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November 18, 2021  
File: 2019-8475-000

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Harm Demon  
Water Authorizations Officer  
BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development  
2501 14 Avenue  
Vernon, BC V1T 8Z1

**Re: COMPLETION REPORT FOR BOAT LAUNCH DREDGE CONDUCTED ON KALAMALKA LAKE, COLDSTREAM, BC**

Dear Mr. Demon:

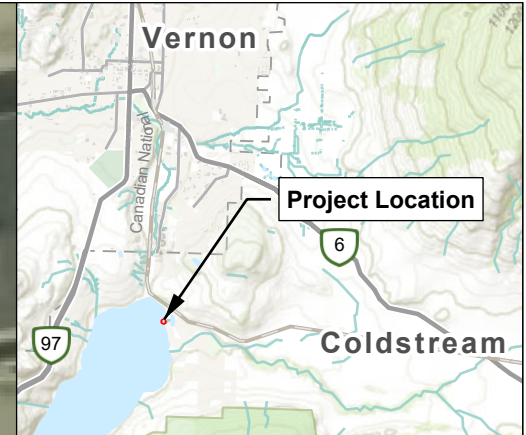
Associated Environmental Consultants Inc. (Associated) is pleased to provide this summary report for the environmental monitoring conducted on October 5, 2021 on the northeast shore of Kalamalka Lake, in Coldstream, BC. Associated was retained by the District of Coldstream (Coldstream) to provide a qualified environmental professional (QEP) to monitor construction activities while Coldstream completed its annual dredging works at the Kalavista boat launch. The following letter summarizes the construction activities completed, and environmental monitoring performed by the QEP, as per the *Water Sustainability Act* (WSA) Conditional Water Licence No. 503561 received on July 2, 2021.

## 1 PROJECT BACKGROUND

The Kalavista Boat Launch is a popular location during the summer months because it provides facilities for boaters to access Kalamalka Lake (Figure 1). The launch is located north of the channel inlet of the Kalavista Lagoon (the lagoon), which is a shallow backwatered area adjacent to the lake. During winter months, wave action from Kalamalka Lake deposits sandy sediment at the mouth of the channel, and this reduces the space available for the boat launch. The accumulation of sediment at the mouth of the channel also creates a sandbar, which limits the free flow of water and fish access from the lagoon to Kalamalka Lake. The purpose of the project is to remove the accumulated material from Kalamalka Lake at the mouth of the lagoon channel to increase the space available for the boat launch, and to allow for the free flow of water and fish between the lagoon and Kalamalka Lake.

## 2 CONSTRUCTION ACTIVITIES

As in previous years, complete isolation of the work area was maintained using a floating silt curtain on the Kalamalka Lake side of the construction area (Photo 1). The silt curtain was installed to reduce sedimentation into the lake by settling sediment that became suspended in the water during dredging activities.



PROJECT NO.: 2021-8475  
DATE: November 2021  
DRAWN BY: BdJ

**FIGURE 1: DREDGING AREAS**

District of Coldstream  
Kalavista Boat Launch Dredging

The dredging operation conformed to the Water Manager's conditions outlined in Conditional Water Licence. The silt curtain was installed and dredging activities occurred on October 5, 2021. Immediately prior to dredging, a visual sweep of the work area was conducted by the QEP. The fish salvage was conducted under a Scientific Fish Collection Permit (#PE21-621690f). No fish were detected or captured. No turtles or evidence of Rocky Mountain Ridged Mussels were observed. A muskrat (*Ondatra zibethicus*) entered the work area by entering under the silt curtain, mid-way through construction (Photo 2). The QEP asked that construction be paused for 30 minutes to allow the muskrat access to the lagoon area. No additional observations of the muskrat were made.

The dredging works began with a small excavator walking out onto the sediment bar and removing the sediment from the south side of the work area (Photo 3). Afterwards, the excavator dredged the remaining sediment from the sediment bar in the south bank of the lagoon leaving a 0.4 to 0.8 m wide trench from the base of the lagoon to the lake (Photo 4) for a total approximate area of 300 m<sup>2</sup>. Approximately 30 cubic meters of accumulated sediment was removed from the lake (five partial dump truck loads; each truck load could hold approximately 10 cubic metres at full capacity). A mix of fine textured organics and sand was excavated from the channel. Substrates were removed from the work area and were placed directly into the dump truck. The depth of excavation (i.e., approximately 0.5 m) conformed to the figures provided in the Environmental Management Plan<sup>1</sup>. The area dredged extended outside of the proposed dredging area because of the extend of sediment (Photo 5) – Figure 1. No vegetation was disturbed or removed during the dredging works.

### 3 ENVIRONMENTAL MONITORING

In accordance with the WSA Conditional Water Licence, Associated was retained by Coldstream to provide a QEP to ensure that mitigation measures were implemented during dredging activities. The environmental monitor was onsite during all the dredging works. The environmental monitor was responsible for making recommendations to improve the efficiency of the environmental mitigation measures, and to document any environmental incidents or accidents that occurred while onsite.

Associated was responsible for ensuring that the aquatic environment of Kalamalka Lake was not compromised during dredging, and that the project would not result in adverse residual impacts to the environment. Gisele Rehe, R.P.Bio., P.Ag., was the QEP on October 5, 2021. The QEP confirmed that the work area was isolated from Kalamalka Lake, monitored turbidity during works, and confirmed that the requirements of the WSA Conditional Water Licence were being met.

Turbidity was monitored throughout the dredging activities. Prior to dredging, baseline turbidity measurements were collected approximately 2 m away from the silt curtain and was 2.48 NTU. During

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<sup>1</sup> Associated Environmental Consultants Inc. 2019. Kalavista Boat Launch Environmental Management Plan. Prepared for the District of Coldstream.

dredging, the turbidity increased to 20.8 NTU. Within ten minutes of the dredge completion, the turbidity decreased to 16.2 NTU. The environmental monitor instructed Coldstream to leave the silt curtain in place until the next morning, allowing sediment to settle.

Heather Taylor, R.P.Bio., P.Ag, removed the silt curtain on October 6, 2021. Six small perch (*Perca* spp.) approximately 30 mm in length were salvaged from the silt curtain. Removal of silt curtain did not cause an increase in turbidity.

#### 4 PROJECT CLOSURE

During construction, the District of Coldstream took care to work with the QEP, and to follow the conditions of the WSA Conditional Water Licence to ensure that the project did not result in adverse environmental impacts.

This letter concludes Associated's obligations as the QEP for the Kalavista boat launch dredging works. We trust that this fulfills the reporting requirements for your records. If you have any questions, concerns or wish to discuss additional works, please contact the undersigned.

Yours truly,

Reviewed by,

*Electronically Submitted*

*Electronically Submitted*

Gisele Rehe, R.P.Bio., P.Ag.  
Environmental Scientist

Heather Taylor, R.P.Bio., P.Ag.  
Environmental Scientist

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Attachments:  
Photo Documentation



Photo 1 - Floating siltcurtain installed between project area and Kalamalka Lake



Photo 2 - Muskrat (*Ondatra zibethicus*) observed entering project site





**Photo 3 – A small excavator walked out onto the sediment bar and removed the sediment from the south side of the work area**



**Photo 4 - Excavator dredged out sediment in the work area leaving a 0.4 m wide trench from the base of the lagoon to the lake**



**Photo 5 - The dredged area extended outside of the proposed dredging area because of the extent of sediment**