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Report to the Landcare Committee
from Alistair Cross, Senior Resource Planner, Flood Protection

Kapiti Coast Flood Hazard Review : Draft Flood Hazard Maps and District Plan Provisions Work

1. Purpose

To update the Landcare Committee on the review of the Waikanae and Otaki River flood hazard, highlighting:

- the completion of draft flood hazard maps and associated flood level information.
- the intent of modified district plan land use controls currently being drafted.

To seek support from the Committee for the review process and associated tasks to follow.

2. Background

2.1 Modified Flood Hazard in Waikanae and Otaki

The Regional Council has made significant progress implementing structural measures under the Waikanae and Otaki Floodplain Management Plans. Consequently, we consider it appropriate to update the flood hazard information in relation to the Waikanae and Otaki floodplains, and to work with KCDC to revise its district plan provisions.

2.2 Recap from 27 August Landcare Committee Meeting

At the August Landcare meeting we reported on the Kapiti Coast Flood Hazard Review (Report 02.502) telling you about the:

- goals and reasons for the review.
- process being followed between the Regional Council and KCDC.
- programme for updating flood hazard information and revising district plan provisions.

The August Landcare report provides important background to the information presented in this report.

2.3 Progress Made

We have made good progress on major review tasks of revising flood hazard maps and forming draft district plan provisions, which form the focus of this report.

Draft flood hazard maps, and associated flood level information, are now ready to be provided to KCDC for their use. The maps are based on a number of assumptions about the current status of flood protection works. It is important that the Landcare Committee is comfortable with the basis and content of the revised draft flood hazard maps before they can be presented to KCDC. These matters are discussed in Section 3 of this report. You should also note that the draft hazard maps may continue to be adjusted until such a time as KCDC are ready to consult the community.

It is anticipated that KCDC will immediately begin to apply the revised hazard information when they assess new development proposals. Nevertheless, we recognise that the manner in which the hazard information is applied will be up to KCDC to determine.

Drafting revised district plan provisions, based on the modified flood hazard, is continuing. The joint WRC / KCDC officer working group has developed a set of revised hazard classes, applying a consistent approach for both river and stream flooding. These hazard classes provide the basis for modified district plan provisions being formed at this stage. The proposed nature of modified provisions is outlined in Section 4 for your information.

3. Explaining Draft Flood Hazard Maps

3.1 Understanding Direct and Residual Risk

The changes discussed below are mainly expressed in terms of *direct* or *residual* flooding risk, and these are important concepts to understand.

Direct flood risk affects those areas expected to flood directly in a 1 in 100-year flood event¹. Conversely, *residual flood risk* affects areas protected by flood mitigation structures constructed to the 1 in 100-year standard. Residual risk areas would only be flooded if a stopbank failed or was overtopped by a flood greater than the 1 in 100-year standard.

3.2 General Refinements

The direct flood risk for Waikanae has been substantially reduced leaving an increased area of residual risk. However, Otaki township remains affected by direct risk flooding. Improved flood modelling and mapping techniques have also enhanced the accuracy and detail of flood hazard information presented on the maps. In particular, the positioning of overflow paths has been improved.

¹ Both direct and residual risks are expressed in terms of the 1 in 100-year flood event, which is the design standard for the Waikanae and Otaki Rivers.

The main changes to the flood risk are shown on the draft maps (**Attachments 1 and 2**). We will make a presentation on these maps at the Committee meeting.

It should be noted that flood hazard classes in the maps have also been revised. These revisions are needed to tie in with the proposed modification of existing district plan provisions. The revised classes are presented in Section 4.1.

3.3 Waikanae River

North Bank

The Kauri-Puriri stopbank upgrade (completed in 1997) and proposed river realignment works adjacent Jim Cooke Park substantially reduce the flood risk to the Waikanae urban area.

Under the current programme, construction of the Jim Cooke Park channel realignment work commences in 2004/05. Until these works are completed, Jim Cooke Park stopbank is exposed to a significant breach risk, as the existing alignment does not provide adequate erosion buffer protection for the stopbank.

It is important to note that the land affected by a breach of Jim Cooke Park stopbank has now been classified as residual risk, and assumes that the realignment work will occur as currently programmed. The basis for this is that the lag between updating flood hazard maps in the Kapiti Coast District Plan and the completion of realignment works may only be two years. Furthermore, the risk of a 100-year flood event during that period is marginal, and the land area affected is not substantial. Therefore, assigning the modified risk to the land beyond Jim Cooke Park under the current review is considered to be a practical and justifiable solution. However, the flood risk may need reclassifying should changes to the programme occur through the forthcoming LTCCP process.

Other flooding features affecting the north bank area include direct risk flooding from the Waimeha and Ngarara Streams which remain unchanged at this stage².

South Bank

There has been little change to the flood risk to land south of Waikanae River, apart from refinements due to improved flood modelling techniques. The area adjacent to the river, including Otaihanga, remains dominated by direct risk flooding.

² A review of the flood hazard associated with these streams will be carried out in tandem with the KCDC review of local stream flooding.

3.4 Otaki River

North Bank

Otaki township remains exposed to direct risk flooding, due to a possible breach of the existing Haul Road stopbank³ upstream of State Highway 1. However the upgraded Chrystalls stopbank already provides some significant benefits to Otaki. It modifies the flood risk to a residual risk in the area immediately downstream of the stopbank, and reduces the flood extent and associated levels through the Otaki township.

The breach potential of the stopbank downstream of the State Highway results in small areas of residual risk beyond the stopbank. The large ponding area at Rangiuuru (adjacent to the river mouth) continues to be affected by flooding from Waitohu Stream.

Effect of Chrystalls Extended Stopbank

The attached Otaki flood hazard map assumes that a proposed new Chrystalls Extended stopbank has not been constructed. However, the effect of a Chrystalls Extended stopbank on Otaki township has been modelled revealing that a secure stopbank would change the direct flood risk to a residual risk over a substantial part of Otaki. A revised version of the flood hazard map, which assumes completion of the Chrystalls Extended stopbank, will be presented to the Committee.

South Bank

The flooding extent south of Otaki River remains largely unchanged. However, the modelling of river flooding has been extended into the lower Mangaone catchment, although this has not been shown on the draft maps at this stage for technical reasons.

3.5 Changes to the River Corridor Hazard Area – Waikanae and Otaki Rivers

Modifications have been made to the river corridor area to include a greater recognition of the erosion hazard. This has widened the river corridor margins along the two rivers. The Otaki river corridor now incorporates seepage areas outside the northern stopbank, downstream of State Highway 1.

3.6 Map Refinements to Come

Map refinements yet to be completed include integrating local stream flooding information, which will be provided by KCDC. A full Mangaone Stream flood extent will also be included on the final Otaki flood hazard map. Additionally, ongoing minor technical refinements may continue until KCDC is ready to consult the community on the draft district plan provisions.

³ The Haul Road stopbank spans the general area earmarked for the proposed Chrystalls Extended stopbank.

4. Revising District Plan Provisions

4.1 Revised Flood Hazard Classes

Flood hazard classes have been revised to reflect the modified flood hazard, as well as achieving consistency with other floodplains in the western region, such as the Hutt Valley.

The revised classes include:

- ***Overflow paths:*** including both residual and direct risk overflow paths, where flood flows are expected to be swift.
- ***Ponding areas:*** including both residual and direct risk ponding areas, where flood waters are not fast-flowing but may be deep.
- ***River and stream corridor hazard areas:*** the flood hazard associated with river and stream corridors, including erosion hazard areas for the major rivers.⁴

The flood hazard terminology may change as the officer-working group continues to develop and analyse draft provisions, and examines how the flood hazard classes would likely be applied.

4.2 Modified Draft Provisions: General Description

Draft district plan **provisions** are likely to retain a mix of controls, but with a significant reduction the level of planning controls in residual risk areas and an improved recognition of the erosion hazard. Only the basic intent of modified provisions can be reported at this stage, because the officer-working group is still working on the details of the draft provisions.

The general level of control from modified provisions and the likely degree of change from existing provisions, currently being considered, are provided below.

Reduced Controls

- ***Residual risk ponding areas:*** no controls.
- ***Residual risk overflow paths:*** earthworks and building site controls to maintain flow paths, but no floor level controls.

Similar Controls

- ***Direct risk ponding areas:*** 1 in 50-yr building floor levels for existing allotments or 1 in 100-yr building sites for new allotments, but no earthworks controls.
- ***Direct risk overflow paths:*** 1 in 50-yr building floor levels for existing allotments or 1 in 100-yr building sites for new allotments, and earthworks and building site controls to maintain flow paths.
- ***River corridor hazard areas:***
 - ***River corridor zone:*** no change to current earthworks and building restrictions.
- ***Local stream flood storage areas:*** no change to current earthworks and building restrictions. Final details to be determined by KCDC.

⁴ Erosion hazard areas incorporate the existing cliff top erosion zone.

Increased Controls

- ***River corridor hazard areas:***
 - *Flood erosion areas:* building setbacks to allow for erosion risk.
- ***Local stream corridor hazard areas:*** earthworks and building setbacks, including existing 5m/10m setbacks for minor streams where a corridor is not shown.

District plan **policies** are also likely to be amended to support a number of issues including:

- Modifying the flood hazard, and recognising new features such as erosion hazard and stream corridor areas.
- How residual and direct flooding risk will be treated.
- Using other methods, including emergency management and voluntary actions, to help manage adverse flooding effects.

5. The Programme and Process to June 2003

A feature of this year's programme is the gradual transfer of responsibility for the review process from the Regional Council to the Kapiti Coast District Council. KCDC is expected to lead much of the process following the presentation of draft hazard maps, with the Regional Council providing support as required. Preparing plan change documents and subsequent applications would also be carried out by KCDC. Table 1 provides an updated programme to June 2003⁵.

Table 1 : WRC and KCDC Tasks Through to June 2003

Task	Who	Finish By
Provide draft flood hazard maps to KCDC	WRC	October 2002
Revise planning provisions	KCDC / WRC	October 2002
Seek approval for public consultation from KCDC	KCDC	November 2002
Consult with the Kapiti Coast community	KCDC / WRC	April 2003
Revise provisions following consultation	KCDC	May 2003
Prepare and notify plan change documents and subsequent applications	KCDC	July 2003

⁵ A programme was also provided in Report 02.502.

6. Communication

There are no direct communications required with the community stemming from this report. The main communications will happen through the consultation process on draft maps and measures, currently proposed to take place from December 2002. However, it should be noted that the priorities for plan drafting tasks, including the consultation phase, will be considered by KCDC at the 28 November 2002 meeting of their Environmental Management Committee.

The timing, extent and nature of any consultation with the community will be determined by KCDC, and the Regional Council will provide assistance as needed. Assistance is likely to be in the form of technical input in to consultation material and at various meetings that may form part of the consultation process.

We have presented the preliminary hazard information to the Otaki and Waikanae Friends of the River Groups.

7. Recommendations

That the Committee:

- (1) **Receive** the report.
- (2) **Note** the contents of the report.
- (3) **Note** that modification to the flood hazard in Waikanae, beyond the Jim Cooke Park stopbank, is in response to currently programmed channel realignment works.
- (4) **Endorse** officers forwarding the new flood hazard information for KCDC use.
- (5) **Support** the programme and process for completing the Kapiti Coast Flood Hazard Review.

Report prepared by:

Approved for submission:

ALISTAIR CROSS
Senior Resource Planner

GEOFF DICK
Manager, Flood Protection

PHILLIP PURVES
Senior Engineer

ROB FORLONG
Divisional Manager, Landcare

Attachment 1 : Draft Waikanae Flood Hazard Map

Attachment 2 : Draft Otaki Flood Hazard Map