

Environmental Impact Analysis (EIA)

Ardgowan HVAC Installation

Prince Edward National Park

September 14, 2016



1. PROJECT TITLE & LOCATION

HVAC Installation Ardgowan

2. PROPONENT INFORMATION

Bill Courtney, Asset Manager, Prince Edward Island National Park; 2 Palmers Lane, Charlottetown, PEI C1A 5V6; office (902) 672-6374; cell (902) 940-3278; bill.courtney@pc.gc.ca

3. PROPOSED PROJECT DATES

Planned commencement: 2016-09-30

Planned completion: 2018-03-31

4. INTERNAL PROJECT FILE #

PEINP16-08

5. PROJECT DESCRIPTION

This project includes the replacement of existing heating, ventilation and cooling systems with new systems. The project will be split between A-base Funds and a FII budget for underground petroleum storage tank replacements. The construction work for this project is being divided into two phases:

Phase 1A - work to be completed by Mar 31/17:

Supply and installation of a new electric boiler and new domestic hot water (DHW) heater. This will be installed in the existing furnace room.

Supply and installation of electric panels and transformers in a new electrical room (the small empty room adjacent to the existing electrical room).

Supply and installation of electrical conduits and wiring to go from new electrical room to the furnace room.

Phase 1B - work to be completed after BIA approval, and before July 31/17:

Construction of a new underground electrical service, that runs from Mt. Edward Road, to the foundation wall at the boardroom, and along the exterior of the foundation wall to the main staff door at Ardgowan, then through the wall into the new electrical room. This requires construction of two access pits and horizontal drilling from pit to pit.

Installation of new electrical wiring in the underground conduits, and energizing the new electrical service.

Startup of the new electric boiler and DHW heater.

Removal of the oil fired boiler.

Phase 2 - work to be completed Between Aug 1/17 and Mar 31/18:

Remove underground oil tank, and return site to a grassed condition.

Construct a new Heating, Ventilation and Air Conditioning (HVAC) system. This system will be an air-source heat pump system. It will require piping and wiring and ducts to be run through all levels of the building, and heads will be installed in various rooms to distribute the hot air and cool air. It requires



some trenching outdoors to connect to new heat pumps. Remove old exterior heat pumps. The new heat pumps will be installed on the same concrete pads as the air conditioners are currently.

To minimize disturbance to trees and other vegetation, and to potential artifacts, the new power conduit will be installed through boring underground (Figure 2). This will minimize the need to trench, and will stay below tree roots and artifacts. Both power and communication conduits will be installed at this time. The boring procedure requires a pit to be excavated near an existing power pole on Mt. Edward Road. This pit will be approximately 8'wide x 8'long x 6' deep. A drill rig will be placed in this pit and it will bore holes underground and install power/communication conduits at a depth of approximately 5' below grade. A narrow trench will also be required along the west foundation wall of the house, in previously disturbed soil. The trench will be 3' to 4' wide, and 6' deep. The power and communication conduits will go through the foundation wall into the office beside the existing electrical room. That office will be converted into a new electrical room in this project.

Removal of the wooden entrance steps and ramp at the west side of the house will be required to do this work. It is modern infrastructure and will be replaced with a new wooden stairs/ramp of similar configuration. Pressure treated, unpainted wood (green or brown in color) will be used. If painting is deemed necessary from a CRM perspective, it will be completed in spring 2017.

Figure 1 shows the cover of the oil tank to be removed, the pad with the air conditioners that will be re-used and location of the trench from the existing pad to the building that is required.



Figure 1: Work area of proposed project. Trenching will occur from air conditioner pad to house. The cover of the existing oil tank is visible near the window.

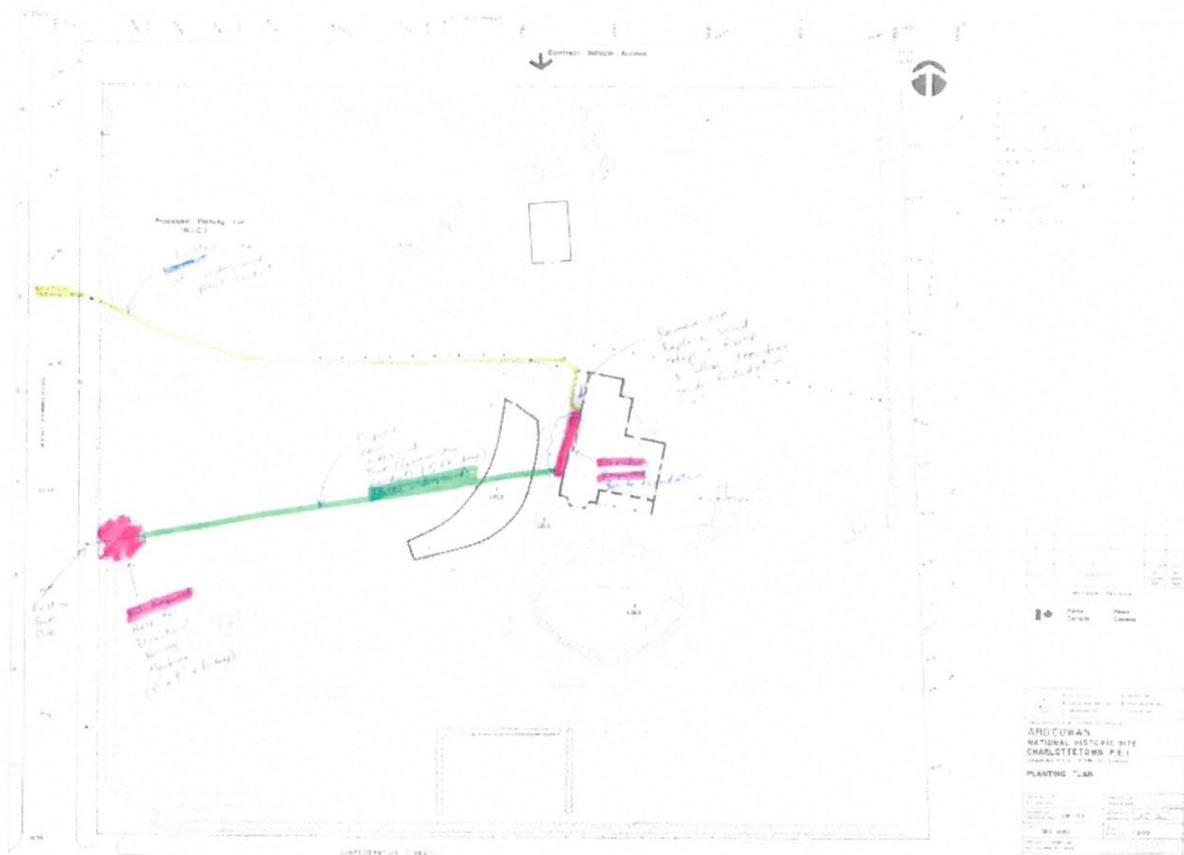


Figure 2: Site plan showing specific underground power requirements of the project.

6. VALUED COMPONENTS LIKELY TO BE AFFECTED

Natural resource components affected include: flora, fauna, and soil during the site preparation and excavation of the pit for boring, trenching and restoration of the disturbed areas for the project.

Cultural resources may be affected given the site is a historical site.

The building will remain open during the project. There may be some effects to visitor experience.

There are no predicted aspects of the project that would result in direct or indirect impacts to health and socio-economic components related to Aboriginal and non-Aboriginal peoples. MCPEI and local chiefs were informed of the project.

7. EFFECTS ANALYSIS

The entire proposed project is within the Ardgowan site, already affected by the infrastructure footprint. The old oil tank excavation and trenching will occur within the landscaped (mowed) lawn around the existing buildings. Disturbance (de-stabilizing) of soil will occur during the excavation and backfilling of the trench and tank removal. The flora (predominately grasses) and associated invertebrate fauna will be affected within the immediate trenching area however the impact is expected to be minimal.

The installation of new electrical conduit requires the excavation of a pit at the power source on Mount Edward Road for the drill rig and a trench along the foundation. These sites will be affected, but boring at a depth of 5 feet below grade for the new conduit will minimize the impacts to tree roots, vegetation and potential historical era artefacts.

Visitor experience should not be affected other than a possible increase in noise outside the building during the excavation phase.

There is the possibility that historical era artifacts could be uncovered within the upper two feet of soil within areas without previous excavations. A CRIA was conducted and it was determined that an Archaeologist will be present during the excavation of the two pits at the ends of the bored section to watch for artefacts and items of interest.

8. MITIGATION MEASURES

- The conditions presented in this Basic Impact Analysis (EIA) will be considered part of the project. Failure to comply, may result in work being suspended pending rectification of the problem(s).
- The Project Manager is responsible to ensure all parties (i.e. Park Staff, Contractor, etc.) receive a copy of this EIA prior to project start-up.
- The Contractor must be aware that he/she is working in a National Historic site where emphasis is on ecological/cultural integrity and resource protection.
- All activities must conform to relevant Occupational Health and Safety Guidelines and to all relevant Municipal, Provincial and Federal Regulations including specific regulations for the removal of oil tanks.
- The contractor will ensure machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species, noxious weeds and soils from off-site.
- The location of all existing underground infrastructure (buried utilities) within or close to the proposed project site limits will be marked prior to commencing work to prevent conflicts (e.g. damage and/or severing).
- Following removal of the Underground Storage Tank, the floor and sidewalls of the excavation must be examined for visual and olfactory evidence of petroleum impacts and screened for the potential presence of volatile organic compounds (VOCs) using a real-time, organic vapor analyzer.
- Should the visual and olfactory evidence and the VOCs reading suggest soil contamination; conduct field testing to determine the extent of the contamination in compliance with provincial/territorial guidelines and standards.
- The Contractor must have a Spill Response Kit on site at all times. In the event of a spill, the Contractor is responsible for containing and cleaning up the spill. The Contractor is required by

law to report the spill - Environmental Emergency 1-800-565-1633. In addition, the Contractor must notify Parks Canada (project manager) and Jasper Dispatch (1-877-852-3100).

- **An Archaeologist will be present during excavations in areas where there have been no previous site excavations to watch for artefacts and items of interest i.e. the two pits at the ends of the bored section.**
- All construction personnel are responsible for reporting any unusual materials unearthed during **all** trenching and excavation activities to the Project Manager (Parks Canada). If any in-situ archaeological features or artefacts are encountered during the project, the Project Manager should suspend the activity and notify the Parks Canada Terrestrial Archaeology Unit.
- All exposed soil, following completion of construction activities, will be stabilized and/or reseeded as soon as possible.
- Any required re-planting for landscape purposes must use native species pre-approved by Resource Conservation staff. When additional soil is required for restoration purposes it should be clean and free of invasive species, particularly the five species targeted for eradication and/or control in PEINP; (Garlic Mustard (*Alliaria petiolata*), Glossy Buckthorn (*Rhamnus frangula*), Japanese Knotweed (*Polygonum cuspidatum*), Purple Loosestrife (*Lythrum salicaria*) and Scotch Pine (*Pinus sylvestrus*).

9. PUBLIC/STAKEHOLDER ENGAGEMENT & ABORIGINAL CONSULTATION

9 a). Indicate whether public/stakeholder engagement was undertaken in relation to potential adverse effects of the proposed project:

No

Yes (describe the process to involve relevant parties and indicate how comments were taken into consideration).

9 b). Indicate whether Aboriginal consultation was undertaken in relation to potential adverse effects of the proposed project:

No

Yes Jesse Francis of MCPEI was contacted for any concerns related to this project. A letter of notification was sent to the chiefs as recommended on September 8, 2016. They responded with no concerns for the project (see attachment).

10. SIGNIFICANCE OF RESIDUAL ADVERSE EFFECTS

The scope of the proposed project relates largely to interior work, and considering the location, there are no significant adverse environmental effects anticipated as a result of this project. While some excavation and trenching is required, the new power line will be installed via boring well below grade. As a result, this project is not likely to cause significant residual effects and there are no predicted cumulative effects associated with the project.

11. SURVEILLANCE

- Surveillance is not required
- Surveillance is required (provide details such as the proposed schedule and the focus of inspections)

12. FOLLOW-UP MONITORING

Follow-up monitoring is:

- not required
- required by legislation or policy (indicate basis of requirement – e.g. required by the *Species at Risk Act*; *Fisheries Act*, or the [Parks Canada Cultural Resource Management Policy](#))
- required to evaluate effectiveness of mitigation measures and/or assess restoration success

13. SARA NOTIFICATION

Notification is:

- not required
- required under the *Species at Risk Act* (outline the nature of and response to any notification).

14. EXPERTS CONSULTED

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

Department/Agency/Institution: Parks Canada	Date of Request: 2016-09-07
Expert's Name & Contact Information: Anne Desgagne Anne.desgagne@pc.gc.ca tel. 418-648-4472	Title: Policy Advisor, Cultural Resource Management
Expertise Requested: CRIA	
Response: Request for Cultural Resource Impact Analysis (CRIA) for Ardgowan NHS-HVAC Upgrade sent to Lynda Villeneuve, Attached in section 17. Response is pending.	
Department/Agency/Institution: Parks Canada	Date of Request: 2016-11-14
Expert's Name & Contact Information: Anne Desgagne Anne.desgagne@pc.gc.ca tel. 418-648-4472	Title: Policy Advisor, Cultural Resource Management
Expertise Requested: CRIA for updated project description	
Response: Request for Cultural Resource Impact Analysis (CRIA) for Ardgowan NHS-HVAC <u>Upgrade</u> to Lynda Villeneuve. Response is pending.	
Department/Agency/Institution: Parks Canada	Date of Request: 2016-10-13 2017-01-13
Expert's Name & Contact Information: Charles A. Burke charles.burke@pc.gc.ca tel. 902-402-8065	Title: Archaeologist
Expertise Requested: Archaeological review of updated project description	
Response: It is unlikely the proposed digging will have any impact on the removal of U/G Oil Tank and old electrical and plumbing lines removal of the underground services. The work will occur within previously excavated and disturbed trenches. Caution must be exercised with any activity requiring	

mechanical excavation on an historic site, even within existing disturbed trenches there is some potential to expose new deposits and or artifacts. Installation of a New Underground Power Conduit (includes excavation of pit at power source, and pit along foundation wall).

Further; while there is no requirement to conduct archaeological tests within previously excavated and/or disturbed areas (along the building foundation, oil tank replacement), there is a requirement to ensure that archaeological resources within the proposed trench between the air conditioner pad to the house as well as within the footprint on PC land of the initial pit adjacent to Mount Edward Road for the drill rig are not disturbed. These aspects of the project should be monitored by an archaeologist on site.

Department/Agency/Institution: Parks Canada	Date of Request: 2017-01-13
Expert's Name & Contact Information: David Scarlett <u>david.scarlett@pc.gc.ca</u> tel. 819-420-9259	Title: Chief Architect, Built Heritage
Expertise Requested: Built Heritage review	
Response: Bearing in mind that electrical and mechanical contractors sometimes a) cut larger than necessary openings and b) often route systems where it is most economical for them, the Project Manager is encouraged to discuss this issue with the contractor(s) prior to starting work, to establish protocols that will minimize impact on the building.	

15. 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.

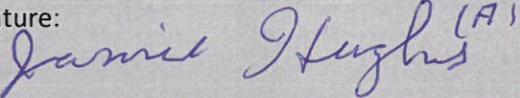
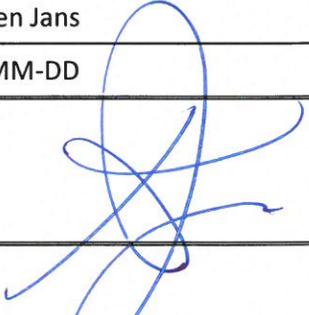
FOR SARA REQUIREMENTS:

- 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

16. RECOMMENDATION AND APPROVAL

SIGNATURES AND APPROVALS	
EA Author	
Name: Rick Hawkins	Title: Ecological Integrity Monitoring and Active Management Coordinator, PEI National Park
Date: 2017-04-28	
Signature: 	
Proponent / Project Manager (Signing acknowledges the receipt, review and understanding of this document's contents.)	
Name: Bill Courtney	Title: Asset Manager, PEI National Park
Date: YYYY-MM-DD <i>2017-05-02</i>	
Signature: 	
Resource Conservation Manager	
Name: Brad Romaniuk	Title: Resource Conservation Manager, PEI National Park
Date: YYYY-MM-DD <i>2017-05-05</i>	
Signature: 	
DECISION APPROVAL	
Name: Karen Jans	Title: Field Unit Superintendent, PEI National Park
Date: YYYY-MM-DD	
Signature: 	

17. ATTACHMENTS



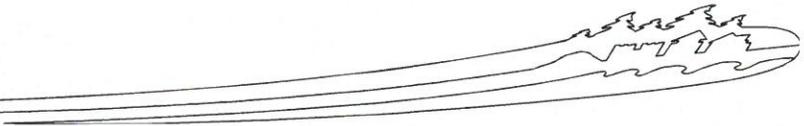
Chief Ramjattan,
Ardgowan HVAC.do



CRIA Request -
Ardgowan NHS - HV



Karen Jans -
Ardgowan.pdf



18. 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

19. AUTHORIZATION / DISTRIBUTION CHECKLIST			
Position	Signed	Copied	Initialed
Superintendent	<input checked="" type="checkbox"/>		<input type="text" value="EG"/>
Resource Conservation Manager	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text" value="EG"/>
Environmental Assessment Author	<input checked="" type="checkbox"/>		<input type="text" value="EG"/>
Project Manager	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text" value="EG"/>
CRM	—		<input type="text" value=""/>
Park Warden		<input checked="" type="checkbox"/>	<input type="text" value="EG"/>
Central Records		<input checked="" type="checkbox"/>	<input type="text" value="EG"/>

20. PERMITTED AUTHORITIES GRANTED BY SUPERINTENDANT FOR THIS PROJECT WORKS.

X Crown Lands – This assessment constitutes the authorization for work on crown lands owned by Parks Canada and forms the permit for restricted activities indicated below. It shall be presented when requested for verification of authorization.

X Gazetted Lands – This assessment is for work on Parks Canada gazetted lands. Separate permits may be issued for restricted activities identified below.

General Regulations

Restricted and Prohibited Activities, Uses and Travel [Sec. 7 (5)(a) & Sect. 7 (5)(b)]

The superintendent may, on application to him by any person, in respect of any activity or use restricted or prohibited pursuant to subsection (1) or any entry and travel in an area that has been restricted or prohibited, pursuant to that subsection, issue to that person a permit to (a) engage in that activity or use, or (b) enter and travel in that area on such terms and conditions as the superintendent may prescribe in the permit.

X Authorization [Sec. 7 (1)(5)(a), Sec. 7 (1)(5)(b), Sec. 7 (1)(5)(c)]

The superintendent may, on request, issue an authorization and may prescribe terms and conditions in any such authorization, taking into account (a) the natural and cultural resources of the park; (b) the safety, health and enjoyment of persons visiting or residing in the park; and (c) the preservation, control and management of the park.

Preservation of Property [Sec. 11 (1) & Sec. 11 (2)]

The superintendent may, on application, issue a permit authorizing the permit holder to take flora or natural objects for scientific purposes from a park, or for the removal and use of natural objects for construction purposes within a park, if the applicant demonstrates in writing that the performance of those activities will not: (a) have a significant adverse environmental impact on the park and its natural resources; (b) jeopardize any cultural, historical and archaeological resources; and (c) pose a danger to public health or public safety.

Preservation of Property [Sec. 12 (1) & Sec. 12 (2)]

The superintendent may issue a permit to any person authorizing the person to remove, deface, damage or destroy any flora or natural objects in a Park for purposes of Park management.

Preservation of Property [Sec. 14 (2)]

A superintendent may issue a permit to any person authorizing that person to remove specimens of prehistoric or historic artifacts or structures from a park for the purpose of public display in a museum.

Use of Water Resources [Sec. 18 (1)]

A superintendent may issue a permit to any person for a period not exceeding 10 years authorizing the person to take water for domestic, business or railway water supply purposes within a park from (a) any watercourse; (b) any Park well; or (c) any Park water supply system other than a waterworks system for a townsite or subdivision.

Fire Protection Regulations

Prevention of Fires [Sec. 3]

The superintendent may issue a permit to a person to start and maintain a fire in a park and such permit shall be subject to any terms and conditions stated thereon by the superintendent.

Appendix 1 Environmental Impact Analysis Tools: Effects Identification Matrix

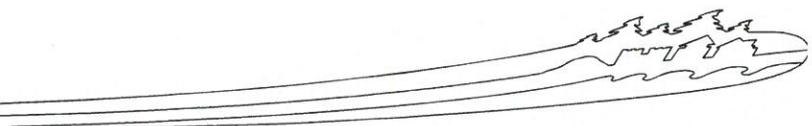
Section A focuses on direct effects of the project and **Section B** on indirect effects that are caused by changes to the environment.

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 (specify, including SAR)	Fauna (specify, including SAR)	Insert heritage values	Insert heritage values	
Phase	Examples of Associated Activities								
Project Components	Preparation / Construction / Operation / Decommissioning	Supply and storage of materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Burning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Clearing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Demolition	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Disposal of waste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Blasting/ Drilling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Dredging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Drainage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Excavation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Grading	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Backfilling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Use of machinery	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Transport of materials/ equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Building of fire breaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Use of Chemicals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Set up of temporary facilities	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" 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"/>	<input type="checkbox"/>		

A. Direct effects continued									
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.		Valued components potentially affected by the proposed project							
		Natural Resources					Cultural Resources		
		Air	Soil & landforms	Water (surface, ground, crossings, etc.)	Flora (specify, including SAR)	Fauna (specify, including SAR)	Insert heritage values	Insert heritage values	
Phase	Examples of Associated Activities								
Project Components	Preparation / Construction / Operation / Decommissioning	Waste disposal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Wastewater disposal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Use/Removal of temporary facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Use of Chemicals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Active fire stage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Prescribed burn cleanup	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Planting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Culling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Vehicle Traffic	<input type="checkbox"/>	<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"/>	<input type="checkbox"/>

Section B of the matrix should be used to identify potential indirect effects that may result from impacts of the project to components of the environment you have identified on the preceding pages (see Section A - direct effects to natural resources). Consideration of indirect effects is required under CEAA 2012 Sections 5(1)(c) and 5(2)(b), and by the PCA mandate. For example:

- if the proposed project could lead to adverse effects to water quality and quantity, could this then effect the quantity and quality of water resources (e.g. potable water) used by an Aboriginal community?
- could there also be adverse socio-economic effects to a community that relies on recreational fishing tourism?
- could changes to the environment (e.g. digging, clearing) affect visitor access, opportunities, or safety?



B. Indirect Effects (all phases)

<p><i>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.</i></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 type="checkbox"/>	<input type="checkbox"/>	<input 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"/>

