

Valhalla Wilderness Society

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August 6, 2013

Robyn Roome
Regional Director, Environmental Protection Division
Kootenay Okanagan Region
Robyn.Roome@gov.bc.ca

Reference: 196813

Dear Ms Roome:

Thank you for your reply to our July 3/13 letter. Unfortunately the situation with Carpenter creek in Sandon is one of stream hydrology that should be assessed by professional hydrologists experienced in waterway restoration, rather than geotechnical personnel. Also the situation in Sandon is a multi-agency problem and not just one that can be addressed by Mines inspectors. As can be seen from our July 3 letter there are private property issues with an absentee landowner parking derelict equipment on and overhanging the creek bank; we have the previously stated problems with Klondike Silver, and we have the MoTI busy rip rapping the creek banks to repair and protect the public access road. All these activities in the flood plain appear to be happening in an uncoordinated manner with no long-term planning and, so far as we know, without any input from a professional hydrologist. MoTI alone has spent untold thousands of dollars of taxpayers funds repairing the Sandon public road over the last three years. Some of these repairs lasted less than 2 years before being damaged by this years flood.

Without an overall hydrological plan and design, what is to say that the current work being conducted will not exacerbate the situation in the next flood event. As has been seen, Carpenter Creek at flood is capable of great destruction. Without adequate professional supervision, whatever is done in the stream channel can and will have damaging effects on other parts of the stream channel; and since there is private property on both sides of the creek channel in Sandon, property damage could be an issue, as well as creating ricocheting events downstream to New Denver and Slocan Lake. The following pictures show both government contractors and the mining company conducting repairs in stream to their structures without professional supervision.



Picture 9438



Picture 9477

Picture 9438 shows a contractor for highways digging out the stream channel to prevent further erosion into the right hand bank and the public road which is approximately 15 m away. Although this may be a temporary fix for the public road, has the long-term effect been factored in? Will the cleaning and deepening of the creek channel here result in down cutting of the channel upstream of this? Picture 9477 shows Klondike Silver side cast filling in the office washout. Note the lack of placement of any armoring at the toe of the fill slope and the lack of compaction of any of the fill material. This material is perched on the creek bank waiting to be carried downstream by the next flood.

Picture 9555 shows a rip rap section constructed by MOTI after the 2011 spring flood to repair the public road. We estimate that this work cost the taxpayer a lot of money, and it failed within two years, as the creek has washed the toe of this rip rap away. This demonstrates that these structures need to be designed by professionals familiar with stream hydraulics. Note the absence of large boulders keyed into the bed at the bottom of the further rip rap. This is very poor design for a creek of the force of Carpenter Creek when in flood.



Picture 9555

The right side of the dirty section at the bottom of this rip rap is almost vertical and the remaining rip rap will sluff into the creek with various weather events and future floods if it is not repaired. This repair in 2011 could very well have directed the force of Carpenter Creek across the channel and into the creek bank adjacent and under Klondike Silver's office, which washed out in late June of 2013 as shown in our July 3/13 letter. If this situation is not rectified this material will add to the bed load of the creek and be mobilized in subsequent floods resulting in unpredictable channel changes and further damage downstream.

Klondike Silver has three large earth dammed tailings ponds downstream of the Sandon and their mine yard washouts. More than likely all the material mobilized by this year's floods has contributed to changes in the

creek channel, so that Carpenter Creek now flows along the toe of these earthen dams in several areas. One instance was shown in pictures 9435 and 9437 of our July 3 letter. The following pictures show where the creek has started to challenge the integrity of a section of the second tailings pond.



Picture 9531



Picture 9558

Picture 9531 shows Carpenter Creek after this year's flood and the new erosion into the base of the second tailings pond. The scarp is approximately 4m above the water, and the top of the earthen dam another 8m above the scarp on a continuous slope of approximately 55%. Note that the creek flows right along the toe of this tailings dam and that any stream flow event that raises the creek by 1 m in height will continue erosion into the dam. Picture 9558 shows a close up of the scarp and the highly erodible material that is in the toe of the earthfill dam below the scarp, which is incapable of withstanding erosion from any flood event, let alone a 1/200 one. We urge you to bring these two challenges of the earthen dams to MEM's geotechnical staff so that they can reassess the safety of these tailings ponds since the 2013 flood event.

Picture 9528 below, shows rip-rap construction in July of this year after the creek compromised the integrity of the public road approximately 16 m above the creek. This demonstrates the power of this creek to undermine earthen structures many meters above the creek and compromise their integrity. This is a factor that the geotechnical staff for MEM must consider in their assessment of the flood hazard risk to the tailings ponds. Regarding this photograph, note the lack of large boulders at the toe of the riprap that suggests to us that this structure was not designed or supervised by a professional hydrologist. This repair may have cost the taxpayer

several tens of thousands of dollars, and we fear that the toe slope will be washed away in the next significant flood event as was the riprap this year, shown previously in picture 9555. This riprap is located opposite the middle tailings pond. Has any design been undertaken to assure that this riprap doesn't redirect the flood current across the channel and into the toe of the earthen dam that holds thousands of cubic meters of mine tailings that once breached, will flow downstream to New Denver and Slocan Lake?



Picture 9528



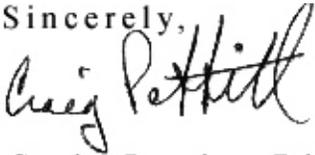
Activities conducted in the flood plain and the creek bed in the vicinity of Sandon have a significant impact on stream channel bed load that flows 13 km downstream to New Denver and Slocan Lake. During the flood events of the last three years, thousands of cubic meters of boulders, gravel and sediments have been washed

down to the Carpenter Creek Delta and Slocan Lake. The 2012 and 2013 photographs above show the degree of sediment flowing into the lake. This moving bed load has filled in previously used channels and has facilitated the establishment of new creek channels. This amount of sedimentation and channel change must have an impact on fish habitat and all other aquatic life. At some future time the creek bed load will raise the creek bed sufficiently to render the height of the current dykes in new Denver, inadequate to contain a moderate flood with resulting damage to residences in the Village of New Denver.

Carpenter Creek cuts across many jurisdictions in Sandon. Private properties are being damaged and landowners are using the floodplain to store derelict equipment, which falls under the jurisdiction of the Regional District. MOTI maintains the public road and is responsible for its repair and safety which encroaches onto the flood plain. MEM oversees the operations of Klondike Silver and their structures that encroach into the floodplain. MoFLNRO is responsible for maintaining adequate forest cover that can modify the rate of spring runoff, and MOE is responsible for fish habitat and other aspects of environmental protection.

We have shown many instances of uncoordinated activities within the floodplain of Carpenter Creek to warrant a broad scale multi-agency hydrological assessment of Carpenter Creek culminating in a long term reclamation plan. The recent flood events and resulting damage in Carpenter Creek have demonstrated a high degree of creek channel instability. We urge government to initiate a multi-agency plan immediately to remedy this situation before a major flood event occurs that may threaten lives of residents surrounding Carpenter Creek.

Sincerely,



Craig Pettitt, Director
Valhalla Wilderness Society

CC: Mr. Kenyon McGee, Barrister and Solicitor
Honourable Mary Polak, Minister of Environment
Honourable Bill Bennett, Minister of Energy and Mines
Honourable Todd Stone, Minister of Transportation and Infrastructure
Honourable Steve Thomson, Minister of Forests, Lands and Natural Resource Operations
Mr. Hugh Eberle, District Manager, Ministry of Transportation & Infrastructure
Mr. Phil Pascuzzi, Senior Inspector of Mines
Mr. Garth Wiggell, District Manager, Ministry of Forests, Lands & Natural Resource Operations
Mr. John Kettle, Chair, Regional District of Central Kootenay
Mr. Walter Poppoff, Director Area H, Regional District of Central Kootenay
Ms. Anne Bunka, Mayor, Village of New Denver
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