



greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

If calling please ask for: Democratic Services

17 June 2019

Hutt Valley Flood Management Subcommittee

Order Paper for meeting to be held in the Council Chamber, Hutt City Council, 30 Laings Road, Lower Hutt on:

Thursday, 20 June 2019 at 4.30pm

Membership of the Subcommittee

Wellington Regional Council

Cr Lamason (Chair)	Cr Laban (Deputy)	Cr Kedgley
Cr Laidlaw	Cr Ogden	Cr Swain

Hutt City Council

Mayor Wallace	Deputy Mayor Bassett	Cr Milne
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Upper Hutt City Council

Mayor Guppy	Cr Swales	Cr Taylor
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Recommendations in reports are not to be construed as Council policy until adopted by Council

Hutt Valley Flood Management Subcommittee

Order Paper for meeting to be held on Thursday, 20 June 2019 in the Council Chamber, Hutt City Council, 30 Laings Road, Lower Hutt at 4.30pm

Public Business

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Please note that these minutes remain unconfirmed until the Hutt Valley Flood Management Subcommittee meeting on 20 June 2019.

Report 19.192

14 May 2019

File: CCAB-14-525

Minutes of the Hutt Valley Flood Management Subcommittee meeting held in the Council Chamber, Upper Hutt City Council, 838-842 Fergusson Drive, Upper Hutt, on Tuesday 14 May, 2019 at 4:35pm.

Present

Councillors Lamason (Chair), Laban (until 5.34pm), Ogden and Swain (Greater Wellington Regional Council); Mayor Wallace, Deputy Mayor Bassett and Councillor Milne (Hutt City Council); Mayor Guppy and Councillors Swales and Taylor (until 5:30pm) (Upper Hutt City Council).

Public Business

The Chair advised that an item not on the agenda for the meeting, regarding a strategic land purchase for flood protection purposes, would be discussed following the conclusion of agenda item 6.

1 **Apologies**

Moved

(Deputy Mayor Bassett/ Cr Swales)

That the Subcommittee accepts the apology for absence from Councillor Laidlaw.

The motion was **CARRIED**.

2 **Declarations of conflict of interest**

There were no declarations of conflict of interest.

3 **Public Participation**

There was no public participation.

4 **Confirmation of the minutes of 21 February 2019**

Moved

(Deputy Mayor Bassett/ Cr Swales)

That the Subcommittee confirms the minutes of 21 February 2019, Report 19.60

The motion was **CARRIED**.

General

5 Hutt Valley Flood Management Project Manager's Report

Graeme Campbell, Manager, Flood Protection, spoke to the report. Genevieve Drake, Communications Advisor, Wellington Water, and Tristan Reynard, Project Director, Wellington Water, made a presentation to the Subcommittee about upcoming flood protection work.

Report 19.166

File: CCAB-14-521

Moved

(Mayor Guppy/ Mayor Wallace)

That the Subcommittee:

- 1. Receives the report.*
- 2. Notes the content of the report.*

The motion was **CARRIED**.

RiverLink

6 RiverLink Project Manager's Report

Graeme Campbell, Manager, Flood Protection, spoke to the report. He outlined the new project structure for RiverLink with a Project Management Board made up of General Managers from Greater Wellington Regional Council, Hutt City Council and the New Zealand Transport Agency. Martin White has been appointed to the role of Project Director and the Project Office has been established in Hutt City Council.

Mayor Wallace and Cr Lamason spoke about a recent meeting with the Minister of Transport, Hon Phil Twyford.

Cr Taylor left the meeting at 5:30pm and Cr Laban left the meeting at 5:34pm during consideration of this item.

Report 19.165

File: CCAB-14-520

Moved

(Mayor Wallace/ Deputy Mayor Bassett)

That the Subcommittee:

- 1. Receives the report.*
- 2. Notes the content of the report.*

3. *Requests that the Subcommittee Chair writes to the NZTA Board expressing the Subcommittee's concerns about the delay in NZTA commitment to progress the proposed Melling Interchange to the consenting stage, with the letter to emphasise the flood risk and risks to life if the next stage is not progressed, and that the proposal meets the targets of the Government Policy Statement for Transport to reduce congestion and reduce deaths on the roads.*

The motion was **CARRIED**.

Noted: The Sub-committee requested that a media release be issued advising that the flood protection work will still proceed but that the benefits of the flood protection work will be significantly reduced in the absence of a commitment from NZTA to progress the Melling Interchange project.

The Subcommittee requested that:

- financial summary information contained in future reports be more expansive and accompanied by appropriate supporting narrative.
- a structural diagram be provided to the next meeting on the structure of the RiverLink project management board.
- A letter being set to NZTA Board expressing the Sub Committees disappointment in the decision not to be part of the Riverlink consent and requesting a revaluation

Additional item for discussion

7 Consideration of land purchase

The Subcommittee discussed the decision of Greater Wellington Regional Council to enter into negotiations for the purchase of the Manor Park Golf Course land. The Subcommittee noted that this proposed purchase is consistent with the Hutt Valley Flood Management Plan, which identifies the Manor Park Golf Course land as a strategic land parcel for priority purchase for flood protection purposes and was not suitable for more intensive development.

The meeting closed at 6:10pm.

Cr P Lamason
(Chair)

Date:



Report 19.207
Date 21 May 2019
File CCAB-14-528

Committee Hutt Valley Flood Management Subcommittee Meeting
Authors Wayne O'Donnell, General Manager, Catchment Management

Action items from previous meetings

Attachment 1 lists items raised at Environment Committee meetings that require actions or follow-ups from officers. All action items include an outline of current status and a brief comment. Once the items have been completed and reported to the Committee they will be removed from the list.

No decision is being sought in this report. This report is for the Committee's information only.

Recommendations

That the Committee:

1. *Receives the report.*
2. *Notes the content of the report.*

Report approved by:

Wayne O'Donnell
General Manager, Catchment
Management

Attachment 1: Action items from previous meetings

Attachment 1 to Report 19.207

Action items from previous Hutt Valley Flood Management Subcommittee meetings

Meeting date	Action item	Status and comment
14 May 2019	<p>Resolution:</p> <p><i>The Sub-committee requested that future reports include financial information relating to major projects.</i></p> <p><i>A structural diagram of the RiverLink project management board shall be provided to the next meeting.</i></p>	<p>Status: Completed</p> <p>Comments:</p> <p>Included in report 19.265</p>
14 May 2019	<p>Resolution:</p> <p><i>The Sub-committee requested that a media release be issued advising that the flood protection work would still proceed but that the benefits of the flood protection work will be significantly reduced in the absence of a commitment from NZTA to progress the Melling Interchange project.</i></p>	<p>Status: Completed</p> <p>Comments:</p> <p>Media release was prepared but not issued. Information in release was included in briefing notes ahead of HVMFSc Chairperson attendance at public meeting about Melling which received front page media coverage</p>
30 October 2018	<p>Resolution:</p> <p><i>Requests that officers investigate the future requirements for rock rip rap in the Region, consider the potential sources, including Greater Wellington Regional Council supporting the development of a local source, and report progress back at the first meeting of the Subcommittee in 2019.</i></p>	<p>Status: <i>In progress</i></p> <p>Comments:</p> <p>An update is provided in report 19.241.</p>



Report 2019.266
Date 13 June 2019
File CCAB-14-532

Committee Hutt Valley Flood Management Subcommittee
Author Alistair J N Allan, Manager (Acting), Flood Protection

Hutt Valley Flood Management Projects Report

1. Purpose

To update the Hutt Valley Flood Management Subcommittee (the Subcommittee) on progress made with general Hutt Valley Flood Management (HVFM) projects.

2. Background

Greater Wellington Regional Council (GWRC) has ongoing projects within the Hutt Valley and its wider catchment. Major projects are further detailed in separate reports. This report tracks and reports on progress of all projects, and provides references to major project reports.

The projects are included in or guided by the Hutt River Floodplain Management Plan 2001.

3. Pinehaven Flood Plain Management Plan Implementation

3.1 Plan Change 42

We are waiting for formal notification from the environment court regarding conclusion of proceedings in relation to the appeals on Plan Change 42.

3.2 Implementation

The Wellington Water Project Manager updated Upper Hutt City Council about design and implementation progress, providing the presentation given to this subcommittee at its meeting on 14 May 2019.

4. Gibbons St erosion repair

The construction of a 200 metre rock line to the design channel alignment has been completed including reinstatement. Areas of the site remain closed off to allow the reinstatement works to establish.

The construction works took 10 weeks to complete with no health and safety or environmental incidents reported. We have received confirmation of payment for the works from NZTA for their share of costs.

5. Consideration of Climate Change

The matters addressed in this report have been considered by officers in accordance with the process set out in the GWRC Climate Change Consideration Guide.

5.1 Mitigation assessment

Mitigation assessments are concerned with the effect of the matter on the climate (i.e. the greenhouse gas emissions generated or removed from the atmosphere as a consequence of the matter) and the actions taken to reduce, neutralise or enhance that effect.

HVFM projects are subject to GWRC's initiatives designed to minimise greenhouse gas emissions and enhance sequestration capacity where possible. These include the proposed Code of Practice (which guides all river management activities undertaken by GWRC for the purposes of flood and erosion protection across the Wellington Region), the GWRC corporate sustainability programme, and GWRC's procurement process and will encourage suppliers and contractors to minimise emissions.

5.2 Adaptation assessment

Adaptation assessments relate to the impacts of climate change (e.g. sea level rise or an increase in extreme weather events), and the actions taken to address or avoid those impacts.

GWRC plans for climate change in assessing the degree of future flood hazard and in determining an appropriate response GWRC applies the following allowances for climate change predicted to occur over the next 100 years in the design criteria for flood hazard investigations:

- Increases in rainfall intensity – 20%
- Sea level rise – 0.8m

6. The decision-making process and significance

No decision is being sought in this report.

6.1 Engagement

Engagement on this matter is unnecessary.

7. Recommendations

That the Subcommittee:

1. *Receives the report.*
2. *Notes the content of the report.*

Report prepared by:

Alistair J N Allan
Manager (Acting), Flood
Protection

Report approved by:

Wayne O'Donnell
General Manager, Catchment
Management



Report 19.241
Date 12 June 2019
File CCAB-14-530

Committee Hutt Valley Flood Management Subcommittee
Author Alistair Allan, Brendan Paul

Rock Investigations – Progress Update No 2

1. Purpose

To provide a (second) progress update on the Subcommittee’s 30 October 2018 meeting request to investigate potential alternate rock riprap supplies.

2. Background

At its meeting on 30 October 2018, the subcommittee requested officers investigate potential alternate rock riprap supplies, particularly in regard to the quantities of rock required for Riverlink, but also for ongoing maintenance and erosion management needs

The main drivers for the subcommittee’s request are a non-competitive Wellington riprap market, high riprap demand and consequent high prices being asked for rock riprap supply.

Contributing factors to this situation include: limited opportunities for quarrying riprap close to Wellington; higher ex-quarry cost of rock compared to other regions in New Zealand (there are only 2 or 3 suppliers in proximity to Wellington); the extra demand created by the Transmission Gully project; and a long haulage cost component.

The objective of this investigation is to review current procurement methods and sources of rock riprap and identify any potential local and new sources of rock supply. The intent of the investigation is to re-examine existing supply sources and align with GWRC’s recently updated sustainability policy.

A verbal update on investigations was provided at the Subcommittee’s 21 February 2019 meeting. [Attachment 1](#) contains a record of the presentation.

This report describes progress and developments since the February 2019 meeting and includes a strategy to take forward.

3. Current Sources of Riprap

The current sources of riprap used by Greater Wellington are outlined in Section 4 of Attachment 1.

4. Current Riprap Prices

Winstones (Linton) ex-quarry charges for riprap are: Type A \$56.66/tonne, Type B \$56.66/tonne, Type C \$91.33/tonne (all excluding GST and haulage costs). The predominant riprap size used is Type C. Cartage from Linton to Lower Hutt is approximately \$20/tonne. With the current high demand for riprap rock there have been availability and quality issues.

A recent request for prices to supply and deliver 3,500 tonne of Type B riprap to a Hutt River site resulted in prices of \$120/tonne and \$102/tonne respectively excluding GST. These prices were supplied by a central North Island source and a Golden Bay source. The lower price was directly linked to a separate riprap supply contract.

Sollys quarry in Collingwood supplied dolomite riprap for Transmission Gully (TG). The riprap was quarried in Collingwood, barged from Tarakohe and landed at Aotea Quay. TG contractor CPB HEB transported from Aotea Quay to Transmission Gully for an on-site cost of approximately \$120/tonne excluding GST. With a more efficient and streamlined operation and an alternative landing site the barge contractor believes this delivered price could be reduced to \$90 – \$100 / tonne excluding GST.

Marlborough District Council and Environment Canterbury both opened quarries to service the high demand for riprap following respective earthquakes. They indicate ex-quarry production costs for Types A, B and C riprap respectively at approximately \$25/tonne, \$30/tonne and \$35/tonne. Rates include overhead, but assumed without profit and GST. These regions are well resourced for riprap quarry site opportunities.

A contractor's representative indicated that Waikato and Auckland ex quarry riprap prices are in the order of \$30 – 35/tonne ex quarry, excluding profit and GST. Phone calls to quarries in the Auckland and Waikato regions confirmed ex quarry prices in the range \$35 – 45 / tonne excl. GST.

In summary a representative price for Type C riprap delivered to Wellington is around \$120/tonne (excluding GST). Ex- quarry riprap charges in other regions are lower, in the order of \$35 - \$45/tonne excluding GST.

5. Potential new sources of riprap

The following riprap sources were investigated. The investigations were at this stage based on available information, conversations, site visits and visual observations. Several sources have been investigated in the past. Specialist geological input was not enlisted. The purpose of this Section is to indicate that there are locations in the region that may produce quality riprap. The challenge is to find a source that: will produce good rock riprap, can be accessed by

heavy plant, is reasonably located, is economically viable and to consider issues that may affect acquiring consents for these sites.

5.1 Mangaroa Valley Quarry

The quarry was visited by officers in the 1990's. Officers' recall that the rock structure was fractured, partly weathered and overall unsuitable for riprap. No further assessment of this source is planned.

5.2 Paekakariki Hill Road

A drive-past inspection of road cuttings indicates rock that may be suitable for riprap at several locations over the Hill Road. The rock shows surface fracturing, but there may be more integral rock as a face is worked. The nature of the rock at this location falls into the "geological investigation approach" outlined in Section 6 of Attachment 1. It would not be possible to quarry directly adjacent to the road. Off-road land would be required. There would be community and consent related issues. Heavy truck / trailer combinations on the existing Hill road would raise local concern. At this stage no further investigation is planned.

5.3 Hill Road Belmont

This location is relatively close to Boulder Hill. The latter, within the Belmont Regional Park, has extensive field rock and underlying bedrock. A drive past inspection of the road cuttings shows rock that is heavily fractured and partially weathered. At this stage no further investigation is planned.

5.4 GW Commercial Forests

Flood Protection staff were escorted through various Upper Hutt forest catchments by Forest Ranger Dion Ngatoro. Ten quarry sites in the regional forests were inspected, some operational and others in abeyance. The quarried product is used to create and maintain forestry roads. The required rock properties for forest road construction are material that is fractured, weathered and packs down when compacted to form a dense road formation. The quarry sites have been selected for these material properties. The properties for rock that produces good riprap are effectively the opposite: high density, hard, limited fracturing and good shape factors.

Two sites showed some of the required rock features that produce riprap. One location was a road cutting on a steep sided gorge. The location is not viable on two counts – it is an essential forestry access road, and the terrain could not accommodate a quarry operation.

The other location is a quarry that is currently being worked. The face included a narrow seam of rock about 1 metre wide, with reasonable rock properties. It is possible that this seam could increase in width as the face retreats. Dion will keep a watching brief on the quarry as the face is worked.

Within the extent of the forests there is a reasonable chance that suitable rock will be present at some location. Dion is now aware of rock properties that may indicate riprap potential. He will note any rock outcrops or seams that may have the required properties.

The instruments governing forestry operations are the Wellington Regional Water Board Act and the Forests Management Plan. Forest policies restrict quarrying material to support only forestry operations. If a suitable rock riprap source were identified in one of the Council's forests, some effort would be required to effect a change to the relevant policies and gain consents. Effecting that change is not considered insurmountable.

5.5 Orongorongo Coastline

There is some history to riprap recovery along this coastline. Informal evidence suggests riprap was collected from the foreshore to armour the Wellington Airport extension in the 1950's. Following that it was used to armour the railway permanent way and other reclamations between Petone and Kaiwharawhara on the western side of Wellington harbour.

From aerial photographs it appears that field rock has been extracted from the foreshore, both south and north of the Orongorongo River. The evidence is the contrast between relatively clear and grassed foreshore land north and south of the Orongorongo River, and a foreshore with high field rock density further north towards the Turakirae Head Scientific Reserve.

The escarpment above the foreshore flats shows a number of large rock faces and outcrops, at 20 to 30 metres above the foreshore. The outcrops indicate surface fracture and some weathering. It could be expected that the integrity of the outcrop rock would improve as a quarry face is developed.

It is likely that these outcrops were the source of the field rock on the foreshore. The riprap yield from the escarpment is uncertain.

Taking field rock from the location is unlikely to be viable. The Turakirae Head Scenic Reserve and rugged wilderness of the site hold special values that would be eliminated by extraction. It is unlikely that consents would be granted for field rock extraction.

The other Orongorongo riprap option is to quarry material from the escarpment. A location near the Wainuiomata Coast Road could avoid the Turakirae Scenic Reserve location. However some of the issues that would need to be addressed are:

- Landowner permissions / agreements,
- Earthworks to access the quarry face (reasonably high scale),
- Impairing site wilderness values and environmental considerations,
- A cycle trail runs along the foreshore road,
- Road hauls to: Hutt Valley c. 40km, central Wairarapa c. 90km, Otaki c. 101km,
- The lower Coast Road is narrow, road improvements would be required,
- Haulage through Wainuiomata valley and township likely to attract community concern,
- Crush (residual rock material) disposal may be an issue,
- Consent applications would attract interest and opposition,

- The costs for geological investigation, consenting, and quarry setup.

Pending geological confirmation of a rock resource, quarry establishment would be a relatively basic operation. The challenges are more likely to arise from the issues raised above. While this location cannot be completely ruled out, other options covered in Section 6 should first be investigated.

5.6 Waiwhetu Hills

The Riser walking and mountain biking trail ascends from the northern end of Te Whiti Park to the Waiwhetu Hills ridgeline. At one location the cut face on the track indicates a rock seam about 10 metre wide. Although fractured and partially weathered the seam indicates good rock features. Overburden is shallow and rock integrity could be expected to improve with depth into the seam. There are a number of other rock seams on the trail.

It is highly unlikely that this source could ever be developed. The trail is in Hutt City Council reserve land, is highly valued by the community for recreation, and the topography of the sites do not lend themselves to quarry operations.

5.7 Collingwood Quarry (Golden Bay)

Solllys' quarry in Collingwood produces good quality high density dolomite rock riprap. The dolomite colour is light brown. When placed on a river bank some observers find the rock colour visually unacceptable. The appearance can be mitigated by infilling the voids with quarry overburden and planting with flax and toitoi.

Solllys supplied 130,000 tonne of dolomite riprap to the Transmission Gully roading project. The riprap was trucked by Solllys from their quarry to Port Tarakohe and loaded to the barge. Heron Construction barge (capacity 3,000 tonne) took the riprap to Aotea Quay wharf in Wellington harbour, and CPB HEB transported the riprap to Transmission Gully. There was a one day turnaround at Port Tarakohe. There were numerous issues and delays at CentrePort, unloading could take 2 – 3 days. It could take up to a week to achieve berthage when other vessels were given higher priority

Heron's believe that given a reasonable landing facility, and without delays imposed by external activities, riprap could be delivered to a Wellington site for \$90 – 100 / tonne. This is a saving of approximately \$20 - \$30 / tonne on current Type C riprap prices.

There are potential landing sites in Wellington harbour that can be investigated. One is located at the reclamation north of the interisland ferry terminal at Aotea Quay. The other is through the Seaview Marina in Seaview Petone. There may be other potential landing sites.

While the indicated per tonne savings appear modest, savings are significant over the projected 20 year demand (refer Attachment 1, Section 2). Heron's Construction believe there are opportunities to improve current Collingwood

prices. An integral part of a riprap procurement strategy is to have alternative supply options.

5.8 Judgeford Quarry

The quarry is located on the northern foothills of the Belmont ridgeline, close to Boulder Hill. Boulder Hill sits within the Belmont Regional Park and has extensive field rock and underlying bed rock. Previous landowners operated the Judgeford Quarry from early to late 1990's. The quarry produced high quality greywacke riprap that was used in the Ewen Floodway Project (10,000 tonne), for rock protection to piers at Estuary Bridge, and probably at other locations.

The quarry operated with limited sediment control and quarrying operations were halted by an Environment Court Enforcement Order in 1999. Interpretation of the scope of the original consent issued by Porirua City Council was in dispute. Quarry operations did not resume.

The CPB HEB consortium, contractors to Transmission Gully (TG), successfully applied for consents to recommission the quarry on behalf of current landowner Willowbank Trustees Limited. Consent applications include constructing a dedicated access track from SH58 to the quarry to minimise impacts on the local community. The initial intent for the quarry is to provide roading aggregate and materials to TG. The consortium is currently finalising consent condition requirements and quarry opening is likely in the near future. Key consents required to operate the quarry were granted until 31 December 2020, or upon opening of the Transmission Gully motorway whichever is the earliest.

Geological assessment and core drilling, conducted to support quarry assessment, indicate the quarry resource is relatively unlimited and rock quality is excellent. Extraction costs will increase slightly as the face height and overburden depth increase.

A CPB HEB representative stated that HEB are very interested to operate the quarry in the long term, and indicated that post TG completion they are happy to produce rock riprap as a mainline product. Operating a high quality rock quarry has synergies in that the crush fraction can be diverted into roading products and the larger fraction into rock riprap.

CPB HEB has set the following targets for the next 6 months:

- satisfy consent conditions, complete quarry setup, and operate the quarry,
- satisfy Willowbank Trustees that the quarry operations are acceptable to the landowner and consent conditions are complied with,
- ensure neighbours, local community and other affected parties are happy with the operation of the quarry,
- ensure that the new access road and SH58 exit / entry slip lanes are operating safely and effectively,

- monitor quarry for operational matters and product quality over the next 6 months.

CPB HEB advise that NZTA have programmed safety improvements for the section of SH58 adjacent to the quarry access road. The improvements comprise roundabouts at Flightys and Moonshine roads and a central wire barrier for the section of SH58 between the roundabouts. The safety improvements will provide quarry access with left turn in / left turn out to SH58, without the need to cross SH58. The safety improvements may be completed before completion of TG.

Pending acceptable outcomes through the 6 month trial period HEB will prepare applications for extensions to existing consents, or new consents, to operate the quarry long-term.

They expect they can produce riprap from the Judgeford quarry at similar prices charged by quarry operators in the Waikato and Auckland regions. The rates may be in the order of \$35 – \$40 / tonne (excluding GST).

A successful Judgeford quarry operation would allow a traditional buy /sell arrangement for riprap. Greater Wellington would not be responsible for quarry investigations, consents and quarry establishment for alternative sources. A well operated Judgeford quarry would eliminate much of the uncertainty in supply, quality and price that currently occurs.

6. Strategy for Alternative Rock Riprap Procurement

Three riprap procurement opportunities are set out below in order of preference.

6.1 Judgeford Quarry

The Judgeford quarry at this stage offers an optimum combination of:

- HEB’s long term intention to produce riprap as a mainline product (pending outcome of their 6 month trial)
- rock from the quarry is excellent quality
- quarry performance will be well proven,
- no GW capital investment and minimal GW input are required,
- geotechnical investigations indicate high rock reserves
- rock quality is good, there is a synergy between producing riprap and other aggregate products,
- this synergy supports a viable and economic quarry operation
- CPB HEB indications that the riprap will be marketed at reasonable rates

Officers consider the Judgeford quarry offers the best opportunity for a long term sustainable riprap supply for the Wellington region. The opportunity will depend on HEB’s decision to apply for consents at the end of their 6 month

trial, and to continue quarry operations after Transmission Gully completion. TG completion is scheduled for December 2020 with a possible extension depending on 2019 and 2020 winter weather patterns. There are risks associated with the above assumptions: quarry operations may encounter unforeseen issues; there may be delays, or lower priority assigned, to the production of riprap; actual prices charged may not reflect current indicated prices. To mitigate some of these risks a Heads of Agreement with HEB may be prudent. It appears HEB will operate the quarry after completion of TG.

Prior to completion of Transmission Gully GW Flood Protection may have an opportunity to purchase rock that is too large for the aggregate crushers, and would be too expensive to break down. This may provide an opportunity to develop systems and build relationships that support both parties' interests.

6.2 Collingwood (Sollys) Quarry

The Judgeford quarry does not at this stage provide certainty of riprap supply, and cannot yet be relied on to meet future demands. As an alternative source the Collingwood quarry has potential to provide riprap at \$20 - \$30/tonne less than the current prevailing rate delivered to Wellington. Refer to Section 5.7 above.

The operation to move rock from Sollys quarry in Collingwood requires coordination between a number of parties vis. Sollys quarry, Port of Tarakohe, Heron Construction (barge owner and operator), the haulage operator from the Wellington landing site. Heron Construction has experience with all operations to move riprap from Collingwood to Wellington, and has views on alternative landing sites. Officers will hold discussions with Herons to see if a viable operation, that achieves a worthwhile cost reduction, is possible.

6.3 New sources / Geological Investigations

If the Judgeford quarry opportunity does not eventuate, or meet expectations, and the Collingwood quarry is not an acceptable substitute because of price or other factors, then the remaining option is to locate a new rock source, obtain consents, open up, set up and operate a quarry. The investigations and confirming a source would probably need to be driven by Greater Wellington. The quarry operations could be achieved through a quarry management arrangement. Another option for quarry set-up, start-up and management may be a limited company where Greater Wellington has a financial interest.

If Collingwood becomes the only option available from Sections 6.1 and 6.2, then locating a new rock source may still remain part of the strategy.

The “new source” approach would utilise specialist geological expertise, techniques and investigations to prove a quarry source. A specialist geological investigation would progress in a series of stages that may comprise:

- Desktop study and technical assessment at macro level of geological maps and aerial photography. For example looking for: indicators outside fault crush zones and uplifts; favourable layers and folds that indicate bedrock; areas of shallow overburden; solid rock features that are visible on aerial imagery,

- On-the-ground inspections; visual inspections of outcrops and rock faces; test pits if required to uncover rock; rock density and hardness tests; visual observations for acceptable weathering, fractures and rock shape,
- Core hole boring investigations to identify: the extent of a rock seam, rock density and hardness, fracture patterns and extent of fracture,
- It may be possible to construct a geological model that identifies potential rock sources.

Before a decision is made to progress beyond a desktop investigation, a preliminary exercise should be conducted. Considerations should include:

- landowner permissions / agreement would be likely,
- acceptable impact on community,
- acceptable impacts on the environment,
- the operation can minimise visual impacts,
- quarry development / overburden quantities are manageable,
- acceptable access to the site,
- a suitable area to operate the quarry and store riprap and crush,
- crush disposal opportunities are available,
- haulage distances to rivers sites are reasonable,
- the cost estimate to develop the quarry is reasonable,
- consent application success indicators are positive,
- cost estimates for investigations, consents, quarry set-up, start-up and operations are reflected in a competitive riprap price.

7. Sustainability and Environmental Issues

All three options suggested in the strategy may be able to achieve more sustainable, environmentally acceptable and regional benefit outcomes than the current supply arrangements.

All current procurement options include long haul distances with medium to high fuel consumptions. None of the current supply and delivery processes are contributing benefits to the regional economy. Environmental compliance and sustainability benefits that can be obtained are set out below.

Future procurement of rock supply will be done in accordance with relevant corporate procurement strategies, the outcomes of these procurement approaches may be influenced by the following;

7.1 Judgeford Quarry

1. The quarry is close to most of the projected riprap demand locations with overall reductions in haulage distances and vehicle emissions,
2. The quarry operation will bring employment and will make a significant contribution to the regional economy,
3. The quarry is consented and consent conditions will minimise impacts on the environment.

7.2 Solllys (Collingwood) Quarry

1. Involves a short 20km road haul at the Collingwood side. Approximate 300 km. barge journey; barges have lower emissions factors per transport unit (g/tonne.km) compared to road traffic (however the efficiency of marine engines has not kept pace with automotive equivalents); and short to medium hauls in the Wellington region. But overall can be expected to be less than emissions from current road sources.
2. This operation will not bring significant employment or make a significant contribution to the regional economy,
3. It is assumed that Solllys quarry at Mount Burnett is consented and complies with the consents. The Mount Burnett area is very sensitive with high environmental values. The area was in 2017 excluded from Tasman District Council's "Outstanding Natural Landscapes and Features" draft plan. Environmental guardians strongly resisted this exclusion.

7.3 New sources / Geological Investigations

1. Any new sites identified and developed would be considered in relation to the criteria outlined above.

8. Consideration of climate change

The matters addressed in this report have been considered by officers in accordance with the process set out in the GWRC Climate Change Consideration Guide.

8.1 Mitigation assessment

Mitigation assessments are concerned with the effect of the matter on the climate (i.e. the greenhouse gas emissions generated or removed from the atmosphere as a consequence of the matter) and the actions taken to reduce, neutralise or enhance that effect.

Officers have considered the effect of the matter on the climate. Officers note that the matter may have an effect that is addressed via the GWRC Corporate Sustainability programme and or GWRC's Procurement policy and may warrant the development of a Detailed Scenario Analysis.

Officers note that the matter may in future affect the Council's interests in the Emissions Trading Scheme (ETS) and the Permanent Forest Sink Initiative (PFSI)

8.2 Adaptation assessment

Adaptation assessments relate to the impacts of climate change (e.g. sea level rise or an increase in extreme weather events), and the actions taken to address or avoid those impacts.

Officers have considered the impacts of climate change in relation to the matter. Officers recommend that climate change currently has no bearing on the matter but may have a future impact, but not a material effect on the matter at present.

9. The decision-making process and significance

No decision is being sought in this report.

9.1 Engagement

Engagement on this matter is unnecessary.

10. Recommendations

That the Subcommittee:

- 1. Receives the report.*
- 2. Notes the content of the report.*

Report prepared by:

Brendan Paul
Senior Engineer, Flood
Protection

Report approved by:

Alistair J N Allan
Manager (Acting), Flood
Protection

Report approved by:

Wayne O'Donnell
General Manager, Catchment
Management



Hutt Valley Flood Management Subcommittee

Meeting, 21 February 2019

Rock Riprap Investigations - Presentation Summary

1. Rock riprap

Rock riprap is a graded selection of rock used to resist erosion by armouring the banks and bed of a river. There are many methods used to apply the armouring but the most common are rock blankets and snub groynes. The rock sizes and grading are designed to resist plucking by high flows, and scour below the rock by settlement into the scour hole.

The desired rock qualities are: not “weathered”, high density (2.7 tonnes / m³ or greater), strong without fracture lines, good shape factors and available at a reasonable cost. Well-shaped rock interlocks but can settle with scour in the bed, a self-healing action.

2. Demand Projection

GWRC Asset Management Plans identify 585,000 tonnes of rock riprap installed in river schemes over the region: Western Region 327,000 tonnes and Wairarapa 257,000 tonnes.

A “rough order 20 year riprap demand projection” for Greater Wellington river schemes is in the order of 460,000 tonnes. The total includes CAPEX/Asset Improvement 215,000 tonnes, Maintenance riprap 140,000 tonnes, and Flood Damage 120,000 tonnes.

3. Historic Riprap Sources

3.1 Plimmerton Quarry

produced excellent quarry products and riprap. Quarry closed due to visual and environmental impacts, and traffic impacts on the community around Moana and Karehana Bays.

3.2 Owhiro Bay Quarry

closed in 1999 the quarry produced excellent quarry products and riprap. Quarry was closed due to visual and environmental impacts on the south coast of Wellington.

3.3 Taumarunui

field rock, good quality but hampered by high transport costs.

3.4 North Wairarapa

limestone, low density and poor quality for use as rip rap in rivers

3.5 Judgeford Quarry

produced excellent riprap. Quarry closed 1999 by enforcement order due to environmental impacts on local watercourse.

There are probably more sources that produced and supplied smaller quantities of riprap to Greater Wellington.

4. Current Riprap Sources

4.1 Winstones (Belmont), Horokiwi and Kiwi Point Quarries

local quarries that primarily service the roading and building industries. Produce good quality but small quantities of riprap.

4.2 Winstones Linton (Manawatu)

generally produces good quality riprap, high ex-quarry cost

(Type A \$57/tonne, Type B \$57 / tonne, Type C \$91/tonnes excl. GST). The quarry has good rock reserves but increasing overburden and deep quarrying increases cost. High haulage costs, in order of \$20/tonne. Current constraints on riprap supply are due to commitments to the Transmission Gully roading project.

4.3 Solllys Quarry Collingwood

produces good quality dolomite riprap. Has been used by Greater Wellington on several projects, and has also supplied riprap to Transmission Gully. Riprap is barged from Port Tarakohe at Golden Bay. The cost of transport by barge and wharfage at CentrePort puts this source approximately into the same price range as Linton quarry. The dolomite colour is light brown and some observers find the rock colour visually unacceptable.

4.4 Byford's Quarries

Central North Island (Taihape), field rock. Good quality, same price range as Linton quarry. Supply also influenced by higher haulage costs

4.5 Central North Island, Taranaki / Taumarunui

over the years several other suppliers from this area produced field rock. Same constraints as Byford operation.

5. Potential Sources of Riprap

Possible sources of riprap (some have been used in the past) that will be further assessed in the next step of this investigation are set out below. The investigations are at this stage based on available reference material, site visits and visual observations. Specialist geological input has not been used.

- Mangaroa Valley – quarry visited in 1990's.
- Paekakariki Hill Road – roading cuttings indicate suitable rock features.
- Hill Road Belmont – roading cuttings indicate some suitable rock features.

- GW commercial forests – a number of quarries in the forests, material used to construct forest roads.
- Orongorongo coastline – field rock on foreshore has been extracted from this source. (Wellington Harbour Board / KiwiRail to armour the rail permanent way and reclamations along SH2 between Petone and Kaiwhawhara).
- Judgeford Quarry (consents have been granted to reopen this quarry).
- Sollys Ltd. Quarry Collingwood – riprap shipped through Port Tarakohe.

6. Geological Based Investigations

If the potential sources outlined in Section 5 above do not produce an acceptable and sustainable outcome a specialist geology based investigation could be initiated. The Wellington region is dissected in many directions by faults and splinter faults that are not conducive to riprap quarrying. However there are almost certainly locations in the region that will hold rock that is suitable for riprap production. The challenge is to identify the location/s and confirm quantity, quality and yield, and quarry viability.

The approach would need to be a geology and physical based investigation. It may involve any or all of the following activities: technical assessment of geological maps and locations, field work to support the geological assessments, obtaining landowner consent to carry out physical investigations e.g. initial excavation to remove overburden, core hole drilling to confirm quantity quality and yield, and possibly trial blasting.

With this approach the costs to investigate a likely source could be high – a rough cost estimate may be \$0.5 million.

7. Environmental and Economic Considerations

Environmental impacts and economic viability will, in conjunction with the geological and physical assessments, be key considerations in determining whether a promising location can result in a viable and sustainable riprap quarry.

The geological and physical investigations, consultation and consenting processes, property purchase or entry / royalty obligations, quarry setup and start up are all expensive and time consuming processes. A “rough order cost estimate” to achieve a sustainable operational quarry could be in the order of \$0.5 million to \$2 million.

There are other parties in the immediate Wellington Region that use riprap – CentrePort, KiwiRail, Wellington City Council, Hutt City Council, and Kapiti Coast District Council. Depending on the potential rock resource of a quarry, there is potential for a joint venture with some or all of the parties, achieving synergies and cost optimisation. However Greater Wellington must, in the first instance, ensure that its own demands for riprap would be met.

Marlborough District Council and Environment Canterbury both opened quarries to service the high demand for riprap following the respective

earthquakes. The geology of these two regions provides good riprap quarry site opportunities. They indicate very competitive ex-quarry production costs.



Report 19.265
Date 13 June 2019
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Committee Hutt Valley Flood Management Subcommittee
Author Alistair J N Allan, Senior Projects Engineer

RiverLink - Project Directors Report

1. Purpose

To update the Hutt Valley Flood Management Subcommittee (the Subcommittee) on the RiverLink Project.

This report will also be presented to Hutt City Council's City Development Committee.

2. Background

RiverLink extends from Kennedy Good Bridge to Ewen Bridge, and aims to provide better flood protection, transport and lifestyle for central Hutt. The RiverLink Project (the Project) completed its Preliminary Design Phase in June 2018.

This report updates the Subcommittee on progress since its last meeting on 21 April, 2019.

3. Financial Summary

A financial summary is included as **Attachment 1** to this report

4. NZ Transport Agency decision - Melling Transport Improvements

4.1 NZTA Media Release and statement

NZTA (the Agency) have confirmed the preferred option for Melling Transport Improvements and they are currently completing the detailed business case for the preferred option, including preliminary design.

A decision will then be made on whether to proceed with resource consents and designations for the project, and on what basis. Agency funding for construction is not currently programmed until after 2028.

Following the Agency's media release, the Chairman of the Regional Council and Mayor of Hutt City Council has met with the Minister for Transport, to discuss options on how three organisations may proceed. Senior officers from the two councils have subsequently met with officials from the Agency and have agreed to investigate various options, which it is hoped will enable the Agency to partake in the consenting process, with the two councils. The advantages of doing so were outlined in the report to the Subcommittee in April.

A public meeting has also been held to update the community on the latest position.

At the time of writing the report, the RiverLink partners are still working through options.

4.2 Project impacts

4.2.1 Flood Risk Management

The full flood security improvements and the effect that the Melling Bridge has on the level of flood protection were outlined in the last report. The benefits of coordinating the consenting and construction phases are significant, and not capitalising on them will reduce project efficiency.

Ground investigation work is planned to start at the end of this month which will inform the preliminary design of the new bridge, and this will in turn inform the Agency's detailed business case, and the predesign of the new bridge. The work will commence with five bore holes being drilled, two in the vicinity of the Melling Station and three in the Harvey Norman car park. Advance notice of the work, a media release and posters on site will inform the community of the work.

4.2.2 Making Places

Hutt City Council's Making Places vision for the CBD includes improved access to and from the city centre. The Agency's position of deferring making a decision on funding any transport improvements until after 2028 creates uncertainty for investors looking to redevelop land adjacent to RiverLink.

(a) Laneways.

The City Council is proceeding with a programme to enhance the laneways in the city centre, to improve east-west connectivity.

Improving connectivity within the central city will contribute towards reinvigorating the city, and assist in improving the attractiveness of the area as a place to live and therefore facilitate an inner city lifestyle options.

The laneways which are part of the improvement programme include those connecting Andrews Avenue, Dudley Street, and Margaret Street, which can be implemented without RMA consenting. RiverLink has partnered with The Wellington Company Ltd to upgrade a small section of laneway adjacent to their residential redevelopment at 177 High Street (former BNZ Bank). It is anticipated that the improved laneway will be complete by the end of the year.

Enhancements also being investigated at Andrews Avenue, with the recently formed Southend Business Group.

(b) Central City Transformation Plan

The Central City Transformation Plan 2019 now supersedes Making Places 2009 as Hutt City Council's approved long term framework to develop the central city of Lower Hutt. <http://www.huttcity.govt.nz/Your-Council/Projects/central-city-transformation-plan/>

4.2.3 Consenting

The Project is preparing for Detail Design and Statutory Approvals (consenting) Phase, (Phase 1) and a preferred contractor has been identified following a competitive tendering process. This contract will be signed off in the next few weeks.

4.2.4 Risk Assessment

A full assessment of all project risks including the influence of NZTA's recent decision is being undertaken by the project team.

RiverLink Management Structure Review Outcomes

As requested by the Subcommittee the Project Structure is outlined in [Attachment 2](#).

In late 2018 the project teams commenced a review of management and governance structure for delivery of the next phase of RiverLink. This review recommended to the Chief Executives of Hutt City Council and Greater Wellington Regional Council the establishment of;

(a) Project Management Board

The role and composition of the project management board has been outlined in the last report to the Sub Committee.

The terms of reference state that an independent chairperson will be appointed. In view of the circumstances regarding the Agency, the Project Board have

decided to delay the appointment of a Chairperson. This will be reconsidered when there is clarity on the Agency's position.

(b) **Project Director**

A Project Director has been appointed and will be introduced to and attend the Sub Committee.

The process of appointing a Project Manager is nearing completion. The position has been advertised, interviews held and an offer has been made. It is anticipated the successful post holder will commence in August.

5. Engagement and Communications

5.1 Wellington Region Business Expo

RiverLink was present at the Wellington Region Business Expo held on 7 May at the Lower Hutt Events Centre. The stand raised awareness of RiverLink and the Hutt City Transformation Plan with businesses within Hutt City.

5.2 Hutt Valley Sports Awards

RiverLink featured as a backdrop for the Hutt Valley Sports Awards which were held on 16 May at the Walter Nash Centre.

5.3 News letter

A newsletter is in the process of being prepared which will be available on social media.

5.4 Hutt Valley Chamber of Commerce

Officers from the two councils have been invited to attend a Chamber function to update members on the RiverLink project.

6. Consideration of climate change

The matters addressed in this report have been considered by officers in accordance with the process set out in the GWRC Climate Change Consideration Guide.

6.1 Mitigation assessment

Mitigation assessments are concerned with the effect of the matter on the climate (i.e. the greenhouse gas emissions generated or removed from the atmosphere as a consequence of the matter) and the actions taken to reduce, neutralise or enhance that effect.

The GWRC components of the RiverLink Project are subject to GWRC's initiatives designed to minimise greenhouse gas emissions and enhance sequestration capacity. We will work with our project partners to develop a joint procurement approach that supports GWRC's mitigation objectives once we have entered that stage of the design process. The current basis that will be referred to for this includes the proposed Code of Practice (which guides all river management activities undertaken by GWRC for the purposes of flood and erosion protection across the Wellington Region), the GWRC corporate

sustainability programme and GWRC's procurement process and will encourage suppliers and contractors to minimise emissions.

6.2 Adaptation assessment

Adaptation assessments relate to the impacts of climate change (e.g. sea level rise or an increase in extreme weather events), and the actions taken to address or avoid those impacts.

The design development for RiverLink acknowledges the need to adapt to a changing climate and aims to address these predicted impacts. GWRC has included allowances for climate change impacts and these are being finalised for the purposes of completing RiverLink Preliminary Design.

7. The decision-making process and significance

No decision is being sought in this report.

7.1 Engagement

Engagement on this matter is unnecessary.

8. Recommendations

That the Subcommittee:

1. *Receives the report.*
2. *Notes the content of the report.*

Report prepared by:

Martin White
Project Director, RiverLink

Report approved by:

Alistair J N Allan
Manager (Acting), Flood
Protection

Report approved by:

Wayne O'Donnell
General Manager, Catchment
Management

Attachment 1: Financial Summary (to come)

Attachment 2: Project Structure

GWRC Project structure

The following diagram sets out the project structure to support RiverLink:

