



Parks Canada Basic Impact Analysis

1. PROJECT TITLE & LOCATION

Most Easterly Point Recapitalization, Cape Spear Lighthouse National Historic Site

2. PROPONENT INFORMATION

3. PROPOSED PROJECT DATES

Planned commencement: 2017-04-01

Planned completion: 2017-09-01

4. INTERNAL PROJECT FILE #446

5. PROJECT DESCRIPTION

The Most Easterly Point (MEP) feature currently consists of an asphalt pathway leading from the parking lot, a viewing deck with interpretive panels and a memorial cross dedicated to two Canadian servicemen and a gravel trail below the viewing deck.

The project will result in an upgraded MEP feature able to accommodate large groups of people and serve as a location for special events. The main components of the project include a re-paved trail leading to the MEP, handrail and fence installation, two improved lookout areas with seating along the trail, new interpretive and informational signage, a new circular viewing deck, a trail extension from the lower MEP shoreline trail to the viewing deck (wooden boardwalk/stairway with rail), and re-design of the lower MEP area (i.e., new lookout area, naturalization, red chair moment, signage and re-installed memorial cross).

The activities relating to the project include:

- Site access: A gravel area at the entrance to the MEP trail at the parking lot will be used as the staging and material storage area. This area was widened to accommodate the WWII bunker project traffic and will remain in this condition to accommodate the MEP project.
- Demolition: manual and machinery-facilitated demolition including removal of the asphalt trail surface, existing MEP viewing deck and railings, existing lookout areas, chain link fencing, rocks, concrete and other demolition-related debris.
- Waste disposal: management and removal of demolition waste (e.g., wood, metal, concrete, asphalt).
- Earthworks: soil and topsoil stripping/stockpiling, grading, spreading soil/topsoil, excavation, trenching, rock removal, compaction, erosion and sedimentation control.
- Setup of temporary facilities: office and storage facilities will be situated in the staging area during the construction mobilization phase.
- Use of machinery: hand tools, dump trucks, bulldozer, excavators, lifting devices, paver, tamper, roller, auger.
- Transport of materials and equipment: materials will be transported to the site along Blackhead Road to the staging area. From there, materials will be transported to the site along the MEP paved trail.





The work will be completed in three stages:

Stage 1 – construction to be completed by May 1, 2017

- Install a temporary chainlink fence to prevent public access to lower MEP area
- Post signage informing the public of upcoming site improvements
- Locate the existing sanitary sewage line
- Remove a section of existing boardwalk and reinstate with Lookout Area 3 deck including a railing and wooden benches

Stage 2 - construction to be completed no later than July 15, 2017

- Scrape off all existing blue gravel and expose natural surface material
- Re-grade the "point" off of the steep man-made slope. Re-shape slope by moving large rocks, re-grading the profile and naturalizing the surface area in key places with stockpiled topsoil.
- Remove, realign, and replace old chainlink fence
- Install signpost
- Install two wooden benches on concrete pads
- Install salvaged cross
- Provide red gravel in foot traffic areas
- Remove temporary chain link fence and re-open to the public

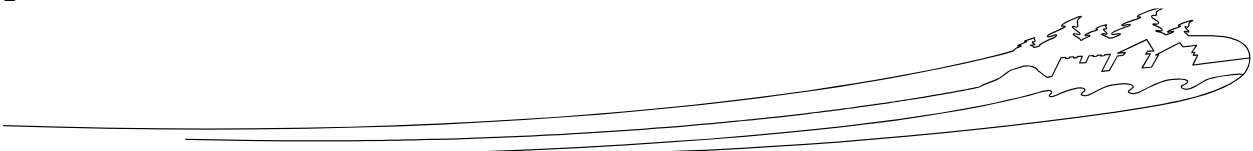
Stage 3 – to be completed by September 1, 2017. Work conducted in vegetated areas will not commence prior to July 15.

- Locate the existing sanitary sewage line
- Confirm alignment of new wooden staircase link from lower boardwalk to upper MEP area
- Demolish and remove existing MEP asphalt deck and wooden handrail. Interpretive signage to be delivered to department representative.
- Construct new wooden staircase
- Construct new MEP deck
- Install electrical connections from new WWII battery junction box – trenching required
- Install required lengths of aluminium handrail
- Reconstruct asphalt trail and lookout area 2
- Construct lookout area 1 wood deck – landscaping may be required
- Soft landscape works including grading, laying red gravel in designated foot traffic areas, and naturalizing slopes.

6. VALUED COMPONENTS LIKELY TO BE AFFECTED

Marine Water Quality: The project is located upslope from the marine environment. It is a dynamic environment subject to extreme weather events and high waves and supports a large variety of marine life including seabirds, whales, and fish.

Soil and Landforms: The site is located immediately upslope from the ocean's edge on an exposed, rocky headland with minimal topsoil and points of exposed bedrock. It is subjected to extreme weather events (e.g., high winds, freeze thaw cycles, frequent rain, snow, and ocean wave spray).





Flora: The site is characterized by grasses, shrubs, low scrubby vegetation, minimal numbers of dwarfed coniferous trees and numerous non-native species.

Fauna: Both the marine and terrestrial environment at Cape Spear are very active sites for birds in all seasons, including many migratory bird species. The project will take place during the nesting season (May 1-July 15). There are no active seabird colonies in the vicinity. However, ground nesting species can be expected such as Savannah Sparrow, Dark-eyed Junco, American Pipit and American Robin as well as shrub nesting species such as Blackpoll Warbler, Yellow-rumped Warbler, White-throated Sparrow, Black and White Warbler, Wilson’s Warbler, Boreal Chickadee, Pine Grosbeak, Cedar Waxwing, Swamp Sparrow, Yellow-bellied Flycatcher, and American Goldfinch.

Whales can be found in the area from spring into the fall, feeding as close as 20 feet from the shoreline. The project will occur during the arrival of migrating whales (e.g., Humpback, Fin, Minke) between May and September. White-sided dolphins, Beaked dolphins, Porpoises, Harbour seals and Otters have also been observed in the marine environment. However, the project is not expected to impact the marine environment. As such, migratory birds that may nest on the site are the main fauna of concern.

Cultural Resources: According to historical maps and pictures taken in 1941, Canadian troops erected several wooden barracks along the paved pathway linking the current parking lot and the WWII bunker. Officer and soldier’s quarters and mess, administrative buildings and weapon storage facilities were located east and west of the current paved pathway. The potential for discoveries dated to WWII is thus possible despite the fact that all the wooden structures were dismantled or destroyed after the decommissioning of the battery in 1945.

Visitor Experience: Cape Spear Lighthouse National Historic Site is one of the field unit’s biggest attractions, accessible to the public 24/7 and located at the most easterly point of North America. Over 95% of the over 350, 000 visitors to the site include the MEP as part of their visit. The site is underdeveloped from an interpretation, functional and aesthetic perspective given its high level of popularity and visitation.

7. EFFECTS ANALYSIS

The effects on all valued components will occur during the construction phase of the project.

Natural Resources

Marine Water Quality – wastes (e.g., garbage, litter, fuel, and construction materials) and erosion and sedimentation from earthworks activities may contaminate the marine environment. These effects will be addressed through the mitigations outlined in this BIA. In addition, there is a buffer zone of greater than 30m between the marine environment and activities required at the upper MEP and along the MEP trail so sedimentation from those activities are not expected to impact marine water quality. Some sections of the lower MEP are less than 30m from the marine environment so the mitigation measures to control erosion and sedimentation will be important.

Soil and Landforms – earth moving activities and operation of heavy machinery may result in soil compaction and rutting, soil erosion, loss of topsoil, exposure of subsoils, and soil contamination from waste (e.g., garbage, fuel). These effects will be addressed through the mitigations outlined in this BIA.





In addition, there are existing paved and gravel pathways for equipment to travel on; much of the work will take place in existing disturbed areas or require a small increase in footprint; and the majority of earthworks activities will take place at the man-made slope at the lower MEP area, an existing disturbed area.

Flora – construction activities may result in disturbance of adjacent natural vegetation such as trampling; potential root exposure and physiological stress; damage and mortality; and earth disturbance may support the spread of non-native species. These effects will be addressed through the mitigations outlined in this BIA. In addition, vegetation clearing is not required; much of the work will take place in existing disturbed areas or require a small increase in footprint; and some of the areas of work (e.g., man-made slope at lower MEP area) do not currently support native species. There are no known species at risk in the area.

Fauna - operation of heavy equipment and noise may result in temporary habitat displacement/preferred habitat avoidance, including disturbance to nesting birds and/or their nests; and artificial food sources such as garbage and litter may encourage habituation/attraction. These effects will be managed with the mitigations outlined in this BIA and project phasing to minimize impacts. In addition, the majority of the work will take place on or near existing disturbed areas that do not represent quality nesting habitat; the area of natural vegetated habitat to be disturbed is small and no vegetation clearing is required; and there is a pre-existing high level of human activity on the site (e.g., hiking/walking resulting in trail braiding). There are no known species at risk in the area.

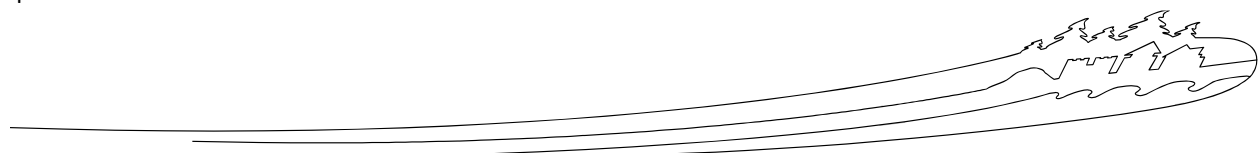
Cultural Resources

An Archaeological Overview Assessment (AOA – see Appendix 2) was completed for the MEP project. Historical documents do not indicate the presence of other features belonging to earlier periods in this area and bedrock is shallow at several places making the presence of any remaining features unlikely. In addition, archaeological investigations carried out in the area of gun emplacement #2 in May and November 2016 did not yield any cultural features or artifacts. Should remains of the WWII wooden buildings still exist, they are likely located where a short and shallow, perhaps artificial, plateau can be seen rising immediately east of the road (figs. 4-5 of the AOA).

The AOA concluded that the probability that the proposed work on the electrical connection, road, handrails, lookout areas and culvert will generate an impact on potential buried archaeological resources is minimal. As for the new circular viewing deck and trail extension, the available historical documentation consulted does not indicate the presence of any cultural resources in this area of the site. The project therefore does not require archaeological intervention.

Visitor Experience

The potential effects on Visitor Experience are reduced quality of visitor experience due to noise and presence of construction equipment; fumes during the re-paving component; decreased aesthetic appeal and impacted viewscape; restricted access to the MEP; potential hazard to visitors and staff due to construction activities (e.g., equipment operation); and loss of educational opportunities due to decreased accessibility to the site and surrounding area. Activities related to the WWII Bunker Recapitalization project are expected to be completed by May 15, 2017, and as such there will be an





overlap resulting in further disturbance and access restrictions. The project will temporarily decrease the quality of the overall visitor experience but this is limited to the construction period and will result in an improved visitor experience over the long term.

8. MITIGATION MEASURES

General

Work Site Conditions/Staging/Laydown:

1. A project start up meeting will be held with the key people working onsite to review the mitigation measures and any site-specific considerations with Parks Canada staff before work begins; the main Parks Canada contact for this project is Robie Gourd, Project Manager (cell: 902-402-2851).
2. The laydown area will be located on the existing disturbed area at the entrance of the paved trail to the MEP; natural vegetated areas will not be used for parking or laydown.
3. The MEP paved trail and existing gravel pathways will be used to access the construction site unless otherwise approved by Parks Canada.
4. Clearly mark staging area, work site and restricted areas with stakes, biodegradable flagging tape, fencing, temporary gates or other means; remove same when project is completed.
5. Isolate operations and ground intrusion activities, including foot traffic, to the footprint of the immediate construction area, the existing MEP paved trail and other existing disturbed areas as much as possible; limit vehicular access to essential vehicles only.

Equipment Operation:

6. Equipment from outside the national historic site must be washed prior to arrival.
7. Equipment must be properly tuned, clean and free of contaminants, in good operating order, free of leaks (e.g., fuel, oil or grease), and fitted with standard air emission control devices and spark arrestors prior to arrival on site.
8. During construction, any required cleaning of tools and equipment must be done greater than 30 meters from the shoreline to prevent the release of wash water that may contain deleterious substances.
9. Equipment operators must be fully trained and experienced.
10. Use low pressure/rubber tracked equipment or access matting where feasible to minimize soil compaction and ground disturbance.
11. Minimize idling of engines, contingent on operating instructions and temperature considerations.
12. Machinery (e.g., excavators, bobcats, chainsaws, and generators) must be stored, maintained and refuelled on a flat surface at least 100 meters from the shoreline.
13. Only minor repairs and maintenance (e.g., lubrication) of 'non-mobile' equipment such as flatbeds or shovels are permitted; all major repairs must be undertaken at an appropriate offsite location.

Waste:

14. All solid waste will be securely stored and handled according to applicable federal/provincial regulations.
15. All waste materials (e.g., construction material, refuse material, waste petroleum, and demolition waste including asphalt) shall be removed from the site on project completion and considered, prior to disposal, for reuse, resale or recycling and then disposed of at an approved facility; cover waste loads during transportation.
16. Burning of waste is not permitted at the National Historic Site.





Hazardous Materials:

17. Prevent the release of hazardous substances into the environment, including but not limited to, paints, chemicals and petroleum products and their derivatives.
18. All on-site personnel must be briefed on reporting requirements for hazardous materials spills; spills must be reported immediately to Parks Canada (Robie Gourde, Project Manager).
19. All construction sites must be equipped with containers suitable for the secure, temporary storage of hazardous wastes, separated by type.
20. A spill contingency response kit including sorbent material and berms to contain 110% of the largest possible spill (i.e., fuel or other toxic liquids) related to the work must be available on site at all times. On-site personnel must be aware of its location and trained in its use. Any contaminants must be recovered at source and disposed of according to applicable laws, policies and regulations.
21. All spills must be contained and cleaned-up as soon as possible. In the event of a major spill, all other work must stop until the spill has been adequately contained and cleaned up.
22. Notify Parks Canada (Robie Gourde, Project Manager) immediately of any spill.
23. Handle and store hazardous materials as per applicable federal legislation/regulations. The contractor must have all relevant and current Material Safety Data Sheets available onsite.
24. Petrochemical products, paints and chemicals must be stored 100 meters from the shoreline. They must be secured overnight in a Parks Canada approved enclosed area under lock and key.
25. Any hazardous waste or contaminated material uncovered during excavation/construction must be investigated, source identified, removed and disposed of outside the protected heritage place at an approved facility. Disposal documentation must be provided to Parks Canada (Robie Gourde, Project Manager).

Natural Resources

Marine Water Quality:

26. Concrete mixing activities must take place over tarps at a minimum of 30 meters from the shoreline. Fresh, wet, uncured concrete, concrete dust and wastewater is toxic to the aquatic environment and must not come into contact with any waterbody.
27. Waste materials (e.g., organic materials, soil stockpiles, construction waste, plastic wrap and garbage) must not enter the marine environment. Securely store in place, especially during high wind/storm conditions.
28. Treated wood must be handled, installed, and disposed of according to the [Parks Canada Guide for the Use, Handling and Disposal of Pressure Treated Wood 2009](#).
29. Minimise the number of saw cuts made to treated wood in the field. If unavoidable, cut treated wood more than 30m from the shoreline and over tarps to catch debris; cuttings, sawdust and other treated wood waste material must not enter the marine environment.
30. All cuttings, sawdust and other treated wood waste material must be collected and disposed of at an approved disposal facility.

Soil and Landforms:

31. The contractor must prepare an erosion and sediment control plan and submit to Parks Canada (Robie Gourde, Project Manager) for approval prior to the start of earthworks activities.
32. Erosion and sedimentation controls must be installed prior to earthworks activities commencing. Regularly inspect and maintain erosion and sediment control structures during all phases of the project and modify measures as necessary. Particular attention must be paid to activities at the lower MEP area closest to the marine environment.





33. Use erosion and sediment control products made of 100% biodegradable materials (e.g., jute, sisal or coir fiber) when possible. Ensure backing materials are also biodegradable.
34. Limit duration of soil exposure; phase activities whenever possible and restore disturbed areas as soon as possible.
35. Topsoil separation is required; stockpile topsoil away from subsoils and spoil material and more than 15 meters away from the shoreline, drainage features and/or the top of steep slopes.
36. Stockpiles will not be located on vegetated areas unless approved by Parks Canada (Robie Gourd, Project Manager).
37. The trench to install electrical connections will be back-filled and compacted as soon as possible (i.e., not left open overnight).
38. Surface water shall be directed away from work areas. Water must not be pumped directly into the marine environment; sediment must be removed by pumping onto a vegetated area a minimum of 30 meters away from the shoreline.
39. Backfill material will be compacted prior to topsoil replacement; distribute topsoil evenly over the excavated area as per Parks Canada specifications.
40. Overburden that cannot be used for final grading will be disposed of outside the national historic site at an approved location.
41. Remove temporary erosion and sediment control products, especially non-biodegradable materials, when they are no longer required.
42. When earthworks activities are complete, shape loosened soils to match the local terrain and ensure noticeable construction impacts (e.g., ruts, holes, depressions, compacted areas) are appropriately re-graded, back-filled with topsoil, re-contoured and capped.
43. Stabilize the site, in particular the man-made slope at the lower MEP area, to prevent erosion and allow for natural re-vegetation.

Flora:

44. Introduction of invasive plant species must be prevented and spread of non-native species minimised:
 - o All soil, gravel, untreated construction lumber, erosion and sediment control products (e.g., hay, straw, mulch), or other applicable materials from outside the protected heritage place must be from a certified weed-free source.
 - o Minimise bare soil exposure (e.g., cover stockpiled material with tarps, natural mulch/ground coverings).
 - o Minimise ground disturbance and vegetation removal, as practical and within project requirements.
45. Stockpiles should be located on previously disturbed areas; any use of natural vegetated areas must be pre-approved by Parks Canada (Robie Gourd, Project Manager).
46. Trees must be preserved and left in place. If there is no alternative and select trees/shrubs must be removed, all attempts to dig out and preserve for use in restoration efforts must be made. Any alteration to trees and shrubs must be pre-approved by Parks Canada (Robie Gourd, Project Manager).
47. Protect roots of trees to drip line to prevent disturbance or damage. Avoid traffic, dumping or storage of materials over root zone.

Fauna:

48. All wildlife attractants must be secured (e.g., petroleum products, human food, recyclable drink containers and garbage) within wildlife-proof containers, in a secured building or a vehicle. Keep

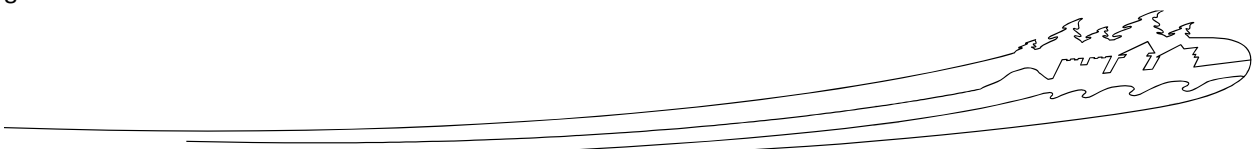




- food waste separate from construction waste and remove daily. Notify Parks Canada (Robie Gourd, Project Manager) immediately should wildlife gain access to the above mentioned attractants.
49. Never approach or harass wildlife (e.g., feeding, baiting, luring).
 50. Clearly delineate and enforce construction limits (e.g., snow fence, flagging tape) taking species and habitat into account.
 51. Stay within the construction limit, including staging areas.
 52. Use existing disturbed areas and right-of-ways whenever possible.
 53. Keep people, equipment and vehicle traffic to a minimum.
 54. Limit construction activities to the time between dawn and dusk to avoid the illumination of adjacent habitat.
 55. The migratory bird nesting season is between May 1 and July 15. During this time period, the following must be implemented:
 - Work will be undertaken in stages to minimise impacts on nesting migratory birds. In particular, Stage 3 construction activities (i.e., activities causing highest level of disturbance to vegetated areas) detailed in Drawing G1 of the project drawings, will not commence prior to July 15, the anticipated end of the nesting season.
 - Contractor must notify Parks Canada (Robie Gourd, Project Manager), a minimum of 10 days prior to the start of construction activities. The construction limits must be surveyed for evidence of breeding bird activity by the Parks Canada Environmental Surveillance Officer (ESO) within 7 days of construction commencing.
 - Should breeding bird activity (i.e., nest or behavioral cues) be discovered, a buffer zone(s) of approximately 30m will be established around the area. Work will not be permitted to proceed within this buffer zone until the Parks Canada ESO confirms that young have fledged. Limits of the buffer zone will be flagged by the ESO to clearly identify the area especially in the direction of approaching construction activities.
 - Upon contractor/sub-contractor discovery of nests or breeding activity (e.g., alarm calls when approaching an area, adults repeatedly carrying nesting materials or food to the same location, aggressive defense behaviours (against other birds or people), sound of fledglings begging for food) stop work immediately and contact Parks Canada (Robie Gourd, Project Manager).
 - If there is evidence that an established buffer zone is ineffective (e.g., continued agitation/guarding behaviour) work must stop immediately and the setback distance adjusted by the ESO.
 - Any likely or confirmed harm, death, disturbance or destruction of migratory birds, nests and eggs, must be reported immediately to Parks Canada (Robie Gourd, Project Manager), and mitigations adjusted as necessary by the ESO.
 - The ESO will monitor the area during construction to ensure the established buffer zone(s) is effective.
 - Activity restriction within a buffer zones can only be lifted upon confirmation from the ESO that young have fledged.

Cultural Resources

56. Preservation of the historic landscape and all historically significant aspects must be given the highest priority during construction. Compliance with all the Cultural Resource Management recommendations outlined in the AOA(Appendix 2) are mandatory:





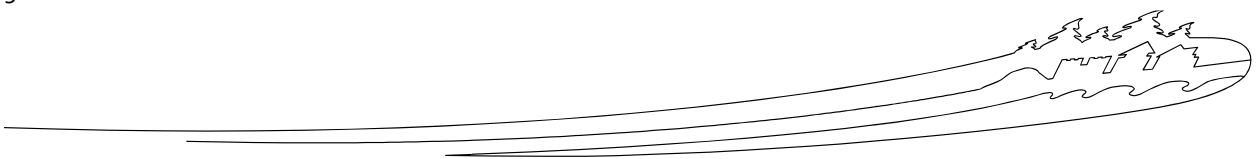
- Limit subsurface and ground disturbances from machinery and equipment beyond the existing asphalt trail (and railings) joining the parking lot to the MEP viewing deck; machinery should only circulate on existing paved/gravel pathways .
 - The existing disturbed area at the entry to the asphalt trail from the parking lot must be used as the laydown area.
 - Work must not extend towards the low flat plateau located east of the asphalt trail where WWII wooden barracks could have been located (Figures 4-5 of the AOA).
57. If cultural or archaeological resources are encountered, work must cease in the immediate area and Parks Canada (Robie Gourd, Project Manager), notified immediately. If features (i.e., structural remains and/or artifact concentrations) are encountered, leave in place, mark the location (e.g., prominent flagging), record the finding (e.g., digital photograph, GPS coordinates, notes) and do not disturb prior to completion of an archaeological assessment of nature and significance by Parks Canada. The contractor shall only resume activity with the authorization of Parks Canada. Parks Canada must be informed of any unforeseen changes to the project for review and evaluation by the Terrestrial Archaeology Unit.

Visitor Experience

58. The coastal trail to the lower MEP area will remain open throughout the project and construction activities will be phased to allow visitor access to a section of the lower MEP throughout the project (e.g., Lookout Area 3 will be constructed with interpretation panels describing the full MEP project, prior to opening of the visitor season).
59. Construction should be completed in as short a time period as is practicable.
60. Maintain the site in as tidy a condition as possible for the duration of work.
61. Safety risks to visitors during construction must be minimized:
- The work site must be closed and clearly delineated with fencing, barriers, temporary gates, caution tape, or combination thereof.
 - Appropriate bilingual signage must be posted at common visitor access points and strategic locations.
 - Maintain a safe working distance between work activities and visitors, especially when transporting machinery and materials between the staging area and the site; consider the use of lookouts to manage traffic and direct visitors in this area.
 - Secure and clearly mark unattended safety hazards (e.g., debris piles) with fencing, warning signs, caution tape or combinations thereof.

9. OTHER Considerations

- Public/stakeholder engagement
- Aboriginal engagement or consultation
- Surveillance (It is recommended that the ESO assigned to this project visit the site at least twice a week during construction activities to ensure that the mitigation measures detailed in this BIA are adequately carried out and to provide additional mitigation for unforeseen impacts. He or she will be kept informed of project scheduling and will be notified of changes to the schedule at all times. Focus should be placed on minimizing impacts to migratory birds and their nests).
- Follow-up monitoring, required to evaluate effectiveness of mitigation measures and/or assess restoration success





- Follow-up monitoring, required by legislation or policy (indicate basis of requirement e.g. required by the *Species at Risk Act*)
- SARA Notification

10. SIGNIFICANCE OF RESIDUAL ADVERSE EFFECTS

Natural Resources: Given the magnitude of effects, the phasing of project activities, and application of mitigation measures, the project is unlikely to result in significant residual adverse effects to natural resources.

Cultural Resources: Given the magnitude of effects, the low potential for archaeological resources, and application of the mitigation measures the project is unlikely to result in significant residual adverse effects to cultural resources.

Visitor Experience: Given the magnitude of effects, the creation of lookout area 3 to accommodate visitors during the project, and reversibility after construction, the project is unlikely to result in significant residual adverse effects to visitor experience.

11. EXPERTS CONSULTED

Include Parks Canada experts. Add as many entries as necessary for the project.

Department/Agency/Institution: Parks Canada	Date of Request: December 2016
Expert's Name & Contact Information:	Title: CRM Policy Advisor Federal Infrastructure Investments Project Archaeologist
Expertise Requested: cultural resources, archaeological resources	
Response: AOA (Appendix 2)	

12. DECISION

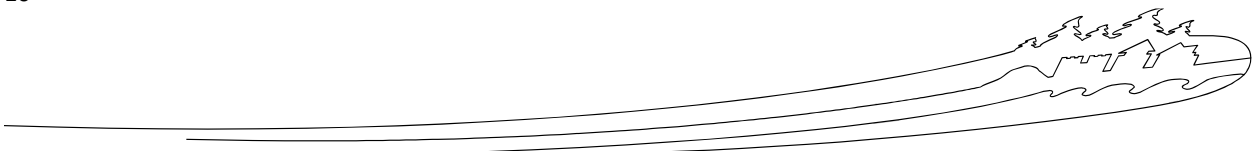
Taking into account implementation of mitigation measures outlined in the analysis, the project is:

- not likely to cause significant adverse environmental effects.
- likely to cause significant adverse environmental effects.

NOTE: If the project is identified as likely to cause significant adverse effects, CEAA 2012 prohibits approval of the project unless the Governor in Council (Cabinet) determines that the effects are justified in the circumstances. A finding of significant effects therefore means the project CANNOT go ahead as proposed.

FOR SARA REQUIREMENTS:

- There are no residual adverse effects to species at risk and therefore the SARA-Compliant Authorization Decision Tool was not required





13. RECOMMENDATION AND APPROVAL

(Add additional blocks as required)

Prepared by: V	Date: January 26, 2017
Recommended by:	Date:
Approval signature:	Date:

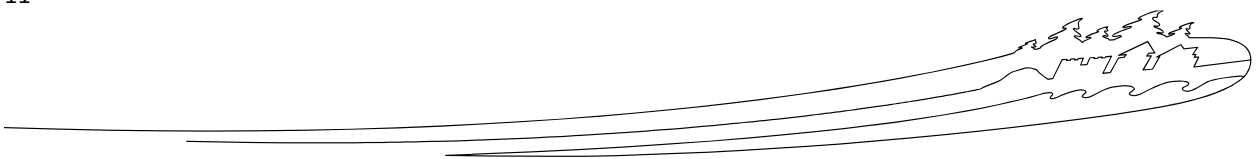
14. ATTACHMENTS

- Project Site Map
- Archaeological Overview Assessment

15. NATIONAL IMPACT ASSESSMENT TRACKING SYSTEM

- Project registered in [tracking system](#)
- Not yet registered (*CEAA 2012 requires PCA submit a report to Parliament annually. EIAs must be entered in the tracking system **by the end of April** to enable reporting.*)

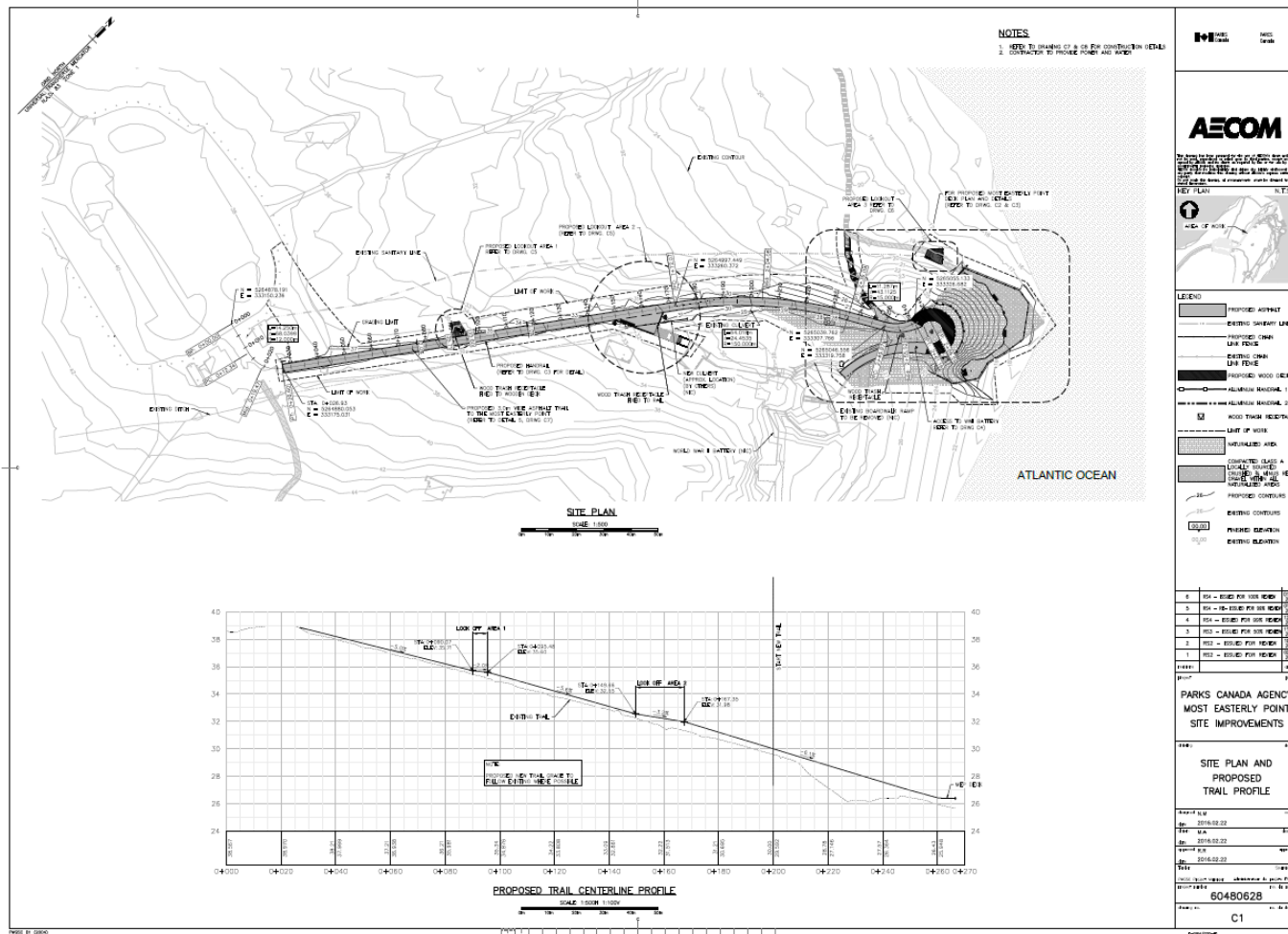
*****Ensure that all required mitigation measures and conditions (e.g. follow-up monitoring requirements) are included in project permits and authorizations*****





Appendix 1: Project Site Map

Source: Drawing C1 in the project drawing package.

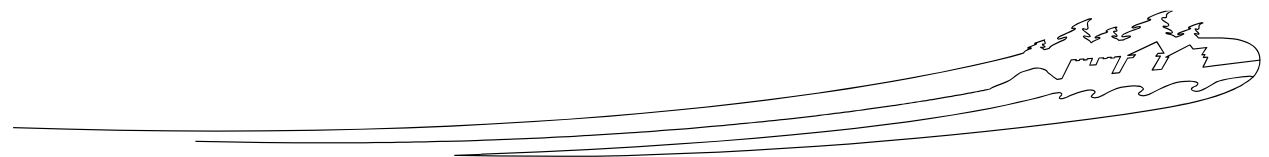


January 2017



Appendix 2: Archaeological Overview Assessment

See attached file.





13. RECOMMENDATION AND APPROVAL

(Add additional blocks as required)

Prepared by:	Date: January 26, 2017
Recommended by:	Date: 01/26/17
Approval signature:	Date: Jan 27 / 17

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- Project Site Map
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*****Ensure that all required mitigation measures and conditions (e.g. follow-up monitoring requirements) are included in project permits and authorizations*****





PARKS CANADA AGENCY

ARCHAEOLOGY AND HISTORY DIRECTORATE

ARCHAEOLOGICAL OVERVIEW ASSESSMENT

NHSC CAPE SPEAR (SITE 5A)

MOST EASTERLY POINT (MEP) RECAPITALIZATION (RPA n° 583.02)

SIGNALLING MAST REPLACEMENT (A-BASE)

11-01-2017

Archaeologist, IACHD,
AHD National Office,
Gatineau

Introduction

The Newfoundland East Field Unit will be undertaking two new projects at Cape Spear NHS in 2017 that could possibly generate impacts on buried archaeological resources. The overall objectives of these two projects are to upgrade the Most Easterly Point (MEP) infrastructures and to replace the signalling mast located in the vicinity of the 1835s lighthouse. This assessment will evaluate the archaeological potential for undisturbed resources within the proposed work zones and determine which aspects of the project may impact archaeological resources and require an archaeological impact assessment (AIA).

The Most Easterly Point recapitalization project (*from the CRIA request document*)

The Cape Spear Lighthouse NHS is one of the field unit's biggest attractions, accessible to the public 24/7 and located at the most easterly point of North America. The MEP feature currently consists of an asphalt pathway leading from the parking lot, a viewing deck with a few interpretive panels and a memorial cross dedicated to two Canadian servicemen and a gravel trail below the viewing deck. The site is underdeveloped from an interpretation, functional and aesthetic perspective given its high level of popularity and visitation. It is located close to the WWII Bunker Complex, a cultural resource of other cultural value (formerly known as Level II resource) that had been subjected to extensive renovation works in 2016.

The deliverable associated with this project will be an upgraded MEP feature able to accommodate large groups of people and serve as a location for special events. The main components of the project include:

- **a re-paved accessible trail leading to the MEP;**
- **new aluminium rail installation;**
- **two improved lookout areas along the trail;**
- **new interpretive and informational signage;**
- **new seating areas;**
- **a new circular viewing deck;**



- a trail extension from the lower MEP shoreline trail to the viewing deck (wooden boardwalk/stairway with rail);
- trail conversion from boardwalk to gravel from the new MEP viewing deck to gun emplacement #2;
- re-design of the lower MEP area (i.e., new lookout area, naturalization, red chair moment, signage and re-installed memorial cross).

According to the construction drawings provided by the field unit on December 23rd, 2016, **new culvert installation (drawing C1), landscaping work (re-profiling and adding gravel and topsoil, drawings C1 and C3); trenching for electrical work connecting the WWII bunker to an electrical box, and the creation of a laydown area made of crushed gravel deposited above a geotextile membrane are also planned.** The proposed excavation/trenching activities are minimal and, according to the field unit, and will concentrate in already disturbed areas.

The WWII Bunker Complex, specifically gun emplacement #2, is located close to the viewing deck of the MEP. However, the MEP project is not going to impact the bunker resources (fig. 1). With the exception of the short trail extension from the existing shoreline trail to the MEP viewing deck, the rest of the activities will be undertaken in existing disturbed areas.

Potential for archaeological resources

According to historical maps and pictures taken in 1941, there were several wooden barracks dated to the Second World War erected by the Canadian troops along the paved road linking the current parking lot and the WWII bunker. Officer and soldier's quarters and mess, administrative buildings and weapon storage facilities were located east and west of the current paved road (figs. 2-3). The potential for discoveries dated to the Second World War is thus possible despite the fact that all the wooden structures were dismantled or destroyed after the decommissioning of the battery in 1945 (Mosquin 2002, p. 4). The historical documents do not indicate the presence of other features belonging to earlier periods in this area and bedrock is shallow at several places making the presence of any remaining features unlikely.

However, if remains of the WWII wooden buildings are still present on site, they are probably located where we can now see a short and shallow (artificial?) plateau rising immediately east of the road (figs. 4-5). Furthermore, recent archaeological investigations carried out in the area of gun emplacement #2 in May and November 2016 did not yield any features or remains related to the barracks (Stantec 2016 + personal communication). **The probability that the proposed work on the road, handrails, lookout areas and culvert generate an impact on some potential buried archaeological resources in thus minimal. As for the new circular viewing deck and trail extension, the available historical documentation consulted does not indicate the presence of any cultural resources in this area of the site. The project can go forward without any archaeological intervention beforehand.**



Archaeological requirements

However, the Terrestrial Archaeology Unit of Parks Canada strongly recommend the followings mitigation measures:

- 1) To limit subsurface and ground disturbances with the machinery and equipment beyond the official pathway (and railings) joining the parking lot to the MEP viewing deck. The machinery should only circulate on the official paved/gravel pathway visible on figs 4-5;
- 2) To use the current paved parking lot as the laydown area rather than creating a new one above vegetation with a geotextile membrane and crushed gravel.
- 3) To assure that the proposed work does not extend towards the low flat plateau located east of the road path where could have stood the WWII wooden barracks;
- 4) To provide Parks Canada Terrestrial Archaeology Unit with the missing electrical plans to evaluate the potential impact of this project on cultural resources.

Finally, if a cultural resource or artifact is encountered during the course of any work within the MEP recapitalization project, the contractor shall immediately cease their work in the area of the discovery, record the find to the best of their ability (digital photographs, GPS location coordinates, and notes) and report the find to the Parks Canada Representative immediately. The contractor shall only resume activity when permitted to proceed with the authorization of Parks Canada. If other non-mentioned scenarios are considered by the consultant firm and/or the project manager of this project, these must obligatory be sent to Parks Canada Terrestrial Archaeology Unit for review and evaluation.

Contacts

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Figure 1. The MEP project area (prepared by Anne Desgagné, Parks Canada).



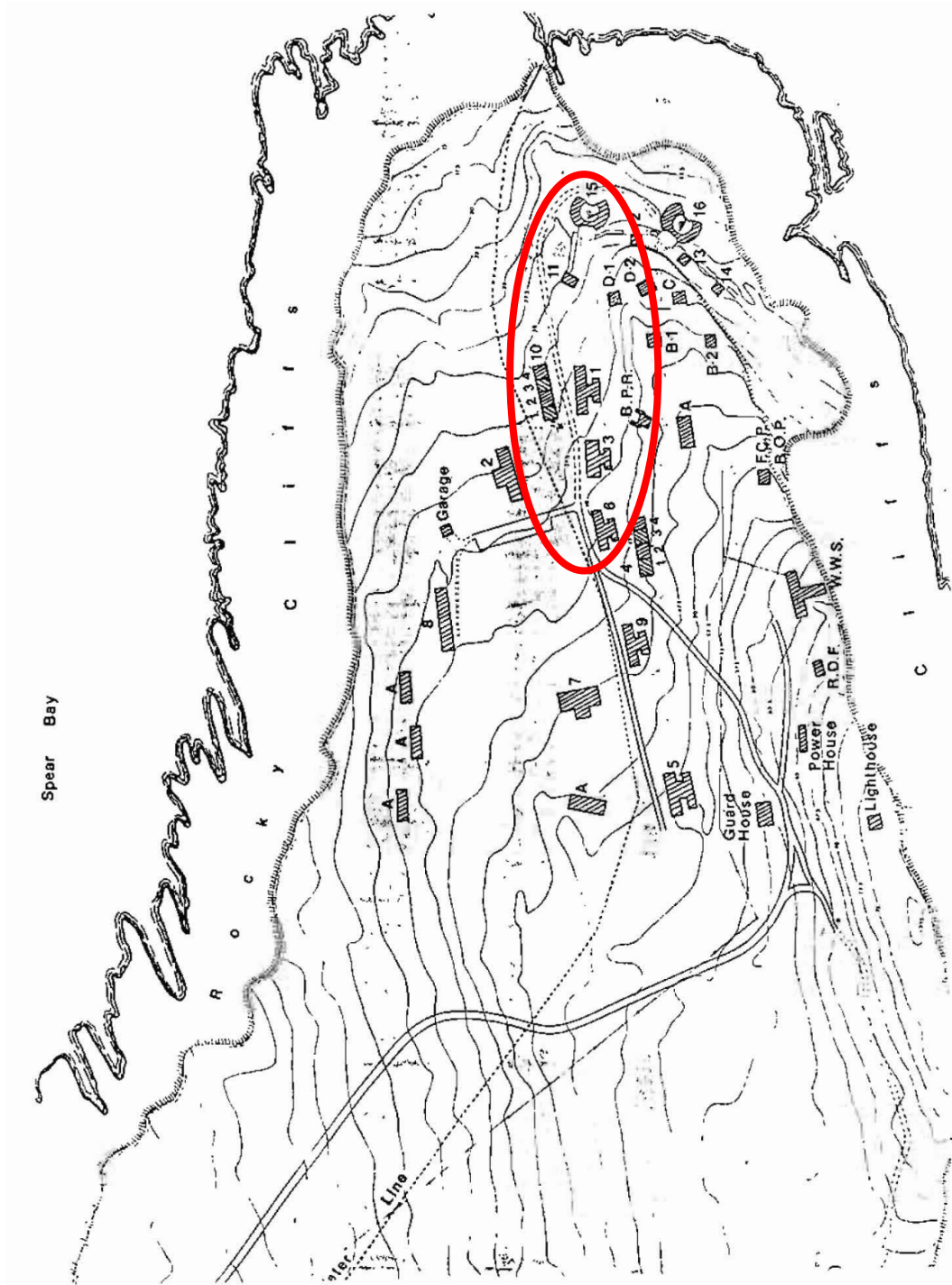


Figure 2. Map of Cape Spear showing all the buildings that were part of Fort Cape Spear. The gun emplacements are indicated by 15 and 16; the ammunitions rooms which are linked by covered corridor to the emplacements are numbers 11-14. From Mosquin 2002, fig. 10. (*Indian and Northern Affairs, Parks Canada and Atlantic Region Planning, "Cape Spear National Historic Park" n.d.*)

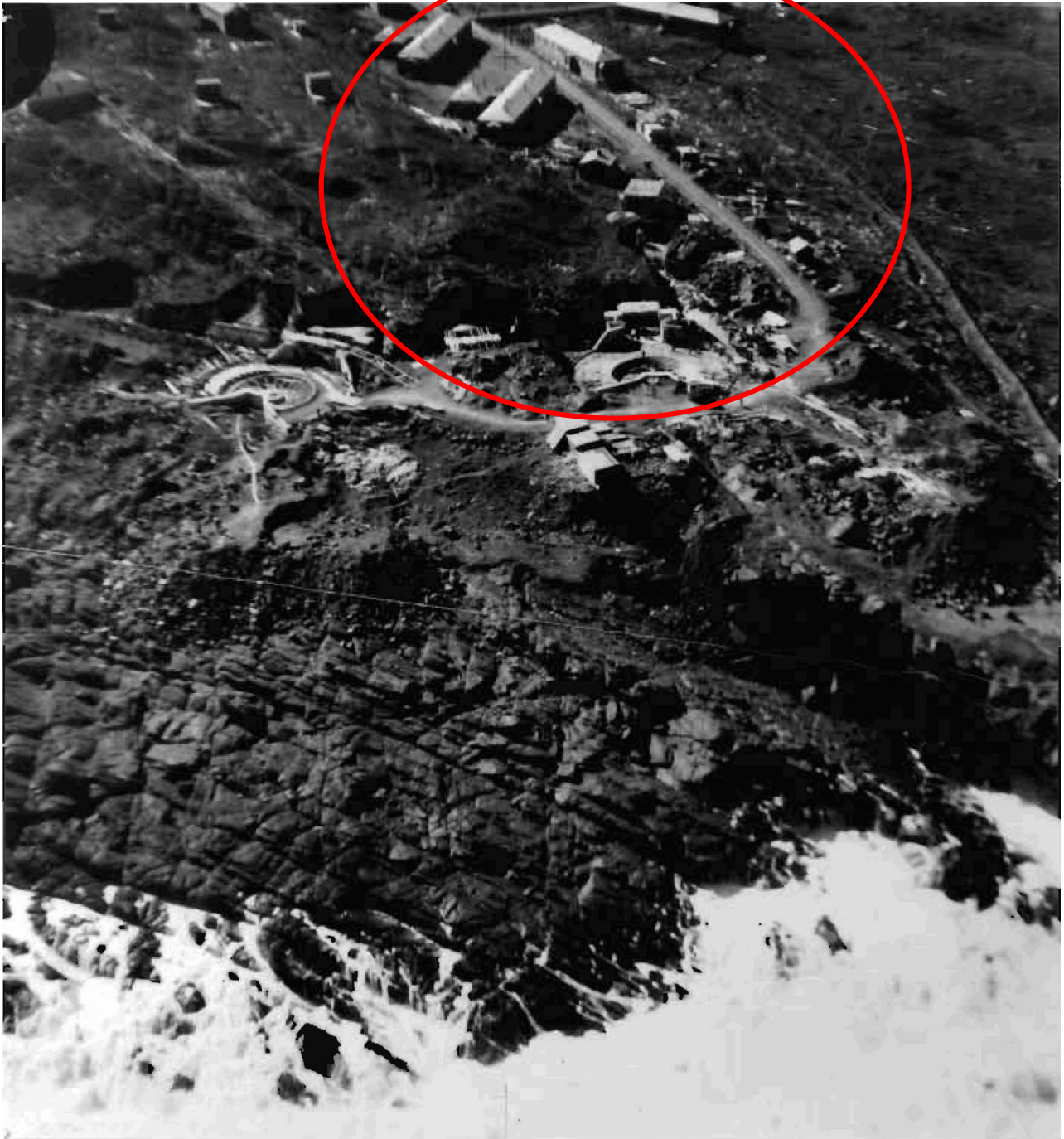


Figure 3. Aerial view of gun battery at Fort Cape Spear under construction in 1941. From Mosquin 2002, fig. 9.
(Parks Canada Atlantic Region Photograph Collection).





Fig. 4. The paved roadway linking the current parking lot to the WWII battery (Image credit: Anne Desgagné).



Fig. 5. The paved roadway linking the current parking lot to the WWII battery.



THE SIGNALLING MAST REPLACEMENT PROJECT (A-base project)

Objective of the project

The objective of this project is to assemble and install a new signalling mast in the immediate vicinity of the 1835's lighthouse to replace the old one which was previously damaged beyond repair (figs. 1-2). The installation will include the removal and reconstruction of an existing concrete pad and three existing guy anchor locations. The mast and components will be constructed and partially assembled off site, the remaining assembly and installation will take place onsite in the same area where the previous mast was located a few meters southwest of the lighthouse. The completed mast will be painted to match the Historic Light house as was the previous one.

According to the construction drawings provided by the field unit on December 23rd 2016, the project will require minor excavation work in the vicinity of the lighthouse. The construction of the new mast will necessitate some trenching to remove the mast's concrete slab on a surface area of about 8 by 4 feet at a depth estimated at less than 1 foot. As for the three anchoring rings, the removal of the current concrete slabs and installation of new ones will impact even smaller surface areas. The dimensions are not indicated on the construction plans, but recent pictures of the current anchoring stations exhibit at least one concrete base of approximately 50 to 60 cm in diameter (fig. 3) and two that are directly fixed into bedrock. Overall, the different areas aimed by this project have already been disturbed and sit in an area where bedrock is visible at numerous locations. **Consequently, it is very unlikely that the proposed work will generate impacts on potential archaeological resources despite its close location to the 1835s lighthouse. Furthermore, the CIS document and the historical maps do not indicate the presence of any building or construction in the immediate area of the mast. The project can thus go forward without any archaeological intervention beforehand.**

However, the Terrestrial Archaeology Unit of Parks Canada strongly recommend the followings mitigation measures:

- 5) To use the same footprint for the new concrete slab and mast location;
- 6) To limit subsurface and ground disturbances with the machinery and equipment. The machinery should only circulate on the official gravel pathway visible around the lighthouse. (In 1977, artefacts and architectural features were uncovered at a depth of approximately 20 cm below the ground surface around (on the north side) the lighthouse. See Phillips Parmenter 1977, p. 17-18, figs. 4-7);
- 7) To fix the anchors at locations where bedrock is visible and into the bedrock rather than in new concrete slabs. This will limit intrusive ground work and human footprint at the site;

Finally, if a cultural resource or artifact is encountered during the course of any work within the mast replacement project, the contractor shall immediately cease their work in the area of the discovery, record the find to the best of their ability (digital photographs, GPS location coordinates, and notes) and report the find to the Parks Canada Representative immediately. The contractor shall only resume activity when permitted to proceed with the authorization of Parks Canada. If other non-mentioned scenarios are considered by the consultant firm and/or the project manager of this project, these must obligatory be sent to Parks Canada Terrestrial Archaeology Unit for review and evaluation.



Fig. 1. Location of the old mast on the southwest side of the lighthouse (Photo: Newfoundland East Field Unit).



Fig. 2. Location of the old mast on the southwest side of the lighthouse (Photo: Newfoundland East Field Unit).





Fig. 3. Anchoring ring of the old mast located on the southwest side of the lighthouse and its concrete base.
(Photo: Newfoundland East Field Unit).

