



**Province of  
British Columbia**

**Ministry of  
Environment**

W A S A L A K E

WATER MANAGEMENT BRANCH  
Region 4, Nelson

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## 1. RECOMMENDATIONS

### IMMEDIATE

- 1.1 Prevent all overland flow from reaching Wasa Lake by:
  - a) installing a slide gate control structure in the breached section of the old highway (1 km south of Wasa Lake).  
See Section 5.1A, Objective #1, Alternative #1 for details.
  - b) sealing off the Hansen Creek channel by any of the prioritized alternatives listed in Section 5.1A, Objective #2.
- 1.2 Negotiate with the Ministry of Transportation and Highways to allow the installation of flap gates on the southern ends of the two highway culverts (located at the south end of Wasa Lake).
- 1.3 Install debris barriers at both ends of all culverts and control structures mentioned in recommendations 1.1 and 1.2.
- 1.4 Extend the present lake level gauge so that under no circumstances can it go underwater.
- 1.5 For each and every dwelling that is effected by high water levels, document the elevation at which specific problems occur (ie. septic backs up, water in basement, water damages to the household, etc.). In addition, plot the approximate location of each specific problem site on a map.

### FUTURE

The following recommendations assume that the above mentioned IMMEDIATE recommendations have been successfully accomplished.

- 1.6 Install another water level gauge on the Kootenay River in the immediate vicinity of Hansen Creek.
- 1.7 Take lake and river levels at both Wasa Bridge (old) and Hansen Channel (new) at approximately the same time of day, daily from mid-April through to mid-September.

(2)

- 1.8 Repeat recommendation 1.7 for a minimum of 3 years but preferably long enough to record a significant Kootenay River flooding event.
- 1.9 Have the data obtained from 1.8 analyzed to determine whether a relationship can be established between the average daily rate of infiltration of ground water into Wasa Lake and either:
  - a) the average daily Kootenay River level (at Hansen Creek/at Wasa Bridge); or
  - b) the average daily head difference between Wasa Lake and Kootenay River (at Hansen Creek/at Wasa Bridge) levels.
- 1.10 Assuming a relationship discussed in recommendation 1.9 is found, have cost-benefit analyses performed on the installation and operation of a pumping station (to control Wasa Lake levels) under a wide range of operational objectives.
- 1.11 Select the operation plan that is the best mix of cost versus benefit and then decide whether or not to proceed with the installation and operation of a pumping station. The final decision on what to do with Hansen Channel should be delayed until this point (ie. fill it in, install a weir, use it as the pumping station location).

## 2.0 TERMS OF REFERENCE

In November 1984, the Trustees of the Wasa Lake Land Improvement District (W.L.L.I.D.) wrote to the Regional District of East Kootenay (R.D.E.K.) to request <sup>1</sup>"that a feasibility study be carried out to effect flood control by dyking the Kootenay River where it bypasses the District." R.D.E.K. advised the Improvement District that it was <sup>2</sup>"not prepared to fund an expensive Flood Control Feasibility Study" and encouraged the District to pursue the matter with the Ministry of Environment and Parks.

The Ministry decided that the request would be initially investigated at the conceptual stage by the Engineering Section of the Kootenay Regional office. This report is in response to the Improvement District's request.

The questions which required resolution were:

- 1) What are the problems of the Wasa Lake Area?
- 2) What is already known/what has been done in regards to studying the problem? and
- 3) Can any recommendations be made as to what steps should be taken next?