

Appendix EE
Archaeological and Cultural Heritage Resources
Assessment Documentation

**Archaeological Screening, Reconnaissance and
Shovel Testing Pictou County, Nova Scotia
(CRM Group 2018)**

GHD

**BOAT HARBOUR REMEDIATION PLANNING AND DESIGN
ARCHAEOLOGICAL SCREENING,
RECONNAISSANCE
AND SHOVEL TESTING
PICTOU COUNTY, NOVA SCOTIA**

FINAL REPORT

Submitted to:

GHD

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*The following report may contain sensitive archaeological site data.
Consequently, the report must not be published or made public without
the written consent of Nova Scotia's Coordinator of Special Places,
Department of Communities, Culture and Heritage.*

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BOAT HARBOUR REMEDIATION PLANNING AND DESIGN ARCHAEOLOGICAL SCREENING, RECONNAISSANCE AND SHOVEL TESTING PICTOU COUNTY, NOVA SCOTIA

1.0 INTRODUCTION

In 2017, Nova Scotia Lands Inc. retained GHD to provide consulting services for Boat Harbour Remediation Planning and Design. Still on-going, the goals for this project are twofold:

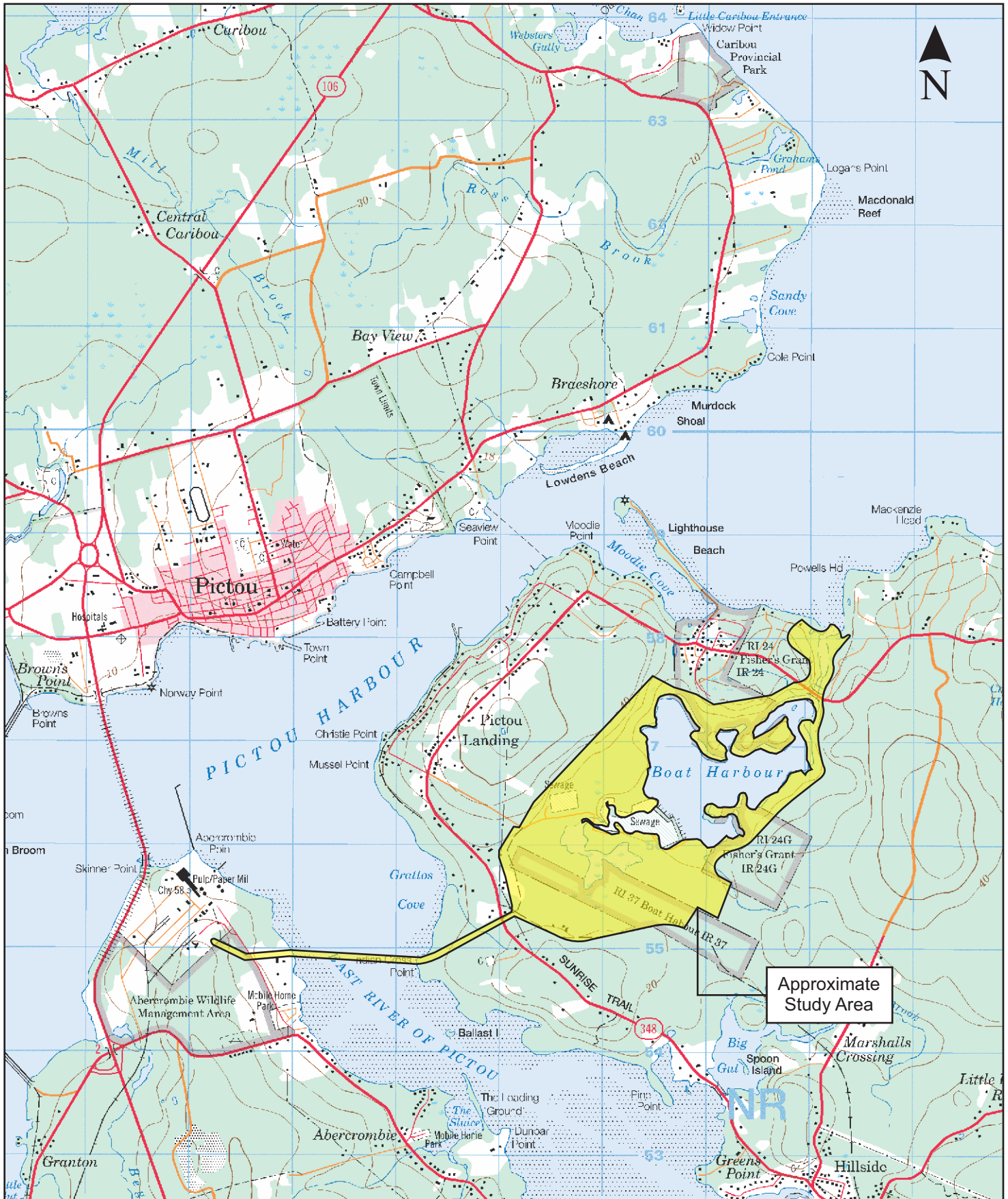
- to provide a plan for the closure of the Boat Harbour Effluent Treatment Facility, which is currently serving as the effluent treatment facility for the Northern Pulp Nova Scotia bleached kraft pulp mill located in Abercrombie, across the East River of Pictou arm of Pictou Harbour, and;
- to provide a plan for removing contaminants from Boat Harbour and returning the harbour to tidal influence. The planning will address removal of a causeway, installation of a new bridge spanning the outlet and removal of a dam.

In recognition of past, present and future Mi'kmaw ties to Boat Harbour, GHD is working closely with Pictou Landing First Nation in the completion of this project.

Cultural Resource Management (CRM) Group has been retained by GHD to undertake archaeological screening and reconnaissance of the proposed project area (*Figures 1 & 2*) in preparation for ground impacts associated with the forthcoming facility closure and remediation project. The goal of the study was to evaluate archaeological potential throughout the pipeline corridor, grounds and water-bodies associated with the Boat Harbour Effluent Treatment Facility (Study Area).

As 2017 fieldwork for the archaeological screening and reconnaissance progressed and identified areas of archaeological potential, work was also progressing on planning for closure and remediation of the effluent treatment facility. This work included planning for establishment of a Dredging Works Compound and a Conceptual Pilot Cell for experimental treatment of dredged harbour sediment. Since these proposed developments were sited within areas ascribed elevated (medium to high) archaeological potential on the basis of archaeological reconnaissance, their proposed footprints were also subjected to archaeological shovel testing in order provide timely enhanced assessment.

All field components of the archaeological investigation were undertaken in November and December of 2017 by Mike Sanders, Senior Archaeologist with CRM Group, according to the terms of Heritage Research Permit A2017NS100 issued to him by the Special Places Program (Special Places) of the Nova Scotia Department of Communities, Culture and Heritage. This report describes the archaeological screening, reconnaissance and shovel testing, presents the combined results and offers resource management recommendations.



Approximate Study Area

Figure 1

**BOAT HARBOUR REMEDIATION PLANNING & DESIGN
 ARCHAEOLOGICAL ASSESSMENT 2017
 PICTOU COUNTY, NOVA SCOTIA**

April 2018

Scale 1:50 000





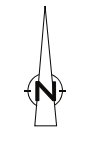
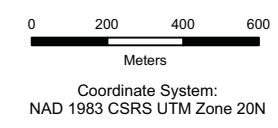
Detailed Study Area

**BOAT HARBOUR REMEDIATION PLANNING & DESIGN
ARCHAEOLOGICAL ASSESSMENT 2017
PICTOU COUNTY, NOVA SCOTIA**

Figure 2

April 2018

Scale Bar



NOVA SCOTIA LANDS INC
BOAT HARBOUR, NS
ENVIRONMENTAL ASSESSMENT

SITE PLAN - PROPOSED

2.0 STUDY AREA

The Study Area for the archaeological investigation consists of 141 hectares in and around Boat Harbour in the Municipality of Pictou County (**Figures 1 & 2**). More specifically, it consists of the pipeline corridor, grounds and water-bodies associated with the Boat Harbour Effluent Treatment Facility. Lands surrounding the active facility were included in the study where they might be required for development of ancillary facilities, such as service roads, work yards and lay-down areas.

The Study Area is located between the communities of Pictou Landing, Fisher's Grant and Marshalls Crossing, and includes Boat Harbour, itself – the former tidal estuary known in Mi'kmaq as A'se'k (meaning "the other room" or "the other side"). Also included within the Study Area are uninhabited portions of the following Pictou Landing First Nation reserves:

- Fisher's Grant 24
- Fisher's Grant 24G
- Boat Harbour West 37

The existing pipeline corridor begins at the Northern Pulp mill in Abercrombie and extends eastward across the East River of Pictou to the grounds of the Boat Harbour Effluent Treatment Facility. On Abercrombie point, the pipeline passes through woods, under the alignment of Granton Abercrombie Branch Road and through fields associated with the Raeburn Kennedy Farm (**Plate 1**). On the east side of the East River of Pictou, the pipeline extends from Indian Cross Point, passing through woods (**Plate 2**) and under the alignment of Pictou Landing Road (Route 348) and the former alignment of the Pictou branch of the Nova Scotia Railway to enter the grounds of the Treatment Facility.

The remainder of the Study Area consists of Boat Harbour and its environs. The terrestrial sections of this zone are mainly undeveloped and wooded, but the area around the southwestern end of the harbour includes clearings, roads and structures associated with the existing Treatment Facility. Also included at that end of the harbour are bogs and partitioned harbour segments that have served, at least briefly, as effluent discharge areas, settling ponds or aeration stabilizing basins (**Plates 3 & 4**).

In general, the terrain around Boat Harbour is relatively low, flat and dry (**Plate 5**), but steep rises exist in places, especially along the northern and eastern shores. Near the outlet of Boat Harbour, located in the northeastern end of the Study Area, the harbour is crossed by a causeway for Pictou Landing Road (Route 348) and a dam that serves to regulate the water level within the main part of the harbour (**Plate 6**). Beyond the dam, at the northern limit of the Study Area, the natural harbour estuary passes through a narrow opening between beaches, where it merges with the Northumberland Strait (**Plate 7**).

The boundaries of the Study Area, as depicted in Figure 2, served as the limit for the archaeological screening and reconnaissance, as well as the limit for investigations undertaken by other disciplines involved in the overall environmental assessment for Boat Harbour Remediation Planning and Design. During the course of this investigation, it was recognized that the northern boundary of the Study Area infringed on the grounds of Pictou First Nations Cemetery, which lies at 140 Cemetery Road within the

limits of Fisher’s Grant 24. Although this boundary related to studies rather than actual remediation activity, it was recognized that the study boundary should exclude the cemetery, as indicated in Figure 13.



PLATE 1 Pipeline Corridor at Abercrombie (centre), facing east toward the East River of Pictou. December 7, 2017.



PLATE 2 Pipeline Corridor at Indian Cross Point, facing west toward the East River of Pictou. December 7, 2017.



PLATE 3 Canal from Settling Basin of the Effluent Treatment Facility. Facing west (upstream).
December 4, 2017.



PLATE 4 Aeration Stabilizing Basin (centre) and Electrical Building (right). Facing northwest.
December 5, 2017.



PLATE 5 Main body of Boat Harbour, looking northeast from the canal exiting Former Settling Pond
3. December 4, 2017.



PLATE 6 Boat Harbour Dam. Facing northeast. December 7, 2017.



PLATE 7 Lower estuary and narrow mouth (left) of Boat Harbour. Facing north. December 7, 2017. The prominent sandstone outcrop in this view (right) may have inspired an early Mi'kmaw name for Boat Harbour: "Wisasoq", meaning "at the yellow/gold-coloured rock".

3.0 METHODOLOGY

The primary goal of the archaeological project was to evaluate archaeological potential throughout the Study Area. To achieve this objective, the investigation involved a combination of background research and field reconnaissance. In areas where imminent development intersected designated areas of archaeological potential – the Dredging Works Compound and the Conceptual Pilot Cell (Option 2) – the study also involved shovel testing.

Background Research

The background research component of the study focussed on a review of relevant historic documentation available through the Nova Scotia Archives, the Department of Natural Resources Library, the Crown Land Information Management Centre, the Kwilmu'lw Maw-klusuaqn Negotiation Office's Archaeological Research Division (KMKNO's ARD), the Nova Scotia Museum and the McCulloch Heritage Centre. Research included the Maritime Archaeological Resource Inventory, land grant records, legal survey records and historic maps, as well as local and regional histories compiled by other researchers. Also included in the research was communication with present and former residents of the Study Area and its environs, including residents of Pictou Landing and Piktuk – the community based within Fishers Grant 24. The goal was to gather existing knowledge regarding the history of land use within the project area.

Topographic maps and aerial photographs, both current and historic, were also examined during the archaeological evaluation of the Study Area, in order to identify topographical and hydrological features that may have attracted early human activity or settlement. Lidar imagery was also inspected for this purpose, and for its ability to reveal topographic anomalies that might be cultural in origin.

Once compiled, the cultural information was integrated with the physiographic data to identify areas of elevated archaeological potential – areas requiring particular attention during the reconnaissance component of the archaeological study.

Reconnaissance

Between November 30 and December 7 of 2017, a CRM Group team consisting of Mike Sanders, Robert Shears, Andrew Murphy and Trevor Chute walked the pipeline corridor and harbour-side sections of the Study Area (*Figure 2*). Joining the team on December 4 was Kait MacLean, Assistant Archaeologist with KMKNO. The overall survey, which was designed to further evaluate and delineate areas of high and low archaeological potential, was conducted when deciduous trees were fully defoliated and the ground surface was clear of snow (*Plates 8 & 9*). This timing facilitated ground inspection and GPS positioning.

The members of the reconnaissance team generally walked about 10 to 30 metres apart, searching the ground surface for signs of historic land use (*e.g.* levelled ground, anomalous mounds or depressions, structural features and vestige populations of domestic plants) and the presence of environmental conditions recognized as being conducive to past settlement – relatively flat, dry land close to transportation routes such as waterways, portage routes or early roads. Soil exposures within road-cuts, at the base of uprooted trees and along stream beds were searched for artifacts. Prominent stone faces, whether on bedrock outcrops or exposed boulders, were searched for petroglyphs (*Plate 10*). Field

activities and key observations made during the reconnaissance were recorded in the form of fieldnotes, photographs, site plans and GPS waypoints.



PLATE 8: Reconnaissance in woods along the western shore of Boat Harbour. Facing west. December 4, 2017.



PLATE 9: Reconnaissance at the head of a peninsula (Pine Island) on the southeastern shore of Boat Harbour, within Fishers Grant 24G. Facing east. December 5, 2017.



PLATE 10: Examination for petroglyphs on the face of a sandstone cliff downstream from the Boat Harbour Dam. Facing south. December 7, 2017.

Shovel Testing

Shovel testing of the proposed construction footprints of the proposed Dredging Works Compound and Conceptual Pilot Cell (Option 2) was undertaken on December 14-18 and 28 within grids established in advance by surveyors (*Figures 3-6; Plates 11 & 12*). In areas of high archaeological potential (within 50 metres of the harbour shore), the testing was conducted at 5 metre intervals. In areas of moderate archaeological potential (between 50 and 100 metres from the shore) it was conducted at 10 metre intervals. No shovel testing was conducted in areas ascribed low archaeological potential (*e.g.* areas of perpetually wet ground conditions) or in areas ascribed no archaeological potential (*e.g.* areas stripped to undisturbed glacial till as a result of modern mechanical groundwork, such as in a road cut).

At each shovel test location, a shovel test measuring 40 centimetres in diameter was dug downward until it penetrated undisturbed glacial till. All soil removed from the test pits was screened through 6 millimetre mesh hardware cloth to recover any artifacts within the excavated soil. The screening was done over tarps to prevent backdirt from landing directly upon, and potentially blending with, existing surface deposits. Field activities were documented in the form of fieldnotes, shovel test records, photographs and site plans.



Dredging Works Compound - Approximate Assessment Area

Figure 3

BOAT HARBOUR REMEDIATION
 ARCHAEOLOGICAL ASSESSMENT 2017
 PICTOU COUNTY, NOVA SCOTIA

April 2018

Scale 1:50 000

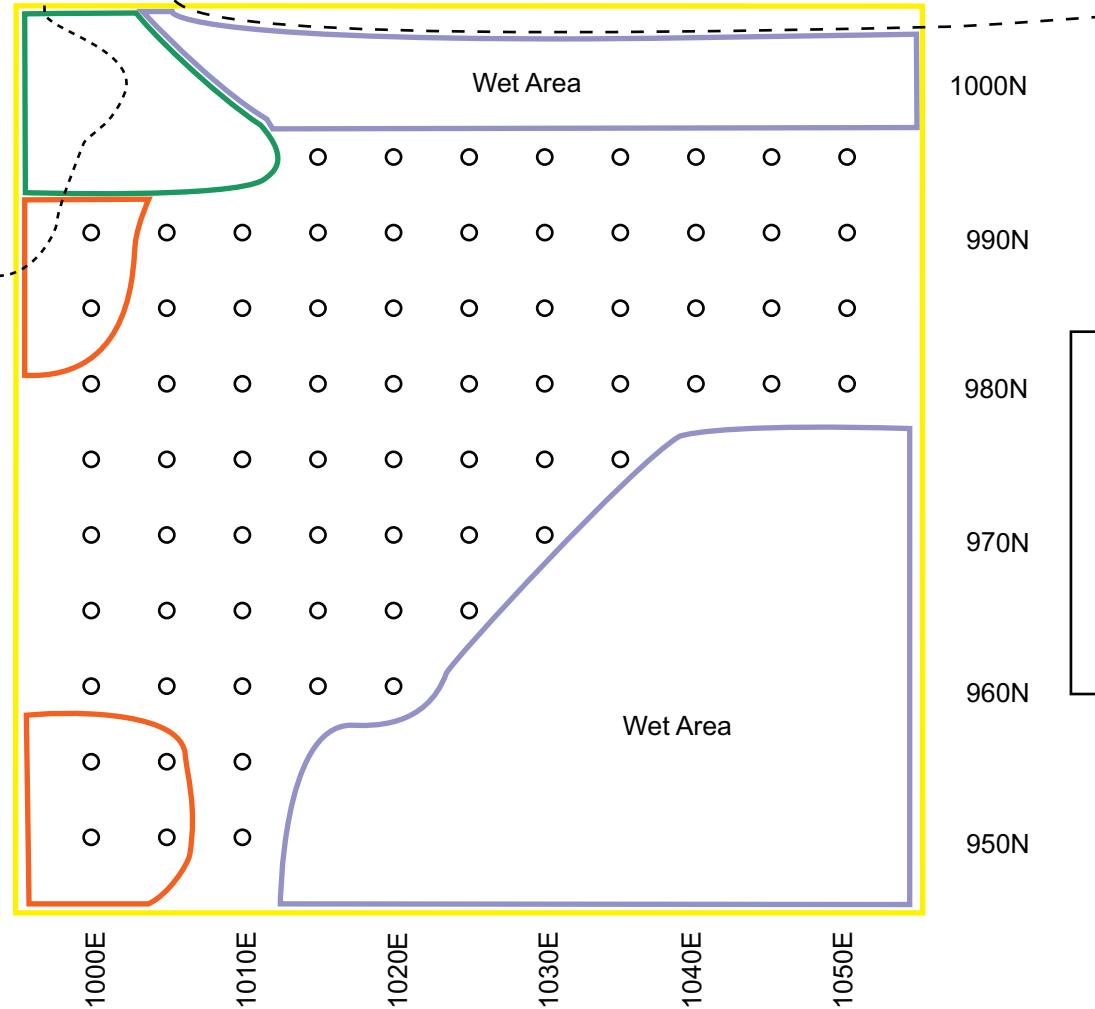




Boat Harbour
(Aeration
Stabilization Lagoon)

Boat Harbour
(Stabilization Lagoon)

Anderson Road



Legend

- Shovel Test
- Assessment area
- Fill over undisturbed soil
- Low archaeological potential
- No archaeological potential (Road cut & fill)

Dredging Works Compound - Shovel Testing Results

Figure 4

BOAT HARBOUR REMEDIATION
ARCHAEOLOGICAL ASSESSMENT 2017
PICTOU COUNTY, NOVA SCOTIA

April 2018

Scale 1:500





Approximate Assessment Area

Pilot Cell Option 2 - Approximate Assessment Area

Figure 5

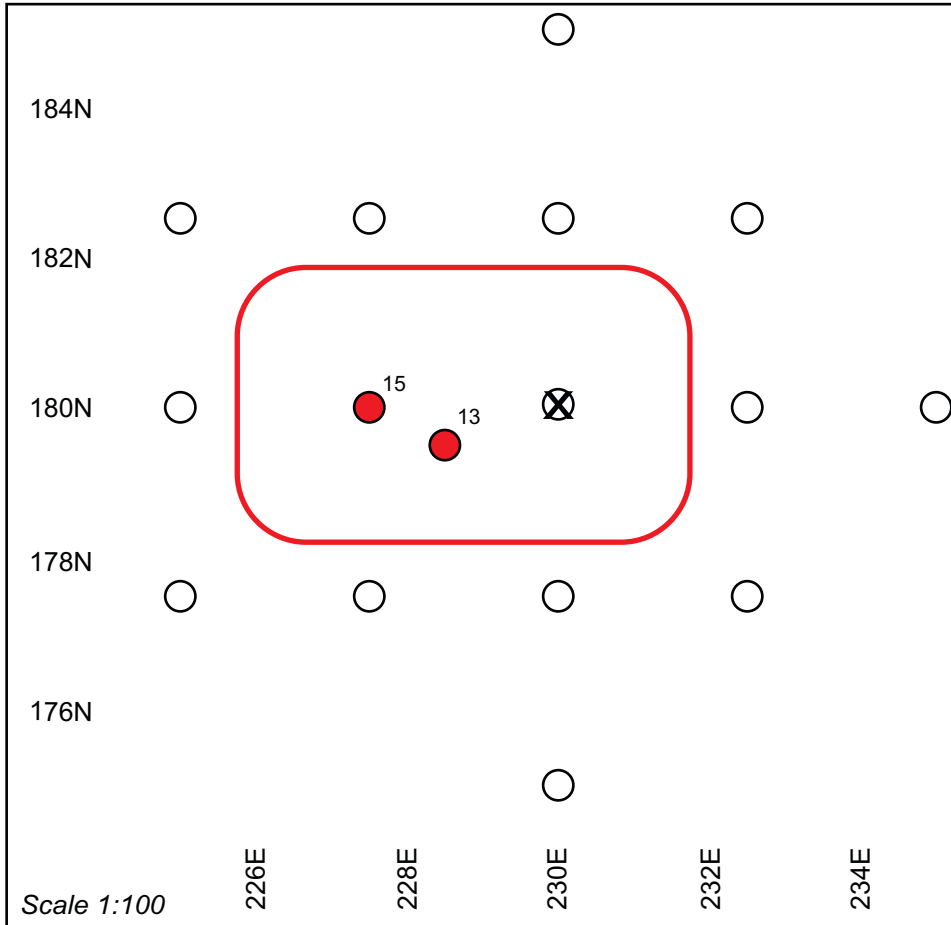
BOAT HARBOUR REMEDIATION
 ARCHAEOLOGICAL ASSESSMENT 2017
 PICTOU COUNTY, NOVA SCOTIA

April 2018

Scale 1:50 000



A'SE'K 1 SITE

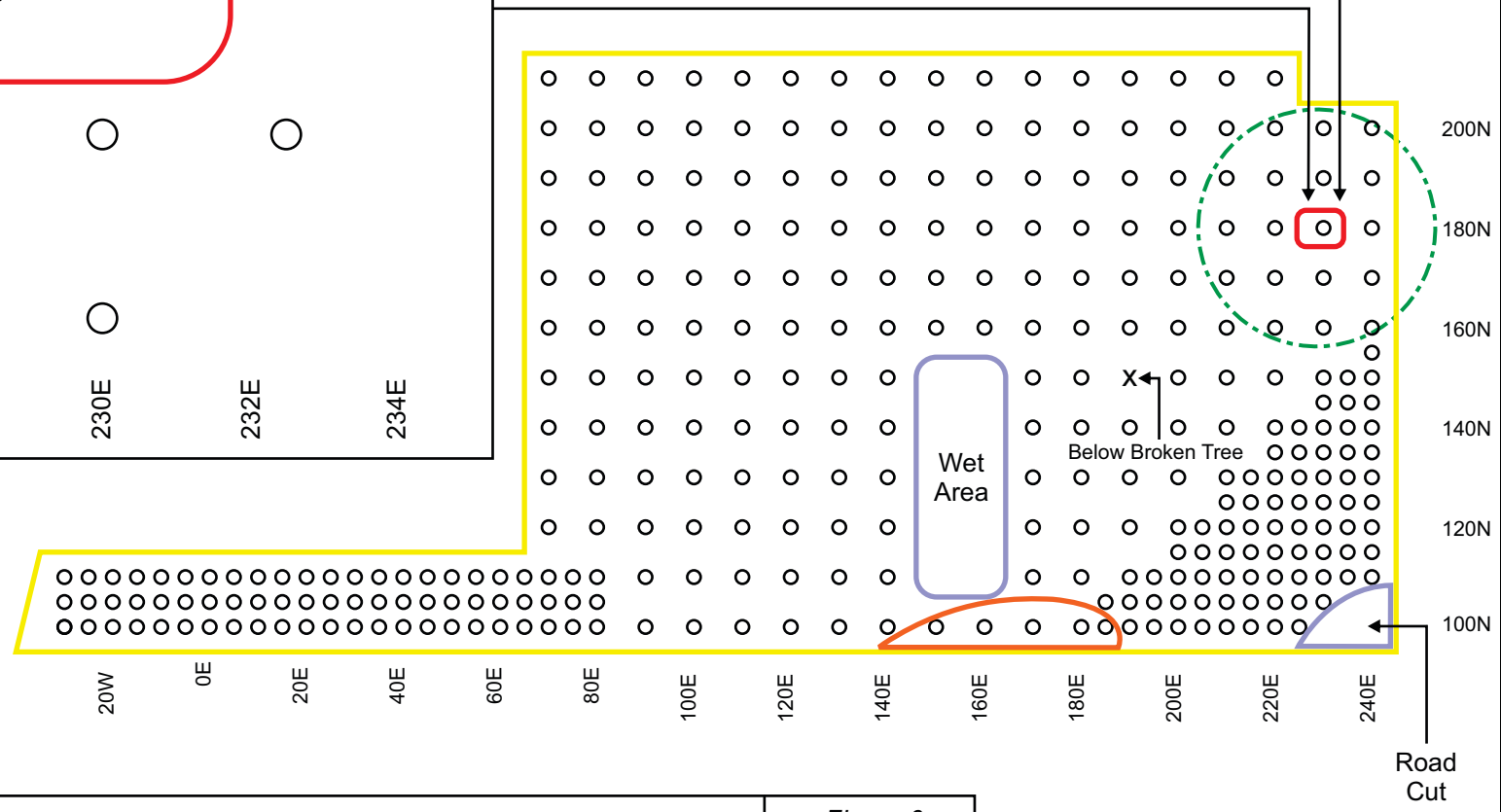


Legend

- Archaeological site
- - - 20 metre buffer zone
- Assessment area
- Fill over undisturbed soil
- Low archaeological potential
- x Not excavated due to safety concerns
- Shovel test
- # Positive shovel test and artifact count
- ⊗ Shovel test offset due to tree



A'SE'K 1 SITE



<p><i>Pilot Cell Option 2 - Shovel Testing Results</i></p>	<p><i>Figure 6</i></p>
<p>BOAT HARBOUR REMEDIATION ARCHAEOLOGICAL ASSESSMENT 2017</p>	<p>April 2018</p>
<p>PICTOU COUNTY, NOVA SCOTIA</p>	<p>Scale 1:1500</p>



PLATE 11: Shovel testing in the northern half of the proposed Dredging Works Compound footprint. Facing north. December 18, 2017.



PLATE 12: Shovel testing near the eastern edge of the Study Area for Conceptual Pilot Cell Option 2. Facing east. December 17, 2017.

4.0 RESULTS

The results of background research, reconnaissance and shovel testing are presented independently in Sections 4.1, 4.2 and 4.3.

4.1 Background Research

Precontact Period

The Study Area lies within Mi’kma’ki – the territory of the Mi’kmaq – and, more specifically, within the Mi’kmaw Cultural Landscape Area known as Epekwitk aq Piktuk (meaning “cradled above water” in reference to Prince Edward Island and “explosion place” in reference to Pictou). Encompassing Prince Edward Island and the lowlands of Nova Scotia’s Northumberland Strait, this district is separated from neighbouring districts to the west and south by the heights of the Cobequid Highlands and the heights of the Pictou and Antigonish Highlands (Sable & Francis 2012: 17, 21). Boat Harbour and Pictou Harbour are contiguous sheltered ports that lie near the centre of the district.

At the outset of the archaeological investigation for Boat Harbour Effluent Treatment Facility remediation, there were no registered archaeological sites within the limits of the Study Area. However, there were 15 registered archaeological sites situated between about 0.5 and 5.0 kilometres outside the Study Area that represent thousands of years of Mi’kmaw occupation. Located on nearby shores of Pictou Harbour, these sites (BjCq-1, 3, 4, 5, 6, 8; BjCp-1; BkCq-1, 8, 9, 11, 12, 13, 20; and BkCp-1) are habitation and/or burial locations that range in age from the time of Mu Awsami Sagiwe’k (Not so Recent People; 9000-2500 BP) to the Contact and early historic periods (MARI forms). The sites are known primarily on the basis of investigation conducted more than a century ago, since very little archaeological investigation has been undertaken in the Pictou area. Most of the sites were brought to the attention of the archaeological community in 1913 when a member of the Anthropological Division of the Geological Survey of Canada investigated nineteenth century reports of local artifact finds (Patterson 1877: 20, 26-29; Wintemberg 1914; MARI forms).

Like the distribution of known archaeological sites and burial locations, Mi’kmaw place-names reflect the extent and longevity of Mi’kmaw residency in the vicinity of the Study Area (*Table 1*).

TABLE 1: Relevant Mi’kmaw Place-Names

ENGLISH NAME	MI’KMAW NAME	TRANSLATION	SOURCES
Boat Harbour	A’s’e’k	“the other room” or “the other side”; possibly derived from e’s’e’get, meaning “dig for clams”; was specifically applied to the area of a beach at the south end of a portage trail from Moodies Cove	PLFN 2012; Bennett 2013: 29; Nicholas 2018; Stevens 2018

ENGLISH NAME	MI'KMAW NAME	TRANSLATION	SOURCES
	Wisasoq	“at the yellow/gold-coloured rock” (Note: May represent a western encampment or two separate places.)	Pacifique, EHG, 1934, p. 240; Pjila’si Mi’kma’ki (Mi’kmaw Place Names Digital Atlas) http://sparc.smu.ca/mpnmap/
Boat Harbour Bridge Narrows	Asoqmkaqn	“bridge”	Bennett 2013: 85
East River of Pictou	Apcheekumook-waakad	“duck land”	Patterson 1877: 32; Dawson 2012: 117-118
East River Encampment	Oqwa’skuk	“where the canoes arrive”	Pacifique, EHG, 1934, p. 239; Pjila’si Mi’kma’ki (Mi’kmaw Place Names Digital Atlas) http://sparc.smu.ca/mpnmap/
Flaggy Cove (the pond just west of Fisher’s Grant 24)	Phonetically similar to osengonjeeg; possibly derived from A’se’k’jij (spelling uncertain)	possibly “little Boat Harbour”	MacKay 2018a; Francis 2018a
Harbour Point (the tip of Lighthouse Beach)	I-tli-ktikia’timk	“where people go to get drunk”	Pjila’si Mi’kma’ki (Mi’kmaw Place Names Digital Atlas) http://sparc.smu.ca/mpnmap/
Indian Cross Point	Sukle’katik	“at the rotting place”	Pacifique, EHG, 1934, p. 240; Pjila’si Mi’kma’ki (Mi’kmaw Place Names Digital Atlas) http://sparc.smu.ca/mpnmap/
Lighthouse Point Beach	Pemumkweyak (spelling uncertain); possibly derived from Punamu’kwati’jk	Punamu’kwati’jk: “at the tomcod place”	Pjila’si Mi’kma’ki (Mi’kmaw Place Names Digital Atlas) http://sparc.smu.ca/mpnmap/ ; Nicholas 2018; Stevens 2018
Middle River of Pictou	Nemcheboogwek	“straight flowing”	Dawson 2012: 117-118
Moodie Cove Shore	Sitmug	“the shore down by the beach”	Bennett 2013: 81; Stevens 2018
Moodie Point Mi’kmaw Encampment	Esasok or Oaletjg (see also Wisasoq, above)	“the western encampment”	Brown 1922: 112; Hoffman 1955: 130, 548; MacLean 2018)
Pictou	Jigunk		Nicholas 2018; Stevens 2018
Pictou Harbour	Puknipkejk	“at the narrow harbour”	Pacifique, EHG, 1934, p. 238; Pjila’si Mi’kma’ki (Mi’kmaw Place Names Digital Atlas) http://sparc.smu.ca/mpnmap/
Pictou Landing	Pqutamo’taqniktuk	“at the ferry crossing place”	Pacifique, EHG, 1934, p. 240; Pjila’si Mi’kma’ki (Mi’kmaw Place Names Digital Atlas) http://sparc.smu.ca/mpnmap/

ENGLISH NAME	MI'KMAW NAME	TRANSLATION	SOURCES
	Puksaqte'kne'katik	"place of the wood chips"	Pacifique, EHG, 1934, p. 240; Pjila'si Mi'kma'ki (Mi'kmaq Place Names Digital Atlas) http://sparc.smu.ca/mpnmap/
Pictou Landing First Nation Community at Fisher's Grant IR 24	Piktuk or Wodunk	Piktuk: "at the explosions"	Silas Rand, A, MMP-N, 1919, p. 68; Brown 1922: 111; Pjila'si Mi'kma'ki (Mi'kmaq Place Names Digital Atlas) http://sparc.smu.ca/mpnmap/ ; Nicholas 2018; Stevens 2018
[road to boat harbour north of Flaggy Cove]	Phonetically similar to Scoomotic; possibly Sikunme'katik	Sikunme'katik: "at the gaspereau place:	Francis 2018a; Pjila'si Mi'kma'ki (Mi'kmaq Place Names Digital Atlas) http://sparc.smu.ca/mpnmap/ ;
West River of Pictou	Pebloogowaak, or Wakamutkook	"clear water"	Dawson 2012: 117-118

Contact Period

Throughout the 1500s and early 1600s, Pictou Harbour and the surrounding coastline were visited by Basque and Breton fishermen (Cullen *et al.* 1984: 5, 19). As they fished the coastline, sought shelter and dried their catches during warmer months, these seasonal visitors from the coasts of modern-day Spain and France established a trade with the existing Mi'kmaq residents in exchange for pelts, game and hand-crafted goods. This early trade was reflected in the 1955 recovery of European items (pots, axe heads, adze heads, swords, daggers, knives, chisels, spear heads, arrow heads, harpoons, fishhooks, caulking tools, beads, etc.) from a set of late sixteenth century Mi'kmaq graves on the north shore of the entrance to Pictou Harbour (Whitehead 1993: 49-70). It may also be reflected in the nineteenth century recovery of a pewter bowl and spoons from a suspected Mi'kmaq habitation site near Big Gut, about a kilometre to the south of the Study Area (Patterson 1877: 27-28).

Historic Period

Indian Cross Point derives its name from a large metal cross that was erected somewhere on the point before the 1765 arrival of British settlers at Pictou Harbour. The cross is described in the following excerpt from George Patterson's history of Pictou County.

"On a point a little lower down the river [East River] was another burying place. Here stood at the arrival of the English settlers, and until a recent period, a large iron cross, about ten feet high. Hence the place is still known as Indian Cross Point, though the locality is known among the Micmacs, as Soogunagade, or rotting place." (Patterson 1877: 28).

Based on its antiquity, Christian symbolism and association with a historic Mi'kmaq burying ground (Brown 1998; CMM 2008: 26; Bennett 2011; PLFN 2012; MacLeod-Leslie 2015), it is likely that the iron cross marked the location of a French mission – a place where missionaries from France provided Christian services for the Mi'kmaq population at Pictou Harbour during 1600s and early 1700s. Similar crosses existed at contemporary French missionary sites elsewhere in the Maritimes, including at

Miramichi and Burnt Church, in New Brunswick (Whitehead 2015: 10-11; Wallis & Wallis 1955: 189).

By the early-to-mid 1700s, year-round occupation by settlers of French ancestry resulted in the establishment of clusters of Acadian homes at Pictou Harbour and at other ports nearby, including Caribou Harbour (on Caribou Island), Little Harbour (at Money Point) and Merigomish Harbour (on Big Island and at French River) (Cullen *et al.* 1984: 6; Dawson 2012: 118-119). The coastal positioning of these settlements suggests a strong focus on fishing, probably in addition to farming. Within Pictou Harbour, Acadian homes were established in the area of the present town site (Clark 1968: 229) and in other shoreline locations, as recalled by subsequent settlers and cited in the following excerpts from a written history of Pictou County.

“A log shanty stood at the mouth of the Middle River, and another on the East River. Some pine had been cut down at the Town Gut and along the stream upward, and the spot where Barrie’s (late Dickson’s) mill now stands, selected as the site of a mill. The remains of a cellar, which had been well constructed with logs was, for a length of time, to be seen about half way between the Town Gut Bridge and Browns Point.

At what has long been known as the Burying Ground Point, inside the entrance of the harbour, on the north side, now known as Seaview Cemetery, was found a sawpit fallen in, with a log upon it in which the whip saw, much rusted, still remained. It is believed by many, on the assertion of some Micmacs, that this was used as a burying ground by the French, and in the faith of this several Roman Catholics have been buried there, and with their Protestant neighbors sleep their last sleep in peace. The remains of two or three huts were also found near this point toward the entrance of the harbour.” (Patterson 1877: 38, 39)

Oral history suggests that at least one early Acadian home may have existed near the head of Boat Harbour, somewhere in the vicinity of the marsh that became Former Settling Pond 3 (**Figure 2**). Prior to its use as a settling pond, this marsh, identified locally as Chisholm’s Marsh, had remnants of a dyke at its mouth and was still known to provide the best “natural” source of hay at the harbour (MacKay 2018a). The dyke would have been located about 250 metres west of the present Electrical Building, where an extension of Simpsons Road now blocks the natural marsh opening. The narrow section of Boat Harbour into which the marsh originally flowed, currently called the Aeration Stabilizing Basin, was previously known to older Pictou Landing residents “Butt Toe” (MacKay 2018a & b). This name could have been derived from the French word “Batteau”, meaning “boat”. If so, perhaps it is lasting evidence that the French coined the name “Boat Harbour”. However, given the place-name was associated specifically with the harbour segment adjacent to the dyke, it is more likely that the origin of the name was “Aboiteau” – the French word for the wooden sluice that would have lain within the structure of the dyke at this location. Fitted with a one-way valve, the sluice would have been the key element that allowed fresh water to drain outwards from the marsh at low tide, and prevented salt water from coming inwards at all other times. Regardless, the memory of the dyke and the name “Butt Toe” are suggestive of early Acadian settlement at the head of Boat Harbour.

The deportation of Acadians from Nova Scotia, beginning in 1755, resulted in the exodus of the Acadian population from Pictou Harbour and its surroundings. Joining fellow refugees from other North Shore ports, these Acadians are believed to have moved eastward, ultimately establishing the communities of Tracadie and Havre Boucher, in Antigonish County. While Acadian buildings within the Colchester

district as near as Tatamagouche were burned by British military personnel, accounts suggest that Acadian structures at Pictou Harbour were left standing (Patterson 1877: 42).

During the period of the Seven Years' War (1756-1763), no British settlement was initiated at Pictou Harbour or its surroundings due to the potential for attack by French and Mi'kmaw forces (Patterson 1877: 58, 59). However, through the rest of the eighteenth century, British and Anglo-American settlement was promoted through the provision of grants.

In 1765, much of the eastern half of the district that is now Pictou County was granted to select British officers in honour of distinguished service. The individual who received the grant that included the present Study Area was Major John Fisher – the namesake of Fisher's Grant (PANS 1968: 524-525). His grant extended from Pictou Harbour eastward to Merigomish Harbour (Patterson 1877: 50; MacKay 2014: 22, 23). Despite this enticement, Fisher did not occupy or improve his grant (Patterson 1877: 50; MacKay 2014: 23).

At the same time, two vast areas to the north and west of the Fisher property were granted to Irish and Philadelphian speculators, respectively. Located outside of the present Study Area, these grants included the future site of the Town of Pictou. Only the "Philadelphia Company" attracted settlers, bringing six families from Philadelphia to the Halliburton area in 1767, beginning a new wave of settlement on Pictou Harbour. In contrast, the "Irish Grant" reverted to the Crown in 1770 due to lack of "improvements" (Patterson 1877: 51-65; MacKay 2014: 16).

By the end of 1769, occupation of the "Philadelphia Grant" had increased by another seven families, which arrived variously from Truro and Philadelphia to take up plots to the west and northwest of the present Town of Pictou, outside the Study Area (Patterson 1877: 65, 66).

In 1773, approximately 180 settlers from Scotland were brought to Pictou Harbour by the Philadelphia Company. They first camped together at Brown's Point, slightly west of the present Town of Pictou. Many left, but those that remained or returned took up potential farm plots on the shores of the West, Middle and East Rivers of Pictou, outside of the Study Area (Patterson 1877: 79-97, 110; MacKay 2014: 18).

Another 15 families moved to Pictou in 1776 from a Scottish settlement at Georgetown, Prince Edward Island, where crops had been devastated by mice. These refugees had emigrated originally from Lockerby, Scotland. Some continued to Truro, but others stayed and received assistance to establish homes alongside the existing settlers (MacKay 2014: 22).

In 1779, during the American Revolutionary War (1775-1783), hundreds of representatives of Mi'kmaw communities from Miramichi to Cape Breton gathered together at Abercrombie Point (formerly known as Fraser's Point), which is located outside of the Study Area about 700 metres north of the western end of the pipeline corridor. Lasting several days, this meeting was triggered by the British capture of 16 Mi'kmaw individuals at Miramichi who were suspected of having robbed local British traders in support of the American cause. Although it was held to discuss the possibility of joining forces with the Americans against the British in the region, the meeting ended peacefully, without promoting retaliation (Patterson 1877: 106). Until 1838, Abercrombie Point was used annually for late summer gatherings of Mi'kmaw representatives from across the southern half of the Gulf of St. Lawrence, including Prince Edward Island (Patterson 1877: 188).

British settlement in the vicinity of the Study Area began at the close of the American Revolutionary War, when, in 1783, Fisher's Grant reverted back to the Crown and was divided among disbanded soldiers. Since most of the recipients were soldiers of the 82nd Regiment of Foot, Fisher's Grant came to be known to some as the "82nd Grant" or the "Soldiers' Grant". However, for most, the area of present-day Pictou Landing was still to be known as Fisher's Grant. The 82nd Regiment was formed in 1777 at Lanarkshire in the Scottish Lowlands, and was renowned for having served under General Francis MacLean in the 1779 capture and defense of Castine, Maine – actions that resulted in the existence of a British colony (New Ireland) on the central coast of Maine for a four-year period during the war. Other recipients of property within the 82nd Grant were soldiers of the 84th Regiment – a group of Scottish Highlanders that also served with distinction on campaigns against Americans in the Thirteen Colonies (Patterson 1877: 114-115; MacKay 2014: 24-29).

At the present community of Pictou Landing, division of Fisher's Grant included a gridwork of streets and small properties that was intended to become the Town of Walmesley. Superseded by the development of the present Town of Pictou before it could emerge, this prospective town-site was located immediately west of the intersection between Pictou Landing Road (Route 348) and Lower Road, about a kilometre northwest of the Study Area. Planning for the Town of Walmesley also included the designation of a large tract of land on the eastern side of Boat Harbour as the Walmesley Town Common. This intended Common was located partially within the Study Area (Morris 1785; Huttie 1874; J.H. Meacham & Co. 1879: 27; NSARM 1968: 525; Cullen *et al* 1984: 8; Dawson 1988: 124; Cameron 1990: 53; MacKay 2014: 24-26; **Figures 7, 10 & 11**).

Individual grants of property in the vicinity of the Study Area tended to be long and narrow, extending inland from the Pictou Harbour shoreline, even across the width of Boat Harbour (**Figure 7**). Efforts for development of these new lots were focused primarily near the Pictou Harbour shoreline, outside of the Study Area, in order to gain direct access to Pictou Harbour for transportation and marine resources. It was not until 1798 that work began on Fisher's Grant Road (now Pictou Landing Road or Route 348), including construction of a bridge across Boat Harbour at the narrows near the entrance (Patterson 1877: 210; Cullen *et al*. 1984: 14; MacKay 2014: 224).

Once established, Fisher's Grant Road became an important thoroughfare. In 1807, its use was further enhanced by the establishment of a cross-harbour ferry service between Fisher's Grant and the Town of Pictou. This operation was based in the vicinity of Christie Point at Fairview, about 1.5 kilometres northwest of the Study Area (MacKay 1834; Patterson 1877: 209; Cullen *et al*. 1984: 61; MacKay 2014: 41, 52, 173, 174; **Figure 8**). By 1848, a second ferry route was established at Fisher's Grant, operating from a wharf in the vicinity of the present wharves and facilities operated by the Harbour Authority of Pictou Landing (MacKay 2014: 189).

In the 1820s and 1840s, schooners and brigantines were constructed at or near the beach east of the entrance to Boat Harbour, at the northern edge of the Study Area (Patterson 1877: 432; Cullen *et al*. 1984: 21; Cameron 1990: 12, 56-58; **Table 2**). The shipbuilders at this location included John Reid, George MacKenzie, John Powell, Donald MacLeod and Patrick O'Brien, some of whom are still recognized in the place-names that are applied to nearby landforms (*e.g.* Mackenzie Head, Powells Head) (**Figure 1**). In addition, local residents also still apply the name "Schooner Corner" to an intersection of dirt roads that lies east of the Boat Harbour estuary, where a road to the beach branches off an abandoned segment of Fisher's Grant Road / Pictou Landing Road (MacKay 2018a).

TABLE 2: Shipbuilding at Boat Harbour (Patterson 1877: 432; Cullen *et al.* 1984: 22)

Year	Vessel Type	Vessel Name	Tonnage	Builder(s)	Master
1821	Schooner	James William	45	John Reid & George MacKenzie	
1843	Brigantine	Wave	111	John Powell	George M. Powell
1845	Brigantine	Kate Robertson	150	Donald MacLeod	
1845	Schooner	Strange	44	Patrick O'Brien	
1848	Brigantine	Home	238	Alex MacLeod	

It has been suggested that Boat Harbour owes its name to the shipbuilding that occurred at or near the harbour-mouth (Cullen *et al.* 1984: 61). However, in the days of sailing vessels, the term “boat” was reserved for the smaller utility watercraft (longboats, gigs, barges, pinnaces, dories, etc.) carried by larger sailing vessels. Therefore, it seems more likely that the name “Boat Harbour” may have been coined in the early days of European exploration, when it would have been recognized that the harbour was suited only for vessels the size of boats, due to the narrowness and shallowness of the harbour entrance.

As an aid to marine navigators approaching the entrances of Pictou Harbour and Boat Harbour, the Pictou Bar Lighthouse was erected in 1834 at the end of Lighthouse Beach, approximately 1.5 kilometres northwest of the Study Area (<http://www.novastory.ca/cdm/search/searchterm/lighthouse>). The most recent light-tower at that location was destroyed by fire on July 5, 2004 (http://www.nslps.com/dir_AboutLights/LighthouseSingle.aspx?LID=299).

Development at Fisher’s Grant and prosperity in the vicinity of the Study Area increased significantly in conjunction with the 1867 opening of the Pictou branch of the Nova Scotia Railway. Bordering the southern edge of the Study Area and carrying freight and passengers, this railway ran from Truro to the newer ferry wharf at Fisher’s Grant, which was situated across the harbour from the Town of Pictou (Dawson 2007: 63; MacKay 2014: 75). Its construction was engineered and privately contracted by Sir Sanford Fleming, including the building of an extended wharf, an engine house, a locomotive turntable and a tank house (MacKay 2014: 50, 69, 73, 159). Until 1887, when a branch line was extended directly to the Town of Pictou, Pictou Landing was the main service area on the harbour, with an improved ferry operation, a way office for postal service, a hotel, 5 boarding houses, 2 general stores, a bakery and new shipping wharves for coal exported by the Acadia Coal Company and the Vale Coal Company (MacKay 2014: 42, 79, 98, 108-111, 114, 161). It was during this period, when Fisher’s Grant was Pictou Harbour’s main centre for freight, coal and passenger transfer, that the railway terminus and the surrounding community came to be known as Pictou Landing (NSARM 1968: 524; MacKay 2014: 4, 79).

Although the growth of Pictou Landing was focused outside of the Study Area, it occasionally triggered substantial activity within the Study Area. For example, sand extraction was a significant business at the northern end of the Study Area during the late 1800s and early 1900s. At that time, sand was needed for several local industrial uses, including the production of plaster, concrete and mortar; as fill for the closure of mine shafts, and as grit for locomotive breaking systems and the sand-blasting of rail cars prior to painting. To meet the demand, sand was gathered from the beaches that lie on either side of the Boat Harbour entrance, known as The Narrows, as well as from other nearby beaches outside the Study Area,

such as Lighthouse Beach and Lowden’s Beach. In the early days, the sand was hauled using wagons or sleds pulled by horses. Later, William “Billy” MacPherson used a scow towed by a sailboat to transport the sand to a distribution point on the eastern side of the government wharf at Pictou Landing. His business was purchased by Matthew Gillis Sproull in the late 1800s. Sproull faced competition from Laurie Ferguson in 1895 before passing his business to his son, Charles Sproull, sometime before 1901. Charles Sproull modernized the system by using a steam tugboat to propel the scow. He continued with this enterprise until the early 1930s, before shifting his attention to the construction of bridges and wharves (MacKay 2014: 118, 119, 149, 151-153).

When the Acadia Coal Company replaced its Pictou Landing wharf between 1904 and 1905, the logs were provided by Campbell Sproull from Boat Harbour.

“Mr. Sproull cut the logs in the fall of 1904 and hauled them from Boat Harbour to the pier site with a team of horses. Campbell Sproull also supplied all the stone for the cribwork. . . . According to Henry Ferguson, there was a big snowstorm [at the end of December, 1904] followed by a soft spell and then the temperature dropped, causing a heavy crust of snow. The crust was so thick that the horses were able to haul the logs on the crust of the snow most of the way from Boat Harbour to the new pier site.” (MacKay 2014: 115-116).

The amount of timber cut for this project would have been significant, considering that, when complete, the new wharf had two separate levels of railway tracks and was about 160 metres long and 20 metres (6 stories) high, above the low tide mark. It remained standing until 1951 (MacKay 2014: 117, 118, 142).

Although Pictou Landing remained an important transfer point for goods such as iron ore, steel rails, scrap brick, fire clay, hardwood timbers, coal, sand, salt, dolomite, deal, oats and general freight in the late nineteenth and early twentieth centuries (MacKay 2014: 86-89), several factors contributed to an overall decline in local prosperity that extended from the late 1870s to the 1950s. Those factors included:

- the 1876 opening of the Intercolonial Railway line from Halifax to Levis, Quebec;
- the 1881 opening of the “Eastern Extension” railway from New Glasgow to Point Tupper and, later, to Sydney and Louisbourg;
- the 1887 opening of the Intercolonial Railway line from Stellarton to Pictou, which triggered the closure of the Pictou Landing railway station, blacksmith forge, carpenter shop and bakery;
- the 1900 formation of the Nova Scotia Steel and Coal Company, which resulted in the opening of a steel plant at Sydney and a decline local iron production;
- the 1940-1945 use of Acadia Coal Company steamers as part of the Merchant Marine service during the Second World War
- the 1951 closure of the main Pictou Landing ferry service; and,
- the 1955 closure of the railway between Trenton and Pictou Landing (MacKay 2014: 79, 82, 83, 88, 89, 95, 212).

As the predominantly Scottish community of Fisher’s Grant / Pictou Landing was developing, expanding and contracting, the Mi’kmaq of Piktuk, once free to move their camps seasonally to wherever they chose in the district, had to struggle to maintain their claim to one remaining traditional campsite, located to the north of the Study Area, on the shore of Moodie Cove. Their plight is reflected in the in the following excerpt from a letter written in 1842 by James Dawson to Joseph Howe, the newly appointed

Commissioner for Indian Affairs (Paul 1993: 192-194), in response to his request to investigate the local status of Mi'kmaw lands:

“ . . . I have got the enclosed memorandum from the Record Office regarding the lands on which the Indians reside at the mouth of this Harbour [Pictou Harbour] – by which you will see the exceeding loose nature of the title to these lands notwithstanding the number of hands it has passed through – the Indians all the time holding adverse possession [a claim based on long-term occupancy]. The lands in question were a part of the Philadelphia Grant [incorrect] made to the Officers of the 82nd Reg't. at the close of the American Revolutionary War, and there is little doubt but Dr. McLean of that Reg't. was allowed by the other grantees to hold that portion as his share, altho [sic.] his name, as Mr. Creeman says, does not appear in the Grant. But no one claiming it has ever had anything like possession of it untill [sic.] a few years ago, when it began to be sold in small lots by the late Rev. McKenzie – and the parties in doing so have had to drive the Indians from their clearings where they grow potatoes, etc. The Indians are passionately fond of this lot, as it affords them great facilities for the fishery, but I am afraid there is no way of gratifying them in regard to it, as there are now some settlers on it, and a high price would be demanded.” (Dawson 1842).

Despite the efforts of Dawson and Howe, the Mi'kmaq of Piktuk were still without land title in 1862, when Donald McArthur, owner of a 54 acre (21.9 hectare) lot at Moodie Point (**Figure 10**), petitioned for compensation for property damage caused by summertime camping of 30 Mi'kmaw families on his property, including “cutting firewood and material for the manufacture of baskets and buttertubs and other workmanship” – acts said to have occurred annually since he became the owner of the property in about 1847 (McArthur 1862). When he wrote the petition, McArthur had not yet established his own residence at Moodie Point. Instead, he was living on a 230 acre (93.1 hectare) property that his family owned on the eastern shore of Boat Harbour (**Figures 9 & 11**; see also “Donald McArthur Site”, Section 4.2.1).

Two years later, in 1864, a Mi'kmaw land reserve was established at Moodie Cove (PLFN 2012; Bennett 2013: 24). Measuring 50 acres (20.2 hectares), this reserve was located at the head of the cove, rather than at Moodie Point, and it included the mainland end of Lighthouse Beach Point (**Figure 10**). Like Moodie Point, the reserve may have been a traditional place for Mi'kmaw encampments, even in Precontact times. Its position was strategically close to a short (640 metre) portage route that provided efficient overland passage between Pictou Harbour at the head of Moodie Cove and Boat Harbour at the head of its northwestern cove. Kept open until recently, this trail ran along the western side of the pond that lies near the western boundary of Fisher's Grant 24 (Francis 2018b). The existence of Mi'kmaq names for features at either end of this trail – “Sitmug” (“the shore down by the beach” for the head of Moodie Cove and “A'se'k” (“the other room” or “the other side”) for Boat Harbour – suggests that both places were long-established cultural centres and were always linked.

The original Mi'kmaw reserve, ironically named “Fisher's Grant” after the first European to be granted land in the area, was located approximately 300 metres north of the Study Area. By 1876 the reserve was expanded to 139 acres (56.3 hectares) by the addition of neighbouring properties located to the southeast. Addition of these properties expanded the reserve from Moodie Cove to the shore of Boat Harbour and into the present Study Area (J. H. Meacham & Co. 1879: **Figure 10**). Over the next century, additional lands were added, ultimately leading to the present configuration of Fisher's Grant 24 (consolidated in

1962), Fisher’s Grant 24G (created in 1928) (McDonald 1963) and Boat Harbour West 37 (created in 1962). Each of these Pictou Landing First Nation reserves falls partially within the Study Area. Together, they total 465 hectares (PLFN 1999: 7; PLFN 2012).

The following table presents documented accounts of Mi’kmaw activities that occurred within the Study Area in and around Boat Harbour in the years prior to the establishment of the Boat Harbour Effluent Treatment Facility in 1966 (**Table 3**). By no means complete, this list is presented to give a general indication of the extent and nature of local and traditional Mi’kmaw practices in the area – many of which would have originated in Precontact times. It should be noted that many of these activities would also have been performed within the Study Area by others – especially the residents of nearby Pictou Landing. This list can and should be used in the interpretation of archaeological sites found within the Study Area.

TABLE 3: Traditional Mi’kmaw Use of Boat Harbour and its Environs in the Study Area

ACTIVITY	VARIETY	REFERENCE
Boat Anchorage	Lobster Boats	PLFN 2012; Bennett 2013: 85; MacKay 2018a
Partying and Feasting		Bennett 2013: 28, 84
Skating		Bennett 2013: 28, 84, 85
Swimming		Bennett 2013: 28, 84, 85, 90, 92, 96
Fishing	In General	PLFN 2012; Bennett 2013: 1, 28, 29, 88, 95, 96, 97, 98
	Clams	Bennett 2013: 1, 28, 82, 84, 92; Hayne 2018
	Eels	PLFN 2012; Bennett 2013: 1, 28, 29, 82, 95
	Mackerel	MacKay 2017
	Smelts	Bennett 2013: 81, 84, 95; MacKay 2017
	Trout	Hayne 2018
	Lobster	PLFN 2012; Bennett 2013: 28, 29; Hayne 2018
	Oysters	Bennett 2013: 28; MacKay 2017
	Quahogs	MacKay 2017
Hunting	In General	PLFN 2012; Bennett 2013: 29, 85, 86, 88, 95, 96; MacKay 2017
	Beaver	Bennett 2013: 82
	Moose	Bennett 2013: 86
	Porcupines	Bennett 2013: 82
	Snowshoe hares	Bennett 2013: 82, 92, 94, 95, 96

ACTIVITY	VARIETY	REFERENCE
	White-tailed deer	Bennett 2013: 82, 92, 96
Tree/Wood Harvesting	General Wood for Carpentry	Bennett 2013: 95
	Black ash for basket material	Bennett 2013: 84
	Firewood	Bennett 2013: 82, 89, 96, 98
	Christmas Tree Harvesting	Bennett 2013: 82
	Poplar Poles (clothesline, etc.)	Francis 2018a
	Pulp Wood	Francis 2018a
Food Plant Harvesting	Apples	Bennett 2013: 84, 95
	Berries, including Blueberries, Strawberries, Bayberries, Fox Berries, Raspberries, Blackberries, Cranberries, Teaberries	Bennett 2013: 82; 84, 92, 95, 96
	Hazelnuts	Bennett 2013: 84
	Medicine harvesting, including sweet grass, golden thread, Lion’s Paw	Bennett 2013: 84, 92, 96
Flower Harvesting	Mayflowers	Bennett 2013: 84
Water Collection	Spring Water	Bennett 2013: 85, 98

The information in this table, most of which was generated by community members prior to the initiation of this archaeological investigation, is also corroborated by KMKNO records. The latter reference hundreds of Mi’kmaw traditional use sites of various kinds in and around the Study Area, including sites previously used for encampment, hunting, fishing, other aquatic resource harvesting, plant gathering, ceremonies and burials (MacLean 2018). While Mi’kmaw burials are known to have occurred in the vicinity of Indian Cross Point and the Pictou First Nations Cemetery, records do not indicate any within the limits of the Study Area.

Construction of the Boat Harbour Effluent Treatment Facility began in 1966 with the construction of the Boat Harbour Dam. Once complete, this dam raised the level of Boat Harbour upstream of the dam by about 1.0 metre above the previous high tide level. The Treatment Facility became operational in 1967, when the Scott Paper Company mill at Abercrombie Point became active (JWEL 1993: 16; Bennett 2013: 28, 30). Since then, the Treatment Facility has undergone many infrastructure changes, bringing it and the extreme southern end of Boat Harbour to its present configuration (*Figure 2*).

Detailed history for particular cultural features encountered during reconnaissance of the Study Area is presented in Section 4.2 of this report.

Past Archaeological Investigation

Prior to the archaeological study summarized in this report, three other archaeological studies had been undertaken in the vicinity of the Study Area.

In 1979, Ronald Nash, Professor of Anthropology at St. Francis Xavier University, conducted archaeological testing at the Moodie Point site (BkCq-20) – a Precontact habitation site located at Moodie Point, about 1.4 kilometres north of the Study Area (MARI form for BkCq-20; Thomson 1994: 4). Conducted in the vicinity of reported historic Mi’kmaw encampments on McArthur’s property during the

1840s through the 1860s, the testing determined that the site included evidence of occupation by the Kejikawek L'nuk (recent people) sometime during the Ceramic Period (*ca.* 3000-400 BP) (CMM Environmental Services 2008: 19-20).

From 1993 to 1994, Jacques Whitford Environment Limited conducted archaeological assessment of a proposed pipeline corridor that would have extended from the Boat Harbour Effluent Treatment Facility to the Northumberland Strait between MacKenzie Head and Fergusons Pond (Heritage Research Permit A1994NS15). The western end of this corridor lay within the present Study Area for the Treatment Facility remediation. As a result of background research and reconnaissance, historic farm remains (see Donald McArthur Site in Section 4.2.1) and potential for Precontact archaeological resources were reported to exist at McArthur's Brook, outside of the corridor that was being assessed, but within the current Study Area. Due to proximity, it was recommended that archaeological monitoring be applied to any construction activity within that western segment of the corridor (Thompson 1994).

In 2014, KMKNO's Archaeological Research Division conducted archaeological reconnaissance and monitoring during repair of a breach in the effluent pipeline at Indian Cross Point (Heritage Research Permit A2014NS52). The investigation did not identify any graves or cultural resources within the pipeline corridor. Based on review of historic accounts and examination of the surrounding landscape, it was speculated that the location of the traditional Mi'kmaw burial ground previously reported for Indian Cross Point was situated on private land outside of the pipeline corridor, more than 150 metres to the north. However, it was recommended that caution be exercised in the event of any further groundwork within the pipeline corridor at Indian Cross Point (MacLeod-Leslie 2015).

Cemeteries

The only cemeteries in close proximity to the Study Area are the Pictou First Nations Cemetery, which lies slightly north of the revised Study Area at 140 Cemetery Road within the limits of Fisher's Grant 24, and the older Mi'kmaw cemetery at Indian Cross Point (Patterson 1877: 28, 187, 449; Dawson 1988: 124; Bennett 2011: 32-40 & Appendix; Brown 1998; MacKay 2014: 10; MacLean 2018). As indicated above, archaeological reconnaissance suggests that the location of the burial ground at Indian Cross Point is at least 150 metres north of the Study Area (MacLeod-Leslie 2015: 9-11).

Speaking of the cemetery at Indian Cross Point, Patterson wrote:

“Here the Indians buried till a few years ago. Many of the graves can still be traced by the rows of flat stones, by which they were originally covered, which have now sunk to the level of the ground or perhaps were always in that position, and are partly overgrown with grass. The water is wasting away the bank, so that human bones may be found exposed on the shore.” (Patterson 1877: 28).

McLeod, speaking of an event in the early 1860s or earlier, wrote:

“One day, over fifty years ago, the Indians turned out in force to repair the breach that time and tide had made on their old burial ground. Their first duty was to gather up every fragment that seemed to belong to the fallen graves. Those relics they interred in a new grave, a short distance inland from the bank. They then piled up boulders and smaller stones at the base of the bank to protect it from future storms.” (McLeod 1912, as seen in Brown, 1998: 5).

The practice of Mi'kmaw interments at Indian Cross Point may have emerged with the arrival of French missionaries at Pictou Harbour, when Christian ceremonies for both Mi'kmaq and any local Acadians would have centred around a physical cross erected at the point. However, it is also possible that the area was a preferred location for Mi'kmaw interments long before the arrival of Europeans at the harbour. The Mi'kmaq name for Indian Cross Point is Suple'katik, meaning "at the rotting place" (Pacifique, EHG, 1934, p. 240; Pjila'si Mi'kma'ki (Mi'kmaw Place Names Digital Atlas - <http://sparc.smu.ca/mpnmap/>). The tradition of visiting and tending graves at Indian Cross Point was continued by representatives of the Mi'kmaq of Piktuk into living memory (MacKay 2017).

Registered Heritage Properties of Pictou County

There are no registered heritage properties within the Study Area or in its immediate surroundings. The nearest are located about 3 to 5 kilometres away, across Pictou Harbour in the Town of Pictou. These include properties with federal designations (Pictou Academy National Historic Site and the Pictou Railway Station [Intercolonial] National Historic Site), properties with provincial designations (The Consulate, McCulloch House, Pictou Iron Foundry, Stella Maris Church and Stella Maris Convent) and properties with municipal designations (The Consulate, the New Caledonian Curling Club, 98 Water Street and Willow House) (https://en.wikipedia.org/wiki/List_of_historic_places_in_Pictou_County,_Nova_Scotia).

The nearest Historic Sites and Monuments Board of Canada commemorative plaque is situated at the Bethel Presbyterian Church in Pictou Landing, about a kilometre northwest of the Study Area. Designated in 1977, the plaque honours Granton-born Rear Admiral Leonard Warren for his distinguished career, including being a "principal architect and organizer of the Allies' North Atlantic convoy system during World War II." (Cameron 1990: 88; http://www.pc.gc.ca/apps/dfhd/page_nhs_eng.aspx?id=1121;)



Approximate Study Area

Morris, 1785

Figure 7

BOAT HARBOUR REMEDIATION
 ARCHAEOLOGICAL ASSESSMENT 2017
 PICTOU COUNTY, NOVA SCOTIA

April 2018



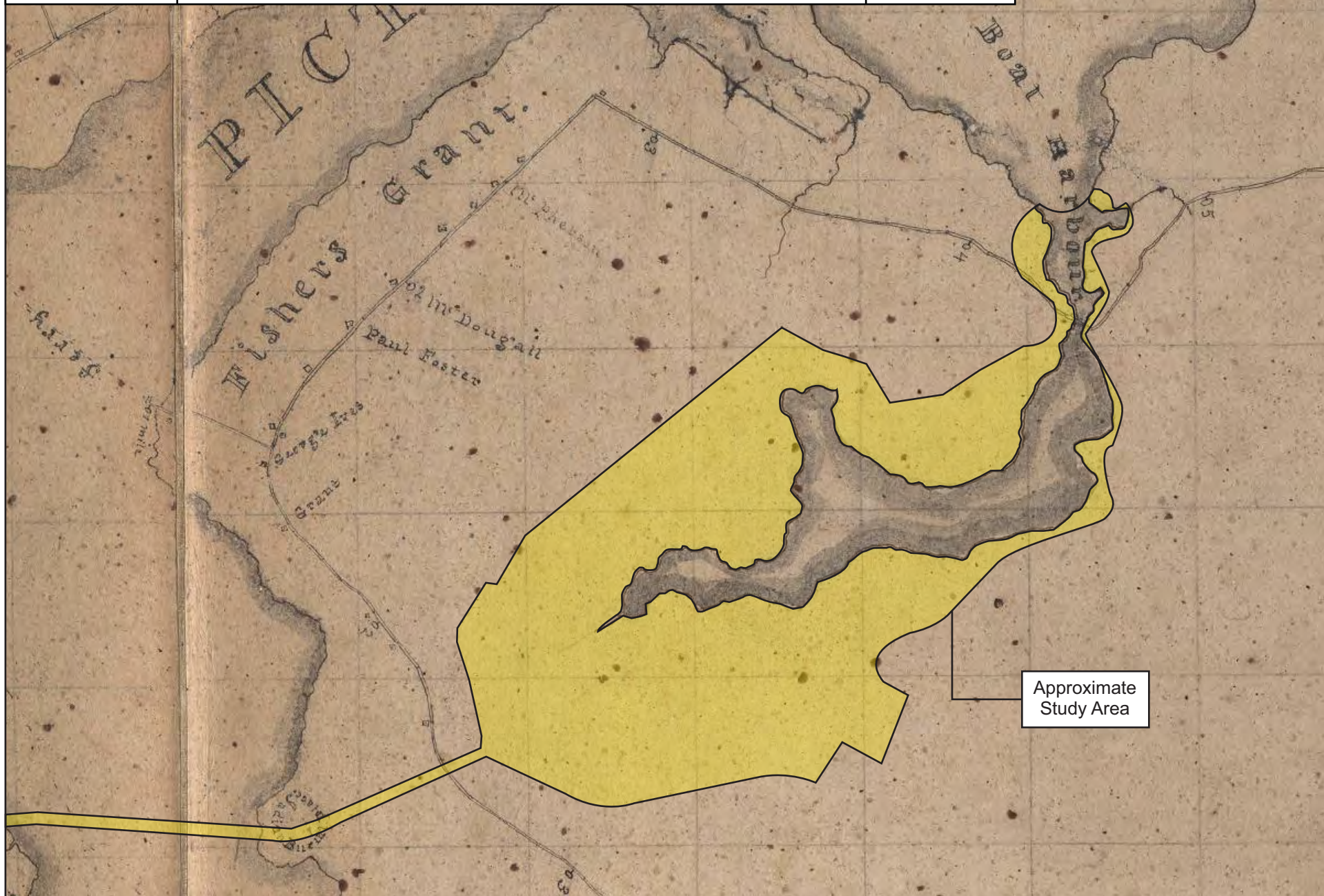


MacKay, 1834

Figure 8

BOAT HARBOUR REMEDIATION
ARCHAEOLOGICAL ASSESSMENT 2017
PICTOU COUNTY, NOVA SCOTIA

April 2018



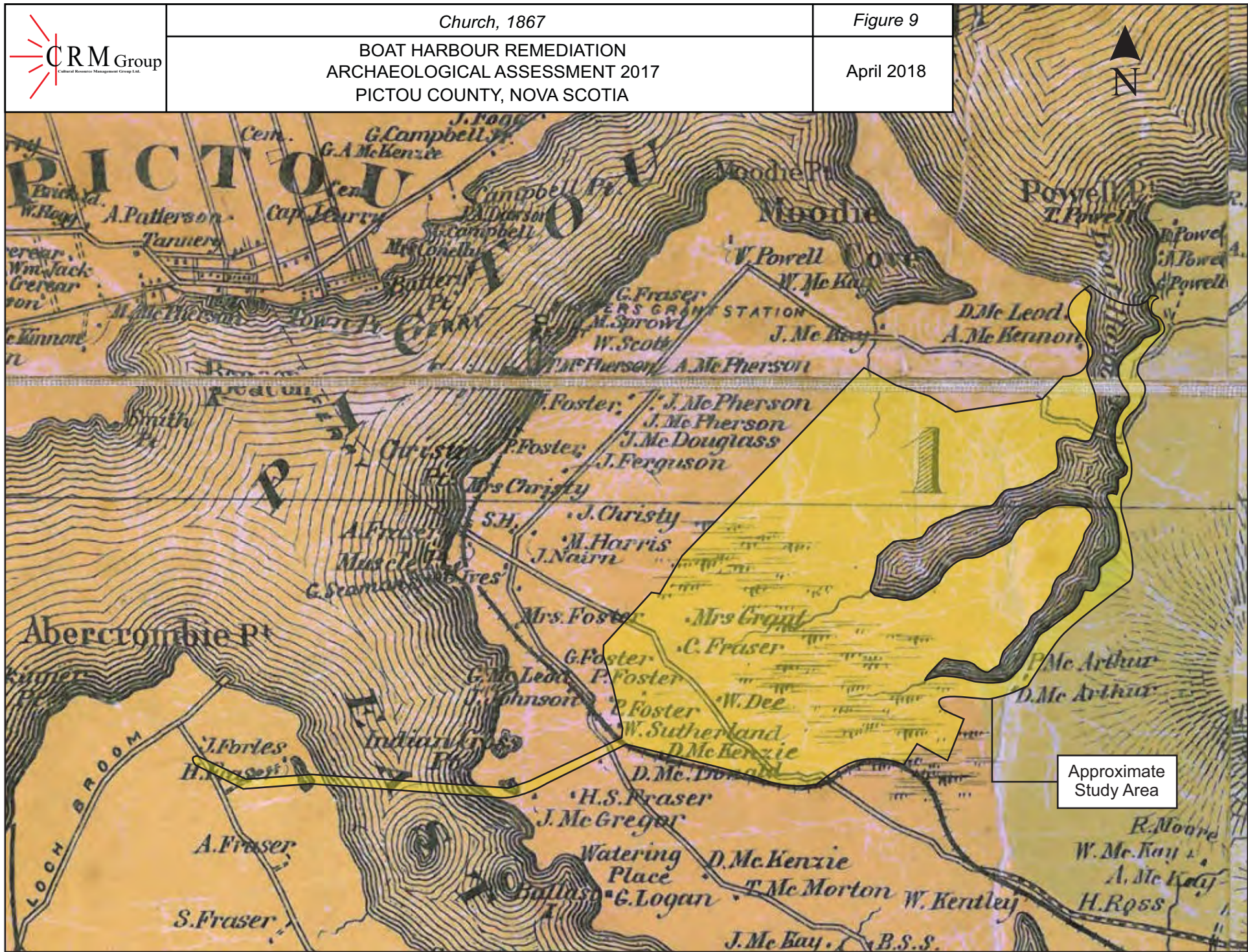


Church, 1867

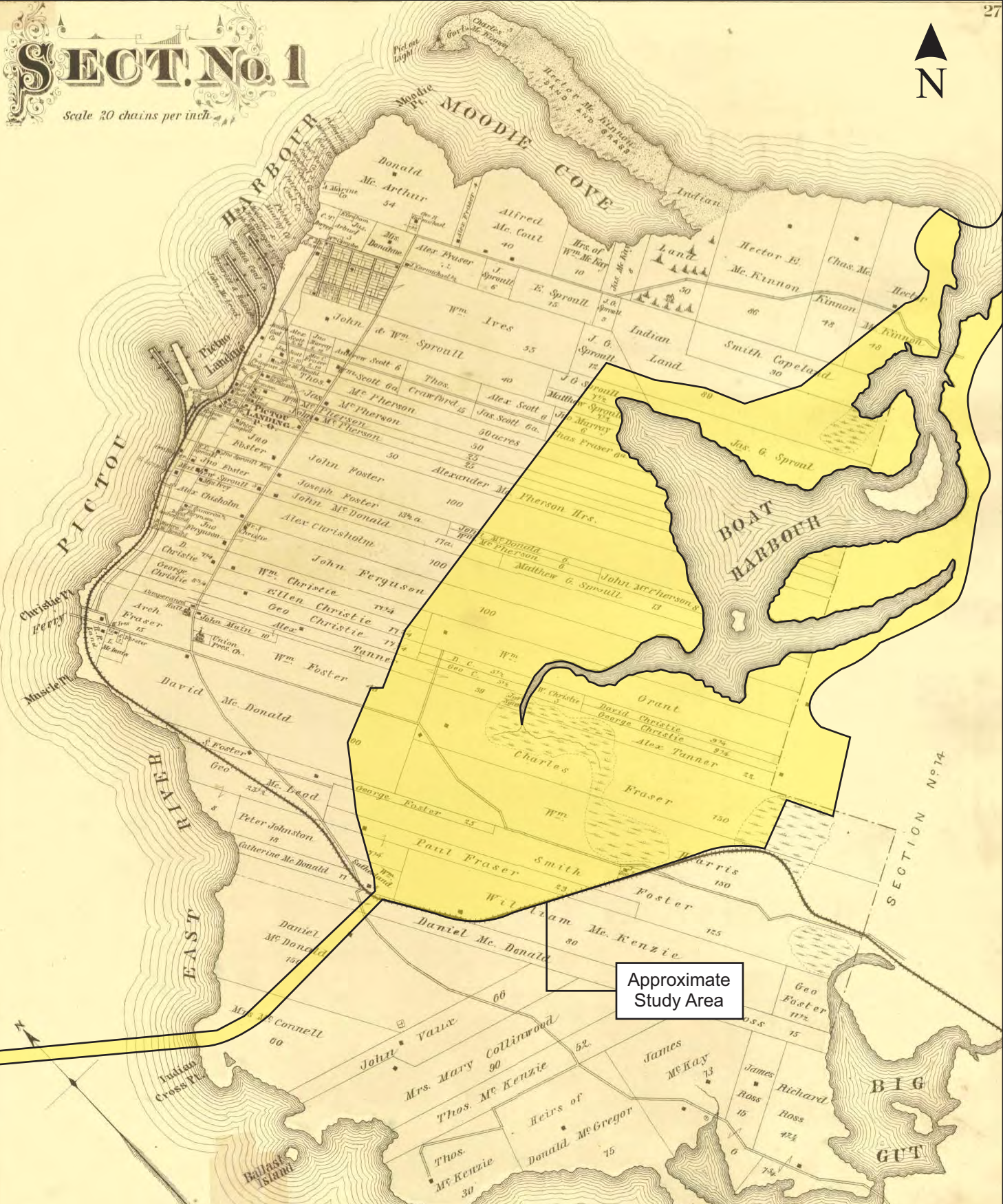
BOAT HARBOUR REMEDIATION
 ARCHAEOLOGICAL ASSESSMENT 2017
 PICTOU COUNTY, NOVA SCOTIA

Figure 9

April 2018



Approximate
Study Area



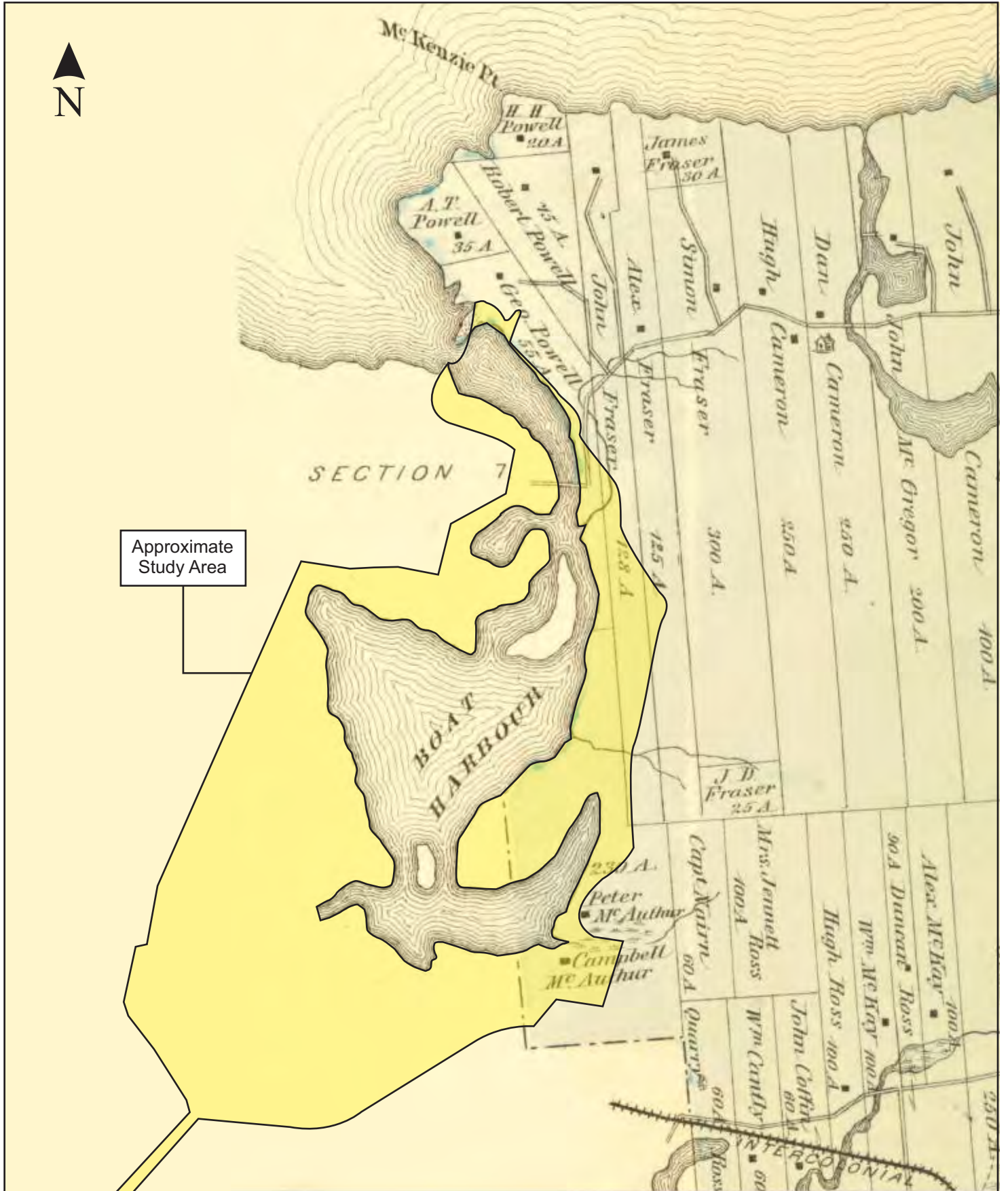
J. Meacham & Co. - West Side of Boat Harbour, 1879

Figure 10

BOAT HARBOUR REMEDIATION
ARCHAEOLOGICAL ASSESSMENT 2017
PICTOU COUNTY, NOVA SCOTIA

April 2018





Approximate Study Area

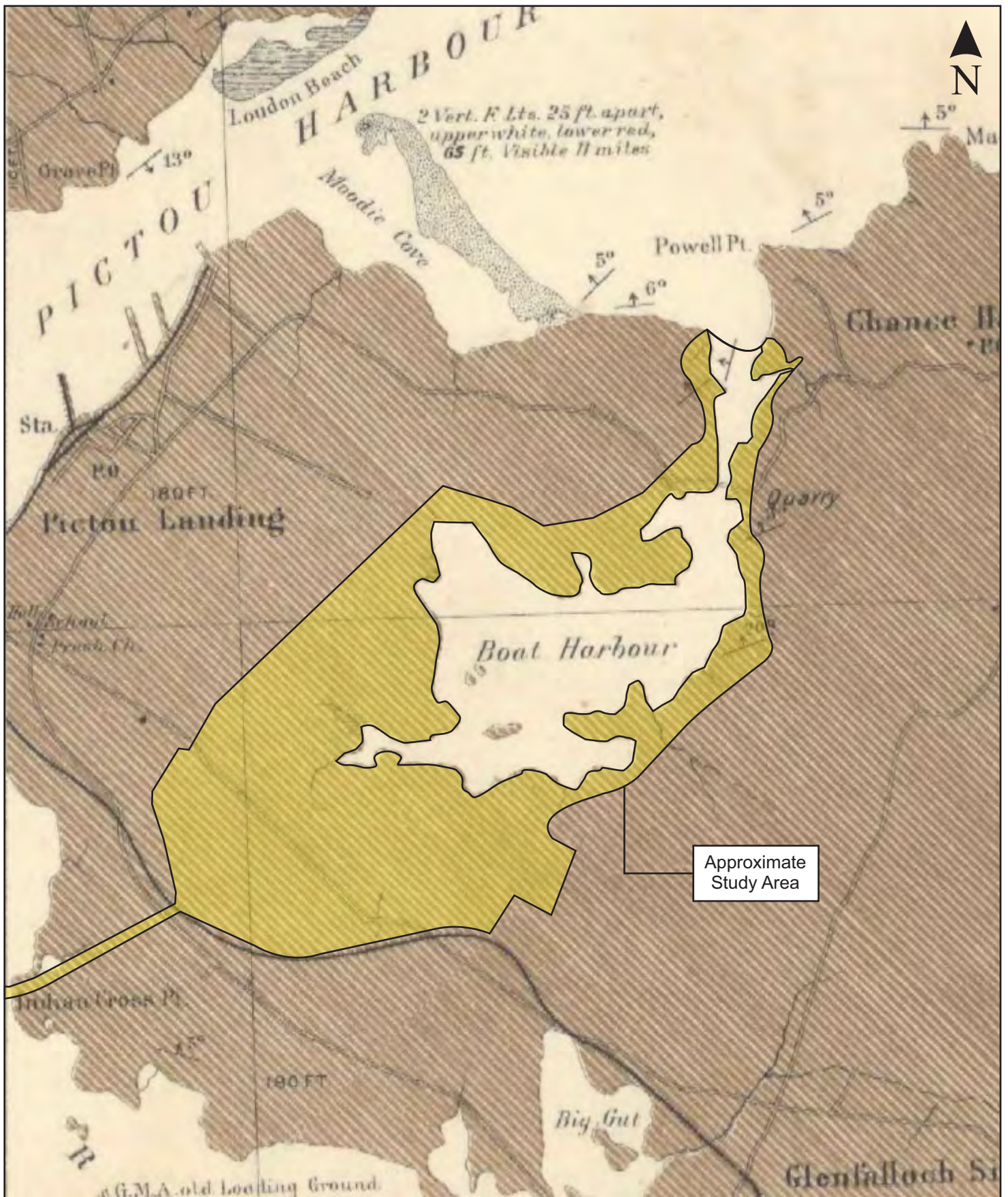
J. Meacham & Co. - East Side of Boat Harbour, 1879

Figure 11

BOAT HARBOUR REMEDIATION
 ARCHAEOLOGICAL ASSESSMENT 2017
 PICTOU COUNTY, NOVA SCOTIA

April 2018





Fletcher, 1902

Figure 12

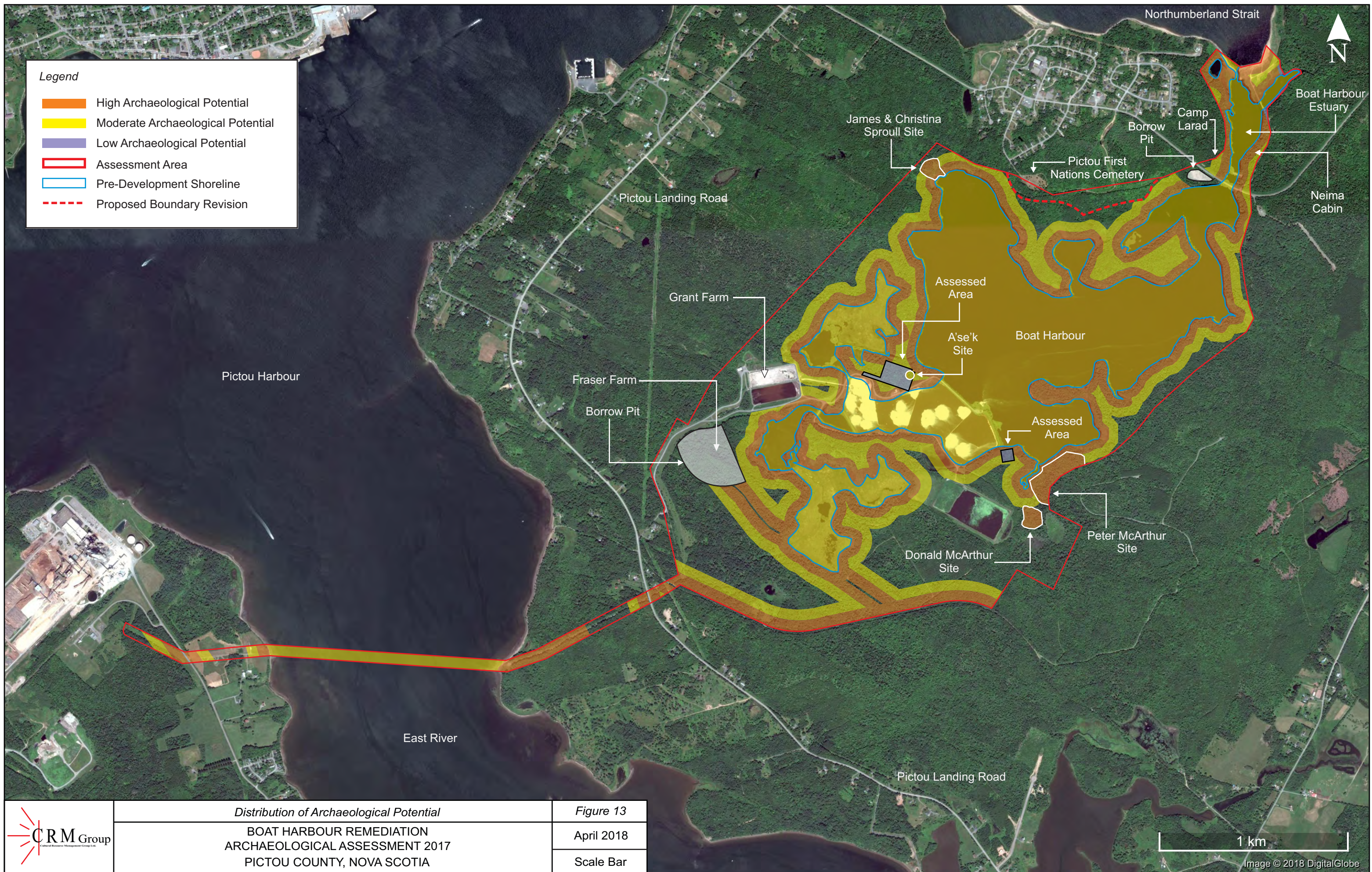
BOAT HARBOUR REMEDIATION
 ARCHAEOLOGICAL ASSESSMENT 2017
 PICTOU COUNTY, NOVA SCOTIA

April 2018



4.2 Field Reconnaissance

CRM Group reconnaissance resulted in the initial documentation of three archaeological sites and numerous broad areas of elevated (moderate to high) archaeological potential (**Figure 13**). Each of these areas of concern is situated in close proximity to bodies of water or historic transportation routes (See sections 4.2.1 and 4.2.2). The remainder of the Study Area was ascribed low archaeological potential, being too steep, wet, uneven, rocky or isolated from early travelways (watercourses, portage routes or roads) to have significant potential to contain tangible evidence of past human use.



Legend

- High Archaeological Potential
- Moderate Archaeological Potential
- Low Archaeological Potential
- Assessment Area
- Pre-Development Shoreline
- Proposed Boundary Revision

<i>Distribution of Archaeological Potential</i>	Figure 13
BOAT HARBOUR REMEDIATION ARCHAEOLOGICAL ASSESSMENT 2017 PICTOU COUNTY, NOVA SCOTIA	April 2018
	Scale Bar



1 km

Image © 2018 DigitalGlobe

4.2.1 ARCHAEOLOGICAL SITES

The archaeological sites identified during the course of the field reconnaissance are presented in geographical order from west to east:

James & Christina Sproull Site

Physical traces of an abandoned farmstead were identified at the head of the northwestern cove of Boat Harbour (**Figures 13 & 14; Plates 13-15**). Consisting of a levelled field with a house foundation obscured by tree growth, the site is located at the northern end of the large (465 acre/188 hectare) Boat Harbour Effluent Treatment Facility property (PID 00801191). The house foundation is situated about 75 metres inland from the cove and about 150 metres west of Fishers Grant IR24. Lying on the north side of a dirt lane that skirts the shore of the cove, its position is slightly east of an intersection where another lane diverges to the northwest. The lane that continues to the southwest, along the side of the harbour, is known locally as the Funny Face Trail, due to the presence of faces carved into trees along its margins (Paul 2018).

The house foundation (**Figure 14; Plate 13**) exhibits drystone construction and is formed primarily of local sandstone fieldstones. The main section of this foundation measures approximately 10 metres long (northeast/southwest) by 8 metres wide (northwest/southeast) and encloses a cellar about 1.0 metre deep. At the centre of the cellar (20T 526,498E/5,057,556N NAD 83) are remains of a drystone chimney base composed, in part, of relatively large chiseled blocks of local sandstone (**Plate 14**).

Extending northeastward from the main structure is the foundation of a building extension, also formed of dry-laid fieldstones (**Figure 14**). Measuring about 5 metres long (northwest/southeast) by 3.5 metres wide (northeast/southwest) and lacking an enclosed cellar, this smaller foundation probably represents the footing for an addition built to serve as a summer kitchen.

The only historic cultural material observed on the ground surface in or around the house foundation were bricks, presumably representing the collapsed remains of a chimney that would have stood on the rectangular stonework at the centre of the cellar. In marked contrast to this structural material original to the construction of the house, were the remains of two small lean-to shelters representing recent activity within the cellar. Made of sticks, scrap lumber, fabric and pieces of plastic, these features probably represented relatively recent child's-play by members of the nearby Piktuk community (**Plate 14**).

Although no other archaeological features were noted when the grounds around the foundation were subjected to cursory reconnaissance, other cultural resources expected on-site include a well, refuse middens and the remains of outbuildings such as a barn and a privy. Another feature that might exist along the adjacent flooded shoreline would be the remains of a wharf and/or boat slip.

History and Interpretation

Historic maps and other documents indicate that the farmstead at the head of Boat Harbour's northwest cove belonged to James Gillis Sproull and Christina Sproull in the 1870s, and was situated on a relatively small (7.5 acre or 3 hectare) lot (anonymous *ca.* 1875; J.H. Meacham & Co. 1879: 27; **Figure 10**). This married couple contributed to the expansion of Fisher's Grant IR 24 in 1876 by providing a nearby 11 acre property on the south side of Pictou Landing Road in exchange for 16 acres of Crown Land located north of their farm. The transaction united two existing Reserve properties, and gave the Sproulls title to land

that gave them northward access to Pictou Landing Road from the farm (Morse 1891: XX, XXXV, 3, 4, 73, 74, 249-251).

While the property exchange was being negotiated, *ca.* 1875, a rough plan was drawn showing the approximate outline of the properties under consideration (**Plate 16**). The plan includes a rough sketch of the Sproull house, labelled “Js. Sproul”, and depicts an outbuilding located slightly to the northeast on the same property, presumably representing a barn (anonymous *ca.* 1875).

The James and Christina Sproull residence lies within the former limits of a relatively large grant that extended southeastward from near the centre of the Fisher’s Grant / Pictou Landing shoreline, immediately southwest of the planned Walmesley town-site (J. Meacham & Co. 1879: 27). This larger property included much of the north shore of Boat Harbour and was co-owned by William and John Sproull in the 1830s. William, born in Nova Scotia, took up the lot in 1831. John, born in Scotland, arrived in 1833 (J. Meacham & Co. 1879: 91).

Further research and/or archaeological testing is needed to determine the age of the James and Christina Sproull residence. It is not included among residences depicted on nineteenth century maps of the area examined during the course of the current study (MacKay 1834; Church 1867; J. Meacham & Co. 1879; **Figures 8, 9 & 10**). However, since it is located within the limits of the original Sproull property and exhibits evidence of a central chimney – an architectural detail typical of Georgian Colonial and Neoclassical houses built between 1700 and 1860 (<https://novascotia.ca/archives/builtheritage/default.asp>) – it seems plausible that it could represent the original Sproull house of the 1830s.

According to local residents, Charles Sproull was owner of the residence in the late 1800s, and built scows on the property for use in the family sand supply business. It is speculated that he established a mill on the property to supply the necessary lumber – a mill possibly powered by the brook that lies to the east of the house. According to oral tradition, the flow of this brook was also regulated to help launch scows into the waters of Boat Harbour (Hayne 2018; MacKay 2018a).

Subsequent owners of the property included Campbell Sproull and Jimmie Archie Sproull (Hayne 2018). Since Campbell Sproull provided logs and stone for construction of a new Acadia Coal Company wharf at Pictou Landing between 1904 and 1905, the property likely served as a key transfer distribution point for materials prior to construction, when logs cut from around Boat Harbour would have been floated to the site, landed and loaded onto sleds for overland delivery (MacKay 2014: 115-116).

The last long-term residents of the James and Christina Sproull residence were the family of Percy Hayne. Mr. Hayne, now 90 and a resident of Pictou Landing, lived at the house until age 13 (*ca.* 1928 to 1941). The following poem, written by Mr. Hayne, provides insight into activities and conditions at the property during the Great Depression (*ca.* 1929-1939) (Hayne 2018).

Boat Harbour

*Georgina Hayne was my mother’s name.
She should have been called a woman of fame.
Boat Harbour was where we survived.*

*A mother of five when our father died.
She worked hard to keep us alive.*

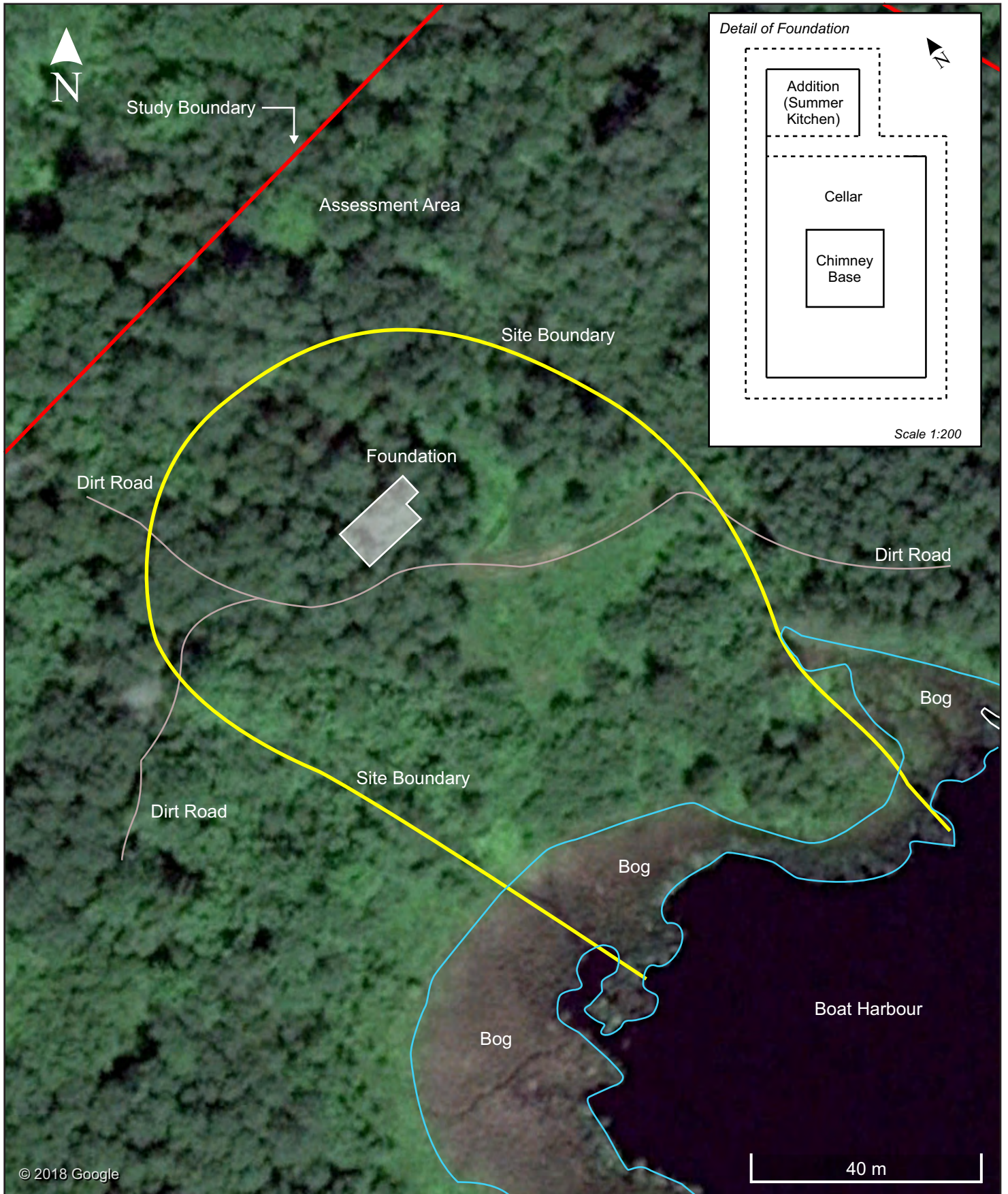
*A dollar a day was what she worked for.
Back in those days, there was no more.
Cows, horses, chickens and geese.
Every Sunday we had a feast.
Clams on the shore.
Smelts in the brook.
All we needed was a good cook.*

*This is how we survived.
We all worked hard to stay alive.
Times have changed.
Things are worse.
You can't go anywheres without a purse.
Money, that is! (Hayne n.d.)*

During that period, the pasture for the farm extended northeastward nearly to the boundary of Fisher's Grant 24, and a garden located southwest of the house included beds for potatoes and strawberries. While the shore of the cove in front of the house was muddy, further to the northeast, in the vicinity of the brook, it was gravelly and included clam flats (Hayne 2018; Francis 2018). Fishing in the brook sometimes yielded trout. At that time, the addition on the house served as a porch, rather than as a summer kitchen (Hayne 2018).

Sometime in the 1950s, after a period of abandonment, Fred Sproull began to renovate the house in preparation for retirement. However, his plans were cut short when the house was lost to fire (MacKay 2018a & 2018b).

As a result of the archaeological reconnaissance and documentation undertaken as part of the Boat Harbour Remediation project, the Sproull farm will be registered as an archaeological site known as the James and Christina Sproull Site.



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James & Christina Sproull Site

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Figure 14

April 2018



PLATE 13: House foundation and cellar at the James & Christina Sproull Site. Facing east. December 4, 2017.



PLATE 14: Chiseled sandstone blocks of the chimney foundation (foreground) at the James & Christina Sproull Site. Facing west. December 4, 2017.



PLATE 15: Apple tree (right) in the former field at the James & Christina Sproull Site. Facing southeast. December 4, 2017.

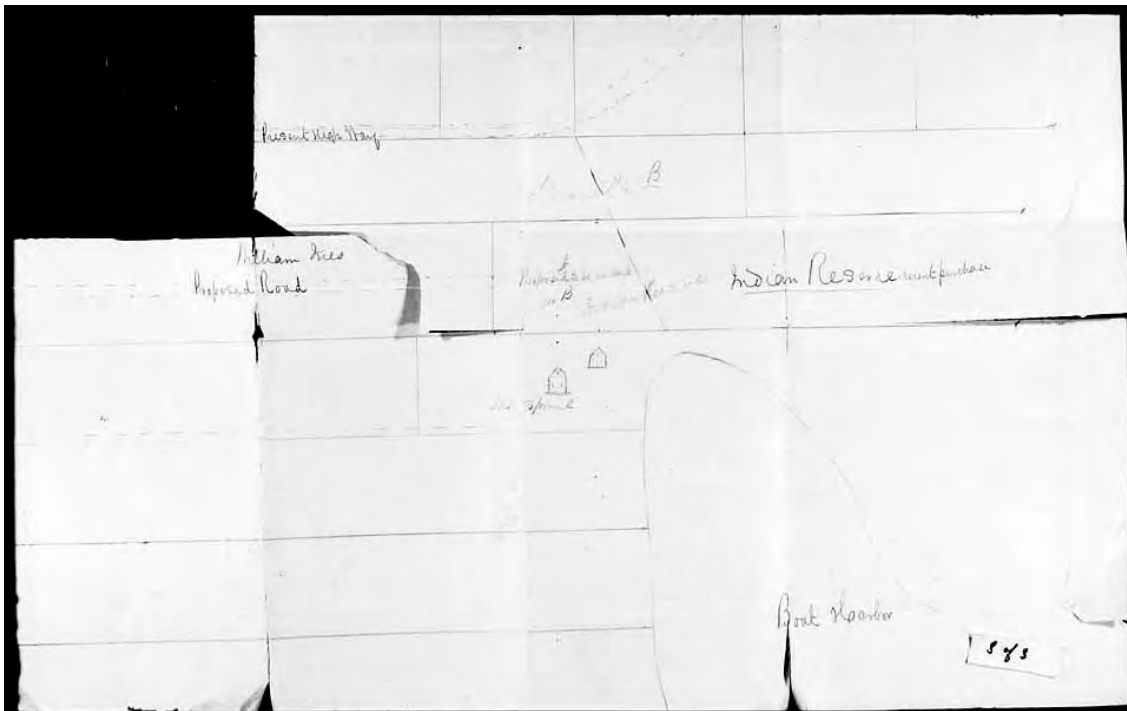


PLATE 16: Sketch of lots considered in a land exchange between James Sproull and the Crown (anonymous ca. 1875). Visible at centre is a depiction of the house and barn of the Sproull residence.

Donald McArthur Site

On the south side of Boat Harbour, the remains of a historic farm were found on the southwestern bank of McArthurs Brook (a.k.a. Irishman's Brook) (**Figures 13 & 15; Plates 17-19**). Consisting of a house foundation surrounded by a levelled yard or field, the site is located at the eastern end of a large (465 acre/188 hectare) property within the Boat Harbour Effluent Treatment Facility (PID 00801191), immediately southwest of Fisher's Grant IR 24G.

The house foundation is situated about 265 metres south of the mouth of the McArthurs Brook estuary, 90 metres east of the existing Sludge Disposal Cell (**Figure 15**) and about 60 metres southwest of Fisher's Grant IR24G. Exhibiting drystone construction, it is formed primarily of chiseled blocks of local sandstone (**Plates 17 & 18**). The foundation is square in plan-view and measures approximately 7.0 metres on each side. An anomalous depression in the alignment of the south wall near the southeastern corner of the house may represent a cellar entrance and a staircase in that location, now concealed by soil accumulation.

Spanning the full length and width of the foundation is a cellar that is currently about 1.3 metres deep (**Plate 17**). At its centre (20T 527,047E/5,055,720N NAD 83) is a chimney base that measures 1.8 centimetres long (northeast/southwest) by 1.5 metres wide (northwest/southeast) (**Plate 19**). Like the foundation, this structure is largely composed of chiseled blocks of local sandstone.

The landscape all around the house foundation has been extensively levelled, presumably to serve as yard and pasture. This former clearing is overgrown with trees estimated to be up to 60 years of age. Included among the trees are apple trees that may be evidence of a bygone orchard. Slightly east of the foundation, a dirt lane that curves to the northeast, crosses McArthurs Brook and enters the Peter McArthur Site, about 60 metres to the north.

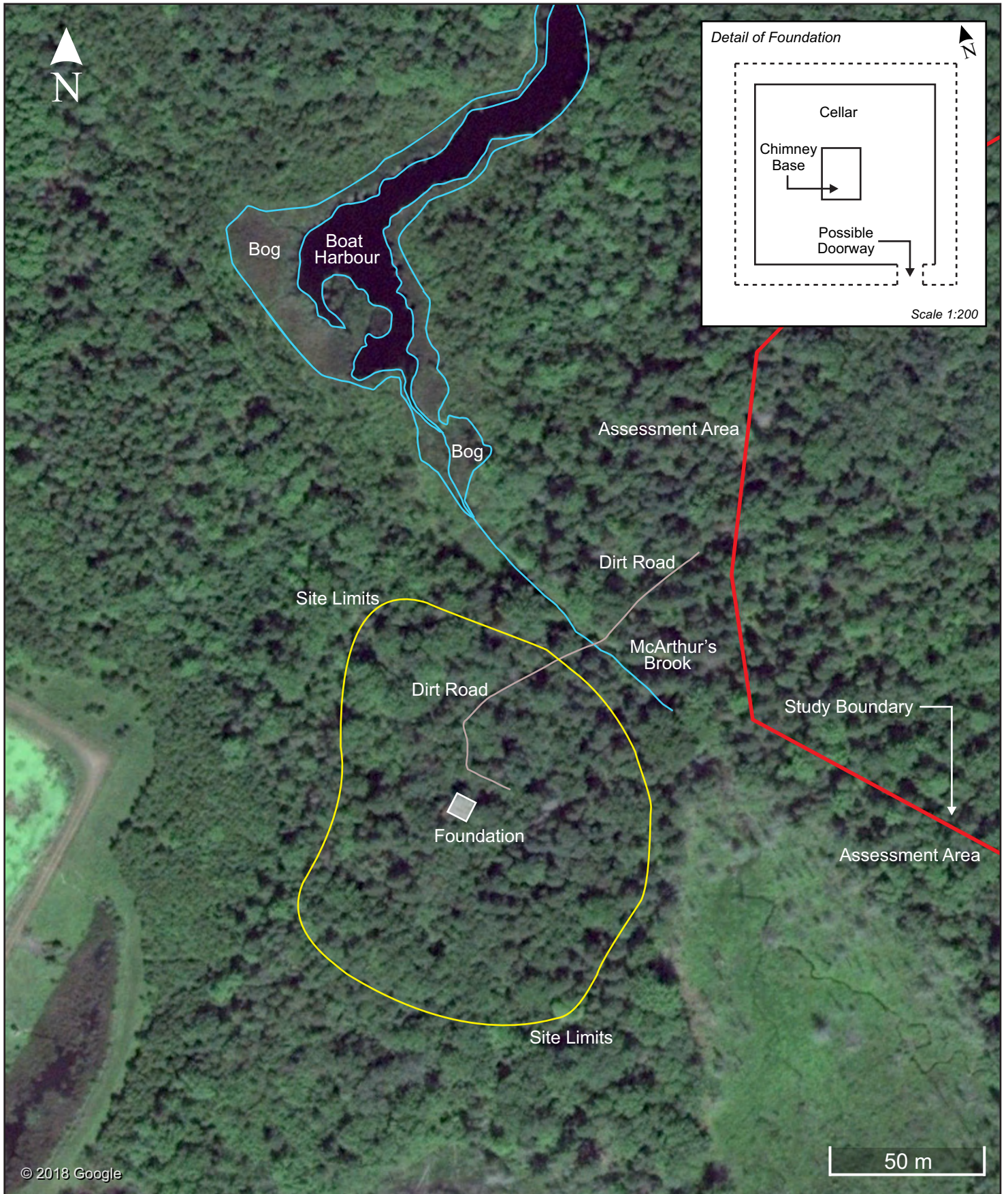
No other archaeological features were noted during reconnaissance of the grounds around the foundation. Regardless, other anticipated on-site cultural resources include a well, middens and the remains of outbuildings such as a barn and a privy. The only historic cultural material observed on-site was a short length of chain that had recently been hung in an apple tree near the house foundation. While it may have originated on-site, it may have been brought to site in conjunction with logging or hunting.

History and Interpretation

The farm on the southwestern bank of McArthurs Brook is ascribed to "D. McArthur" on Church's 1867 map of Pictou County, and as "Campbell McAuthur [sic.] on Meacham & Company's 1879 map of Pictou County, Section 14 (**Figures 9 & 11**). "D. McArthur" or Donald McArthur was born in Scotland and settled at Boat Harbour on a grant owned by his father, Archibald McArthur, in 1813 (J. Meacham & Co, 1879: 91) (Registry of Wills Book No. 2, pages 91-94). The grant, which measured 230 acres, encompassed much of the eastern side of Boat Harbour (J. Meacham & Co. 1879: 52). Census records indicate that, by 1838, Donald was head of a family of 8 (Commissioner of Public Records Nova Scotia Archives RG 1, Vol. 449, No. 166). After Donald, his son Campbell was next to inherit the property (Registry of Wills Book No. 2, pages 91-94). Both Donald and Campbell were farmers, but were also reported to have been watermen (J. Meacham & Co, 1879: 91). Their identification as "watermen" possibly indicates that they were ferry operators. However, another possibility is that they were among the personnel hired locally by Acadia Coal Company to transport water to steam-powered vessels moored in Pictou Harbour (MacKay 2014: 73, 121-123).

Further research and/or archaeological testing is needed to determine the precise age of the two McArthur residences that lie on either side of McArthurs Brook. Based on its smaller pasture size, its greater distance from Boat Harbour and its chiseled-stone foundation construction, the Donald McArthur site is believed to be the more recent of the two sites. It seems likely that the Peter McArthur Site represents the original McArthur homestead, built by Archibald McArthur *ca.* 1813, and that the Donald McArthur site would have been built by Archibald's son Donald sometime in the 1820s or 1830s. There is little doubt that the Donald McArthur Site represents the residence Donald McArthur was occupying with seven family members in 1838 (Commissioner of Public Records Nova Scotia Archives RG 1, Vol. 449, No. 166). The age of the trees in the area of the house and its grounds suggests that, by the late 1950s, the dwelling was no longer standing. Subsequent owners of the Donald McArthur site property prior to its acquisition as part of the grounds for the Treatment Facility included Kenneth E. Graham and Ben Bugden (Macdonald 1963; MacKay 2018b).

As a result of the archaeological reconnaissance and documentation undertaken as part of the Boat Harbour Remediation project, the Donald McArthur farm will be registered as an archaeological site known as the Donald McArthur Site.



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Donald McArthur Site

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Figure 15

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PLATE 17: House foundation and cellar at the Donald McArthur Site. Facing southeast. December 5, 2017.



PLATE 18: Northeast corner of the Donald McArthur house foundation. Facing northeast. December 5, 2017.



PLATE 19: Chimney base within the house cellar at the Donald McArthur Site. Facing east. December 5, 2017.

Peter McArthur Site

The remains of another historic farm were identified on the eastern side of McArthurs Brook, northeast of the Donald McArthur Site (*Figures 13 & 16; Plates 20-22*). Consisting of a house cellar surrounded by a broad levelled yard or pasture, the site is located on the south shore of Boat Harbour east of the McArthurs Brook estuary, at the western corner of Fisher's Grant IR 24G.

The house cellar is situated about 150 metres south of the mouth of the McArthurs Brook estuary and 200 metres east of the existing Sludge Disposal Cell (20T 527,119E/5,055,830N NAD 83) (*Figure 16; Plate 20*). Although the cellar is quite deep (1.4 metres), its margins are generally indistinct due to soil accumulation and slumping. Its dimensions are approximately 5.5 metres long (northeast/southwest) by 4.5 metres wide (northwest/southeast). The only exposed structural element is a slumped dry-laid fieldstone wall that would have served as the southeast wall of the cellar and, possibly, the base of the chimney (*Plate 21*). A search of the ground surface around the cellar revealed no visible trace of a house foundation or footing stones, but such elements could lie fully concealed beneath a cover of accumulated soil. The distribution of particularly flat ground around the perimeter of cellar suggests that the house was centred over the cellar's northeastern side, rather than over its centre.

The landscape surrounding the house foundation is extensively levelled, presumably to serve as yard and pasture. This former clearing, which extends northward to the shore of McArthurs Cove, is overgrown with trees estimated to be up to 100 years of age (*Plates 20-22*). Reconnaissance of this ground surface revealed no other visible archaeological features or exposed artifacts. However, other anticipated on-site cultural resources include a well, middens and the remains of outbuildings such as a barn and a privy. The invisibility of such cultural resources contributes to the impression that the site has sustained at least a

century of plant growth/decay and soil accumulation since it was abandoned.

History and Interpretation

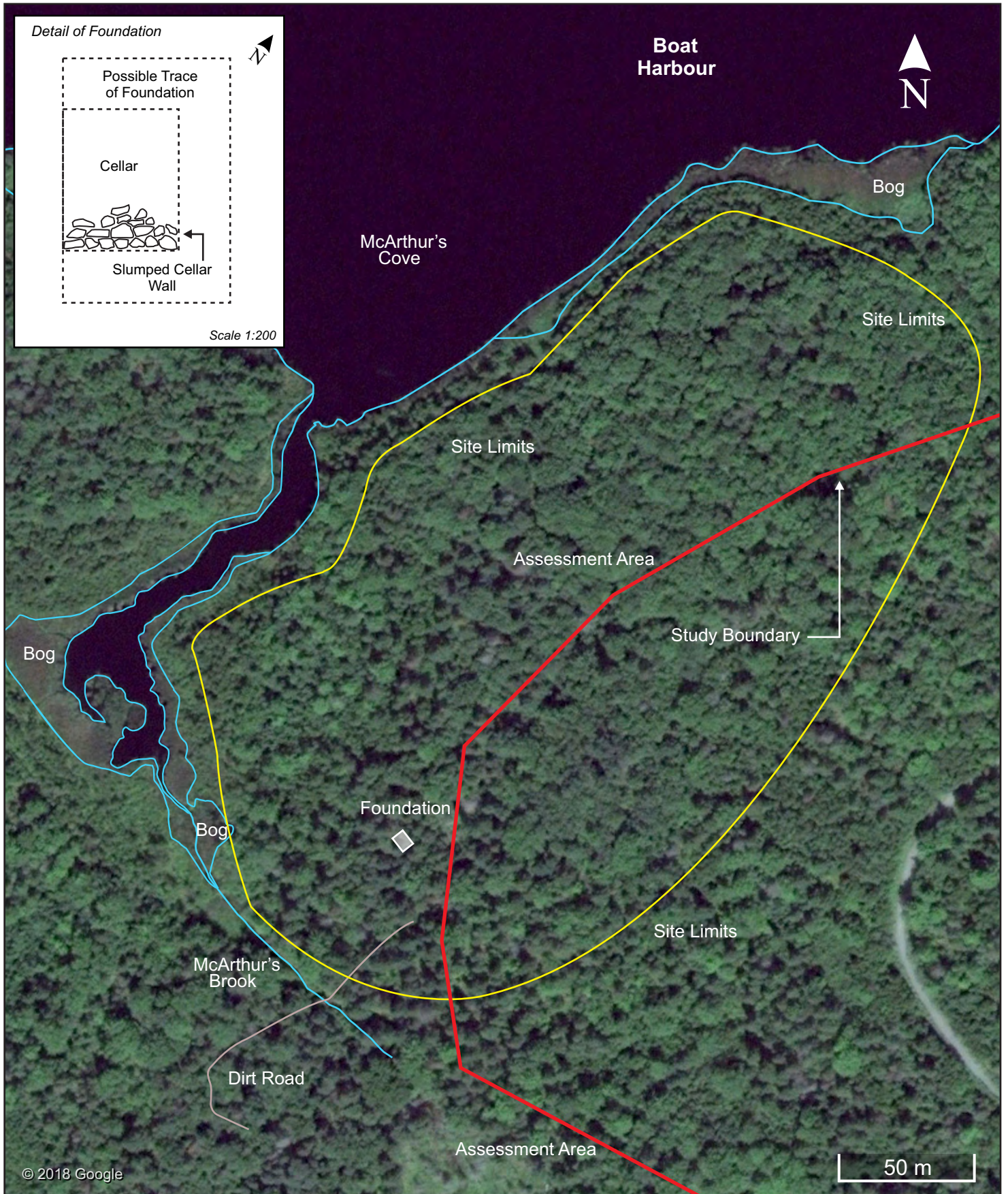
In 1785, McArthurs Brook and its surroundings were within the limits of Walmesley Common (Morris 1785). After plans for development of the Town of Walmesley were abandoned, the majority of Walmesley Common, including the area around McArthurs Brook, was granted to Archibald McArthur and Daniel McArthur (NSDLF 1948). The McArthur grant, which measured 230 acres, encompassed much of the eastern side of Boat Harbour, including the land in the vicinity of McArthurs Brook (J. Meacham & Co. 1879: 52).

By 1817, according to census returns for Pictou County, Archibald McArthur was head of a household of 10 individuals. At that time, he was over the age of 50 and was living with a woman, a man (over the age of 16), 3 boys and 4 girls (Commissioner of Public Records, Nova Scotia Archives RG 1, Vol. 445, No. 13).

The cellar on the eastern side of McArthurs Brook may represent the original McArthur farm – the farm established by Archibald McArthur when he and Daniel McArthur acquired the grant on the eastern side of Boat Harbour. Based on its strategic position (on the shore of Boat Harbour next to a brook), its simplistic construction (cellar walls formed of fieldstones rather than cut stone blocks) and its relatively extensive pasture, it is likely older than the farm represented by the Donald McArthur Site on the opposite side of the brook.

Until addressed by further research or archaeological testing, the only certainty is that the farm on the northeast side of McArthurs brook was owned by Peter McArthur in the 1860s and 1870s. It is depicted as “P. McArthur” on Church’s 1867 map of Pictou County, and as “Peter McAuthur [sic.] on Meacham & Company’s 1879 map of Pictou County Section 14 (*Figures 9 & 11*). Conceivably, Peter McArthur was a younger brother of Donald, and when Donald moved out to establish the farm on the southwest side of McArthurs Brook, Peter continued to occupy their parent’s home.

As a result of the archaeological reconnaissance and documentation undertaken as part of the Boat Harbour Remediation project, the Peter McArthur farm will be registered as an archaeological site known as the Peter McArthur Site.



Peter McArthur Site

Figure 16

BOAT HARBOUR REMEDIATION
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PLATE 20: House cellar at the Peter McArthur Site. Facing southeast. December 5, 2017.



PLATE 21: Slumped southeast wall of the Peter McArthur Site cellar. Facing southwest. December 5, 2017.



PLATE 22: Levelled field or pasture northeast of the house cellar at the Peter McArthur Site. Facing northeast. December 5, 2017.

4.2.2 OTHER AREAS OF ELEVATED ARCHAEOLOGICAL POTENTIAL

In addition to the three archaeological sites identified during the course of field reconnaissance, many extensive areas of elevated (moderate or high) archaeological potential were identified during reconnaissance (*Figure 13*). These zones of concern include:

- the pipeline corridor as it crosses beneath East River of Pictou and the natural floor and marshes of Boat Harbour, which are ascribed moderate archaeological potential;
- virtually all ground within 100 metres of the shore of Boat Harbour or Pictou Harbour [Specifically, high archaeological potential is ascribed to the area within 50 metres of the shoreline and moderate archaeological potential is ascribed to the area between 50 and 100 metres of the shoreline. The only notable exceptions are areas where extensive modern ground disturbance has occurred within developed sections of the existing Boat Harbour Effluent Treatment Facility (the Press Building, the Settling Basin/Emergency Basin, the Sludge Disposal Cell and the new borrow pit), at the Route 348 crossing of Boat Harbour and at the adjacent borrow pit.];
- an extended area of concern at Indian Cross Point, where high archaeological potential and elevated concern for the presence of human interments and Precontact archaeological resources is ascribed to the pipeline corridor within 500 metres of the shoreline; and
- all ground within 100 metres of historic travel-ways, such as the present Granton Abercrombie Branch Road, Pictou Landing Road (including its earlier alignment from the head of Big Gut to Christie Point (*Figure 10*)) and the former path of the Nova Scotia Railway. [Specifically, high archaeological potential is ascribed to the area within 50 metres of the travel-way and moderate archaeological potential is ascribed to the area between 50 and 100 metres of the travel-way.]

Divided into segments for convenient discussion, the areas of concern are described individually below.

Pipeline Corridor: West of East River of Pictou

Reconnaissance of the western end of the pipeline corridor, west of East River of Pictou was undertaken on December 7 (*Plates 1 & 23*). Evidence of ground disturbance within this segment of the corridor included tree clearing, field ploughing, construction of Granton Abercrombie Branch Road and installation of the buried pipeline. However, those disturbances would not have eliminated archaeological resource potential within that area. Given that Granton Abercrombie Branch Road was established before 1834 (Mackay 1834) and would have been a focus for historic settlement from the time of its establishment, elevated archaeological potential was ascribed to the corridor within 100 metres of this road (0-50 metres = high potential; 50-100 metres = moderate potential). Elevated archaeological potential was also ascribed to the area within 100 metres of the shore (0-50 metres = high potential; 50-100 metres = moderate potential), out of concern for the presence of Precontact, Contact and historic archaeological resources.



PLATE 23: Pipeline corridor as seen from the western end of the Study Area. Facing east. December 7, 2017.

Pipeline Corridor: Marine Component

The marine component of the pipeline corridor was not subjected to archaeological reconnaissance. Although disturbance of benthic sediments would have occurred along the length of the corridor in association with installation/burial of the pipeline, that disturbance would not have eliminated archaeological resource potential from that corridor segment.

A search of the Marine Heritage Database, prepared for the Special Places Program and maintained by the Maritime Museum of the Atlantic, lists 14 vessel collisions, sinkings, wrecks, strandings, fires, etc. that have occurred within the limits of Pictou Harbour. While available information confirms that two of those events, including the 1895 stranding of the schooner *Marcelin* and the 1925 burning of the vessel *Dieuze*, occurred more than 2.0 kilometres from the pipeline corridor, the specific locations of the other events are not indicated. In light of the uncertainty, and with the expectation that archaeological resources associated with Precontact, Contact and historic archaeological resources may exist anywhere across the harbour bottom, moderate archaeological potential is ascribed to that substrate within the limits of the pipeline corridor.

The Marine Heritage Database does not include any records for Boat Harbour. However, given the extent of cultural activity that is known to have occurred within the limits of this harbour throughout the Precontact, Contact and historic periods, moderate archaeological potential is ascribed to the harbour bottom throughout the historic limits of the harbour, including the larger marshes at its head.



PLATE 24: Alignment of the marine component of the pipeline corridor (centre), as seen from its western end. Facing east. December 7, 2017.

Pipeline Corridor: East of East River of Pictou

Reconnaissance of the pipeline corridor on the eastern side of East River of Pictou was undertaken on December 7 (*Plates 2, 25 & 26*). Evidence of ground disturbance within this segment of the corridor included tree clearing, construction of Pictou Landing Road (Route 348) and installation of the buried pipeline. However, those disturbances would not have eliminated archaeological resource potential from the corridor within that area.

An unusually high concentration of mollusk shells was noted at the shoreline where the pipeline's crossing of East River of Pictou meets Indian Cross Point (*Plates 24 & 25*). Most of the shells in this cluster represent Softshell Clams, but also included are shells of Atlantic Jackknife Clams, Tortoiseshell Limpets, Eastern Blue Mussels, American Oysters and Common Periwinkles. Although inspection of the beach surface at this location revealed no definite artifacts, the unusual shell concentration might be an indication that trenching for 1966 pipeline installation at this location intersected a 'shell midden' – a cultural accumulation of shells discarded as waste from shellfish meals. Further archaeological investigation in the form of additional reconnaissance and/or sub-surface testing would be required to determine the age and significance of this shell concentration. Until then, it must be considered possible evidence of a Precontact, Contact and/or historic habitation site.

Due the possible presence of a shell midden and the accounts of Mi'kmaw burials nearby as described earlier in this report (*Section 4.1*), high archaeological potential and cultural significance are ascribed to the corridor within 500 metres of the shore at Indian Cross Point.

Given that the original and present alignments of Pictou Landing Road (1798 and 1801) and the alignment

of the Nova Scotia Railway (1867) would each have been a focus for historic settlement from the time of their establishment, elevated archaeological potential was ascribed to the corridor within 100 metres of these historic travel-ways (0-50 metres = high potential; 50-100 metres = moderate potential).



PLATE 25: Concentration of shells within the pipeline corridor at Indian Cross Point. Facing south. December 7, 2017.



PLATE 26: Concentration of shells within the pipeline corridor at Indian Cross Point. Facing west. December 7, 2017.

Boat Harbour Shoreline: West Shore South of Dam

Reconnaissance of the western shoreline of Boat Harbour south of the dam was undertaken on December 4 and 7, 2017 (*Plates 4, 5, 8 & 27*). The landscape along this shoreline is mainly gently sloped and dry. Low, wet areas exist at the head of the harbour, especially in the area of Former Settling Pond 3, but elsewhere they are largely confined to fringe bogs in sheltered areas along the harbour shoreline. Where steep slopes exist in proximity to heights on the peninsulas of the north shore, their surfaces and summits include small flats – places that would have been good vantage points. In general, environmental conditions favourable for past encampments and other land-use exist all along the western side of the harbour south of the dam. Consequently, elevated archaeological potential is ascribed to most of the area that falls within 100 metres of this shore (0-50 metres = high potential; 50-100 = moderate potential). Excluded from the areas of elevated archaeological potential are areas of obvious ground impact, such as the Press Building, the Settling Basin/Emergency Basin and the borrow pit that lies south of Pictou Landing Road (Route 348) just west of its causeway across Boat Harbour.

Located within this segment of the Study Area are two archaeological sites described elsewhere in this report, namely the A'se'k 1 Site (*Section 4.3.2*) and the James & Christina Sproull Site (*Section 4.2.1*).

Also within this segment are the remains of Camp Larad – a summer bungalow hotel that was located upslope to the west of the Boat Harbour dam at the western edge of the Study Area (*Plate 28; Figure 13*). Established by Alizette MacKenzie in 1925 and destroyed by fire in 1932 (MacKay 2014), this resort site is not considered an archaeological resource.

During reconnaissance southwest of Boat Harbour, a sparse scatter of historic cultural material was noted in a broad area of exposed ground southwest of Former Settling Pond 2, where soil had recently been removed from an area about 200 metres in diameter and up to 2.0 metres deep to provide material necessary for the construction of a berm across the mouth of McArthur's Cove (Pidgeon 2018; *Figure 13; Plates 29 & 30*). Dating from the mid-nineteenth century to the mid-twentieth century and displaced by the mechanical groundwork, these objects included ceramics (Buckley coarse red earthenware, Maritime Redware, hand-painted refined white earthenware, transfer-printed refined white earthenware), glass (window pane, button), iron (unidentified) and brick. Based on the age and location of the artifacts, it is concluded that they represent remnants of a farm that belonged to Charles Fraser in the 1860s and 1870s (Church 1867; J.H. Meacham 1879; *Figures 9 & 10*) – a farm that was located on the original alignment of Pictou Landing Road. The last occupant of this farm prior to its abandonment was Bill Worthen (Hayne 2018). Comparison between historic and modern maps (*Figures 9, 10 & 13*) suggests that the structural remains of the farm would have been completely removed by recent soil extraction, eliminating archaeological potential throughout the limits of the borrow pit.

It is believed that the remains of another farmstead were eliminated by groundwork for construction of the Treatment Facility. The farmstead, owned by the family of William Grant in the 1860s and 1870s, had been located west of the original head of Boat Harbour (Church 1867; J.H. Meacham 1879; *Figures 9 & 10*). Comparison between historic and modern maps (*Figures 9, 10 & 13*) suggests that the structural remains of this Grant farm would have been located north of Former Settling Pond 2, in the area now occupied by the Settling Basin and the Emergency Spill Basin (*Plate 31*). The ground in and around these two basins has been completely altered by modern groundwork for creation of the basins and construction of the surrounding road and utility systems. Reconnaissance of the area in November and December, 2017, revealed no surviving traces of the Grant farm.



PLATE 27: Western shore of Boat Harbour (background) as seen from the area of the Point C Buildings. Facing northwest. November 30, 2017.



PLATE 28: Stone and concrete foundations of Camp Larad. Facing southwest. April 6, 2018.



PLATE 29: Reconnaissance within the borrow pit that lies to the southwest of Former Settling Pond 2. Facing southeast. December 4, 2017.



PLATE 30: Undecorated and transfer-printed sherds of refined white earthenware on the ground surface within the borrow pit. December 4, 2017.



PLATE 31: Settling Basin (centre), Emergency Spill Basin (right) and surrounding roads at the Boat Harbour Effluent Treatment Facility. Facing east. November 30, 2017.

Boat Harbour Shoreline: West Shore North of Dam

Reconnaissance of the western shoreline of Boat Harbour north of the dam was undertaken on December 7, 2017 (*Plate 32*). Aside from fringe bogs and localized steep rises, the landscape along this stretch of shore is gently sloped and dry. In general, environmental conditions favourable for past encampments and other land-use exist all along this area. Consequently, elevated archaeological potential is ascribed to the area within 100 metres of this shore (0-50 metres = high potential; 50-100 = moderate potential).

Included at the northern end of this Study Area section were portions of levelled clearings now overgrown with trees. The only cultural feature found in association with these clearings was a linear stone pile that runs between UTM coordinates 20T 527973E / 5058101N and 20T 527961E / 5058107N (NAD 83), at the western edge of the Study Area (*Plate 33*). This stone pile is believed to be associated with a residence depicted on an 1867 map (Church 1867; *Figure 9*) as belonging to “D. MacLeod”, located to the west of the Study Area.



PLATE 32: Western shore of the Boat Harbour estuary (left). Facing north. December 7, 2017.



PLATE 33: Linear stone pile marking the edge of a former field clearing (left). Facing north. December 7, 2017.

Boat Harbour Shoreline: East Shore South of Dam

Reconnaissance of the eastern shore of Boat Harbour south of the dam was undertaken on December 5 and 7, 2017 (*Plates 9 & 34*). The landscape along this shore is mainly gently sloped and dry. Low, wet areas exist at the head of the harbour, especially in the area of the Former Effluent Discharge Area (1967-1972) (*Figure 2*), but elsewhere they are largely confined to fringe bogs in sheltered areas along the harbour shoreline. Where steep slopes exist in proximity to heights at the northern end of this shore, their surfaces and summits include small flats – places that would have been good vantage points. In general, environmental conditions favourable for past encampments and other land-use exist all along the eastern side of the harbour south of the dam. Consequently, elevated archaeological potential is ascribed to the area within 100 metres of this shore (0-50 metres = high potential; 50-100 = moderate potential)

Located within this segment of the Study Area are two archaeological sites that are described elsewhere in this report (*Section 4.2.1*). Situated south of McArthurs Cove, those sites are the Donald McArthur Site and the Peter McArthur Site.



PLATE 34: Southeastern shore of Boat Harbour (right) from the berm recently created between the area of the Point C Buildings and Pine Island (centre), with McArthur's Cove at right. Facing northeast. December 7, 2017.

Boat Harbour Shoreline: East Shore North of Dam

Reconnaissance of the eastern shore of Boat Harbour north of the dam was undertaken on December 7, 2017 (*Plate 7*). The landscape along this shore includes low cliffs and steep slopes close to the water's edge, extending northward from the area of the dam. A fringe salt marsh exists at the mouth of a narrow harbour arm, further to the north. Otherwise, this portion of the Study Area is gently sloped and dry. In general, environmental conditions favourable for past encampments and other land-use exist all along this shore. Consequently, elevated archaeological potential is ascribed to the area within 100 metres of this shore (0-50 metres = high potential; 50-100 = moderate potential).

Included within this shoreline segment are the remains of a cabin located approximately 130 metres north of the dam (*Plate 35; Figure 13*). Formerly owned by Michael Neima and present only for a brief period during the mid-to-late twentieth century (MacKay 2018a), this cabin site is not considered an archaeological resource.

This northeastern segment of the Study Area also includes part of the beach that lies on the eastern side of the harbour mouth. Although this is believed to be part of the shore where shipbuilding occurred between the 1820s and the 1840s, as described earlier in this report (*Section 4.1*), no structural remains were noted during reconnaissance.



PLATE 35: Remains of Michael Neima's cabin northeast of the Boat Harbour dam. Facing east. December 7, 2017.

4.3 Shovel Testing

During the initial archaeological screening and reconnaissance undertaken for the Boat Harbour Remediation project, planners identified the need to immediately construct some key components for the initial phase of the project. These components included the Dredging Works Compound and a Conceptual Pilot Cell (Option 2). In order to assess and clear the proposed locations for these components, CRM Group undertook a program of focused shovel testing within the identified construction footprints. The results of the shovel testing are described in the following sections (4.3.1 & 4.3.2).

4.3.1 Dredging Works Compound

The study area for the proposed Dredging Works Compound, measuring 50 metres square, was located in a wooded area on the southern shore of Boat Harbour, immediately southeast of the eastern limit of Anderson Road and the Aeration Stabilizing Basin (*Figures 3 & 4*). Background research identified no specific cultural resource concerns for the area. Archaeological reconnaissance, conducted on December 5 and 18, revealed that, for the most part, the area was relatively flat or gently sloped, dry, undisturbed and covered in a mixture of deciduous and coniferous trees ranging up to about 50 years old. It was ascribed high archaeological potential with three exceptions:

- a small zone of modern ground impact at the northwestern corner of the study area, which was associated with Anderson Road construction and ascribed “no archaeological potential”;
- a narrow zone of perpetually wet ground along the northern edge of the study area, which was

- ascribed “low archaeological potential”; and,
- a broader zone of perpetually wet ground across the southeastern quadrant of the study area, which was ascribed “low archaeological potential”.

Shovel testing within the Dredging Works Compound area was undertaken on December 18 (**Figure 4; Plate 11**). Restricted to the zone of high archaeological potential, it was conducted at 5 metre intervals within a grid established by surveyors.

Throughout the area of high archaeological potential, the shovel tests exposed a standard Podzolic Order soil profile. Typically, it consisted of 5 to 15 centimetres of dark brown humus and roots (L-F-H Horizon) overlying sandy silt with pebbles, cobbles and boulders, representing undisturbed glacial till. The upper few centimetres of the till tended to be light grey, indicating that it was leached of minerals (Ae Horizon). At greater depth, the colour tended to be orangish brown (B Horizon) . In some shovel tests, these two layers were separated by a darker brown layer representing mineral accumulation (Bf Horizon).

The shovel testing yielded no evidence of cultural resources (**Figure 4**). Ultimately, the entire area within the Dredging Works Compound footprint area was cleared of further archaeological investigation.

4.3.2 Conceptual Pilot Cell Option 2

The study area for the Conceptual Pilot Cell (Option 2), measuring approximately 280 metres long (east/west) by 130 metres wide (north/south), was located in a wooded area north of the Boat Harbour Effluent Treatment Facility’s Electrical Building on the northwestern side of Boat Harbour (**Figures 5 & 6**). Background research identified no specific cultural resource concerns for the study area. Archaeological reconnaissance, conducted on November 30, December 4 and 14, revealed that the area was relatively flat, dry, undisturbed and covered in deciduous trees ranging up to about 50 years old. It was ascribed moderate to high archaeological potential with two exceptions:

- a small zone of modern ground impact at the southeastern corner, which was associated with Simpsons Road construction and ascribed “low archaeological potential”; and,
- a larger area of perpetually wet ground near the centre of the study area, which was ascribed “low archaeological potential”.

Shovel testing within the zones of moderate and high archaeological potential within the Option 2 area was undertaken on December 14-18 and 28, utilizing a grid established in advance by surveyors (**Figure 6; Plate 12**). In areas of high archaeological potential (within 50 metres of the harbour shore), the testing was conducted at 5 metre intervals. In areas of moderate archaeological potential (between 50 and 100 metres from the shore), shovel testing was conducted at 10 metre intervals.

Shovel tests exposed a standard Podzolic Order soil profile. Typically, it consisted of 5 to 15 centimetres of dark brown humus and roots (L-F-H Horizon) overlying sandy silt with pebbles, cobbles and boulders, representing undisturbed glacial till. The upper few centimetres of the till tended to be light grey, indicating that it was leached of minerals (Ae Horizon). At greater depth, the colour tended to be orangish brown (B Horizon) . In some shovel tests, these two layers were separated by a darker brown layer representing mineral accumulation (Bf Horizon).

A'se'k 1 Site

A small Precontact archaeological site was identified during shovel testing along the eastern edge of the proposed footprint of Conceptual Pilot Cell Option 2 (**Figure 6; Plate 36**). Tentatively named the "A'se'k 1 Site", meaning "The Other Room 1 Site" or "The Other Side 1 Site", the archaeological site was detected through the recovery of 28 flakes. These by-products of stone tool manufacture or sharpening were recovered from two shovel tests situated less than 2.5 metres apart. One of the positive shovel tests (180N/227.5E) yielded 15 flakes, while the other (180N/230E) yielded 13. All of the flakes are comprised of a single variety of banded rhyolite, so may collectively represent just a single flaking event.

The stratigraphy encountered within the positive shovel tests was notably different from the standard stratigraphy seen elsewhere during testing. In Shovel Test 180N/227.5E, the L-F-H Horizon was just 4 centimetres thick and was underlain by a 30 centimetre thick layer of dark brown sandy silt with pebbles and cobbles. Yielding 15 flakes and representing a mixture of redeposited topsoil and till, this deeper layer represented the site's occupation horizon. Beneath it, the underlying sediment consisted of orangish sandy silt with pebbles and cobbles, and was recognized as undisturbed till. The absence of any light grey colouration at the surface of this till suggests that any elluviated material was displaced by cultural activity, perhaps becoming incorporated as part of the occupation horizon.

In Shovel Test 180N/230E, the L-F-H horizon was 5 centimetres thick and underlain by a 10 centimetre thick layer of orangish brown sandy silt, probably representing a redeposited mixture of topsoil and till (**Plate 37**). Beneath this deposit was possible evidence of a Precontact hearth, consisting of a depression cut into the underlying till. The till at the perimeter of the depression was light grey in colour, possibly due to scorching. The soil within the depression consisted of dark brown to black sandy silt. Possibly containing charcoal, this dark material may represent hearth accumulation. The till beneath the depression and scorching was undisturbed and consisted of orangish brown sandy silt.

All adjacent shovel tests dug at 2.5 metre intervals outward from the two findspots were negative, suggesting that the site is no more than a maximum of 7.5 metres long and 5.0 metres wide.

No other cultural resources were encountered during the testing. Consequently, the remainder of the Conceptual Pilot Option 2 study area (**Figure 6**) was cleared of further archaeological investigation.

News of the find was immediately communicated to GHD, the Special Places Program, the Archaeological Research Division of the Kwilmu'kw Maw-klusuaqn Negotiation Office (KMKNO) and to Chief Andrea Paul and Councillor Dominic Denny of Pictou Landing First Nation. Since the find was located near the eastern edge of the proposed pilot cell footprint, plans were revised to move the proposed development footprint further west to avoid the site and a surrounding 20 metre buffer zone.

With the emerging plans for a westward shift of Conceptual Pilot Cell Option 2, additional shovel testing was required to archaeologically assess the footprint extension. Undertaken on December 28, 2017, this testing did not encounter any cultural resources. Consequently the entire revised footprint, was cleared of further archaeological investigation.



PLATE 36: Recovery of a flake during screening of backdirt from Shovel Test 180N/227.5E at the A'se'k 1 Site. December 17, 2017.



PLATE 37: Possible hearth (black soil at centre bounded by light grey soil at left) within positive Shovel Test 180N/230E. December 16, 2017.

4.4 Preliminary Archaeological Report

A preliminary report for archaeological assessment of the Dredging Works Compound and Conceptual Pilot Cell Placement Option 2 was submitted to Special Places on January 12, 2018 (Sanders 2018). Included in the report were the same result descriptions and recommendations for those two study areas as are presented in this final report (Section 5.0). The preliminary report and its recommendations were approved by Special Places on January 16, 2018 (Weseloh McKeane 2018).

5.0 CONCLUSIONS AND RECOMMENDATIONS

As a result of a combination of background research, reconnaissance and shovel testing, most of the Study Area for Boat Harbour Remediation is ascribed elevated (moderate or high) archaeological potential (**Figure 13**). In some cases, these designations reflect direct observations of archaeological resources in the field, as in the case of the following four archaeological sites, which are described in detail in this report:

- James & Christina Sproull Site (Section 4.2.1);
- Donald McArthur Site (Section 4.2.1);
- Peter McArthur Site (Section 4.2.1); and
- A'se'k 1 Site (Section 4.3.2).

In other cases, they reflect the existence of relevant, site-specific, documented history. However, most of the areas of elevated archaeological potential were designated because they exhibit a suite of environmental conditions recognized by archaeologists as being conducive to Precontact, Contact and/or early historic land use – mainly being relatively flat, dry and situated either in close proximity to a significant water body or an early travel-way. The applicability of these characteristics was demonstrated by the discovery of the A'se'k 1 Site – a Precontact habitation site of undetermined age – during shovel testing of an area deemed to have moderate-to-high archaeological potential.

As a result of our investigation, CRM Group offers the following resource management recommendations. Recommendations 1 through 4 were already approved by Special Places on January 16, 2018, based on review of a preliminary report that was submitted on January 12, 2018.

1. *“It is recommended that a strict exclusionary zone be identified and physically marked (preferably with snow fencing) to ensure that ground impacts associated with the establishment and operation of Conceptual Pilot Cell Option 2 (mechanical excavation, vehicular travel, equipment stockpiling, etc.) remain outside of the A'se'k 1 Site and its surrounding 20 metre wide buffer zone (**Figure 4**) [Figure 6 in this report].*
2. *It is recommended that the remainder of the Conceptual Pilot Cell (Option 2) study area (**Figure 4**) [Figure 6 in this report] be cleared of requirement for further archaeological investigation.*
3. *It is recommended that archaeological assessment be undertaken to address any expansion of the proposed impact area beyond the limits of the Conceptual Pilot Cell Option 2 study area (**Figure 4**) [Figure 6 in this report].*
4. *In the unlikely event that human remains or intact archaeological deposits are encountered during activities associated with the establishment of Conceptual Pilot Cell (Option 2), all work in the associated area(s) should be halted and immediate contact made with the Coordinator of the Special Places Program (Sean Weseloh McKeane: 902-424-6475). If human remains are encountered, immediate contact should also be made with the Assembly of Nova Scotia Mi'kmaq Chiefs via the Kwilmu'kw Maw-klusuaqn Negotiation Office (Heather MacLeod-Leslie: 902-843-3880).”*

Completion of the archaeological screening and reconnaissance program generated these additional recommendations:

5. It is recommended that any ground disturbance within 50 metres of the UTM coordinates provided for the potential foundations at the James & Christina Sproull Site, the Donald McArthur Site and the Peter McArthur Site be preceded by a program of site-specific background research, shovel testing and/or test excavation, in order to assess requirements for archaeological mitigation. It is anticipated that, upon submission of Maritime Archaeological Resource Inventory forms, each of these sites will become recognized by the Special Places Program as registered archaeological sites.
6. It is recommended that any ground disturbance within areas of high archaeological potential as depicted in Figure 13 be preceded by a program of shovel testing undertaken at 5-metre intervals, in order to search for archaeological resources and assess requirements for archaeological mitigation.
7. It is recommended that any ground disturbance within terrestrial areas of moderate archaeological potential as depicted in Figure 13 be preceded by a program of shovel testing undertaken at 10-metre intervals, in order to search for archaeological resources and assess requirements for archaeological mitigation.
8. It is recommended that any ground disturbance beneath the waters of the East River of Pictou within the pipeline corridor be preceded by a program of underwater archaeological reconnaissance to assess requirements for archaeological mitigation.
9. It is recommended that any ground disturbance within the historic limits of Boat Harbour and its associated marshes as depicted in Figure 13 be subjected to archaeological monitoring to document and, potentially, recover any archaeological resources brought to the surface. The extent or frequency of monitoring would be decided in consultation with Special Places, KMKNO and Pictou Landing First Nation and may have to be adjusted in light of effectiveness, perceived value and factors of health and safety.
10. It is recommended that the remainder of the Study Area, as depicted in Figure 13, be cleared of further requirements for archaeological investigation.
11. It is recommended that archaeological screening and reconnaissance be undertaken to address any revision of the Study Area.
12. In the event that human remains or intact archaeological deposits are encountered during any work associated with Boat Harbour Remediation, all work in the associated area(s) should be halted and immediate contact made with the Coordinator of the Special Places Program (Sean Weseloh McKeane: 902-424-6475). If human remains are encountered, immediate contact should also be made with the Assembly of Nova Scotia Mi'kmaq Chiefs via the Kwilmu'kw Maw-klusuaqn Negotiation Office (Heather MacLeod-Leslie: 902-843-3880).

13. In accordance with input from KMKNO, it is recommended that the Study Area boundary within Fisher's Grant 24 be adjusted as indicated in Figure 13, to ensure proper avoidance of and respect for Pictou First Nations Cemetery.

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**Archaeological Assessment of Dredging
Compound & Pilot Cell Option 2: Preliminary
Report (CRM Group 2018)**



MEMO

TO: Special Places Program

ATTENTION: Sean Weseloh-McKeane

DATE: January 12, 2018

FROM: Mike Sanders
Cultural Resource Management Group Ltd.

RE: Boat Harbour Remediation Planning and Design — Archaeological Assessment of Dredging Compound & Pilot Cell Option 2: Preliminary Report

Sean,

In December of 2017 (December 14-18 & 28), Cultural Resource Management (CRM) Group undertook a shovel testing program to assess archaeological potential within the footprints proposed for the Dredging Works Compound and Conceptual Pilot Cell Placement Option 2 at the Boat Harbour Effluent Treatment Facility. These two activities were part of the overall Boat Harbour Remediation Planning and Design archaeological screening and assessment project, which is still progressing according to the terms of Heritage Research Permit A2017NS100. The results and recommendations for the two shovel testing tasks are presented independently below. They will appear again in our final permit report, along with results and recommendations for all other components of the overall study.

We are seeking an expedited review of this preliminary report and its recommendations in the interest of providing timely feedback for the design of forthcoming geotechnical programs within the two study areas.

Dredging Works Compound

Screening and Reconnaissance

The study area for the proposed Dredging Works Compound measured 50 metres square and was located in a wooded area on the southern shore of Boat Harbour, immediately southeast of the eastern limit of Anderson Road and the Aeration Stabilizing Basin (**Figures 1 & 2**). Background research identified no specific cultural resource concerns for the area. Archaeological reconnaissance, conducted on December 5 and 18, revealed that the area was mainly relatively flat or gently

From the desk of...

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sloped, dry, undisturbed and covered in a mixture of deciduous and coniferous trees ranging up to about 50 years old. It was ascribed high archaeological potential with three exceptions:

- a small zone of modern ground impact at the northwestern corner of the study area, which was associated with Anderson Road construction and ascribed “no archaeological potential”;
- a narrow zone of perpetually wet ground along the northern edge of the study area, which was ascribed “low archaeological potential”; and,
- a broader zone of perpetually wet ground across the southeastern quadrant of the study area, which was ascribed “low archaeological potential”.

Shovel Testing

Shovel testing within the study area was undertaken on December 18 (**Figure 2**). Restricted to the zone of high archaeological potential, it was conducted at 5 metre intervals within a grid established by surveyors. At each shovel test location, a shovel test measuring 40 centimetres in diameter was dug downward until it penetrated undisturbed glacial till.

All soil removed from the test pits was screened through 6 millimetre mesh hardware cloth to recover any artifacts within the excavated soil. The screening was done over tarps to prevent backdirt from landing directly upon, and potentially blending with, existing surface deposits. Field activities were documented in the form of fieldnotes, shovel test records, photographs and site plans.

The shovel testing yielded no evidence of cultural resources within the study area for the Dredging Works Compound (**Figure 2**). Ultimately, the entire study area was ascribed low archaeological potential throughout its limits.

Recommendations

Given the results of this archaeological assessment, our recommendations for the Dredging Work Compound study area are as follows:

1. It is recommended that the study area for the Dredging Works Compound (**Figure 2**) be cleared of requirement for further archaeological investigation.
2. It is recommended that archaeological assessment be undertaken to address any expansion of the proposed impact area beyond the limits of the Dredging Works Compound study area (**Figure 2**).
3. In the unlikely event that human remains or intact archaeological deposits are encountered during activities associated with the establishment of Dredging Works Compound, all work in the associated area(s) should be halted and immediate contact made with the Coordinator of the Special Places Program (Sean Weseloh McKeane: 902-424-6475). If human remains are encountered, immediate contact should also be made with the Assembly of Nova Scotia Mi'kmaq Chiefs via the Kwilmu'kw Maw-klusuaqn Negotiation Office (Heather MacLeod-Leslie: 902-843-3880).



PLATE 1: Marking of proposed shovel test locations along the northern edge of the proposed Dredging Works Compound footprint. Facing northeast. December 18, 2017.



PLATE 2: Shovel testing in the northern half of the proposed Dredging Works Compound footprint. Facing north. December 18, 2017.

Conceptual Pilot Cell Option 2

Screening and Reconnaissance

The study area for Conceptual Pilot Cell Option 2 (Option 2) was approximately 280 metres long (east/west) by 130 metres wide (north/south) and located in a wooded area north of the Boat Harbour Effluent Treatment Facility's Electrical Building on the northwestern side of Boat Harbour (**Figures 3 & 4**). Background research identified no specific cultural resource concerns for the study area. Archaeological reconnaissance, conducted on November 30, December 4 and 14, revealed that the area was mainly relatively flat, dry, undisturbed and covered in deciduous trees ranging up to about 50 years old. It was ascribed moderate to high archaeological potential with two exceptions:

- a small zone of modern ground impact at the southeastern corner, which was associated with Simpsons Road construction and ascribed "low archaeological potential"; and,
- a larger area of perpetually wet ground near the centre of the study area, which was ascribed "low archaeological potential".

Shovel Testing

Shovel testing within the zones of moderate and high archaeological potential was undertaken on December 14-18 and 28 within a grid established in advance by surveyors (**Figure 4**). In areas of high archaeological potential (within 50 metres of the harbour shore), the testing was conducted at 5 metre intervals. In areas of moderate archaeological potential (between 50 and 100 metres from the shore) it was conducted at 10 metre intervals. At each shovel test location, a shovel test measuring 40 centimetres in diameter was dug downward until it penetrated undisturbed glacial till.

All soil removed from the test pits was screened through 6 millimetre mesh hardware cloth to recover any artifacts within the excavated soil. The screening was done over tarps to prevent backdirt from landing directly upon, and potentially blending with, existing surface deposits. Field activities were documented in the form of fieldnotes, shovel test records, photographs and site plans.

A'se'k 1 Site

A small pre-Contact archaeological site was identified at the eastern edge of the proposed footprint of Conceptual Pilot Cell Option 2 (**Figure 4**). Tentatively named the "A'se'k 1 Site", meaning "Boat Harbour 1 Site", the archaeological site was detected through the recovery of 28 flakes. These by-products of stone tool manufacture or sharpening were recovered from two shovel tests situated less than 2.5 metres apart. One of the positive shovel tests (180N/227.5E) yielded 15 flakes, while the other (180N/230E) yielded 13. All of the flakes are comprised of a single variety of banded rhyolite, so may represent a single flaking event. Stratigraphic analysis suggests that the shovel test with the least flakes (180N/230E) intersected a hearth. All adjacent shovel tests dug at 2.5 metre intervals outward from the two findspots were negative, suggesting that the site is no more than 7.5 metres long and 5.0 metres wide.

No other cultural resources were encountered during the testing. Consequently, the remainder of the Conceptual Pilot Option 2 study area (**Figure 4**) was ascribed low archaeological potential.

News of the find was immediately communicated to GHD, the Special Places Program, the Archaeological Research Division of the Kwilmu'kw Maw-klusuaqn Negotiation Office (KMKNO) and to Chief Andrea Paul and Councillor Dominic Denny of Pictou Landing First Nation. Since the find was located near the eastern edge of the proposed pilot cell footprint, consideration was promptly given to moving the proposed development footprint further west to avoid the site and a surrounding buffer zone measuring 20 metres in diameter.

With the emerging plans for a westward shift of Conceptual Pilot Cell Option 2, additional shovel testing was required to archaeologically assess the footprint extension. Undertaken on December 28, 2017, this testing did not encounter any cultural resources. Consequently the entire revised footprint, was ascribed low archaeological potential.

Recommendations

Given the results of this archaeological assessment, our recommendations for the Option 2 study area are as follows:

1. It is recommended that a strict exclusionary zone be identified and physically marked (preferably with snow fencing) to ensure that ground impacts associated with the establishment and operation of Conceptual Pilot Cell Option 2 (mechanical excavation, vehicular travel, equipment stockpiling, etc.) remain outside of the A'se'k 1 Site and its surrounding 20 metre wide buffer zone (**Figure 4**).
2. It is recommended that the remainder of the Conceptual Pilot Cell Option 2 study area (**Figure 4**) be cleared of requirement for further archaeological investigation.
3. It is recommended that archaeological assessment be undertaken to address any expansion of the proposed impact area beyond the limits of the Conceptual Pilot Cell Option 2 study area (**Figure 4**).
4. In the unlikely event that human remains or intact archaeological deposits are encountered during activities associated with the establishment of Conceptual Pilot Cell Option 2, all work in the associated area(s) should be halted and immediate contact made with the Coordinator of the Special Places Program (Sean Weseloh McKeane: 902-424-6475). If human remains are encountered, immediate contact should also be made with the Assembly of Nova Scotia Mi'kmaq Chiefs via the Kwilmu'kw Maw-klusuaqn Negotiation Office (Heather MacLeod-Leslie: 902-843-3880).



PLATE 3: Shovel testing near the eastern edge of the study area for Conceptual Pilot Cell Option 2. Facing east. December 17, 2017.



PLATE 4: Recovery of a flake during screening of backdirt from Shovel Test 180N/227.5E at the A'se'k 1 Site. December 17, 2017.

As indicated above, we are seeking an expedited review of this preliminary report and its recommendations in the interest of providing timely feedback for the design of forthcoming geotechnical programs within the two study areas. The information contained within this report will appear again in our final permit report, along with results and recommendations for all other components of the overall study.

If you have any questions or comments, you can contact us either by phone or email.

Sincerely yours,

CULTURAL RESOURCE MANAGEMENT GROUP



Mike Sanders, BA
Senior Archaeologist
MDS/mds



Approximate Assessment Area

Dredging Works Compound - Approximate Assessment Area

Figure 1

BOAT HARBOUR REMEDIATION
 ARCHAEOLOGICAL SHOVEL TESTING 2017
 PICTOU COUNTY, NOVA SCOTIA

January 2018

Scale 1:50 000

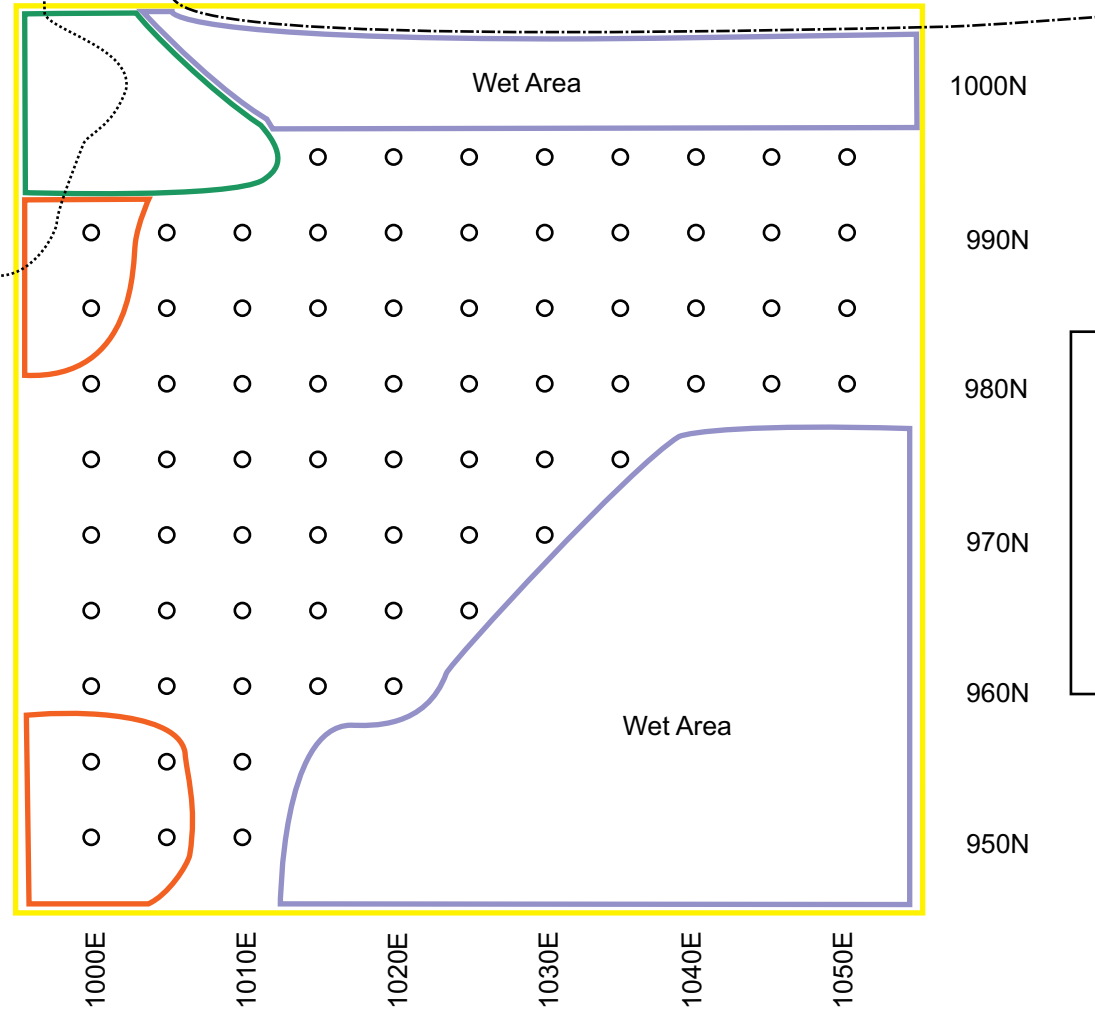




Boat Harbour
(Aeration
Stabilization Lagoon)

Boat Harbour
(Stabilization Lagoon)

Anderson Road



Legend

- Shovel Test
- Assessment area
- Fill over undisturbed soil
- Low archaeological potential
- No archaeological potential (Road cut & fill)



Dredging Works Compound - Shovel Testing Results

BOAT HARBOUR REMEDIATION
ARCHAEOLOGICAL SHOVEL TESTING 2017
PICTOU COUNTY, NOVA SCOTIA

Figure 2

January 2018

Scale 1:500



Approximate Assessment Area

Pilot Cell Option 2 - Approximate Assessment Area

Figure 3

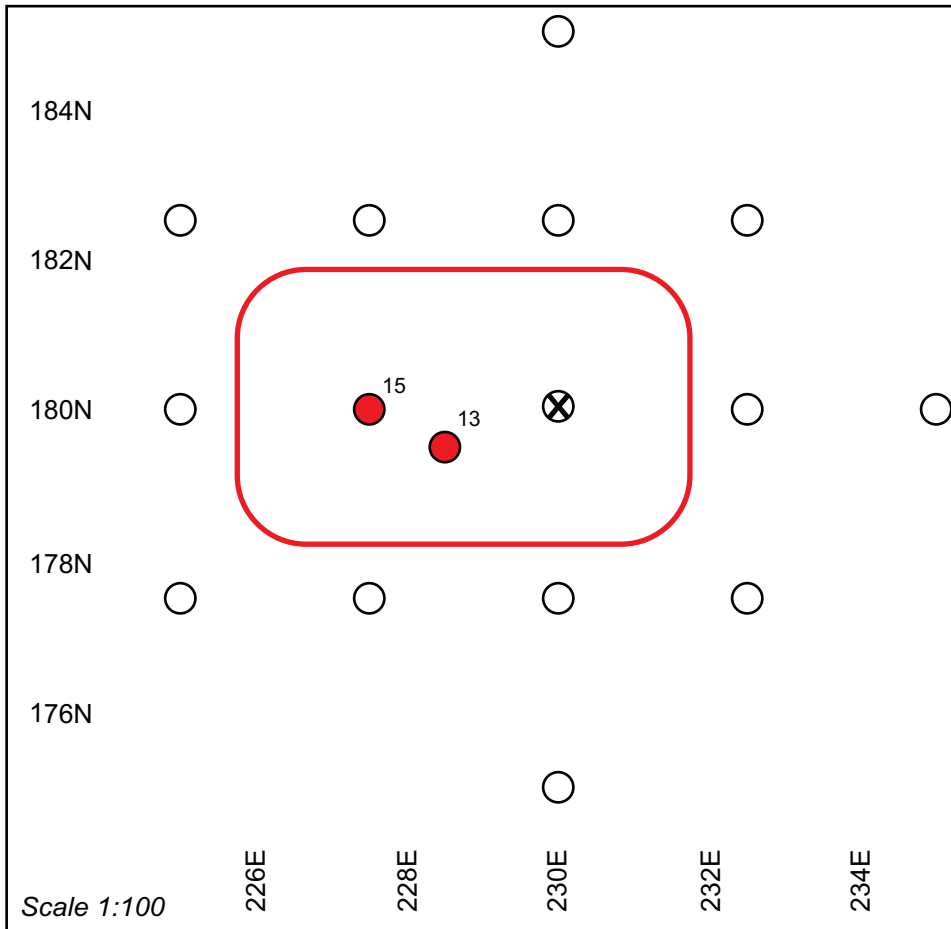
BOAT HARBOUR REMEDIATION
 ARCHAEOLOGICAL SHOVEL TESTING 2017
 PICTOU COUNTY, NOVA SCOTIA

January 2018

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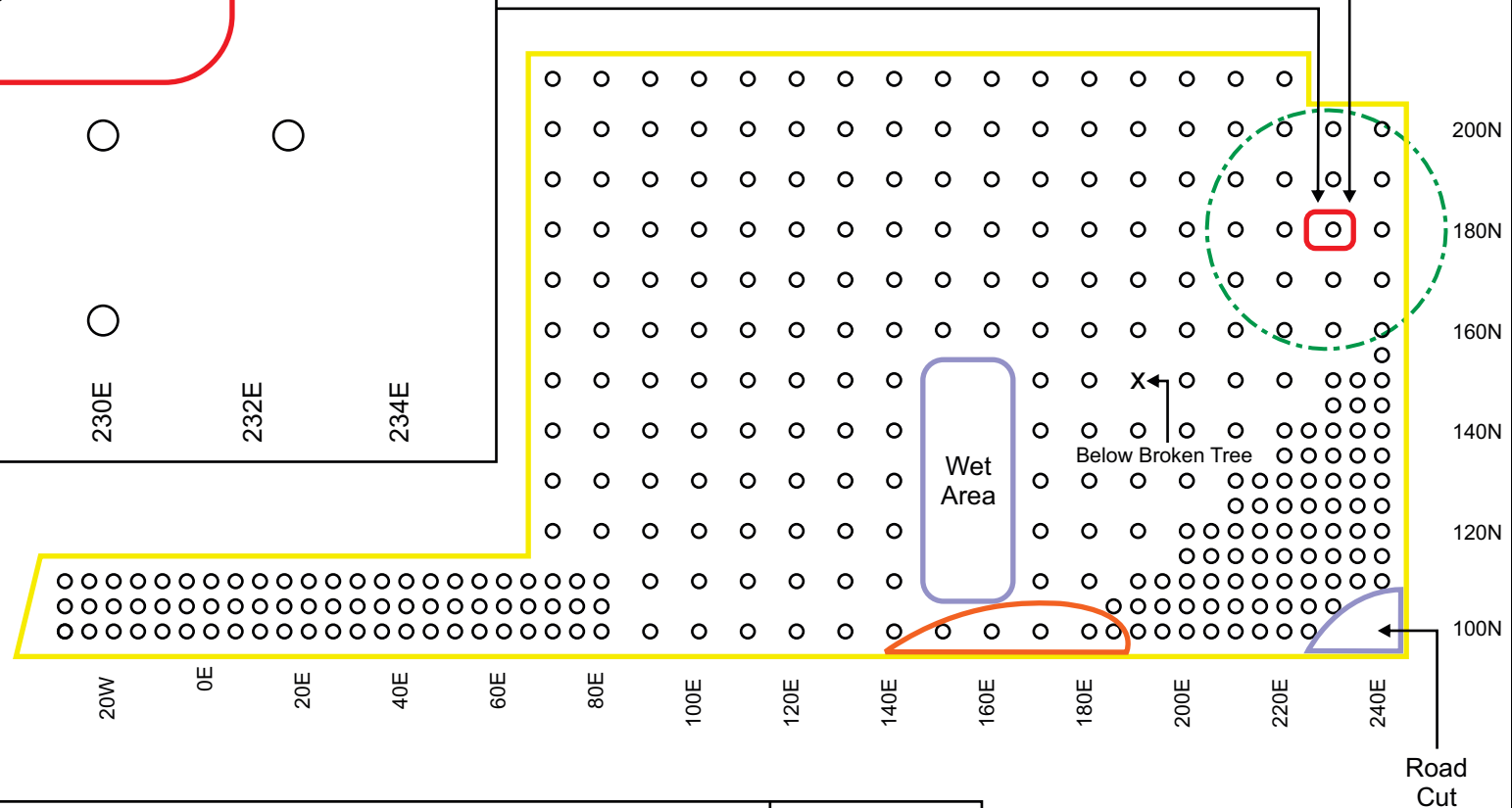


A'SE'K 1 SITE



Legend

- Archaeological site
- - - 20 metre buffer zone
- Assessment area
- Fill over undisturbed soil
- Low archaeological potential
- x Not excavated due to safety concerns
- o Shovel test
- # Positive shovel test and artifact count
- ⊗ Shovel test offset due to tree



<p><i>Pilot Cell Option 2 - Shovel Testing Results</i></p> <p>BOAT HARBOUR REMEDIATION ARCHAEOLOGICAL SHOVEL TESTING 2017 PICTOU COUNTY, NOVA SCOTIA</p>	<p><i>Figure 4</i></p> <p>January 2018</p> <p>Scale 1:1500</p>
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**Indian Cross Point Archaeological
Reconnaissance and Ground Penetrating
Radar Survey Pictou County (Boreas Heritage
Consulting Inc. 2019)**

INDIAN CROSS POINT
ARCHAEOLOGICAL RECONNAISSANCE
AND GROUND PENETRATING RADAR SURVEY
PICTOU COUNTY



Submitted to:
Nova Scotia Lands Inc.
and the
Special Places Program

Submitted by:
Boreas Heritage Consulting Inc.

Heritage Research Permit:
A2019NS064

September 2019

**BOREAS**
HERITAGE

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EXECUTIVE SUMMARY

In the late 1960s, a pulp mill was constructed and commissioned at Abercrombie Point in Pictou County, within the greater Mi'kmaw territory of Piktuk. Development of the mill also involved underground installation of a pipeline to convey mill effluent to the Boat Harbour Effluent Treatment Facility (BHETF). The pipeline, measuring over 3 kilometres in length, extends from the pulp mill, eastward below the East River, to the BHETF property. A portion of the pipeline was installed, within a deeded Right of Way (ROW), from Indian Cross Point to Highway 348, in proximity of the historic Mi'kmaw Burial Ground at Indian Cross Point. Decommissioning of the pipeline will be part of the Boat Harbour Remediation Project.

In order to help inform decisions around pipeline decommissioning and remediation, Nova Scotia Lands Inc. retained Boreas Heritage Consulting Inc. (Boreas Heritage) to undertake archaeological reconnaissance and Ground Penetrating Radar (GPR) surveys of selected areas associated with the existing pipeline ROW. The objectives of the assessment are to provide as much information as possible as to whether human remains are likely to be present in the pipeline ROW and to survey additional areas that may also be associated with the Mi'kmaw Burial Ground. The archaeological assessment was conducted in accordance with the terms of Heritage Research Permit A2019NS064 issued by the Nova Scotia Department of Communities, Culture and Heritage (CCH) – Special Places Program (SPP) and was directed by Senior Archaeologist, Stephen Garcin. The field component of the Survey was undertaken between July 9 and September 4, 2019.

The 2019 Indian Cross Point Archaeological Reconnaissance and Ground Penetrating Radar Survey involved desktop components (background screening) and field components (archaeological reconnaissance and GPR Survey). *Phase 1* consisted of GPR survey of four selected areas within the existing ROW alignment, which revealed evidence of disturbance associated with pipeline installation and/or maintenance in all areas and evidence of the existing pipeline in two areas (Grid 3 & Grid 4). No evidence of burials was detected within any of the grid areas. The background study revealed the burying ground is likely located atop the bank along the shoreline of the East River, including portions of the Palmer property. The burials may have extended south into the area where the pipeline ROW is now located. As a result, the western end of the pipeline is considered to exhibit high potential for encountering unmarked burials.

Phase 2 consisted of Archaeological Reconnaissance of the adjacent properties to determine the potential for locating evidence of the Mi'kmaw Burial Ground and to select areas suitable for GPR survey without significant vegetation removal. Four suitable areas were identified (PA-1 – PA-4) and one area of historic land use was observed (HA-1). PA-4 was subsequently subjected to GPR survey, which revealed a number of subsurface anomalies. Analysis of the profile data suggests many of these responses are fairly consistent in size and depth. Without excavation and ground truthing it is not possible to determine the exact nature

of these anomalies. The regular nature of the responses, however, suggests the possibility that burials are present in this area.

Based on the results of the Survey described in this report, the area of highest potential for relocating the burying ground is the area closest to the shoreline on the Palmer property and south into the area where the pipeline ROW terminates. Boreas Heritage recommends that, if the existing pipeline at the western end of the ROW is to be removed, an archaeological monitor should be present to prevent accidental impacts to potential unmarked burials. All remaining portions of the ROW are considered to exhibit low potential for encountering unmarked burials. As there are no plans to develop or modify this portion of the Palmer property, there are no immediate concerns that unmarked burials will be disturbed in this area.

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1.0 INTRODUCTION

In the late 1960s, a pulp mill was constructed and commissioned at Abercrombie Point in Pictou County, within the greater Mi'kmaw territory of Piktuk. Development of the mill also involved underground installation of a pipeline to convey mill effluent to the Boat Harbour Effluent Treatment Facility (BHETF). The pipeline, measuring over 3 kilometres in length, extends from the pulp mill, eastward below the East River, to the BHETF property. A portion of the pipeline was installed, within a deeded Right of Way (ROW), from Indian Cross Point to Highway 348, in proximity of the historic Mi'kmaw Burial Ground at Indian Cross Point. Decommissioning of the pipeline will be part of the Boat Harbour Remediation Project.

In order to help inform decisions around pipeline decommissioning and remediation, Nova Scotia Lands Inc. retained Boreas Heritage Consulting Inc. (Boreas Heritage) to undertake archaeological reconnaissance and Ground Penetrating Radar (GPR) surveys of selected areas associated with the existing pipeline ROW and adjacent properties. The objectives of the assessment are to provide as much information as possible as to whether human remains are likely to be present in the pipeline ROW and to survey additional areas that may also be associated with the Mi'kmaw Burial Ground. The archaeological assessment was conducted in accordance with the terms of Heritage Research Permit A2019NS064 (see **Appendix A**) issued by the Nova Scotia Department of Communities, Culture and Heritage (CCH) – Special Places Program (SPP) and was directed by Senior Archaeologist, Stephen Garcin. The field component of the Survey was undertaken between July 9 and September 4, 2019 with the assistance of Colin Hicks, Mikael Basque and Drew Perley.

The purpose of the Survey is to highlight areas of potential archaeological sensitivity associated with the proposed Project. The Survey involves desktop and field components. The desktop assessment outlines the environmental, archaeological and historic context of the Assessment Area. The field assessment is an opportunity to verify the predictions of the desktop assessment and to identify specific areas of elevated archaeological potential associated with the proposed Project.

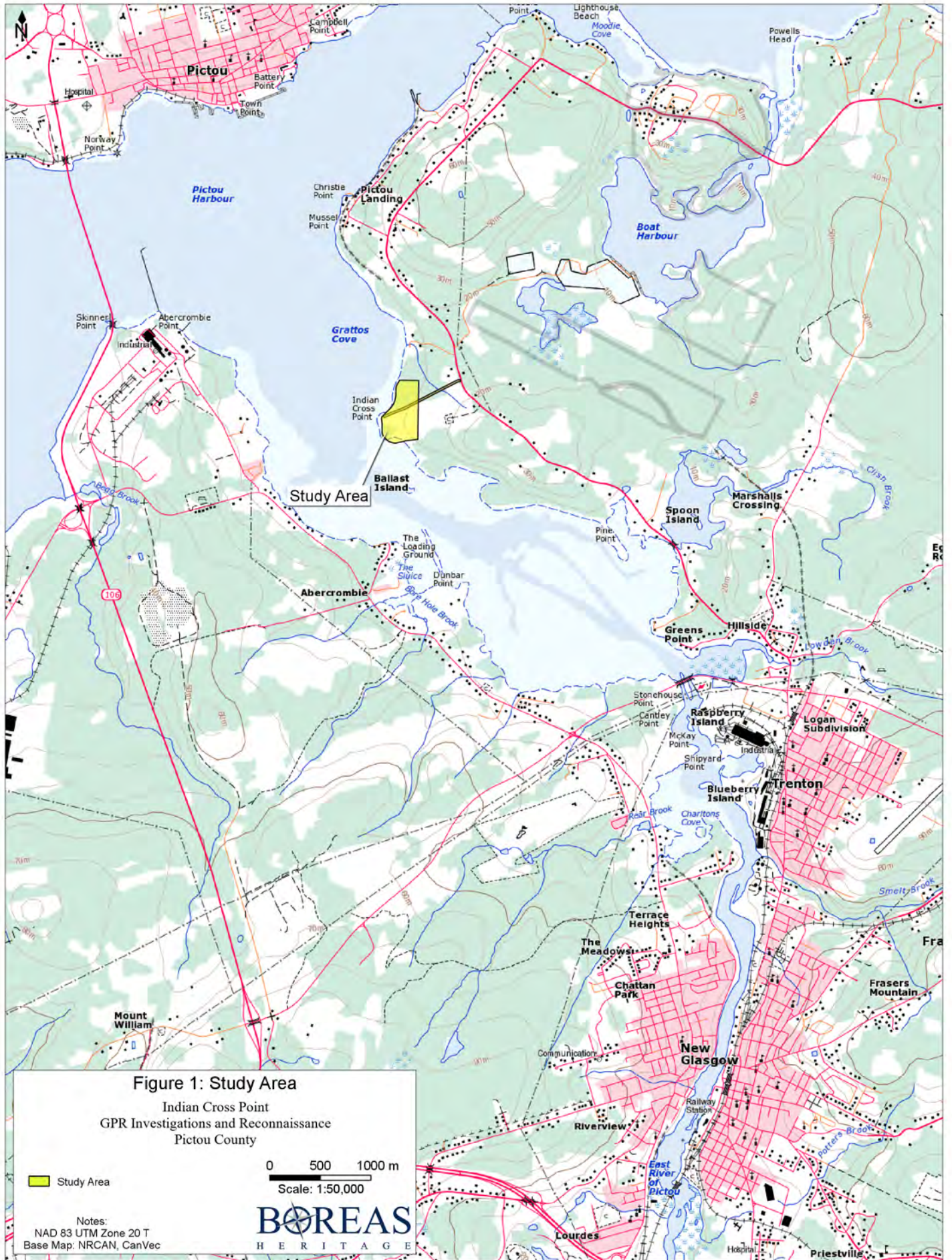
This report includes an overview of the methods applied during the desktop and field components of the Survey, a summary of the results and conclusions of the Survey, and archaeological resource management recommendations for the proposed Project.

2.0 ASSESSMENT AREA

The proposed Project is located within the greater Mi'kmaw territory of Piwtuk at Indian Cross Point (**Plate 1**), situated south of the community of Pictou Landing and southwest of Boat Harbour, in Pictou County, Nova Scotia (**Figures 1 & 2**). The Assessment Area can be accessed via Highway 348 (Pictou Landing Road), north of the community of Trenton.



Plate 1: View northwest, Indian Cross Point and existing pulp mill.



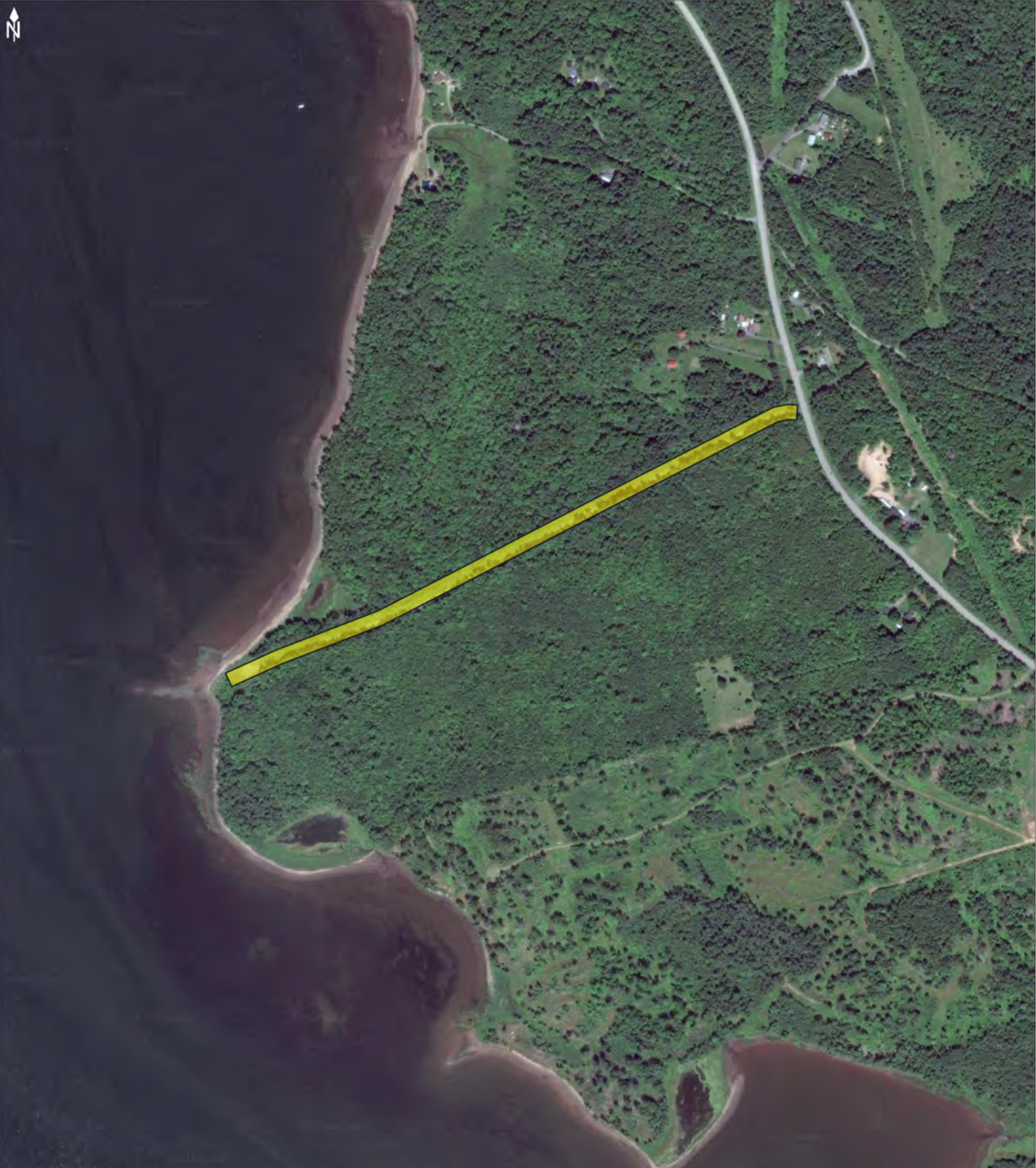



Figure 2: Phase 1 Study Area

Indian Cross Point
GPR Investigations and Reconnaissance
Pictou County

 Study Area

0 75 150 m

Scale: 1:7,500

Notes:
NAD 83 UTM Zone 20 T
Base Map: Google



3.0 SURVEY METHOD

The objectives of the Survey are (1) evaluate archaeological potential within the Assessment Area, (2) identify and delineate areas considered to exhibit high potential for encountering archaeological resources and/or unmarked burials, (3) provide detailed and accurate information on the results of the Survey, and (4) offer comprehensive recommendations to Nova Scotia Lands Inc. and CCH so that appropriate archaeological resource management strategies can be devised. To achieve these ends, Boreas Heritage designed an assessment strategy consisting of a desktop component (background screening) and a field component (archaeological reconnaissance and GPR survey).

3.1 Desktop Component – Methods

The purpose of the desktop component of the Survey is to identify areas considered to exhibit high potential for encountering archaeological resources within the Assessment Area. Any areas of elevated archaeological potential identified during the desktop component are targeted during the field component of the Survey. Areas confirmed to exhibit high archaeological potential during the field component of the Survey are delineated and designated as High Potential Areas (HPA). The results of the desktop component provide interpretative and evaluative context for any potential archaeological resources identified during the field component of the Survey. It is also noted that, as per Heritage Research Permit requirements, the Kwilmu'kw Maw-klusuaqn Negotiation Office (KMKNO) was advised of the proposed Project as part of the desktop component for the Survey.

The desktop component of the Survey examines three elements: the environmental context, the archaeological context and the historical context of the Assessment Area. The environmental context is examined to identify past and current environmental influences or conditions that may elevate archaeological potential within the Assessment Area (e.g.: topography, local resources and potential for agriculture). The archaeological context of the Assessment Area is examined to identify how people used and occupied the surrounding landscape based on evidence from previously registered archaeological sites and past archaeological work conducted near the proposed Project. The historical context of the Assessment Area is examined to identify how people used and occupied the local area based on evidence from published archival documents, ethno-historic records, local oral traditions, historic maps, local and/or regional histories, scholarly texts and available property records.

In Nova Scotia, the Maritime Archaeological Resource Inventory (MARI) is maintained by the Nova Scotia Museum, on behalf of CCH. Reports from past archaeological assessments and academic research conducted near the Assessment Area provide archaeological context, which informs the interpretation and evaluation of any potential archaeological resources identified during the field component of the Survey.

Additionally, the desktop component of the Survey involves a general review of topographic maps, coastal charts and aerial photographs related to the Assessment Area, to identify topographical and hydrological attributes that correlate with high archaeological potential (e.g. waterfalls/rapids as focal points for fishing or requiring portage, submerged marine terraces representing former coastline). These attributes are also incorporated into the archaeological potential model (APM), developed by Boreas Heritage.

The model described above has been developed by analysing a range of natural and cultural attributes considered to have influenced past patterns of land use and settlement, and by extension, archaeological potential across the landscape. The attributes include proximity to water (essential for drinking and transportation), slope, aspect and elevation, as well as proximity to known archaeological sites. The result of the modelling is a continuous depiction of archaeological potential within the Assessment Area. It is important to note, however, that people have lived in what is now Nova Scotia for more than 13,000 years and have persisted through a series of climate shifts, including changes in annual precipitation and temperatures. The modern bioclimatic scheme, which incorporates several of the variables used to assess archaeological potential, can only be assumed to be reliable for current environmental conditions. Bioclimatic variations may have changed the past nature of variables, such as aquatic features or forest cover. As a result, appropriate caution must be exercised when relying solely upon the model, which depend on contemporary biophysical characteristics. The APM should only be employed in conjunction with the detailed results of the desktop component of the Survey and augmented or refined following the results of the field component of the Survey.

In general, twenty-first century maps, satellite imagery and GIS data reflect the land and coastline as they are today. Where possible, the APM uses topographic data that reflects the original, unmodified landforms as they were in the past. Modifications such as causeways, canals and reservoirs, as well as shoreline reclamation and development, have significantly reshaped the modern landscape. The APM takes these variables into account and provides a continuous representation of the predicted archaeological potential across the entire landscape. Areas of high archaeological potential are highlighted in red and areas of low archaeological potential are represented in green. The APM is designed only for use in conjunction with the combined results of the desktop component of the Survey and should not be viewed as a stand-alone archaeological assessment tool.

Boreas Heritage applies background research methods that compile context information from a diverse range of sources. The historical and cultural information is integrated with the environmental and physiographic data to identify areas of archaeological potential within the Assessment Area and to provide a framework for the initial interpretation of any archaeological resources encountered during the field component of the Survey. Combined, these critical lines of inquiry inform the results of the Survey and provide context for the Assessment Area as it relates to episodes of past human land-use, cultural interaction, settlement and development.

3.2 Field Component – Methods

The field component of the Survey, the archaeological reconnaissance, involves on-site visual and non-intrusive examination of the Assessment Area. It may also involve engagement with local residents and knowledge holders. The objectives of the field component of the Survey are (1) to conduct a visual inspection of the entire Assessment Area, (2) to delineate areas exhibiting high archaeological potential, as identified during the desktop component and/or as encountered during the field component of the Survey, and (3) to document any archaeological resources identified during the desktop component and/or field component of the Survey.

Hand-held global positioning systems (GPS) are used to plot waypoints and record the tracklogs of each archaeologist during the field component of the Survey (*Appendix B*). All coordinates are Universal Transverse Mercator (UTM) projection, using North American Datum (NAD) 83.

The field component typically involves parallel pedestrian transects, at intervals of 20-30 metres (maximum of 50 metres), across the Assessment Area to visually assess archaeological potential of the Assessment Area. These transects assist in maintaining effective coverage during the Survey. Structured pedestrian transects assist in the recognition of topographic and/or vegetative anomalies that may inform the extent and nature of previous disturbance factors in the Assessment Area (e.g.: clear-cutting, ploughing, construction earthworks), or suggest an elevation in archaeological potential, including evidence of buried archaeological resources (e.g.: small knolls, apple trees in the forest, overgrown depressions or abandoned roads). Methods and strategies may be modified in response to concerns of safety and efficiency, or when areas considered to exhibit high archaeological potential are identified.

Limited subsurface testing may be employed if archaeological resources are suspected, or located, during the course of the field study. This limited testing will provide the basis for recommendations for further archaeological investigation, if necessary. The objective of the subsurface survey is to confirm or refute the presence of buried archaeological resources. Shovel test pits, averaging 40 centimetres by 40 centimetres, will be dug through the topsoil into subsoil at 5 metre intervals. All soil removed from the test pits will be screened through 6-millimetre wire mesh in order to recover any artifacts within the excavated soil. Any archaeological resources encountered during testing will be quickly assessed and recorded using GPS technology. New sites will be sufficiently documented to facilitate registration with the MARI archaeological site database. All field activities will be recorded, and artifacts recovered will be processed and catalogued in accordance with standards set by SPP. Shovel Test Record Forms will be filled out for every shovel test excavated during the course of the field study.

The process and results of the field component of the Survey are documented in field notes and with digital photographs. Upon identification of areas of high archaeological potential, or confirmed archaeological resources, these locations and features will be sufficiently documented to make informed archaeological resource management recommendations. Confirmed archaeological resources, as determined by CCH, will result in the registration of the site(s) in the MARI database.

3.3 Field Component – GPR Survey Methods

GPR is considered the most accurate, highest resolution geophysical technology and provides a non-intrusive and cost-effective method of identifying potential archaeological features in advance of development. GPRs transmit electromagnetic energy into the ground and measure the timing and amplitude of its reflections. The depth of penetration and horizontal resolution of the resulting image depends on many factors, principally the frequency of the transmitter and the nature of the earth beneath the instrument. Since most archaeological targets are relatively subtle and close to the surface, Boreas Heritage employs a 500MHz instrument (Noggin 500 by Sensors and Software). The Noggin 500 GPR can effectively produce 3D mapping of the first 1-3 metres of the soil column (depth of penetration depends on the soil type).

A grid is established and recorded with a Global Navigation Satellite System (GNSS). The survey transects are at 25-centimetre intervals and data are collected in two directions (along Y lines and along the perpendicular X lines), resulting in cross-sectional coverage. The data is post processed using associated software. Post processing steps include removing background noise and migration, which will enhance the ability to view data and improve the accuracy of determining the size and depth of any identified subsurface features.



Plate 2: *Preparing the Noggin 500 GPR for survey along the existing pipeline.*

4.0 RESULTS

4.1 Desktop Component

The following sections outline the results of the desktop component of the Assessment, with focus on the environmental context, the archaeological context and the historical context of the Assessment Area. The desktop component assists in the identification and delineation of areas considered to exhibit elevated archaeological potential and provides a foundation for the initial interpretation of any archaeological resources that may be encountered during the reconnaissance component of the Assessment.

4.1.1 Desktop Results – Environmental Context

It is important to understand the physiographic attributes and environmental characteristics of the land in order to effectively interpret patterns of human settlement over thousands of years. Geological, topographic, hydrographic and ecological factors have influenced the land use patterns of precontact and historic period Indigenous peoples, as well as later historic period settlers. These factors are key to identifying and evaluating the archaeological potential of the Assessment Area. Specific considerations for determining archaeological potential applied during the desktop and field components of the Assessment include the slope and drainage of landforms, available mineral resources, soil types and agricultural value, access to potable water, access to travel corridors (networks of footpaths and roadways, navigable coastline and inland waterways), and the accessibility, seasonal variation and diversity of targeted flora and fauna species. The following paragraphs describe the environmental attributes specific to the Assessment Area.

Higher ground and elevated positions, surrounded by low or level topography, often indicate past settlement and land use. Other geographic features, such as eskers, drumlins, sizable knolls, plateaus, and distinctive land formations (e.g. rock outcrops, caverns, mounds) are also strong indications of archaeological potential. The Assessment Area is located within the *Northumberland Strait* subunit (#521a), of the greater terrestrial area known as the *Northumberland Plain* (Davis & Browne 1996:108). The *Northumberland Strait* is underlain by the fine red sandstones of the Late Carboniferous period. Two broad folds of these sandstones run from Pugwash Harbour west to Minudie and another from Malagash Point to east of Springhill. Minor folds also run east-west, with differential erosion creating ridges and valleys across an undulating landscape. These alternating ridges and valleys determine the outline of the *Northumberland Strait* coastline, with ridges running north-south protruding into the ocean at places like Malagash Point and Cape John. Pictou Island, for example, is the remnant of a ridge that projects into the middle of the *Northumberland Strait* (Davis & Browne 1996:108). Valleys form the inlets and harbours along the coast where river estuaries were drowned by rising sea levels.

The soils associated with the Assessment Area are *Hansford* soils, derived from red and grey Carboniferous sandstone (Webb 1991:41). Soils from the *Hansford* group are found in the

Northumberland Lowlands, below 160 metre elevation, and occur northeast of Pictou and north of Trenton. These soils are comprised of a friable sandy loam to gravelly sandy loam overlying reddish brown sandy loam to gravelly loam glacial till. Soils specific to the Assessment Area generally occur in poorly drained depressions that remain saturated for much of the season (Webb 1991: 42). Due to water retention, soils in this area are considered poor for agriculture and forestry. Salt marsh deposits, composed of grey silty clay loam marine sediments, are also found within the Assessment Area. These sediments are deposited, reworked and flooded by tidal waters along the coast and tidal rivers of the Northumberland Strait (Webb 1991:73).

Proximity to water, for drinking, resource exploitation and transportation, is a key factor in identifying precontact and historic Mi'kmaw, as well as early Euro-Canadian and African Canadian, archaeological potential. The Northumberland Strait lowlands lie north of the main watershed boundary that bisects the Cobequids, with five secondary and tertiary watersheds draining north (Davis & Browne 1996:108). Rising seas over the last several thousand years have inundated former valleys along the coastal plain, creating numerous biotically rich estuaries and inlets (Davis & Browne 1996:108). Lakes are infrequent and tend to be shallow and elongated. Beaver-influenced wetlands are common and develop into wet meadows and shrub swamps. Wide floodplains occur along the slower moving, mature rivers such as the Pictou, West, Middle, and Merigomish Rivers (Davis & Browne 1996:109). The Assessment Area is located on the north shore of East River, where it enters Pictou Harbour.

Resource areas, including food and/or medicinal plants, and migratory routes and spawning areas, are also considered characteristics that indicate archaeological potential. The Assessment Area occurs in the Maritime Lowlands ecoregion of Loucks' Red Spruce, Hemlock, and Pine (Davis & Browne 1996:108). Forest cover consists of deciduous species and hardwoods including secondary growth Birch, Poplar, Spruce, Fir, and Pine (Cann & Hilchey 1954:30). Along the Northumberland shore, the microtidal environment support large sea meadows of eelgrass and other salt-tolerant species of plants that grow in the numerous coastal lagoons on both sides of the strait (Thurston 2011: 219).

The Northumberland Strait ecoregion contains a variety of terrestrial and aquatic environments that support a range of species. Fur-bearing species like mink, beaver and muskrat are relatively common, alongside smaller populations of red fox and river otter, while Atlantic Salmon, Gaspereau, Brown Trout, and Brook Trout are abundant in freshwater systems. Fisheries officer, Fred H.D. Veith (1886), reported in 1881 that salmon spawned in late fall in a number of the shallow rivers, including the Caribou and Toney rivers (29). The Assessment Area supports predatory and shoreline bird species and the extensive intertidal areas created by the gently sloping sea-bed provide an abundance of waterfowl breeding and staging areas, including along Pictou Harbour (Davis & Browne 1996:110). Freshwater impoundments serve as breeding areas for numerous species of ducks and other waterfowl as well. Species of mollusks, such as Quahog and oyster, are also found in the warm waters and intertidal areas along the Northumberland Strait.

4.1.2 Desktop Results – Paleoenvironmental Context

At the end of the Last Glacial Maximum (LGM), *ca.* 20,000 BP, much of the northern hemisphere was covered in a vast glacier complex made up of three coalescent ice masses, collectively known as the Laurentide Ice Sheet. The ice, which depressed the earth's crust by at least 300 metres and stored a sea-level equivalent of approximately 50 metres, covered much of Canada and the northern United States until it began to retreat approximately 15,000 years ago (Stokes 2017). Initial glacial retreat coincided with the Allerød interstadial, a warm period that occurred between 16,000 and 12,800 years ago and ended with the onset of the Younger Dryas stadial, a cold period that occurred between 12,900 and 12,000 years ago. During the Allerød interstadial, climatic warming reduced most of the ice sheets over present-day Nova Scotia, except those which lingered in the Cobequid, Antigonish and Cape Breton Highlands. As the ice began to melt and retreat, land areas gradually became exposed and vegetation developed, attracting late Ice Age fauna, such as mastodon. At the same time, deglaciation created a complex interplay between emerging land (local isostatic effects) and relative sea levels (global eustatic effects).

The first evidence of deglaciation in the Northumberland Strait is documented *ca.* 14,100 BP in the western portion of the region (Vachhi et al. 2018: 128). The Younger Dryas stadial saw a substantial drop in temperature and a localized re-advancement of remnant ice in Atlantic Canada. Any extant glaciers were reformed, and tundra vegetation was rejuvenated. This included the Northumberland Strait, which saw a significant re-expansion of the remnant ice caps between 13,000 and 12,700 years ago, particularly on Prince Edward Island (Vacchi et al. 2018: 128). Although the ice was an important constraint on the migration and dispersal of flora and fauna during this period, plant and animal life soon returned as the onset of warming ended the Younger Dryas. By *ca.* 12,000 BP, the Northumberland Strait region was totally ice-free. Vegetation gradually colonized the newly exposed ground, facilitating the migration of caribou and other fauna, which were, in turn, followed by Palaeo-Indians, the earliest known human presence in the region (Pielou 1991: 2; Stea 2011: 55).

Throughout the Late Pleistocene and Holocene periods, changes in relative sea-level (RSL) played a significant role in determining human mobility and environmental conditions. RSL histories in the Maritimes vary from region to region, affected by both local and global conditions. Generally, sea-levels in the Northumberland Strait dropped to a lowstand of -35 metres in the Late Pleistocene (Kranck 1972) followed by a continuously rising RSL throughout the Holocene to reach present sea-levels (Scott et al. 1987; Vacchi et al. 2018:136). Approximately 11,000 years ago, while the landmass was emerging through isostatic rebound and sea-levels were lower, a land bridge connecting Epekwitk (Prince Edward Island) to the mainland appeared (Keenlyside & Kristmanson 2016). Referred to as Northumbria, this exposed land, which covered approximately 250 kilometres at its maximum extent, was likely a broad grassland with low relief, and an attractive habitat for terrestrial mammals, such as migrating caribou, and a variety of freshwater fish and waterfowl (Keenlyside 1983). Analysis of palaeo-relief has identified a potential fluvial system from the emergent Northumberland Strait, with the principle river draining east and fed by Prince Edward Island and the mainland (Shaw 2005: 7). The area was subsequently reflooded

by rising water levels (ca. 5,000 BP), and the Northumberland Strait became a continuous body of water (Shaw et al. 2002: 1875). Sea-levels continued to rise from 5,000 BP to present, with evidence from Baie Verte suggesting there may have been a period of rapid acceleration of RSL rise beginning 5,000 BP and ending approximately 3,500 years ago (Scott et al. 1995:2078). However, the dataset was too limited to confidently constrain this event. Based upon data from tidal gauges in Charlottetown, sea-levels in the region are currently rising at approximately 3.22 millimetres/year (NOAA *Sea Level Trends*).

4.1.3 Desktop Results – Prehistory of the Maritime Provinces

There is general consensus regarding the broad patterns of regional cultural history in north-eastern North America, and recognized terminology has been established for precontact development periods based on current archaeological knowledge (**Table 1**). Although our understanding of the prehistoric archaeology of the Maritimes is fragmented, available archaeological data reveals evidence of Indigenous occupation spanning most of the time period from the retreat of the last glacier to European contact and beyond. The prehistory of the region is thus discussed within the parameters of the existing cultural history framework. Prehistoric cultures are defined by a shared technology, settlement and subsistence patterns, and social systems, including political and religious beliefs, existing during a specific time period (Deal 2016: 28). It is important to note, however, that the cultural history sequence and terminology presented below has been imposed exclusively by archaeologists and does not reflect Mi'kmaw perceptions of the past. Although an historical timeline has been developed for Nova Scotia (Lewis 2006; Table 1) that is more attuned to Mi'kmaw awareness and culture, it cannot be presumed to fully accommodate all Mi'kmaw within the Maritimes.

Table 1: Archaeological Periods for the Maritime Provinces

Archaeological Period	Date Range (BP = before present)	Mi'kmaq
Precontact Period	ca. 13,000 – 500 BP	<i>Sa'qiwe'k L'nu'k</i> The Ancient People
Palaeo Period	ca. 13,000 – 9,000 BP	
Early	ca. 13,000 – 10,000 BP	
Late	ca. 10,000 – 9,000 BP	
Archaic Period	ca. 9,000 – 3,000 BP	<i>Mu Awsami Kejikawe'k L'nu'k</i> The Not So Recent People
Early	ca. 9,000 – 7,000 BP	
Middle	ca. 7,000 – 5,000 BP	
Late	ca. 5,000 – 3,000 BP	
Terminal	ca. 4,000 – 3,000 BP	
Ceramic Period	ca. 3,000 – 500 BP	<i>Kejikawe'k L'nu'k</i> The Recent People
Early	ca. 3,000 – 2,000 BP	
Middle	ca. 2,000 – 1,000 BP	
Late	ca. 1,000 – 500 BP	
Historic Period	ca. 1500 – Present	<i>Kiskukewe'k L'nu'k</i>
Contact Period	ca. 1500 – 1600 AD	
Early	ca. 1600 – 1750 AD	
Late	ca. 1750 – 1900 AD	
20 th Century / Recent	ca. 1900 – Present	

Palaeo-Indian Period

In north-eastern North America, the Palaeo-Indian period generally begins approximately 13,000 years ago. Based upon the established sequence of diagnostic projectile point styles, the period can be divided into Early and Late subperiods, and several regional phases have also been identified (Deal 2016:35). Palaeo-Indian artifacts have been recovered throughout the Maritimes; however, relatively few sites have been excavated.

The movement and melting of the glaciers changed sea levels, temperature, precipitation and greatly influenced the animals and plants that could survive in the region. Climatic changes associated with the Younger Dryas dramatically altered floral and faunal colonization patterns, which undoubtedly influenced human resource procurement strategies and migration patterns. Tundra vegetation, characterized by sedges, willows, grasses, sage, alders and birch, developed behind retreating ice and was well-suited to the emerging peri-glacial landscape. This new environment attracted migrating caribou herds, followed by people of the north-eastern Palaeo-Indian tradition. The earliest evidence of human presence in what is now Nova Scotia is the Debert-Belmont complex, representing one of the largest and most intact Palaeo-Indian sites in North America and the oldest sites of human habitation in Eastern Canada (Rosenmeier et al. 2012:113). The inhabitants of Debert and other Palaeo-Indian sites in the region are generally described as mobile hunter-gatherers dependent upon migrating caribou herds, however there is evidence to suggest the presence of a biologically rich habitat that supported diverse subsistence patterns (Deal 2016:40).

The diagnostic artifact of the Palaeo-Indians is the fluted projectile point, which has a central channel, or flute, running up both faces of the point from the base. This distinctive flute likely facilitated hafting onto a spear or lance (Bourque 2001:20). In addition to fluted projectile points and manufacturing debris, other tool forms from the period are known, including graters, bifacial knives and spurred scrapers, suggesting a range of living activities, including hunting and processing. Isolated finds with characteristics of Palaeo tool assemblages have been recovered from across the Maritimes and, although lacking temporal control, illustrate widespread distribution of Palaeo-Indians throughout the region.

With the gradual onset of warmer temperatures at the end of the Younger Dryas, the tundra-like vegetation was replaced by wide-spread closed forests, including temperate conifer and deciduous populations, more suitable to solitary cervids like moose and deer. The Palaeo peoples had to respond and adapt to this changing environment and develop new procurement strategies, including changes to their lithic tool kit (Deal 2016:43). The most significant and discernible change is the replacement of the fluted projectile points with non-fluted forms, which is generally used to signify the beginning of the Late Palaeo-Indian period (Deal 2016:43). Based on this changing technology, two distinct groups have been tentatively identified in the Maritime region; one manufacturing parallel-flaked, lanceolate, unfluted projectile points and the other using small triangular projectile points (Deal 2016:49). Although isolated artifacts have been recovered from coastal locations suggesting seasonal use of coastal resources, acidic soils and sea-level rise have prevented a broader understanding about the nature and associated lifeways of Late Palaeo-Indian culture. Indeed, the margins between the Late Palaeo-Indian period and the Early Archaic period are poorly defined.

Archaic Period

Our understanding of the Archaic period is also somewhat limited. The period has been divided into Early, Middle and Late subperiods, representing a mosaic of cultures spanning the millennia between the Late Palaeo-Indian period and the appearance of ceramics. Evidence related to Archaic peoples in the Maritimes is poorly represented in the archaeological record before the appearance of Late Archaic cultures around 5,000 BP, although there is some evidence for continuous occupation in coastal areas (Tuck 1991). A rapid climatic warming around 8,000 years ago, known as the Hypsithermal interval, led to an increasingly diverse forest. Boreal species began to decline while pine, birch and oak spread throughout the region, attracting a variety of fauna, including moose, deer, bear and other smaller mammals. Site locations in the Maritimes suggest an interior lacustrine and riverine settlement pattern, along with coastal adaptation and occupation; however sea levels for the region at 7,000 years ago were approximately 30 metres below present level and virtually all Early Archaic coastal sites have been eroded by sea-level rise and attendant shoreline erosion (Deal 2016:54; Bourque 2001:39). Evidence also suggests a variable subsistence pattern based on terrestrial mammals, anadromous and catadromous fish species and sea mammals (Deal 2016:58).

Early and Middle Archaic peoples preferred manufacturing stone tools from raw materials such as quartz and rhyolite, and an abundance of quartz-flaking debris is one of the hallmarks of Early Archaic sites. The period is also characterized by the development of ground stone tools, such as full-channelled gouges and rods used, at least in part, for woodworking, adzes, hand spears, atlatls and specialized mortuary artifacts (Deal 2016:58). Furthermore, a high degree of specialization is apparent, including tools and ornaments made of ground slate, bone and ivory, as well as evidence of increased trading activity. Mortuary practices also become evident in the archaeological record of the Maritime Peninsula in the Early Archaic period (Bourque 2001:42). Diagnostic projectile point styles include stemmed and bifurcate-base points.

During the Late Archaic period, a hemlock and oak forest developed in Nova Scotia and New Brunswick, followed by a spruce, birch and beech forest, which is associated with a decrease in temperature around 4,000 BP. (Deal 2016:54). At the same time, there appears to be a rapid re-emergence of evidence for the presence of Indigenous people in the Maritime region, although it is important to note that the modern shoreline was established approximately 3,000 years ago, thus providing more opportunity for encountering Late Archaic period material culture. The Late Archaic period includes two distinctive cultural traditions; one that is primarily a coastal marine adaptation, sometimes referred to as the Maritime Archaic tradition, and one that is interior adapted, known as the Laurentian Archaic tradition. Similar tool forms associated with both traditions suggest a shared technology and interlocking trade networks. Site assemblages include adzes, gouges, plummets and ulus but the main diagnostic tool form of this period is the slate bayonet, which is often associated with burials (Deal 2016:60-65). No Late Archaic habitation sites have been excavated in the Maritime Provinces.

The final Archaic tradition in the Maritimes is often referred to as the Terminal Archaic period. Between 4,000 and 3,000 years ago, a distinct tradition with markedly different technology, subsistence practices and mortuary rituals, known as the Susquehanna tradition, emerged across the Northeast. The mechanism by which these characteristic features reached the Maritimes, whether by migration or cultural diffusion, has yet to be determined. Nevertheless, artifacts associated with the Susquehanna tradition have been identified throughout Nova Scotia and New Brunswick. A settlement-subsistence system that made seasonal use of both coastal and interior resources is evident and interior Susquehanna sites were generally located where fish were plentiful and especially where the seasonal capture of anadromous fish was relatively easy (Tuck 1991; Bourque 2001:62). These sites are characterized by a distinctive tool making tradition, including broad-bladed, broad-stemmed projectile points, drills, polished stone atlatl weights and grooved axes.

Ceramic Period

The Ceramic period is the last major cultural episode in the Maritimes prior to European contact and has been divided into Early, Middle and Late subperiods. Although cooking containers made of wood or bark were used during earlier periods, the Ceramic period is defined by the introduction and full-scale adoption of pottery by Indigenous peoples in the region. The Early Ceramic period is characterized by cylindrically shaped, pointed based vessels, which were textured with fabric impressions. The appearance of this early pottery may be associated with large seasonal gatherings, more complex mixtures of food sources and the preparation of aquatic resources (Deal 2016:84). Over the next two millennia, pottery style underwent a series of changes and more numerous and larger vessels appeared during the Middle and Late Ceramic periods. The salient characteristics of the Middle Ceramic period are thin-walled, grit-tempered vessels decorated with pseudo-scallop or fine dentate stamping techniques, while the quality of Late Ceramic period pottery declined with vessels becoming thicker, coarser and less well fired (Davis 1991). Later vessels feature a more spheroidal shape and the last major decorative form is known as cord-wrapped stick, which remained the dominant decorative technique until ceramic usage terminated shortly before sustained European contact (Rutherford 1991). Indeed, decoration and temper are considered temporal indicators.

The archaeological record suggests significant population growth during the period with the highest concentration of known occupation sites found along the coasts, perhaps representing locations of long-term occupation. Interior sites may represent more specialized locations associated with the procurement of single resources, such as anadromous fish and eels, and residue analysis indicates a predominately marine diet in traditional Mi'kmaw territory (Davis 1991). The Ceramic period lithic industry is defined by regional variation and characterized by changes in flint-knapping and raw materials. Distinctive projectile point styles have been associated with the appearance of bow-and-arrow technology, which had replaced the use of the spear-thrower by the time of European contact (Bourque 2001:91). Shellfish exploitation also emerged as an important socio-economic activity and coastal shell middens were common features associated with Ceramic period occupation in the region.

Elaborate mortuary rituals flourished during the Early Ceramic period and both Meadowood- and Adena-related burial sites have been discovered in the region. Meadowood burials, which resemble those of the same tradition in New York State, include side-notched projectile points, cache blade, slate gorgets, and bird stones, and are often located near habitation sites or along the coast (Deal 2016:87). Adena-related burials, also referred to as the Middlesex Phase, are often, although not exclusively, identified by the presence of burial mounds and include various exotic grave offerings, such as stemmed points, gorgets, block-ended tubular pipes, celts and copper beads. Stemming from the Ohio Valley, numerous Adena burial sites have been identified throughout the region, including the Augustine burial mound in New Brunswick; however, there is limited evidence to suggest these burial practices reflect a physical movement of people into the region. The absence of habitation sites associated with a peripheral culture suggests this cultural manifestation represents a diffusion of Adena ritual elements into the region, which were adopted by local peoples (Deal 2016:93). This scenario also implies contact, direct or otherwise, with extra-regional groups and external influences (Rutherford 1991). Nevertheless, these elaborate burial practices did not survive into the Middle Ceramic period and were replaced by simple primary burials with limited grave inclusions (Deal 2016:102). The later period is also characterized by the exploitation of a wider range of local resources and inter-regional trade (Deal 2016:103).

Protohistoric Period

The Middle and Late Ceramic periods represent a pattern of settlement and subsistence that persisted until European contact. The initial period of contact, heavily influenced by European fishermen and traders, is often referred to as the Protohistoric period, generally held to begin in the sixteenth century. Our understanding of Mi'kmaw lifeways during this period is enhanced by available ethnographic sources, as well as archaeological evidence, often in the form of "copper kettle burials". Single component Protohistoric period sites are rare in the archaeological record, as local Indigenous populations continued to occupy Late Ceramic period sites; however, subsistence patterns were dramatically altered by the mid-sixteenth century. By this time, "Mi'kmaw groups who normally wintered on the coast, were spending the late winter and early spring inland to harvest furs and moving to the coast in the late spring and summer to trade with the Europeans" (Deal 2001). Although this period is often represented in the archaeological record by the presence of trade beads and copper tinkling cones, the most distinct sites are associated with the Copper Kettle Burial tradition, dating from around 1500 to the late 1600s (Deal 2001). This tradition has been associated primarily with the Mi'kmaq, who occupied most of the region's coastal areas and were heavily involved in the fur trade. Copper Kettle Burial sites are marked by overturned kettles and caches of European manufactured trade goods, including glass beads, iron swords, knives and daggers (Deal 2001). By the end of the seventeenth century, contact has resulted in the introduction of European goods, a destabilized human-ecosystem and a wave of epidemics that devastated Indigenous populations.

4.1.4 Desktop Results – Archaeological Context

Registered archaeological sites provide evidence of Indigenous occupation of Pictou Harbour and its environs for thousands of years, dating to at least the Ceramic period (*ca.* 3,000-500 BP), and potentially earlier. Artifacts identified range from lithic debitage to more formal tools such as projectile points and bifaces. The abundance of stone celts and adzes recovered from sites in the area indicate wood working activities, perhaps in the construction of dugout canoes, domestic sites, or fishing infrastructure.

A review of the MARI database determined there are 20 known archaeological sites within a 10-kilometre radius of the Assessment Area, 17 of which contain Indigenous cultural material (**Table 2**). Many of these sites were first identified during the coastal surveys of early professional archaeologists W.J. Wintemberg and Harlan Smith in 1913. Wintemberg and Smith also examined the collection of Reverend George Patterson, a local historian and early archaeologist operating in the late nineteenth century (Deal 2016: 4). Unfortunately, details on individual sites are fragmentary and little information is available in the MARI database.

A total of 16 precontact sites have been registered in the MARI database within 10 kilometres of the Assessment Area, as well as one Protohistoric site (**BkCp-01**). These sites populate the inner shores of Pictou Harbour, the shores of the Northumberland Strait near Black Point, and extend into the interior along the East River of Pictou. Most sites were identified on the basis of isolated finds and eroded surface material, many of which came from the collection of Reverend Patterson.

There is one registered archaeological site in proximity to the Assessment Area. In 1913, having read an article published in the *Pictou Advocate* in September of 1912, Wintemberg and Smith recorded the discovery of “stone axes or celts, and knives ... a few hundred yards north of Indian Cross point, a little below Ives point” (Smith & Wintemberg 1929:15). Although this location was subsequently registered as **BjCq-05**, there is no additional information regarding the site or the recovered artifacts. A precontact burial is suggested by the discovery of “slate knives” at a former shell midden site near Ives Point, approximately 500 metres southeast of the study area (**BjCq-04**). The “slate knives” described by Wintemberg, may represent “slate bayonets”, a type of ground stone artifact commonly associated with burials in the Maritimes, which some suggest were manufactured for ceremonial purposes (Deal 2016: 64-66). Ground stone artifacts are also commonly associated with the Archaic period (*ca.* 9,000 – 3,000 BP), and the presence of these artifact types would extend the archaeological evidence of Indigenous occupation back several thousand years. However, with only a written description of the artifacts, it is not possible to confirm temporal context. Wintemberg did attempt to relocate **BjCq-04** in 1913 but was unable to find evidence of the site (Wintemberg & Smith: 1929:15). The artifacts were discovered during development of the branch railway in 1912, and it is possible the site was destroyed during construction.

BjCp-01 consists of three celts found near Big Gut, Pictou Harbour, located approximately 2.8 kilometres southeast of the Assessment Area. The celts, reported by Wintemberg in 1913, are recorded as part of the Patterson Collection. Four of the identified precontact sites (**BjCq-03; BjCq-04; BjCp-02; BkCp-02**) are shell middens, archaeological sites formed through the accumulation of household waste, primarily

mollusc shells. Shell middens often mark the location of former habitations and villages, as evidenced by the presence of formal tools and faunal material at these sites. Shells middens located in proximity to the Assessment Area provide strong evidence of both nearby precontact settlement, as well as subsistence practices reliant upon marine resources. Wintemberg took particular interest in these features during his work along the Northumberland Strait in the early twentieth century, recording numerous “shell heaps” composed of mussel, oyster, and clam shells (Wintemberg & Smith 1929:15). These sites were identified on the basis of artifacts in the Patterson Collection, and not through any formal excavation.

The Hopp’s Site (*BkCp-01*), approximately 5.5 kilometres north of the Assessment Area, is one of the most important and better-known archaeological sites in the region, representing a period of cultural contact between Mi’kmaq and early European traders just before the devastating effects of widespread disease and the dispossession of traditional lands. First discovered by Mr. Kenneth Hopps on his property in 1955, the Hopp’s Site consists of two copper kettle burials and associated grave goods dating to the late sixteenth century (Whitehead 1993: 51). Two burial pits were discovered in 1955 and 1956 by the property owner, who excavated the remains with the assistance of J. Russell Harper, Archivist at the New Brunswick Museum (Harper 1957). The burials were both secondary depositions, meaning the bodies were first laid in the open air for several months before their bones were interred in the earth. The first pit contained the skeletal remains of a single adult male, while the second pit contained skeletal fragments of a child, a woman, and five other adults (Whitehead 1993: 51). Over 1000 items have been catalogued from the Hopp’s Site, some with multiple components (Whitehead 1993:55). Artifacts recovered in association with the burials include goods of both European and Mi’kmaq manufacture including over 200 iron spear points, copper knives, swords, glass trade beads, furs, birchbark goods, and the largest collection of worked plant fibre in the Maritimes (Whitehead 1987: 42). Similar grave goods and artifacts have been discovered in other copper kettle burials, including the Northport site (*BICx-1*) located west of Pictou on the Amherst Shore.

Recent archaeological work in the area, like much of the province, has been in response to development activities. Two archaeological sites (*BjCq-08 and A’se’k I*) were identified by formal testing in 2017, though only *BjCq-08* is currently registered in the MARI database. Testing in 2017 for the Northern Pulp Effluent Treatment Plant Replacement identified a multicomponent site approximately 2.2 kilometres north of the Assessment Area (*BjCq-08*). Twenty-one shovel tests, excavated along the Abercrombie Point shoreline, recovered 22 precontact artifacts and 32 historic artifacts (Ingram 2018). Disturbance in the area had resulted in the mixing of precontact and historic deposits. Artifacts recovered include the midsection of a biface, one scraper, and one flake exhibiting use-wear. The *A’se’k I* site, a small precontact habitation site was also identified as part of the 2017 Boat Harbour Remediation project (Sanders 2018). Testing recovered 28 flakes of banded rhyolite, near the southwestern shore of Boat Harbour. At the time of writing, *A’se’k I* has not been registered in the MARI database. Outside of the Hopp’s Site, *Puknipkejk I* and *A’se’k I* are the only precontact sites within 10 kilometres of the Assessment Area that have been subject to formal testing.

A total of six historic sites have also been identified within a 10-kilometre radius of the Assessment Area, two of which are multicomponent sites that also bear evidence of precontact Indigenous occupation. The closest sites are the previously mentioned **BjCq-08**, and the Wreck of the Dieuse (**BkCq-22**), a 1925 shipwreck located in the middle of Pictou Harbour. Archaeologist Helen Sheldon recorded three historic sites near New Glasgow including the early nineteenth century home of Reverend Dr. McCullough (**BkCq-21**), the former location of the Stellerton pumphouse (**BkCq-06**), and the Albion Iron Foundry (**BkCq-05**). **BkCp-09**, located approximately 5 kilometres northwest on Browns Point, is also a multicomponent site, identified through previous collections, where precontact adzes, projectile points, and a biface were discovered in addition to nineteenth century tokens and an iron axe. Archaeological reconnaissance near Boat Harbour also led to the discovery of three historic homesteads dating to nineteenth century Euro-Canadian occupation (Sanders 2018). At the time of writing, none of these sites have been registered in the MARI database.

Table 2: Previously registered MARI sites within 10 km of the proposed Project

Location	Site Name	Permit	Archaeology Period	Description
-	BjCp-01 (Wintenberg)	N/A	Precontact	Three stone celts recorded in the Patterson Collection, near Big Gut.
2.3 km SSE	BjCq-03 (Wintenberg)	N/A	Precontact	Shell midden, two stone adzes, one double-bitted, found in the Patterson Collection. Site located on the west bank of the East River of Pictou.
500 m SE	BjCq-04 (Wintenberg)	N/A	Precontact	Shell midden and ground stone tools including “slate knives”. Site formerly located on Ives Point, since destroyed.
~1 km N	BjCq-05 (Smith)	N/A	Precontact	Stone celts and knives located below Ives Point and north of Indian Cross point.
2.1 km N	BkCq-08	N/A	Precontact	Isolated finds, two celts found at Christie Point on the south shore of Pictou Harbour.
2.8 km NW	BjCq-08 (Ingram)	N/A	Multicomponent	Puknipkejk 1, precontact and historic artifacts recovered during testing near Abercrombie Point, Pictou Harbour.
	BkCq-22 (Griffin)	N/A	Historic	20 th century, believed to be shipwreck of the Dieuse from 1925. Located in the middle of Pictou Harbour.
3.5 km NW	BkCq-01 (Wintenberg)	N/A	Precontact	Unknown find, on north shore of Pictou Harbour
4 km N	BkCq-20 (Nash)	N/A	Precontact	Surface scatter, artifacts eroding from embankment at Moodie Cove.
3.5 km NW	BkCq-11 (Smith & Wintenberg)	N/A	Precontact	Isolated find, stone adze in Patterson Collection, found along beach on the north shore of Pictou Harbour.
3.5 km NW	BkCq-02 (Erskine)	N/A	Precontact	Isolated finds, represents two sites at Pictou Harbour, one near old wharf as well as arrowheads picked up along small brook to the south.
5 km N	BkCp-01 (Harper)	N/A	Protohistoric	Hopp’s site, copper kettle burials, located on northern shore near mouth of Pictou Harbour.

2.8 km NW	BjCq-01	N/A	Precontact	Unknown find located at Abercrombie Point in Pictou Harbour.
9.5 km E	BjCp-02 (Smith)	N/A	Precontact	Several shell heaps found near old Reidway Post Office.
8.3 km SE	BjCp-03	N/A	Precontact	Isolated find, celt, near New Glasgow along the East River of Pictou.
4.2 km NW	BkCq-21 (Sheldon)	A1997NS42	Historic	19 th century, historic home and grounds built by Reverend Dr. Thomas McCulloch in 1803.
5 km NW	BkCq-09	N/A	Multicomponent	Artifact collection containing precontact adzes, knives, stemmed and unstemmed projectile points as well as nineteenth century tokens and an iron ax. Found near Browns Point.
9 km S	BjCp-06 (Sheldon)	A1987NS01	Historic	Historic, 19 th century, old Stellerton pumphouse.
5.4 km NW	BkCq-13	N/A	Precontact	Isolated find, celt found along West River Road, on the north shore of Pictou Harbour.
9 km S	BjCp-05 (Sheldon)	A1988NS7; A1989NS21	Historic	19 th century, Albion Iron Foundry.
5.7 km NW	BkCq-12 (Smith & Wintemberg)	N/A	Precontact	Isolated find, fragment of stone celt or adze in the Patterson Collection. Found near Town Gut, on north shore of Pictou Harbour.

4.1.5 Desktop Results – Historical Context – Indigenous

The Assessment Area is located within the traditional Mi'kmaw territory known as Epekwitk aq Piktuk, which is comprised of Prince Edward Island and the lowland area along the Northumberland Strait, spanning Pictou and Antigonish counties in Nova Scotia (Sable and Francis 2012: 21). The name “Pictou” is derived from the Mi'kmaw word Piktuk, meaning “explosion place”, which Mi'kmaw linguist Bernie Francis believes is likely linked to the smell of sulfur in some parts of the region (CBC News, 2015). Twentieth century sources indicate that Piktuk has long been a traditional gathering place for the Mi'kmaq, and the place where Glooscap taught the people arts and crafts (Hoffman 1955: 548).

Before European disruptions, Mi'kmaw life-ways involved maritime adaptations and seasonal mobility oriented to intercept available marine and freshwater aquatic resources (Lewis 2007). The Mi'kmaq followed a general seasonal pattern, living on the coasts during the spring and summer, moving upriver and inland during the fall and winter, though this pattern varied by geographic region. In 1611, Father Biard indicates the Mi'kmaq hunted calving seals in January, not only for their flesh and fur, but for fat to sustain them throughout the year (Whitehead 1991:34). Black Bear and Moose were also hunted in late autumn and winter and valued for their fur, flesh and fat. Emphasis was placed on a sustainable form of living, to ensure food for future generations. In an interview (*ca.* 1740), Shawman-Chief Arguimaut (L'kimu) from Prince Edward Island describes pre-European hunting and states, “We killed only enough animals and birds to sustain us for one day” (Whitehead 1991:10). Descriptions of Pictou Harbour by

French trader Nicholas Denys in 1654 describes a land of abundance, of large meadows with ample game, shorelines fringed with tall pine, and waters filled with large quantities of “immense oysters” (Denys 1908: 189-191).

Following intermittent and later sustained European contact (*ca.* 1500 – 1650 AD), the Mi’kmaq shifted from long-established, sustainable food harvesting practices, to subsistence patterns based on trading furs for European commodities. Whether the shift was by choice or necessity, the consequences were significant as overhunting led to stress within Mi’kmaq society. By the mid-seventeenth century, and throughout the eighteenth century, the fur trade had evolved from opportunistic exchanges with fishermen-entrepreneurs on the beach or at anchor. Permanent and semi-permanent European settlements and fishing stations, such as those found at Port La Tour in Shelburne County, St. Peters in St. Ann’s Bay, and later at the fortress of Louisbourg, gave rise to more structured transactions of higher volume for goods and credit at established trading posts (Johnston 2004). By the mid-eighteenth century, “[the] Mi’kmaq were caught in the middle, suffering both the indifference and political machinations of their French co-religionists and the campaigns of the English, who loosed their Mohawk allies against them” (Whitehead 1991:77). In 1761, the Mi’kmaq negotiated a truce with the English and, though a measure of peace was formed, the erosion of the traditional Mi’kmaq way of life continued, with devastating effect to the people:

“By 1761.... the great numbers of Loyalist settlers, fleeing the American Revolution, made vast inroads on traditional Mi’kmaq lands. Game was no longer plentiful; salmon rivers were blocked by dams and choked with sawdust. The fur trade was in decline, and smallpox epidemics swept the Maritimes. The Mi’kmaq, their seventeenth-century population already reduced by approximately 90 percent, were particularly hard hit....a change which had begun in 1500.” (Whitehead 1991:77)

By the turn of the nineteenth century, the Mi’kmaq in Nova Scotia were in dire conditions. Despite earlier guarantees to access traditional hunting territories, the expansion of European settlements and destruction of the natural environment denied Mi’kmaq access to important resources (Wynn 2005: 23). The colonial government of the time did little to alleviate the worsening conditions, and policies generally focused on the assimilation of the Mi’kmaq people into settler society. An annual relief fund was set aside in 1786, however the sum was small, and was never enough to address the problem of food scarcity, clothing, and lack of medical services (Paul 2008: 197). In spite of the hardship and suffering endured during the nineteenth and twentieth centuries, many Mi’kmaq communities persisted in a migratory lifestyle, and maintained a distinctive identity against the threat of cultural erosion.

Historically, Piktuk remained an important place to the Mi’kmaq after European contact. At least two villages were formed along Pictou Harbour including Wisasq at Boat Harbour, and Oqwa’skuk at the mouth of East River on the eastern shore (Hoffman 1955: 548). Wisasq may represent two encampments, with a second further to the west (Mi’kmaq Place Names Digital Atlas, 2019). Oqwa’skuk, at the mouth of the East River, was cleared by later settlers, however artifacts found at the village site in the nineteenth

century indicate it was occupied by the Mi'kmaq both before and after European contact (Patterson 1877: 28).

Burial sites, containing the ancestors of Pictou Landing First Nation, are known in the vicinity of Pictou Harbour. The historic burial ground at Indian Cross Point, or Sukle'katik, remained in use until the 1870's. Patterson, writing in 1877, describes the Indian Cross Point burial ground:

“Here the Indians buried till a few years ago. Many of the graves can still be traced by rows of flat stones by which they were originally covered, which have now sunk to the level of the ground or perhaps were always in that position, and are partly overgrown with grass. The water is wasting away the bank, so that human bones may be found along the shore” (28).

It is not known how long into the past the burial ground at Indian Cross Point was used, though there is evidence that it stretches back hundreds of years, and possibly even prior to the arrival of Europeans. A 1998 study by Douglas Brown indicates the burial ground was in use well before in 1784, when the land was sold to James Carmichael by two Mi'kmaw chiefs, “Major Paul and Sapier”. In the conveyance, “the burying ground was reserved for the continued use of the Mi'kmaq” (Brown 1998: 2). Patterson is more specific:

“On a point a little lower down the river [East River] was another burying place. Here stood at the arrival of the English settlers, and until a recent period, a large iron cross, about ten feet high. Hence the place is still known as Indian Cross Point, though the locality is known among the Micmacs, as Soogunagade, or rotting place.” (28).

The name itself, Indian Cross Point, is derived from the large iron cross, noted above, that once stood on the point. According to Patterson, this cross was erected prior to the arrival of settlers to Pictou Harbour in 1765. Assuming the iron cross did indeed predate the arrival of “English” settlers, it has been suggested that it may also have marked the location of a French mission that provided Christian services to the Mi'kmaw of Pictou Harbour sometime in the seventeenth and eighteenth centuries (Sanders 2018:19). Similar iron crosses have been found at contemporary French mission sites throughout the Maritimes. The Mi'kmaq continued to use the burying ground until approximately 1867, at which point the land containing burials was already actively eroding and human remains were falling from the bank to the beach below. A few years prior to 1867, it is recorded that a number of Mi'kmaw made attempts to repair the burial site due to the effects of tidal erosion and reinterred exposed human remains a “short distance inland from the bank” (Brown 1998: 2;5). The cross, which may have occupied the most westerly point of land extending into the East River, was subsequently lost and the exact location of the burying ground was forgotten over time.

Attempts to relocate the burial ground were made in 1995 by the Province of Nova Scotia and in 1997 by Douglas Brown, who concluded the cemetery was likely located on high ground just north and east of the existing ROW on property owned by Mr. William Palmer of Pictou Landing (Brown 1998: 2) (**Plate 3**).

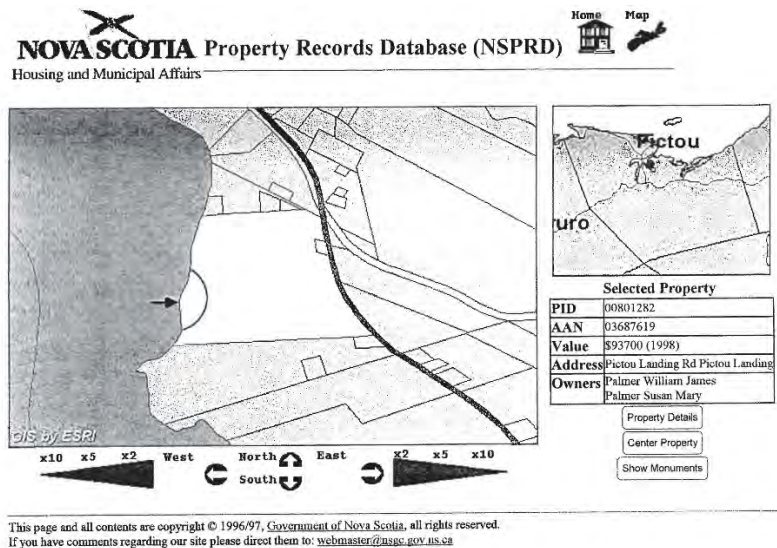


Plate 3: The Palmer property showing Brown's potential location of the burying ground.

Brown also records an interesting reference found in *The History of the Catholic Church in Northeastern Nova Scotia*, which states:

"There was an Indian village at the mouth of the East River, and a short distance to the south of this village there was an Indian cemetery which was marked by an iron cross ten feet high."

It is possible the "Indian village" noted above is represented by **BjCq-05**, where Wintenburg recorded the discovery of "stone axes or celts, and knives ... a little below Ives point" (Smith & Wintemberg 1929:15). If so - and if the village and cemetery were associated - the use of Indian Cross Point as a burial ground may extend into the precontact period and may be associated with **BjCq-04**, where Wintemberg noted the presence of "slate knives" or bayonets.

In any case, Brown's research contains several important points relevant to this assessment:

- 1) The location of the burial ground was on or near the bank of the shore of the East River.
- 2) There are newer graves located inland where the Mi'kmaq reinterred remains that had eroded from the bank.
- 3) The Mi'kmaq attempted to stop the erosion by placing large and small boulders at the site of the erosion.
- 4) The graves were marked by rows of flat stones, which are now overgrown with grass.
- 5) The burial ground must have been on higher ground for the remains to have fallen to the shore.

Although the exact location on the burial ground remains unknown, it appears to be located in the vicinity of the shoreline in the southeastern portion of the Palmer property and may extend onto the adjacent property to the south, where the pipeline terminates.

Piktuk was a place of gathering for Mi'kmaw throughout the region. Nineteenth-century historian Reverend George Patterson (1877) describes a gathering of hundreds of Mi'kmaw in 1779, possibly to discuss war with the English, which caused no small amount of consternation amongst local settlers (106). Though this gathering dispersed peacefully, Mi'kmaw continued gathering annually, either at Fraser's Point near Trenton (today known as Abercrombie's Point), or Middle River Point. Locals report that at times over one hundred canoes were drawn up to shore. The gatherings lasted several days, during which races, singing, games, and feasts were held (Patterson 1877: 188). These gatherings continued until 1838, when a vessel with smallpox was quarantined at the mouth of Middle River. Afterwards, this gathering is said to have shifted to Indian Island, Merigomish.

Though the colonial government of Nova Scotia allotted 8,650 acres of lands on mainland Nova Scotia as "Indian Reserves" in 1801, ancestors of the Pictou Landing First Nation were largely dispossessed of all traditional lands until 1864, and fought to maintain control of a traditional campsite at Moodie Point (Paul 2008:192, PLFN History, 2018). After decades of being petitioned, the Nova Scotia government acquired 50 acres of land near Boat Harbour, at Moodie Cove, for the exclusive use of the local Mi'kmaq. Moodie Cove may have been a traditional place for Mi'kmaw encampments and is close to a short portage route that connected Pictou Harbour at the head to Moodie Cove to the northwestern cove of Boat Harbour (Sanders 2018: 25). Sanders (2018) elaborates on the linguistic clues which indicate a longer cultural connection to this area as well:

"[t]he existence of names for features at either end of this trail – "Sitmug" ("the shore down by the beach") for the head of Moodie Cove and "A'se'k" ("the other room" or "the other side") for Boat Harbour – suggests that both places were long established cultural centres and were always linked" (25).

In 1867, with Nova Scotia entering Confederation, the federal government of Canada assumed responsibilities over the Mi'kmaw and legal title to the land. In the ensuing years, smaller parcels of land were added to this original 50-acre grant using "Indian money" and became known as Fisher's Grant 24. Over time, this became the First Nation community of Pictou Landing. Pictou Landing's first chief, Chief Peter Wilmot, was a renowned wilderness expert and would go on to establish the First Nation community of Millbrook. Today, Pictou Landing First Nation consists of five reserves including Fisher's Grant 24 (est. 1866), Merigomish Harbour 31 (est. 1865), and part of Franklins Manor near Amherst (est. 1865). Additional reserves were allotted in 1924 at Fishers Grant 24G and in 1961 at Boat Harbour West 37. Numbering approximately 159 people in 1864, Pictou Landing First Nation, at the mouth of Pictou Harbour, has grown to approximately 670 registered members with approximately 500 living on-reserve (PLFN History, 2018; INAC Census, 2019).

Mi'kmaw placenames are known for at least twenty-three landmarks within a 10-kilometre radius of the Assessment Area (**Table 3**). These placenames demonstrate the Mi'kmaq had a significant understanding of the local landscape and resources, as well as a strong cultural connection to the area. Examining the meaning of these placenames, and their geo-spatial context, provides insight into traditional Indigenous knowledge and how these areas were perceived and used in the past. Trenton, for example, is known to the Mi'kmaq as Apji'jkmujue'katik, meaning 'place of the ducks'. This name strongly suggests that Mi'kmaq harvested waterfowl in this area, and that Trenton is a place where migratory birds like ducks established breeding and nesting areas.

Mi'kmaw placenames include descriptions of landforms (*at the narrow harbour, at the yellow/golf-coloured rock, at the opening, at the middle place, at opening by a little rocky hill, diversified by coves*), reference local species and resources (*place of the ducks*), and environmental conditions (*at the explosions, at the erosion place*). Of special interest are the placenames referencing specific human experience on the land (*where the canoes arrive, place of the wood chips, unloading*), and even specific people (*at Daniel's place, at George's*). Several place names are more recent inventions, referencing specific people or activities that post-date European contact (*where people go to get drunk, at the ferry crossing place*), providing further evidence of continued Mi'kmaq habitation in this area throughout the historic period. These places may have older names that are currently unknown.

Table 3: Mi'kmaw placenames within 10 km of the Assessment Area

Modern Placename	Mi'kmaq Placename	Translation	Source
Pictou	<i>Piktuk</i>	at the explosions	Rand 1919: 68; Mi'kmaw Place Names Digital Atlas, 2019
Pictou Harbour	<i>Puknipkejk</i>	at the narrow harbour	Pacifique 1934: 238
Boat Harbour	<i>Wisasoq</i> or <i>A'se'k</i>	at the yellow/gold-coloured rock <i>or</i> the other room	Pacifique 1934: 240; PLFN 2018
Pictou Landing	<i>Puksaqte'kne'katik</i>	place of the wood chips	Pacifique 1934: 240
Trenton	<i>Apji'jkmujue'katik</i>	place of the ducks	Pacifique 1934: 240
Indian Cross Point	<i>Sukle'katik</i>	at the rotting place	Pacifique 1934: 240
East River	<i>Amasipuk</i>	long river or place of ducks (duck land)	Mi'kmaw Place Names Digital Atlas, 2019; Pacifique 1934: 239
Harbour Point	<i>I-tli-ktikia'timk</i>	where people go to get drunk	Mi'kmaw Place Names Digital Atlas, 2019
Brown's Point	<i>Ne'iknejk</i>	at the opening, where it begins to show	Mi'kmaw Place Names Digital Atlas, 2019; Pacifique 1934: 238
Middle River	<i>Mekwaie'katik</i>	at the middle place	Mi'kmaw Place Names Digital Atlas, 2019; Pacifique 1934: 239
Chance Harbour	<i>Menpekwijk</i>	at the erosion place	Pacifique 1934: 240
East River Encampment	<i>Oqwa'skuk</i>	where the canoes arrive	Pacifique 1934: 239
Fishers Grant	<i>Pqutamo'taqniktuk</i>	at the ferry crossing place	Pacifique 1934: 240
Logan's Point	<i>Tanielek</i>	at Daniels place	Pacifique 1934: 238
Little Harbour	<i>Maiko'mijk</i>	erosion or unloading	Pacifique 1934: 240
Island in Little Harbour	<i>Menpekwik</i>	at George's	Mi'kmaw Place Names Digital Atlas, 2019
King's Head	<i>Panoqopskalajue'katik</i>	at opening by a little rocky hill	Pacifique 1934: 240

Pine Tree	<i>Tua'qnji'jk</i>	Meaning unknown	Mi'kmaq Place Names Digital Atlas, 2019; Pacificque 1934: 240
Indian Island	<i>Maliko'mijk</i>	diversified by coves	Mi'kmaq Place Names Digital Atlas, 2019
Entrance to Pictou Harbour	<i>Pogonipgetjg</i>	unknown	Pacificque 1934 :238
Fraser's Point/Abercrombie Point	<i>Oaletjg gisna Oalitjg</i>	little snowballs	Pacificque 1934: 239
Moodie Point Encampment	<i>Esasok or Oaletjh</i>	the western encampment	Sanders 2018: 18; Hoffman 1955: 130
Moodie Cove Shore	<i>Sitmug</i>	the shore down by the beach	Bennett 2013: 81; Sanders 2018:18

4.1.6 Desktop Results – Historical Context – Non-Indigenous

Interpreting early European contact with the Indigenous people in eastern Canada is restricted by the lack of accurate, unbiased and detailed historic records from this influential period (Quinn 1981: 1-9). Whether or not John Cabot set foot on Cape Breton in 1497, the shores of eastern Canada were well known to large numbers of European fisherman and whalers who made annual voyages across the Atlantic Ocean by the early 1500s (Johnston 2004: 24-25; Quinn 1981: 2). An account from 1578 indicates that off the coast of Newfoundland there were generally 100 Spanish vessels taking cod, another 20-30 Spanish vessels hunting whales, 50 Portuguese vessels, 150 sail of French and Bretons and 50 English (Brown 1869: 34; Johnston 2004: 25). Certainly, vessels traversed the Northumberland Strait, including Basque fisherman, who established seasonal cod and whaling camps in Cape Breton in the fifteenth and sixteenth centuries. Heavy competition, storms and imprecise navigation would lead some vessels to explore and exploit other areas. Without a doubt, the seamen would have come ashore occasionally for equipment repairs, to obtain fresh water, to hunt game, or to trade with the Mi'kmaq (Johnston 2004: 25; Quinn 1981; Whitehead 1991: 17-18).

In 1534, the Mi'kmaq of the Gaspé peninsula, waving furs for trade, met Jacques Cartier, indicating they were already familiar with Europeans who wanted furs and were willing to exchange manufactured goods to obtain them (Johnston 2004: 27; Quinn 1981: 18). In the early 1500s, trade between European fishermen and Indigenous people in Atlantic Canada existed as a secondary enterprise, conducted on the beach or while at anchor, but, by the 1540s, these exchanges were being pursued independently as commercial ventures (Johnston 2004: 28; Turgeon 1990: 84). Some of these interactions between Europeans and Indigenous people resulted in mutually beneficial exchanges, while others failed miserably through misunderstanding and mistrust, quickly escalating to violence (Whitehead 1991: 17-18).

Basque and Breton fishermen, who established seasonal cod and whaling camps in Cape Breton, Newfoundland, and up the St. Lawrence River in the fifteenth and sixteenth centuries, were likely the first Europeans to land on the shores of Pictou Harbour (Cullen et al. 1984: 5, 19). Evidence of early interaction and trade with local Mi'kmaq has been found at the mouth of Pictou Harbour (*BkCp-01*), where Mi'kmaq graves contained an assortment of European trade goods common in eastern North America during the late sixteenth century (Whitehead 1993: 70).

Little information exists concerning early French settlement in Pictou Harbour. Most of what we know comes from the vestiges of earlier habitations that early English settlers encountered after their arrival to the area. Evidence of French settlements were reportedly found at Cariboo Island, Little Harbour, French River, and at Big Island in Merigomish (Patterson 1877: 38-40; Cullen 1984: 6). French settlements have been identified within Pictou Harbour as well. Locals report a French burial ground at Burying Ground Point, on the north side of the harbor mouth, at what is now known as Seaview Cemetery (Patterson 1887: 39). Acadian homesteads were also purportedly located at what is now the present-day Pictou town site (Clarke 1968: 229). Further traces of French settlement along the harbor shores were also reported by locals, and are described in Patterson's nineteenth century *A History of Pictou County*:

“A log shanty stood at the mouth of the Middle River, and another on the East River. Some pine had been cut down at the Town Gut and along the stream upward, and the spot where Barrie's (late Dickson's) mill now stands, selected as the site of a mill. The remains of a cellar, which had been well constructed with logs was, for a length of time, to be seen about half way between the Town Gut Bridge and Brown's Point” (Patterson 1877: 39).

These permanent, year-round settlements, located along the coast, were likely engaged primarily in fishing, with small cleared pastures for cattle. Old French dykes could still be found along the shore as late as the 1980s, evidence that Acadians in the area were also involved in agricultural activities (Cullen 1984: 6). A small lumber industry may also have provided an income. Cullen (1984) suggests that the large oaks in the area were harvested for shipment to Louisbourg, where they were used for construction of the town and in shipbuilding (6-7).

Place names like French River and the French Channel near Merigomish reference the people of French descent who once lived there. Oral history, recorded in 2017, also suggests that an Acadian settlement may have existed at the head of Boat Harbour (20). This marshy area, where memory cites as the location of an old dyke, is known to older residents as “Butt Toe”, a possible corruption of the French word “aboiteau” (Sanders 2018:20).

The French occupation of Pictou Harbour ended with the expulsion of the Acadians in 1755 by the British military. Acadians who remained in the area migrated east to form the communities of Tracadie and Havre Boucher and avoid further persecution by the British. The land was left vacant of European settlement during the Seven Years War (1756-1763), however with the cessation of the conflict, interest in the colonization of Nova Scotia was renewed. In 1765 a large land grant was awarded to a Mr. Alexander McNutt of Northern Ireland, including approximately 100,000 acres encompassing the whole eastern half, of the county (Patterson 1887: 49). This was divided into 5 lots, approximately 20,000 acres each. Land on the south shore of the harbour was award to a Major John Fisher, from which derives the name “Fishers Grant” (PANS 1967: 524-25). Fisher's land grant was extensive, stretching from the east side of Pictou Harbour along the shore to Merigomish Harbour, and included islands within the harbour. In spite of this, settlers were hard to find, and it does not appear Fisher himself ever established a home there. (Patterson 1887: 50).

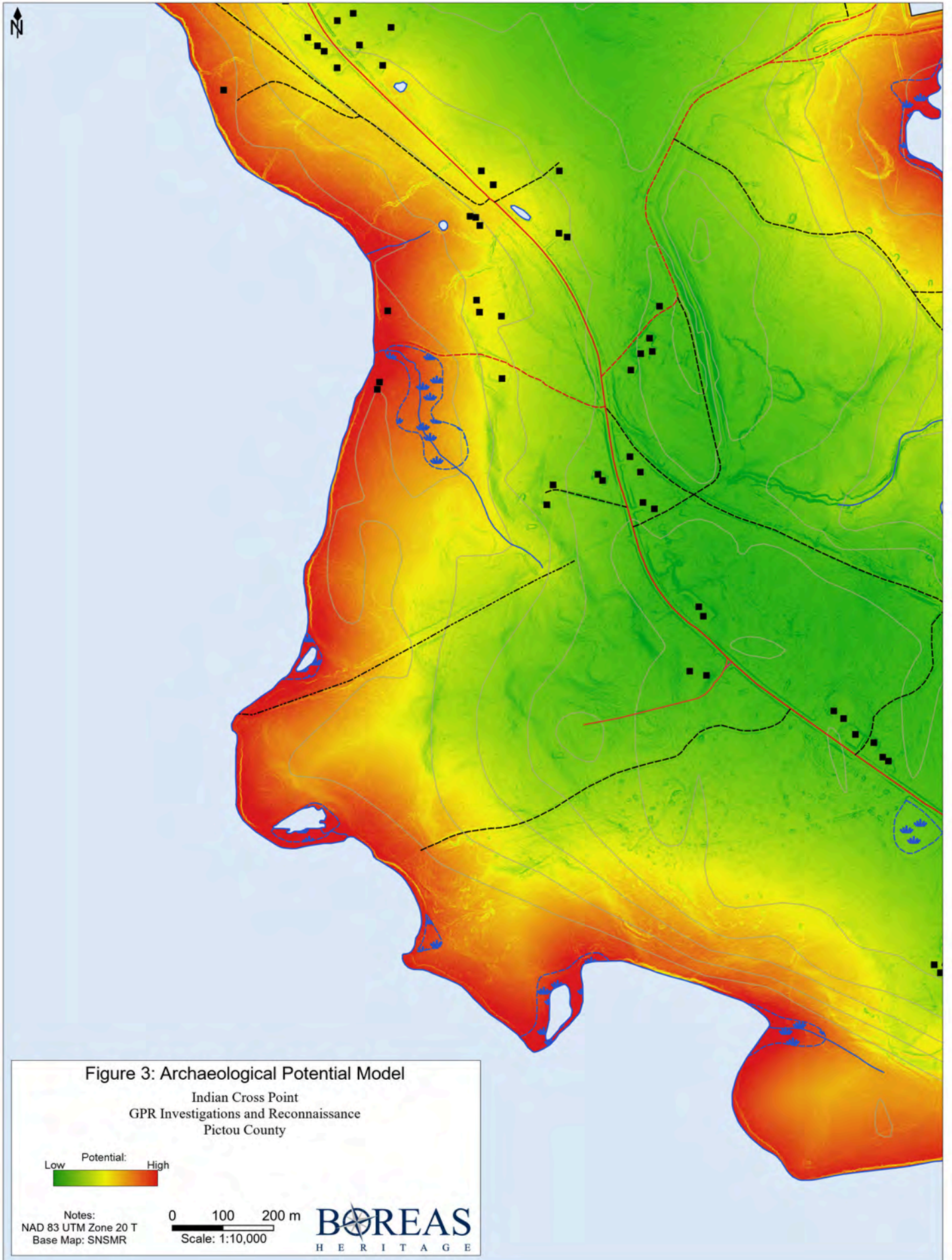
Though many grants were issued, few found success in attracting settlers. The exception was the Philadelphia Grant, which included the west side of the harbour and the location of the current township of Pictou. Selling land in the area at ‘five pounds sterling for every hundred acres payable two years after their arrival’, the Philadelphia Company was able to attract six families by 1767 who settled along the west river, and an additional seven families by 1769 (Bumsted 2005: 167; PANS 1967: 50). In 1773, approximately 190 new settlers arrived in Pictou Harbour from Lochbroom, Scotland aboard the famous ship ‘Hector’ (Patterson 1887: 82). Marking the beginning of the flood of Scottish immigrants to the province, members of this group would go on to find the town of Pictou.

At the end of the American Revolutionary War (1775-1783), disbanded soldiers from the 82nd Regiment were granted tracts of land from the escheated Fishers Grant for resettlement in 1783. The land was divided amongst approximately 150 officers, NCO’s and privates, with major grants handed to Colonel Robertson who received all 1500 acres of Big Island and Captain Fraser who received 700 acres at Fraser’s Point. Whatever expectations the soldiers had were unmet when they arrived at the uncleared forests marked by only a few scattered settlements. A townsite by the name of “Walmsley” was laid out at the location of Fishers Grant but was never realized. Though many of the grantees left, others stayed and joined settlers who had previously established homesteads in the area.

Settlements at Pictou and Pictou Landing continued to grow throughout the nineteenth century, spurred on by a profitable fishery, coal mining, and shipbuilding industry. A cross-harbour ferry route was established between Fisher’s Grant (now Pictou Landing) and the town of Pictou, located at Christie’s Point. Demand for the ferry service warranted the opening of a second ferry route in 1848, located at the present-day location of the wharves and docks at Pictou Landing. This community became the hub of activity, and was the main service area in the harbor, a position solidified with the opening of a branch of the Nova Scotia Railway connecting Pictou Landing and New Glasgow. Opened in October 1866, the railway carried freight and passengers to the newly established ferry wharf at what became known as Pictou Landing. By the turn of the nineteenth century, new roads were established by settlers to connect the scattered communities along the coast. In 1798, a committee began work laying out Fisher’s Grant Road (now Pictou Landing Road or Route 348), between Little Harbour and Fisher’s Grant (Cullen et al. 1984: 14).

4.1.7 Desktop Results – Archaeological Potential Modelling

The results of the APM developed by Boreas Heritage suggests areas near the shoreline have elevated archaeological potential for encountering archaeological resources due to the proximity of East River (*Figure 3*).



4.2 Field Component

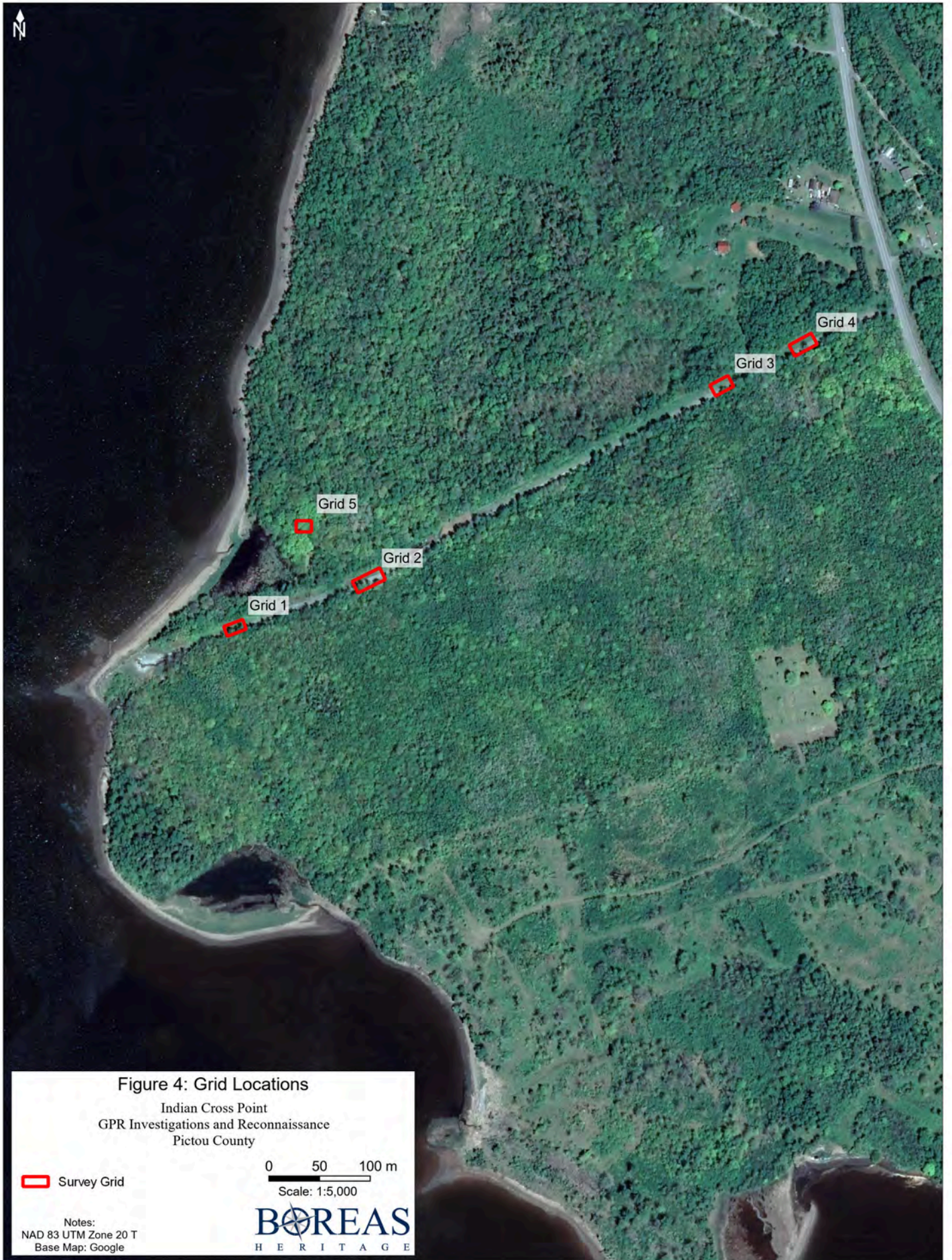
The objectives of the Assessment are to provide as much information as possible as to whether human remains are likely to be present in the pipeline ROW, extending over 3 kilometres in length, and to survey additional areas that may also be associated with the Mi'kmaw Burial Ground. The field component of the Assessment consisted of two phases. *Phase 1* consisted of GPR survey of four selected areas within the existing ROW alignment, which was divided into four sections (**Figure 4**). The selection of grids was based on existing vegetation and the suitability of the area for GPR survey. The objective of *Phase 1* is to identify evidence of subsurface features along the ROW, specifically evidence of unmarked burials. *Phase 2* consisted of Archaeological Reconnaissance of the adjacent properties (**Figure 5**) to determine the potential for locating evidence of the Mi'kmaw Burial Ground. Selected areas considered to exhibit high potential for locating the presence of burials were then subjected to GPR survey.

4.2.1 Phase 1 Results

The **Grid 1** GPR survey was carried out on July 11, 2019. Situated at the far western end of the ROW study area, Grid 1 measures 20 metres (east-west) by 10.5 metres (north-south). It is bounded on the north and south by forest and is bisected by the existing access road (**Plate 4**). The northern portion of the grid area was covered by significant brush that was manually cleared prior to initiating the survey. Visual inspection revealed some surface disturbance in the northern portion of the grid area, with stony ground, possibly associated with the construction and/or maintenance of the pipeline. Otherwise, there were no major obstacles within the survey grid area. Data was collected at 25 cm intervals in two directions (north-south and east-west). In total, 124 lines of data were collected within Grid 1.



Plate 4: View northeast of Grid 1.



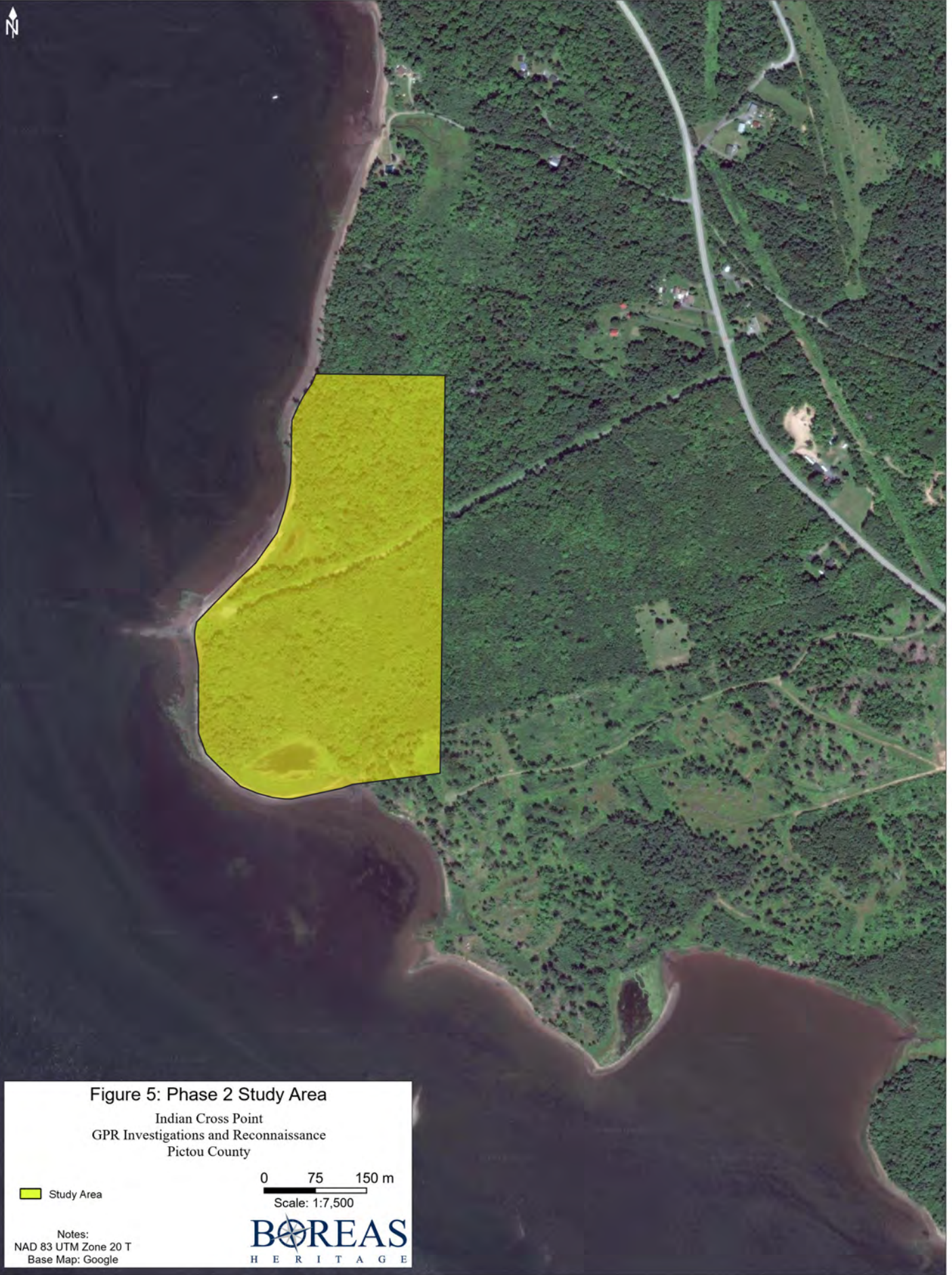



Figure 5: Phase 2 Study Area
Indian Cross Point
GPR Investigations and Reconnaissance
Pictou County

 Study Area

0 75 150 m

Scale: 1:7,500

Notes:
NAD 83 UTM Zone 20 T
Base Map: Google



Analysis of the data indicates surface disturbance in the assumed location of the existing pipeline, approximately 5 centimetres below surface (**Plate 5**). This is likely related to the initial installation and/or maintenance of the pipeline and is visually evident on the surface. A strong response from the GPR was measured at approximately 15-20 centimetres below surface, at the southern edge of the survey grid (**Plate 6**). This is likely associated with saturated soils and standing water collected at the edge of the existing access road. The remaining portions of the survey grid were clear of any major anomalies or GPR response. No evidence of burials or the existing pipeline was detected in this area.

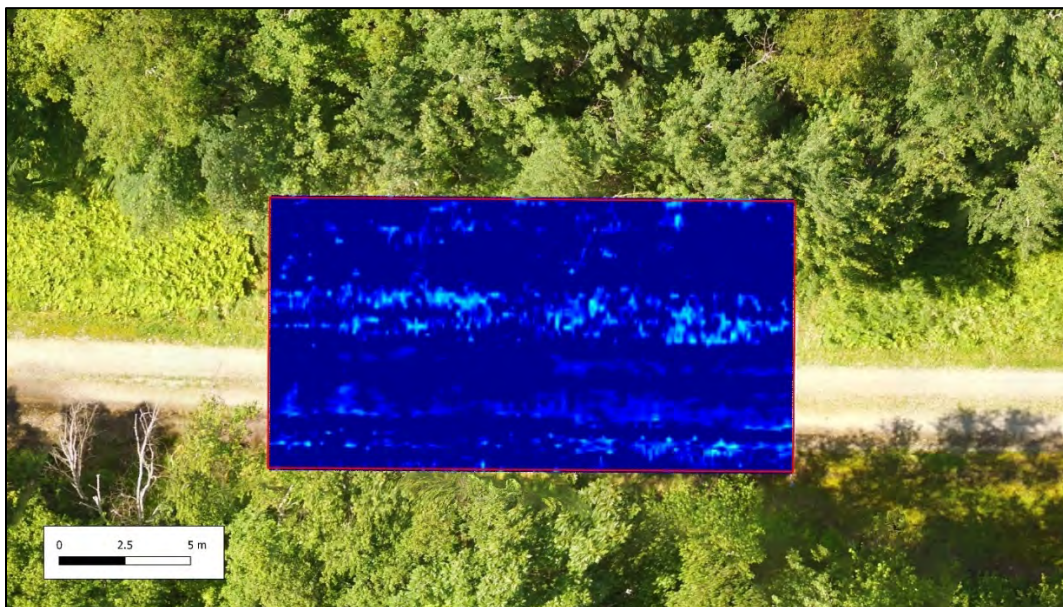


Plate 5: Surface disturbance at 0-10cm below surface.

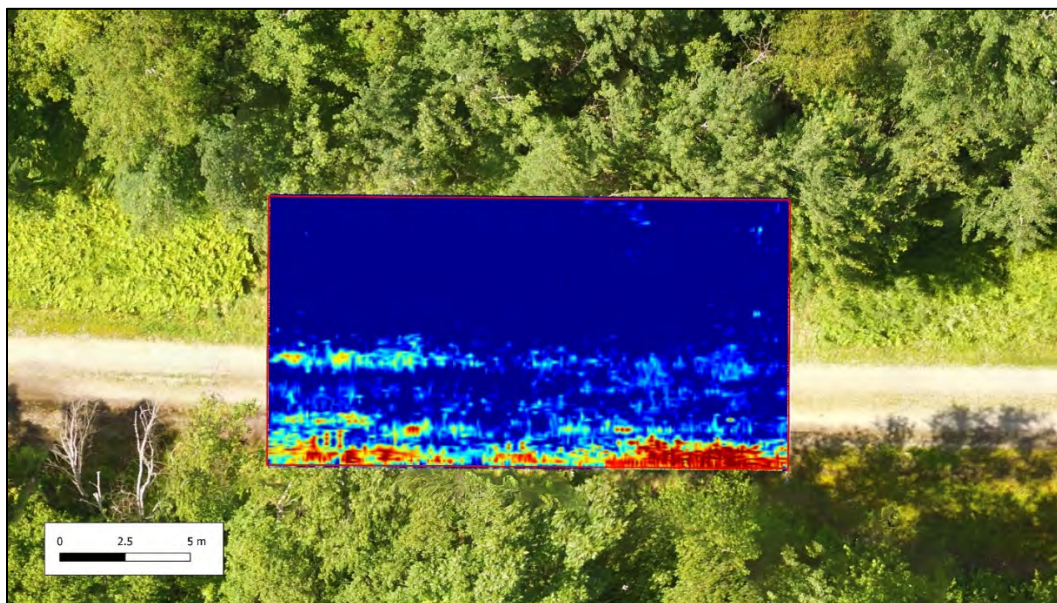


Plate 6: Strong response at south end of survey grid at 15-20 cm below surface.

The **Grid 2** GPR survey was carried out on July 9, 2019. Situated in the western portion the ROW study area, approximately 120 metres northeast of Grid 1, Grid 2 measures 30 metres (east-west) by 13 metres (north-south). It is bounded on the north and south by forest and is bisected by the existing access road (**Plate 7**). The northern portion of the grid area was covered by significant brush that was manually cleared prior to initiating the survey. Visual inspection of the grid area revealed some surface disturbance in the northern portion of the grid area from vehicles driving or parking in the area. Otherwise, there were no major obstacles within the Grid 2 survey area. A manhole/access port for access to the pipeline was located just west of the northwest corner of the grid. Data was collected at 25 cm intervals in two directions (north-south and east-west). In total, 174 intervals were collected within Grid 2.



Plate 7: View east of Grid 2.

Analysis of the data indicates some surface disturbance in the central portion of the grid area at approximately 25-50 centimetres below surface, likely related to road construction and/or pipeline installation and maintenance (**Plate 8**). A few small, isolated responses can be observed at approximately 55-60 centimetres below surface but are not believed to be of cultural significance (**Plate 9**). The remaining portions of the survey grid were clear of any major anomalies or GPR response. No evidence of burials or the existing pipeline was detected in this area.

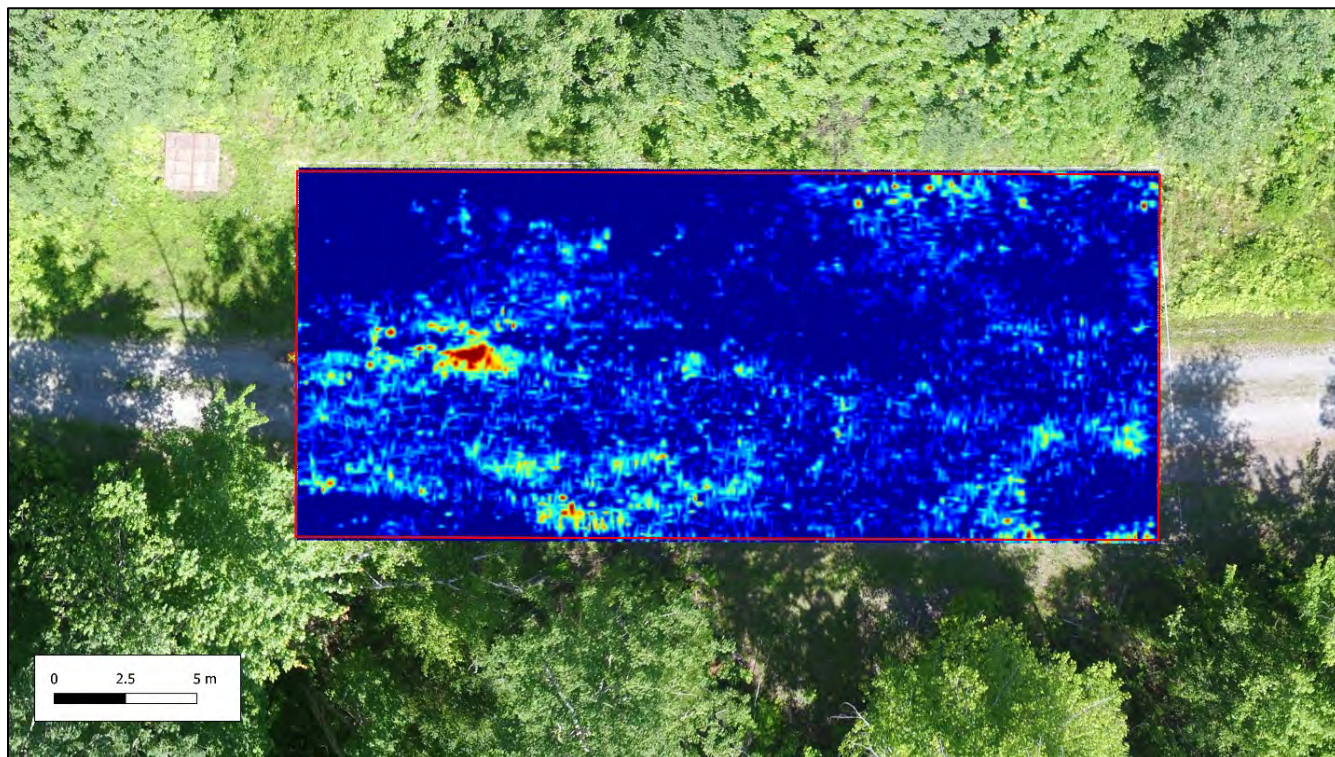


Plate 8: Surface disturbance related to road construction at 25-30 cm below surface.

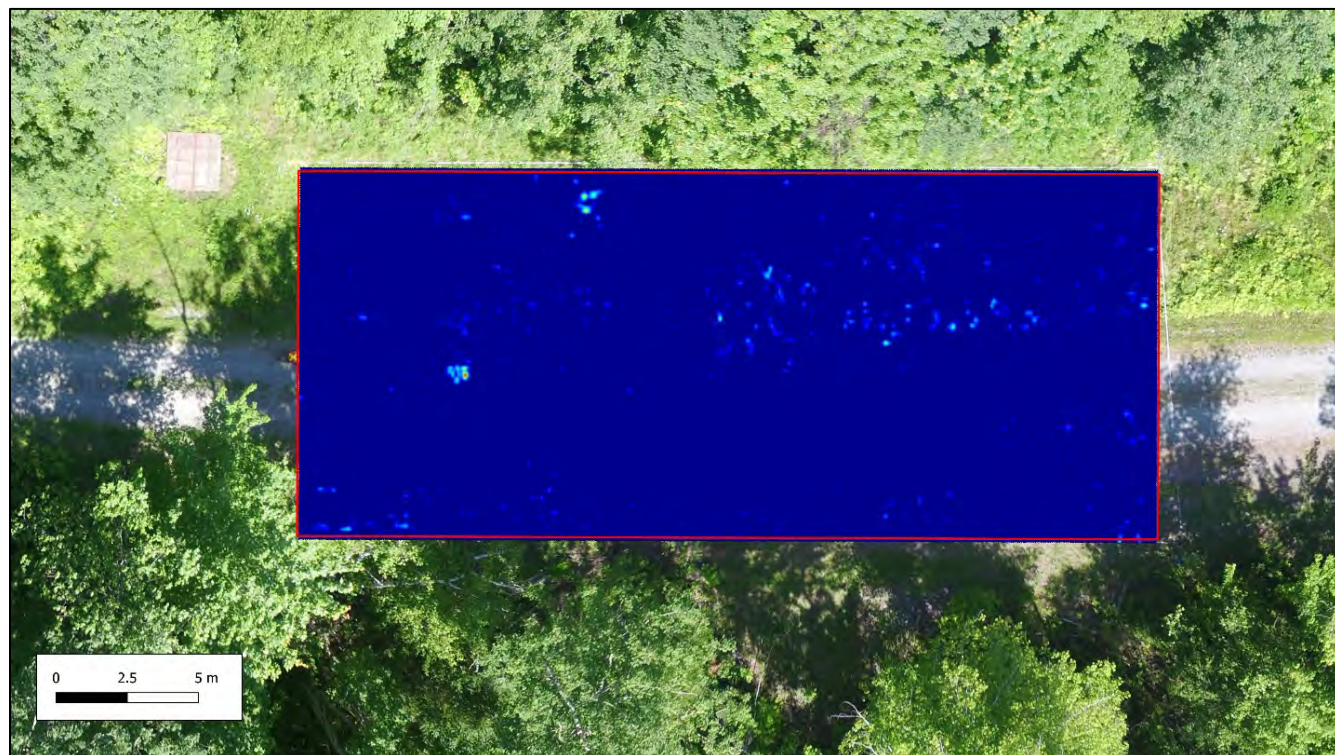


Plate 9: Small, isolated responses at 55-60 cm below surface.

The **Grid 3** GPR survey was carried out on July 10, 2019. Situated in the eastern portion the study area, approximately 375 metres east of Grid 2, Grid 3 measures 20 metres (east-west) by 12 metres (north-south). It is bounded on the north and south by forest and is bisected by the existing access road (**Plate 10**). The northern portion of the grid area was covered by significant brush that was manually cleared prior to initiating the survey. An existing cleared trail runs along the northern edge of the grid and is used by the local landowner for access to the coast. Although some small trees and saplings represented obstacles within the grid, they did not inhibit the survey. A manhole/access port for access to the pipeline was located just west of the grid. Data was collected at 25 cm intervals in two directions (north-south and east-west). In total, 130 intervals were collected within Grid 3.



Plate 10: View northeast of Grid 3.

Analysis of the data indicates some surface disturbance in the southern portion of the grid area at approximately 5-35 centimetres below surface, related to the existing access road (**Plate 11**). At approximately 1.0-1.3 metres below surface, the top of the existing pipeline can be seen running east-west through the survey grid, on the north side of the access road (**Plate 12**). This linear response lines up precisely with the manhole/access port for the pipeline. Analysis of the profile data revealed the typical hyperbolic and linear response associated with a buried utility (**Plates 13 & 14**). The remaining portions of the survey grid were clear of any major anomalies or GPR response. No evidence of burials was detected in this area.

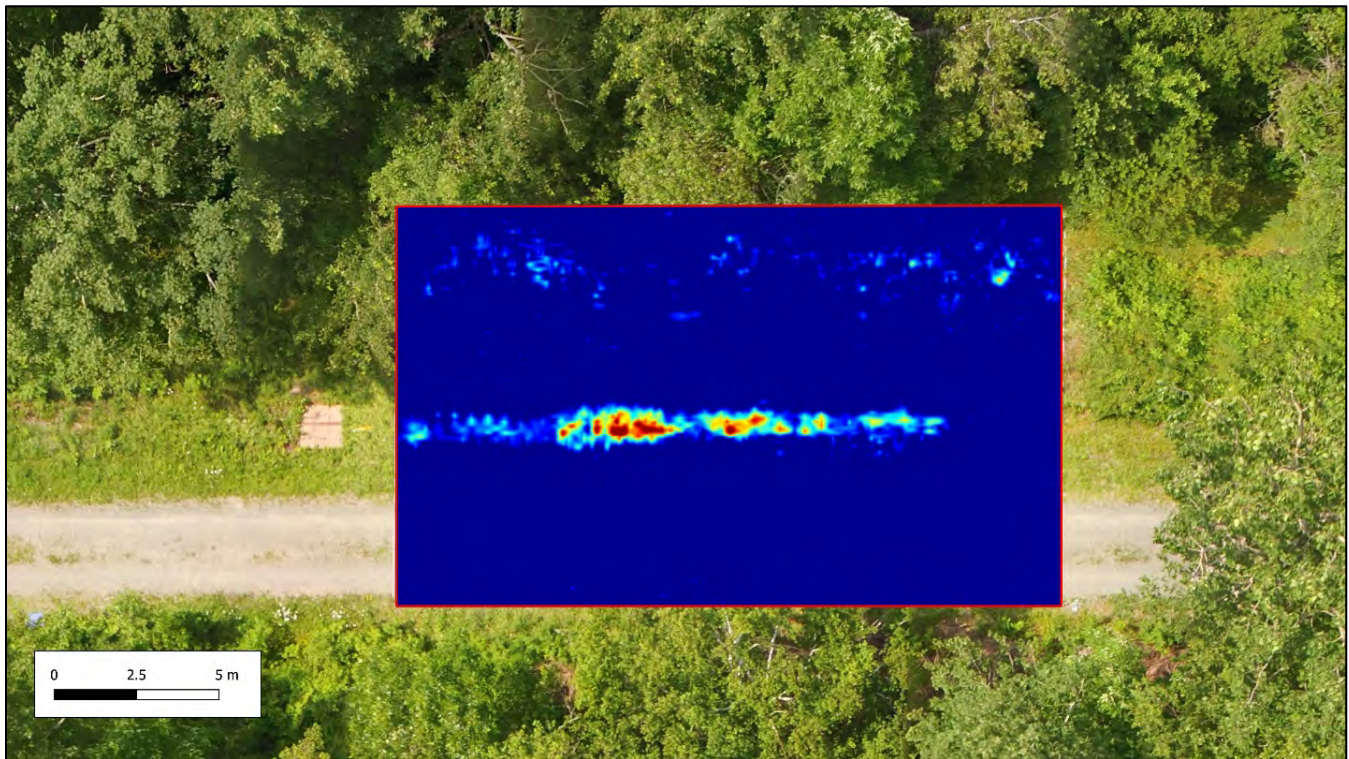


Plate 11: Linear response at 1.4 m in depth showing existing pipeline.



Plate 12: Pipeline response isolated.

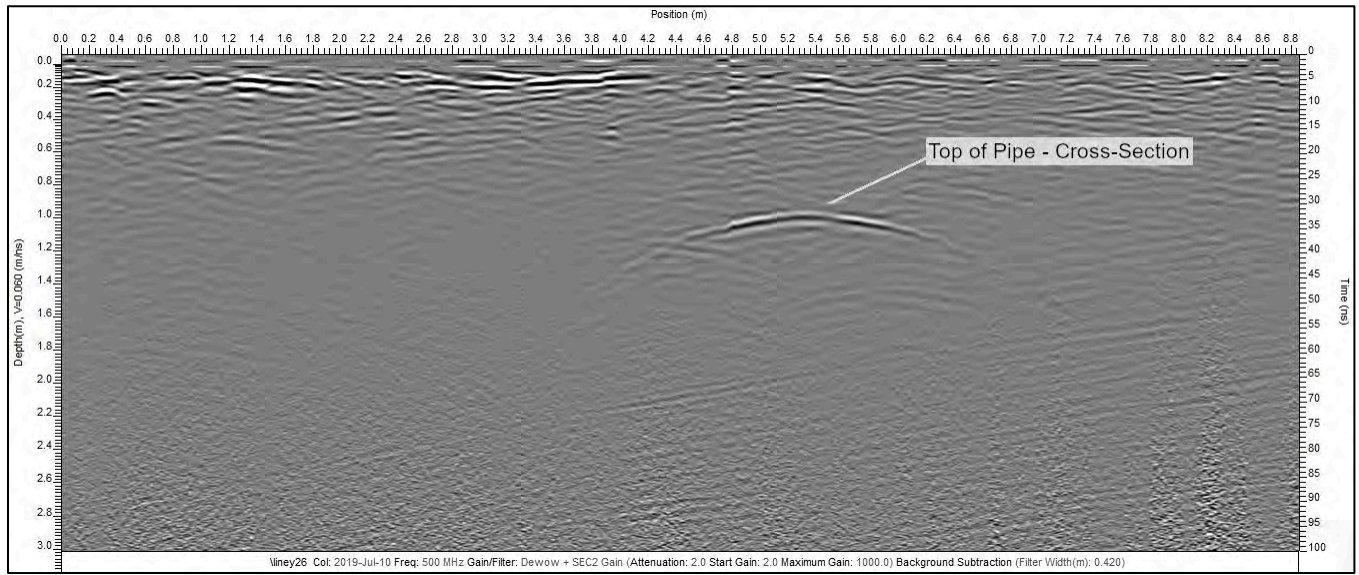


Plate 13: Profile view of Grid 3 showing cross-section of existing pipe.

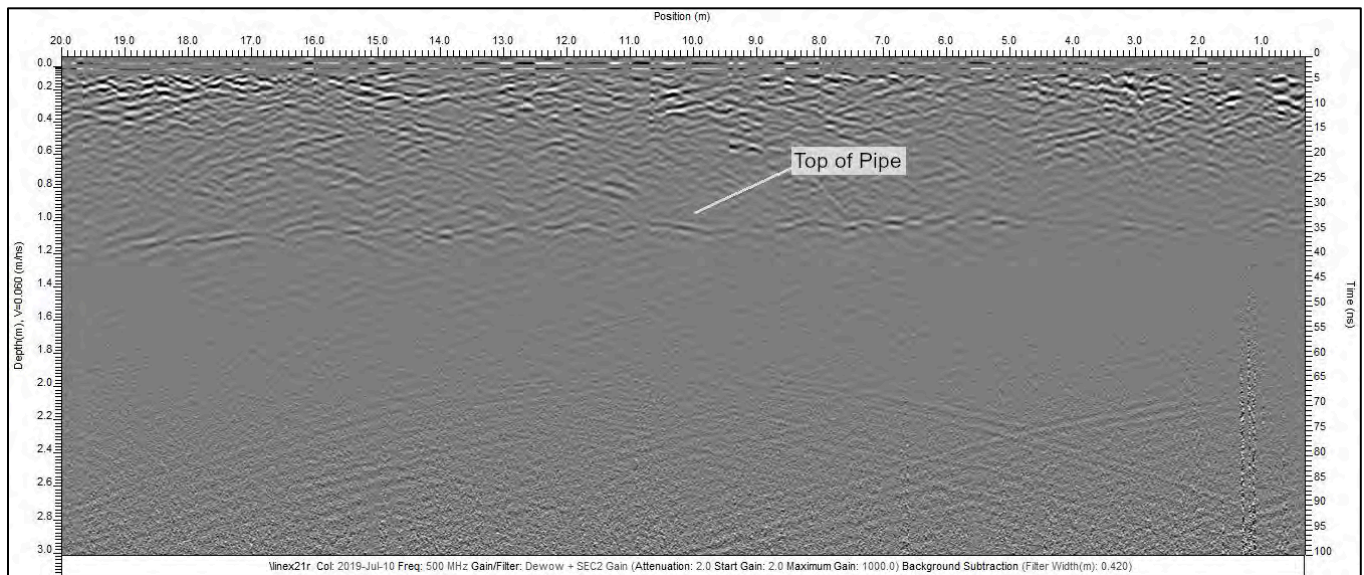


Plate 14: Profile view of Grid 3 showing linear response from the top of the existing pipe.

The **Grid 4** GPR survey was carried out on July 18, 2019. Situated at the far eastern end the study area, approximately 75 metres east of Grid 3, Grid 4 measures 25 metres (east-west) by 12.5 metres (north-south). It is bounded on the north and south by forest and is bisected by the existing access road (*Plate 15*). The northern portion of the Grid 4 survey area was covered by significant brush that was manually cleared prior to initiating the survey. There were no major obstacles within the survey grid area. Data was collected at 25 cm intervals in two directions (north-south and east-west). In total, 152 intervals were collected within Grid 4.



Plate 15: View northeast of Grid 4.

Analysis of the data indicates some surface disturbance in the southern portion of the grid area at approximately 10-30 centimetres below surface, related to the existing access road (*Plate 16*). At approximately 1.2-1.4 metres below surface, the top of the existing pipeline can faintly be seen running east-west through the survey grid, on the north side of access road (*Plate 17*). Analysis of the profile data revealed the typical hyperbolic and linear response associated with a buried utility, however, not as strong as the response in Grid 3 (*Plates 18 & 19*). A few small isolated responses can be observed at approximately 40-60 centimetres below surface but are not believed to be of cultural significance. The remaining portions of the survey grid were clear of any major anomalies or GPR response. No evidence of burials was detected in this area.

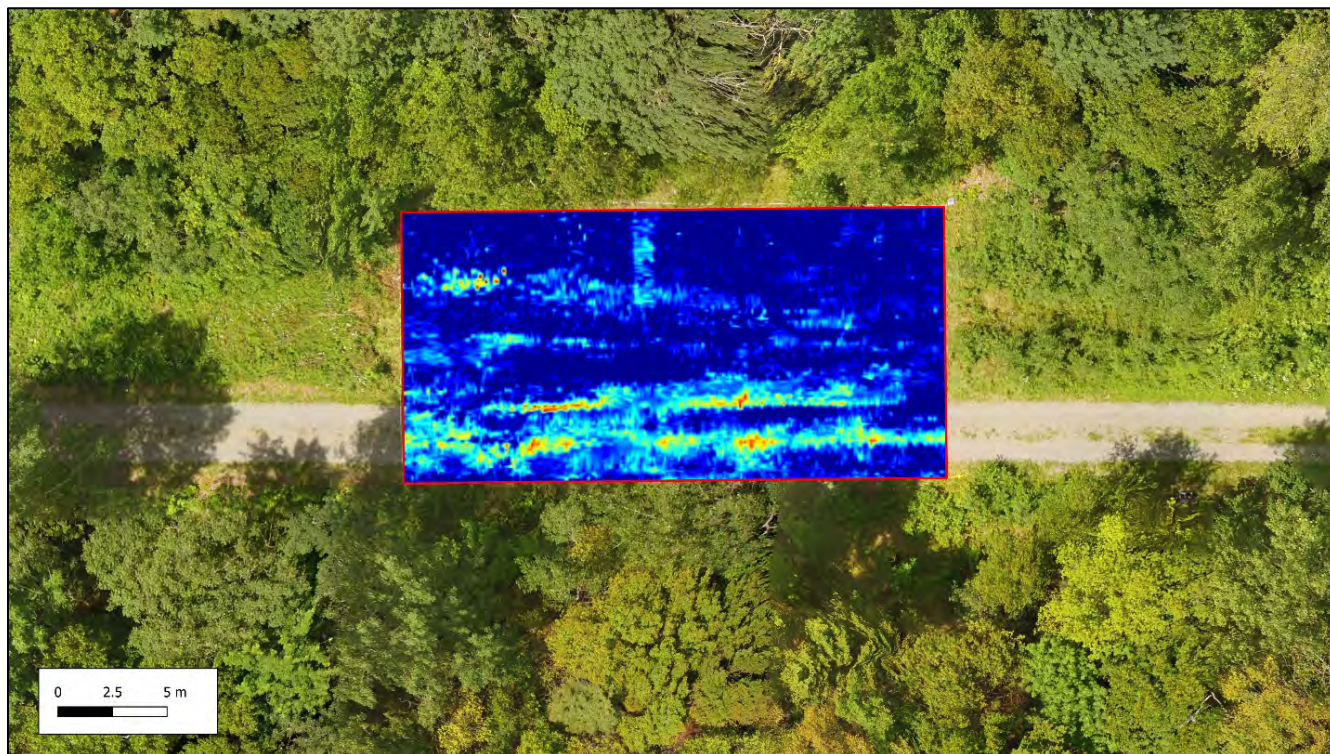


Plate 16: Surface disturbance related to road construction at 10-30 cm below surface.

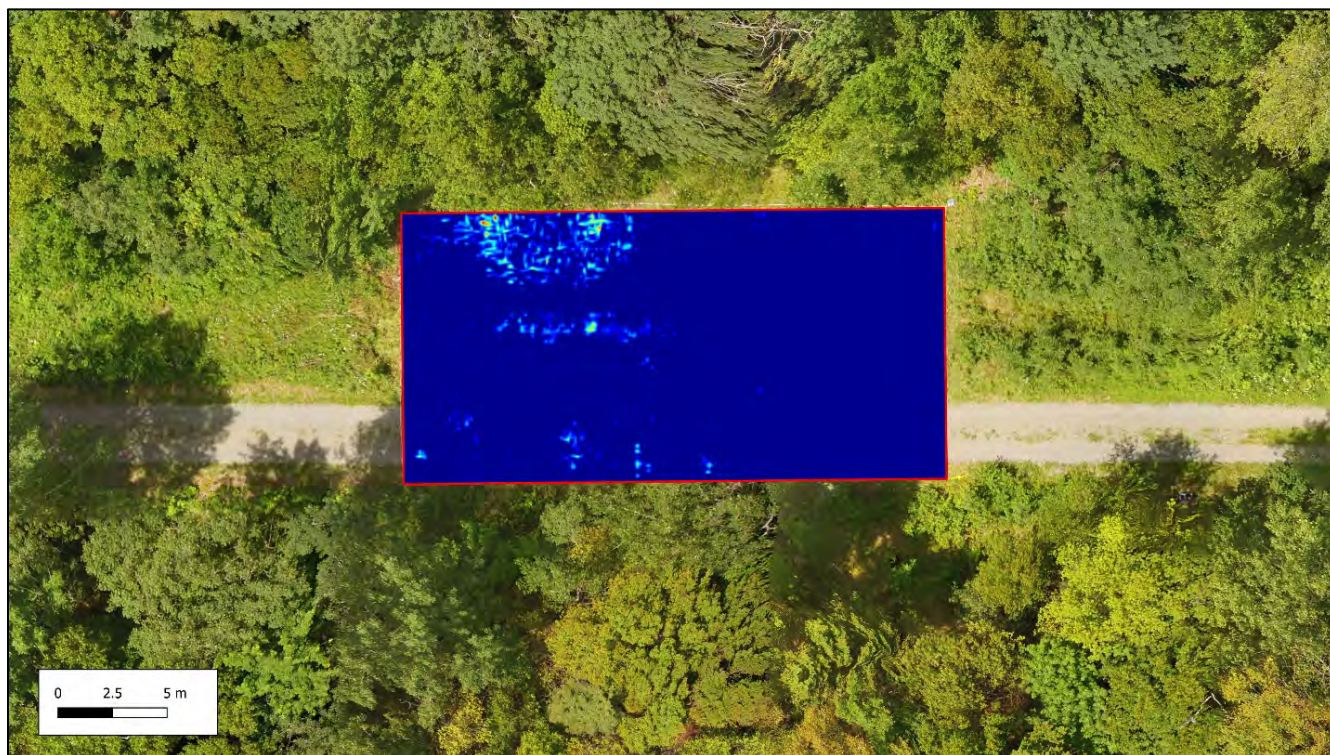


Plate 17: Faint linear response from existing pipe at 1.2-1.4 m below surface.

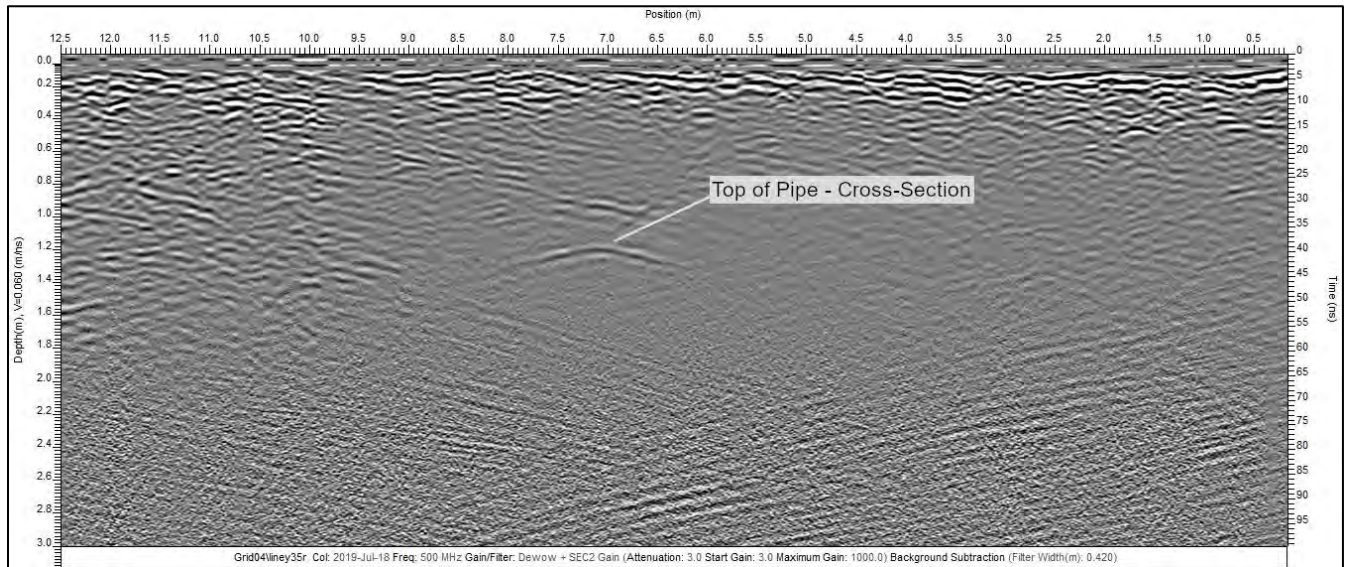


Plate 18: Profile view of Grid 4 showing cross-section of existing pipe.

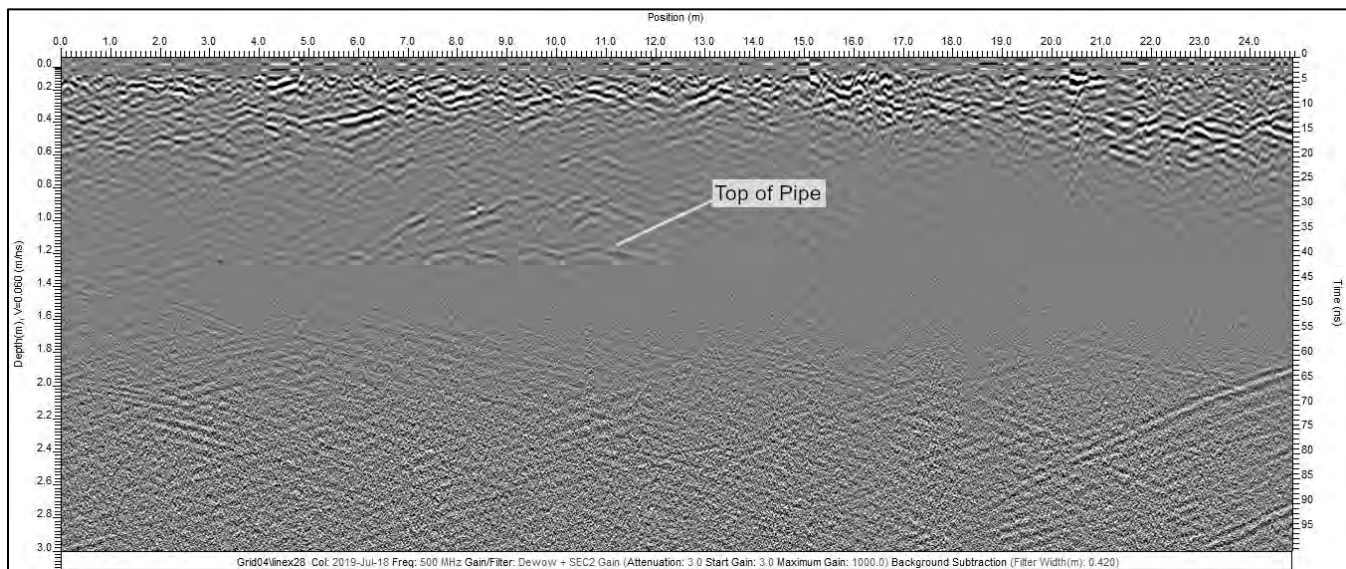


Plate 19: Profile view of Grid 4 showing linear response from the top of the existing pipe.

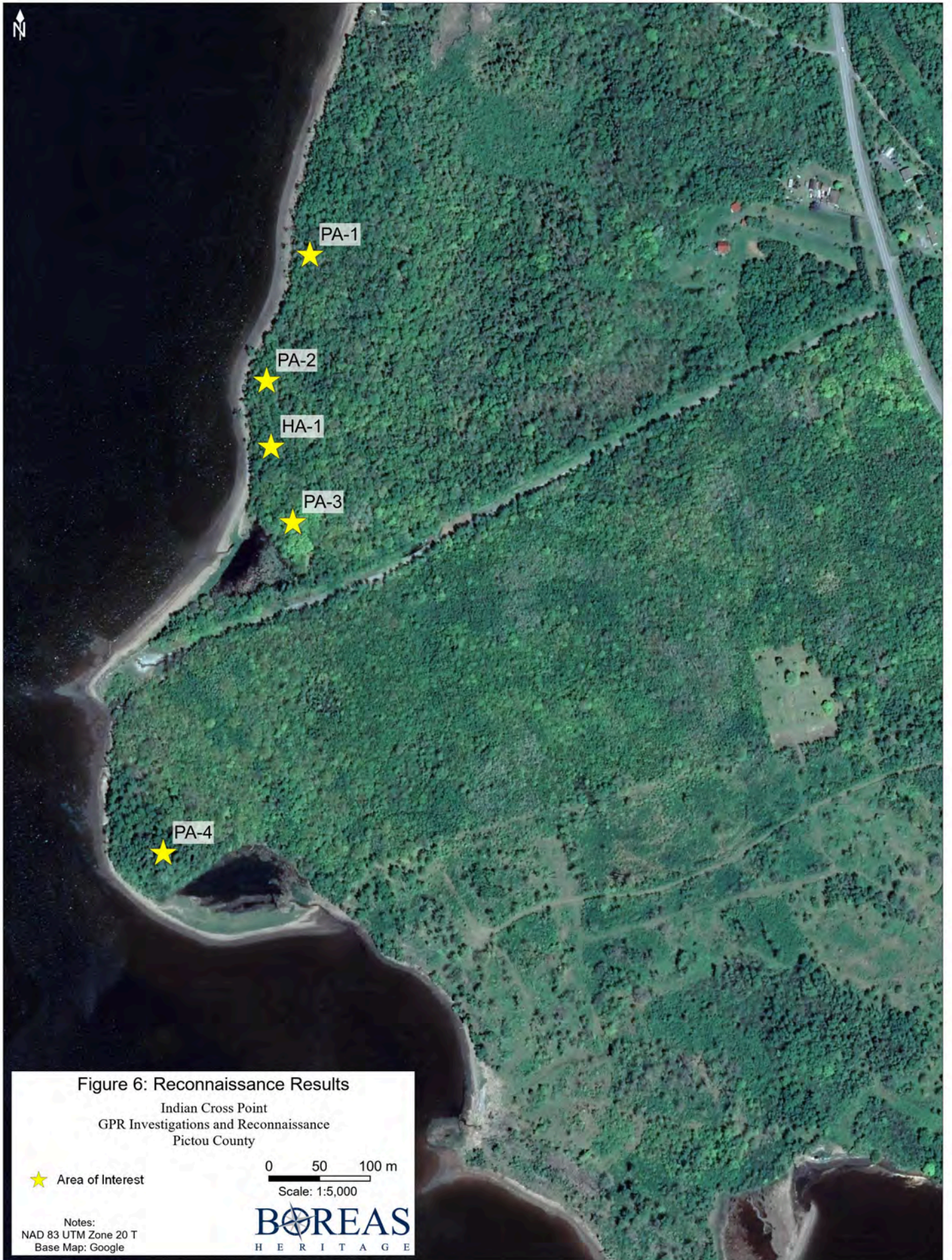
4.2.2 Phase 2 Results

Field reconnaissance of the defined study area (**Figure 5**) was conducted on July 17, 2019 and consisted of visual inspection of the area in order to identify potential locations that may be associated with the burial ground and that were suitable to conduct GPR. The field inspection began at the end of the existing access road and proceeded north along the coast to the northwestern corner of the study area and then proceeded south through the wooded portion of the study area (**Plate 20; Appendix B**). All exposures and erosional faces were inspected during the course of the survey, but no artifacts were observed.



Plate 20: View south of erosional and surface exposures along coast.

Overall, the area was covered by dense forest consisting mainly of spruce, fir, birch and maple and represented generally level to undulating, well drained terrain. Areas of young regrowth, particularly young spruce were common. Such vegetation is not suitable for conducting GPR surveys due to the number of obstacles and dense brush. In total, four areas deemed potentially suitable for conducting a GPR survey (PA-1 through PA-4) were identified along with one area of historic land use (HA-1) (**Figure 6**). Each area will be discussed separately below.



Potential Area 1 (PA-1) is the furthest north of the four identified areas and is located along the coast, approximately 330 metres north of the existing access road (*Plate 21*). Consisting of mainly level to gently sloping terrain with generally open vegetation, this area is considered suitable to conduct a small GPR survey with some brush/tree clearing and is within the vicinity of the presumed location of the burying ground.



Plate 21: View north of level terrain at Potential Area 1.

Potential Area 2 (PA-2) is located along the coast, approximately 230 metres north of the existing access road (*Plate 22*). Consisting of mainly level, elevated terrain with fairly open vegetation, this area would be suitable to conduct a small GPR survey with some brush/tree clearing and is within the vicinity of the presumed location of the burying ground.

Potential Area 3 (PA-3) is located along the coast, approximately 80 metres north of the existing access road (*Plate 23*). Consisting of mainly level terrain with fairly open vegetation, this area would be suitable to conduct a small to moderate sized GPR survey and is within the vicinity of the presumed location of the burying ground. The area appears to have been previously cleared of some underbrush and, therefore, only minimal brush/tree clearing may be necessary. This area is situated just south of the old access road/trail that previously led to the shoreline. A few rock piles were also noted in the general vicinity suggesting this area may have been maintained and/or used in the recent past.



Plate 22: *View southwest of mainly level, open terrain at Potential Area 2.*



Plate 23: *View northwest of mainly level, open terrain at Potential Area 3.*

Potential Area 4 (PA-4) is the furthest south of the four identified areas and is located along the coast, approximately 180 metres south of the existing access road (**Plate 24**). Consisting of mainly level terrain with fairly open vegetation, this area would be suitable to conduct a small to moderate sized GPR survey and is within the vicinity of the presumed location of the burying ground. The area appears to have been previously cleared of trees and possibly artificially leveled or landscaped. Some additional brush/tree clearing may be necessary.

Historic Area 1 (HA-1) is an area of historic land use observed during the course of the field reconnaissance. Situated along the coast, approximately 165 metres north of the existing access road, the area consists of mainly level to undulating terrain with fairly dense forest cover (**Plate 25**). Visual assessment revealed a number of cut logs and stumps, a scatter of refuse, and what appears to be the remains of a wooded structure that was held together with wire nails. It is not immediately clear what the purpose or use of this area had been. The area, however, would not be well suited for a GPR survey as a significant amount of brush/tree clearing would be needed. Furthermore, the scatter of refuse and wooden remains would act as significant obstacles during the survey.



Plate 24: View southeast of mainly level, open terrain at Potential Area 4.



Plate 25: View of surface debris and wooden remains at HA-1.

Following the field survey, Potential Area 3 was chosen as the site of an additional GPR survey (Grid 5) (**Figure 4; Plate 26**). This area was chosen because it was open and obstacle free, and because it is within the vicinity of the presumed location of the burying ground. The **Grid 5** GPR survey was carried out on September 5, 2019.

Situated along the coast, approximately 80 metres north of the existing access road, Grid 5 measures 15 metres (east-west) by 11 metres (north-south). It is located entirely within the wooded area to the north of the access road. While it appeared the area had been cleared of underbrush in the past, a number of trees within the grid acted as obstacles. Overall, the area was mainly open and the GPR survey was able to proceed without much difficulty. Data was collected in 25 centimetre intervals in two directions (north-south and east-west). In total, 106 intervals were collected within Grid 5.

Analysis of the data revealed a strong near-surface response across the entire survey area at a depth of approximately 10-30 centimetres below surface and represents reflections from tree roots (**Plate 27**). Starting at approximately 70 centimetres below surface a number of scattered anomalies can be observed in, but not limited to, the northeastern portion of the survey grid (**Plates 28, 29, 30 & 31**). While the depth slices portray these as somewhat scattered and disorganized, analysis of the profile data suggests many of these responses are fairly consistent in size and depth. Without excavation and ground truthing it is not possible to determine the exact nature of these anomalies. The regular nature of the responses, however, suggests the possibility that burials are present in this area.



Plate 26: View east of Grid 5.

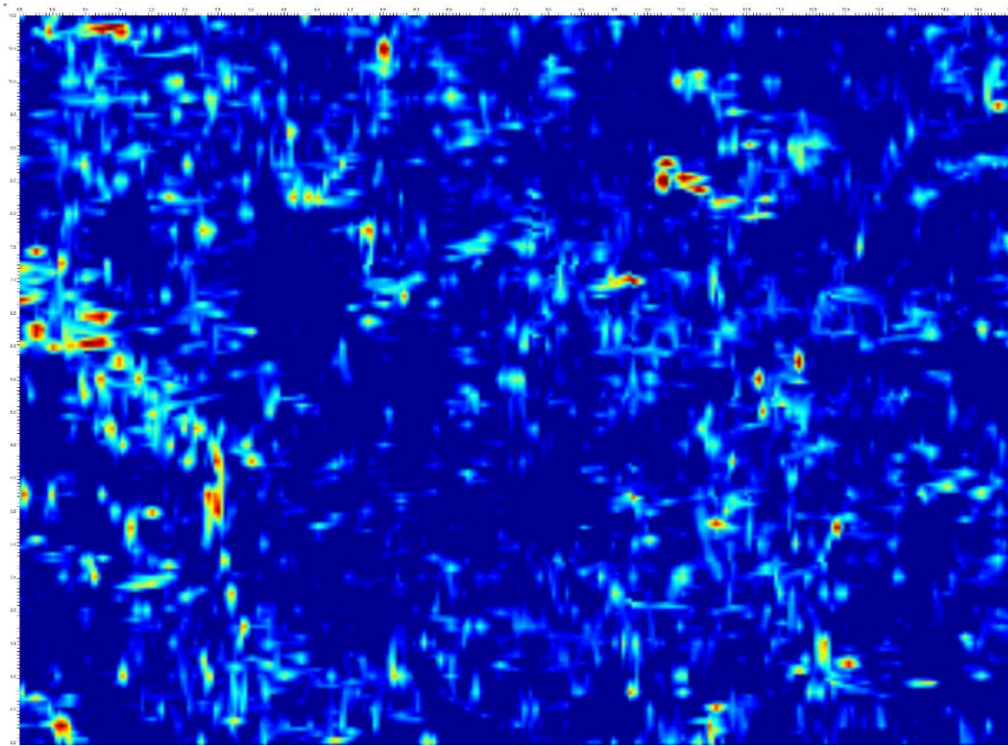


Plate 27: Scattered anomalies from tree roots at Grid 5 at 10-30 cm below surface.

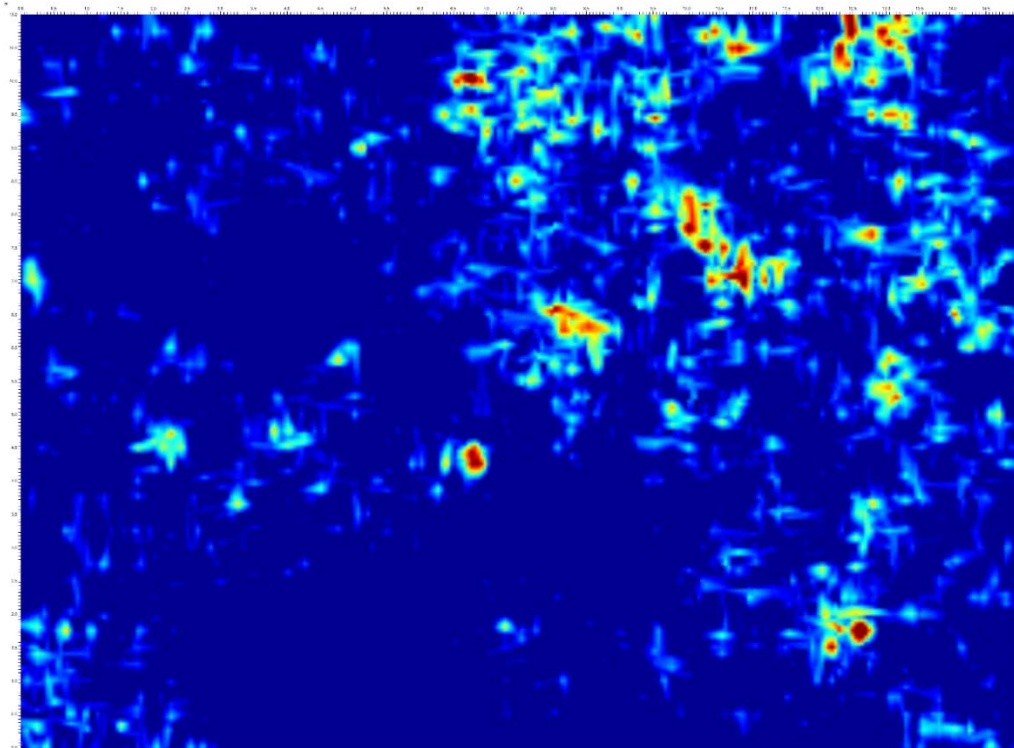


Plate 28: Scattered anomalies in the northeast corner of Grid 5 at 90-95 cm below surface.

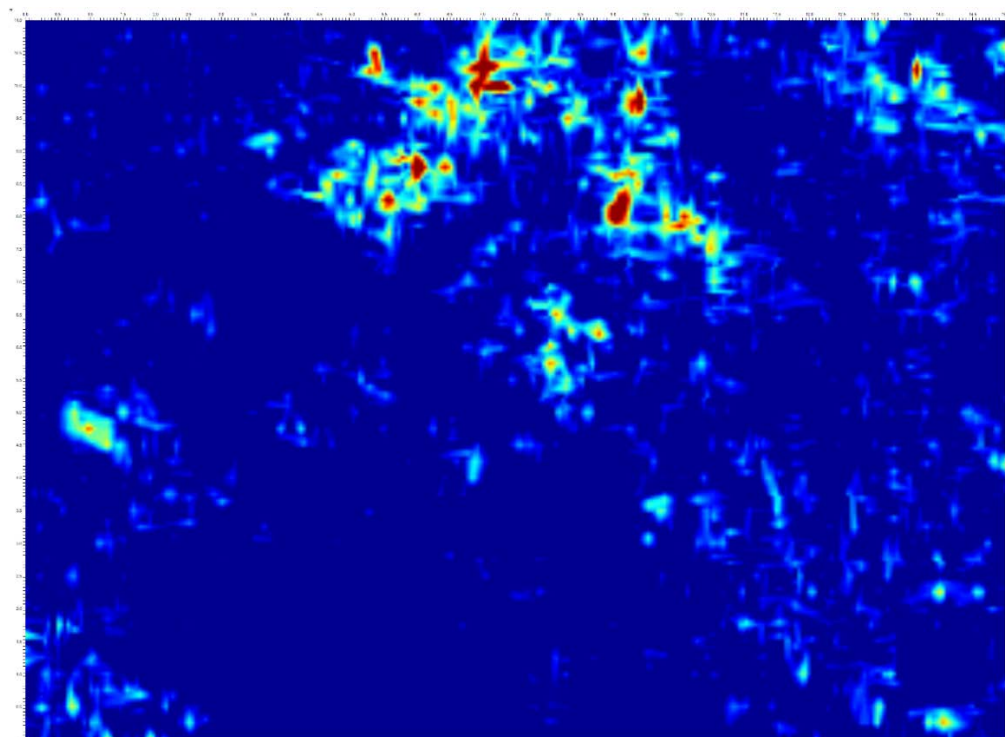


Plate 29: Scattered anomalies in the northeast corner of Grid 5 at 1.0 to 1.05 m below surface.

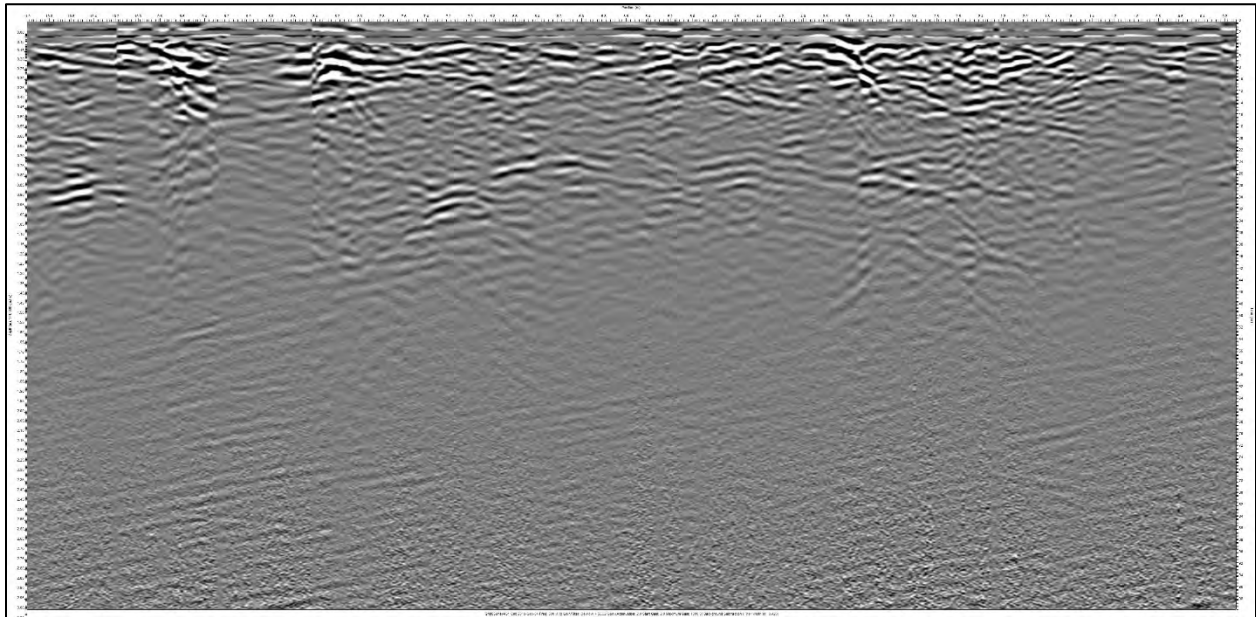


Plate 30: Profile view of Grid 5 showing series of anomalies at approximately 70 cm below surface.

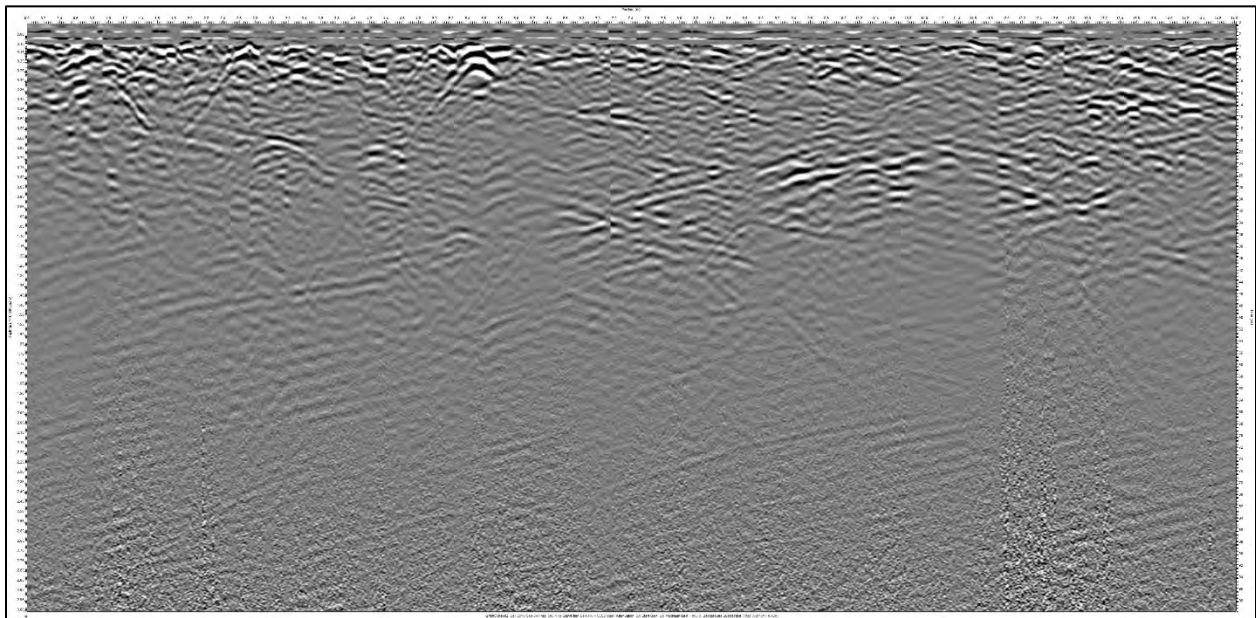


Plate 31: Profile view of Grid 5 showing series of anomalies at approximately 70 cm below surface.

4.2.3 Field Results – Archaeological Potential

The objectives of the 2019 Indian Cross Point Archaeological Reconnaissance and Ground Penetrating Radar Survey are to provide as much information as possible as to whether human remains are likely to be present in the pipeline ROW and to survey additional areas that may also be associated with the Mi'kmaw Burial Ground.

The field component of the Assessment consisted of two phases. *Phase 1* consisted of GPR survey of four selected areas within the existing ROW alignment, which was divided into four sections (**Figure 4**). The selection of grids was based on existing vegetation and the suitability of the area for GPR survey. GPR survey of the selected four grids revealed evidence of disturbance associated with pipeline installation and/or maintenance in all areas and evidence of the existing pipeline in two areas (Grid 3 & Grid 4). No evidence of burials was detected in any of the grid areas.

The background study revealed the burying ground was likely located atop the bank along the shoreline of the East River, including portions of the Palmer property. Therefore, the area of highest potential for relocating the burying ground is the area closest to the shoreline. The burials may have extended south into the area where the pipeline ROW is now located. As a result, the western end of the pipeline is considered to exhibit high potential for encountering unmarked burials (**Figure 7**).

Phase 2 consisted of Archaeological Reconnaissance of the adjacent properties (**Figure 5**) to determine the potential for locating evidence of the Mi'kmaw Burial Ground and to select areas suitable for GPR survey without significant vegetation removal. Four suitable areas were identified (PA-1 – PA-4) and one area of historic land use was observed (HA-1) (**Figure 6**). PA-4 was subsequently subjected to GPR survey, which revealed a number of subsurface anomalies. Analysis of the profile data suggests many of these responses are fairly consistent in size and depth. Without excavation and ground truthing it is not possible to determine the exact nature of these anomalies. The regular nature of the responses, however, suggests the possibility that burials are present in this area.



Figure 7: Monitoring Area

Indian Cross Point
GPR Investigations and Reconnaissance
Pictou County

 Monitoring Area

0 30 60 m

Scale: 1:3,000

Notes:
NAD 83 UTM Zone 20 T
Base Map: Google



5.0 CONCLUSIONS AND RECOMMENDATIONS

The 2019 Indian Cross Point Archaeological Reconnaissance and Ground Penetrating Radar Survey involved desktop components (background screening) and field components (archaeological reconnaissance and GPR Survey).

Phase 1 consisted of GPR survey of four selected areas within the existing ROW alignment, which revealed evidence of disturbance associated with pipeline installation and/or maintenance in all areas and evidence of the existing pipeline in two areas (Grid 3 & Grid 4). No evidence of burials was detected within any of the grid areas. The background study revealed the burying ground is likely located atop the bank along the shoreline of the East River, including portions of the Palmer property. The burials may have extended south into the area where the pipeline ROW is now located. As a result, the western end of the pipeline is considered to exhibit high potential for encountering unmarked burials.

Phase 2 consisted of Archaeological Reconnaissance of the adjacent properties to determine the potential for locating evidence of the Mi'kmaw Burial Ground and to select areas suitable for GPR survey without significant vegetation removal. Four suitable areas were identified (PA-1 – PA-4) and one area of historic land use was observed (HA-1). PA-4 was subsequently subjected to GPR survey, which revealed a number of subsurface anomalies. Analysis of the profile data suggests many of these responses are fairly consistent in size and depth. Without excavation and ground truthing it is not possible to determine the exact nature of these anomalies. The regular nature of the responses, however, suggests the possibility that burials are present in this area.

Based on the results of the Survey described in this report, Boreas Heritage offers the following conclusions and archaeological resource management recommendations:

1. If the existing pipeline at the western end of the ROW, as shown on *Figure 7* of this report, is to be removed, an archaeological monitor should be present to prevent accidental impacts to potential unmarked burials;
2. All remaining portions of the ROW are considered to exhibit low potential for encountering unmarked burials;
3. Based on the background study, the area of highest potential for relocating the burying ground is the area closest to the shoreline on the Palmer property and south into the area where the pipeline ROW terminates. As there are no plans to develop or modify this portion of the Palmer property, there are no immediate concerns that unmarked burials will be disturbed.

4. In the event archaeological resources are encountered during development activities associated with the existing pipeline, works should be temporarily halted until contact is made with, and direction(s) on how to proceed has been received from, Sean Weseloh McKeane, Coordinator of Special Places, Nova Scotia Department of Communities, Culture and Heritage, at 902-424-6475; and,
5. In the event human remains are encountered, from disturbed or undisturbed contexts, during development activities associated, all works across the development area associated with the proposed Project must immediately cease until contact is made with, and direction(s) on how to proceed have been received from Sean Weseloh McKeane, Coordinator of Special Places, Nova Scotia Department of Communities, Culture and Heritage (902-424-6475).

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APPENDIX A



Heritage Research Permit (Archaeology)

Special Places Protection Act 1989

(Original becomes Permit when approved by
Communities, Culture and Heritage)

**Office Use Only
Permit Number:**

A2019NS064

Greyed out fields will be made publically available. Please choose your project name accordingly

Surname **Garcin**

First Name **Stephen**

Project Name

Indian Cross Point Reconnaissance and GPR Investigation

Name of Organization

Boreas Heritage Consulting Inc.

Representing (if applicable)

Permit Start Date **July 8, 2019**

Permit End Date **December 31, 2019**

General Location: Indian Cross Point is located west of Boat Harbour, off Pictou Landing Road in Pictou County, Nova Scotia

Specific Location: *(cite Borden numbers and UTM designations where appropriate and as described separately in accordance with the attached Project Description. Please refer to the appropriate Archaeological Heritage Research Permit Guidelines for the appropriate Project Description format)*

Permit Category:

Please choose one

Category A – Archaeological Reconnaissance

Category B – Archaeological Research

Category C – Archaeological Resource Impact Assessment

I certify that I am familiar with the provisions of the *Special Places Protection Act* of Nova Scotia and that I have read, understand and will abide by the terms and conditions listed in the Heritage Research Permit Guidelines for the above noted category.

Signature of applicant

Date **June 25, 2019**

Approved by
Executive Director

Date

July 2, 2019

APPENDIX B

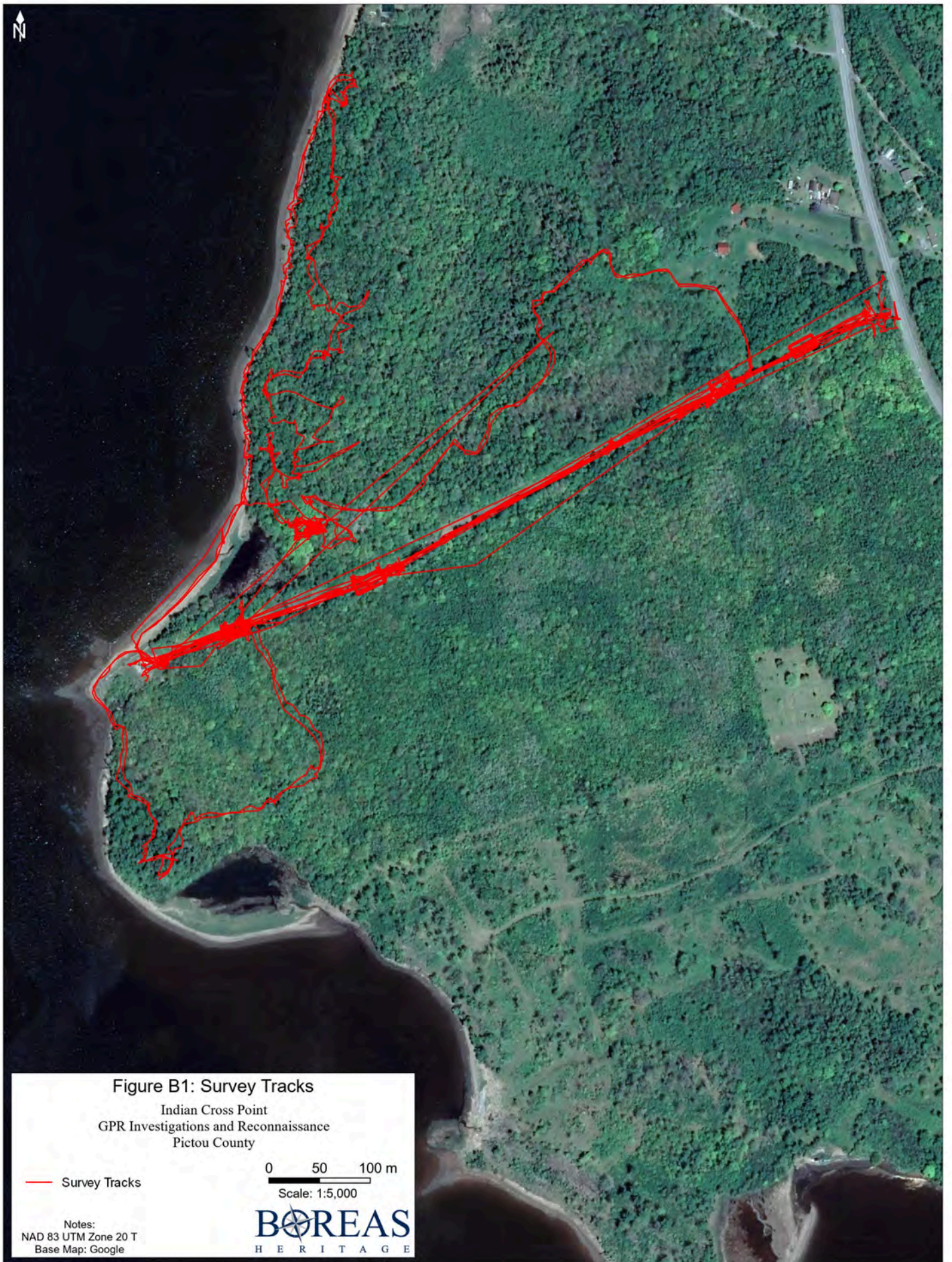


Figure B1: Survey Tracks

Indian Cross Point
GPR Investigations and Reconnaissance
Pictou County

— Survey Tracks

0 50 100 m

Scale: 1:5,000

Notes:
NAD 83 UTM Zone 20 T
Base Map: Google

