



## Parks Canada Basic Impact Analysis

### 1. PROJECT TITLE & LOCATION

North Head Trail Rehabilitation, Signal Hill National Historic Site

### 2. PROPONENT INFORMATION

Glenn Keough – Manager, National Historic Sites and Visitor Experience (709) 772-6709

Jerry Feltham – Project Manager, FII, (709) 533-3122

Alex English – Project Manager, Project Delivery Services, (709) 772 6476

### 3. PROPOSED PROJECT DATES

Planned commencement: Fall 2017

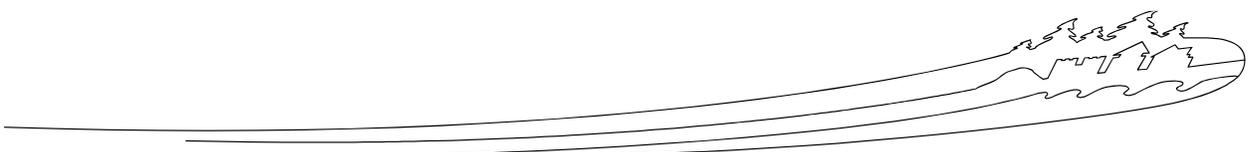
Planned completion: Fall 2017

### 4. INTERNAL PROJECT FILE # TN-2017-14

### 5. PROJECT DESCRIPTION

Located in St. John's – Newfoundland and Labrador's capital city – Signal Hill, Cabot Tower, and the Narrows are among Canada's most distinctive landmarks. Signal Hill National Historic Site (NHS) receives approximately 750,000 visitors annually. Many visitors to the Site are from other provinces in Canada. The majority of visitors are attracted to the Site during the summer months for sightseeing and hiking. Moderately high off-season visitation is growing due to increasing numbers of conventions and conferences in the St. John's area. Signal Hill was designated a national historic site in 1951, the same year that Fort Amherst (on the south side of the Narrows) was cited for its national historic significance. In 1998, recognizing that the cultural resources on the south side of the Narrows were an integral part of Signal Hill's defence and communications history, the Historic Sites and Monuments Board of Canada recommended that they be included within Signal Hill's historic site designation. Today, the Designated Place of Signal Hill NHS encompasses land on both sides of the Narrows. The Parks Canada-administered site is 106 hectares and consists of the major portion of the Signal Hill peninsula, which overlooks St. John's Bay, Fort Amherst, the Narrows, St. John's Harbour and the Quidi Vidi waterway. The ribbon of shoreline that completes the Designated Place contains Fort Amherst National Historic Site of Canada and two historic sites recognized by the Government of Newfoundland and Labrador: Frederick's Battery and South Castle. The south side of the Narrows played a significant role in the city's defence for at least three centuries. The area has seen continuous human settlement since the early 1800s, when Newfoundland's first lighthouse was built at Fort Amherst. Although this land and its resources are included in the Designated Place, Parks Canada does not own or administer them. That responsibility is divided amongst the Government of Newfoundland and Labrador, the City of St. John's, private landowners, and various agencies of the federal government including Fisheries and Oceans Canada - Canadian Coast Guard, the St. John's Port Authority, Transport Canada, and the Fort Amherst Small Boat Basin Corporation.

The views from and to Signal Hill are integral to its historic significance. The hill's prominence on the landscape and its location overlooking St. John's Bay and St. John's Harbour are the reason for its historic defence and communications activities. The topography, and its natural and cultural landscape features are among its most distinguishing characteristics. Many of the defensive works on Signal Hill





and the south side of the Narrows were located and designed specifically to take advantage of these natural features.

The purpose of this project is to enhance the Visitor Experience by offering a quality hiking trail product that is consistent with visitor's expectation of the area as a major St. John's attraction.

The goals of the project are to:

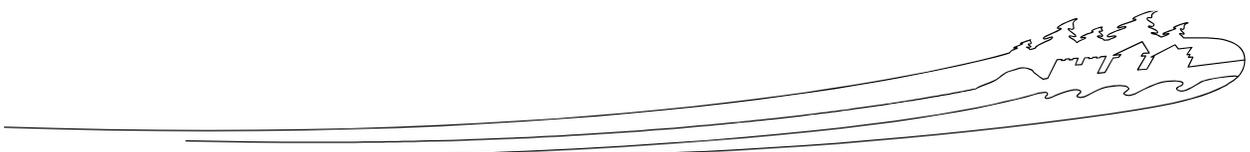
- a) Complete significant improvements to the existing North Head trail system by rehabilitating and upgrading trail infrastructure.
- b) Increase visitor safety, satisfaction and enjoyment by upgrading structures and completing rock scaling.
- c) Lower field unit operational costs by building more robust structures and eliminating rock fall hazards.
- d) Improve natural integrity throughout areas adjacent to trail system by decreasing instances of braiding caused by narrow structures.

Elements of this trail rehabilitation project include:

- a) Demolition and removal of a 30 meter section of wooden boardwalk and asphalt trail near Cabot Tower. Excavation of granular base and reinstatement with new granular, treated timber, asphalt, topsoil and sod.
- b) Demolition and removal of existing wooden stairs, cribs, railing and anchoring components at Stair # 6. Reinstatement with stones stairs and landings. Stones to be source from site near Stair # 3
- c) Demolition and removal of existing wooden stairs, cribs, railing and anchoring components at Stair #'s 10, 16, 17, and 22. Reinstatement of stairs, landings, rails and cribs with treated timber.
- d) Demolition and removal of existing bridge and anchoring components at Stair #'s 14 and 18. Installation of new aluminum bridge and concrete foundations and abutments at both locations.
- e) Removal of loose material, debris and vegetation around new crib installations.
- f) Rock scaling where required
- g) Site access may require the use of a helicopter.
- h) Removal of project wastes from the site.

Signal Hill NHS is rich in archaeological resources. Generally, all areas excavated to date by Parks Canada are in good condition, and stable. Parks Canada's archaeological staff inspects them regularly; Site staff monitors them more frequently. An Archaeological Overview Assessment (AOA) was recently prepared for this project. The AOA stated that as no archaeological investigations have been conducted within the Project Areas by Parks Canada. There is a potential for unknown archaeological resources to be exposed.

At one time, Signal Hill was heavily forested, with black and white spruce (*Picea mariana*, *Picea glauca*), being the dominant species. There are still some white and black spruce on the Hill, but more than 85 percent of the tree cover is now deciduous, with mountain alder (*Alnus viridus* ssp. *crispa*) being the most common species. With the cutting of trees for building and firewood, soil was exposed and many areas are now barren. A preliminary inventory identified more than 150 species of plants at Signal Hill





NHS. In addition, the site includes bog and fen habitat, which, while stable, are very sensitive to change. Given its location and exposure, Signal Hill is generally not hospitable to large terrestrial fauna. However, the preliminary inventory of the site revealed more than 50 faunal species. Infrequent sightings of moose (*Alces alces*), as well as hare (*Lepus americanus*) and meadow vole (*Microtus pennsylvanicus*) have occurred at the site. Short-tailed weasel (*Mustela erminea*) and red fox (*Vulpes vulpes*) are present at Signal Hill NHS and are native to the area. Both the Norway Rat (*Rattus norvegicus*) and the house mouse (*Mus musculus*) may occur within the boundaries of the site. Masked shrew (*Sorex cinereus*) and little brown bats (*Myotis lucifugus*) are common in the surrounding area and are able to enter the site freely. Little Brown bats were emergency listed as Endangered on Schedule 1 of the federal Species at Risk Act (SARA) in 2014. A small number of songbirds and shorebirds are expected to be present at the site. Adverse impacts to terrestrial flora/fauna, species at risk and/or critical habitat are not likely.

The nearest water bodies are Georges Pond and the Atlantic Ocean. It is unlikely that water resources or fish and fish habitat will be affected by this project.

## 6. VALUED COMPONENTS LIKELY TO BE AFFECTED

As identified in Appendix 1 - Effects Identification Matrix.

## 7. EFFECTS ANALYSIS

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

### Natural Resources

Water – the area is subject to high winds and storm events so wastes (e.g., garbage, litter and construction materials) may be blown into the marine environment. Sediment from excavation activities may also enter the marine environment. Operation of heavy machinery may result in a fuel spill with potential to contaminate the marine environment. Effects are expected to be low but secure storage of materials will be important.

Soil and Landforms - excavation activities and operation of heavy machinery may result in soil compaction, soil erosion, exposure of subsoils, and soil contamination from waste (e.g., garbage, fuel). The area is historically a disturbed area comprised mainly of bedrock so effects are expected to be low.

Flora - excavation may require minimal removal of grass and shrubs around the perimeter of the trail installations and operation of machinery may disturb adjacent areas. Ground disturbance may result in the introduction of invasive species. Effects are expected to be low given that the site is historically a disturbed area, there will be minimal ground disturbance and the area is comprised mainly of bedrock. There are no known flora species at risk present at the site. Adverse impacts to species at risk and/or critical habitat are not likely.

Fauna - operation of heavy equipment, increased human presence and noise may result in temporary habitat displacement/ preferred habitat avoidance (e.g., birds); artificial food sources such as garbage and litter may cause wildlife habituation/attraction (e.g., seabirds, fox); and potential fuel spills, sedimentation and runoff may contaminate marine habitat. Effects are expected to be low given that construction will take place outside the migratory bird nesting season and this is a disturbed area with,





at times, high levels of human activity. Adverse impacts to species at risk and/or critical habitat are not likely.

### Cultural Resources

Archaeological Sites and Objects - An Archaeological Overview Assessment (Appendix 2) was completed for the project on October 25<sup>th</sup>, 2017. Given that the replacement of the stairways will occur mostly within areas previously disturbed or on bedrock outcrops, impacts to unknown archaeological resources is limited. However, vegetation removal for new cribbing at Stair 16 and Stair 17 has potential to expose unknown archaeological resources. Much of the work along the boardwalk to Cabot Tower is also within previously disturbed areas, however, the excavation for the new drain and new walkway (300 mm minimum below grade) has the potential to adversely impact potential archaeological resources.

Landscape and Landscape Features - Impact on the landscape feature is expected to be low given that the trail improvements will take place on the original footprint of the existing trail.

### Visitor Experience

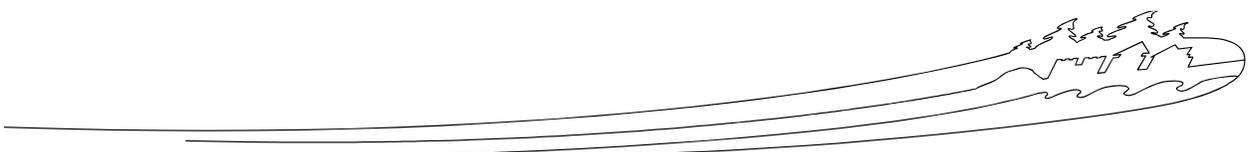
The potential effects on Visitor Experience are anticipated to occur during the construction period, including: reduced quality of visitor experience due to noise and presence of construction equipment and decreased aesthetic appeal and impacted viewscape during construction. The project will temporarily decrease the quality of the overall visitor experience but this is limited to the construction period. The project will take place outside the operational season and trails will remain accessible to visitors as much as possible.

## **8. MITIGATION MEASURES**

Mitigation measures extracted from Parks Canada National Best Management Practices for Trail Maintenance and Modification, 2016

### Work Site Conditions/Staging/Laydown

1. All people working on the project must review the mitigation measures and any site specific considerations with designated Parks Canada staff before work begins.
2. Staging and parking areas for material and equipment must be identified, including duration of use, within an existing disturbed footprint (e.g., roadway, gravel surface, previously disturbed area with high resiliency).
3. Material drop sites (via foot, vehicle, helicopter or boat) must be approved by designated Parks Canada staff.
4. When transporting material via helicopter:
  - o Choose a drop point that is open and easily accessible from the construction site and that will minimize travel to and from the construction site.
  - o Plan multiple drop sites at strategic locations to avoid doubling back on the trail to distribute materials.
  - o Ensure and maintain trail closures during sling operations.





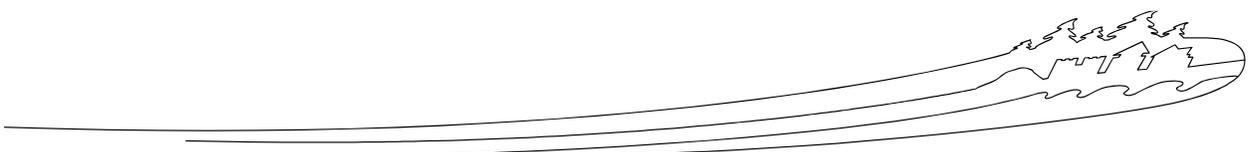
5. Cover construction material with weighted tarps when appropriate. Minimise damage to adjacent plant material and rehabilitate if required to do so by Parks Canada Staff.
6. Use existing roadways, trails, disturbed areas or other areas as approved by designated Parks Canada staff for site access, travel within the site and construction activities (e.g., sawing wood).
7. Clearly mark work site and restricted areas with stakes, biodegradable flagging tape or other means; remove when project is completed.
8. Keep disturbance footprint as small as possible and limit vehicle access to essential vehicles only.

#### Equipment Operations

9. 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.
10. During construction, any required cleaning of tools and equipment must be done greater than 30 meters from waterbodies to prevent the release of wash water that may contain deleterious substances.
11. Equipment operators must be fully trained and experienced.
12. Select equipment appropriate to the nature of work being conducted (e.g., avoid using large scale machinery when hand tools or smaller scale machinery could be used).
13. Use low pressure or rubber tracked equipment or access matting where feasible to minimize soil compaction and ground disturbance.
14. Minimize idling of engines, contingent on operating instructions and temperature consideration.
15. Machinery (e.g., excavators, bobcats, chainsaws and generators) must be stored, maintained and refuelled on a flat surface, outside the drip line of trees and a minimum of 30 meters from waterbodies, as measured from the High Water Mark; increase the 30 meter buffer depending on level of risk and site specific conditions. Refueling must take place on a tarp or portable berm, or on compacted ground.
16. Consider using bio-degradable chain oil/vegetable oils in chain saws, especially when working within 30 meters of waterbodies.
17. If operating chain saws directly over or adjacent to waterbodies is unavoidable, use measures such as tarps to trap and prevent debris from entering the waterbody as much as possible.
18. Gas generators must be secured to prevent movement during operation and set up on an impermeable fuel mat with a berm or within a container that can contain 150% of the volume of fuel in the generator.

#### Construction Materials and Practices

19. When practical, consider pre-fabrication (e.g., bench or parts of structures) at an approved off-site location to minimize on-site construction impacts.
20. When practical, treatment of wood products (e.g., preservatives, paints, stains) should be done at an approved location prior to transport to the site. Field treatments should be applied over tarps or in another approved contained area and not be applied over or within 30 meters of water. Treatments must be approved by designated Parks Canada staff. Chromated copper arsenate (CCA) treated wood must not be used.
21. 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](#) or contact Parks Canada staff for advice.





22. Minimise the number of saw cuts made to treated wood in the field. If unavoidable, cut treated wood away from waterbodies and over tarps to catch debris; cuttings, sawdust and other treated wood waste material must not enter waterbodies.
23. All cuttings, sawdust and other treated wood waste material must be collected and disposed of at an approved disposal facility.
24. Treated wood must not be burnt or left onsite to decay.
25. Concrete mixing activities must take place over tarps a minimum of 30 meters from waterbodies. Fresh, wet, uncured concrete and concrete dust must not come into contact with waterbodies; contain and remove any associated concrete waste to an approved disposal facility.

#### Invasive Plant Species

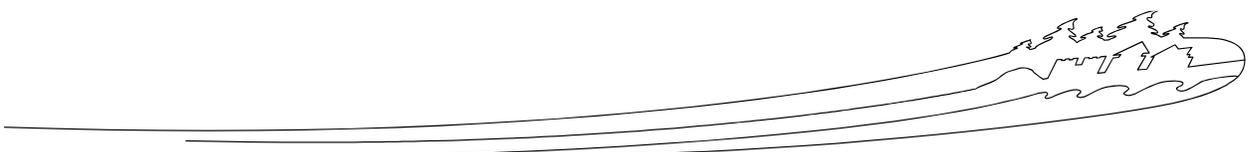
26. Equipment and machinery coming into contact with the terrestrial or aquatic environment must be free of invasive alien species individuals, seeds, propagules (i.e., any other material that may cause the spread of the species) and pathogens. In particular:
  - o Equipment must be washed/cleaned prior to arrival.
27. Ensure that organic material (e.g, topsoil, borrow and fill material, gravel) taken from the construction site is free of invasive alien species before using in other parts of the protected heritage place.
28. Minimise ground disturbance and vegetation removal, as practical and within project requirements.
29. Stabilize and re-vegetate disturbed areas as soon as possible with native plants, soil and seed mix approved by designated Parks Canada staff. If there is insufficient time remaining in the growing season, stabilize the site to prevent erosion and vegetate the following spring.

#### Waste

30. All wildlife attractants must be secured (e.g., petroleum products, human food, recyclable drink containers and garbage) within wildlife-proof containers, a secure building or vehicle. Keep food waste separate from construction waste and remove daily; if daily removal is not possible, secure until it can be removed.
31. Notify designated Parks Canada staff immediately should wildlife gain access to the above mentioned attractants.
32. Contain and stabilize waste material to prevent them from entering any waterbody.
33. All construction materials must be removed from the site on project completion (e.g., refuse material, waste petroleum, construction material).
34. Contain waste and transport to an approved waste landfill site outside the Parks Canada protected heritage place, unless otherwise directed; cover waste loads during transportation.

#### Hazardous Material

35. Prevent the release of hazardous substances into the environment, including but not limited to, petroleum products and their derivatives, antifreeze or solvents.
36. All on-site personnel must be briefed on reporting requirements for hazardous materials spills; spills must be reported immediately to designated Parks Canada staff.
37. All construction sites must be equipped with containers suitable for the secure, temporary storage of hazardous wastes, separated by type.
38. 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 according to applicable laws, policies and regulations.





39. Identify and handle all toxic/hazardous materials as required under the *Canadian Environmental Protection Act, Transportation of Dangerous Goods Act* and Workplace Hazardous Materials Information Service.
40. 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 designated Parks Canada staff.

#### Wildlife

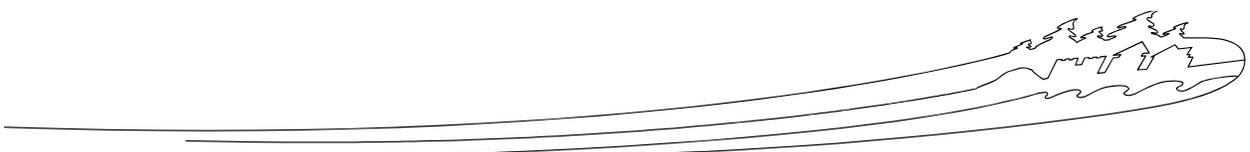
41. On-site personnel must be made aware of and report any incidental sightings of species at risk (i.e. bats) immediately to designated Parks Canada staff.
42. Schedule activities to avoid critical wildlife life stages (breeding, nesting, denning, roosting, rearing, migration). Consult with designated Parks Canada staff to discuss localized wildlife concerns.
43. Avoiding vegetation clearing during site-specific migratory bird timing windows. Consult with designated Parks Canada staff for specific approaches to avoiding impacts on migratory birds (e.g., nest surveys, exclusion zones for located nests, area avoidance).
44. Should active nests, dens, roosts or calving areas be discovered, stop work and contact designated Parks Canada staff immediately for direction.
45. Conduct trail activities during daylight hours, avoiding critical foraging times (dusk and dawn).
46. Never approach or harass wildlife (e.g., feeding, baiting, luring).
47. If wildlife is observed at or near the work site, allow the animal(s) the opportunity to leave the work area and move away from areas of potential conflict.
48. Designated Parks Canada staff must be alerted immediately to any potential wildlife conflict (e.g., aggressive behaviour, persistent intrusion), distress or mortality. In the case of aggressive behaviour or persistent intrusion, stop work and evacuate the area.

#### Vegetation

49. Burning is not permitted within the protected heritage place unless approved by Parks Canada.
50. Where re-vegetation is required, topsoil, native plants and seed mix approved by designated Parks Canada staff.
51. Clear minimum area necessary; trees should be removed only as necessary for project completion, visitor/trail crew safety or wildfire risk reduction.
52. Protect roots of trees to drip line to prevent disturbance or damage. Avoid traffic, dumping or storage of materials over root zone.

#### Erosion and Sediment Control

53. In areas prone to erosion, install erosion and sediment control measures before starting work, especially within 30 meters of a waterbody.
54. Regularly inspect and maintain erosion and sediment control structures during all phases of the project and modify measures as necessary.
55. Remove temporary erosion and sediment control products, especially non-biodegradable materials, when they are no longer required.





### Visitor Safety and Experience

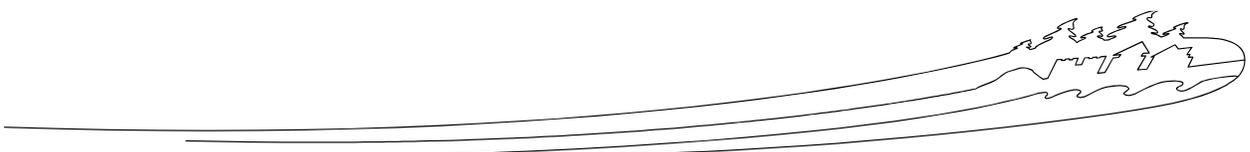
56. If possible, schedule construction activities outside peak visitor season.
57. The work site will be closed and marked while material transport, active construction, repair or maintenance is underway; consider temporary detours or reroutes as appropriate.
58. If closing the area is not possible, maintain a safe working distance between work activities and visitors; consider the use of lookouts to manage pedestrian/vehicle traffic through the construction/hazard area.
59. As much as possible, schedule noisy activities to minimise impacts to visitors.
60. Secure and clearly mark unattended safety hazards (e.g., excavations, unsecured decking on a bridge, debris piles) with fencing, warning signs, area closures or combination thereof.

### Cultural Resources

61. Avoid known and potential archaeological sites.
62. Stockpiled material must not be permitted to damage or bury known cultural resources.
63. PCA staff will monitor the excavation for the new asphalt walk and drain along the boardwalk to Cabot Towers as well as the excavation for the new cribbing for Stair 16 and Stair 17 to assess for potential archaeological resources.
64. If cultural resources are encountered, work must cease in the immediate area and designated Parks Canada staff notified.
65. Any artifacts uncovered will be collected and labelled according to location, and the Parks Canada's Terrestrial Archaeology section will be informed.
66. If unrecorded archaeological resources (e.g. structural features or artifact concentrations) are encountered during construction activities, work will cease in the immediate area, the findings photographed, and the Parks Canada Project Manager informed. The Project Manager should then contact Parks Canada's Terrestrial Archaeology section for advice and assessment of significance, which will in turn determine what will be required to mitigate the find.

### Decommissioning and Rehabilitation

67. Re-grade visible decommissioned trail ends to surrounding slopes.
68. Reclaim eroded areas and ensure proper erosion control measures are identified and installed in the decommissioned section (e.g., check dams made of logs or rocks fixed across the trail to trap soil)
69. Any replanting or reseeding must be done using native plants/seed mixture approved by Parks Canada.
70. Confine existing work to the existing footprint of the item to be decommissioned.
71. Rehabilitate the site to a natural condition, in consultation with designated Parks Canada staff.
72. Ensure any holes or depressions left over from removal of structures are filled.
73. Waste materials must be disposed of outside the national protected place at an approved disposal facility unless otherwise directed by designated Parks Canada staff.





**9. OTHER Considerations**

Check all that apply

- Public/stakeholder engagement
- Aboriginal engagement or consultation
- Surveillance  
**Periodic inspection by Park Staff to ensure mitigations are being followed. PCA staff will monitor the excavation for the new asphalt walk and drain along the boardwalk to Cabot Tower including the excavation for the new cribbing at Stair 16 and Stair 17 to assess for potential archaeological resources.**
- 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**

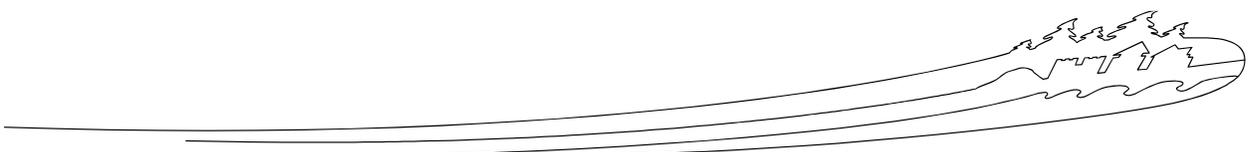
Adverse effects not likely significant

**11. EXPERTS CONSULTED**

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

Department/Agency/Institution: Parks Canada	Date of Request: 2017-10-13
Expert's Name & Contact Information: Barbara Leskovec, Terrestrial Archaeology Indigenous Affairs and Cultural Heritage Directorate	Title: Archaeologist
Expertise Requested: To conduct an archaeological overview assessment (AOA) of the proposed project to evaluate potential project impacts to archaeological resources. To provide archaeological requirements and/or mitigation measure(s)	
Response: As there is a chance archaeological resources may be exposed during specific excavation activities for this project, the mitigation measures required to minimize Project impacts.	

Department/Agency/Institution: Parks Canada	Date of Request: 2017-09-25
Expert's Name & Contact Information: Anne Desgagné, Cultural Resource Management, Indigenous Affairs and Cultural Heritage Directorate	Title: CRM Policy Advisor
Expertise Requested: Cultural Resource review of this project. Integrate the Cultural Resource Impact Analysis (CRIA) into this BIA.	
Response: Request for CRIA for archaeological review. Impact on the landscape feature is expected to be low given that the trail improvements will take place on the original footprint of the existing trail.	





**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.

FOR SARA REQUIREMENTS:

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

OR, the SARA-Compliant Authorization Decision Tool ([Appendix 2](#)) was used and determined:

- There is no contravention of SARA prohibitions
- Project activities contravene a SARA prohibition and CAN be authorized under SARA
- Project activities contravene a SARA prohibition and CANNOT be authorized

**13. RECOMMENDATION AND APPROVAL**

*(Add additional blocks as required)*

<b>Prepared by:</b> Rod Cox – Resource Management Officer	Date:
<b>Recommended by:</b> Jerry Feltham – Manager, FII	
<b>Signature:</b>	Date:
<b>Approved by:</b> William Brake - Superintendent	
<b>Signature:</b>	Date:

**14. ATTACHMENTS**

**14.1. Other** (e.g., project area diagrams, sensitive area maps, project execution plan, previous analysis)

**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.*)

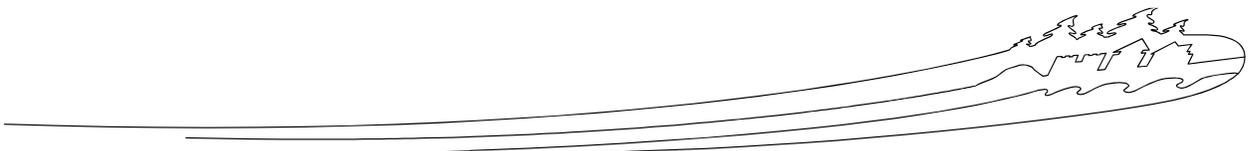




## Appendix 1 : Effects Identification Matrix

**Section A** focuses on direct effects of the project and **Section B** on indirect effects that are caused by changes to the environment.

A. Direct Effects									
	<p>You may wish to change the components listed under the headings to specify the natural or cultural resources that are priority considerations for your PCA site or for the specific project being reviewed.</p>		Valued components potentially directly affected by the proposed project						
			Natural Resources				Cultural Resources		
			Air	Soil & landforms	Water (surface, ground, crossings, etc.)	Flora (including SAR)	Fauna (including SAR)	Archaeological Sites and Objects	Landscape and Landscape Features
Phase	Examples of Associated Activities								
Project Components	Preparation / Construction / Operation / Decommissioning	Transport of materials/ equipment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Use of machinery	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Clearing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Demolition	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Blasting/ Drilling	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Excavation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Disposal of waste	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





B. Indirect Effects (all phases)							
<p>You may wish to change the components listed under the headings to specify the natural or resources that are priority considerations for your PCA site or for the specific project being reviewed.</p>		Impacts as a result of changes to the environment					
		With respect to non-Aboriginal peoples:		With respect to Aboriginal peoples:		With respect to visitor experience	
		Health and socio-economic conditions	Health & socio-economic conditions	Current use of lands and resources for traditional purposes	Access & services	Recreation & accommod'n opportunities	Safety
Phase	Natural resource components affected by the project						
Preparation /construction operation /implementation/decommissioning	Could impacts to <u>air</u> lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Could impacts to <u>soils and landforms</u> lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Could impacts to <u>water</u> (e.g. surface, ground water and water crossings) lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Could impacts to <u>flora</u> (including SAR) lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Could impacts to <u>fauna</u> (including SAR) lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





## Appendix 2 – Archaeological Overview Assessment

