

Report 03.542
Date 7 September 2003
File N/03/17/09

Committee Hutt River Advisory
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Hutt River Floodplain Management Plan: Ava to Ewen project implementation

1. Purpose

To update the Advisory Committee on progress made with the Strand Park land transfer.

To inform the Advisory Committee of the outcomes of investigations to accelerate construction of the Strand Park river realignment and Alicetown stopbank upgrade.

2. Background

As a consequence of the delays in the purchase of Strand Park from the Ministry of Education (MOE), the completion dates for the Strand Park river realignment and the Alicetown stopbank upgrade were pushed out by a year. At the June 2003 meeting, the Advisory Committee considered the delays to the implementation programme and resolved to send a delegation to meet with the Minister of Education to seek the Minister's assistance in expediting the Strand Park land transfer. While some progress was made with the land transfer process, there was no room to significantly shorten the process. The meeting with the Minister was not held. However, a letter was sent to the Minister advising him of issues causing concern to Greater Wellington Regional Council (GWRC) and Hutt City Council (HCC).

At the June meeting the Committee also decided to hold a special meeting if there were any results from the endeavours of the Committee to speed up the works. After receiving an initial response from the Minister of Education, Mayor Terris, Mr Macaskill and Councillor Shields met and asked officers to look at ways in which the completion date of the works could be brought forward.

We have now investigated a number of accelerating options that could advance the Alicetown stopbank completion date. These investigations were carried out in consultation with Opus International Consultants and Cashmore Contracting Limited. We have also visited Linton Quarry in Palmerston North and the Cashmore Quarry in Waiouru to assess rock production capacities of these quarries.

3. Ava to Ewen implementation programme

The completion dates for the Strand Park river realignment and the Alicetown stopbank upgrade, as set out in the Hutt River Floodplain Management Plan (HRFMP) and the now superseded GWRC 2000–2010 ten-year plan, are June 2005 and June 2007 respectively. These completion dates were later reviewed through the 2002 Annual Plan update and the 2003–2013 LTCCP. **Attachment 1** tracks changes to completion dates of the Ava to Ewen project components and gives reasons for those changes. The current completion dates for the four project components are the same as those provided in the HRFMP.

At present, we have a preferred contractor for the realignment contract selected and a largely completed tender document for the stopbank contract.

4. Strand Park land transfer

The MOE land is now well through the Maori Protection Mechanism and Sites of Significance process. Submissions closed on 5 September 2003. The Office of Treaty Settlements (OTS) subsequently extended the submission period by one week. OTS had received one submission by 5 September 2003 and one further submission during the extension period. One submission was a claim for the land but not as a site of significance, therefore this claim will not need to be referred to Te Puni Kokiri. This claim is from an individual who has no ties to the area and resides well outside the region. The second submission is not currently valid as the individual has no recognised claim rights. OTS has granted this individual until 26 September 2003 to establish his right to lodge a claim.

While not classed as a submission, OTS has received a letter from the Wellington Tenth Trust and Palmerston North Maori Reserves Trust advising that the land contained no sites of significance and there was no wish to have the land protected. The two Trusts support the land being cleared through the protection mechanism process and made available urgently for flood protection purposes.

The OTS officials committee will convene to discuss the claims on 23 September 2003 and will report during early October to the MOE's Accredited Agent on its findings and recommendations on conditions of transfer, if any.

The MOE's Accredited Agent will then compile and submit its report to Land Information New Zealand (LINZ). This report is expected to be with LINZ by late October 2003. The subsequent LINZ approval, with nominated conditions of transfer, could be available as early as mid November 2003 (our previous estimate was January/February 2004). In accordance with the MOE/GWRC agreement, GWRC will be granted access to and possession of the land at the time LINZ approves the transfer.

At this stage, we expect GWRC to be in a position to let the realignment contract in early December 2003. The formalities of the transfer of the land into the name of GWRC will follow.

One of the matters still being dealt with is the requirement for an esplanade reserve to be set aside on the disposition of Crown owned land which adjoins a river. This matter is currently being negotiated with the Department of Conservation.

5. Description of proposed works

The river realignment involves excavating material from Strand Park and forming a new right bank berm to provide the foundation and security for the Alicetown stopbank. About one kilometre of stopbank will be reconstructed to provide a 2800 cumec protection to the Alicetown community. The estimated costs of the realignment and stopbank upgrade are \$4.2 million and \$2.6 million respectively. Key project components and implementation constraints are described below.

Key project components

- Excavation of about 85,000m³ of material from Strand Park and its subsequent placement to form the right bank berm.
- Supply of about 29,000 tonnes (1250 truck and trailer loads) of rock to site and placing to form a riprap blanket and four groynes.
- Installation of four upgraded stormwater outlets in the river berm and under the new stopbank.
- Supply of about 25,000m³ (1700 truck and trailer loads) of quarry strippings to site for the stopbank construction.
- Placing and compaction of fill materials in the stopbank to a high compaction standard.

Implementation constraints

- The realignment has to be completed during the dry summer period and is not practical to complete in parts. Excavation, berm formation and rock placement will take a minimum of 25 weeks to complete without any allowance for freshes in the river, wet weather or rock supply problems.
- Our resource consent conditions do not allow construction activities in flowing water during the trout-spawning season of 31 May to 15 September.
- The preferred contractor's nominated source for the rock supply is Linton quarry in Palmerston North. The alternative source is near Waiouru.
- The Linton quarry will require up to two months lead time to gear up to supply rock riprap at a rate of about 250 tonnes per day.
- A 5,000 tonne stockpile of rock is proposed before starting construction of the new right bank berm to act as a surge pile to ensure the new berm is progressively protected and not vulnerable during a flood event.
- A significant length of new stopbank has to be constructed on the newly formed river berm. The berm formation work has to be completed before commencing the stopbank work in this reach.
- The current level of flood protection must be maintained during the construction. This means each stormwater installation has to be carried out behind high coffer dams.
- The Alicetown side of the stopbank is well developed with residential properties restricting construction traffic movements to the narrow berm on the river side of the existing stopbank.
- The stopbank at Ava Park will be founded on an old landfill. Special construction methods have to be adopted to minimise post construction settlement. A surcharge load will be applied and the rate of fill placement will be restricted. The alternative is to remove the landfill at a huge cost with potential disposal problems.
- It is not practical to compact the impermeable fill materials in the new stopbank to the required standard during wet weather.

6. Implementing options

The Flood Protection 2003–2013 Operating Plan makes provision for:

- commencing rock supply to the site in March 2004 and completing the viewing platform by June 2004.
- completing the river diversion and all associated earth and civil works by the end of May 2005.
- completing the planting associated with the river diversion by August 2005.
- appointing the stopbank contractor in July 2005 and completing a significant length of stopbank by June 2006.
- completing a small section of stopbank landscaping and tidying up in the 2006/07 financial year. While the due completion date for the Alicetown stopbank is June 2007, the work could be completed by March 2007.

We have investigated three alternative implementing options that would advance the completion dates for the realignment and stopbank construction. **Attachment 2** shows the time lines for what is allowed in the current Flood Protection Operating Plan (Option 1) and three alternative options. The following sections outline the key features of the options investigated.

6.1 **Option 1: complete realignment and stopbank upgrade by August 2005 and June 2007 respectively**

This is the option that has the lowest risk of not being achieved on time or within budget. In this option, the construction activities for realignment and stopbank upgrade will be spread over a period of three and a half years and the programme allows for any delays due to wet weather, slower rock supply, unforeseen foundation problems, settlement problems in Ava Park or any other matters.

6.2 **Option 2: complete realignment and stopbank upgrade by June 2004 and June 2006 respectively**

The key feature of this option is that the realignment is completed by June 2004. This option was discussed with the preferred contractor in July 2003 and the contractor requested appointment before 1 August 2003 to complete the realignment by June 2004. The appointment could not be made, as the land transfer was still far from certain. We have also subsequently investigated whether a June 2004 completion is feasible with a December 2003 appointment. Our strong recommendation is to not attempt a diversion over this compressed time period.

The main reasons are:

- an additional rock supply source will be required to meet this highly compressed programme. The Linton quarry will almost certainly not be able to supply all the rock. The rest would come from Waiouru at an additional cost of \$11 per tonne.
- failure of rock supply to meet the realignment programme or a hold up in construction will result in leaving unprotected new berm through the winter, reducing scheme security or continuing with work after 31 May, breaching our resource consent conditions.
- extra costs for additional resources to meet the accelerated construction programme.
- contractual risks because contract terms and costs would need substantial re-negotiation.

6.3 Option 3: complete realignment and stopbank upgrade by June 2005 and June 2006 respectively

The programme for the realignment is as for Option 1.

Under this option we have compressed the stopbank construction to a period of 12 months. The stopbank contractor can be mobilised only in July 2005 after the diversion is completed. It is not practical for the stopbank work to commence early and run concurrently with the realignment as the contractors would need to share the same stockpile areas and same access routes with one contractor using earthmoving plant and the other using highway plant. Also, a significant length of stopbank has to be constructed on the newly formed river berm.

This programme is tight with no float time. While it may be achievable in theory we have doubts as to its practicality, even though the risks could be reduced with extra resources. The main areas of concern are:

- wet weather during the summer period – leading to difficulties in compacting stopbank fill materials, with associated construction delays.
- Ava Park settlement issues – we need more than six months to monitor and address any settlement problems.
- unforeseen foundation problems in the one kilometre long stopbank may take additional time to resolve.
- potential extra costs for this compressed contract period.

6.4 Option 4: complete realignment and stopbank upgrade by June 2005 and December 2006 respectively

The programme for the realignment is as for Option 1.

Under this option the stopbank construction period allowed is a total of 18 months. The higher risk section of the stopbank from Ewen Bridge to about 100 metres north of Wakefield Street, shown on **Attachment 3** would be completed by May 2006. The remaining section of stopbank located in Ava Park will be pre-loaded before May 2006 ready for final finishing and soiling by December 2006.

Landscaping works, remaining footpaths and tidying up will be completed during the period July to December 2006. This option has a reasonable float time to allow for any delays arising out of wet weather, foundation problems and settlement issues. We believe that this programme will allow contractor's to optimise their construction methodology and will achieve the lowest cost tender for this work.

This programme allows for the majority of the flood protection benefits to be achieved by mid 2006.

6.5 Option risk assessment

The key risks that need to be considered for all the implementation options are summarised as follows:

- *Further delay in securing the MOE land:* This could still delay the start of realignment works past February 2004 resulting in possible re-tendering, extra costs and delayed completion (beyond HRFMP dates). This risk is applicable to all options.
- *Rock supply:* Options 1, 3 and 4 have adequate float time built into the programme to allow for intermittent delays in rock supply. The contractor will be responsible for managing these delays. If Option 2 is implemented, GWRC would have to negotiate supply of rock from an additional source at extra cost.
- *Wet weather and flood events:* Prolonged wet weather or flood events occurring during the summer construction season could cause delays. Options 1 and 4 should have adequate float time to allow for these delays. However, realignment works in Option 2 and stopbank construction in Option 3 have no float time to allow for potential wet weather delays.
- *Foundation problems along stopbank and Ava Park landfill settlement:* These could cause delays to stopbank construction. All options except Option 3 have adequate float time to allow for these delays.

- *Financial:* Option 2 would have significant additional costs over other options. Option 3 costs could be higher than those of Options 1 and 4 due to the compressed stopbank construction programme.
- *Resource consent requirements:* Our resource consent conditions require a cessation of in river works from 1 June to 15 September. We must plan our works accordingly. We cannot recommend Option 2 as there is a high risk of a consent condition breach resulting from the realignment not being completed by the 31 May deadline.

7. Summary

Option 1 as in GWRC's LTCCP is the option that has the highest certainty of being achieved on time and within budget. The completion date for the stopbank could be advanced to March 2007.

Option 2 is too risky and it would be imprudent for us to recommend it.

Option 3 could be undertaken with additional resources. However, the programme for stopbank is tight and there is a significant risk that the stopbank will not be completed by June 2006. This option also does not provide much additional benefit when compared to Option 4.

Under Option 4 the critical section of the stopbank will be completed by June 2006. Accordingly the risk to the Alicetown area will be greatly reduced and most of the flood protection benefits achieved by that time. The implementation risks are similar to that of Option 3 but there is reasonable time until December 2006 to allow for expected delays to critical work items. No significant extra costs over Option 1 are expected.

8. Communication

A press release will be issued and a newsletter will be distributed once a contractor is appointed for the river realignment. The revised completion dates will be included in these communications.

9. Recommendations

That the Committee:

1. **receive** the report.
2. **note** the contents of the report.
3. **note** that the completion dates for Strand Park river realignment and Alicetown stopbank upgrade, as set out in the HRFMP, are June 2005 and June 2007 respectively.
4. **note** that the target date for appointing the contractor for Strand Park river realignment is 1 December 2003 and that attempting to complete the river diversion during the period January 2004 to May 2004 is considered too risky to undertake.
5. **note** that Strand Park river realignment and Alicetown stopbank upgrade cannot be implemented concurrently and that stopbank upgrade has to follow the river realignment.
6. **endorse** the implementation of Option 4, which provides for completing the Strand Park river realignment by June 2005, the critical section of the Alicetown stopbank by June 2006 and all remaining stopbank upgrade works by December 2006.

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Attachment 1: Implementation programme

Attachment 2: Strand Park river realignment and stopbank upgrade - timeline

Attachment 3: Ava to Ewen project – higher risk section of Alicetown stopbank