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Report to the Rural Services and Wairarapa Committee
from Ian Heslop, Divisional Engineer

Lower Tauherenikau River Management

1. Purpose

To obtain Committee approval for the medium term river management approach, and for detailed investigation of the long term river management approach for the lower Tauherenikau River, including the waiver of royalty charges for gravel extraction.

2. Background

- 2.1 For the purpose of this report, the lower Tauherenikau River is defined as the six kilometre reach between SH53 and Lake Wairarapa. This river length has been significantly modified over the years, and originally flowed into Lake Wairarapa via the Otakura Stream.
- 2.2 In the mid-1950's, a two kilometre length of the river was diverted and stopbanked to allow floodwaters a more direct route to Lake Wairarapa, with diverging stopbanks bounding a deposition area over the remaining two kilometre distance to the Lake. (See Attachment 1).
- 2.3 In the early 1980's a channel was formed through the deposition area, allowing some sediment to move into the lake and form a delta. Over the period to 1990 parallel stopbanks were then constructed to encourage gravel movement through the deposition area.
- 2.4 Prior to this work the river deposited its sediment on the floodplain in the vicinity of the Otakura Stream. The adjoining landowners found that the combination of sediment deposition and flooding made farming difficult, and the diversion and related stopbanking works were carried out at their request.
- 2.5 Since the initial diversion the Tauherenikau River has been maintained as part of the Lower Wairarapa Valley Development Scheme. The riverbed downstream of SH53 has been steadily rising, and maintenance costs have increased disproportionately relative to local rating income.
- 2.6 In particular the section of stopbank through the deposition area, and adjoining the property owned by Mrs Jane Gillett, has been breached on four occasions since 1992. Repairs to this stopbank are difficult and expensive. The rising

bed level is reducing channel capacity, and causing more frequent stopbank overflow and failure. The Scheme's ability to sustainably manage the river channel is rapidly reducing.

- 2.7 In recognition of this problem, Gary Williams (Consulting River Engineer), was commissioned to carry out a study of the lower Tauherenikau River hydraulics and sedimentation processes, and to recommend medium and long term management options.

3. Results of Study

- 3.1 The William's study determined that there was an average annual sediment input to the lower Tauherenikau River of 70,000 cubic metres. Of this 20,000 cubic metres is extracted at SH53; 20,000 cubic metres is deposited between SH53 and Cross Section (XS) 3; 10,000 cubic metres is deposited between XS 3 and Lake Wairarapa; and 20,000 cubic metres is deposited on a delta in Lake Wairarapa. (Note the location of XS 1-6 is plotted on Attachment 2).
- 3.2 The river reach from SH53 to XS 6 is relatively stable, and the current level of maintenance is considered to be adequate.
- 3.3 The river reach from XS 6 to XS 3 is considered to be in a critical condition, as the bed level has been rising rapidly, and is putting increasing pressure on the stopbanks. In the event of stopbank breach, large areas of productive farmland would be affected, and a permanent course change would be likely.
- 3.4 For the river reach from XS3 to Lake Wairarapa, it is not economically viable to undertake more than the bare minimum of channel maintenance. Only a small area (up to 100 hectares) of productive land benefits, and if the bed level continues to rise at the current rate, the river is expected to change course onto the adjoining farmland within 10 to 15 years. (See Attachment 2).

4. Medium Term Approach

- 4.1 For the river reach from XS 6 to XS 3, it is recommended that:
- (1) A minimum of 20,000 cubic metres be extracted annually.
 - (2) The channel be regularised in width to maximise sediment transport.
 - (3) The stopbanks be raised as necessary to provide consistent freeboard.
 - (4) The waiving of extraction royalties should be considered, as financial incentives will be needed to encourage gravel extraction in this reach.

The annual cost of this work is estimated at \$35,000.

- 4.2 From XS 3 to Lake Wairarapa, the recommendation is that the stopbank on the Gillett frontage be lowered to form a spillway. (See Attachment 2). The present stopbank is vulnerable to breach, which allows uncontrolled flooding of the adjoining farmland. The spillway would withstand overflows, and ensure that flooding occurred in a controlled manner. Although the spillway would allow overflow at a lower threshold and greater frequency, the likelihood of a stopbank breach would be reduced.

In conjunction with this it was recommended that the containment stopbank protecting the balance of the Gillett Farm be raised. The total cost of this work is estimated at \$50,000.

Although gravel extraction would be encouraged, it should not be at the expense of the more critical reach upstream. It is not economically viable to subsidise extraction, although consideration should be given to the waiving of royalties.

5. Long Term Approach

- 5.1 For the river reach from XS 6 to XS 3, the long term approach is the same as the medium term approach described in Section 4.1.
- 5.2 For the channel length from XS 3 to Lake Wairarapa, with the recommended medium term approach the bed level will continue to rise, and it is anticipated that the river will change course onto the adjoining Gillett property.
- 5.3 This course change is inevitable, and a “retreat” approach must be developed in consultation with Mrs. Gillett, and other affected parties such as Fish and Game N.Z., the Department of Conservation, and tangata whenua. This “retreat” approach would result in an estimated 100 hectare portion of the Gillett property becoming river bed.
- 5.4 It would be important to ensure that the balance of the Gillett property is provided with an appropriate level of flood protection, and that drainage standards are maintained. This is expected to require additional stopbanking, willow buffer zone establishment, drain alterations, and the possible relocation of a pump station.
- 5.5 Another possibility to be considered in conjunction with the “retreat” approach, is Council purchase of the affected portion of the Gillett property. The value of this property is expected to progressively diminish over the next 10 to 15 years. Purchase of this land would ensure that Mrs Gillett was treated as fairly as possible in the circumstances, and would enable more cost effective management of the river diversion.

6. Discussion

Over recent months there have been a series of meetings of the Lower Wairarapa Valley Development Scheme Advisory Committee, and with Mrs Gillett, to explain the findings of the William’s study and develop the medium and long term river management approaches.

The Scheme Advisory Committee has approved the medium term approach, which is to be incorporated into current and future Scheme works programmes. This programme of work requires no additional Council funding.

The Advisory Committee has also recommended that the long term approach be investigated, with the results to be reported back to the Advisory Committee, prior to consideration by the Rural Services and Wairarapa Committee. The long term approach is likely to require additional funding from Council.

Mrs Gillett is in agreement with the medium term approach, but reserves her opinion regarding the long term approach, depending on the outcome of the investigation.

7. Communication

The Committee's decision will be communicated to Mrs Gillett, and the members of the Lower Wairarapa Valley Development Scheme Advisory Committee.

8. Recommendation

That the Rural Services and Wairarapa Committee approve the following river management approaches for the lower Tauherenikau River:

- (a) Medium and Long Term approaches between Cross Sections 6 and 3; consisting of financial incentives for gravel extraction, channel regularisation and maintenance, and stopbank maintenance and improvements.*
- (b) The Medium Term approach between Cross Section 3 and Lake Wairarapa; consisting of minimal channel maintenance, the lowering of the existing stopbank to construct a spillway, and upgrade of the containment stopbank.*
- (c) Detailed investigation of the Long Term approach between Cross Section 3 and Lake Wairarapa. The investigation would include discussions and preliminary negotiations with Mrs Gillett and other affected parties.*
- (d) To provide an incentive for gravel extraction downstream of Cross Section 6 by waiving the Council's royalty charge.*

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