Appendix 1 – Table of s92 correspondence to date and outstanding requirements

S92 Questions (19/05/2021)	**Applicant's s92 Response (20/08/2021)**	**Comment (Should be read in conjunction with Pattle Delamore Partner Memo dated 02.08.2021), further actions required are BOLD.**
Cultural Impact 1. Please provide the cultural impact assessment for the proposed activity, documenting Māori cultural values, intersts and associatations with the area surrounding the proposed activity and downstream of the dischage.	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).	This satisfies HBRCs information request.
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	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	Noted and agreed that the site is a 'Site and Area of Significance to Maori' not an archaeological site. Although the CIA address the relevant sites of significance including Wahi tapu and Wahi taonga (section 3.10 – CIA), there is no mention of the identified and mapped 'Site and Area of Significance to Maori 246' in the CIA. **Please provide evidence showing that the author of the CIA is aware of this**

m and 0.5 m deep. Several other depressions in area.' NB, given the identification of the 'Area of Cultural Significance to Tangata Whenua' on the site, in accordance with Regulation 10 of the Resource Management (Forms, Fees, and Procedure) Regulations 2003, HBRC are required to serve notice of the application for resource consent to Heritage New Zealand Pouhere Taonga.	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 Rākautātahi marae.	**mapped area on site and that this has been taken into account in the CIA.**
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)	The requested reports have been made available via the web portal.	All reports have been received. We note that hybrid irrigation / rapid infiltration instead of direct discharge to surface water has not been considered in Best Practical Option (BPO) Report. This is considered a viable alternative given the geology of the lower terrace and would achieve the community aspiration of removing the discharge completely from the river. Please see Pattle Delamore Partner (PDP) notes on this – this is likely to inform the Council's s42a report on alternatives.

		Evidence why the proposed option is superior to an irrigation / rapid infiltration system should be provided.
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.	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.	**On checking our internal database, it does not appear that FEMPS or application for resource consent have been provided for the two sites for the existing activities being carried out on them.** Given the current Overseer review, HBRC are happy to be provided a FEMP for the site and proposed activity at a future date.
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	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	The Overseer modelling indicates that the reduction in nitrogen contribution to the catchment by both direct surface water discharge through the HRLP and leaching is only 10% reduction. While this is an

LEI, 2021:T.C.14a including the leaching potential versus the proposed cropping and grazing 'business as usual' regime.	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.	improvement, we consider the reduction in the contribution of nitrogen will not be sufficient to meet the proportional decrease required to help meet the DIN target for the catchment. Whereas the cut and carry regime (described in report T:C.14a) has the potential to provide significantly more nitrogen uptake resulting in significant decrease in leaching. The applicant has noted that the cut and carry regime may be considered environmentally better than the proposed business as usual regime. It should be noted that restrictions of the use of the site by the site managers comes lower in the hierarchy of obligations under Te Mana o te Wai than the health of the waterbody.
b. Please provide an explanation of why the system has not been designed to irrigate 100% of the wastewater to land.	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 utilised. 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.	PDP recommend that confirmation that, based on the soil moisture modelling, if additional land area at stage 2 will allow for a greater fraction of the 2048 flows to be irrigated. This is likely to inform the Council's s42a report on alternatives. **Application documents state that a non-deficit regime will be adopted, but s92 says non-deficit regime is considered unnecessary and may have a detrimental impact on the farm management system. Confirmation required of how the irrigation will be managed.**
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	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.	This satisfies HBRCs information request. However it should be noted that a future FEMP should include this information.

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.		
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.	[Central Hawke's Bay District] Council have entered into contractual discussions with the Drummond and Dalby land owners. This information is not at a stage to be shared.	This satisfies HBRCs information request. We have concerns of the potential risk of irrigating land which is not owned by CHBDC in the case of future ownership changes etc. CHBDC have not shared the information of the ownership. It is noted that the applicant does not need to own land to apply for resource consent, or for resource consent to be granted. However, should future land ownership result in changes to the agreement, this will need to be recognised as a variation to the consent, if granted, or a new consent.
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.	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.	This satisfies HBRCs information request. As above, please be aware of the risks with irrigating to land which is not owned by the consent holder. The consent holder retains all responsibility for the consent and matters of non-compliance with the conditions of consent, if consent is granted. As such if non-compliance arises from the actions of

a. Please describe the relationship between the lessee's, lessor and Council regarding who will control the application of wastewater to land?		the lessee / lessor, the responsibility remains with the consent holder (Central Hawke's Bay DC).
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.	The Drummonds will operate the irrigation system. This will include scheduling pumping and irrigation events. They will also coordinate what crops are irrigated.	This satisfies HBRCs information request. As above, there are potential risks in terms of compliance with conditions of consent, if granted, if the land is irrigated in a manner that is directed by economic needs of the farm rather than environmental outcomes.
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.	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.	This satisfies HBRCs information request. It is noted that this is reflected in Condition 47 of draft conditions version 2 (20 August 2021). We consider the dissolved oxygen monitoring should be carried out and will be addressed as a recommended condition of consent, if a grant of consent is recommended.

	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.	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.	This satisfies HBRCs information request. We consider an appropriate flushing protocol can be addressed by conditions of consent.
e. Please also provide information and/or an explanation to support how the parameters for proposed Condition 18 were derived.	The wind shut off parameters are typically used for wastewater application systems	**Please provide reference or explanation for the basis of the parameters that have been proposed for this condition.**
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?	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	**Please provide reference or explanation for the basis of this 24 hour stand down being appropriate for application of human derived wastewater to pasture.**
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.	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 cleared of congested vegetation and replaced with an alternative structure that CHBDC are in discussions with iwi around its design.	This satisfies HBRCs information request.
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).	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	This satisfies HBRCs information request. Further discussion of the identified wetland below.

	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.	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.	**No work, links to specific reports or details have been provided to support the statement from the applicant. Please provide additional evidence to support this statement.**
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.	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.	This satisfies HBRCs information request. Continued monitoring of the bores and monitoring the pond for leakage is suggested as a condition of consent, if the conclusion of the s42a is a recommendation to grant the consent.
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 receival).	The cause of the increases is unknown.	This satisfies HBRCs information request.
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.	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 AUTH125345-01. Over time, area receiving freshwater will be substituted out for wastewater irrigation.	This satisfies HBRCs information request. It should be noted that PDP have recommended that the applicant should undertake soil moisture modelling and confirm whether additional land area at Stage 1 will allow for a greater fraction to be irrigated. This is likely to inform the Council's s42a report on alternatives.
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.	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	This satisfies HBRCs information request.

	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.	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.	This satisfies HBRCs information request.
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. b. Which stage of the consent this additional treatment will be installed. c. A preliminary process flow diagram of the system.	a. 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. On overview summary is provided in Annex G. b. UV disinfection will be installed from Stage 1 onwards. c. A preliminary process flow diagram is provided in Annex E.	Typically, a UV disinfection system would be expected to achieve greater than a 1 log reduction in faecal coliforms and E. Coli. **Please provide further comment on the performance of the UV system.**
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.	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	Further information has been provided, it is agreed significantly greater attenuation could occur with irrigation rather than direct discharge reducing the effects on the river. However, given there is still a percentage of effluent proposed to be discharged to the river, assessment has not taken into account any risk to public health of downstream river users from microbial

	level changes are provided in Annex G (Beca letter dated 20 August 2021).	pathogens (recreation / registered drinking water suppliers) from the discharge into the river from the HRLP has not been provided. **Given that the applicant are a downstream registered water supply owner (Takapau Road Bore – Well numbers 15107, 5617, 5676, 16892 and well no. 16893) the risk to these bores including consideration of any measures required for failures at the Takapau discharge site (e.g. pond embankment failure) should be considered. A consideration of the impacts on other downstream water supplies on the potentially affected rivers between the site and the coast should also be provided (including non-registered suppliers). Consideration of effects on contact recreation (including swimming sites) is also required. The risk assessment may need to be informed using a Quantitative Microbial Risk Assessment (QMRA)**.
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	High suspended solid content in the monitoring bores was a result of bore installation. The bores have been reinstalled.	This satisfies HBRCs information request.
b. Comparison of the dissolved reactive phosphorus (DRP) concentrations measured.	The high phosphorus concentrations are expected to reflect background concentrations, and are potentially elevated due to a limited recharge area.	This satisfies HBRCs information request.
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*	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	On the basis of the information provided and a review of the local groundwater reports, we consider that at a wider scale, the direction of groundwater flow is likely to be towards the Porangahau Stream, although there is some uncertainty.

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.	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."	**We consider that the applicant should therefore provide an assessment of impacts on the Porangahau Stream or other down gradient waterways expected to be the ultimate receiving environment for the discharge.** Please note, we consider it worth having PDP and Beca discuss this to identify what areas they have consensus over and what areas they do not in order to progress.
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.	The relationship between these two site is based on information supplied by HBRC.	**Please provide a reference, we have spoken to our hydrologists to verify this.**
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.	Firstly, there will be very limited discharge to the river thought 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.	This satisfies HBRCs information request. It is considered that sampling should occur more frequently than proposed to accurately track water quality of the receiving water body and respond to any adverse effects. It is recommended that one sample per month is taken where the discharge occurs and the sample should be taken at a time when the HRLP discharge is being used. Flow from the HRLP to the Makaretu River must be visible when river sampling occurs. This will likely be covered in the conditions of consent.
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.	A 20 m irrigation set back will be applied from the Makaretu River.	**An assessment that a 20m setback is sufficient to protect the Makaretu River from any detrimental effects of the discharge has not been provided.**

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.	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.	- **Please provide justification from the ecologist that 'Site 2' and 'Site 3' are distinctly separate sites.** - **Please confirm whether the areas of 'Site 2' and 'Site 3' meet the definition of a 'natural wetland' under the National Policy Statement for Freshwater Management (NPS-F), 2020.** - The ecologist report identifies that 'Site 2' as an ephemeral wetland, if either 'Site 2' or 'Site 3' meet the definition of a 'natural wetland' under the NPS-F, consent may be required for the discharge of water within 100m of the wetland. **Please provide an assessment against the provisions of the NPS-F and identify what activity status the discharge of treated wastewater within 100m of a natural wetland will have. Although it is acknowledged that the ecological appraisal identified.**
Ground Water 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.	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*."	**There is potential for bores to exist in the rural residential properties to the south of the site (along Charlotte Street and Nancy Street), an assessment of the potential risk of discharging wastewater in close proximity to these bores should be made.** **It is noted that the CHBDC reticulated water supply extends and may serve these properties, please comment on whether the properties closest to the proposed discharge are connected to the reticulated system.**
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	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	This satisfies HBRCs information request.

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.	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.	Please see above response to question 20. Accordingly, no assessment of effects on the ecological values of the Porangahau Stream is considered necessary.	**As per point 20, please provide some assessment of effects on the ultimate receiving bodies specific to the proposed design.**
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.	See separate Beca report in Annex D, Section 4.1". The overall level of effect is considered to be low.	The information provided satisfies the s92 request. Noted that this is referred to as Question 29 in the Beca Ecological Report (T:D.66).
29. Please provide an assessment of the ecological value of the existing drainage channels located within the proposed area of irrigation (including the ephemeral overland flow channel identified in point 23, above).	See separate Beca report in Annex D, Section 4.2". The overall level of effect is considered to be very low.	**As per point 23, above, further information is required as to whether the drainage channel and ephemeral wetland are classified as a 'natural wetland' under the NPS-F and, if so, may require consent under the NES-F.**
Natural Hazards	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.	This satisfies HBRCs information request.

30. Please provide some detail for the location of the two additional storage areas (2,000m^3 during stage 1 and 18,000m^3 in stage 2).	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.	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.	This satisfies HBRCs information request.
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.	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.	This satisfies HBRCs information request. It is noted that a requirement may be added to draft consent condition 25 (Version 2, 20 August 2021) to inform HBRC of any damage of signs of seepage.
33. Please provide an assessment of the effects if flood waters inundate the HRLP.	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.	**Please confirm that the HRLP will be designed to discharge treated wastewater while flooded in the event conditions for irrigation have not been met and the storage is full.**