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Basic Impact Analysis

Aubrey and Cedar Island Dock Reconstruction / Reconfiguration

Thousand Islands National Park

July 15, 2014



1. **PROJECT TITLE**
Aubrey and Cedar Island Dock Reconstruction / Reconfiguration

2. **PROJECT LOCATION**
Thousand Islands National Park

3. **PROJECT SITE(S)**
1. Aubrey Island at two locations:
a. 404909 / 4905575
b. 404638 / 4905485 (Honey Moon Point)

2. Cedar Island at two locations:
a. 383996 / 4898169
b. 384162 / 4898312

See Appendix B for map.

4. **PROPONENT**
Sean Fitzgerald

5. **PROPONENT CONTACT INFORMATION**
Sean FitzGerald
Technical Services Coordinator
Thousand Islands National Park
2 County Road 5 RR# 3
Mallorytown Landing ON K0E-1R0
Telephone : 613-923-5261 XT 104
Cell: 613-802-9879
Facsimile: 613-923-1021

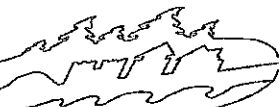
6. **PROJECT DATES**
Commencement: July 30, 2014
Completion: November 15, 2015

7. **INTERNAL PROJECT FILE #**
TINP-2014-04

8. **PROJECT DESCRIPTION**

Thousand Islands National Park plans to remove four old crib docks and replace them with improved docks on Aubrey and Cedar Islands. All docks are in popular locations and are heavily used. Replacement of these structures will enhance visitor safety by providing facilities that are new and engineered to accommodate boats of today's size and capacity. As such, the site management team has decided to replace them with more modern floating docks which are anchored both to the lake bottom and to the shoreline. Design, construction and installation will be completed in their entirety by contractors with input and advice from Parks engineering and asset maintenance staff. Below is a description of the planned activities at each of the four docks:

Aubrey Dock 1: Removal of Aubrey Island East Concrete Dock and associated Cribbing. Replacement of same with floating dock approximately 100 feet long having 5 20 foot "fingers" attached to allow greater mooring capacity. Note: existing dock consists of timber cribbing on lake bottom, covered with a cement surface which is crumbling and settling. A





wooden plank surface has been partially constructed on top of the concrete and serves as the current walking surface for the whole structure. A wooden ramp provides access to the shore.

Aubrey Dock 2: Removal of Honeymoon Point NW dock and associated cribbing and replacement with floating dock.

Cedar Dock 1: Removal of Cedar Island Cabin Crib Dock and associated Cribbing. Replacement of same with floating dock approximately 100 feet long having 5 20 foot "fingers" attached to allow greater mooring capacity. A wooden ramp will provide access to the shore.

Cedar Dock 2: Removal of old wooden cribbing and ballast at Cedar Island "T" dock site. Note: Cribbing is below water and presents a hazard to navigation, no longer used.

(Please see appendix B for sketch of proposed structure and appendix C for photos of existing and proposed (similar) structure.)

9. ENVIRONMENTAL COMPONENTS LIKELY TO BE AFFECTED

Appendix A identifies each of the environmental / cultural and visitor experience components likely to be affected.

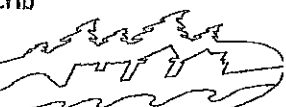
The components that are most important for consideration in this project are:

1. Soil; river bottom: disturbance is expected during old crib dock removal and implementation of the large concrete block anchors.
2. Water quality: a) during crib dock removal and new dock installation, localized temporary silt will be in the water; b) potential for oil or other minor spills from equipment on site.
3. Flora: will likely be destroyed near the crib docks as the old foundations are removed and minor vegetation removal will occur to facilitate shore anchor placements.
4. Fauna: in water-works (crib dock removal, placement of new anchors and docks) will cause a shift in available habitat, temporary increase of silt in water column and disturbance from machinery working at the site. Amphibians and reptiles can be on or in the cribbing and some fish are likely to be spawning in the area during their breeding season.
5. Visitor experience / safety: during dock removal / installation there will be a temporary reduction in park dock space and possible safety risks for visitors trying to use the docks at these locations.

All of these components are expected to have only local (50m) scale impacts over a very short timeframe (<2 weeks per site).

10. IMPORTANT EFFECTS IDENTIFIED

1. / 4. Soil; river bottom and fauna: crib docks can be utilized by fish as both habitat and spawning habitat. Additionally, the shallow water habitats adjacent to the crib docks in these studies are also likely to provide habitat for near-shore fish species and spawning species. While fish simply using the area for general habitat should be able to relocate with limited effects from the project, spawning fish may lose their nests. Snakes and frogs are known to use the structure provided by crib docks for basking and foraging. Additionally, turtles may occur in the areas





around the dock. Snapping turtles have been observed around Cedar Island and likely occur around Aubrey Island as well. Northern map and eastern musk turtles are also known to frequent islands near Aubrey and may periodically use waters around this proposed project.

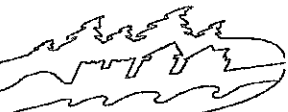
2. Water quality: heavy machinery removing existing cribs and installing new docks with concrete anchors will cause an increase in bottom sediments being released into the water column. Aside from a change to the river bottom in the immediate docking area being altered, finer sediments, primarily silt will likely move through the water column with potential for extended drift areas where there is current. Machinery on the shore and potentially on barges in the water, in addition to small motors being used in the area create a risk of oil, gas or other deleterious spills in the water.

3. Flora: There will be some plant removal along the riparian zone at shore anchor placements. Other effects to the shoreline zone might include trampling or destruction of plants by operators and machinery. In-water vegetation may be effected in two ways 1) mortality caused during the old crib dock removal where plants may be dug up or incidentally buried when machinery digs them out or when crushed by the concrete anchors and 2) indirect impacts caused by heavy sedimentation and / or destruction of adjacent vegetation creating unsuitable conditions.

5. Visitor experience / safety: both islands have docking facilities, picnic shelters and reservable campsites. Boaters may come to the island expecting dock space and access to the island and be disappointed upon arrival. Additionally, the area presents safety risks during times of crib removal and construction.

11. MITIGATION MEASURES

1. Soil; river bottom: In order to prevent the spread of suspended sediment, silt curtains or other erosion controls will be used around both sites during crib dock removal and dock re-construction.
2. Water quality: The above listed mitigation of installing appropriate sediment and erosion controls will also improve water quality at the work sites and adjacent areas. Refuelling of equipment should be done on shore at least 10m from the water course. All deleterious material must be removed and kept from re-entering the water course. To reduce to the potential impact should these mitigations fail, the contractor is required to have spill containment and cleanup equipment and a spill response plan on site
3. Flora: Minimizing erosion and sedimentation will help reduce the impact on submergent macrophytes. Additionally, plant removal and trampling along adjacent riparian zones should be kept to a minimum by avoiding areas outlying the connection zone between dock and trail.
4. Fauna: There will be no in water work from March 15th to July 15th. This will limit the impact to breeding fish by avoiding the most common breeding season. Additionally, work should be completed before turtle hibernation season which runs from October 15th to March 15th. As a result the window for this project should be July 16th to October 14th. Frogs and snakes (particularly water snakes) will often reside in or on top of cribbing and will need time to react and move away from the cribs during removal. Prior to removing the cribbing, the area should be swept in an attempt to disturb any potential reptiles or amphibians. If a turtle is observed in the immediate work area, any potentially harmful work should be stopped; keeping in mind the





turtle may be trapped by the sediment / erosion control fences. The Park Ecologist should be contacted in this scenario to discuss options.

5. Visitor experience / safety: Work will be completed during periods of low visitation to minimize impacts on visitors. Sites will be closed during excavation and reconstruction. Appropriate media and on-site notices will be posted to inform visitors of disruptions.

12. IMPACT SIGNIFICANCE

If all the listed mitigations are followed no significant adverse effects are expected or likely. Keeping deleterious materials away from the water should eliminate the risk of any spills, and a spill kit and plan on site and known by the workers should eliminate any serious risks if a spill were to happen. Silt screen (or equivalent) and erosion controls will limit the impact of the sedimentation to the short term. Impacts to fauna are only expected to be short term as the new docks will actually decrease the footprint in the area and while some species prefer the structure of the cribs, others will benefit from its removal. In the short term, the proposed mitigations of restricting the operational timing and providing an opportunity for species to move away from the cribs before removal should significantly limit the impacts of this project.

13. SITE INSPECTION

The proponent should complete a site inspection during both phases (crib removal and dock reconstruction) and at both sites (Aubrey and Cedar). This task can be delegated to other Parks Canada employees where needed. The inspections should focus on ensuring all mitigations listed in this BIA are understood and being followed.

- Site inspection not required
 Site inspection required

14. EXPERTS CONSULTED

Name	Title	Expertise	Response	Date Contacted	Contact Information
Ryan Mackulin	GBOE FU Asset Management Advisor.	Engineering	Provided engineering advice.	Mid April, 2014	Phone: 613-530-3388 Email: ryan.mackulin@pc.gc.ca
Sheldon Lambert	TINP Resource Conservation Manager	Environmental	Felt project could proceed with appropriate mitigations.	June 17, 2014	sheldon.lambert@pc.gc.ca
Megan Reaney	Ontario Ministry of Natural Resources, A/Integrated Resource Management Specialist	Provincial in-water works approvals and mitigations.	Approved in-water work provided TINP followed 5 mitigations.	July 8, 2014	Phone: 613-258-8524 Email: megan.reaney@ontario.ca



15. PUBLIC PARTICIPATION

Public participation required:

No Yes

16. DECISION

Not likely to cause significant adverse environmental effects.

Likely to cause significant adverse environmental effects.

SIGNATURES AND APPROVAL

BIA Author

Name: Josh Van Wieren

Title: Park Ecologist


Signature

July 31, 2014
Date:

DECISION APPROVAL

Name: Jeff Leggo

Title: Park Superintendent


Signature

Aug 18/14
Date:

17. REFERENCE LIST

NA

18. ATTACHMENTS LIST

Appendix A: Effects Identification Matrix

Appendix B: Site Maps

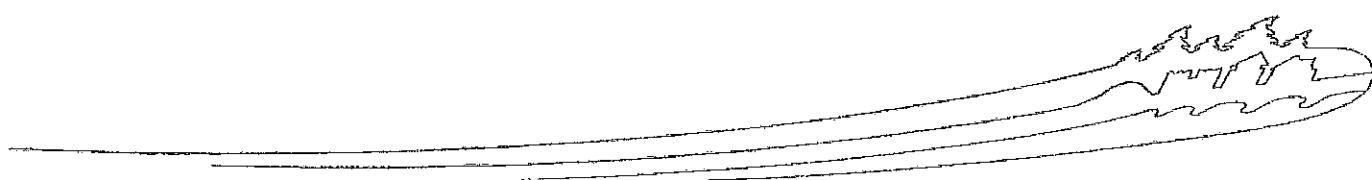
Appendix C: Proposed Sketches of New Docks

Appendix D: Site Photos

Appendix E: Statement of Work for Consultant

19. ADDITIONAL CONSIDERATIONS / COMMENTS

NA





Appendix A: Effects Identification Matrix (use and include when useful)

EFFECTS IDENTIFICATION MATRIX														
Use the following matrix to identify if your project may have potential impacts on components of the environment		Components of Environment and Mandate Elements Affected by Environmental Change												
		Natural Resources					Cultural Resources		Visitor Experience					
		Air	Soil	Water	Flora	Fauna	Historic Value	Character defining elements	Viewscape	Visitor appreciation & access	Recreational /other opportunities	Public Safety	Unique character & connection to place	
Phases	Examples of Associated Activities													
Project Components	Construction/Preparation	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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Clearing (of old crib docks)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Demolition	<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"/>
		Disposal of waste	<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"/>
		Blasting/ Drilling	<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"/>
		Dredging	<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"/>
		Drainage	<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"/>
		Excavation	<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"/>
		Grading	<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"/>
		Backfilling	<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"/>
		Use of machinery	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Set up of temporary facilities	<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"/>	
	Other...	<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"/>	
	Operation/Implementation Decommissioning	Waste disposal	<input type="checkbox"/>	<input checked="" 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"/>
		Wastewater disposal	<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"/>
		Maintenance	<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"/>
		Use	<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"/>
		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"/>	<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"/>	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Planting		<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"/>	
Culling		<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"/>	
Vehicle Traffic	<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"/>		
Other...	<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"/>		

