

**ARCHAEOLOGICAL MONITORING  
OF GEOTECHNICAL  
INVESTIGATIONS  
AT CAPE SPEAR NATIONAL  
HISTORICAL SITE, NL, MAY 2016**



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## **1 INTRODUCTION**

Parks Canada is undertaking geotechnical testing at Cape Spear National Historic Site (NHS) as part of the Second World War Bunker and Lighthouse Access Road Rehabilitation Projects. As the area is a NHS, Parks Canada further determined that in order to identify and recover historic resources that may be encountered during the geotechnical study, that seven of the test locations require archaeological monitoring (Perron 2016).

Parks Canada issued a Statement of Work (SOW) to Stantec Consulting Ltd. to carry out the archaeological monitoring and recording of seven geotechnical test pits to be excavated mechanically. Each test pit was to measure approximately 1 m by 1 m, and be excavated to bedrock or extent of shovel reach (approximately 2.5 m below surface). The archaeological monitoring and recording of the seven geotechnical test pits was conducted on May 23, 2016, at Cape Spear NHS, Newfoundland and Labrador, under the Parks Canada Research and Collection Permit No. CS-2016-21716. The Parks Canada archaeological site code for Cape Spear NHS is 5A. The archaeological Operation number assigned for the work by Parks Canada was 5A10. This report expands on the information contained in the Preliminary Technical Memorandum submitted by Stantec to Parks Canada on June 10, 2016 (Stantec 2016a).

The archaeological monitoring and recording of the seven geotechnical test pits at Cape Spear NHS involved four key tasks:

- submission to Parks Canada of a Research and Collection Permit Application;
- a desktop review of background documentation and information;
- a field study consisting of archaeological monitoring during geotechnical work; and
- preparation of the necessary reporting on the work.

## 2 STUDY AREA BACKGROUND

### 2.1 DESCRIPTION OF STUDY AREA

The broader Study Area consists of Cape Spear NHS. More specifically, the work was focused on seven geotechnical test pits (Figure 1). Four of these (Test Pits 7, 8, 9 and 10) were situated adjacent to the access roads around the original (1835) lighthouse, while Test Pits 12, 13, and 14 were located within the Fort Cape Spear battery complex.

### 2.2 HISTORIC BACKGROUND

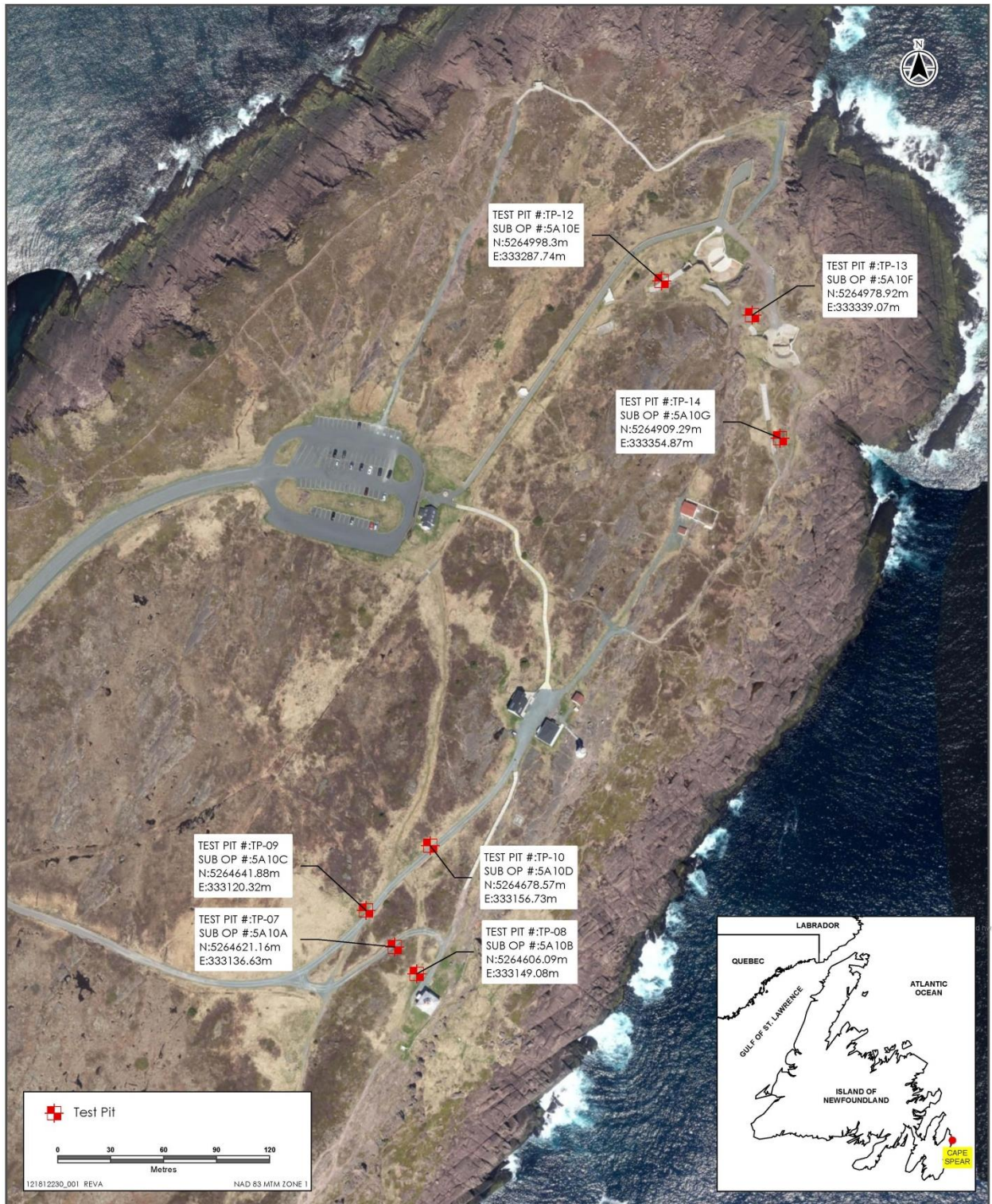
Built in 1835, the Cape Spear Lighthouse is the oldest surviving lighthouse in Newfoundland and Labrador and was in continuous operation from 1836 to 1955.

In June 1834, a lighthouse bill was passed authorizing construction of a lighthouse at Cape Spear, on the harbour approaches to the capital, St. John's. This building was the first public works project undertaken by the Newfoundland government. Few details of the construction of Cape Spear lighthouse are available. Construction of the Cape Spear lighthouse was underway by August 27, 1834, and by late January 1835, the structure was ready for the installation of the lighting apparatus. As originally constructed, Cape Spear lighthouse consisted of a stone tower, supporting the lantern and light mechanism, surrounded by a wooden two-storey residence. The original lightkeeper at Cape Spear was Emanuel Warre, about whom little is known. Following Warre's death in 1846, James Cantwell, a St. John's harbour pilot, was appointed as lightkeeper and members of his family have been associated with the lighthouse since that time. A variety of alterations were made to Cape Spear lighthouse during the 19<sup>th</sup> Century, principally through construction of additions to accommodate the lightkeeper and his extended family. The last addition was made in 1911. The original reflector (catoptric) light mechanism was replaced in 1912 with a lens (dioptric) light that remains in use in the replacement lighthouse constructed in 1955, adjacent to the original building.

In 1941, during the Second World War, Fort Cape Spear was constructed as part of the Allied defence system to provide protection for Allied marine convoys from German submarines. The fortification consisted of a battery complex, barracks, administrative buildings and other structures located at the base of the ridge, and utility lines and roads that connected the various facilities. With the exception of the batteries, most of the buildings were of temporary construction but evidence of the temporary structures still exists. Other evidence of Fort Cape Spear includes a memorial cross located near the tip of the peninsula (Figure 2).

Cape Spear lighthouse was designated a national historic site in 1962. In the late 1970s the building was restored to its appearance in the period 1835-40.

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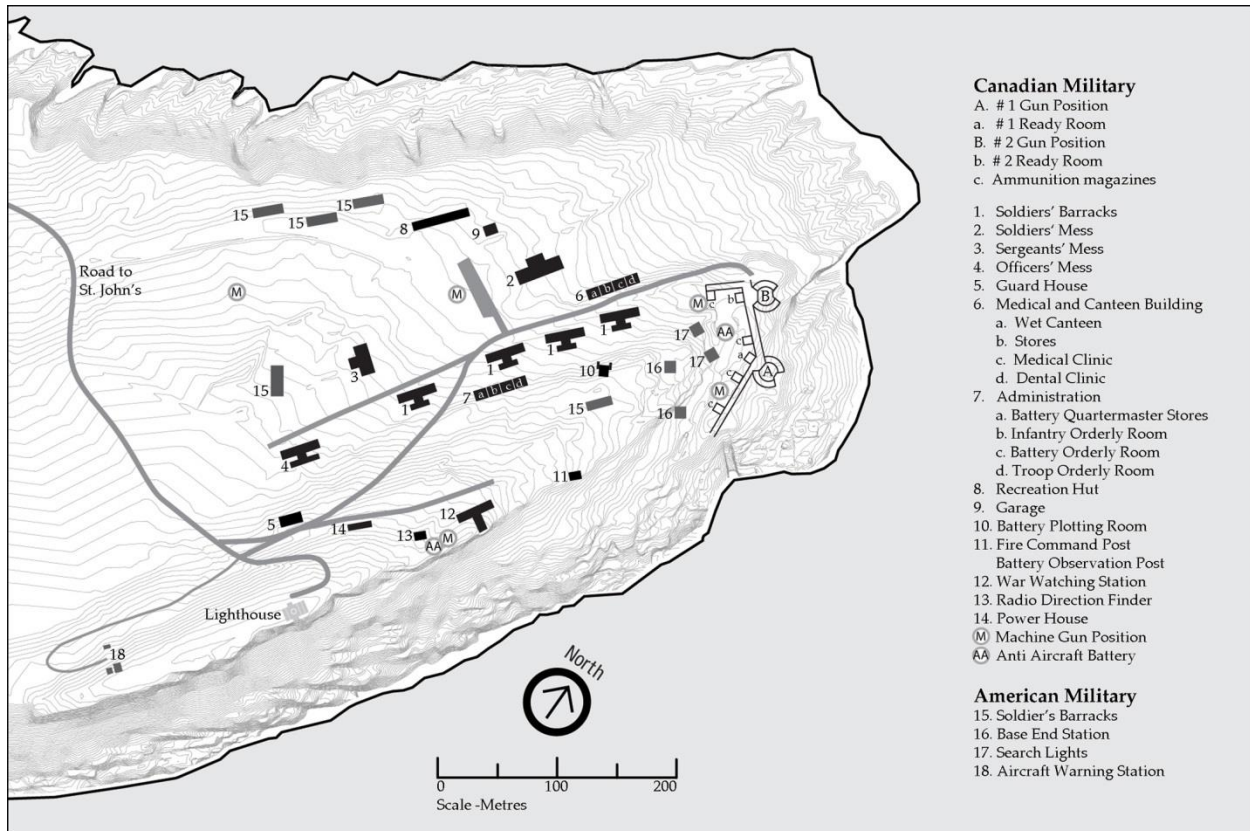


Sources: Bing Imagery, Microsoft (c) 2016

Disclaimer: This map is for illustrative purposes to support this Stantec project; questions can be directed to the issuing agency.

**Test Pit Locations**

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**Figure 1 Plan of Military and Other Historic Features at Cape Spear NHS (Courtesy Parks Canada)**

**2.3 PREVIOUS ARCHAEOLOGICAL WORK AT CAPE SPEAR NATIONAL HISTORIC SITE (SITE 5A)**

Previous archaeological work at Cape Spear National Historic Site has been limited. In 1976, a small salvage excavation was undertaken in conjunction with the Cape Spear Lighthouse Restoration Project (Phillips Parmenter 1977). This work was focused on the 1835 lighthouse, and included uncovering part of the building's front porch and the base of the light tower within the structure (Phillips Parmenter 1977). In the 1990s, additional excavations were completed east of the 1835 lighthouse (Luffman 1999). The objective of that work was to locate and identify a well used by the Cantwell family and, secondarily, to determine what other historic resources may remain in the vicinity of the well. The well itself was identified and excavated as Operation 5A3A. In addition, mechanical excavation, profile recording and archaeological excavation were undertaken to expose and define the footing of a nearby barn or stable feature as Operations 5A4A 5A4B, and 5A4C. Finally, a brief survey was completed along the base of the cliff in order to determine whether refuse discard from the cliff top had led to the accumulation of midden deposits at the base of the cliff (Operation 5A5A); no concentrated cultural deposits were identified (Luffman 1999).

### 3 METHODOLOGY

The archaeological monitoring of geotechnical investigations was completed on May 23, 2016. The methodology employed at each stage of the research is summarized below.

#### 3.1 BACKGROUND RESEARCH

A desktop review of archaeological background documentation provided by Parks Canada was completed in order to facilitate a working knowledge of the area where the geotechnical testing was to take place and to understand the nature of the archaeological resources recorded and recovered during previous investigations at the Cape Spear NHS. Documents reviewed included:

- Cape Spear NHS Commemorative Integrity Statement (Parks Canada 1999);
- Parks Canada Cultural Resource Management Policy (Parks Canada 2013);
- Parks Canada Overview Assessment of Cape Spear NHS – WWII Bunker Recapitalization and Upgrades (Newfoundland) (Perron 2016);
- Salvage Archaeology at Cape Spear Lighthouse, Newfoundland (Phillips Parmenter 1977); and
- Cape Spear Archaeology (Luffman 1999).

As an additional component of the desktop review, Stantec obtained the Cape Spear archaeological site number and provenience information from Parks Canada's Terrestrial Archaeology Representative (PCTAR) in Halifax.

#### 3.2 FIELD STUDY

The field study was carried out on May 23, 2016 by Roy Skanes, Principal Investigator. The majority of excavation at Cape Spear NHS was completed with a backhoe. However, where indicated in the field notes (Appendix A), a shovel and trowel were used to remove soils from the sides and base of test pits in order to better facilitate the recording of soils, stratigraphy, and the accurate depth of the underlying bedrock. Additionally, the Principal Investigator recorded the archaeological resources (e.g., artifacts) with heritage value encountered during the excavation of the test pits, and the recordings, where applicable, followed the procedures and guidelines listed in the Parks Canada Archaeological Recording Manual: Excavations and Surveys. The Principal Investigator also:

- recorded field notes and took photographs of the seven identified geotechnical test pits;
- documented the stratigraphy of all test pits monitored, with written descriptions and photographs;
- photographed the seven identified geotechnical test pit locations prior to and after excavation; and
- used archival quality recording material for all field and laboratory recording.

The methodology employed for the geotechnical work itself is summarized in the geotechnical reports (Stantec 2016b and Stantec 2016c).



## 4 FIELD STUDY RESULTS

The archaeological monitoring program of the seven geotechnical test pits (Test Pits 7, 8, 9, 10, 12, 13, and 14) was assigned the Operation number 5A10, and a Suboperation number was assigned to each test pit, these being numbered sequentially from 5A10A to 5A10G for each test pit, respectively. Any artifacts identified in the test pit were retained for further analysis and interpretation.

### 4.1 TEST PIT 7 (SUBOPERATION 5A10A)

Test Pit 7 (Suboperation 5A10A) was situated in proximity to the 1835 Cape Spear lighthouse, and had potential to contain evidence of the construction and/or occupation of the lighthouse (Photo 1). Excavation revealed 5-7 cm of sod/rootmat with loose, black-brown silty sand with gravel, and alder roots present in the top of the layer (Photo 2). This shallow topsoil was underlain by bedrock. No cultural features or artifacts were identified.



**Photo 1** Location and context of Test Pit 7 (Suboperation 5A10A) prior to excavation.



**Photo 2** Test Pit 7 (Suboperation 5A10A) after excavation.

#### **4.2 TEST PIT 8 (SUBOPERATION 5A10B)**

Test pit 8 (Suboperation 5A10B) was also situated near the 1835 lighthouse, beside the pathway leading to the structure (Photo 3). Excavation below the sod/rootmat revealed 10 cm of crushed stone underlain by 20 cm of gravelly brown silty sand fill (Photo 4). Beneath this lay a black organic buried sod or peat 15-17 cm thick resting on bedrock. This buried sod layer yielded two small (thumbnail-sized) brick fragments. No other cultural features or artifacts were identified.



**Photo 3** Location and context of Test Pit 8 (Suboperation 5A10B) prior to excavation.



**Photo 4** Test Pit 8 (Suboperation 5A10B) after excavation.

#### **4.3 TEST PIT 9 (SUBOPERATION 5A10C)**

Test Pit 9 (Suboperation 5A10C) was situated east of the road to the lighthouse, in proximity to a former guardhouse (Photo 5). Excavation revealed some 15 cm of sod/rootmat, underlain by 20 cm of loose brown sand with silt, gravel and cobbles, and then by bedrock (Photo 6).

One small sherd of clear container glass (Photo 7) and a palm-sized piece of roofing felt (Photo 8) were recovered from the loose silty sand, along with a piece initially believed to be corroded iron but subsequently identified as conglomerate rock. The glass and roofing material both appear to be of 20<sup>th</sup> Century date and most likely pertain to the construction and occupation of the guardhouse.

No other cultural features or artifacts were identified.



**Photo 5** Location and context of Test Pit 9 (Suboperation 5A10C) prior to excavation.



**Photo 6** Test Pit 9 (Suboperation 5A10C) after excavation.

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**Photo 7** Sherd of container glass from Test Pit 9 (Suboperation 5A10C).



**Photo 8** Roofing felt from Test pit 9 (Suboperation 5A10C).

**4.4 TEST PIT 10 (SUBOPERATION 5A10D)**

Excavation of Test Pit 10 (Suboperation 5A10D), also situated in proximity to the former guardhouse (Photo 9), revealed 15 cm of sod/root mat, underlain by 45 cm of silty sand and gravel, likely deposited as road fill (Photo 10). Bedrock was encountered 60 cm below surface. No cultural features or artifacts were identified.



**Photo 9** Location and context of Test Pit 10 (Suboperation 5A10D) prior to excavation.



**Photo 10** Test Pit 10 (Suboperation 5A10D) after excavation.

#### **4.5 TEST PIT 12 (SUBOPERATION 5A10E)**

Test Pit 12 (Suboperation 5A10E) (Photo 11) was excavated alongside the tunnel leading to the bunker at #2 Gun Position . Excavation revealed 20-25 cm of brown/black silty sand with cobbles beneath the 8 cm thick sod/rootmat (Photo 12). Below that was a brown silty sand with cobbles to the bedrock layer. Bedrock or concrete was encountered 1 m below the surface. No cultural features or artifacts were identified in the soil.



**Photo 11** Location and context of Test Pit 12 (Suboperation 5A10E) prior to excavation.



**Photo 12** Test Pit 12 (Suboperation 5A10E) after excavation.

#### **4.6 TEST PIT 13 (SUBOPERATION 5A10F)**

Test Pit 13 (Suboperation 5A10F) (Photo 13) was excavated near the former ammunition magazine alongside the tunnel between #1 and #2 Gun Position. . Stratigraphy consisted of 1-2 cm of loose, grey gravel fill overlying a loose to compact brown silty sand with cobbles and some boulders extending down to bedrock at a depth of 1.75 m below the surface (Photo 14). No cultural features or artifacts were identified.



**Photo 13** Location and context of Test Pit 13 (Suboperation 5A10F) prior to excavation.



**Photo 14** Test Pit 13 (Suboperation 5A10F) after excavation.

#### **4.7 TEST PIT 14 (SUBOPERATION 5A10G)**

Excavation of Test Pit 14 (Suboperation 5A10G) (Photo 15),, alongside the tunnel wall near the southernmost former ammunition magazine south of #1 Gun Position revealed an extremely thick (40 cm) sod/root mat layer. This was underlain by 40 cm of thick reddish sandy soil. Approximately 80 cm below the surface lay a 10-15 cm thick black, weathered, buried sod. This was underlain by 20 cm of reddish sand, which in turn was underlain by bedrock (Photo 16). No cultural features or artifacts were identified.





**Photo 15** Location and context of Test Pit 14 (Suboperation 5A10G) prior to excavation.



**Photo 16** Test Pit 14 (Suboperation 5A10G) after excavation.

## 5 ANALYSIS AND INTERPRETATIONS

As stipulated in the Parks Canada Cultural Resource Management (CRM) Policy (Parks Canada 2013), in a national historic site primary consideration must be given to cultural resources of national historic significance that are essential to ensuring its commemorative integrity. This CRM Policy informs any consideration of assessment of significance of the results of archaeological monitoring and therefore any mitigation recommendations.

### 5.1 HERITAGE VALUE OVERVIEW AND CONTEXT

The Heritage Value of Cape Spear National Historic Site, as outlined in the site's Commemorative Integrity Statement (Parks Canada 1999, see also Perron 2016), derives primarily from the national historic significance of its:

- association with the original Cape Spear lighthouse;
- strategic defensive location relative to the seaward approaches to St. John's harbor; and
- representation of the isolated nature of lighthouse sites.

Cultural resources of national historic significance (Level I) include the 1835 lighthouse and any structural remains of the original lighthouse on site (Parks Canada 2005).

Cultural resources that are not of national historic significance, but nonetheless possess historic value (Level II) (Parks Canada 2005) include:

- the remains of Fort Cape Spear, the Second World War Defensive Battery Complex;
- landscape Vestiges;
- elements associated with the additions and ancillary structures to the 1835 lighthouse;
- structural components associated with the lightkeeper's family;
- Memorial Cross; and
- the 1955 Lighthouse Complex.

### 5.2 CONCORDANCE WITH 2016 GEOTECHNICAL MONITORING RESULTS

Aside from fill deposits identified in Test pits 8, 10, and 13 (Suboperations 5A10B, 5A10D, and 5A10F, respectively), cultural materials were encountered only in two test pits: Test pit 8 (5A10B) and Test pit 9 (5A10C).

Test pit 8, situated near the original 1835 lighthouse, contained two small fragments of brick. These are interpreted to pertain to the additions and ancillary structures to the 1835 lighthouse, and thus to be historic resources of (at most) "Other" significance. These items were noted only and not collected.

Test pit 9, situated alongside the road 40 m west of the original 1835 lighthouse, contained two 20<sup>th</sup>-century artifacts: a small sherd of clear container glass and a palm-sized piece of roofing felt. These most likely pertain to the occupation or construction of the guardhouse, an historic resource of "Other" significance.

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In consultation with Parks Canada (M. Perron pers. comm. July 8, 2016), it was determined that these artifacts are very fragmentary and not of national historic significance, nor of CRM Level II value. These objects have therefore not been catalogued.

**5.3 MITIGATION RECOMMENDATIONS**

No deposits or artifacts of national historic significance were encountered or recorded during the monitoring of geotechnical testing at Cape Spear National Historic Site. Consequently, no mitigation measures are recommended.

## 6 SUMMARY AND CONCLUSIONS

Excavation of seven geotechnical test pits at Cape Spear National Historic Site was monitored for archaeological remains on May 23, 2016. Three of these test pits (Test pits 8, 10, and 13: Suboperations 5A10B, 5A10D, and 5A10F, respectively) revealed evidence for thin fill deposits, in most cases likely associated with road-building. In addition, two test pits, Test pit 8 (5A10B) and Test pit 9 (5A10C) yielded historic artifacts. Test pit 8 yielded two small pieces of brick, and Test pit 9 a small sherd of clear container glass and a palm-sized piece of roofing felt. None of these deposits or materials were deemed to be of national historic significance, and no further mitigation measures are recommended.

This report has been prepared as a requirement of the Parks Canada Research and Collection Permit No. CS-2016-21716, for the sole benefit of Parks Canada, and may not be used by any other person or entity, other than for its intended purposes, without the express written consent of Stantec Consulting Ltd. (Stantec) and Parks Canada. Any use which a third party makes of this report is the responsibility of such third party.

The information and recommendations contained in this report are based upon work undertaken in accordance with generally accepted scientific practices current at the time the work was performed. Further, the information and recommendations contained in this report are in accordance with our understanding of the Project as it was presented at the time of our report. The information provided in this report was compiled from existing documents, design information provided by Parks Canada, data provided by regulatory agencies and others, as well as field work carried out in 2016 specifically in support of this report. If any conditions become apparent that differ significantly from our understanding of conditions as presented in this report, Stantec requests that we be notified immediately, and permitted to reassess the conclusions provided herein..

## 7 DOCUMENTATION

During all stages of archaeological mitigation, recording followed the procedures and guidelines listed in the Parks Canada Archaeological Recording Manual: Excavations and Surveys ([http://www.pc.gc.ca/apps/rps/page1\\_e.asp](http://www.pc.gc.ca/apps/rps/page1_e.asp)) (Parks Canada 2005). Additional documentation is attached in Appendices to this report. This includes:

- Archaeological field recording including field notes (Appendix A), figures and image records (Appendix B); and
- High resolution digital photographs in .jpg format taken of each test pit location where archaeological monitoring occurred, prior to and after testing.

## **8 REFERENCES**

- Luffman, E. 1999. Cape Spear Archaeology: July 1999. Report prepared for Atlantic Service Centre, Halifax, NS.
- Parks Canada 1999. Cape Spear National Historic Site: Commemorative Integrity Statement. Parks Canada Eastern Newfoundland Field Unit, Glovertown, NL.
- Parks Canada Recording Manual Version 1.0, 2005. Parks Canada, Ottawa-Gatineau, QC
- Parks Canada 2013. Cultural Resource Management Policy. Parks Canada Agency, Gatineau, QC.
- Perron 2016, Parks Canada Archaeological Overview Assessment (AOA): Cape Spear NHS – WWII Bunker Recapitalization and Upgrades (Newfoundland). Parks Canada Heritage Conservation and Commemoration Directorate, Gatineau, QC.
- Phillips Parmenter, C. 1977. "Salvage Archaeology at Cape Spear Lighthouse, Newfoundland, September 1976", in National Historic Parks and Sites Branch Manuscript Report 231: 1-21. Parks Canada, Department of Indian and Northern Affairs, Ottawa.
- Stantec 2016a. Archaeological Monitoring of Geotechnical Investigations at Cape Spear National Historical Site, NL. Technical Memorandum prepared for Parks Canada, Halifax NS.
- Stantec Consulting Ltd. 2016b. Geotechnical Investigation, Cape Spear Access Road, Cape Spear National Historic Site, NL. Report prepared for Parks Canada, Halifax NS.
- Stantec Consulting Ltd. 2016c. Geotechnical Investigation, Bunker Retaining Wall Assessment, Cape Spear National Historic Site, NL. Report prepared for Parks Canada, Halifax NS.

### **8.1 PERSONAL COMMUNICATION**

- Perron, Martin. Parks Canada Terrestrial Archaeologist Representative, July 11, 2016.

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# APPENDIX A FIELD NOTES



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# APPENDIX B IMAGE CATALOGUE

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