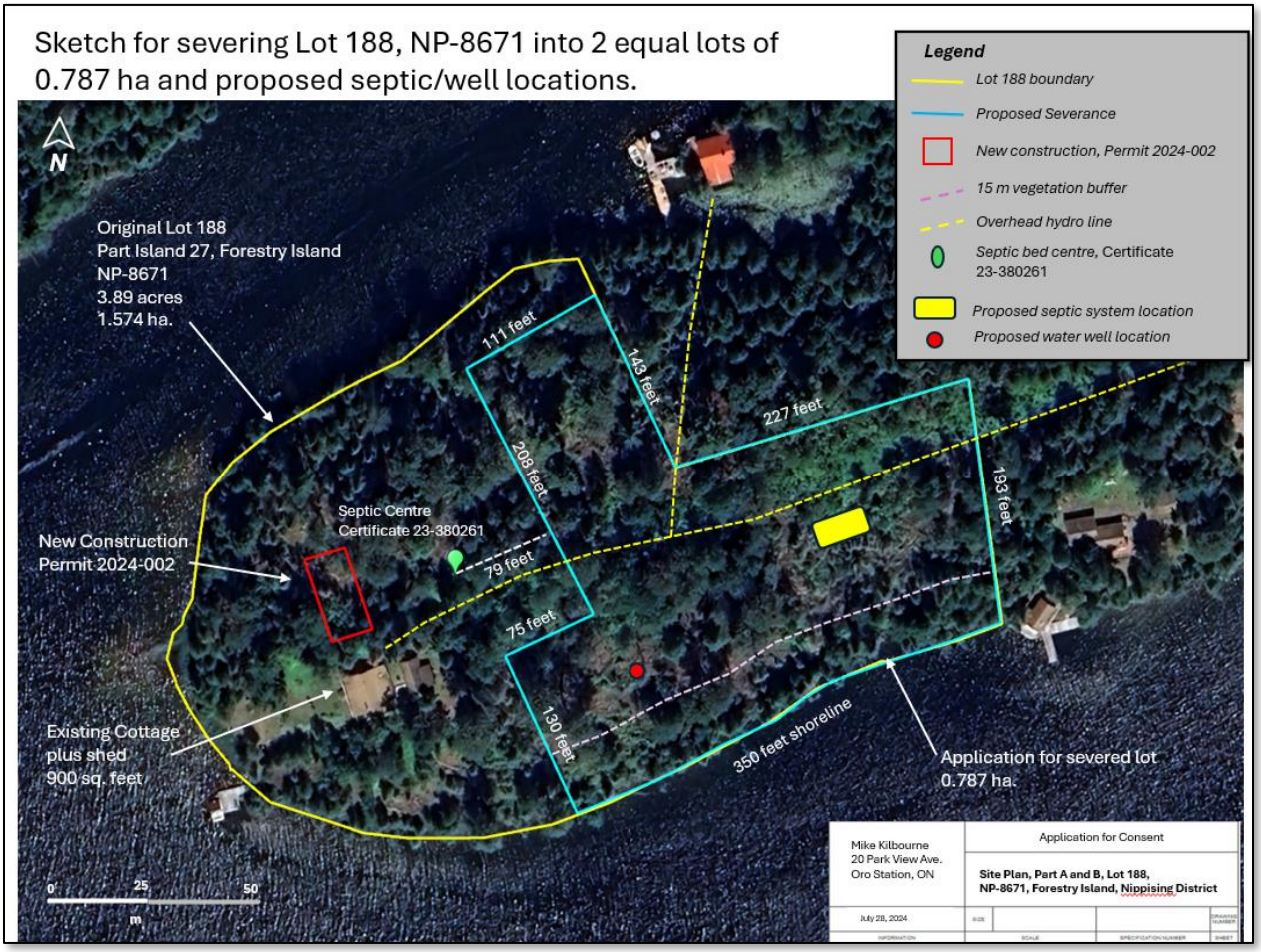
1.3 PROPERTY DESCRIPTION, LOCATION AND ACCESS

The Property is located approximately 2.1 linear km southwest of Temagami, Ontario in the District of Nipissing, Province of Ontario. The nearest settlement is the town of Temagami with a current approximate population of 900 inhabitants. The Property lies within NTS map sheets 31M/04 within Strathcona Township. The approximate geographic centre coordinates of the Property are 47.05°N, -79.81°W (UTM coordinates 590036E, 5212180N, Zone 17T, NAD83). The overall Property covers an area of 1.574 hectares with intentions of severing the Property into two lots of 0.787 hectares each.

1.4 CONCLUSIONS AND RECOMMENDATIONS

The proposed severed lot of NP-8671 has sufficient area, hydrogeological and topographical parameters to support a drilled well for potable water and septic system for any future proposed dwellings.

The following figure provides locations for the above needs.



The proposed septic system location on the above figure is located away from the current hydro line (10m), existing property boundaries (30m), the area along shore >25% slope (15m) and 30m from the shoreline.

The proposed drilled water well location is well suited away from the proposed septic system (65m), 25m from the shoreline, 10m away from the slope >25% and 30m from any property boundary. The well should supply ample water supplies for any proposed dwellings based on ground water levels in nearby wells.

2.0 PROPERTY DESCRIPTION and LOCATION

2.1 LOCATION

The Property is located approximately 2.1 linear km southwest of Temagami, Ontario in the District of Nipissing, Province of Ontario. (Figure 2.1). The nearest settlement is the town of Temagami with a current approximate population of 900 inhabitants. The Property lies within NTS map sheets 31M/04 within Strathcona Township. The approximate geographic centre coordinates of the Property are 47.05°N, -79.81°W (UTM coordinates 590036E, 5212180N, Zone 17T, NAD83). The overall Property covers an area of 1.574 hectares (Figure 2.2) with intentions of severing into two lots of 0.787 hectares each (Figure 2.3).

Figure 2.1 *Location map of the Property, Ontario.*

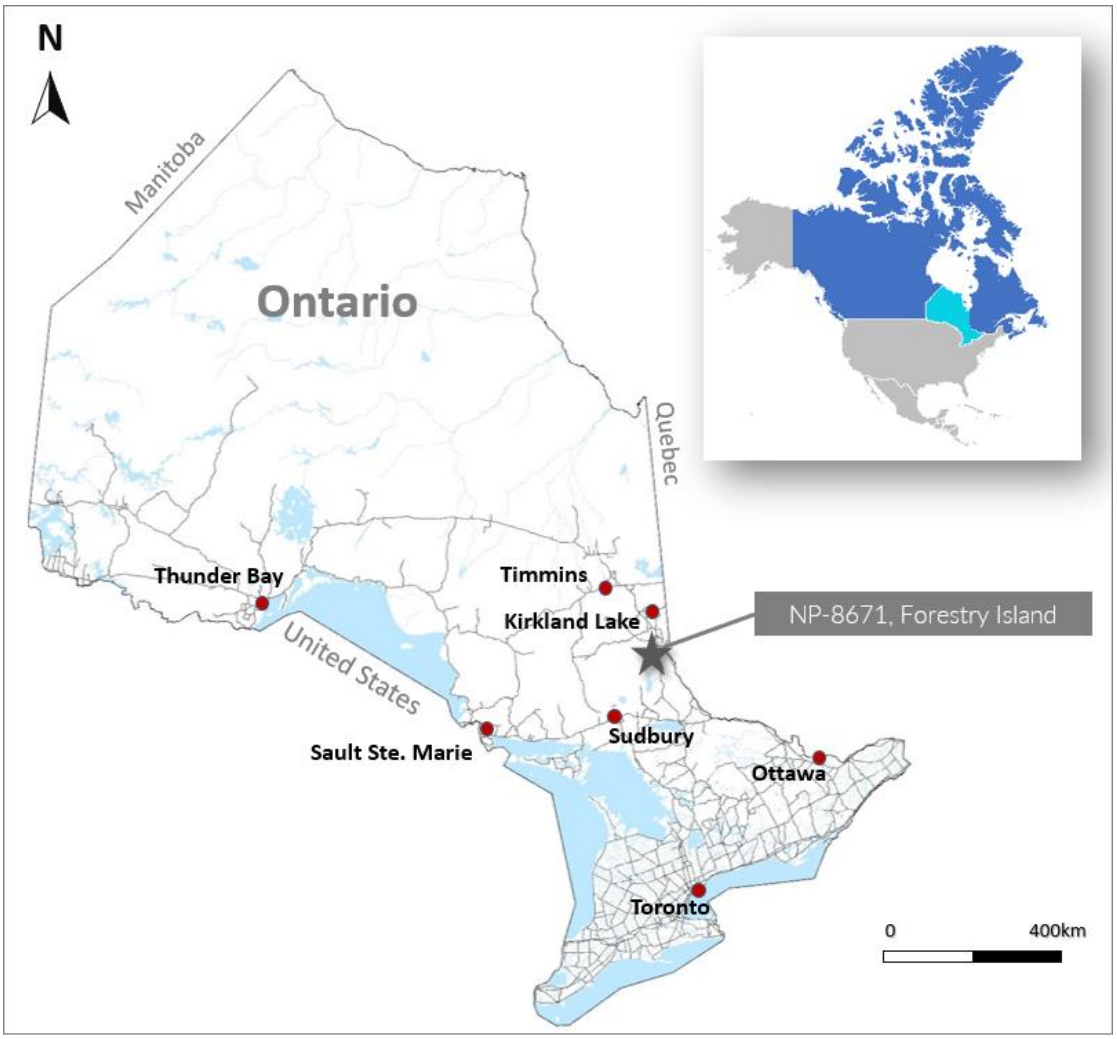


Figure 2.2 *Location map of Forestry Island, Temagami, Ontario.*

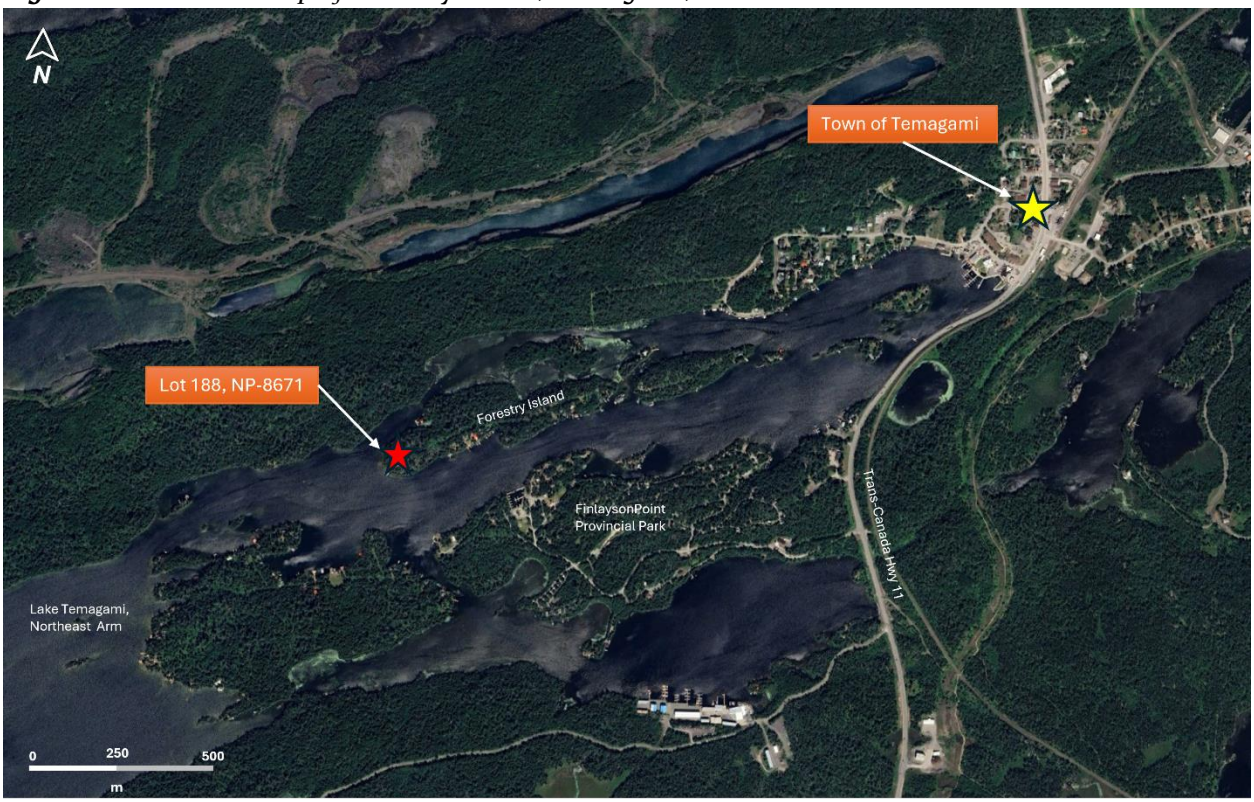
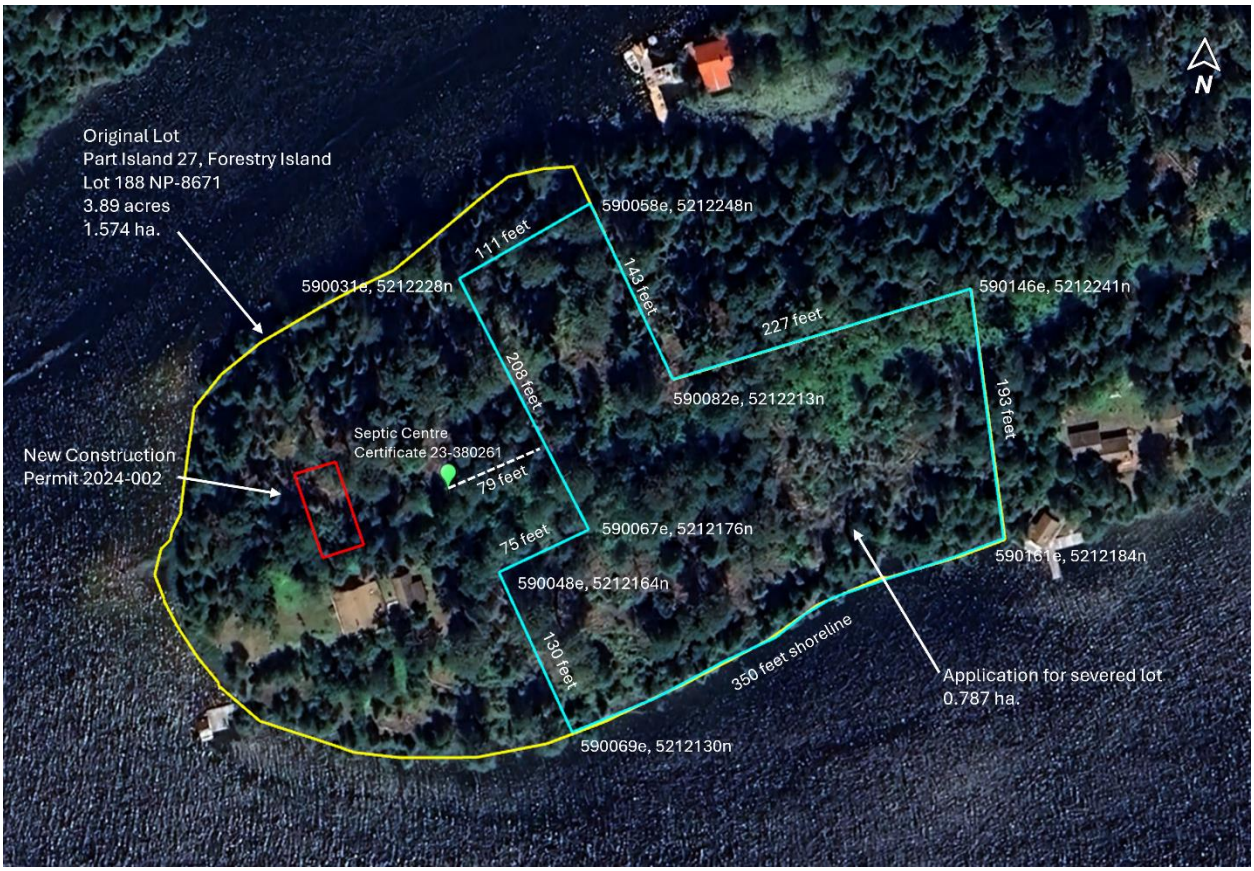


Figure 2.3 *Location map of Lot 188, NP-8671 and severance layout.*

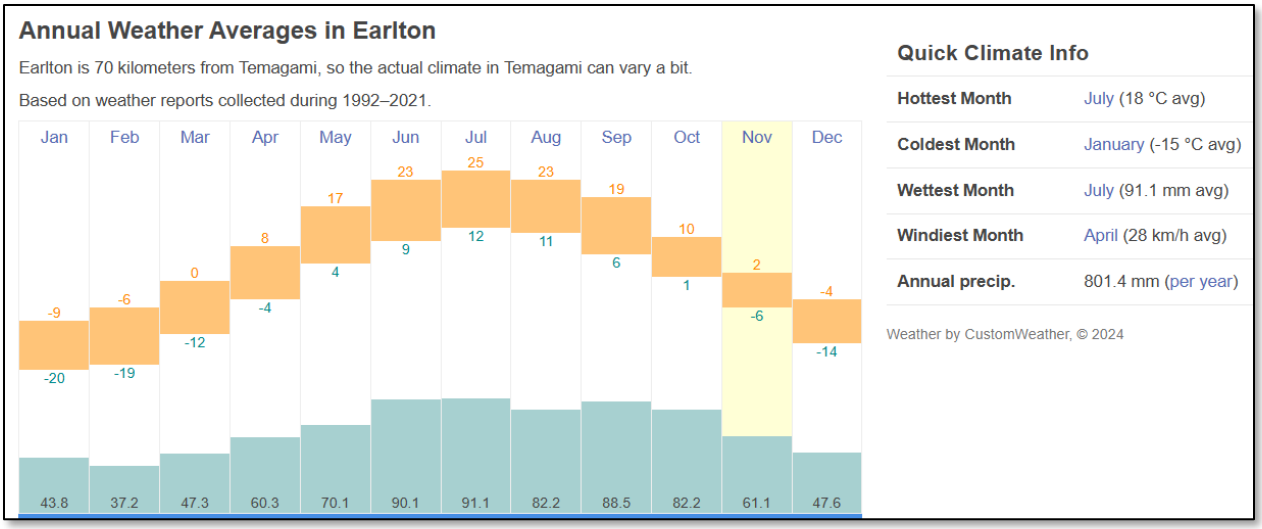


3.0 ECOLOGICAL SETTING and PHYSIOGRAPHY

3.1 ECOLOGICAL SETTING

The Property is located within the Lake Temagami Ecoregion (4E). The climate in this ecoregion is humid and cool. It has been classified by the Ecoregions Working Group (1989) as the Humid Low Boreal Ecoclimatic Region. Mean annual precipitation in the ecoregion ranges between 725 and 1,148 mm per year and the mean summer rainfall is between 217 and 291 mm. The mean annual temperature ranges from 0.8 to 4.3°C and the mean growing season length is 171 to 200 days (Ecoregions Working Group, 1989.

Figure 3.1 *Annual weather averages from 1992-2021 from Earlton, Ontario weather station.*



3.3 PHYSIOGRAPHY

The Property is within the Precambrian Canadian Shield which is a major physiographic division of Canada. The area is predominantly underlain by granitic and metamorphosed mafic volcanic bedrock. This undifferentiated rock is exposed at the surface or covered by a thin, irregular layer of drift. Glaciofluvial deposits of sand and gravel are scattered throughout with topography described as gently to moderately rolling uplands of shallow soils and bedrock knobs with interspersed sand-filled depressions.

The region is dominated by mixed forest stands typical of the forests of northeastern Ontario. Black spruce, balsam and tamarack trees occupy low-lying areas with poplar, birch and pine primarily found along drier ridges. Swampy recessive areas are characterized by cedar and tag alder. There are areas of good bedrock exposure up to 30% especially along the ridges and overall bedrock exposure is considered moderate. Overburden on Forestry

Island ranges from 0-3 m. The Property ranges in elevation from approximately 315 m to 321 m above sea level.

Most of the lakes and streams of the Temagami drain into Lake Temagami which forms part of the drainage basin of Lake Nipissing. Kanichee Lake, Net Lake and most of the lakes east of Highway 11 drain eastward into Lake Timiskaming. The relatively thin soil cover has resulted in a drainage pattern which is largely controlled by structural features in the bedrock. The tendency of the large lakes, including the Northeast Arm of Lake Temagami, to display linear and rectilinear forms indicates a similar bedrock control (Bennet, 1978).

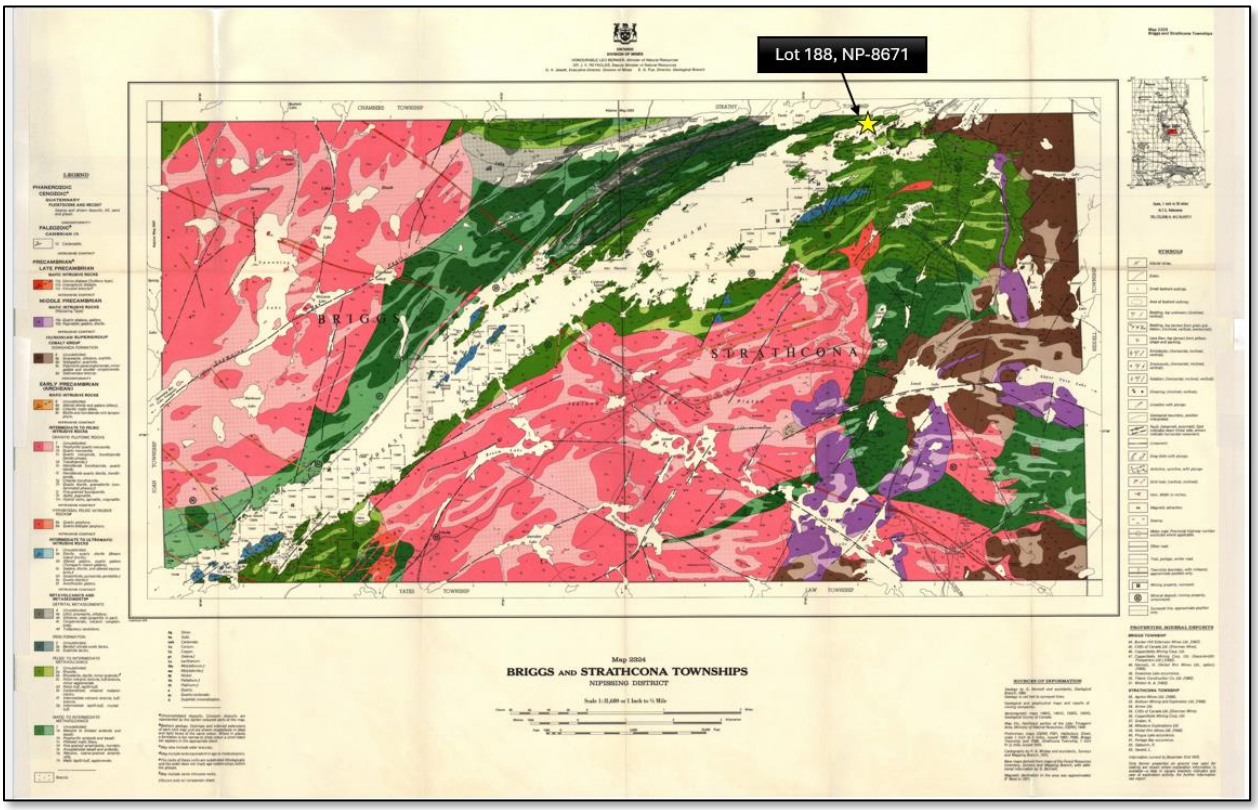
4.0 GEOLOGICAL SETTING

4.1 REGIONAL GEOLOGY

The Property is located in the Wawa-Abitibi Terrane within of the Superior Province of Canada which spans three provinces of Manitoba, Ontario and Quebec. The Superior Province is the earth's largest Archean craton that accounts for roughly a quarter of the planet's exposed Archean crust and consists of linear, fault bounded Subprovinces that are characterized by volcanic, sedimentary and plutonic rocks (William et al., 1991).

The Property is situated within the Temagami Greenstone Belt (TGB) that comprises a small portion of the Wawa-Abitibi Terrane. The main geological feature of the Northeast Temagami area is a northeast trending metavolcanic-metasedimentary belt of Early Precambrian (Archean) age of 2.7 Ga (2.7 billion years). The belt averages about 13 km across and is about 29 km long. The dominant structure is that of a northeast-trending syncline modified by emplacement of granitic plutons (Figure 4.1).

Figure 4.1. *Regional geology of the study area within the Temagami Greenstone Belt.*



Two generalized volcanic cycles beginning with mafic flows and ending with intermediate to felsic pyroclastic rocks and sedimentary rocks can be recognized in the area. A thick

sequence of Algoma-type iron formation lies just above the main felsic to intermediate pyroclastic assemblage. A variety of metagabbros, metadiorites, and felsic porphyries intruded the metavolcanics. The metamorphic grade of the Early Precambrian rocks is mainly that of the lower greenschist facies.

The surrounding granitic batholiths are mainly trondhjemite, and quartz monzonite in composition and are intrusive into the metavolcanics. The southeastern and northwestern parts of the map-area are overlain by rocks of the Gowganda Formation of the Huronian Supergroup which consist mainly of relatively undisturbed paraconglomerate and siltstone units, forming a complex interlayered

assemblage. The Gowganda Formation is intruded by dikes and sills of Nipissing Diabase. Northwest-trending diabase dikes appear to intrude the above rocks and are the youngest rocks in the map-area. Fine-grained chloritic dikes, lamprophyre, and coarse-grained altered gabbros cut the granitic rocks, but have not been found by the author to intrude the Huronian rocks (Bennet, 1978).

4.2 GEOLOGY OF FORESTRY ISLAND

The geology of Forestry Island is dominated by intermediate to mafic metavolcanic rocks. Much of the outcrop exposure displays a high degree of foliation into a carbonatized and sericitic schist with an azimuth of 080 and vertical dip (personal geological observations).

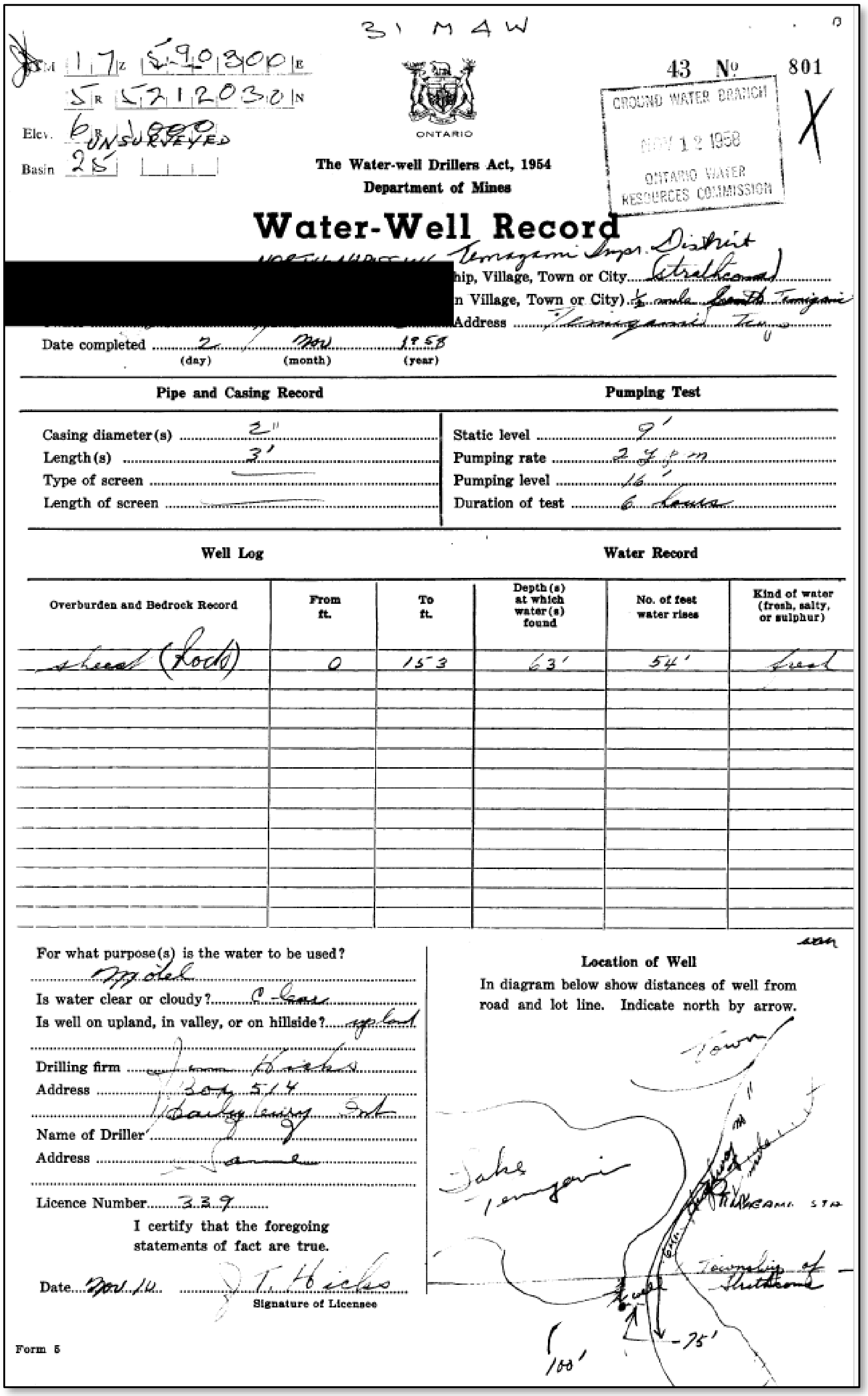
5.0 HISTORIC WELLS AND BOREHOLES

5.1 WATER WELLS

Records for two nearby water wells were found in historic records. These water wells are numbered 801 and 804. Borehole 801 is located on Forestry Island. Borehole 804 is located on Finalyson Point (Figure 5.1). These wells were drilled in 1958 and 1959 respectively. Logs for these holes are presented in Figures 5.2 and 5.3. Both wells produced fresh water at 63 and 33 feet respectively.

Figure 5.1 *Borehole locations for wells 801 and 804.*

***Figure 5.2** Borehole log for water well 801.*



31 M 4 W

M 17 Z 590800 E
5 R 5212030 N
Elev. 6 R UNSURVEYED
Basin 25

ONTARIO

The Water-well Drillers Act, 1954
Department of Mines

43 No 801

GROUND WATER BRANCH
NOV 12 1958
ONTARIO WATER RESOURCES COMMISSION

Water-Well Record

Temagami Insp. District
[redacted] hip, Village, Town or City (Strathcona)
n Village, Town or City) ½ mile South Temagami
Address Temagami Ont.

Date completed 2 (day) Nov (month) 1958 (year)

Pipe and Casing Record		Pumping Test	
Casing diameter(s)	2"	Static level	9'
Length(s)	3'	Pumping rate	2 g.p.m
Type of screen	—	Pumping level	16'
Length of screen	—	Duration of test	6 hours

Well Log / **Water Record**

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
sheet (Rock)	0	153	63'	54'	fresh

For what purpose(s) is the water to be used? Motel
Is water clear or cloudy? Clear
Is well on upland, in valley, or on hillside? upland
Drilling firm J. T. Hicks
Address Box 514 Haileybury Ont.
Name of Driller Same
Address Same
Licence Number 339

I certify that the foregoing statements of fact are true.

Date Nov. 14. J. T. Hicks
Signature of Licensee

Form 5

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.

***Figure 5.3** Borehole log for water well 804.*

Well #3 31 M 4W

UTM 17 590750 E
5211920 N

Elev. [illegible]

Basin 25

The Ontario Water Resources Commission Act, 1957

43 № 804

GROUND WATER BRANCH
JUN 3 1959
ONTARIO WATER RESOURCES COMMISSION

WATER WELL RECORD

County or District Nipissing Township, Village, Town or City Temagami Imp. District (Strathacona)

Con. I Lot 8 Date completed 8 (day) 4 (month) 1959 (year)

Owner Dept. of Lands and Forest (print in block letters) Address Box 38, Temagami, Ontario

Casing and Screen Record

Inside diameter of casing	6½ in.
Total length of casing	9 ft.
Type of screen	none
Length of screen	none
Depth to top of screen	none
Diameter of finished hole	6 in.

Pumping Test

Static level	10 ft.
Test-pumping rate	10 G.P.M.
Pumping level	25 ft.
Duration of test pumping	1½ hrs
Water clear or cloudy at end of test	clearing
Recommended pumping rate	10 G.P.M.
with pumping level of	25' ft.

Well Log / **Water Record**

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, sulphur)
Boulders gravel	0	8			
White Granite	8	33	33 F.T.	23 F.T.	Fresh
Brown Granite	33	35			

For what purpose(s) is the water to be used? Domestic

Is well on upland, in valley, or on hillside? upland

Drilling Firm J. & J. Well Drilling Contractors

Address Cedar Heights Road, R.R.#2
North Bay, Ontario

Licence Number 153

Name of Driller Jack Miller

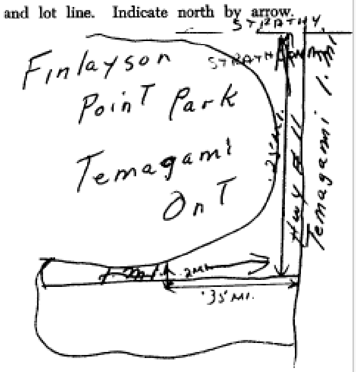
Address c/o J.J. Well Drilling

Date April 8/59

Jack Miller
(Signature of Licensed Drilling Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Form 5
15M-58-4149

5.2 BOREHOLES

There are a few diamond drill holes in the area (Figure 5.4). These holes are exploration holes for iron mineralization and were drilled between 800 and 1500 m away from the Property. Hole 1 was drilled in 1959. Hole 78-17 was drilled in 1978 and 79-11 was drilled in 1979. There is no record of the water table in these holes. They do confirm overburden depths in the area between zero and 14 feet (4 m) in depth (AMIS 31M04SW0021 and 31M04SW0016 respectively).

Figure 5.4 *Diamond drill hole location map.*

6.0 TOPOGRAPHY

The Property is generally regarded as a flat ridge through the centre of the study area. Figure 6.1 displays those areas of greater than 25% slope towards the waters of Lake Temagami. Figures 6.2 through 6.4 are images of the shoreline.

Figure 6.1 *Topography of Property with slopes >25%.*

Figure 6.2 *North shore of Property facing east.*

Figure 6.3 *South shore of Property facing north.*

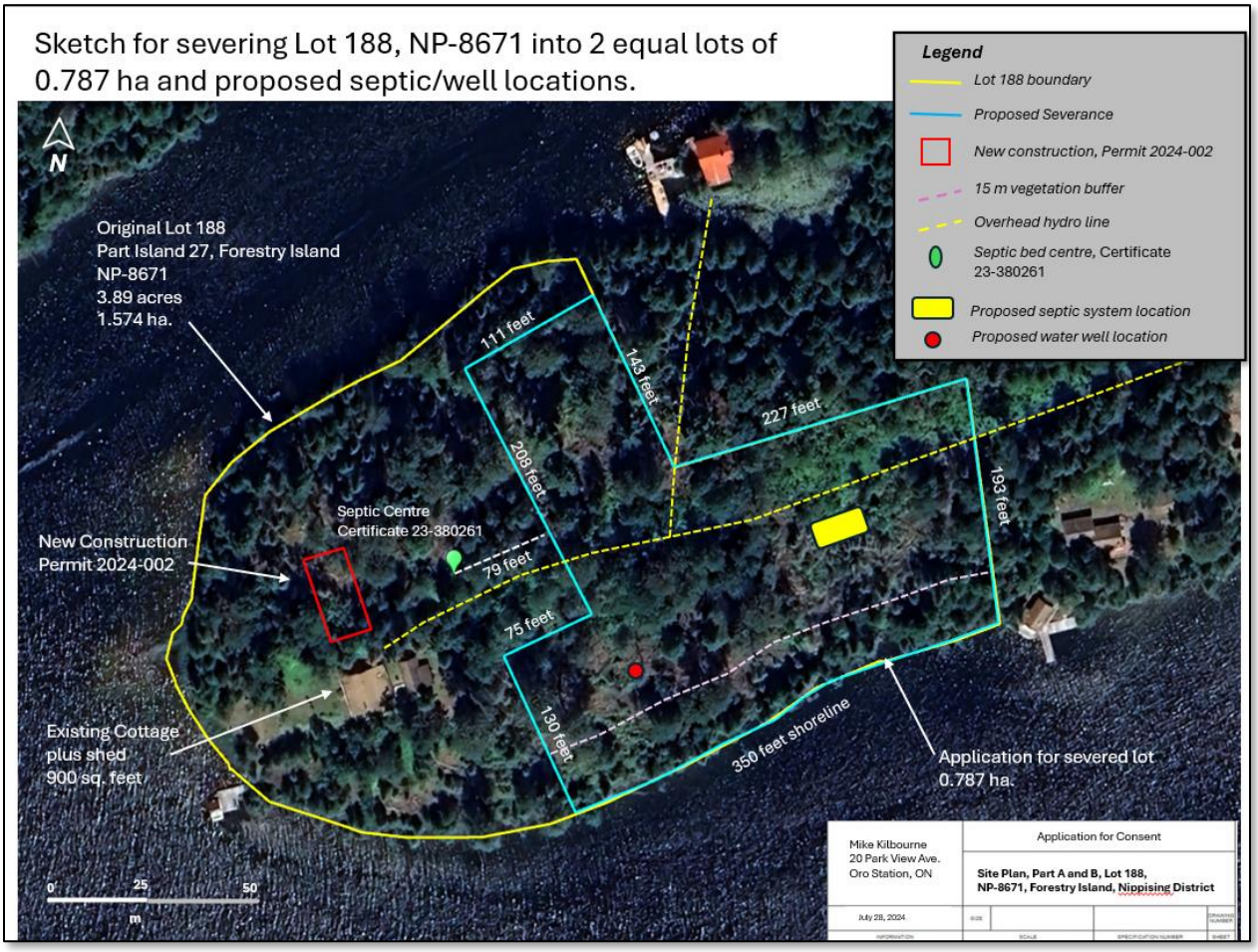
Figure 6.4 *Area of slope in central west section of Property facing northeast.*

7.0 CONCLUSIONS AND RECOMMENDATIONS

The proposed severed lot of NP-8671 has sufficient area, hydrogeological and topographical parameters to support a drilled well for potable water and septic system for any future proposed dwellings.

The following figure provides locations for the above needs.

Figure 7.1 *Proposed septic system locations and drilled water wells for severed lot.*



The proposed septic system location on the above figure is located away from the current hydro line (10m), existing property boundaries (25m), the area along shore >25% slope (15m) and 30m from the shoreline.

The proposed drilled water well location is well suited away from the proposed septic system (65m), 25m from the shoreline, 10m away from the slope >25% and 30m from any property boundary. The well should supply ample water supplies for any proposed dwellings based on ground water levels in nearby wells.

8.0 REFERENCES

Bennett, G., 1978. Geology of the Northeast Temagami Area, District of Nipissing, Ontario Geological Survey, Report 163, 159 p.

Williams, H.R., Stott, G.M., Heather, K.B., Muir, T.L., and Sage, R.P. 1991. Wawa subprovince. In Geology of Ontario. Edited by P.C. Thurston, H.R. Williams, R.H. Sutcliffe, and G.M. Stott. Ontario Geological Survey, Special Volume 4, Part 1, pp. 485–539

9.0 CERTIFICATE

CERTIFICATE OF QUALIFIED PERSON

MICHAEL KILBOURNE, P.GEO.

I, Michael Kilbourne, P.Geo., of 15 Spencer St., PVT, Bracebridge, Ontario, P1L 0B7, do hereby certify that:

1) I am an independent consulting geologist.

2) This certificate applies to the report titled "Hydrogeological Assessment, NP-8671, Lot 188, Forestry Island in the Municipality of Temagami, Ontario" with an effective date January 22, 2025.

3) I graduated with a degree of Bachelor of Science Honours, Geology from the University of Western Ontario in 1985.

4) I am a Professional Geoscientist (P.Geo.) registered with the Professional Geoscientists of Ontario (PGO No. 1591) am registered with the Odres des Geologues du Quebec (OGQ, No. 1971) am registered with Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG No. L4959) am registered with the Professional Engineers and Geoscientists of Newfoundland Labrador (PEGNL P.Geo. No. 11098 and Permit No. N1316) and am a member of the Prospectors and Developers Association of Canada

5) I have over 40 years of experience in the exploration and mining industry with various junior exploration and mining companies throughout North America. I have supervised and managed over 150,000 meters of diamond drilling. I was a production geologist at the Pamour Gold Mine in Timmins from 1991 to 1996 gaining invaluable experience in underground narrow vein, underground bulk and open pit gold mining. I have managed and been involved in various geological exploration programs for precious metals, base metals, rare-element mineralization and aggregate mining throughout North America since 1980. I have held former executive positions with publicly traded junior resource companies.

6) As of the effective date of the Report, to the best of my knowledge, information and belief, the Report contains all scientific and technical information that is required to be disclosed to make the Report not misleading.

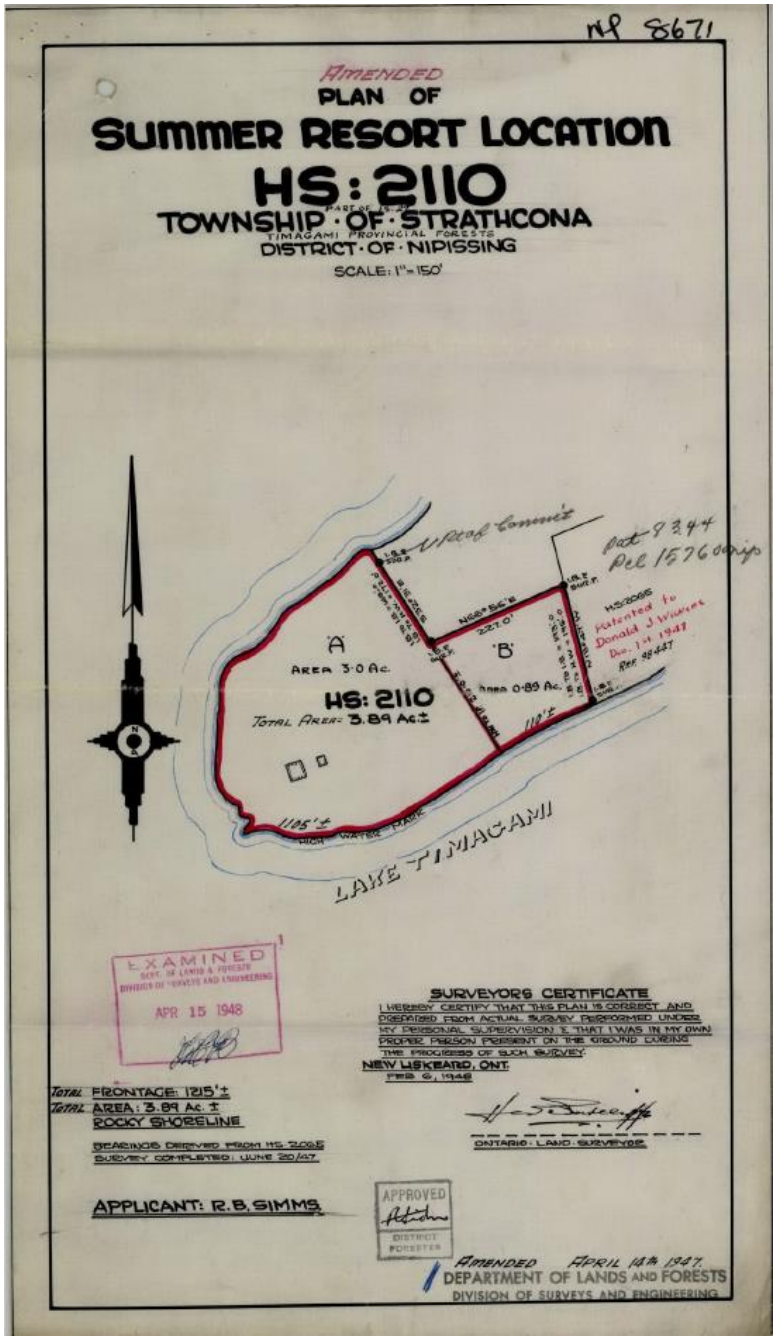
Dated at Bracebridge, Ontario this 22nd day of January 2025.

{SIGNED}

[Michael Kilbourne]

_____

Michael Kilbourne, P.Geo. (PGO #1591)



Original Layout

NP-8671

1948

GIS Referenced NP-8671 (NAD83 UTM Zone 17T and Lat. Long. pin locations)

Sketch for severing NP-8671 into 2 equal lots of 0.787 ha.

Environmental Impact Study

NP-8671, Lot 188, Strathcona or Forestry Island, in the Municipality of Temagami, Ontario

Prepared For

Kilbourne Murgel Cottage

September 21st, 2024

BAE
Environmental
Oro-Medonte, ON L0L 2E0
Phone (705) 715-1881
envsol@rogers.com

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TABLE OF CONTENTS

1.0 Introduction

BAE Environmental was retained to complete an Environmental Impact Study (EIS) to assess the presence of and potential impacts to the natural heritage features and functions to support a proposed severance application for NP-8671, Lot 188, Strathcona or Forestry Island, in the Municipality of Temagami, Ontario (Site). Field work, reporting, and recommendations were completed to meet the requirements under the Provincial Policy Statement (PPS) (2020), sections 7.1, 7.3, Municipality of Temagami Official Plan (2013), Fisheries Act (1985), Fish and Wildlife Conservation Act (1997), Endangered Species Act (ESA) (2007), Migratory Birds Convention Act (1994) and other relevant legislation and policies. The Site location is shown on Figure 1.

1.1 Background Information

The property is currently zoned Remote Residential (R2). Two 0.787ha lots are proposed to be severed from the one 1.574ha lot described as NP-8671, Lot 188, Strathcona or Forestry Island, in the Municipality of Temagami (Figure 2).

The property is bounded by Lake Temagami to the south, west and north. A seasonal cottage property is adjacent to the northeast and a seasonal cottage property is adjacent to the east. There is one existing seasonal cottage located on the west-central portion of the subject property. There is also a newer cottage under development (Permit 2024-002) just north of the existing seasonal cottage.

1.2 Field Investigations

Field investigations were carried out on October 14, 2023, February 17, May 29-30 and July 28-31, 2024. The weather was generally warm and sunny to partly cloudy and there was no precipitation during any of the site visits.

The following natural heritage features and associated ecological functions on or within 120 meters of the property boundary were evaluated and potential impacts assessed:

a) Habitat of endangered and threatened species
b) Significant wetlands
c) Significant wildlife habitat
d) Significant areas of natural and scientific interest (ANSIs),
e) Fish habitat

Figure 1: Site Location

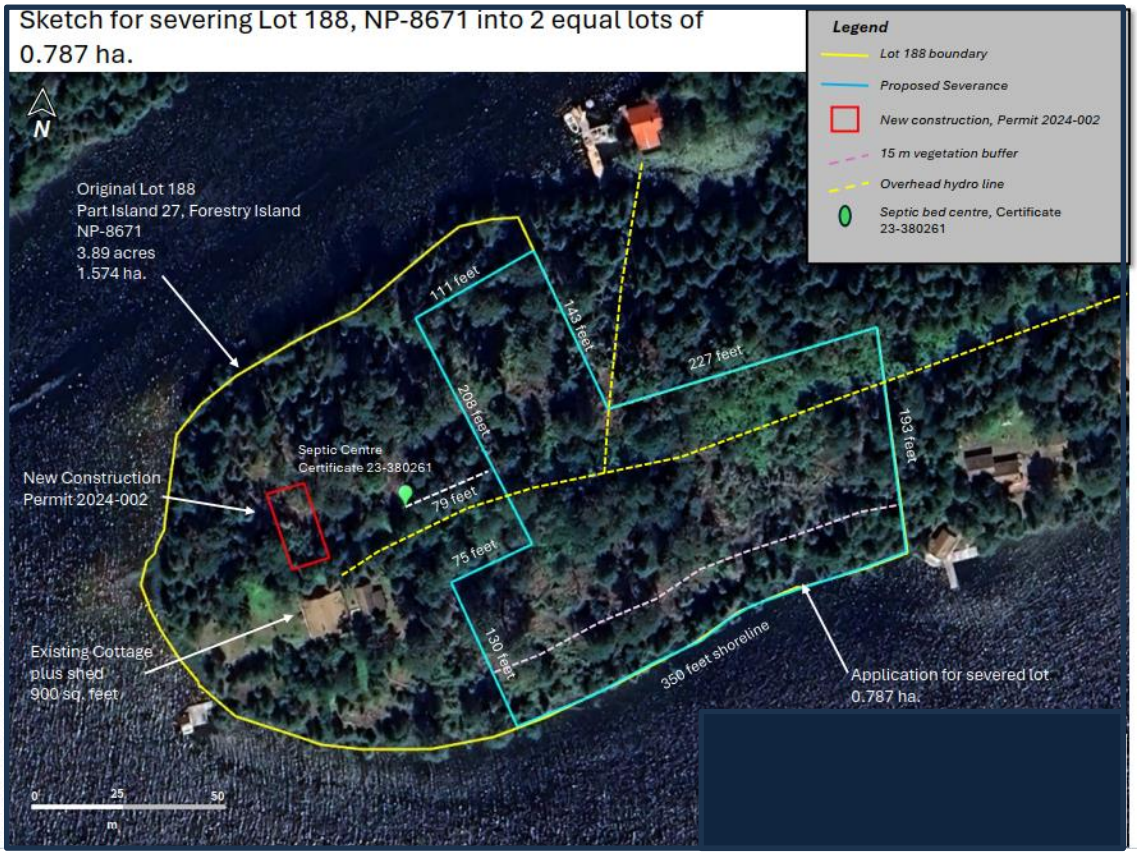


Figure 2: Sketch for severing Lot 188, NP-8671 into 2 equal lots of 0.787 ha.

2.0 Ecological Setting

The study area is located within the Lake Temagami Ecoregion (4E). The climate in this ecoregion is humid and cool. It has been classified by the Ecoregions Working Group (1989) as the Humid Low Boreal Ecoclimatic Region. Mean annual precipitation in the ecoregion ranges between 725 and 1,148 mm per year and the mean summer rainfall is between 217 and 291 mm. The mean annual temperature ranges from 0.8 to 4.3°C and the mean growing season length is 171 to 200 days (Ecoregions Working Group, 1989.

This ecoregion is situated on the Precambrian Shield and is predominantly underlain by granitic and gneissic bedrock. This undifferentiated rock is exposed at the surface or covered by a thin, irregular layer of drift. Glaciofluvial deposits of sand and gravel are scattered throughout with topography described as gently to moderately rolling uplands of shallow soils and bedrock knobs with interspersed sand-filled depressions. Site specific ecosites represented on the subject property and adjacent lands were identified during field investigations; each described below.

2.1 Ecological Land Classification

Ecological land classification is determined by assessing the soil and vegetation characteristics of a site and deducing its local ecosite. To assist in the assessment for presence of potential natural heritage features, including habitat for species at risk and significant wildlife habitat, the ecosites on the property were determined during field investigations.

Through field investigations and mapping, two natural ecosites were found to be present on the subject property, one forested the other an open water component - connection to Lake Temagami. The natural ecosites are detailed with representative photos in sections below.

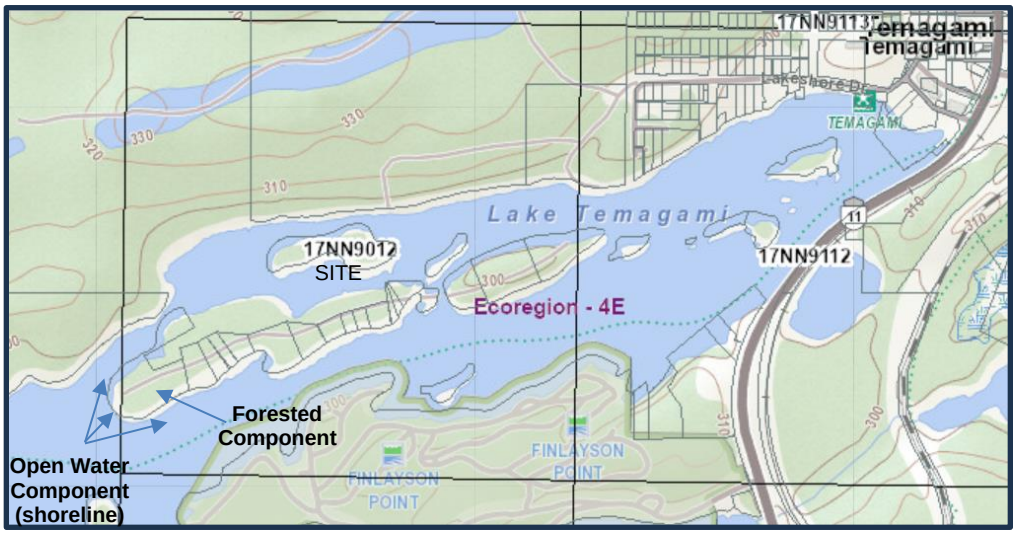
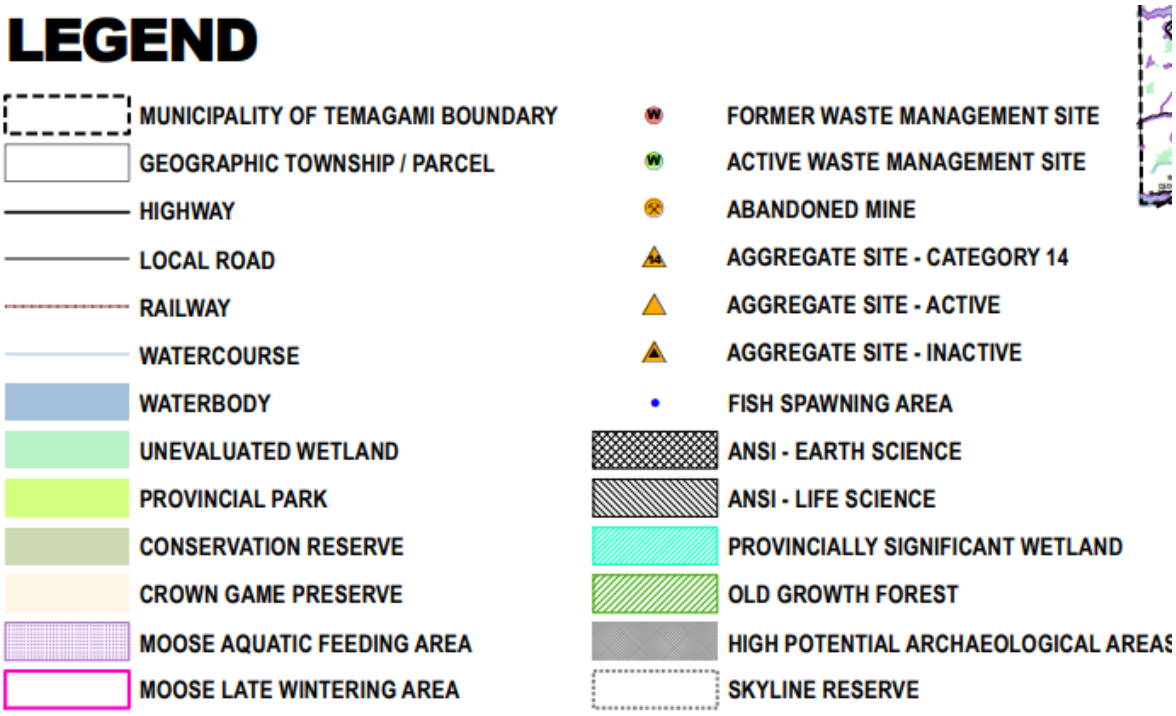


Figure 3: Ecological Land Classification

Figure 4: Map Showing ANSI



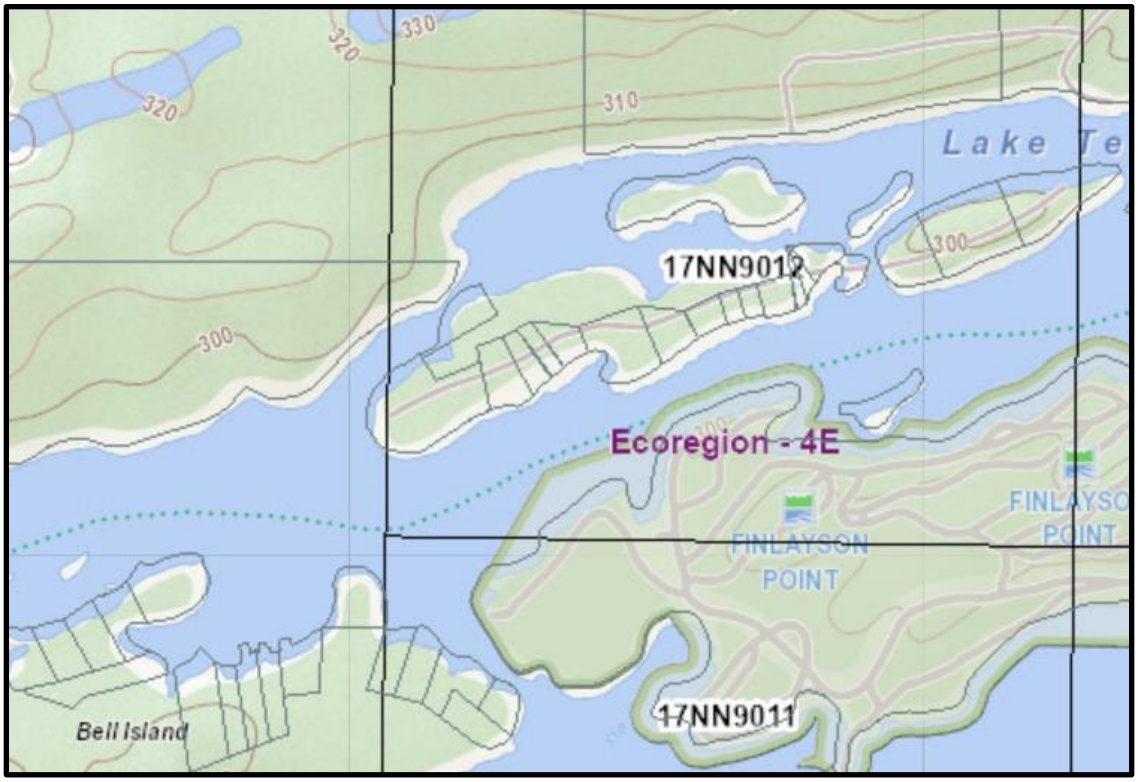


Figure 5: Ministry of Natural Resources and Forestry – Natural Heritage Areas

Forested Component

Coniferous - Very Shallow, Dry to Fresh: Pine, Fir, Birch, Cedar, Aspen

This area is found in elevated area of the Site. The mineral soils are shallow, fine sand with large rock fragments and boulders at the surface (Photo 2). The dominant tree species are white birch (Betula papyrifera), balsam fir (Abies balsamea), white cedar (Thuja occidentalis) and aspen (Populus spp.) in the canopy. Understory tree species include and herbaceous vegetation includes large leaf aster (Eurybia macrophylia), fly honeysuckle (Lonicera Canadensis), quaking aspen (Populus tremuloides) and cladoniaceae (Cladoniaceae).

No plant species that are regulated under the Ontario Endangered Species Act or the Canada Species at Risk Act were encountered during the botanical investigation. A review of the MNRF Natural Heritage Information Centre (2021) indicates that there are no historic records of plant species at risk within the area of the property.

Photo 1: Forested Area of Site

Photo 2: Representative photo of bedrock and pincushion moss at substrate surface

Photo 3: Representative photo of fragmented bedrock at substrate surface

Photo 4: Representative photo of balsam fir stand and deadfall

Photo 5: Representative photo of white cedar

Photo 6: Representative photo of large leaf aster

Open Water Component (shoreline)

These ecosites are found along the north, west and south shorelines of the property and associated with areas of open water (Lake Temagami). The open water ecosite contains white meadowsweet (Spiraea alba), reed canary grass (Phalaris arundinacea), sweetgale (Myrica gale), yellow pond lily (Nuphar variegatum). The riparian areas transition to white cedar (Thuja occidentalis) quaking aspen (Populus tremuloides), pincushion moss (Leucobryum) and cladoniaceae (Cladoniaceae).

No plant species that are regulated under the Ontario Endangered Species Act or the Canada Species at Risk Act were encountered during LGL's botanical investigation. A review of the MNRF Natural Heritage Information Centre (2021) indicates that there are no historic records of plant species at risk within the area of the property.

Photo 7: South shoreline

Photo 8: West shoreline

Photo 9: North shoreline

Photo 10: Northwest shoreline

Photo 11: Forested shoreline

Photo 12: Representative photo of Reed canary grass

Photo 13: Representative photo of white meadowsweet

Photo 14: Representative photo of sweetgale

Photo 15: Representative photo of pincushion moss

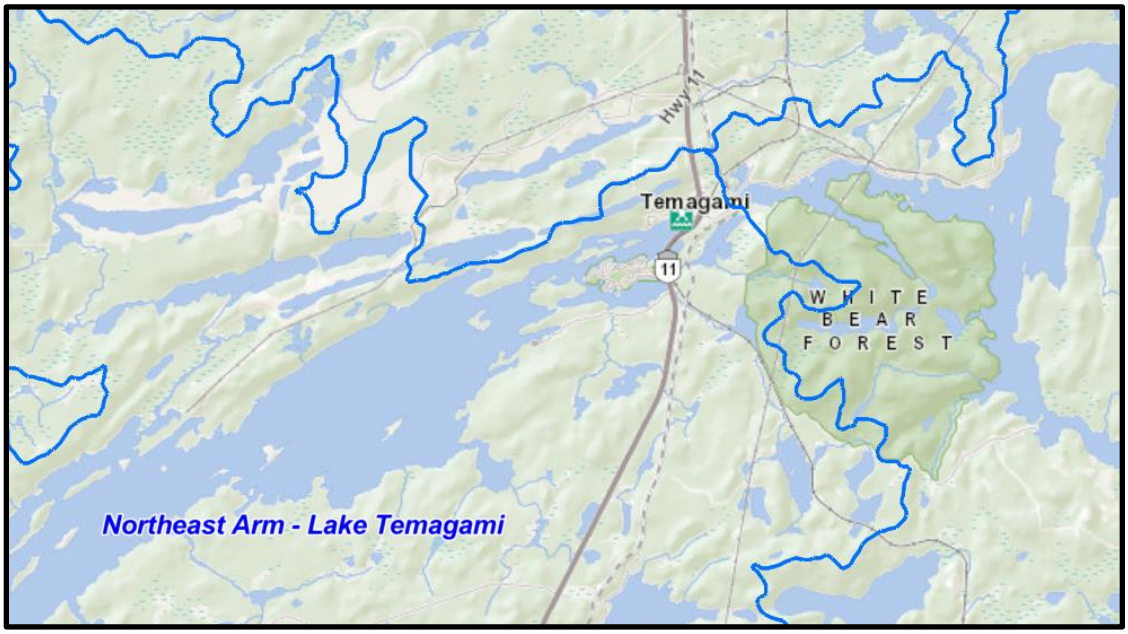


Figure 6: Temagami Subwatersheds

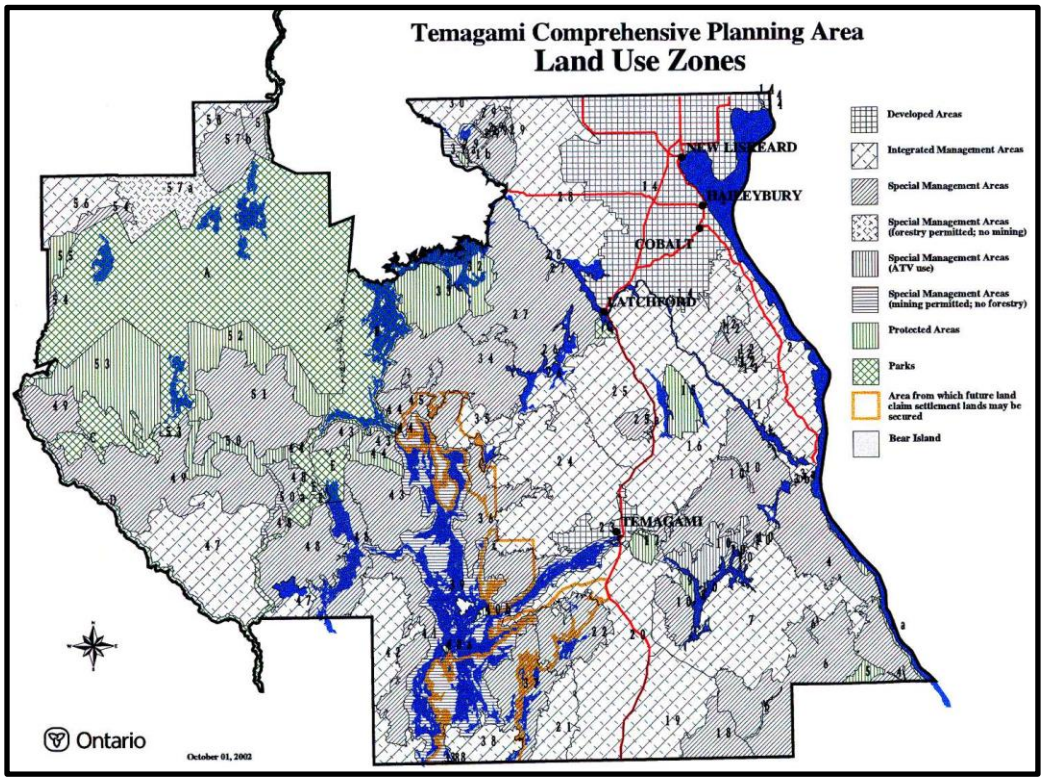


Figure 7: Temagami Land Use Zones

3.0 Habitat of Endangered and Threatened Species

A desktop review of the available information was conducted in advance of field investigations. An initial list of species for consideration was generated from several sources (Natural Heritage Areas mapping, SAR Ontario species list, eBird.org, etc.) and was subsequently scoped following initial habitat (ecosite) investigations to species with potential habitat on or presence of individuals using the subject lands. The following species were considered in greater detail: Blanding's turtle and SAR Bats (Little Brown Myotis and Tricolor Bat).

3.1 Blanding's Turtle (Emydoidea blandingii)

The Blanding's turtle is a mostly aquatic turtle found in a variety of habitats, including lakes, ponds, marshes, ditches, creeks, rivers, and bogs. Within these habitats, the species generally prefers shallow water, organic substrates and dense submergent and/or emergent vegetation. Basking sites are a critical component of suitable habitat. These are characteristically floating vegetation mats, hummocks, partially submerged logs, rocks, bog mats, or suitable shoreline areas with access to full sunlight. Blanding's turtles hibernate from October through April, usually in permanent bodies of water, often

the same wetlands they utilize during the active season. Recent studies confirm seasonally isolated wet areas, ditches for example, are used for hibernacula in some years.

Blanding's turtles will travel up to 6 km or more to nesting sites that are usually within 250 m from the shore of some waterbody. Nesting activities generally occur at the end of June through the beginning of July. Nest sites are chosen in areas that offer suitable substrate for digging (e.g. loose soil), well-drained, open locations which increases the incubation temperatures because of sunlight exposure. This in turn increases nest success. Upland areas adjacent wetlands can be used for nesting, basking and travel between summer activity areas.

A review of background information did not confirm any known Blanding's turtle occurrences within 2km of the Site. Surveys for basking turtles were conducted from the shoreline and nearshore areas. The open water wetland habitat provides suitable active season habitat (basking, foraging) however unlikely to offer suitable overwintering habitat. The ecosites on either side of the wetland transition immediately to upland forest with a shaded, well-vegetated understory and shallow substrates. There were no open, sandy areas or south facing rock barrens that would be suitable for turtle nesting.

The current habitat functions that the subject property provides for Blanding's turtles are limited. However, to maintain these noted habitat functions, it is recommended that no development or site alteration occur in the shoreline ecosite and a naturally vegetated buffer and development setback of 30m is retained from the edge of the open water ecosite. For the proposed severance where the north, west and south shoreline is fronting on Lake Temagami, it is recommended that all proposed structures (such as a dwelling) are located outside of the retained 30m naturally vegetated setback area.

3.2 SAR Bats

Little Brown Myotis and the Tri-colored Bat are listed as endangered species at risk in Ontario. They are experiencing significant population declines because of a disease called White Nose Syndrome. During the active season, bats feed on insects at night and roost during the day. They roost either individually (males) or in groups (females with pups), usually in warm, elevated spaces. Bats often choose human-created roosts such as attics and abandoned buildings as they offer optimum habitat for summer roosts, usually close to water and open areas for foraging. Natural roosts include large hollow trees and spaces behind loose bark. Both SAR bat species show distinct seasonal behavioural shifts, hibernating reliably in caves and abandoned mines each year from October through April where temperatures remain above freezing and humidity levels are high.

Little Brown Myotis (Myotis lucifugus)

Little brown myotis often use caves, quarries, tunnels, hollow trees or buildings for roosting. Maternity colonies of Little Brown Myotis are most frequently found in warm dark areas, like barns, attics, and old buildings and overwinters in caves and mine adits (horizontal mine shafts) in Ontario. These bats mainly forage over open areas including wetlands and near forest edges where insect densities are greatest.

Tri-colored Bat (Perimyotis subflavus)

During the active season, Tri-colored Bats can be found throughout older forested habitats. The species is known to form day roosts and maternity colonies in forests but may also be found roosting in barns or other anthropogenic structures. They forage for flying insects over water and along streams in the forest. Nearing the end of the summer, Tri-colored Bats will travel to their overwintering site, often situated underground or near a cave, where they swarm. This species typically overwinters in caves where they roost by themselves rather than as part of a group.

Ministry of Northern Development and Mines (MNDM) (now ENDM) mapping of abandoned mines was queried; there are no appropriate mines or other similar features within 10 km of the property.

Individual day roosts for bats are impossible to rule out completely for the Site. Bats depart for hibernation habitat in late September and overwinter from October to April.

To avoid impacts to individual bats, any initial site preparation including tree clearing should occur outside the bat active season. If tree removal takes place from October 1 to March 31 of any given year, no impacts to bats are expected as a result of the proposed development.

4.0 Significant Wetlands

There are no provincially-evaluated or significant wetlands found on the property or within 120m. The Municipality of Temagami's Official Plan considers adjacent lands to provincially significant wetlands to be within 120m.

5.0 Significant Wildlife Habitat

Significant wildlife habitat was considered throughout field investigations, including seasonal concentration areas, rare vegetation communities and specialized habitat for wildlife, habitat of species of conservation concern and animal movement corridors. The Significant Wildlife Habitat Technical Guide (SWHTG) (MNR 2000), the Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (SWHECS) (MNRF 2015) and the

process outlined in the Ministry of Natural Resources Natural Heritage Reference Manual (2010) (NHRM) were used to guide field investigations related to significant wildlife habitat.
To date, final criteria schedules have been produced for eco-regions 3E, 5E, 6E and 7E. Schedule 4E represents the final criteria schedule to be drafted for the Northeast Region. This schedule follows the criteria within the SWHTG as well as similar development and formatting to those schedules which have been previously finalized.
According to the SWH Ecoregion 5E Criterion Schedule, there are several different types of significant wildlife habitat that were considered; only those that were present or had the potential to be present are described further.

5.1 Seasonal Concentration Areas

Seasonal concentration areas are defined by the SWHTG as areas where species of wildlife are concentrated at certain times of the year. Bat maternity colonies (discussed in Section 3.2 of this report) and turtle wintering areas were considered in greater detail based on the presence of suitable ecosites and associated habitat.

The proposed minimum 30-meter setback from the open water component area will serve to protect the feature and its potential function as a hibernacula habitat for turtles. No further mitigation is required.

5.2 Rare Vegetation Communities or Specialized Habitat for Wildlife

Rare vegetation communities and specialised habitats for wildlife are areas that contain a provincially rare vegetation community, areas that support wildlife species with highly specific habitat requirements, or areas of habitat that greatly enhance a species' ability to survive. There were no rare vegetation communities identified on the site. Areas with potential to support Specialized Habitat for Wildlife are discussed below.

5.2.1 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. The subject lands were investigated for nesting eagles, ospreys, and suitable raptor nesting areas and no evidence was observed. A stick nest survey was conducted in leaf-off conditions (February 2024) and no stick nests were present on the Site or adjacent lands where accessible and visible from public lands. Eagles and ospreys foraging and perching in the general vicinity of the subject lands can continue to do so should post-development occur and no negative impacts are anticipated.

5.2.2 Woodland Raptor Nesting Habitat

The subject lands were searched for stick nests in the appropriate leaf-off condition and no evidence of raptor nesting was observed on or adjacent the property where visible. No negative impacts are anticipated and no further study required.

5.2.3 Denning Sites for Mink, Otter, Marten, Fisher and 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. Marten and fisher share the same general habitat, often denning in cavities in large trees or under large downed woody debris.

Based on the habitat present along the edge of the wetland ecosite, it is possible that den sites may be present in this general area of the property. Mink and otter den sites are typically found within a riparian area of a lake and a den site will potentially have a movement corridor associated with it. Field investigations did not identify scat nor tracks in the riparian areas of the property. The retained 30m naturally vegetated buffer along the open water ecosite and shoreline of the lake will serve to protect any furbearers that utilize the riparian areas of the property for denning. No additional mitigation required and no negative impacts are anticipated.

5.3 Habitat for Species of Conservation Concern

Habitat for species of conservation concern includes special concern species. Potential special concern species were considered during habitat investigations (Ecological Land Classification) as well as through targeted investigations. Special concern species for consideration included Canada Warbler and Snapping Turtle.

5.3.1 Special Concern Species

<u>Canada Warbler (Cardellina canadensis)</u>
Canada Warblers are most often found in cool, wet, low-lying areas; including swamps, sphagnum bogs and moist forest edges and openings. They are often associated with sites that have a dense understory near open water and vegetation associations including alder and willow. Female Canada Warblers build a loosely constructed cup-shaped nest on or near the ground in early May. The nest is well-concealed, often in thickets or areas with dense ferns. These are typically wet, mossy areas within forest among ferns, stumps, and fallen logs. Nests have been documented in a variety of micro-habitats including within a recessed hole of upturned tree root mass, rotting tree stump or sphagnum moss hummock. Eggs are laid at the end of May, fledglings leave the nest and are ready to

migrate by the end of July, early August. Migration peaks at the end of August, beginning of September.

Forest bird monitoring surveys were conducted in suitable habitat during nesting season (July 28th, 2024) and no Canada Warblers were observed or heard during these surveys. It is possible that Canada Warblers may nest in the riparian areas of the wetland ecosite. Maintaining the wetland area and the associated 30-meter setback will protect the habitats most likely to be used for nesting and no negative impacts to Canada Warblers are anticipated.

Snapping Turtle (Chelydra serpentina)
Snapping turtles are found in the shallow waters of lakes, rivers and ponds. Although no snapping turtles were observed during field investigations, mitigation afforded to Blanding's turtles will also serve to benefit individual snapping turtles on the subject property (see section 3.1). No additional mitigation is recommended and no negative impacts to snapping turtles are anticipated as a result of the proposed development.

5.4 Animal Movement Corridors

Animal movement corridors are defined in the SWHTG as elongated, naturally vegetated parts of the landscape used by animals to move from one habitat to another. They can include a wide variety of landscape features including riparian zones and shorelines, wetland buffers, stream and river valleys, woodlands and anthropogenic features such as hydro corridors, abandoned roads and railways.

There were no trail systems, pellet groups, disturbed areas or tracks identified during the winter investigations indicating extensive use of the site by wolf, moose or deer populations. The proposed severance is not anticipated to negatively impact critical habitat of fur bearing populations in the area.

The recommended 30m development setback and vegetated buffer will serve to protect any furbearers that may utilize the riparian areas of the property for foraging or movement. No negative impacts are anticipated.

7.0 Fish Habitat

Fish habitat was confirmed to be present in the open water area and shoreline ecosite of the Site and Lake Temagami.

The shallow water and aquatic macrophyte growth present in the open water areas of the lake likely serve as suitable cover, nursery, and foraging habitat for fish. This feature and its function to support fish habitat will be protected by the recommended 30m naturally vegetated buffer and development setback. The vegetated buffer will serve to mitigate

any potential increases in stormwater runoff and nutrient input, maintain the current shading and thermal regime as well as prevent sedimentation and shoreline erosion.

Lake Temagami is a cold water lake supporting a native population of lake trout, northern pike, walleye, smallmouth bass, and whitefish. There are no confirmed areas of spawning habitat inside of the 120m adjacent lands and no negative impacts to this feature or its function are anticipated as a result of the proposed severance and no further study is needed.

8.0 Summary of Natural Heritage Features, Impacts and Mitigation

The following is a summary of the natural heritage features on the site, the potential impacts and recommended mitigation to minimize or eliminate the risk of impacts.

Table 1: Summary of natural heritage features, impacts, and recommendations

Natural Heritage Feature	Species / Habitat	Recommendations	Negative Impacts Anticipated	Authorization Required
Habitat of Endangered and Threatened Species	Blanding's turtles & habitat	Minimum 30 meter no development setback	No	No
Habitat of Endangered and Threatened Species	Little Brown Myotis, Tricolored Bat	Any tree clearing to take place between October 1 and March 31	No	No
Significant wetlands	N/A	N/A	N/A	N/A
Significant Wildlife Habitat	Turtle wintering area	30m naturally vegetated setback	No	No
Significant Wildlife Habitat	Denning Sites	30m naturally vegetated setback	No	No
Significant Wildlife Habitat	Special Concern Species — Canada Warbler	Any tree clearing to take place between October 1 and March 31	No	No
Significant Wildlife Habitat	Special Concern Species — Snapping Turtle	see recommendations for Blanding's turtles	No	No
ANSIs	N/A	N/A	N/A	N/A
Fish Habitat	Open water area and shoreline ecosite	30m naturally vegetated setback	No	No

8.1 General Mitigation

The following general mitigation is recommended to ensure compliance with the Provincial Policy Statement (201 4), the Endangered Species Act 2007), the Fisheries Act (1 990), the Migratory Birds Convention Act (7994) and the Fish and Wildlife Conservation Act (1997). Many of these recommendations have already been suggested in previous sections of the report. They are reiterated here to confirm their applicability to species groups and habitats which are found on the site.

Minimum 30 meter shoreline setback to protect shoreline values in addition to confirmed Blanding's turtle, snapping turtle, and fish habitat.

Site clearing, tree and vegetation removal shall occur outside April 1 to September 30 (the active season) of any given year which encompasses migratory birds and bats.

9.0 Conclusions

BAE Environmental was retained to complete an Environmental Impact Study (EIS) to assess the presence of and potential impacts to the natural heritage features and functions to support a proposed severance application for NP-8671, Lot 188, Strathcona or Forestry Island, in the Municipality of Temagami, Ontario (Site). Field work, reporting, and recommendations were completed to meet the requirements under the Provincial Policy Statement (PPS) (2020), sections 7.1, 7.3, Municipality of Temagami Official Plan (2013), Fisheries Act (1985), Fish and Wildlife Conservation Act (1997), Endangered Species Act (ESA) (2007), Migratory Birds Convention Act (1994) and other relevant legislation and policies.

The property is zoned Remote Residential (R2). Two 0.787ha lots are proposed to be severed from the one 1.574ha lot described as NP-8671, Lot 188, Strathcona or Forestry Island, in the Municipality of Temagami (Figure 2).

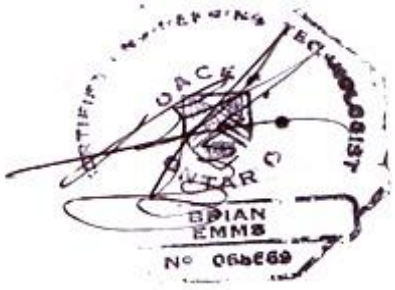
The property is bounded by Lake Temagami to the south, west and north. A seasonal cottage property is adjacent to the northeast and a seasonal cottage property is adjacent to the east. There is one existing seasonal cottage located on the west-central portion of the subject property. There is also a newer cottage under development (Permit 2024-002) just north of the existing seasonal cottage. Field investigations were carried out on October 14, 2023, February 17, May 29-30 and July 28-31, 2024.

The following mitigation measures to ensure compliance with the Provincial Policy Statement (201 4), the Endangered Species Act 2007), the Fisheries Act (1 990), the Migratory Birds Convention Act (7994) and the Fish and Wildlife Conservation Act (1997) are recommended.

- Minimum 30 meter shoreline setback to protect shoreline values in addition to confirmed Blanding's turtle, snapping turtle, and fish habitat.
- Site clearing, tree and vegetation removal shall occur outside April 1 to September 30 (the active season) of any given year which encompasses migratory birds and bats.

In conclusion, the proposed severance application can proceed while avoiding negative impacts on the natural heritage features and functions on and adjacent to the property. Where the recommended mitigation measures as outlined in this report are employed, the proposed severance will be consistent with the Municipality of Temagami Official Plan and Provincial Policy Statement (2020), specifically Section 2.1 as it relates to natural heritage features and areas.

Respectfully Submitted,
BAE Environmental



Brian A. Emms, C.E.T.
Senior Env. Technologist

Appendix A
Seasonal Shoreline Photos

Photo 16: Fall 2023 Shoreline

Photo 17: Winter 2024 Shoreline Photo

Photo 18: Winter 2024 Photo

Photo 19: Winter 2024 Shoreline Photo

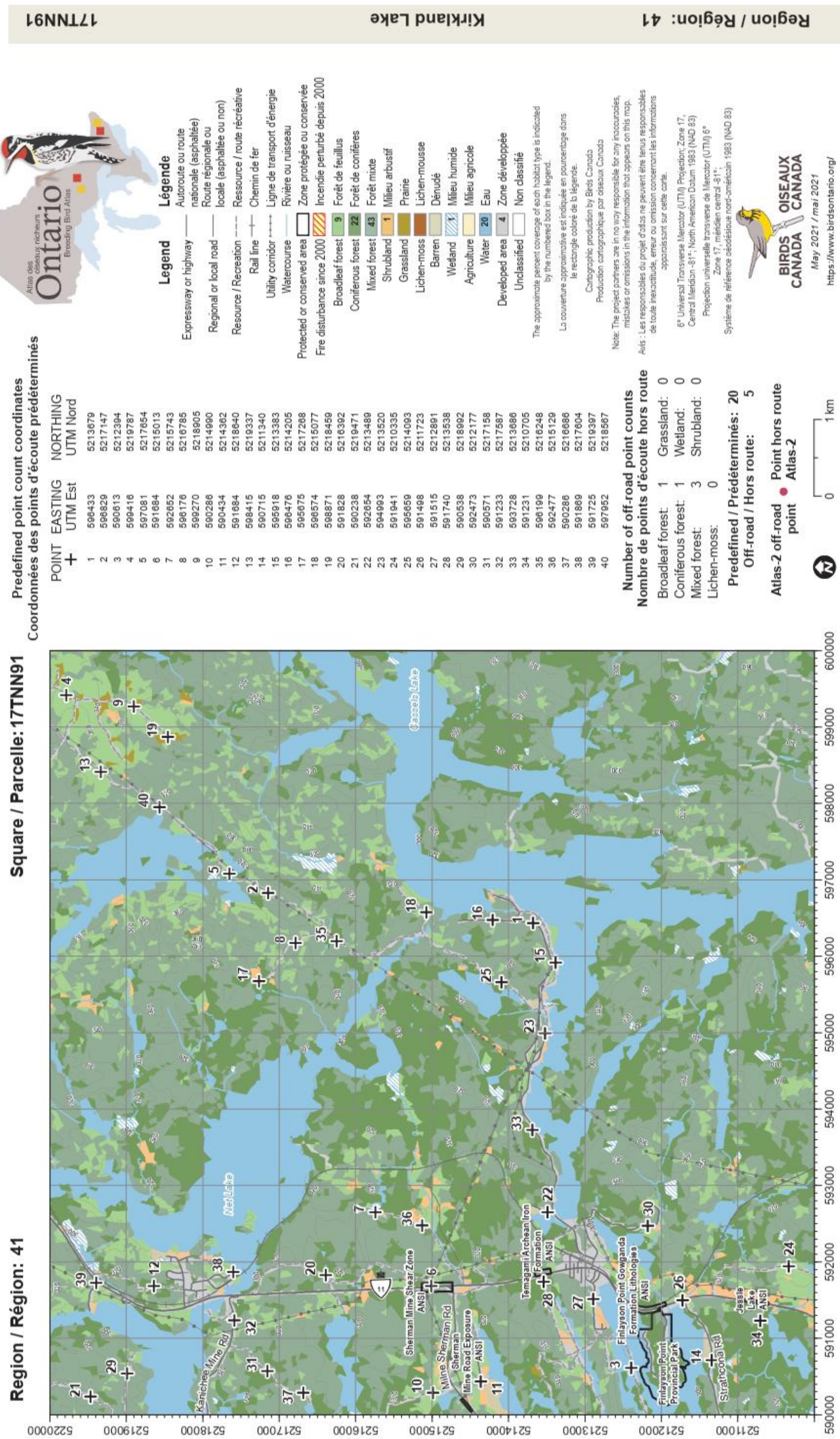
Photo 20: Spring 2024 Shoreline Photo

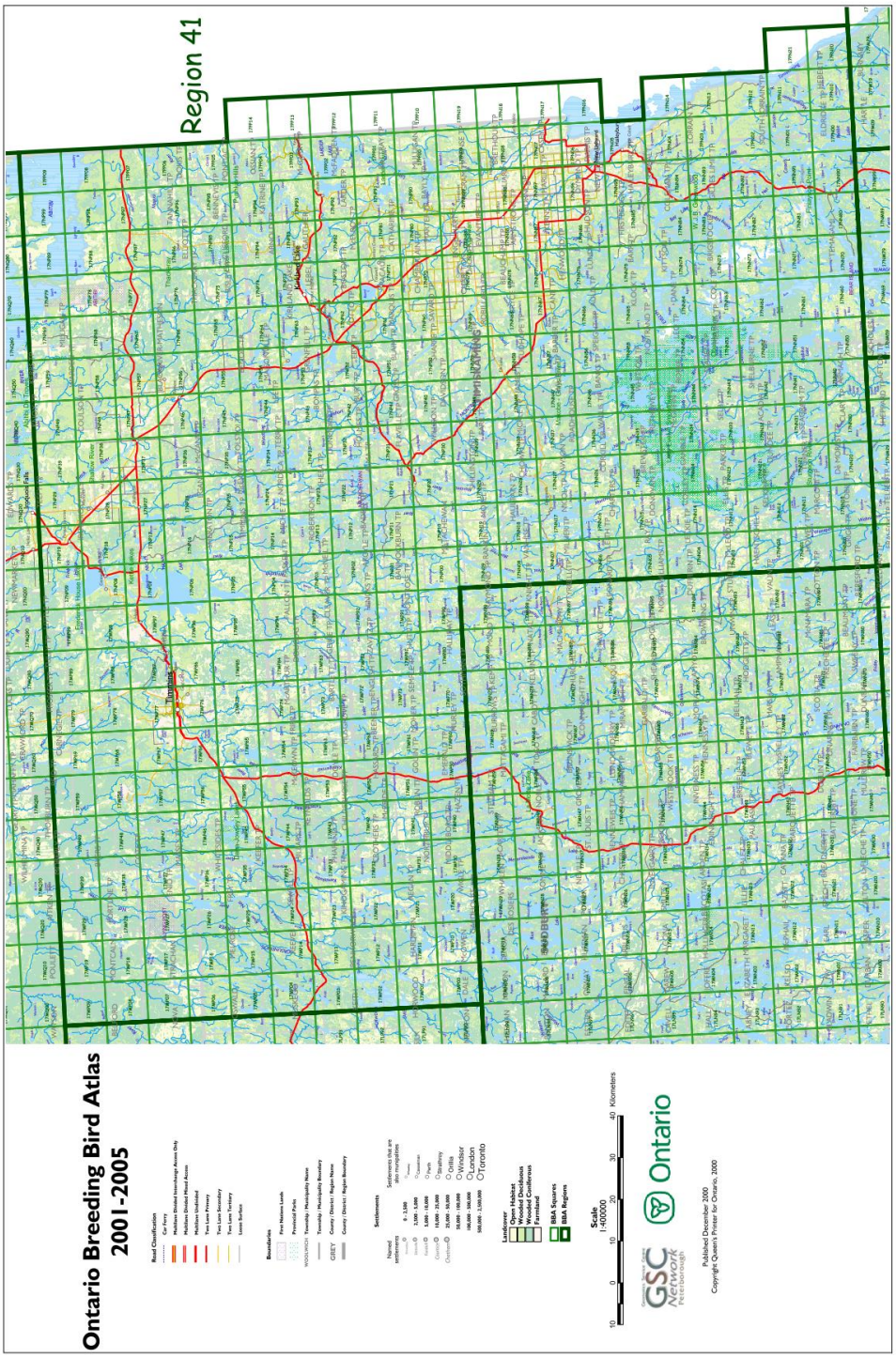
Photo 21: Spring 2024 Shoreline Photo

Photo 22: Summer 2024 Shoreline Photo

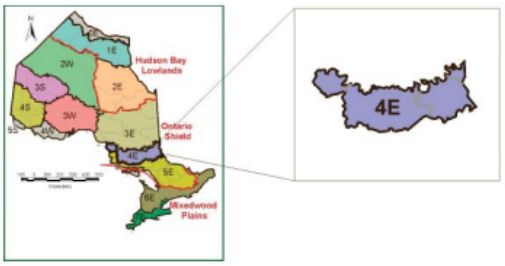
Photo 23: Summer 2024 Shoreline Photo

Appendix B
Ontario Breeding Bird Atlas Mapping


Region / Région: 41
Square / Parcelle: 17TNN91
Kirkland Lake
17TNN91
Predefined point count coordinates
Coordonnées des points d'écoute prédéterminés
Legend
Légende
Number of off-road point counts
Nombre de points d'écoute hors route
Predefined / Prédéterminés: 20
Off-road / Hors route: 5
Atlas-2 off-road point
Point hors route Atlas-2
BIRDS CANADA
OISEAUX CANADA
May 2021 / mai 2021
https://www.birdsontario.org/


Region 41
Ontario Breeding Bird Atlas
2001-2005
Scale
1:400000
Ontario
GSC
Network
Peterborough
Published December 2005
Copyright Queen's Printer for Ontario, 2005

Appendix C
Ecoregion 4E (Lake Temagami Ecoregion)



Ecoregion 4E (Lake Temagami Ecoregion)

The Lake Temagami Ecoregion is situated between Lake Superior and the Quebec border, south of Wawa, the Chapleau Moraine, and the Donneganna Sand Plain, and north of the Montreal River at its western end, cutting south to include Ranger Lake, and eastward north of Elliot Lake, Sudbury, and Marten River, to include the Little Clay Belt and Temagami. It encompasses 4,057,806 ha or 4.1% of the province's area.

Climate

The climate in this ecoregion is humid and cool. It has been classified by the Ecoregions Working Group (1989) as the Humid Low Boreal Ecoclimatic Region. Mean annual precipitation in the ecoregion ranges between 725 and 1,148 mm per year and the mean summer rainfall is between 217 and 291 mm. The mean annual temperature ranges from 0.8 to 4.3°C and the mean growing season length is 171 to 200 days (Ecoregions Working Group, 1989; Hills, 1959; Mackey *et al.*, 1996a, b).

Geology and Substrates

This ecoregion is situated on the Precambrian Shield where the bedrock is predominantly granitic and gneissic. Ground moraine is the main surficial feature, although there are numerous north-south-flowing river systems in which valley train deposits are found, and localized areas with end moraines, aeolian deposits, lacustrine deposits, and eskers. Much of the terrain is moderately to strongly broken, although there are some weakly broken areas as well. Upland sites on glaciofluvial sands and on tills tend to have weakly developed Podzols and Brunisols, whereas peats and Gleysols develop on poorly drained sites. Over half of the ecoregion is characterized as having thinly covered acidic bedrock (61%), with very poor substrate development. Of the better developed substrates, 27% of the ecoregion is covered in Humo-ferric Podzols, 7% in Mesisols, 4% in Gleysols, and 1% in Dystric Brunisols.

The Little Clay Belt is situated at the eastern edge of this ecoregion. It differs from the rest of the ecoregion because it is underlain with Paleozoic limestone and related rocks, and as a result, has richer calcareous substrates. These generally are Gray Brown Luvisols on well drained sites, and peats and Gleysols on wetter, poorly drained sites.

Most of the ecoregion is underlain by Precambrian rocks, and the overburden is derived mainly from acidic parent materials, as a result the substrates tend to have a low buffering capacity for acidic deposition, except in the Little Clay Belt (Environment Canada, 1988).

Land Cover

Mixed forest (33.2%), coniferous forest (19.9%), and deciduous forest (17.1%) are the dominant land cover types in this ecoregion. Water (10.9%), sparse forest (5.6%), and cutovers (3.6%) are scattered throughout. Agricultural lands are concentrated in the Little Clay Belt.

The fire cycle in mixed forests in the ecoregion ranges between 70 and 210 years. The cycle is shorter in forests with a higher percentage of coniferous trees. The fire cycle in jack pine systems ranges from 50 to 187 years, and fires tend to be stand replacing. In eastern white pine-red pine-jack pine ecosystems, the fire cycle ranges between 36 and

258 years, with fires burning at variable intensities. Tolerant hardwood fire cycles are much longer, ranging between 300 and 2,700 years. Lowland forests have even longer fire cycles, ranging between 150 and 6,000 years (van Sleeuwen, 2006). Fire plays an important role in forest regeneration, particularly for the pine species. Historically, fire was a more influential force but suppression has changed ecosystem dynamics. There was a substantial decrease in the number of large fires in this ecoregion during the 20th century.

Water

The Lake Temagami Ecoregion is a land of numerous lakes and rivers. The area is well to rapidly drained. Its northern boundary lies just south of the divide between the Hudson Bay and Great Lakes Watersheds, so all of its rivers ultimately drain southward to Lakes Superior and Huron and to the Ottawa/St. Lawrence Rivers. Some of the major river systems that flow from or through the ecoregion include the Montreal (two of them, one in the west and one in the east), Batchawana, Goulais, Garden, Mississagi, Spanish, Sturgeon, Blanche, and Ottawa Rivers. Water control structures have altered the hydrology of many of these rivers. In addition to numerous natural or near-natural lakes, such as Lake Timiskaming, Lake Temagami, Lady Evelyn Lake, and Wanapitei Lake, several large artificial reservoirs are found in the ecoregion, including Rocky Island, Bark, and Biscotasi Lakes.

Flora and Fauna

Ecoregion 4E is situated primarily within the Great Lakes–St. Lawrence Forest Region, and a small portion is located in the Boreal Forest Region (Rowe, 1972). Three forest sections, Algoma, Timagami, and Haileybury Clay comprise the Great Lakes-St. Lawrence portion, while the Boreal portion is contained within the Missinaibi-Cabonga Section (Rowe, 1972). This ecoregion is covered in transitional forests that combine elements of the Great Lakes-St. Lawrence Forest Region to the south and the Boreal Forest Region to the north (Maycock, 1979; Rowe, 1972; Taylor *et al.*, 2000). It contains the hardiest of the Great Lakes-St. Lawrence forest species, such as eastern white pine, red pine, sugar maple, red maple, and yellow birch. It also contains significant concentrations of boreal species on certain landform units, particularly jack pine and black spruce. Tolerant and semi-tolerant hardwoods such as sugar maple, red maple, and yellow birch tend to occur on warmer-than-normal sites (Taylor *et al.*, 2000). Arctic/alpine relict plants occur along basaltic portions of the Lake Superior shoreline.

Barred owl. Photo courtesy: Larry Watkins, OMNR.

Characteristic fauna of this ecoregion include moose, beaver, American marten, American black bear, American black duck, broad-winged hawk, barred owl, winter wren, hermit thrush, black-throated green warbler, white-throated sparrow, eastern red-backed salamander, spring peeper, northern leopard frog, mink frog, snapping turtle, eastern gartersnake, and northern ring-necked snake. Aquatic ecosystems provide habitat for lake trout, brook trout, lake whitefish, northern pike, emerald shiner, longnose sucker, creek chub, rock bass, pumpkinseed, and many other fish species.

Land Use

The major communities within this ecoregion include Temagami, New Liskeard, Earlton, Haileybury, and Cobalt. Although commercial forestry is the predominant land use activity in the ecoregion, agriculture is important in the Little Clay Belt. Wilderness and other forms of outdoor recreation, including canoe tripping, hunting, trapping, and fishing, along with supporting services, also are important activities in the ecoregion.

Currently 14 types of natural heritage areas are located in Ecoregion 4E, including Lake Superior Provincial Natural Environment Class Park, Lady Evelyn Smoothwater Provincial Wilderness Class Park, Ranger North Conservation Reserve, and areas managed by the Nickel District Conservation Authority.

Ecoregion Boundary Delineation and Rationale

The northern boundary with Ecoregion 3E is based on climatic variables (i.e., mean July precipitation, growing season length, and mean annual temperature) and correlates strongly in some sections with major moraines and sand plains. The northern boundary also coincides roughly with the Hudson Bay Watershed.

Its southern boundary is strongly correlated with climatic variables (i.e., mean annual precipitation, mean annual temperature, and mean January temperature) and with elevation and geological differences (Baldwin *et al.*, 1998). The boundary between Ecoregions 4E and 5E approximates the mean annual length of the growing season of about 175 days, and mean annual growing degree-days of about 2,600 (Chapman and Thomas, 1968).

A mixed eastern white pine, cedar, aspen, and balsam fir forest along the Boland River, Mississagi Provincial Park. Photo courtesy: Peter Uhlig, OMNR.