

PEER REVIEW
of
SELECTED WAIRARAPA RIVERS MANAGEMENT
ASSETS
For year ending 30 June 2004

Date of visit: 26 July 2004

Reviewers: Steve Murphy Operations Support Engineer
Garry Baker Area Engineer, Kapiti

Attendees: Widana Gamage Area Engineer
Murray Mackenzie Field Supervisor

Itinerary

Upper Ruamahanga –Mt Bruce Scheme

- Wingate road - Channel alignment, Willows,
- Rathkeale College - Rock groynes, willow planting, stopbank

Upper Ruamahanga – Te Ore Ore Scheme

- Henley Lake - Willow cabling/ rock groynes
- Oxidation Ponds - Rock groynes

Waipoua Scheme

- Nursery stopbank - Flood damage

Site 1

Upper Ruamahanga –Mt Bruce Scheme

Wingate road

Site Description:

This site on the Ruamahanga River is characterised by a large amount of gravel. The deposition of this gravel has increased the instability in the area and a strongly erosive meander pattern is developing. . Considerable erosion of the right bank occurred in the flood of 15-16 February 2004. The reach immediately below this site is narrow and an obvious restriction to high flows.

Present Situation

The narrow section of channel below this site is the result of an over vigorous planting programme by a previous owner. The ill placed plantings now restrict flood flows and as the river decelerates to squeeze through the narrowing gap, the gravel it is transporting starts to fall out of suspension. This gravel accumulates in disparate beaches, encouraging the formation of meanders.

Current Approach.

The current approach to this problem is a combination of actions.

- Approaching the present owner with the intention of removing the restricting growth..
- Re-forming and maintaining the preferred the alignment by judicious extraction.
- Repair of erosion by a combination of tree groynes and mass planting.

Reviewer's Comment

The reviewers endorse the current approach.

It is suggested that where a preferred alignment exists on a scheme watercourse that some effort is made (if it is not already) to alert riparian landowners of its existence and its importance, either through scheme news letters, scheme meetings or personal visits.

Site 2

Upper Ruamahanga –Mt Bruce Scheme

Rathkeale College

Site Description:

Rathkeale College is situated on the outskirts of Masterton. The playing fields of the school border the Ruamahanga River. At some stage a low stopbank has been constructed to protect the grounds from flooding. While perhaps only a metre in height, it provides protection up to the 1 in 100 level.

The 1998 flood eroded most of the planted buffer and left the stopbank without protection and exposed to further erosion.

Repair

Repairs to protect the stopbank were a jointly funded project between the school and Greater Wellington. Despite this, funding was limited, and this has engendered a low tech approach to the problem. Instead of forcing the river to go where directed with heavy works, the art of gentle persuasion has been used. A series of small rock groynes were constructed (approx 100-120 ton each) and at close spacing of about 10 meters apart. Despite the low tonnage of the groynes, the close spacing has helped to encourage the deposition of silts, and a protective beach is steadily forming adjacent to the site. Together with willow planting, a very effective repair has been carried out.

Current Approach.

Current management is to monitor the site, and encourage the re-establishment of a protective buffer by a careful willow planting and development programme.

Reviewer's Comment

To date a novel approach is working. Given the forces available to the Ruamahanga, the small groyne approach was innovative and risky, but has nonetheless been effective. Careful monitoring is required to ensure that any early signs of damage are attended to quickly. The reviewers would expect that the works are still vulnerable to a large event, and as such, willow planting to increase the buffer distance should be a priority.

Site 3 Upper Ruamahanga –Te Ore Ore Scheme Henley Lake

Site Description:

Henley Lake is an important recreational and environmental asset owned by the city of Masterton. One portion of the lake is bordered by the Ruamahanga river, as it sweeps round a large bend. At one point the river had eroded this bend to within several meters of the lake edge. With funding help from MDC, Greater Wellington has established some rock groyne and willow works to protect the lake.

Present Situation

Present protection consists of four large rock groynes of approximately 200 – 250 tons in each, and set about 20 metres apart around the apex of the bend. At one point further erosion threatened to outflank the rock groynes, and if left unchecked may have wholly or partly damaged the works. Two gravel groynes were constructed upstream of the current works as an interim device. The gravel was obtained by stripping the armouring layer from a beach in the steeper reaches of the river. These groynes were basically end tipped gravel but have proved to be very effective and survived the Feb 04 floods.

The floods in February of 2004 have unfortunately altered the river's approach and eroded out the bed between the rock groynes. If left exposed there is a risk of the river outflanking the groynes. As an interim measure, two large gravel groynes were constructed upstream to prevent that eventuality. Surprisingly these have survived, including the February flood and are still performing a valuable role.

What is a concern however is the change in the river's approach and the extensive loss of reclaimed bed and willow planting between the rock groynes, and an increase in erosion below the groynes. This shift has the potential to seriously damage the works by scour, and seriously affect the rivers alignment. At risk, if the river 'escapes' during a flood, is a ecologically valuable wetland.

Current Approach.

The current effort is to ensure the river's alignment is maintained and protected, and to this end a further rock groyne is to be constructed 20 metres below the lower one. This "flick of the tail" will hopefully encourage the river that 'this way is best', and it will settle down in the preferred alignment.

Reviewer's Comment

Given the cultural, environmental and recreational importance of the assets at risk, the current approach is warranted. The works should be carefully monitored for any further signs of damage below the new groyne and dealt with quickly

One possibility for repairing the lost beds between the groynes is a combination of willow pole planting and bed armouring using the same gravel that was used to construct the groynes.

Site 4

Upper Ruamahanga –Te Ore Ore Scheme

Masterton Sewage Treatment Ponds

Site Description:

The Masterton sewage ponds have been constructed inside a large bend on the Ruamahanga river. The river immediately borders the plant's settlement ponds on two sides. The floods of 1998 seriously damaged the willow buffer zones, and in some cases erosion extended almost to the boundary fence of the ponds. That damage was repaired by reclaiming some of the lost buffer, together with the replanting of willow poles. A series of small rock groynes were constructed to protect the area while the willows re-established.

. Present Situation

The earlier rock groynes have done an excellent job and the site is no longer the worry that it once was. Nevertheless the threat to the ponds is ever present and vigilance is always required. The present approach is similar to the early practices, and where exposure or erosion threatens, small rock groynes in combination with good willow work continue to be the best approach. Willow management and the development of a robust channel edge protection is the objective. Willow layering is one tool available.

Reviewer's Comment

The reviewers endorse the approach taken on dealing with this site. The consequences of failure here are very serious and we would expect extra vigilance in the monitoring of the site. We would also expect that this site is one of the first to be visited in any event serious enough to bring out patrols.

Site 5

Waipoua Scheme

Akura Nursery

Site Description:

Akura Nursery is situated on the outside of a bend on the right bank of the Waipoua river. The nursery is owned and operated by Greater Wellington Regional Council. An earthen bund, which was erected many years ago, protects the nursery area from nuisance floods.

Present Situation

The existing bend in the river has extended into the nursery area by outflanking the tethered willow edge protection. The active channel is now directly below the front face of the bund. As the beach opposite grows it will push the river over and, unless some protective works are put in place in the near future, loss of the bund is inevitable.

Reviewers Comment

For the nursery, the loss of the bund is a nuisance, because of the mess a flood leaves, but we imagine more so is the inevitable loss of land as the erosion continues to grow. We would suggest that the first action is a simple cost benefit analysis of a range of suitable protection works which will halt the erosion and the loss of the bund in its present position, vs the value of the land protected from the flooding.

We suspect the best approach may be for the Nursery to accept that loss of the bund is inevitable in the short term, and to retreat the bund some distance in to the nursery. This approach will still protect the bulk of the nursery but buy some time to develop a suitable solution and carry out any protection work. Once the protection works have settled down, the opportunity may then be available to shift the bund back if desired.

1. Summary

Every year a peer review is carried out on selected sites within the Wairarapa flood protection scheme areas. Peer reviews and the subsequent written report forms part of the asset management quality assurance procedures and documentation for the various scheme areas. Only a few sites can be visited within the time allotted, but are selected as being reasonably representative of the scheme as a whole. Over time all scheme area will have been visited.

Four sites in total were visited this year. Two in the Upper Ruamahanga / Mt Bruce Scheme, Two in the Upper Ruamahanga Te Ore Ore Scheme, and one on the Waipoua Scheme.

Once again the reviewers are left with the impression that Wairarapa rivers staff are often in the predicament of knowing technically what's needed to solve a problem, but having to cut their cloth to suit their pocket, carry out protection works with a higher risk of failure than they perhaps they would normally desire. We also suspect that some scheme beneficiaries have expectations of a service beyond what can be provided within the available funding.

Having said that, however, the lack of resources in some instances has engendered an inventive approach in solving some of the more difficult problems, and the reviewers were again impressed by the innovation shown.

At the Rathkeale site, small rock groynes spaced fairly close together were rebuilding the bank edge quite successfully, and slowly improving the protection of the low stopbank around the college grounds, thus proving the adage that less is sometimes more. The use of large gravel groynes at Henley Lake would normally be dismissed on a river like the Ruamahanga, but have survived the February floods and boosted the protection of the area while improvements are made downstream.

The reviewers conclude that given the resources available, the correct decisions are being made in regard to maintenance works. An innovative approach to problems is evident and this should be encouraged, provided the possible risk of failure and its consequences are accepted.

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