AUDIT OF RIVER MANAGEMENT ASSET MAINTENANCE STANDARDS

Audit of: River Schemes managed by the Flood Protection Group, Landcare Division of the Wellington Regional Council

Audit by: Ranjan Cyril and Michael Hewison of the Operations Department of Wairarapa Division of Wellington Regional Council

Location: Waikanae and Otaki Rivers

Guides: Steve Murphy and Gary Baker of the Flood Protection Group, Landcare Division, Wellington Regional Council

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1.0 Introduction

Annual peer reviews are undertaken of river asset management programmes in the Wellington and Wairarapa areas. The peer reviews provide an audit of maintenance standards and procedures.

To do this audit, inspections of randomly selected sites from the Flood Protection Group asset register/list were carried out. Maintenance responsibility for these assets lies with the Flood Protection Group.

This year's inspection of the Wellington river assets concentrated on the Waikanae and Otaki River works on the Kapiti Coast.

2.0 Waikanae River

The Waikanae River Scheme works extends from the river mouth for a distance of 5.5km to State Highway 1 Bridge, and is managed by the Wellington Regional Council. The main purpose of the scheme is to provide flood protection to the Waikanae Township and rural floodplain area.

The Wellington Regional Council, together with the Kapiti Coast District Council and the Waikanae community, have developed the Waikanae Floodplain Management Plan (WFMP). The cost of the capital works in the Plan is estimated at $6.5 million. Works are completed in accordance with this plan. In addition, annual Scheme maintenance works are completed as agreed.

For the purpose of this report, two sites were inspected.

2.1 Kebbells Corner

Extensive bank erosion had occurred during the 1998 floods on the outside of this bend. This had then created misalignment of the channel, and had allowed other downstream erosion to occur. Repairs were made to this corner after these floods consisting of a rock weir and rock rip-rap on the outside of the bend. Again in 2000, floods caused damage to the outside of the bend and also to the weir. The weir has been repaired and extended. The rock rip-rap has also been extended further up the bank. In addition, tree groynes have been installed upstream and downstream of the weir on both the right and left banks.

The reviewers agree with all repair methods, although they are concerned that the tree groynes on the inside of the bend could lead to siltation over time and increased pressure on the new works on the outside of the bend. We noted that the gravel on the inside of the bend is periodically ripped to prevent build-up and vegetation is also periodically removed to minimise siltation problems. Some planting has been completed in conjunction with the works and more is planned. This will consolidate the current works.

2.2 Sunny Glen to Maple Lane

Over this reach, the 1998 floods had caused bank erosion that threatened the adjacent houses. Repairs had been made at that time with rock groynes and beach reconstruction. Rail iron and timber debris fences have recently been installed to further consolidate this work. Willow trees have been planted between the debris fences.

The reviewers agree with the works completed to date, which appear to be working well. A suggested improvement would be to place an additional rock groyne between the two widely spaced groynes below the new fence adjacent to the house.

As a general comment, additional work is planned in this area once land ownership issues are resolved. This will allow some of the "tightness" of this corner to be relieved.

3.0 Otaki

The Otaki River Scheme works extend from the river mouth for a distance of 11.5 km upstream to the lower gorge, and is managed by the Wellington Regional Council.

The main purpose of the scheme is to provide flood protection to the Otaki Township, State Highway 1 and to the rural floodplain area.

The Wellington Council together with the Kapiti Coast District Council and the Otaki community have developed the Otaki Floodplain Management Plan. The cost of the capital works in the plan is estimated at $12 million.

For the purposes of this report, the following sites were visited.

3.1 Katihiku Left Bank

The floodplain management plan for this river recognises that the outlet to the sea slowly migrates down the coast, requiring periodic re-establishment to a more direct outlet alignment. During this last excursion south, the river has caused some damage to an existing stopbank. This will be repaired within the current construction season. An adjacent swampy area also drains into this stretch of the river through a floodgate. Maintaining an adequately sealed floodgate proves difficult at certain times of the year owing to tampering. This occurs particularly during the whitebait season.

The reviewers agree with the need and methods employed to periodically relocate the river mouth outlet. The coastline is very dynamic and the consequences of taking no action would cause further flooding and erosion problems. Repair of the stopbank is necessary to ensure it provides at least the degree of protection that the floodplain area had prior to the damage.

There are no obvious "quick fixes" for the floodgate issues. We would agree with maintaining very good relations with the adjacent landowners by communication and education about the importance of the gate and its purpose.

3.2 Lethbridge Left Bank

This is a capex project to extend the toe rock edge protection as part of the agreed floodplain management plan.

This work is consistent with other similar type of work in the area on both banks and will help maintain the preferred alignment.

3.3 Mangahanene Right Bank

Approximately 500 metres upstream of the preferred river mouth outlet location, an "island" protrudes into the preferred main channel. At elevated flows, water flows behind this island causing the erosion of the stopbank in the Katihiku area. It is proposed to purchase a part of this island and widen the channel on the riverside. At the same time the flow relief path behind the island would be significantly reduced to encourage flow along the preferred channel alignment. Negotiations with the landowner are proving particularly difficult, but are ongoing.

The reviewers agree with the proposal to purchase a part of the island and remove it. This, together with the toe rock lining and channel works will help to maintain the floodplain management plans preferred channel alignment.

3.4 Rangiuru Flood Gates

Much of the storm water that is collected from Otaki township and some of the surrounding rural area is channelled into the lower reaches of the river and out to sea. The capacity of the existing culverts is limited. During times of moderate to large flooding events, the existing culverts act to throttle the rate at which these floodwaters can drain away. It is proposed to duplicate the existing culvert set to ensure faster drain down of floodwaters.

The reviewers agree with this proposal as long as the new culvert is designed to compliment the existing culvert, is located to avoid any effect on the existing culvert's performance and is sized to ensure adequate capacity with respect to anticipated flood flows.

3.5 Stresscrete Right Bank/Tracey Left Bank

The reviewers noted the maintenance required to the rock wall and rail iron debris fences resulting from the October 2000 floods. This work is consistent with the existing works and the floodplain management plan.

3.6 Crystals Bend

Crystals bend has been an ongoing problem site on this river. The floodplain management plan identifies new sections of stopbank. Some of these have been constructed on an alignment that is well back from the channel edge. Negotiations are continuing with adjacent landowners regarding the location of the final section of bank required to complete this project.

The reviewers agree with the existing and proposed stopbank alignment. They particularly noted the good bank batters and well maintained grass cover. The banks were not separated from the surrounding paddocks by fencing. This did not appear to present any problems with overstocking and tracking.

The right bank has been progressively reinforced with a rock wall on the agreed alignment as detailed in the floodplain management plan. The area behind this has been reclaimed, debris fences have been constructed including inter-planting with willow trees. Most of this work is complete. The lagoon behind these works has been extensively planted, mostly in native trees and shrubs.

The reviewers note that these works are very appropriate for the problems that have been experienced in this area and are complementary to the adjacent stopbanks.

3.7 Upper Rahui

This project involves both capex and flood damage works on both the left bank and right bank of the river. The work includes channel widening, removal of redundant stopbanks and the construction of inter-planted debris fences to along the base of the eroding cliffs.

At the time of the inspection, the majority of the works had been completed with the exception of the protection works along the cliff base to protect the "cliff top dwellers". The proposed solution should ensure that the flow pressure points are deflected into the centre of the channel, allowing the proposed planting work time to consolidate.

3.8 Upper Hughes

At this site it is proposed to construct new debris fences which will be set back from prior works to allow progressive channel re-alignment. The new fences will be constructed to a standard module of 30 metre centres and will be inter-planted with willow trees.

The reviewers agree with the proposed works including the process of realigning the channel.

4.0 Summary

Some twelve sites on the Waikanae and Otaki Rivers were inspected during this audit. The sites inspected were considered to be representative of the type of work and maintenance standards for the Kapiti Coast rivers.

The reviewers are pleased to note that the floodplain management plan capex projects are being progressively implemented and that this work is being consolidated with the ongoing maintenance works that form part of the annual works programme. They are of the view that adequate resources are being applied to maintain the scheme assets to an appropriate standard.

We would recommend that scheme managers continue to review the following areas:

- Monitor the performance of the tree groynes at Kebbels to ensure channel capacity is not lost by excessive sedimentation;
- Continue to seek a solution with the landowner at Mangahanene to enable the "island" to be trimmed back;
- Analyse available data and proceed with a well designed duplication of the existing Rangiuru floodgates;
- Design and installation of edge protection that will provide a long term solution to the problem of the eroding cliff base at Upper Rahui.

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