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18 August 2023

Hawke's Bay Regional Council

Attention: Brandon Baillie

Via email: brandon.baillie@hbrc.govt.nz

Dear Brandon

**Further information request under Section 92(1) of the Resource Management Act (1991) (RMA)
Waikare Gorge Resource Consent Application APP- 128957**

Thank you for your letter dated 6 June 2023 requesting further information in relation to the resource consent application to undertake the following activities as part of the Waikare Gorge Project (APP- 128957):

- to install, use and maintain a bridge, culverts, culvert extensions, and erosion and scour protection structures in and over the bed of Kings Creek (Pohatanui Stream),
- to discharge contaminants to land that may enter water,
- to discharge operational stormwater to surface water,
- to temporarily divert streams/watercourse during construction of a bridge in the Waikare Gorge, and
- to clear vegetation in an area within 6 meters of Kings Creek (Pohatanui Stream).

Your letter separated the information request into a number of headings. This further information letter responds to each of those headings, with the request in italics and the response in standard text. The attached response incorporates content provided by our technical advisors.

The information requested by Council under s92 of the RMA has now been provided. We ask that you please proceed with the public notification process as requested in our lodgement letter.

Ngā mihi,

A handwritten signature in black ink, appearing to read 'Amberley Gibson'.

Amberley Gibson
Principal Planner, Poutiaki Taiao | Environmental Planning
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Section 92 Response: APP- 128957

Cultural Effects

1. The proposal is situated over and adjacent to Ngāti Pāhauwera's and Maungaharuru-Tangitū Hapū's statutory acknowledgement area (the Waikari River as set out in Ngāti Pāhauwera Treaty Claims Settlement Act 2012 and Maungaharuru-Tangitū Hapū Claims Settlement Act 2014) and as outlined in the application information, it is important to understand the matters relevant to mana whenua. **Please provide Cultural Impact Assessments which consider the potential effects on those values and matters relevant to Ngāti Pāhauwera and Maungaharuru-Tangitū Hapū.**

Comments:

We note that submission of Cultural Impact Assessments are not a statutory requirement, and that the Council can continue to process the resource consent application without them.

Our understanding of cultural effects associated with the application is set out in Section 8.8 and other places in the AEE (e.g. 4.5, 4.7, 5.2, Table 10 and 11.4.2 under Matters of National Importance). The engagement undertaken with iwi is set out in Section 10.4 of the AEE. A summary list of engagement discussions, information shared, and site visits is attached as Appendix B.

Waka Kotahi is continuing to engage with iwi and will forward CIAs if these are received.

Erosion and Sediment Controls

2. The application provides very limited information on the proposed erosion and sediment control (ESC) measures, aside from noting that controls consistent with the HBRC Guideline will be implemented, and the provision of corresponding conditions. Typically, as a minimum for projects of this scale, a draft / indicative ESCP and drawings at a high level would be provided, with details to follow in site specific ESCPs. That would also include discussion on specific higher risk areas such as stream works and bridges, and areas (if any) where Guideline compliant controls cannot be implemented. This will inform the assessment of effects. **Please provide a draft ESC Plan that incorporates this information.** An estimate of sediment yield from the works is not required.

Comments:

A draft Erosion and Sediment Control Plan (ESCP) is attached to this letter as Appendix A.

3. **Please state the expected total area of land disturbance that will occur during the works.**

Comments:

Vegetation clearance and land disturbance required to undertake the realignment works, will result in an estimated 400,000m³ of earthworks associated with cut to fill, cut to waste and imported fill (if any) taking place throughout the Project. Table 4 in the AEE sets out the estimated volumes.

Surface area affected by the earthworks associated with the proposed road cuts and fills is estimated to be a linear swathe across the land of a width between 50m and 100m over the Project length of 3.8km. This gives an area of disturbance of between 190,000m² and 380,000m² (19ha to 38ha). This includes 75,000m² (7.5ha) of impermeable road surface.

Effects Management Hierarchy

4. The ecological assessment states the proposed offsets will result in a gain of ecological function however, it is unclear as to whether the ecological function gain would be a 'like for like'. It is understood that specific details will not be completely understood until a time that the detailed design is complete however, and to

appropriately satisfy the requirements of the effects management hierarchy of the National Policy Statement for Freshwater Management (NPS-FM) 2020, **please clearly outline the how the proposal addresses those matters set out in:** a. s3.22(3)(a)(i)-(iii) and the principles of Appendix 6 and 7 of the NPS-FM relating to wetlands; and b. s3.24(3)(a)(i – iii) and the principles of Appendix 6 and 7 of the NPS-FM relating to rivers.

Comments:

Options to avoid or minimise impacts on sensitive wetland and stream areas were considered as part of the initial options assessment for this project. These considerations contributed to the selection of the current alignment, which minimises the potential impact of the Project on both wetlands and streams.

With regard to Section 3.22(3) of the NPS-FM, the avoidance and minimisation of impacts on areas likely to be classified as natural inland wetlands has been a key factor in the location of the alignment and the design of the roading infrastructure. As stated in the Ecology Report, further work will be undertaken in the detailed design phase of the Project to identify if further avoidance of wetlands could be accommodated by refining the design where practicable, such as using steeper batter slopes to reduce the works footprint. A condition was proposed as part of the application to reflect this, being “Measures shall be considered during detailed design to further minimise direct impact on natural wetlands e.g. opportunities to refine fill slopes or incorporate retaining walls”. The proposed conditions are included as Attachment A of the resource consent application form submitted.

Where the Project is unable to avoid the loss of natural inland wetland areas, which has been estimated at 1,600 m², the construction of 2,200 m² of new stormwater treatment wetlands will allow the loss of ecological value to be fully offset. Appendix 6 of the NPS-FM states that offsetting should be ‘like-for-like’, and preferably result in a net ecological gain at the offset site.

The existing wetland areas primarily consist of degraded pasture habitats, whereas the proposed stormwater wetlands will provide a much greater diversity of aquatic habitat types and be planted with a suitable range of indigenous wetland vegetation. These areas will also be fully fenced to exclude stock and are therefore expected to result in an overall net gain of ecological value, as the new wetland habitat created will be of a higher quality and greater extent than the areas affected.

Additionality will be achieved since the stormwater wetlands will be specifically designed to increase their utility as wildlife habitats, and therefore their overall ecological value, over and above the standard requirements for treating stormwater runoff.

While the final details regarding the design, construction, and ongoing maintenance of the wetlands will be determined at the final design stage of the Project, the intention is to have the wetlands fully fenced and for planting maintenance to be undertaken over a five-year period to ensure that they successfully establish and thrive.

Section 3.24(3) of the NPS-FM deals with impacts on rivers and streams. As with wetlands, the selection of the chosen alignment was undertaken with consideration for avoiding impacts on watercourses as much as practicable.

The Ecology Report identified that 339 metres of stream length is expected to be lost due to the construction of culverts. Using the Environmental Compensation Ratio (ECR) calculations as part of the Stream Ecological Valuation (SEV) methodology, this loss of ecological function can be fully offset through the restoration of 678 metres of stream length on a tributary of the Waikari River. This will involve the fencing and planting of riparian areas extending 15 metres from both banks of the stream, and the removal of existing barriers to fish passage.

The use of the standardised SEV methodology means that a like-for-like gain in ecological value can be quantified, satisfying the requirements for an appropriate scale of environmental offsetting as per Appendix 7 of the NPS-FM. Likewise, the proposed extent of riparian planting at the offset site will address the additionality aspect of Appendix 7, while the fencing and maintenance of planted areas will ensure long-term ecological benefits for the tributary used for the offset site.

Hydraulics - Flood flow Conveyance

The following questions and supporting comments were raised by Council's reviewing engineer Kyle Christensen:

Two of the culverts not required for fish passage (Ref 2/C12815 and 9/C15830) did stand out as requiring relatively significant upstream headwater depths (>2 m) based on my own verification calculations to pass the design 100-year flood events. It is not clear from the information presented whether these headwater depths would affect property outside of the designation and what risks they may present to the road embankment. Further information is required to understand these flood related effects. Both of these culverts also have high outlet velocities which is discussed under Erosion below.

Comments:

We have reviewed the proposed culvert design in response to your points. The design will be amended to enlarge the two culverts to provide a lower design headwater (and provide better resilience to upstream blockage). In this, no assessment of flooding effects is required.

The design will be amended during the detailed design stage.

Table 1: Culvert designs

Pipe Reference	Q100 Design Discharge (m ³ /s)	Q2 Design Discharge (m ³ /s)	Consent Design Size	Gradient (%)
2/C12815	0.694	0.242	DN450	5.49
9/C15830	0.420	0.150	DN375	5.92

Pipe Reference	Revised Consent Design Size	Headwater Depth for Q100 (m)	Q100 Velocity (m/s)/Depth (m)	Q2 velocity (m/s)/Depth (m)	Riprap Apron – length x width Dimensions (m)	Riprap Size (D ₅₀) (mm)
2/C12815	DN750	0.73 <1m	5.0/0.26	3.7/0.15	4m x 1.5m wide	700
9/C15830	DN750	0.65 <1m	4.5/0.20	3.3/0.12	4m x 1.5m wide	600

5. Please check the capacity of proposed culverts 2/C12815 and 9/C15830 and if they are to remain at their currently proposed sizes (DN450 mm and DN375 mm) then provide an assessment of the effects of upstream flooding due to headwater requirements to pass design flows. Alternatively, if the diameters are increased so headwater depths are less than 1 m then the upstream flooding assessment is not considered necessary.

Culvert 2/C12815 has a very high outlet velocity for the 100-year event (5.19 m/s) which would likely require specific energy dissipation and something more robust than the currently proposed 200 mm diameter rip-rap. The same also applies for culvert 9/C15830 with a design outlet velocity of 2.90 m/s and 100 mm rip-rap proposed.

Similarly, culvert 4/C14200 has relatively high outlet velocity (3.08 m/s) and does not currently have any erosion protection proposed. It is noted from the design report that erosion controls for this culvert, along with the other fish passage culverts will be finalised at the detailed design phase.

Comments:

The culverts will be upsized to reduce headwater <1m and therefore no assessment of upstream flood effects is required. See table above: both culverts upsized to DN750.

6. If culverts 2/C12815 and 9/C15830 are to remain the same size, **please provide further details for outlet energy dissipation, particularly for culvert 2/C12815.** If these culverts are increased as per question 5 above, then standard energy dissipation at the outlets would be considered acceptable.

Comments:

The downstream scour erosion protection will also be upsized to the size and extent shown in Table 1 above, with a $2xD_{50}$ rock layer thickness.

Proposed outlet erosion protection sizing is based on reference: *Rock sizing for Multi-pipe and culverts Outlets, Catchments and Creeks Pty Ltd, v3 2017, Section 2, Figure 3, Tables 2 and 4.*

7. It would appear that outlet erosion protection is likely to be required at culvert 4/C14200. In accordance with question 6 above, **please outline measures to protect this outlet from erosion and scour.**

Comments:

We agree that erosion protection is required for culvert 4/C14200. This is due in part to the intent to provide fish passage for climbing fish on a steep slope. The fish passage and scour erosion protection will be designed together.

The design intent of the combination of scour protection and fish passage is to provide roughness elements on the culvert base, an outlet plunge pool formed into a bowl with rock placement, and a rock apron supporting the perimeter and transition length of channel. Reference HEC14 Table 1.1 for energy dissipation options, and further design details.

The relatively steep grade of the culverts at 13% (Table 2) means that flexi-baffles (or similar) will be installed within them to better facilitate fish passage. These baffles will be installed perpendicular to the flow, which will create areas of lower velocity for fish to utilise when moving upstream. These baffles will also help to retain natural substrates within the base of the culverts, which will also create micro-habitats for fish and other aquatic fauna.

Prevention of erosion and scour at the outlet of the culverts will be accomplished by using either a concrete wingwall and apron structure with compacted rock rip-rap immediately downstream or, for culverts without wingwalls, a rock ramp and pool design. The latter design will incorporate a small rock weir downstream from the culvert to create a pool at the culvert outlet that will help dissipate energy at high flows. Both options will be designed to prevent erosion and scour, while still maintaining fish passage into the culverts.

The hydraulic design for all culverts will occur during a post-consent design stage when the final topography and proposed road levels are known.

Table 2 below shows design variations such as roughening the surface, and widening the culvert base, reduces headwater and outlet velocity, indicating that the design of outlet scour protection and fish passage is feasible.

Table 2: Possible Culvert Dimensions Variations and Outlet Velocity Parameters

Pipe Reference	Q100 Design Discharge (m3/s)	Q2 Design Discharge (m3/s)	Consent Design Size	Gradient (%)	Mannings n roughness
4/C14200	6.29	2.25	1.5x1.0 BOX	13.0	0.015
4/C14200	6.29	2.25	1.5x1.0 BOX	13.0	0.025
Option 1	6.29	2.25	2.5x1.0 BOX	13.0	0.025

Pipe Reference	Q/B unit Discharge (m3/s/m)	Headwater Depth for Q100 (m)	Q100 Velocity (m/s)/Depth (m)	Q2 velocity (m/s)/Depth (m)	Froude Number	Energy Dissipation Approach
4/C14200	4.2	2.75	10.0/0.42	7.2/0.20	4.9	
4/C14200	4.2	2.75	7.0/0.60	5.1/0.29	2.9	HEC14 options for detailed design: roughness elements for fish climbing. Rock

						apron outlet and possible basin.
Option 1	2.52	1.5	6.4/0.40	4.5/0.20	3.2	

Fish Passage

8. No eDNA information of the stream site selected for restoration was provided and HBRC's in house ecologist expressed concern that the waterfall in plate 3-37 of the Ecological Report may be an insurmountable barrier even for climbing eelers. **Please undertake and provide to Council eDNA survey information in the location of the proposed stream restoration site.**

If from the results of the eDNA survey show there is an absence, provide an assessment to determine an alternative stream site within the activity area better suited (containing existing eel population) for restoration.

Comments:

An eDNA sample was not able to be collected for the stream site selected for restoration because of access difficulties at the time of the field survey. Nevertheless, we agree with HBRC's ecologist that the very steep topography makes fish passage from Waikare River into this stream challenging, likely resulting in an absence of fish or at best a depauperate fish population. However, this should not disqualify this watercourse as a restoration site because the same constraint applies to all watercourses on the proposed road alignment, apart from the stream at the north end of the alignment (C2) which has a more gradual drop to the Waikare River.

The proposed restoration works are intended to improve overall biodiversity, which is far broader than just the fish population. It also includes benthic macroinvertebrates, periphyton, macrophytes, riparian vegetation, avifauna and herpetofauna. Because this stream feeds into the Waikare River its restoration would result in water quality improvements and a more diverse range of invertebrates by downstream drift, both of which have the potential to improve downstream areas as well. This watercourse is well suited for restoration, with the potential to achieve the overall aim of no net loss in biodiversity.

NES-F Regulation 42

9. The application information states Regulation 42(1 – 3) of the National Environmental Standards for Freshwater (NES-F) 2020 are rules applicable to the proposal however, it is unclear as to whether conditions (4 – 5) would be complied with. **Please confirm how the conditions under Regulation 42(4 – 5) would be complied with in regard to all relevant activities.** If conditions 42(4 – 5) are not able to be complied with, the activity would therefore be considered a Non-Complying Activity in accordance with Regulation 54.

NES-F Regulation 43

10. The application information states the proposal is for construction, operation, maintenance and improvement of the state highway and associated infrastructure of State Highway 2. No assessment has been made to confirm whether or not maintenance of the proposal would comply with the conditions of Permitted Activity Regulation 43 or Restricted Discretionary Activity Regulation 44? **Please confirm compliance with conditions of the relevant Regulation.** If conditions for either Regulation 43 or Regulation 44 are unable to be complied with, resource consent would be required in accordance with Regulation 54 for a Non-Complying Activity.

Comments:

Regulations 42 and 43 of the NES-F relate to the construction and maintenance of wetland utility structures. These rules do not apply to the Project as it will not involve the construction or maintenance of any wetland utility structures as defined in the regulation.

Other matters

a. Appendix E recognises the permitted activity criteria for the NES-CS may not be complied with dependent on the detailed design of the proposal. It is noted that if Rule 48, in particular 48(c), of RRMP cannot be complied

with resource consent will be required pursuant to Rule 52. It is recognised that the methodology for managing contaminated soils may not be defined until such a time that detailed design is undertaken. Therefore, it is considered acceptable that consent not yet be applied for in relation to potential increase in concentration of contaminated substances on land but resource consent may be required in the future. It would be expected at this time that further investigation and consulting a hydrogeologist to look into the risk to groundwater.

Comments:

Noted. To confirm that the detailed design, when completed, will determine if resource consent is required in the future.

b. Please provide an update on consultation with landowners and any approvals obtained.

Comments:

To date, ten meetings have been held in total with directly affected landowners, and information shared as the project developed. There are five key landowners and meetings have occurred with multiple groups at a time.

A total of ten meetings have been held with the statutory organisations.

In summary, the concept design has been discussed and sought feedback. Other topics discussed at those meetings have included:

- Stormwater
- Wetlands and riparian planting
- Property negotiations
- Funding
- Property owners' operational needs such as access to paddocks and fencing.

A general summary of the consultation with landowners and relevant statutory organisations is outlined in Appendix C. As a separate land acquisition process will occur ahead of construction, it is not appropriate to provide details of individual discussions with private landowners. To date no written affected party approvals have been sought as Waka Kotahi envisage that the resource consent application will be publicly notified.

Property and construction funding for this project has not yet been confirmed. This project is part of the proposed programme for the East Coast recovery following Cyclone Gabrielle. Funding decisions are yet to be made by Ministers. Until these decisions are made, property agreements cannot be finalised and written approvals relating to these obtained. However, there is broad support among landowners for the project (reference Appendix C).

c. Although not directly transferrable to RMA continuum for adverse effects, the ecological assessment identified the proposal would potentially have '*moderate*' adverse effects both before and after mitigation. It is understood that those '*moderate*' adverse effects would likely be considered more than minor. Additionally, the ecological assessment states potential losses may not be able to be avoided. Given this, and as mentioned above, Waka Kotahi envisage that the resource consent application will be publicly notified.

Comments:

Table 5-2 in the Ecological Report (Appendix B of the AEE) assessment states that the level of effects during both construction and operation of the realignment will be either 'low' or a 'net gain', depending on the feature. Any 'moderate' effects identified are before the proposed mitigation actions are undertaken.

d. It is anticipated that further detail as to how fish passage will be enabled via the rock ramp for culverts C12200 and C13190 in accordance with best practice fish passage in the NIWA Fish Passage Guidelines

would be required. It is acknowledged that the passage of 'swimming' fish is not required, so a steeper ramp angle such as 1:5 could be acceptable. Sufficient depth however is required for adult eels to pass the structure. Some relevant considerations include, but not be limited to:

- i) The ramp should have a V-shaped (15°) or tilted cross-section to allow the fishway to operate over the full fish passage design flow range.
- ii) Mixed grade irregularly shaped rocks (150-200 mm) should be embedded by 50%, with the longitudinal axis perpendicular to the ramp surface and the widest part of the stone facing into the flow, and arranged haphazardly with a spacing between rocks of 70-90 mm.
- iii) A continuous low velocity wetted margin should be provided up the ramp throughout the fish passage design flow range.

Comments:

These requirements can be addressed in the detailed design drawings for these structures, once completed. A condition was proposed as part of the application, being "Permanent culverts shall incorporate fish passage to ensure that the upstream or downstream passage of fish is not constrained."

e. Thought should be given to potential treatment of runoff from the stock bridge crossing. The application states this would be directed to streams without any treatment of stock urine and excretion encountered in the runoff. This should be collected and managed appropriately (see RRMP Rule 14).

Comments:

The stock bridge crossing allows property owners to access/ use the remaining blocks of land between the new alignment and current SH2 as part of their farm. As our engagement continues with property owners, the property strategy may include purchasing severance of isolated blocks, this would mitigate the need for the stock bridge crossing. Should the stock bridge crossing be required the runoff will be collected and managed appropriately.

f. Terrestrial ecology is not a matter that falls within the scope of the consents required from HBRC except where required under RRMP Rule 8, but is an area where HBRC has an interest and expertise. HBRC terrestrial ecologists have provided the comments provided as an addendum to this s92 request letter.

Comments:

Regarding the memo of 16 May 2023, we agree that suitable eco-sourced indigenous plant species should be utilized for the 5-hectare revegetation area proposed. These species mix to be used should reflect the WF3 ecosystem type, to maximise the ecological value of the plantings in this location.

Regarding the comparative ecological value of the natural inland wetlands that will be lost vs the stormwater treatment wetlands to be constructed, we agree with the memo writer that Consent Condition 15 (5) should be amended to include "...the extent and ecological function of natural wetlands", to read;

"The EMP shall include details of the following:....

(5) methods to mitigate or offset the loss of **the extent and ecological function** of natural wetlands."

Appendix A: Draft Erosion and Sediment Control Plan

Appendix B: Consultation