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Report to the Landcare Committee
from Graeme Campbell, Project Manager, Flood Protection Group

Otaki River : Chrystalls Extended Stopbank Report

1. Purpose

- To update the Committee on the cost, impacts and issues surrounding the upgrading of the Chrystalls Extended Stopbank on the north bank of the Otaki River above State Highway 1.
- To recommend to the Policy & Finance Committee that the priorities in the Otaki Floodplain Management Plan (OFMP) (including the Chrystalls Extended Stopbank) be reconsidered as part of its 2003–2013 Long Term Financial Strategy (LTFS).

2. Background

At its 7 June 2001 meeting to hear submissions on the 2001 Annual Plan update, the Policy & Finance Committee requested a report, through the Landcare Committee, on the upgrading options, costs and priority of the Chrystalls Extended Stopbank. This request followed a submission to the Draft Annual Plan by Kapiti Coast District Council (KCDC). An extract from the submission which summarises KCDC's position is included as **Attachment 1**.

The timeframe subsequently set for the Landcare Committee to receive this report was late in the 2001/02 financial year. This timing was intended to allow the potential benefits of the Chrystalls Extended upgrading and the outcomes of KCDC's District Plan non-structural provisions review to be considered together, as part of the Regional Council's 2003–2013 update of its LTFS. The LTFS update process will commence in July 2002.

3. The Present Situation

The “Chrystalls” Stopbank extends from the SH1 Bridge up to the Ramsbottom Property, adjacent to the Chrystalls Lagoon area, some 2km Upstream.

A plan of the site is shown in **Attachment 2** to this report.

The first 500m of stopbank adjacent to Chrystalls Lagoon was upgraded two years ago. That upgrade means that in theory, the whole stopbank, down to SH1, now provides close to 100-year return period protection from overtopping. Nevertheless, there remains a high probability that lengths of the stopbank could be undermined and eroded during a 100 year flood. Sections of the stopbank are immediately adjacent to the river edge with only light rock lining protection. Floods in 1998 eroded through a section of the stopbank. This means that the stopbank does not provide acceptable security in a 100 year return period flood.

Upgrading the remaining length of the Chrystalls Stopbank is included in the Otaki Floodplain Management Plan as priority 4. The priority 1 and 2 works (the first stage of the Chrystalls upgrade and the Rangiuru Floodgates) have been completed and the Priority 3 work (the South Waitohu Stopbank) is programmed to be undertaken over three financial years from 2005–2008.

A budget of \$400,000 has been included for the Priority 4 Chrystalls Extended Stopbank in 2008/09 and 2009/10 of the current 10-year business plan and is sufficient for detailed design, property matters and resource consent applications. The balance of the funding, for construction, would have to be made available in a single financial year. The total estimate, identified in the Otaki Floodplain Management Plan at \$1.026M, was made in 1996 and would now be \$1.2M in today's dollars.

4. Options and Costs Review

Two alignment options have been considered as part of this review exercise. These are:

(1) **River alignment adjacent to Stresscrete**

This alignment is the one considered as part of the OFMP and generally follows the Preferred Channel Alignment but set back just behind the 80m buffer as shown in **Attachment 2**. The revised cost estimate of a stopbank constructed on this alignment is \$1.1M.

(2) **Landward Alignment following the high terrace**

This alignment follows a high river terrace well back from the river edge as shown in **Attachment 2**. The reason for considering this option is that since the initial planning Winstones have acquired a 99 year lease from the Crown on a large area of land behind the Stresscrete yard. They were also granted a resource consent to extract 1,000,000m³ of gravel from the land, leaving it as a 10m deep lake. There are some technical difficulties constructing a stopbank as proposed in Alignment 1 with such a large lake immediately behind.

We consider it prudent to also consider this alternative alignment at detailed design. The estimated cost of a stopbank constructed on the landward alignment is \$1.3M.

Either of the two alignments are technically viable but each offers different benefits. On the positive side the River Alignment (1) is estimated to be cheaper and would protect the Stresscrete yard from flooding. The Landward Alignment (2) however, offers:

- No restrictions with access to the Winstones ballast and extraction operation, or the Stresscrete yard.
- An ability for Council to use a lower level of bank edge protections because the stopbank is well set back from the river (benefit yet to be quantified).
- No problem with potential leakage under the stopbank.
- Better security as the stopbank is away from the river and the extraction operations.

No formal discussions have been held with the Crown, Winstones or Stresscrete on the alternative alignments for the Chrystalls Stopbank at this stage. Given the status of the land discussions and the preliminary nature of the estimates it is recommended that Council consider the case based on a budget of \$1.3M for stopbank construction. Both alignments can be considered in more detail at the design stage.

5. Considerations

Any decision to construct the Chrystalls Extended works ahead of other projects must be considered against a number of issues, as set out below.

5.1 What will the Chrystalls Extended work achieve?

The completion of the Chrystalls Extended stopbank will mean that Otaki Township, inland from Rangiora Road, will be acceptably protected from a 100-year flood event in the Otaki River. Some residual risk would still be shown on the planning maps and some controls will still remain in key areas to reflect the risk of overtopping or failure of the entire stopbank system. This is the same approach that is proposed in Waikanae behind the Kauri-Puriri and Jim Cooke Park stopbanks. The flood risk from internal storm water, and the Mangapouri and Waitohu Streams would still exist.

Council is intending to review the Waitohu Flood Hazard in the 02/03 and 03/04 financial years and any further measures to reduce the flood risk will follow that work. The Mangapouri Stream does not present a comparable risk to the Otaki Township, as the flows are throttled at the railway line by a culvert. Works on the Mangapouri Stream channel have been included in the OFMP at priority 12 and are not provided for in the current 10 year Business Plan.

5.2 Planning Measures

For some months the Council has been working with KCDC on a review of the flood hazard maps and the District Plan provisions to take account of recently completed works. This review does not take account of any benefit from the Chrystalls Extended work, as the programme for its completion is beyond the current 10 year Business Plan; a further review of the District Plan is likely to be done before the works are completed.

It should be noted that the OFMP clearly states that Structural Measures, such as stopbanks, are provided to protect existing development, and not to encourage new development behind them. The intent is to minimise potential flood damages. KCDC's objective of getting the stopbank constructed, so as to remove the perceived "blight" that is hindering development in Otaki, should therefore not be seen as this Council's objective. If we are seen to promote the construction of stopbanks to enable low lying land to be developed then we will have compromised the underlying principals of the OFMP. At the very least, KCDC would need to commit to the residual risk measures before the Regional Council should agree to changing the priority and timing of Chrystalls Extended Stopbank.

5.3 Priority

The priorities in the OFMP are based on a range of criteria including the benefits to existing development. The Chrystalls Extended Stopbank is currently the fourth item on the OFMP priority list as discussed in Section 3 above. Since the priority list was compiled the Council has committed to preparing a more detailed flood hazard assessment of the Waitohu River. There may be justification for holding off the priority 3 South Waitohu Stopbank works until that flood hazard assessment is complete. That would make the Chrystalls Extended Stopbank works the next highest priority.

5.4 Funding

It is not possible to bring forward construction of the Chrystalls Extended Stopbank and remain within the current funding limits, without delaying the start of other projects. The delay of the South Waitohu works would go some way towards achieving a funding balance but is not sufficient in itself. There are other projects on the Kapiti Coast that would have to be deferred (the Otaki edge protections, the Jim Cooke Park realignment and Otaihanga Stage 2 house raising) but they are also important projects. In their submission to Council's Towards a Great Wellington: 2001 Update, KCDC indicated that they would support some variation from the current 50/50 funding policy for this project. They did note that a move to 100% of the costs being carried locally was unacceptable. Council may also look on this as a special case and make additional financial provision. The LTFS presents an opportunity to consider these matters within the context of overall Council expenditure.

6. Summary

The following summarises the review of the Chrystalls Extended Stopbank works currently proposed in the OFMP:

- The preliminary design of the Chrystalls Extended Stopbank has been reviewed and is considered viable; two alignments are proposed for consideration in the detailed design phase.
- \$1.3M should be budgeted for the Chrystalls Extended Stopbanks in the Council's LTFS.
- Other works will need to be deferred to enable Chrystalls Extended to proceed ahead of schedule given the current funding constraints. Council could also consider a variation to the current 50/50 funding policy where the local community will provide a greater share of the cost.

- Planning measures to reflect the residual risk and some planning controls will still be required in the major overflow and ponding areas, once the Chrystalls Extended Stopbank is completed.
- Council should carefully consider the desirability of bringing these works forward given that their reason advanced by KCDC for urgency is in direct contravention of the principles in the OFMP. Nevertheless, there may be justification for increasing the Waitohu south stopbank.

7. Recommendations

That the Landcare Committee:

- (1) **Receive** the report.
- (2) **Note** the contents of the report.
- (3) **Recommend** to the Policy & Finance Committee that the current priorities in the Otaki Floodplain Management Plan (including Chrystalls Extended Stopbank) be reconsidered as part of Council's 2003–2013 Long Term Council Community Plan.
- (4) **Note** that any decision to bring forward the construction of the Chrystalls Extended Stopbank would not obviate the need for planning controls and is likely to require a funding contribution to buy priority for the works.
- (5) **Note** that any decision to bring forward the construction of the Chrystalls Extended Stopbank is likely to have consequences for other flood protection projects.
- (6) **Request** officers to forward this report, and the Committee's resolutions to Kapiti Coast District Council.

Report prepared by:

Approved for submission:

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Attachment 1 : KCDC Submission to "Towards A Greater Wellington: 2001 Update Pg 6"

Attachment 2 : Aerial Photograph of the Chrystalls Stopbank and the Proposed Works