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Archaeology in Nova Scotia 1991

Edited By Stephen Powell
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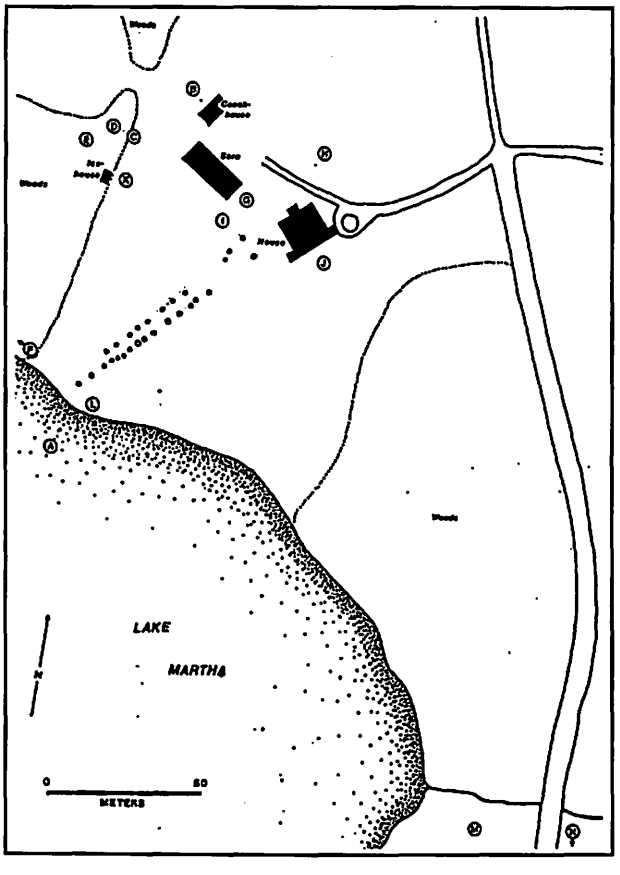

Nova Scotia Museum *Curatorial Reports*

The Curatorial Reports of the Nova Scotia Museum make technical information on museum programs, procedures and research, accessible to specific audiences.

This report contains the preliminary results of an on-going research program of the museum. It may be cited in publications, but its manuscript status should be clearly noted.

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INTRODUCTION

This is the fourth instalment of our reviews of archaeology in Nova Scotia. This report, unlike previous years, will cover only one year. The large amount of data received in 1991 did not allow us to combine 1991 and 1992 into a single report. A total of 27 Heritage Research Permits were issued for 1991, reports for 19 of which are presented here. Several of the reports were edited for publication purposes.

The remaining 8 archaeological projects were:

A1991NS12	Pierre LeClerc St. Esprit, Cape Breton (underwater)
A1991NS14	Carol Lynn O'Neill Petersfield Provincial Park
A1991NS15	Birgitta Wallace Fort Anne
A1991NS16-19	Michael Stephens Coastal Surveys (underwater)
A1991NS25	Callum Thomson (same as A1995NS05)

As with previous reviews, this report covers a wide range of archaeological topics. Several of the reports presented are based on cultural resource assessments, a growing facet of archaeology in Nova Scotia. Such projects reflect a commitment to identify and protect our cultural and heritage resources. Proper management of archaeological sites is of key importance as these resources are non-renewable and often subject to human and natural destructive forces.

I would like to extend our gratitude to all the authors and Penny Brown, Museum Services Division, who word processed this report.

Stephen Powell

Heritage Research Permit A1991NS01

ARCHAEOLOGICAL MONITORING AT THE ANNAPOLIS ROYAL DOCKING FACILITY (DEPARTMENT OF NATIONAL DEFENCE)

Stephen T. Powell
Independent Consultant

Introduction

This work was carried out under contract to Public Works Canada. The purpose of the project was to monitor the excavation of a dyke believed to be Acadian in origin. An existing opening in the dyke approximately 3 - 4 metres wide was increased to a width of approximately 12 metres. The crest of the dyke on either side of the opening was lowered to allow better visibility for boats entering and exiting the docking facility. Archaeological monitoring of the work was necessary to record any structural features or artifacts associated with the dyke. The monitoring was carried out under Heritage Research Permit #A1991NS01. The site is located on Department of National Defence land in the town marsh east of Highway 1A at Annapolis Royal (Figure 1).

The Dyke

There is little doubt that there was an Acadian dyke present on the site in the early 18th century. The Plan de la Banlieue du Fort Royal a` l' Acadie (P.A.N.S.), dated 1708, shows a dyke running adjacent to the shoreline and across two openings (tidal creeks). The northwestern most opening appears to be the same as the present day construction area. A 1709 map (Clark, 1968) shows a similar view. A map by A.F. Church (P.A.N.S.) dated 1864 shows the dyke still in existence with the town marsh located west of the dyke. Although the dyke in question is probably Acadian its physical appearance has changed as repair work and modification was carried out over the years since its initial construction.

The Aboiteau

An aboiteau is a wooden sluice or tunnel with a hinged gate inside used by the Acadians to drain salt marshes for agricultural purposes. The gate would swing open to allow fresh water out at periods of low tide and would close against the incoming tide. The sluice was usually placed in the channel of a creek bed and covered with tree branches and marsh clay until the channel was blocked to the same level as the top of the dyke.

During dredging operations an aboiteau sluice was found buried in the mud in the dyke opening below the waterline. The sluice was constructed of two parallel square cut timbers with rectangular wooden planks fastened to the top and bottom with wooden pegs (Figure 2).

The sluice was probably at least 10 metres in length, joined together in two sections (Figure 3). The aboiteau gate was not found.

Early Acadian aboiteaux consisted of a log hollowed out to form a trough. A series of short slabs of wood were placed across the top of the trough to form a roof (D.A.M. 1987:37). The slabs were fastened to the trough with wooden pegs.

Squared timber constructed aboiteaux were not produced until mills were built for sawing wood. Saw mills were in use in the Annapolis Royal area as early as the late 1680s (Clark 1968:177). Timber sluices continued to be used into the 19th century and on into the 20th century. Semi-circular marks visible on the planks from the aboiteau may have been produced by a circular saw blade. Circular saw blades were in use in Nova Scotia mills by the early 1820s (Robertson 1986:147). It should be noted, however, that the exact type of saw used to cut the planks is unknown.

Spruce brush and sticks were found in the dyke fill adjacent to the aboiteau. This method of preventing erosion was used by the Acadians (D.A.M. 1987:37) but continued to be used on into the 1950s (Ibid:80). Some of the spruce brush found in the dyke is still "green" and some of the branches still have needles. This may represent repair work carried out on the dyke in more recent times.

> Although timber sluices would replace logs, among other changes, the basic method of dykebuilding remained basically the same for about three hundred years, ending only when modern machinery appeared on the dykelands in the 1940s and 50s. (D.A.M. 1987:37).

Postscript

An exact date for the sluice found at the docking facility construction site is unknown. The sluice may date back to the late Acadian period, early to mid 18th century, which is the earliest known date for the dyke. Another possibility is that the sluice was placed in the dyke to replace an earlier sluice possibly during the 19th century. Comparative data indicating aboiteau construction methods used after the early Acadian hollowed log variety would be necessary to confirm this assumption.

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D.A.M. (Department of Agriculture and Marketing)

1987 Maritime Dykelands: The 350 Year Struggle. Department of Government Services, Publishing Division, Province of Nova Scotia.

P.A.N.S. (Public Archives of Nova Scotia)

F/239-1864, Inset of Annapolis Royal from A.F. Church's Map of Annapolis County.

V/239-1708, Plan de la Banlieue du Fort Royal a`l' Acadie (Part 1).

Robertson, Barbara R.

1986 Saw Power: Making Lumber in the Sawmills of Nova Scotia. Co-publication of Nimbus Publishing Limited and the Nova Scotia Museum, Halifax

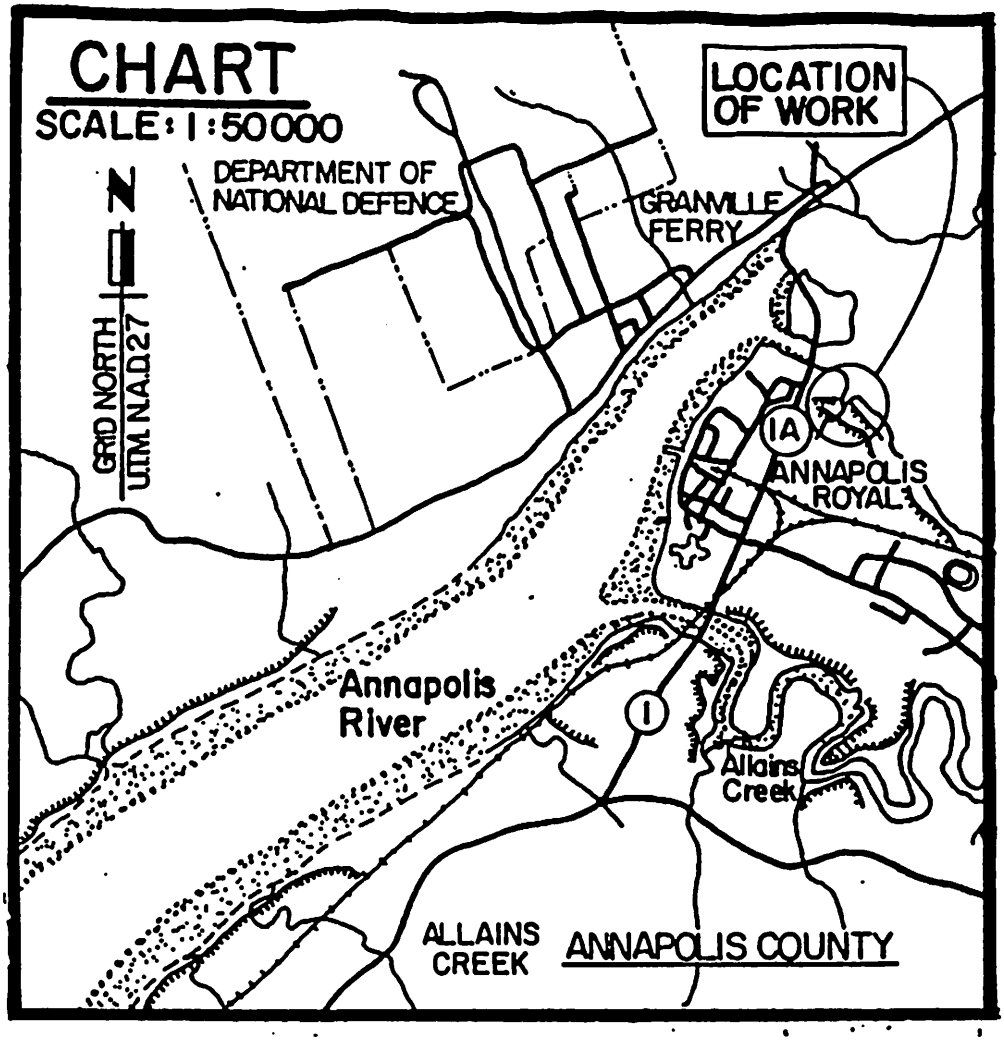

Figure 1 Location of construction area and dyke, Annapolis Royal, Nova Scotia. (map courtesy of Public Works Canada)

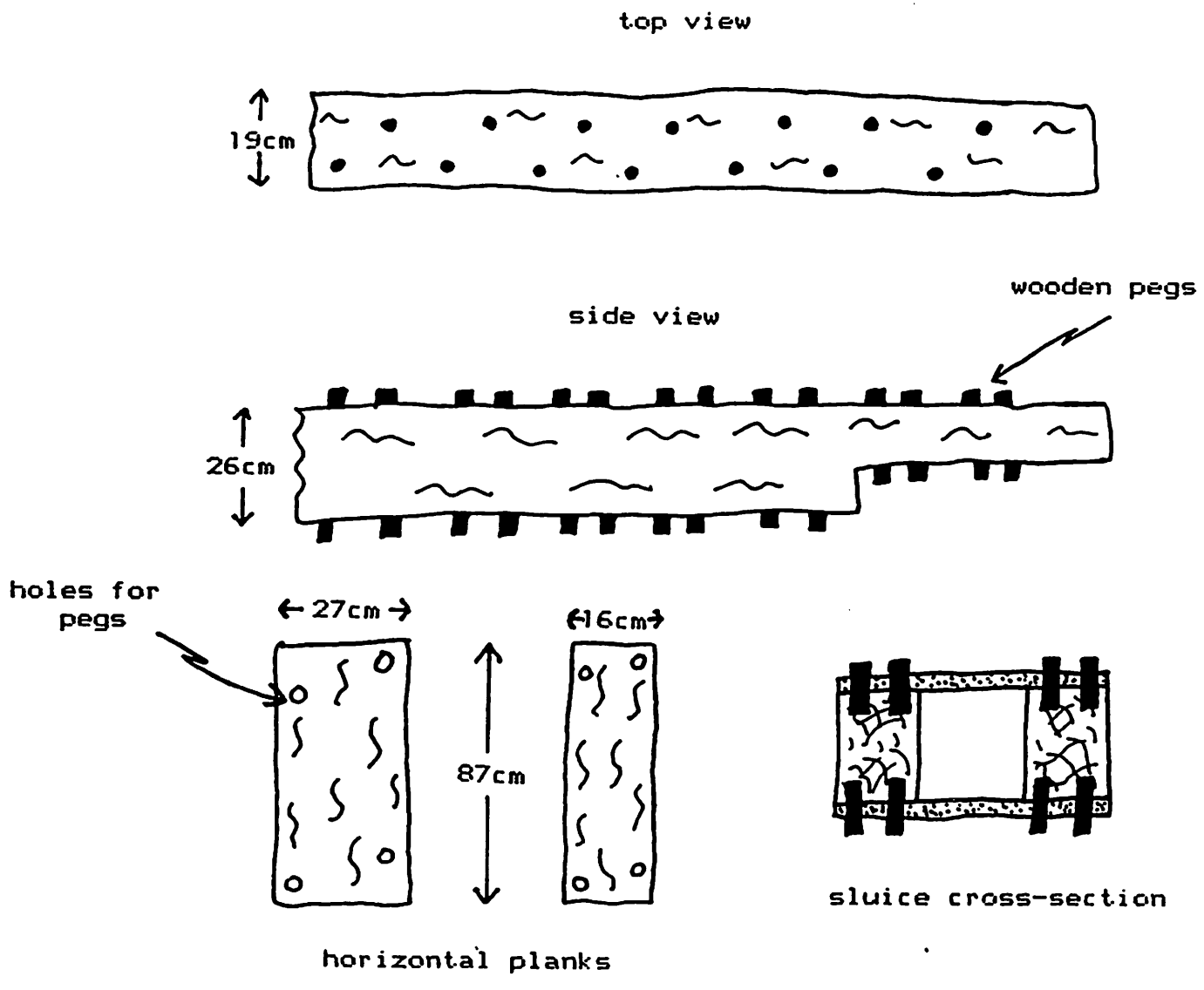

Figure 2 TIMBER CONSTRUCTION METHOD, ABOITEAU SLUICE - ANNAPOLIS ROYAL
Sketch - not to scale

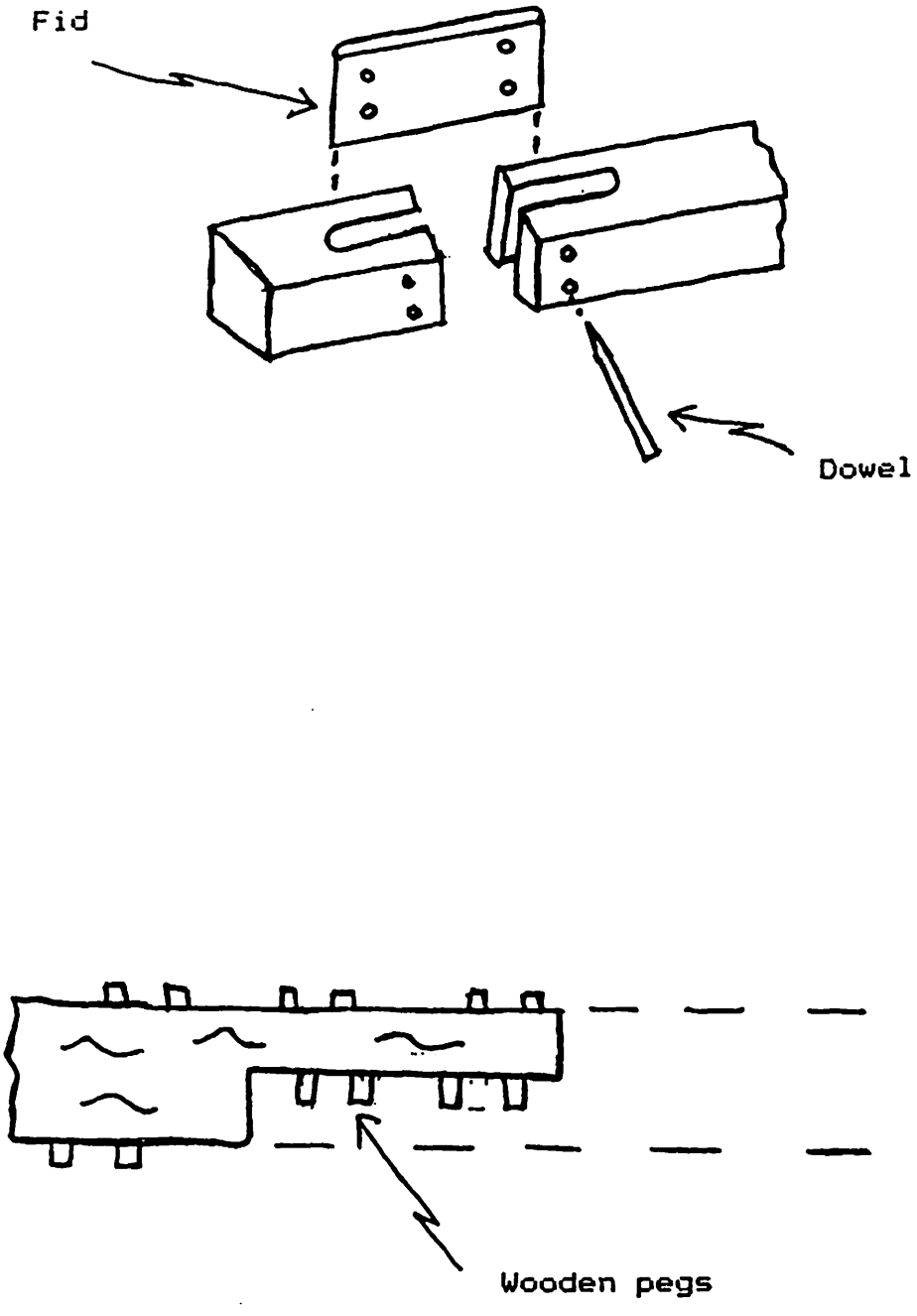

Figure 3 Top - Aboiteau timber joint method used after the early Acadian hollowed-log type (D.A.M. 1987:40). An exact date for the use of this method is unknown.

Bottom - Timber joint used at Annapolis Royal aboiteau.

Heritage Research Permit A1991NS02

CULTURE RESOURCE ASSESSMENT OF THE PROPOSED HIGHWAY 107 EXTENSION, HALIFAX COUNTY

Stephen A. Davis
Davis Archaeological Consultants Ltd.

The area of study is the area bounded by Highway 118, 111, and 7, and that portion of Cobequid Road running parallel to Highway 102. The corridor begins as an extension of Highway 107 at the north end of Lake Charles. It extends southwesterly toward Burnside Industrial Park, then turns in a northwesterly direction toward Bedford and Sackville. The historical and cultural resource assessment involved planning, a review of existing heritage resources and a field survey.

The planning phase was directed at familiarizing the research team with the terrain and potential types of heritage resources along the route. This was accomplished with the aide of aerial photographs and large scale maps. A series of orthophotographic maps were used to define the limits of the proposed highway and study corridor. The combined experience of the team in heritage land use patterns resulted in five areas along the route as being designated as having a moderate potential for heritage resources. During this process no area was assigned as having high potential. The five moderate potential areas were in the vicinity of Enchanted Lake, Marshall Brook, Anderson Lake, Lily Lake, and Sucker Brook.

Phase two involved consultation with heritage agencies and cultural resource managers. The consultative phase revealed a single potential cultural resource located where the B feeder meets the Cobequid Road. The first segregated Black school in Sackville was situated at this location. The historical significance of this feature has been greatly diminished in that the entire building was removed in 1960 and relocated. The school is recorded in historic documents with photographs, additional histories could be obtained from former students still living in the Sackville area. It is doubtful that an archaeological excavation would produce any useful data beyond what is already available.

As a result of the public meeting a concerned citizen, Mr. Jack McNab of Bedford, contacted the subcontractor regarding a potential historic site. The description and photograph provided by McNab indicated a possible petroglyph located south of the proposed highway on the transmission line off Rocky Lake Road.

The petroglyph was located. The field investigation reached the conclusion that it is not a glyph related to North American traditions. The image was pecked on a glacial erratic and contains non-traditional marks. Further, the design elements have cut across old lichens with

minor spore regeneration within the lines that form the image. Nova Scotia Power confirmed that the transmission line was constructed in 1967. The conclusion reached was that the image probably dates from this time or shortly after.

Phase three involved a pedestrian survey of the entire length of the corridor. A two person team of experienced archaeologists walked the entire route. Particular attention was paid to water crossings, especially those defined as having moderate potential and their associated elevated features. The team conducted checks of exposed bedrock and large boulders in prominent places for petroglyphs, none were found. The survey did not reveal any historical or cultural resources within the corridor.

Heritage Research Permit A1991NS03

AN ARCHAEOLOGICAL OVERVIEW ASSESSMENT OF THE WESTRAY TRANSMISSION LINE, STELLARTON

Helen Sheldon and Callum Thomson
Jacques Whitford Environment Limited

During March and April, 1991, Nova Scotia Power relocated/replaced a structure on existing Transmission Line L5500 and constructed a new transmission line over a distance of approximately 2.3 km from the substation at Bridge Avenue, Stellarton, to the Westray Mine. Construction of the transmission line involved clearing a 20m wide strip along the new route with some ground disturbance for pole erection. Relocation/replacement of the structure on L5500 also entailed some ground disturbance.

There have been few archaeological surveys or excavation projects undertaken in the region in which the proposed transmission line is situated, and only one non-disturbance survey in the development area itself. Archaeological sites do exist to the west, within Stellarton town limits, namely BjCp-5 (the Albion Mines Foundry) and BjCp-6 (the Cornish Pumphouse), and a find site was noted in the vicinity of the Westray Mine. The existence of these sites suggested the possibility of similar sites being located within the proposed construction area. One day was spent inspecting the proposed development site and conducting a program of informant interviews; four days were spent monitoring the construction activity.

No archaeological sites or materials were found during monitoring of construction of the Westray Mine transmission line. The limited ground disturbance that accompanied construction did not infringe upon any sites that may exist along the transmission line route.

Heritage Research Permit A1991NS04

ARCHAEOLOGICAL SURVEY REPORT
DEBERT RIFLE RANGE (DND), DEBERT, NOVA SCOTIA

David L. Keenlyside
Canadian Museum of Civilization

Background

Archaeological mitigation was undertaken at the Debert Rifle Range (Department of National Defense), Nova Scotia, in response to tendered Forest Operations planned by Forestry Canada commencing late Spring 1991.

Discussions between the Nova Scotia Museum, Forestry Canada and the Canadian Museum of Civilization identified concerns given the archaeological sensitivity of this area especially given its close proximity to the Debert/Belmont Palaeo-Indian prehistoric sites.

A plan to provide a first level evaluation, prior to completion of the tendering process by Forestry Canada, was organized for the period April 22-26, 1991. A series of recommendations followed this work which were incorporated into the Tender specifications.

Archaeological testing of the property was directed by David Keenlyside, Canadian Museum of Civilization, supported by Forestry Canada (Truro Office) field assistants. For each of the three field investigations, all travel and logistical support was provided by Forestry Canada.

Follow-up visits to the site in July and November, while work was in progress, afforded an opportunity of evaluating the impact of the work early in the project and as well, near its completion. Communication throughout the period was maintained with Forestry Canada staff. At least one Forestry Canada staff member was always on-site to monitor any construction or harvesting work.

The Survey Area: Geographic Characteristics

The Debert Rifle Range is situated in Colchester County, Londonderry Township, c.17 km northwest of Truro, just a short distance west of the community of Debert.

In area, the Rifle Range comprises approximately 600 acres (250 hectares) and lies on the south side of the Cobequid Mountains flanking the north shore of Cobequid Bay. The Rifle Range terrain rises in a series of glacial lateral moraines (pers. comm. R.Stea) from north to

south at elevations of an estimated 175 metres a.s.l. at the Range south entrance, to ca. 375 metres a.s.l. at the northeast corner of the property. The Debert River, with its tributary Totten Brook, runs more or less parallel to the east side of the Range. Another tributary of the Debert River, Pine Brook, flows along the west boundary of the Range. A number of smaller feeder streams, some of which only flow seasonally, roughly parallel the moraine contours in the north half of the Rifle Range. Drainage and flow direction is illustrated in Figure 1.

The glacial history of the region is a complex one. Stea and Finck (1984), have postulated our major ice-flow phases during the most recent Wisconsinan glaciation. Varied till materials and erratics observed on the Debert Rifle Range surficial deposits reflect the different ice flow patterns and their distinct till material sources. Deglaciation of the region is believed to have begun approximately 13,500 years ago. This warming trend lasted until ca. 11,000 years ago, but according to recent geological data was interrupted by a return to glacial conditions between 11,000 and 10,000 years ago (Mott, Grant, Stea & Occhietti 1986).

Soils are predominantly of two types on the Rifle Range. The southern half of the Range, south of the Webb Road, consists of the regionally predominant Colchester soil 'Truro' type which is described as "a light brown sandy loam over red sandy loam... derived from red sandstone" (Nova Scotia Department of Agriculture 1949). North of the Webb Road, the soil type consists of "a light brown gravelly loam over yellowish brown gravelly sandy loam...derived from grey sandstone and conglomerate" (Ibid). A small section of the southeastern side of the Range associated with the Debert River drainage comprises a third soil type, called 'Hebert Gravely Sandy Loam' consisting of "a dark brown sandy loam over yellowish brown stony sandy loam" (Ibid).

Human History:

Archaeologically, the region is best known for the early Palaeo-Indian occupations at the nearby Debert and Belmont archaeological sites (MacDonald 1968). These sites are dated to approximately 10,600 years ago, however the recent interpretations of the above-mentioned glacial evidence may indicate that these dates may have to be revised, placing them even older, at a time when the region would have been habitable. After 10,000 years ago, little is as yet known of human occupation in the region until about 5000-6000 years ago. The past 2000 years of prehistory are perhaps best understood archaeologically, representing direct descendant populations of today's Micmac peoples (see Keenlyside 1984; Tuck 1984).

There is considerable evidence of historic use of the property prior to establishment of the Rifle Range in the late 1930's. An early lot plan (Figure 2) indicates several 19th century farmsteads established along the Webb Road (also known as Carter Road) which bisects the property. These properties included house and various farm-related outbuilding foundations and a number of refuse dump areas. Various associated cultivated fields, most now heavily overgrown, occupy portions of the central range on both sides of the Webb Road.

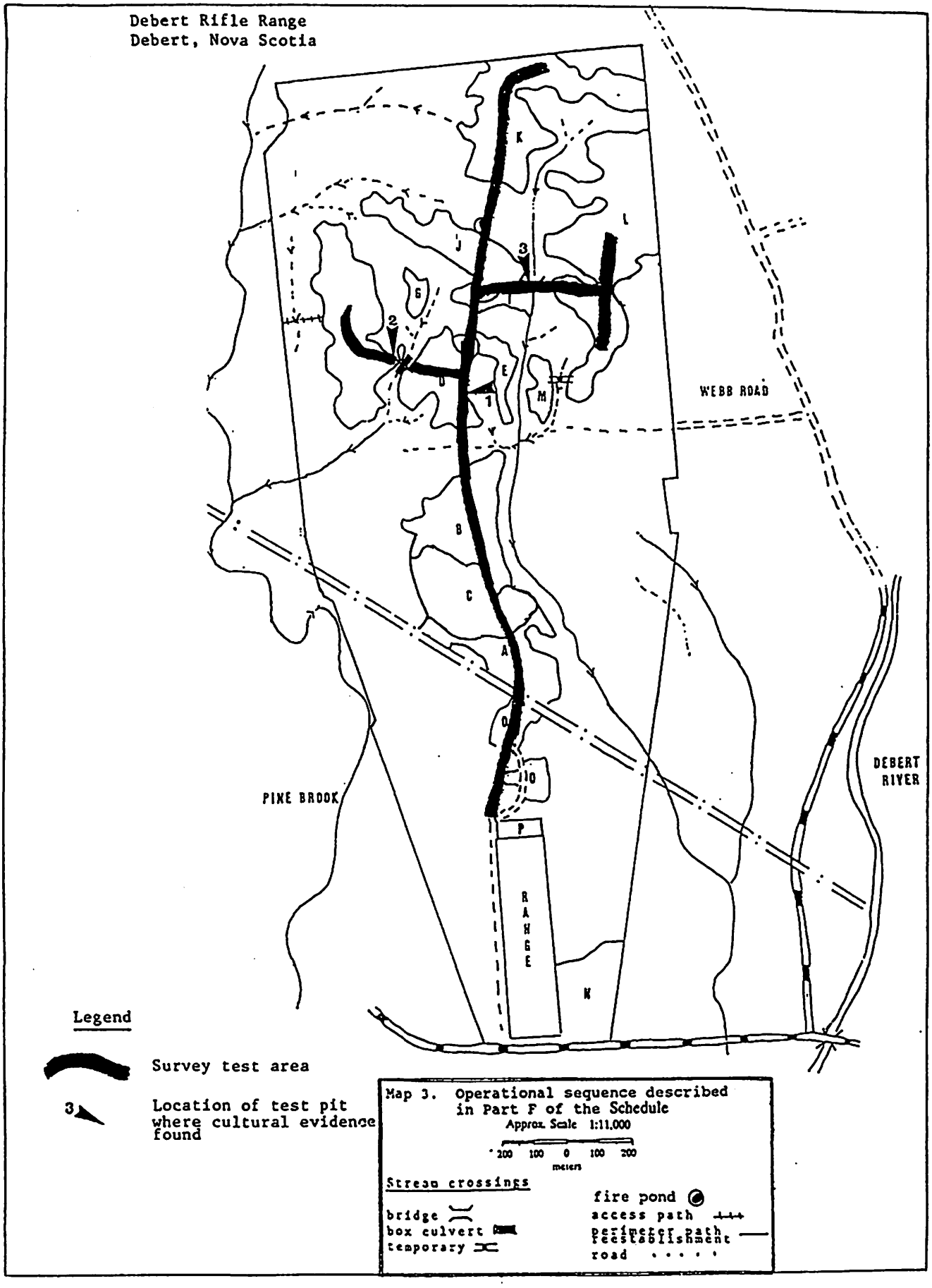
Debert Rifle Range
Debert, Nova Scotia
WEBB ROAD
PINE BROOK
DEBERT RIVER
RANGE
Legend
Survey test area
Location of test pit where cultural evidence found
Map 3. Operational sequence described in Part F of the Schedule
Approx. Scale 1:11,000
200 100 0 100 200
meters
Stream crossings
bridge
box culvert
temporary
fire pond
access path
perimeter path
road

Figure 1

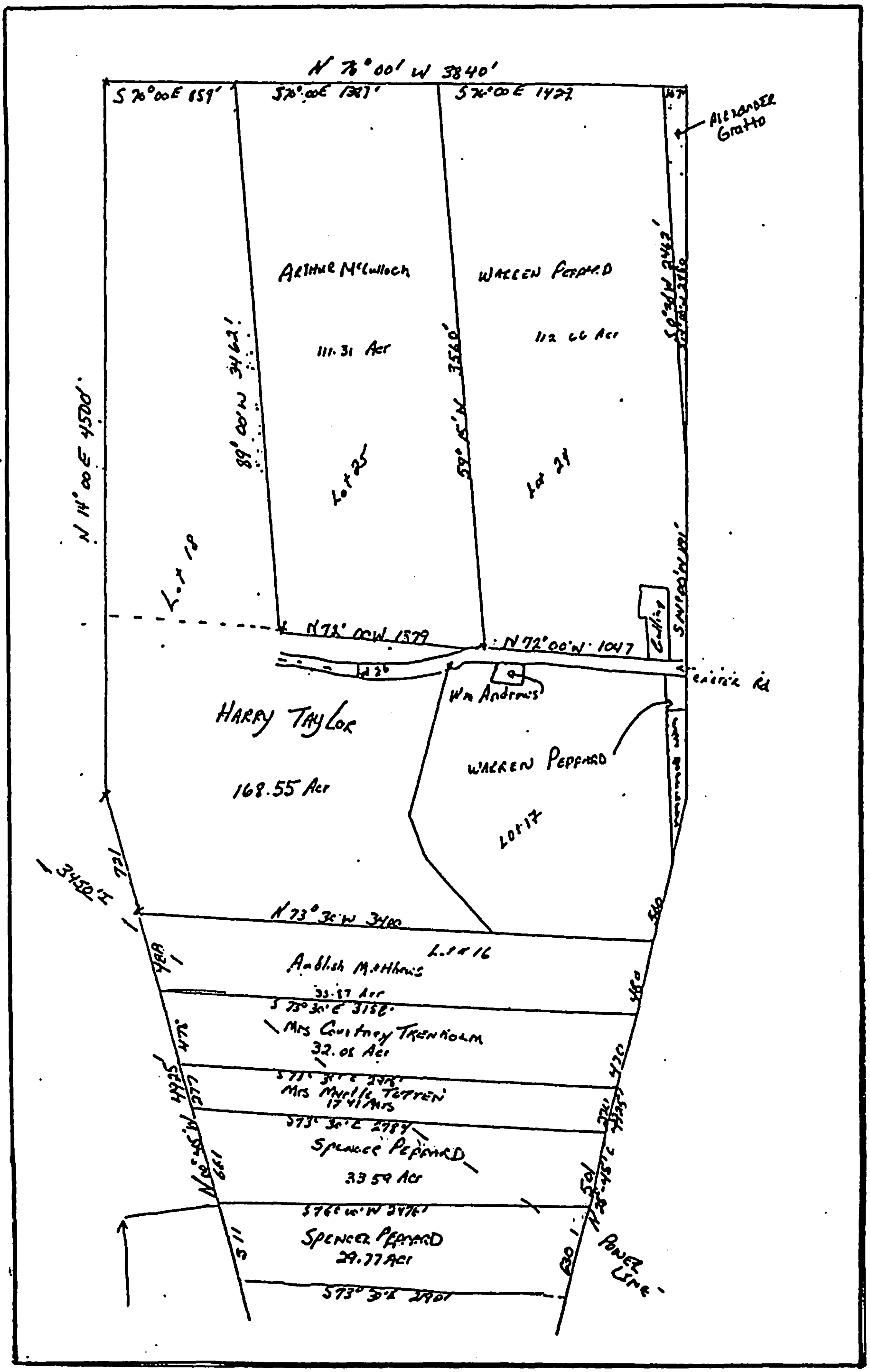
N 76°00' W 3840'
Arthur McCulloch
111.31 Acr
Lot 25
Warren Peppard
112.66 Acr
Lot 24
N 14°00' E 4500'
Lot 18
N 72°00' W 1047
Harry Taylor
168.55 Acr
Wm Andrews
Warren Peppard
Lot 17
N 73°30' W 3400
Lot 16
32.08 Acr
Spencer Peppard
33.59 Acr
Spencer Peppard
29.77 Acr
Power Line

Figure 2

The only historic area threatened by Forestry activities was a dump of early 20th century (pre-WWII) cans, bottles and kitchen garbage refuse found c. 10-20 metres north of the Webb Road and just west of the central road corridor.

The property was first established as a rifle range in 1939/1940 and has only been used for small armament applications and apparently not as a tank or mortar range. Other than stray bullets, only the most southerly section of the property appears to have been impacted by this military activity.

A power line corridor from Truro (constructed c. 1946) cuts diagonally across the southern half of the property. The right-of-way is periodically cut and maintained to prevent extensive growth.

Planned Development:

DND and Forestry Canada development of the Rifle Range property can be subdivided into four major activities:

1) selected harvesting of standing timber and silviculture activities.
2) construction of a road network (including turn-arounds, push offs, drainage ditches), box culvert and bridge
3) construction of a fire pond (15m x 15m x 1.5m depth)
4) extension of the existing rifle range by Department of National Defense - this entailed construction of a massive embankment (ca. 15m high x 150m wide) and a smaller pistol range

Survey Results:

Site Visit 1: April 22-26, 1991

The initial evaluation phase commenced with walking the property with Forestry Canada staff and assessing the scope of the work. All of the road allowances and harvest zones had been surveyed and flagged for identification.

The construction phase of the DND work on the range extension had virtually been completed prior to my arrival. All that remained to be done was some soil levelling just north of the berm and secondary seeding of the embankment. The bulldozed areas resulting from this construction were still exposed and time was spent checking for any archaeological material. Part of the road between the end of the range and hydro line had also been worked on and this was also examined. In both areas there were no indications of either historic or prehistoric materials.

The focus of the week's work concentrated on the main access road right-of-ways and three special construction areas: 1) bridge 2) box culvert 3) fire-pond.

The methodology used for sampling involved basic shovel testing. Test holes were spaced approximately every 20-25m along the right-of-ways. Any naturally exposed areas such as tree falls were also examined. A 'string box' measuring line was used to locate positions along the right-of-way in conjunction with colour air photographs and sketch maps.

Given the early season of the work, there was still snow covering the ground in shaded areas. Fortunately, in most instances, this had the effect of insulating the ground from freezing. Those areas where the ground was frozen required using an axe to chop out the upper soil layers.

Our timing for the survey proved almost ideal. Warmer weather after the first day melted much of the remaining snow and thawed most of the frozen ground. In spite of clay rich soils and high water tables, in most areas the ground remained firm underfoot.

Over the four day period of testing, with the assistance of Forestry Canada staff and two volunteers, approximately 125 test pits were excavated along the road right-of-ways. Each of the test pits was excavated into the basal C horizon where possible. Test pits were excavated c. 30cm in diameter and to varying depths from c. 30cm to 90cm. High water table levels were encountered in a number of pits north of the Webb Road, but for the most part did not seriously hinder evaluation of the subsurface deposits. Soil and associated contents of each of the pits were checked with a trowel for archaeological material. Selected pits were also checked with a small hand screen (¼ inch mesh). The heavier soils (Folly soils) towards the back of the range in many instances required screening and washing in order to see any of the larger rock fractions.

Archaeological Evidence:

Only three of the 125 test pits yielded possible artifactual material. The sample comprises three core/cobble specimens and a fractured nodule of Bay of Fundy chert. The two most promising localities were situated along the west and east spur roads between blocks F&D and M&L identified as loci 1 and 2 respectively (Figure 1).

Locus 1: A test pit located on the west side of the brook a short distance (10m) up on the ridge, produced a single modified core-like implement. This was found in a clay rich B horizon just below the water table at a depth of c. 20-30 cm below surface. There were no signs of additional artifactual material or associated cultural features.

Specimen Description:
CMC Accession no. 3033; Cat. no. VIII-B:1396
Borden ref: BiCu
Weight: 336 gm.
Metrics: Length 9.1 cm. Width 4.5 cm. Thickness 7.2 cm.

This specimen is a bifacially modified fractured cobble of metamorphosed sandstone. The working edge consists of a single large flake and a series of smaller retouch flakes creating a sinuous working edge. Possible use: multi-purpose cutting or chopping implement.

Locus 2: Just to the west of the bridge installation between zones M and L, several probable artifacts were recovered from a single test pit at a depth of 10-15 cm. The test pit was situated about 10 meters from a small freshwater spring. Four additional test pits placed in the immediate area did not produce any other artifactual material. Several metres east of this pit the ground was rocky and heavily overgrown and may represent an old stream channel.

Specimen Description:
CMC Accession no. 3033; Cat. no. VIII-B: 1397
Borden ref: BiCu
Weight: 615 gm.
Metrics: Length 11.1 cm. Width 11.3 cm. Thickness 3.3 cm.

This is a probably cobble tool made of greywacke. At least two large flake scars and several small flake scars produce a working edge along the long edge of the cobble. What appears to be a random natural flake scar has produced a notch along one side. All surfaces and edges are smoothed and appear to have been water-worn after the tool was made. This find was quite shallow (ca. 10 cm) and comes from the A horizon in an area that shows some surface disturbance adjacent to a small stream.

Specimen Description:
CMC Accession no. 3033; Cat. no. VIII-B:1398
Borden ref: BiCu
Weight: 428 gm.
Metrics: Length 9.2 cm. Width 8.2 cm. Thickness 5.3 cm.

Also found at this locality was a heavily weathered chert nodule of relatively poor quality. Although it does not shows any evidence of platform preparation or other modification, its occurrence in this area suggests it may have been introduced and possibly associated with the cobble tool.

Locus 3: A single problematical specimen was found in a test pit in the central road right-of-way in Zone D. The specimen was found in the B horizon in a wet clay-soil matrix. There were no other artifacts or evidence of cultural occupation. This isolated find is considered problematical at best.

Specimen Description:

CMC Accession no. 3033; Cat. no. VIII-B:1399
Borden ref: BiCu
Weight: 217 gm.
Metrics: Length 7.5 cm. Width 5.5 cm. Thickness 3.4 cm.

This is a small quartzite river cobble with two impact scars at the distal end. Natural causes are most likely in the absence of associated cultural evidence, although the possibility exists that the cobble may have been used as a hammerstone.

Visit 2: Site Evaluation July 23, 24, 1991

Parts of two days, the afternoon of July 23rd and morning of July 24th were spent at the Rifle Range. Due to the extreme dryness of the summer, scheduled construction and forest cutting activities had been delayed considerably. Road construction was completed only to within several hundred metres south of the Webb Road, such that none of the indicated sensitive areas identified in the first survey had been affected. A morning was spent walking along any new road cuts and evaluating the impact of harvesting to date. Given the fact that log draggers were not being used, the impact on the surficial deposits appeared to be very low. The cut brush and limbs were left on the ground to provide a protective cushion or vegetation mat to prevent vehicles from chewing up the surface and destroying the undergrowth. No new archaeological material was found in road cuts or ditches during this stage.

To assist in the geological interpretation of the Rifle Range sites, I was accompanied for an afternoon by geologist Ralph Stea, Nova Scotia Department of Mines and Energy; Bob Mott, palaeo-botanist, Geological Survey of Canada, and Gordon Brewster, Soils Researcher with the Nova Scotia Agricultural College. All three scientists were familiar with this area and are currently part of a multi-disciplinary team examining the geological context and palaeo-environmental interpretation of the nearby Debert/Belmont Palaeo-Indian sites. Stea was particularly interested in the Range site since he had recently completed a geological map of the region (Stea and Finck 1984). All three find loci occur along pronounced ridge/terraces, which according to Stea, are likely glacial lateral moraines of Wisconsinan age.

Visit 3: Site Evaluation November 15, 16, 1991

In contrast to the extremely dry summer, heavy rainfalls prevailed in the fall. Once again, this caused delays in work scheduling. Nevertheless, by the time of my third visit, most of the central road construction had been completed to just beyond the fire pond between zones J and K. The fire pond has also been excavated and completed. All of these areas were carefully inspected including turn-arounds, push-offs and drainage ditches. No new archaeological remains were identified.

Of particular concern was the impact of construction of the bridge adjacent to Locus 2 and installation of the box culvert adjacent to Locus 1. Both areas had been identified as 'no grub' zones, and little sub-surface disturbance was observed. The disturbances related to bridge and culvert construction were not extensive and did not yield any new archaeological material.

Another area examined was the early mid-20th century dump along the Webb Road. Harvesting had come within a few metres of the dump, but had been carefully avoided and remains undisturbed. The only impact on the historic Webb Road itself, was the central crossing point which is less than 20 metres wide.

Final Construction Phase: November/Spring 1992

Although a site visit is not possible to evaluate the impact of this final work, Forestry Canada staff is monitoring the work closely. By early January, the lateral spur beyond the culvert was completed (spur beyond bridge to be completed). As well, the final last leg of the main central road into Zone K was constructed, with the exception of the final turn-around. No new finds are reported for these areas (R. Rankine, pers. comm. Jan.10.92).

Interpretations and Conclusions:

The mitigative archaeological work at the Debert Rifle Range is essentially completed. Any remaining work during the construction or harvesting phases will be closely monitored by Forestry staff. A final, brief inspection visit is expected to be made by myself during the late spring or early summer to make a final assessment of all completed roads and any additional impact of final harvesting and seeding activities.

Two and possibly three areas of archaeological interest were identified during the initial field assessment. A small sample of probably cobble/core tool implements and a nodule of chert constitute the sample from the three loci. These implements are somewhat ubiquitous and problematical in nature and cannot be associated with a particular cultural horizon other than to say they are prehistoric in age. Functionally, stone implements of this kind usually serve a multitude of functions. Possible uses include butchering, in particular smashing of bone for marrow extraction, or as coarse woodworking implements. These can be fashioned quickly on the spot and simply discarded when the task is completed. None of these specimens appears to be related to artifact assemblages from either the Belmont or Debert Palaeo-Indian assemblages. Given their inland location and depth within the soil deposits, some antiquity is suggested for this material. Without a more precise geological and cultural context, age and cultural affiliation are currently not possible.

Recommendations for future work:

Follow up shovel testing at all three loci did not produce additional material. It is recommended however, that further testing is warranted at both loci 1 & 2. Neither of these localities appears to be threatened by destruction and as such, time is not a significant factor. Given the types of tools represented, these may simply be isolated finds.

The historic remains on the Rifle Range, as well, are not threatened by natural or human agencies. The controlled access to the Rifle Range should ensure that all areas of cultural interest identified in the survey will be protected for future interpretation.

Acknowledgements:

I would like to express my appreciation to Forestry Canada and their Truro office staff for their support of this archaeological work. For their co-operation, continuing interest in the archaeology and participation in various aspects of the fieldwork and research, special thanks to Ian Miller, Chris Bauditz, Ross Rankine, Mark Nugent, Debbie Totten and Craig McMullen. I am also grateful to Alton Hudson and Billy Mackay (DIAND) for volunteering their able assistance during the field testing stage of the project.

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Heritage Research Permit A1991NS05

CULTURAL RESOURCE ASSESSMENT OF PROPOSED HIGHWAY CORRIDOR BETWEEN SALT SPRINGS AND ALMA

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The Nova Scotia Department of Transportation and Communications has proposed the construction of a new 14 km section of controlled access divided four-lane highway to replace the existing two-lane uncontrolled section of Highway 104 between Alma and Salt Springs, Pictou County.

The proposed alignment is situated in a region of Nova Scotia which has moderate to high potential for the presence of sites of heritage significance. To date there are several recorded prehistoric archaeological habitation or artifact find sites in the Greenhill and Pictou Harbour area and historic industrial sites adjacent to the eastern end of the route. The region has been settled and used for agricultural purposes for several generations, since the late 18th and early 19th centuries. Areas of particular archaeological and historical significance were considered to include extant and former river routes, wetlands, level well-drained terraces, elevated lookout points and locations suitable for a variety of industrial, mining, agricultural, domestic and other historic activities. The proposed route crosses a selection of all these features.

Research Plan and Methodology

A review was conducted of documentation relating to the study area. This included consulting files at the Nova Scotia Museum, the Crown Lands Division Map Library and the Public Archives of Nova Scotia. Local and professional informants were interviewed before and throughout the project. The findings of the background research phase were used in the development of the field testing strategy.

A heritage research permit (A1991NS05) was obtained from the Nova Scotia Museum for surveying the proposed highway corridor between Salt Springs and Alma for archaeological and other cultural heritage resources. Following completion of the background research, the field survey was conducted in the following manner:

- an overview reconnaissance of the corridor was conducted to confirm findings of background studies, to select and mark optimum locations for testing and to conduct informant interviews;

- areas selected during the background research and overview reconnaissance phases as being of high potential such as Watercourse Crossings, former river channels and terraces were visited and subsurface testing was carried out involving placement of 50 cm^2 test pits at 10 metre intervals across the width of the corridor or elsewhere as appropriate;

- sections of the road corridor thought to be of lesser potential were also walked and tested. Testing was done in accordance with standard archaeological procedures and involved the digging of test pits by shovel and trowel to depths appropriate to local conditions, usually to 30-50 cm, and inspection of river beaches, eroded or cut banks, ploughed fields and gardens, road cuts, trails, tree-fall root depressions, and other areas where soil profiles were exposed.

One historic site was found which justified being located and identified on the project plan and being recorded on a site record form for registration with the Nova Scotia Museum. A privately-erected monument was identified. Several other areas of past land use were observed and tested and are referred to in the text below but were judged to be of negligible cultural significance.

Findings of Archival Research

Archival research for the survey was conducted primarily at the Public Archives of Nova Scotia, with some work at the Nova Scotia Museum, the Registry of Crown Lands and the New Glasgow Regional Library.

European settlement of the area started at the turn of the nineteenth century with the arrival of settlers in Alma in 1773, at Salt Springs in 1785, at Greenhill in 1790 and Limerock in 1806 (PANS 1967). The majority of houses and industries that arose during the 1800s were located along the main road between Salt Springs and Alma, which follows or closely parallels the route of the present Highway 104, and along the roads to Limerock, Millbrook, Mount Pleasant and Pleasant Valley (Meacham 1879).

Several references were found to cemeteries in Salt Springs, most of which are well documented. One cemetery, however, is not well recorded. It was mentioned by local residents (S. McCormick, pers. comm.), who also provided specific directions to the site (H. MacKenzie, pers. comm.). Reference to most other cemeteries in the area was found in a report by Ritchie (n.d.), but this one is not mentioned.

No reference was found to prehistoric archaeology anywhere in the immediate vicinity of the planned new route. Letters from George Patterson to Dr. Dawson in the 1880s (PANS) refer only to archaeology in Merigomish. No references were found to other historic sites within the study area.

Findings of Field Research

Following the background research a field strategy was designed in which all areas of apparent high potential for the presence of heritage resources and a sample of areas of lesser potential would be surveyed on foot. Accordingly, approximately 65 percent of the proposed route was walked, visually inspected and tested.

Salt Springs

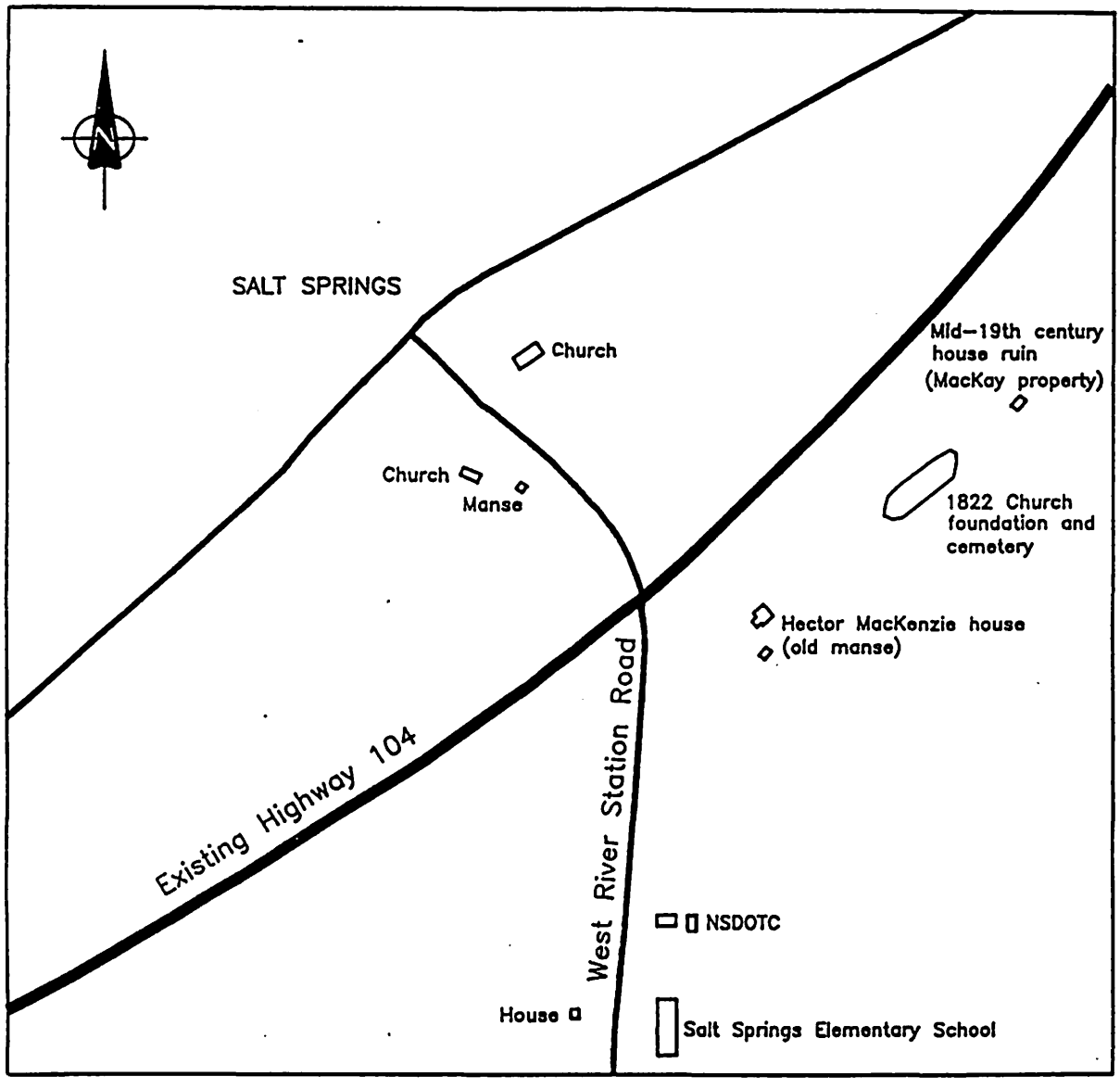
The heritage resources identified in the area of Salt Springs are illustrated in Figure 1. The property of Mr. Hector MacKenzie, situated immediately east of the overpass on the southside of the highway is the former manse for the original Presbyterian Church, which was situated 150 metres to the northeast on the south side of the highway. The church was built in 1822 and was the first in the area; the manse may not have been built until the 1860s (S. McCormick, pers. comm.). The church was closed when the congregation moved to St. Lukes, on the north side of the highway.

A search of the area where the church had stood revealed several piles of cut and uncut stone, probably the remains of the church foundation. A large, possibly cut boulder nearby was probably the original cornerstone of the church (S. McCormick, pers. comm.).

A small cemetery containing headstones and pedestals dating to 1846, 1852 and 1863 is located a few metres south of the church site. Others may have been removed or are buried beneath the soil and vegetation. This small cemetery is not among those described in Ritchie's (n.d.) study of cemeteries in Pictou County; it probably dates to the earlier decades of the 19th century.

An abandoned 1½ storey house on property now owned by Reverend Donald J. MacKay, New Glasgow, is situated near the manse and is reputed locally (H. MacKenzie, pers. comm.) to be haunted. This house is also shown on the Meacham (1879:41) map. Several test pits were dug at the ruined house but nothing of significance was found. A deep, stone-lined well is situated immediately west of the house; the cover of boards from the house is not sufficient to render this well safe. According to Reverend MacKay (pers. comm.), the house has been empty for about 50 years.

Both banks of the West River between Salt Springs and the Salt Springs Provincial Park were walked and tested, for a distance of 2.5 kilometres. Much of this area is low, prone to flooding and cut by former river channels. River banks, gravel beaches, tree fall root depressions and other exposures were inspected. At the time of the field work (mid-June), the river was very shallow and not navigable by watercraft. However, 1991 has been marked by exceptionally low water levels and, at least during spring and perhaps in more normal summers, it may be possible to canoe the river. There are stocks of salmon, trout and eels present; it is conceivable, therefore, that some travel and resource exploitation took place along the river during the prehistoric and early historic periods.



LOCATIONS OF EXISTING HERITAGE RESOURCES, SALT SPRINGS

SCALE 1 : 5 000

Figure 1

Other areas judged to have potential for the presence of heritage resources were walked and tested. These included locations where the proposed alignment crossed or came near:

- confluence of Six Mile Brook and West River;
- Graham Brook;
- Limerock Road;
- Sweet Brook;
- Greenhill to Millbrook Road;
- Union Centre Road;
- Brown Brook; and
- Middle River.

Refuse dumps, abandoned agricultural implements, formerly cultivated fields, deer trails, stone walls and tracks were noted, but nothing of cultural significance was found. The single exception was a monument to Robert Marshall, who lived from c. 1741 - c. 1827, found (J. Pinhey, pers. comm.) north of the planned route near the east bank of the Middle River. During a later visit to this site and as a result of local interviews it was determined that this monument commemorates the founding of the Associated Presbytery of Nova Scotia in 1795 in a barn which was probably situated immediately beneath the monument. When the hole in which the monument stone was placed was being excavated, several cut sandstone blocks were found, probably supports for the barn roof posts (W. Marshall, pers. comm.).

Conclusions

The potential for the discovery of prehistoric Indian or Micmac cultural remains on or near the proposed alignment seems low. The small steams and rivers in the study area are barely navigable and offer less in the way of food and other resources than other waterways in this part of Pictou County, particularly where the rivers empty into Pictou Harbour. At this location a variety of shellfish, birds and mammals are available. While some of the proposed route is level and dry and may seem attractive for habitation, seasonal exploitation of terrestrial resources such as deer, small mammals, birds and flora would not have resulted in the establishment of permanent camps leaving extensive cultural remains. Travel through the area may also have resulted in brief overnight camping sites but such remains would be ephemeral in nature and archaeologically difficult to detect through fortuitous placement of test pits. Much of the rest of the terrain in the study area is steep or wet and inhospitable.

There is no extensive agriculture actively practised in the vicinity of the planned route and few traces of historic land use away from the roads, many of which date back well into the 19th century. The presence of several isolated, overgrown clearings along the planned highway route suggests that some of the flatter land was cultivated earlier in this century and perhaps as early as the late 18th/early 19th century. Other resources such as timber have been exploited; small fur-bearers are present and may have been trapped. No building remains of particular significance were found on the route with the exception of the MacKenzie property and MacKay property in Salt Springs.

Heritage Research Permit A1991NS06

WESTERN NORTH SHORE SURVEY 1991: ARCHAEOLOGY OF TATAMAGOUCHE BAY AND VICINITY

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During the summer of 1991, the author, along with field assistant Aaron Butt, conducted a five week archaeological survey on the western North Shore of Nova Scotia. Time and personnel limitations restricted the survey to the Tatamagouche Bay area, although some excursions were made outside this area in order to view private collections. The long-term goal of this research is the reconstruction of prehistoric and early historic coastal resource exploitation and settlement patterning in the North Shore area. The immediate goals of the 1991 survey were to establish a coastal site inventory (i.e., including the relocation of previously recorded sites), to identify significant resource locations (e.g., lithic quarries and floral and faunal communities), to sample identified sites and to assess the condition of these sites.

The western portion of the North Shore is one of ten areas recently targeted for comprehensive and systematic archaeological survey (Preston 1984). This area includes the shoreline from Cape John, on Tatamagouche Bay to Pugwash Harbour, and the lower reaches of the Wallace and Pugwash rivers and River Philip. Prior to the present survey, only 21 archaeological sites from this entire region had been reported and given Bordon designation numbers (Deal 1991). Rev. George Patterson was the first writer to draw attention to archaeological sites in the area. Patterson (1883:674) described a prehistoric "heap" on the Ross Farm, at Campbell's Point, at the entrance to Tatamagouche Harbour. William Wintemberg (1914) visited Pugwash and Tatamagouche in the summer of 1913. He claims to have found nothing in Pugwash, but he was given some archaeological specimens and information on site locations around Tatamagouche.

In more recent times, John Erskine (1969a, 1969b) visited the area. He reported a prehistoric "fishing site" at the head of tide on the Wallace river, a shell midden site at Malagash Point and a "campsite" on a field beside Judge Patterson's cottage, Tatamagouche. Erskine noted that the latter site had been bulldozed before his visit. In 1959, a local amateur named Roy Kennedy assisted H. L. Cameron (Geology Department, Acadia University) in a salvage operation at the site of Fort Francklin, Tatamagouche. Since that time, Roy Kennedy has kept a record of archaeological sites in the Tatamagouche area (Kennedy n.d.). Brian Preston and David Christianson spent three days of reconnaissance in the area in 1986 (Preston 1987:244-249; 1991). They were particularly interested in Pre-expulsion Acadian sites and with Roy Kennedy's assistance, they identified several sites (BkCt-3 to BkCt-10). They also attempted to

relocate a possible Acadian "cellar" (BkCv-2) reported in H. R. Brown's *Valley of the Remsheg* and the "old French house" listed on the 1802 Baker map of Pugwash. More recent reports by local collector's include historic and prehistoric finds at Mattatall Lake (Preston 1987) and prehistoric materials from an "old clam bed" at the mouth of River Philip (Preston, personal communication 1991).

The target area in the original survey proposal was the coastal portion and lower river courses of the North Shore, extending from Cape John on Tatamagouche Bay to the River Philip (Deal 1991). This area was divided, according to geographical and political boundaries, into three roughly equal-sized sampling units. This was done primarily as a work/time scheduling strategy based on a 5 km/day three-person shoreline survey. When the crew size was reduced to two persons and the length of the project was reduced to five weeks, it was decided to concentrate on the Tatamagouche Bay area, which was the largest of the three units.

The survey schedule was split between the actual coastal survey and visits to specific sites through appointments. Each identified site was recorded on a *Maritime Archaeological Resource Inventory Site Survey Form.* Only two sites were subjected to controlled testing, in the form of shovel test units along a compass-bearing grid. This was done in order to obtain information on the cultural affinities of the sites, as well as economic data in the form of faunal and botanical samples. All materials that were surface-collected or recovered through subsurface sampling were catalogued and stored.

Before the present survey, the site inventory for Tatamagouche Bay included nine sites with prehistoric or protohistoric aboriginal components and four sites with historic Acadian or Post-Acadian components. The 1991 survey has expanded this inventory to 26 Native sites (plus four sites in the Oxford and Wallace areas) and 18 Eurocanadian sites (Table 3 A and B). Survey site numbers were given to any site with a known location and material remains and/or historic documentation (Tables 1 and 2). The following discussion is divided into two sections, one dealing with Native sites and the other with Eurocanadian sites.

The prehistoric finds indicate a long cultural sequence for the area, which runs at least from Middle Archaic times to European contact (c. 6500 B.P. to 1604 A.D.). Earlier Paleoindian materials have been found at Lomeville, north the of mouth of River Philip and to the south at Debert (Bonnichsen *et al.* 1991; Davis 1991a), which suggests that Paleoindian materials will someday be found in this area. Native populations were no doubt attracted to the area because of its abundance of shellfish (e.g., oysters, quahogs, soft-shelled clams, and mussels), fish (e.g., brook trout, salmon, smells, gaspereau and eels), and the large ungulates (i.e., moose, caribou) and fur-bearing animals (i.e., bear, otter, fisher, martin, mink, muskrat, rabbit and beaver) in the adjacent forests. Aquatic birds were available in the Spring and Fall (i.e., geese, ducks and brants), and also in the Fall, migratory wading birds such as the curlew, plover and snipe were plentiful on the marshes and creeks (Patterson 1947:1). The flora of the area included many kinds of berry (e.g., strawberry, blueberry, raspberry, blackberry and huckleberry), as well as beech and hazel nuts.

The French River formed part of an important portage route linking Tatamagouche and Cobequid Bays. It is interesting to note that the Micmac place names recorded for the North Shore by Rand (1919) all seem to refer to geographic features rather than to specific resource locations, as they did in the Minas Basin area (Deal 1991:5). The name Tatamagouche (or *Takamēgoochk*) itself is usually translated as "at the place which lies across" and seems to refer to the fact that the French and Waughs rivers meet there at right angles, with the current of one crossing the current of the other (Patterson 1917:1). The Micmac named for Brule Harbour was *Segwak*, which Rands translates as "empty place" and the name for Malagash Point (i.e., *Wagwoshkoogwek*) is translated as "end of still water" Rand 1919:73, 84).

Table 1: Inventory of materials from the 1991 survey.

Site (Bordon number):	Survey Materials:	
Steele's Island	91NS06-1:1,	Biface tip (grey-brown chert)
(BkCt-7)	91NS06-1:2,	19 Flakes (10 translucent quartz; 5 grey chert; 2 white opaque quartz; 2 brown quartzite)
	91NS06-1:3,	Gunflint core (honey-brown)
	91NS06-1:4,	Copper tube
	91NS06-1:5,	Lead shot for musket
	91NS06-1:6,	Glass sherd (blue)
Indian Point	91NS06-4:1,	Utilized quartz flake
(BkCu-2)	91NS06-4:2,	Utilized quartz flake
Brown (BkCw-1)	91NS06-8:1,	Ground stone adze (green)
	91NS06-8:2,	Large chipped stone biface (bleached grey chert)
Patterson' Wharf	91NS06-27:1,	58 European gunflint cores/fragments
(BkCt-13)		(honey-brown, grey and black)
	91NS06-27:2,	Clay pipe stem fragment
	91NS06-27:3,	Glass bottle neck (green, lip added)
	91NS06-27:4,	Glass bottle base (green, indented)
	91NS06-27:5,	Stoneware bottle neck (light brown)
	91NS06-27:6,	5 Stoneware sherds
	91NS06-27:7,	4 creamware sherds (transfer printed)
	91NS06-27:8,	pearlware sherd
Ross Point/Nelson Park	91NS06-24:1,	Biface body fragment (quartz)

(BkCt-5)	91NS06-24:2,	Flake (translucent quartz)
	91NS06-24:3,	Flake (opaque white quartz)
	91NS06-24:4,	Chipped stone core (chalcedony)
Narrows Site (BkCt-10)	91NS06-12:1,	Adze (badly damaged blade and bit)
	91NS06-12:2,	3 Oyster shell fragments (Test #7)
	91NS06-12:3,	10 Oyster shell fragments (Test #8)
	91NS06-12:4,	57 Oyster and quahog fragments (Test #9)
	91NS06-12:5,	73 Oyster and quahog fragments (Test #10) (includes one snail shell)
	91NS06-12:6,	25 Oyster and quahog fragments (Test #12) (includes one mussel shell fragment)
	91NS06-12:7,	36 Oyster and quahog fragments (Test #13)
	91NS06-12:8,	Charcoal sample (Test #8)
	91NS06-12:9,	Charcoal sample (Test #10)
	91NS06-12:10,	Small rodent canine (Test #10)
	91NS06-12:11,	Small mammal bone (Test #10)91NS06-12:12,Chert flake (grey) (Test #7)
	91NS06-12:13,	Flakes (1 chert; 3 quartzite) (Test #8)
	91NS06-12:14,	Flakes (3 translucent quartz; 1 quartzite) (Test #10)
	91NS06-12:15,	Flake (felsite) (Test #13)
	91NS06-12:16,	Soil sample (Test #9)
Hingeley Point (BkCt-9)	91NS06-25:1,	Seahorse ornament (lead)

Steele's Island site (91NS6-1; BkCt-7)

The Native site at Steele's Island is the best known prehistoric site in the Tatamagouche Bay area. It is mentioned in several reports (e.g., Patterson 1971:4; 1947:2-3, 56-57; Kennedy 1980:2; n.d.:2-3) and several collectors have visited the site (see Table 2). The island has at various times been under cultivation (e.g., as late as the 1930s). Most of the artifacts recovered have been dislodged by plows or, more recently collected along the actively eroding shoreline.

Artifacts in private collections indicate that the site was utilized from Late Archaic times to the historic period. One large side-notched projectile point in the Roy Kennedy collection is related to the Late Archaic, Laurentian Tradition (c. 6500-4500 B.P.). Projectile points of this style are relatively rare in Nova Scotia, but appear to be distributed primarily along the present northern coastline of both the mainland and Cape Breton Island, as well as on Gaspereau Lake and Lake Rossignol in southwestern Nova Scotia (Deal and Rutherford 1991). A sandstone plummet and small axe blade may also date to the Archaic, however, most of the collected

materials date to the Middle or Late Ceramic Period (c. 2000-500 B.P.) and the historic period. Some of the historic materials (e.g., lead musket shot and gunflint) may date to the protohistoric (c. 1500-1600 A.D.).

The diversity of artifacts recovered from the site, and particularly the flakes from stone tool manufacture, indicate that is was once a large campsite.

Wentworth site (91NS6-2; BkCv-3)

This site is located along the Wallace River, to the southwest of the railway bridge in Wentworth Centre (Roy Kennedy, personal communication, 1991). A small collection of artifacts that were plowed from this site in 1889 by a Mr. Gough. These artifacts were later acquired by a collector named Ira Brown, who donated them to the Sunrise Trail Museum. The collection, which is on display at the museum, incudes three adze blades, a gouge with a long deep groove, one fully grooved axe and one fully grooved hammer. The gouge style is one that is relatively common and widespread in Nova Scotia and dates to the Late Archaic (Deal and Rutherford 1991). The fully grooved axe and hammer may date to either the Middle or Late Archaic.

Indian Point (91NS6-4; BkCu-2)

Indian Point is an small point of land on the southwest shore of McNabs Bay, near the mouth of the Dewar River. The site includes a low circular mound at the point that may be man-made. A former owner, James Clark, had plowed up artifacts in the field behind the mound (Kennedy n.d.:4), but according to local oral history, the mound itself has never been plowed. The present location of the materials collected by Clark is unknown, but one adze blade from the collection was acquired by Roy Kennedy. Two pieces of worked quartz were surface collected along the shore during the 1991 survey.

Table 2: Inventory of materials in private collections, 1991.

Site (91NS06-):	Collection materials (Collector*):
1. Steele's Island (BkCt-7)	1 Groundstone adze blade (GS) 1 Plummet (sandstone) (CM) 1 Stone sphere (IS) 1 Small groundstone axe (IS) 1 Large side-notched projectile point (RK) 1 Large stemmed projectile point (RK) 9 Small stemmed projectile points (RK) 1 Small stemmed projectile point (GS)

	4 Corner-notched projectile points (RK) 1 Small corner-notched projectile point (GS) 6 Small side-notched projectile points (RK) 2 Small side-notched projectile points (GS) 1 Biface (GS) 1 Large biface (RK) 12 Bifaces (one tip only) (RK) 3 Scrapers (GS) 9 Flakes (GS) 7 Chipped stone core fragments (RK) 1 Stone pendant (RK) 1 Native copper fragment (RK) 1 Gunflint (RK) 1 Petroglyph of Christian cross (RK)
2. Wentworth (BkCv-3)	3 Groundstone adze blades (IB) 1 Long deep gouge (IB) 1 Fully grooved axe (IB) 1 Fully grooved hammer (IB)
4. Indian Point (BkCu-2)	1 Groundstone adze blade (RK)
8. Brown (BkCw-1)	1 Ground stone adze (green) (DB) 1 Large chipped stone biface (bleached grey chert) (DB)
9. Treasure Pit	1 large pot (brass "kettle") (RK)
11. Indian Cove (BkCu-3)	1 Small projectile point (Kennedy n.d.)

* Collectors: GS=Graeme Stewart; CM=C. MacBurnie; IS=Inglis Simpson; RK=Roy Kennedy; IB=Ira Brown; DB=Donald Brown; CR=Carl Ross; RW=Rhonda Wilson; KH=Kevin Hegall; HC=Hazel Coe; VL=Victor Langille; LP=Leyton Purdy; BM=Betty Murray; CT=Cecil Teed.

Site (91NS06-):	**Collection materials (Collector*):**
12. Narrow's (BtCt-10)	3 Groundstone adze blades (RK) 1 Groundstone adze blade (CR) 1 Iron trade axe (CR)

15. Wilson (BkCt-8)	1 Biface (moss agate) (RW)
16. Hagell (BkCt-11)	1 Large side-notched projectile Point (KH)
17. Lazy Bay	1 Large chipped stone tool (GS)
18. Davies (BkCt-12)	1 Trade bead (blue glass) (RK)
20. Coe Farm (BkCt-15)	1 Chipped and ground stone adze blade (HC) 1 Groundstone adze blade (HC) 1 Large chipped stone biface (HC) 3 Small projectile points (LOST)
21. Lepper	1 Small stemmed projectile point (LOST)
23. Mattatall Lake	1 Iron trade axe (VL)
24. Ross Point (BkCt-5)	1 Small groundstone adze blade (RK) 3 Small bifaces (including 1 tip) (RK) 8 Flakes (quartz and quartzite) (RK) 1 Bag of oyster, quahog and mussel shells (RK)
29. Acadian Village (BkCt-3)	1 Gunflint (RK)
30. Cape John	1 Lead shot for musket (GS)
37. Purdy Farm (BkCu-5)	1 Clay pipe stem (Glascow) (LP) 1 Brass button (LP)
43. McNutt Farm (BkCt-14)	1 Chipped stone drill tip (RK) 1 Groundstone awl (RK) 1 Stone sinker (RK) 1 scraper (RK)
44. Myres Brook (BjCu-1)	5 Fully grooved axes (BM)
50. Teed Farm	2 Cannonballs (CT)

* Collectors: GS=Graeme Stewart; CM=C. MacBurnie; IS=Inglis Simpson; RK=Roy Kennedy; IB=Ira Brown; DB=Donald Brown; CR=Carl Ross; RW=Rhonda Wilson; KH=Kevin Hegall; HC=Hazel Coe; VL=Victor Langille; LP=Leyton Purdy; BM=Betty Murray; CT=Cecil Teed.

Table 3a: Chronological associations of Aboriginal sites from the 1991 Survey.*

Site (n=30):	Archaic:		Ceramic:			Historic:	
	Middle /Late	Late	Early	Middle	Late	Protohistoric	Recent
91NS6-1	-	X	?	X	X	X	-
91NS6-2	X	?	-	-	-	-	-
91NS6-4	-	-	?	?	X	-	-
91NS6-5	-	-	-	-	?	-	-
91NS6-6	-	-	-	?	?	-	-
91NS6-7	-	-	-	?	?	-	-
91NS6-8	-	?	-	-	-	-	-
91NS6-9	-	-	-	-	-	X	-
91NS6-10	-	-	-	-	?	?	-
91NS6-11	-	-	-	-	X	-	-
91NS6-12	-	-	-	-	X	X	-
91NS6-15	-	-	-	-	X	-	-
91NS6-16	-	?	-	-	-	-	-
91NS6-17	-	-	-	-	X	-	-
91NS6-18	-	-	-	-	-	?	-
91NS6-19	-	-	-	-	-	-	X
91NS6-20	-	-	X	-	-	-	-
91NS6-21	-	-	-	?	-	-	-
91NS6-22	-	-	-	-	-	-	X
91NS6-24	-	-	-	-	X	-	-
91NS6-25	-	-	-	-	?	-	-
91NS6-28	-	-	-	-	?	-	-
91NS6-32	-	-	-	-	?	-	-
91NS6-33	-	-	-	-	-	-	X
91NS6-34	-	-	-	-	-	-	X
91NS6-35	-	-	-	-	-	-	?
91NS6-37	-	-	-	-	-	-	X
91NS6-43	-	-	-	-	X	-	-
91NS6-44	X	?	-	-	-	-	-
91NS6-45	-	-	-	-	-	?	?
Totals:	2	5	3	5	15	5	7

* X= probable; ?= possible; -=no evidence.

Oxford Oxbow site (91NS6-5; BkCx-3)

This site is located on an oxbow in the River Philip, west of Oxford. The site is well known locally, and several people have collected flakes on the sand beach at the Oxbow. One local collector, Donald Brown, at one time found a projectile point at the site, but it has since been lost. The site probably dates to the Late Ceramic period.

Table 3b: Chronological associations of Eurocanadian sites from the 1991 Survey.*

Site (n=18):	Acadian:	English:	Recent (20th Century):
91NS6-3	-	-	X
91NS6-10	-	X	-
91NS6-13	X	-	-
91NS6-14	X	-	-
91NS6-25	-	-	X
91NS6-26	-	X	-
91NS6-27	-	X	-
91NS6-29	X	-	-
91NS6-30	X	-	-
91NS6-36	X	-	-
91NS6-38	X	-	-
91NS6-39	X	-	-
91NS6-40	X	X	-
91NS6-41	X	X	-
91NS6-42	X	-	-
91NS6-46	X	-	-
91NS6-49	X	-	-
91NS6-50	X	-	-
Totals:	13	5	2

* X= probable; ?= possible; -=no evidence.

Little River site (91NS6-6; BkCx-4)

Recent highway construction work near the Little River bridge in Oxford has uncovered prehistoric materials. According to Donald Brown (personal communication 1991), several local collectors have removed stone tools from the site. This area is probably part of a late prehistoric site that extended along the Little River above the junction between this river and River Philip.

Thompson site (91NS6-7; BkCx-1)

This site is located in a cultivated field located along the southeastern bank of the River Philip, opposite the mouth of the Little River. Over a 30 year period, Charles Thompson, his father and grandfather amassed a small collection of artifacts while cultivating this site (Preston 1978). According to Preston, the only diagnostic artifact was a small corner-notched projectile point, which indicates a Late Ceramic period occupation for the site.

Brown site (91NS6-8; BkCw-1)

The Brown site is located on the eastern shore of the River Philip, opposite Kobec, below Honeywin Farm. Donald Brown collected a large biface and an adze blade that were eroding from the bank at this site (Plate 1 a and b). These materials may be Late Archaic, but could also date to the Ceramic period.

Treasure pit site (91NS6-9)

The Treasure pit site is located on the southwestern end of Steele's Island. The pit is presently about two meters deep and two meters in diameter. It was dug by members of the Mattatall family in the 1860s in search of buried French treasure. The only thing known to have been uncovered is a large brass pot (or "kettle") which is now in the Roy Kennedy Collection.

Indian Cove site (91NS6-11; BkCu-3)

This is a small cove on the western shore of Mattatall Lake that ends in a point of land that is referred to as Indian Point. The only archaeological specimen found in the vicinity of Indian Cove is an iron trade axe found by Victor Langille, during logging activity in 1958. On the opposite shore of the lake, a young tourist from Ontario surface collected a small projectile point of white quartz in 1986 (Kennedy n.d.:13).

Narrows site (91NS6-12; BkCt-10)

The Narrows is one of several prehistoric sites known from the Barrachois area. According to Kennedy (n.d.:2) the site begins on the former Ross farm, on the northwestern side of the inlet, and runs along the shore for one-half mile to the farm of Oscar Mattatall, and on the opposite bank for one-eight mile eastward. A large oyster and quahog midden was located above a sand spit on the northwestern shore above the highway bridge. The former owner, Carl Ross, acquired an adze blade (Plate 1c) and an iron trade axe collected by his grandfather, who removed most of the shellmidden to use as lime on his fields. The Kennedy Collection also includes three adze blades from this site. During the 1991 survey, a small surviving portion of this midden was tested, although more of the midden may be buried under the surrounding gravel fill. Samples of

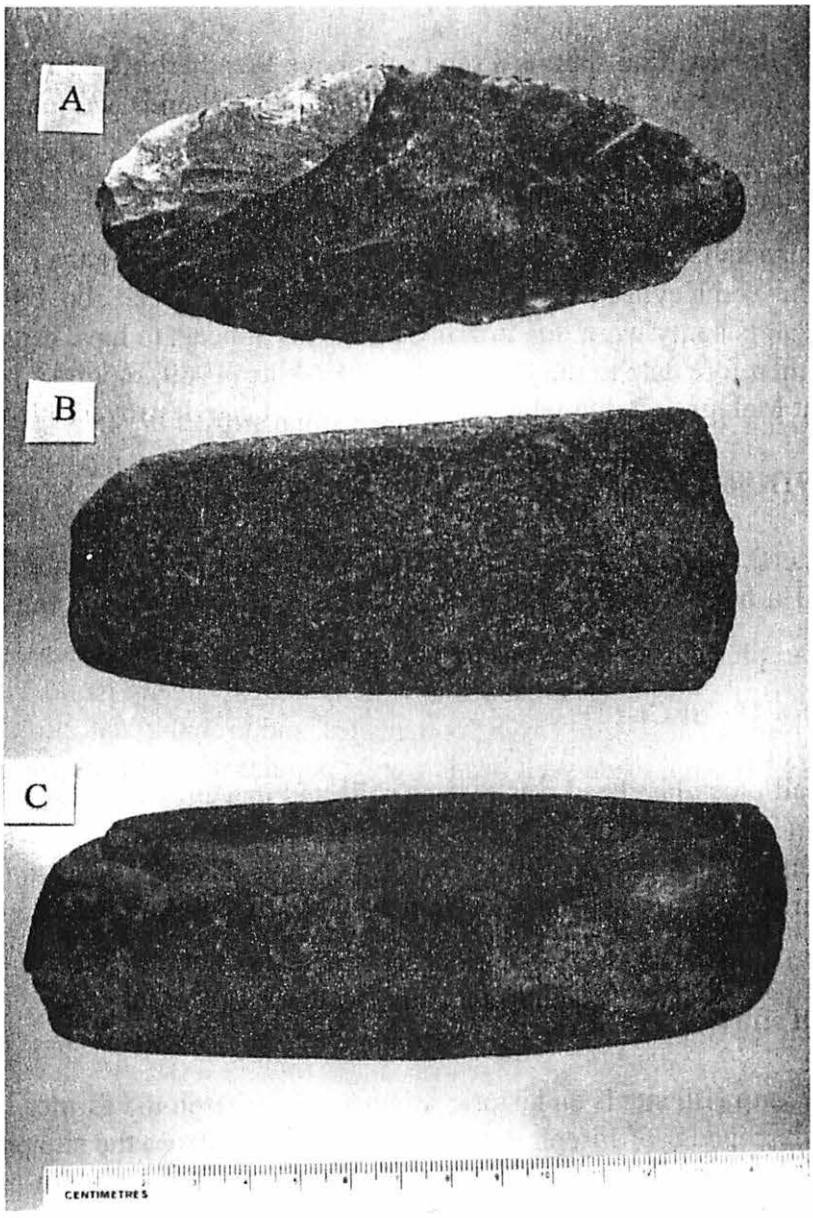


Plate 1

the midden matrix were collected, along with nine flakes, a rodent canine and a mammal bone fragment.

Wilson site (91NS6-15; BkCt-8)

The site is an isolated find spot on a sand spit above Weatherbie's Point, Sand Point. A single biface made from moss agate was found at this spot by Rhonda Wilson.

Hagell Site (91NS6-16; BkCt-11)

This site is also an isolated find spot, along the shore below Malagash Point. In 1987, Brian Hagell and his son Kevin found a large chert biface on the beach above their family cabin. Although the artifact is badly worn due to water-rolling, it appears to have been originally side-notched and may therefore date to the Late Archaic. Erskine (1969) reports a possible shell midden site at Malagash Point, which may have since been destroyed due to erosion.

Lazy Point site (91NS6-17)

In 1990, Graeme Stewart found a large chipped stone artifact on the mudflats above Lazy Point, in Wallace Harbour. He loaned the artifact to the Wallace Museum, but it has since been misplaced.

Davies Site (91NS6-18; BkCt-12)

A single small blue glass bead was surface collected in a cultivated field on the Robert Davies property on Brule Shore. The bead is now in the Roy Kennedy Collection. This style of glass bead has been found at several Nova Scotian sites, and probably dates to the Protohistoric period (c. 1580-early 1600s), when such beads were a popular item of trade between the French and Micmac.

Indian Camp Hill site (91NS6-19)

The Indian Camp Hill site is an historic Micmac campsite on the former Joseph Reid farm in Barrachois. A descendant of Joseph Reid, Ivan Weatherby, places the site on a small knoll west of the farm house, and north of the old barn foundations. The site is presently covered with a thick growth of alders.

Coe site (91NS6-20; BkCt-15)

The Coe site is located along a small stream above the Weatherbie family cemetery in Barrachois. Hazel Coe has a small collection of artifacts collected by her grandfather in the 1930s while plowing on a ridge above the stream. The area of the site has since reverted to forest, and the exact location is lost. Hazel Coe's collection includes a large chipped and ground stone adze identical to those recovered from the Skora site at Whites Lake, which dates to the

Early Ceramic period (Davis 1987). The collection also includes a large biface, a small adze blade and three small projectile points, which have been misplaced.

Lepper site (91NS6-21)

This is an isolated find spot along the western shore of French River, on an intervale north of the Oliver highway bridge. Phillis Lepper surface collected a small stemmed projectile point at this site, which has since been lost. This may have once been a late prehistoric campsite, but the construction of a mill on the site has greatly altered the landscape.

Bessie Smith site (91NS6-22)

This is the site in Oliver where a famous photograph of a Micmac family was taken in 1905. The photograph appears to have been taken for Walter Byers, who is standing in the right side of the picture. He had the photograph made into a postcard, which he mailed to Miss S. Alice Byers in Lexington, Massachusetts on November 3, 1905. The campsite is located on an oxbow of the French River, below the farm of Bessie Smith, and was used until 1927.

Ross Point site (91NS6-24; BkCt-5)

Ross Point, now known as William's Point, is located in Tatamagouche Harbour, directly opposite Weatherbie's Bank. The Ross Point site is a large site (or complex of sites) that probably once extended from the present William's Point south to Campbell's Point at the western side of the mouth of the French River. For more than a century prehistoric materials have been eroding from the shoreline (Kennedy n.d.:3; Patterson 1883:674). The early English cemetery at Tatamagouche seems to intrude into part of this site, since prehistoric artifacts are occasionally eroded from the bank below the site. A small shell midden was recently buried during the construction of an access road to the beach from Nelson Park. Roy Kennedy has collected a few artifacts from the site, including a small adze blade, three small bifaces, eight flakes and a sample of oyster, quahog and mussel shells. The 1991 survey collection includes a biface body fragment and two flakes of quartz and a chalcedony core from this site. The site probably dates to Middle/Late Ceramic times.

Hingeley Point (91NS6-25; BkCt-9)

The small shell midden recorded at this site in 1986 (Preston 1991) seems to have lost to erosion. The only artifact collected during the 1991 survey was a lead seahorse.

Langille Farm site (91NS6-28)

Boyd Langille has collected artifacts from the family farm, next to the present golf course, in Brule. Unfortunately, the collection is believed to have been lost in the recent burning to the family farm house.

Campbell's Bridge site (91NS6-32)

This small oyster shell midden was destroyed during the construction of the highway approach to Campbell's Bridge, on the west side of the French River, in 1969-1970 (Kennedy n.d.:3). No artifact collection is known to exist for the site.

Fox Island site (91NS6-33)

According to MacNab (1977), the historic Micmac Indians frequented a site on the southeastern shore of Fox Island. Little evidence of the site remains today.

Shipyard Island site (91NS6-34)

MacNab (1977) also reports an historic Micmac campsite on the southwestern shore of Shipyard Island, facing the campsite on Fox Island. There is also little surviving evidence of this site.

War Island site (91NS6-35; BkCu-4)

War Island was J. F. W. DesBarres' original name for the largest Island in McNabs Bay, which has since taken the name each subsequent owner. During the 1991 survey, a small mussel shell midden was found on a point of land between Fox Island and Shipyard Island sites. Although a profile was cleared at the site, no material culture was found. The site may be of Native origin, but may alternatively be the remnants of a recent mussel harvesting operation.

Purdy Farm site (91NS6-37; BkCu-5)

MacNab (1977) also indicates that "numerous pieces of pottery, flint arrowheads and a flint axe" had been found on Herbert Purdy's farm, on McNabs Bay, Malagash. The present owner of the farm, Leyton Purdy, has a small collection of artifacts that date the more recent Micmac use of the site. These include ceramics dating to the late nineteenth century and a brass button decorated with three cannons in a column with three dots above. The design is similar to that found on buttons worn by the British Army Ordnance Corps (c. 1890s-1918; Squire 1972).

McNutt Farm (91NS6-43; BkCt-14)

Kennedy (n.d.:4) reports a prehistoric site on the late Sterling McNutt's farm on Sand Point, which has since eroded into Tatamagouche Bay. Roy Kennedy's collection includes four artifacts from this site. One of these artifacts, a chipped stone drill tip, dates to the Late Archaic (Susquehanna) period (c. 4000-3400 B.P.). Artifacts representing the Susquehanna Tradition are rare in Nova Scotia, and primarily found in the Tusket area and Gaspereau Lake, in southwestern Nova Scotia (Deal and Rutherford 1991:3). The remaining artifacts include a stone netsinker (?), a groundstone awl and a small scraper. These materials could date to either the Archaic or Ceramic period.

Myres Brook site (91NS6-44; BjCu-1)

This site is located on the former Aubrey Rushton farm, in West New Annan. Rushton collected two fully grooved axes and three adze blades from the plowed field, above his house, east of Myres Brook. He left these artifacts at the farm house when it was sold to Betty Murray of Tatamagouche. Mrs. Murray donated the three adze blades (Plate 2) and one of the axes (Plate 3) to the Sunrise Trail Museum, where they remain in storage, and the second axe is still at the farm house. The axes date the site to the Middle or Late Archaic period.

River John site (91NS6-45)

Although the early historic records (e.g., Anonymous 1744) indicates that there were Micmac living in the River John area, no local collections are known. According to local tradition, there was an historic Micmac site and burying ground on the farm presently owned by Bill MacDonald (personal communication, 1991), on a rise of land below the barn and above the hay field. This site overlooks the John Bay and Murray Point on the northeast shore of River John.

Eurocanadian sites

The early historic record indicates that the Northumberland Strait was an important fishing area for Breton and Norman fishermen prior to Acadian occupation. Wyllie (1982) indicates that fishing stations were constructed in the sheltered bays and coves of the North Shore. These sites would have included barn-like structures for cleaning, salting and storing fish, flake drying racks, log cabins, and vegetable gardens, and sometimes boat repair facilities and forges (Wyllie 1982:77). Patterson (1877) describes the features and artifacts found at one of these stations on Big Island, Merigomish Bay.

The entire coastal area from Cape John to the River Philip was included in a 1697 land grant to Sieur Le Gardeur, but the first settlements were not established until the early 18th century in Tatamagouche, Wallace River and possibly Pugwash (Clark 1968:117). Bird (1954:395) estimates the population of Tatamagouche at about 150 persons in 1748.

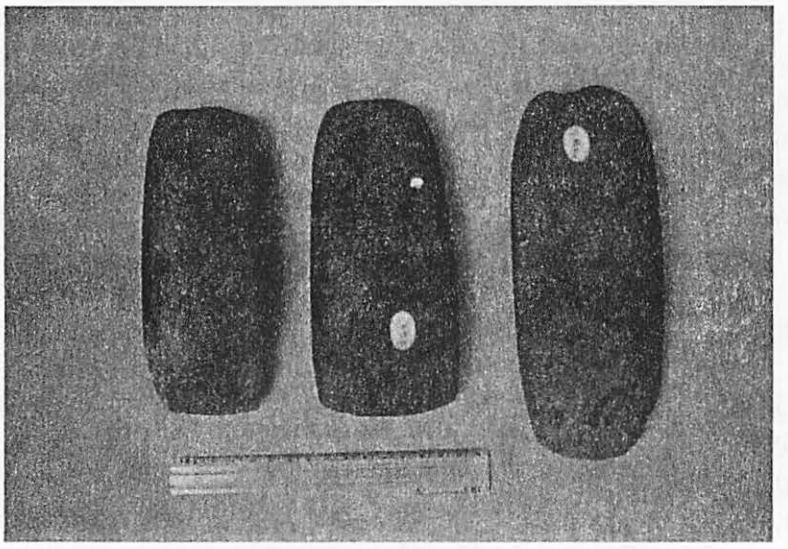


Plate 2

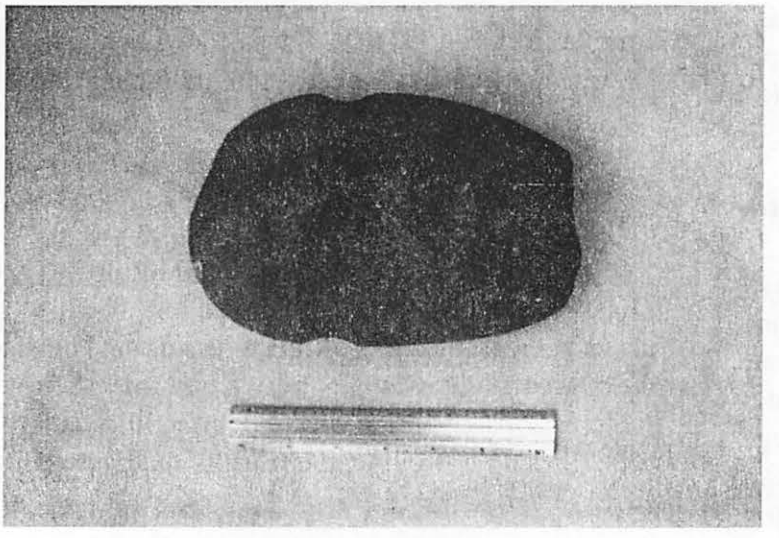


Plate 3

Tatamagouche was an important link in the Cattle trade between the Cobequid Bay settlements and Cape Breton and in emigration to Prince Edward Island (Clark 1968:219-220, 255, 258).

In terms of the Acadian archaeological record, Frank Patterson (1947:63) aptly comments that the "physical evidence at Tatamagouche of the half-century of French occupation are so few and slight that unless one was aware of them, they would be passed unnoticed." Many of the site locations have been destroyed due to later farming and construction, but survive in local oral history. These sites include the original farmsteads, mills, mining and smelting locations and a cemetery. The extensive marshlands along the North Shore were certainly a major attraction to Acadian farmers and the most obvious remains of Acadian occupation in the area are the impressive dyking systems on some of the main rivers.

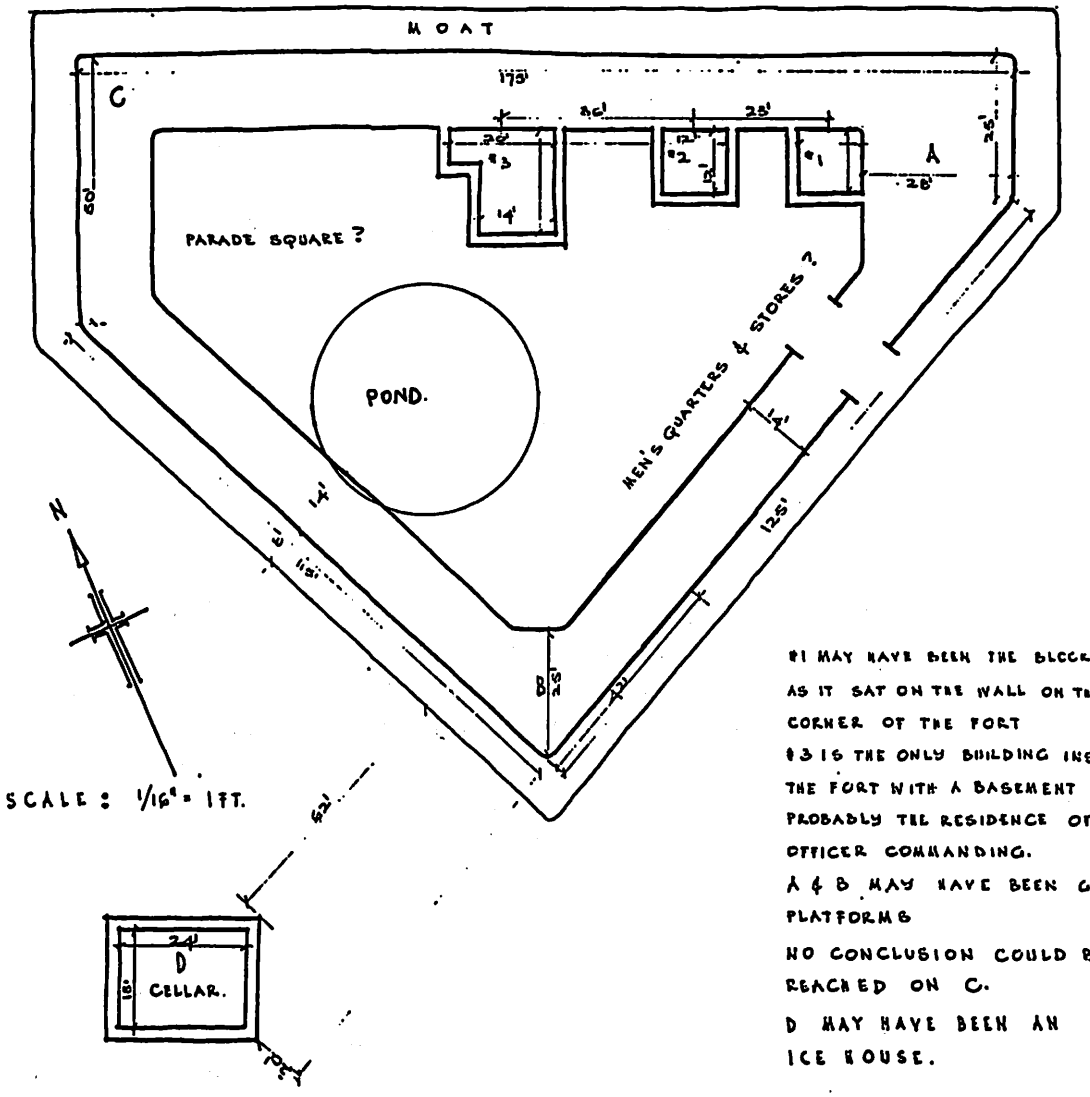
The following inventory includes 14 Acadian sites, as well as six later sites that were investigated because they were suspected of having some relevance to either Acadian or Native occupations of the area.

Canfield site (91NS6-3)

This site is a small depression on the western bank of the Dewar River, directly across the highway from Joe Canfield's farm. The site in on a high ridge overlooking the marshlands above the mouth of the Dewar river. The depression is roughly rectangular, measuring 2.25 x 3 meters, and about two meters deep. There was a mound of fill from the original excavation above the northeastern wall. A shovel test at the northwestern wall produced nothing of interest. The size of depression and its location suggested a possible Acadian origin, however, the site was later identified as a pit dug to procure limestone for liming fields.

Fort Francklin site (91NS6-10; BkCt-6)

Fort Francklin was a small blockhouse covered by a redoubt, which was built in 1768 to protect the British supply route between Halifax and Charlottetown from hostile Micmac on the North Shore. The location of the fort at Blockhouse Point, provides a unobstructed view of the Harbour, as well as Malagash Point and Cape John. Patterson (1947:3) suggests that the site was formerly a Micmac campsite. There is no written record of its construction, but we know that it was planned and supervised by J. F. W. DesBarres, according to the conventional designs of the day, for Lieutenant-Governor, Michael Francklin (Patterson 1947:78). The fort was in use for less than a year, since the troops were recalled and dispatched to New England. In 1958, H. L. Cameron and Roy Kennedy tested and measured several features at the site, which was rapidly being destroyed by coastal erosion. Roy Kennedy has attempted a reconstruction of the fort, based on the 1958 fieldwork and information on contemporary forts.



DITCH DRAINING SWAMP 300' LONG

FORT FRANCKLIN, BLOCKHOUSE POINT, NOVA SCOTIA.

Figure 1

McConnell Creek Dyke site (91NS6-13)

The remaining section of this dyke extends for about 900 meters along McConnell Creek, near the head of Barrachois Harbour (i.e., 500 meters on the east bank and 400 meters on the west bank. Most of the existing marsh lies on the eastern side of the Creek (cf. Patterson 1947:88).

Dewar River Dyke site (91NS6-14)

The most extensive system of dykes in Tatamagouche follow the Dewar River from above the present highway bridge to Steven's Hill. The section of dyke above (i.e., to the northwest) of the bridge is 192 meters long, with a maximum width of 4.5 meters and a maximum height of 1.1 meters. A small brook bisects the dyke at 65 meters to the northwest. Above the marsh, a narrow road, now overgrown, follows this brook to the north. At least six shorter sections of dyke are still visible along the lower reaches of the river. According to local oral history, an aboiteau was once visible in the dyke near Steven's Hill, and also that the early English settlers found Acadian farming tools buried in the nearby marsh (MacNab 1977; Patterson 1947:88).

Old Burying Ground site (91NS6-26)

This is the site of the earliest Protestant cemetery in Tatamagouche, which was probably in use from the 1770s until 1829 (Patterson 1947:62). It appears that the cemetery intrudes into the former late prehistoric campsite, since lithic materials are occasionally eroded from the shore at this site. Human remains were exposed by railway construction activity in the 1880s, and others have been exposed along the shore due to coastal erosion.

Patterson's Wharf site (91NS6-27; BkCt-13)

During the 1991 survey, a collection of historic materials was made in the vicinity of Patterson's Wharf, on the Waughs River, Tatamagouche (Table 1). Of particular interest is a large selection of European flint cores, which were undoubtedly part of a ships ballast that was dumped during the early historic period.

Acadian Village Site (91NS6-29; BkCt-3)

Lewis' 1755 map of Tatamagouche indicates that the Acadian village was concentrated at the mouth of the French River (NSPA 1755). Most historic sources suggest that this village never consisted of more that 12 families (Patterson 1947:11), and this is consistent with Captain Abijah Willard's recollection of having burned 12 buildings at Tatamagouche (i.e., including a chapel and two storehouses) during the 1755 Expulsion (Webster 1990:41). The chapel and a small cemetery were probably located on the eastern bank of the river (Patterson 1947:12-14).

Cape John site (91NS6-30)

Cape John is generally listed among the areas of Acadian occupation on Tatamagouche Bay (Deveau n.d.:4; Patterson 1947:11), however, there is little physical evidence to substantiate this assertion. The area is associated with the Acadian cattle trade through the Micmac name for Cape John, "Wenjootēamwākade," which Rand (1919) translates as "French cow pasture." The only known artifact that may be of Acadian origin is a single lead musket ball was found at Reef's Point by Graeme Stewart.

Golding Brook site (91NS6-36)

MacNab (1977) places a "French settler" near the mouth of Golding Brook, in Malagash. According to local oral history, the earliest English settlers in Malagash reported a French apple orchard at this location.

Waugh River Smelter site (91NS6-39)

Quantities of partly smelted copper have been recovered from the upper part of a field owned by Flemming Waugh, along Waughs River, below Highway 311 (Patterson 1917:11). According to Roy Kennedy (personal communication, 1991), a rectangular feature, about 90 feet long is visible in aerial photographs of the area, and he believes this to be the original smelter.

Mine Hole site (91NS6-40)

The Acadian settlers opened a small copper mine at a site known as Mine Hole and Mine Brook, near the junction of the brook and Waughs River (Patterson 1917:11). This operation was later continued by the early English settlers.

Steven's Hill site (91NS6-41)

MacNab (1977) reports an Acadian cellar on Steven's Hill, Malagash. Several local farmers have admitted to digging at the site when they were children. However, the materials they collected suggest a Post-Acadian occupation for the site.

Dewar River Road site (91NS6-42)

The major road connecting Tatamagouche Bay with Acadian settlements in Cobequid, probably utilized an existing Micmac portage route. This route lead up the Isgonish River and over the summit of the Cobequid Range to the west side of the French River, and on to Tatamagouche. According to Patterson (1947:7-9), the portage may have included Farm and Clear Lakes, and that oral tradition places a Native cemetery at the north end of Farm Lake.

From Tatamagouche, the road follows the shoreline to the west until it reaches the Dewar River. Physical remnants of this section of the road are still visible on the north side of the Dewar River.

Waughs River Dyke site (91NS6-46)

The existing section of the Waughs River dyke system is located near the head of tide, about one kilometer above the highway bridge (Patterson 1947:58).

Waughs River Mill Site (91NS6-49)

Historical records indicate that there were at least five mills (i.e., for either grinding grain and sawing lumber) in the Tatamagouche Bay area (Patterson 1917:12; 1947:60). The exact locations of mills on Mill Brook, French River and Gouzar (Dewar River and McNabs Bay) are no longer known, but the latter may have been situated above the northwestern section of the Dewar River Dyke (cf. MacNab 1977:3). Patterson suggests that the Blockhouse Creek mill was situated just above the present road bridge. The only mill with a securely recorded location is the Waughs River mill, which was located on the Wellwood Waugh property. The mill stood beside a small stream that drained into the Waughs river, about five kilometers above the present highway bridge (see Kennedy n.d.:8; Patterson 1947:37-38).

Teed Farm Site (91NS6-50)

In the 1940s, two cannonballs were surface collected on the farm of Cecil Teed, on the south shore of Malagash. According to local oral history, these cannonballs are remnants of the famous 1745 naval battle between French and English forces in Tatamagouche Bay (cf. Patterson 1939).

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ARCHAEOLOGICAL INVESTIGATIONS AT UNIACKE HOUSE

Frederick and Lynne Schwarz
Nova Scotia Archaeology Society

Mount Uniacke was originally built by Richard John Uniacke, then Attorney General of Nova Scotia, in the years following 1813, on land acquired in a series of purchases beginning in 1786. Though ostensibly built to serve as Uniacke's retirement home, Mount Uniacke was probably far more than this: a great house, and a great estate, were familiar old-world symbols through which Uniacke could advertise his success in the colonies. Today, the estate consists of a neoclassical home on a landscaped lot with three outbuildings. However, construction was originally far more extensive. At one time, the main house was surrounded by a number of structures intended for the recreation and entertainment of the Uniacke family and their guests. Indeed, the location of the estate on poor agricultural land on the road between Halifax and Windsor appears to have been specially selected to encourage visits by the elite of colonial Nova Scotia, and suggests a primarily social function for the estate. However, it is also clear that the estate was intended to function as a viable agricultural enterprise. While the social functions of the estate were well served by this location, for its agricultrual functions the location was less than adequate. This may go some way toward explaining the layout of the estate. Presumably, Richard John Uniacke's goals were the same as those of landowners in England at that time: to set a productive estate in a romantic landscape. But where his English contemporaries began with production estates and worked to create the romanic landscape, Uniacke had romantic landscape in abundance but needed to create a productive estate. On comparable estates in England, the approach to the house is usually the focus of landscaping efforts, while agricultural production facilities are relegated to the rear. At Mount Uniacke, the approach leads past the principal production facilities grouped around a barnyard which lies surprisingly close to the (then) front door. Eye-pleasing vistas are relegated to the rear. Clearly, while Richard John Uniacke's contemporaries wished to convince visitors that their productive estates were attractive, Richard John Uniacke wished to emphasise that his attractive estate was productive. By all accounts, they were not convinced, and it does not seem that the Mount was ever a self-sufficient agricultural concern.

On Richard John Uniacke's death in 1830, the estate contained numerous outbuildings in addition to those still standing today, including a teahouse, gazebo, and guest/boathouse, as well as agricultural outbuildings such as barns, sheds and stables. Although little new money was apparently injected into the estate by Richard John Uniacke's successors, several buildings were demolished or replaced, and new buildings constructed; later additions included a smithy, and several small cottages. At this stage, the estate seems to have served primarily as a summer residence. In the twentieth century, ad hoc construction continued, but none of Richard John

Uniacke's successors were financially able to develop the estate according to his original version. In 1949, when the estate was sold to the province, eighteeen buildings were extant, but many were in such poor condition that most were demolished, leaving only the four which stand today.

In short, between Richard John Uniacke and his various successors, the Uniacke estate has had a complex building history. However, little of this construction is physically evident at the site today.

In 1990, the Nova Scotia Museum asked the Nova Scotia Archaeology Society to undertake an archaeological survey of the estate aimed at discovering and testing the locations of the many estate outbuildings which have not survived. This was intended to complement earlier fieldwork on the site, including an underwater survey of Lake Martha conducted some ten years previously (Carter and van Ryckevorsel 1980). The objective was to generate data useful in augmenting long-term development plans for the estate. Additional objectives would include the training of volunteer fieldworkers drawn from the NSAS membership, and the investigation of artifact and structural patterning that might be of broader archaeological interest. Ken Gilmour of the Nova Scotia Museum has already completed a study of archival and informant sources, along with contemporary illustrations attesting to the nature and location of various outbuildings, and this would serve as a basis for archaeological investigations.

In 1991, the NSAS agreed to undertake the project, contingent on the agreement of members qualified to direct the work, and Lynne Schwarz, Fred Schwarz and Sandy Mitchell agreed to serve as directors.

The proposed strategy involved surveying the estate on foot and conducting limited test excavations in order to locate as many outbuildings as possible. This would be done by small crews of volunteer fieldworkers from the NSAS under the supervision of the directors. Ken Gilmour's useful documentary research meant that to a large extent, this involved testing Gilmour's hypotheses regarding site locations. In addition, it was proposed that the NSAS would conduct test excavations in the presumed location of the boathouse, the teahouse, and the privy (see below), as these locations promised to reveal interesting patterns contrasting male vs. female upper-class recreational activities on the estate, and upper-class vs. lower-class clandestine refuse disposal.

It was anticipated that two factors might limit the realization of these objectives: first, it was expected that extensive landscaping in the vicinity of the main house might have altered or obscured meaningful artifact and structural patterns, and second, time constraints owing to a late start might limit the completion of the excavation component of the project. As it turned out, both factors were important, but nevertheless, many outbuildings were located, and test excavations, at least in the boathouse and the teahouse, were completed.

Archaeological Operations

While much of the excavation planned in the original research design focused on testing the presumed locations of "upper-class" structures (those used by the owners of the estate for display, recreation and entertainment), the survey was equally concerned with locating structures asociated with the more mundane activities of agricultural production, estate maintenance, manufacturing, repair and storage. Most of these structures were presumed to lie to the west of the barnyard. The following survey operations were undertaken. It should be noted that the operation numbers are keyed to those in Figure 1.

Operation A: This designation is reserved for the underwater operations conducted by the Underwater Archaeology Society of Nova Scotia in Lake Martha. In conjunction with the fieldwork undertaken in 1991, the Nova Scotia Archaeology Society is undertaking to analyse and catalogue the materials recoered by UASNS in 1979, and this work is currently in progress.

Operation B: Operations behind the extant coachhouse were concerned with locating and identifying the line of three buildings which once stood behind the coachhouse. Gilmour's (1991) research suggested that structures had existed here through virtually the entire history of the estate, and though their functions appear to have shifted over time, these served as variously harness shop, carpenter's shop, washhouse, wagon shed, and stable. Certainly, three structures were still standing here in 1949, and it was hoped that foundations would be visible, particularly since this area does not appear to have been extensively landscaped since then, and is currently left overgrown. Clearance of the vegetation in this area revealed an irregular ground surface marked by conspicuous mounds, ridges, and depressions, but no clear structural outlines. Eight shovel tests conducted in this area revealed dense concentrations of rubble masonry and brick at depths ranging from 12-23 cm below surface. Artifacts recovered included cut (and some wire) nails, windowpane and bottle glass, stoneware sherds, and also a glass washboard fragment and an iron buckle. These last two pieces correspond almost surprisingly well to two of the inferred functions of the builidngs in this area. One of the testpits was abandoned when an electrical cable was encountered at 12 cm below surface. This area appears to have been filled somewhat following the demolition of the buildings in 1950, and has clearly been subject to some disturbance since then (witnessed by the cable), but the area has not been extensively landscaped, and shows considerable potential for revealing meaningful artifactual, and perhaps also structural patterns.

Operation C: No excavations were conducted here, but at the end of June, a rectangular patch of verdant fern growth measuring 3 x 7.5 metres was observed in this area. The vegetation suggests considerable organic enrichment, while the rectangular shape of the patch suggests a cultural origin. The location corresponds to the possible location of a piggery constructed on the estate about 1880.

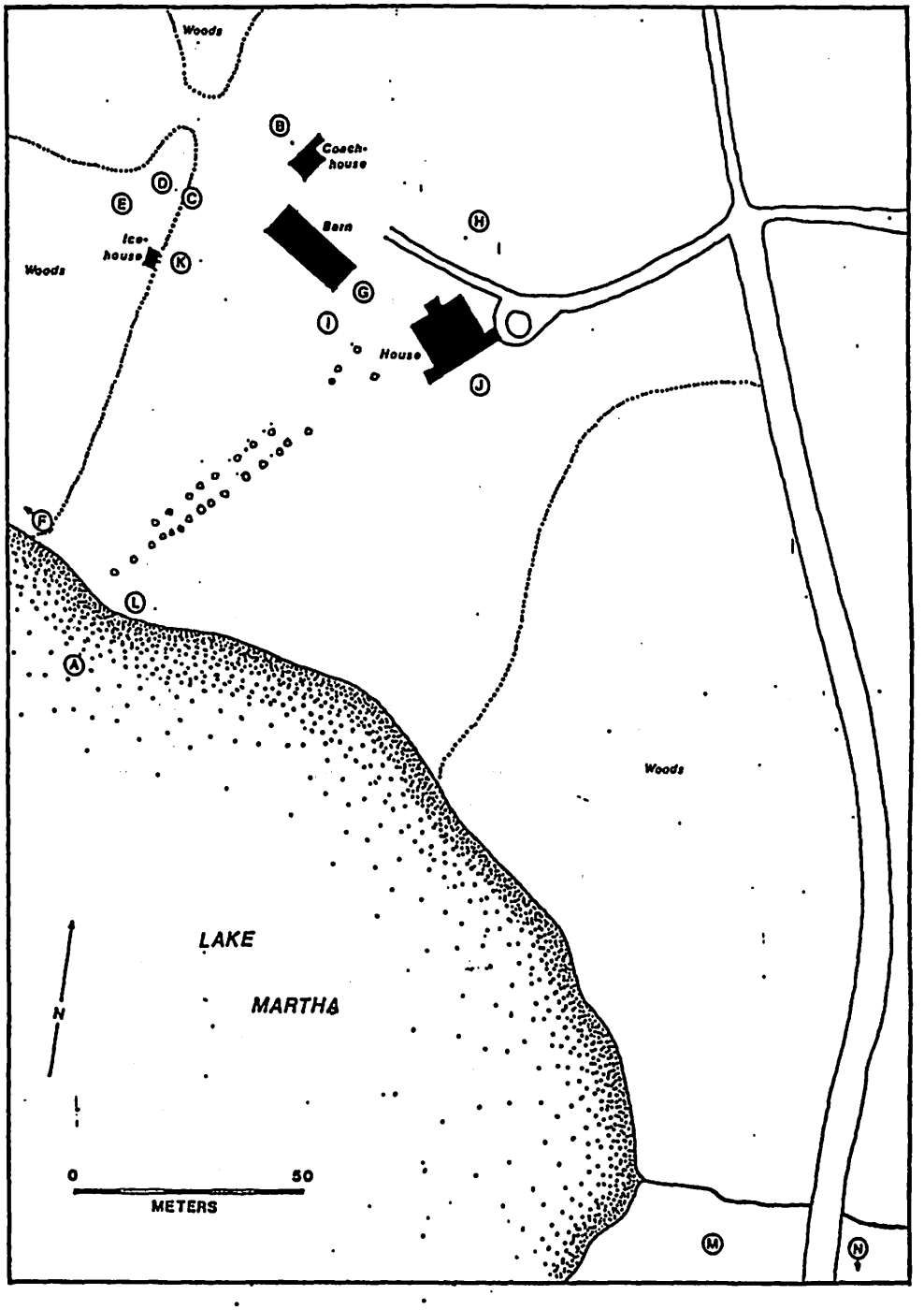

Figure 1 Map of the Uniacke Homesite, showing the locations of extant buildings, and archaeological operations conducted on the site. The layout of buildings and roads is taken from the 1950 provincial government survey map (Stevenson 1991: Illustration 62), while the distribution of woods approximates the modern situation.

Operation D: Not far from the possible piggery, in the woods running along the western edge of the orchard, a dense scatter of rubble and artifacts was discovered distributed on and around a small bedrock outcrop. The rubble consists of angular rocks, many exhibiting black patches possibly resulting from burning, as well as one marble slab, and numerous brick fragments. In places, the soil matrix in which these rest is enriched with charcoal. Artifacts were discovered among the rubble, and in the roots of a fallen tree which lies along the bedrock outcrop. These include thick sherds of stoneware, some with a vitreous, crackled glaze suggestive of re-firing, one sherd of bullseye window pane, and assorted iron artifacats, including a horseshoe with nails, and one piece of what appears to be an iron firebox or grating. The artifacts and debris combine to suggest that this represents the nineteenth-century smithy still standing in 1949; the location is consistent with this interpretation.

No testing was conductd in this area, and the structural status of the location is difficult to determine. There is no structural patterning visible on the surface, other than that the rubble is concentrated around a bedrock outcrop. It may be that debris from the smithy was simply dumped here following the demolition of the building in 1950. On the other hand, there are suggestive black (burnt?) patches on the outcrop itself, and it may be that the outcrop was actually incorporated into the smithy structure. This area should be tested further to determine whether structural evidence has been preserved.

Operation E: Survey in the woods to the south of the smithy revealed a second rubble scatter, with a roughly linear arrangement of large rocks. Large plain and coloured glass fragments and stoneware sherds were visible on the surface. This does not correspond to the documented location of any known outbuilding. A single 1 x 1 metre test unit was excavated in this area, revealing rubble scatter down to 40 cm below surface, with no clear stratigraphy. The large artifact assemblage recovered included lead scrap, windowpane glass, coloured and common green bottleglass, and Maritime stoneware. Finewares and building hardware were absent. Whatever structure may one have stood on the site, this area was apparently subsequently used as a midden for disposing of kitchen wares. The Maritime stoneware indicates that dumping ocurred in the latter half of the nineteenth century.

Operation F: On July 6, Ken Gilmour took us to two middens he had previously located in the woods near Lilypad Cove, some 20 metres in from the shore of Lake Martha, and 150 metres from the edge of the woods bordering the landscaped portion of the estate. One of these middens appears to be shallow, measuring about 1 x 3 metres. Surface artifacts are abundant, and include objects of metal, ceramic and glass. None appear to be much older than the second quarter of the twentieth century. The second midden is circular, measuring some 2 metres in diameter. Only a few metal artifacts, probably mid-twentieth-century in date, protrude through

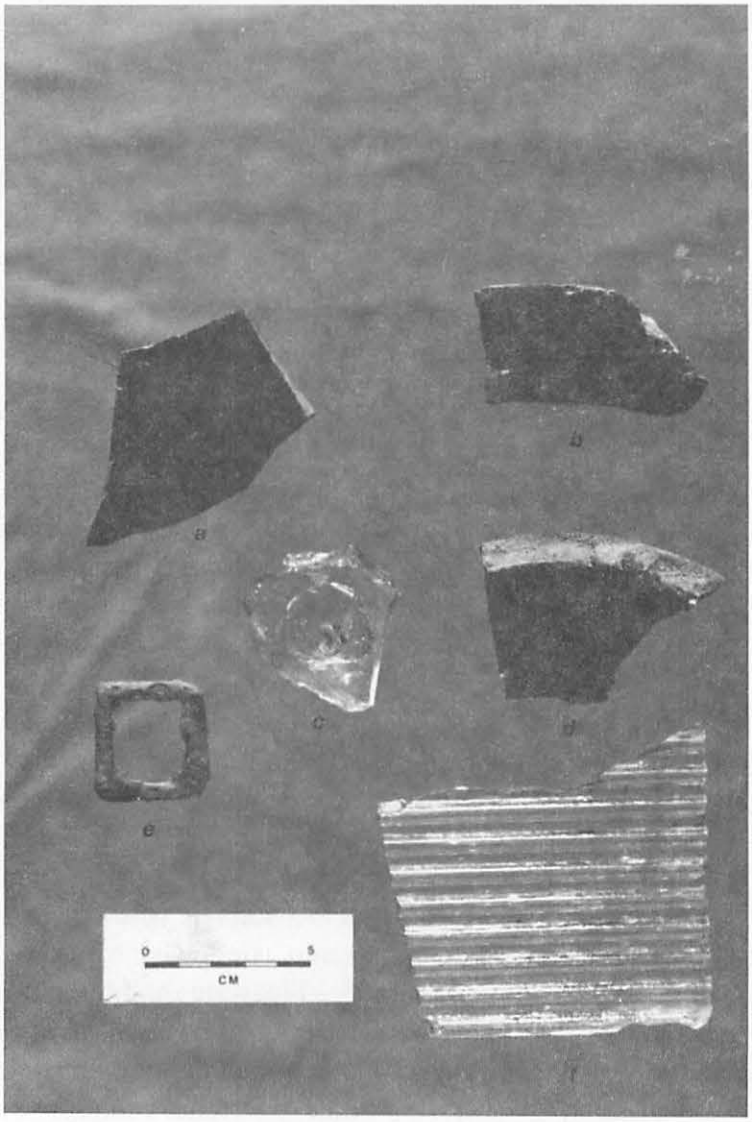

Plate 1. Artifacts recovered from Operation D (a-d), and Operation B (e,f).

the leaf litter, but the material does occupy a circular depression suggestive of subsidence, and the actual depth of deposit here could be considerable.

No excavations were conducted at these middens; the density of artifacts indicates that this would be a considerable undertaking, and one that should be approached with care. Both appear to have been in use down to 1949, when the province acquired the estate, but both, particularly the circular midden, may contain much older material as well.

Operations G and H: Gilmour's research suggested that prior to the construction of the present-day caretaker's house, a series of two earlier structures once served this function (Gilmour 1991: 75). Both were situated along the fence separating the main house from the barnyard. Several small depressions in this area may mark the posts of this fenceline, located several metres closer to the house that the more recent fence standing in 1991. Faint and incomplete traces of possible structural remains were discovered in two areas along this fenceline: one located close to the main barn, the other lying near the screen of trees between the parking lot and the main house. Neither occupies a very large area, but both may be associated in some way with the first two caretaker's houses.

Operation I: The privy, located between the main house and the main barn, was still standing when the province acquired the estate. It is unfortunate that no photographs of this building have been located, as informant descriptions suggest it was a grant structure indeed, with four or five seats, mahogany trim, and at least one arched, mullioned window (Gilmour 1991).

In late July, three depressions were located, which appear to describe two sides of a rectangle ca. 5 x 6 metres. A fourth depression could not be located. It is possible that these represent three of the cornerposts of the privy. The location is correct, and the dimensions, though larger than the informant recalled, are perhaps more plausible for a four- or five-seater privy. Test excavations were not attempted; if this is indeed the privy location, excavation would have demanded greater time than was available to us this year. However, the privy should definitely be a priority for future work on the estate. The descriptions indicate that one of the seats was enclosed and reserved for the use of servants. The Uniacke privy therefore not only promises to reveal details of the sort of clandestine refuse disposal associated with privies, but also to reveal class differences in such behaviours.

Operation J: Archival evidence indicates a series of two gazebos on the estate in the nineteenth century, probably located on the landscaped portion of the grounds somewhere to the east of the main house (Gilmour pers. comm). The later of the two was a rather ephemeral structure, but the earlier one, associated with the initial phase of construction on the estate, was a substantial octagonal edifice.

This portion of the estate has been extensively landscaped, and no conspicuous traces of this structure could be detected. However, by the late summer, a partial ring of dry sod became

apparent just east of the verendah of the main house. Although it seemed to lie rather close to the main house, we decided to test this area for structural remains. Ten shovel tests were conducted along, and on either side of, the apparent ring. Seven of these revealed levels of large stones separated by air pockets. Several yielded small quantities of glass and ceramic artifacts. These pits did not reveal any linear or circular patterns in the distribution of stone rubble.

The density of the rubble, and the existance of air pockets, clearly indicates that these stones were covered rapidly, almost certainly by human, rather than natural, agency. Perhaps they were used as fill to level the ground surface during landscaping. On the other hand, we cannot rule out the possibility that the stones were once associated with gazebo foundations or pilings. In any case, on this part of the estate we would expect that after demolition of the first gazebo, foundations would not be left in place, but rather, every effort would be made to level the site. Thus, it may be that even if this rubble does come from gazebo pilings, no structural remains from the gazebo remain in situ.

Operation K: Soil exposed in tractor ruts in this area revealed a collection of ceramic sherds, including fine earthenwares and some porcelain, all apparently nineteenth-century in date. One sherd bore a crest with the motto "[on y soit qui m] al y pense". It is uncertain whether this represents the sort of artifact density to be expected of landscaping fill, or whether it in fact represents a more meaningful concentration of artifacts.

Operation L: One of the principal concerns of the project was to test the shore of the lake, near the end of the treelined avenue leading from the main house, in order to locate remains of the boathouse. In fact, three boathouses once stood on this area. The first, built at approximately the same time as the main house, partly extended on pilings over the lake. The second, constructed by the mid-nineteenth century, was located entirely on land. Both were substantial structures, and it is believed, served more as sites for recreation and entertainment than as actual boathouses (Penney 1991: 33-35). The third boathouse, still standing in 1949, was little more than a covered slipway.

In the case of the first two boathouses, the nature of the foundation (continuous rubble courses or stone pilings) is uncertain, but the locations are fairly precisely identified in contemporary illustrations (Stevenson 1991: Illustrations 29, 31-36). Accordingly, a 4 x 1 metre trench was excavated which, it was hoped, would straddle the foundations of one or both boathouses. This trench was excavated to a maximum depth of 38 cm. Soil stratigraphy was simple: from the sod to the base of the trench lay the orange-brown, slightly friable soil typical of much of the landscaped portion of the Uniacke estate. There were no conspicuous changes in soil colour or texture through the column.

Excavation in the eastern half of the trench revealed a large mound of stone rubble, with air spaces in the interstices between the rocks. The top of this mound lay at only 8 cm below surface in the easternmost unit, sloping down to 38 cm in the western half of the adjacent unit. The western half of the trench was excavated down to 20-30 cm below surface, at which point

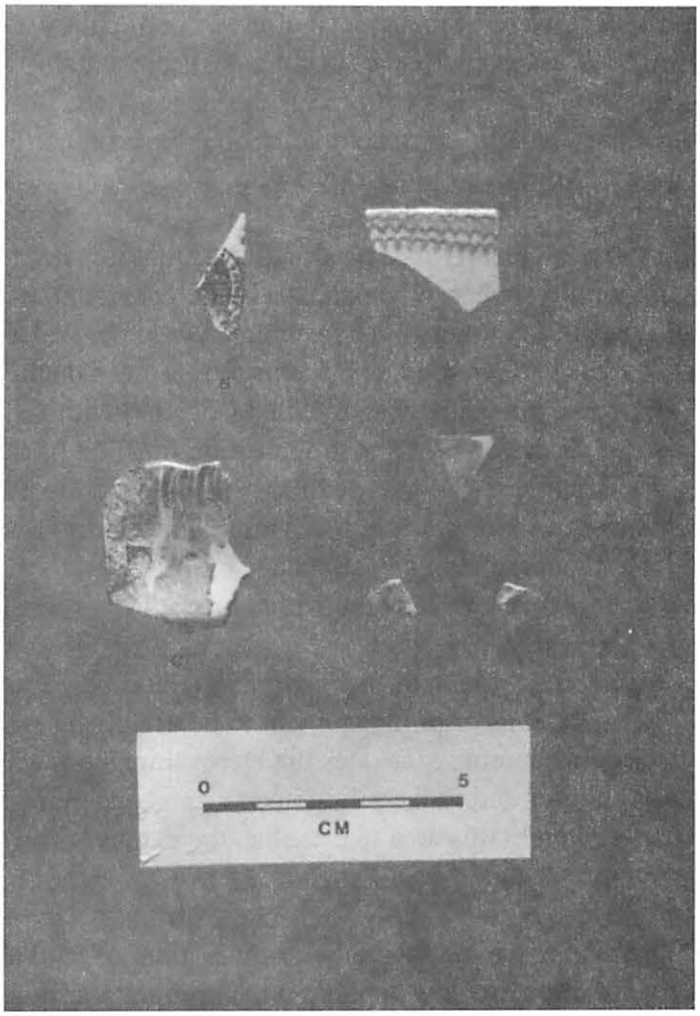

Plate 2. Artifacts recovered from Operation K (a,b), and Operation L (c-f).

we encountered a continuous layer of small stones (averaging 5-8 cm diameter). These extended to abut against the rubble mound, and partly overlay the rocks at the base of the mound.

The artifact yield was quite low, but artifacts recovered included tiny sherds of hand-painted pearlware, refined earthenwares, and windowpane glass from all depths, as well as cut nails. Most of the latter came from the base of the trench, where the fine pebble layer met the rubble mound. Also recovered were a single piece of green bottle glass and a sherd of Derbyshire stoneware, as well as several pieces of fine glass, presumably from drinking vessels. The preponderance of finewares contrasts with the assemblages from, for instance, the privy and the area behind the coachhouse, and is consistent with the inferred functions of this building, though not otherwise very informative.

The fact that the rubble is clearly mounded indicates that it is not merely landscaping fill. Rather, the rubble mound would appear to be part of a boathouse foundation, perhaps a piling, razed during the demolition of the building. The pebble layer in the western half of the trench partly overlies the foot of the rubble mound, and seems to represent the initial stage of filling prior to landscaping. The dense concentration of nails associated with the pebble layer near the base of the wall may also be associated with post-deposition infilling of the boathouse site. Little wood or charcoal survives to suggest that nail-bearing timbers were incorporated into the fill (which in any case seems unlikely), or burnt in place after demolition. Rather, the nails seem to have been raked or collected into a pile in an early stage of infilling. In the final stage of infilling, the rubble and pebble layer were sealed with a layer of finer topsoil.

At this stage, it is uncertain which of the boathouses the rubble mound is associated with, and the full extent of the foundations or pilings remain to be established. The pearlware suggests an association with the earliest boathouse, as does the Derbyshire stoneware, but all artifacts came from fill, and their value for dating the piling itself seems questionable. It is recommended that further testing be undertaken in this area to establish the extent of the structural remains present.

Operation M: The map associated with the original grant of land to Richard John Uniacke in 1786 shows a structure already standing on the property at this date. Presumably a working-class rural dwelling belonging to the previous owner of the land, the precise nature of this early structure is unknown. According to the map, the house was situated in the small area bounded by the coach road to the west and Lake Martha to the east, and by a drumlin to the south and a small brook flowing into Lake Martha to the north. This area is wooded and not landscaped, and it might be expected that surface-visible traces might survive. However, this is not the case, the twenty shovel tests conducted in this area failed to reveal any artifactual or structural remains.

Operation N: Survey in the woods west of the coach road, about 65 metres south of the brook (see Figure 1), revealed a substaintial rectangular foundation measuring ca. 5 x 5 metres, enclosing what appears to be an infilled cellar. A 4 x 1 metre trench was excavated to intersect

the east wall of this structure. The trench was excavated to maximum depths of 35 cm, revealing the top of a dense scatter of masonry rubble. This appears similar to that found in the boathouse excavations, and also resembles that found today beneath the main barn. A rectangle of in situ masonry blocks encloses a narrow, rubble-free depression some 50 cm wide, and this in turn encloses a central, flat-topped rubble mound. Recovered artifacts were few, and consisted entirely of iron cut and wire nails. The absence of glass and ceramics makes this a most uninformative assemblage.

This could represent any one of a number of structures: two outlying cottages were constructed in the 1860s in this general area by the inheritors of the estate following Richard John Unaicke's death (Gilmour 1991: 79), and more recently a roadside tearoom was also located in the vicinity (Penney 1991: 34). In addition, this is also a possible location for the early nineteenth-century ladies' teahouse. Certainly, a Woolford sketch does show a structure of some sort in this location in 1817 (Stevenson 1991: Illustration 14). Artifacts thus far recovered from the structure do not permit any identification at this point, but further work is recommended.

Conclusions

Although it was not possible to relocate every structure which once stood on the Uniacke estate, many were relocated. Particularly conspicuous were structures which lay beyond the landscaped area (and therefore had preserved structural remains), and those related to work rather than upper-class recreation (which had conspicuous artifact scatters). Indeed, though the contrast is not absolute, we may distinguish two broad categories of archaeological remains on the estate. The first includes upper-class recreational facilities, mostly located on the landscaped grounds, which yielded ephemeral or disturbed structural remains, and artifact assemblages dominated by small sherds of fineware ceramics, mostly from serving vessels. The second includes working factilities, most located beyond the landscaped grounds, which yielded either conspicuous structural remains, or conspicuous scatters of artifacts (primarily utilitarian storage vessels, kitchen wares, and tools), or both. Obviously, the archaeological potential is highest for the latter category of remains, though some upper-class structures do deserve attention.

It is recommended that work continue at the Uniacke estate, as the estate preserves remains attesting to several archaeologically-visible and interesting dichotomies in nineteenth-century colonial society: there appears to have been a distinct separation of male and female recreation areas outside the main house, a separation of upper-class and working-class facilities (e.g. within the privy, and between the upper-class structures and the caretakers houses) which should be archaeologically recognizable. In addition, there is an opposition between public areas (for display and entertainment) and private (working) activity areas on the estate. This opposition is not as sharp as we might expect, as many of the working buildings on the estate appear to have been highly visible to visitors. However, this itself is interesting, as it seems that

unlike contemporary estates in Britain, on the Uniacke estate, working agriculutral and industrial facilities were an integral part of the public display. All of these themes can be approached archaeologically on the Uniacke estate, and all promise to enrich the interpretation of the house, and the estate as a whole, to the visiting public.

Acknowledgement

The archaeolocial investigations at Mount Uniacke were undertaken with the permission of, and some financial support from, the Nova Scotia Museum. We are grateful to all of the members of the NSAS who helped to realize this project: Paul and Dawn Erickson, John and Anne Murray, Peter and Joan Steffin, Jan Millar, Ken Lee, Robyn Harvey, Heather Hueston, and Sandy Mitchell. We are particularly indebted to Ken Gilmour, Alex Middleton, and the interpretative staff at Uniacke House, without whose help and cooperation the project could not have been completed.

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Heritage Research Permit A1991NS08

HERITAGE RESOURCES SURVEY OF MCNABS ISLAND

Helen Sheldon
Jacques Whitford Environment Limited

Halifax Harbour Cleanup Inc. (HHCI) proposed to construct the Halifax-Dartmouth Metropolitan Sewage Treatment Facility in Ives Cove off the north end of McNabs Island. Construction of the facility will involve infilling of marine areas to provide a platform upon which to build the treatment plant. According to HHCI, construction will be executed completely from the water with little terrestrial disturbance except along the foreshore and on the northern extreme of Ives Point.

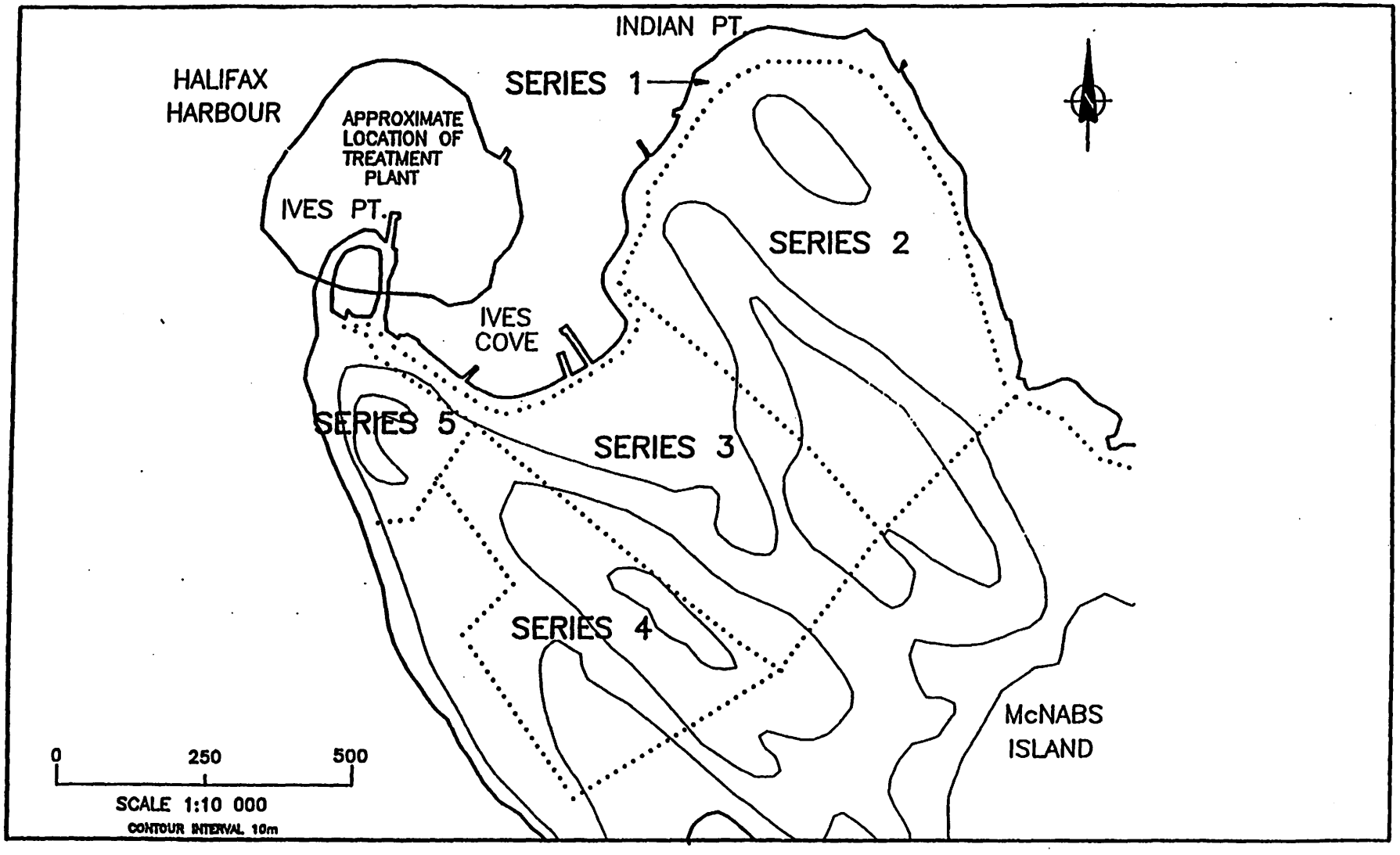
The archaeological survey was conducted to identify the existing environment in order to help assess the impact of the construction and operation of the facility upon the archaeological and heritage resources of the north end of McNabs Island. The study area is the proposed area of terrestrial disturbance at Ives Cove and a 500 m buffer zone (Figure 1).

The survey of the heritage resources of McNabs Island was one of four heritage resource surveys conducted for HHCI. Two other surveys dealt with the Halifax and Dartmouth collector tunnel routes. The fourth was an underwater program to document the heritage resources within Ives Cove.

Although it has been the site of human activity since before the founding of Halifax, little archaeological work has been conducted on McNabs Island. John Erskine reported a shell midden, BdCv-4, on the island in 1969, and the Canadian Parks Service conducted a survey of the Fort McNab area at the south end of the Island in 1988.

The only documented sites are BdCv-4; Fort McNab, Fort Ives, and Strawberry Battery, which are owned by Environment Canada-Parks Service; and Fort Hugonin, which is owned by the Department of National Defense. No other archaeological sites have been reported from McNabs Island and no systematic surveys of the island have been conducted.

The rich history of the island suggests the existence of archaeological sites associated with prehistoric Micmac, historic Micmac, and historic European occupations. Historic documents suggest that Micmacs were deported from Eastern Passage in the mid-eighteenth century and camped on Indian Point until the mid-nineteenth century. Maps dating 1808 and 1827 in the Public Archives of Nova Scotia show clusters of buildings on the northeast shore of Ives Cove. A soda bottling factory also operated in the area in the early twentieth century (Ron MacDonald, pers. comm. 1991: Harris 1977).



	HALIFAX HARBOUR CLEANUP PROJECT	
AUGUST 1991	STUDY AREA/TRANSECTS	Figure 1

Archaeological sites located on the surrounding mainland provide evidence of prehistoric and historic occupations of the Metropolitan area since the retreat of the glaciers 10,000 years ago. A fluted point preform found at the Chambers site in Dartmouth (Christianson 1991) dates to this period. Other prehistoric finds at Hartlen Point (Brian Preston, pers. comm. 1991), the Esson site (BeCv-2), Lake Micmac (BeCv-7) and Lake Charles (BeCv-8) (Nova Scotia Museum site files), as well as several historic sites (Davis, Cottreau, and Niven 1987; Davis n.d.; Davis 1990; Erickson et al. 1987) attest to the long and varied occupation of the shores of Halifax Harbour.

Examination of archaeological and historical information indicated a high potential for the presence of prehistoric and historic sites on McNabs Island.

Prior to fieldwork a review of site files was undertaken at the Nova Scotia Museum. Historical maps and other sources from the Public Archives of Nova Scotia (all documents from this source are designated with the prefix PANS in citations) and Crown Lands Division Map Library also were reviewed. Professional and local informants were interviewed before and during the field survey. Extensive records of informant interviews and field notes generated during thesis research (Sanders n.d.) were reviewed. Heritage Research Permit No. A1991NS08 was obtained from the Nova Scotia Museum.

The field survey was conducted over 10 days between 4 and 18 July 1991. The north end of McNabs Island was traversed on foot and tested for heritage sites for a distance of 500 m from the shoreline of Ives Cove.

The study area was covered with a series of transects positioned to take advantage of the varying terrain. All transects were inspected on foot. This inspection included examination of cut and eroded banks, beaches, windfall root systems, trails and other exposures to note cultural material; observation of the surface for cultural features such as stone walls and cellar depressions; and random and judgemental placement of test pits. Particular attention was paid to areas identified through archival research and informant interviews as having high potential for cultural sites.

All sites found during the survey were recorded through field notes and photographs, with the data later being transferred to Maritime Site Inventory forms. Significant archaeological sites were assigned Borden numbers (e.g., BdCv-4) by the Nova Scotia Museum. Test pits were excavated where necessary to obtain additional information. Artifacts were collected from test pits in which they were found, labelled according to site, test pit, and level, and sent for analysis.

ARCHIVAL RESEARCH

Archival research indicated that several historic features should be present within the study area. Historic maps of the area indicate the general location of several structures, particularly in the wooden area directly east of Ives Cove and on Indian Point.

An 1808 map entitled *Plan of the Peninsula and Harbour of Halifax* by John G. Toler (PANS 239-1808) shows four structures immediately east of Ives Cove. These are labelled as "Fraser's Farm". The farm probably belonged to Thomas Fraser, who was listed as a resident of McNabs in a 1793 assessment of the island (Sanders 1990). The 1808 map shows five additional structures north of the Fraser's Farm location. Ownership and function of these buildings is not known. An 1827 (PANS R/239-1827) version of the 1808 map shows only four buildings north of Fraser's Farm.

The first indication of historical activity on Indian Point appears in 1762, when Micmacs supposedly were deported from Eastern Passage to Indian Point, where they lived until ca 1840 (PANS MG100/184 no. 32). A man named Trainer also was supposed to have resided upon Indian Point in the nineteenth century (PANS MG100/184 no. 32A), as was a Mr. Kuhn (Sanders 1990). The precise location of the dwellings of the Micmac, Trainer, and Kuhn are not marked on period maps, although several maps do show structures upon the point.

The 1808 map shows buildings on the western shore of Indian Point (north of Fraser's Farm). Other historic maps showing structures on Indian Point include *A Chart of Halifax Harbour, Nova Scotia 1826* (PANS H.O. 345), which shows two structures. The 1826 map also shows three structures near the 1808 Fraser's Farm location. An 1853 map of Halifax Harbour (Maritime Museum of the Atlantic #L9312 sheet #1) shows two structures on the northern tip of Indian Point and two more on the western shore of the point near Ives Cove.

Despite the previous century of occupation, by the late nineteenth century Indian Point appears to have become uninhabited; an 1886/88 map (PANS 239-1886/88) by C. Akers shows no cultural features in the area except an old orchard. This state apparently continued into the early twentieth century; a 1917 map (PANS CHS #311) shows no structures on Indian Point or adjacent to Ives Cove.

Ives Cove and the northeast section of Indian Point became popular again in the 1930s and 1940s when numerous cottages, small houses, a school, a church and a bandstand were established (Sanders n.d.).

Ives Point has been used primarily for military purposes since 1762, when the area was cleared in preparation for fort construction. However, orders to construct the fort was rescinded almost immediately and work stopped in the same year. The intended location of the fort can be seen on the 1808 map (PANS 239-1808; Kinsman 1984).

The clearing was used for recreational purposes by the Quoits Club until construction of the Ives Point Battery resumed in 1865. When completed in 1870, the fort was outfitted with six 9-inch and three 10-inch Rifle Muzzle Loaders (RMLs) and was situated to cross fire with the Point Pleasant forts, Fort Clarence, and York Redoubt (Piers 1947). The fort, complete with wharf, can be seen on the 1886/88 and 1917 maps.

FIELD SURVEY

During July 1991 the north end of McNabs Island was surveyed for heritage resources by a team of two archaeologists. The study area was divided into five series of transects which were surveyed on foot.

Series 1

Series 1 involved following the vagaries of the shoreline by walking both along the beach and 30 m inland. In the first segment, the shoreline south of the study area was walked and tested in order to locate and record the prehistoric site BdCv-4 that was first reported to the Nova Scotia Museum in 1969 by John Erskine. Locating the site was deemed necessary because the museum had no coordinates on file for its location and it was uncertain whether it was situated on Indian Point or elsewhere.

In the second segment, the entire shoreline of the north end of the island was surveyed from Timmonds Cove to Indian Point, around Ives Cove and Ives Point. All erosional faces were examined, the beach was examined for artifacts and features, and areas of high potential such as clearings and sites of known historic activity were shovel tested.

1. The prehistoric site, BdCv-4, was found to lie south of the study area, confirming that it is not on Indian Point and will not be affected by construction of the sewage treatment plant. No true test pits were placed, but the sod was lifted with a trowel in five locations to gauge the extent of the site and collect samples of shell. The site extended approximately 25 m east-west along the shore and approximately 7 m north-south perpendicular to the shore. Shell was not found throughout the entire 25 m stretch; rather, there appeared to be two concentrations, one at the east end and one at the west, with no shell occurring in the middle.

   No artifacts or features were visible on the surface. The soil is a dark brown loam with numerous shell fragments. Three flakes were recovered, one from the west and two from the east concentration. A sample of shell taken from the west concentration was identified as soft-shelled clam (*Mya arenaria*) (Derek Davis, pers. comm. 1991).

   The site is surrounded by mature spruce trees with some birch. To the north are cleared areas with bracken and grass that may be remains of cultivated fields. A

depositional cobble beach is located 5 m south of the site. The new location data and results of test pitting were forwarded to the Nova Scotia Museum for inclusion in the site record.

2. A concentration of building remains was discovered on Indian Point. These are of relatively recent origin, displaying building material such as 2 x 4 in lumber and asphalt shingles. According to local informants, these buildings are the remains of a pumping station established in the 1930s for fire fighting (Sanders n.d.). These buildings are not considered to be of significant heritage value.

3. Foundation 1 (BdCv-11) was a cellar depression located immediately west of the most eastern stream on Indian Point. It is located approximately 36 m from the north shore of Indian Point and ca 20 m east of a path that runs up from the shore. This path continues inland and 76 m later runs by Foundation 4 (BdCv-14).

   Foundation 1 rises from the surrounding landscape as a low mound with a central depression. It measures 5.7 x 6 m with the longer axis oriented north to south. Birch and spruce trees growing upon the foundation reach circumferences of 50 cm. Two test pits were dug on the exterior and one on top of the foundation; no artifacts or significant soil profiles were discovered. Sections of the fieldstone foundation wall are visible. The structure appears to be nineteenth-century and may be linked to Foundation 4. Foundation 1 may be a farm outbuilding associated with either the Trainer or Kuhn farm. Both Trainer and Kuhn are identified in the archival literature as having lived on Indian Point in the nineteenth century, but the exact locations of their respective farms do not appear on period maps.

4. A small stone-lined feature was discovered on Indian Point. This is a filled-in well of square outline, lined with large fieldstones to a depth of 50 cm, where it ends. The exterior measurements are 2 x 2 m with an opening of 50 x 90 cm covered with rotting planks. This feature does not appear to be of recent origin but cannot be accurately dated based upon the present evidence.

5. On the west slope of Indian Point near some burned buildings was Foundation 2 (BdCv-12). It is a fieldstone-lined depression with interior dimensions of 5.1 x 2.5 m. Its long axis runs WSW-ENE. Nineteenth century artifacts were recovered from a test pit (TP 1) excavated on the north exterior of the foundation. These artifacts included a sherd of pearlware and a neck fragment of a black glass liquor bottle. Both artifacts date to the first quarter of the nineteenth century.

   The foundation appears to have been reused in this century, as the remains of a relatively modern building constructed with 2 x 4-in lumber are scattered in the vicinity, particularly to the south. A 2 x 5 m extension is attached to the south side of

the foundation; this is stone-lined but not excavated and appears to postdate the main structure.

In addition to the standard shovel tests, a 1 x 1 m test pit (TP 5) was excavated by trowel on the north exterior of the foundation. A jumble of rocks and earth was encountered in this unit. This disturbed-soil layer may originate from the original nineteenth-century construction of the foundation. As the foundation was constructed, the backdirt was thrown around the exterior, resulting in the unconsolidated soils encountered in TP 5. The artifacts recovered from TP 5 range in date from ca 1890 to 1930 and support the conclusion of a subsequent occupation of the site.

The foundation is surrounded by mature spruce trees, with spruce also growing along the walls. The surrounding land is wooded, sloping gently to Ives Cove approximately 30 m to the northwest.

The 1808 and 1827 maps show several buildings in the general location of Foundation 2. The owners or functions of the buildings are not identified, however, and no further information could be found concerning the historical identity. Foundation 2 probably represents one of these early nineteenth-century buildings. This is confirmed by the artifact analysis. The site was considered archaeologically significant as it represents one of the early habitations on McNabs Island.

6. About 20 m north of Foundation 2 on the beach near high-water level is a flat-faced rock exhibiting the following inscription:

JAMES MULLINS
12 YRS
AUG 12 1922

This petroglyph, while appearing graffiti-like at first glance, is of some interest because of its age.

7. At the north end of Ives Point is a stone seawall extending north to the base of a derelict wharf. The seawall serves to support a causeway leading to the wharf. At the base of the wharf is a concrete hut measuring 1.4 x 1.85 m and 3.2 m high. The concrete is tempered with cobbles and pebbles in typical late nineteenth-century style. The wharf consists of 10 wooden pilings, with some iron cable running under the concrete hut.

The causeway is supported on both the east and west sides by a stone seawall constructed of rectangular slabs of ironstone, some of which exhibit drill markings.

Some sections of the seawall are in good condition; others are missing and appear to have been dismantled for stone.

The stone seawall, the causeway, and the concrete shed are associated with Fort Ives. They appear on the 1886/88 map labelled as the War Department ("WD") wharf. The seawall and road are entirely man-made prior to construction, the lagoon to the west was an inlet off Ives Cove (PANS 239-1808; PANS 1853-2320). As part of Fort Ives and the Halifax Defense Complex, they are owned and administered by Environment Canada-Parks Service through the Halifax Citadel National Historic Park.

8. A stone-lined circular wall was located 7.7 m northwest of what is known as the Department of Natural Resources wharf on Ives Cove and 3.4 m west of the beach. It was capped with concrete and protected with a wooden cover. The well is 1.7 m deep. According to David Seaboyer (pers. comm. 1991), although it appears close to sea level, it taps a spring and produces good fresh water. It is associated with the remains of the 1930s buildings at the base of the wharf.

Series 2

A number of transects approximately 20 m apart were walked on an east-west compass bearing over Indian Point. The entire point was covered; areas considered to have high potential for historic Micmac remains received particular attention and more concentrated testing. Two sites of heritage resources were discovered.

1. Foundation 3 (BdCv-13) is located 27 m inland from the east shore of Indian Point, directly across from the Dartmouth Yacht Club. The foundation has interior dimensions of 3 x 3.5 m with the long axis running north-south. Artifacts recovered from a test pit excavated at the east side of the foundation included several refined earthenware ceramic sherds dating ca 1840. Relatively large trees are growing upon the walls, including a birch of 55 cm and a spruce of 80 cm circumference.

   The site may be that of either Trainer or Kuhn, as both are identified as living on Indian Point in the nineteenth century. While we cannot know which family occupied which dwelling, it is reasonable to suppose that Trainer occupied one of Foundation 3 or 4 and Kuhn the other. The site was considered archaeologically significant and was filed with the Nova Scotia Museum.

2. On the northeast slope of Indian Point was Foundation 4 (BdCv-14). It is connected to Foundation 1 by the path that runs to the shore. The interior dimensions of the feature are 4.5 m north-south and 3.5 m east-west. Four test pits were excavated around the exterior from which several nineteenth century artifacts were obtained, including sherds of refined earthenware/pearlware and probable Mocha ware dating

ca 1800-1820, pearlwares dating no later that 1830-1840, and North American stoneware and coarse earthenware dating to the mid-nineteenth century.

A stone wall runs northward 8.5 m northeast of the foundation to within 25 m of the shore. It is constructed of fieldstones laid without mortar. This old field wall is evidently associated with Foundation 4.

Foundations 1 and 4 and the stone wall are all believed to belong to one farm (either Trainer's or Kuhn's), with Foundation 4 being the dwelling and Foundation 1 being an outbuilding. Further evidence of farming in the area is the sporadic presence of rough piles of fieldstones over the summit of Indian Point. These stones piles typically result from field-clearing activities.

The site of Foundation 4 was considered to be of archaeological value and was recorded with the Nova Scotia Museum.

Series 3

The ridge system on the east side of Fort Ives was walked and tested. This included all land situated between the old military road, extending down the ridge and along the valley to the Indian Point ridge. Two extant historic houses and a stone foundation were located within the Series 3 transect area.

1. The Davis residence is a large white house with two stories of veranda set in elegant grounds and maintained by the Department of Natural Resources. The house was built in the early twentieth century by A.J. Davis. Three small outbuildings and a well are located within the grounds. Downslope, within the eastern treeline, is a midden and a fieldstone wall running parallel to the contours. All surface artifacts in the midden date from the mid-twentieth century.

2. Downslope from the Davis house and 8 m west of a shore path was Foundation 5 (BdCv-15). It is overgrown with spruce and birch trees and is difficult to discern from the upslope angle. The entrance appears to have been located on the downslope side, facing the path and Ives Cove. A test pit was excavated at the exterior of the entrance but no artifacts were recovered. This foundation, like the other four foundations, is constructed of fieldstones.

   The foundation is of unknown function and origin. No buildings are shown in the area on the archival maps of the eighteenth or nineteenth centuries, nor is any reference made to such a structure in the literature. It is generally similar in shape and appearance to the nineteenth century foundations found during the survey and could

belong to the same period. The site was considered to have archaeological value and was filed with the Nova Scotia Museum.

3. The Lynch house is set at the end of a tree-lined avenue immediately south of the Davis house and is maintained by Natural Resources. This house was the residence of Matthew Lynch, father of Bill Lynch of carnival fame. Its most striking features are the beachstone chimney and pillars. Associated with the Lynch house are two large outbuildings and a small hut. A midden on the northeast slope within the treeline contained modern items such as paint cans and galvanized buckets.

   The Lynch house is believed to rest upon the foundation of the house of Peter McNab III. Documentation acquired and reviewed by Michael Sanders (n.d.) suggests that the original house was built ca 1832 and demolished in 1931. The extant house was built by Matthew Lynch ca 1933 upon the original foundation.

Series 4

The area between the old military road and the road proper between Fort Hugonin and Fort Ives was traversed in a series of transects on compass bearings of 170° and 90°. This system was followed from the southern edge at the telephone poles at Fort Hugonin as far north as the grey cottage opposite the Davis house. At this point the spruce thickets became too dense to penetrate at the western half of the transects and the methodology was modified. From the grey cottage north to Fort Ives, only the eastern half of the area was surveyed by walking the ridge from south to north.

No sites considered to be archaeologically or culturally significant were located in the area covered by the fourth series of transects.

Series 5

Fort Ives was viewed and described. No subsurface testing was conducted, as the heritage resources are well defined, confirmation was not felt necessary, and time was too limited to conduct an archaeologically correct testing program in a known area of concentrated historical activity.

1. Fort Ives is situated on the summit of Ives Point. Buildings within the fort consist of five brick and one concrete free-standing structures with windows and doors sealed to prevent entry. The foundation of a small brick guard hut exists at the entrance of the fort. A circular brick well is located centrally within the fort.

   Cut granite steps with an iron handrail lead up to the three RML gun emplacements. At the two southern emplacements, the RML guns and their carriages are still in place. The third emplacement has the iron carriage track and concrete pad of the

other two but no gun. A cut granite gutter exists at the interior edge of the gun emplacements.

Further north are the quick-fire emplacements. These are circular concrete structures, two larger and two smaller, dating from 1899 to 1902, when the 9-inch RMLs were replaced with breech-loading guns (Piers 1947). Associated with them is a series of subterranean concrete and brick rooms in varying states of preservation. The majority of the rooms are sealed to prevent entry.

Associated structures on the exterior of the fort include a midden located on the northern slope of Ives Point, a concrete and brick tunnel on the west shore, and several concrete observation posts in various stages of decay.

Fort Ives is listed as one of the forts of the Halifax Defense Complex and is on file with Environment Canada--Parks Service.

Other Sites

One site was discovered that lies slightly outside the study area but was recorded because it is easily accessible from the path that leads to Timmonds Cove and is considered historically significant. The A.J. Davis bottling factory is centrally located on the north end of the island. The remains of this factory consist of a mortared stone foundation lying next to a collapsing wooden frame house, the Findlay dwelling. Presently three of the house's four walls are levelled, but several years ago it was possible to enter and ascend the stairs to the second floor (Michael Sanders, pers. comm. 1991). East of the bottling factory foundation is a stone-lined well. Northwest of the foundation, immediately inside the treeline, is a large midden extending several metres along the bank. Several artifacts were collected from the surface of the midden. These included bottles and ceramics dating from the late nineteenth century to the present. The site was assigned the Borden number BdCv-10.

A.J. Davis was a local meat merchant who bought the Findlay house on McNabs Island and established a plant where soda water was bottled for sale to picnickers visiting the island. The Davis crocks were white with a lightening closure bearing "A.J. Davis/Pure McNab/Halifax, N.S." in three lines. Davis probably operated between 1910 and 1915 (Harris 1977).

The site was considered historically significant and was recorded with the Nova Scotia Museum.

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Heritage Research Permit A1990NS09 and A1991NS09

PRELIMINARY REPORT ON THE DEBERT/BELMONT PALAEO-INDIAN PROJECT

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Introduction

The Debert/Belmont Palaeo-Indian project has been the major research activity for the past three field seasons run from the archaeology laboratory at Saint Mary's University. In the late fall of 1989 two Palaeo-Indian sites were recorded approximately one and a half kilometres northeast of the Debert site. Their late discovery precluded any substantive testing of the sites, this constituted the primary objective for the past two field seasons. The Belmont I site (BiCu: 6), the larger of the two, required definition of its southern limits in order to restrict the limits of proposed development near the site. Towards this a baseline was established through the centre of the site which was defined by surface scatter. The most southerly surface find was used as the location of the first one by one metre test unit. From this unit test pits were excavated every ten metres along the baseline.

At thirty metres south from the start of the baseline a concentration of artifacts and flakes were encountered. The possibility that they were covered by a diamicton-type gravel as seen on the profiles lead to the expansion of the one by one test unit into a one by six metre trench. This resulted in the exposure of a cultural feature in the form of a basin-shaped pit. The feature contained over three hundred micro-flakes along with charcoal which has yet to be submitted for dating.

During this testing another site was encountered one hundred metres southeast of the most southerly limits of Belmont I. Flakes and artifacts were collected from a small exposure that had resulted from the construction of Chalcedony Road. This location, identified as Belmont Ia has yet to be adequately assessed.

The second site, Belmont II (BiCu: 7), received a different approach to testing. The southeast corner of this site had been disturbed by a bulldozed cut made over ten years ago. The dozing had effectively removed the overburden from this portion of the site. In the fall of 1989 a one by five metre vertical cut had been excavated on the edge of the bulldozed face to record the soil stratigraphy. The 1990 field season enlarged this unit into a six by six metre horizontal block excavation. Disturbed cultural material, in limited numbers, was encountered from the surface to seventy-five centimetres below surface. From this depth to one hundred and five centimetres below surface the original living floor was defined. It contained approximately seven hundred specimens including a fluted point, spurred end-scrapers, large side scrapers, retouched

flakes, gravers and hundreds of flakes. The analysis of this material is presently being undertaken.

While the testing of the Belmont II site was underway a second associated site defined by surface material was located on a large ridge seventy-five metres southeast of BiCu: 7. This location, identified as Belmont IIa, is an established tree nursery thus no subsurface testing has been conducted. The testing of the Belmont sites during the 1990 field season was jointly funded by the Nova Scotia Museum and Saint Mary's University.

Throughout the summer of 1990 a survey crew, funded by the Nova Scotia Department of Lands and Forests, conducted subsurface testing on three parcels of land south of the sites. They encompassed an area of approximately thirty acres and were to be developed as tree nurseries. The crew excavated close to 500 test units without finding any cultural remains. With the completion of these units the survey crew moved to another area of the Industrial Park known as the Palaeo Subdivision. The Nova Scotia Department of Small Business Development funded the testing of this 105 acre subdivision which contains 21 surveyed industrial lots, all were tested with negative results.

The final testing within the industrial park was an area of 33 acres adjacent to the Trans Canada highway. Fortunately, this area also proved negative and hopefully by the time the major research effort begins on the Belmont sites the owners of this property "Tim Hortons" will have their retail outlet in operation.

A total of six months and over 2,000 test units were excavated within the Debert Air Industrial Park. Two weeks after leaving the field we received a call from the Lands and Forests office at Debert indicating they had found flakes in an area not previously surveyed. A visit to the area confirmed the existence of another site approximately 600 metres southeast of the original Debert discoveries. This location has been named the Hunter Road site and assigned the Borden number BiCu: 10. Including Debert there are now six confirmed Palaeo-Indian sites within the boundaries of the Industrial Park.

During the testing of an eighteenth century mill complex in the village of Bible Hill an area resident familiar with the role of Saint Mary's in the Debert/Belmont project brought a number of specimens picked-up after MacDonald's excavations in 1964. These included two end scrapers and a couple of dozen flakes. The most interesting specimen in his possession was a spurred end scraper found on the campus of the Nova Scotia Agricultural College. The informant revealed the exact location of the discovery and it fits with the emerging pattern of the Debert/Belmont complex of sites. The location is on the highest ground in the area with a northwest exposure. From the top of the hill a panoramic view of the surrounding valleys is afforded. In fact on a treeless landscape the Debert/Belmont sites could have been seen from this location some 20 kilometres distant. This find has yet to be assessed to determine if cultural deposits exist at this location.

Due to limited funding the archaeological efforts on the Debert/Belmont sites were minimal during the 1991 field season. The 1 X 6 unit excavated on Belmont I in 1990 was extended to the west in order to better understand the soil formation at this location. Preliminary results from this unit and others within the complex are showing that soil degradation is more prevalent then accumulation.

The initial testing of the Hunter Road site was also undertaken during the 1991 season. It consisted of two 1 X 2 metre units north of the road between the ditch and the nursery. Although this area contained substantial surface material in the form of flakes and artifacts the test units failed to identify an occupation level. It is assumed that the main area of occupation is on the higher ground above the test units. The artifactual material recorded on the surface is a product of various types of disturbance. These range from nineteenth century farming practices, use of the property by the military and the recent development of the tree nursery on the site.

Although the archaeological efforts can be considered to be minimal the other members of the research team have generated preliminary results from their ongoing field investigations. The remaining sections of this report includes the studies of the surficial geology and the palynological studies.

Surficial geology: Debert/Belmont Palaeo-Indian Project
R. R. Stea and G. R. Brewster

Introduction

The purpose of this report is to describe the surficial geology of the Debert archaeological site near Truro, Nova Scotia. The Debert site is located 4 kilometers south of the town of Debert in the Debert Air Industrial Park. Recently several new discoveries termed Belmont I, Ia, II, IIa, and the Hunter Road site have been made in the vicinity the original site.

The Debert/Belmont sites are the oldest evidence for human habitation in the Maritime Provinces. The sites have provided data toward the interpretation of human occupation known as the Clovis Period for the far northeast. The artifactual material represents a continuum of a broad, continent-wide adaptation to the hunting of late Pleistocene fauna. The people involved in this adaptive strategy were the descendants of the immigrants who crossed the Bering Strait and settled in the heart of North America. From this core area they spread west to California, east to New England and northeast into the Maritimes. The carbon dates from the 1963-64 excavations at Debert gave an average of 10,600 $\pm$ 47 yr B.P. for the occupation of this site. The new sites at Belmont have yet to be excavated, having only been discovered late in the fall of 1989.

The area around Debert and the Belmont sites has been mapped in detail. Subsurface soil deposits on or near the habitation sites were extensively hand augured, while thirty backhoe excavations were made along the roads and at crucial sites defined by hand augering. Elevation

readings were taken using a Wallace and Tiernan altimeter calibrated at a nearby benchmark. All readings were corrected for barometeric changes. In addition to records of soil profiles grain size measurement were made on several samples collected from the trenches using standard pipetting/seiving techniques.

Quaternary Geology

The Debert/Belmont site area is located on the slope of the Cobequid Highlands being underlain by Triassic sandstone and conglomerate. Exposures of the Triassic sandstone can be weathered and nonindurated (residuum), making them hard to differentiate from surficial deposits of sand. The Triassic sands were deposited in alluvial and aeolian environments (Klein, 1962).

The sites are drained by deeply incised streams that feed into Chiganois River which eventually empties into Cobequid Bay.

The dominant and oldest Quaternary deposit over the study area is a glacial till. It forms broad ridges in the map area and underlies the Belmont II artifact area. It is reddish-brown in colour, with a muddy matrix and is characterized by numerous surface boulders of diverse lithology. These include syenogranites, volcanics, diorites, porphyritic granodiorites, and metasedimentary rocks. Two principal source areas are implied: The Cobequid Highlands, 10km north and the South Mountain Batholith 70km to the south. Erosional evidence for a vigourous northward ice flow is abundant on the south slope of the Cobequid Highlands (Stea and Finck, 1984). The till can be divided into two facies. In the northern region of the map area it is massive and indurated. In the southern part, the till becomes less indurated and contains abundant subhorizontal sand partings and lenses. This facies is associated with hummocky terrain, while the massive facies appears to form ground moraine in the interfluve ridges.

Broad basins adjacent to the feeder streams are underlain by thick deposits of sand capped with a gravel facies. The main body of sand consists of horizontally laminated, graded beds of coarse to fine sand. The laminaeare are generally 1-3cm thick and become less distinct towards the top giving way to a more massive sand. The sand deposits are positively skewed, with a substantial "tail" of fine material. Site 1-3 revealed a cap of coarse gravelly sand with channelized, beds of cross-bedded sand, cobbles within the gravel bed were well rounded.

The sand appears to lap on to the till ridges and pinch out near the crests. North of the Belmont II site a distinct scarp or terrace is cut into the till. The sand pinches out abruptly at the base of the scarp. A slight break in slope can also be seen at other regions where the sand is in contact with adjacent till slopes.

The artifacts found at Belmont II appear to lie above the sand deposit. Belmont I is situated on the till ridge adjacent to the sand body. This suggests that the artifacts are coeval with or younger than the sand deposit.

Interpretation

The sand body herein termed the Belmont Sand, may be a lacustrine or eolian deposit. It is characterized by parallel lamination, normal grading, poor sorting, and negative skewness. To quote Collinson "Wind is an efficient sorter of sediment because of its low density and viscosity and because it can only move sand-sized particles. Coarser grains move less readily and finer material goes into suspension to be transported longer distances and often out of the basin (In Reading 19 :82)." Grainfall deposits in the proglacial eolian environment, however, tend to be parallel laminated, normally graded and may be negatively skewed (Ashley 1985). These deposits however are normally intercalated with eolian sediments deposited by ripple migration and avalanching. Proglacial sand sheets resemble the Belmont Sand. Fryberger (et al., 1979) used these criteria to differentiate the sand sheet:

1. convex-up laminations, cut and fill structures
2. inverse grading
3. intercalation with dune facies

The Belmont Sand does not display any of these characteristics and is relatively homogenous over a large area. The substantial "tail" of fine silt and clay sized material in the Belmont Sand would suggest an alluvial or lacustrine origin. Normally-graded beds suggest river or meltwater-generated underflow currents in a relatively deep lake. The coarse bouldery deposits at site 1-3 may reflect a shallowing of the former lake and ensuing fluvial deposition. The older terrace-like features may have been formed during this time.

It is difficult to envision the formation of a lake at this site given present day conditions and no sill to trap water. The lake may have formed during deglaciation, a result of rapid melting on the south-facing Cobequid Highland slope and persistence of ice in the Salmon River Valley. Glacial lakes were formed in the Shubenacadie and Stewiacke River valleys during delgaciation ca 12,000 yrs B.P. Ice dammed their outlets in the Minas Basin. There is also strong evidence of glacial lake formation postdating 10,700 yrs B.P. in the Wentworth Valley. Rhythmically bedded clays and silts and diamictons overlie peat and wood dated 10,700 yrs B.P. On the south-facing slope of the Salmon River Valley at Brookside, just east of Debert, clay and diamicton deposits overly a peat dated 11,000 yrs B.P. (Beke et al., 1984). Rhythmically-bedded clay has been found on peats with a minimum age of 10,800 yrs B.P. near Lantz, Nova Scotia (Stea and Mott, 1989).

The formation of these lakes during the Younger Dryas Chronozone (11-10 ka) resulted from the buildup of proto-ice caps and glaciers during this period of cold and presumably wetter conditions. Direct evidence for glacier ice can be found at Collins Pond where a thick glacial

diamicton overlies glaciotectionized peat (Stea and Mott, 1990). Lakes in northern Nova Scotia do not record organic deposition until 10,000 years ago.

The Belmont Sand resembles other lacustrine sand sheets overlying the pre-Younger Dryas organic horizon dated ca 12-10.8 ka (Stea and Mott, 1989). If the correlation is correct then it would confirm the estimated age for the Debert occupation (10,600 yrs B.P. MacDonald, 1969) because the artifacts appear to be younger or coeval with the sand. Bonnichen et al., (in press) suggest that the dated charcoal "hearths" may in fact be charcoal from forest fires mixed with artifacts by tree throw. They also propose that the occupation could have predated this fire event which they infer to be between 11,000 and 10,000 years ago. Lake formation during the crucial period, however, mitigates against a drier climate, although isolated forest fires cannot be ruled out.

Palynological Studies: Debert/Belmont Palaeo-Indian Project
R. J. Mott and M. Frappier

Introduction:

Palynological studies in the region of the Debert/Belmont site are not extensive. During excavation of the Debert site (MacDonald, 1969), two sites were cored in the region to provide background data on the vegetation at the time of Palaeo-Indian occupation. Results from one site, Folly Lake bog, were published (Livingstone, 1968); results from the second (Frog Lake) remain unpublished.

Folly Bog is located in the Wentworth Valley adjacent to Folly Lake, about 15 km northwest of the Debert site. A basal date of 10,764 ± 101 is probably slightly anomalous as the palynological profile shows a typical Holocene sequence. Late-glacial spectra associated with a distinctive lithologic sequence seen at other sites throughout Nova Scotia are not present (Mott et al., 1986a).

East of the Debert site, at Truro and Bible Hill, two buried organic sites have been reported (Mott et al., 1986b; Stea and Mott, 1989). Both sites revealed organic sediments that date 11,000 yrs. B. P. or greater, buried by mineral sediment. These sites have been interpreted as representing organic deposition during a relatively warm interval following deglaciation, and were subsequently buried by mineral sedimentation during a climatic regression that occurred after about 10,800 yrs. B.P. (Mott et al., 1986a).

Little Dyke Lake

In a further attempt to obtain a suitable palynological reference site for the Debert/Belmont area, Little Dyke Lake located near Glenholme, adjacent to Minas Basin approximately 10 km west of the archaeological site, was cored. The lake occupies a kettle that developed in the outwash plain that had formed where the Folly and Debert rivers debouche onto the lowland from the Cobequid Highlands. Palynological study of the site is being conducted by Monique Frappier as a masters thesis project at the University of Ottawa. The research is concerned mainly with high resolution pollen stratigraphy, but it will also investigated sedimentological and macro-fossil results reflecting changes in the climate at the site and the chronology of events.

Cores of the lake sediment show a lithological sequence consistent with other sites in the Maritime Provinces that record a late-glacial climatic oscillation equivalent to the Alerod/Younger Dryas event of Europe and the North Atlantic Ocean (Mott et al., 1986b). This sequence shows a return to minerogenic sedimentation near the base of the organic sediments that began to accumulate following deglaciation. Two radiocarbon dates on bulk sediment have been obtained thus far. One from immediately below the return to minerogenic sedimentation and one from the resumption of organic deposition gave dates of 12,000 ± 210 yrs B.P. (GSC-

5167) and 10,500 ± 170 yrs B.P. (GSC-5107), respectively. The presence of carbonates in the basal sediments indicate that the former date is probably too old due to hard water effect. To avoid this problem, large cores were subsequently collected (Summer 1991) to obtain terrestrial macrofossils for AMS dating.

Preliminary investigations of the basal part of the core yielded pollen and stratigraphic evidence suggesting presence of a climatic cycle. At the base of the core, pink, glacio-lacustrine, sandy clay is overlain with black, finely laminated, organic sediment. The latter contains a low diversity boreal assemblage, mainly conifers with some birch (Betula), probably shrub birch. Despite the dominance of tree genera, abundant shrub and heliophytic herb taxa, and low pollen concentrations indicate that the vegetation cover was a boreal woodland.

The overlying 10cm of silty clay that interrupted organic accumulation is characterized by a gradual decline of spruce (Picea) an increase in pine (Pinus) and sedge (Cyperaceae). Despite high values, the pine was probably blown to the site from considerable distances and is over represented because of the poor pollen production of the local flora. Oxyria pollen, often found in post glacial assemblages makes a notable appearance, and along with other herb taxa indicates a reversion to a more tundra-like environment.

As organic sedimentation resumed, herbaceous vegetation was replaced by shrubs and trees. Spruce and Myrica increase steadily, thus suggesting climatic amelioration.

The present data is directly comparable to that of other sites in the Maritimes. The millenial incursion of shrub and herb vegetation preceding the Holocene period is characteristic of many postglacial sites (Mott and al., 1986a). The pollen profile will serve as a reference profile to document the paleoenvironment of the area in the cultural reconstruction.

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Heritage Research Permit A1991NS10

DARTMOUTH HERITAGE RESOURCES SURVEY

Helen Sheldon
Jacques Whitford Environment Limited

Construction of the Halifax-Dartmouth Metropolitan Sewage Treatment Facility will involve placement of collector tunnels along the Dartmouth side of the harbour to transport sewage to the treatment plant at Ives Cove off McNabs Island. The tunnels will be drilled well below the surface, with access shafts and work stations located at approximately every kilometre. The main sewer tunnel will work on gravity feed, starting at Point Pleasant Park in Halifax and gradually descending north through Halifax, across the Narrows, and south through Dartmouth. By the time it reaches Dartmouth, the tunnel will be well below cultural levels and will not have potential impact upon heritage resources along the Dartmouth shore. The sites of the access shafts and work stations, however, will be subject to ground disturbance and thus were surveyed for archaeological and heritage resources. The archaeological survey was conducted in order to determine the potential impact of the construction and operation of the facility upon the archaeological and heritage resources of the affected areas. Specific resources considered were known and potential buildings of historic or architectural significance and known and potential prehistoric and historic archaeological sites. The study area for the survey was the areas of proposed ground disturbance at the 13 proposed construction sites in Dartmouth.

Construction of the access shafts will involve cutting through the accumulated historical remains of Dartmouth in each shaft location. Depending upon the geography and history of any particular location, this activity could infringe upon the integrity of significant prehistoric and/or historic sites.

The Dartmouth shoreline has not been systemically surveyed for archaeological and other heritage resources, nor has an inventory been compiled of potential resources based upon archival data. The majority of sites discovered in the city have been identified through a single artifact find or as a result of construction activity.

The Nova Scotia Museum site files list six prehistoric sites and find locations and one historic site in the Dartmouth area. These range in age from the Palaeo-Indian Clovis point preform discovered at the Chambers site (Christianson 1991) to the nineteenth-century Shubenacadie Canal complex at Dartmouth Cove (Davis n.d.). Evidence of prehistoric occupation in Dartmouth has been found at Hartlen Point (Brian Preston, pers. comm. 1991), at Lake Micmac (BeCv-7) and Lake Charles (BeCv-8), and in downtown Dartmouth on Alderney Drive (BeCv-1, BeCv-2) (Nova Scotia Museum site files).

The first step in surveying the Dartmouth shaft locations was to study the construction plans and determine the specific areas of proposed ground disturbance. Once this information had been obtained, a review of documentation relating to each study area was conducted. This included reviewing files at the Nova Scotia Museum, the Public Archives of Nova Scotia, and the Dartmouth Museum. (Documents from the Public Archives of Nova Scotia are preceded by the prefix PANS in citations). Local and professional informants were interviewed before and during the project in order to obtain further insight into the history and potential archaeological record of the shaft locations. Heritage Research Permit No. A1991NS10 was obtained from the Nova Scotia Museum.

A preliminary inspection was made of the 13 sites to assess the best survey and testing methods. The preferred method of testing was to excavate pits using hand tools. At locations where large accumulations of fill and debris appeared to exist, a backhoe was deemed the most appropriate tool to dig test trenches. All backhoe activity was carefully scrutinized by the archaeological team. Originally ten sites were to be tested with a backhoe and three with shovels. This methodology was modified when the team was informed of a complex series of drains at D12 and water and sewer lines at D10. Ground penetrating radar was used at D6 in an attempt to locate buried features.

Sites discovered during the survey were recorded on Maritime Site Record forms and sent to the Nova Scotia Museum for inclusion into the Borden numbering scheme. Borden numbers are assigned to archaeological sites throughout Canada according to their position on the Borden reference grid. Where possible, the location and depth of artifacts was recorded. After recovery, ceramic and glass artifacts were cleaned and sent for identification and analysis. Perishable organic and metal artifacts were sent immediately for conservation. All artifacts were then catalogued with site and artifact numbers and sent to the Nova Scotia Museum for storage, as required under the Special Places Protection Act.

Before commencing fieldwork, background research was conducted to determine the potential for archaeological sites at the Dartmouth shaft locations. A principal source of information was archival maps, which chart the development of the city and its surroundings from its founding in 1750. Various nineteenth-century literary and historical works were also employed as references.

The field survey of the Dartmouth collector station sites was conducted sporadically as permission was received from landowners. Eight sites were tested with a backhoe and four with shovels; one was researched archivally only.

LOCATION D1

D1 is situated between Nootka Avenue and Tufts Cove in Shannon Park on a level grass lawn at the head of the cove. The D1 area consists of an infilled cove and beach. Archival research indicates that this area has little or no potential for archaeological or

historical sites. An analysis of archival maps revealed no buildings in the area prior to construction of the naval residences.

A sewer/drain line runs through the west edge of the site, which restricted testing to the eastern section. A preliminary inspection of the area suggested that it was infilled recently, probably when Shannon Park was constructed in the 1950s. Because of the likelihood of several metres of fill, a backhoe was used to test the site.

A 1.5 x 7 m trench was excavated to a depth of 2.9 m below surface, placed perpendicular to the shore in an attempt to find the original shoreline. At 2.2 m, a tar-encrusted rock layer was encountered, very similar to the tar-encrusted beach that now exists along the shore. Below the tar was an orange-brown B horizon underlain by a grey C horizon. These original beach and soil levels have been covered with over 2 m of fill.

The two small points of land on either side of D1 were examined and tested. The surface appears to be at or near its original level, but no indication of heritage resources was found. No artifacts or features were discovered during the testing; the area has little potential for archaeological or heritage resources.

LOCATION D2

D2 is located on the south side of the end of Ferguson Road. Archival research indicated moderate potential for archaeological sites in the area. Two buildings are shown near the test location on an 1808 map (PANS 239-1808). Several buildings are also shown in the general area in 1853 (PANS 1853-2320), one of which appears very close to the test location. In 1914, several structures are shown between the railway tracks and the main road. A more detailed map (PANS CHS 4316) shows Ferguson Road in 1949 with structures near the junction of road and tracks. Most of the maps show little detail regarding the precise location of particular buildings but do indicate that buildings existed in the area over the last century and that the potential exists for a historical archaeological site.

A 7 x 2 m trench excavated by backhoe at D2 revealed six distinctive soil levels. Level 1 was a 50 cm layer of fill. Directly below Level 1 was Level 2, a 30 cm layer of gravel. Level 3 consisted of 30 cm of brick rubble; Level 4 was 10 cm of charcoal. Levels 3 and 4 both contained late nineteenth-to early twentieth-century artifacts. Level 5 was a 20-30 cm layer of brick and stone rubble. Level 6 consisted of a yellow-grey sandy fill which extended to the limit of excavation at 2.8 m below surface.

A number of artifacts were recovered from the brick and charcoal of Levels 3 and 4, including masonry anchors, ceramic sherds, and bottle glass. Levels 3 and 5 appear undisturbed. This archaeological evidence indicates that a brick structure was built and burned at the site sometime in the nineteenth century. This structure could be one of a

number of buildings, but probably does not date as early as the two 1808 buildings; it might be one of the 1853 buildings. Unfortunately, no information could be obtained regarding the function of the buildings.

The test trench exposed a section of a late nineteenth-to early twentieth-century site. Because the site layer was under 1 m of fill, extensive testing was not possible without severe site disturbance; thus the extent of the site to the north and west is not known. The site does not appear to extend further east than the location of the test trench. The site was recorded with the Nova Scotia Museum and assigned Borden number BeCv-18.

LOCATION D3

D3 is located on a small point of land between the railway tracks and Halifax Harbour. The location is near the former site of the S. Oland Son and Co. Turtle Grove Brewery (also known as the Army and Navy Brewery). Structures associated with the brewery are shown on the northeast (inland) side of the tracks, not in the immediate vicinity of D3. A brewery wharf is depicted on several maps (PANS 239-1878; PANS 239-1886/88; PANS 239-1914; PANS 239-1918), but its exact location is not known.

The general area is reported to have been the site of a Micmac camp levelled by the 1917 explosion (Martin 1957).

Five test pits were excavated by shovel and trowel to test for cultural remains in several areas of the site. All results were negative. Most of the area has been disturbed by sewer line construction and infilling of the harbour.

Two features were evident on the surface immediately south of the proposed construction area. These are a concrete access shaft and a similar stone structure. The function of the stone structure is not known. The concrete feature may be associated with a disused pipeline (possibly sewer). The age of these structures could not be determined, as test pits excavated in their vicinity yielded no datable information.

LOCATION D4

D4 is located at the edge of Crathorne Park at the base of Jamieson Street. According to the 1961 *Insurance Plan, City of Dartmouth* (PANS), most of the park lies upon a cove that was infilled some time after 1961.

In the early nineteenth century, the cove was used as a "Watering Place", possibly by the military (PANS 239-1808; PANS HO 345). A wharf existed at the northwest side of the cove at the base of Jamieson Street and the "Old Windmill" was located north of the test area (PANS 239-1808). A wharf and an associated structure on its landward edge are shown at the base of Jamieson Street from 1853 through 1918 (PANS 1853-2320; PANS

239-1878; PANS 239-1914; PANS 239-1918). By 1934, no buildings were located in the area and a railway spur line had been constructed between the railway tracks and the street (1934 insurance plan). The spur line had disappeared by 1961 and the cove was filled in some time afterward (1961 insurance plan).

A trench was excavated with a backhoe at the north edge of the park adjacent to the tracks in an attempt to locate the original shoreline and ground surface. At approximately 1 m below surface an artifact-bearing layer was encountered. Numerous ceramic sherds, bottles, and glass and metal fragments were scattered throughout the 80 cm thick layer. The character of the soil layer and the type and quantity of artifacts indicate this is a late nineteenth- or early twentieth-century dump. The site is very similar to that found at D7.

The site was recorded with the Nova Scotia Museum and assigned Borden number BeCv-19.

LOCATION D5

D5 is located on a section of infilled cove at the foot of Best Street. In 1878, a public dock was located at the base of Best Street on the shoreline north of D5 (PANS 239-1878). This appears to have been the only historical structure in the area.

According to historical maps and current site inspection, the cove has been filled in recently. A test trench excavated by backhoe confirmed that the site is composed of fill containing large boulders and slabs of concrete to a depth of 2.7 m. Excavation ceased when water was encountered 2.7 m below surface.

The site has no historical, archaeological, or heritage value.

LOCATION D6

D6 is located at the end of Park Avenue, adjacent to the railway tracks. Archival maps indicate that the original nineteenth-century Dartmouth railway station was built slightly west of the end of the street, known at the time as Stairs Street (PANS 239-1886/88). In 1889, the station, platform, wagon shed, and freight shed were located approximately 75 feet northwest of Park Avenue (1889 insurance plans). By 1906, a new station had been constructed at the end of Park Avenue running parallel to the tracks. The old station still existed, the freight shed had increased in length, and the wagon shed had disappeared (1906 insurance plan). The 1934 insurance plan shows the new station and the freight shed, but the old station has disappeared. In 1961 the "new" station is described as having brick walls to a height of four feet with wood above, overhanging eaves, and a platform between the station and the tracks (1961 insurance plan). The station was still present in 1969 when the original photography for the 1972 Department of Lands and Forests map was flown.

A trench was excavated by backhoe at D6. The area available for testing at this site was limited by the presence of asphalt paving, a city water line, a storm drain, and a CN shed above a large underground gasoline tank.

The concrete foundation of the old railway station was encountered at the southern end of the test trench. The foundation extends into a builder's trench cut through the slate bedrock. At the opposite end of the trench; bedrock appeared 85 cm below surface; the entire overlying soil layer consisted of a mixture of fill and various modern artifacts. A line of bricks on the surface east of the test area may be part of the railway foundation.

A ground penetrating radar unit was tested at D6 by Jacques Whitford and Associates Limited, who have used the unit successfully on several projects. If the unit had been able to detect the concrete foundation wall that had been excavated and reburied, it would have been used at other shaft sites in Dartmouth where such features may exist, especially D2, D4, and D7. Unfortunately, despite repeated passes over the wall, the unit failed to distinguish the foundation from the surrounding soil matrix.

The foundation encountered in the test pit is believed to be that of the "new" railway station built before 1906 and demolished after 1969. The site was considered to have heritage value and was assigned Borden number BdCv-16 by the Nova Scotia Museum.

LOCATION D7

D7 lies within the borders of the Dartmouth Marine slips of Halifax-Dartmouth Industries Limited. Historically, this was the west side of the mouth of the Shubenacadie Canal in Dartmouth Cove.

The test location appears to have been a man-made basin or dock as early as 1878 (PANS 239-1878). The basin was filled in some time before 1949 (PANS CHS 4316). In 1906, the boiler shop of A.A. Webber and Son is shown in the same location as the present-day building. In 1934, the test area in front of the boiler shop supported no structures but a possible seawall of cribwork.

Two trenches were excavated by backhoe at D7. A prominent soil profile suggests that the nineteenth-century slope of the shore was the line between levels 2 and 3, where Level 3 was the shoreline and Level 2 was the fill used to fill in the basin. Level 2 was a yellow shale-bearing soil, a redeposited local B horizon, free of artifacts and contaminants. Level 3 was the artifact-bearing shoreline, dating to the late nineteenth-century. Artifacts recovered from Level 3 included a Felix J. Quinn stoneware bottle, several glass bottles, and domestic ceramic sherds. The majority of the artifacts date to the end of the nineteenth century.

The structure of the soil and artifact placement in Level 3 is reminiscent of a dump, and is very similar to the site excavated on the other side of the Shubenacadie Canal at Dartmouth Cove by Davis (n.d.) in 1984. Below Level 3 was a layer of mussel and clam shells representing the original marine environment. No structures or features were found in the two test trenches.

The site was recorded with the Nova Scotia Museum and assigned Borden number BdCv-18.

LOCATION D8

D8 is located at the bottom of Maitland Street. A public dock existed here in 1878 (PANS 239-1878). The dock appears to have been relatively short-lived, as it had disappeared by 1886 (PANS 239-1886/88) when the railway was constructed along the Dartmouth waterfront. No other nineteenth- or twentieth-century maps show any structures in the area.

The area available for testing consisted of 9 m of gravel between the railway tracks and the street pavement. Testing was further restricted by the presence of a major sewer line of the east side of the street.

A test trench was dug by backhoe to a depth of 2.1 m. At 1.5 m below surface was a row of large logs, laid parallel, oriented north-south, above another row of logs oriented NW-SE. This appears to be cribwork from a wharf similar to that which still exists further south. No cultural material was recovered to date the structure except a red "LANTZ" brick of twentieth-century origin. No evidence of a marine environment was found, suggesting that the cribwork was terrestrial, the land end of the wharf. The cribwork is below the railway level and extends south beneath the tracks, indicating that the feature predates the railway that was built along the Dartmouth waterfront in 1885.

The cribwork encountered in the test unit probably is a section of the 1878 wharf. The site was recorded with the Nova Scotia Museum and assigned Borden number BdCv-17.

LOCATION D9

Site D9 consists of 75 m^2 of land sandwiched between the railway tracks and the beach at the base of Old Ferry Road. The road name reflects its historical associations, as it once led to Creighton's, or the Lower Ferry, wharf, which existed at the base of the street as early as 1808 (PANS 239-1808; Lawson 1972). The old ferry ceased to run in 1832 or 1833. The original wharf was replaced by 1863 by one belonging to a Dr. Parker (Lawson 1972; PANS 239-1863). A wharf is shown at the location on various maps and

plans through 1934 (PANS 239-1878; PANS 239-1886/88; PANS 239-1914; PANS 1934 insurance plan). Mott's chocolate mill and soap factory were located a short distance north of the old ferry wharf site.

A large sewer line runs directly through the centre of the site. Three shovel test pits were excavated at the location. They revealed a highly disturbed soil containing numerous plastic and styrofoam articles and pieces of asphalt. No indications of a wharf were found in the soil or upon the beach. Any heritage resources that may have existed at the location apparently were destroyed by construction of the sewer line.

LOCATION D10

D10 is located at the end of Parker Street at the base of a steep hill of fill. Historical maps show nothing of interest in this location.

Backhoe excavation was not possible due to major water and sewer lines running through the centre of the site (John Lawlor, pers. comm. 1991). A test pit dug by shovel in the centre of the proposed collector station site confirmed the surface evidence of disturbance and infilling of the area. This disturbance would have originated primarily from construction of the water and sewer lines. The site has little potential for heritage resources.

LOCATION D11

D11 lies on a grassy slop immediately south of Cuisack Street. The area is rumoured to have been the site where General Wolfe exercised his troops before journeying to Quebec in 1759. J.P. Martin (1957) has reported that the Sandy Cove Bathing Establishment conducted business in the late eighteenth century at the head of the cove, and that the Sandy Cove area was "seasonally used by the Micmacs until about the middle of the last century" (Martin 1957:13). The location has moderate potential for historic and prehistoric remains.

A test trench was dug by backhoe to 2.85 m below surface, the limit of the machine's reach. The soil consisted of 15 cm of black humus under the sod, above 80 cm of orange-brown clay-sand. The remainder of the pit was in a medium-brown clay. The soil was not disturbed and contained no cultural material.

The surrounding area was inspected for surface features and artifacts. None were found except the modern sewer lines and manholes on the southern edge of the site.

LOCATION D12

D12 is located on the lawn of the Nova Scotia Hospital, abutting its sewage treatment plant. The property formerly was known as the Mount Hope Lunatic Asylum, constructed in 1856. Archival records (e.g. Department of Public Works and Mines 1938) indicate several buildings upon the grounds of the hospital, but none within the test area.

The network of drains at the site made excavation by backhoe impossible (Don MacIntyre, pers. comm. 1991). Furthermore, since the entire area already has been excavated for drainage and sewage systems, shovel testing was deemed unnecessary.

LOCATION D13

D13 is located at the end of Melva Street. The archival research revealed nothing of historical interest at the location.

A small stream in a steep gully runs through the centre of the site. Because of the steepness of the slopes and the presence of the stream, backhoe excavation was not possible. The area was inspected on foot. Both sides of the stream have been heavily infilled over several years (Roger Cross, pers. comm. 1991). No cultural remains were evident except a small concrete dam built over the stream.

Conclusions

Of the thirteen construction shaft sites in Dartmouth, five were found to contain some form of heritage resource. All of these resources were in the form of historic archaeological sites, identified through artifacts and/or features discovered below the ground. No extant buildings of historic of architectural significance were found within the boundaries of the Dartmouth shaft sites.

No significant heritage resources were discovered at locations D1, D3, D5, D9, D10, D11, D12, and D13. D1 and D5 are areas that have been infilled during this century. Construction activity for installing sewer and water lines and drains has destroyed any heritage resources that may have existed at D9, D10, and D12. D11 is in a relatively pristine state but does not appear to harbour any heritage resources. The potential Micmac encampment at D11 probably was located closer to the shore, in the vicinity of the present railway tracks. D3 has been subject to sewer line construction and infilling to some extent. The portion of land that appears undisturbed yielded no evidence of significant heritage resources. D13 has been heavily infilled, so the original banks of the stream are much reduced. The area has some potential for historic resources, as it is located near the confluence of a stream with the harbour. Characteristically, such locations attracted both historic and prehistoric use and occupation.

Heritage resources were discovered at D2, D4, D6, D7, and D8. Late nineteenth- to early twentieth-century sites exist at D4 and D7. No features were found associated with the artifact concentrations, but potential exists for wharf and building remains at D4 and for structures associated with the Shubenacadie Canal at D7.

D6 contains the foundation of the Dartmouth railway station. Because only a small segment of the site was available for testing, the full extent of the foundation is not known. Some damage presumably has already occurred from construction of the water line and storm drain that intersect the site.

The cribwork encountered at D8 is believed to be part of the late nineteenth-century public dock that existed at Maitland Street. The dock appears to have succumbed to the railway, which was constructed over it in 1885.

D2 contains a late nineteenth- to early twentieth-century site. Available evidence suggests that the site is domestic; a brick foundation probably exists 1 m below surface in the immediate vicinity. The site appears to extend northwest from the test pit.

Acknowledgements

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This report covers one of four archaeological surveys performed for HHCI by JWEL. These surveys were coordinated by J. Callum Thomson, Senior Archaeologist, JWEL.

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Heritage Research Permit A1991NS11

MARINE ARCHAEOLOGICAL SURVEY OF HALIFAX HARBOUR

Roy Skanes
Jacques Whitford Environment Limited

Halifax Harbour Cleanup Incorporated (HHCI) is proposing to build a regional sewage treatment plant (STP) off the north end of McNabs Island. To accommodate the required structures, extensive infilling of marine areas will be needed in order to provide an island platform upon which to build the treatment plant. According to HHCI, the work will be carried out completely from the water with little terrestrial disturbance. Related proposed components of the current sewage treatment facility project that are relevant to marine archaeological resources consist of an extension to the present outfall system at Herring Cove, and a sewage diffuser in Halifax Harbour.

All equipment necessary for the operation of the plant and associated works will be positioned either on the man-made island or, as in the case of the pipe extension at Herring Cove and the diffuser site in Halifax Harbour, directly on the harbour bottom.

The general objectives of this study were to thoroughly inspect the above mentioned areas for the presence of historic resources. This work was undertaken in collaboration with associated land studies to determine the nature and extent of archaeological material in the proposed construction areas.

Archival Research

A search of the Nova Scotia Museum Site Record Forms indicated that no underwater archaeological sites were registered for Ives Cove, Ives Knoll, Herring Cove or for the four proposed diffuser sites. Preliminary research indicated that the ruins of at least seven historic wharves were present along the shore in Ives Cove and at Indian Point. All of these structures are shown on maps and marine charts of Halifax Harbour, the earliest of which dates to 1853 (Maritime Museum of the Atlantic 1853). This map shows only one wharf at Ives Cove; however, a second from the nineteenth century by C. Akers (PANS 239-1886/88) shows not only the location of the one mentioned above but also another associated with Fort Ives. On this map the Fort Ives wharf is referred to as the W.D. Wharf. All other map references showing shoreline structures in Ives Cove date to the twentieth century.

Three Canadian Hydrographic Services marine charts dating from 1973-1990 highlight the location of four submerged or partially submerged vessels in Ives Cove (CHS 1973; CHS 1987; CHS 1990). All sites are represented simply as shipwrecks with no other details given.

Research revealed that the wreck of the eighteenth-century frigate, H.M.S. *Tribune*, is located south of the headland at the entrance to Herring Cove (Pullen 1975). Discovered by local divers in 1968, this site has unfortunately been under attack by treasure hunters and salvagers since then (R. Ogilvie, pers. comm.). Nonetheless, frequent monitoring of the site by members of the Nova Scotia Underwater Archaeology Society has resulted in the compilation of a significant body of data regarding the remains (J. Kenchington, pers. comm.).

Field Research

The field component of the study began with a remotely operated vehicle (ROV) survey of offshore areas to the north of Ives Cove, deep-water locales to the east and west of Ives Knoll, and the four proposed diffuser sites (Figure 1). Since these areas were used in the past as anchorages, the potential for locating wrecks, dumped ship's ballast and concentrations of lost or discarded artifacts was considered high.

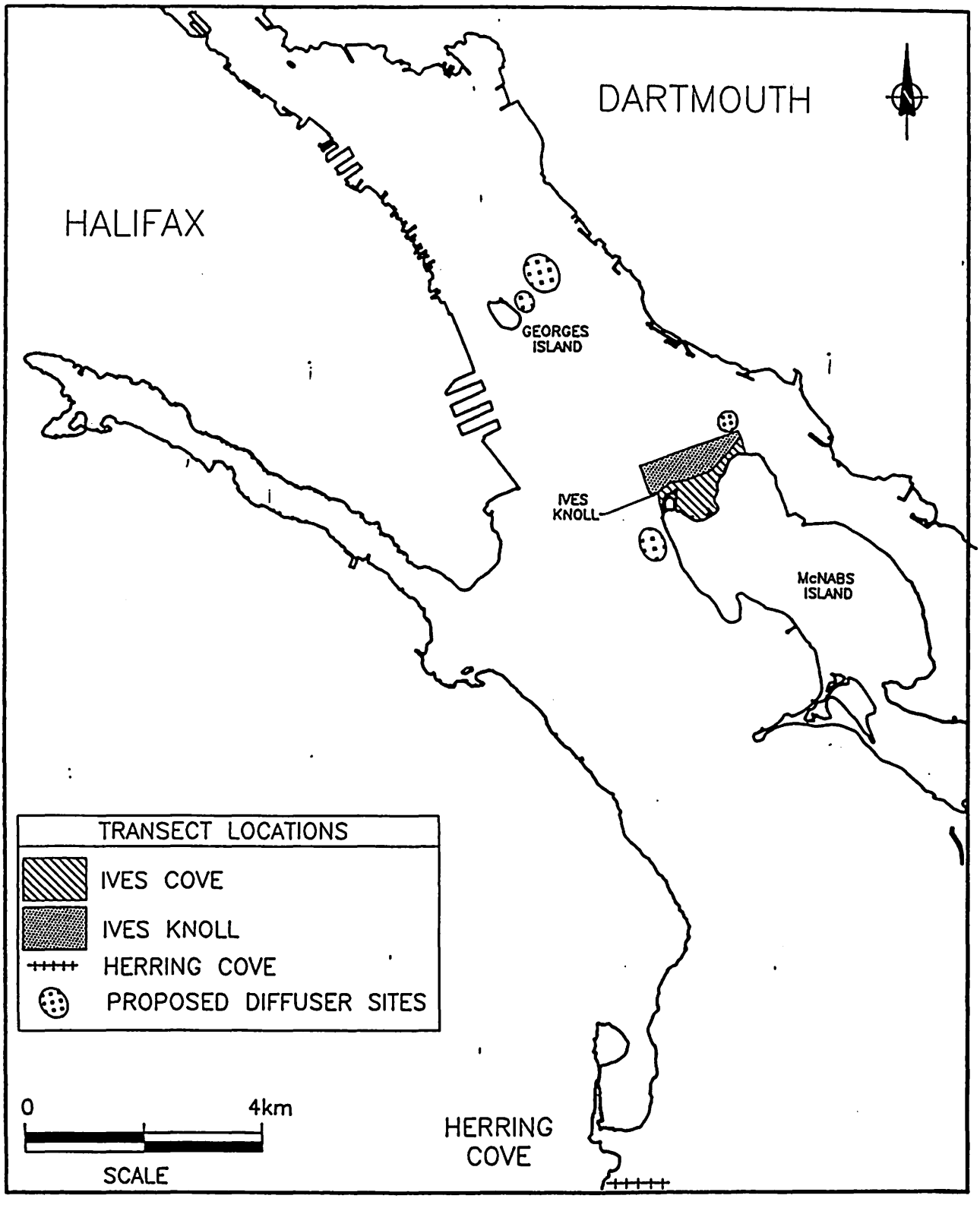
The ROV study was complemented by a program of SCUBA transect surveys in Ives Cove, at Ives Knoll, and near the outfall at Herring Cove. The objectives of this program were to intensively inspect shallow-water areas not covered with the ROV camera.

Subsequently, a program of sub-surface test-pitting was conduced in Ives Cove in the vicinity of wharf ruins identified during the shallow-water diving reconnaissance. The logic underlying this task was that it has been demonstrated by archaeologists working in other maritime communities that areas underwater in the vicinity of historic wharves and jetties are ideal locations for study (Skanes 1989; Stevens 1985). This is because these structures were generally used not only to secure, load and unload vessels, but also as places from which domestic and occupational refuse was discarded. Further, given that in certain geographic settings there are not abundant locations in which to build these structures, often areas used for docking facilities were subsequently reused at a later time for similar reasons. Therefore, excavation in the sediments around such structures could potentially reveal a well preserved record of a longstanding human presence in an area. In the case of Ives Cove, it was not reasonable to expect a broad range of well preserved organic materials.

ROV Reconnaissance

The area covered offshore of Ives Cove and at Ives Knoll with the ROV comprised all locations contained in the study area on the north end of McNabs Island deeper that the 6 m (19.6 ft) contour (Figure 2). Shallower areas both in the cove and on the knoll, were subsequently inspected by an archaeological diving team.

Before undertaking the video reconnaissance it was essential to establish an ROV study area that encompassed all points underwater that could potentially be impacted by the proposed construction. Every though infilling for the treatment facility will occur close in to Ives Cove, material from future construction could potentially extend a distance to the north towards Ives



	HALIFAX HARBOUR CLEANUP PROJECT		
	OCTOBER 1991	LOCATIONS OF STUDY AREAS	Figure 1

Knoll. Therefore, for purposes of this investigation, the ROV study area on the north end of McNabs Island comprised the region between two navigational buoys; one north of Indian Point and the other north of Ives Point. This area extended south towards the cove to the 6 m depth (19.6 ft) contour.

In total, 27 ROV transects were undertaken in the identified area to the north of Ives Cove. Given that the visibility in the water during the reconnaissance was somewhat reduced, the ROV was able to record only 5 m on either side of a transect line. Even working with this limitation, a 40-50% visual coverage of this region of the harbour bottom was achieved.

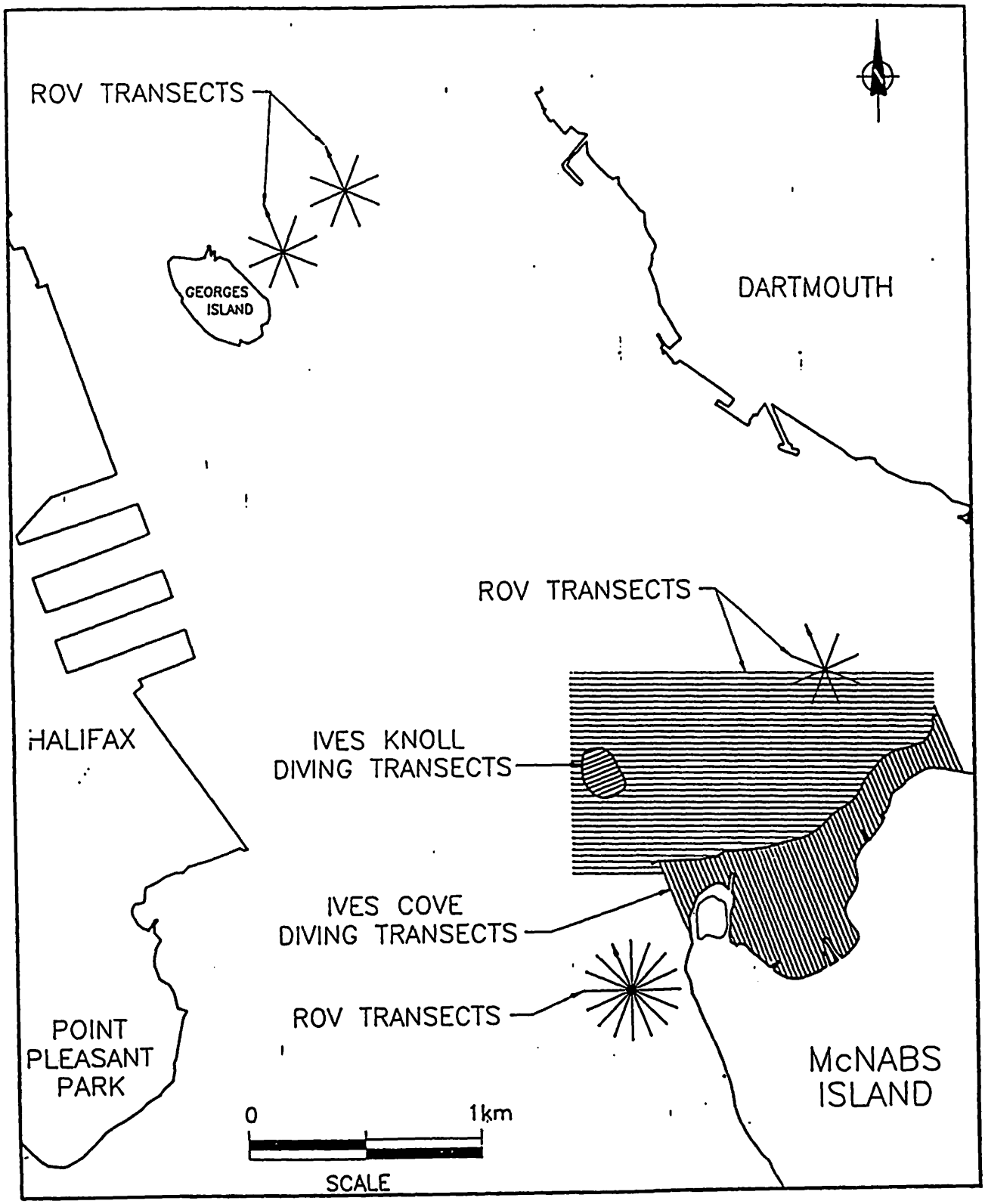
Four proposed diffuser site locations in Halifax Harbour were investigated with the ROV (Figure 2). The ROV was able to visually inspect eight radiating transects for the two proposed sites east of Georges Island and the proposed site near Eastern Passage. Because the proposed site west of McNabs Island was the preferred diffuser location at the time of the study, additional coverage was focused on this area. Sixteen transects were performed there. In all locales covered with the ROV, the visibility was essentially the same as that encountered at the north end of McNabs Island, that is 5 m either side of the camera. As a result, adequate but limited coverage of the proposed diffuser sites was obtained.

Diving Program

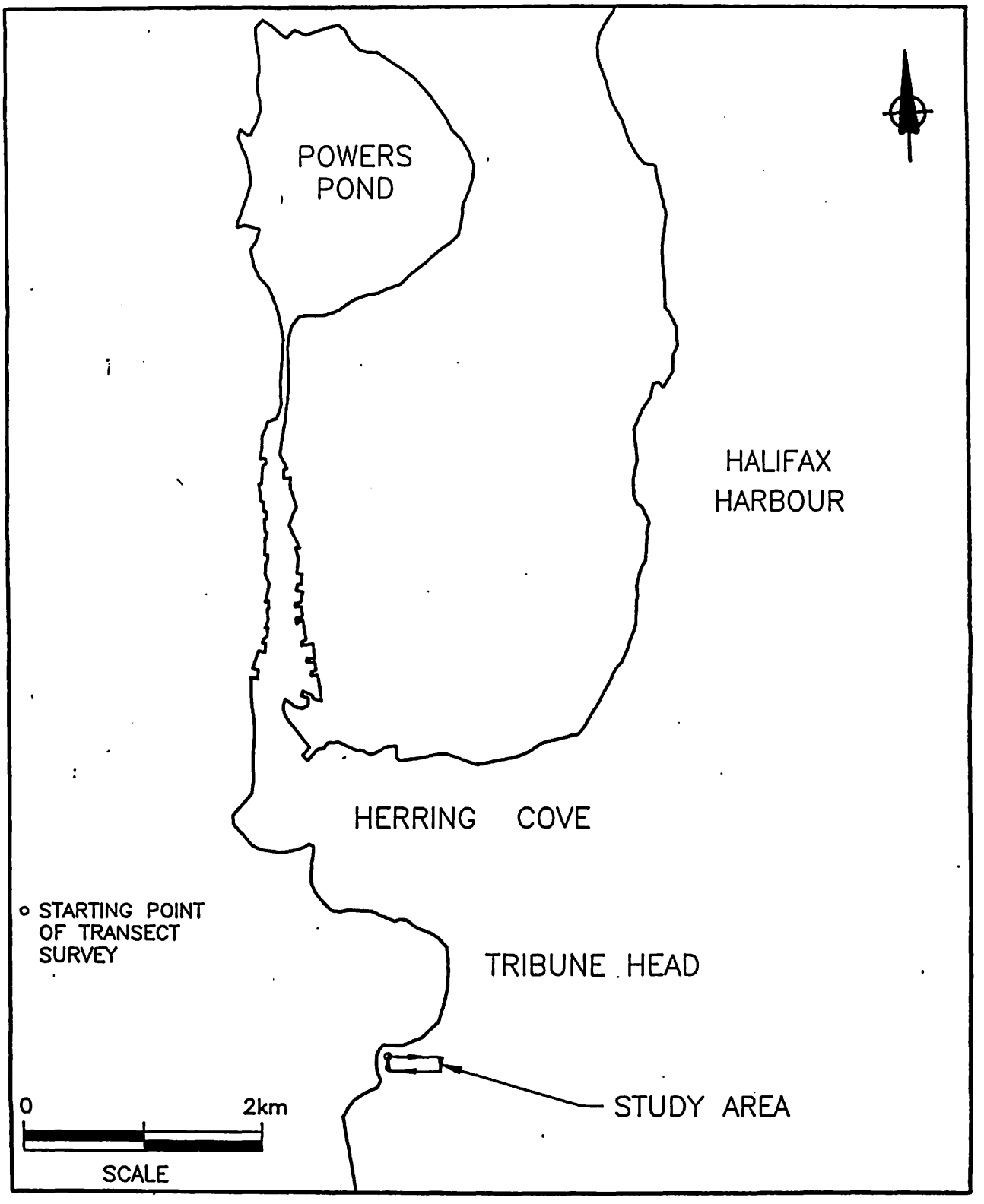
SCUBA transects, beginning at Indian Point and proceeding west towards Ives Point, were undertaken to inspect areas not covered during the ROV survey and were designed to afford an extensive visual examination of the bottom between the shoreline and the 8 m (26.2 ft) depth contour. By covering the area from 0-8 m, a substantial overlap with the ROV program was obtained. Given that visibility in the water during the study was in the order of 5 m, it is estimated that at least 65-70% coverage was obtained of this area. A total of 22 S-N and 22 N-S transects were undertaken in Ives Cove (Figure 2).

Archaeological material was retrieved from various locations in Ives Cove for further study and assessment of mitigation requirements. All sites of significance were assigned a location number (i.e. Locus 1) to facilitate plotting them on a site plan. At Ives Knoll, SCUBA transects were run similarly to those in Ives Cove. In total, 10 transects were required to complete this section (Figure 2).

One day was spent inspecting the route of any potential sewage outfall extension at Tribune Head, Herring Cove. Figure 3 shows the SCUBA transects that were followed in this area. Given that the visibility in the water was in the order of 8 m, it was concluded that good coverage was obtained.



	HALIFAX HARBOUR CLEANUP PROJECT		
	OCTOBER 1991	TRANSECT LOCATIONS	Figure 2



	HALIFAX HARBOUR CLEANUP PROJECT		
	OCTOBER 1991	DIVING TRANSECTS NEAR TRIBUNE HEAD	Figure 3

Test-Pitting Program

In Ives Cove, a water dredge deployed from the survey vessel was used to undertake subsurface archaeological testing at four locations. The areas excavated were selected for testing due to their proximity to wharf ruins, the oldest of which was thought to date to the late nineteenth century. In total ten 50 cm x 50 cm test units were excavated to depth in excess of

1 m. As no locations north of Ives Cove or to the east and west of Ives Knoll demonstrated archaeological potential during either the ROV survey or the diving program, no subsurface testing was conducted in these areas.

Results

Virtually all cultural material recorded during the marine archaeological survey was located in Ives Cove and the majority dates to after 1900. There were, nonetheless, surface finds of glass and ceramic fragments that could date to the latter part of the previous century. It is emphasized, however, that the occurrence of such material was extremely rare (12 artifacts in total) and in only one instance did the distribution of such finds shed light on the use of a particular part of the cove and adjacent land (Locus 16: Fort Ives Wharf). All other surface material exhibited a pattern of random distribution.

Important Findings, Ives Cove

LOCUS 15: WHARF REMAINS

The collapsed remains of wharf measuring 25 m W-E x 7 m N-S located on the southwest side of the cove were investigated. This structure was owned and used by the Lynch family up until its destruction in the 1960s (W. Partridge, pers. comm.). A substantial portion of the feature is exposed at low tide, thus more fully revealing structural characteristics. This structure consists of a mound of beach cobble which in places covers large square sawn wooden timbers. These timbers, some measuring 20 cm x 20 cm, were fastened with iron spikes and would have formed a crib to contain the rock. In general, only sections of timbers permanently immersed in water have retained any degree of structural integrity. Segments exposed above water at low tide are severely deteriorated.

Both nineteenth-century maps of Halifax Harbour mentioned above, one from 1853 (Maritime Museum of the Atlantic) and the other from 1886 (PANS 239,1886/88), show a wharf at roughly the same location as the twentieth-century Lynch property. This information suggests that the Lynch family either acquired and used the original wharf, or that they constructed a new docking facility on top of the nineteenth-century structure. Because there is no ruins shown on a map for this location until 1965 (CHS 1965, number 4316), it is concluded that the original

wharf was likely repaired, or perhaps even totally rebuilt. As such, the site has very likely remained in continuous use from the early 1850s, until the Hurshman property fell into disrepair around 1966.

Surveys in the water and on the beach in the vicinity of the wharf ruins failed to reveal any evidence to substantiate a nineteenth-century structure. Therefore, sub-surface testing in the sediments around the perimeter of the contemporary remains was scheduled.

The six test pits excavated adjacent to Locus 15 revealed that the sediments surrounding this wharf contained a substantial amount of decomposed organic material derived from rotting tree branches, bark, and leaves. These debris account for the dark colour and strong odour of the sediments. At all six test areas the depth and composition of the layers was similar and was as follows:

Layer 1
Description: Sand and silt
Thickness: 0-15 cm

Layer 2
Description: Dark organic mud and silt
Thickness: 15-110 cm

Layer 3
Description: Rock and gravel
Thickness: 110-135 cm

The remains of wooden barrel staves were found 60 cm below the silt surface in test pit 2. Analysis of this material indicated that they likely date to the first half of this century (i.e. contemporary with the Lynch property). These artifacts are the remains of a container that was probably dumped or lost from the wharf. Below the staves and resting on top of Layer 3 are the remains of two unhewn circular wooden timbers measuring 25 cm in diameter. Both timbers are oriented in the same direction (N-S) and run parallel to the axis of the Lynch wharf. Remains of one of these timbers was also noted further north in test pit 3. Other than the absence of bark, no modification to the wood was noted.

Even though there was no associated artifactual material found at this depth to accurately date the timbers, based on their vertical location and shape (these are circular as opposed to squared timbers), it is reasonable to assume that they are remnants of a structure that likely predates the Lynch property. While it is difficult to prove this conclusion in the absence of solid data, their relationship with the squared timbers and the barrel staves suggests that the circular structural members at one time formed part of the nineteenth-century wharf shown on the 1853 and 1886 maps (PANS 1853-2320 and PANS 239). All other test pits excavated at Locus 15, however, revealed no further evidence to support this.

LOCUS 16: FORT IVES WHARF

The submerged remains of Fort Ives wharf located at the end of Ives Point were examined for the presence of archaeological material This docking facility, constructed around 1886 (PANS 239,1886/88), was maintained and used until approximately 1949 when it is shown on maps as ruins (PANS 1949). Remains of this site consist of 8-10 upright wooden pilings on the beach and a large concentration of rock and cement in the underwater area immediately offshore to the north. Underwater investigation in the area indicates that the debris extend 50 m into the harbour.

Scattered in the vicinity of the wharf ballast are the remains of numerous ceramic and glass fragments, of which a small representative sample was retrieved for study. Results indicate that the material collected dates to the late nineteenth century or first half of the twentieth century. No tighter time period than this could be established. Nonetheless, these results suggests the material was deposited into the cove sometime during the life of the wharf. Although difficult to substantiate, it is reasonable to suggest that some of the material on the bottom was discarded by military personnel stationed at Fort Ives.

LOCUS 22: CLINKER-BUILT BOAT

During transect swimming in Ives Cove the remains of a small clinker-built boat were located on the east side of the Lands and Forests Wharf in 1.5 m of water (low tide). Initially, the ends of two exterior planks were noted protruding above the silt surface. An examination revealed that they were likely significant due to the level of craftsmanship and the generally rarer method of construction represented. Excavation was therefore conducted with the following objectives:

- to more accurately determine the nature and extent of the remains;
- to gather evidence, either artifactual or structural, that might date the vessel;
- to derive a photographic and drawn record of the remains to better interpret the methods of construction, which could shed light on its origin and age; and
- to obtain wood samples from structural components to permit species identification and determine if the vessel was constructed from local or foreign materials.

A portion of one side of the boat and possibly as much as a complete cross-hull section is firmly intact and exceptionally well preserved between 70-80 cm of accumulated sand and silts. An area measuring 1.5 m x 1 m was excavated and recorded. Given that the vessel was most likely constructed using the Imperial System of measurements, dimensions of all structural components are expressed these units.

Exterior planking

The exterior planking of the boat was of pine with each strake averaging 5/8" (1.4 cm) thickness x 6.5" (16.5 cm) wide. Each plank extends an average of 5" (12.7 cm) above the upper end of the adjoining strake, thus allowing at least 1.5" (3.8 cm) of overlap on the exterior surface. This ratio gradually reduces toward the southern end of the vessel. At this location the plank ends are not squared, as is the case towards the mid section, but tapered. The reduction in overlap and the tapered plank ends is suggestive of the bow or the stern of the vessel; however, because the boat may have been double-ended, it is difficult to determine definitively which extremity is represented. Only with further testing will this be clarified. The interior surface of virtually all exterior planks is covered with a thick coating of tar.

Frames

The frames, also of pine, are of two distinct types. The first, referred to here as "body frames", were individually cut strips of wood measuring 1" (2.5 cm) across x 0.75" (1.9 cm) thick. These frames, possibly steamed and manipulated to the desired shape, were designed to extend across the entire body of the vessel, from the gunwale on one side, down and over the keel, and up to the gunwale on the opposite side. Given that only a partial cross section of the vessel was exposed, it is not known whether the body frames are single pieces of wood. All body frames were notched on the outer face to accept each course of overlapping planking.

The second category of pine framing was a type fashioned from a single piece of wood to fit a specific location as opposed to having been steam bent. Only one example of this frame type was recorded; it was devised to articulate with planking at one end of the vessel. This conclusion is derived from the fact that the general design of the component indicates that the breadth of the vessel where the frame was fastened could not have exceeded 20-24" (50.8-70 cm). Visible tool marks suggest that the artifact was first roughed-out with a saw and carved to the desired shape with an axe. Both types of frames are coated with tar.

Ceiling Planking

Four strakes of ceiling plank, also apparently of pine, were recorded in place on the internal surface of the vessel. The dimensions of these planks vary somewhat but are an average of 4.5" (11.4 cm) wide x 0.25" (6 mm) thick. As only limited excavation was conducted at the site, the exact lengths of these planks were not determined.

Keel

A disarticulated fragment of what has been tentatively identified as a section of keel was located approximately 1.5 m west of the articulated structural complex. As the **in situ** boat remains are located very close to an active wharf, it is probable that prop-wash from approaching

and departing vessels dislodged this component from its original position. Nonetheless, its general characteristics yielded substantial information.

Wood identification revealed that the component is constructed of birch. Its shape and design suggest that it came from the extreme forward end of the vessel. In fact, a scarf joint cut into its upper end suggests that this would have been where it fastened to the stem. Clearly visible on either side of the artifact are rabbets designed to accept the lowermost external planking, or garboard strake as it is known.

Fastenings

Two types of structural fastenings were used in the construction of the clinker-built vessel: square copper nails and what appear to have been square iron nails. As all the iron has deteriorated leaving only a corrosion product on the wood surface, the shape of the nail in this instance was surmised from the outline of the remaining hole. No intact iron nails were retrieved from the vessel. All copper nails used to fasten components were driven from the outside and clenched back into the frame. No evidence to indicate the use of washers or roves were found.

Summary

Analysis of the intact structural assemblage and various disarticulated components suggests that the boat was originally in the order of 15 ft (457 cm) long, with a maximum beam of perhaps 5-6 ft (153-183 cm). These dimensions, combined with the spacing between the frame, suggest a lightly constructed craft. No evidence was found to indicate a sail was used. Further, as the wood types employed in the construction are available in the region, it would seem likely therefore that the vessel was locally built. Determining the age and original function, based on the limited date available, is somewhat more problematic. Nonetheless, extant features do support informed speculation.

As indicated, a large percentage of the fastenings are square copper nails. While these are extremely difficult to date, their use in this instance is noteworthy in that, generally speaking, local civilian craftsmen from the nineteenth and twentieth centuries chose to use less costly iron or galvanized nails as opposed to the more expensive copper variety. This fact, combined with the high level of workmanship exhibited in the framing, suggests perhaps a wealthier owner, which in this locale may point to the military (M. Moore pers. comm.).

While the deduction presented above appears sound, the presence of tar on the inner surface of the boat highlights a practice not generally associated with the military but more with late nineteenth century and early twentieth century Nova Scotia fishermen (D. Walker, pers. comm.). A reasonable explanation might be that the vessel was originally constructed by Navy shipwrights, or an affluent civilian, and as it approached the end of its usefulness it was acquired by an individual who coated it with the watertight substance. By doing this, it may have been possible to extend the life of the boat for a number of years. It is important to bear in mind that

only a limited portion of the vessel has been examined and therefore these conclusions are tentative.

Specialists in vernacular craft construction at the Maritime Museum of the Atlantic observed that the boat remains in Ives Cove represent a technology no longer frequently practised in Nova Scotia. Even though there are examples of locally constructed lap-strake or clinker-built boats on display at various locations in the province, none exhibit the level of craftsmanship of the boat found in Ives Cove. Consequently, even if the age of the vessel doesn't exceed the late nineteenth century, the antiquated and rare method of construction make this boat a significant find.

Other Findings, McNabs Island and All Other Sites

LOCUS 1: SECOND WORLD WAR AIRCRAFT

Located at the eastern end of the study area towards Indian Point in about 8-10 m of water (low tide) are the remains of two military aircraft. One possibly a Hudson, and the other a Sea Fury, would both have had an aluminum body on an aluminium/titanium alloy frame. The Hudson was about 125 ft long (38.1 m), while the Sea Fury would have been only 40 ft (12.2 m). Both aircraft were apparently on route to Shearwater Air Base when they crashed on the north end of McNabs Island; the Hudson in 1944 and the Sea Fury in 1951 (J. Webber, pers. comm.).

As one might expect, these aircraft were virtually demolished upon impact with scattering of fuselage and wing components throughout a large area. This impact, combined with the corrosive action of the salt water over the years, has left the remains in a very advanced stage of deterioration. In fact, sections of the aircraft are almost unidentifiable.

An additional factor influencing their condition is that the sites have been popular recreational areas for the local diving community. Because the remains are in such shallow and sheltered waters, it has been the practice of diving instructors to take their students to see the planes as part of the basic diving program (D. King, pers. comm.). These recreational visits have undoubtly contributed to the deterioration of the aircraft in that students, looking to retain souvenirs, may have removed small pieces of the wreckage from the site.

LOCUS 2: THE *DAVIS MCNAB*

Located in the centre of Ives Cove in approximately 4 m of water (low tide) are the remains of a twentieth-century vessel, the *Davis McNab*. This craft was constructed entirely of wood and was approximately 80 ft (24.4 m) long. The *Davis McNab* was a passenger carrier used to transport residents and visitors to and from McNabs Island and, during the early days of the depression, to ferry stevedores around Halifax Harbour. The vessel sank in Ives Cove in the 1930s.

The remains of the *Davis* McNab are spread over an area encompassing approximately 21 m N-S x 7 m E-W. While difficult to discern clearly, due to the advanced state of deterioration, it appears as though the bow of the vessel is oriented towards the south.

Scattered around the site are sections of piping, deteriorated wooden hull components complete with iron fastenings, and lengths of heavy steel cable. Also, situated in the centre of the site are the vestiges of two engines which still have their fly-wheels intact. Overall, the vessel is extremely deteriorated with very little intact hull surviving. An explanation of such extensive deterioration may be that approximately ten years ago a team of divers from Halifax salvaged the site to remove any metals of commercial value. The divers worked with conventional tools and with dynamite (G. Shaftord, pers. comm.).

LOCUS 3: THE *KEENAN*

Situated partially above water in the southwest corner of the cove are the remains of the twentieth-century vessel, the *Keenan.* This craft was a 80 ft (24.4 m) Halifax tug that went out of service in the mid-1930s. The vessel was likely purposely sunk to offer shelter from the north wind to an adjacent wharf (M. Hurshman, pers. comm.). Remains include the lower portion of the hull and diverse engine parts. At low tide the remains of a steel boiler are visible above-water in the old hull.

LOCUS 4: UNIDENTIFIED TUG

Located in 10 m of water (low tide) offshore at the eastern end of Ives Cove is the wreck of a twentieth-century steel hulled steam tug. Measuring approximately 22.9 m (75 ft), it is sitting on the bottom in an almost upright position. A large boiler is resting in the centre of the hull amidships. This vessel apparently sprang a leak and sank in about 1941 (W. Partridge, pers. comm.). The name of the vessel is unknown, but the informant recalls that it was local and used extensively in Halifax Harbour. An investigation of the surrounding ocean floor revealed components of the craft (i.e. craft and engine parts) scattered throughout the area. Nothing older than this tug was located.

LOCUS 5: UNIDENTIFIED TUG

A second tug shown on the Canadian Hydrographic Services chart of Halifax Harbour (CHS 1990) is located north of Locus 12. At low tide structural components from the mid-section of this vessel are only 1.5 m below the surface. As a result, these remains likely pose a hazard for boating in the area.

The vessel is constructed of steel that is in a very advanced state of deterioration. There are numerous remains including steel cable, engine parts, and large sheets of steel from the hull measuring as large as 3 m x 4 m scattered throughout the immediate area. The majority of these

debris are located towards the western end of the site. An intact portion of the vessel suggests that the bow is oriented towards the west. The wreckage is spread over an area measuring 24 m W-E x 10 m N-S. Artifactual material associated with the wreck indicates that this craft dates to the first half of this century. The vessel was towed into the cove and sank ca. 1950 (W. Partridge, pers. comm.).

LOCUS 6: UNIDENTIFIED VESSEL

Located in approximately 4 m of water (low tide) to the northwest of Locus 13 is the wreck of a sunken vessel measuring 11.5 m N-S x 3 m E-W. The site was marked by a layer of beach cobble that covered deteriorated hull remains. The feature, in places, protrudes up to 70 cm above the silt surface. Scattered throughout the rock pile are numerous pieces of metal piping and engine parts, some of which have corroded to such a degree that large concretions have formed with the surrounding rock.

One test pit was excavated in the cobble on the east side of the pile to determine:
- the type of material used in the construction of the hull (i.e. wood or steel);
- the general condition of any surviving structural components; and
- whether any artifactual material useful for determining the age of the vessel survived below the rock and in direct association with structural remains.

Results indicated that the hull is constructed entirely of wood: the framing is from a hardwood and the external planking is of a softwood, perhaps spruce or pine. Wooden structural components from below the rock are extremely well preserved. Only portions of frame ends protruding above the rock and silt have been subject to the destructive effects of wood boring marine organisms.

The general condition and design of iron fastenings recorded in the hull, plus the artifactual material found in association with the wreck, suggests a twentieth-century origin. One of these artifacts, a brass compass bowl, was discovered on the rock at the south end of the site. While it is not certain that this artifact is from this vessel, its general location within the feature tends to suggest it is.

A final line of evidence indicating a recent date for the vessel is based on information obtained from an informant who remembers a vessel of approximately 40 ft (12.2 m) being towed onto the cove and abandoned close to the old Hurshman wharf (W. Partridge, pers. comm.). Based on this, it seems likely that the two are one and the same.

LOCI 7-9: BARGES

These are the remains of three heavily constructed twentieth-century wooden barges in Ives Cove. Two of these (Loci 7 and 8) are partially above water and relatively articulated while

the other (Locus 9) is completely submerged and scattered over a large area on the harbour bottom. All three were employed as lighters in Halifax Harbour during the early part of this century and were referred to locally as "C.N. Barges". At that time a large percentage of Halifax's barges were used to transport goods that had been unloaded from C.N. railway cars to ships anchored in the harbour and in Bedford Basin. The three investigated during the survey were apparently towed to Ives Cove and abandoned at the beginning of World War II (W. Partridge, pers. comm.).

LOCI 10-14: WHARF REMAINS

The collapsed remains of five twentieth-century wharves were investigated during the archaeological study of Ives Cove. All but one of these structures are shown as ruins on the Canadian Hydrographic Services chart of Halifax Harbour (CHS 1973). All wharves consist of mounds of beach cobble which cover remnants of large wooden pilings. The pilings were originally fastened with large iron bolts and spikes. Loci 10 and 11 were constructed by cottagers during this century, perhaps during World War II, and 12 and 13 were owned and used by the Hurshman family. Locus 14 was owned by the Conrad family. All structures were more or less contemporaneous and were in use until the 1960s (W. Partridge, M. Hurshman, pers. comm.). Investigations in the vicinity of these structures, both in the water and on the beach, failed to locate any cultural material dating to earlier than the past three decades.

At Locus 12 sub-surface test pitting was conducted to determine whether artifactual and structural remains contemporary to or predating the Hurshman property were present in the immediate area. All test pits were excavated to 1 m below the silt surface. No significant cultural material was recorded and the composition of bottom sediments contained virtually no decomposed organic matter. From this, it is concluded that other than construction and use of the Hurshman wharf during the first half of this century, alteration to the immediate area through cultural activity has been minimal.

LOCI 17-21: MOORING BLOCKS

Five blocks of cut granite measuring an average of 80 cm x 65 cm x 50 cm were recorded in Ives Cove, all located in depths ranging from 4-5 m. All five objects have a 5-7 cm diameter hole drilled completely through the centre and two of the three stones had metal sheeting on either end of the centre hole with the remains of a 2 cm diameter bolt passing through. On one end of the bolt are remnants of a metal ring. Based on the generally massive size of the blocks and associated metal fittings, it is concluded that the cut stone objects were mooring blocks for large vessels. Determining the exact age, however, is difficult. Nonetheless, the surviving iron components associated with the blocks suggest a twentieth-century attribution.

IVES KNOLL

The section of Ives Knoll inspected during the archaeological study was found to be almost completely void of cultural material of any description. In fact, the only objects sighted on the rocky surface were modern soft drink and beer containers. At first it was thought that a possible explanation of this pattern was that over time ocean currents had washed older light objects from the shallows out into deeper water. However, it was also understood that while this may be the case for ceramic and glass materials, certainly ship's structural components or ballast would not shift so easily. Therefore, a more conclusive explanation is required.

A series of maps from the National Archives of Canada of Halifax Harbour dating from 1732 to 1812 may offer additional insight. Clearly illustrated by this collection is that by as early as the first quarter of the eighteenth century mariners appear to have been well informed as to the shallows situated to the north of Ives Point. From this then it may be concluded that even though the knoll constitutes a potential hazard to sailing vessels, its presence was well known and charted from an early date, thus satisfactorily informing mariners to avoid the almost certain fate. As a result of this avoidance, little or no artifactual material has been deposited in the area.

HERRING COVE

The area proposed for the sewage outfall extension at Herring Cove was surveyed for the presence of cultural remains. A total of three diving transects were completed, one on either side of the proposed route and another along the shore. Initially this area was of some concern due to the proximity of the eighteenth-century wreck H.M.S. *Tribune*; however, no remains originating from this wreck were noted. The closest shipwreck-related material is reported to be at least 100 m to the north of the proposed outfall, with articulated structural remains an additional 300 m north (T. Kenchington, pers. comm.). No archaeological material of any description was found.

Offshore North of Ives Cove, East and West of Ives Knoll

In locations surveyed with the ROV, cultural debris were found concentrated mainly in the central area of Ives Cove, and less frequently encountered to the east and west. Material noted on the silt surface included a wide range of recently deposited cultural debris such as car tires (some of which may date to the early part of the century), pop bottles, and cans. Also noted were numerous lengths of E-W running steel cable. This material, approximately 10 cm (4") in diameter, was also recorded by scientists from the BIO (Fader et al. 1991). It was suggested that these are the remains of power and communication lines laid in this area during the late nineteenth to the early twentieth century (G. Fader, pers. comm.). Certainly, our findings are consistent with this conclusion.

Rather surprisingly, other than the steel cable, no artifactual material dating to before this century was recorded with the ROV. Even though there exists a possibility that older cultural

material deposited from anchored vessels may be buried below accumulated sediments, it is certain that such objects would have to be relatively small and not components of ships or ballast, for example. Even in areas where there is little sediment cover, next to no artifacts were recorded on the gravel surface.

Because Ives Knoll is in places only 2 m deep at low tide (CHS 1973, 4316), it was expected that at some time a ship or a smaller vessel may have grounded or sunk on the shoal. Therefore, it seemed probable that remains of such a vessel might be located in the deep-water areas to the east and west. Surprisingly, however, there was little cultural debris of any description recorded. The only material identified with the ROV was recent debris.

Proposed Diffuser Sites

Other than recent mechanical debris, domestic garbage, and a relatively modern anchor recorded off the northwest end of McNabs Island, little material of any description, and none of archaeological significance, was recorded. Although there exists the possibility that older cultural material is buried under accumulated bottom sediments, it is certain that any such remains would have to be relatively small objects. Results of the side scan sonar survey of Halifax Harbour support this conclusion (Fader et al. 1991).

Conclusions

In all areas of Halifax Harbour covered with the ROV no material of archaeological significance was identified. In fact, other than extremely corroded sections of steel cable running E-W across Ives Cove, nothing dating to before this century was recorded. By far the majority of cultural material on the bottom in the ROV study areas consisted of recently deposited refuse.

The area of Herring Cove that will be used for the sewage outfall extension was also surveyed for the presence of historic resources. Even though the eighteenth-century wreck of H.M.S. *Tribune* is located to the north of the proposed route, no archaeological remains from this site were identified at the sewage outfall.

In Ives Cove a total of 22 sites, features and individual objects was investigated during the diving component of the study. Of this number, only two collapsed wharf features, and the remains of a locally built clinker-built or lap-strake boat, possibly date to the nineteenth century.

All other sites and objects categorically date to recent times with the majority of material dating from 1916 to 1941.

Both wharves mentioned above are shown on nineteenth-century maps of the cove. One of these, located at Ives Point, was associated with Fort Ives. This wharf (Locus 16), constructed ca. 1886, was in use until the late 1940s. Underwater surveying in the immediate vicinity of this structure revealed that virtually nothing of the original construction remains intact. There are,

however, numerous ceramic and glass artifacts contemporary with this structure on the bottom in the general vicinity. The second nineteenth-century wharf investigated (Locus 15) was constructed ca. 1856. Survey and excavation revealed that this general location was subsequently reused by the Lynch family for their docking facility. While not certain, it was reasonably demonstrated that the more recent property was constructed on top of the older wharf. The Lynch facility was in use until the 1960s.

The well-preserved remains of a lap-strake boat (Locus 22) located in the south west corner of the cove were partially excavated from beneath 70 cm of accumulated sand and silts. Structural characteristics and wood identification revealed that this craft was in the order of 15 ft (457 cm) long, was almost certainly constructed locally, and likely dates to the late nineteenth and early twentieth century. Also, the high level of craftsmanship evident in the wood-working indicates that the vessel is a rare and significant find.

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Roy Skanes, M. Phil., Archaeologist, JWEL;
Mary Scott, B.A., Archaeologist, JWEL;
Brian Humphrey, ROV Operator, Jordive Limited;
Derrick King, Boat Operator, Connors Diving Limited; and
Glen Shatford, Deckhand, Connors Diving Limited.

The surveying and test-pitting (research permit no. A1991NS11) were performed by:

Roy Skanes, M. Phil., Archaeologist, JWEL;
Mary Scott, B.A., Archaeologist, JWEL;
Craig Campbell, B.Sc., Archaeological Assistant, JWEL;
Burton Howell, B.A., Archaeological Assistant; and
Louis Surrette, Boat Operator, Anchor Enterprises

Identification of wood samples retrieved from test-pitting in Ives Cove (i.e. the barrel stave and small boat components) was undertaken by Dr. Peter Scott or Memorial University of Newfoundland, while the artifacts were examined by Brad Loewen of the Canadian Parks Service Archaeology Division in Ottawa. The assemblage of ceramics collected from Ives Cove were analyzed by Marc Lavoie, an archaeologist based in New Brunswick. All artifacts retrieved

during the survey requiring conservation, a stipulation of the NS Heritage Research Permit, were sent to the JWEL conservator Christine Adams in Newboro, Ontario.

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Heritage Research Permit A1991NS13

HERITAGE RESOURCES SURVEY OF THE HALIFAX COLLECTOR TUNNEL AND HERRING COVE SEWAGE TREATMENT PLANT

W. Bruce Stewart
Porter Dillon Ltd.

Summary

During the summer of 1991, Porter Dillon Limited undertook a heritage resources survey of the Halifax Collector Tunnel and Herring Cove Sewage Treatment Plant (STP) as a component of a broader environmental assessment of the proposed Halifax-Dartmouth Sewage Treatment Facility. The survey included buildings of historic or architectural significance as well as historic and prehistoric archaeological sites.

The study focused on the nine shaft sites located in Halifax, the Point Pleasant Park pumping station site, the Northwest Arm to Ocean Terminal trench, and the Herring Cove STP site as proposed by Halifax Harbour Cleanup Inc. (HHCI). Research undertaken for the study consisted of two components - the compilation of background historical data on the sites as identified by HHCI, and, where possible, archaeological testing of those sites.

The Terms of Reference for the study were defined in the documentation submitted to the Department of the Environment on 25 June 1991. The Terms of Reference call for the following components:

- Identification of all known and potential archaeological and heritage resources located within the areas of the treatment plant site, other project components and all associated infrastructure needed to service the site.

- Specific resource types to be considered are as follows:

  known and potential buildings of historic and architectural significance located within the areas of the treatment plant and associated infrastructure;

  known and potential Native and Euro-Canadian sites within the area of the treatment plant;

  known and potential Native and Euro-Canadian sites located along underground and underwater pipelines; particular attention will be given to resources associated with eighteenth- and nineteenth-century urban development (e.g. the Sellon site), wharves, and other shoreline features, including landfilling activities;

known and potential underwater sites at the sewage treatment facilities outfall locations.

Of the eleven areas under consideration, it was only possible to test five - sites H1, H3, H5, H7 and H9. The remaining sites within Halifax were inaccessible due to present site conditions while the site of the proposed Herring Cove STP had not been selected.

No significant archaeological resources were identified as a result of the testing carried out on sites H1, H3, H5, H7 and H9. Four of the five Halifax sites that could not be tested (H2, H4, H6 and H8), exhibited moderate to high archaeological potential. The potential archaeological impacts of the Herring Cove STP can only be assessed once a preferred site has been selected.

Introduction

Halifax Harbour Cleanup Inc. (HHCI) is proposing to construct a sewage treatment facility for Metropolitan Halifax-Dartmouth in the vicinity of McNabs Island. The development includes placement of a collector sewer along the Halifax waterfront from Chain Rock on the Northwest Arm to the intersection of Duffus and Barrington Streets, using both tunnelling and open trenching techniques. HHCI proposed utilizing an open trench to carry the sewer line from Chain Rock (Site H1) in Point Pleasant Park to the southern end of the Ocean Terminals complex (Site H2), and tunnelling from that point north to Duffus Street (Site H10). It is anticipated that the principal impacts of the project on historic and archaeological resources will be associated with the excavation of open trenches and construction and interconnection shafts along the route of the sewer line. In addition, HHCI is also proposing to develop either sewage treatment or connector facilities for the area of Mainland South. The focus of this work would be in the Herring Cove area.

The study undertaken by Porter Dillon Limited focused on areas within Halifax that will be directly impacted by the excavation of open trenches and construction and interconnection shafts. A secondary, but no less important, area of focus is the potential impacts of facilities to be developed in Herring Cove. The study aims to identify heritage resources located within the zones of impact and determine the nature and significance of those resources.

Based on the present proposal, 11 areas of impact have been identified:

SITE H1: Chain Rock (Point Pleasant) to Ocean Terminals
SITE H2: Ocean Terminals/Pier C
SITE H3: Ocean Terminals/Pier A
SITE H4: Terminal Road and Lower Water Street
SITE H5: Sackville Street and Lower Water Street
SITE H6: Duke Street and Lower Water Street
SITE H7: Upper Water Street/Jetty NB
SITE H8: Dockyard/North Street

SITE H9 Barrington Street between Young and Hanover
SITE H10: Duffus Street and Barrington Street
HERRING COVE

The archaeological potential of the areas to be impacted by the construction of the collector tunnels, trenches, and other facilities varies considerably. Generally speaking, however, it should be assumed that the intensity and duration of the urban occupation of Halifax will have created a rich and diverse collage of cultural features and artifacts. The richness of the archaeological record in urban Halifax has been demonstrated in the work carried out at the Sellon site and through the artifacts recovered from the site of the Central Guaranty Trust building. Archaeological potential within the Herring Cove area is less easily defined, since the area of potential impact has not been defined.

Research Methodology

This phase of the heritage resource survey was conducted in three separate tasks: background research; field surveys; and analysis and report preparation.

BACKGROUND RESEARCH

Preparatory to undertaking the background research, project engineering plans were reviewed in order to delimit areas of project-related disturbance within the overall study area. Following completion of this review, a draft research strategy was developed focusing on the areas of potential impact.

Once the infrastructure locations were identified, each site was visited to inspect any known and previously recorded archaeological or historic sites, to assess potential for the preservation of subsurface resources, and to identify survey and mapping needs and personnel requirements.

Because of the preliminary nature of the plans for the Herring Cove area, this section of the study consisted of a broad overview without focusing on specific properties.

Due to the nature of sites being investigated, background research focused on historic land use. Research included review of information held at the Nova Scotia Museum, the Halifax Defence Complex, the Public Archives of Nova Scotia, Saint Mary's University Library, Dalhousie University Library and the Land Registry Information Service. The principal data source used in preparing the historic overviews for each site was found in the historic mapping of the Halifax area. Site-specific information was also sought from landowners, utility company personnel, and local informants both before and during field testing.

FIELD SURVEYS

The field research strategy was refined based upon the above background research. It was immediately recognized that the strategy must be flexible, allowing for variable field conditions, availability of background documentation, and the nature of the resources being investigated.

Field surveys were conducted at five of the ten infrastructure locations in Halifax:

HI: Chain Rock to Ocean Terminals
H3: Ocean Terminals/Pier A
H5: Sackville Street and Lower Water Street
H7: Upper Water Street/Jetty NB
H9: Barrington Street between Young and Hanover

Circumstances precluding testing of the remaining sites are described in the final report. No on-site testing was conducted in the Herring Cove area.

On-site activities included identifying surface and subsurface utilities located within the study areas; identifying, evaluating, and recording any surface features; and subsurface testing to locate and identify any archaeological resources within the study area.

Subsurface testing utilized both manual and backhoe excavation. Excavation tools, techniques, and methods were determined by the individual circumstances pertaining to the different deposits and the type of materials being excavated. While manual excavation was the preferred method, the depth and nature of depositions found on the more heavily urbanized sites were such that only mechanical excavation as suitable. All excavations were carefully monitored and backfilled prior to leaving the site in order to ensure public safety.

As part of the testing procedure, scale plans were drawn of all test sites, identifying surface features, utilities, disturbances, and test pit locations. A photographic record detailing test sites and findings was also maintained.

Provisions were made to properly document and register any archaeological sites identified in the course of the survey. Artifacts recovered during testing were retained, washed, and inventoried for interpretation.

Heritage Research Permit A1991NS20

ARCHAEOLOGICAL TESTING AT THE WELLINGTON LOCK, SHUBENACADIE CANAL

Helen Sheldon
Jacques Whitford Environment Limited

On September 3 and 4, 1991 an excavation program was conducted at the Wellington Lock by O'Halloran Campbell Consultants Limited as part of the ongoing process of lock restoration by the Shubenacadie Canal Commission (Jacques Whitford and Associates Limited 1991; Davis Archaeological Consultants Limited 1990; Niven and Davis 1989). Jacques Whitford Environment Limited provided an archaeologist to monitor and supervise the excavation.

Two pits were excavated by shovel in order to obtain more information on the swing beam platforms at the northern, or Grand Lake end of the lock (Figure 1). Particular information was desired on the original composition of the platforms, whether they were made of timber or of random stone paving with a masonry retaining wall.

The measurements on Figure 1 are in imperial units as this was the format requested by the client. Within the text all measurements have been converted to metric.

Northwest Pit

A pit was excavated on the northwest edge of the lock wall to a depth of 60-90 cm or until the top of the lock wall was encountered. The excavated area covered a radius of 3.4 m from the mitre gate heel post pivot. The upper 25-35 cm consisted of a brown sandy loam with inclusions of small pieces of slate, similar to the local bedrock. The remainder of the pit was composed of numerous large boulders of ironstone with some associated soil. This boulder fill would have been placed against the lock during nineteenth century construction as backfill. Any swing beam platform, therefore, would be located above the fill layer. No signs of such a platform were discovered during the excavation.

Northeast Pit

On the northeast side of the lock a pit was excavated to a depth of 60-90 cm below surface and extending to a radium of 4.4 m from the mitre gate heel post pivot. The soil encountered was identical to that in the northwest pit in that a boulder fill was located below c. 30 cm of topsoil. The swing beam platform would have been above the fill layer, but no signs of such a structure were encountered.

Prehistoric Artifacts

As the water level was extremely low at the time of excavation, the beach immediately in front of the tennis courts was examined for artifacts. Several quartz and chalcedony flakes, half a gouge and a chalcedony core were discovered on the surface. All of the items were in areas that are inundated in spring and late fall. Additionally, a chalcedony flake was found on the path at the south end of the lock and several quartz flakes were noted, but not collected, on the driveway.

The prehistoric artifacts collected during the project were assigned the site number BfCv-35 by the Nova Scotia Museum. The artifacts were catalogued and sent to the Nova Scotia Museum for storage.

Conclusions

No evidence of the swing beam platforms was discovered during the excavation of the two pits at the Wellington lock. Both pits were excavated to the edge of the lock walls, but no features were found abutting or upon the walls. No timbers, stone pavement or masonry were discovered.

From the present excavation it was not possible to determine the composition of the original swing beam platforms. If the platforms were wood they may have deteriorated rapidly in the years following abandonment of the lock. A stone platform may have been removed or heavily disturbed by subsequent residents of the site. Given the lack of evidence to the contrary, it also is possible that no platforms existed at all.

Addendum

On October 1, 1991 a further excavation was conducted at the northeast test pit at the Wellington Lock. A section of sod and soil was removed from the top of the portion of wall that protrudes east from the lock in order to determine if evidence of the swing beam platform existed upon the protruding section.

No remains of the platform were found. Under the sod layer was 10 to 20 cm of the slate-containing fill found elsewhere against the lock wall. It is believed that this fill may have been placed upon the protruding section of wall in the nineteenth century, and that a swing beam platform, if one existed, was built above this fill layer.

The edges of the protruding lock wall were exposed in order to determine the dimensions of the structure. It measures 3.56 m north-south and projects 82 cm and 135 cm from the lock wall. The projection is constructed of massive squared blocks of granite and ironstone, mortared together in the same style as the remainder of the lock walls.

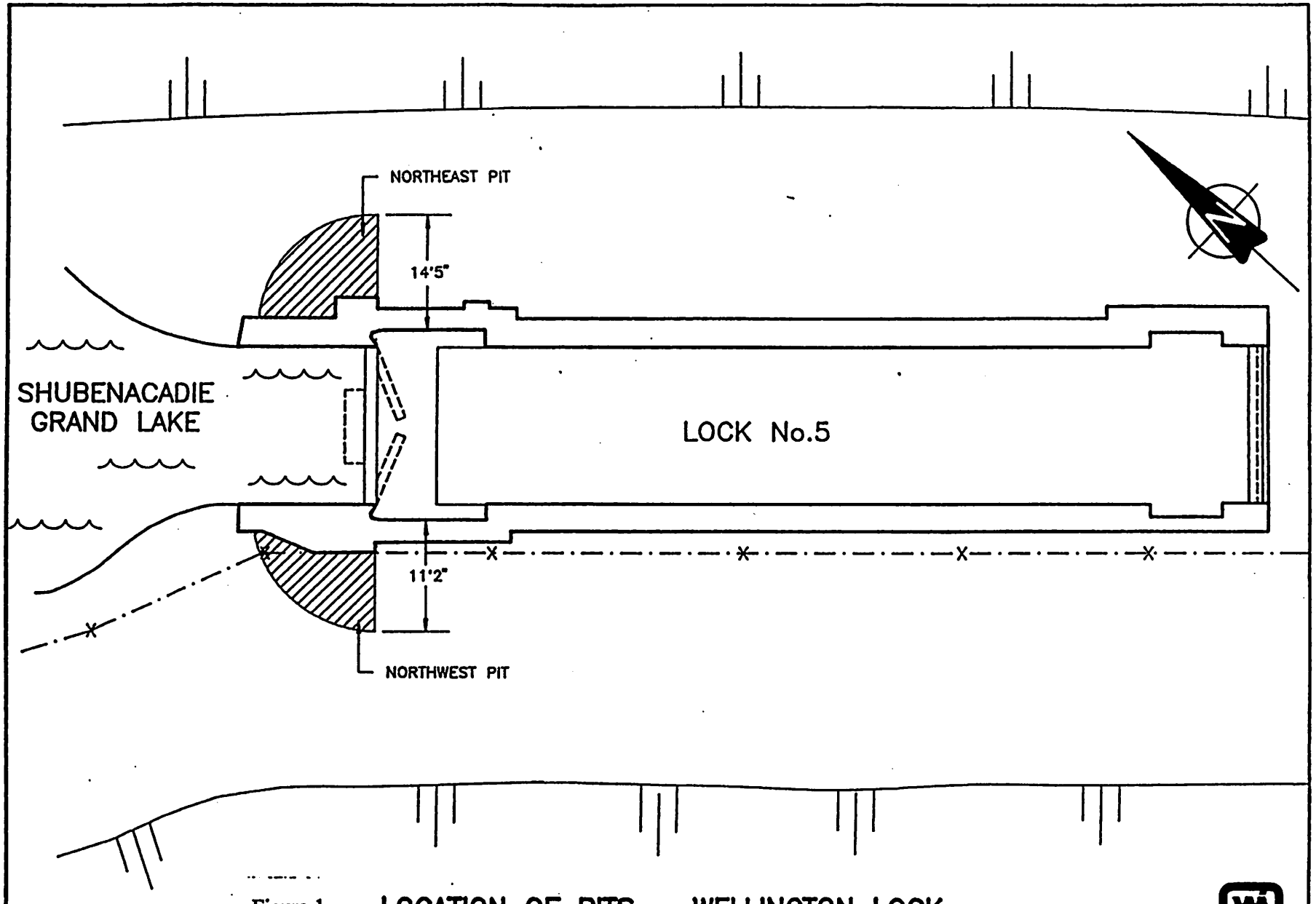

Figure 1 LOCATION OF PITS – WELLINGTON LOCK
NOT TO SCALE

A prehistoric quartz flake was found on the north edge of the lock wall in the northwest test pit. It obviously is not *in situ*.

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Heritage Research Permit A1991NS21

METRO LANDFILL HERITAGE RESOURCE SURVEY

W. Bruce Stewart
Porter Dillon Ltd.

The Metropolitan Authority has been conducting a site search to identify a suitable location for a landfill intended to serve the municipalities of Halifax, Dartmouth, the Town of Bedford and the County of Halifax. In the late fall in 1991, the number of candidate landfill areas was reduced to three.

During the course of the present study, the candidate areas were visited and a visual examination made of those areas considered to have moderate to high archaeological potential. This did not constitute a exhaustive examination of the properties but rather a logical next step in the screening process.

The objectives of the study were to undertake an initial assessment of those areas within each candidate area considered to exhibit moderate to high archaeological potential. Assessment of impacts and the formulation of a mitigative strategy will be components of a further study to be undertaken upon the completion of the present study and the selection of the preferred site.

This report deals specifically with the three sites short listed as a result of the screening process. These are site G - west of Goodwood, site H - southeast of the Aerotech Business park and site L - west of Big Sandy Lake.

As part of the field verification program, a two stage cultural resource survey was undertaken in order to identify areas of moderate to high archaeological potential and sites of historic significance. All work was conducted under the terms of Heritage Research Permit (Archaeology) Number A1991NS21 issued by the Nova Scotia Museum.

The first step was to undertake a background study of the candidate areas. This entailed the examination of historic and modern topographical maps in order to identify historic land use and settlement patterns and areas of potential prehistoric settlement. Due to the expansive nature of the areas under consideration, efforts to identify historic land use and settlement patterns focused on the examination of two specific sets of historic maps which provide a wealth of cultural and historical data on nineteenth century Nova Scotia. In the mid-nineteenth century, Ambrose Church of Halifax published a series of detailed county maps focusing on topography and settlement. Of specific use in the present study was Church's map entitled Topographical Township Map of Halifax County, Nova Scotia published in 1865. The second set of maps was published by the Geological Survey of the Federal Department of Mines between the 1880s and 1910. Map sheet Nos. 54, 68, 71 and 72 cover the candidate site areas. Land use and settlement

data gleaned from these historic maps was transferred to maps (1:10 000) of the candidate site areas in preparation for field verification.

Modern topographical maps (1:50 000), ortho maps (1:10 000) and aerial photographs of the candidate sites were examined in order to identify areas suitable for prehistoric Native settlement. Proximity to potable water and food resources, access to recognized travel routes, relationship to major drainage systems and relationship to known archaeological sites are some of the specific characteristics considered in the evaluation of prehistoric Native settlement potential. All areas exhibiting moderate to high potential were plotted on the site maps (1:10 000) for later field inspection.

The second stage of the study entailed a site visit in order to inspect those areas identified during the background stage as having moderate to high archaeological potential or historic potential, as well as to develop an overall sense of the site environment. Since no subsurface testing was undertaken at this stage in the study, confirmation of resource potential relied on the visual identification of an appropriate combination of environmental characteristics or cultural remains evident on the ground surface.

The verification of features associated with historic land use and settlement required that the farmsteads, logging camps, trails, etc. identified on historic maps be relocated on the ground. Aerial photographs were invaluable in assisting to identify historic features such as agricultural fields, clearings and roadways which would help to identify site locations. Once the general area was identified, a walking survey was conducted looking for physical evidence of the historic site. In some instances this was simply a matter of inspecting historic roadways and trails for cultural features, while in others the sites were located on the basis of walking a series of transects across the area of the suspected resource.

Once a site was located, an effort was made to identify all the features (eg. house foundations, barns, outbuildings, wells, privies, fence lines, trash pits, trails, etc.) associated with that particular site. Photographs were taken of the various features and a sketch map of the site was drawn. Sufficient information was recorded for each site in order to complete an archaeological data base form required by the Nova Scotia Museum.

Areas of moderate to high archaeological potential were visually inspected in order to confirm the earlier assessment based on map evidence and to identify any physical evidence of Native land use. While walking the areas, exposed soils like those along shorelines and river banks were examined for evidence of Native artifacts or features.

Throughout both components of the study, there was ongoing dialogue with local informants and interest groups which provided leads on potential archaeological and historic sites within the candidate areas. All leads were investigated during the field program and the results incorporated into the evaluation of the various candidate sites.

SITE G

Candidate landfill site 'G' is situated just west of the long abandoned community of Greenhead Settlement. The centre of this nineteenth and early twentieth century settlement was located on the 'Old Greenhead Road' immediately south of Otter Lake. By the turn of the century it was the site of a school, a saw mill and several farmsteads, some of which had been there since at least the mid-nineteenth century. Spread along the 'Old Greenhead Road' to the west of the settlement were a number of small family farms. Prominent among the families settled in the area were the Drysdales, the Carmichaels, the Gilpins and the Wallmans. Many of these families are represented in the old Greenhead Settlement Cemetery located just west of Dick Lake.

Located within the proposed area of active landfill are the remains of two farmsteads, one of which has been identified as belonging to J. Drysdale in 1865 and C. Drysdale in 1908. Ownership of the second site, identified as the Concrete Complex site, has not been determined.

The C. Drysdale Farm site is located on the west side of the fork in the 'Old Greenhead Road'. The site covers an area of approximately 4 hectares, half of which is still cleared. Features identified within the site include three drystone foundations - a house, barn and outbuilding, masonry fence lines, a drainage ditch and a late-nineteenth to early-twentieth century trash midden.

The Concrete Complex site is located on the west branch of the 'Old Greenhead Road' approximately 250 metres south of the fork. The site occupies an overgrown clearing approximately 60.0 metres east-west by 40.0 metres north-south. Identified features include a masonry house foundation with concrete additions, a concrete cistern and the foundations of two outbuildings - one masonry and the other using concrete piers. Twentieth century bottle glass, as well as metal cans and machinery parts littered the cellar and ground surface surrounding the house foundation.

Three additional farmsteads are located within the buffer zone - the J. Drysdale Farm site, the Car Key site and the Old Brunswick site.

The J. Drysdale Farm site is located on the east side of the 'Old Greenhead Road' approximately 150 metre north of the fork. The site covers an area of approximately 4.5 hectares, a third of which is still cleared. Features identified within the site include masonry foundations for a house, a barn and an outbuilding, extensive stone fence lines and an unidentified linear earthen mound. Ownership of the property was attributed to J.M. Drysdale on the 1865 Church map and J. Drysdale on the 1908 Geological Survey map.

The Car Key site is on the 'Old Greenhead Road' immediate south of the trail to Little Salmon Pool on the Nine Mile River. The site area, extending some 60.0 metres along the road

by 30.0 metres deep, is overgrown with alders and surrounded by a young (under 40 year old) mixed wood forest. Two cellar foundations and a low earthen mound were the only features evident on the site.

The Old Brunswick site covers an area of approximately 1.5 acres on the south side of the trail to Little Salmon Pool on the Nine Mile River, some two hundred metres west of the 'Old Greenhead Road'. While the old agricultural fields are still evident, much of the site is overgrown. Well constructed masonry walls surround much of the former clearing. Features found on site include the masonry fence lines, the remains of a small wooden shed and a twentieth century midden. Although no house foundation was identified during the field visit, it is expected that a house would have been located on the site. Church's county map of 1865 indicated a dwelling on the property and identified the landowner as C. Drysdale.

Additional cultural resources are located in the area traversed by the proposed alignment for the access road. However, the field survey of the proposed alignment will allow for the avoidance of these resources in the final design.

SITE H

The area of candidate landfill site 'H' has long been associated with small scale lumbering operations. The first licence of occupation, granted in c.1781, permitted John Wisdom to cut timber and operate a mill within a thousand acre tract of land which encompassed the Lake Williams/East Lake area. Church's 1865 map of Halifax County indicated that in the mid-nineteenth century, Wisdom's Saw Mill was located on Wisdom Mill Lake, approximately 500 metres down stream from Lake Williams and East Lake. The location of the mill had not changed prior to publication of Geological Survey Map, Sheet Number 54 - Musquodoboit Harbour in 1907.

Documentation obtained from the Crown Lands Records Centre indicates that in 1852, John Carter, one of the original Black grantees of Preston Township, was granted a 100 acre tract of land located between Lake Williams and East Lake. The land was in turn conveyed to Henry Wisdom by deed dated March 20th 1868. Present ownership by the Nova Scotia Department of Lands and Forests was established as the result of a tax sale conducted in January 1957.

The field verification program failed to identify any cultural resources or areas of high resource potential within the active portion of the candidate landfill site.

Within the buffer along the southern edge of the candidate landfill site, a potential mining complex was identified as a result of field visits. The East Lake Mine site, covering an area of approximately 150.0 metres north-south by 100.0 metres east-west, consists of a mine shaft, tailings and several 'wells' or possible shafts. Although no dates can as yet be ascribed to the features, gold exploration and mining activities were common in the area during the latter decades of the nineteenth and first decades of the twentieth centuries.

The proposed alignment for the access road crosses a roadway or track evident on the 1907 map produced by the Geological Survey. No other potential resources were identified. Field survey will provide the opportunity to identify any other cultural resources that might fall within the proposed alignment and allow the team to make any necessary adjustments to avoid impacting significant resources.

As a result of the archaeological field survey, two additional sites - a lumber mill and a farmstead - were identified outside of the area identified as candidate landfill site H. Although these resources will not be impacted by the possible development of the landfill, they are

included in this discussion because of the public concern that has been expressed over the heritage significance of site H.

The Marker Mill site is located approximately 350 metres south of the area identified for active landfill use. The mill site is situated in a small clearing and contains the wooden remains of two buildings and a rotten pile of scrap lumber. Due to its location, the mill would have been either a steam or gas powered operation. Examination of the building remains revealed an extensive scatter of asphalt shingles and other roofing materials. Only wire nails were used in the construction of the mill buildings. Based on the nature of the materials found on site and the mode of operation it is suggested that the mill had been in operation within the last 40 to 50 years.

The farmstead is located approximately 900 metres south of the active landfill site within the parcel of land owned by Carter between 1852 and 1868. The farmstead, labelled the John Carter Farm site, consists of a masonry house foundation, a fence line of field stones and a possible grave. The possible grave features consists of a flat rectangular pad of field stones approximately 0.60 metres wide by 1.20 metres long. Other structures located in the associated clearing appear to have been hunting or fishing cabins in use within the last couple of decades. The absence of cultural materials on the surface made it impossible to determine the age of the John Carter Farm site. However, based on the archival information, it is assumed that the house would have belonged to Carter (1852-1868) or at least to Henry Wisdom (1868- c.1930).

SITE L

Candidate landfill site 'L' is situated approximately 2000 metres south of the Old Annapolis Trail, an historic track linking Halifax and Annapolis Royal. According to the evidence provided by Church's 1865 map of Halifax County, a scattering of farmsteads/residences, workshops, saw mills and lumber camps had developed along the old roadway. Some of the landowners, like W. Rafter and J. Little, are recognized in the names of adjacent lakes.

The field verification program failed to identify any cultural resources or areas of high resource potential within the active portion of the candidate landfill site.

A field visit to the site identified two historic resources that fall within the buffer zone - a lumber camp and a relatively undisturbed section of an old portage road.

The Portage Road Camp site straddles a section of the 'Old Portage Road' and covers an estimated area of 0.5 hectares. Features identified during the field visit include an earthen (or possibly a rotten wood) foundation on the west side of the road, a possible well on the east side of the road and a scatter of mid-twentieth century refuse scattered across the site.

The 'Old Portage Road' ran from the Head of St. Margaret's Bay north at least as far as the 'Old Annapolis Trail'. Much of the 'original' road has been lost due to forestry activities, lack of ongoing maintenance and upgrading. However, a section of the road extending south for a distance of some 800 metres from the Portage Road Camp site has retained a strong sense of its original character.

The proposed alignment for the access road into candidate site 'L' bypasses the significant section of the Old Portage Road and has no other identified impacts on cultural resources. Field survey will provide the opportunity to identify any other cultural resources that might fall within the proposed alignment and allow the team to make any necessary adjustments to avoid impacting significant resources.

Heritage Research Permit A1991NS22

INITIAL FIELD RECONNAISSANCE OF HIGHWAY 104, MASSTOWN TO THOMPSON STATION

Laird Niven and Stephen A. Davis
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Introduction

This report represents the results of a Phase II study of historical and cultural components identified as part of an environmental assessment of the proposed 104 highway from Masstown to Thomson Station. A Phase II cultural resource assessment involves an Archaeological survey which is defined under the Special Places Protection Act (1980 with amendments from C.45, S.N.S. 1990) as - "an examination of a defined area, including subsurface deposits, for the purpose of obtaining information on the archaeological resources located on, in or under the land." Davis Archaeological Consultants Limited carried out an Archaeological survey of the defined area under the authority of the Nova Scotia Museum, Heritage Research Permit (Archaeology) number 1991.NS.22. The necessity for this type of study was judged essential given the number of historical and cultural components identified during the environment screening (Phase I) which were in close proximity to the proposed highway. The survey team adhered to all Terms and Conditions as outlined in the permit guidelines.

Methodology

The system used in this report to evaluate the potential impact of the construction of the highway is multi-faceted. The system recognizes that the study area is comprised of highly diverse landscapes and therefore has the potential to contain heritage resource sites representative of all of the cultural traditions outlined in Appendix 3 of the Interim Report. The Phase I study outlined two sets of preliminary data; documented sites and settlement pattern criteria for predicting the location of unknown sites. These data bases were used to identify areas of high, moderate and low potential for cultural resources in close proximity to the proposed highway.

The Phase II study began with a review of the existing data compiled for the screening study. Contact was made with the Curator of Archaeology of the Nova Scotia Museum to ascertain the location of prehistoric sites within the corridor of the proposed highway. Although sites have been recorded in close proximity to the proposed highway none were known from within the corridor. The background study continued with an extensive archival search, consisting mainly of an examination of maps dating from the eighteenth century to the present. The most useful of these resources were A. F. Church's maps of Cumberland (1873) and Colchester (1874) counties. These were augmented by Geological Maps of Nova Scotia, and an unpublished map of the road running from Great Village to Sutherland Lake.

With the completed background study a team of from two to three qualified archaeologists conducted a pedestrian survey of the study area. They initially located all of the high and moderate potential zones identified in the Interim Report. These areas were traversed on foot and where deemed necessary shovel-tested. The testing involved spaced, subsurface excavations in areas which fit the settlement pattern criteria outlined in the Interim Report. All level terraces that afforded the potential of prehistoric settlement along major rivers and brooks were examined and tested. A total of 50 man days were used in the actual field study with an estimated 80 per cent of the actual route being covered on foot.

Throughout the archaeological survey contact was made with various residents within the study area. They were asked if they had knowledge of cultural resources or knew of individuals who could assist in locating such resources in the study area. With the cooperation of the owners, Layton's General Store in Great Village, became an informal information centre for the survey team. Their assistance in the study is greatfully acknowledged.

Through this methodology, historical and cultural resource sites were located and, tested (where necessary) within the proposed highway corridor. Each of the resources was recorded on a separate Maritime Archaeological Resource Inventory Form. Under the Terms and Conditions of the Special Places Protection Act copies of the MARI forms along with fieldnotes and a report will be deposited with the Nova Scotia Museum.

Study Area and Results

For the convenience of this report the proposed highway was divided into six sub-regions based on logical geographic divisions. The six sub-regions, from north to south are:

1. Thompson Station to Westchester Valley
2. Westchester Valley to Portapique River
3. Portapique River to Lornevale
4. Lornevale to Great Village River
5. Great Village River to Folly River
6. Folly River to Masstown overpass

Sub-region 1 begins at the present highway 104 between Birchwood and Thompson Station, south through Emery Meadows to the Rose - Westchester Station road.

In the north of the sub-region the ground rises to the north of Burntland Brook and is characterized by a mixed forest. The ground between the high ridges is swampy but no significant water sources are present. No potential was seen for this area.

The land begins to rise slightly to the north of the railway tracks west of Atkinson. It becomes very low with isolated swamps in the area of Burntland Brook and its several small

tributaries. The forest is composed almost solely of spruce. The main brook is 1.5 to 2 meters wide, moderately fast-flowing and surrounded by alders.

Travelling north the land becomes low and swampy in the area of Emery Meadows. The highest land in the area is a large plateau-like hill to the west of Atkinson, just south of Tillits Creek. This creek is fast-flowing but only a meter wide and is surrounded by alders. The high ground slopes moderately down to the creek. The slope was examined on foot and the plateau both on foot and by shovel testing. These shovel tests proved negative. A wide dirt road travels from Atkinson west over the plateau southwest past Emery Meadows. The ditches on both sides of this road were checked with negative results.

The southern end of the area is moderately hilly with a hardwood forest. The West Branch Wallace River passes to the east of the area and it was followed to its largest tributary west into the area. The stream is only 1-2 meters wide and moderately fast. Some slight ridging is present but no areas of high or moderate potential were observed.

Sub-region 2 begins at the Rose-Westchester Station road south along Westchester Mountain to the Portapique River. This area contains extensive blueberry fields. It is also the location of an early pioneer settlement which has left extensive cultural remains. The most significant being a cemetery (1991 NS 22-3) which covers two small knolls on the east side of the dirt road. The earliest headstone is dated 1789 with the latest being 1925. It should be noted that not all of the graves are marked. The site is characterized by a number of depressions in line with marked graves that represent burials, it is estimated that at least 63 individuals are buried in this cemetery.

The survey of this sub-region was greatly assisted by Mr. Garnet Rushton of Collingwood. Mr. Rushton's family had been long-term residents of the area abandoning the family farm in the 1960's. He was able to pin point the location of the church associated with the cemetery. It was to the west and adjacent to the southern knoll (oldest section) of the cemetery. What may have been a very crude foundation of large stones was observed, however, shovel testing proved negative. Mr. Rushton also reported an extension of the cemetery in a hollow to the east of the present marked graves. A ground search of the area failed to produce surface indications of a cemetery.

As a result of the public meeting a second informant, Mr. George Johnston also of Westchester Valley, contacted the survey team. He presently lives on the site of Purdy's Inn which dates from the 1860's. His initial concern was with the impact the proposed highway would have on this property, however, it was determined that it lay outside of the corridor. He introduced the team to a Mr. Raymond Halliday who was also a life-time resident of the area. Mr. Halliday had found a Ceramic Period projectile point in his pasture near Rose. The location of the find is outside of the study area.

Information from the informants combined with Church's map of Cumberland County and the survey resulted in the following cultural resources being recorded in this sub-region:

1991 NS 22-1 It is 1.5km south of the Rushton Pioneer Cemetery, 325 meters northwest of the gravel pit, 25 meters west of the road down a gravel drive. It is now an open area with no evidence of a foundation. The area is littered with building debris and at least one appliance indicating that it was occupied until quite recently. No reason was seen to test the site.

1991 NS 22-2 It is 2.5km south of the Rushton Pioneer Cemetery, c.15 meters east of the road. It is a large dry stone foundation at least half of which is now occupied by a hunting camp. This site was not tested.

1991 NS 22-3 This site consists of the Rushton Pioneer Cemetery and the possible remains of a Church. It was first mentioned by Garnet Rushton as the site of an early 19th century church associated with the cemetery, and he delineated the area with flagging tape. A crude, apparently single course of stones, roughly 10 X 5 meters, does suggest a foundation. Shovel tests on the exterior, however, proved negative.

1991 NS 22-4 This site is 75 meters west of the Rushton Pioneer Cemetery, 25 meters west of the road. It is a small (4.40 X 3.20m) dry stone foundation consisting of a single course. Shovel tests revealed late 19th century ceramics, including ironstone. It would most likely date after the making of the Church map (i.e. post 1873).

1991 NS 22-5 This feature is located 150 meters west of the Rushton Pioneer Cemetery, 25 meters west of 1991.NS.22-4. It is a large (17.5 X 8.8m) dry stone foundation with three interior walls or supports. The north wall has been partially destroyed by the building of an E-W running road. This site was not tested and was assumed to be an outbuilding for 1991 NS 22-4

1991 NS 22-6 is 500 meters north of the Rushton Pioneer Cemetery, 100 meters east of the road. A N-S running dirt road travels past its east side. It is on a high, level piece of ground. Any foundation that may have been present has either been removed or is buried by recent heavy machinery activity. Evidence of its past function is abundant on the surface in the form of late 19th and early 20th century glass and ceramics. Shovel testing revealed late 19th century ceramics including ironstone and Maritime ware.

1991 NS 22-7 This foundation is indicated on Church's map as belonging to E. Rushton, who, according to Garnet Rushton, was Elijah (d.1867). The area had previously been settled by Elijah's father Peter. The house was apparently abandoned in the 1960's. Shovel testing did not reveal anything earlier than the late 19th and early 20th century.

1991 NS 22-8 This site is on the road to 1991 NS 22-7, 50 meters to the south of it. It is a small (4 X 4m) deep, dry stone foundation surrounded by alders. There are early to mid-20th century artifacts on the surface around the foundation and shovel tests revealed artifacts of the same date.

1991 NS 22-9 This feature is 40 meters southwest of 1991 NS 22-8 and is a dry stone foundation (c.10 X 10m) which has been filled and used as a parking area. The slope on its west side has 20th century glass on the surface.

1991 NS 22-10, 11, 12 These sites are visible now as three filled-in features on the mid-slope of a cleared field, 2.25 km north of the Rushton Pioneer Cemetery, c.50 meters west of the road. These should not be threatened by the highway construction and, therefore, were not tested.

1991 NS 22-13 This is an overgrown cellar (c. 7 X 7m) 2.55 km north of the Rushton Pioneer Cemetery, 20 meters west of the road. It appears to have been abandoned in the last 30 or 40 years and the artifacts on the surface seem to confirm that fact. This site was not tested.

1991 NS 22-14 This site was shown to the survey team by George Johnston. It is 3.15km north of the Rushton Pioneer Cemetery, 25 meters west of the road. It has been filled-in but appears to have been c. 6 X 6 meters. It is on the edge of a blueberry field and has been subject to a lot of machinery activity. Shovel testing revealed late 19th and early 20th century ceramics.

1991 NS 22-15 This is a large foundation (c.10 X 8m) and is 3.5km north of the Rushton Pioneer Cemetery on the east side of the road. It is a dry stone foundation overgrown by alders but appears to have been occupied up to the relatively recent past. Shovel tests revealed mid-20th century artifacts.

1991 NS 22-16 This house is shown on Church's map and is located 4.25km directly north of the Rushton Pioneer Cemetery, on the north side of the dirt road running east off the main road. It is a large dry stone and brick foundation (14.6 X 8.9m) in an open field. An associated out-building is 30 meters to the east. The presence of machine-cut nails and the few ceramics from shovel tests suggest a last half of the 19th to early 20th century occupation.

1991 NS 22-17 This house is also shown on Church's map and is located 4.20km directly north of the Rushton Pioneer Cemetery, on the south side of the road running east off the main road. It is a dry stone and brick foundation (12.8 X 6.5m) with a partial cellar. An associated outbuilding is 25 meters to the southwest. Shovel tests revealed only 20th century artifacts.

Sub-region 3 begins at the Portapique River then south to an area circa 1.5km west of Sutherland Lake ending at the intersection of the proposed highway with the Lornevale - Londonderry road, 1.25km west of the Old Cumberland Road to Sutherland's Lake.

The dominant cultural activity within this sub-region is related to the iron workings in and around Londonderry. The Archibald maps of 1859 identified an iron mill on Spencer's Brook placing it on the west edge of the proposed highway corridor. The mill complex was located circa 750 metres north on the Old Cumberland Road, just below a small set of waterfalls, on the east bank of Spencers Brook. The complex (1991 NS 22-19)is comprised of two water-filled pit features, a man-made flume which runs southeast and parallel to the river and the remains of a bridge above the waterfalls. Testing revealed a greasy gray/black soil containing crushed rock which would confirm its function as an iron mill.

The Interim Report placed a reported prehistoric site on Spencer's Brook in this general area. An extensive survey along both banks and the terraces above the Brook failed to produce any evidence of this site. Informant interviews with local residents also failed to produce any knowledge of the site. Subsequent review of the Museum records located the original informant. The actual location of the find was on the Portapique River well outside of the proposed highway corridor.

The survey continued north towards Sutherland Lake, following the proposed route on the east side of Spencer's Brook. This area is characterized by mixed forests with steep slopes down to the Brook. The survey team noted numerous pits and piles of broken rocks resulting from early mining activities. These are referred to in general on the 1905 Geological Survey of Canada map. Other than these no other cultural remains were encountered.

Sub-region 4 runs from the Lornevale - Londonderry road south to the Great Village - East Village road.

The proposed new highway will travel south across Moose Brook through a small valley to bisect the Lornevale - Londonderry road. The valley has a gentle slope with rocky ground and a young hardwood forest. The area of Matheson and Cumberland Brooks is very low and swampy with alders. No cultural features were encountered in the area.

The edges of the field to the south of Spencer's Cross Road were checked but examination of the rest of the field was impeded by the presence of a large number of cows and a young bull. No cultural features were encountered on the edges of the field.

The fields to the north and south of Spencer Cross Road were checked. A building is shown by Church to be c.150 meters east up the road from Scrabble Hill on the north side of the road. A small rectangular depression is visible in this area (1991 NS 22-20). Testing revealed a small amount of refined white earthenware.

The survey team travelled up Moose Brook from its confluence with the Great Village River northwest through to the study corridor. The banks of the brook are bounded by high, steeply sloping ground with an old logging road runs beside the river, no cultural features were encountered.

A twentieth century "dump" was encountered just southwest of where Spencer's Cross Road crosses Moose Brook but no foundation(s) were found associated with it.

Church's map shows several buildings in the south end of the area but they fall just outside of the study corridor. The Great Village River runs through the south end of the area. The river north of the bridge is six to eight meters wide with cobblestone banks. A floodplain to the northeast of the bridge was checked with negative results. The north and south banks of the river were checked as well as a field to the south of the bridge. To the west of the bridge is a

high sandstone ridge which follows the river south of the bridge. The length of this ridge was checked. The south end of the ridge slopes down to the river. A gravel pit in this area was checked and as well, several test holes were dug along the river's banks and two large test holes on the south slope of the ridge, all with negative results.

Sub-region 5 was defined as the area between the Great Village - East Village road south to the point where the proposed highway bisects the present 104. It is characterized by low wet lands covered in mixed forest. The only water sources are the beginning of Corbett Brook and Peppard Brook, neither are judged to be significant for attracting cultural developments. The survey team investigated the area including a large ploughed field east of the DND station with negative results.

Sub-region 6 begins at the point where the 104 is bisected by the proposed highway and ends where the Masstown road crosses over the present highway 104.

The area where the highway will cross the Debert River was thoroughly examined. It is characterized by low wet ground which offers little in the way of human occupation. The area of the Folly River initially appeared to have high to moderate potential. However, the inspection by the survey team along ploughed fields failed to produce any evidence for cultural resources. Sub-surface testing on the ridges above the river also produced negative results. The only cultural feature noted was a dirt track on the west side of the river. This old road was investigated and no cultural features were noted within the corridor. The southern end has very little potential, it is a low area of mostly spruce with some slight ridging, with no major bodies of water.

Conclusions

The normal construction activities will in all likelihood impact on a number of the historical and cultural resources recorded during this Phase II study. However, the significance of these sites as they relate to the history of Nova Scotia is judged to be minor. At the present time there are no guidelines to assess historical and cultural significance of archaeological sites that fall under the mandate of the Special Places Protection Act (1980). Recent discussions between the archaeological community and representatives of the Nova Scotia Museum have identified criteria which could be used in determining significance these include:

1. Age of the resource
2. Present condition of the resource
3. The potential of the resource to contribute to knowledge
4. Uniqueness of the resource
    a) Resource type
    b) Function
    c) Historical association
5. Public interest.

With one exception, [the Rushton Pioneer Cemetery (1991NS22-3)], all of the remaining historical and cultural resources identified would be ranked low on any scale using these criteria. In age they are comprised of mid-nineteenth to mid-twentieth century farmsteads. Although, in their present condition they are pristine for the purposes of archaeological excavation this is also true for hundreds of similar sites, many still standing and working farms, throughout the province. At this time farmstead sites have not been the major focus of archaeological enquiry. In part this is due to the existing structures and the volumes of archival and other forms of historical documentations available for interpreting this period of Nova Scotia's history. At some time in the distant future they may become a more significant heritage resource, however, given their present numbers it is our opinion that they would not contribute substantial new information on the nineteenth century occupation of Nova Scotia. Given this they are not considered as unique resource sites either in type or function. The extensive archival search along with informant interviews did not identify any significant historical associations of the sites that may be impacted. The only expressed public concern was with the Rushton Pioneer Cemetery. Thus it is the professional opinion of Davis Archaeological Consultants Limited that no significant historical or cultural features will be lost during the construction of the proposed 104 highway. However, the area immediately around the Rushton Pioneer Cemetery should be considered as a sensitive zone.

Recommendation

The historical and cultural resource study has identified the Rushton Pioneer Cemetery (1991NS22-3) on Westchester Mountain as a sensitive zone. Although a complex of mid-nineteenth century to mid-twentieth century farmsteads are also found in this area they are not judged to be significant resources in contributing to the culture history of Nova Scotia. However, it is recommended that as a pre-construction mitigation that these sites be marked by survey stakes and flags. Once marked the sites should be avoided, where possible, by construction vehicles, this is especially true of the Rushton Pioneer Cemetery.

Heritage Research Permit A1991NS23

PRELIMINARY REPORT ON THE FORT LAWRENCE SALVAGE PROJECT

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Introduction

This report concerns an archaeological salvage excavation carried out on the site of Fort Lawrence. The site was assigned the Borden designation of B1Db:8. The excavation took place on September 7, 1991, and was overseen by Dr. Stephen Davis of Saint Mary's University. The excavators were from Saint Mary's University's Anthropology Department. Bernard Leblanc, Curator of the Acadian Museum, University of Moncton, gathered a large group of volunteers to sift through the mounds of dirt from the foundation construction. In all, approximately seven thousand artifacts were recovered from the site, the majority dating from the mid-eighteenth century British occupation of Fort Lawrence.

The Fort Lawrence site (B1Db:8) is situated approximately 750 meters southeast of the Nova Scotia - New Brunswick border, 500 meters southwest of Highway 102 on the west side of the Fort Lawrence Road, at the south end of Fort Lawrence Ridge (Figure: 1). It is bordered immediately to the south by the Canadian National Railway and to the west by salt marshes and the Missiguash River. The site is approximately 59 feet above sea level and overlooks to the site of the French Fort Beausejour (1751-55), three kilometres to the northwest. The area concerning this report is presently owned and actively farmed by Aubrey Trenholm, Fort Lawrence Ridge.

The history of the Fort Lawrence site contains two distinct but connected chapters, Acadian and English (see M. Vance this report). The Acadian village of Beaubassin was established in the general area of the site between 1676 and 1686. Beaubassin prospered until it's destruction by Le Loutre in 1750. Immediately following the forced abandonment of Beaubassin, the British built Fort Lawrence. It's rival, Fort Beausejour, was started by the French in 1751 but was besieged and captured by the British in 1755. Fort Lawrence was abandoned in 1756 (Dawson, 1988:80-81). A large granite monument on the present site is the only tangible marker of it's past. It is the British occupation of the site which concerns this report.

The area of Beaubassin/Fort Lawrence has been the subject of several surveys and excavations since the 1930's, most notably Cameron (1950's), Nadon (1968), and Lavoie (1986). The majority of this work was concentrated in the area of Beaubassin, to the southwest of B1Db:8.

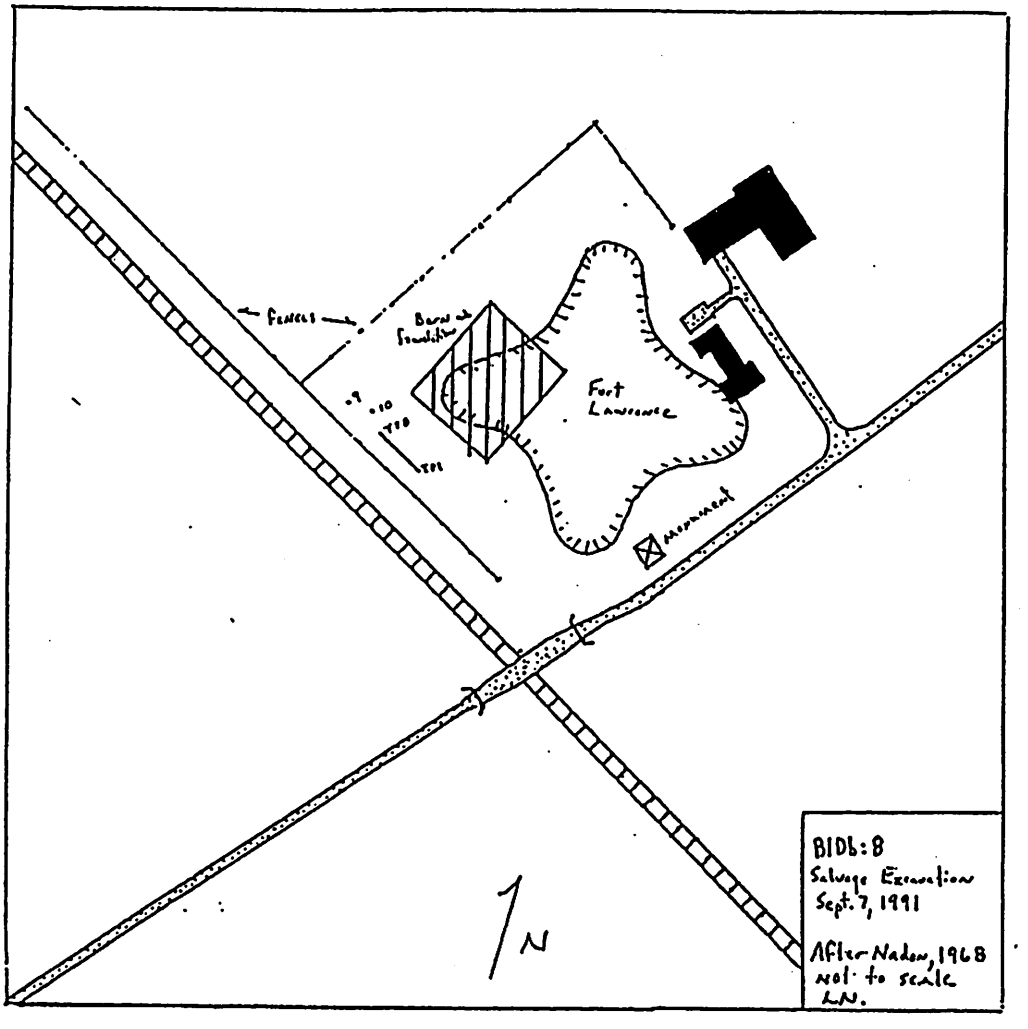

Figure: 1 Estimated level of destruction caused by barn construction on the Fort Lawrence Site.

In 1991 the Fort Lawrence site was subject to a major disturbance in the form of the excav ıtion of a foundation for a cattle barn. This disturbance was noted by Bernard Leblanc, Curator, Acadian Museum, University of Moncton, who notified Dr. Stephen Davis, Saint Mary's University, of the problem. Dr. Davis subsequently notified authorities at the Nova Scotia Museum. It was agreed that a Saint Mary's Anthropology 360 class (Method and Theory in Archaeology), supervised by Dr. Davis, would undertake a one-day salvage excavation to evaluate the extent of the damage to the site. Bernard Leblanc also expressed concern about the possible loss of Acadian heritage and it was agreed that the excavations were to be carried out with a sensitivity to the Beaubassin occupation. Mr. Leblanc also offered to head a group of Acadian volunteers who would sift through the large dirt mound of soil excavated from the barn foundation. This offer was gratefully accepted.

A brief foot survey of the site narrowed the choice of an area for excavation to a strip of land to the southwest of the barn foundation. It was hoped that this area was not only undisturbed but also contained no structural remains which would have made a one day dig unfeasible.

Laird Niven travelled to the site on September 6 to set up the excavation units. At this time random shovel testing was carried out on the eastern and southern extremities of the site in search of relatively intact features relating to either the Acadian and/or the British occupation of the site. These revealed only fragments of eighteenth century ceramics, glass, and tobacco pipes. Examination of a large E-W backhoe trench running to the west side of the present Trenholm house revealed nineteenth century ceramics. On September 7 additional random shovel tests were carried out on the low-lying western edge of the site with similar results as the previous day.

In preparation for the excavation, eight one by one meter excavation units were laid out at one meter intervals along a roughly east-west baseline. The units ran from the top of the hill west downslope. The baseline continued to the east along the top of the hill and four controlled shovel tests were placed along this line. These tests revealed only fragments of eighteenth century ceramics (Figure: 2).

On September 7, 1991, twenty students arrived on the site from Saint Mary's University to begin excavation. Bernard Leblanc organized his group of volunteers as they prepared to sift through the dirt mounds. These mounds, five in number and several meters high, all contained cultural material.

Testing Methodology

The excavation of the test units was carried out using trowels. Two or three people were assigned to each one by one meter pit. Two of the pits, numbers nine and ten, were started as controlled shovel tests in search of the extent of the site but contained a significant number of artifacts to warrant the change to excavation by trowel. The sod level was removed

Plate1. Saint Mary's University archaeology crew excavating the Fort Lawrence site.

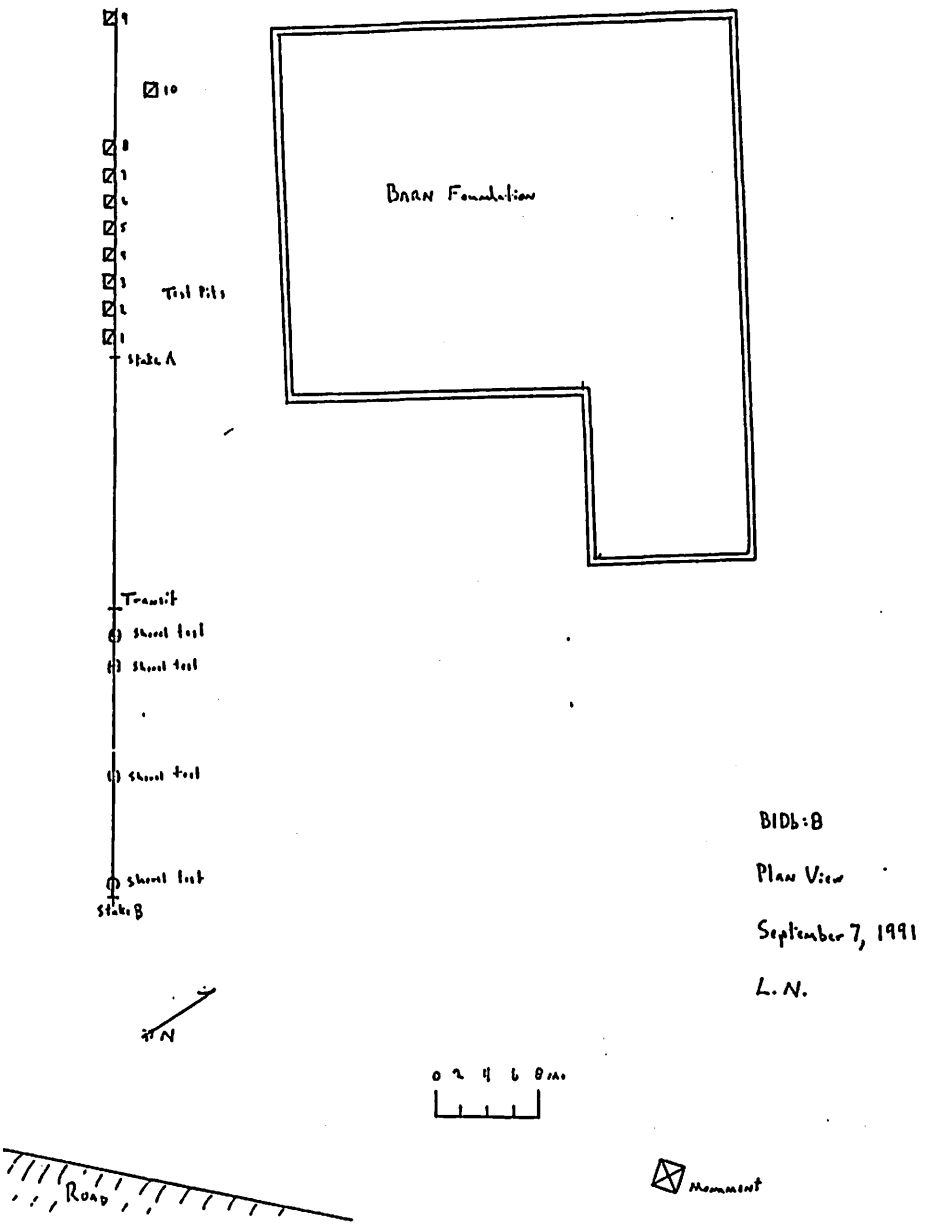

Figure: 2 Location of test units excavated in 1991 during archaeological salvage project on Fort Lawrence Site.

using sod cutters and trowels. This level (10-15cm) had been subjected to plowing and contained a mixture of eighteenth, nineteenth, and twentieth century ceramics, glass, and plastic. The second level (15-63cm) was a rich, loamy black soil containing the majority of artifacts. This level varied from thirty-three to sixty-three centimetres in depth as it ran downslope. Two of the test pits, seven and eight, were not completed to the bottom of this level due to time constraints. The artifacts from this level varied from eighteenth and nineteenth century on the top of the hill to solely eighteenth century downslope. At this point it was clear that the artifacts belonged to a refuse dump from the English occupation, most likely located outside of the fort. Charcoal flecking and some charcoal pieces were found in the final ten centimetres of this level. Artifacts were retrieved in diminishing numbers near the end of the second level and a few were found in the interface of levels two and three. The third and final level was a sterile red/brown sand. The charcoal flecking is interpreted as a result of percolation from the English refuse dump rather than a major burning event possibly associated with the destruction of Beaubasin. No features were found in any of the test units.

Artifacts

A total of approximately 7783 artifacts were recovered from B1Db:8, 1479 from the ten test pits and 6304 from surface collection. Approximately 1000 of these artifacts are on loan to the Acadian Museum, Moncton. The remaining artifacts are temporarily housed at Saint Mary's University, Halifax. The general classes of artifacts recovered from B1Db:8 break down as shown in Table: 1.

TABLE: 1 Distribution of Fort Lawrence Artifacts by class

Class	Number	Frequency
Glass	2196	33.5%
Ceramics	1289	19.6%
Tobacco Pipes	1056	15.3%
Faunal	1005	15.3%
Other	303	9.2%
Metal	470	7.0%

Artifact analysis has so far been restricted to a rough count and general sorting by class and type. These will be further refined and elaborated in the future. The artifacts are for the most part mid-eighteenth century and associated with the British occupation of Fort Lawrence. A handful of ceramic and glass artifacts are tentatively identified as French in origin but are also thought to be from the British occupation. None of the artifacts were associated with any features.

Conclusions

Lavoie (1990) quotes Mousette (1970) as characterizing the ceramic types from an Acadian occupation at Beaubassin as Chinese porcelain in small quantities, Rhenish and French stonewares, faience, English slipwares, and French and unidentified coarse earthenwares. An English occupation would be characterized by the presence of English refined earthenwares, especially creamware, English white salt-glazed and Rhenish stonewares, English slipwares, delftwares, and unidentified coarse earthenwares. Lavoie further quotes Harris who characterized the glass from an Acadian occupation at Beaubassin as almost exclusively common green and blue-green bottles, while an English occupation would contain liquor bottle of dark green glass as well as leaded tableglass and non-utilitarian wares (Lavoie, 1990: 15-16). The artifacts from Fort Lawrence fit very well into the types from a British occupation of the mid-eighteenth century. The predominant ceramic type recovered from B1Db:8 was English white salt-glazed stoneware (36.5%). This ceramic reached a peak of production between 1740 and 1760 (Ibid:42). Dark green liquor bottle glass made up the majority of artifacts in the glass category - 73.22%.

Observations:

- remaining portion of undisturbed site has potential for a higher artifact yield than the Central Trust site.

- current collection total 7,783 specimens (estimated) Saint Mary's University approximately 6,783, Acadian Museum 1,000 estimated.

- according to Canadian Parks Service work 1968 and position of new barn it is estimated that one fifth of the Fort has been destroyed (Figure: 1).

- on the basis of the 1755 drawing the CN rail tracks have destroyed the outer pallisade (Figure 3).

- the community shown associated with the Fort, in the 1755 drawing, should be relatively undisturbed and therefore of high archaeological potential (Figure 3).

- SMU testing has revealed the existence of a dump on the NW corner of the Fort. This is situated in a low lying wet area and testing produced organic artifacts in excellent

condition.

- three possible headstone fragments were found, one in Test Pit 1 and two from the bulldozed backdirt. These suggest the existence of the old cemetery somewhere on the NW side of the Fort. However, local tradition (E. Trenholm) places the cemetery on a ridge approximately 500 metres NW of the Fort.

Problems:

- dump site is in danger of destruction from construction of manure pit for barn.
- Acadian remains south of gift shop in danger due to twinning of Trans Canada highway (Leblanc personnel communication).

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Historical Background: Michael E. Vance

During the eighteenth century, Fort Lawrence's isolated, windswept site at Beaubassin was the focus of conflict central to the history of Britain, France and the North American colonies. In 1750, the British decision to construct a base on the eastern side of the Missaguash River was prompted by European diplomatic and military manoeuvering, but the action also had important New World ramifications. The struggle for the site would involve the in ligenous Micmac, the original Acadian settlers, the military command of New France and ultimately the colonists of New England. The abandonment of Fort Lawrence, in 1756, was linked to a series of colonial conflicts which anticipated, and to some extent provoked, the Seven Years' War. This contest led to the conquest of Canada and established Great Britain as Europe's leading colonial power.

For over a century, the French and British had pressed rival claims to the Nova Scotian peninsula but during the seventeenth century the French had the better of the contest and successfully colonized the region they referred to as l'Acadie. However, in 1690, the British entered into an extended period of warfare with France. In 1710, just prior to the end of conflict, a small British force captured the main Acadian settlement, Port Royal, renaming it Annapolis Royal. Under the terms of the peace treaty, negotiated at Utrecht in 1713, Britain was ceded control of Acadia and her French-speaking settlers. Although the British had embarked on war in order to check Louis XIV's European expansionism, they soon discovered that their greatest gains had been across the Atlantic.[1] Nevertheless, the terms of the peace settlement left room for disagreement.

The Treaty of Utrecht gave Britain control of "Nova Scotia, or Acadia, with its ancient boundaries", but the governors of New France claimed control of the Chignecto Ismthus, and the area corresponding roughly to modern New Brunswick and northern Maine, which they insisted lay outside those limits.[2] Neither the British adminstration nor the British colonists accepted this assertion, but early efforts to challange the French claims were unsuccessful. During the 1720s, incursions of New Englanders into Maine were repulsed by a French alliance with the native Abenaki. This was followed, in 1736, with a demand from the Governor of Nova Scotia that the population of Beaubassin submit to British authority. However, the early adminstration at Annapolis Royal did not have the resources to enforce such a bold request.[3]

In the United Kingdom the Walpole administration, eager to promote domestic stability, was committed to peace with France and was unwilling to risk conflict by supporting an expedition into the Chignecto. It was the reluctant renewal of European conflict that finally allowed the rising antagonism between the British and French colonial governors to develop

into open hostilities. The British entered the War of Austrian Succession in 1744, in order to protect Hanover from annexation by France's allies, but the fighting soon spread to theatres as distant as India and the Caribbean.[4] In North America the focus was on Louisbourg when, in 1745, a force of New Englanders captured the strategically vital fortress. Although French attempts to recapture Louisbourg were unsucessful, pressure was placed on the British garrison at Annapolis Royal by a raiding force comprised of Canadian militiamen and Micmac fighters, drawn in large part from the Chignecto region.[5] Despite the refusal of the Acadian population under British control to be drawn directly into the fighting, the British became increasingly anxious about any potential instability that might be encouraged by the French presence in the Chignecto. This concern was heightened when Louisbourg was returned to the French in exchange for the Indian port of Madras under the terms of the peace agreement concluded on October 18, 1748 at Aix-la-Chapelle.[6]

During the winter of 1749-50, Chevalier de la Corne and six hundred men occupied the Chignecto in order to secure access to the Bay of Fundy from Quebec.[7] By the spring, the British command believed that they could no longer ignore the problem. Major Lawrence was given the responsibility of dislodging the French from the region, but his April foray into the Chignecto proved abortive as he was handicapped by insufficient resources. He returned early in September with a larger force and, despite pressure from the French and Micmac, managed to secure high ground on the eastern side of the Missaguash. Fort Lawrence was then hastily constructed on the site, which it shared with the recently destroyed Acadian village, Beaubassin.[8]

The reasons for the abandonment and burning of the village are still unclear. Contemporary sources generally agree that at the time of Lawrence's original expedition, a French missionary priest, Abbé LeLoutre, led a force of Micmac against the settlement in order to force the Acadian population to resettle across the Missaguash River.[9] This forced removal may have been part of a wider French strategy adopted in the face of renewed British interest in the region. La Corne informed Lawrence that he had been instructed to hold the territory west of the Missaguash River until the boundaries could be properly fixed by commissioners from both powers. Unwilling to risk further conflict, both Britain and France agreed to the boundary commission, which would sit in Paris for four years without producing an agreement.[10]

If LaCorne intended to strengthen his position by employing the displaced Acadians in the erection his own defenses, he was to be disappointed. When the construction of Fort Beauséjour, the response to Fort Lawrence, was begun, the chief engineer complained that "very few habitants[Acadians] could be induced to work in the fort". Many were attracted, instead, to a rival project. In 1752, Abbé LeLoutre received 50,000 **livres** from the French court in order to construct an **aboiteau** at Duc Lac. Had it been completed, it would have been the largest tract of reclaimed land in the region. The huge scale of the project meant that hundreds of Acadian refugees, who were sorely needed to fortify the defences at Beauséjour,

were being employed at Duc Lac.[11] It would appear, then, that displacement of settlers in order to reinforce the French position was not a successful strategy.

Major Lawrence believed that the razing of Beaubassin village was merely a malicious act of wilful destruction inspired by LeLoutre. Contemporary evidence indicates that the Acadians were cajoled and threatened into leaving their settlement by the abbé although several historians have suggested that the episode was part of a deliberate "scorched earth" policy. Certainly, when Lawrence returned in September, the Micmac were burning other settlements in Beaubassin and the missionary's leadership was clearly apparent. Along with other French missionary priests, LeLoutre had led earlier native resistance against the British and assisted in the attack on Annapolis Royal. In addition, LeLoutre played a pivotal role in negotiating a truce between the British and the Micmac, once it was clear that La Corne would not use his troops to oppose the construction of Fort Lawrence.[12] Nevertheless, the focus on LeLoutre's role has not adequately explained Micmac motives for participating in the destruction of Acadian settlements.

The Micmac had not been party to the terms of the Treaty of Utrecht and as a consequence treated the British occupiers of Nova Scotia as interlopers. Conversely, the friendly relationship with the French military appears to have been based on the tacit recognition of the native's right to self-government.[13] The initial removal of Acadians from the site may have been in recognition of Micmac territorial claims and undertaken in order to cement the alliance against the British. La Corne had informed Lawrence that the Micmac who aided LeLoutre's destruction of Beaubassin village claimed the territory east of the Missaguash river "as their own".[14] It is very likely that the Fort Lawrence site had been an earlier Micmac summer camp. It is an obvious high ground in the Missaguash marshes and is within easy reach of the sea.[15] The Micmac had not, however, pressed for the removal of settlers prior to 1750, up to that time the Acadians had enjoyed good relations with the natives. It was perhaps the prospect of the British settling the region which encouraged the Micmac to reassert their claims to Beaubassin. Lawrence himself claimed that the presence of large numbers of natives in the region was the reason for abandoning his first campaign and the Micmac continued to oppose the British when they began to reoccupy the village site for their fort in September.[16] Further archaeological investigation should provide a more complete occupational history of the site and help to substantiate the Micmac claim.

After the establishment of Fort Lawrence and the start of work on Fort Beauséjour, a military stalemate, perpetuated by protracted treaty negotiations in Paris, prevailed in the Chignecto. During this five year period, the displaced Acadians began to balk at the dictates of their military governors and established trading relations with the British garrison at Fort Lawrence, where they received both credit and drink. By 1753 the commander of Fort Beauséjour, Duchambon de Vergor, was so concerned with the contact between the Acadians and the British that he forbade journeys to Fort Lawrence, but the contact continued, despite the ban. The Acadians responded to the commander's order with a petition requesting permission to be allowed to return to "their own lands" on the British side of the Missaguash

River as "the district in which it has been proposed to settle us...will not provide a living in future."[17] It is not certain if any Acadians returned to the site of their former homes. The identity of the earliest inhabitants of the reconstructed village adjacent to the fort is still uncertain. Again, further archaeological investigation of the site should help to resolve this question.[18]

The Acadians had not been acquainted with direct French control for over a generation and the independence they exhibited in the Chignecto was evident elsewhere in the Nova Scotia peninsula, particularly after the British occupation. With few exceptions, these original settlers attempted to steer a neutral course between the French and British antagonists.[19] In contrast, the colonists of New England, while sharing an equally independent attitude towards the home country, did take sides in the conflict and it was their actions which ultimately broke the stalemate in Beaubassin and led to the dismantlement of Fort Lawrence.

William Shirley, the Governor of Massachusetts (1741-56), had consistently argued that the French presence in the Chignecto threatened the security of the British colonies. His opinion was so highly valued in Westminster that he had been appointed to the British boundary commission delegation sent to Paris in 1750. With the collapse of those talks in 1754, Shirley returned to New England and once there argued for more aggressive military action. He wrote to Lawrence, suggesting that a joint force of New England militiamen and British regulars mount an attack on Fort Beauséjour as a preliminary step in turning back all such French "encroachments". As Lawrence was already worried about the possibility of a French offensive based out of Louisbourg, he authorized the enterprise in his new capacity as acting governor of Nova Scotia.[20]

On May 20, 1755 thirty-six vessels carrying almost 2,000 militiamen, recruited by Shirley the previous winter, left Boston harbour for Beaubassin. They joined a force of nearly 500 British regulars at Fort Lawrence and on June 4 commenced their attack on Fort Beauséjour. They engaged a defending force of no more than 160 French regulars, since the Acadians had refused to assist, claiming that "there was no hope of help [and] they did not wish to remain and sacrifice themselves needlessly". Nevertheless, the defenders put up a vigourous ten-day resistance before capitulating.[21]

The attack on Beauséjour had been anticipated by clashes between the French and American colonists in the Ohio valley. As with the Chignecto, the region was claimed by both sides but the French, through their native alliances, were able to force out a group of Virginian challengers and construct a series of forts in the disputed territory. In May 1744, George Washington and the Virginia militia failed to destroy the main stronghold, Fort Duquesne, resulting in their appeal to the British cabinet for aid. Concerned about potential French aggression in the wake of the failed Paris boundary negotiations, the administration dispatched General Braddock and 800 army regulars to turn back the French in all disputed areas, including the Chignecto. Braddock's campaign proved to be a disaster. After assigning responsibility for the northern frontier to Shirley, the general marched into the Ohio valley in

order to take Fort Duquesne, but on July 9, at the Battle of Monongahela, he was mortally wounded and his army routed. At the end of summer campaigning, only Shirley and Lawrence's attack on Beauséjour proved successful. Their victory was the only encouragement the British had when, in 1756, the undeclared war in the colonies was turned into a declared "Seven Years'" war with France.[22]

By mid-summer the state of open hostilities with the French redoubled concerns about the loyalty of the Acadian population. For the British forces newly established in Fort Beauséjour -renamed Fort Cumberland by the victors - oaths of loyalty and declarations of neutrality were not sufficient to belay these fears. The solution, devised by Lawrence and the Nova Scotia magistrates, was the notorious Acadian expulsion. The deportation orders would eventually be given to all Acadians in the Nova Scotia peninsula, but it was the settlers in the Chignecto who became the first victims of this policy.[23] The initial expulsions were undertaken in a context of guerilla attacks, launched by Acadians who had slipped through the first round-up and supported by their Micmac allies. As a consequence, Fort Lawrence was employed as a secure holding area for those awaiting transport vessels. Ironically, many of the Acadians who had been forced from their homes in 1750 found themselves in August 1755 interned on the site of their original settlement.[24] Once the expulsions were completed at the end of the year, Fort Lawrence no longer served a useful purpose and was dismantled.[25] It is not clear, however, for how long the adjacent settlement survived before the entire site became the present single farmstead.

Fort Lawrence, then, has the dubious distinction of being associated with the first Acadian expulsions, although the historical significance of the site is not limited to that episode. The construction, occupation and abandonment of the fort tied the concerns of the Micmac, Acadians, and New Englanders to those of France and Britain. Ultimately, this linked Fort Lawrence to the outbreak of the Seven Years' War, a conflict which would lead to British domination in all areas of colonial competition including India, the West Indies and, after the conquest of Canada, North America.

Notes

1. W. J. Eccles, France in America, (Toronto, 1972); Andrew Hill Clarke, Acadia: The Geography of Early Nova Scotia, (Madison, 1968); George F. G. Stanley, New France: The Last Phase, 1744-1760, (Toronto, 1968); W. S. MacNutt, The Atlantic Provinces: The Emergence of Colonial Society, (Toronto, 1965).

2. In 1671, the original settlers of Beaubassin arrived from Port Royal, but in 1678 Frontenac granted seigneurie for the region, allowing the Quebec administration to claim control. Under the terms of the Treaty of Utrecht, Acadians were given one year to resettle outside Acadia unhindered by the British. Many moved to Beaubassin and the population rose from a few hundred in 1707 to over one and a half thousand by 1750. Clark, pp. 141-43, 222. J. Reid, Six Crucial Decades, (Halifax, 1987), pp. 32-33.

3. J. C. Webster, The Forts of the Chignecto, (Shediac, 1930), pp. 22-23, 29; Kenneth M. Morrison, The Embattled Northeast: The Elusive Ideal of Alliance in Abenaki-Euramerican Relations, (Berkeley, 1984).

4. W. A. speck, Stability and Strife: England, 1714-1760, (Cambridge, Mass., 1979); Jeremy Black, Foreign Policy in the Age of Walpole, (Edinburgh, 1985).

5. Webster, p. 29; MacNutt, p. 35; Stanley, p. 19.

6. MacNutt, pp. 37-38; Dorothy Marshall, Eighteenth Century England, (London, 1962), pp. 221-224.

7. MacNutt, p. 38.

8. Stanley, pp. 72-75; J. C. Webster, The Building of Fort Lawrence in Chignecto, (Saint John, 1941).

9. Some of the displaced inhabitants were resettled as far afield as the Isle St. John and the Saint John River, but many remained on the western ridge opposite their original settlement. Reid, p. 34. The contemporary accounts are surveyed in Webster, Forts of Chignecto, pp. 31-33.

10. Major Lawrence's account, April, 1750 in Webster, Building of Fort Lawrence, p. 19. The commission proceedings were published in two English volumes, The Memorials of the English and French Commissioners concerning the Limits of Nova Scotia or Acadia, (London, 1755) and in five French volumes, Mémoire des Commissaires du Roi et de Ceux de Sa Majesté Britannique sur les possessions et les droits respectifs des deux couronnes en Amérique, sur les actes publics et piéces justificatives, (Paris, 1756).

11. Webster, Forts, pp. 54, 33.

12. Webster, Forts, pp. 31-32; Webster, Building, pp. 7, 9-10; Stanley, pp. 72-73; Reid, p. 34.

13. This was certainly the case with the Abenaki alliance. Morrison, pp. 165-193; MacNutt, pp. 29-30.

14. Major Lawrence, April, 1750. in Webster, Building, pp. 18-20.

15. Clark, pp. 56-60.

16. Reid, p. 36-37; Webster, Building, pp. 18-20.

17. Webster, Forts, pp. 35-36.

18. From 1760, the Chignecto was populated by emigrants from New England who were followed by settlers from Yorkshire, however both migrations occurred long after the French military had been expelled. J. B. Brebner, The Neutral Yankees of Nova Scotia, (Toronto, 1968), pp. 25-27; Bernard Bailyn, Voyagers to the West: A Passage in the Peopling of America on the Eve of Revolution, (New York, 1986), p. 407.

19. Reid, pp. 29-32.

20. MacNutt, pp. 41-42; Reid, pp. 38.

21. MacNutt, p. 41-42; Stanley, pp. 45-57, 91-107.

23. Clark, pp. 360-364; Stanley, pp. 117-120; MacNutt, pp. 42-46; Reid, pp. 41-44.

24. Eighty-six Acadians managed to escape in October by digging a thirty-foot tunnel under the south wall. MacNutt, p. 46.

25. Marc C. Lavoie, The Archaeological Reconnaissance of the Beaubassin Region in Nova Scotia and New Brunswick - 1986, (Fredericton, 1990), pp. 14-15.

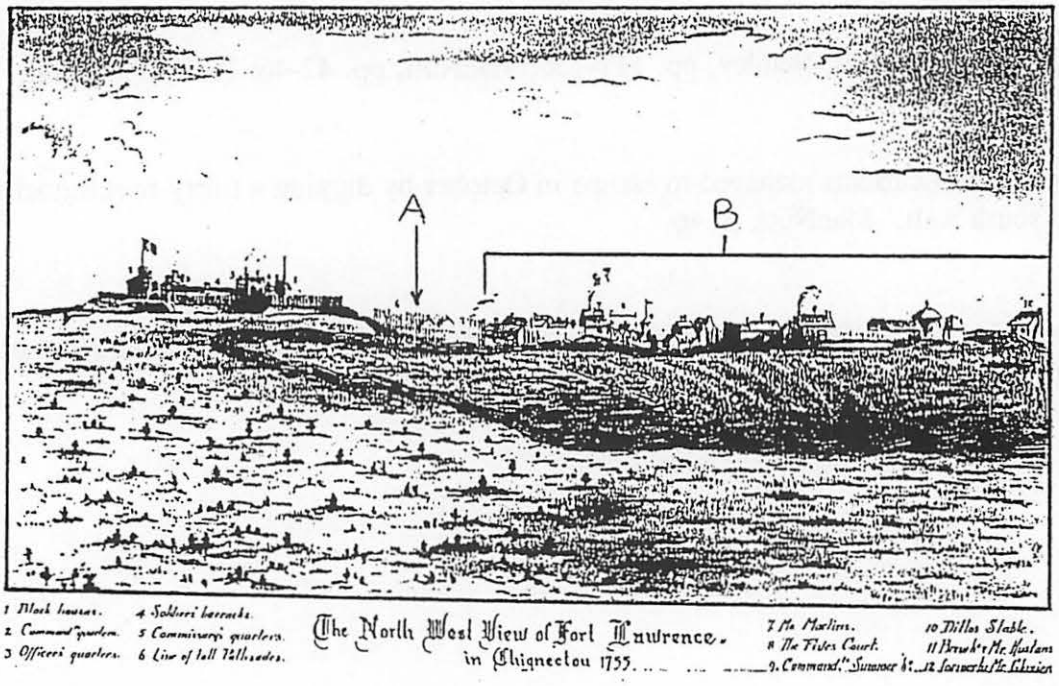


Figure: 3 Fort Lawrence in 1755; A. pallisade destroyed by railroad construction, B. community associated with Fort, presently situated under a pasture, has high archaeological potential.

Heritage Research Permit A1991NS24

HERITAGE RESOURCES SURVEY OF SHIP POINT ENERGY FROM WASTE FACILITY, RICHMOND COUNTY

Callum Thomson
Jacques Whitford Environment Limited

Provincial Thermal Utilities Inc. is proposing to establish an energy from waste facility at Ship Point, Richmond Co., Cape Breton, Nova Scotia. Jacques Whitford Environment Limited has been retained to carry out baseline environmental studies to acquire relevant data which would assist in the preparation of an Environmental Assessment Report to meet the requirements of the Nova Scotia Department of the Environment.

Field studies were undertaken on the property at Ship Point during October and November 1991 in order to assist in the evaluation of heritage resources.

The study areas for these surveys took place within the property boundaries which included the area between two small streams bordering the north and south edges of the proposed site and the local road to the east. The western boundary is the Strait of Canso (Figure 1).

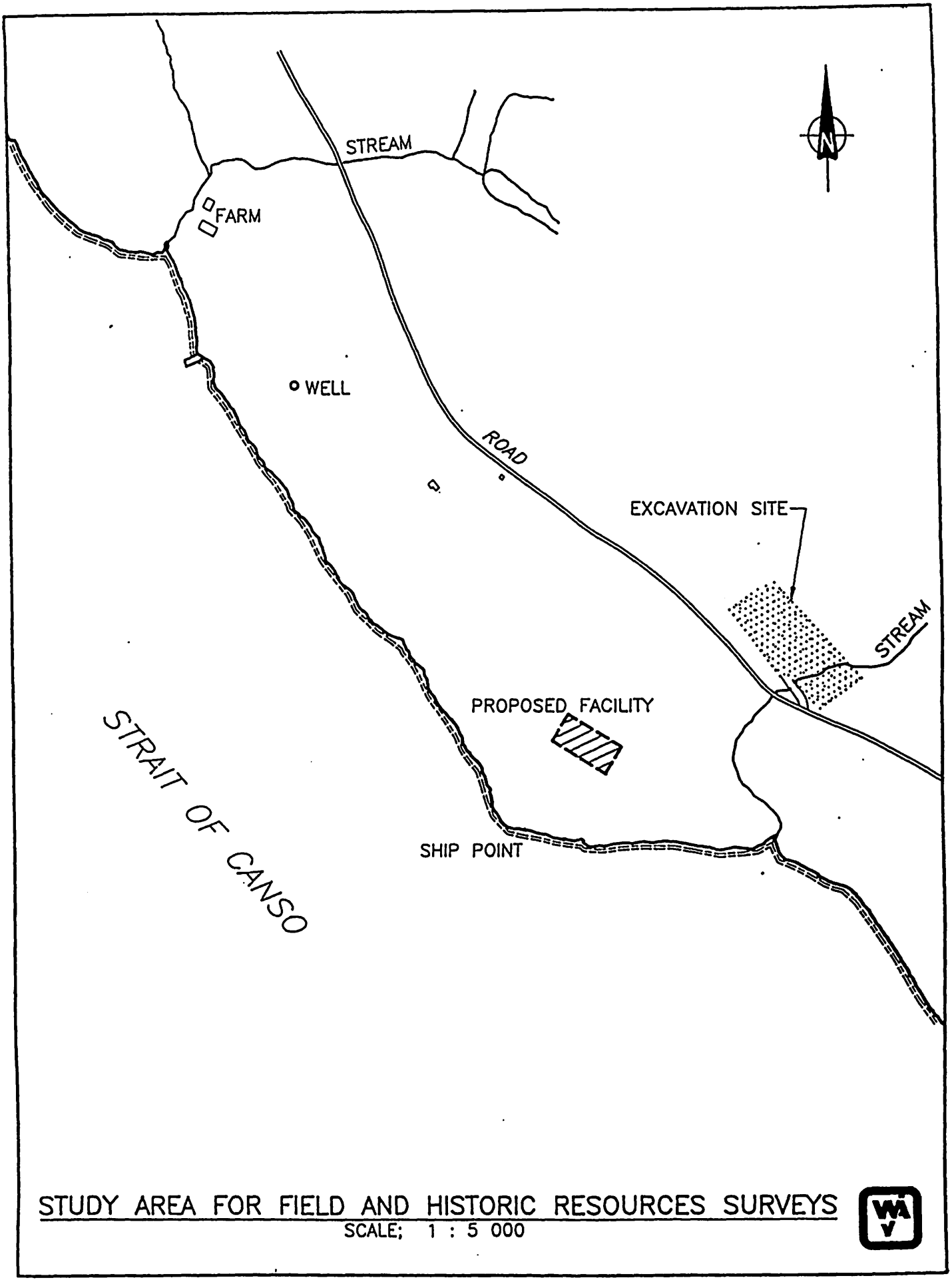
Background Research

Background research into the history of the Ship Point area was conducted before field surveys began in order to gain an understanding of the potential for heritage resources. Only three sites are recorded at the Nova Scotia Museum for all of Richmond County, none in the Ship Point area. Two of the areas are isolated prehistoric finds at Grant River; the third is a historic site at St. Peters (Brian Preston: personal communication).

No archaeological surveys have been done near Ship Point. The closest archaeological work was a survey of the Mulgrave area conducted by Stephen Davis in 1973 (Davis 1974). No sites were found on the Canso Strait; the closest was at Tracadie in St. George's Bay.

Archival research revealed that the study area was known as McPhersons Ferry as early as 1886. In 1886 four houses and an unidentified building are shown scattered between the north and south streams, between the road and the Strait (Figure 1). The houses were those of J. McPherson, Mrs. Smith, T. LeBlanc and J. Barkham (Church 1886). The area continued to be referred to as McPhersons Ferry through 1928 (PANS 8.5.10-1889, I.R.6,2,27, v202-1928).

The former owner of the farm at the north end of the study area was interviewed. He did not, however, know of any heritage resources in the vicinity (Murdoch Olsen: personal communication).



STUDY AREA FOR FIELD AND HISTORIC RESOURCES SURVEYS

SCALE; 1 : 5 000

FIGURE 1

Field Survey

On November 5, 1991 two arcaheologists from Jacques Whitford Environment Limited surveyed the area of the proposed Energy from Waste Facility. All of the land between the two streams were walked and test-pitted judgementally; the proposed site of the plant was test-pitted intensively. The beach was walked, with some testing and all exposed soil surfaces were examined for indications of prehistoric and/or historic habitation.

The abandoned farm at the northern stream was examined. Several test pits were excavated in the vicinity, as the farm was rumoured to be about two hundred years old (Murdoch Olsen: personal communication). No evidence of early habitation was found. The stream banks were examined for early historic or prehistoric artifacts, with none being found. On the beach immediately below the farm, however, numerous glass and ceramic fragments, some dating to the nineteenth century, were scattered over the surface.

Approximately midway between the abandoned farm and the site of the Facility was a clearing containing the disarticulated remains of a sandstone foundation and a well. No artifacts were discovered associated with the features. Also, no indications were found of the buildings shown on the 1886 map (Church 1886).

At the site of the Energy from Waste Facility test pits were excavated by shovel over the entire area to be affected by construction. No cultural remains were encountered. Piles of stones found over the entire study area suggest that at one time the land was cleared and cultivated, or at least grazed. The remains of two wharves were found, one near each end of the project area. One of these may be associated with the MacPhersons Ferry noted in the archival research.

No significant heritage resources were found that would be affected by development of the Energy from Waste Facility. No further work is anticipated on heritage resources.

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Personal Communications

Murdoch Olsen, resident. Orangedale.

Brian Preston, Curator of Archaeology, Nova Scotia Museum. Halifax.

Heritage Research Permit A1991NS26

ARCHAEOLOGICAL EXCAVATION IN THE WELLINGTON LOCK (BfCv-33)

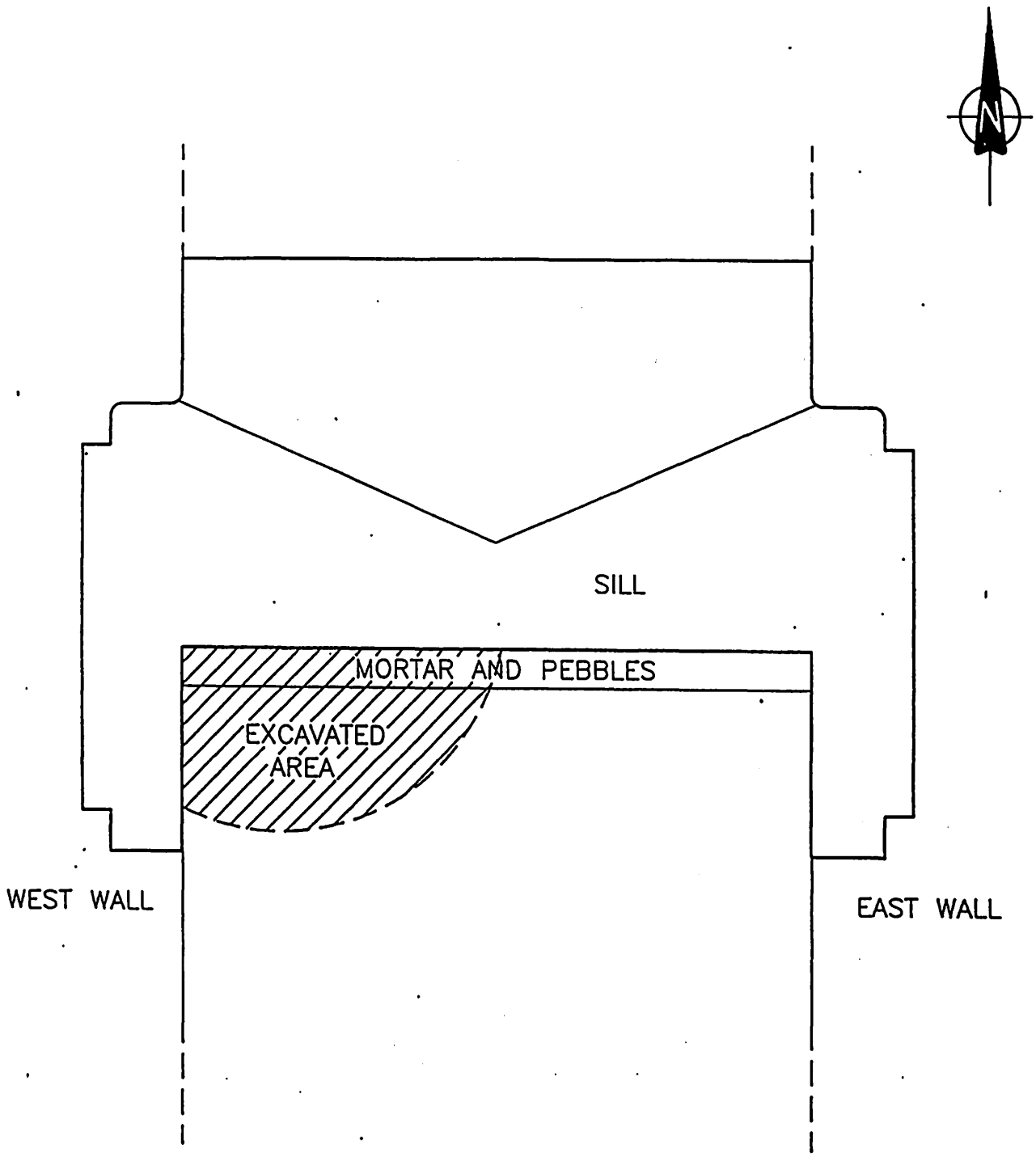
Helen Sheldon
Jacques Whitford Environment Limited

Jacques Whitford Environment Limited, on behalf of the Shubenacadie Canal Commission through O'Halloran Campbell Consultants, Halifax, was requested to conduct an archaeological excavation at the Wellington Lock on the Shubenacadie Canal system. In 1989 the floor of the lock was excavated and the remains of a mitre gate were revealed (Niven and Davis 1989). The gate remained in the lock until late October, 1991, when it was removed by the Shubenacadie Canal Commission.

It was necessary to excavate that portion of the lock floor underneath the gate before the deposits were disturbed by the excavation and cleaning activities. The reason for excavation was to determine if there were pieces of gate hardware that might be in the underlying silt, hardware that would aid in the reconstruction of the gates and/or their operating mechanisms.

The Shubenacadie Canal system was constructed in two phases in the early and middle 19th century and operated from 1861-1870. The creation of the Nova Scotia rail system provided a transportation means superior and more economical to that offered by the canal and commercial operation of the canal system was terminated. The canal was built to link ports and communities on the Bay of Fundy to the great trade centre of Halifax, obviating the need for the dangerous sail around Cape Sable. At the same time, it opened up the interior and its resources. The 90 km route required only 7 km of linking canals, locks and marine railways, making use of the existing river and lake system established long before as a travel and trade route by Micmac Indians. The Wellington Lock, with its ancillary structures, was an integral part of the canal system. The present project proposes to acquire information on the mitre gate through the recovery of additional pieces of gate, and to complete excavation of the lock floor.

The archaeologists from Jacques Whitford Environment Limited excavated the area, under the recently retrieved mitre gate, on November 14, 1991. The lock was almost free of water during the excavation, as a construction crew working on restoration of the lock walls had built a temporary dam at the north end of the lock and installed a temporary pumping system to remove excess water. All the water could not be removed from the area to be excavated because of the difficultly of maintaining the pumps free of debris to counteract the inflow of water, while excavating. An area of approximately 2.5 x 1.5 m was excavated to bedrock using shovels to lift the silt from under approximately one foot of water. The silt was then passed through a screen in water to retrieve any artifacts not immediately visible. Toward the end of the excavation when only small amounts of silt could be scraped off the bedrock, the silt was thrown on the



PLAN VIEW, SECTION OF WELLINGTON LOCK
SHOWING EXCAVATED AREA

SCALE 1:50

FIGURE 1

surrounding banks of sandbags and washed down with water to reveal small artifacts. The artifacts were cleaned, catalogued and analyzed.

Background research for the project area was undertaken in connection with a 1990 archaeological monitoring project (Heritage Research Permit A1990NS26). This included a review of site files, artifact collections and reports from the project region at the Nova Scotia Museum, a review of maps and other sources at the Provincial Archives and Crown Lands Division Map Library, and a review of records compiled by the Shubenacadie Canal Commission and interpretive exhibits.

The area underlying the position of the retrieved mitre gate was excavated to bedrock (Figure 1). Numerous artifacts were recovered from the silt. They were primarily domestic and included ceramic sherds, liquor, soda and medicine bottles, pieces of cutlery, and a near-complete clay pipe bearing the stamped impressions "W. White" and "Glasgow". A few artifacts may be associated with lock features - two nails, a large spike and a large bolt.

The artifact assemblage appears similar to that recovered from the rest of the lock in 1989 (Niven and Davis 1989). Artifacts date from the late nineteenth century to the early twentieth century and are primarily domestic articles deposited in the lock after its abandonment.

No artifacts were found that relate to gate operation - no odd-shaped, unidentified pieces of hardware. The large bolt may have been generally associated with the gate.

At the upstream edge of the wooden sill (Niven and Davis 1989) was a layer of mortared pebbles serving to seal the bottom of the vertical boards with the bedrock. The mortar formed a lip extending approximately six inches south from the sill (Figure 1).

Conclusions

Excavations of the area within the Wellington lock under the mitre gate resulted in the recovery of numerous domestic artifacts in type and age to those previously recovered from the lock. No further segments of mitre gate or artifacts related to its operation were found.

References

Niven, L. and S. Davis. 1989. Wellington Lock, Shubenacadie Canal Project. Ms.: Dartmouth.

Heritage Research Permit A1991NS27

CULTURAL RESOURCE ASSESSMENT OF THE IRISHTOWN SOLID WASTE MANAGEMENT SITE, COLCHESTER COUNTY

W. Bruce Stewart
Porter Dillon Ltd.

On behalf of the County of Colchester, Porter Dillon Limited is designing a landfill site for solid waste to be located at the Irishtown site, just north of Highway 104 between Manganese Mines and Kemptown. During the course of the study, the proposed landfill site was visited and a visual examination made of those areas considered to have moderate to high archaeological potential.

The objectives of the survey were to identify archaeological resources within the study area and to assess the potential impacts of the development of those resources. If it were determined that the development was to have an negative impact on a cultural resource identified during the survey, a subsequent field program would address the nature and significance of the resource and formulate a responsible mitigative strategy.

Background research for the Irishtown site considered known archaeological resources, as well as areas of historic or prehistoric site potential.

Contact with Brian Preston, Resource Archaeologist for the Nova Scotia Museum, revealed that there were no registered archaeological sites in the immediate area of the Irishtown landfill site. The closest registered 'site' was an isolated find located on the Salmon River, several kilometres southeast of the study area.

Historic site potential was evaluated through the examination of two period maps rich in historic land use and settlement data. The Topographical Township Map of Colchester County, Nova Scotia published by Ambrose Church in 1873 indicates that a farmstead, occupied by J. Johnson, was located in the southwest corner of the study area. The Geological Survey map of the area published in 1902 identifies half a dozen farmsteads or houses clustered along the Mingo Road which cuts across the southwest corner of the property. Due to the distance from significant watercourses, the landfill site was considered to have little or no prehistoric site potential.

Field visits were conducted on Thursday, November 21, and Friday, November 22. The site visits focused primarily on a visual assessment of those areas identified on historic maps as having been settled in the late nineteenth and early twentieth centuries. In addition, however, several transects were walked through the remainder of the property. No surface collection or

test pitting was undertaken.

As a result of the site visit, three archaeological sites were identified and documented for registration with the Nova Scotia Museum. Two of the sites, the J. Johnson House site and the Antler site, were located entirely within the subject property, while the third, the Push-Off site lay just beyond the western side of the property.

The J. Johnson House site (BiCs-3), located on a low hill just west of the access road to the Irishtown site, takes its name from its proximity to the J. Johnson residence identified on Church's map of 1873. The site consists of a substantial drystone foundation, an intermittent alignment of stone piles marking the eastern perimeter of the site and an early section of the Mingo Road bypassed by the present day road. Most of the site has recently been clear-cut thus making the identification of historic clearings and associated features difficult.

The Antler site (BiCs-2) is situated on a ridge which runs along the southeast side of the Mingo Road near the western boundary of the site. The site includes two earthen or wooden foundations, a 1930s or 1940s vintage midden and scattered piles of field stone. It would appear that since there are no cellar depressions, the foundations identify outbuildings rather than primary dwellings. If a house was present, its remains may have been buried or destroyed by the widening of the adjacent Mingo Road.

The Push-Off site (BiCs-4) straddles the western boundary of the study area. The main features of the site, a drystone foundation and a scattering of field stone piles are all located outside the study area. However, the area cleared for agriculture appears to have extended eastward along the Mingo Road in the study area. The foundation is largely buried, if not destroyed, by backdirt (push-off) generated by alterations to the road system designed to facilitate local logging traffic. Other features may also have been covered or destroyed by road widening activities.

The three sites identified as a result of the field survey are all located southwest of the Mingo Road. Survey along the north side of the road failed to identify any evidence of the farmsteads or residences indicated on the 1902 map produced by the Geological Survey. It appears that intensive forestry activity has destroyed or at least obscured evidence of any cultural features in that area. Forestry roads and trails located elsewhere on the study area were surveyed for evidence of abandoned lumber camps, farms, etc. but no further cultural resources were identified. As presently designed, the proposed Colchester County Landfill at Irishtown would have no impact on recognized cultural resources.

FIELD ACTIVITIES IN 1991

Brian Preston
Nova Scotia Museum

Field activities were conducted on a total of 30 days between April 1 and October 31. Reported finds were investigated and sites and projects monitored. Locations visited have been arranged in five regional groupings.

CENTRAL MAINLAND

Bedford

The area of the Bedford Barrens petroglyphs was monitored on September 12. There was evidence of considerable activity in the vicinity (broken beer bottles and other garbage). The sloping rock face to the south had also been recently incised with the usual kind of graffiti and what appeared to be a rendering of the star motif. However, the petroglyphs themselves appeared to have escaped further depredations.

Whites Lake

The site of the Whites lake mound on Elizabeth Court was visited three times in 1991. On April 25 it was confirmed that the Department of Transportation had carried out its proposed landscaping of the eroding road cut, which had originally destroyed much of the site. Essentially, a vertical cut had been changed to a banked slope. This had also involved removal of the large monolith which had abutted the mound. Otherwise, the site was undisturbed.

By August 26 the landscaped slope had been seeded and had a good growth of grass over most of its surface. Shrubs were quite dense over most of the knoll, with the exception of the area of the excavation, and there was no evidence of any disturbance. There had been more house construction on the street and nearly all of the lots were occupied. The undeveloped lot immediately opposite the site had ben extensively bulldozed. It was inspected, but nothing of archaeological interest was seen.

On October 18 the site was visited again in the company of Ron Jeppesen of the Department of Government Services (now Supply and Services) to plan the reburial of the human remains and the erection of a monument. A suitable granite slab on the undeveloped lot opposite the site was selected and a location for it on the summit of the site was staked, the remains to be deposited in the excavated foundation at the time of the erection of the slab.

Shubenacadie System

On October 31 the removal of the lock door fragment from the Wellington Lock for conservation at the Fairbanks Centre was monitored. The section of sill revealed by its removal had only some debris from the door on it. However, half of the door fragment came from the deposit of water and sludge in the lock interior (subsequent excavation by Jacques Whitford Ltd. recovered a quantity of late nineteenth to early twentieth century artifacts from this section). The area around the lock was also inspected but no prehistoric artifacts were observed.

On the same day a brief reconnaissance of prehistoric sites in the Enfield/Elmsdale area was undertaken. The area of sites BfCv-10/14 at Enfield was still mostly undeveloped, and the oxbow field at Elmsdale (site BfCv-28) was unchanged. However, encroachment in the area of sites BfCu-2 and 3 at Elmsdale was noted. A new road bridge had been constructed and the area of site BfCu-3 was being used as a dump for soil and peat moss, probably in connection with the Elmsdale Landscaping operation along the road. It also appeared that fill had been taken from along the river bank.

Other Sites

In Halifax, the demolition of the buildings on the southeast corner of Barrington and George was monitored in June. The site was cleared to street level and there was no subsurface excavation. In July and August the Nova Scotia Archaeology Society field project at the Uniacke Estate was visited twice.

SOUTH SHORE

Lunenburg County

Several sites and reported finds in Lunenburg County were investigated in 1991.

On May 9 the sites at Bachman Beach (BcDb-4) and Brick Hill (BcDb-6) on Second Peninsula were visited. Bachman Beach, the location of an eroded prehistoric site which yielded many finds in the nineteenth century, was walked but two water-rolled quartz fragments were the only possible artifacts observed. The site at Brick Hill, just to the east at the end of the peninsula, was originally reported by Erskine in 1970 as a possible seventeenth to early eighteenth century Acadian settlement. It is located on the farm of Paul Rhodenizer, whose house is at the end of the road at the south end of Brick Hill. Erskine reported four or five filled in cellars on the east slope of the hill to the northeast of the farmhouse and a brickyard a little further to the north again. In 1990 a sherd of white salt glazed stoneware was found in a ploughed section of the field and submitted to the Nova Scotia Museum. The same section of field was ploughed again in 1991 and was inspected during the visit. Ceramic

and glass sherds, clay pipe and brick fragments and some faunal remains were exposed in a fairly level area just above the foot of the slope. To the east of the foot of the slope there was a level, unploughed grass strip ending at a line of hawthorn and the remains of a dry stone wall above the shoreline. A possible filled in cellar was located in this area. No structural features were observed on the ploughed slopes, and the artifact concentrations may represent midden deposits behind shoreline dwellings. A small ceramic and glass sample was collected. This included white salt glazed stoneware, creamware, porcelain and New England coarse earthenware. A preliminary assessment suggested a mid to late eighteenth century occupation. The area of the supposed brickyard was examined briefly, but there were no soil exposures and nothing was seen.

In 1984 an unconfirmed find of a large biface was reported "about half a mile from the bridge at Dayspring". This area was visited on the same day as the Second Peninsula sites. This bridge is on Highway 3 on the east bank of the LaHave where a rapid brook drains Blysteiner and Rhodenizer lakes. The course of the brook between Rhodenizer Lake and the outlet is about two kilometres long and wooded. The area around the outlet is quite heavily developed and there was no obvious location for detailed investigation.

On May 10 a reported find at Caribou Lake, Upper New Cornwall was investigated. In 1990 a daughter of Barry Sutherland of Halifax had picked up a flat celt from a beach near the Sutherland family cottage property at the south end of the lake. This small beach is on the Saunders property on the west bank of the outlet of Caribou Brook. There are remains of a substantial stone dam at the outlet, and the area has been extensively modified. No prehistoric artifacts were observed in the vicinity of the beach and it seemed likely that this was just an isolated find. It has been designated BdDd-3.

Also on May 10, the Weihnacht Cove and Andrews Point area of Mahone Bay was visited since there had been reports of the pending development of the area. However, the areas of sites BcDb-1 (a prehistoric shell midden) and BcDb-5 (a historic lime kiln) were unchanged and there was no sign of development other than recent survey markers on Andrews Point. The area of site BcDb-6 at Hirtle Cove (another shell midden) was also observed. There was no evidence of recent disturbance, but this site has obviously been subjected to extensive landscaping.

On August 27 the east side of the LaHave outlet was visited to investigate features reported by Cecil Eisenhauer, a seasonal resident. He had found the remains of what appeared to be a heavy square log structure exposed in the intertidal zone of Oxner Beach at Oxner Head. From this he had recovered a quantity of badly corroded bolts or pins and what appeared to be cast iron shot (small to medium in size). Unfortunately, the tide was high at the time of the visit, but two of the logs were visible underwater.

Mr. Eisenhauer suggested that this might be a gun emplacement since there had been fortifications in the vicinity. Both the A.F. Church map of Lunenburg County (1883-87) and

the 1929 Geological Survey of Canada map of the area (Sheet 89) indicate an "old fort" on the hill to the south of Oxner Beach, commanding the LaHave entrance. This must be the "old defence" mentioned by DesBrisay (M.B. DesBrisay, History of this County of Lunenburg, p. 133). According to Mr. Eisenhauer, formerly there were four cannon mounted on this hill. Three had been removed to a local golf course, but he thought that the barrel of one had been left on the hill.

The summit of the hill was examined briefly and found to be a cleared field under grass and some scrub. There was indeed a cast iron cannon barrel on the summit, almost completely buried and overgrown. No earthworks could be discerned and it is likely that any features have been long since obliterated, or carried away since the western edge of the field is an actively eroding cliff. The apparent structural feature on the beach to the north seems more likely to have been a wharf or other shoreline structure.

Also on August 29, a find reported from Bush Island (LaHave Islands) was investigated. Fred Kyle had recently found a large corner-removed biface on a small beach near his cottage property on the island. This location is at the east end of the island, at the end of the road which runs across the centre of the island. Most of the shoreline is rather rugged bedrock but there are two small sections of sand beach. The area was deserted during the visit but seemed to fit Mr. Kyle's description well. No indications of prehistoric occupation were observed and the area is a quite intensively developed cottage colony. The find has been designated BbDc-6.

In conjunction with other investigations in the area, erosion control at Fort Point, LaHave (site BbDc-1) was monitored. In early May the entire erosional face was inspected. There was very active erosion on the point to the south of the light, while the slope between the light and the cairn was more stable and had a vegetation cover. No structural features and no artifacts were observed in the erosional face. By late August the erosion control project begun during the summer was nearing completion. The process consisted of sealing and protecting the existing erosional face with no cutting back into potential remnants of the site. There was no evidence of any encroachment or archaeological resources.

Shelburne and Yarmouth Counties

The reported site of a Black Loyalist cemetery was originally visited in 1990 at the request of the Shelburne County Cultural Awareness Society. The area was revisited on May 10 in the company of Richard Gallion, a society member. The former heavy vegetation cover had been cleared off late in 1990 and the entire ground surface was now visible. No relevant surface features could be identified.

There is a slight rise here with traces of a track running across it from the road to the shore at the head of Birchtown Bay. Just to the west, there is a low but conspicuous knoll across the road from the disused church and just east of the abandoned rail line. Examination

revealed a long abandoned cellar on this knoll, probably the remains of a dwelling indicated in this vicinity on the A.F. Church map of Shelburne County (1882).

The traditional cemetery site is the only other relatively elevated spot on this stretch of shoreline between the church and the brook. It is also possible that shoreline erosion has considerably reduced the point on this bank of the brook outlet. Local tradition maintains that this is the cemetery site and, according to Mr. Gallion, there is a turn of the century railway survey map which designates it "burial ground". Consequently, although there are no definite surface indications, this does seem a likely spot on this stretch of shore. Depending upon the rate of erosion it may even be possible that the entire cemetery site has been eroded.

Among finds reported in 1989 were three gouges and a celt, said to have been found in a field by the Clyde River, on the Clyde River road "about eight miles" north of Highway 103. This is a gravel road which follows the west bank of the river north from the highway and it was investigated on August 27. The first 10 kilometre stretch is similar to the lower Medway River, lined intermittently by small homestead and cottage properties with one very imposing residence about eight kilometres up.

Just over 10 kilometres along this road it crosses Bloody Creek, a large tributary, at its confluence with the river. This area has been extensively cleared and there is a scattering of buildings on several properties. For the next 10-15 kilometres the road swings well away from the river, and this area around the Bloody Creek confluence seemed the most likely location. However, this could not be confirmed at the time of the visit. This area has probably been extensively disturbed, but should be investigated in detail in the future.

On the following day the Negro Harbour area was visited. Initially, two sites (AjDi-2 and 3) at Port Saxon reported by Bower in 1973 were investigated. AjDi-2 consisted of seven rock piles on the south side of the Indian Brook outlet on Negro Harbour which were interpreted as possible historic Mi'kmaq burials. This area was heavily overgrown and the reported features could not be found.

AjDi-3 was a prehistoric site which was probably destroyed by the Marine Extraction Plant which occupies the north bank of the brook outlet to the west of the road. Bower recovered artifacts and detritus from the bulldozed area around the plant and noted that some intact deposits might survive on the small wooden point at the outlet. This small area appeared to have remained undisturbed, but the remainder of the plant vicinity had been extensively modified since Bower's investigation and no prehistoric material could be found in the extensive soil exposures. It is unlikely that any significant archaeological resource survives at this location, and the reported features to the south remain unconfirmed.

Bower also reported a site (AjDi-4) on the Cape Negro peninsula, on a small knoll just to the south of the east end of the canal. This was described as a pile of stones, possibly marking a burial. The knoll was located but the feature could not be identified. There has

been extensive gravel removal from this knoll and any former feature would most likely have been removed, although the nature and origin of the feature were essentially unknown and of doubtful significance.

In January 1991 Hugh Jones of Cape Negro reported the find of a quartzite stemmed point among the fill from foundation excavations for a new house he was building on his property at Purgatory Point. The site of this find (AjDi-7) was also visited on August 28. The house was being built right on the point, a fairly exposed location fronted by bedrock and a cobble storm beach, with a few patches of sand bottom. A freshwater pond lies just to the south. The northern tip of Cape Negro Island is visible two kilometres to the southeast.

The house was being built on concrete piles involving minimal excavation. However, there were trenches for sewer and water lines and the find came from one of these. Nothing had been backfilled and all exposures and profiles were examined. The immediate area to the north and south was also examined but no indications of prehistoric occupation were observed. The find seems, therefore, to be an isolated occurrence.

There is, however, a well-preserved unmortared stone house foundation in a clearing just to the north of the new house. This former residence is reported to have burned down in the 1930s and was presumably of late eighteenth or nineteenth century origin. This may have potential for future investigation and recording.

On October 1 a helicopter was used to monitor sites on the Tusket system exposed by low water levels resulting from dam repairs (Stephen Davis and Laird Niven also participated in this). However, the water level was being raised again and was no longer extremely low. Ground inspection of the Long Falls area (sites AlDl-8 and 9) revealed evidence of extensive unauthorized digging in archaeological deposits still exposed. A small lithic sample was collected.

Annapolis Valley

On August 28 following the Shelburne County visit, Annapolis Basin Acadian sites were monitored. At Stoney Beach Cemetery the presumed village site discovered in 1989 (BeDj-7) was inspected. The field remained unchanged and apparently unused. Similarly, the areas of other historic features recorded in the Granville Beach vicinity in 1984, 1989 and 1990 (BeDj-5/6, 8/9, 11/13) seemed unthreatened. The area of the Brown farm at Upper Clements was also viewed. The surviving structure (BeDj-3) was not examined at close range, but the surrounding area remained undisturbed.

On the following day the Belleisle site area (BeDi-2) was visited in the company of Fred Payne and Reg Melanson of the Wildlife Division, Department of Natural Resources to discuss the impending Ducks Unlimited impoundment project in the vicinity. This will create four large wetland areas in the marsh to the south and east of the known Acadian

archaeological features. It was determined that these structures (Features 1 to 4) remained on private (Cranton) land and will not be directly affected by this development. All were visited and found to be intact although the section of modern dyke beside Feature 2 had been bulldozed and removed. Natural Resources attempted to acquire the area containing Features 1 and 2 but could not complete the transaction.

The four impoundments are to be constructed between 1991 and 1994, involving the use of trucked in fill to build the remaining dykes. The first section, in the south central marsh area, was scheduled to begin in September 1991. One of the sections is on the northeastern edge of the marsh to the north of the Luxton Brook outlet. There is an upland island in this area and Rob Warren (farm owner) reported to Fred Payne that there had been a large stone foundation here which he had bulldozed to facilitate ploughing. The area was walked. It was under grass and no features could be discerned. It was tentatively agreed that the area should be ploughed again within a year to provide a wide soil exposure.

Fred Payne also reported that Rob Warren has several prehistoric stone artifacts which he found somewhere in the marsh. Mr. Warren could not be contacted during the visit and the finds and their location of origin have yet to be confirmed. It was agreed that a cooperative monitoring program for the development would be developed.

Belleisle was monitored again on September 27. There was no sign of construction, although the first two development areas had obviously been staked out. These were far removed from known features and areas with archaeological potential, and readily accessible via the existing marsh road system. At Upper Granville (site BeDi-1) the critical area of scrub containing the features behind the Hogan property remained undisturbed (a new residence had recently been built just to the west).

On October 29 the Bear River site (BdDk-1) was visited in the company of Stephen Davis (Saint Mary's University), Chief Frank Meuse and other members of the Bear River Band to discuss the feasibility of returning the human remains excavated from the site by Erskine in 1958 and 1959. There was no trace of any very recent disturbance of the site by looters, but building activities continue to encroach on the area of the site and vandalism and erosion continue to be serious threats. Consequently, it was agreed that the site itself was not an appropriate location for the reburial and the Band decided to consider the Reserve or Kejimkujik National Park as alternatives. The Belleisle Marsh was checked again during this trip but there was still no sign of development activity.

Minas Basin

The known New Minas Acadian settlement features by the Hostess plant and along Lockhart Drive (site BgDc-2) were monitored on May 29. No changes were observed in the immediate vicinities, but urban and industrial development was still very active in the general area.

On the same day the area of the 1990 excavated project at Castle Frederick (site BfDb-4) was inspected. The well feature was still securely covered. All other excavation units were well trodden by cattle, but the exterior platform (?) feature and the interior brick feature were still completely covered, but probably vulnerable to upheaval. However, the exterior feature was probably as well covered as it could be, and grass was starting to grow over it. The general area was unchanged and none of the features appeared threatened.

Gaspereau Lake was also monitored on May 29. The water level was high and there was no signs of disturbance in the area between Highway 12 and the Fish Ladder. The Burnt Bone Beach site (BfDb-8) was mostly under water and again there were no signs of disturbance even although one 1990 excavation unit was still exposed at the water's edge.

The area was visited again on July 11, by which time the water level was well down and the beach at the Erskine site (BfDb-5) was exposed. The tip of a large quartz biface and several flakes were collected from the surface among recent tire tracks and a scatter of beer cans, cigarette butts and barbecue charcoal. However, there was no sign of digging. The previously looted area behind the bluff to the north was also undisturbed except for a small hole of uncertain origin on the path. There were some scattered scratchings along the trail to Burnt Bone Beach, some certainly caused by animal activity, but including a couple that looked like prospecting.

Burnt Bone Beach was well exposed, with the spit almost completely dry. Flakes and bone fragments were scattered throughout. An apparent occupation layer had been revealed on the newly exposed shoreline of the beach which extends west from the base of the spit. There was a strip, about 50 centimetres wide, of dark, charcoal/organic stained sand with abundant flakes. This feature extended along the beach for about 10 metres west of the spit, and appeared to extend north under a small dune-like sand feature which was about three metres wide. No formed artifacts were seem along this strip.

The site had been recently visited, probably by at least two people (there were two very different sets of footprints). They had walked the shoreline and two odd looking rocks left on top of boulders suggested that they had been looking for artifacts. It may be that they removed artifacts from the exposed feature and elsewhere. However, there was no sign of any disturbance, not even scratching, and the exposed 1990 test pits were completely untouched. Ground disturbance was avoided as a precaution, and only two items were collected from the surface -- a hump-backed scraper from the high water line and a small ground stone object from the water's edge.

By September 27 the water level was even lower, and the eastern half of the base of the dam was almost completely exposed. However, there was no sign of disturbance in any of the site areas in the vicinity. Burnt Bone Beach was completely exposed but still undisturbed. A quartzite point mid section was collected from the eroding deposit noted on July 11.

A brief helicopter reconnaissance of the north shore of Gaspereau Lake was flown on October 1, with ground inspection at Burnt Bone Beach and the Legge site (BfDd-13). There was no sign of unauthorized digging anywhere. The water level had started to come up again.

The Grand Pre area was monitored on August 29, particularly the area south of the National Historic Park (designated BgDb-2). This whole area, and particularly that to the west of the road, has been so intensively cultivated that there seems little chance of any features having survived reasonably intact. Certainly, no potential features are visible from the road, the area being notably open and even.

To the south of Highway 1 the Duncan Fraser property is located across the road from the Covenanters' Church. He was considering having two large elm trees behind his house removed. Local tradition has it that there was originally an Acadian house at this location. This was replaced by a late eighteenth century house, which was succeeded in turn by the present house c. 1905. Mr. Fraser had found several early twentieth century items under the surface between the elms and he thought that this might be a dump site which might also have been used in earlier times. He was concerned that stump removal might destroy a potentially valuable archaeological deposit. It was suggested that Saint Mary's University or the archaeology society might be interested in testing the area as a field exercise.

Northern Mainland

The area of the Debert/Belmont Palaeo-Indian complex was visited on nine occasions between April and September. In April liaison was maintained with the Archaeological Survey of Canada/Forestry Canada survey of the Debert Rifle Range. This included visits to the range and to the sites at the Debert Tree Breeding Centre.

The Tree Breeding Centre was visited again in June to monitor clearing operations along Owl Road to the southeast of the administration building, an in particular a two acre parcel which was to be stumped. The area was investigated with Peter Nitschke, centre manager. It has already been cut and harvested and several soil exposures were identified. Twelve standard shovel tests were dug and backfilled by trowelling on the ridge sections of the parcel. No indications of Palaeo-Indian occupation were found, and it was agreed that monitored stumping should proceed. The Hunter Road site (BiCu-10) and the original Debert site were also inspected. Vehicular disturbance of the latter had become very severe.

In July the Belmont site testing was monitored and the areas recently cleared for development were inspected. Also, on July 22 and 23 the Belmont sites were visited and discussed by the Debert/Belmont Project Scientific Team, the Belmont Site Management Team and Dr. George MacDonald.

In August the newly cleared areas being developed by the Tree Breeding Centre were inspected again. On August 8 the area to the south of Belmont I and II (BiCu-6 and 7) was examined, but no traces of Palaeo-Indian occupation were seen. The Hunter Road site was then reviewed with Stephen Davis. On the following day four transects were walked across the newly cleared area along the east side of Coyote Road, to the northeast of the Hunter Road site. Results were again negative.

All areas of the Centre cleared and developed in 1991 were walked again on September 13. Some were already planted with trees and all had a developing grass cover, with the exception of the new area to the southeast of the buildings. Nothing of archaeological interest was observed. It was noted that Belmont I was rapidly growing up in shrubs and soil exposures were becoming obscured. The original site (BiCu-1) was also visited. There had been very heavy recent vehicular disturbance and there was further evidence of car stripping and dumping (the body of a Ford Granada, was abandoned near the centre of the site and miscellaneous car parts were strewn around).

Also on August 8 and 9 the Tatamagouche Bay survey project was visited. This involved participation in a reconnaissance of McNabs Bay, Malagash. The results of this survey have been reported by Michael Deal (HRP A1991NS6).

In early September it was reported by Albert Ferguson (Archaeological Services, New Brunswick) and Bernard LeBlanc (Musée Acadien, Moncton) that there had been disturbance of the Fort Lawrence site (BlDb-8) on the farm of Mr. Eric Trenholm, Fort Lawrence ridge. This was investigated on September 11. Initally, the Cumberland County Museum in Amherst was visited, where it was ascertained that curator Laurie Glen was quite unaware of the situation. An investigation of the site area was then undertaken, but was hindered by cold, wind and heavy rain.

Mr. Trenholm was erecting a large new barn between his farmhouse and the railway line, immediately northeast of the bridge across the line. This is part of the Fort Lawrence site (1750-56) located indeed exactly where the site in indicated on National Topographic Series Sheet 21 H/16. The concrete foundation was installed and much of the foundation trenching had been backfilled and levelled. Considerable mounds of bulldozed topsoil were piled to the north and south of the foundation and, particularly to the north, there was a very dark humus containing broken faunal remains and glass. Most of the exposed cultural material had already been removed by a group from Le Musée Acadien, Moncton.

The new structure occupied the last open area of the ridge in the Trenholm farmyard complex, and only two grassy strips remained to the west along the railway line and to the north along the edge of the terrace. A manure pit was also planned for the strip to the north. Mr. Trenholm agreed to allow prior testing.

The site was visited again on September 19 in the company of Stephen Davis, Laird

Niven, Bernard LeBlanc and two other Acadian representatives from Moncton to arrange a brief salvage and testing project to be carried out by a Saint Mary's archaeology class and Acadian volunteers. Mr. Trenholm gave permission for this and it was undertaken on September 28 (HRP A1991NS23).