

Appendix 10:
Archaeological Assessment
(Davis Archaeological Consultants Ltd., 2008)



FUNDY TIDAL ENERGY DEMONSTRATION PROJECT: ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT

Heritage Research Permit A2008NS72



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**FUNDY TIDAL ENERGY DEMONSTRATION PROJECT:
ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT**

**Heritage Research Permit A2008NS72
Category C**

Davis Archaeological Consultants Limited

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Cover: Black Rock and Cape Split, two hours before low tide.

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EXECUTIVE SUMMARY

An archaeological resource impact assessment of the proposed Fundy Tidal Energy Demonstration Project in Cumberland County was conducted by Davis Archaeological Consultants Limited, in the form of a desktop study and a field reconnaissance, both in September 2008. The desktop study revealed that the area was initially granted to New Jersey Loyalists, who established the community of Black Rock, later to be known as Union Valley. The conclusion from the assessment was that the likelihood of encountering Mi'kmaq archaeological resources was high within the study area, along the gravel beach between the planned turbine location and the future site of the interpretive building. High potential also existed for archaeological resources related to historic settlement, but no significant archaeological resources were identified in the impact area during the field reconnaissance. It is recommended that professional archaeologists be on site during all geotechnical testing and monitor the excavation of the trench from the beach to the building site.

1.0 INTRODUCTION

In September 2008, Davis Archaeological Consultants (DAC) Limited was contracted by AECOM to conduct an archaeological resource impact assessment of the proposed Fundy Tidal Energy Demonstration Project area in Cumberland County. This assessment included an archaeological desktop study and reconnaissance of the development area. Both were conducted in September 2008 under Heritage Research Permit A2008NS72. The desktop study indicated that the study area was of high potential for historic period archaeological resources related to late eighteenth and nineteenth century occupation of the area. The likelihood of encountering Mi'kmaq archaeological resources was also of high potential on the shore of the Bay of Fundy.

This report details the results of the archaeological desktop study and reconnaissance that was conducted between 19 and 20 September 2008, and conforms to the standards required by the NSDTCH Heritage Division under the Special Places program.

2.0 DEVELOPMENT AREA

The development area is located on the north shore of the Bay of Fundy, immediately west of Cape Sharp and north of Cape Split, in Cumberland County. Three turbines will be anchored to the bedrock underwater in the Bay of Fundy, with a cable reaching up onto shore to link them to the power grid. There will also be an interpretive building on the shore, as well as a parking lot (Figure 2.0-1).

The study area is contained within natural theme region #710, Basalt Headland (Figure 2.0-2).¹ It is an area of mixed basalt and sandstone, cut across by three major fault lines, one running east from Partridge Island, near the development area. Partridge Island and Cape Sharp are both comprised of basalt-capped blocks eroded into cliffs. The Parrsboro shore, which includes the development area, is comprised of glacial outwash deposits, which provide the gravel for cobble beaches like the one bordering Black Rock.

Soils in the Basalt Headlands region are Diligence or Kirkhill series soils, the former producing clay loam and the latter, shale loam. Vegetation in the area includes trees such as Spruce, fir, Eastern Hemlock, pine, birch, maple, and aspen. Blueberry fields grow on old farm lands, and some salt marshes appear along the coast.

Animals in the region include deer and a long list of birds: Black Duck, Common Goldeneye, Bufflehead, Double-crested Cormorant, Common Eider, Great Blue Haron, Herring Gull, Black-backed Gull, Black Guillemot, Socters, loons, Peregrine Falcon, miscellaneous migratory shore birds, Ruddy Turnstone, Black-bellied Plover, Willet, Sharp-tailed Sparrow, and Vesper Sparrow. Shore life includes Slipper Limpets, sponges, and Hornwrack.

¹ Davis and Browne, 1996:40-41.



Figure 2.0-1: An aerial view of the proposed development area. Courtesy AECOM.

The region’s geology and biology has influenced the area’s historical cultural activity, including fishing, forestry, farming, and fossil-hunting.

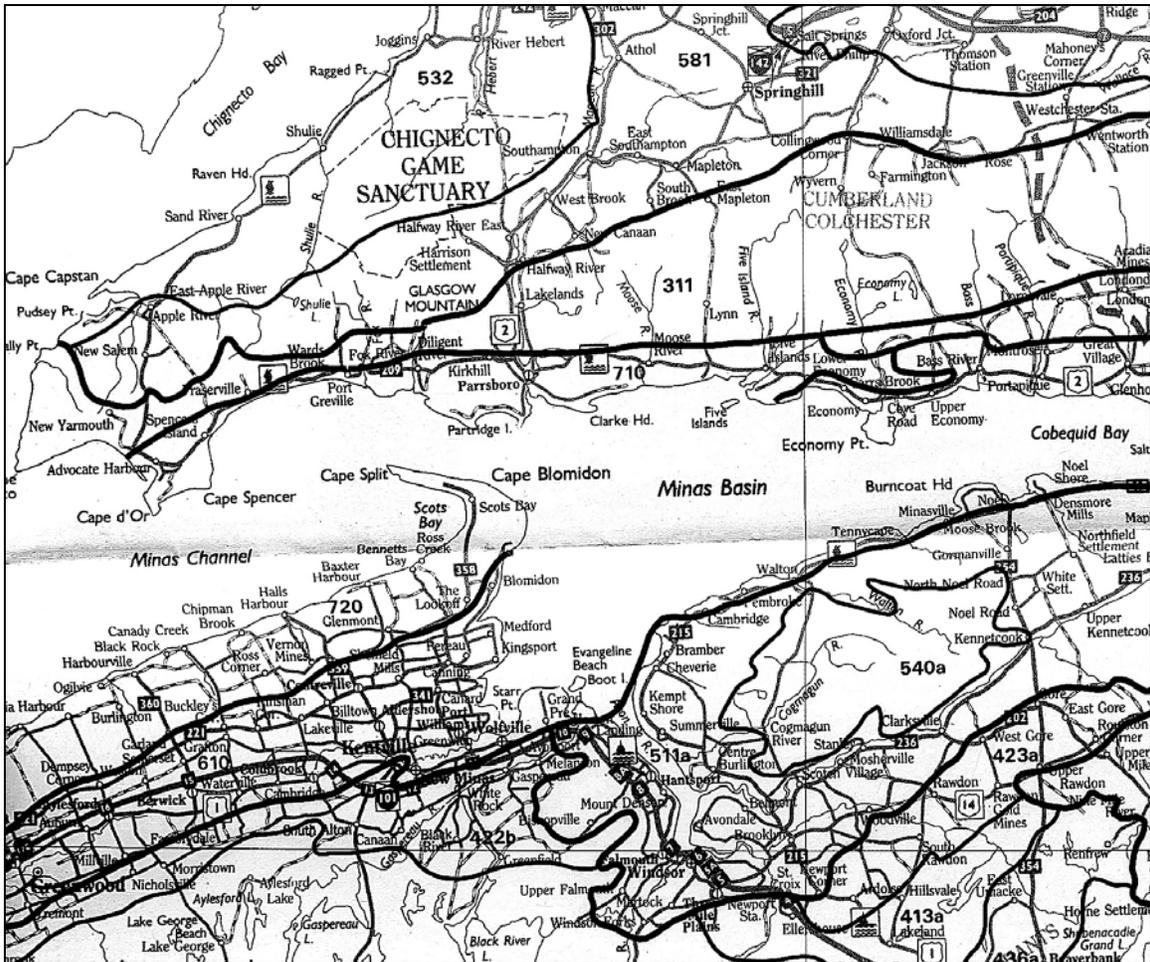


Figure 2.0-2: Natural Theme Regions showing the Basalt Headlands (#710).²

3.0 METHODOLOGY

A field reconnaissance was conducted by Stephen Davis and Laura de Boer between 19 and 20 September 2008. A reconnaissance of the area to be impacted by the onshore facility was completed, as well as a reconnaissance of the beach and shoreline, at low tide, between the onshore facility and the proposed turbine sites. Approximately a 100-metre radius was surveyed around the proposed site of the onshore facility and parking lot. Archaeologists made note of positive as well as negative evidence of cultural activity including potential cultivation, cellar sites, modern cultural and natural disturbance, shallow soil, and rugged topography in the vicinity of the impact area. Locations of archaeological resources were recorded using GPS technology, and field notes and

² Davis and Browne, 1996.

photographs were taken to document the reconnaissance. As per the standards followed by DAC on previous projects, a 25-metre radial non-disturbance buffer was assumed around any significant heritage resource that might be encountered during the course of the survey. This standard is used by DAC to determine the potential impact to such resources when making recommendations for mitigation.

3.1 Maritime Archaeological Resource Inventory

A review of the Maritime Archaeological Resource Inventory at the Nova Scotia Museum revealed only one isolated find in the area. The find consists of several glass trade beads from the post-contact period, attributed to indigenous historic activity. The beads were found on a sand bar on the north shore of the Micmac Channel, described as 4.7 miles west-southwest of Parrsboro. The exact location of the find is not known, but the description corresponds with the coastline very near the impact area. No other archaeological finds or sites are recording in the Resource Inventory.

3.2 Historical Background

The history of human occupation in Nova Scotia has been traced back approximately 11,000 years ago, to the Palaeo-Indian or *Saqiwe'k Lnu'k* period (11,000 – 9,000 years BP). The only archaeological evidence of Palaeo-Indian settlement in the province exists at Debert/Belmont in Colchester County.

The *Saqiwe'k Lnu'k* period was followed by the *Mu Awsami Sagiwe'k* (Archaic) period (9,000 – 2,500 years BP) which included several traditions of subsistence strategy. The Maritime Archaic people exploited mainly marine resources while the Shield Archaic concentrated on interior resources such as caribou and salmon. The Laurentian Archaic is generally considered to be a more diverse hunting and gathering population.

Black Rock, which would later be known as Union Valley, was first settled by Europeans in 1784 and 1785. Members of the New Jersey Volunteers, a Loyalist militia group during the American Revolutionary War, held the first land grants in the area. These settlers included Captain Thomas Moore and Captain Samuel Leonard.³ They were granted long, narrow tracts of land that began northwest of Cape Sharp, on the study area, and extended north past Diligent River (Figure 3.2-1).

Ambrose F. Church's 1873 map of Cumberland County shows that there was a good amount of settlement at Black Rock (Figure 3.2-2). Though many of the names are difficult to read in this version, there appear to be as many as twelve households in the immediate study area, including names like Bowden, Phinney, Jenks, Welliger, and Hill.

The 1905 Geological Survey Map of Canada for the area shows reduced settlement by the twentieth century, limited to three buildings just west of Cape Sharp (Figure 3.2-3). By

³ Place-Names and Places of Nova Scotia, p.691

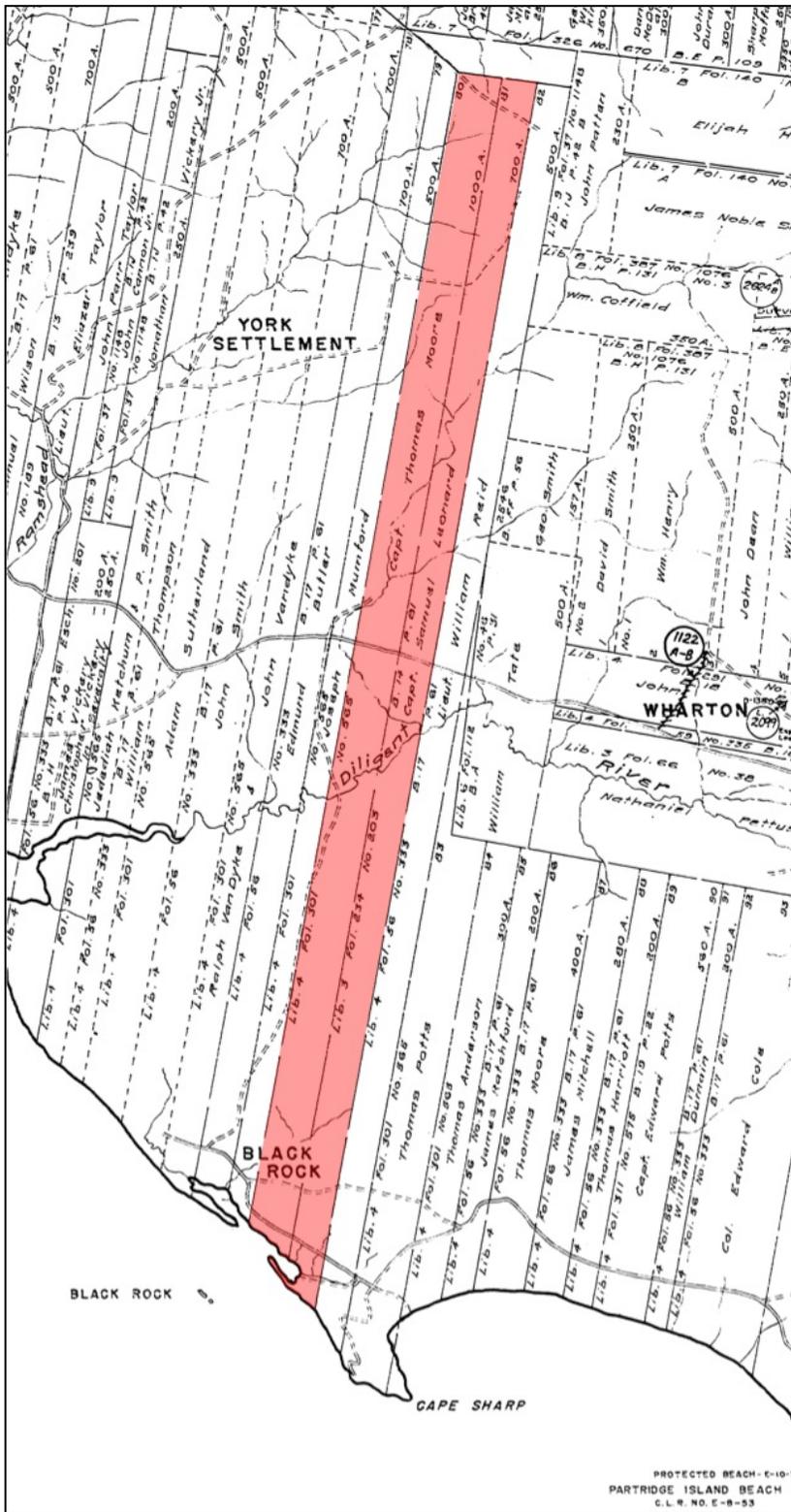


Figure 3.2-1: Part of Crown Land Index Sheets showing first land grantees in the area.⁴

⁴ Department of Lands and Forests, 1950; 1951.

1945, about five structures can be seen in the area, including a school across the road from the impact area (Figure 3.2-4).

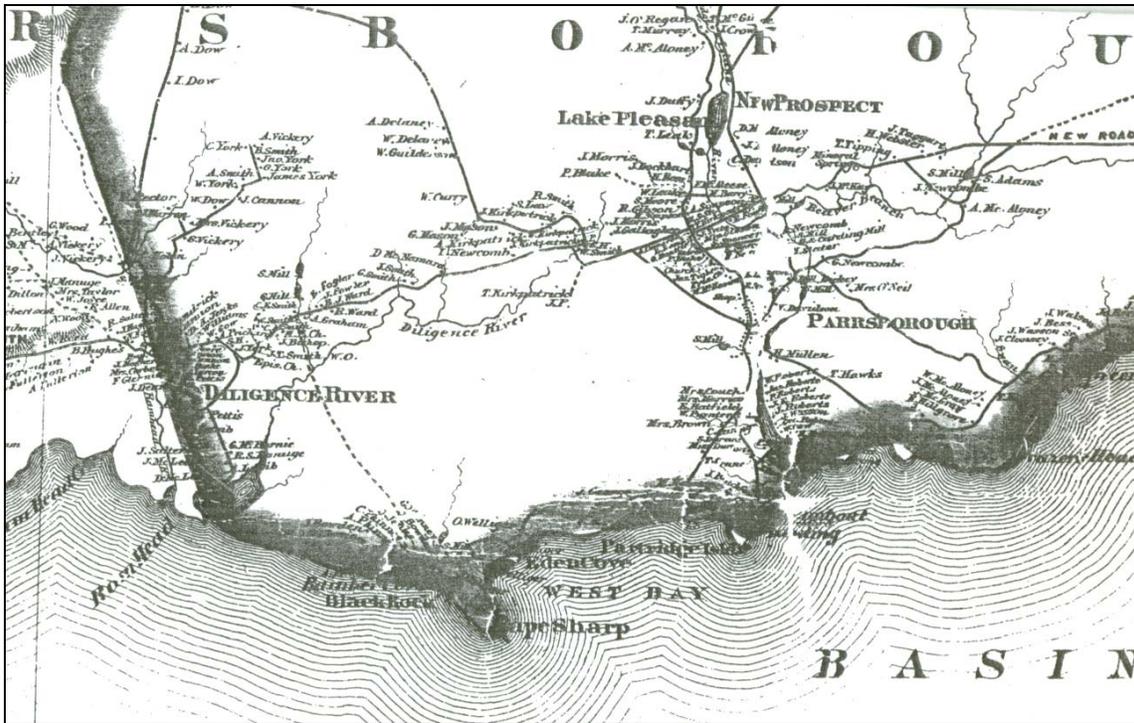


Figure 3.2-2: A portion of Ambrose F. Church’s maps of Cumberland County (1877). There is settlement clustered around the study area, immediately west of Cape Sharp.



Figure 3.2-3: A portion of the Geological Survey of Canada map (1905), showing settlement in Black Rock and three isolated buildings west of Cape Sharp.

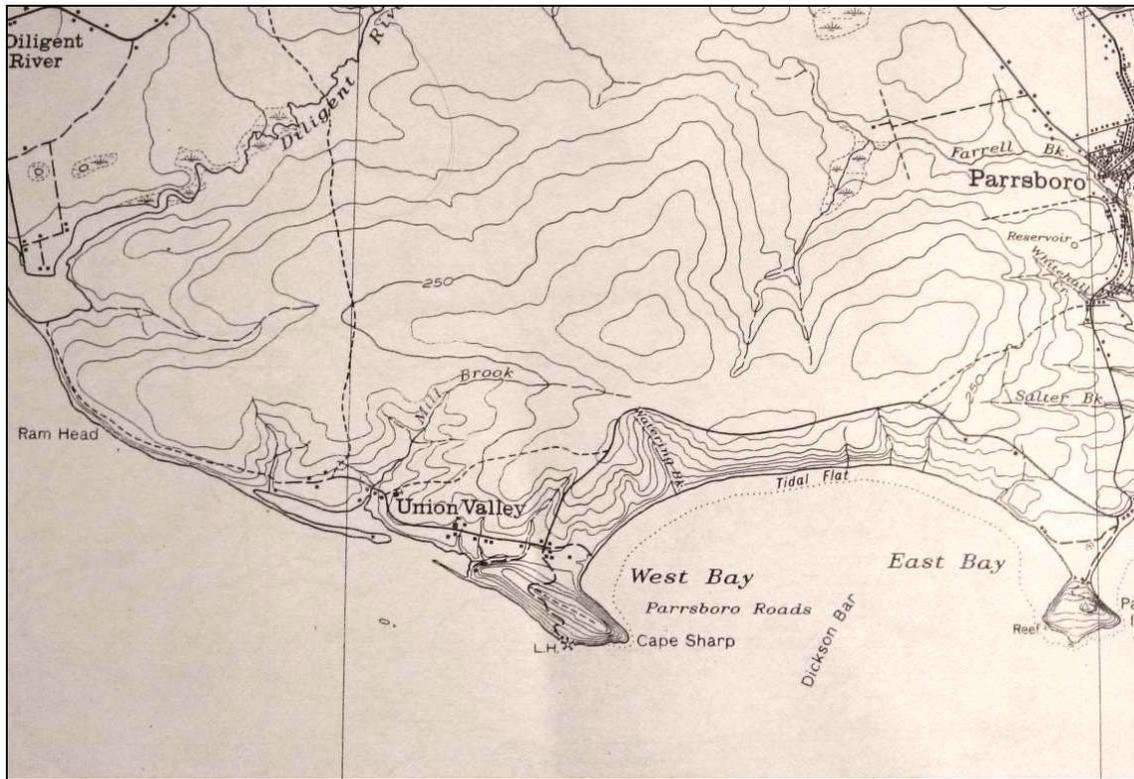


Figure 3.2-4: A 1945 map of the area.⁵

4.0 RESOURCE INVENTORY

Evidence of historic cultural activity in the study area was focused in two areas. The first was the remains of a house cellar, situated on the front lawn of Lea M. Pelletier's property, immediately west of the proposed easement (Plate 1). The cellar was originally stone-lined, but the stones have within the past two years been dismantled for landscaping elsewhere on the property. The cellar site was levelled and remains bare of vegetation, exposing an assortment of small artifacts consistent with nineteenth century occupation, including stoneware and whiteware ceramics, heat-altered glass, and a porcelain doll's leg with a button-up boot painted on it.

The second area of cultural activity is the small ravine leading from the West Bay Road down to the shoreline. The ravine appears to have served as a dumpsite for trash of various antiquities. Fragments of a cup and saucer set, whiteware with a flower design, were noted in the west side of the eroding slope. Elsewhere in the ravine, two intact bottles were noted, one an Evangeline pop bottle (Plate 2) and another of plain green glass. Broken clear glass from another pop bottle was noted, as well as a few fragments

⁵ NSARM 1945.

of olive green glass with bubbles. Scrap metal and car parts were also observed (Plates 3 and 4).

Cultural resources on the beach and shoreline were limited to a few small pieces of modern ceramic, some worked wood, and four iron wharf spikes with no associated wood. Although the quartzite found on the beach is useful as a material to make stone tools and projectiles, no evidence of First Nations activity was noted. The shoreline is a very high-energy beach, with large mounds of gravel formed by tidal activity (Plate 5) and a constantly changing landscape of streams and plateaus (Plate 6). Property owner Lea Pelletier reported finding some sandstone net weights along the shore (Plate 7).⁶ They appear to be of historical, and not pre-contact, origin.

5.0 RESOURCE EVALUATION

Each of the cultural activity areas are evaluated according to their archaeological significance. Evaluation of site significance is based on consideration of the site's integrity, cultural and/or historical sensitivity, historical knowledge (or lack thereof), uniqueness, potential to produce associated archaeological resources, and existing or future impact (both natural and cultural). The process of determining site significance is somewhat subjective.

The cultural material observed in the ravine is not of great archaeological significance. Heavy erosion has already carried away much of what had been deposited there, and what remains seems to be a mixture of articles dating mostly to the past fifty years.

The cellar feature has been heavily disturbed in recent years, and little may remain below the surface of the original structure.

The beach is in a constant state of change due to natural forces of tidal and storm activity, and does not appear to have preserved any elements of significant cultural activity that may have occurred there.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Avoidance is the preferred method of mitigation in all instances where archaeological resources are present. Whenever possible, effort should be taken to avoid disturbance of the ravine and the cellar sites. No active mitigation plan is recommended for these features. Nevertheless, should adverse impact to these resources be unavoidable, further investigation is necessary.

⁶ Pelletier, Lea M. Personal Communication, 20 September 2008.

Given the presence of First Nations artifacts in the vicinity, it is recommended that archaeologists be present to monitor all geotechnical testing and the excavation of the trench from the beach to the building site.

Should the current development plan change, it is recommended that an archaeological assessment be conducted to determine the potential for archaeological resources in those areas not surveyed for the current proposed development. Finally, in the unlikely event that archaeological resources are encountered during ground disturbance activities, it is recommended that all ground disturbance cease and the Manager of Special Places, Mr. Robert Ogilvie (902-424-6475) be contacted immediately regarding mitigation measures.

7.0 REFERENCES

Church, Ambrose F. 1877. *Topographical Township Map of Cumberland County*. A. F. Church & Co., Bedford.

Davis, Derek and Sue Browne. 1996. *The Natural History of Nova Scotia, Volume II: Theme Regions*. The Nova Scotia Museum and Nimbus Publishing, Halifax.

Department of Lands and Forests. 1951. Crown Land Index Sheet No. 51: Cumberland and Kings Counties.

Fergusson, C. Bruce, ed. 1967. *Place Names and Places of Nova Scotia*. Halifax: Public Archives of Nova Scotia.

Geological and Natural History Survey of Canada. 1905. *Province of Nova Scotia, Cumberland and King's Counties, Parrsboro, Sheet No. 83*.

NSARM. 1945. Parrsboro Map 21 H/8. On file, Nova Scotia Archives and Records Management.

PLATES



Plate 1: The levelled site of the cellar feature. Looking south to Black Rock.



Plate 2: An Evangeline pop bottle found in the ravine.



Plate 3: A metal wheel rim observed in the ravine. Looking west.

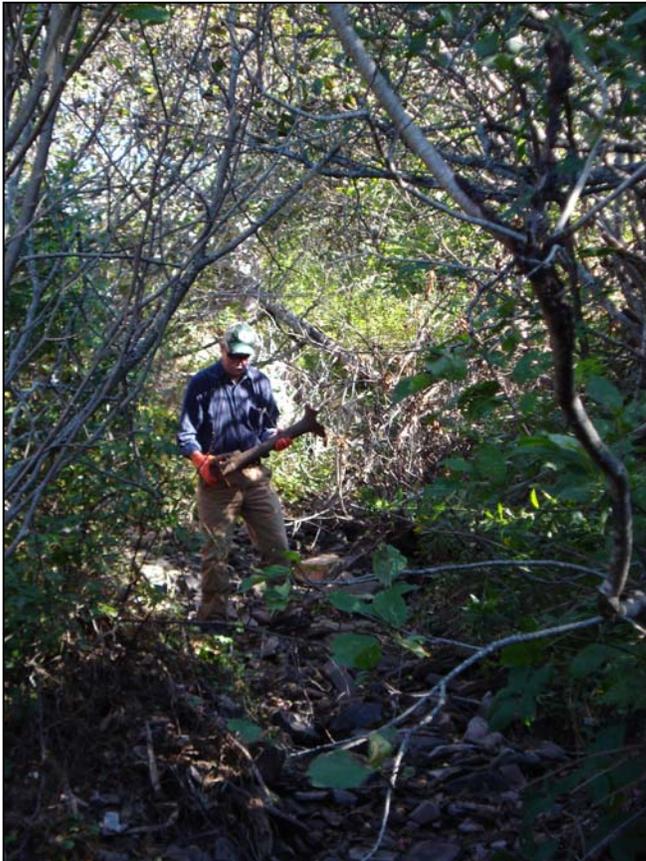


Plate 4: An axle noted in the ravine. Looking north.



Plate 5: A large ridge of gravel on the beach, sculpted by tidal action. Looking west.



Plate 6: A broad view of the changing landscape of the beach. Looking west.



Plate 7: Historical net weights reportedly found along the shore near the study area.

**APPENDIX A:
HERITAGE RESEARCH PERMIT**


NOVA SCOTIA
 Tourism, Culture and Heritage
 Heritage Division
 Special Places Protection Act,
 R.S.N.S. 1989

Application for
**Heritage
 Research Permit**
 (Archaeology)

Permit No. **A2008NS72**

(Original becomes Permit when approved
 by the Executive Director of the Heritage
 Division)

The undersigned April MacIntyre
 of 109 John Stewart Drive, Cole Harbour, NS B2W 4J7
 representing (institution) Davis Archaeological Consultants Limited

hereby applies for a permit under Section 8 of the Special Places Protection Act to carry out archaeological investigations during the period:

from 15 September 2008 to 30 October 2008

at Fundy Tidal Energy Demonstration Facility

general location Black Rock, near Parrsboro

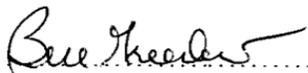
specific location(s) (cite Borden numbers and UTM designations where appropriate)

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.

I certify that I am familiar with the provisions of the Special Places Protection Act of Nova Scotia, and that I will abide by the terms and conditions listed in the Heritage Research Permit Guidelines for the category (check one).

- Category A - Archaeological Reconnaissance
- Category B - Archaeological Research
- Category C - Archaeological Resource Impact Assessment

Signature of applicant  Date 02 September 2008

Approved: Executive Director  Date Sept 10, 2008

