SITE C CLEAN ENERGY PROJECT

Component Application Package – Moberly River Purse Boom System

Notification of Work

For Canadian Navigable Waters Act

February 18, 2021

Submitted to:

Transport Canada
Navigation Protection Program
Suite 1100 - 1166 W Pender Street
Vancouver, BC V6E 2R9

Submitted by:

BC Hydro and Power Authority
Site C Clean Energy Project
9th Floor – 1111 West Georgia Street.
Vancouver BC V6E 4M3

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1 INTRODUCTION

The *Canadian Navigable Waters Act* (CNWA) came into force on August 28, 2019. The CNWA includes a Schedule of navigable waters requiring regulatory approval for works that risk a substantial interference with navigation. Works required for construction and operation of the Site C Clean Energy Project (the Project) that occur on, over, under or through navigable waterways, as defined by the CNWA, must be permitted.

The Halfway River is a Peace River tributary near Hudson's Hope, BC and is not named in the CNWA schedule of navigable waters. As such, this application is being submitted as a Notification of Work through the Public Resolution process of the Navigation Protection Program.

This application package describes the proposed installation and operation of a temporary debris management system for the existing Moberly River Debris Retention Structure (Moberly Debris Piles). The Moberly Debris Piles are located on the Moberly River ~ 700m upstream of the confluence with the Peace River permitted by Approval 2019-500365.

As part of the operation and maintence of these Piles, BC Hydro is proposing to install a temporary Purse Boom System to remove accumulated debris.

2 DEBRIS MANAGEMENT AND CONTROL

Throughout Site C Project construction and reservoir operations, management of waterborne debris is necessary for worker, public, and dam safety. The Site C Environmental Impact Statement (EIS) Volume 1 Appendix A: Vegetative Clearing and Debris Management Plan describes the wood waste and floating woody debris management approach for the Project.

During dam construction and early reservoir operations there are several key periods that will result in pulses of floating debris being transported down river:

- 2016 - 2020 – natural floating debris mobilization during reservoir clearing.
- Late 2020 - 2023 – Peace River diversion phase. The estimated debris volume will pulse again, due to diversion of the river at the dam site and further upstream headponding.
- 2023 - 2024 – Reservoir filling phase. The estimated debris volume will pulse again, in stages as the reservoir is filled.

A temporary Moberly River Debris Boom (Debris Boom), previously approved under NPA File No. 2014-500334, is installed to catch floating debris near the existing Moberly River bridge crossing. Further upstream, a series of steel piles, known as the Moberly River Debris Retention Structure (Moberly Debris Piles), are driven into the river channel.

The Moberly Debris Piles and Debris Boom prevent potential disruption of dam site construction activities by preventing errant logs from entering the construction site and passing through the diversion tunnels, and restricting downstream public access into the dam site construction area.

2.1 MOBERLY PURSE BOOM SYSTEM

As part of the operations and maintenance of the existing Moberly Debris Piles, BC Hydro is proposing to install a temporary Purse Boom System to safely and efficiently remove debris from the piles.

The Purse Boom System will be located adjacent to the Moberly Debris Piles on the upstream side, as shown on the Location Plan in Attachment A. An assembly of the purse boom is also included in Attachment A.

The Purse Boom will be operated by a winch and pulley system located on the left bank to collect accumulated debris. The debris will then be removed by an excavator working on either a pontoon float anchored to the shore or an existing gravel pad.

If required, a shear boom will be anchored to the shore on the right bank, with one end connected to the Debris Piles. The hydraulic force of the river will force the debris collected on the shear boom into the operational range of the purse boom.

The frequency of "pursing" the boom will depend on the debris accumulation rate. The system will be designed to hold a certain cubic meter amount of debris before "pursing" and cleaning.

2.2 SCHEDULE

Installation of the Purse Boom System is expected to be completed in two stages. Stage 1 involves the installation of the purse boom in mid-March 2021. Stage 2 if required, involves the installation of the shear boom at the end of July 2021.

Minor changes to location and arrangement may be required in order to field fit the system to site conditions that exist during installation and operation. These changes may be required due to the dynamic changes in flow and channel locations that occur frequently in this drainage.

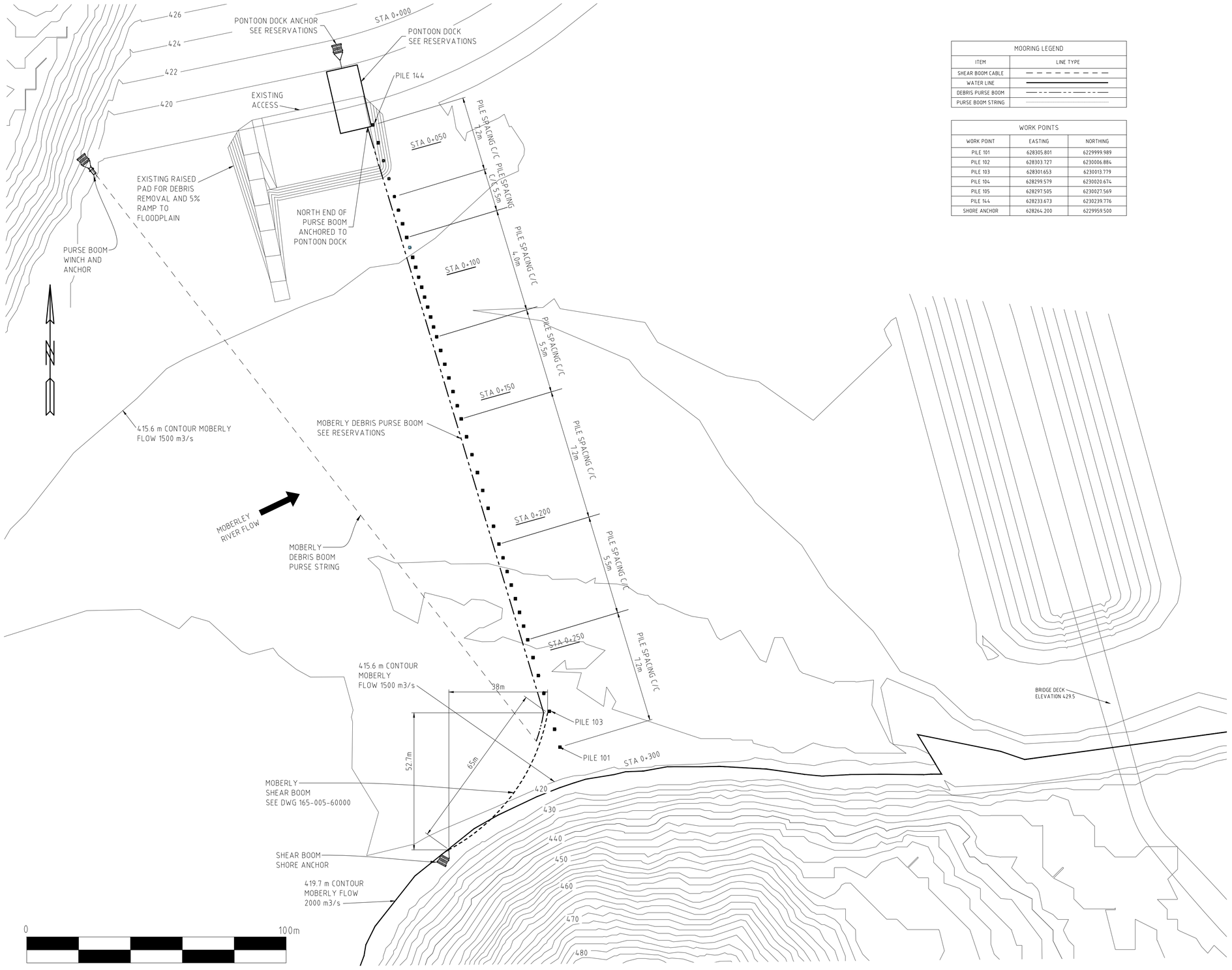
The Purse Boom System will be removed prior to reservoir filling. Reservoir filling is currently scheduled to occur in September 2023.

3 PUBLIC BOATER ACCESS

The existing Moberly Debris Piles and Debris Boom prevent upstream access to the proposed location of the Purse Boom. Navigation signage placed on the Moberly River, ~1,700 m upstream of the Moberly River confluence (1 km upstream of the Purse Boom System location), alert boaters arriving from upstream, of the river being closed to navigation[1]. Similarly, signage placed near the Moberly River confluence, in compliance with the conditions of the Moberly Debris Piles CNWA Approval (2019-500365) and the Moberly Debris Boom CNWA Approval (2014-500334) alert boater to an upstream closure.

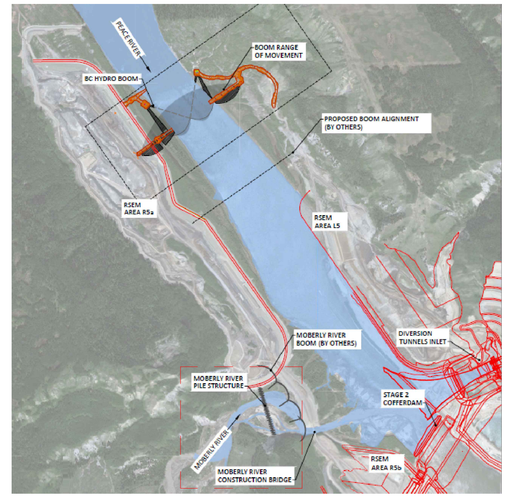
[1] Condition #3 of the CNWA Approval 2019-500365

Attachment A – Drawings of Purse Boom System



MOORING LEGEND	
ITEM	LINE TYPE
SHEAR BOOM CABLE	— — — — — — — — — —
WATER LINE	———————————
DEBRIS PURSE BOOM	——— · · ——— · · ———
PURSE BOOM STRING	———————————

WORK POINTS		
WORK POINT	EASTING	NORTHING
PILE 101	628305.801	6229999.989
PILE 102	628303.727	6230006.884
PILE 103	628301.653	6230013.779
PILE 104	628299.579	6230020.674
PILE 105	628297.505	6230027.569
PILE 144	628233.673	6230239.776
SHORE ANCHOR	628264.200	6229959.500



KEY PLAN
NOT TO SCALE

NOTES

1. UNITS ARE IN METERS UNLESS NOTED OTHERWISE.
2. THIS DRAWING ILLUSTRATES THE OVERALL PLAN FOR THE SITE C MOBERLY RIVER SUMMER DEBRIS SHEAR BOOM
3. THE MOBERLY RIVER DEBRIS TRAP IS A PURSE BOOM THAT SPANS THE RIVER JUST UPSTREAM OF THE LINE OF PILINGS. IT IS ANCHORED AT THE NORTH END ONLY. THE SHEAR BOOM IS MEANT TO PREVENT CONGESTION OF DEBRIS AT THE SOUTHERN FRINGE OF THE RIVER BY DIVERTING IT INTO THE PURSE BOOM.

RESERVATIONS

1. PURSE BOOM DETAILS.
2. PONTOON DOCK DETAILS.
3. PONTOON DOCK ANCHOR DETAILS.
4. PURSE BOOM ARRANGEMENT AT WATER ELEVATIONS GREATER THAN THE PILES, 419.2 METERS, TO BE DETERMINED.

REV.		BY	APPROVED	DATE
2	DESCRIPTION: GENERAL UPDATE, INCLUSION OF PURSE BOOM.	JC	ND	2021-FEB-11
1	DESCRIPTION: FIRST ISSUE	RDW	GC	2021-JAN-29

REVISIONS

P.ENG. STAMP

DESIGN STAGE: ISSUED FOR REVIEW
"NOT FOR CONSTRUCTION"

PROJECT: MOBERLY DEBRIS BOOM

CLIENT: CATHERWOOD TOWING

TITLE: LOCATION PLAN

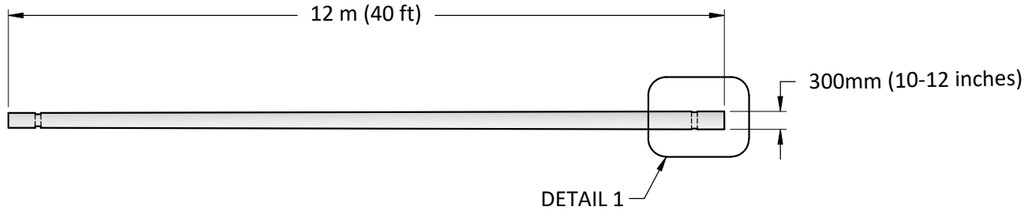
DRAWING NO.	REVISION	SHEET	SCALE
165-005-58210	2	1 OF 1	1:750 UNO

START DATE	DRAWN BY	CHECKED BY
2021-JAN-06	RDW	CMDL

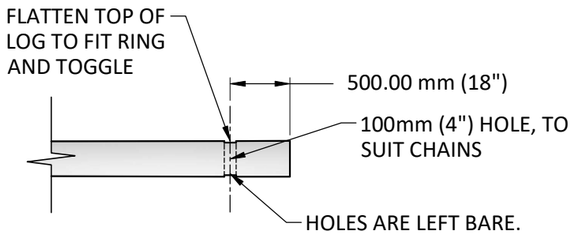
RESERVOIR - MOBERLEY RIVER	1016-C18-01051	NHC
DOCUMENT TITLE	DOC. No.	ORIGINATOR

REFERENCES

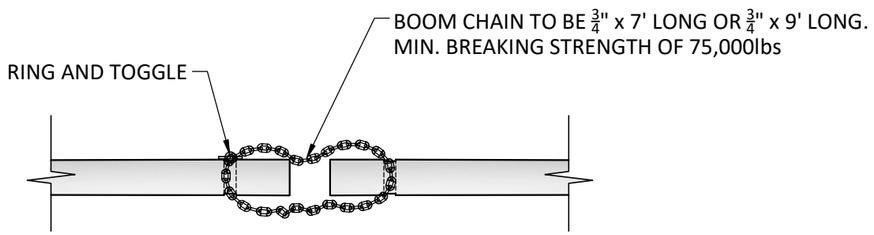
CAPILANO MARITIME DESIGN LTD.
North Vancouver, BC
Canada



PURSE BOOM LOGS
Scale 1:100



TYPICAL END DETAIL 1
Scale 1:50



TYPICAL LOG TO LOG CONNECTION DETAIL
Scale 1:50

MATERIALS REQUIRED

1. 23 x DOUGLAS FIR LOGS, 40ft LONG WITH 10 - 12" DIAMETER. LOGS TO BE PEELED AND HOLES DRILLED IN EACH END TO FIT THE SUPPLIED HARDWARE. (AVAILABLE FROM BC HYDRO)

2. BOOM CHAINS - ¾" x 7ft OR 9ft CHAINS WITH RINGS AND TOGGLES. 23 SETS REQUIRED. (AVAILABLE FROM LOG BUNDLING SUPPLIES IN LANGLEY IN SETS OF 25)

ASSEMBLY INSTRUCTIONS

1. FLOAT LOGS AND MARK TOP
2. FLATTEN TOP TO FIT RING AND TOGGLE.
3. DRILL 4" DIAMETER HOLE, VERTICALLY 18" FROM THE END OF THE LOG
4. THREAD AND ATTACH CHAINS

OTHER NOTES

1. TOTAL ASSEMBLED BOOM LENGTH IS~280m (920 ft). TOTAL SPAN ACROSS MOBERLY RIVER AT THE LOCATION OF THE PILES IS APPROXIMATELY 300 m.

2. INTENDED USE IS TO DRAG DEBRIS AWAY FROM MOBERLY PILES IN FLAT WATER CONDITIONS.

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PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA N. R. ATKINS # 35963
01 December 2020

REVISIONS		
A	30 NOV 2020	ISSUED FOR REVIEW
B	1 DEC 2020	ISSUED FOR CONSTRUCTION

DRAWING INFORMATION	
DATE	1 Dec 2020
DESIGNED BY	NRA
DRAWN BY	CZZ
CHECKED BY	NRA
SHEET SIZE	B (11" x 17")

SITE C CLEAN ENERGY PROJECT
TEMPORARY DEBRIS MANAGEMENT

PURSE BOOM FOR MOBERLY PILE OPERATIONS

PROJECT NUMBER	3004341
DRAWING NUMBER	SK - 030
SHEET NUMBER	1
REVISION	B