

Mount Hope Development Project - Shovel Testing

Archaeological Resource Impact Assessment

Heritage Research Permit A2021NS156

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MOUNT HOPE DEVELOPMENT PROJECT - SHOVEL TESTING: ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT

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Category C

Davis MacIntyre & Associates Limited
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-and-

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Cover: Archaeologist testing the possible cellar feature, looking south.

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EXECUTIVE SUMMARY

In August 2021, Davis MacIntyre & Associates Limited was contracted by Clayton Developments Ltd. to conduct an archaeological assessment for a proposed residential development at Mount Hope in Dartmouth, Halifax Regional Municipality. The initial assessment included a historic background study and reconnaissance, under Heritage Research Permit A2021NS113, in order to determine the potential for archaeological resources in the impact area and to provide recommendations for further mitigation, if necessary. Potential historic resources were noted, and recommendations were made to test these features to confirm presence/ absence of cultural resources. The majority of the study area was determined to be of low potential for both L'nuk and Settler archaeological resources. However, a rock wall was encountered during the reconnaissance on the south side of the wetland, surrounded by a slightly smoother surficial topography, and the presence of a possible house foundation and outbuilding, indicating that historic occupation has occurred in the area. No available historic mapping had identified the date of this occupation, the location of potential features or to whom these features may have been attributed to.

It was, therefore, recommended that the possible house and outbuilding be subjected to an archaeological shovel testing program, in order to confirm if these features are indeed historical in nature, and to recover artifacts, if present, to establish an approximate occupation date.

Limited subsurface testing of the possible foundation and associated outbuilding revealed undisturbed, natural soils with no evidence of archaeological resources or deposits. Shovel testing determined that these depressions are not cultural in nature. As such, no further archaeological mitigation is recommended.

In the unlikely event that any archaeological resources are encountered at any time during ground disturbance, it is required that all activity cease and the Coordinator of Special Places (902-424-6475) be contacted immediately regarding a suitable method of mitigation. Should the impact area be modified to expand beyond the currently understood range, an archaeological assessment of those areas should be conducted by a qualified archaeologist.

1.0 INTRODUCTION

In August 2021, Davis MacIntyre & Associates Limited was contracted by Clayton Developments Ltd. to conduct an archaeological assessment for a proposed residential development at Mount Hope in Dartmouth, Halifax Regional Municipality. The initial assessment included a historic background study and reconnaissance in order to determine the potential for archaeological resources in the impact area and to provide recommendations for further mitigation, if necessary. Due to the presence of a stone boundary wall and possible associated historic features, it was recommended that subsurface testing be conducted in the area of a possible earthen foundation and outbuilding in order to confirm if these features are indeed historical in nature, and to recover artifacts, if present, to establish an approximate occupation date.

The assessment was conducted under Category C (Archaeological Resource Impact Assessment) Heritage Research Permit A2021NS156 issued by the Department of Communities, Culture and Heritage. This report conforms to the standards required by the Culture and Heritage Development Division under the Special Places Protection Act (*R.S., c. 438, s. 1*).

2.0 STUDY AREA

The study area consists of approximately 57 ha of land at Mount Hope in Dartmouth, located near the Highway 111 and Mount Hope Avenue interchange. The proposed residential development will consist of multi-family residences, trails, and open spaces including the pre-existing undeveloped wetland (Figure 2.0-1.

The possible features identified for further subsurface testing are located approximately 30 metres north of the turnaround near 188 Mount Hope Avenue. The study area for this assessment covers approximately 20 metres by 20 metres (Figure 2.0-2).



Figure 2.0-1: Concept sketch of the proposed residential development at Mount Hope, including construction of new single and multi-family residences, trails, and parks, as well as the pre-existing wetland (Courtesy Clayton Developments).



Figure 2.0-2: The location of the possible historic features recommended for shovel testing.

2.1 Natural Environment

The study area is located within the Eastern Shore Beaches Natural Theme Region (#833) (Figure 2.1-1). This unit follows the meandering shore along headlands and long inlets from Halifax to Owls Head near Clam Harbour. Greywacke is the dominant bedrock, with bands of slate running in folds parallel to the coast. Lakes surrounding Dartmouth in this region, such as Morris Lake and Bisset Lake, are notable for their high turbidity and significant levels of nutrients. Freshwater wetlands on the inland portion of this region are usually associated with lakes or small streams, while tidal marshes are common along the coast. Soils in this region include quartzite-derived and well-drained Halifax gravelly sandy loams, as well as Danesville soil, peat, Rockland soil, and poorly drained Aspotogan soil. The Eastern Passage area also includes areas of fine sandy clay loams from the Hantsport group of soils.[1]

Along the coast, forests include White Spruce, Balsam Fir, maple, and birch. Farther inland the forest transitions into spruce, fir, and pine, with some pure stands of White Spruce found on oldfields and on drumlins. Several locations including Cole Harbour provide waterfowl with habitat for both migration and winter residences. Significant populations of Black Duck and Canada Geese use the area as a stopover during migration, and the former species also breeds along this coast. Birds that overwinter here include Goldeneye and scaup, while Great Blue Heron, Osprey, Piping Plover, and Bald Eagle all find various nesting locations in this region. White Sucker, shiners, sticklebacks, perch, Banded Killifish and Brook Trout are the predominant freshwater fishes.[2]

[1] Davis and Browne 1996:198-199.
[2] Davis and Browne 1996:199.

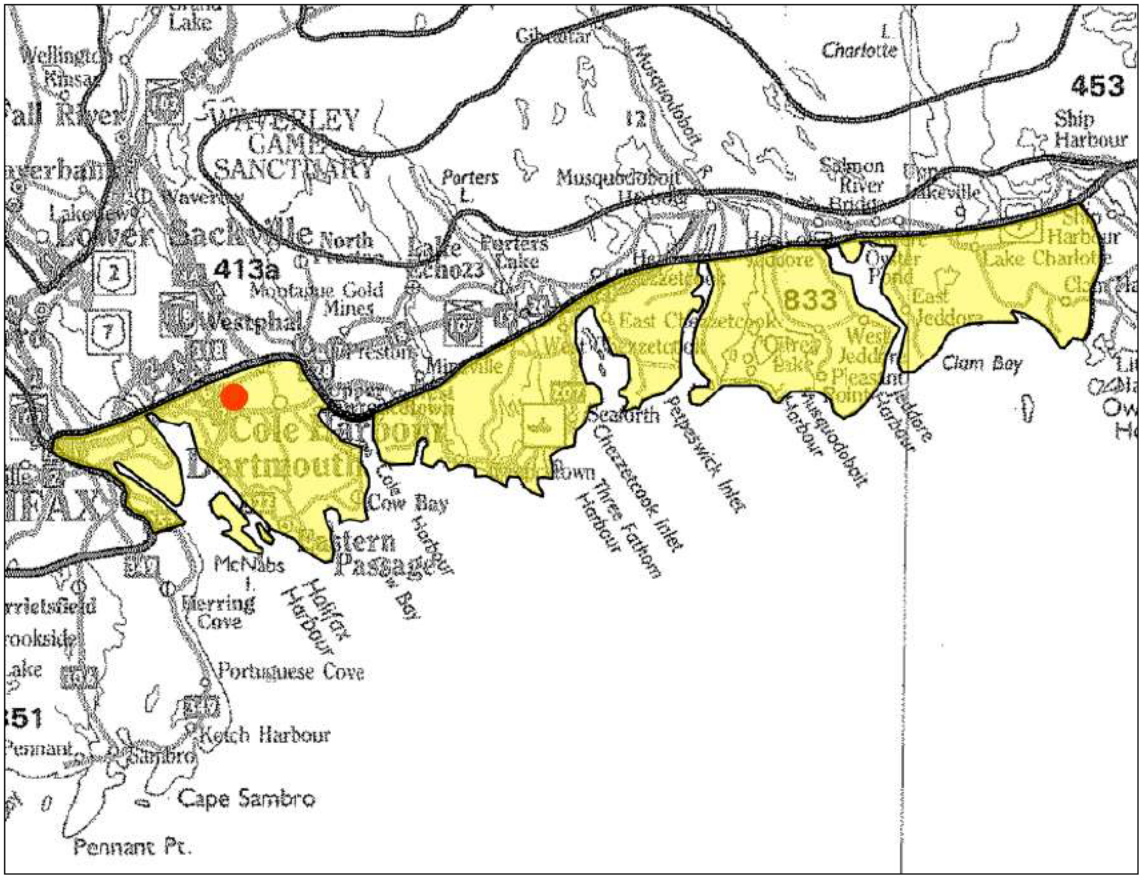


Figure 2.1-1: A map of Nova Scotia's natural theme regions showing region #833 (highlighted) – Eastern Shore Beaches. The approximate location of the study area is indicated (red ellipse).[3]

2.2 Paleoecology

Understanding the changing ecology of the early Holocene is paramount to understanding the archaeological record and the course of human history in our region from its beginnings. Processes associated with glacial advance and retreat have made a lasting impression on our province. During the most recent ice age, Atlantic Canada lay beneath the kilometre thick Laurentide Ice Sheet, which at the last glacial maximum (24 ka BP) extended its reach across the continental shelf to ocean depths of 800m.[4,5] The modern landscape bears the scars and relics of the Wisconsinan glaciation, in the form of drumlins, moraines, glacial erratics, lakes and drainage systems.

Deglaciation in the northeastern United States and the Atlantic Provinces began in earnest by 20 ka BP. Significant ice streams, draining vast areas of the Laurentide Ice

[3] Adapted from Davis & Browne 1996
[4] Lothrop et al. 2011: 549
[5] Fader 2005: 2

Sheet, delivered large volumes of ice to the ocean and it was along these ice streams that calving occurred.[6] The opening of the Gulf of Saint Lawrence in 14 ka BP accelerated this process, and calving ice margins eventually isolated a Newfoundland ice cap.[7] Glaciers were largely land-bound by 13 ka, and reduction continued through melting and climatic conditions rather than calving. In the wake of retreating glaciers a mixed spruce woodland consisting of sedge, spruce, birch, and pine migrated northwards into Nova Scotia and created an environment suitable for large herds of migratory caribou.[8] It is believed Paleoindian tribes followed these herds into the region by at least 10,900 BP.[9] Glaciers, harried towards high elevations, remained a prominent feature in the landscape, and may have held a special significance to both human and caribou populations living in their shadow.

Deglaciation was not a unilinear process, as climate variables caused glaciers to retreat at different rates at different times. The Younger Dryas Cooling event took place between 10,900 and 10,600 BP (or 12,900 – 11,600 cal BP) and had a profound effect on vegetation.[10,11] Land-bound glaciers reactivated and the advance of forested regions was reversed, with areas of open shrub tundra expanding southwards.[12] Ellis believes that this cooling period led to the deterioration of suitable Paleoindian environments, and instigated either emigration or cultural adaptation.[13] A rapid warming period followed the Younger Dryas, and with it, the environment changed again to a more closed, mixed deciduous forest of oak and pine.[14] Large, long-distance caribou herds likely moved northwards for good with this change, though this new closed woodland environment would have been amendable to smaller caribou herds and large solitary cervids like moose and deer.[15]

Post-glaciation, isostatic changes (shifts in the height of land in relation to sea level) and eustatic changes (changes in the overall volume of water in the oceans) guided the major landscape changes that occurred. These changes were most profound on the coast regions which saw the location of the sea and therefore, the coastline itself, change dramatically, although these changes are less relevant to the study area given it's elevation and distance from the sea, even when sea level was higher.

By 6 ka BP, the geographical setting of the region nearly matched conditions today.[16] The inundation of the Northumberland Straight finally isolated what is now Prince

[6] Shaw et al. 2006: 2069
[7] Shaw et al. 2006: 2072
[8] Newby et al. 2005: 151
[9] Ellis 2004: 244
[10] Fader 2005: 5
[11] Lothrop et al. 2011: 550
[12] Newby et al. 2005: 151
[13] Ellis 2004: 244
[14] Deal et al. 2006: 256
[15] Lothrop et al. 2011: 562
[16] Shaw et al. 2002: 1872

Edward Island from the mainland as sea levels continued to rise, reaching within 5m of their present depth off the Atlantic coast by 3,000.[17] The Far Northeast was a challenging and ever-changing landscape. However, events which play out in geological leaps unfurled slowly over generations for people living at the time. The complications deriving from a dynamic landscape also challenge the archaeologist, who must see the environment for what it was, and not necessarily how it is today.

3.0 METHODOLOGY

A historic background study and reconnaissance was conducted by Davis MacIntyre & Associates Limited in September 2021. The historic background study indicated that there is evidence in the historic record and in historic mapping showing both Settler and Mi'kmaw occupation in proximity to the study area, but there was little to no evidence of occupation within the boundaries of the northern portion of the study area. The reconnaissance indicated that twentieth and twenty-first century visitation activity was apparent throughout the study area due to its proximity to residential neighbourhoods. On the northern side of the wetland, however, the terrain did not appear to have been used previously for agriculture or other landscape-altering activities.

The study area has a distinct lack of substantial open watercourses in close proximity, making the area difficult to access prior to the construction of historic or modern roads. Given this, and the superior suitability of other locations in the Dartmouth area for L'nuk encampment, alongside known historic Mi'kmaw encampment in locations such as the Dartmouth shore and at Lake Banook, it appears unlikely that the study area would have been enticing for encampment or other activities that would have produced significant archaeological resources. As such, the study area was assessed as having low potential for L'nuk archaeological resources.

South of the wetland, the presence of a rock wall, a slightly smoother surficial topography, and the presence of a probable house foundation and outbuilding, appear to indicate that historic occupation has occurred. Unfortunately, no available historic mapping has served to identify the date of this occupation, nor provided insight into the occupants' names.

The stone wall is itself was not considered a significant archaeological resource but is an indicator that other archaeological resources may be nearby – in this instance, the possible house foundation and outbuilding.

It was recommended that the possible house and outbuilding be subjected to a programme of archaeological shovel testing, in order to confirm that these features are

[17] Fader and Miller 2008: 6

historical in nature, and to recover artifacts to establish an approximate occupation date.

Systematic shovel testing was conducted in December 2021.

3.1 Maritime Archaeological Resource Inventory

The Maritime Archaeological Resource Inventory was accessed in September 2021 in order to determine if known archaeological sites or resources exist within or near the study area. A parameter radius of 5 kilometres from the study area was applied, which encompasses downtown Dartmouth and a portion of downtown Halifax.

The closest known archaeological sites to the study area are located within 5 kilometres and include a late Archaic general activity site on the shores of Lake Micmac, an isolated Paleo-Indian chalcedony fluted point preform found within fill from a nearby source, and 19th century Mi'kmaw petroglyphs near Millers Mountain. Slightly further afield at Lake Charles, an isolated find spot consisting of a grooved axe dating to the lake Archaic period is known. Two block end tubes and a large point, possibly Adena grave goods from the Ceramic period were found in Dartmouth, although the exact location is unknown, possibly in the vicinity of Admiralty Place.

Several historic features related to the Shubenacadie Canal and related industrial activities such as the Starr Manufacturing facilities are found at Lake Micmac and along Prince Albert Street near the outlet of the canal into the harbour. Late 18th to early 19th century house foundations are recorded on the east side of Lake Loon. Additionally, human remains were found in 1894 during the construction of a manse for St. James Presbyterian Church.

Other historic period features have been found along the Dartmouth waterfront, including remains of the first railway bridge over the harbour at Tufts Cove, several historic features at Shannon Park, a brick foundation at the end of Ferguson Road, a late 18th to early 20th century midden at the end of Jamieson Street, the remains of wharf cribwork at the end of Maitland Street, a late 19th century midden within Dartmouth Marine Slips, and a 19th century midden at the end of Old Ferry Road.

3.2 Historic Background

3.2.1 L'nuk Settlement During the Precontact and Historic Periods

Spatially and geographically, L'nuk land use throughout Mi'kma'ki is not considered in the same sense that European occupation is recorded in historic times. Colonialism has had a significant impact on Mi'kmaw lifeways but prior to European contact, the Mi'kmaq and their ancestors had a very dynamic relationship with the land which was reflected in their language, legends, songs, dances and oral tradition. The landscape was viewed as "sentient, ever-changing, and in a continual process of becoming".[18] Therefore, the euro-centric view of the land as discrete and definitive land parcels does not reflect the Mi'kmaw world view and references to site-specific pre-contact land use from the first-hand perspective of the Mi'kmaq (through oral tradition) are difficult to ascertain. However, historic references by Europeans do exist and Mi'kmaw land use and occupation is reflected in the archaeological record.

Nova Scotia has been home to the Mi'kmaq and their ancestors for at least 11,500 years. A legacy of experience built over millennia shaped cultural beliefs and practices, creating an intimate relationship between populations and the land itself. The complexity of this history, culturally and ecologically, is still being explored.
The earliest period is *Sa'qiwe'k L'nu'k* (the Ancient People) or the Paleo-Indian period (11,500 - 9,000BP). The changing ecology following deglaciation allowed the entrance of large herds of migratory caribou into Nova Scotia, followed by Paleoindian groups from the south.[19] Currently, the Debert/Belmont Sites provide the only significant evidence of Paleo-Indian settlement in the province. Commonly believed to be big-game hunters, research is now aimed at exploring the diverse subsistence patterns that may have supported populations, and what adaptations were made when the environment shifted once again in the early Holocene.[20]

Succeeding the *Sa'qiwe'k L'nu'k* is the *Mu Awsami Kejikawe'k L'nu'k* (the Not so Recent People) or the Archaic Period (9,000-3,000 BP). This time saw a reorientation to a more maritime subsistence, with settlement pivoting more towards coastal areas, lakes and bountiful riverine resources.[21] Remnants of these sites along the coast have largely been engulfed by rising seas or battered by wind and wave, though interior sites are increasingly being discovered.[22] Ground stone tools, specialized for wood-working, appear at this time and may have been used to create dug-out canoes. Numerous traditions and distinct technologies have been documented throughout Maine and the Atlantic provinces. A growing catalogue of exotic cultural components demonstrates

[18] Sable and Francis 2012:18.
[19] Newby et al. 2005: 151.
[20] Lothrop et al. 2011: 562.
[21] Tuck 1975.
[22] Deal et al. 2006.

that groups within Nova Scotia were engaged in spheres of interaction spanning hundreds of kilometers. Unfortunately, a lack of formally excavated sites within Nova Scotia still obscures the degree to which these traditions were present.

By the *Kejikawe'k L'nu'k* (the Recent People) or Woodland/Ceramic period (3,000-500 BP), the Mi'kmaq were a maritime people.[23] Known Woodland/Ceramic sites concentrate along coasts shorelines, and navigable watercourses. Migration of ideas and people introduced new worldviews and technologies from groups originating in places like northern New England and the Great Lakes area, to local populations, including the earliest ceramic forms. Harvesting of marine molluscs and shellfish appears in this period, and substantial shell-middens have gifted archaeologists with well-preserved records of these past lives.[24] Fish weirs populating the province's rivers and streams speak to the importance of migrating fish species to Mi'kmaq life. Terrestrial hunting and foraging was practiced with varying degrees of intensity depending on seasonality and region. A generally stable cultural form is believed to have developed by 2,000 BP, forming the way of life first encountered by Europeans arriving on our shores.[25]

Table 1: Mi'kmaw/Archaeological Cultural Periods

Mi'kmaw Period	Archaeological Period	Years
Sa'qiwe'k L'nu'k (the Ancient People)	Paleo-Indian	11,500 – 9,000 BP
Mu Awsami Kejikawe'k L'nu'k (the Not so Recent People)	Archaic	9,000 –3,000 BP
Kejikawe'k L'nu'k (the Recent People)	Woodland/Ceramic Period	3,000 –500 BP
Kiskuke'k L'nu'k (Today's People)	Contact	500 BP – present

Mi'kmaw life was substantially altered in the *Kiskuke'k L'nu'k* (Today's People) or Contact Period (500 BP- Present). Trade and European settlement introduced change and upheaval to the traditional way of Mi'kmaw life. Mobile hunting and gathering still defined Mi'kmaw life, with identity residing within family households.[26] Trading posts and fishing villages became intersections of European and Mi'kmaq interaction, affecting traditional seasonal rounds and access to land. The hunting of fur-bearing mammals intensified to satisfy the mutual exchange of skins for European goods.[27] It is

[23] Davis 1993: 100.
[24] Davis 2005: 18.
[25] Wicken 2004: 26.
[26] *Ibid*: 30.
[27] Whitehead 1993: 89.

not accurate, however, to say that Mi'kmaq *adopted* European goods and culture, but rather *adapted* it. The Mi'kmaq remained an influential social and political force forming a triadic narrative of contention with the English and French in the 18th century. However, disease, conflict, and alienation from the land wreaked a ruinous effect on the Mi'kmaq by the 19th century, pushing people to the margins of colonial society.[28]

The Mi'kmaq inhabited the territory known as Mi'kma'ki or Megumaage, which included all of Nova Scotia including Cape Breton, Prince Edward Island, New Brunswick (north of the Saint John River), the Gaspé region of Quebec, part of Maine and southwestern Newfoundland (Figure 3.2-1). The study area is located within the area of Sipekne'katik.

Mi'kmaw names are known for many places in the Halifax-Dartmouth area, including Punamu'kwati'jk (Dartmouth, meaning "at the tomcod place") and Kjipuktuk (Halifax Harbour, meaning "the great harbour").[29] Northwest of the study area is Prince Arthur Park, known as Kuowa'qmiktu'jk (meaning Little Pine Hill), southwest is Tkɨpowik (Sandy Cove, meaning there is a spring there), and to the southeast is Loqutujk (Morris Lake, meaning Place of scaffold or drying flats (for fish, meats, etc.).[30]

[28] Reid 2009.
[29] Ta'n Weji-sqalia'tiek: Mi'kmaw Place Names Atlas 2019.
[30] Ta'n Weji-sqalia'tiek: Mi'kmaw Place Names Atlas 2019.

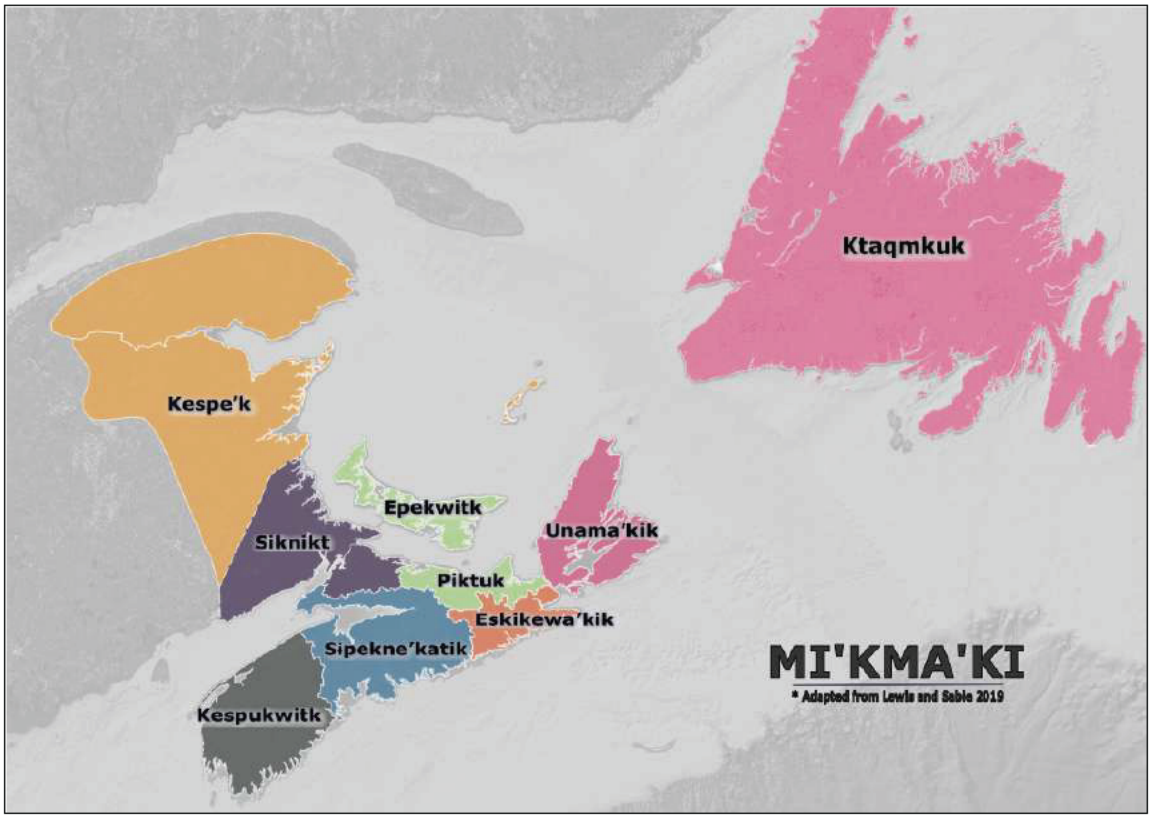


Figure 3.2-1: Map of the Mi'kmaw districts.[31]

According to Hoffman, there were three or four summer villages in the Sipekne'katik territory, located at Shubenacadie, Truro, Tatamagouche, and at or near Halifax, though none are recorded in early historic documents due to the relative absence of French activity in these areas in the 17th century. The earliest documented suggestion of a village in this territory is on the Stewiacke River in 1692. By 1752, the French missionary Father Gaulin had established a mission at Shubenacadie. The settlement at Salmon River near Truro is suggested in early sources and clearly documented later while a settlement at Tatamagouche is known to have existed by the latter half of the 18th century. Several villages are known in the vicinity of Halifax and at Halifax itself, Diéreville reported having met three Indian chiefs in the Harbour. Other villages are reported at Beaver Bank and at Grand Lake on the Shubenacadie system.[32]

There are several references to historic Mi'kmaw occupation in the vicinity of Dartmouth. Harry Piers noted that Gorham Paul's wife lived at Red Bridge in Dartmouth, though she was known as Mohawk, not Mi'kmaq.[33] In 1870, Mi'kmaq living at

[31] Adapted from Lewis and Sable 2019. Some traditional territory overlap exists in western New Brunswick and Northern Maine with the Wolastoqiyik. Boundaries in these regions are less defined.
[32] Hoffman 1946:533-536.
[33] Whitehead (ed.) 2003:109.

Shubenacadie were known to spend the summer at Dartmouth Lake or Tufts Cove.[34] Lewie Newell (Louis Noel) and Peter Joe Cope were both from Red Bridge, Dartmouth.[35] Jerry Lonecloud also lived at Red Bridge for a year in the late 19th century.[36]

Local historian John Martin noted that "North of the Hospital [Mount Hope] shore there is a little bay called Sandy Cove. This was an old camping ground for the Indians, seasonally used by the Micmacs until about the middle of the last century [1850s]. A brook with a cool spring at the base supplied the water. They made baskets and various trinkets, canoeing their wares across to the ferry slip on market days."[37]

Kwilmu'kw Maw-klusuaqn Negotiation Office Archaeological Research Division (KMKNO-ARD), Millbrook First Nation and Sipekne'katik First Nation were contacted on 20 August 2021 as part of this assessment. A response was received from KMKNO-ARD on 30 August. While the traditional use information provided is confidential, it has been taken into consideration during this assessment. They noted five recorded Mi'kmaw archaeological sites within a five-kilometer radius, as has also been noted in the MARI section above. They also indicated that Rev. Jacob Bailey in the 1750s noted "Mic-Mac Indians undoubtedly formed part of the floating population of the period under review, with their summer camps being located at the various local bays, like the one at Sandy Cove near McMinn's (or McMain's) brickyard."[38]

Finally, KMKNO-ARD noted that historian and researcher Harry Piers had written in 1914 about a "Spring close to Sandy Cove, near the Asylum, Dartmouth. A boiling or bubbling spring was situated about 100 yards to southward of brook and near the shore, on side of slope of hill, and was called by Micmac Koboweek. The name properly belonged to this "boiling spring" but applied to that vicinity where some Indians sometimes camped at the mouth of the little brook".[39]

3.2.2 Historic Period Euro-Canadian Settlement

Although the presence of a few Acadians in Dartmouth is known in association with the Mi'kmaq, a more substantial European presence in the area is not recorded until 1749 when the English settlement of Halifax was founded on the peninsula in the harbour.[40] The earliest known European to settle on the Dartmouth side of Halifax Harbour was

[34] Whitehead (ed.) 2003:158.
[35] Whitehead (ed.) 2003:26.
[36] Whitehead (ed.) 2003:113.
[37] Martin 1957:13.
[38] William S. Bartlet, ed. The frontier missionary: a memoir of the life of the Rev. Jacob Bailey, A.M., missionary at Pownalborough, Maine; Cornwallis and Annapolis, N. S.; with illustrations, notes, and an appendix. Boston: Ide and Dutton, 1853, pp. 154-155. As cited by KMKNK researchers.
[39] Martin 1957:110.
[40] Raddall 1993:1.

Major Ezekiel Gilman, who erected a sawmill "by the large cove on the opposite side of the harbour. At the time three streams emptied into the cove from a nearby lake. The middle stream was called Sawmill River."[41] It is not clear in this account whether or not this stream represents the mouth of what would be the Shubenacadie Canal. However, one author notes that this first mill was on the east bank of the Canal, where the Dartmouth Marine Slips would later reside.[42]

The following summer, Governor Cornwallis noted that Gilman was managing the sawmill poorly, and that no clapboards or shingles were yet being made. In July 1750, the major gave the mill up to Capt. William Clapham. By early September, a fresh group of settlers had arrived on the *Alderney,* which sailed from Plymouth and carried 340 English, Swiss, and German passengers. These new arrivals were the inhabitants of the planned town lots of Dartmouth, located adjacent to the sawmill and bounded by present-day North Street, Alderney Drive, Dundas Street, and the Halifax harbour.[43] For several years afterwards the native population, as allies of the French and enemies of the English, continued to attack the settlement, and numbers of casualties continued to rise on both sides. Settlers began to trickle away from Dartmouth, reaching a mere 39 persons by 1766.[44]

Dartmouth businesses and residences continued to cluster around the downtown core and around Dartmouth Cove for several generations. Eighteenth and early 19th century historic maps generally depict the shoreline area of Dartmouth and do not extend to the study area inland at Mount Hope.

The Nantucket Whalers, having sailed into the harbour to resettle in Dartmouth in 1786, continued the work of building up the shores of Dartmouth Cove, this time to support the whaling industry. In addition to a wharf, warehouses, and workshops, they constructed a spermaceti candle factory. Houses for some 40 families were built in the area around the former meeting house at the northeast corner of King and Queen Streets, once known as Quakertown.[45] Though they were relocated to Wales in 1791, their wharves, warehouses and homes still stood along the cove's shores were eventually reused by other residents.[46]

By that same year, 1791, new waves of Loyalist settlers had somewhat bolstered Dartmouth's population, and a two-storey gristmill was established at Dartmouth Cove by Lawrence Hartshorne and Jonathan Tremain. The mill's dam was once near the Portland Street bridge over what would become the end of the Shubenacadie Canal.[47] In

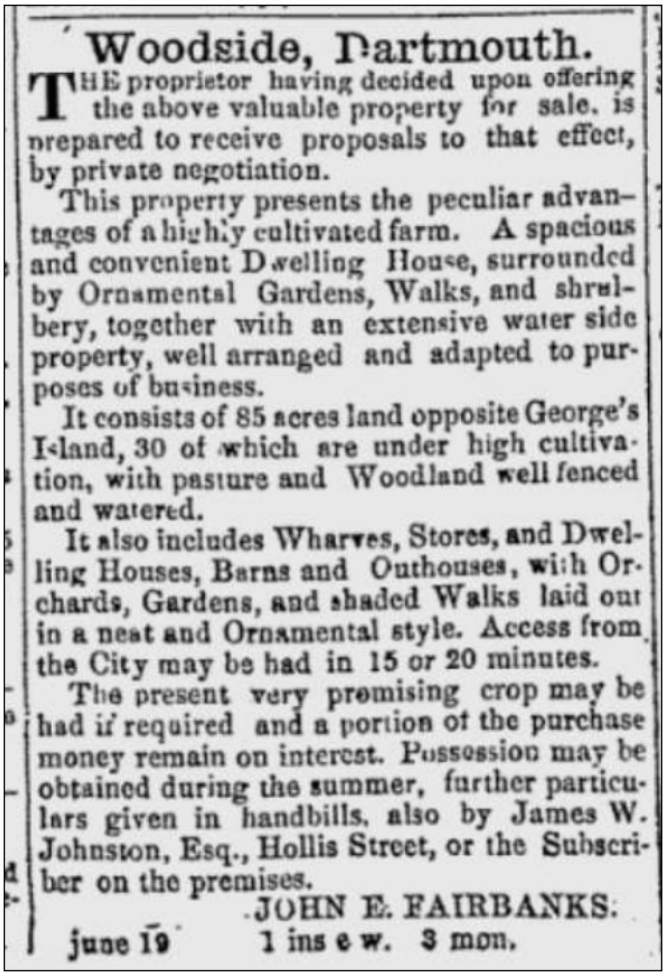
[41] Chapman 2001:22.
[42] Martin 1957:38.
[43] Chapman 2001:27.
[44] Chapman 2001:32.
[45] Martin 1957:39.
[46] Chapman 2001:56.
[47] Martin 1957:35

1796, Hartshorne and Tremain provided flour to Halifax residents at a reduced price when provisions were scarce. As the supplier of flour to the British army and navy for Nova Scotia, Newfoundland, Bermuda, and the West Indies, the gristmill was the largest and most profitable in the province.[48] Still, by 1809 only 19 dwelling houses were recorded in Dartmouth.[49]

The Shubenacadie Canal, transecting Nova Scotia by running between the Minas Basin and Dartmouth, began construction in July 1826 after years of debate. The stream at Dartmouth Cove was chosen as the ideal outlet due to its sheltered position. Nearly half a million dollars were poured into the project.[50] A series of locks was created, and after 1860 an inclined plane leading upwards from Dartmouth Cove enabled vessels to travel up and down an embankment too steep for locks alone. However, completion of the Canal did not yield the prosperity that was expected. Superior railway systems and other methods of transportation made the Canal obsolete almost as soon as it was ready for use.

Woodside, the historic community nearest to the study area (to the south and southwest), gets its name from the large estate owned by Hon. John E. Fairbanks, laid out around 1830.[51] The British Colonist in July of 1855 advertised a large property for sale in Woodside, Dartmouth by Fairbanks, consisting of 85 acres of land opposite George's Island of which 30 acres were used for cultivation with pastures and woodland (Figure 3.2-2).

[48] Chapman 2001:39.
[49] Ferguson 1967:155.
[50] Martin 1957:39.
[51] Chapman 2001:382.



Woodside, Dartmouth.

THE proprietor having decided upon offering the above valuable property for sale, is prepared to receive proposals to that effect, by private negotiation.

This property presents the peculiar advantages of a highly cultivated farm. A spacious and convenient Dwelling House, surrounded by Ornamental Gardens, Walks, and shrubbery, together with an extensive water side property, well arranged and adapted to purposes of business.

It consists of 85 acres land opposite George's Island, 30 of which are under high cultivation, with pasture and Woodland well fenced and watered.

It also includes Wharves, Stores, and Dwelling Houses, Barns and Outhouses, with Orchards, Gardens, and shaded Walks laid out in a neat and Ornamental style. Access from the City may be had in 15 or 20 minutes.

The present very promising crop may be had if required and a portion of the purchase money remain on interest. Possession may be obtained during the summer, further particulars given in handbills, also by James W. Johnston, Esq., Hollis Street, or the Subscriber on the premises.

JOHN E. FAIRBANKS.

june 19 1 ins e w. 3 mon.

Figure 3.2- 2: John E Fairbanks advertisement in The British Colonist, July 28th 1855 for his property in Woodside, Darmouth.

The early 1830s also saw the establishment of a chocolate factory by Henry Yeoman Mott, who purchased and ran a brickyard and kiln in Woodside, with the unusual sideline of a chocolate factory and a mill for grinding spices, as well as a soap and candle factory, all located along the waterfront.[52] The steam mill of H.Y. Mott and Son was destroyed by fire in May 1850, consuming large stocks of chocolate, cocoa, and spices amongst other goods. [53]

The name Asylum Road comes from Mount Hope Lunatic Asylum, now known as the Nova Scotia Hospital, to which the road led. The "Provincial Asylum at Mount Hope," the largest and oldest mental health facility in Nova Scotia, was founded by Hon. Hugh Bell and Dorothea Dix. On May 16th, 1855 ground was broken at the site of the hospital as reported by the Novascotian on May 21st as the "New Lunatic Asylum[54]." By the time

[52] Chapman 2001:104-106.
[53] Martin 1957:357.
[54] MacDonald 1996: 30.

the first cornerstone was laid on June 9th, 1856, the name Mount Hope had been attributed to the hospital. MacDonald states that no record has been found of the name Mount Hope being used to represent the location of the hospital or any other location in Dartmouth prior to 1856; the son of Hon. Hugh Bell wrote in his memoirs that he believed his mother had come up with the name.[55]

In 1865, the Woodside Cottage estate was purchased by Glaswegian immigrant George G. Dustan, shortly after the death of original owner John Fairbanks, whose name appears on the 1865 map of Halifax County (Figure 3.2-3). Dustan later established a sugar refinery in the area, which began production in 1884, after which he sold Woodside Cottage in favour of another Dartmouth location.[56] In 1886, 33 wooden houses for refinery employees were built across a field from the refinery, becoming the core of what would be the community of Woodside.[57] The community along the shore, the asylum, and the sugar refinery all appear on the 1908 Geological Survey of Canada map of the region (Figure 3.2-4).



Figure 3.2-3: Ambrose Church's 1865 map of Halifax County, showing the approximate study area in red.

[55] MacDonald 1996: 31.
[56] Chapman 2001:140-141.
[57] Chapman 2001:142.

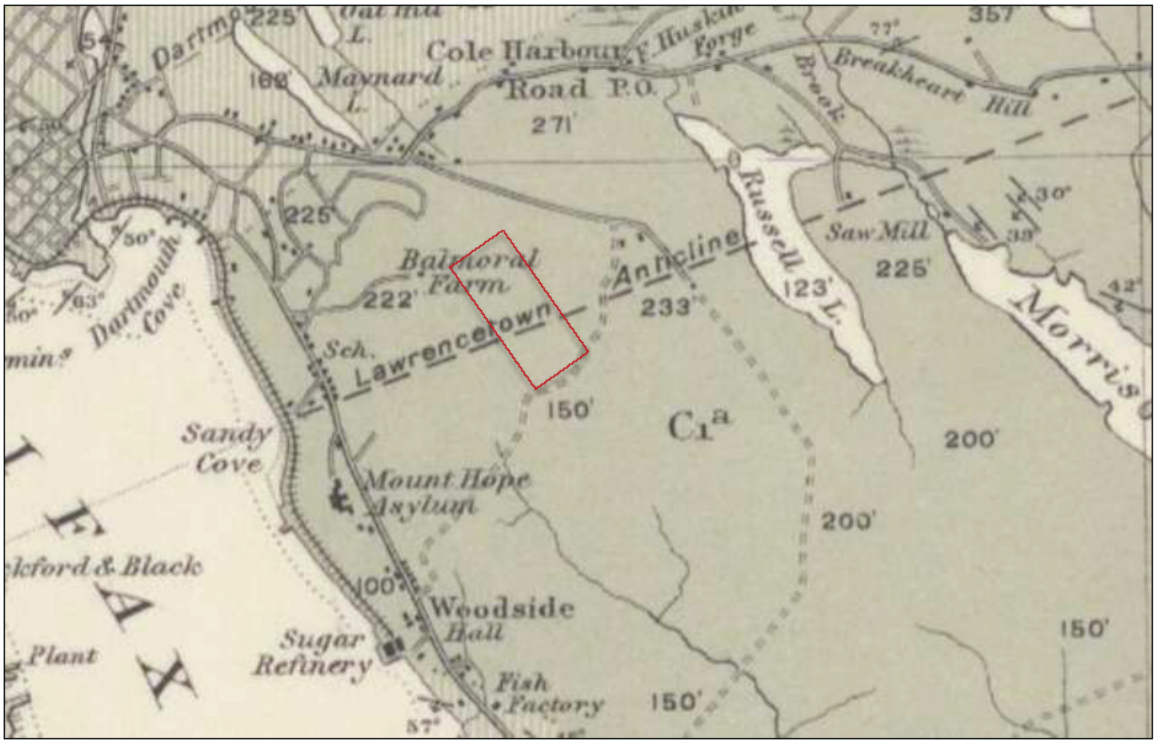


Figure 3.2-4: The 1908 Geological Survey of Canada map, showing the approximate study area in red.[58]

Twentieth century aerial photography shows that the study area was not cleared or developed land throughout the twentieth century. In 1931, it was completely wooded, though a substantial stone wall observed during the field reconnaissance can be seen from the air (Figure 3.2-5). By 1992, some tree clearing is evident on the south side of the broad wetland that divides the study area, but little other cultural activity is evident (Figure 3.2-6).

In 1958, the Crown company Industrial Estates Limited (IEL) established the 64-acre Woodside industrial park on land that had been previously owned and used as agricultural land by the Nova Scotia (Mount Hope) Hospital.[59]

Today, the study area is surrounded by residential and commercial properties to the north, south and west. Highway 111, which defines the eastern edge of the study area, was constructed in the mid-1960s, and was twinned in 1977 (Figure 3.2-7).

[58] Senécal 1908.
[59] Chapman 2001:372.

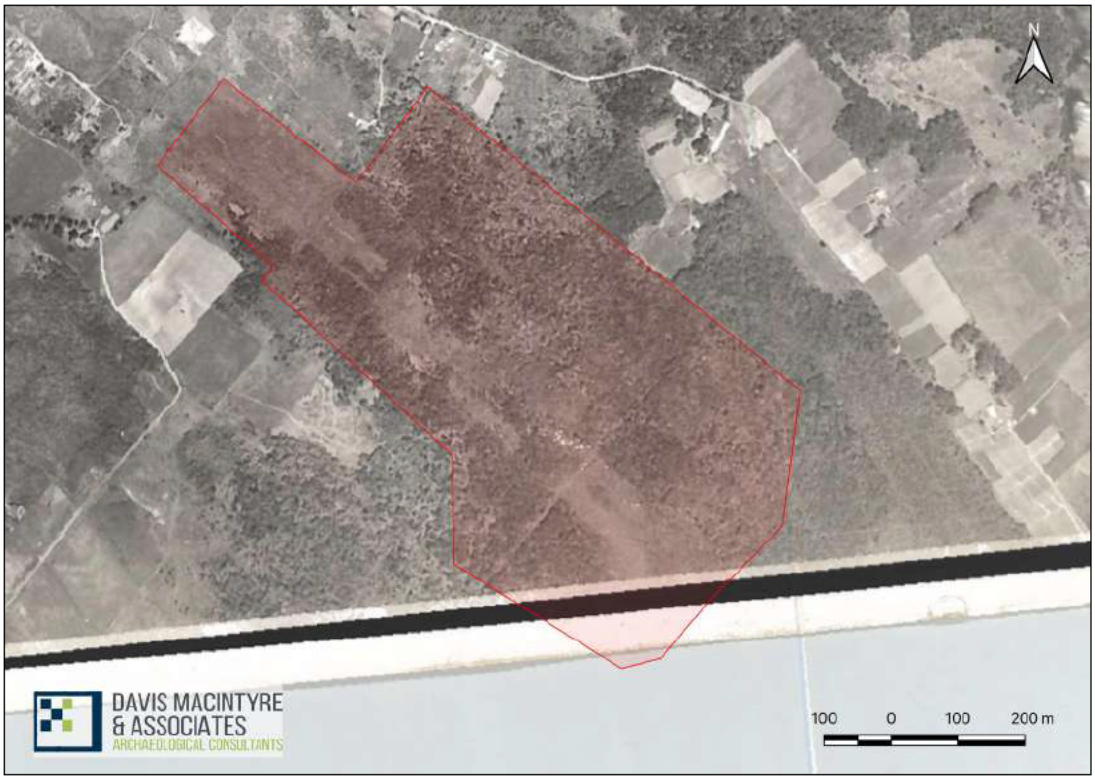


Figure 3.2-5: A georeferenced aerial photograph of the study area from 1931, showing the study area in red.



Figure 3.2-6: A georeferenced aerial photograph of the study area from 1931, showing the study area in red.



Figure 3.2-7: Aerial photograph of the Nova Scotia Hospital and Dartmouth Refinery in the 1970s showing Highway 111. The study area is located just outside of the photograph.[60]

Prior to 1976, the area south of the study area was relatively undeveloped and Mount Hope Avenue incomplete, with only the industrial development of Phillips Cables, Hermes Electrical, and the Woodside fire station constructed[61] (Figure 3.2-8); residential buildings can be seen to the north of the study area at this time.

[60] Halifax Municipal Archives c.1970
[61] Halifax Municipal Archives c.1975a



Figure 3.2-8: Aerial photograph of the intersection of Pleasant Street and Mount Hope Avenue area – North Woodside, before 1976. The approximate study area is indicated in red.[62]

3.3 Predictive Modeling

3.3.1 Precontact Cultural Resources

Predicting the occurrence of L'nuk heritage resources during the Late Pleistocene to the Holocene is a difficult task. Understanding localized geomorphological factors that created this rapidly evolving landscape and how it may have been utilized by L'nuk is paramount for the prediction of site occurrence. Often, face value modern visual

[62] Halifax Municipal Archives c.1975b

interpretations of these landscapes are not sufficient. This may lead to unintentionally overlooked resources for this extensive time period.[63] It is important to note that human movement is seldom tied solely to resource collection and to the ease of passage between these resource collection areas. Exchange networks, familial histories, traditions, and ceremonial practices are important factors to consider when seeking the relationships of past peoples and a given landscape.[64] This difficulty in predicting landscape use is compounded by the lack of geomorphological and archaeological research conducted in a localized scope. Historic anthropogenic landscape alterations further complicate desktop models. However, broader regional trends may offer insight into how the landscape may have been utilized, thus, predicting the occurrence of previously unknown resources with greater accuracy and efficiency.

During the Younger Dryas cooling event that coinciding with the Early Paleo-Indian Period, glaciers occupying highland areas reactivated, blocking watercourses, and created several glacial lakes throughout the province (See Section 2.1). At this time, the Minas Basin Glacier was reactivated blocking the outlet to the Shubenacadie drainage system with an ice and a clay dam. At around 10.6ka ^{14}C, this caused the Shubenacadie River and its tributaries to overflow their banks causing flooding of low-lying areas under 30m. This created the Glacial Lake Shubenacadie II. New outflows were created through the Dartmouth lakes into Dartmouth Cove and near Gibraltar Rock in Musquodoboit Harbour.[65] The Dartmouth outlet flowed into the remnants of the Ancient Sackville River north of Georges Island towards the sea which was located -65m below modern levels.[66] Prior to the Younger Dryas, periods of glaciation carved deep hollows into this river in the creating a system of 10 lakes within Halifax Harbour. These lakes would slowly submerge with postglacial sea-level rise and the remnants of the Ancient Sackville would cease to flow. The landscape rebounded, ice dammed glacial lakes breeched, and relative sea level reached approximately -40 m below modern levels by 10,000 BP (Figure 3.3-1).[67] One isolated find from this period is recorded approximately 4km northwest of the study area, above Red Bridge Pond in Dartmouth and near the ephemeral shores of Glacial Lake Shubenacadie II.

Predictive modeling for the early Holocene Archaic Period inland presents a unique set of challenges for archaeologist. Over this approximately 3,000-year period post deglaciation, riverine systems and ocean shorelines experienced a series of dramatic changes influenced by numerous factors including localized isostatic rebound, lake formation and collapse, changes in relative sea levels, and rapid sediment depositions.[68] Recent studies, following examples from Northern Maine suggest that during the period between 9,000 BP and 7,000 BP, river systems were largely unstable. Thus, many

[63] Suttie et al. 2006
[64] Lacroix 2015, 31
[65] Stea and Mott 1989.
[66] Fader and Miller 2008.
[67] Fader and Miller 2008.
[68] Murphy 1998:90.

archaeological sites from this period are often masked by deep aggraded deposits of alluvium. The small fraction of isolated finds representing this time period are likely "dislodged" by a multitude of natural and unnatural disturbances.[69] By 6,000 BP, sea levels had largely stabilized, rising approximately 0.36 m/100 years.[70] By 5000 to 4000 BP, the lake and river systems in Nova Scotia largely stabilized coinciding with the later half of the Late Archaic Period.[71] By 3000 BP, the Halifax Harbour had resembled current conditions with the shoreline residing less than 5m from modern levels.[72]

Woodland to Historic period occupation sites along the river systems and coastlines of Nova Scotia are largely predictable owing, in part, to river stabilization and the slow and the predictable sea level rise of this period. However, the increasing pace of 20th and 21st century sea level rise has left coastal sites from this period vulnerable to rapid erosion.

Understanding the geomorphological changes of individual river systems and shorelines is paramount in the prediction L'nuk heritage resource potential, however this is often limited to the amount of prior geological and archaeological research. Historic alterations can further complicate these interpretations. Ground-truthed archeological potential buffers can be used to highlight areas for further examination when previous research is unavailable. Following the model required to be used for archaeological consulting by New Brunswick Archaeological Services[73] (developed from the Sevogle River Test Plot), a 50-metre high and an 80-metre moderate L'nuk archaeological potential buffer was created for the study area using the historic watercourses adapted from 18th and early 19th century maps of Dartmouth (Figure 3.3-2). The study area is located outside of these buffers.

Using the watercourses recorded by the DNR, L'nuk heritage resource predictive buffers were created for the region. Of the 14 sites attributed solely to L'nuk occupation recorded within 15 kilometres of the study area, 12 sites lie within these predictive buffers (or within a 10 meters grace given for pre-GPS coordinate recording errors) area providing an accuracy rate of 86%. It should be noted that the sites within urban HRM that lie well outside potential buffers may be due to the alteration of historic watercourses.

[69] Murphy 1998:93.
[70] Baechler 2017:304.
[71] Shaw et. al 2002:143.
[72] Fader and Miller 2008.
[73] Archaeological Services 2012

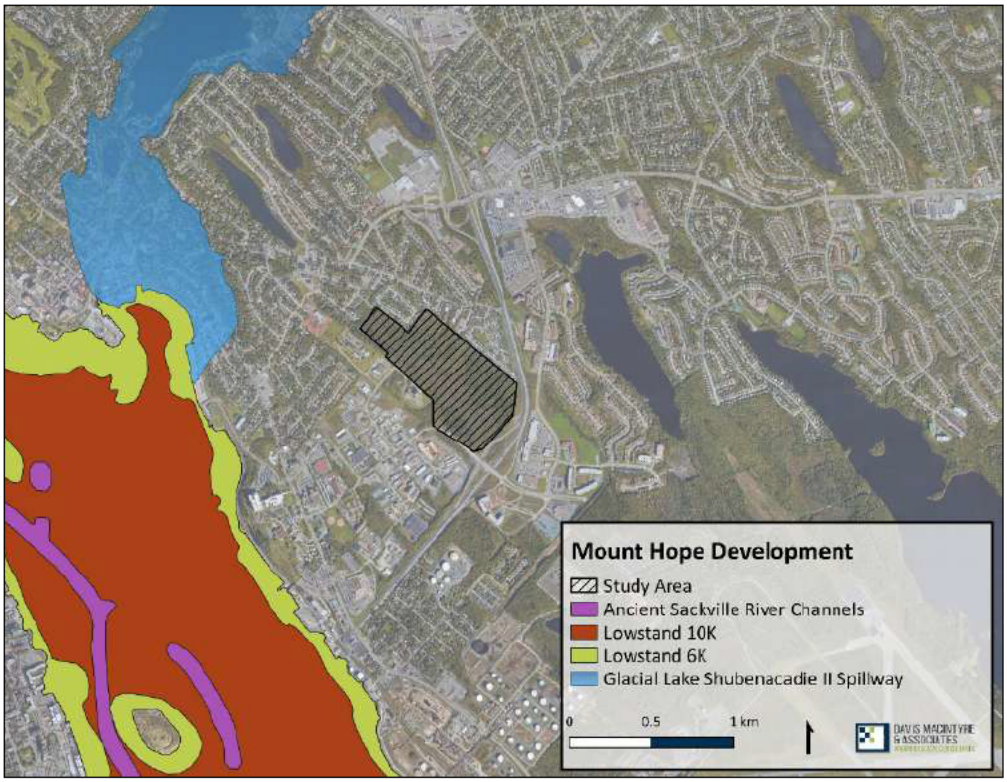


Figure 3.3-1: A figure depicting the late glacial and early Holocene landscape changes of Halifax Harbour near the study area.



Figure 3.3-2: The study area with L'nuk activity buffers.

3.4 Subsurface Testing

Subsurface testing was conducted on 14 December 2021 by Vanessa McKillop, Andrea Richardson, Kristina Ryan, and Kirsten Mason in the potential historic features identified during the previous field reconnaissance. All units were 50cm x 50cm in size and strategically placed to cover prominent elements of the potential feature. In total, 5 shovel tests were conducted within the potential foundation, while 4 were conducted in the potential outbuilding. Test unit locations are shown in Figure 3.4-1.

Before subsurface testing began, the potential cellar feature was cleared of vegetation and debris (Plate 1). Units were strategically placed along the potential walls and in the center of the depression. Units A through E all exhibited a similar minimally disturbed natural soil sequence (Plate 2). The soil strata consisted of forest duff and root mat on top of a thin very fine light grey sandy silt at an average of 10cm to 15cm. Orange brown fine sandy silt subsoil was quickly achieved. Unit B, located in the center of the depression, contained large cobbles, and was quickly inundated with water at this layer (Plate 3). Each unit was dug to culturally sterile subsoil between 17cm and 35cm (Plate 4). No cultural soils, features or artifacts were recovered from the depression.

Units F through J were conducted within the possible outbuilding. These units all exhibited a similar natural soil sequence (Plate 5). The soil strata consisted of a heavily drained root mat and thin organic layer overlying a medium grey fine sandy silt layer with large cobbles (Plate 6). In each unit, water inundation occurred to varying degrees at this rock layer. All but one unit was able to achieve sterile soil between the cobbles to an average depth between 28cm and 45cm (Plate 7). No cultural soils, features or artifacts were recovered from this depression.

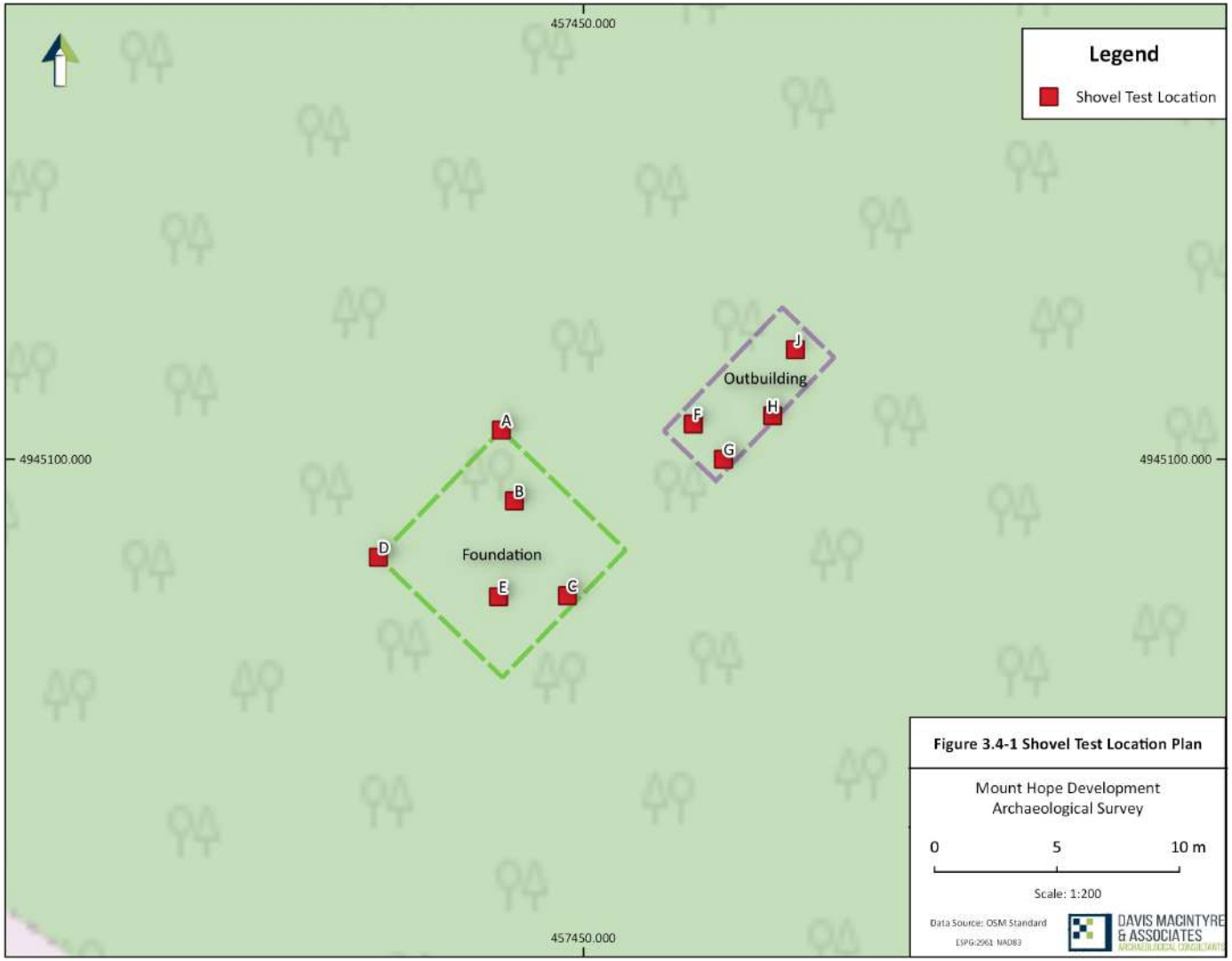


Figure 3.4-1: The shovel test location plan and approximate locations of features noted during the reconnaissance.

4.0 RESULTS AND DISCUSSION

The previous background study had shown that there was evidence in the historic record and in historic mapping that exhibited both Settler and Mi'kmaw occupation in proximity to the study area. However, no evidence for occupation was documented in the northern portion of the study area in the historical record, nor was activity or historic cultural modification of the landscape noted during the field reconnaissance. Modern cultural activity was apparent throughout the study area.

Although the study area is located in the greater cultural landscape of Kjipuktuk, the study area itself has limited resources that would elevate its potential within the broader landscape and was evident during the field reconnaissance. As such, the study area had been assessed as having low potential for precontact L'nuk archaeological resources.

South of the wetland, the presence of a rock wall, a slightly smoother surficial topography, and the presence of a possible house foundation and outbuilding, indicated that historic occupation has occurred in the area. No available historic mapping had identified the date of this occupation, the location of potential features or to whom these features may have been attributed to.

It was recommended that the possible house and outbuilding be subjected to an archaeological shovel testing program, in order to confirm if these features are indeed historical in nature, and to recover artifacts, if present, to establish an approximate occupation date.

Limited subsurface testing of the possible foundation and associated outbuilding revealed undisturbed, natural soils with no evidence of archaeological resources or deposits.

5.0 RECOMMENDATIONS AND CONCLUSIONS

Shovel testing determined that these depressions are not cultural in nature. As such, no further archaeological mitigation is recommended.

In the unlikely event that any archaeological resources are encountered at any time during ground disturbance, it is required that all activity cease and the Coordinator of Special Places (902-424-6475) be contacted immediately regarding a suitable method of mitigation. Should the impact area be modified to expand beyond the currently understood range, an archaeological assessment of those areas should be conducted by a qualified archaeologist.

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PLATES



Plate 1: The potential cellar depression cleared of debris, looking southward.



Plate 2: A plan view of Unit A exhibiting natural, undisturbed soil stratigraphy.



Plate 3: The eastern profile of Unit B depicting a thick organic layer and water inundation.



Plate 4: Unit E located in the southwestern portion of the feature presenting thin natural soils



Plate 5: Units placed along the depression of possible outbuilding looking northeast.



Plate 6: The northern profile of Unit K.



Plate 7: The northern profile of Unit J exhibiting large cobbles and wet soils.

APPENDIX A:
HERITAGE RESEARCH PERMIT

NOVA SCOTIA

Heritage Research Permit (Archaeology)

Office Use Only
Permit Number:
A2021NS156

Special Places Protection Act 1989

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

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

Surname McKillop	First Name Vanessa

Project Name: Mount Hope Residential Development - Shovel Testing

Name of Organization: Davis MacIntyre & Associates Limited

Representing (if applicable)

Permit Start Date: December 8, 2021	Permit End Date: December 31, 2021

General Location: Mount Hope, Dartmouth

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)*

20 T 457449 4945097 (WGS84)

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 [redacted]	Date 24 November 2021
Approved by Executive Director [redacted] Digitally signed by Christopher Shore Date: 2021.12.07 12:47:59 -04'00'	Date December 7, 2021

APPENDIX B: SHOVEL TEST RECORDS

Permit #: A2021NS156

Shovel Test Record

reviewed ☐
correlated ☐
entered ☐

Site: MT. HOPE

Date: 14 DEC 2021 Excavator(s): KRISTEN Unit Ref: A - FOUNDATION

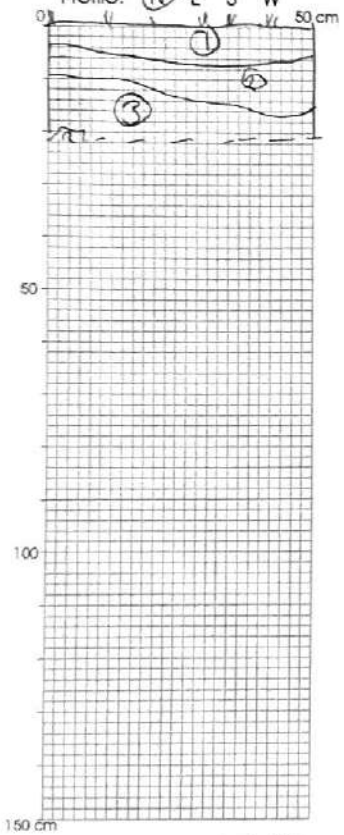
Base Excv. (DBS): 21 cm Surface Elev (m ASL): _____ GPS ref: ☐ _____

Presence/Absence ✓ or (N) & depth (DBS)

poorly sorted sand:	☐		till:	☐	Artifacts: ☐
laminated sand:	☐		regolith:	☐	^{14}C samples: ☐
paleosol:	☐		other:	☐	Soil Samples: ☐

unit grid & dimensions 56 × 50

Profile: (N) E S W



Scale 1:10

Stratigraphic Descriptions
colour · matrix · texture · structure · inclusions

(1) - FOREST DUFF + LEAF LITTER + BLACK ORGANIC.

(2) AE - LIGHT GREY FINE SANDY SILT. FEW COBBLES, ROOTLETS MEDIUM COMPACTION.

(3) ORANGE BROWN FINE SANDY SILT. PEBBLES. MED SIZE COBBLES, MED TO MED DENSE COMPACTION

ENDS @ CULTURALLY STERILE

Fieldnotes: _____

Photographs: ☑ VMM PHONE Photo ID #: _____

continued on reverse ☐ ⟶

Permit #: A2021NS156

Shovel Test Record

reviewed ☐
correlated ☐
entered ☐

Site: MT. HOPE

Date: 14 DEC 2021 Excavator[s]: KIRSTEN Unit Ref: B - FOUNDATION

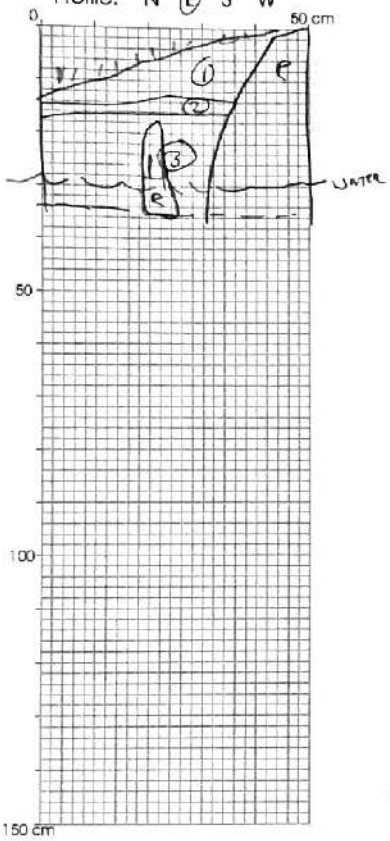
Base Excv. (DBS): 35 cm Surface Elev (m ASL): _____ GPS ref: ☐ _____

Presence/Absence ✓ or (N) & depth (DBS) _____

poorly sorted sand: ☐	_____	till: ☐	_____	Artifacts: ☐	_____
laminated sand: ☐	_____	regolith: ☐	_____	^{14}C samples: ☐	_____
paleosol: ☐	_____	other: ☐	_____	Soil Samples: ☐	_____

unit grid & dimensions 56 50

Profile: N (E) S W



Scale 1:10

Stratigraphic Descriptions
colour - matrix - texture - structure - inclusions

(1) FOREST DUFF + BLACK ORGANIC.

(2). LIGHT GREY V. FINE SANDY SILT. MED COMPACTION ROOTLETS FEW PEBBLES

(3) ORANGE BROWN FINE SILTY SAND. ROOTLETS LRG COBBLES + ~~PEBBLES~~ MED DENSE COMPACT.

-WATER ~ 30CM

ENDS @ CULTURALLY STERILE SOIL.

Fieldnotes: _____

Photographs: ☑ VMM PHONE Photo ID #: _____

continued on reverse ☐ →

Permit #: A2021NS156

Shovel Test Record

reviewed ☐
correlated ☐
entered ☐

Site: Mt. HOPE

Date: 14 DEC 21 Excavator(s): KRISTEN Unit Ref: 40 - FOUNDATION

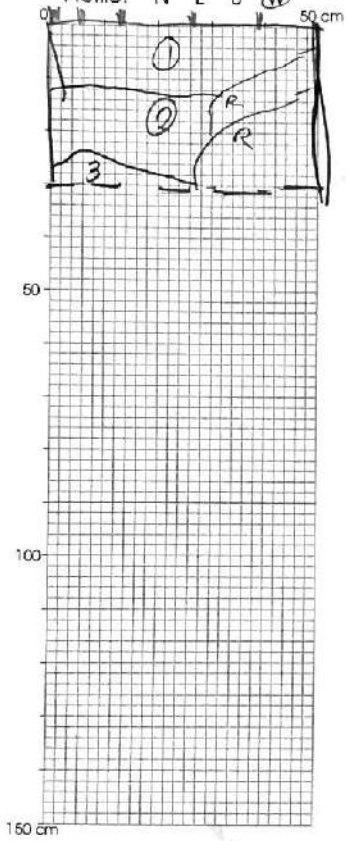
Base Excv. (DBS): 50 cm Surface Elev (m ASL): _____ GPS ref: ☐ _____

Presence/Absence ✓ or **N** & depth (DBS)

poorly sorted sand: ☐	_____	till: ☐	_____	Artifacts: ☐	_____
laminated sand: ☐	_____	regolith: ☐	_____	^{14}C samples: ☐	_____
paleosol: ☐	_____	other: ☐	_____	Soil Samples: ☐	_____

unit grid & dimensions 50 × 50

Profile: N E S W



Scale 1:10

Stratigraphic Descriptions
colour - matrix - texture - structure - inclusions

① FOREST DUFF + BLACK SILTY ORGANIC.

② LIGHT GREY FINE SANDY SILT. ROOTLETS PEBBLES + COBBLES. MED COMPACTION.

③ ORANGE BRN FINE SANDY SILT. FEW PEBBS COBBLES, MED TO MED DENSE COMPACT.

ENDS @ CULTURAL LEVEL

Fieldnotes: _____

Photographs: ☑ VARIOUS Photo ID #: _____

continued on reverse ☐ →

Permit #: A2021NS 156

Shovel Test Record

reviewed ☐
correlated ☐
entered ☐

Site: MT HOPE

Date: 14 DEC. 2021 Excavator[s]: KRISTEN Unit Ref: E FOUNDATION

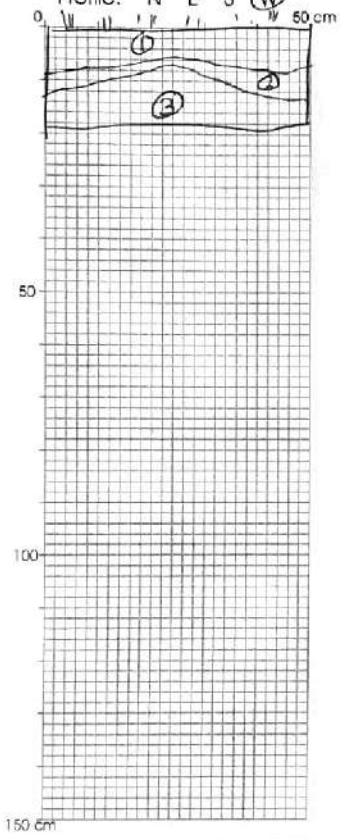
Base Excv. (DBS): 11cm Surface Elev (m ASL): _____ GPS ref: ☐ _____

Presence/Absence ✓ or N & depth (DBS)

poorly sorted sand: ☐		till: ☐		Artifacts: ☐	
laminated sand: ☐		regolith: ☐		^{14}C samples: ☐	
paleosol: ☐		other: ☐		Soil Samples: ☐	

unit grid & dimensions 50 × 50

Profile: N E S W



Scale 1:10

Stratigraphic Descriptions
colour · matrix · texture · structure · inclusions

① FOREST DUFF + BLACK ORGANICS.

②. LIGHT GREY FINE SANDY SILT. ROOTLETS, COBBLES, FEW PEBBLES, MED COMPACTION.

③. ORANGE BRN FINE SILTY SAND. MED COMPACT. FEW PEBBLES.

ENDS @ CULTURALLY STERILE SOIL.

Fieldnotes: _____

Photographs: ☑ VMM PHONE Photo ID #: _____

continued on reverse ☐ →

Permit #: A20INS156

Shovel Test Record

reviewed ☐
correlated ☐
entered ☐

Site: MT Hope

Date: 14 DEC 2021 Excavator(s): ANDREA Unit Ref: F - "OUTBUILDING"

Base Excv. (DBS): 39cm Surface Elev (m ASL): _____ GPS ref: ☐ _____

Presence/Absence ✓ or (N) & depth (DBS) _____

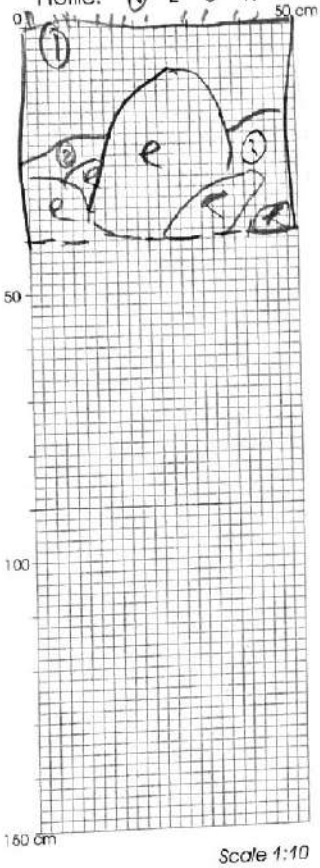
poorly sorted sand: ☐ _____ till: ☐ _____ Artifacts: ☐ _____

laminated sand: ☐ _____ regolith: ☐ _____ ^{14}C samples: ☐ _____

paleosol: ☐ _____ other: ☐ _____ Soil Samples: ☐ _____

unit grid & dimensions 50 × 50

Profile: (N) E S W



Scale 1:10

Stratigraphic Descriptions
colour - matrix - texture - structure - inclusions

① FOREST DUFF + ROOT MAT.

② MED GREY FINE SANDY SILT W/ COBBLES + ROOTLETS, DENSE COMPACTION.

ENDS @ ROCK. SOME WATER INNUNDATION. SMALL AMOUNT OF ORANGE BRN SILTY SAND IN BETWEEN ROCKS.

Fieldnotes: _____

Photographs: ☑ VNM PHONE Photo ID #: _____

continued on reverse ☐ →

Permit #: A2021NS156

Shovel Test Record

reviewed ☐
correlated ☐
entered ☐

Site: MT Hope

Date: 14 0 Excavator[s]: ANDREA Unit Ref: G OUTBUILDING

Base Excv. (DBS): 28 cm Surface Elev (m ASL): _____ GPS ref: ☐ _____

Presence/Absence ✓ or (N) & depth (DBS)

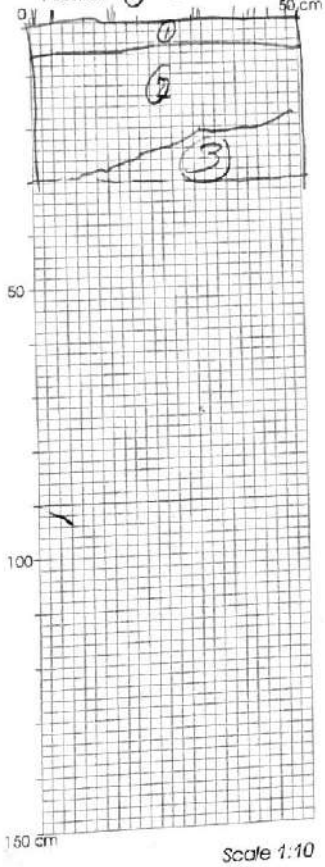
poorly sorted sand: ☐ _____ till: ☐ _____ Artifacts: ☐ _____

laminated sand: ☐ _____ regolith: ☐ _____ ^{14}C samples: ☐ _____

paleosol: ☐ _____ other: ☐ _____ Soil Samples: ☐ _____

unit grid & dimensions 50 × 50

Profile: (N) E S W



Scale 1:10

Stratigraphic Descriptions
colour - matrix - texture - structure - inclusions

(1) FOREST DUFF + PEAT MAT BLACK ORAGAIC.

(2). LIGHT GREY FINE SANDY SILT ROOT LETS. MOD COMPACTION.

(3) MED ORANGE BRN. FINE SANDY SILT FEW PEBBLES. ROOTLETS MED- MED DENSE COMPACTION.

ENDS @ CULTURALLY STERILE SOIL

Fieldnotes: _____

Photographs: ☒ VNM PHONE Photo ID #: _____

continued on reverse ☐ →

Permit #: A20211NS156

Site: Mt Hope

Shovel Test Record

reviewed ☐
correlated ☐
entered ☐

Date: 14 DEC 2021 Excavator[s]: KRISTEN Unit Ref: # 5 OUT BUILDING

Base Excv. (DBS): 37 cm Surface Elev (m ASL): _____ GPS ref: ☐ _____

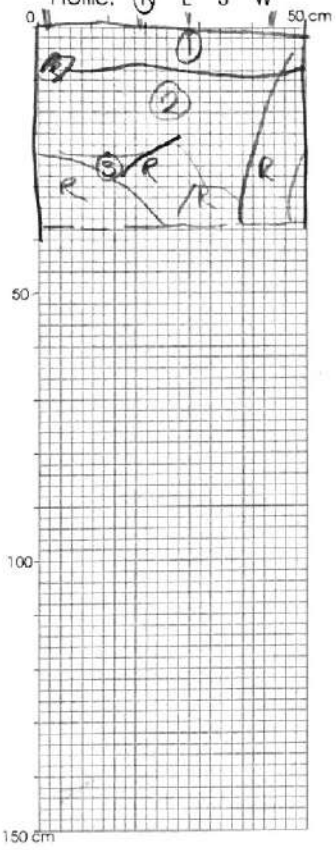
Presence/Absence ✓ or **N** & depth (DBS)

poorly sorted sand: ☐	_____	till: ☐	_____	Artifacts: ☐	_____
laminated sand: ☐	_____	regolith: ☐	_____	^{14}C samples: ☐	_____
paleosol: ☐	_____	other: ☐	_____	Soil Samples: ☐	_____

unit grid & dimensions

5G 5G

Profile: N E S W



Scale 1:10

Stratigraphic Descriptions
colour - matrix - texture - structure - inclusions

① FOREST DUFF + BLACK ORGANIC ROOT MAT.

② LIGHT GREY V. FINE SANDY SILT LRG COBBLES MED COMPACTION. POT LETS, MED COMPACTION.

③ LIGHT ORANGE BRN FINE SANDY SILT. LRG COBBLES. MED → DENSE COMPACT.

ENDS @ ROCK @ND SOME STERILE SOIL

Fieldnotes: _____

Photographs: ☑ ✓MM Photo ID #: _____

continued on reverse ☐ →

Permit #: A202NS156

Shovel Test Record

reviewed ☐
correlated ☐
entered ☐

Site: MT. HOPE

Date: 14 DEC 2021 Excavator[s]: KRISTEN Unit Ref: J OUT BUILDING

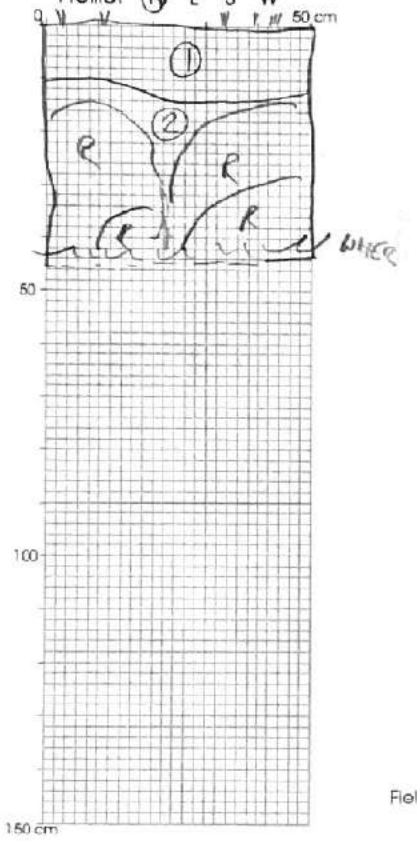
Base Excv. (DBS): 4cm Surface Elev (m ASL): _____ GPS ref: ☐ _____

Presence/Absence ✓ or (N) & depth (DBS) _____

poorly sorted sand: ☐	_____	till: ☐	_____	Artifacts: ☐	_____
laminated sand: ☐	_____	regolith: ☐	_____	^{14}C samples: ☐	_____
paleosol: ☐	_____	other: ☐	_____	Soil Samples: ☐	_____

unit grid & dimensions 50 × 50

Profile: (N) E S W



Scale 1:10

Stratigraphic Descriptions
colour - matrix - texture - structure - inclusions

① FAIR PUFF + ROOT MAT.

② DRK GREY SANDY SILT. ROOTLETS LEG COBBLES + BOULDERS.

ENDS @ ROCK + WATER INUNDATION.

Fieldnotes: _____

Photographs: ☑ VMM Photo ID # _____

continued on reverse ☐ →