



Parks Canada Preliminary Screening under the *Mackenzie Valley Resource Management Act*

TYPE OF DEVELOPMENT:

- New
- Amended
- Requires a permit, licence or authorization under the *Preliminary Screening Requirement Regulations* (issuance of a National Parks of Canada Restricted Activity Permit pursuant to the *National Parks of Canada General Regulations* ss.11.1 and 12.1)
- Does not require permit, licence or authorization and is proposed by PCA

1. DEVELOPMENT TITLE & LOCATION

Náíłıcho (Virginia Falls) Facilities Rehabilitation
Nahanni National Park Reserve, NT

2. PROPONENT INFORMATION

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3. PROPOSED DEVELOPMENT DATES

Planned commencement: 2017-09-08
Planned completion: 2018-12-30

4. INTERNAL FILE #

NAH2017-002





5. DEVELOPMENT DESCRIPTION

Of the northern fly-in national parks, Nahanni National Park Reserve (NNPR) has the highest visitation (850 per year, five year average). About 95% of these visitors spend time at Nájłjcho (Figure 1), either as part of a paddling trip or a day flight. Visitor access around the site is facilitated by approximately 1.5 km of wooden boardwalk (Figure 2). Over the years, Parks Canada has expended significant effort and funds in attempt to maintain the boardwalk system. In 1988-89 a major recapitalization of the boardwalk system was undertaken to protect the trail corridor from trampling and in attempt to address structural issues with the boardwalk. Most recently, in the early 2000s, Parks Canada recapitalized the boardwalk using helical piers recommended by Public Works and Government Services Canada. These piers failed to adequately support the boardwalk, particularly in wet/sloping areas, resulting in significant annual heaving that creates conditions that are not safe for staff and visitor use as the resulting twisted, sloped and collapsed boardwalk segments produce serious trip and fall hazards, especially for those carrying heavy loads while portaging past the Falls. This necessitates 2-3 weeks of maintenance staff time and significant expenditure on an annual basis to return the boardwalk to a safely usable state. Additionally, the current configuration of the boardwalk, docks, and associated visitor facilities such as the sharing circle, food cache, and access ramps do not provide optimal traffic flow and efficiency at the site. For example during times of peak visitor use the two existing docks do not provide enough capacity for all the float planes and arriving canoeist/rafters resulting in planes being moored to the bank and gear/visitors being stored in unsafe and aesthetically unappealing locations on or near the main boardwalk landing. This development is being proposed to provide a long-term and cost effective solution to access, maintenance, and visitor experience/safety issues at Nájłjcho.

Development Objectives:

**Note - see site plan (Figure 3) for schematic of proposed changes described below*

Docks

- Renovation of existing floating docks to increase capacity (up to 2 Twin Otters and 1 smaller aircraft plus a dock for up to 6 canoes and/or 2 rafts to land or load simultaneously or in quick succession), increase public safety by providing enough room to accommodate visitors and gear during the loading/unloading process, and render them more easily deployable when installed/removed at the beginning and end of the visitor season (end May/early June and early September). See items 1, 3 and 4 on site plan. Includes installation of new dock anchors in-water or on land at least 30 m away from the river, and removal of existing anchors.
- Renovation of dock access ramp(s) to render them more easily adjustable and deployable, and wide enough to safely accommodate visitors and planes.





Boardwalk

- Stabilization/renovation of main landing area boardwalk to facilitate traffic flow (and ecological restoration of boardwalk to be removed), relocation of the visitor information kiosk, construction of proposed stairs near campsite 21 (item 12 on site plan) to mitigate impacts from foot traffic on exposed ground, and construction of a canoe storage/food cache area to better direct visitor traffic flow from the canoe/raft dock to the campground (see items 2, 4, 5, and 6 on site plan). Tree clearing will cover an area approximately 9m x 12m for the proposed canoe storage/food cache area and approximately 2.5 m wide x 24 m long for the proposed new boardwalk section linking the new canoe staging area, the existing canoe staging area, and the campground;
- Stabilization/rerouting of falls and portage boardwalks (Figure 4) to minimize exposure to wet/sloping areas and ecological restoration of areas where boardwalk has been removed. Tree clearing for the reroute area will occur over an area approximately 2.5 m wide x 623 m long;
- Review of the non-boardwalk section of the trail to ensure suitability and erosion is kept to a minimum; and
- Stabilization (adjust cribbing as required) and potential relocation of helipad to a safer area away from visitors (item 7 on site plan).

Campground

- Construction of roofed "sharing circle" on existing canoe staging platform (item 10 on site plan) to provide a more amenable location for delivering interpretive programming to visitors and rehabilitation of the existing sharing circle or conversion into a new tent pad (item 11 on site plan);
- Installation of new bear-proof food caches at main landing area and at the end of the portage boardwalk;
- Improvement (minor repairs) to existing barrel toilets; and
- Construction of a maintenance storage area (Figure 5) between the campground and portage boardwalk to improve functionality, aesthetics and increase visitor safety by removing construction material/tools from visitor arrival/departure area and providing a suitable location for boat and helicopter slinging access. The proposed tree clearing will encompass approximately 9m x 12m and, if feasible, sections of the old boardwalk removed from the proposed boardwalk reroute will be used to construct the pad (supported by footings) for the storage area.

Other

- Removal of surplus construction material from the site.





Development Methods:

- Onsite construction work is accomplished using hand (hammers, drills) and gas powered tools (generator, metal power saw, and chainsaw). Gas and gas powered tools are stored in a fuel cache at the main landing area; spill kits are located on site.
- Transportation at the site is on foot or by helicopter (used for slinging materials such as large loads of lumber).
- Transportation to and from the site is via float-plane and helicopter.
- Development/construction team members stay at the Nájliċho campground or staff cabin, or proceed upriver by small power boat to stay at the Sunblood patrol cabin.

6. VALUED COMPONENTS

Water Quality and Aquatic Ecosystem

- Dock/access ramp renovation and stabilization/renovation of the main landing area boardwalk will take place approximately 1 km upstream of Virginia Falls at the existing dock/main landing area location. In this area, the South Nahanni River is large and silt-laden, entrenched in lacustrine silts of Glacial Lake Nahanni; permafrost is discontinuous. Mean discharge between June 1 2017 and August 14 2017 ranged from 900 m³/s to 400 m³/s (https://wateroffice.ec.gc.ca/search/real_time_e.html. Accessed August 14, 2017). River banks in this location slope down from a small low-lying meadow covered predominately in mosses, small woody species (*potentilla fructosia*, *vaccinium uliginosum*, *betula glandulosa*, *ledum groenlandicum*), and grasses/sedges (*carex*, *salix* spp) with two muddy/silty "beach" areas approximately 10' long. Fish identified upstream of Virginia Falls (Babaluk *et al.*, 2015) include: Lake Chub, Northern Pearl Dace, Longnose Dace, Longnose Sucker, White Sucker, Mountain Whitefish, Lake Trout, Arctic Grayling, Burbot, and Slimy Sculpin.
- Land-based anchors for the docks, if used, will include up to five excavations approximately 1 m³ each containing a partially buried gabion basket of compacted earth or gravel. Alternatively, in-water anchors may be used; these will consist of multiple 150 pound blocks (metal or other non-leaching materials). Anchors will be connected to the docks using synthetic mooring line and cable (Figures 6 and 7).
- Some boardwalk and/or platform footings will be placed in wet locations (e.g.: seasonal wetlands, swampy areas); these areas are not spawning and/or fish habitat. Where feasible, efforts will be made to reroute water away from the footings by constructing small drainage channels (e.g.: peeling back the top layer of organic material and digging a short shallow trench to reroute/direct water, then replacing the organic material). Non-treated lumber will be used where feasible.
- The aquatic ecosystem/water quality will not be impacted; no spawning habitat is located in the development area and where footings must be placed in wet/swampy





areas they will be positioned to not impact water flow. Docks will be inserted and removed from the water at the beginning and end of each visitor season (approximately end May to early September) using a helicopter with long line/sling. Surplus helical piers (remaining after removal of the main landing area boardwalk) will be sawn off above the water line annually as they are frost-jacked out of the ground.

Wildlife and Vegetation

- Migratory and SARA-listed birds are present in the park and may nest in the project area. However, tree removal will occur in mid to late September, well outside the nesting season (May 1 to August 25) and there is no nesting habitat for Common Nighthawk (*Chordeiles minor*), a ground-nesting species using alluvial fans/gravel bars along the river corridor, in the development area.
- Little Brown Bat (*Myotis lucifugus*) and Northern Myotis (*Myotis septentrionalis*), both SARA-listed bat species, have been recorded along the shoreline of the South Nahanni River in the vicinity of Nájłjcho however no hibernacula or roosting/maternity colonies were observed in the development area (Lausen *et al.* 2014).
- No known SARA-listed vegetation species will be impacted. Boardwalk construction will involve the removal of trees, primarily white/black spruce (*Picea glauca/mariana*), larch (*Larix laricina*) and birch (*Betula papyrifera*). Boardwalk footings will cover small patches of ground/vegetation (approximately .25m x .25 m); depending on the location this will affect common woody species such as dwarf birch (*Betula glandulosa*), willow (*Salix myrtillifolia*), Labrador tea (*Ledum groenlandicum*) and shrubby cinquefoil (*Potentilla fruticosa*), mosses (predominantly *Tomenthypnum nitens*, *Peltigera* spp. and *Cladonia* spp.), and grasses (predominantly *Carex* spp.) (Marsh and Scotter, 1975). However, it must be noted that construction work, consisting of tree felling, annual maintenance, and trail rerouting has been ongoing at Virginia Falls since the early 1980's so the majority of the development site has previously been impacted/trampled.

Cultural Resources

- The development area is a traditional portage route around the falls. Documented cultural resources indicate use of the area by precontact and contemporary indigenous groups as well as historic use by Eurocanadian trappers and explorers. Precontact and historic use by Indigenous groups is evidenced by a number of stone artifacts found in the vicinity of the existing campground as well as a bone fleshing tool that was partially embedded in surface vegetation adjacent to the existing boardwalk. General cultural use of the area is evidenced by the presence of trails; culturally modified trees (CMTs) including cut trees, stumps, and blazes; wooden poles; hearths; and oral history. Today, traditional harvesters/user usually travel by motorised watercraft up the South Nahanni River as far as the base of the falls and more often detour up the Flat River before reaching the falls. Nájłjcho receives limited traditional Indigenous use today. A preliminary survey of the development area (including all areas proposed for tree clearing) was conducted during a June 2017 site visit; no previously undocumented





cultural resources were identified. The final archaeological report (Carroll, 2017) provides three recommendations related to cultural resources, these are listed in the Mitigations Section of this document (Section 8).

Visitor Safety

- Development activities will largely occur during the park's operational season, which coincides with the visitor season (mid June - end August). This is the typical schedule for maintenance activities in the campground and on the boardwalk. Crews are well versed in safety requirements such as flagging areas under construction, halting work while visitors pass by and until they are safely out of range, and ensuring that materials, tools, and fuel are safely stored.

7. EFFECTS ANALYSIS

Wildlife and Vegetation

- Terrestrial and avian wildlife could be disturbed by noise and human presence during construction.
- Small patches of vegetation will be removed and/or disturbed if land anchors are used for the docks and will be covered by boardwalk and platform footings. Trees will be removed in the portage/main landing area boardwalk reroutes and for the new platform areas. Because the boardwalk is elevated and has minimal footprint (e.g.: only the footings impact vegetation) the restoration process is largely underway with new trees and shrubs already growing under and around the existing boardwalk (Figures 8 and 9). The total area undergoing rehabilitation is roughly equivalent to the total new area being cleared, resulting in little net loss of natural habitat;
- Storage of materials and presence of workers will lead to short-term trampling of vegetation; and
- Use of chop saw on boardwalk helical piers can result in sparks;
- Refuelling of machinery (generators, chainsaws) could lead to small spills.

Cultural Resources

- Excavations could disturb buried artefacts;
- Placement of footings for new platforms (maintenance area and canoe staging area) and new sections of boardwalk could result in subsurface impacts to artefacts.

Visitor Experience

- Construction noise and activities could disturb visitors in the campground and boardwalk areas and impact visitor safety.





8. MITIGATION MEASURES

Wildlife and Vegetation

1. Clearly mark the work site and restricted areas with stakes, biodegradable flagging tape or other means to minimize the disturbance footprint; remove when the development is completed.
2. Schedule construction outside of timing window for nesting period for migratory birds; May 1 to August 25 in this area (http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=4f39a78f-1#_fig03_1).
3. Whenever possible, minimize duration of in-water work and conduct construction activities on land above the high water mark and in a manner that minimizes disturbance to the banks and bed of the South Nahanni River and any small streams/wetlands.
4. Where treated wood must be used for structural purposes, guidelines in the *Parks Canada Treated Wood Management Standard* (April 2017) and the *Parks Canada Treated Wood Management Guidelines* (April 2017) will be followed.
5. During times of moderate to high fire hazard a welder's curtain will be used to contain sparks from the metal power saw and a portable water bag will be located at the work site.
6. A portable spill kit will be located at the work site and will be accessible when the generator and chainsaw are being refueled.
7. The generator will be placed on an impermeable berm when being refueled and used at the work site.
8. Workers must be made aware of and subsequently report any incidental sightings of species at risk immediately to designated Parks Canada staff.
9. If active nests, dens or roosts are discovered, stop work and contact designated Parks Canada staff immediately for direction.
10. If wildlife is observed at or near the work site, allow the animal(s) the opportunity to leave the work area.
11. 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.
12. Felled trees will be provided to visitors for firewood.
13. Ecological restoration of the removed sections of the boardwalk will take place using natural means; all debris (e.g.; metal sections of removed helical piers, lumber) will be removed to enhance the process that is already well underway.





14. Organic material/debris will be replaced around anchors/footings and drainage locations to maintain aesthetics, ensure ecological restoration, and maintain ecosystem function.
15. Boardwalk supports will be tested (e.g.: geo-textile wrapped gravel pads, plastic floats, and/or cribbing) where wet/sloping areas cannot be avoided. If required, gravel for geo-textile wrapped pads will be sourced from talus slopes in the Marengo Creek drainage. These slopes are located 30+ meters away from the creek and the gravel will be extracted by shovel and transported to Nájiljcho via helicopter sling load; the slopes have been surveyed for natural and cultural resources and no sensitive resources have been located.

Cultural Resources

16. If cultural resources (i.e., structural remains and/or artefact concentrations) are encountered, work must cease in the immediate area, the site secured and the designated Parks Canada staff contacted for further direction.
17. Archaeological assessment is required for any location where digging may occur to place an above-ground anchor for securing a floating dock.
18. Additional platforms (e.g.: canoe staging area, helicopter pad, maintenance area) should be placed on existing ground surface with no subsurface disturbances as a result.

Visitor Experience

19. When possible, when visitors are present in the campground area, work will occur only during normal working hours (e.g.: 08:30-17:00).
20. Visitor Experience staff will be notified when helicopter use is expected in the area so that visitors and their gear can be safely removed/stored away from landing and slinging zones.

Other

21. Should conditions at the work site indicate there are unforeseen negative impacts to vegetation, wildlife, cultural or visitor experience resources, all work shall cease immediately, and designated Parks Canada staff will be consulted to determine next steps.
22. Removal (cutting at grade) of helical piles in high water zone will occur during low water.
23. Aircraft use will follow practices outlined in the draft "*Parks Canada Best Management Practice (BMP) for Aircraft Operations and Landings in Nahanni and Nááts'ihch'oh National Park Reserves of Canada*".





24. Construction crews will follow leave-no-trace backcountry use practices and other relevant practices, including guidelines on wildlife interactions, outlined in the draft "*Parks Canada Best Management Practice (BMP) for Commercially Guided Eco-tourism Activities in Nahanni and Nááts'ihch'oh National Park Reserves of Canada*".
25. Waste construction material and removed sections of boardwalk not adequately treated on site or reused in construction will be removed via aircraft and disposed of at an approved facility in Fort Simpson or Nahanni Butte.

9. OTHER Considerations

- ✓ Surveillance: A variety of Parks Canada staff (e.g.: Asset Manager, Project Manager, Visitor Experience Manager, Archaeologist, Ecologist) will be on site at various times throughout the duration of the project to provide surveillance.
- Follow-up monitoring, general
- 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

Given the limited and short-term magnitude of effects, the location in a predominantly pre-impacted area, and the timing and the application of mitigation measures, the development will not cause residual adverse effects to natural/cultural resources or visitor experience.

11. EXPERTS CONSULTED

<i>Department:</i> Parks Canada / Government of Canada	<i>Date of Request:</i> April 25, 2017
<i>Expert's Name & Contact Information:</i> Patrick Carroll PO Box 750, Fort Smith, NT X0E 0P0 Patrick.carroll@pc.gc.ca / Tel: 867-872-7936	<i>Title:</i> Cultural Resource Management Advisor, SW NWT Field Unit
<i>Expertise Requested:</i> Cultural resource evaluation	
<i>Response:</i>	





See report - Carroll, P. July 7, 2017. <i>Náijlcho/Virginia Falls Soil Sample Monitoring for Potential Impacts on Cultural Resources: Archaeology Permit Final Report</i> . Parks Canada, Nahanni National Park	
Department/Agency/Institution: Tetra Tech Canada Inc	Date of Request: Ongoing: Duration of development planning phase and as subsequently required
Expert's Name & Contact Information: Tim Schaap Albert Leung PO Box 2244, 201, 4916 - 49 Street , Yellowknife, NT X1A 2P7 Direct +1 (867) 766-3728 x224 Mobile +1 (867) 688-1748	Title: Geotechnical Engineer Hydrotechnical Engineer
Expertise Requested: Floating dock and anchor design, including river flow modelling.	
Response: See Figures 6 and 7. Final report will be provided to Parks Canada in September 2017.	

11.1 References

Babaluk *et al.* 2015. Distribution of Fish Species within the South Nahanni River Watershed, Northwest Territories. Department of Fisheries and Oceans Canada. Winnipeg, MB.

Lausen *et al.* 2014. *Bats of Nahanni National Park Reserve and Surrounding Areas, Northwest Territories*. Northwestern Naturalist. 95:186-196.

March, A.H. and G.W. Scotter. 1975. Vegetation Survey and Impact Assessment of the Nahanni Hot Springs and Virginia Falls Areas, Nahanni National Park. Prepared for Parks Canada by the Canadian Wildlife Service, Edmonton.





12. DECISION

Taking into account the analysis and implementation of mitigation measures outlined in the analysis, the development:

- Might have a significant adverse impact on the environment, and the proposal should be referred to the *Mackenzie Valley Environmental Impact Review Board* for environmental assessment.
- Does not have a likelihood of causing significant adverse impact on the environment.
- Might be a cause for public concern, and the proposal should be referred to the *Mackenzie Valley Environmental Impact Review Board* for environmental assessment.
- Does not have a likelihood of causing public concern.

13. RECOMMENDATION AND APPROVAL

Prepared by: Jacquie Bastick Ecologist Team Lead, Nahanni National Park Reserve	Date: August 23, 2017
Recommended by:  Olinto Beaulieu Asset Manager, Nahanni National Park Reserve	Date: Aug. 23/17.
Approval Signature:  Jon Testo Superintendent, Nahanni National Park Reserve	Date: Aug 23, 2017.



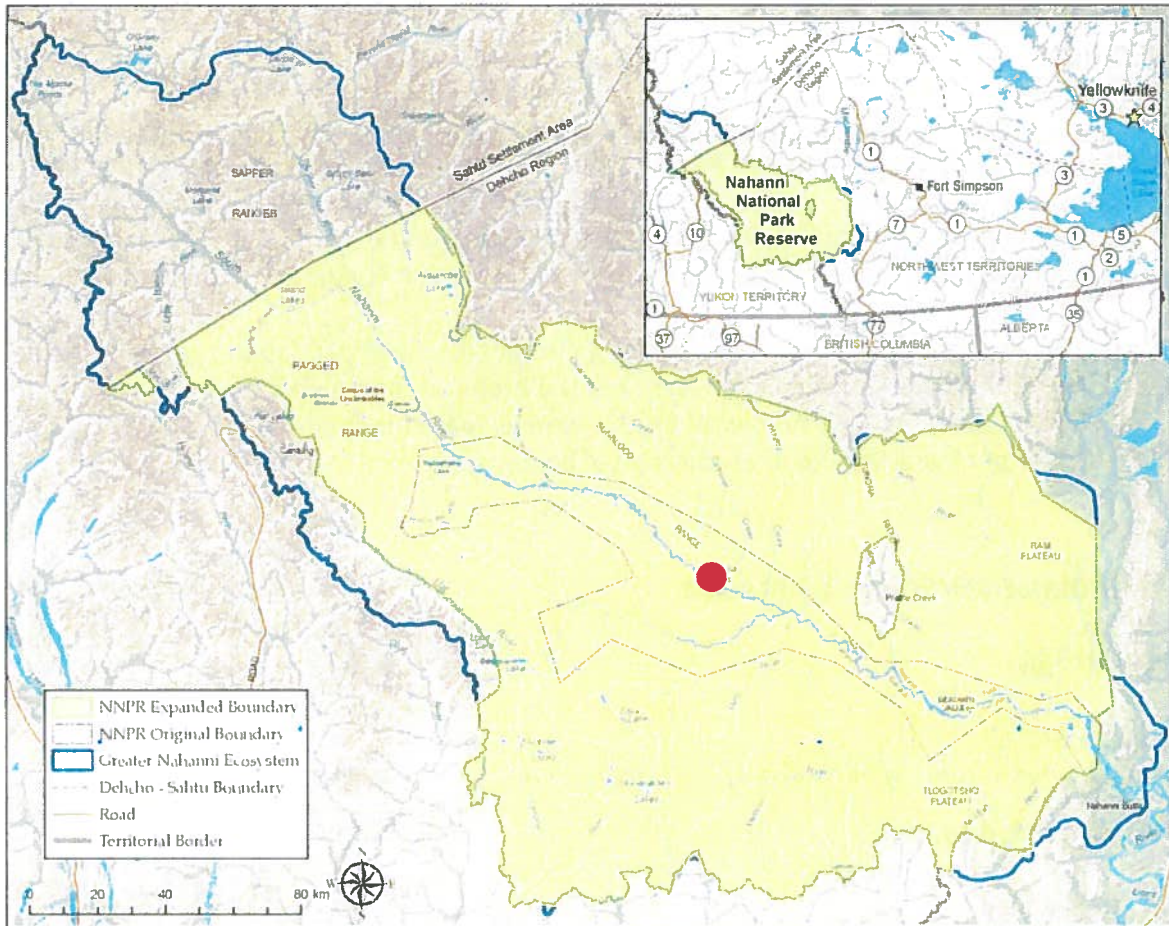


Figure 1: Development location map. Nájilcho is indicated by the red dot.



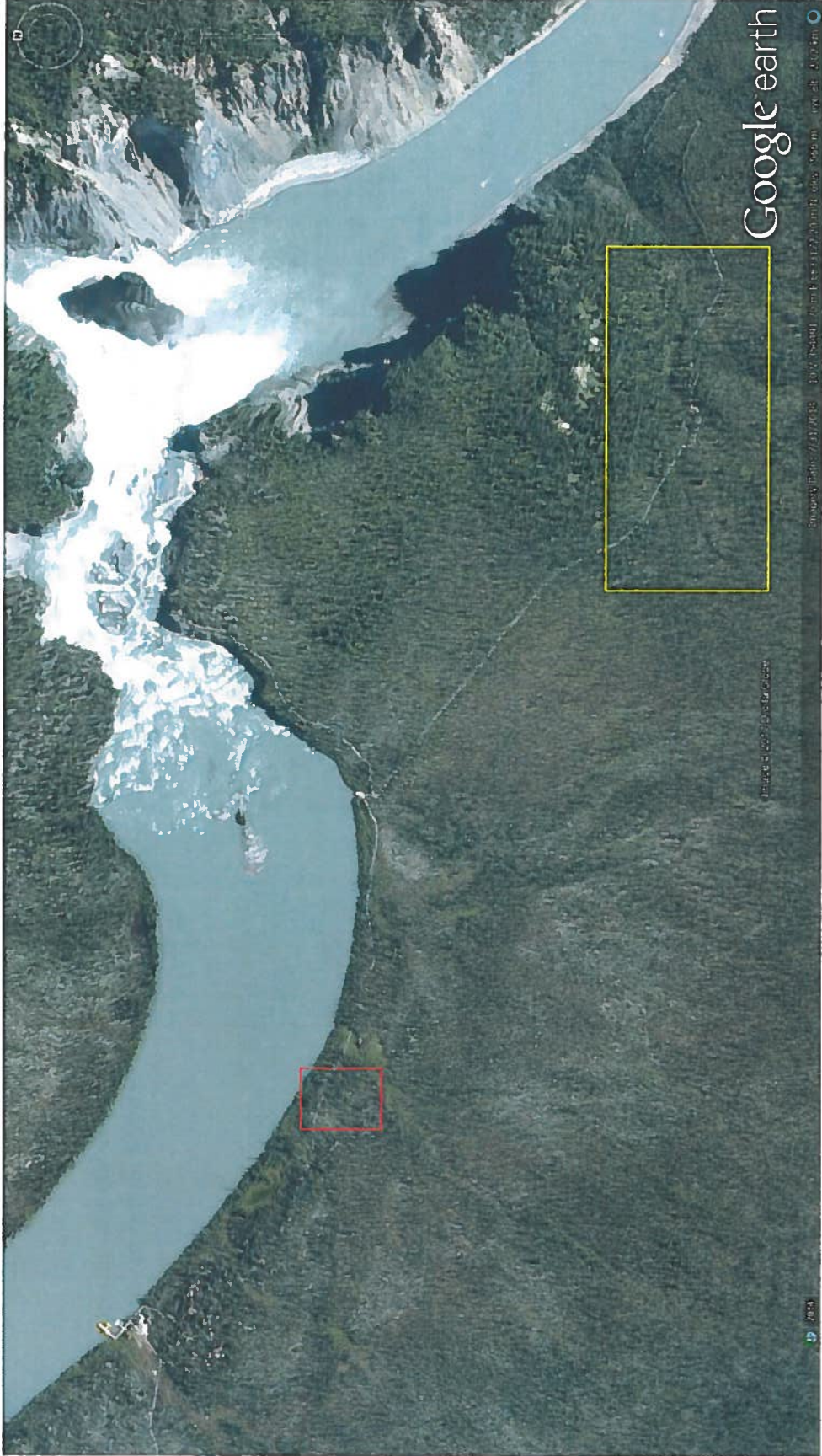
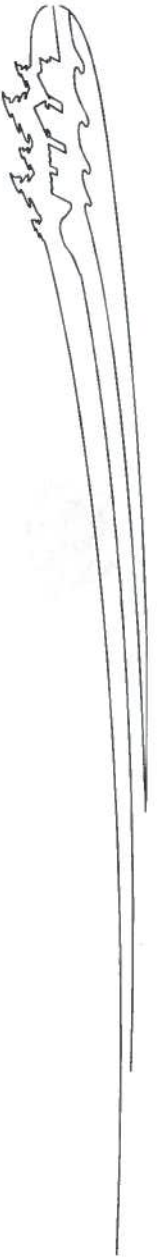


Figure 2: Overview of existing Najijcho campground, docks, and boardwalk system. Red box indicates location of proposed maintenance storage area and yellow box indicates location of the proposed boardwalk reroute.



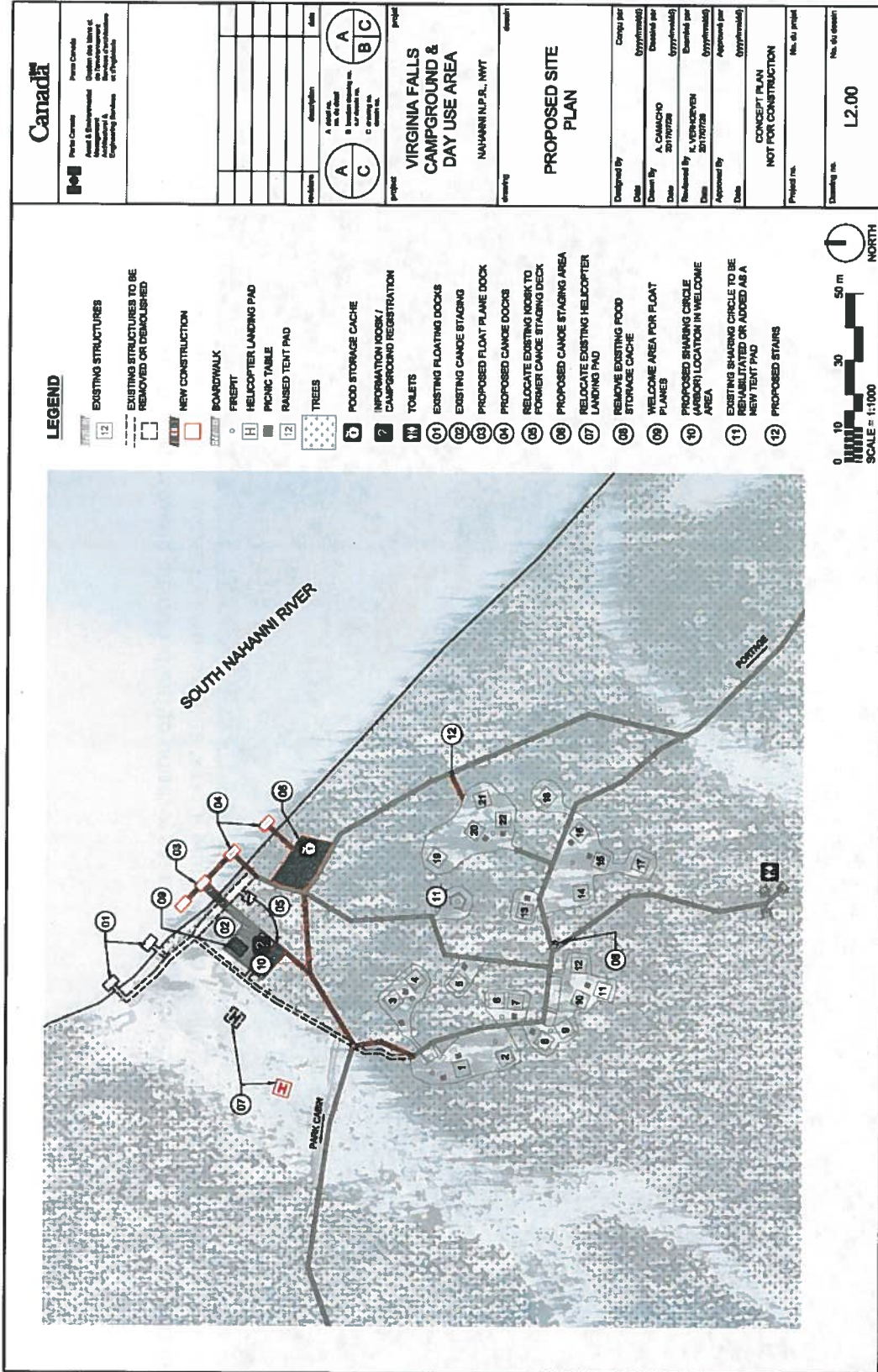
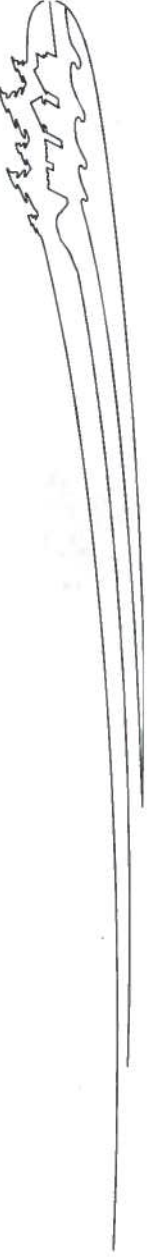


Figure 3: Proposed site map showing campground and landing docks location. The campground is located on an upland ridge area comprised of well-draining sand.



Figure 4: Red line indicates proposed boardwalk reroute to avoid wet/steep areas of the portage where possible. Canoe rests will be provided at S-bends. The existing boardwalk between the reroute start and terminus will be removed and the area restored to its natural habitat.



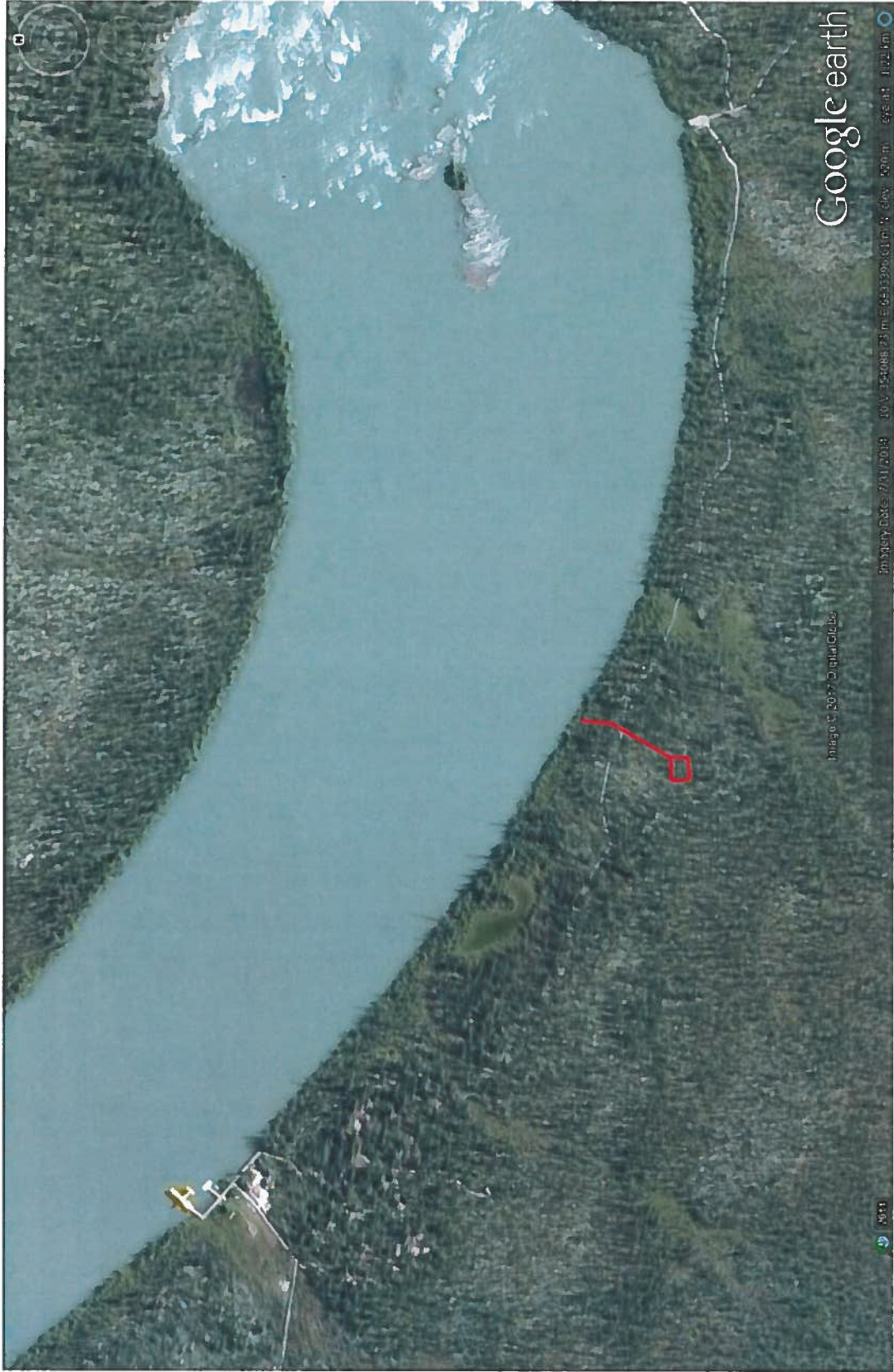


Figure 5: Red lines indicate proposed maintenance storage area. Note location on higher ground/well-drained soils and safely/aesthetically located away from docks, main boardwalk landing area, and campground.



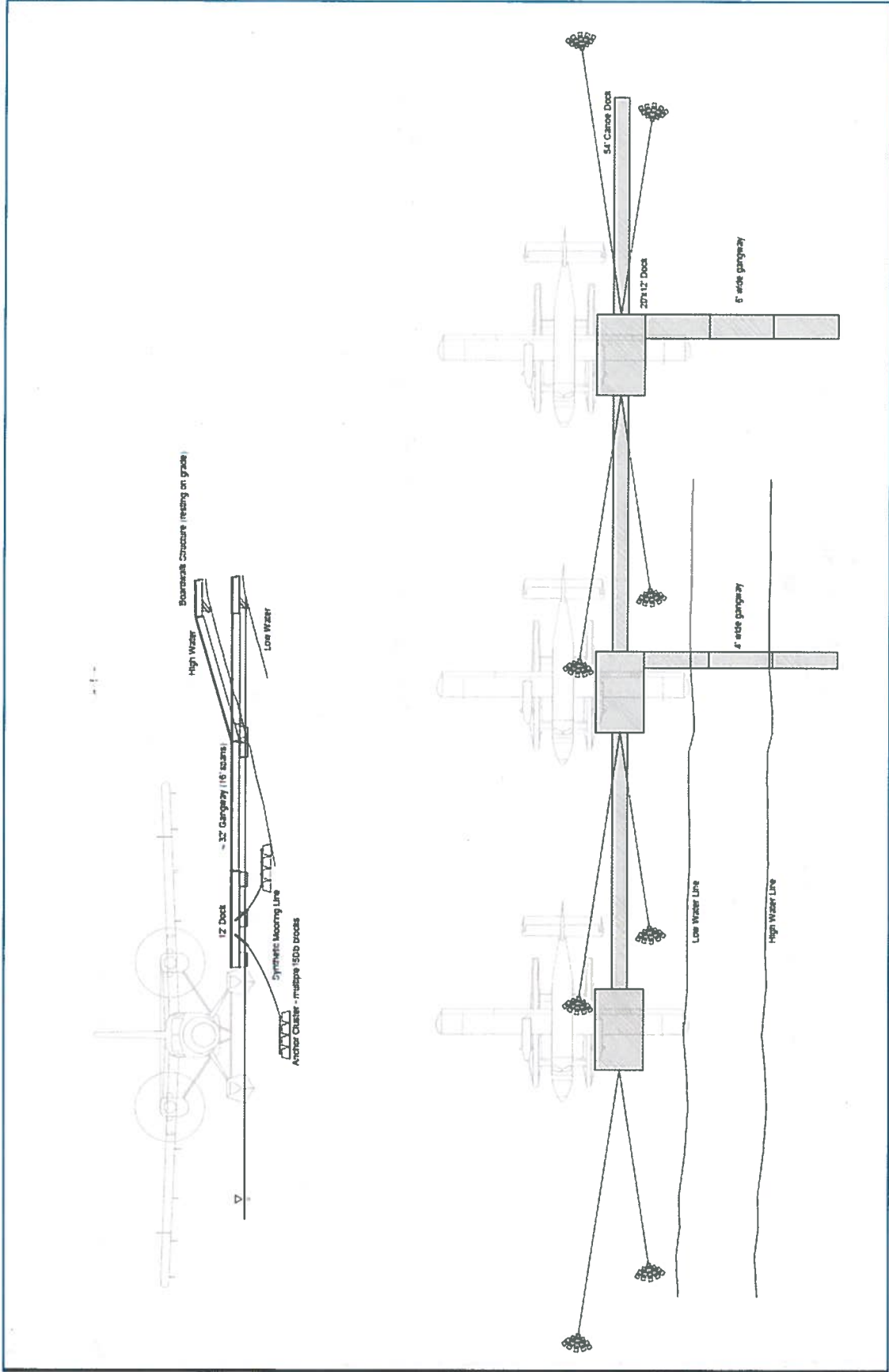
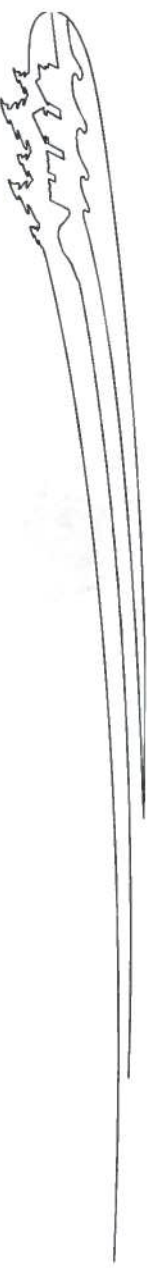


Figure 6. Proposed underwater anchor option for floating docks



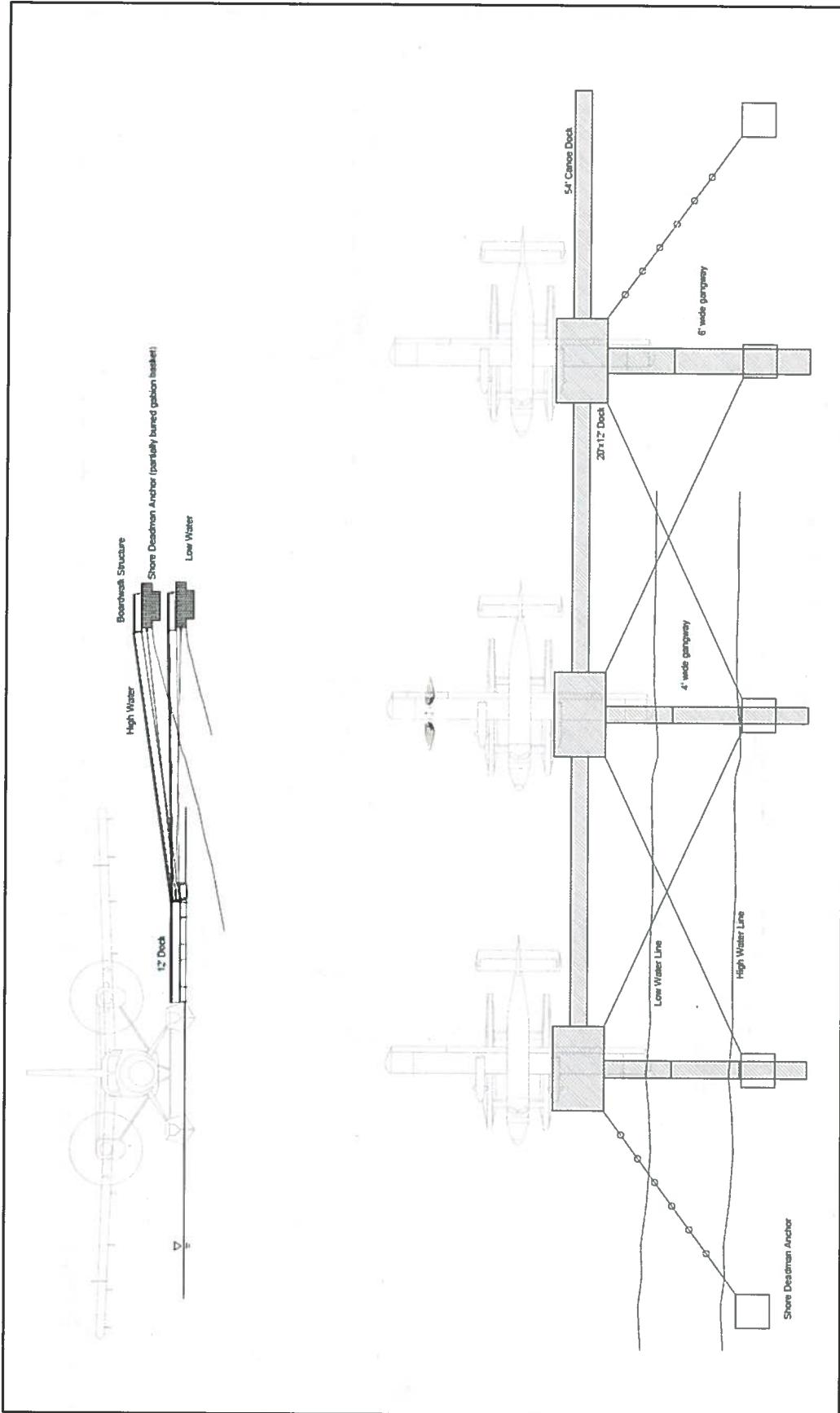
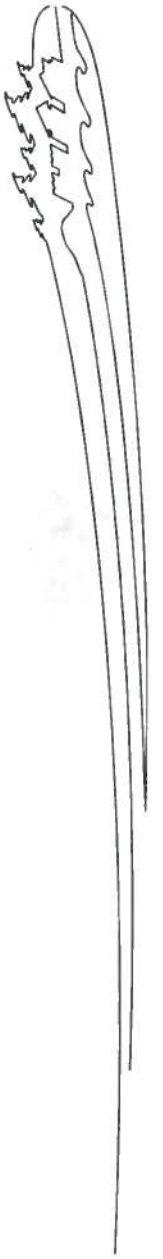


Figure 7. Proposed shore anchor option for floating docks





Figures 8 and 9: Section of boardwalk rerouted in 2010, showing naturally occurring restoration occurring along path of old boardwalk location.

