

Executive Summary

This report draws together the analysis of the hazards associated with the Mangaroa River to assist in the preparation of planning and policy controls for the Mangaroa Valley.

A coupled one and two dimensional hydraulic model of the major channels in the valley was developed to predict and quantify the flooding hazards, further information about the model can be found in the Hydraulic Modelling Report GW/FP-T-06/63. The model was also used as part of a geological and morphology study to identify areas of the floodplain at risk of erosion by the river. Further detail of this investigation is contained within the Erosion Report GW/FP-T-06/64.

Where these hazards have a high impact on property or endanger life, a damage assessment has been carried out to provide an indication of the levels of risk associated with the river. The hydraulic model was then used to investigate the potential for a flood warning system on the river.

This investigation has identified extents and depths of flooding for a range of storm events and has established recommended building levels based on the 100 year flood. An “erosion hazard corridor” has been developed from the setbacks determined for each “at risk” area in the geomorphology and erosion investigation. Flood and Erosion Hazard Plans, included in this report, collate the findings of these investigations.

The major findings and recommendations from this investigation are summarised below:

- In large flooding events the ponding behind Wallaceville Hill Road helps reduce the severity of flooding downstream of the road. This area should be maintained as a storage zone. Greater Wellington may wish to take this a step further and formalise the overflows into this area as long-term flood mitigation.
- The UHCC District Plan makes all building within the expected 100 year flooding zone of the Hutt River a discretionary activity. This policy should be brought through to the Mangaroa River Valley to control development.
- A number of existing residential buildings were found to be at risk of flooding. These locations include the Upper Mangaroa area around Johnson’s and Russell’s Road, the Huia Homestead area, the house upstream of the Mangaroa Hill Road and the Maymorn Road Residential area.

These areas should be investigated further to identify possible protection measures that could be implemented to reduce the risk.

- The Whiteman’s Valley Road Bridge at MIKE11 chainage 9010 was found to be a potential location for a flood warning system that could provide warning to many of the at risk areas in the flood hazard zone. Evacuation procedures could be developed for the at risk areas. Furthermore a gauging station at this location would assist in future calibration of flood flows as it is will be unaffected by the water levels of the Hutt River.

- Erosion hazard setbacks have been recommended for development around the river channel. No new development should occur in these zones unless justified by site specific analysis of the erosion hazard.
- The Earthworks restrictions in the UHCC District Plan should be applied to the erosion hazard zone developed in this study.
- Further investigation of the stability and risk should be carried out in specific locations where buildings are currently within the erosion hazard zones.