WFff 816 002

Cold Spring Creek 2014 Annual Dike Inspection Report

Introduction

The dike/bank protection works was inspected on April 30, 2014 with follow up monitoring inspections on June 3, 2014 and June 24, 2014. The formal inspection day was warm and sunny and approximately 23^{o}C.

Inspector of Dikes Information

The 2014 Annual Inspector of Dikes information for reporting was available online and is reflected below.

Watercourse	Cold Spring Creek	Structure Type	Dike
Watercourse 2		Ancillary Works	
GPS Number	330	Structure Length	484 m
Dike Name	Cold Spring Creek	NAD 83 Map Number	
Region	Kootenay	Floodplain Maps	
		UTM Northing	5 576 382
		UTM Easting	11U 580 578
		Geographic Features	Riverine
		Type of Flooding	Spring Freshet
		Local Authority Under EPA	East Kootenay Regional District
		Regulated Under DMA	Yes

Upstream Conditions

Reservoir and Dam

The upstream conditions above the dike/bank protection works were normal on the formal inspection day, April 30, 2014. However, the high turbidity of the water indicated significant snow melt and potential material transmission from above as the dam reservoir had partially infilled from the spring freshet and spring rain.

April 30, 2014 Reservoir Sediment Deposition

May 29, 2013 Reservoir Sediment Deposition

Creek Channel Downstream of the Dam and Upstream of the Bank Protection Works

All culverts were functioning properly and the water level was well below capacity in the creek channel. Additional culvert capacity had been installed by MoTI through the installation of high water culverts at two road crossings.

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

2014 Channel Condition

2013 Channel Brushed Channel

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 not anticipated until 2015

Culvert Conditions

The last culvert along Cold Spring Creek prior to flowing into 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 and the two photos below document the present condition. Both upstream culverts along the bank protected works are in good condition and functioning properly.

Culvert condition at the time of formal inspection April 30, 2014

Culvert condition at the time of monitoring inspection June 24, 2014

Material removal along Cold Spring Creek occurred after the June 20, 2013 debris flow event, subsequent work in and around the culvert occurred as the creek flushed down further material later in the summer of 2013.

Debris Trap Conditions

The debris trap on Cold Spring Creek was significantly infilled with sediment in 2013 from many years of sediment transmission. On June 20 2013 a small debris flow occurred on Cold Spring Creek. Material removals occurred at the upstream dam reservoir, small mid section debris trap along the bank protection works and at the last culvert along the bank protected section. All these locations were cleared of transported gravel from the debris flow and the front half of the lower debris trap was cleared of deposition in the summer of 2013. 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 completion of sediment removal on the lower debris trap is scheduled for 2014. An approved Section 9 Water Act application is in place for material removal in late August of 2014.

2014 conditions at the lower debris trap on Cold Spring Creek

The RDEK has budgeted for the removal of the sediment build up in the lower debris trap in late August 2013. An approved Section 9 Water Act application for removal is in place and the work should be completed in 2 to 3 days of equipment operation.

Debris Trap Sediment Deposition prior to the 2013 debris flow

Planned Maintenance/Assessment Development

The planned maintenance and development of a hazard assessment for the watershed is:

- Approved Section 9 application for Works in and Around a Stream, August 2014
- Water license application for Cold Spring Creek to be submitted in 2014
- Debris trap sediment removal, late August 2014
- Creek channel monitoring for material deposition, culvert conditions and vegetation removal, quarterly
- Commissioning of a Hazard and Risk Assessment for Cold Spring Creek tentatively scheduled for 2014 or 2015.

Summary

The July 15, 2012 Fairmont Creek debris flow and June 20, 2013 debris flow events on Fairmont Creek and Cold Spring Creek has prompted the need for the development of a hazard and risk assessment for Cold Spring Creek. The RDEK is in the process of creating a service area that functions for both Cold Spring Creek and Fairmont Creek with a significantly enlarged tax base, that would provide greater funding to both Fairmont Creek and Cold Spring Creek infrastructure development and repair, operation and maintenance of existing infrastructure.

The RDEK commissioned an overview inspection of Fairmont Creek and Cold Spring Creek which was funded through EMBC response funding. The inspection and report were completed by Jennifer Clarke of Clarke Geoscience and was attended by Mr. Dwain Boyer of Ministry of Forests, Lands and Natural Resource Operations (MFLNRO) Water Stewardship Branch and Deputy Inspector of Dikes for the Kootenay region. The inspection occurred on July 29, 2013. The overview assessment recommends more detailed assessment of the hazards and risks within the Cold Spring Creek watershed. Mobilization of sediment has occurred fairly regularly on Cold Spring Creek, but with little damage or expense to this point. Should hazards be identified then funding applications can be developed for any potential mitigation measures.

The creek channel is in good condition along the 484 m of dike/bank protection at this time, plans for sediment removal in the lower debris trap are in place for late August 2014. Completion of debris trap removal will allow for additional capacity of transported material should another debris flow occur on Cold Spring Creek thereby improving the bank protection works.

Jim Maletta, RDEK Engineering Technician