

20 August 2021

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Attention: Sophia Edmead

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Dear Sophia

REQUEST FOR FURTHER INFORMATION - TAKAPAU WASTEWATER DISCHARGE APP-126522

Thank you for your request for further information regarding Central Hawkes Bay District Council's application for resource consent (APP-126522). This letter provides:

- A. Response to the information requested in accordance with s92, with supporting documents;
- B. A Cultural Impact Assessment in support of the application, along with supporting information;
- C. A planning assessment detailing objectives and policies as they relate to tangata whenua, which has been informed by the receipt of the CIA; and
- D. A revised set of draft conditions which incorporate a number of changes as a result of the information above, particularly the CIA.

The above information is supported by a number of additional documents. These are set out as Annexures to this letter.

A) Section 92 request for further information

Cultural Impact

1. *Please provide the cultural impact assessment for the proposed activity, documenting Māori cultural values, interests and associations with the area surrounding the proposed activity and downstream of the discharge.*

Response:

Attached is a cultural impact assessment (Annex A.1) prepared by Joanne Heperi on behalf of Ngāi Tahumakakanui, Ngāi Toroiwaho, Ngāi Te Kikiri o te Rangi, Ngāi Te Rangitotohu and Ngāti Mārau.

The report identifies a number of recommendations. These have been worked through between CHBDC and Joanne Heperi and changes to suggested conditions made. These revised conditions are attached (Annex B), with a mark-up showing those that have changed. Correspondence to Joanne Heperi and her response is also attached (Annex A.2 and A.3).

The CIA is provided as part of the s92 response. The CIA also allows a fuller and more comprehensive planning assessment to be undertaken. The assessment of the relevant objectives and policies of the statutory planning instruments (contained in Beca, 2021:T:D.90b) has been updated in consideration of the CIA and proposed recommendations (Annex C - Beca letter dated 18 August 2021).

2. *Please provide an assessment of the proposed activity in regard to the archaeological site identified in the operative Central Hawke's Bay District Plan, reference '246', description: urupa. The draft CHBDC Plan (at the date of writing, not yet notified as the proposed plan) provides more information at Appendix C – '1994 Scattered pits recorded from aerial 2008: A Single pit identified during visit - 3 x 3 m and 0.5 m deep. Several other depressions in area.'*

Response:

On review of the operative and proposed plans of the CHBDC, the site referred to is not an archaeological site.

The archaeological site (246) referred to in the s92 letter is not identified in the CHBDC Plan or the Proposed Plan (online Planning Maps) nor is it identified in the NZ Archaeological Association (NZ Arch site) list of registered archaeological sites. Appendix F – Schedule of Archaeological Sites in the CHBD Plan (Operative and Proposed) does not include this site (the sites numerically only go up to #228).

However, Appendix C to the CHBD Plan - Schedule of Sites of Cultural Significance to Tangata Whenua does include reference to '246' as per the letter. This has been transposed into the proposed CHBDC Plan as a Site & Area of Significance to Maori (SASM – 54) but it is not identified as an archaeological site.

The SASM and potential effects of the proposal on the identified SASM-54 is covered in the CIA prepared specifically for this project. The CIA that has been prepared and provided by Tangata Whenua address the relevant sites of significance including Wahi tapu and Wahi taonga (section 3.10 – CIA). As noted previously, the CIA has been prepared to represent Mana whenua of Takapau. The hapū are Ngāi Tahu makakanui (Tahu ki Takapau), Ngāi Toroiwaho, Ngāi Te Kikiri o te Rangi of Te Rongo a Tahu marae and Ngāi Te Rangitotohu and Ngāti Mārau of Rākoutātahi marae.

Land Management

3. *Please provide the following reports that have been relied upon but not attached to the application:*
 - a. *Evaluation of Soils to Receive Takapau Wastewater (LEI, 2020: T:B.15)*
 - b. *Best Practicable Option Report (LEI, 2021: T:C.12)*
 - c. *Current Farming System (LEI, 2021: T:B.13)*
 - d. *Existing / Future Farming System and OverseerFM Analysis (LEI, 2021: T.C14a)*
 - e. *Drummond Overseer and Planning Assessment (LEI, 2021: T.C.14b)*

Response:

The requested reports have been made available via the web portal.

4. *Please provide a Farm Environmental Management Plan (FEMP) for the proposed discharge to land and farming activities proposed on the land, in accordance with Schedule 22 of the RRMP.*

It is noted on the site visit undertaken 21/05/2021, CHBDC and their consultant identified the desire of not requiring a FEMP until the decision has been made on the current application and noted that the requirement for a FEMP has been offered as a condition of consent (see condition 52, version 1). On review of the objectives and policies of the Tukituki Plan Change (Plan Change 6), in particular POL TT6 regarding the decision making criteria of production land use consents, the FEMP is a key requirement in the assessment of these activities. Without a FEMP, or at least the information required by Schedule 22 of the RRMP, the production land use aspect of the consent cannot be processed.

Response:

FEMPs have been prepared by Ravensdown for the current farming operation and the pending year. Our understanding is that there are currently two FEMPs, one for land owned by the Drummonds, and one for land leased due to these parcels having varying ownership statuses. Once these consents are granted, a revised combined FEMP will be prepared incorporating the activities sought as part of these consents that will replace the existing FEMPs for the two land parcels receiving wastewater.

All details that a FEMP must require, that are not provided within reporting with the application, (site maps, Phosphorus Management Plan etc.) are provided within the two FEMPs produced by Ravensdown.

A Phosphorus Management Plan has not been prepared specifically for this consent application. The reasons for this is phosphorus loss from the site will be via surface water, of which there are no farm drains leaving the site. The Makaretu River boundary has a sufficiently sized riparian margin, with stock access currently excluded. Additionally, phosphorus loss through the soil profile will be negligible. Nevertheless, a Phosphorus Management Plan is included within the existing Ravensdown FEMPs.

5. *In regard to the best practicable option discussed in the Assessment of Environmental Effects (AEE):*
- a. *Please provide a summary and comparison of the cut and carry regime mentioned in LEI, 2021:T.C.14a including the leaching potential versus the proposed cropping and grazing 'business as usual' regime.*

Response:

A cut and carry regime will result in a reduction in nutrient leaching compared to the existing farming system with wastewater irrigation. Environmentally this may be considered better than the proposed business as usual regime, however the proposed regime already provides a significant improvement environmentally to surface water, thus further optimisation of the system is not required. It should be that adopting a cut and carry system heavily restricts the Drummonds from managing the property for other cropping enterprises.

- b. *Please provide an explanation of why the system has not been designed to irrigate 100% of the water to land.*

Response:

In the majority of years, a large portion if not all wastewater will be captured in storage and then irrigated. There will be however, some years where irrigation is not possible and storage is fully

utilized. It is not practical or financially prudent to capture all water, as this would result in an extremely large storage pond that is only utilized during high rainfall periods.

A non-deficit regime could be adopted, but this is considered un-necessary and may have a detrimental impact on the farm management system employed.

6. *The land owner / farm manager (Drummond) currently holds water permit AUTH-125346-01 which allows irrigation of the whole of the proposed land application area, among the other farm enterprise area. Section 4.6 of the report LEI, 2021:T:D.10 references the use of a lower leaching rate from the 4292 State Highway 2 block owned by Dalby (legal description Lot 1 Deposited Plan 16445) which reduces the average leaching from 95 kg N/ha/year from the irrigated area to 60 Kg N/ha/year for the combined 45 Burnside Road block and 4292 State Highway 2 block. How will AUTH-125345-01 be managed to exclude the areas being irrigated or is there potential for future increases in leaching to occur as a result of irrigation across the land.*

Any areas proposed to be irrigated should be reflected in the FEMP and comment should be made on the potential for increases in total and average areal leaching as a result of irrigation with freshwater on the remaining land area.

Response:

The irrigated area may see both irrigation water and wastewater applied. Nutrient management calculations have provided for both. Records of both sources of water will be kept, including where and how much is applied.

Management of Farm Activities

7. *Please provide a description of the arrangement between CHBDC and the landowners (Drummond and Dalby) including any legal obligations for wastewater irrigation to continue if farm management changes or the land is sold.*

Response:

Council have entered into contractual discussions with the Drummond and Dalby land owners. This information is not at a stage to be shared.

8. *It is noted a condition has been offered for production of an Operational and Management Plan (Condition 47). This specifies several methodologies required for the operation of the discharge infrastructure. To understand the potential effects of the activity, some further information is required on how the site will be operated between the lessee / lessor (Drummond), lessor (Dalby) and Central Hawke's Bay District Council.*
 - a. *Please describe the relationship between the lessee's, lessor and Council regarding who will control the application of wastewater to land?*

Response:

The Drummonds lease land of the Dalby's. The Drummonds will operate the irrigation on the Dalby land. The Drummonds will also operate the irrigation on their own land, with a contract established with the Council.

- b. Describe how the interaction between the land holder / farm manager and the council be managed in terms of procedures to ensure the discharge of effluent to minimise environmental effects.*

Response:

The Drummonds will operate the irrigation system. This will include scheduling pumping and irrigation events. They will also coordinate what crops are irrigated.

- c. Identification of potential process failures that could result in odour and the contingency actions or procedures that will be followed to minimise an adverse odour effect, please include measures to avoid ponding and wastewater dissolved oxygen monitoring and management.*

Response:

If regularly irrigated there should be no odour. Odour will only occur if there is a treatment plant malfunction or septicity conditions develop in the irrigation system.

Treatment plant performance will be managed by Council. Irrigation will be managed by the Drummonds.

Should irrigation cease for a period of time, then there is the potential for septicity in the piping to and boom of the irrigator. If the irrigator is idle for a period of time and conditions are warm (increasing the chances of septicity) then the irrigator boom will be relocated to the lower terrace before starting. This will increase the distance to any neighbouring property and away from the roads.

The irrigator is to be equipped with variable rate irrigation (VRI) nozzles. This will allow individual sprinklers to be shut off. This will be used to avoid irrigation of wet areas and other features, such as water troughs.

No DO monitoring is proposed.

- d. Please clarify how/when the need to flush irrigation lines to manage odour will be undertaken and what constitutes a 'long period' as referred to in Appendix G.*

Response:

Odour management from irrigation is variable and influence by many factors. Operational experience will assist with developing mitigation measures. Long periods can be defined as anything over 3 weeks.

- e. Please also provide information and/or an explanation to support how the parameters for proposed Condition 18 were derived.*

Response:

The wind shut off parameters are typically used for wastewater application systems.

- f. LEI 2021, T:D.10 discusses the risk from stock ingesting pathogens and identifies that this will be managed by stand down periods. Please identify how the stock and cropping activities will be managed to ensure any risk, if present, to the human food*

chain is minimised. What guidelines should be used for stock holding periods and if no guidelines are available, what best practise should be implemented?

Response:

In terms of cropping, no crops will be grown for direct human consumption.

To manage stock ingestion of pathogens, a standdown period of more than 24 hours will be implemented following wastewater application.

Further, UV disinfection is proposed.

Effluent Treatment and Discharge

9. *Please provide information on whether the High-Rate Land Passage System (HRLP) described in the application is the same as the existing discharge, or whether upgrades to the land passage system are proposed. Please provide a description and concept plans of the HRLP including current / potential treatment capacity, if any.*

Response:

The HRLP is at the same location of the existing discharge however CHBDC have engaged with iwi to develop the HRLP system. The existing discharge wetland is to be cleared of congested vegetation and replaced with an alternative structure that CHBDC are in discussions with iwi around its design.

10. *Please provide evidence of the feasibility of installing the centre pivot irrigator over the area of the site, given the 4 – 6m topography change between terraces and given the ephemeral stream located at the toe of the terraces. (Note Report LEI 2021:T.D.10 states recontouring may need to occur while LEI 2021:T.C.15 states no recontouring will be required).*

Response:

Irrigation suppliers have visited the site. They have no problems with a pivot traversing the terrace. The use of VRI will allow irrigation to be managed to avoid irrigation of specific areas. The ecology report (Annex D) suggests that the waterway identified is of low value. Therefore, there is no reason to cease irrigation when passing overhead. It should be noted that the waterway is internalized and does not discharge to the river.

11. *Please provide an assessment of the existing WWTP's capacity to treat current and predicted 2048 flows to the effluent quality requirements. This should include details of the volume, aeration capacity, design flow rate etc.*

Response:

Work has been undertaken to provide confidence that the existing treatment plant will provide an appropriate quality effluent, and in particular meet proposed effluent quality standards. Should inflows increase, there is scope to provide additional aeration capacity.

12. During the site visit, discussion was had about assessment undertaken to identify the functioning of the current pond, including leakage. Please provide details of this assessment to identify current leakage from the pond, including the current pond design, condition of the liner (if present), seepage rate and conclusions of a drop test.

Response:

There is not a disparity between inflow and outflow with the current treatment plant. Further, as part of the existing consent monitoring bores were installed down gradient and they have not indicated any plume that would suggest pond leakage.

13. Please provide information on the causes of the high ammoniacal nitrogen and total suspended soils (TSS) effluent concentrations reported (e.g. where these caused by high influent flowrate, high BOD load, septage receipt).

Response:

The cause of the increases is unknown.

14. Please provide an explanation of the staggered approach to the irrigation area. Will the pivot only operate over a limited arc to cover 5ha in Stage 1. Will the remaining 25ha remain unirrigated or will the remaining 25ha be irrigated as per existing water take consent AUTH-125345-01.

Response:

Under Stage 1, only 5 ha of land is required to manage wastewater flows. The construction of the pivot will allow for up to 30 ha to be irrigatable, so freshwater irrigation can be used as per consent AUTH-125345-01. Over time, area receiving freshwater will be substituted out for wastewater irrigation.

15. The application states that in 2048, 90% of the wastewater will be irrigated. Please provide the estimated percentage of wastewater that will be irrigated at the beginning of Stage 2.

Response:

At the beginning of Stage 2, there is potential for 100 % of Takapau's wastewater flows to be irrigated to land. This is because storage will be available to capture flows, preventing discharge to the Makaretu. Additionally, substantial population growth would not have occurred for Takapau, thus flows will be relatively low in comparison to those in 2048, but have the ability to be applied over the same land area as 2048.

16. Please provide comment on how the soil capacity to receive wastewater in different rainfall conditions has been used to formulate the proposed regime and rate of irrigation of wastewater to provide the minimal overall environmental impact on surface and groundwater.

Response:

A water balance approach has been used to determine wastewater application. This is detailed in the Conceptual Design report (LEI, 2021:T:C.15). This approach has applied a criteria that avoids over irrigation.

17. *It is stated that throughout the application that UV disinfection will be installed for flows from the treatment pond and that additional filtration is proposed. During the 21/05/2021 site visit, the applicant's consultant, LEI, discussed that the proposed location of the UV was still being worked through to provide for the most practical and cost-efficient location in the system. Please provide information on the following:*

- a. *Preliminary details of the proposed position of the treatment system in relation to the existing oxidation pond, the proposed storage pond, the HRLP discharge and the irrigation discharge.*

Response:

Wastewater leaving the WWTP will enter a pump station/wet well where flows will be directed to the HRLP, to storage or directly to the irrigation system. The exact details are yet to be confirmed, but all wastewater will be UV disinfected. An overview summary is provided in Annex G.

- b. *Which stage of the consent this additional treatment will be installed.*

Response:

UV disinfection will be installed from Stage 1 onwards.

- c. *A preliminary process flow diagram of the system.*

Response:

A preliminary process flow diagram is provided in Annex E.

18. *Please provide comment on the expected E.Coli and faecal coliform concentrations in the effluent applied to land and discharged to the HRLP. Consider the high levels of TSS, E.Coli and faecal coliforms recorded in the effluent monitoring data and proposed UV disinfection.*

Response:

The pathogen levels of E.coli and faecal coliforms as detailed in LEI (2021:T:C.15) are 14,695 and 13,178 cfu/100mL (geomean) respectively. It is expected that treatment will see a 1 log reduction in pathogen concentrations prior to discharge to the HRLP and/or land treatment area. Once applied to land, it is expected that significant further log reductions will occur within the soil profile. Details of the treatment plant and high level changes are provided in Annex G (Beca letter dated 20 August 2021).

19. *Provide comment on the high Total Phosphorus (TP) groundwater concentrations recorded in the monitoring bores. This should include:*

- a. *Comment on the high solid concentrations reported in some samples*

Response:

High suspended solid content in the monitoring bores was a result of bore installation. The bores have been reinstalled.

b. Comparison of the dissolved reactive phosphorus (DRP) concentrations measured.

Response:

The high phosphorus concentrations are expected to reflect background concentrations, and are potentially elevated due to a limited recharge area.

Surface Water

20. At Section 9.5, the AEE (TD.1_Takapau-Application_and_AEE-210428) states that the 'diffuse discharge to surface water due to land application is expected to enter the surface water much lower in the catchment. The Tukituki River is considered to be the receiving environment for the diffuse discharge from land'. The groundwater review indicates that groundwater beneath the proposed irrigation areas is likely to travel in an east-southeast direction and resurface within the gaining reaches of the Porangahau Stream. As such please provide an assessment of effects regarding the Porangahau Stream water quality.

Response:

Please see attached letter from Beca (Annex F). This letter concludes:

"Overall, we do not consider the Pōrangahau Stream to be a potential receiving environment of the treated wastewater discharged at the Takapau WWTP because it is unlikely that shallow groundwater would flow against the hydraulic gradient toward the SE through the clay-rich upper terrace deposits and toward the losing reach of the Pōrangahau Stream. Shallow groundwater flow is likely to move through paleochannels in the lower terrace alluvial deposits toward the ENE sub-parallel to the Makaretu River.

Accordingly, preparation of a separate assessment of effects regarding the Pōrangahau Stream is not justified."

21. Please provide evidence that Tukituki at Tapairu Road and the Makaretu River at the location of the WWTP are strongly correlated as per Table 1 of Beca, 2020, T:D.25.

Response:

The relationship between these two site is based on information supplied by HBRC.

22. Please justify why surface water quality is only proposed for the months of November, March and July is considered suitable when compared to monthly monitoring.

Response:

Firstly, there will be very limited discharge to the river through the HRLP system. Secondly, the proposed frequency of surface water quality monitoring is based on the projected timing of the future surface water discharge (during winter months). A discharge could occur under very high flows during summer, however there are potential Health and Safety hazards to consider as part of sampling during high-flow events. For these reasons surface water sampling is only proposed during these times.

23. An irrigation buffer distance of 20m from any watercourse, whether flowing continuously or intermittently, including any open drain is offered at Condition 9, however this is not specific to the Makaretu River and the proposed setback is not discussed in the surface water report.

Please provide an assessment that a 20m setback is suitable for the discharge from the Makaretu River.

Response:

A 20 m irrigation set back will be applied from the Makaretu River.

24. As identified on the site visit, a drainage channel / waterway bisects the site along the toe of the upper terrace and is within the proposed irrigation area. Please provide an assessment of the potential effects of the irrigation to land on this channel and surrounding area. In addition, please provide comment whether the 20m setback proposed at Condition 9 will be suitable for this channel.

Response:

See separate Beca report in Annex D - Takapau Treated Wastewater Discharge to Land – Ecological Impact Assessment, Section 92 Response – Section 4.2.

The overall level of effect is considered to be very low.

Groundwater

25. Given the uncertainty in the groundwater flow direction, please provide an assessment of the effect of the proposed activity on the bores in the rural residential area to the south of the State Highway and proposed land application area.

Response:

Please see attached letter from Beca in Annex F.

This letter concludes:

“...it is unlikely that shallow groundwater from the Takapau WWTP site would flow upgradient towards the south or southwest and affect bores in the rural residential area to the south of the State Highway.”

26. Please provide an assessment of the effects of the proposed activity on down-gradient drinking water supply bores with respect to nitrate-nitrogen. This should include a comparison of the groundwater impacts with the limits in Table 5.9.2 of Plan Change 6 and pathogens and allowing for a degree of uncertainty and variability around groundwater flow.

Response:

Please see attached letter from Beca in Annex F.

This letter states:

“As discussed in our groundwater assessment, there is just one bore (4838) located within 2.5 km downgradient from the Takapau WWTP. The top of the screened interval for bore 4838 is 80.4 m bgl. Although there is a downward vertical hydraulic gradient in the area, we do not think that contaminants can easily migrate from the shallow aquifer to the deep aquifer. The bore log of 4838 indicates that there are 41 m of potential confining layers (dominated by clay, silt, and clay-bound gravels) between 10 m and 80 m bgl. This provides a considerable hydraulic barrier between these deeper strata and the surficial

groundwater. Therefore, it is unlikely that nitrate-nitrogen could impact deep groundwater at concentrations exceeding the limits in Table 5.9.2 of Plan Change 6.”

Ecology

27. Please include an assessment of the effect of the diffuse discharge in the Porangahau Stream on ecological values.

Response:

Please see above response to question 20. Accordingly, no assessment of effects on the ecological values of the Porangahau Stream is considered necessary.

28. Please provide an assessment of the ecological values of the overland flow path of the existing discharge (proposed HRLP) with comment on the effect on staged reduction in direct discharge to this overflow path that is proposed.

Response:

See separate Beca report in Annex D, Section 4.1”. The overall level of effect is considered to be low.

29. Please provide an assessment of the ecological value of the existing drainage channels located within the proposed area of irrigation

Response:

See separate Beca report in Annex D, Section 4.2”. The overall level of effect is considered to be very low.

Natural Hazards

30. Please provide some detail for the location of the two additional storage areas (2,000m³ during stage 1 and 18,000m³ in stage 2).

Response:

As indicated in the application document, the first storage volume is to be provided in the existing treatment pond and will be achieved by surcharging.

The second is shown in Figure 4.2 of LEI (2021:T:C.15) attached to the main application and is adjacent to both the existing treatment ponds and Burnside Road.

31. Please provide some detail of how flooding of the irrigation area (particularly at Stage 1) will be managed and mitigated.

Response:

The lower terrace sits within a 1:100 flood plain. Should this area flood focus will be given on irrigating the higher terrace. Irrigation on the lower terrace will resume once flood waters and debris has recede and been cleaned up.

32. Please provide details of what control measures will be employed to protect the storage pond from flood flows and protect the river from failure of the storage pond / release of effluent.

Response:

The storage ponds will abut the existing treatment ponds. The protection employed for the new ponds will be similar to that of the existing ponds. Such protection will be that typical of flood control structures employed throughout the region. Detail on the extent of flooding and inundation maps are provided in the main application document.

33. Please provide an assessment of the effects if flood waters inundate the HRLP.

Response:

Given the protection of the HRLP with shielding by Burnside Road, flooding will be well in exceedance of a 1:100 year flood. Should flooding occur, then the structure will be restored as needed, potentially with replating as required.

B) Cultural Impact Assessment

The Consent Application made reference to a CIA being prepared. This was prepared and received on the 28th April 2021 (Annex A.1). This CIA identified a series of recommendations. CHBDC wrote to the CIA's author with a response to the recommendations (Annex A.2). The reply was positive and confirmed suggested conditions, and made further suggestions (Annex A.3). It is anticipated that discussions will be ongoing.

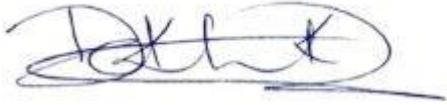
C) Additional Planning Assessment

A number of planning considerations are they relate to tangata whenua and Maori in general are set out in various statutes which were included in the planning assessment attached to the main consent application. Some of the policies and objectives could not be fully addressed as the CIA had not been received. Now that the CIA has been received the assessment can be completed. This is provided in Annex C.

D) Revised Conditions

In the course of addressing the s92 and after receipt of the CIA, a number of proposed consent conditions warrant changing or including. A revised set of conditions is attached (Annex B), with changes identified by mark-up (strike through and underline).

Yours sincerely,



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Annexures:

- Annex A.1: Cultural Impact Assessment (Heperi, 2021:T:D.50) 28 April 2021
- Annex A.2: CHBDC letter dated - 08 July 2021
- Annex A.3: Heperi letter dated – 10 August 2021

- Annex B: Revised Draft Conditions

- Annex C: Planning Assessment – Beca letter dated - 18 August 2021

- Annex D: Ecology report (T:D.66) – Beca report dated – 19 August 2021

- Annex E: Preliminary process flow diagram

- Annex F: Additional Groundwater Assessment (T:D.20) – Beca letter dated – 17 August 2021

- Annex G: Treatment plant proposal - Beca letter dated - 20 August 2021