
FOREST PRESERVE DETAILED PROJECT WORK PLAN

Fiscal Year [Click to enter Fiscal Year](#)

Project # WP 277

<u>Region</u> 5	<u>Project Title</u> Sampson Bog Outlet Bridge Replacement
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<u>Project Type</u> Modification of Existing Structure/Improvement	<u>Town(s)</u> Arietta	<u>County</u> Hamilton	<u>Management Unit</u> West Canada Lake Wilderness
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Description of Desired Condition(s) for Project

This project involves the replacement of a foot bridge spanning the outlet of Sampson Bog on an interior segment of the Northville-Placid Trail. The Sampson Bog Outlet crossing has been a known problem spot along the trail since the previous structure washed out during the 2019 Halloween Storm. The outlet drains a large wetland complex through a natural narrowing of ledge rock. The crossing is flashy and at times impassable. During periods of high-water users will attempt to rock hop downstream where the stream channel widens and then climb a steep bank to reach the trail. Erosion is occurring along the stream banks in this area.

The objective of this project is to provide a safe stream crossing to maintain the trail connection while protecting the natural resources of the site. The replacement bridge will be installed at the same location but built on higher ground to avoid future washouts or damage from passing debris and high-water flow. The bridge will be designed for longevity and to require minimal maintenance.

The desired condition at this site is a reliable, well-built stream crossing for users of the Northville-Placid Trail that keeps all foot traffic above the outlet flow and away from the erodible stream banks.

Installation of a 30-foot replacement bridge using on-site materials, built into the terrain is seen as an effective solution to maintain the trail connection through the Sampson Bog while preserving the wild forest character of the area.

Description of Project Specifications

The previous bridge was built on the flat where the stream channel narrows. Although it was cribbed up, the entire structure was exposed and vulnerable to high water events. The replacement bridge will be built above the crossing utilizing a natural rock shelf on adjacent ledge rock at the southern approach. The bridge sill at this location will be anchored into the side wall using friction fit

anchor bolts drilled into the rock. The northern sill will be dug into the side bank on the opposite hillside. Two native log stringers 30 foot in length will be spiked into the sills and hand hewed on top to provide a flat and stable surface. Due to the increased height, log railings will be installed for safety.

Description of Measures Taken to Avoid, Mitigate and Minimize Impacts to Natural Resources

Care will be given to ensure the least amount of impact necessary to complete the project.

A.) Trees to be removed:

A total of 13 trees 1"-18" DBH will require removal. Two 18" red spruce trees will be felled and used as building material for bridge sills and stringers. Four 6" spruce will be felled and used as hand railing material. The remaining seven trees selected for removal are located at the bridge approaches and require removal to make room for the bridge installation. All trees selected for removal are further described on the attached tree tally.

Trees selected for building materials are spread out to minimize the impact and will not be visible from the trail. Stumps will be cut low and covered with woody debris.

B.) Earthwork and Disturbance:

Earthwork will be minimal and is associated with the leveling of the bridge sills. The southern bridge sill will be installed on a natural rock shelf. The moss and organic duff that has accumulated on this shelf will be removed and dispersed into the surrounding forest. The northern sill will be dug into a side hill, leveled and rebarred into place for stability. Rocks will be placed to armor the northern sill abutment to strengthen the footing and prevent erosion. Rock selection will be spread out to avoid impacting one area. Work outside the trail corridor will involve the felling and processing of red spruce trees to be used as building materials for the bridge construction. Debris generated from the processing of the logs will be dispersed to blend into the natural surroundings.

C.) Impacts to Streams, Waterbodies, and Wetlands:

All work proposed in this work plan will not impact standing water or wetlands. No activities involved with this project will alter the flow of the outlet. The replacement bridge will be built well above the stream flow. The height of the bridge will prevent any impacts associated with flooding and excessive rainfall.

The installation of the bridge sill along the stream bank on the northern approach has the potential to erode over time due to the steep slope. To mitigate any potential erosion the abutment area around the sill will be armored with rock.

Installation of the foot bridge will eliminate erosion occurring from users attempting to cross downstream of the bridge site. Water quality will be protected by using natural untreated materials and by keeping all foot traffic above the water crossing.

D.) Identification of Rare, Threatened or Endangered Species:

A search of available data layers yielded no known occurrences of rare, threatened, or endangered species within ¼ mile of the project area.

Analysis of Project Location and Design Alternatives

The project site is an interior segment of trail (7 miles from the nearest trailhead) located at a natural narrowing at the outlet of Sampson Bog. The drainage is funneled through an opening in the ledge rock surrounded by a Spruce-Fir Forest. The outlet is flashy and at times impassable during seasonal thaws and high rainfall events.

Relocate Stream Crossing: Alternative stream crossing locations were explored. The area east of the project site is open water and a large wetland complex. Rerouting around this area is impractical and would involve a much greater impact than installation of a 30 foot bridge. To the west of the project site the stream widens considerably and is not recommended for foot bridge installation.

Dimensional Lumber Bridge: Design alternatives include transporting treated poles and dimensional lumber to the site via helicopter. This option was not selected due to the excessive tree cutting that would be required to open a drop zone large enough to accept the materials, and the presence of suitable red spruce close to the project site. Although treated poles have a longer lifespan, the placement of the bridge well above any contact with the water will help to limit rot that may occur overtime. In addition, extra measures will be taken to help preserve the structural integrity of the native logs. These measures include: the joining of the log stringers with rebar to disperse the weight load, application of water repellent stain after the logs have dried out, and filling of cracks and splits in the logs with sealing compound.

No Action Alternative: Lastly, the option to not replace the foot bridge was considered. Although the wilderness classification does expect a higher degree of physical challenge for users, the safety of the user must also be considered. Given the interior location of the crossing, the flashy nature of the stream, and the presence of rock outcroppings on either approach the potential for injury is a management concern.

Thru hikers along the Northville-Placid Trail are on trail approx. 8-14 days. Weather conditions may change for the worse over that amount of time and backpackers need to have confidence that the Sampson Bog outlet crossing is passable at all times of the year. Maintaining the trail connection at this location with a foot bridge replacement is the preferred alternative.

Description of Use of Motorized Equipment and/or Motor Vehicles (if any)

No motorized equipment will be used in the project. Trees will be felled with crosscut saws and hand tools will be used in the bridge construction.

Description of Applicable Standards for Accessibility by People with Disabilities

Due to the interior location of the stream crossing and rough terrain along the Northville-Placid Trail the bridge will not be designed to ADA specifications.

Other Relevant Considerations

This work is intended to be completed during the 2023 field season.

Prepared by (Name & Title): Forester Jonathan DeSantis
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Date: 2/1/2023

REGULATORY CLEARANCE CHECKLIST – STATE LANDS and CONSERVATION EASEMENT PROJECTS

PROGRAM	PERMIT	REQUIRED		SECURED BY	COMMENTS
		YES	NO	(NAME)	
Air Resources	Restricted Burning	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Mineral Resources	Mining	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Materials Management	Solid Waste Mgt. Fac.	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Water	Dam Safety Review	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Const. in Flood Hazard	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Public Water Supply	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	SPDES	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Spills Management	Petro. Bulk Storage	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Lands and Forests	Unit Management Plan	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Tree Cutting	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PROJECT MANAGER	PENDING WP APPROVAL
	Protected Native Plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Historic Preservation	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Fish and Wildlife	Freshwater Wetlands	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Wild Scenic & Rec. River	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Compliance Services	Other Protection of Waters	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	EAF	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Negative Declaration	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Env. Impact Statement	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Water Quality Cert.	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
DEC (other)	CP-17	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Commissioner (aircraft, motorized equipment)	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Flight Request	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Contract Clearance Sh.	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	DOB Exemption	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Other Agencies	APA MOU	<input checked="" type="checkbox"/>	<input type="checkbox"/>		ACTIVITY ALLOWED PER MOU
	APA Wetlands Permit	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Corps. of Engineers	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Building Permits	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Local Permits	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Easements	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Highway Enter DOT	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Wastewater Disposal	<input type="checkbox"/>	<input checked="" type="checkbox"/>			

State Land Tree Tally

Project: Sampson Bog Outlet Bridge Replacement

State Land Unit: West Canada Lake Wilderness

County: Hamilton

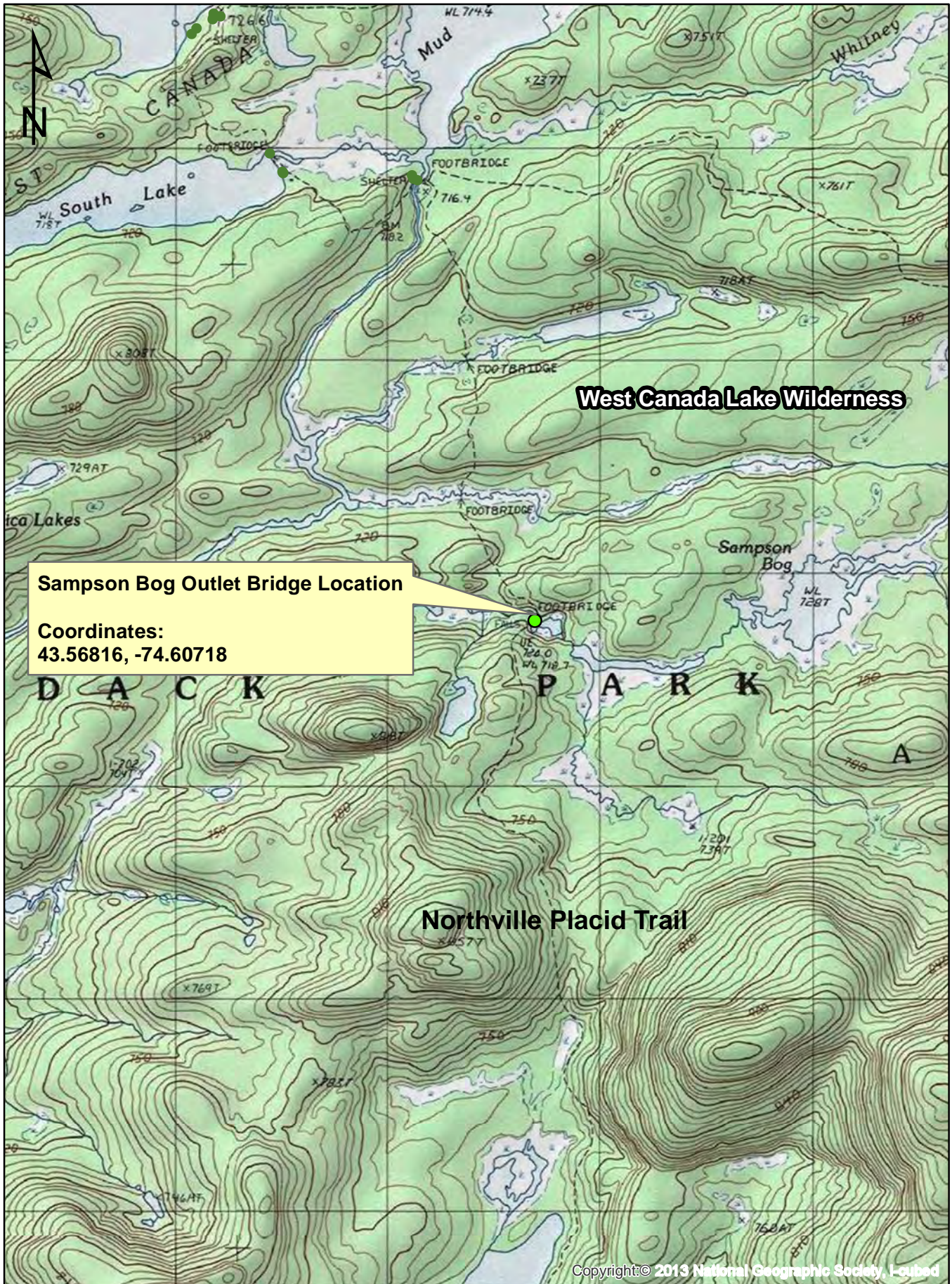
Town: Arietta

Date Talled: 11/1/22

Tallied By: Jonathan DeSantis

Species	Diameter															Total
	1 to 3	4	6	8	10	12	14	16	18	20	22	24	26	28	30	
ash, black																
ash, white																
aspen																
beech, Amer.																
birch, paper																
birch, yellow																
cherry, black																
fir, balsam																
hemlock																
maple, red																
maple, sugar																
oak, red																
pine, red																
pine, Scotch																
pine, white																
spruce, black																
spruce, Norway																
spruce, red	4	2	5						2							13
spruce, white																
elm																
Total	4	2	5	0	0	0	0	0	2	0	0	0	0	0	0	13

Sampson Bog Bridge Replacement Location Map



Sampson Bog Outlet Bridge Location

Coordinates:
43.56816, -74.60718

West Canada Lake Wilderness

Northville Placid Trail

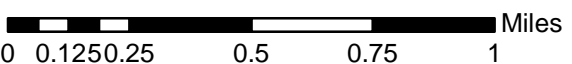


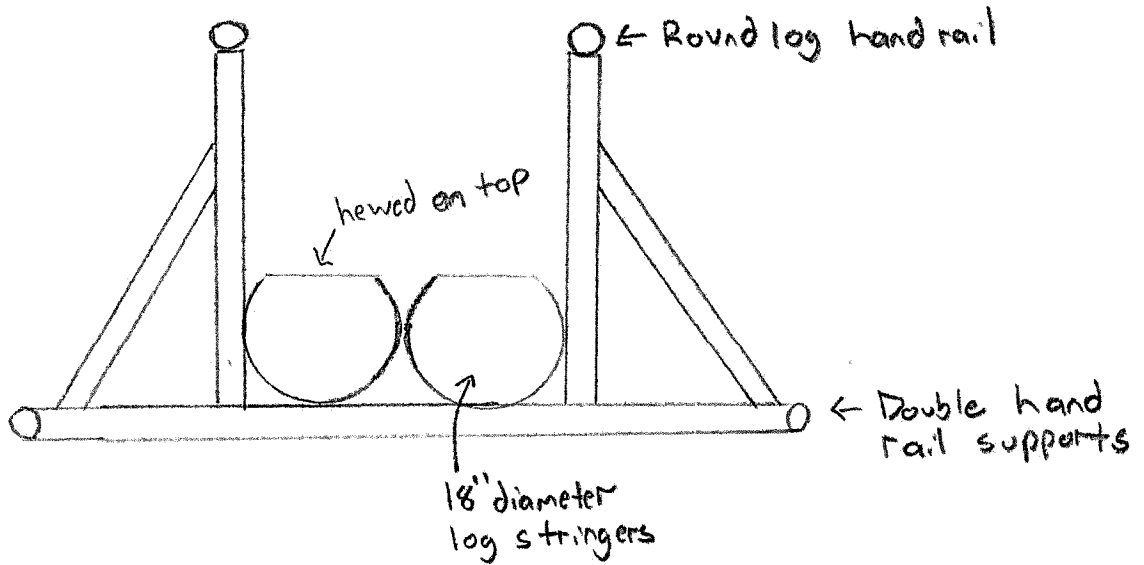
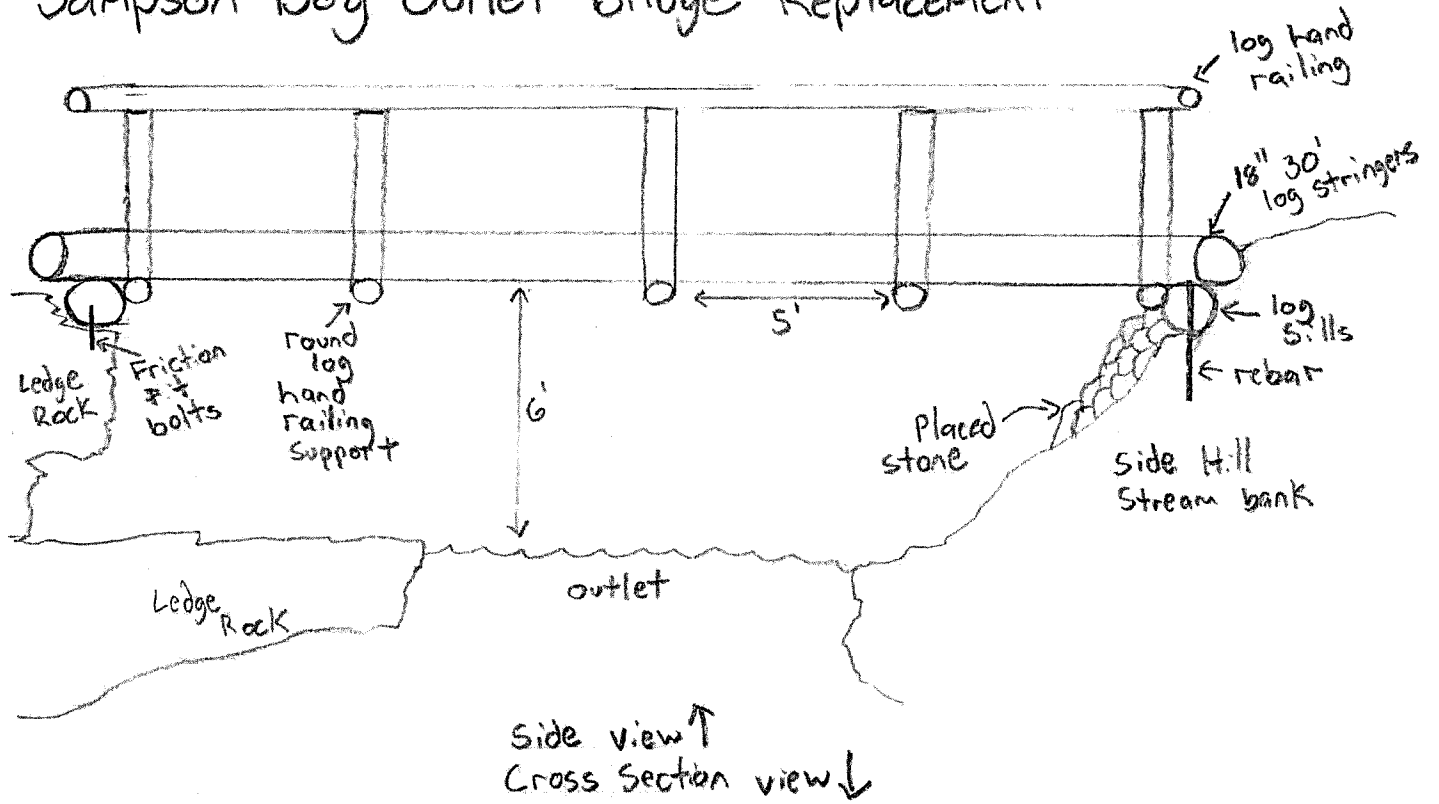
Photo 1: Side view of the Sampson Bog Outlet Crossing in low water. View looking west toward the crossing. Previous bridge was built on top of the flat rocks which was exposed and vulnerable to high water flow and passing debris. The intended bridge replacement will utilize a natural shelf on the adjacent ledge rock to gain height allowing the bridge to be placed well above high water to avoid future washouts.



Photo 2: View of project site from downstream looking east towards the crossing. The northern bridge abutment will be dug into the side hill pictured on the left. Southern abutment will be built into a natural shelf on the ledge rock on the right.



Sampson Bog Outlet Bridge Replacement



Not to Scale

JVD 1/23