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Committee Rural Services and Wairarapa
Author Ian Gunn, Land and River Operations Manager

Lower Wairarapa Valley Development Scheme Rating Review

1. Purpose

To update the Committee on a new rating classification for the Lower Wairarapa Valley Development Scheme, and to recommend a sub-committee is formed to approve the new rating classification.

2. Significance of the decision

The matters for decision in this report do not trigger the significance policy of the Council or otherwise trigger section 76(3)(b) of the Local Government Act 2002.

3. Background

The Lower Wairarapa Valley Development Scheme (LWVDS) has been in place since the early 1980's. Construction commenced in 1963 and it was completed in 1983. Since that time only minor changes to the rating classification have occurred.

A review of the rating scheme is long overdue. Because of its age the current rating classification has a number of anomalies. The classification was developed prior to the construction of the Scheme. Parts of what was originally proposed have not been constructed, e.g. polders. In the 1980's there was a change from capital value to area rated. All areas of government land were rated as Class A rather than on benefit. Some areas have therefore been over-rated for a long time.

A Review Committee comprising representatives of the Advisory Scheme Committee, Department of Conservation, local iwi, and the South Wairarapa District Council was formed in 2004. Various consultants have worked with the Review Committee – David Bulman (Scheme Classifier), Gary Williams (River Engineer), Doug Hicks (Land Management Advisor), Bill Armstrong (Environmental Advisor) and Phil Wallace (Hydraulic Modeller).

The Scheme has a benefiting area of 40,000 hectares. The total value of the development work in today's dollars is \$80 million.

The elements of the Scheme are:

- A dredged channel from Lake Onoke to the Tuhitarata Bridge.
- The dredged channel created “The Diversion” which linked two sections of the Ruamahanga River such that the river flows directly to the sea at Lake Onoke. Prior to the scheme the Ruamahanga River flowed into Lake Wairarapa before flowing to the sea.
- The construction of the Barrage Gates. This structure comprises six radial gates which are operated to maintain lake and river levels as appropriate.
- The Ruamahanga River with 65 kilometres of channel in the scheme.
- The Tauherenikau River.
- Eastern and Western tributaries.
- Downstream of Martinborough the Ruamahanga River is stopbanked. In total there is 200 kilometres of stopbank.
- Two standards of stopbank have been constructed. In the lower reaches the flood protection standard has a 100 year frequency (in the areas which were dredged), and in the upper sections it is a 20 year frequency.
- There are 130 culverts and floodgates.
- Within the Scheme there are a total of 12 drainage schemes, six of which are pump drained.

The annual maintenance programme is the order of \$500,000.

The Scheme today is seen as a major success. The Scheme withstood the onslaught of the flood events of 2004 and 2005 extremely well. In some areas the stopbanks constructed to a 20 year frequency were overtopped. One old stopbank (constructed pre-scheme) failed in the lower Huangarua River.

With the whole Scheme now having operated for 20 years, and having paid off its loan from central government, it is considered that a review is timely.

4. The Process

In setting up the new rating classification scheme we need to follow the process as set out in Attachment 1. The classification is almost finalised. Another round of consultation will be required to get endorsement of the scheme by the ratepayers.

5. What has happened

The Review Committee has met on a regular basis and has considered a wide variety of information –

- Flood frequency
- Lake Wairarapa and Lake Onoke levels
- Lake Onoke mechanical openings
- Land Management activities in the contributing catchments
- The history of river movement over time.
- Expenditure in specific areas over the last ten years
- The lower section downstream of Moiki on the Ruamahanga River and SH2 on the Tauherenikau River has been aially surveyed by the LIDAR method. This is an aerial base survey method using laser information with a contour accuracy of ± 100 millimetres.
- A hydraulic model. Two scenarios have been modelled, an event of similar size to the 2004 flood event for stopbanks up and stopbanks down.
- An environmental assessment of the impact on the Lower Wairarapa Valley Development Scheme.
- Considered a number of classification scenarios.
- Developed a revised maintenance budget and capital works programme for the next ten years.

6. The New Rating Classification

Information has been loaded into the Geographic Information System (GIS). The LIDAR information has enabled detailed information on the shape of the land to be used in the classification. Data is stored in pixels, being areas representing 20m x 20m square.

A number of layers have been built up to formulate the classification, as follows:

- The extent of the Scheme.
- The flood extent.
- The depth of floodwaters caused by the 1947 flood and flood extents on tributaries and upstream of Moiki on the Ruamahanga River.
- A layer representing the protection from flooding
- The erosion risk and flow paths.
- A layer representing the protection from erosion and course changes
- Drainage scheme areas.

- Dredge filling areas.
- The Manganui diversion
- The areas at risk from stopbank breaches due to river bank erosion.

Points have been allocated to each layer in two steps:

- Points to reflect the hazard
- Proportions to show the protection or not from the Scheme

(a) The Scheme Extent

This comprises two areas:

- The area directly affected by the scheme, i.e. the area which receives protection from the scheme (see Map 1 attached). 10 points have been allocated across this layer for general flood mitigation benefits.
- The area indirectly affected by the scheme, basically the hinterland surrounding the directly affected area (see Map 1), e.g. the Western Lake area to the Forest Park from Abbots Creek to Wharekauhau, and a similar area on the eastern side of the valley from Popes Head to Whangaimoana on the Palliser Coast. Residents of this area, which includes Lake Ferry, Pirinoa, Martinborough, and Wharekauhau, receive an access benefit from the scheme. Without the scheme these areas would be isolated on a regular basis. Any wetlands over 4,000 square metres have been excluded from the scheme extent dependent on location. A charge has been calculated based on the separately used or inhabited parts of the rating unit, i.e. a dwelling charge.

(b) The Flood Extent

This is the area flooded by the 1947 flood event and is the largest flood on record. The opening at Lake Onoke was partially blocked. Based on the aerial photography and the LIDAR information, this included all land below 13.6m (the Lower Valley datum), plus upstream of this area the zone of flooding on the floodplain. This layer regardless of location has been allocated 40 points.

(c) The Depth of Floodwaters

Up to 210 points have been allocated dependent on the difference between the 13.6m level and the ground level determined by the LIDAR survey (see Map 2 which also includes the points from the flood extent as in (b) above).

(d) The Flooding Protection Layer

The flooding protection layer proportions the points allocated for the flood hazard, being

- To the directly affected area of the scheme extent, 10 points
- The floodability layer, 40 points

- The depth, up to 210 points.

The totals are reduced on a percentage basis dependent on the protection afforded by the scheme.

The depth of water pre and post scheme has been compared using the hydraulic model. Upstream of the Barrage Gates the hydraulic model has been used to see what occurs with and without stopbanks. Downstream of the Barrage Gates the flood levels of the 1947 flood event have been used to show the benefit of the stopbanks constructed in this area.

The adjustments are shown on Map 3. They are made by reducing the points by a percentage. For example, floodways have received less benefit so the points have been reduced by 80%. Areas around Lake Wairarapa have benefited from the operation of the Barrage Gates and the Lake Onoke openings. However, Lake Wairarapa is used to store floodwaters and so a reduction has been applied.

This layer then shows the flood mitigation benefits from the protection works developed by the Lower Wairarapa Valley Development Scheme.

(e) Erosion Risks Flow Paths

All the rivers are vulnerable to erosion. The river edge has been mapped and assessed from an erosion perspective. Areas vulnerable to erosion on the edge of Lake Wairarapa have been identified. Flow paths where the river could break out from its current alignment have been mapped.

Points have been allocated (see Map 4) varying from 20 to 300.

Landowners adjacent to the river receive a direct benefit from scheme works to hold the river alignment by protecting the river edge and maintaining the river channel capacity.

(f) The Erosion Protection Layer

The points allocated for erosion and flow path hazards are reduced on a percentage basis dependent on the protection afforded by the Scheme. The Scheme provides different levels of management of erosion hazards to the tributaries and different reaches of the Ruamahanga River. The percentages reflect the different levels of protection provided by the Scheme (see Map 5).

(g) Drainage Schemes

The Scheme has resulted in lower water levels, whether it be lake or river levels. This has enabled the various drainage schemes to be more effective in achieving their desired drainage. 5 points have been allocated to cover such a benefit (see Map 6).

(h) Dredge Fillings

The initial construction phase of the Lower Wairarapa Valley Development Scheme was to dredge upstream from Lake Onoke to the top of the Diversion. The dredge tailings have filled in low lying areas of the Lower Valley. The areas have been mapped as either gravel or silt. The landowners at these locations have received a direct benefit by having less low lying land. Points varying from 25 to 50 have been allocated as shown on Map 7.

(i) Manganui Diversion

The Manganui Stream originally flowed to the south into the Ruamahanga River. During the development of the Scheme the stream was diverted such that it now flows into Allsops Bay in Lake Wairarapa.

Landowners situated along the old course of the Manganui have gained a significant benefit with reduced flooding and incidence of course change. Points varying from 25 to 50 have been allocated as shown on Map 8.

(j) Risk

As indicated earlier, there are nearly 200 kilometres of stopbank within the Lower Wairarapa Valley Development Scheme. Works to protect and maintain the berm adjacent to the stopbanks form a major part of the annual works programme. During the construction of the Scheme there was a concentration on building the stopbanks. Over time it has become apparent that some stopbanks are located too close to the river edge, or that significant erosion of the berm has occurred, e.g. wavelap erosion in the lower reaches of the Ruamahanga River.

An assessment of the relative risk to the stopbanks has been completed by Gary Williams (Consultant). Points have been allocated, up to 48 in the high risk areas, and are shown on Map 9.

The high risk areas have been identified as the areas requiring upgrade in a capital works programme totalling \$6.5 million over 8 years.

Landowners living adjacent to the stopbanks or situated downstream of the stopbanks clearly gain benefit from the proposed works. A failure in the stopbank can have a significant effect on the integrity of the scheme.

7. The Classification

There are two parts to the classification:

- The fixed charges on the separately used or inhabited part of the rating unit (dwelling/curtilage charge).
- The points system. The points have been allocated per pixel or per mapped area. These have been totalled and divided into the balance of the funds required to fund the works in the scheme (the balance being the

total cost minus the funds collected from the dwelling/curtilage charges). Thus a charge per point is derived. (See Map 10).

8. Scheme Budget

Provision has been made for the order of \$724,000 annual expenditure in the LTCCP. This will include the capital works programme identified in the Scheme review. An additional \$100,000 annually has been requested to improve the maintenance programme. Scheme ratepayers have chosen to increase the maintenance during the review process.

In recognition that the new rating classification may not be in place by the end of June, the Advisory Committee has passed a motion that the rates be increased by 11.5% using the current classification. Therefore there is provision for the increased works programme to proceed.

9. Communication

The Review Committee has been selected to represent a wide variety of interests in the Lower Wairarapa Valley Development Scheme. Landowners within the area directly benefiting from the scheme have been invited to at least two meetings. Newsletters have been circulated to all members of the “old classification area”.

At the meetings landowners with concerns about the rating classification have been urged to contact either David Bulman (Scheme Classifier) or Ranjan Cyril (Scheme Manager). These landowners have been party to further individual or group discussions. Amendments have been made to the classification following both the meetings and the discussions.

Those landowners from the ‘indirect area’ will have been invited to a public meeting.

The Review Committee met on 11 May to consider the classification. They have requested further changes. It is proposed to have a further review meeting followed by a general public meeting in June.

10. Conclusion

The proposed rating classification complies with the requirements of the legislation. It has been widely researched and many of the anomalies from the “old rating classification” have been remedied. Subject to the endorsement of the ratepayers, it should be adopted.

11. Recommendations

That the Committee:

- (1) **Receive** the report.
- (2) **Notes** the contents of the report and recommends to the Policy, Finance & Strategy Committee that an additional \$100,000 (gross) of Scheme maintenance expenditure be approved.
- (3) **Approve** Councillors Buchanan and Long forming a sub-committee and given power to recommend the adoption of the new rating classification, subject to the endorsement of the ratepayers, to the Policy, Finance & Strategy Committee at its meeting on 29 June.

Report prepared by:

Report approved by:

Ian Gunn
Land and River Operations Manager

Geoff Dick
Divisional Manager, Catchment Management