

30 July 2024

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**AUCKLAND**

Kia ora Tanvir

**Resource consent application – s92 further information request and s37 timeframe extension**

|                     |  |
|---------------------|--|
| Application number: | DIS60433803  |
| Applicant:          | Watercare Services Limited   |
| Proposed activity:  | Replacement of the current wastewater discharge consent for the discharge of treated wastewater to land from the Beachlands Wastewater Treatment Plant |
| Site address:       | 100 Okaroro Drive, Beachlands  |

Thank you for submitting the above resource consent application.

Following consultation with the respective Council specialists, I am writing to advise you that the following further information and clarification is required under Section 92(1) of the Resource Management Act 1991 (“the Act”) to allow for a full and accurate assessment of your application to be undertaken:

**Freshwater Ecology**

1. The submitted water quality, ecological, and human health effects assessment from Streamlined Environmental Limited, version F3, dated 27 May 2024, (**the ecological report**) states that the levels of a number of key nutrients are trending upwards due to increased discharge volumes in the current system. The primary ecological concern is that there appears to be limited certainty in respect of the length of time that Stages 1 and 2, and Stages 3 and 4 will be implemented. The noted issues of concern are:

- The assessment of actual and potential effects for Stages 1 and 2 apply the same operational limit of contaminant assessed, despite increased volume and load (coupled with increasing contaminant concentrations for several parameters).
- Stages 3 and 4 also apply the same operational limit for the assessment of actual and potential effects, also with an increased volume and contaminant loads. This Stage 3 and 4 effects envelope forms the focus of much of the assessment.

In addition, for all stages, it appears that an envelope of assessment that treats all discharges at maximum daily discharge flow has been applied. An indication of the average daily discharge flow and the maximum daily discharge flow would be useful in order to contextualise the likelihood / frequency of these different volumetric discharges, and how different these might occur in practice so that the ecological implications can be assessed.

Accordingly, please provide:

- a. an updated ecological impact assessment that considers effects associated with the stage 1 and 2 average daily and maximum daily flow states;
  - b. an updated ecological impact assessment that considers effects associated with the stage 3 and 4 average daily flow states and how those relate to the maximum daily flow states (as only the maximum daily flow has been considered in the envelope of effects approach); and
  - c. clarification of what population will trigger the proposed upgrades that will take flows from stage 2 and beyond. For example, the assessment of environmental effects (**AEE**) states that upgrades will be initiated prior to population equivalent (**PE**) 18,000 but does not state when and only notes that they will be operational at PE 24,000. As such, there is a potential period of time between these two triggers that has not been adequately assessed. In the response, please include details as to when such upgrades will occur and an associated assessment.
2. The baseline condition of the upstream reaches of the subject stream system (baseline condition) is reported to be degraded by existing land practices. However, the submitted ecological report suggests that the stream's ecological values might be moderate, which is characteristic of a valued freshwater system. Accordingly, please provide further evidence beyond water quality, macroinvertebrate, and fish data and analyse it to determine the baseline ecological value of the stream using a value assessment framework that provides line of sight on the key contributors to ecological value. Furthermore, the National Policy Statement for Freshwater Management (**NPSFM**) requires assessing the effect on the potential ecological values of freshwater features. Please update the ecological report to assess the potential ecological value of potentially impacted freshwater ecosystems and consider effects on the potential ecological values.

Note: the EIANZ provides a framework to determine freshwater ecological values. In addition, Boffa Miskel has advanced the EIANZ Ecology Impact Assessment framework for rivers and stream,

which has been subsequently adopted by several consultancies. Council can provide this advanced framework if required.

3. Please provide the stream ecological value (**SEV**) scores for each survey site identified in Figure 29 of the ecological report. This will allow for a review of the various positions and justifications presented within the ecological report, such as shading, vegetation coverage, benthic structure, water depths, and stream profiles. Please also ensure that the SEV calculator is included.
4. It has been assessed that the farm pond may throttle high flow discharges. Please provide an explanation and assessment of whether fish passage over the structure is available, and a description of the passage structure if proposed. It should be noted that in order to comply with applicable regulations under the Auckland Unitary Plan (Operative in Part) (**AUP(OP)**), dams higher than 4m should provide fish passage.
5. Please provide an ecological value and effect assessment of the discharge on various significant ecological areas at each stage.
6. It is understood that the land disposal element of the proposed discharge system will avoid natural inland wetlands, in that it will be located a minimum of 100m from them. Please provide further evidence, which could include mapping the extent of the disposal area against landscape features, to confirm that there will be adequate land available to achieve this set back from all natural inland wetlands. Alternatively, please provide an addendum that addresses this, including any necessary consents under the National Environmental Standards for Freshwater and an associated effects assessment.

## **Water Quality**

### **Emerging Organic Contaminant Assessment**

7. Section 5.3.5 of the ecological report refers to the concentration and resulting high risk quotient for venlafaxine as being an anomaly. Please indicate how this value compares to other wastewater treatment plants (**WWTP**) as reported in Table 5 (if data are available), or other applicable data sets in New Zealand.
8. Sediment bioaccumulation risks of emerging organic contaminants (**EOCs**): Based on the authors' knowledge about sediment bioaccumulation of EOCs and available data, please provide an assessment as to the risk / potential of analysed personal care products and pharmaceuticals (**PCPPs**) (and other EOCs, where applicable) in the Beachlands WWTP discharge to sediment bioaccumulation in the downstream receiving environment, both at the Bridge Site (Site 15) and estuary.

### **Staged Assessment**

9. Table 6 of the ecological report sets out the operational limits for key contaminants, with footnote 13 cross referencing Stantec and Watercare. Please provide the rationale / justification for the

Operational Limits presented in Table 6. Please include the process by which these limits were reached.

10. Please explain why there is no differentiation in the operational limits between:
  - 'Current and Short Term', noting this represents an increase from PE 11,000 to PE 18000; and
  - 'Long term Stage 1 and Stage 2 ', noting this represents a PE 24,000 to PE 30,000
11. The last bullet point on page 10 of the ecological report refers to TN, Amm-N and Nitrate-N concentrations are at Attribute Band B; and dissolved inorganic nitrogen (**DIN**) at levels expected to contribute to eutrophication (noting here that DIN is the sum of nitrite-nitrate-nitrogen (**NNN**), ammoniacal-nitrogen (**Amm-N**) and nitrate-nitrogen (**Nitrate-N**). Noting the current state assessment has been provided for PE 11,000, what are the expected concentrations (median, average, 95th percentile) and annual average loads of all key contaminants at the following stages:
  - PE 18,000 (prior to the long-term upgrades being operational).
  - PE 24,000
  - PE 30,000

In the response, please provide an assessment of the water quality (with corresponding attribute state and other relevant benchmarking) at each PE threshold (PE 18,000, PE24,000 and PE30,000), for the following locations:

- The treated effluent discharged from the WWTP (prior to overland distribution)
  - Treated effluent after overland flow, prior to discharge to the Farm Pond (noting this is also pending the final PDP assessment)
  - Farm Pond (Site B)
  - Discharge to the Te Puru Stream (exiting the farm pond)
  - At the Bridge Site (Site 15, zone of mixing)
  - Quarry Site
  - Te Puru Estuary
12. What is the expected percentage increase in DIN (noting that is it over 90% Nitrate-N), and what is the proportional increase in risks to eutrophication at the mixing zone (Site 15) and Te Puru Estuary.
  13. What are the likely drivers of significant trends in increasing Nitrate-N and dissolved reactive phosphorus (**DRP**) in the discharge quality? Please provide an assessment of how this is likely to track up to PE 18,000 and up to the new long-term upgrades becoming operational.

14. Two bullet points on page 15 of the ecological report appear contradictory in that the first point refers to Amm-N as having an overall low contribution of 0.5% and unlikely to be significantly contributing to Amm-N downstream, but the second point refers to pond processes will increase Amm-N. Based on these statements, please provide:
- a detailed explanation of the processes in the pond (likely ammonification processes – what is driving this, and can it be mitigated?) that will continue to increase Amm-N;
  - an estimate of Amm-N concentrations in the downstream receiving environment; and
  - an assessment of how Amm-N concentration and loads in the farm pond will likely change over time as a result of increasing loads at PE 18,000, PE 24,000 and PE 30,000, and the capacity of the farm pond and upgraded overland flow system (**OFS**) to attenuate elevated Amm-N loads.
15. With section 3.4 of the ecological report, the second bullet point makes reference to marked increases in DRP and Nitrate-N and refers to ‘operational changes and constraints’. Please provide details on what these ‘operational changes and constraints’ were, how these result in significantly increasing trends in DRP and Nitrate-N and explain what process will be put in place to mitigate the ‘operational changes and constraints’ prior to the upgrades being commissioned.
16. Please confirm if the Amm-N data in Table 8 are adjusted for pH? If not, please either make this adjustment or explain why it is not necessary to do so.

### **Coastal Ecology**

17. Based on the operational results provided for the existing discharge quality, it appears that the existing discharge volume has exceeded the consent limit, with potential adverse effects on the coastal environment resulting due to the exceedance in discharge quality. Without additional treatment for the existing discharge quality, the proposal may not be supportable. Accordingly, please provide the discharge volume (not average volume) and discharge quality for all four stages along with an assessment of the likely adverse effects.
18. The submitted ecological report clearly identifies the current discharge quality and exceedances in respect of the ANZECC quality guidelines, as set out below:
- Dissolved reactive phosphorus and nitrate-N have shown a marked increase in concentration between 2018-2023, with median annual increases of 24% and 77%, respectively.
  - Volume of discharge exceeded the maximum consented volume of 2,800m<sup>3</sup>/day. Table 1(section 3.13 Ecological Report) indicates the volume discharged was 5619m<sup>3</sup> in 2018 and 4.331m<sup>3</sup>/day.
  - The discharge contains total copper, and total and dissolved zinc at concentrations above the Australian and New Zealand Guidelines (**ANZG**) 2018 default guideline values. To achieve

these standards some dilution and/or attenuation is required in the wastewater treatment system prior to discharge to the receiving environment in order to meet these standards.

- After attenuation through the overland and stream system, Total Nitrogen (**TN**) and Total Phosphorus (**TP**) loads contribute 32% and 44% of total load from the catchment to the marine coastal environment.

In respect of these matters, please provide answers to the following questions:

- a. The daily volume of discharge from 2018 to 2023 almost doubled. Copper and zinc are toxic to marine life, with both exceeding the ANZEC guideline value in the existing discharge. There is no assessment in the **AEE** or ecological report to assist with understanding how the above breaches, including the exceedance of copper and zinc, could be avoided within the WWTP treatment during stages 1 and 2. Please provide this.
  - b. While Membrane Bioreactor (**MBR**) treatment will reduce the nutrient level in the discharge, what is proposed to manage the exceedance in the total copper and zinc?
  - c. Please provide the background level of TN and TP for the immediate receiving coastal waters and sediment.
  - d. Please provide an assessment to understand the effects of TN and TP on the coastal marine environment, and mainly in respect of algal blooms. Will the estimated TN and TP availability from all four stages be likely to enhance plant growth at the immediate receiving environment?
19. Please provide the follow details:
- a. Chlorophyll a (**chl a**) concentration and the trend analysis result for chl a for the period between 2018-2023.
  - b. The measures proposed to monitor or manage the potential occurrence of algal blooms / plants related to the proposed discharges at all stages.
20. With respect to the coastal marine environment, the following assessment is provided within the ecological report:

*'The proposed discharge rates by MBR Stage 2 will have negligible effects on the salinity and the marine communities of Te Maraetai/Kellys Beach due to the relatively low discharge rates compared to other nearby streams and rivers, the rapid dilution, and the tolerance of intertidal biota to low salinities. There will be no change from the current WWTP scenario.*

*With respect to the proposed discharge, estimated TN concentrations will decrease by 29% to 5 mg/L in the Long-term Stages 1 and 2 of the*

*upgraded WWTP, and TP concentrations will reduce to 0.5 mg/L. Concentrations of these nutrients will be diluted 309× (50% percentile) by the time they reach the Te Puru Stream mouth, making them well below background concentrations in coastal waters. Given the rapid dilution rate, and the reduction of TN concentration in the proposed discharge from the expanded and upgraded WWTP, no increase in nutrient concentrations in coastal waters, or related adverse effects from increased nutrients, are likely to occur as a result of the proposed discharge. Other minor contaminants that are present in the treated wastewater at low concentrations will be diluted at a similar rate to TN and TP. There will be no change from the current WWTP scenario.*

*Potential effects on SEA-M1-42b Te Puru Stream estuary and SEA-M2-42a are anticipated to be low given the level of influence the treated wastewater discharge will have on nutrient concentrations and salinity in coastal waters.'*

While this assessment is noted, neither the ecological report nor the AEE have included an assessment that supports the above in relation to the magnitude of overall effects on the coastal marine area (CMA).

It is further noted that the ecological value of the immediate receiving environment is provided from an intertidal survey at 14 stations around Te Maraetai / Kellys Beach. While the survey results identified different broad scale habitats with different species such as shellfish patches, seagrass, mudflats, shell banks & mangroves, no assessment of effects on those habitats or species is provided in the ecological report in relation to the proposed discharge.

In addition, the statement on SEA-M1 and SEA-M2 in the vicinity of the discharge does not include a site-specific assessment on the ecological values at the sites from the proposed discharge.

Taking the above into account, please provide the following:

- a. A habitat or species-specific assessment of ecological effects from the proposed discharge for all four stages.
- b. An assessment of effects on identified kaimoana species, including human health risk from the proposed discharge for all four stages. While there is no regulated, legal size limit for shellfish, such as cockles and pipi, should consent be granted for 35 years, the size and population of shellfish species would grow to harvestable size over the proposed duration. Accordingly, it is not agreed that the current size of the shellfish is a form of mitigation or reason not to consider human health effects from consuming shellfish.
- c. Please confirm that the consent limits proposed for all four stages can be met without any exceedance in the discharge quality, as has occurred with the existing discharge.

- d. Based on the breaches with the existing discharge quality consent limits, there is potential that the proposed discharge operational limits may exceed consented limits. Monitoring the discharge water and sediment quality, and coastal ecology is the only tool available to validate the proposal. Accordingly, please provide a draft monitoring plan for all four stages, that contains, but that is not necessarily limited to, the details below:
- The spatial and temporal extent of the key habitats (as appropriate) within the zone of influence in the immediate receiving environment of the proposed discharge.
  - Benthic community (fauna and flora) abundance and diversity.
  - A water quality analysis of key nutrients, chl<sub>a</sub> etc. (if it is not monitored or included in the discharge quality).
  - A sediment quality analysis (heavy metals, grain size, organic content, anoxic layer / redox potential).
  - Spatial and temporal extent of algal blooms, should they arise.
  - Suitability of kaimoana species for harvesting and human consumption, including species, size and number of samples to monitor.
  - Reporting procedures.
  - Monitoring design for the above aspects to include the number of samples, spacing of sample stations in relation to the proposed discharge location, frequency of sampling, methodology and reporting. The monitoring programme must be designed to deliver ecologically meaningful results and be statistically robust enough to detect potential changes to those matters listed above.
21. Please provide an assessment on cumulative effects on the ecology of the immediate receiving environment in the CMA (Te Puru Stream and Kellys Beach) in relation to the existing discharge and from the proposed discharge for all four stages.
22. With respect to the modelling within the Assessment of Proposed Te Puru Stream Discharge by DHI Water & Environment Limited, dated 28 March 2024 (**the modelling report**), please provide the modelled zone of influence and reasonable mixing zone for each stage of proposed discharges at the different sites identified in the modelling report.
23. The modeling report states:

*'The higher levels of dilution that are achieved in the wider marine receiving environment (compared to the in-stream dilutions) mean that changes in nutrient concentrations in the wider marine receiving environment due to the proposed WWTP discharges would remain below detectable limits.'*



What are the detectable limits referred in the statement above for key contaminants in the discharge?

24. In respect of TN and TP in the estuary, please answer the following questions:
- What is the residence time of the TN and TP footprints for the Te Puru Estuary and Kelly Beach for each stage proposed.
  - Please explain how the TN and TP loads in the table below were derived? What is the total load for TN and TP estimated for different discharge scenarios and why are there only three scenarios?

**Table 1. Discharge Scenario data.**

|  | <b>Current</b> | <b>Short-Term</b> | <b>Long-Term Stage 2</b> |
|--|----------------|-------------------|--------------------------|
| <b>Average daily dry weather discharge (m<sup>3</sup>)</b>   | 2,000          | 3,600             | 6,000                    |
| <b>Average daily dry weather discharge (m<sup>3</sup>/s)</b> | 0.023          | 0.042             | 0.069                    |
| <b>Median TN load (kg/day)</b>                               | 14.0           | 25.0              | 30.0                     |
| <b>Median TP load (kg/day)</b>                               | 2.0            | 3.6               | 6.0                      |

25. There is a difference between the tide being in (mixing will occur in the estuary and beach area) and low tide when undiluted river water will be within the channel within the intertidal area and mixing will occur at the tide line. Has this been considered in modelling of the nutrient footprint?
26. The ecological report shows after the MBR is operational within the WWTP, attenuated TN and TP loads through the overland and stream system will contribute 50% and 70% of total catchment load to the marine coastal environment respectively, being approximately two-fold and three-fold increases as compared to the current situation of 32% and 44% respectively.

Sufficient nutrients in water are known to be one of the conditions leading to toxic algae blooms, which is likely to have adverse effects on people involved in contact recreation, particularly those who eat watercress collected from Te Puru Stream. The ecological report indicates that occasional blooms of toxic cyanobacteria have been reported from the Beachlands-Maraetai coastline and blooms were also observed in Te Maraetai / Kellys Beach during the intertidal survey. However, the health risk from cyanobacteria as a result of the proposed increase in nutrient loads has not been assessed in detail in either the ecological or health risk reports. Please provide further assessment in this regard.

27. The ecological report states that the estimated loads from the upgraded WWTP represent a very small percentage of the TN and TP loads entering the inner Hauraki Gulf and Firth of Thames. Thus, the effects of the increased loads from the upgraded WWTP are assessed as being low. Please justify the reasons that the inner Hauraki Gulf and Firth of Thames are used instead of the immediate receiving environment for assessing the effect.

28. On 11 July 2024, Watercare Services Limited (**WSL**) provided a preliminary assessment of the Estuarine Trophic Index (**ETI**) for Te Puru Stream Estuary, based on ETI Tool 3, and applying the current state assessments. Please provide an assessment of the ETI at each of the anticipated states at PE 18,000, PE 24,000, and PE 30,000.

### **Hydrology and Stream Flow**

29. The stream hydraulic assessment report uses 6,000 m<sup>3</sup>/d discharge from the WWTP, converted to an average discharge rate of 0.07 m<sup>3</sup>/s. It then uses this rate as an estimate of wastewater discharge contributions during wet weather events without any adjustment of the discharge from the WWTP due to wet weather flows (outflows would be expected to be greater when it's raining). The report also only provides an assessment at high stream flows, not at low.

Noting the above, please provide an assessment of the effects of the discharge (the current, the maximum proposed, and a range of discharges, not just an average) under a range of climatic conditions (e.g. dry weather and a range of rainfall events, including the rainfall event resulting in maximum discharge from the plant and a relevant climate change scenario) on the depth, velocity and flow of water in both the tributary and the main stem of Te Puru Stream after confluence. Alterations in the rate of discharge and stream baseflows should be considered for dry and wet weather, and include consideration of climate change effects on high and low stream and discharge flows.

Please also provide an assessment of the efficacy of the 'storm buffer ponds' under current and future growth projections, assessing a range of storm events and a consideration of a climate change scenario relevant to the duration sought for this consent.

30. While there are flow duration curves (naturalised) in the appendix to the stream hydraulic assessment report by Pattle Delamore Partners, they have no headings or graph labels, and there is no explanation of them in the report. The report also refers to a methodology in Appendix C but that appendix cannot be located and data from the gauging and water level recorder cannot be located. Please address these matters.

### **Overland Flow System and groundwater**

31. Please provide a detailed and comprehensive conceptual site model (**CSM**) of the current site, hydraulic connectivity, and key transport pathways. It is noted that this is likely to change when the design of the upgraded OFS is finalised, however it is appropriate and expected that a detailed CSM is provided given the period of time before the upgraded OFS is operational.
32. It is acknowledged that the AEE and ecological report have provided an assessment that is based on the data available. In accordance with the initial review provided to WSL, please provide a complete assessment for the OFS when the full analytical data are available and incorporated into the assessment. Given the reliance on this assessment to both the assessment of the current treatment pathway (e.g., mass/flow ratios described in PDP 2 April 2024 memo) and the

assumptions adopted in the ecological report, the current assessment of the overland flow system needs to be updated.

Following this updated assessment, the findings and conclusions need to be incorporated into the AEE and ecological report to inform their assumptions and also to provide an updated assessment of the current attenuation pathway and treatment ratios provided by the overland flow system (currently regarded as incomplete).

33. The overland flow system memorandum 4 from Pattle Delamore Partners, dated 17 May 2024, states that: *'any potential contaminants from overland flow site migrating downwards through the regolith into GW expected to have flow path lengths no longer than hundreds of metres to the nearest stream discharge zone, no existing bores or GW takes occur within this area.'* However no details on groundwater use in the immediate environment have been provided. Please address this and provide further information on groundwater take and use, including any groundwater quality monitoring data in the vicinity of the WWTP.
34. The overland flow system memorandum 2 from Pattle Delamore Partners, dated 2 April 2024 (memorandum 2), states: *'the removal mechanisms for nitrogen and phosphorus in an overland flow system are relatively complex and are heavily influenced by the nature of the wastewater applied, the flowrate/loading rate, and the soils present at the site.'*

In respect of this statement, please provide answers to the following questions:

- a. With regard to significantly increasing trends in Nitrate-N and DRP in the discharge, provide an assessment of how increasing concentrations and loads up to PE 18,000 will influence the treatment performance of the OSF. In the response, please provide an assessment to identify any critical processes that may be modified, such as the processes of nitrogen attenuation / removal in the OFS (e.g. volatilisation, biological nitrification – denitrification).
- b. Is there an upper limit as to the treatment efficacy after which it does not function, or declines?
- c. Please provide the information indicated in footnote 6, Table 1.
- d. The cross references supplied in Table 1 footnotes are not understood. Please address this by providing more updated applicable citations and cross-references to support the comparison.

In respect of memorandum 2 and the overland flow system memorandum 3 (Interim) from Pattle Delamore Partners, dated 2 April 2024 (**memorandum 3**), please provide answers to the following questions:

- a. Confirm when the OSF upgrades will be operational and provide an assessment of the anticipated performance at the end of Stage 1, prior to the main WWTP upgrades being operational.

- b. How will the upgrades to the OFS serve to reduce and manage the significantly increasing trends of Nitrate-N and DRP discharging into the farm pond?
- c. How will the OFS affect the 95<sup>th</sup> percentile of data?, noting these data are of great interest given these are at levels that present toxic concentrations in the receiving environment.
- d. Noting the above, please add the 95<sup>th</sup> percentile to Table 3, and incorporate into the assessment of the performance of the OFS.
- e. In respect of Table 4, please explain the derivation of the ratios, and a justification for applying the conductivity when earlier the report refers to this as being relatively inert, whereas the nutrients undergo attenuation pathway processes.
- f. The conductivity ratio from Table 3 equates to  $141/122 = 1.15$ , but the ratio in Table 5 is 1.19. Please explain the differences.
- g. Table 4 note 2 references future scenarios. Please indicate which scenarios incorporating climate change scenarios have been accounted for. If not, please update the assessment to provide for the consideration of climate change, appropriate to the purpose and duration of the consent applied for.
- h. Page 6 of the memo states: *'flow ratios can then be used to determine the 'fraction' of each parameter which has been 'removed by treatment process' vs simple dilution.'* However, the data do not include the point of an assessment before the discharge reaches the pond itself – it includes only the data from the farm pond to the Site 15 (mixing zone), thus it does not account for the efficacy of the OFS itself. Please address this.
- i. In respect of the Table 5 header, please state what processes other than dilution include. In the response, please provide specific details.
- j. Page 7 states: *'it remain unclear what fractions of this reduction are attributable to the overland flow system vs. natural biological processes in the pond'*. This is repeated in the memo summary on page 8. On the basis of these statements and memorandum 3 (an incomplete assessment of the OFS), it is evident that the OFS assessment needs to be fully completed, with corresponding ecological, water quality, and modelling assessments updated accordingly, noting that the outcomes of the performance assessment of the OFS has a strong bearing on the assumptions incorporated into the ecological and modelling reports. Please address this.

### **Human Health**

- 35. The assessment of microbiological effects and health risk from NIWA, dated April 2024 (**the health risk report**) has only considered norovirus (oral digestion route) in its quantitative microbial risk assessment (**QMRA**) through the swimming route. Justification has not been provided as to the

reason adenovirus (inhalation route) has not been included in the QMRA at the same time. Please address this.

36. The health risk report has not included emerging organic contaminant (**EOCs**) in its health risk assessment. The ecological report has estimated the ecological risk of EOCs in the proposed Beachlands WWTP discharge to the receiving environment based on monitoring of pharmaceuticals and personal care products at Beachland WWTP as well as literature on EOCs in wastewater from other WWTPs. Please provide a further health risk assessment in terms of EOCs.
37. The health risk and ecological reports show that the Kellys Beach location has been excluded from its QMRA for consumption of shellfish since juvenile cockles and pipi present there were found to not be near harvestable sizes. The reports consider that it is unlikely that shellfish are harvested from Kellys Beach for human consumption.

However, the consent is for 35 years, and during this period of time, shellfish are expected to grow and reach harvestable sizes. The health risk report shows that an increase in flow will result in a noticeable increase in risk in marine environments than freshwater and shellfish at Kellys Beach are expected to be more likely to be influenced by the discharge as compared to the other three sites being assessed. Therefore, the QMRA should also include Kellys Beach in terms of shellfish consumption. Please address this.

38. The health risk report QMRA assessed the log reduction of norovirus required to reduce the added risk of infection to <1% for individual exposure (swimming, or consumption of shellfish or watercress) at each of the assessment sites. The report has not assessed the overall health risk from all the potential exposure routes. Please address this and include aggregated exposures into the assessment.
39. The health risk report has assessed microbiological water quality against Table 9 of the NPSFM. It states that: *'there are national targets for 80% of rivers to be suitable for swimming (blue, green and yellow category) by 2030 (Ministry for the Environment 2023)'*. The report uses a 95<sup>th</sup> percentile of 1,200 cfu/100ml as a national bottom line. This does not appear to accord with the NPSFM and the *Ministry for the Environment and Ministry of Health (2003) Microbiological Guidelines for Marine and Freshwater Recreational Areas (MfE/MoH guideline)*. Please address this.

Note:

It is noted that the NPSFM has two *E. coli*-based metrics associated with human contact recreation. Table 9 applies year-round across all Freshwater Management Units and is assessed against selected State of Environment data on a monthly basis. While Table 22 applies over the summer bathing season at primary recreational contact sites, it specifies 95<sup>th</sup> percentile of 540 cfu/100ml as a national bottom line for freshwater contact recreation. This latter figure is consistent with the MfE/MoH guideline and will likely trigger a health warning if exceeded. Therefore, it is considered

that using 95<sup>th</sup> percentile of 1,200 cfu/100ml as a trigger for swimmable is inappropriate, notwithstanding that it is understood that the stream is unsuitable for swimming largely due to microbiological input from the wider catchment.

40. With respect to human health risks from viruses in relation to coastal marine environment, the following assessment is provided within the ecological report:

*'For marine sites log reductions ranged from 2-3 Kelly's Beach transect sites (depending on discharge scenario), but less than 1 for those further out in the bay and for all discharge scenarios.*

*'For shellfish consumption, an LRV (log reduction value) of 1 is sufficient to provide a risk of <1% for the current discharge scenario at all marine sites, while this increases but is below 2 for interim and Stage 2 discharge scenarios.'*

What does this mean for the people swimming at the beach sites and how will the health risks be managed? Please also clarify and assess the risk associated with shellfish consumption.

41. Please provide an assessment of risk to human health for shellfish gathering, applying the MfE (2003) Section F Microbiological Guidelines for Shellfish-Gathering Waters.

### **Environmental Management**

42. In accordance with the proposed monitoring plans in Section 10 of the AEE, please provide draft plans for the following:

- Environmental management plan (overarching).
- Environmental monitoring plan.
- Operational management and contingency plan (**OMCP**).
- Overland flow design and operation management plan (noting this is a proposed co-design with Ngāi Tai ki Tāmaki), and indicate the timeframes for this development:
  - Riparian management plan (for the expanded OFS).
  - Earthworks management plan , including erosion and sediment control (for the expanded OFS).
- Draft consent conditions.

It is requested that you either provide this information, in writing, within 15 working days, or contact me to arrange an alternative timeframe.

Please note that pursuant to Section 95C of the Act, if the information is not or will not be submitted within the 15-day timeframe and an alternative timeframe has not been agreed, the application must

be publicly notified. Please contact me as soon as possible to confirm that the information will be provided either within the 15 working days of the request or to agree alternative timeframes for the provision of the information requested.

If you do not reply in writing within 15 working days, or refuse to provide the information, the Council reserves the right to decline your application under Section 92A(3) of the Act, should it consider that it has insufficient information to enable it to determine the application.

Your attention is also drawn to the provisions of Sections 357A(1) and 357C of the Act which set out the rights of objection against this request for information.

Please also note that, pursuant to Sections 37 and 37A(3)(4) of the Act, the Council has determined that it is appropriate to double the timeframe available to notify this resource consent application given the special circumstances associated with it. These special circumstances are the complexity of the application and the level of assessment required to fully assess and evaluate its merits.

In extending this timeframe, the following matters have been considered:

- The interests of any person who may be affected by the extension.
- The interests of the community in achieving an adequate assessment of the proposal.
- Council's duty to avoid unreasonable delay.

The new timeframe within which the Council has to make a decision on notification of the application under Section 95 of the Act is 40 working days.

Pursuant to Sections 88B and 88C of the Act, the application is "on-hold" until all matters have been addressed.

If you wish to discuss the matters, please do not hesitate to contact me.



Yours sincerely

Mark Ross

Consultant Planner, Auckland Council