



Columbia River Project Water Use Plan

Kinbasket and Arrow Recreation Management Plan

Physical Works Terms of Reference

CLBWORKS-14B McDonald Creek Park Boat Launch Maintenance

June 26, 2017

CLBWORKS-14B McDonald Creek Park Boat Launch Maintenance Physical Works Terms of Reference

1 Background

1.1 Introduction

Under Clause (m) of Conditional Water Licence (CWL) 27066, and the Columbia Water Use Plan dated January 26, 2007 (Schedule D, Clause 4), BC Hydro is required to provide reservoir access at McDonald Creek Park.

BC Hydro upgraded the existing McDonald Creek Park boat launch¹ with all construction completed by April 2015. As part of the upgrades, BC Hydro undertook extension of the ramp, and constructed a floating walkway, concrete turnaround area, and breakwaters. The upgrade work was undertaken under the CLBWORKS-14A Arrow: McDonald Creek Park Boat Launch physical works project.

The purpose of this TOR is to outline BC Hydro's approach and scope of work for maintenance of the McDonald Creek Park boat launch.

Figure 1: McDonald Creek Park boat launch; 11 September, 2015. Reservoir elevation: 429.07 m (1407.7 ft.) Lat: 50O07'55.20"N Long: -117O48'40.23"W

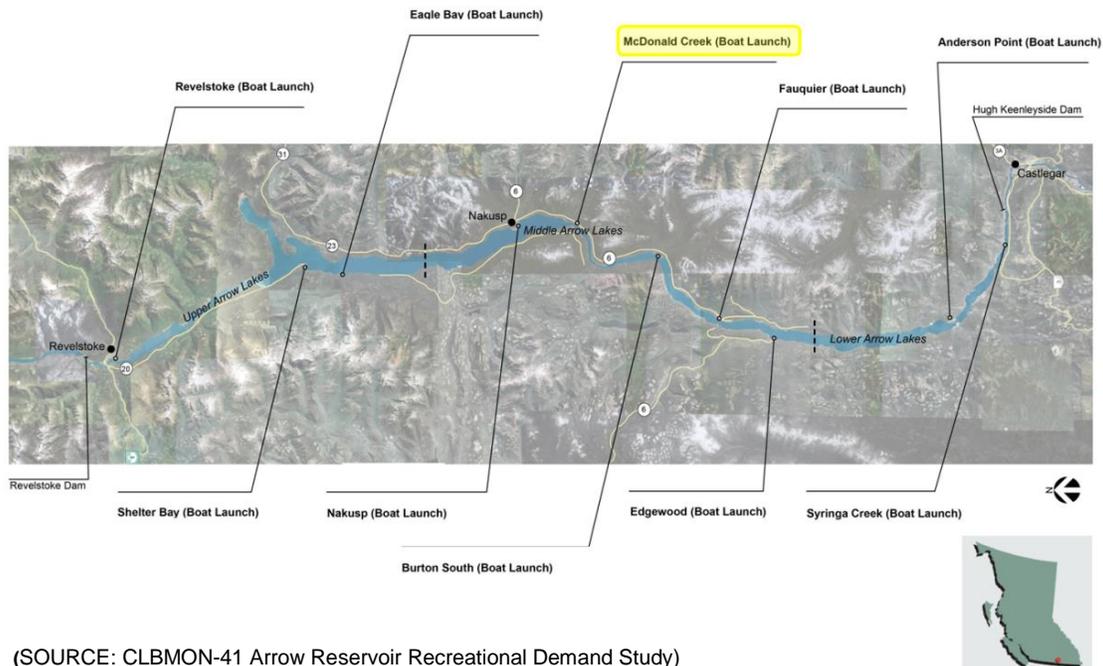


¹ Boat ramp refers to the concrete or gravel ramp used to access the reservoir. Boat launch is used more broadly to refer to all related facilities, including the ramp, walkways, breakwaters, etc. and may include other non-access related facilities such as a parking lots, etc.

1.2 Location

The McDonald boat launch is located on the east shore of the Lower Arrow Lake and approximately 12 kilometers south of Nakusp. The boat launch is situated within the McDonald Creek Provincial Park. The location of the McDonald boat launch is shown in relation to the other Arrow reservoir boat launches (and includes both Clause (m) launches and other ramps) in Figure 2 below.

Figure 2: Boat launches on the Arrow Lakes reservoir



(SOURCE: CLBMON-41 Arrow Reservoir Recreational Demand Study)

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 License 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 License 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 McDonald Creek Park for the peak recreation season, and during the spring and fall shoulder recreation seasons when the ramp is available for launching. For the Arrow Lakes Reservoir, these periods are defined as follows:

- Peak season: June 15 to September 15;
- Spring shoulder season: May 15 to June 14;and
- Fall shoulder season: September 16 to September 30.

In the event that a significant safety issue arises at the McDonald Creek Park 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 McDonald Creek Park boat launch maintenance

2.1 Area of responsibility

BC Hydro is responsible for the structural and routine maintenance of the access-related facilities only under Parks Use Permit (PUP#103216). As the McDonald Creek Park boat launch sits within a Provincial Park, the BC Parks Facility Operator maintains the non-access related facilities (e.g., toilet, parking lots, etc.) as shown in Table 1.

Table 1: Facilities at McDonald Creek Park boat launch with BC Hydro’s maintenance responsibilities

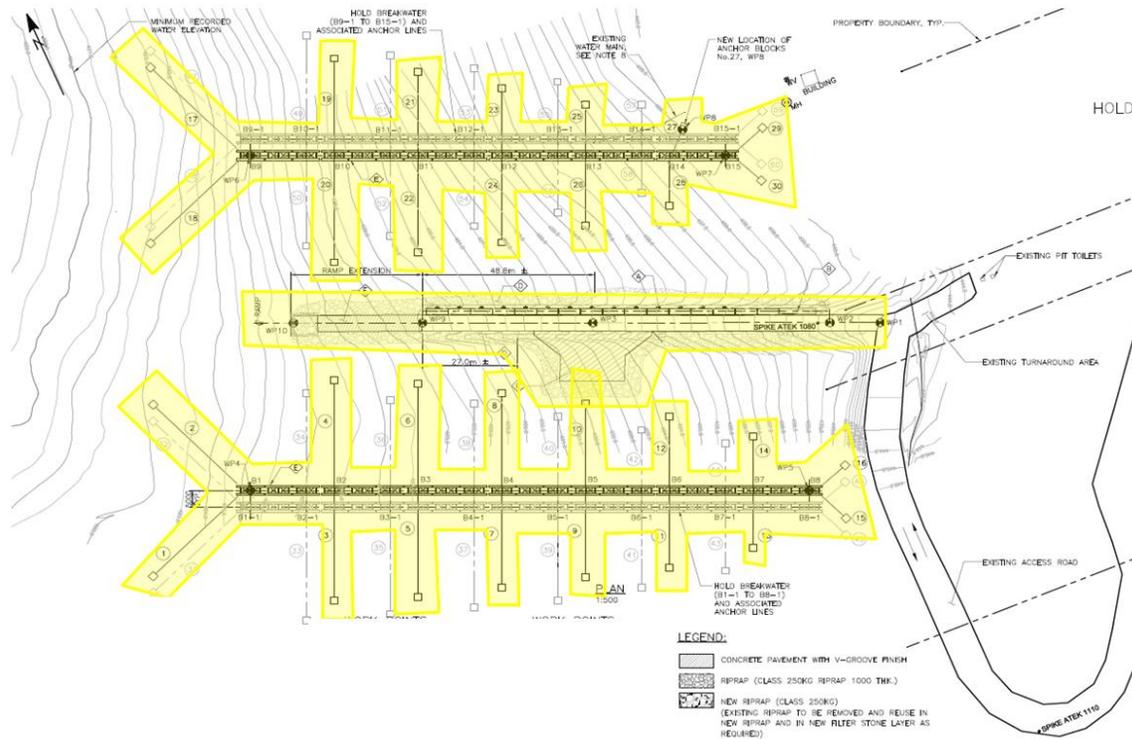
| Boat Launch | Access Road | Parking Lot | Upland Turn Around | Toilet | Lower Turn Around | Concrete Ramp | Breakwaters | Boarding Floats | Pilings |
|---|-------------|-------------|--------------------|----------------------------------|-------------------|---------------|-------------|-----------------|---------|
| Non access-related facilities | | | | Access-related facilities | | | | | |
| ARROW (Conditional Water License 27066) | | | | | | | | | |
| McDonald | X | X | X | X | BCH | BCH | BCH | BCH | BCH |

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

X = Asset exists but are not to be maintained by BC Hydro

The yellow highlighted area shown in Figure 3 below represents BC Hydro’s area of responsibility for the McDonald Creek Park 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 (m) of CWL 27066.

Figure 3: McDonald Creek Park boat launch. Yellow highlights represent BC Hydro's area of responsibility for facility maintenance



2.2 Facilities to be maintained

Table 1 below provides a list of the facilities on which BC Hydro will undertake maintenance at the McDonald Creek Park 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 McDonald Creek Park with a description of maintenance activities

| Facilities | Details |
|---|---|
| Access related facilities | |
| Concrete boat ramp and low water turnaround | <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. |
| Breakwaters | <ul style="list-style-type: none"> Two floating timber breakwaters with lock-block anchors, chains and navigational lights. Structural maintenance: inspect equipment (e.g., connecting chains, shackles, navigational lights, etc.) for wear and tear and proper function. Routine maintenance: removal of debris, replacement of end caps, etc. |

| Facilities | Details |
|---|--|
| Boarding Floats | <ul style="list-style-type: none"> • A line of floating wharves with each wharf attached to a steel piling. • Structural maintenance: inspect for any reduction in freeboard, missing hardware, etc. • Routine maintenance: removal of any unauthorized equipment. |
| Pilings | <ul style="list-style-type: none"> • Steel pipe supports. • Structural maintenance: inspection for pitting, corrosion or other abnormalities in the supports. • Routine maintenance: removal of any unauthorized signs, structures, boats, etc. to the pilings. |
| 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 restrict access to the boat launch or reservoir. |

2.3 Permit information

As the site is located within a Provincial park BC Hydro has been granted access via a Parks Use Permit (PUP#103216; expiry January 14, 2040).

In addition, annual notification is provided to the Ministry of Forests, Lands and Natural Resource Operations for 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 Program Cost = \$204,948.

4 References

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