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Peace River Project Water Use Plan

Williston Management Plan

Physical Works Terms of Reference

GMSWORKS-58 Mackenzie Landing Boat Launch Maintenance

February 9, 2018

GMSWORKS-58 Mackenzie Landing Boat Launch Maintenance Physical Works Terms of Reference

1 Background

1.1 Introduction

Under Clause (j) of Final Water Licence (FWL) 123021, and the Peace Project Water Use Plan Order dated August 9, 2007 (Schedule A, Clause 4(c) BC Hydro is required to provide reservoir access at Alexander Mackenzie Landing (Mackenzie Landing).

BC Hydro upgraded the existing Mackenzie Landing boat launch¹ with all construction completed by May 2014. As part of the upgrades, BC Hydro undertook construction of a two-staged boat launch ramp to allow continuous operation of the boat launch ramp facility through the design water level range. The upper and lower ramps are connected via a gravel access road. Erosion protection and warning buoys along the access road were installed, and upgrades were completed to the turn-around and parking area. The upgrade work was undertaken under the two physical works projects GMSWORKS-37: Mackenzie Boat Launch Design and GMSWORKS-47: Mackenzie Landing Boat Launch Construction.

The purpose of this Terms of Reference (TOR) is to outline BC Hydro's approach and scope of work for maintenance of the Mackenzie Landing boat launch.

**Figure 1: Mackenzie Landing boat launch; Date: May 25, 2014. Reservoir El. 661.6 m (2170.6 ft)
Lat: 50°21'41.10"N Long: -123°09'55.17"W**

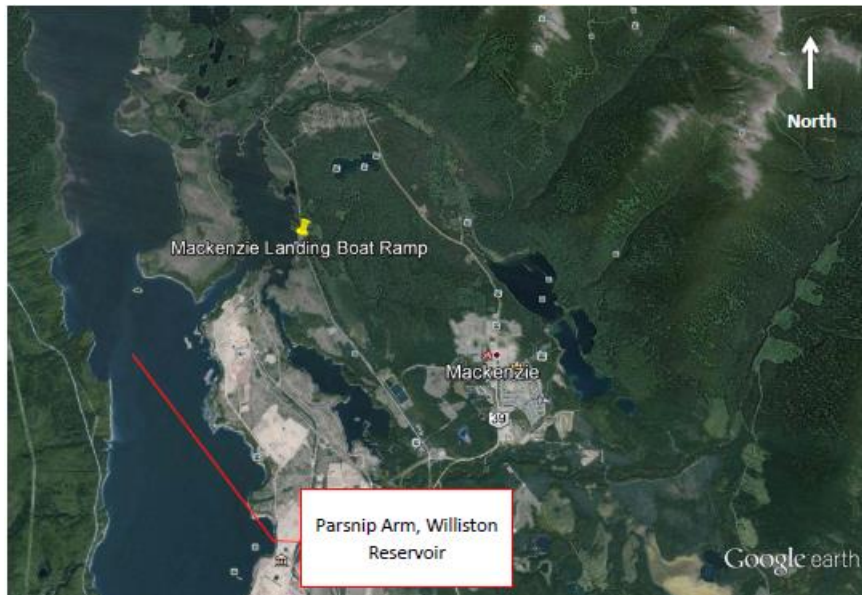


¹ Boat ramp refers to the concrete or gravel ramp used to access the reservoir. Boat launch is used more broadly to refer to all related facilities, including the ramp, walkways, breakwaters, etc. and may include other non-access related facilities such as parking lots, etc.

1.2 Location

The Mackenzie Landing boat launch is located 8 km from Mackenzie on the West Parsnip Forest Service Road off Highway 39 on the east side of Williston Lake Reservoir. The upper ramp is situated within BC Hydro's existing site lease while the lower ramp is under a Licence of Occupation to BC Hydro from the Province. The location of the Mackenzie Landing boat launch is shown in Figure 2 below.

Figure 2: Location of the Mackenzie Landing boat launch



1.3 BC Hydro's approach to boat launch maintenance

BC Hydro filed its approach to boat launch maintenance with the Comptroller of Water Rights (CWR) on January 30, 2017. As described in that letter, BC Hydro will undertake structural and routine maintenance of access-related facilities at boat launches where BC Hydro has licence or Water Use Plan responsibilities.

In some locations, additional non-access facilities may have been constructed or upgraded as part of the boat launch upgrade projects. Typically, the Park Operator or land owner will hold the responsibility for maintenance of these non-access facilities as part of their crown Licence of Occupation or tenure and would be specified in their Crown Management Plan responsibilities. However, in a few instances where there is no other operator and BC Hydro holds the right and responsibilities by tenure or by the Licence of Occupation, then BC Hydro will additionally take on the maintenance (structural and routine) of these non-access facilities.

These terms are defined below:

- **Access-related facilities** are defined as those structures and facilities that provide safe access to the reservoir (i.e., ramps, low-water turnarounds, breakwaters, and boarding floats).
- **Non-access-related facilities** are defined as those structures and facilities that provide related infrastructure adjacent to the boat launch but are not directly related to access (e.g., day use areas, parking lots, access roads, toilets, etc.).
- **Structural maintenance** refers to work that occurs at infrequent intervals to ensure the physical facilities are structurally sound and are functioning as intended (i.e., to ensure safe access to the reservoir). Examples would include, repair of a major crack that has formed in a ramp, replacing breakwaters when they can no longer be effectively repaired, etc.
- **Routine maintenance** refers to the work that must occur on a routine and regular basis such as annual activities in preparation for the recreation season, or throughout the recreation

season, as required. For access-related facilities this includes, for example, debris, or sediment removal, replacing safety signs, any pre-season repairs to walkways or breakwater bumpers. For non-access related facilities, this may include garbage removal, toilet pumping, etc.

1.4 Maintenance period

BC Hydro will complete maintenance at Mackenzie Landing for the peak recreation season, and during the spring and fall shoulder recreation seasons when the ramp is available for launching. For the Williston Reservoir, these periods are defined as follows:

- Peak season: June 15 to September 15;
- Spring shoulder season: June 1 to June 14; and
- Fall shoulder season: September 16 to October 31.

In the event that a significant safety issue arises at the Mackenzie Landing boat launch outside of the maintenance period, then BC Hydro will use reasonable efforts to ensure the site is secured until the hazard can be removed.

2 Mackenzie Landing boat launch maintenance

2.1 Area of responsibility

As BC Hydro holds the right and responsibility by the Licence of Occupation, BC Hydro has taken on the maintenance (structural and routine) of both the access and non-access related facilities at Mackenzie Landing. BC Hydro's maintenance responsibilities are as shown in Table 1.

Table 1: Facilities at Mackenzie Landing boat launch with BC Hydro's maintenance responsibilities

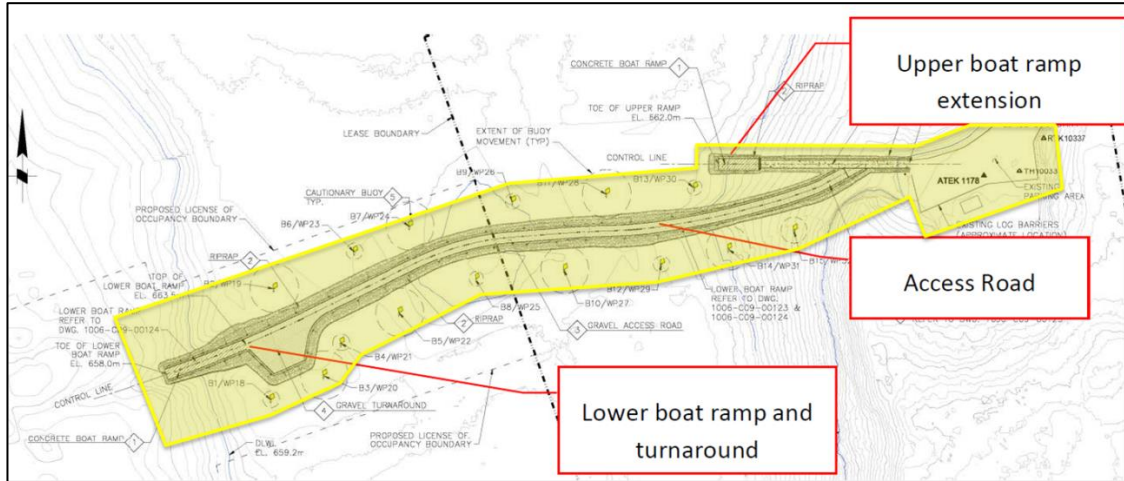
Boat Launch	Access Road*	Parking Lot	Upland Turn Around	Toilet	Lower Turn Around	Concrete Ramp	Scour Protection	Lower Ramp Access Road	Warning Buoys
Non access-related facilities				Access-related facilities					
WILLISTON (Final Water Licence 123021)									
Mackenzie Landing	BCH	BCH	BCH	BCH	BCH	BCH	BCH	BCH	BCH

BCH = BC Hydro will undertake maintenance (both structural and routine)

*Refers to the access road that connects the boat launch parking lot with the West Parsnip Forest Service Road.

The yellow highlighted area shown in Figure 3 below represents BC Hydro's area of responsibility for the Mackenzie Landing boat launch. This polygon is provided to give greater clarity and certainty on which parts of the launch are part of BC Hydro's ongoing obligations under Clause (j) of FWL 123021.

Figure 3: Mackenzie Landing boat launch. Yellow highlights represent BC Hydro's area of responsibility for facility maintenance



Also part of BC Hydro's area of responsibility but not pictured above, is the access road that connects the boat launch parking lot with the West Parsnip Forest Service Road.

2.2 Facilities to be maintained

Table 2 below provides a list of the facilities on which BC Hydro will undertake maintenance at the Mackenzie Landing boat launch and the typical type of work required. The work listed under the heading 'Details' is not exhaustive but is provided for illustration purposes. All items below are to be inspected at least once annually with repairs to be done as needed. Any public safety hazards will require immediate action.

Table 2: Facility details at Mackenzie Landing with a description of maintenance activities

Facilities	Details
Access related facilities	
Concrete boat ramps and turnarounds	<ul style="list-style-type: none"> Concrete panels. Structural maintenance: inspect for cracks, depressions and any other significant abnormalities that will impede safe access to the reservoir. Routine maintenance: remove sediment and/or debris where it obstructs access and/or could harm the facilities. Smaller pieces of debris and sediment that can be moved by hand will be performed by the BC Parks Facility Operator.
Scour protection (toe and sides of ramp)	<ul style="list-style-type: none"> Riprap. Structural maintenance: inspect for slumps and depressions. Routine maintenance: removal of debris and/or vegetation that could displace the riprap. Smaller pieces of debris and sediment that can be moved by hand will be performed by the BC Parks Facility Operator.
Warning buoys	<ul style="list-style-type: none"> Structural maintenance: replacement of damaged or missing buoys, etc. Routine maintenance: removal of debris, inspect equipment (e.g., connecting chains, shackles, etc.) for wear and tear and proper function. etc.
Shoreline between ramp and breakwaters.	<ul style="list-style-type: none"> BC Hydro's role is limited to removing significant safety hazards or removing debris and/or other items that pose a danger to the public/facilities or impede access to the reservoir. BC Hydro will remove significant safety hazards that may exist on the beach area between the ramp and breakwaters or that restrict access to the boat launch or reservoir.

2.3 Permit information

As BC Hydro currently operates the Mackenzie Landing boat launch area as Public Use Management Area, BC Hydro holds the existing Crown lease (#706314, expiry 30-Nov-2043) for the upland portion of the site. Additionally, BC Hydro holds a Crown licence of occupation (#706286, expiry 29-Nov-2022).

Annual notification is provided to the Ministry of Forests, Lands, Natural Resource Operations and Rural Development maintenance works within an existing footprint according to *The Approved Work Practices for Boat Launch Construction and Maintenance in BC Hydro Managed Freshwater Systems* (AWP).

2.4 Safety

All work must be in compliance with all WorkSafeBC health and safety regulations and must be undertaken following BC Hydro's current processes for ensuring worker and contractor safety.

3 Budget

Total Revised Program Cost: \$384,783

4 References

BC Hydro (May 13, 2014). Approved Work Practices for Boat Launch Construction and Maintenance in BC Hydro Managed Freshwater Systems. 21pp.