

## By email

20 November 2015

FMGT-8-109

Andrew Dooney  
Environmental Regulation  
Greater Wellington  
[Internal]

142 Wakefield Street  
PO Box 11646  
Manners Street  
Wellington 6142  
T 04 384 5708  
F 04 385 6960  
www.gw.govt.nz

Dear Andrew

### **Response to further information requests under section 92(1) of the RMA 91 for the Hutt River WGN130264 and specified tributaries, and the Wainuiomata River WGN140054 Resource Consent Applications**

I wrote to you on the 17 June 2015 setting out a timetable to meet the further information requests above.

Tables 1 and 2 outline the further information that has been provided. Most of the information is contained in the updated reports for the Hutt and Wainuiomata Rivers provided to you in September and October 2015 respectively.

The following outstanding matters are addressed below:

- Comparing river communities in the ‘application area’ and in ‘unaffected reference areas
- Mowing of the Stokes Valley Stream,
- Proposed NCI and
- The use of willows

#### Comparing areas

A comparison between river communities in the ‘application area’ and in ‘unaffected reference areas’ has not been undertaken in any detail as in our view it will not provide information specifically relating to the effects of flood protection activities.



Flood Protection activities are undertaken in parts of the catchment which have been impacted by agricultural and/or urban development. The 'unaffected reference areas' referred to by EOS are almost invariably located in undeveloped parts of the catchment. The comparison requested would be between the urbanised main stem of the Hutt River and the relatively pristine upper reaches which is a smaller watercourse and mostly in forested catchments. There will certainly be differences in the aquatic ecology, but these will be primarily related to deforestation, loss of riparian vegetation, agricultural land use, urban development, inputs of nutrients and other contaminants, introduced pest species, as well as flood protection activities.

The approach taken, as described in the AEE, is to undertake a series of targeted before-after-upstream and downstream investigations of flood protection activities which are specifically designed to separate out the effects of those activities. These studies have been undertaken on the Hutt River for fish and invertebrate re-colonisation (Perrie, 2013) habitat quality (Cameron, 2013), and in northern Wairarapa Rivers for sediment deposition, periphyton, invertebrates and fish (Death and Death, 2013). A further study is currently underway on the Hutt River in relation to habitat quality, water quality and fish re-colonisation (Cameron 2015, in progress).

#### Mowing of Stokes Valley Stream

Alternatives to using a tractor-mounted mower from the stream bed include:

- using a conventional tractor and flat mower;
- cutting the bank edges using a scrub bar; and
- planting the lower batters with rushes and sedges.

The first two alternatives are either not favoured or impractical, due to the steepness of the banks in some parts of the stream. The steepness makes the use of this machinery extremely hazardous and in most cases these activities would not comply with current Health and Safety requirements.

The third alternative, planting the lower batters with sedges, is not considered a viable alternative as this vegetation does not provide suitable cover for flood protection purposes. Sedges and rushes provide a non-uniform cover with clumps that protrude out from the bank. Due to the narrowness of the Stokes Valley Stream channel, flood events produce high velocity flows. If sedges and rushes were planted there would be a tendency for the non-vegetated areas to scour and erode, undermining the structural stability of the banks. Silt will build up around the vegetation, reducing the flood carrying capacity of the stream and potentially creating flooding issues.

A fourth alternative would be to consider widening the berms and channel to provide the stream more room. This option would trigger a review of at least part of the Hutt River Floodplain Management plan and require public consultation and potential changes to the

Councils 10 year plan. This is considered beyond the scope of the current resource consent application.

### NCI

A paper on the NCI has been submitted to you for peer review. Additional work on developing this approach will continue.

### Options for integration of native trees with willows for bank edge protection

Native species will continue to be used for planting in river corridors where it is appropriate and any planting undertaken will be consistent with the agreed environment strategies (which are outcomes of the Floodplain Management Plans). Where undertaken, the purpose of this planting is primarily for ecological purposes and/or for the aesthetic enhancement of the river berm environment.

It is important to note that it is not proposed to use native species as an alternative to willows for bank edge protection purposes. Willows are one of the key tools currently available nation-wide for river bank protection and river form management. They are a ‘softer’ and more natural alternative to hard-rock and other structural forms of bank control. A change from this methodology would require a major change in the Council’s riverbank management policy, which would need first to undergo significant risk assessment and cost: benefit analysis, and then explanation and discussion through the Floodplain Management Plan public consultation process. It would also need to be supported by scientific research into identification of suitable alternative methodologies and the results of trials of these – no feasible alternative have yet been found. Such work is beyond the scope of these applications.

It is worth noting, by way of background, that willows have been used for riverbank protection in New Zealand from the earliest days of European agriculture and settlement, and have continued to be used for this work by local authorities - initially River Boards, then Catchment Boards and more recently Regional Councils and Unitary Authorities – to the present day. Willows have the advantage of being able to establish quickly and develop a dense root system that has excellent properties for binding and holding bank edges. Willows also have the advantage of being able to be cut and layered to control their size to maintain bank stability and allow regeneration, without disturbance or loss of their bank-binding properties. This is especially useful as a management tool on the edges of large rivers which are subject to large and frequent floods that subject the bank edges to regular powerful erosive forces. Significant research has been undertaken over the years into selection of the most suitable willow species for this work – this has been carried out by agencies such as the former National Plant Materials Centre, DSIR Fruit and Trees, HortResearch and more latterly, the NZ Poplar & Willow Research Trust.

Although there are many native species that are suitable for soil conservation purposes, there is no particular native species that offers the equivalent benefits of willows at the river bank edge where protection of the bank edge and maintenance of a design channel alignment in a confined flood fairway is a key priority. Thus mere substitution of willows by natives for

river edge protection would be both impractical and highly risky as it would threaten the integrity of the current flood management systems, and significantly increase the flood hazard to the surrounding communities.

Native species can, however, be used for restoration or soil conservation purposes in more stable riparian environments (i.e. those which are not likely to be under frequent and direct attack from river flows). For the large rivers managed by the GWRC, this means that the use of native species is more suited to planting in the river corridors away from the bank edges. As noted above, this will be done in accordance with the community's wishes, which are expressed through the ecological strategies within the FMPs. There is also some opportunity to integrate natives at the landward sides of willow bank protection plantings, although the effectiveness and relative benefits of this have yet to be fully tested, and thus it needs to be undertaken with caution in a controlled manner. More work on the latter approach is to be undertaken in future, where it can be monitored through the EMP.

### **Notification of applications**

Flood Protection now believes it has satisfied all requests for further information and that the Hutt and Wainuiomata applications can now be notified.

Having said this Flood Protection notes your request for us to provide an Executive Summary for each application. This will be provided by mid-December and we will take this opportunity to make some minor updates to the applications to reflect the changes arising from the further information requests and subsequent consultation. An updated Code of Practice will also be provided.

As discussed if you can provide me with a notification timetable that would be appreciated.

Please feel free to contact me on 04 830 4045 if you have any questions or concerns.

Yours sincerely

**Tracy Berghan**  
Principal Planning Advisor, Flood Protection

DD: 04 934 1484  
tracy.berghan@gw.govt.nz

Table 1: Further Information Request – WGN130264 [32238] – Hutt River	Date provided
<p>3. Please provide full details and description of options for the integration of native tree species with Willow for bank erosion protection purposes.</p> <p>I note your comments that this has been provided in the working draft Code of Practice (COP). For ease of reference please confirm where in the COP this has been provided.</p>	<p>Outside scope of application</p>
<p>4. Please provide a detailed description of how rock rip rap will be managed in areas identified as being suitable Inanga habitat within the application area in the future.</p> <p>I note your comments that this has been provided in the work COP. For ease of reference please confirm where in the COP this has been provided.</p>	<p>17 June 2015</p> <p>Rock lining individual good practice method – includes restriction, Page 71, COP</p>
<p>10. Please provide identification of areas where mitigation planting using native species has been undertaken in the application area and how this is seen to be suitable mitigation.</p> <p>Information request met in that the information has been partially supplied. Overall, <i>a more complete description of riparian vegetation in the application area would be desirable. A detailed description and map showings any remnant native vegetation, areas of planted natives and significant areas of native vegetation would be useful.</i></p>	<p>The EMP requires that riparian vegetation is mapped within 3 years of consent being granted and repeated every 9 years. FP intends to keep to this timeframe.</p>
<p>13. Please provide a set of plans with a key that clearly and accurately shows the total area affected by the application including all specified tributaries. If possible these maps should show the location of where data was gathered that was included in the report.</p> <p>I consider this item has being partially met. EOS memorandum identifies that a single plan showing locations where data was gathered would be very useful. I feel this information would also be useful when notification occurs to make the application easier to understand. Therefore please provide this information.</p>	<p>Mapping of flood protection structures and other features - July 2015</p>
<p>14. Please provide full details and description of the composition of fish, periphyton, macrophyte, invertebrate communities and bird life in the application area compared to the unaffected area of the Hutt River.</p> <p>As this is a broad question I have broken it down into the various ecological components identified above as identified in the EOS Ecological memorandum.</p>	<p>September 2015</p> <p>Additional information to be provided on Fish, Macroinvertebrates and Birds, noting comments above.</p>
<p>16. Please provide an ecological description and details of the existing environment of the tributaries of the Te Mome Stream, Speedy’s Stream, Stokes Valley Stream and Akatarawa River.</p> <p>Overall no invertebrate, macrophyte, or bird information has been provided for the Te</p>	<p>September 2015</p>



<p>Mome Stream, Speedy's and Stokes Valley Streams. While some fish data has been provided it does not relate to the specific areas or reaches that are to be impacted by the proposal.</p> <p>I do not consider the additional information provided to have completely satisfied question 16.</p>	
<p>17. Please provide a detailed assessment of environmental effects of channel and bank maintenance works on the tributary streams included in the application area.</p> <p>I do not consider the additional information provided to have completely satisfied question 17.</p>	September 2015
<p>18. Estuary description - additional information requested:</p> <p>Please provide full details and a description of the Hutt River estuary and the potential effects of flood protection activities. Please include a description and data in relation to the composition of fish, shorebirds, invertebrate communities, plant species, and the biodiversity values of the estuary.</p> <p>I note that recent surveys done by Robertson and Stevens 2012 could be utilised in providing this information. Also, work undertaken as part of the consents for WGN110149 may be relevant.</p> <p>This information is required as the Estuary, while outside the application area, is part of the receiving environment and affected by Flood Protection Activities.</p>	September 2015
<p><b>Code of Practice – additional information requested:</b></p> <p>Please provide comment on alternatives to mowing the riverbed of Stokes Valley Stream.</p> <p>19. This information is required in line with Schedule 4 of the Resource Management Act which requires an analysis of alternatives where adverse effects are proposed.</p> <p>20. Please provide comment on whether a free-draining bucket is the most appropriate method for removing silt from the Opahu Stream.</p>	November 2015
<p><b>Environmental Monitoring Plan - additional information requested:</b></p> <p>21. Please provide more details in relation to the proposed bird monitoring and its workability including details of the basis for the proposed percentage triggers.</p> <p>22. Please provide further details on the proposed pool and riffle counts using aerial photography. Please discuss how features obscured by vegetation are accounted for, and discuss whether the variability of habitats (depth, area, ecological value) would be noted or whether the proposed methodology simply counts features.</p> <p>23. Please provide any information available on the optimal width of willow plantings to achieve the objective of vegetative bank protection. Please identify any areas where willow planting can be retired over time and natives planted instead.</p>	<p>September 2015 with information also to be included in an updated EMP.</p> <p>September 2015 with information also to be included in an updated EMP.</p> <p>Outside scope of application</p>



greater WELLINGTON

REGIONAL COUNCIL

Te Pane Matua Taiao

<p><b>NCI</b></p> <p>Please provide further details on how the Natural Character Index (NCI) will be useful in the context of ecological monitoring. This information is required to ascertain if the NCI will be able to effectively monitor changes to the ecology of the river in relation to the proposed activities.</p>	<p>September 2015 with further information to be provided as NCI is developed</p>
---	---

Table 2: Further Information Request – WGN140054 [32483], [32484], [32485], [32486], [32487] and [32488] – Wainuiomata River	Date to be provided by
<p><b>3. Maps</b> - Please provide an overview map or maps at a suitable scale, showing the areas covered by the application, the affected tributaries, the main existing flood protection features (e.g. willow plantings, rip-rap rock linings, groynes), and any ecological site survey locations referred to in the application (please refer to Fish at point 5 below).</p>	<p>Mapping of flood protection structures and other features by the July 2015</p>
<p><b>Macroinvertebrates</b> – Please provide full details and a description of the invertebrate communities, including for habitats affected by gravel extraction and bed/beach recontouring, the hyporheic zone and deeper, non-wadeable habitats. If MCI surveys of the affected tributaries are not possible, please provide prediction data from the Freshwater Ecosystems of New Zealand (Leathwick et al, 2010)<sup>1</sup>.</p> <p><b>Fish</b> – Please provide more information on the fish species that are of most concern, such as those that are most abundant and spawn in the area covered by the application, and especially in habitats that are affected by proposed gravel extraction and beach contouring. Please compare data for impacted and reference reaches of the Wainuiomata River.</p> <p><b>Water quality</b> – Please provide the water quality data that exists from 2004.</p> <p><b>Gravel bar and beach flora and fauna</b> - Please provide more information on the flora and fauna of gravel bars and beaches that might be affected by gravel extraction and beach recontouring.</p> <p><b>Riparian vegetation</b> – Please provide a more complete description of riparian vegetation in the application area. Please describe in detail and show on maps any remnant native vegetation in the area or significant areas of native vegetation.</p> <p><b>Birds</b> – Please provide more detailed information on the bird species of most concern, such as those native or endemic species that roost, feed, nest or rest in the area covered by the application.</p> <p><b>Herpetofauna</b> – Please provide details in relation to herpetofauna that could be present in the consent application area.</p> <p><b>Macrophytes</b> – Please confirm if aquatic vegetation removal is proposed. It would appear this is unlikely given the application area is only for the main channel of the river. However, it is mentioned in the application and clarification is required.</p>	<p>October 2015</p> <p>Note comments above</p> <p>Refer to the COP timetable at section 3.2.1. It is intended that these surveys will be completed within three years of the consents being granted and at 9 year intervals thereafter.</p>
<p><b>Environmental Monitoring Plan</b></p> <ul style="list-style-type: none"> <li>Please provide further details in relation to the proposed bird monitoring and its workability including details of the justification for the proposed percentage triggers.</li> </ul>	<p>October 2015 - with information also to be included in an updated EMP</p>

<sup>1</sup> Leathwick, J.R., West, D., Gerbeaux, P., Kelly, D., Robertson, H., Brown, D., Chaddertson, W.L., and Ausseil, A.-G. 2010. Freshwater Ecosystems of New Zealand (FENZ) Geodatabase Version One – August 2010 – User Guide. Department of Conservation. 57 p.







<ul style="list-style-type: none"><li>• Please provide further details on the proposed pool and riffle counts using aerial photography. Please discuss how features obscured by vegetation are accounted for, and discuss whether the variability of habitats (depth, area, ecological value) would be noted or whether the proposed methodology simply counts features.</li><li>• Please provide any information available on the optimal width of willow plantings to achieve the objective of vegetative bank protection. Please identify any areas where willow planting can be retired over time and natives planted instead.</li></ul>	Outside Scope of application
--	------------------------------