



Cold Spring Creek 2016 Annual Dike Inspection Report

Background

Cold Spring Creek experienced a small debris flow event on June 20, 2013 that deposited material in the creek channel, the small mid-section debris trap and the lower debris trap. Debris material was also deposited behind the Cold Spring Creek Dam which is located upstream of the works. The Cold Spring Creek Dam is not part of the debris containment works and is not owned by the RDEK but debris is contained in the reservoir.

Material removals in 2013 were done at the Cold Spring Creek Dam reservoir, small mid-section debris trap along the bank protection works, at the last culvert along the bank protected section and in the upstream half of the lower debris trap. All these locations were cleared of transported gravel from the debris flow and the front half of the lower debris trap was also cleared of material that had been deposited over several years. The funding for removal of the transported debris flow material was primarily from Emergency Management BC (EMBC) emergency response funds. The RDEK provided some funds for additional material removal on the lower debris trap. The downstream half of the lower debris trap and the culvert just upstream of the debris trap was cleared of sediment in August 2016.

The July 15, 2012 Fairmont Creek debris flow and June 20, 2013 debris flow events on Fairmont Creek and Cold Spring Creek prompted the need to have a hazard and risk assessment completed for Cold Spring Creek. This assessment was completed by Clarke Geoscience in January 2015 and included some recommendations for debris flow mitigation along the channel.

The creek channel is in good condition along the 484 m of dike/bank protection at this time.

April 20, 2016 Cold Spring Creek Dike Inspection

The dike/bank protection works were inspected on April 20, 2016 by Kara Zandbergen, RDEK Engineering Technician. The formal inspection day was warm and sunny.

Upstream Conditions

The channel conditions as far upstream as the Cold Spring Creek Dam are monitored and inspected at the same time as the dike/bank protection works.



Photo 1: Cold Spring Creek Dam Reservoir, April 20, 2016. A small amount of material was removed from the reservoir by the contractor that was working just upstream of the dam.

All of the culverts between the dam and Highway 93/95 were functioning properly. Additional culvert capacity had been installed by MoTI through the installation of high water culverts at two road crossings.

The water level at the time of the inspection was low and contained in the creek channel however the channel is infilled with debris material and does not have much capacity. Creek avulsion is possible in a moderately high water situation.



Photo 3: Cold Spring Creek between the dam and Highway 93/95, April 20, 2016.

Dike/Bank Protection Conditions and Channel Vegetation

The channel from Highway 93/95 to the debris trap (dike/bank protected area) is in good condition. The complete bank protection works were brushed in 2012 which allows for ease of inspection of the rip rap lined banks and maintains the integrity of the works. Brushing is planned for 2017.



Photo 4: Cold Spring Creek below Highway 93/95, April 20, 2016.

Culvert Conditions

The last culvert along Cold Spring Creek before the lower debris trap is experiencing some very minor underflow piping, which is causing some very minor scour under the culvert. The situation is being monitored. The same culvert was approximately 30% filled with gravels and was cleaned out in August 2016.

Both upstream culverts along the bank protected works are in good condition and functioning properly.



Photo 5: Inlet of the culvert above the debris pond, April 20, 2016.

Debris Trap Conditions

The upstream half of the debris trap was cleaned out in 2013. Some sediment and gravels had been deposited at the inlet to the pond since that time. The downstream half of the debris trap still had several years of sediment build up. The inlet to the pond and the lower half of the pond were both cleaned out in August 2016.

There is some minor material deposition in the mid-channel debris trap that should continue to be monitored.



Photo 6: The inlet to the lower debris pond, April 20, 2016.



Photo 7: The sediment build up in the lower half of the debris pond, April 20, 2016.



Photo 8: The mid-channel debris trap, April 20, 2016.

Vegetation Management

Some vegetation was removed around debris pond in 2016 prior to the pond clean out to reduce the spread of noxious weeds.

Vegetation control along the works is planned for 2017.

Provincial Flood Protection Works Database Information

The Provincial Flood Protection Works Database Information available online is accurate.