

Report 09.511
Date 6 August 2009
File N/03/18/21

Committee Hutt River Advisory
Author Daya Atapattu Team Leader, Western FMPs

Mills Street stopbank – preferred alignment

1. Purpose

To advise the Hutt River Advisory Subcommittee on alignment options for the Mills Street stopbank and to seek the Subcommittee recommendation on the preferred alignment.

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

Hutt River Floodplain Management Plan (HRFMP)

The HRFMP was completed in 2001. It sets design standards for implementing structural and non-structural measures to greatly reduce the existing flood risk to Hutt Valley. The nominal design standard for flood defences from Kennedy Good Bridge (KGB) to Ava Rail Bridge caters for the 2300 cumec (1 in 440 year) flood. However, as a hedge against climate change and other factors the stopbanks in this reach will be constructed high enough to contain a 2800 cumec flood (refer to chapter 3 of the HRFMP). The high design standard chosen will significantly reduced the existing flood risk to Hutt City. As a result GW has not pursued any district plan restrictions on the landward side of the stopbanks to manage the residual flood risk.

Greater Wellington commenced upgrading the Hutt River flood defences in 2001 to the standards and priorities set in the HRFMP. Ava to Ewen project is now substantially complete and the Boulcott/Hutt stopbank project is now progressing through the detailed design and consents phase. The next priority of the HRFMP is the City Centre project. The Boulcott/Hutt and City Centre projects are scheduled for completion by 2013 and 2019 respectively.

Mills Street stopbank

The Boulcott/Hutt stopbank extends downstream from KGB to a point approximately 70 metres upstream of Mills Street. The City Centre project extends from the Mills Street end of the Boulcott stopbank to Ewen Bridge. The Mills Street section of the stopbank forms part of the City Centre Project.

The current stopbank at the end of Mills Street extends into the floodway and, combined with the Transpower substation and Safeway Storage, form a major constriction. The substation and a part of the Mills Street stopbank are located within the 80 metre wide alluvial erosion area of the Hutt River.

In the late 1990s, Transpower agreed to relocate the critical equipment including the pylons outside the erosion hazard area of the river.

Attachment 1 contains a copy of the report on ‘Mills Street stopbank alignment and property purchase’ which provides more details.

4. Boulcott/Hutt project investigations

The feasibility study for the Boulcott/Hutt project involved hydraulic modelling of flood flows to set design levels for the stopbank. A number of channel widening options up to the substation were investigated to reduce the effects of the constriction at the substation. The option adopted resulted in lowering of flood levels by around 300 mm. At this stage it became evident that extension of channel widening to Mills Street or below would provide further benefits.

During consultation with the affected parties for the Boulcott/Hutt project, officers also became aware of the proposed SH2 improvements with possible SH2 widening in to the floodway.

Any channel widening at the Mills Street end has to be located on the left bank because of the existing narrow berm on the right bank.

5. Mills Street investigations

The property at 41A Mills Street came on the market in May 2009 when officers were considering a realignment of the stopbank at Mills Street to provide more berm space. As there was already a very strong case for additional left bank land, GW decided to “do the right thing” by buying the property to avoid the unnecessary disruption that would be caused to a new owner when there were possible stopbank upgrade improvement plans proposed.

This required bringing forward some of the City Centre investigations to determine an alignment for the Mills Street stopbank to provide certainty to the affected residents. Hydraulic analysis and an analysis of possible options were carried out.

6. Mills Street stopbank upgrade options

An early analysis of the available berm areas showed that a safe and secure stopbank cannot be constructed at a reasonable cost on the current alignment while accommodating a wider channel and a widened SH2. **Attachment 1** provides details of available berm widths and effects of channel and SH2 widening.

Flood wall

A high floodwall (about 3 metres high above ground and more than 150 metres long) constructed along the existing alignment could avoid a realignment and hence land purchase. This is the only advantage of this option.

However, the disadvantages of this option include;

- Extensive works would be required in the foundation and for bank edge protections, adding millions of dollars to the City Centre reach cost. Recent geotechnical investigations have shown that poor foundation conditions with high seepage could be expected in this area. Extensive edge protection works would also be required to protect the flood wall from erosion damage.
- Floodwalls do not provide a high level of security over a long period of time when compared to a stopbank
- A floodwall, compared to a stopbank, would most certainly cause a loss in amenity to those properties adjoining the Mills Street side of this wall.

On balance, a flood wall is not recommended in this location.

Stopbank options

Two stopbank alignment options, 'yellow and blue', were investigated (refer to Fig 2 of Attachment 2). Both options involve land purchase causing disruption to residents of Mills Street. The 'yellow' alignment involves the purchase of 4 properties costing approximately \$2.4 million (net after re-sales) and the blue alignment involves the purchase of a total of 11 properties costing approximately \$6 million (net after re-sales). Note that the yellow alignment passes through a portion of the property at 4/39B Mills Street. It is proposed to avoid the purchase of this property by constructing small retaining walls which will be done in consultation with the owner. If the detailed design was not able to be done in a manner satisfactory to both Council and the owner, the Council would offer to purchase this property.

39B Mills Street is occupied by 4 dwellings held under cross lease. Council requires one dwelling to facilitate its work, but may be required by the owners to purchase all four dwellings. At the completion of the work, three of the dwellings will be available for resale.

Both alignments may require the purchase of additional properties because of the existing cross lease and company ownership arrangements. Any surplus properties would be able to be on sold at the end of the project. A comparison of benefits of lowering flood levels and velocities with the costs and disruption shows that the benefits of the blue option over the yellow are marginal (refer to attachment 1 for details). The blue option may be ideal in a ‘greenfield’ situation where there were no existing development and no requirement to dislocate people. The blue alignment may not provide any significant benefits over the yellow option as the hydraulic benefits from moving up to blue are insignificant.

Other options – not investigated

A number of other options were raised by key stakeholders during discussions. The following table provides reasons for not investigating them any further.

Option	Comment
Piping of river flows	It is not practical to pipe Hutt River flows as they are too large.
Pumping of river flows	It is not practical to pump thousands of cumecs of Hutt River flood flows. (for comparison, the capacity of the large Opahu Stream pump station is only 9 cumecs)
Concrete lined channel	Concrete lined channels are not suitable for gravel bed rivers because of foundation issues and gravel movement down the river. They are also environmentally unacceptable.
Gravel extraction	Currently up to 80,000 m ³ of gravel per year is extracted from this reach of the river to bring bed levels down to ‘optimum bed levels’. Gravel extraction helps to keep frequent floods within the river channel but they make no significant difference to major floods requiring a wider floodway.
Relocating stopbanks closer to the river from KGB south to drive floodwaters through at high velocities (Venturi effect)	This will cause high upstream flood levels at Belmont and excessive bank erosion due to the high velocities. High cost edge protection works would be required to protect stopbanks from erosion damage. A proposal to locate stopbanks along the Harcourt Werry Drive was previously rejected due to security and sustainability reasons.

In summary, a realignment of the stopbank at Mills Street to provide a wider berm is the most secure and sustainable solution. The yellow alignment provides sufficient berm width to accommodate a wider channel and the proposed SH2 widening and to construct a secure earthen stopbank at a reasonable cost. Officers do not believe any further investigations will provide a different result.

7. Land purchase

The City Centre stopbank investigations and the detailed designs are scheduled to commence in 2012/13 with planning approvals to be sought in 2014/15 and construction from 2015 to 2019. Any land purchase, until the land is required for construction, will be on an owner offering to sell basis. If required, the affected residents could be given more time within the construction period, 2015 – 2019, by phasing out the works.

At this stage, out of the 4 properties required within the yellow area, one is already purchased and a second has been offered to Council.

8. Communication/Consultation

Most of the affected residents were contacted by telephone. Two rounds of group meetings were held with the affected residents in the yellow and blue areas. Individual meetings were also held with a number of affected residents. Hutt News and the Dominion Post gave wide publicity to the proposal. A presentation was made to the Central/West Community Committee on 11 August. The affected residents were given an opportunity to meet with project consultants on 13 August to discuss more technical issues.

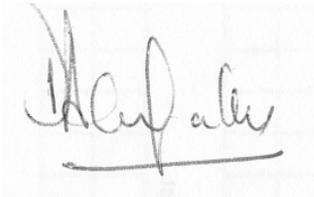
In order to provide certainty to the affected residents, the Hutt River Advisory Subcommittee meeting scheduled for October was brought forward to 26 August 2009. This will enable the Subcommittee to consider the officers recommendation and make a recommendation to the Catchment Committee to consider at its meeting on 1 September 2009.

9. Recommendations

That the Subcommittee:

1. **Receives** the report.
2. **Notes** the content of the report.
3. **Notes** that the yellow stopbank alignment requires the purchase of properties at 56, 41, 41A and 1/39B Mills Street.
4. **Notes** that the yellow stopbank alignment may require the purchase of Flats 2, 3 and 4 at 39B Mills Street and these properties would be sold at the completion of the project.
5. **Recommends** to the Catchment Management Committee that it endorse the yellow stopbank alignment option for Council approval.

Report prepared by:



Daya Atapattu
Team Leader, Western FMPs

Report approved by:



Graeme Campbell
Manager, Flood Protection

Report Approved by:



Wayne O'Donnell
Divisional Manager,
Catchment Management

Attachment 1: Report on 'Mills Street Alignment and Property Purchase