NORTHLAND REGIONAL COUNCIL

Combined Report and Decision of independent Hearing Commissioners
Sharon McGarry and Reginald Proffit
Hearing held at the Rāwene Town Hall, 9 Parnell St, Rāwene
on 15 – 19 May 2023

Independent Hearing Commissioners Sharon McGarry and Reginald Proffit were delegated functions and powers under section 34A of the Resource Management Act 1991 (**RMA** or 'the Act') by the Northland Regional Council (**NRC**) to hear and determine two applications for resource consents to operate the Opononi/Ōmāpere Wastewater Treatment Plan (**WWTP**) and the Kohukohu WWTP lodged by the Far North District Council (**FNDC**) and referenced as NRC application numbers APP.002667.01.04 and APP.003839.01.03, respectively.

HEARING REPRESENTATIONS AND APPEARANCES

Applicant:

Bronwyn Carruthers, King's Counsel
Melissa Parlane, Asset Manager, Far North Water Alliance, FNDC
Dr Becky Macdonald, Principal Wastewater Engineer with Jacobs NZ Ltd
Tommy Gordon, Operations Manager, Far North Water Alliance
Dr Brett Beamsley, General Manager of MetOcean Solutions
Dr Christopher Dada, Environmental Health Microbiologist, QMRA Data Experts
Martell Letica, Consultant Planner, Letica Environmental Planning Limited

Submitters:

Markus Rogers
Hilda Harawira
Dixon Titore
Allaneyce Korewha
Dougie Korewha
Kayson Cooper Matenga
Waiaria Smith
Kelly Trebilco
Tamati Rakena
Craig and Kirsty Joiner
Sarah Webb for Pania Greene
Ipu Absolum
Hokianga Harbour Care Incorporated
- Justine Blakie
- Olly Knox
- Maikaira Te Whatu Heremia
- Matiro Kirk
- Jacob Puharich

Charlotte Taranaki
Jessie McVeagh and Kahu McVeagh Nathan
- Hone Taimoana

Lance Byers
Joseph Birch

Awatea Toi-Potae
Serena Anderton for Flynn Land
Te Hikutu, Ngāti Kaharau, Ngāti Hau and Te Manurehure hapu ki Hokianga
- Paeo King
- Les King
- Minia Pomare-Peita
- Dallas King

Opononi Ōmapere Water Liaison Group – Graham Tucker
Roger Brand
Carbon Neutral New Zealand Trust – Kerikeri Branch
- Inge Bremmer
- Rolf Mueller-Glodde

Te Mauri o Te Wai – Dallas King
Northland Branch of the Green Party of Aotearoa – Janine McVeagh
Janine McVeagh
Judith Reinken
Janice Howe
Waikoru Wikaira-Te Haara for Janice Howe
Hokianga Health Enterprise Trust – David Mules
Te Rūnanga Papa Atawhai o Te Tai Tokerau/Northland Conservation Board
- John Tiatoa
- Joe Carr

Green Party of Aotearoa – Reina Penny
- Cyril Chapman
- Pani Hauraki

Ngāi Tupoto Marae – Paul and Wendy Henwood
Joe Tuoro (via internet)
Te Tu Tika Rohe Moana of Te Hikutu Hapu
- Diane Ellis
- Arthur Wynyard
- Lynette Wharerau

Maria Barnes for Phoebe Watkins
Consuela Te Whata
Reto Blatner for Rhiannon Abbott-McGregor
Tauteihihi Marae Trust – Richard Tolich
Stephen Suess
Mereana Watene for Kiri Greene Wai 2003 and 250 Claimants, as part of Nga Hapu o Te Wahapu o Hakianga Nui a Kupe
- John Klaricich

Dr Kepa Morgan for Dr Robyn Manuel Linda Kaye
Tapuwae Incorporated – Wendy Henwood
Darleen Tana
Mitai Paraone-Kawiti III
Bernadette Papa (via internet)
Ngati Korokoro Hapu/Ngati Korokoro
- Sheena Ross
- Clifford Morgan

Written statements tabled at the hearing:

Georgina Garon

Section 42A Reporting Officer:

Laila Alkamil, Consultant Planner, Williamson Water and Land Advisory

BACKGROUND AND PROCEDURAL MATTERS

1. This is the report and decision of Independent Hearing Commissioners Sharon McGarry (Chair) and Reginald Proffit. We were appointed by the Northland Regional Council (**NRC**) to hear and determine applications by the Far North District Council (**FNDC** or 'the Applicant') for resource consents associated with the operation of the Opononi/Ōmāpere WWTP and the Kohukohu WWTP.

2. The consents authorising the operation of the Opononi/Ōmāpere WWTP expired on 31 August 2019[1]. The application for new replacement consents for the WWTP was lodged on 17 May 2019. Further information was requested by the NRC under section 92 of the RMA on 22 July 2019. The Applicant provided further information on 22 July 2020.

3. The consent authorising the operation of the Kohukohu WWTP expired on 31 August 2016[2]. The application for new replacement consents was lodged on 20 May 2016. The application was put on hold under section 37 of the RMA to enable consultation with mana whenua. Further information was requested by the NRC under section 92 of the RMA on 10 January 2020. The Applicant provided further information on 3 August 2022. A Cultural Impact Assessment was provided in April 2023.

4. The combined hearing of the applications commenced at 11.30am on Monday 15 May 2023, following karakia, mihi whakatau and morning tea. Evidence was heard over the course of the week and the hearing was adjourned at 1.00pm on Friday 19 May 2023, after hearing from submitters.

5. The NRC's Reporting Officer, Ms Laila Alkamil provided reports prepared under section 42A of the RMA ('Staff Reports') for each application, which were circulated to the parties prior to the hearing[3]. The Staff Reports should be read in conjunction with this combined decision report.

6. The Applicant's evidence and submitters' expert evidence was also pre-circulated prior to the hearing[4]. The application documentation, submissions, Staff Reports, and pre-circulated evidence were pre-read by us, and we directed that this material be 'taken as read' during the hearing[5].

7. We undertook site visits to view both WWTPs on the afternoon of Tuesday 16 May 2023 and were accompanied by Mr Frank Fitzpatrick, who is responsible for the day to day operation of both of the WWTPs.

8. At the adjournment of the hearing, we advised the hearing would be reconvened to hear from NRC's Reporting Officer following the provision of revised consent conditions addressing matters raised at the hearing.

9. Following the adjournment, the Applicant requested the opportunity to report back to a FNDC full Council meeting and to provide revised proposed conditions of consent in response to matters raised in the hearing.

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1 The expired consents continue to be exercised under s124(1) of the RMA.
2 The expired consents continue to be exercised under s124(2) of the RMA.
3 In accordance with section 103B of the RMA.
4 In accordance with section 103B of the RMA.
5 As provided for by section 41C(1)(b) of the RMA.

10. On 16 August 2023, the Applicant provided a revised set of proposed consent conditions for the applications and amended the term of consents sought from 15 years to three years (Kohukohu WWTP) and 35 to three years (Opononi/Ōmāpere WWTP). These revised conditions were circulated to submitters for written comment.

11. On the basis of the Applicant's change to the consent terms sought and further written comments received from the parties, we determined the hearing process could be effectively and efficiently completed without the expense of reconvening the hearing. We issued Minute #3 (dated 3 October 2023) setting out a process and timeframe for this to occur.

12. The Applicant provided its written Right of Reply on 27 October 2023.

13. We closed the hearing on 8 November 2023, having determined we had sufficient information to make our decision.

14. We would like to thank Ms Alissa Sluys, the NRC's Consents and Hearing Administrator, for the assistance that she provided to all parties throughout the hearing process; and Mr Mataroria Lemon for providing translation services for Te Reo Māori to English. We also wish to thank those parties who attended the hearings and presented evidence.

THE APPLICATIONS

Opononi/Ōmāpere WWTP

15. The resource consent application for the Opononi/Ōmāpere WWTP was prepared by the FNDC[6]. It contains a description of the existing treatment system, discharge volumes and the activities requiring consent. The resource consent application included the following technical reports and information in response to the NRC's request for further information:

    (i) '*Hokianga Harbour Hydrodynamic Study – Hydrodynamic Study of Wastewater Discharges and Survey of Possible Transport Routes'* Proposal prepared for the Far North District Council' by MetOcean Solutions dated April 2019 ('**MetOcean Report 2019**');

    (ii) *'Hokianga Harbour Hydrodynamic Study – Hydrodynamic Study of WasteWater Discharges Report prepared for the Far North District Council'* by MetOcean Solutions dated March 2020 ('**MetOcean Report 2020**');

    (i) *'Quantitative Microbial Risk Assessment of Opononi WWTP discharge and receiving environment'* prepared by Streamlined Environmental dated March 2020 ('**QMRA'**);

    (iii) '*Cultural Impact Assessment of the Opononi Omapere Wastewater Discharge to the Hokianga Harbour'* prepared for the Far North District Council. Prepared by Te Arani Te Haara Art Consultancy Ltd dated June 2020 (**Opononi CIA**); and

    (iv) *'Opononi / Omapere WWTP Upgrade – Opononi WWTP Issues and Options'* prepared by Jacobs New Zealand Limited dated 15 October 2020 ('**Jacobs Report 2020a**').

16. The Staff Report detailed background information to the application and briefly described the operation of the existing WWTPs and consents sought. The Report stated the application is to replace the following resource consents to authorise activities associated with the operation of the WWTP:

[6] '*Application to Renew Opononi Wastewater Treatment Plant'* dated 17 May 2019.

(i) To discharge treated wastewater into the Hokianga Harbour at or at about location co-ordinates 1634768E 6069462N;

(ii) To discharge treated wastewater to land from the base of a wastewater treatment system at or about location co-ordinates 1635620E 6069420N and 1635800E and 6069350N;

(iii) To discharge contaminants, primarily odour, to air from a wastewater treatment system at or about location co-ordinates 1635620E 6069420N and 1635800E 6069350N; and

(iv) To occupy and use the bed of the Hokianga Harbour for an existing wastewater discharge pipeline.

17. The section 42A Report stated the Applicant was *considering* a number of improvements to the wastewater system. We have assessed the application based on the amendments made to the application throughout the hearing process and as detailed in the Applicant's right of reply. In summary, this includes:

(i) A maximum daily discharge limit of 450 cubic metres (**m^3**);

(ii) Discharge into the Harbour over a three hour period only, between one hour and four hours after high tide;

(iii) Provision of a Site Management Plan within six months of commencement of consent;

(iv) Assisting with the formation of a Community Liaison Group;

(v) Change to the discharge quality limits to use of the 90^{th} percentile for compliance; and

(vi) Implementation of chemically assisted solids removal and installation of UV treatment within three years of commencement of the consent.

18. The application initially sought a consent term of 35 years. However, this was amended to three years following the adjournment of the hearing in response to submissions.

19. The Staff Report summarised the resource consents sought and the activity status of the activities under the Proposed Regional Pan for Northland August 2022 – Appeals Version (**PRP**) and the Regional Coastal Plan for Northland (**RCP**) as follows:

Consent Type	For	Classification
Coastal permit	To discharge treated wastewater into the coastal marine area of the Hokianga Harbour.	Discretionary (PRP, Rule C.6.2.2)
Discharge permit	To discharge treated wastewater to land (seepage) from the base of a wastewater treatment system.	Discretionary (PRP, Rule C.6.2.2)
Discharge permit	To discharge contaminants (primarily odour) to air from the operation of the wastewater treatment system.	Restricted discretionary (PRP, C.7.2.13)
Coastal permit	To occupy and use the bed of the Hokianga Harbour for an existing wastewater discharge pipeline structure.	Discretionary (RCP, Rule 31.4.4(c)). Permitted activity (PRP, Rule C.1.1.1) – Rule is not operative yet as outstanding appeal on parts of Rule C.1.8 Coastal works general condition which is referenced in Rule C.1.1.1.

20. We note the Applicant's planner, Ms Letica, disagreed with the above table from the s42A Report and considered the discharge of contaminants to air (odour) associated with the operation of the WWTP was accommodated for under Rule C.6.2.2. We consider it is not clear whether all discharges are covered under Rule C.6.2.2 given it applies to the pond and wetland, and areas such as pump stations. We consider Rule C.7.2.13 applies odours associated with the operation of the wastewater treatment system as a whole. We therefore agree with the s42A Report that consent is required under Rule C.7.2.13.

21. There is no reference in the application documents or the AEE to the discharge of sewage sludge from the ponds onto land associated with maintenance of the WWTP. We consider this activity is outside the scope of the applications lodged.

Kohukohu WWTP

22. The resource consent application for the Kohukohu WWTP was prepared by Opus International Consultants Ltd[7] (Opus) and contains a description of the proposed activities. The resource consent application included the following technical reports and information in response to the NRC's request for further information:

    (i) *'Kohukohu WWTP Land Disposal Site Selection Analysis Report'* prepared by Jacobs New Zealand Limited dated 17 February 2020 ('**Jacobs Report 2020b**');

    (ii) *'Hokianga Harbour Hydrodynamic Study – Hydrodynamic Study of WasteWater Discharges Report prepared for the Far North District Council'* by MetOcean Solutions dated March 2020 ('**MetOcean Report 2020**')

    (iii) *'Kohukohu WWTP Issues and Options'* prepared by Jacobs New Zealand Limited dated 15 October 2020 ('**Jacobs Report 2020c**');

    (iv) A memorandum dated 9 July 2020 by Jacobs New Zealand Limited;

    (v) *'Semi-quantitative microbial human health risk assessment of Kohukohu WWTP discharge in the Hokianga Harbour'* prepared by Streamlined Environmental dated August 2020 (**'S-QMRA'**); and

    (vi) *'Kohukohu Wastewater Treatment Plan: Resource Consent Renewal. Cultural Impact Assessment'* dated March 2023 by Sanson & Associates Ltd. Prepared for the Far North District Council. (**Kohukohu CIA**).

23. The Staff Report outlined background to the Kohukohu WWTP and the application to replace the following resource consents to authorise activities associated with the operation of the WWTP:

    (i) To discharge treated wastewater to an unnamed tributary of the Hokianga Harbour;

    (ii) To discharge contaminants to ground from an oxidation pond and a surface flow wetland; and

    (iii) To discharge contaminants to air.

24. The application initially sought a consent term of 15 years. However, this was amended to three years following the adjournment of the hearing in response to submissions.

[7] *Resource Consent Application – Kohukohu Waste Water Treatment Plant*, prepared by Opus International Consultants Ltd, dated 10 May 2016 (Final).

25. The Staff Report summarised the resource consents sought and the activity status of the activities under the PRP and the RCP as follows:

Consent Type	For	Classification
Coastal permit	To discharge treated wastewater into the coastal marine area of the Hokianga Harbour.	▪ Discretionary (PRP, Rule C.6.2.2)
Discharge permit	To discharge treated wastewater to land (seepage) from the base of a wastewater treatment system.	▪ Discretionary (PRP, Rule C.6.2.2)
Discharge permit	To discharge contaminants (primarily odour) to air from the operation of the wastewater treatment system.	▪ Restricted discretionary (PRP, C 7.2.13)

26. As outlined above, Ms Letica disagreed that a discharge permit was required for the odour discharge. For the reasons given above, we agree with the s42A Report that consent is required for the wastewater treatment system as a whole.

27. There is no reference in the application documents or the AEE to the discharge of sewage sludge from the pond onto land associated with maintenance of the WWTP. We consider this activity is outside the scope of the applications lodged.

SITE DESCRIPTIONS

Opononi/Ōmapere WWTP

28. The Staff Report agreed with the site description provided in the application and highlighted the following points:

(i) The land surrounding the WWTP is predominantly rural and forestry, with residential uses to the west;

(ii) The outfall discharge point is approximately 12 m below mean sea level, approximately 400 m from the Opononi shoreline, opposite the mouth of the Waiarohia Stream;

(iii) Treated effluent from the WWTP is discharged into the Hokianga Harbour, which is identified as being a High Natural Character Area and a Significant Ecological Area under the PRP; and

(iv) The Hokianga Harbour remains a highly valued environment, acknowledging that it has undergone extensive historical modifications through substantial infilling, drainage and causeway construction.

29. We accept the Hokianga Harbour is of significant cultural value to tāngata whenua and is a taonga.

Kohukohu WWTP

30. The Staff Report agreed with the site description provided in the application and highlighted the following points:

(i) The WWTP is constrained between the Utakura River upstream and the Hokianga Harbour downstream;

(ii) The catchment surrounding the WWTP is predominantly pasture, forestry and regeneration kanuka – including some mature forest and lowland swamp forest;

(iii) Treated effluent from the WWTP is discharged into the Hokianga Harbour – which is identified as being a High Natural Character Area and a Significant Ecological Area under the PRP;

(iv) The end of the "Mixing Zone" for the treated effluent is currently identified at Channel Beacon, which is in the Hokianga Harbour downstream of where the discharge leaves the unnamed tributary (NRC Sampling Site 231); and

(v) The Hokianga Harbour remains a highly valued environment, acknowledging that it has undergone extensive historical modifications through substantial infilling, drainage and causeway construction.

31. We also note the Kohukohu WWTP is located in front of Tauteihiihi Marae. Again, we accept the Hokianga Harbour is of significant cultural value to tāngata whenua and is a taonga.

NOTIFICATION AND SUBMISSIONS

Opononi/Ōmapere WWTP

32. The application was publicly notified on 17 November 2021.

33. A total of 191 submissions were received within the submission period, with all submissions received in opposition to the application.

34. The Staff Report provide an accurate summary of submissions in Appendix 1.

35. The Staff Report stated the key issues raised by submissions in opposition to the application included the following:

(i) Adverse effects on coastal water quality and the health of aquatic ecosystems;

(ii) Health risks from use of the Harbour for recreation and food gathering purposes;

(iii) Adverse effects on cultural values and the Harbour as a taonga;

(iv) Lack of maintenance and non-compliance with consent conditions;

(v) The need to consider impacts of catchment flooding and sea level rise from climate change on the ongoing operation of the WWTP;

(vi) Cumulative Effects of all four WWTP discharges that operate within the Harbour;

(vii) Lack of a robust on-site investigation of alternative methods, including land based treatment.

36. We were provided with, and have read, copies of all of the submissions received.

Kohukohu WWTP

37. The application was publicly notified on 22 August 2022.

38. A total of 22 submissions were received within the submission period, with three submissions in support of the application, 16 in opposition and three neutral.

39. A late submission was received from Ngāti Korokoro Hapū/Ngāti Korokoro Hapū Trust on 29 September 2022, after the notification period closed on 17 September 2022. The Staff Report recommended we accept the late submission by granting a section 37 RMA waiver and noted the Applicant had agreed. Having taken into account the matters set out in section 37A of the RMA, we grant Ngāti Korokoro Hapū/Ngāti Korokoro Hapū Trust a section 37 waiver and accept their submission.

40. The Staff Report provides an accurate summary of submissions in Appendix 1. It stated the key reasons for the submissions in support related to the need for the ongoing operation of the WWTP and the need for improved operation, maintenance and water quality monitoring.

41. The Staff Report noted similar reasons were given in the neutral submissions, as well as highlighting:

    (i) The requirement to be consistent with the provisions of the New Zealand Coastal Policy Statement 2010 (**NZCPS**);

    (ii) The need to address cultural effects and undertake a Cultural Impact Assessment (**CIA**);

    (iii) The need for a shorter consent term to allow for robust and fit for purpose monitoring requirements; and

    (iv) The need for proactive steps to remove the discharge from the Hokianga Harbour within a specified timeframe.

42. The Staff Report stated the key issues raised by submissions in opposition to the application included the following:

    (i) Adverse effects on cultural values and the Harbour as a taonga;

    (ii) Lack of a CIA and the inability to assess and understand cultural effects;

    (iii) Lack of maintenance and non-compliance with consent conditions;

    (iv) The need to consider impacts of catchment flooding and sea level rise from climate change on the ongoing operation of the WWTP;

    (v) Cumulative Effects of all four WWTP discharges that operate within the Harbour; and

    (vi) Lack of a robust on-site investigation of alternative methods, including land based treatment.

43. We were provided with, and have read, copies of all of the submissions received.

SUMMARY OF EVIDENCE

Applicant's Case

44. **Ms Bronwyn Carruthers**, Counsel for the FNDC, conducted the Applicant's case by presenting legal submissions and calling six witnesses. Her submissions addressed the legal framework for assessment, matters raised by submitters, and conditions. She stated it was not possible to remove the discharges from the Hokianga Harbour, as sought by submitters; and that the Environment Court has been reluctant to find an activity affects mauri where it was not evidenced that physical effects directly diminished the life supporting capacity or vitality of the river[8]. She submitted investigation of land-disposal was a high priority for the FNDC, but that

[8] *Wakatu Inc. v Tasman District Council* [2012] NZEnvC 75, para 64

recent investigations had found it to be uneconomical and unfeasible. She considered it was clear that the best practicable option (**BPO**) for each WWTP was to upgrade and improve performance, which would improve the quality of the discharge into the coastal marine area. She acknowledged the discharge of treated human wastewater into the Hokianga is abhorrent in Te Ao Māori but noted the Kohukohu CIA acknowledged that cutting off the existing service would have negative social, cultural and health related effects. She concluded that from a 'western science' perspective the effects on the environment were no more than minor.

45. **Ms Melissa Parlane,** Asset Manager for the Far North Water Alliance employed by the FNDC, presented a statement of evidence outlining the current situation, the proposed upgrades, the availability of finance, issues raised by submitters and conditions. She outlined the proposed two stage upgrades for the Opononi WWTP; and confirmed finance was available for Stage 1 (complete wetland reinstatement, installation of baffle curtains in the ponds, solids removal downstream of the ponds and UV treatment), which would be within three years. She confirmed Stage 2 would involve an ammonium removal system, for which finance was not yet available. She noted the FNDC is actively investigating land discharge schemes with four working groups for the Rāwene, Kaikohe, Ahipara and Taipa WWTPs. She noted the FNDC and BECA had developed a Good Practice Guide to implementing wastewater treatment to land. She outlined the challenges with operating effective community/kaitiaki liaison groups, including resourcing and determining the make-up of the group. She considered there were more efficient methods for sharing information on the performance of the WWTPs.

46. **Mr Thomas Gordon**, Water-Wastewater Supervisor (Southern) at Ventia/FNW, provided a joint statement of evidence with Mr Johan Guy, Process Manager at Ventia/FNW. Their evidence commented on operational, maintenance and compliance issues raised in submissions. In response to questions, he confirmed there was no updated Operation and Maintenance Manual (2006) for the Kohukohu system but that this would be replaced by a Septage Management Plan and a Site Management Plan. He could see benefits in undertaking investigations into stormwater connections and infiltration for both systems. He confirmed the septic tanks in Kohukohu are desludged at least once every three years, with the material disposed of into the Rāwene WWTP. He noted the sludge from the ponds goes to the Kaitaia WWTP. He confirmed there had not been any risk assessment of overflows from the WWTP but that ways to minimise spills and overflows had been considered. He noted there was no bunding at pumpstations to prevent overflows (or inflows of stormwater) but there was a two pump contingency at Opononi and generators. However, he noted that during power outages multiple generators would be required for all the pumpstations.

47. **Dr Becky Macdonald**, Principal Wastewater Engineer with Jacobs New Zealand Limited, provided a statement of evidence addressing the performance of the WWTPs. She noted the Opononi WWTP had not been complying with the current consent limits for *E. coli*, ammonia, biological oxygen demand (**BOD**) and total suspended solids (**TSS**); and considered improvements were required to support compliance with future discharge consent conditions. She noted four feasible options were identified to address BOD, TSS, *E. coli* and ammonia issues; and that using a multicriteria assessment two similar options scored highly based on upgrading the existing treatment with continued discharge to the Harbour. She noted one option that included land disposal scored highly for Māori cultural values but had a very high cost and therefore did not score well. She considered the recommended conditions did not align with the technical studies undertaken. She concluded the BPO was to implement chemically assisted solids removal, installing UV disinfection and installing ammonia removal technology (either in-pond or external package plant.

48. Dr Macdonald stated the Kohukohu WWTP was generally preforming well but had exceeded the maximum faecal coliform concentration limit on six occasions in the last 10 years. Due to this, she considered a percentile limit would be more practical for consent compliance to allow for the natural variability of effluent quality. Similarly, she considered a median or percentile based limit was more practical for ammonia to reduce the risk of non-compliance. She concluded significant upgrade of the Kohukohu WWTP was not required but that some relatively inexpensive measures could improve treatment performance. She corrected her evidence to reflect that the recommended improvements (vegetation removal from the wetland, relocation of the inlet and baffle installation in the oxidation pond) in the Jacobs Report 2022[9] had not been carried out. She highlighted the desktop assessment of land disposal sites had found most of the land unsuitable, with two sites identified not providing sufficient irrigation area.

49. In response to questions regarding the time needed to implement an alternative system, Dr Macdonald considered 5-7 years would be needed from the time the decision was made through to commissioning.

50. **Dr Brett Beamsley**, General Manager for MetOcean Solutions, provided a written statement of evidence summarising the key findings of the Hokianga Harbour Hydrodynamic Study 2019 and addressing the reasonable mixing zone and dilution in the receiving environment. He outlined the modelling undertaken of the four WWTPs that discharge into the Harbour over two one-year long simulations for contrasting periods of El Niño and La Niña. He used this modelling to make robust probabilistic estimates of the plume dispersion and dilution patterns to give guidance on expected concentration levels associated with the WWTP discharges. He noted the Opononi WWTP discharge presented an elongated plume stretching towards the entrance to the Harbour with a median dilution factor as high as 1 in 2,500 within 100 m of the discharge; and the Kohukohu WWTP discharge plume was mostly confined to the vicinity of the discharge location with a median dilution factor of 1 in 50,000 at approximately 50 m from the discharge. He stated that timeseries of tracer concentrations were extracted at selected locations to inform the quantitative microbial risk assessment (**QMRA**). He considered sea level rise and increase rainfall associated with climate change would have a minor effect on mixing and dilution rates. In terms of a reasonable mixing zone, he noted the surface expression of the Opononi WWTP discharge would be 50-100 m down current of the point of discharge; and downstream of the discharge to the unnamed tributary at the Kohukohu WWTP, where it enters the Harbour.

51. **Dr Christopher Dada**, Environmental Health Microbiologist at QMRA Data Experts, provided a written statement of evidence outlining the results of his health risk assessments of the WWTP discharges. He undertook a QMRA for the Opononi WWTP discharge and the receiving environment (assuming 2-log virus removal using published data for a constructed wetland system) which showed that a no observable adverse effects level (**NOAEL**) would be achieved for recreation and the consumption of raw shellfish at the eight exposure sites considered. He undertook a 'semi-QMRA' for the Kohukohu WWTP discharge using the 'worst case' 95th percentile concentration to conclude the contribution to faecal coliforms in the receiving waters would be 1 Colony-forming Unit (**CFU**) per 100 ml. He noted the QMRA results related to *attributable risk* and did not account for urban and rural stormwater runoff. He considered his assessment approach had been precautionary and conservative by assuming all four WWTPs were discharging at the same time, accounting for high virus concentrations, including

[9] '*Kohukohu WWTP Upgrade – Design Report*' dated 4 May 2022 by Jacobs NZ Ltd

dilution only (i.e. not including solar UV-based inactivation of viruses, and applying a bioaccumulation factor to shellfish).

52. **Ms Martell Letica**, a Consultant Planner with Letica Environmental Planning Limited, provided a statement of evidence summarising the resource consent activities and addressing the actual and potential environmental effects, the statutory framework, submissions and proposed conditions. She highlighted the important and significant contributions to the social and economic wellbeing of Opononi, Ōmapere and Kohukohu. She considered that aside from provisions relating to tāngata whenua, the applications were consistent with the RPS and PRP. She noted the assessment of alternatives and the evidence of Dr Macdonald that discharge to land for both WWTP is not feasible at this time, but should criteria change or new information become available this could be revisited. She acknowledged the Marine and Coastal Area (Takutai Moana) Act ('**MACA** Act') claims but highlighted the presence of the outfall structure on the foreshore and seabed would become permitted activity under the PRP after appeals were resolved. She acknowledged the current operation of the WWTPs had led to non-complaint discharges to water, but considered these could be addressed through treatment process improvements and maintenance. In response to questions, she considered cultural health monitoring needed to be undertaken on a catchment wide basis.

Submitters

53. We heard statements and evidence from more than 50 submitters over the week-long hearing. We heard from young and old, Māori and non-Māori, kaumatua, ex and current local and regional Councillors, aspiring politicians, members of the previous CLG, harbour wardens, a Harbour care group, local Harbour residents and people from further away.

54. There was a strong sense of frustration and a high level of agreement amongst submitters that the FNDC had continued to ignore community concerns regarding the unacceptable discharge of human effluent into the Hokianga Harbour and the ongoing degradation and decline of its aquatic ecosystems.

55. Submitters emphasised the importance of the mauri and health of the Harbour to the health and wellbeing of the people it sustains.

56. Submitters unanimously seek an inclusive community driven approach to wastewater management, designed by the community, operated by the community and monitored by the community.

57. There were many common key issues and themes from submitters who presented at the hearing including:

    (a) Failure of the Councils to lead the collaborative development of an integrated catchment management plan for the Hokianga Harbour to address environmental degradation;

    (b) Insufficient consideration of the effects of climate change on the WWTPs over the long-term;

    (c) The need for regular and frequent monitoring of the effluent quality and the receiving waters;

    (d) Lack of a relationship and trust between the FNDC and iwi, hapu and the community;

(e) Despite engaging and sharing concerns with the FNDC, nothing has been done to address the ongoing problems or to commit to finding a solution to discharging to the Harbour;

(f) Regular and ongoing non-compliance with consent conditions and lack of enforcement action to ensure compliance;

(g) Disposal of septic tank and sludge material into WWTPs from outside the area affecting treatment processes;

(h) Reliance on 'western science' approaches without regard to mātauranga or cultural health indicators;

(i) Lack of maintenance and upgrades to meet consent limits;

(j) Previous considerations of alternative options have focussed on financial cost and too much weight has been given to this when priority should be given to cultural and environmental costs and benefits;

(k) Cumulative effects and ongoing degradation of aquatic ecosystems, including mahinga kai species and the reef located near the Opononi discharge outfall;

(l) Disappointment at the attempt to change the conditions of consent and compliance limits to achieve compliance;

(m) Failure to give effect to the principles of Te Tiriti o Waitangi/Treaty of Waitangi;

(n) No amount of 'pollution with dilution' is acceptable with human waste;

(o) People becoming sick from swimming and eating shellfish;

(p) Lack of transparency as to where sewerage rate contributions are being spent and inappropriate use in other areas;

(q) Inability to exercise cultural practise including rangatiratanga, kaitiakitanga, mahinga kai and manaakitanga;

(r) Degradation of the Waiarohia Stream and contamination of the foreshore where it discharges; and

(s) Anger and disappointment at the proposal to delete the condition requiring a Community Liaison Group.

58. While we do reference all of the submitters and evidence present, we highlight some submitters to give the flavour of what we heard. In doing this, we risk offending some participants but we consider it is important to reflect some of this material for the record.

59. **Ms Ipu Absolum** shared her knowledge and observations gained over a lifetime of living in the Hokianga and in her role as a 'protector' of the Harbour. She considered you didn't need technical data given the many obvious indicators that show the mauri of the wai was degraded. She highlighted the critical importance of the Harbour as a food source and the burden placed on the people in this process to prove this was affected by the wastewater discharges.

60. **Mr Joseph Birch** shared his lifetime of knowledge and observation living by the narrows. He considered the FDNC needed a paradigm shift towards active protection, partnership and good faith.

61. **Mr Lance Bryers** spoke of the importance of trust in relationship building and considered people would stop 'talking hard to one another' when this was achieved. He sought effective monitoring, immediate improvements and key milestones to be achieved over three years.

62. **Ms Janine McVeagh** provided a copy of the 'History of Sewage Systems in the Hokianga' dated February 2019, authored by her, outlining the history and timelines of the four WWTPs. She considered they been poorly conceived, with bad foundations and had ignored cultural concerns. She noted the CLG's terms of reference had prevented a thorough investigation of land-based options and the purpose must be to get human wastewater out of the Harbour. She noted the costs considered did not include community and cultural costs of the ongoing discharge to the Harbour.

63. **Ms Jessie McVeagh** spoke on behalf of herself and Mr Kahu McVeagh Nathan and their whanau. She emphasised the need for the FNDC to work with the community to build relationships and partnership. She acknowledged other sources of degradation of water quality from land use activities but highlighted the discharge of human waste into water was abhorrent. She noted the principles of Te Tiriti o Waitangi required the FNDC to 'act in good faith with the utmost diligence' but failed to do so. She considered every non-compliance harmed the people and no one collected data on who was getting sick. She noted the experience of Taipa and Rāwene show the FNDC won't do anything until required by the Courts.

64. **Mr Graham Tucker**, who participated in the previous Opononi/Ōmapere CLG, spoke of his experiences and observations. He considered the meetings had been productive up until 2019 when the application was lodged. He noted poor maintenance, failures to undertake urgent repairs, and damage to the treatment wetlands from stock access. He highlighted the need for the terms of reference for any future group to be enhanced based on the Rāwene WWTP consents to give more power to the community, good representation from iwi and hapu and clear milestones to be met.

65. **Mr Roger Brand**, who described himself as a 'Geo scientist' highlighted the technical nature of the evidence and the difficulties for the submitters to engage with it. He noted the water quality monitoring in the Harbour was woefully inadequate and that the NRC had stopped monitoring at the Ōmapere wharf in 2018 due to swimming limits being regularly exceeded. He noted the hydrodynamic modelling and QMRA were only as good as the inputs used. He considered there were alternative options available and previous investigations used incorrect gradient, soil information and inflated costings.

66. **Ms Dallas King** spoke on behalf of herself and Te Mauri o Te Wai, which was formed in response to the last resource consent process and Environment Court Appeal. She spoke of the great offense to the community in hearing the CLG was removed due to it being perceived as having no purpose or value. She questioned where the FNDC's commitment to building a relationship with iwi was. She considered the Applicant's evidence showed disregard of community expertise and mātauranga. She highlighted the FNDC's 'patterns of behaviour' to decision making and the assessment of alternatives ignored the community. She emphasised the significant adverse effect to the mana of the people and their ability to exercise kaitiakitanga and manaakitanga.

67. **Mr David Mules** spoke on behalf of the Hokianga Health Trust Enterprise Board urging us to put the health and wellbeing of the people first given the interconnectedness of everything. He considered the adverse effects on the community were real and significant; and cannot be ignored or mitigated. He noted the upgrades proposed should be viewed as maintenance not capital works/improvements. He considered it was imperative for the health and wellbeing of the community of find a land-based solution.

68. **Mr Justin Blakie** spoke on behalf of the Harbour Care Group. He highlighted the need for more good quality monitoring data to make robust statistical conclusions (12 samples per year not enough); to make immediate improvements to achieve compliance; and to undertake a robust assessment of alternatives with the input of iwi, hapu and the community.

69. **Ms Serena Anderton** spoke on behalf of Flynn Land on the lack of regard for qualitative data, the narrow scope of the FNDC's quantitative data and the observations of the people over time. She considered the reports sought to justify the ongoing contamination when no level of faecal matter was acceptable.

70. **Ms Pani Hauraki** spoke of the importance of consulting with the right people; and of the rights of the people to be heard and to look after the Harbour.

71. **Mr John Tiatoa** and **Mr Joe Carr** spoke on behalf of the Northland Conservation Board. They highlighted the need for a community driven solution implemented by the FNDC to halt sewage discharges to the Harbour. They noted the applications were inconsistent with the NZCPS and NPS-FM, lacked consultation, and needed better monitoring.

72. Mr Carr also spoke of his role as a NRC Councillor. He considered all four WWTPs should be considered in one process and that funding must come from the wider community or central government given the size and socioeconomics of the local communities. He urged the FNDC to focus spending on vital assets and not discretionary things.

73. **Mr Arthur Wynard** spoke on behalf of Te Tu Tika Rohe Moana of Te Hikutu Hapu of his 95 years of experience harvesting mahinga kai: and the importance of kanae/mullet to feed a multitude of people. He noted the destruction of breeding habitat and their decline in abundance over the years.

74. **Mr Reto Blatner** highlighted other resource consent decisions that had given weight to the significant adverse effects on cultural values in finding wastewater discharges to water are unacceptable and land-based solutions must be found. He noted facilitating a CLG was not mitigating adverse effects, and more than a desktop assessment was required to find a land base alternative. He questioned whether conditions could make the FNDC have meaningful korero with the community.

75. **Mr Richard Tolich** spoke on behalf of the Tauteihiihi Marae Trust of the degradation of the awa seen over five generations and noted collecting mahinga kai was a thing of the past. He highlighted mokopuna are no longer able to be taught customary practices. He noted there were very few opportunities for the community to talk about what has happening to the mauri of the awa.

76. **Mr John Klaricich**, spoke of his experience as a Opononi Ōmapere CLG member and kaumatua, and told us it had taken him 93 years for him to speak out. He acknowledged the WWTPs were established to support community development and the school and marae; but considered it was critical that an alternative solution is found to address community concerns and cultural values.

77. **Dr Kepa Morgan** spoke on behalf of his partner Dr Robyn Manuel of the need to move towards a 'mauri model decision making'. He considered bacteria concentrations were only part of the picture and highlighted the need to understand emerging contaminants of concern from pharmaceutical drugs such as endocrine disruptors, antibiotics, metaformin, anabolic steroids, cytostatics and estrogen. He noted these were not removed through wastewater treatment

processes. He considered more work needed to be done on the costs of land-based systems such as vermiculture compost systems.

78. **Ms Wendy and Mr Paul Henwood** spoke of the contrasting regulations and enforcement action facing farmers and the ongoing non-compliance of the FNDC's WWTPs. They highlighted it was all one awa and a catchment wide approach was needed with strong community input. They emphasised mana whenua must be enabled to exercise their rangatiratanga.

79. **Ms Linda Kaye** spoke of her experience living by the Kohukohu WWTP pumpstation. She highlighted the weighting of the multicriteria assessment by Jacobs should have given more weight to cultural values (not half of the weight of economics) given the significant Māori population, the principles of the Treaty and the importance of the mauri of the Harbour. She noted meeting the cultural values criteria would effectively mean meeting all of the other criteria. She noted the assumption that the 'science' and data provided was credible and objective, but suggested in this case it was inadequate. She was scathing about the desktop 'goggle assessment' of alternatives and was embarrassed her rates had paid for it. She queried the use of money collected for the system being used for other FNDC projects and how a system that was funded by the people, without debt, and with rates collected every year didn't have funds available. She emphasised the community was 'worn down, disheartened and distrusting of FNDC, with little confidence in getting justice'. She requested a direction be given to FNDC to work with the community to design and implement a culturally appropriate and fiscally responsible solution'.

Section 42A Staff Reports

80. The NRC's reporting officer, **Ms Laila Alkamil**, provided her section 42A RMA Staff Reports for circulation prior to the hearing.

81. The Staff Report for the Opononi WWTP concluded the environmental effects were no more than minor; except for adverse effects on the relationship of tāngata whenua and their culture and traditions with their ancestral waters. She acknowledged the discharge was unacceptable under tikanga and to the community. She considered the existing monitoring programme was appropriate and 'fit for purpose'. She highlighted the ongoing non-compliance and enforcement action initiated. She considered three years to implement the upgrades required to achieve compliance was reasonable to allow time for funding. She accepted the evidence that there was no viable land-based option and considered further investigation was not appropriate unless more funding was found. She acknowledged the regional significance of the WWTP and the importance of its continued operation to the community. Appended to her report was a summary of submissions.

82. The Staff Report for the Kohukohu WWTP concluded the environmental effects were no more than minor; except for adverse effects on the relationship of tāngata whenua and their culture and traditions with their ancestral waters. She noted there was no obvious, feasible or suitable alternatives at this time. She considered the existing monitoring programme was appropriate and 'fit for purpose', but noted there was no need to measure dissolved oxygen given there were no odour issues. She considered the proposed upgrade should be implemented by 1 July 2025. She agreed with the proposed new trigger level for ammoniacal nitrogen and faecal coliforms post upgrades and the requirement for a Site Management Plan and Septage Plan.

83. Ms Alkamil provided a written addendum (dated 12 October 2023) to her s42A Reports following receipt of the revised proposed conditions and written comments on these from submitters. She addressed Policies D.1.4, D.4.1, D.4.3 and D.4.4, the revised proposed consent conditions, and submitter comments received. She noted general agreement with the conditions (with minor changes) and remained unconvinced these need to be amended as requested by submitters. She recommended that the consents sought be granted for a term of three years, subject to the conditions in her Attachment 1.

Further Comments on Revised Consent Conditions

84. Further comments on the revised proposed conditions were received from 24 submitters. We have read all of these written comments in making our determination.

85. In summary, submitters requested:

(a) Appreciation and support of the reduced consent terms to three years;

(b) The purpose of the CLG be to find a culturally and environmentally appropriate land-based treatment within the three year timeframe;

(c) Appointment of CLG members by the community not the FNDC, with assignment of a person by the NRC to arbitrate any unresolvable issues between the CLG and the FNDC;

(d) The CLG have control of the Terms of Reference and timing of meetings, and hold annual hui with the community;

(e) Inclusion of 'Kaitiaki' to the CLG's name in recognition of the role of Māori participating;

(f) Key milestones to be meet in investigating and implementing an alternative land-based system;

(g) Monitoring be extended to include mātauranga Māori forms of monitoring;

(h) Better and more regular monitoring, with no lowering of the contaminant limits beyond use of a 95th percentile to allow for minor (5%) occurrences of non-compliance;

(i) Extended monitoring for a wider range of contaminants, including viruses;

(j) Regular monitoring of the receiving waters and the Waiarohia Stream;

(k) Recognition that the upgrades proposed may not be necessary for a land-based alternative;

(l) The need to build a relationship with mana whenua to allow for consultation to be able to occur before any works are undertaken;

(m) More regular inspection of the Opononi WWTP outfall pipeline than three yearly;

(n) Well maintained stock proof fencing;

(o) An apology from the FNDC to iwi and the community for desecrating the Harbour;

(p) The erection of health warning signs at Ōmapere beach opposite the Opononi WWTP; and

(q) Sealing of the ponds to prevent leaching to streams and groundwater.

Applicant's Right of Reply

86. The Applicant provided a written Right of Reply on 27 October 2023 from Ms Letica. She provided updated compliance monitoring, a summary of the works undertaken at the WWTPs and commented on the s42A addendum, written comments on conditions from submitters and the final set of proposed consent conditions (her Annexure A). She outlined her response to suggested changes and concluded the proposed conditions were appropriate and in line with best practice.

ASSESSMENT

87. In assessing the applications before us, we have considered the application documentation and further information, the Staff Report, submissions, and all evidence provided throughout the hearing process, including further information received after the adjournment.

88. We are required to consider the evidence, expert and lay, and reach a view on potential adverse effects and determine how best to deal with them within the requirements of the RMA and within the context of the relevant planning documents. The decisions we have arrived at are based on the evidence before us and our consideration of that material within the context of the statutory framework.

89. We have reviewed and briefly summarised all the evidence provided above to ensure there is an accurate record of the hearing process.

Status of the Activities

90. The starting point for our assessment of the application is to determine the activity class status of the proposed activities under the RCP and PRP. There was agreement that the activities for each application should be 'bundled' and assessed as discretionary activities.

91. We accept the proposed activities for each application should be considered as **discretionary activities** under sections 104 of the RMA.

Section 104

92. Section 104(1) of the RMA states that, when considering an application for resource consent and any submissions received, we must, subject to Part 2 of the Act (which contains the Act's purpose and principles), have regard to-

    (a) Any actual and potential effects on the environment of allowing the activity;

    (ab) Any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment offset or compensate for any adverse effects on the environment that will or may result from allowing the activity;

    (b) Any relevant provisions of a national environmental standard, other regulations, a national policy statement, a New Zealand coastal policy statement, a regional policy statement or a proposed regional policy statement, a plan or proposed plan; and

    (c) Any other matters the consent authority considers relevant and reasonably necessary to determine the application.

93. Section 104(2) of the RMA states that, when forming an opinion for the purposes of section 104(1)(a), we may disregard an adverse effect of the activity on the environment if a national environmental standard or the plan permits an activity with that effect. This is referred to as consideration of the 'permitted baseline'.

94. There was agreement that there is no relevant permitted baseline of adverse effects for either application. We agree, and record that we have not applied any permitted baseline in considering each application.

95. In terms of section 105 of the RMA, when considering section 15 (discharge) matters, we must, in addition to section 104(1), have regard to -

(a) The nature of the discharge and the sensitivity of the receiving environment to adverse effects; and

(b) The applicant's reason for the proposed choice; and

(c) Any possible alternative methods of discharge, including discharge to any other receiving environment.

96. In terms of s107(1) of the RMA, we are prevented from granting consent allowing any discharge into a receiving environment which would, after reasonable mixing, give rise to all or any of the following effects, unless one of the three exceptions specified in section 107(2) exist (i.e., exceptional circumstances, temporary discharges, and/or maintenance works) -

(a) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended material:

(b) Any conspicuous change in the colour or visual clarity:

(c) Any emission of objectionable odour:

(d) The rendering of fresh water unsuitable for consumption by farm animals:

(e) Any significant adverse effects on aquatic life.

97. We consider section 104 and sections 105 and 107 of the RMA below.

SECTION 104(1)(a) – ACTUAL AND POTENTIAL EFFECTS ON THE ENVIRONMENT

98. In making our assessment, we are required to consider the actual and potential effects of the activities on the existing environment. The existing environment is that which exists at the time this determination is made and includes lawful existing activities, permitted activities and activities authorised by existing resource consents.

99. This includes the future state of the environment as it might be modified by the utilisation of rights to carry out permitted activities, existing use rights, and the implementation of resource consents granted and those that have, or are likely to be, implemented.

100. The existing environment does not include the environmental effect of the activities for which resource consent is sought. It requires us to consider the existing environment without the discharges into coastal water, land and air, and the outlet structure.

101. We note the Staff Reports include conclusions reached by incorrectly assessing the existing activities and their effects as being part of the existing environment. For example, the Staff Report for the Opononi/Ōmāpere WWTP states:

> *'As the application is seeking continuation of an existing activity at a similar scale and intensity as previously consented, the impact on ecological values is limited to the continued discharge of treated wastewater into the Hokianga Harbour via the existing discharge pipeline.*
>
> *As discussed in the application, the discharge pipeline is an existing feature of the coastal environment and therefore there are no new or additional effects on aquatic ecological [sic] or marine environment' (para 66, pg. 13)*

102. The correct approach to assessing the applications is to make our assessment of the adverse effects of the activities on the environment as it exists without the discharges. In other words, we must ignore the effects of the existing activities.

103. We accept the operation of the WWTPs provide important and significant contributions to the social and economic wellbeing of the communities serviced and to local businesses.

104. We find the Applicant has given insufficient consideration to the effects of climate change on the long-term viability of both WWTPs. In our view submitters raise valid concerns regarding the location of the Kohukohu WWTP: and the potential for increased rainfall events to impact on both WWTP. We consider further investigation is required to inform future considerations of long-term sustainable alternatives.

105. On the basis of the evidence before us, we have focused our assessment on:

(a) Effects on water quality and aquatic ecosystems;

(b) Public health risks; and

(c) Effects on cultural values and relationships.

Effects on water quality and aquatic ecosystems

106. Dr Macdonald's evidence noted the influent data from the **Opononi WWTP** (for the period 2010 to 2019) showed:

- average dry weather flow (ADWF)[10] of 200 m^3 per day;
- peak 30-day rolling ADWF of 420 m^3 per day; and
- peak wet weather flow (PWWF)[11] are 1,400 m^3.

107. Dr Macdonald noted the peak 30 day rolling ADWF increased during the holiday period. She stated that Influent wastewater was not routinely sampled.

108. Table 1 of Dr Macdonald's evidence summarised the results from limited sampling undertaken in 2016 and 2018 of the treated wastewater for *E. coli*, BOD, chemical oxygen demand (**COD**) and TSS. In response to questions, Dr Macdonald confirmed there had been no analysis of virus concentrations in the effluent prior to or after treatment.

[10] A dry weather dry is defined as any day where the total rainfall for that day and the preceding two days is less than 0.5 millimetres.
[11] A wet weather day is defined as any day with greater than 5 millimetres of rain.

109. Table 2 of Dr Macdonald's evidence summarised the results from sampling the treated wastewater from 2016 to 2019 for *E.coli*, total ammoniacal nitrogen, BOD and TSS. The results show the consent limit for *E. coli* regularly exceeds the consent limit throughout the year; with the treatment only achieving a three-log reduction, when at least a four-log reduction is required to meet consent conditions.

110. Table 2 showed the 90th percentile for total ammoniacal nitrogen is regularly exceeded and had steadily increased over the period 2010 to 2019, with a regular peak in summer. Dr Macdonald concluded this indicated that increase disinfection and total ammoniacal nitrogen treatment was required to meet the existing consent conditions.

111. Dr Macdonald noted the conclusions reached in the investigations carried out by MetOcean Solutions in 2020 and the Jacobs Report 2020a that the effluent discharge is not breaching the receiving water standards at the shoreline or near the outfall.

112. Dr MacDonald outlined technology options for pathogen treatment, removal of TSS and nitrogen treatment. In response to questions, she stated that more research was required to understand pharmaceutical contaminants and microplastics.

113. Dr Macdonald advised a three-year timeframe was reasonable for implementing chemically assisted solids removal and UV disinfection; and six years for implementation of ammonia removal technology. Prior to the upgrade she considered the proposed consent limits should be changed to reflect the measured median and 90th percentile for *E. coli* of 4,400 CFU/100 ml (previous consent 3,000 CFU/100 ml) and 24,000 CFU/100 ml (previous consent 5,500 CFU/100 ml), respectively. Similarly, she considered the total ammoniacal nitrogen limit for the 90th percentile should be increased from 38 mg/L (previous consent) to 43 mg/L to reflect the measured data. She also recommended changing the maximum determinant concentration limit to a 90th percentile concentration limit.

114. In terms of the **Kohukohu WWTP**, Dr Macdonald noted (for the period 2010 to 2019) showed:

- average daily flow (ADF) of 30 m^3 per day;
- 30-day rolling ADWF of 20 m^3 per day; and
- peak 30-day rolling ADWF of 41 m^3 per day.

115. Dr Macdonald noted the 30-day rolling ADWF increased during the winter months. She stated the highest recorded daily peak wet weather flow (2015 to 2019) was 176 m^3 per day.

116. Dr Macdonald noted there was no influent sampling data but had assumed that a well performing septic tank should remove around 80% of suspended solids and 50% of BOD from raw wastewater. On this basis, she assumed the loads into the WWTP were significantly lower than that for typical raw sewage.

117. Table 1 of Dr Macdonald's evidence summarised the results from sampling undertaken from 2010 and 2019 of the treated wastewater for faecal coliforms, BOD and TSS. The data showed a maximum recorded faecal coliform concentration of 114,000 CFU/100 ml (previous consent limit 15,000 CFU/100 ml) and a maximum total ammoniacal nitrogen concentration of 49 mg/L (previous consent limit 40 mg/L). She noted the maximum consented limit for faecal coliforms had been exceeded six times in summer associated with high peaks of TSS. She noted the limit for total ammoniacal nitrogen had been exceeded a number of times in 2018 before the ponds were desludged. In response to questions, she advised the extremely high exceedance of faecal coliforms was associated with high wet weather flows.

118. Dr Macdonald considered the facultative pond had sufficient capacity to treat the current and future flows given the influent had been pre-treated in septic tanks. She corrected her evidence and advised improvements reference including removing vegetation in the wetland and changes to the pond (relocating the inlet pond and installing baffling to minimise short circulating) had not been done in 2022. She considered additional UV treatment was not required given the faecal coliform median generally sat comfortably with the previous consent limits, with occasional exceedances. She recommended applying a 90th percentile limit to allow for occasional exceedances.

119. Dr Macdonald recommended changing the maximum determinant concentration limit to a 90th percentile concentration limit to allow for a number of exceedance over a specific time period.

Findings

120. There is very little data on water quality in the receiving waters and available data relates to a few limited sites monitored by the NRC.

121. No monitoring of the receiving waters is occurring in relation to the discharges or to inform an assessment of effects on the water quality of the receiving waters. It is not possible to determine compliance with water quality standards.

122. There is no evidence characterising the effluent in terms of contaminants other than those monitored for consent compliance, including nutrients (nitrogen and phosphorus), heavy metals, viruses or pharmaceutical contaminants. Nutrient inputs have been ignored based on assumptions that the inputs are small relative to other inputs into the Harbour.

123. There is no evidence on sediment quality or an assessment of the discharges on sediments near the discharge points. There is no monitoring of nutrient enrichment of the sediments.

124. There is no evidence on the potential ecological effects or the level of protection provided by the previous or the proposed contaminant limits for aquatic life.

125. No ammonia toxicity assessment has been undertaken to understand potential adverse effects on marine life. We agree with Dr Morgan that there has been no assessment of the types and concentrations of pharmaceutical drugs in the discharges; and their potential adverse effects on aquatic life

126. Dr Macdonald's evidence shows very limited data is available on influent quality for the Opononi WWTP and no influent data is available for the Kohukohu WWTP. It is difficult to understand the level of treatment achieved without this information.

127. The evidence of Dr Macdonald is focussed on treatment processes and compliance with contaminant limits. It does not inform our assessment of effects on water quality and aquatic ecosystems.

128. We find it is not possible to conclude the effects on water quality and aquatic ecosystems are minor based on limited compliance monitoring data and predicted dilution factors.

129. Regardless of our concerns regarding the reliability of the inflow and outflow data (due to missing or broken flow meters), the data provided shows stormwater infiltration into both WWTPs system is very high. This can result in the treatment systems being overwhelmed and non-compliance with discharge limits and volumes.

130. There is an urgent need for the FNDC to undertake an audit of all properties to ensure stormwater systems are not connected to the sewerage system and to divert surface water runoff away from pump stations.

Health Risks

131. The health risks of the WWTP discharges on the receiving environment were assessed by Dr Dada based on receiving water quality monitoring, effluent monitoring data (2016 to 2019) and the hydrodynamic modelling undertaken by Dr Beamsley. The work undertaken allowed for assessment of the cumulative effects of the four WWTPs (Opononi, Kohukohu, Rāwene and Kaikohe) on the water quality of the Hokianga Harbour.

132. Dr Beamsley's hydrodynamic modelling simulations (for two contrasting years) assist in predicting the extent of the discharge plume and estimating the dilution factor at a certain point. He had a reasonable level of confidence in the modelling given the key assumptions but acknowledged he had scaled some of the river inputs to derive flows in the absence of actual flow data. He also acknowledged wave and wind action were key assumptions. He considered there was a 'good fit' in model verification when comparing the measured and modelled data.

133. Dr Dada used the hydrodynamic modelling and dilution estimates to undertake his assessment of the health risk from virus concentrations at identified receptor points in relation to recreation activities and shellfish harvesting and consumption.

134. Dr Dada concluded if the Opononi WWTP consistently achieved a 2-log (i.e. 100 fold) reduction, then at all sites assessed, illness risks associated with the ingestion of water potentially containing enterovirus or norovirus from the discharge would be reduce below the no observable adverse effect level (NOAEL). However, under a 1-log reduction the discharge from the Opononi WWTP posed a 'low' risk of illness associated with the consumption of raw shellfish.

135. Dr Dada concluded that if a 2-log reduction of viruses was achieved, as reported for a constructed wetland treatment system, the illness risk for recreation and the consumption of raw shellfish would be below NOAEL.

136. Dr Dada acknowledged there may be occasional events (an average of three times per year based on 2021 and 2022 data) when 2-log virus reduction was not achieved. During this period, he considered there would be a 'moderate to high' health risk associated with the discharge of untreated wastewater. He recommended this could be addressed by infrastructure improvements.

137. The application for the Opononi WWTP stated that overflows from the network are 'extremely' uncommon; and while the WWTP did experience high flows during extreme rainfall events, this was unlikely to affect the capacity of the network or WWTP.

138. Dr Dada concluded the Kohukohu WWTP did not negatively impact recreation water quality; and based on the predicted dilution achievable would only increase faecal coliforms in the receiving waters by 1 CFU/100 ml. He noted all of the 12 upstream and downstream sites assessed, did not exceed the 140 CFU/100 ml limit specified for 'Acceptable/Green (surveillance) Mode' in the MfE/MoH (2003) policy document. He agreed with the Staff Report that the consent limit for faecal coliforms for the Kohukohu WWTP discharge should be reduced to further protect shellfish gathering waters, given the background concentrations.

139. Dr Dada advised that there was no data available on the influent and effluent virus concentrations but that a range of data had been used from published information for other similar treatment systems.

140. Dr Dada stated the current quality of shellfish in the Hokianga Harbour did not meet New Zealand Food Safety Authority (**NZFSA**) 2006 guidelines. He noted that in a short-term study approximately 23-30% of individual samples exceeded the NZFSA guideline value of 700 *E. coli* per 100 mg. Based on predicted dilutions used he concluded any increase in faecal coliforms from the WWTP would result in a 'negligible' change in water quality and no noticeable change in shellfish quality.

141. Dr Dada acknowledged pathogens can accumulate in filter feeders and therefore may translate to a higher concentration in shellfish tissues. He noted it was not possible to ascertain what proportion of elevated concentrations in shellfish were due to the discharges without undertaking a faecal source tracking study. He recommended this should be done as part of developing an integrated catchment management plan.

142. Dr Dada recommended the FNDC continues investing in infrastructure improvements to further reduce the frequency and volume of overflow events to minimise health risks from the WWTP discharges.

Findings

143. Dr Dada has used faecal indicator bacteria (**FIB**) concentrations from effluent monitoring data in conjunction with the predicted dilution rates from the work by Dr Beamsley. This gives 'snap shots' in time of the effluent quality and allows for calculation of a median and 95th percentile concentrations.

144. We accept Dr Dada has taken a conservative approach to his assessment of health risks attributable to the WWTPs. However, he was clear that the actual risks could potentially be higher than NOEAL when urban and stormwater runoff discharges are considered. His assessment of available water quality data for the receiving waters at two sites at Ōmapere and Opononi indicate a low health risk exists for recreational bathing, except after storm events where water quality is reduced.

145. Key assumptions of Dr Dada's assessment relate to influent and effluent virus concentrations given no analyses have been undertaken. Without this information it is not possible to ascertain the pathogen reduction achieved by either of the wastewater treatment systems, or the assumed treatment achieved in the individual septic tanks contributing to the Kohukohu WWTP. There is no evidence to show the Opononi WWTP is consistently achieving a 2-log reduction of pathogen concentrations. Similarly, there is no evidence to support the assumed level of virus reduction achieved in individual septic tanks or in the Kohukohu WWTP.

146. We accept Dr Dada's evidence that when a 2-log reduction of pathogens is not achieved there would be moderate to high health risk in the receiving waters associated with the Opononi WWTP.

147. Based on the evidence of Mr Gordon, observations of submitters and the WWTPs discharge flow data available, it is clear that stormwater infiltration into the WWTPs is a reasonably common occurrence during rainfall events. As discussed above, we consider this should be urgently addressed to mitigate health risks.

148. We find there is also a need for the FNDC to urgently assess overflow and spill risks associated with the WWTPs to identify simple solutions to prevent foreseen and known overflow points to streams and the coastal marine area to mitigate health risks.

149. We agree with Mr Mules that the focus of the Applicant's assessment of health risks was very narrow and ignores the community's health and wellbeing.

Effects on cultural values and relationships

150. The Opononi CIA outlined the Māori worldview and relationship to the natural environment; and the defining Te Ao Māori principle of whanaungatanga, one's relationship with the World. It set out the cultural values and tikanga, the importance of mauri and wairua in indicating physical and spiritual health, associations with the Harbour, significant geological features, significant sites, mahinga kai/kapata kai, wāhi tapu sites and the principle of kaitiakitanga.

151. The Opononi CIA described the adverse effects of the WWTP discharge on the mauri of the Harbour and the degradation of aquatic ecosystems, including mahinga kai species and indigenous biodiversity. It noted observations by iwi/hapu at low tide opposite the outfall over the last 10 years showed significant declines in sea snails and limpets on the rocks, the absence of crabs and juvenile fish, and a halt in collecting paua and kina. It stated that high volumes of kelp washed up on the foreshore indicated to tāngata whenua the health of the ecosystem is out of balance. Also noted was the explosion of the kina population (reported by divers in 2006). The CIA acknowledged the reasons for this were unclear and from a 'western paradigm' likely to not be directly related to the discharge itself.

152. The Opononi CIA highlighted the adverse effects on the Waiarohia Stream and the mauri of the water, including stock access, flooding of the ponds from the stream, and overflows from the ponds. It considered a riparian buffer zone was required to mitigate pollutants reaching the stream. It noted cumulative effects from the upstream dam to enable water supply and the location of the FNDC's Refuse and Recycling Station.

153. The Opononi CIA noted climate change would increase the frequency and severity of rainfall events; increasing stormwater inflows to the WWTP and groundwater infiltration would result in overloading the network and treatment capacity. It estimated up to 930 m of the reticulated network would be affected by coastal erosion and flooding over the next 45 years.

154. The Opononi CIA highlighted ongoing non-compliance of the discharge with the current conditions of consent. A summary of the available monitoring data for 149 monitoring tests by the NRC showed full compliance was only achieved on 27 occasions, with 6 'low' risk non-compliances, 42 'moderate' non-compliances, 40 'significant' non-compliances and 34 'follow-up' non-compliances. It provided a breakdown of the figures, including: four enforcement notices, repeated contaminant exceedances in various parts of the treatment process, two unauthorised/unplanned discharges, and three recorded instances of equipment failure. It noted concerns had been raised by the Opononi Ōmapere Community Liaison Group (**CLG**) on the adverse impacts on the Waiarohia Stream; and the need for wetland refurbishment and rehabilitation of the stream. It acknowledged the FNDC had expended significant funds over the last ten years for upgrades to the WWTP and sought further assistance through the FNDC's Long-term Plan process.

155. The Opononi CIA outlined the advisory role of the CLG and the guidance and direction from the setup of the group in accordance with consent conditions imposed by the Environment Court (Nov 2009) through to meeting with consultants and the FNDC regarding sites selected for investigation (Dec 2010).

156. The Opononi CIA concluded the impact of the WWTP discharge on cultural values is significant given the nature of the discharge, the quality of the treated wastewater and the degraded health of the receiving environment. It made five recommendations to avoid, mitigate and remedy the adverse effects on cultural values as follows:

i. Any CLG should include a representative of Nga Hapu o Ngati Korokoro and Te Roroa, until a Treaty settlement determination is made;

ii. Nga Hapu o Ngati Korokoro should be recorded in the FNDC's database as an affected party;

iii. The quality of the discharge must be improved to meet compliance standards by taking immediate steps to rectify non-compliance, and data collected on influent and effluent virus concentrations for the WWTP;

iv. Clear steps set over the term of the consent; and

v. Councils taking a coordinated and concerted approach to revitalisation of the Hokianga Harbour, including undertaking a comprehensive study of the harbour catchment and cultural impacts.

157. The Kohukohu CIA outlined the relationship and values that Te Ihutai have in relation to their taonga and the Hokianga Harbour, and the adverse effects of the WWTP discharge on those values and taonga. It highlighted the WWTP is located opposite Tauteihiihi Marae and identified the locations of the Pateoro Marae and Pikiparia Marae, which affiliate to Te Ihutai. It concluded the Hokianga Harbour should be considered as a 'Place of Significance to Tāngata Whenua under Policy D.1.5 of the PRP and a taonga in its own right.

158. The Kohukohu CIA stated that as mana whenua and mana moana of Kohukohu, Te Ihutai are an integral part in achieving a long-term sustainable wastewater solution. It requested commitment and resourcing from the FNDC to 'do things differently', particularly with respect to their ongoing and enduring relationship as mana whenua and kaitiaki of the environment.

159. The Kohukohu CIA concluded the effects of the WWTP are more than minor to cultural values. It requested that no treated wastewater be discharged into the Hokianga Harbour and recommended the consents be refused.

160. The Kohukohu CIA outlined occupation and use of the area, including the Hokianga Harbour for food gathering since the arrival of Kupe. It noted Te Ihutai ancestors used the common marine and coastal area for mahinga kai, including pipi (cockles), tio (oysters), karehu (periwinkle), kuuharu (similar to toheroa), karati (baby snapper), flounder, kutai, kanae (mullet), eels (tuna), kahawai, tamure (adult snapper) and parare (black snapper). It highlighted Te Ihutai hold that they have always been part of the environment and maintain their mana tiaki (inherited rights and responsibilities) over the environment; and that as kaitiaki they sustain the environment, and the environment sustains them. It noted many whanau rely on the Harbour to provide their sustenance and must contend with the health effects of eating food sourced from the Harbour.

161. The Kohukohu CIA highlighted the significance of wai/water, as essential to life and having a mauri/life force of its own. It explained the mauri of the Hokianga Harbour is harmed by the discharge of human waste and the mixing of water; and is culturally unacceptable and inconsistent with tikanga Māori due to the need to separate waste disposal places and places dedicated to living and food harvest, preparation and consumption. It considered impacts on water quality were observed across the Harbour, diminishing its mauri, and impacting kai moana and the ability to collect shellfish.

162. The Kohukohu CIA raised concerns about septage management, in relation to little maintenance, monitoring and oversight of the WWTP system and septic tanks; and sought implementation of a Septage Management Plan to collect records of individual septic tanks and protocols for tank inspections. It highlighted potential odour effects on Tauteihiihi Marae and impacts on cultural and customary practices. It noted seepage from the unlined pond into ground had not been quantified and was culturally offensive to Te Ihutai.

163. The Kohukohu CIA highlighted the need for integration of Mātauranga Māori (indigenous knowledge) approaches to the assessment of effects; and to take a holistic view of the mauri of the Harbour and its health and wellbeing. It noted the lack of mana whenua input into the consideration of alternative options undertaken by Jacobs; and highlighted none of the options considered would safeguard Māori cultural values and practices.

164. The Kohukohu CIA made recommendations on consent conditions in relation to natural hazards and climate change, odour management, the establishment of a working group to consider alternatives, faecal source tracking, Septage Management Plan, cultural monitoring and wetland offsetting; and requested a consent term of three years.

165. The submissions received and the evidence given at the hearing were consistent with the matter raised and conclusions reached in the CIAs. The views expressed were unanimous that the ongoing discharge of treated human waste in the Hokianga Harbour is culturally abhorrent, offensive and unacceptable.

166. We heard extensive evidence from mana whenua and submitters on the significance of their relationship with the Hokianga Harbour and its value as a significant site and taonga.

167. Ms Dallas King's words reflected the feelings, emotions and wishes of many when she spoke of her 'beloved Hokianga' and the anguish and hurt caused by knowing she contributed rates to pay for the ongoing pollution and cultural offense. She and many others considered the mauri of the wai was indicated in the health of the mahinga kai.

Findings

168. We recognise the tribal histories and connection of mana whenua mana moana to the Hokianga Harbour, their genealogical ties to the land, the moana and to each other. This is evident in the statements of submitters, the evidence presented and in the CIAs. We understand one of the defining principles of Te Ao Māori is the principle of whanaungatanga, one's relationship with the World.

169. We recognise the Hokianga Harbour is a taonga tuku iho, a treasure handed down, that holds significance to hapu, iwi and Ngapuhi-nui-tonu.

170. In having regard to the evidence presented, we understand the critical cultural issues as outlined in the CIA to be as follows:

(a) The significant adverse effects on tāngata whenua values and culture from the discharge of treated sewerage into the harbour.

(b) The degradation of the mauri of coastal waters due to the discharge of human waste.

(c) The significant adverse effects of the wastewater discharges on mahinga kai and the ability to harvest kai moana from the Harbour, including adverse effects on mana and manaakitanga.

(d) The significant adverse effects on the ability of tāngata whenua to be effective kaitiaki and to practice kaitiakitanga in the face of ongoing pollution of Hokianga Harbour.

(e) The significant adverse effects on the relationship of tāngata whenua with their culture and traditions with their ancestral lands, water, sites, wāhi tapu and other taonga.

171. We consider the above issues succinctly encapsulate the core concerns of tāngata whenua of Hokianga Harbour, and the adverse effect of the discharge of treated human waste on the food basket of local iwi and hapu. We understand the impact of the wastewater discharges has a direct bearing on the spiritual and cultural well-being of the people whose customs for generations directly link them to the food producing capacities of the Harbour.

172. The adverse effects on cultural values are inextricably linked to the above assessment of effects on water quality and aquatic ecosystems. Our evaluation of the evidence in relation to the adverse effects on water quality and aquatic ecosystems is that the WWTP discharges, in combination with land use activities and other WWTPs are contributing to the degradation of water quality in the Hokianga Harbour. We consider the discharges are contributing to human source bacterial contamination in shellfish gathering areas and popular swimming beaches.

173. The findings of the CIAs and the cultural evidence provided by submitters is accepted by the Applicant. No evidence has been provided challenging the view that the WWTP discharges, both individually and collectively (including the Kaikohe and Rāwene WWTP discharges), are having significant adverse effects to the mauri of the Hokianga Harbour; and do not provide for the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, wāhi tapu and taonga. We agree.

174. We find the ongoing discharge of human waste to the Hokianga Harbour is culturally repulsive, offensive and abhorrent to Māori cultural values. We accept that increasing treatment to achieve a higher quality effluent will not mitigate the significant adverse effects on cultural values and relationships, if human waste continues to be discharged into the Harbour.

175. We find a partnership approach with mana whenua has not been undertaken by the FNDC. There is an urgent need to build a relationship with mana whenua to enable a collaborative approach to find an alternative solution that can mitigate the adverse effects of the WWTP discharges on cultural relationships and values.

176. We accept the establishment and ongoing operation of the Kohukohu WWTP in close proximity to Tauteihiihi Marae is having a significant impact on hapū values and Te Ihutai quality of life. We also accept loss of access and relationship with the CMA adjacent to the Marae. We consider options must be found to address these adverse impacts.

177. While we understand the FNDC faces time and resourcing challenges in supporting long term engagement, it is acknowledged that mana whenua work on a voluntary basis to respond to FNDC calls. Mana whenua recognise there is no short-term fix to rediverting the discharges to land but want input into making the decisions required to determine future upgrades, relocation of infrastructure, affordability and maintenance of the wastewater reticulation systems. We consider this is the only way forward.

SECTION 104(1)(ab) – ENVIRONMENTAL OFFSETS AND COMPENSATION

178. Section 104(1)(ab) of the RMA requires us to have regard to any measure proposed or agreed to by the Applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity.

179. No offsets or compensation measures were proposed by the Applicant.

SECTION 104(1)(b) OF THE RMA – RELEVANT PLANNING PROVISIONS

180. There was agreement that the relevant planning documents under section 104(1)(b) of the RMA were the NZCPS, the RPS, and the PRP. In making our assessment, we have had regard to all of the relevant objectives and policies of these planning documents. We accept the PRP has been formulated to give effect to the NZCPS and RPS, and have therefore focussed our assessment on the objectives and policies of the PRP.

181. We note Ms Letica's view that the PRP does not have substantial policies relating to the values of open space, public access and recreation. Ms Letica considered, aside from the provisions relating to tāngata whenua, the applications were consistent with the provisions of the RPS and PRP.

182. We have focused our assessment on the tāngata whenua and coastal water quality provisions based on our assessment of potential and actual environmental effects above.

183. We note the particular relevance of Objectives F.1.9 to recognise and provide for tāngata whenua's role in decision-making given the evidence of adverse effects on mahinga kai, wāhi tapu, sites of customary value and taonga; and Policies D1.1.1, D.1.2, D.1.3, D.1.4 and D,1,5.

184. We agree with the Kohukohu CIA that the whole of the Hokianga Harbour should be considered to be a Place of Significance to tāngata whenua under Policy D.1.5. No party has given evidence to the contrary.

185. Policy D.1.4 states that when managing effects on places of significance to tāngata whenua –

> *'Resource consent for an activity may generally only be granted if the adverse effects from the activity on values and Places of Significance to tāngata whenua in the coastal marine area and water bodies are avoided, remedied or mitigated so they are no more than minor.'*

186. We consider this policy gives strong direction that the consents sought should only be granted if the adverse effects on cultural values and sites of significance are no more than minor. The word 'generally' indicates to us that there may be limited situations where an exception may be appropriate. We consider this gives us the discretion to recognise the WWTP discharge cannot be immediately halted without serious health effects on the communities served; and allows us to grant very limited duration consents to enable the Applicant to determine how it

will avoid, remedy and mitigate effects and make meaningful steps towards achieving this within three years.

187. We have had particular regarding to the local and regional significance of the WWTP infrastructure in terms of the social and economic benefits of providing a community sewerage system, under Policy D.2.5. We accept Policy D.2.7 allows for 'minor adverse effects' from such infrastructure. However, the ongoing discharge to the Harbour will not avoid, remedy, mitigate or offset the adverse effects on tāngata whenua values to the extent they are no more than minor. We find the applications are contrary to Policy D.2.7.

188. In determining the appropriate consent term, we have had particular regard to Policy D.2.14 and the matters set out in (1) – (5). We find the Applicant's past compliance with the previous resource consents and the failure to undertake necessary maintenance or upgrade to meet the conditions supports a short consent term, as now acknowledged by the Applicant in the amended consent terms of three years.

189. We note Policy D.2.18 requires the avoidance of significant adverse effects on the habitats of indigenous species that are important for recreational, commercial, traditional or cultural purposes. We consider evidence and observations provided by submitters supports that conclusion that the WWTPs are having a cumulative impact on the ongoing degradation and decline of the life sustaining capacity of the Harbour and the habitats of important kai moana species. We find the applications are inconsistent with Policy D.2.18.

190. We recognise the adverse effects of the location and ongoing operation of the Kohukohu WWTP is resulting in significant adverse effects on the Tauteihiihi Marae and its use for cultural purposes. We find these adverse effects cannot be avoided, remedied or mitigated by imposing consent conditions in accordance with Policy D.2.19.

191. Policy D.4.1 requires coastal water quality is maintained to meet the standards in Appendix H.3 and where it is exceeded to require the quality of the discharge is improved overtime. It directs that where existing water quality is unknown, or the effect of a discharge on water quality is unknown it must be managed using a precautionary approach. Further, we must ensure the discharge will not cause an acute toxic adverse effect within the zone of reasonable mixing.

192. Section 6.3 of the Application considered Policy H.5.3 stating that - '*Using a compliance point within the open coast, rather than within the footprint of the WWTP, it is likely that attributes 1-10 and 14-15 will be met after reasonable mixing*' (pg. 24).

193. Table 5-2 of the Jacobs Report 2020a provided an assessment of the contaminants concentrations in the Harbour based on 2016-2019 effluent monitoring results and median and 95th percentile dilution factors (from hydrodynamic modelling) for the median and 95th percentile effluent quality. Based on this assessment, it concluded the receiving water quality standards would not be breached at the shoreline or near the outfall. This assessment was relied on by Ms Letica in her evidence to conclude PRP Appendix H.3 standards would be met after reasonable mixing. However, in reply, Ms Letica acknowledged there was not enough information to determine this.

194. In determining what constitutes the zone of reasonable mixing under Policy D.4.4, we must have regard to using the smallest zone necessary to achieve the required water quality in the receiving waters as determined under Policy D.4.1; and ensure that within the mixing zone contaminant concentrations and levels of dissolved oxygen will not cause acute toxicity effects on aquatic ecosystems.

195. The Application stated – 'The nature and scale of the discharge is such that the defined zone of reasonable mixing, i.e., 20 metres from the point of discharge is likely to be inappropriate for a WWTP discharge with a high DO concentration' (pg. 25).

196. The evidence of Dr Beamsley predicts dilution rates at distances from the discharges. However, there is no evidence on predicted contaminant concentrations or any assessment of acute toxicity effects. It is unclear how the proposed ammonia concentration limits relate to protection of aquatic life and whether this will be achieved within a zone of reasonable mixing.

197. We find there is insufficient evidence to conclude the WWTPs are not exceeding water quality standards and water quality will be maintained outside a zone of reasonable mixing. We also have no evidence to demonstrate there will be no toxic effects on aquatic life within a zone of reasonable mixing.

198. Policy D.4.3 requires the wastewater discharge to water will 'generally' not be granted unless it is in accordance with recognised 'good industry management practices' and a discharge to land has been considered and found not to be environmentally, economically or practicably viable. We address this further below in relation to alternatives.

199. Overall, we find that the WWTPs discharges into coastal waters are not supported by the provisions of the PRP where the environmental effects are more than minor. We find the applications are contrary to the tāngata whenua provisions that seek to recognise and provide for their relationships and values.

SECTION 104(1)(c) – OTHER RELEVANT MATTERS

200. Section 104(1)(c) requires us to have regard to any other matters that are relevant and reasonably necessary to determine the application.

201. The Opononi CIA noted the two relevant iwi environmental management plans – 'Nga Ture mo Te Taiao o Te Roroa' 2010 and 'Te Kahukura o Ngati Korokoro, Ngati Wharara me Te Pouka o Te Wahapu o Hokianga-nui a Kupe Hapu Environmental Management Plan' 2008.

202. We find the WWTPs discharges are contrary to the provisions that seek to avoid the discharge of human treated or untreated effluent directly to water and integrated catchment management of waterbodies; and little regard seems to have been had to the methods of implementation, such as supporting Te Roroa Marae and hapu to take positive action to enhance waterbodies.

203. We have had regard to how the previous consents have been exercised and compliance with consent conditions. There is documented evidence of the ongoing non-compliance, lack of maintenance and lack of action to implement upgrades to meet effluent limits. We questioned why the FNDC was waiting for the outcome of the consent process to undertake the proposed upgrades when funding was available. It remains unclear why the FNDC has not taken immediate steps towards this.

204. Our site visit to both WWTPs confirmed the poor condition of the infrastructure and lack of maintenance and repair. It appeared recent action had been taken to mow the very long grass around the ponds at both sites. The Opononi WWTP final discharge pond was overflowing towards the Waiarohia Stream, and the series of wetland treatment cells was being by-passed by overflows between the cells. Temporary 'fixes' were evident and it was unclear if flow meters were working. There was no buoy marking the end of the discharge pipe. Despite requests at the hearing, no recent photographic evidence was provided showing the condition of the end of the discharge pipe. At the Kohukohu WWTP the influent flow meter was broken and had been for some time.

205. During the hearing we requested updated compliance monitoring reports for both WWTPs. The NRC compliance record for the Kohukohu WWTP (from September 2016) shows regular non-compliance in 2017 and 2018 with ammonia and faecal bacteria concentrations increasing and exceeding limits, prior to undertaking septic tank maintenance and pond desludging. There was generally full compliance from June 2018 until May 2020, with one non-compliance with faecal bacteria limits. From August 2020, NRC site visits have found ongoing 'moderate' levels of non-compliance mainly associated with faecal bacteria concentrations, but also TSS, and 'minor' non-compliance due to incomplete data provision.

206. The NRC compliance record for the Opononi WWTP (from July 2016) shows an ongoing range of 'significant', 'moderate' and 'low' non-compliance associated with *E. coli* and ammonia limits, and volume breaches up until August 2022. Enforcement action was taken on four occasions. Comments made in relation to ongoing non-compliance include upgrades required to meet standards are on hold awaiting the outcome of the consent process.

207. The poor compliance history, maintenance and inaction to implement upgrades to address ongoing non-compliance with consent limits support the view that only a very short-term consent can be granted.

Sections 105 and 107

208. Ms Letica considered the sensitivity of the receiving environment for the discharges to air. She considered the land surrounding the Opononi WWTP was of 'low' sensitivity due to its land use, zoning as Rural Production under the Far North District Plan 2009 (**FNDP**) and 160 m separation between the WWTP boundary and the nearest dwelling. She noted the receiving environment for the Kohukohu WWTP was described in the application as 'low density residential and agriculture'; and stated the nearest habitable building to the WWTP is the Tauteihiihi Marae some 250 – 350 m to the northwest.

209. In relation to the Opononi WWTP, Ms Letica noted the discharge occurred into an area of High Natural Character and relied on the dispersion modelling of Dr Beamsley as to plume extent. She noted neither the Applicant or the NRC were aware of any complaints about the colour or visual clarity from the discharges; but acknowledge comments from members of the public regarding an obvious plume from the Opononi discharge from time to time.

210. The Application stated it was likely that any conspicuous change in colour or visual clarity was due to energy from the discharge disturbing the seafloor, or the mixing of salt and 'fresh' water.

211. Ms Letica acknowledged the cultural relationships and values described in the CIAs and the significance of the Hokianga Harbour, whenua, awa and maunga to Māori.

212. We signalled at the commencement of the hearing that the Applicant's evidence did not sufficiently address section 105 and 107 matters. This was not addressed further.

213. The nature of the WWTPs is poorly characterised but includes the discharge of high levels of faecal bacteria and other emerging contaminants of concern to aquatic life. The discharge of treated human wastewater (paru) to water (wai) is culturally unacceptable to Māori and many non-Māori, regardless of the level of treatment.

214. The receiving waters are significant to tāngata whenua and their ability to collect mahinga kai; and are therefore highly sensitive to culturally offensive contaminants from human waste.

215. The receiving waters have high levels of FIB from land use activities and receive wastewater discharges from four WWTPs, which makes it highly sensitive to cumulative impacts.

216. We consider the Applicant has given insufficient attention to the nature of the discharges, the degraded water quality and the sensitivity of the receiving waters to cumulative effects from the WWTPs discharges. In fact, the Applicant has used the degraded nature of the receiving waters as a reason to continue to discharge wastewater, as if its sensitivity is low. In our view, this approach is flawed.

217. Section 107 requirements (c) to (g) are in effect environmental bottom lines which must be met for consent to be able to be granted.

218. We accept the observations of local submitters that the Opononi WWTP discharge causes a conspicuous colour change at the outfall location. This is likely caused by the precipitation of contaminants in the salt water receiving environment.

219. We have no evidence to demonstrate there will not be any significant adverse effects on aquatic life, including potential ammonia toxicity effects.

220. Section 107(2) gives us limited discretion to grant a discharge which may breach section 107(1). We find we can grant consent if the discharge is of a 'temporary nature'. We accept the three-year consent terms are temporary to enable investigation of alternative options.

ALTERNATIVES

221. In addition to section 105 of the RMA, Schedule 4(6)(1)(d)(ii) also requires an assessment of possible alternative methods of discharge, including discharge to any receiving environment. Given our findings that the WWTPs are having significant adverse effects on cultural relationships and value, we consider Schedule 4(1)(a) is also triggered.

222. In terms of the consideration of alternatives for the Opononi WWTP, Dr Macdonald outlined the results of the desktop investigation undertaken by VK Consulting in 2011 had concluded land disposal was possible during the summer months, with limited application rates and 2,000-13,000 m^3 of buffer storage. She noted the further investigation by Mott MacDonald in 2014 found land disposal was possible over five months of the year (summer period) and that for the remaining seven months 39,000 m^3 of storage would be required with discharge to the Harbour.

223. In reviewing the previous investigations of alternatives, Dr Macdonald considered there was three options available:

- Land disposal with winter storage provided;

- Land disposal with disposal to the Hokianga Harbour during winter and/or wet weather events; and
- Disposal to the Hokianga Harbour.

224. Dr Macdonald used a multicriteria assessment to evaluate further treatment options and identified four options to provide the required level of treatment and adequate disposal. Her Table 3 showed the weighting of the criteria used in the assessment with 'Economic/affordability' given a 40% weighting; 'Environmental/climate' and 'Māori cultural values' each given a 20% weighting; and 'Practicability/feasibility' and 'Operational' each given a 10% weighting. She noted the assessment scored the two options of optimising and improving the WWTP with discharge to the Harbour as the preferred options.

225. Dr Macdonald noted that sensitivity analysis of the multicriteria assessment showed the rankings of the options was retained, except for the scenario where the weighting for Māori cultural values and Environmental/climate were both increased to 30%. She noted this reversed the ranking with the option of optimising the existing WWTP with discharge to land scoring the highest. She advised this option had the highest estimated capital cost at over $18 million, compared with the less than $5 million for the other options. In response to questions, she advised that the biggest change in rankings resulted from increasing the weighting given to cultural values. She also confirmed the economic criteria did not take into account operating cost of the options assessed.

226. Dr Macdonald stated a combined solution that incorporated land disposal had not been carried forward due to three key factors:

(a) The ongoing need to continue discharge into the Harbour for much of the year due to wet weather;

(b) Modelling showing that the receiving water quality will not be breached; and

(c) The high capital cost associated with developing a land disposal system that would only be used in the dry summer periods.

227. In terms of the consideration of alternatives for the Kohukohu WWTP, Dr Macdonald outlined the results of the desktop investigation of potential land disposal sites and the eight criteria applied (proximity to the WWTP, proximity to residential dwellings, locations of cultural significance, proximity to waterways, slope of land, groundwater, flooding risk and tsunami risk. She noted only two land parcels were identified and were of insufficient size for irrigation. On this basis no feasible land disposal options were identified, she concluded the existing discharge was the only option.

228. Dr Macdonald noted that the multicriteria assessment showed the proposed upgrades to the pond to be the preferred option, followed by vegetation maintenance in the wetlands. She considered that this could be revisited if the criteria change or more information became available.

229. We consider the preferred option outlined by Dr Macdonald is a method to achieve compliance with consent conditions.

230. We consider the Applicant's assessment of alternative locations and receiving environments to be very narrow, based on poor quality information data and overly constrained by assumptions and methodology.

231. The weightings of the multicriteria assessment used are such that economic considerations will always determine the preferred option, as shown by the sensitivity analysis. Consideration of capital costs alone and not including operational costs, ignores the fact the land-based disposal systems generally have high capital costs and low operating costs, in comparison to water-based disposal systems have lower capital cost and very high operational costs associated with achieving a consistently high quality effluent. This must be taken into account in future investigations.

232. We agree with Ms Kaye that cultural values should be given more weight in recognition of the cultural sensitivity of the receiving and requirement to protect customary use.

PART 2

233. The matters specified in section 104(1) of the RMA that we must have regard to are 'subject to Part 2' of the RMA. These words, and how they apply to the consideration of resource consent applications, has been the subject of a number of cases heard in the Environment Court, High Court, and the Court of Appeal's decision on *Davidson*[12].

234. We heard no evidence to suggest the PRP provisions are invalid, incomplete or present uncertainty in making any decision, except for the comments made by Ms Letica in terms the NZCPS relating to the values of open space, public access and recreation. Ms Carruthers, Ms Lectica and Ms Alkamil agreed that there was no need to undertake a separate Part 2 assessment.

235. Given the directions issued by the Court of Appeal in the *Davidson* decision, we do not consider reference to RMA Part 2 matters would add anything to the evaluative exercise we have undertaken under section 104 of the RMA.

CONCLUSION AND OVERALL DETERMINATION

236. We have focused our assessment of the application on the actual and potential adverse environmental effects of the proposed activities and the outcomes sought by the statutory planning framework. We conclude the WWTP discharges into coastal waters are inconsistent with the policy direction to maintain water quality and protect the life sustaining capacity of aquatic ecosystems; and are contrary to the tāngata whenua provisions that seek to recognise and provide for their relationship and values, and protection of customary values.

237. We have had regard to the evidence before us and all the submissions made. We note that it is not the number of submissions in opposition that drives our decision, but rather the issues and concerns raised and the ability to avoid, remedy, and/or mitigate adverse environmental effects that is our focus.

238. We do not understand why the FNDC has failed to undertake the proposed upgrades to comply with the conditions of consent given these have been identified as necessary since before the applications were lodged. Awaiting the outcome of this consent process is not a valid reason given the FNDC's view that no other options are economically viable and ongoing non-compliance issues. It appears that, like routine maintenance, nothing is actually done until consent breaches occur or enforcement action is taken. This reactive approach to compliance is unacceptable. The evidence shows funding has been available for proposed works (including remediation of the Waiarohia Stream) and has not been used and reallocated.

[12] *R J Davidson Family Trust v Marlborough District Council* [2018] NZCA 316

239. If the FNDC is waiting to hear our view, we find the ongoing discharge of treated human waste to the Hokianga Harbour is unacceptable and is not consistent with the purpose of the RMA and sections 6, 7 and 8.

240. As stated at the adjournment of the hearing, immediate and urgent action must be taken by the FNDC to implement the upgrades necessary to meet the conditions of consent. It is likely that three years will only be sufficient time to investigate and identify an alternative land-based option; and that realistically further limited time (2-3 years based on evidence) will then be required for design and implementation. It is therefore important and necessary to mitigate the ongoing adverse effects of the discharges by implementing the upgrades necessary to meet the consent limits over the transition period.

241. In conjunction with the need to mitigate adverse environmental effects, we consider the FNDC should also take urgent action to address stormwater infiltration and to undertake a risk assessment of sewage overflows and spills from the systems. In our view, this is critical given the health risk and the evidence of Dr Dada. We consider low cost preventative action could be undertaken in areas where overflows have previously occurred to waterways and the coastal marine area.

242. We highlight the issue of septic tank and pond sludge disposal, as we consider this needs to be considered and investigated at a district-wide level. We consider use of a wetland treatment cell for this activity is not part of the Opononi WWTP application.

243. On the basis of the evidence, we find the WWTP discharges into coastal water should not be granted consent due to adverse environmental and cultural impacts on a receiving environment that is worthy of protection for its significance to Māori, ecological values and high natural character and landscape values. However, we recognise, as does the community, that time is necessary to find alternative options given the significance of the infrastructure to the community and the reality such discharges cannot be 'turned off'.

CONDITIONS

244. There was a high level of agreement between the Applicant and the Reporting Officer regarding the full sets of proposed conditions.

245. We have considered all of the written comments from submitters on the revised conditions and have taken these into account in the consent conditions imposed. We agree that there should be no reduction in the standard of effluent quality required.

246. In recognition that these 'new' consents are temporary in nature, we consider it is not appropriate to lower contaminant limits from the previous consent just to allow the Applicant to claim 'full compliance' until the works required to meet the previous consent limits are implemented. We do not view these as 'upgrades', but rather works that should have been implemented years ago to meet the conditions of consent deemed 'appropriate' nearly 20 years ago. While the conditions set bottom lines for the timing of implementation, ongoing non-compliance gives urgency to the works and gives the NRC the ongoing discretion to take enforcement action. This should not be removed by imposing new conditions.

247. While we accept that changing the compliance limits to use a 90th percentile is in line with current compliance practice, we do not consider changing 'the measuring stick' is helpful given the short-term nature of the consents. We consider leaving the consent limits as they were on the previous consent allows direct comparison of monitoring results overtime, which is important. For the same reasons, we have not imposed a new requirement such as receiving water quality monitoring for the Opononi WWTP or ecological investigations; despite acknowledging this is a significant 'gap' in the assessment of effects.

248. We agree with submitters that the key purpose of the CLG must be to assess options for avoiding, remedying and mitigating adverse effect on cultural values and the Hokianga Harbour and have amended the conditions accordingly. We have added a requirement to consider the capital costs and ongoing operation and maintenance costs of any options. It is important to understand what future costs are involved in consistently achieving a high level of treatment to meet receiving water standards.

249. We consider the name 'Community Liaison Group' does not recognise the key purpose of the group and have amended this to 'Community Working Group'. We have considered adding 'Kaitiaki' as suggested but leave this to the Group to decide, along with the Terms of Reference.

250. We consider one month is sufficient to form the Community Working Group given the short timeframes to be met and note this is consistent with the Taipa WWTP consent. We have added a requirement for at least two representatives of the FNDC and at least two members of the community. We have also added 'The Community Working Group may appoint or invite other people to participate in meetings'.

DECISION

251. For the above reasons, it is our decision on behalf of the **NORTHLAND REGIONAL COUNCIL**, pursuant to sections 104 and 104B, to **GRANT** resource consent applications APP.003839.01.03 and APP.002667.01.04 by the Far North District Council, subject to the conditions set out in Appendix 1 of this decision.

Dated this 29th day of November 2023

Sharon McGarry
Independent Hearing Commissioner (Chair)

Reginald Proffit
Independent Hearing Commissioner

APPENDIX 1

FAR NORTH DISTRICT COUNCIL – OPONONI-ŌMĀPERE WASTEWATER TREATMENT PLANT

To undertake the following activities associated with the operation of the Opononi-Ōmāpere Wastewater Treatment Plant on Part Taumatawiwi Survey Office Plan 405122 (aeration and detention ponds), Section 1 Survey Office 405122 (clean water tank), Part River Bed (part-of constructed wetland over the bed of the Waiarohia Stream), and Lot 1 Deposited Plan 167208 (majority of constructed wetlands):

Note: All location co-ordinates in this document refer to Geodetic Datum 2000, New Zealand Transverse Mercator Projection.

AUT.002667.01.04	**To discharge treated wastewater into the coastal marine area of the Hokianga Harbour, at or about location co-ordinates 1634768E 6069462N.**
AUT.002667.02.03	**To discharge treated wastewater to land (seepage) from the base of a wastewater treatment system, at or about location co-ordinates 1635620E 6069420N and 1635800E 6069350N.**
AUT.002667.03.03	**To discharge contaminants (primarily odour) to air from the operation of the wastewater treatment system, at or about location co-ordinates 1635620E 6069420N and 1635800E 6069350N.**
AUT.0022667.04.02	**To occupy the bed of the coastal marine area of the Hokianga Harbour with an existing wastewater discharge pipeline structure.**

Subject to the following conditions:

General Conditions

1 The Consent Holder must maintain the treatment system so that it operates effectively at all times and keep a written record of all maintenance required and undertaken. A copy of this record must be forwarded to Northland Regional Council's assigned monitoring officer immediately upon request.

2 The Consent Holder must install and maintain a stock-proof fence to prevent stock from entering any area that is utilised for the treatment of wastewater.

3 The Consent Holder must provide a Site Management Plan (SMP) that covers all operations and maintenance of the Opononi-Ōmapere Wastewater Treatment System to the Northland Regional Council's assigned monitoring officer and the Community Working Group within six months of the date of commencement of this consent.

4 The Consent Holder must complete a review of the SMP required by Condition 3 at least once during the term of this consent. The purpose of the review is to identify, evaluate and determine improvements to the operation and maintenance of the treatment plant and discharge to better ensure good plant performance and compliance with conditions of these consents. The SMP must be revised to address any findings from the review.

5 A written copy of the review's findings and any revised SMP must be provided to the Northland Regional Council's assigned monitoring officer within one month of completion of the review.

6 The Consent Holder must, as a minimum, operate and manage the wastewater treatment plant in accordance with the most recent reviewed version of the SMP required by Condition 3.

7 The Consent Holder shall assist in the facilitation of, and actively participate in, meetings with a Community Working Group. The Consent Holder shall meet the reasonable costs of meetings associated with venue hire and other disbursements directly related to facilitation of each Community Working Group meeting.

8 Within one month of the commencement of these consents, the Consent Holder must assist in the formation of the Community Working Group. The Community Working Group must include at least two representatives of the Far North District Council and representatives of the community by inviting at least two representatives from each of the following groups to form a Community Working Group:

(a) Ngāti Korokoro Hapū (supported by ngā hapū o Hokianga, Te Rūnanga Ā Iwi o Ngāpuhi and Te Rūnanga o Te Rarawa); and

(b) Ōmāpere and Opononi Communities (duly appointed).

The Community Working Group may appoint or invite other people to participate in meetings.

9 The purpose of the Community Working Group is to provide a forum to:

(a) Develop, adopt, and maintain a Terms of Reference which must include names of members who will receive and distribute monitoring information to be reported to the Community Working Group in accordance with Schedule 1 (**attached**);

(b) Input into the drafting, preparation, and development of the SMP to be prepared by the Consent Holder as set out in Condition 3;

(c) Share and discuss information on the performance of the wastewater treatment plant and monitoring of the Hokianga Harbour;

(d) Review, discuss, and make recommendations on the maintenance programme and opportunities to improve the quality of the wastewater discharge;

(e) Be involved in the investigation of discharge options for the treated wastewater as required by Condition11; and

(f) Address any other matters relating to the wastewater treatment plant as identified by the Community Working Group.

10 The Consent Holder must:

(a) Alongside the Community Working Group, review the Terms of Reference at least annually or as set out in the Terms of Reference;

(b) Provide the Community Working Group with technical support from an independent person qualified and specialising in wastewater engineering and land disposal systems;

(c) Schedule and hold meetings for the duration of the Consent, at least every two months unless the Community Working Group agrees a different schedule, and this is formalised and adopted within the Terms of Reference; and

(d) Prepare and circulate an agenda for each meeting and prepare minutes recording actions. A copy of the minutes must be provided to the members of the group within a one month period following a meeting.

11 The Consent Holder must, no later than one-year from commencement of the consent, provide a report to the Northland Regional Council's assigned monitoring officer which assesses the options for avoiding, remedying and mitigating adverse effects on cultural values and the Hokianga Harbour, including a recommendation as to which discharge option is considered to be the best practicable option (BPO) for achieving this. The assessment must include options of discharging the treated wastewater to land and must identify the costs and benefits of all practicable discharge options, including estimates of capital costs and ongoing operation and maintenance costs. The assessment of options must be undertaken by a suitably qualified and experienced person(s) and must involve input from the Community Working Group established in accordance with Condition 8.

Advice Note: *Should the Consent Holder authorise, construct and commission infrastructure to discharge treated wastewater to land within the 3-year consent term, then Resource Consent AUT.002667.01.04 will be surrendered. The terms of the surrender are expected to be set out in any consent that authorises that discharge to land.*

12 The Consent Holder must, on becoming aware of any discharge associated with the Consent Holder's operations that is not authorised by these consents:

(a) Immediately take such action, or execute such work as may be necessary, to stop and/or contain the discharge; and

(b) Immediately notify the Northland Regional Council by telephone of the discharge; and

(c) Take all reasonable steps to remedy or mitigate any adverse effects on the environment resulting from the discharge; and

(d) Report to the Northland Regional Council's Compliance Monitoring Manager in writing within one week on the cause of the discharge and the steps taken, or being taken, to effectively control or prevent the discharge.

For telephone notification during the Northland Regional Council's opening hours, the Northland Regional Council's assigned monitoring officer for these consents must be contacted. If that person cannot be spoken to directly, or it is outside of the Northland Regional Council's opening hours, then the Environmental Hotline must be contacted.

13 The Northland Regional Council may, in accordance with Section 128 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions annually during the month of May for any one or more of the following purposes:

(a) To deal with any adverse effects on the environment that may arise from the exercise of the consents and which it is appropriate to deal with at a later stage, or

(b) To require the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

The Consent Holder must meet all reasonable costs of any such review.

AUT.002667.01 and AUT.002667.02 – Discharges to Coastal Water and Land

14 The quantity of treated wastewater discharged to the Hokianga Harbour shall not exceed 450 cubic metres per day.

15 Notwithstanding Condition 14, the Consent Holder shall minimise, as far as practicable, any stormwater inflow and infiltration into the sewage reticulation network and treatment system. This shall include the prevention, as far as practicable, of stormwater run-off from the surrounding land entering the treatment system. For compliance purposes, the Consent

Holder shall record the daily wastewater inflow volume to the treatment plant.

16 The Consent Holder shall maintain a meter on both the inlet to, and the outlet from, the treatment system that has a measurement error of +/- 5% or less. These meters must be used to determine compliance with Conditions 14 and 15.

17 The Consent Holder shall re-calibrate the meters required by Condition 16 at least annually to ensure the specified accuracy is maintained. Written verification from a suitably qualified person that the meter has been calibrated during the previous 12-month period shall be forwarded to the Northland Regional Council's assigned monitoring officer by 1 May each year.

18 The Consent Holder must keep a written record of the daily volume of wastewater through the flow measuring devices required by Condition 16. A copy of these records shall be forwarded to the Northland Regional Council and Community Working Group in accordance with Schedule 1 (**attached**), and also immediately upon request by the Northland Regional Council's assigned Monitoring Officer.

19 Treated wastewater shall only be discharged to the Hokianga Harbour in the three-hour period between one hour and four hours after high tide via the discharge pipeline from the treatment system located approximately 400 metres offshore.

20 The Consent Holder must utilise a programmable tidal clock that is connected to the wastewater pump system to control the time of the discharge to the Hokianga Harbour. This tidal clock must be verified at least monthly to ensure that the programmed high tide discharge time is, as far as is practicable, the same as when high tide actually occurs at the site. Written verification from the Consent Holder that this calibration has been undertaken each month must be provided to the Northland Regional Council's assigned monitoring officer and the Community Working Group in accordance with Schedule 1 (**attached**).

21 The Consent Holder must:

(a) As soon as possible, but no more than two years of the date of commencement of these consents, implement chemically assisted solids removal and install UV disinfection treatment;

(b) Provide an annual update to Northland's Regional Council's assigned monitoring officer by 1 May each year regarding the progress of the planned upgrades to the wastewater treatment system; and

(c) Provide written notice to Northland Regional Council's assigned monitoring officer when the upgrades in clause (a) are completed.

22 The quality of the treated wastewater, as measured at the final outlet from the treatment plant prior to the discharge pipeline, must meet the following standards based on the results of samples collected in accordance with **Schedule 1** (**attached**):

Determinant	**50th Percentile Concentration**	**90th Percentile**
5 day Biochemical Oxygen Demand (grams per cubic metre)	20	35
Escherichia Coli (per 100 millilitres)	3,000	5,500
Total ammoniacal nitrogen (grams per cubic metres)	30	38
Total suspended solids (grams per cubic metre)	35	80

Compliance with the 50th and 90th percentile concentrations shall be in accordance with Section 2 of Schedule 1 (**attached**).

Advice Note: The Consent Holder must ensure safe and easy access to Northland Regional Council sampling site 101580 is maintained at all times, so that treated wastewater samples can be collected.

23 There must be no discharge of contaminants onto or into land, or into water, from any part of the treatment system except via seepage from the base of the treatment system and the designated outlet pipe from the treatment system into the Hokianga Harbour.

24 The discharge of contaminants to land via seepage from the base of the treatment system must not result in any adverse change to the concentration of *Escherichia Coli* in the Waiarohia Stream at NRC Sampling Site 100756. For compliance purposes the concentration of Escherichia Coli at NRC Sampling Site 100756 must be compared with the background concentration of Escherichia Coli upstream at NRC Sampling Site 101579. The error of the analytical method, or measuring instrument, at the 90th percentile confidence level must be taken into account.

25 Notwithstanding any other conditions, the discharge of any contaminant (either by itself or in combination with the same, similar or other contaminants or water) must not result in any of the following effects in the water quality of the Hokianga Harbour, as measured at any point, or down-current of that point, where the treated wastewater first contacts the surface of the Hokianga Harbour:

(a) The production of conspicuous oil or grease films, scums or foams, floatable or suspended materials;

(b) Any conspicuous change in the colour or visual clarity;

(c) Any emissions of objectionable odour;

(d) Any significant adverse effects on aquatic life; and

(e) No more than minor adverse change in either the *Escherichia coli* or Enterococci concentration.

For compliance purposes, the down-current water quality must be compared to the background water quality of the Hokianga Harbour at an up-current site that is not affected by this discharge. The error of the analytical methods and measuring instrument at the 90th percentile confidence level must be included in determining all parameters.

AUT.002667.03 – Discharge to Air

26 The exercise of this consent must not result in the discharge of contaminants to air which are deemed by a Monitoring Officer of the Northland Regional Council to be noxious, dangerous, offensive or objectionable at or beyond the boundary of the area legally occupied by the wastewater treatment plant.

AUT.002667.04 – Discharge Pipeline Structure

27 This consent only authorises use of the existing structure as installed at the date of commencement of this consent.

28 The Consent Holder must, at all times, ensure the pipeline:

(a) Remains buried at all times;

(b) Is maintained to ensure its structural integrity; and

(c) Is identifiable at the surface of the water by a permanent marker buoy.

Advice Note: *If the marker buoy becomes unfixed from its position, it must be reinstated as soon as is practicable and safe to do so.*

29 The Consent Holder shall undertake inspections of the bed of the Hokianga Harbour where the pipeline is installed and also the outlet of the pipeline on at least one occasion within the term of the consent. A written report on the results of the inspection shall be forwarded to the Northland Regional Council's assigned monitoring officer and the representatives of the Community Working Group and made available on the Consent Holder's website by 1 May every two years from the date of commencement of this consent.

EXPIRY DATE: Three years from the date of commencement of the consents, as in accordance with Section 116 of the Resource Management Act 1991

SCHEDULE 1

MONITORING PROGRAMME

The Consent Holder must undertake the following monitoring:

1. DAILY WASTEWATER FLOWS

The Consent Holder must keep a written record of both the daily, midday to midday, inflow volumes to the treatment system and the wastewater discharge volume using the meters required by Condition 16 of this Consent.

2. WASTEWATER TREATMENT SYSTEM

2.1. Sampling and Analysis

The following sampling and analyses must be undertaken on at least one occasion each calendar month. During the winter months, the sampling must be undertaken during, or immediately after, a rain event on at least three occasions.

Determinant
5 day Biochemical Oxygen Demand (grams per cubic metre)
Escherichia Coli (per 100 millilitres)
Total ammoniacal nitrogen (grams per cubic metres)
Total suspended solids (grams per cubic metre)

A wastewater sample must be collected from the final outlet of the treatment system, prior to it entering the discharge pipeline (at NRC Sampling Site 101580).

Temperature, pH and dissolved oxygen concentration must be recorded in the wastewater sample using an appropriate meter, and in accordance with standard procedures.

2.2. Wastewater Concentrations

Compliance with the 50th and 90th percentile values shall be determined OVER a fixed 12-month period. The 50th and 90th percentile values shall be calculated using the "monthly" monitoring results required by Section 2.1 of this schedule and any monitoring results from audit sampling undertaken by the Northland Regional Council.

The number of allowable exceedances within a 12-month period for the 50th and 90th percentile is shown in the following table:

Number of Samples	50th Percentile value: Allowable number of exceedances	90th percentile value: Allowable number of exceedances
12	6	1
13	7	1
14	7	1
15	8	2
16	8	2
17	9	2
18	9	2
19	10	2
20	10	2
21	11	2
22	11	2
23	12	2
24	12	2
25	13	3
26	13	3
27	14	3
28	14	3

A non-compliance occurs when the number of exceedances for a percentile value is greater than that allowable for the number of samples used to calculate the percentile. If non-compliance occurs, then the 12-month period for that determinant and percentile begins again. An allowable exceedance of a percentile value shall only be as a result of natural variation in the treated wastewater quality from a well maintained and effectively operating treatment system.

Compliance with the 50th Percentile for Escherichia Coli and Total Suspended Solids ceases once the plant has been upgraded as required by Condition 21.

3. WAIAROHIA STREAM SAMPLING

The following sampling and analysis must occur on a quarterly basis starting on 1 May and ending on 30 April each year. During the winter months, this sampling must be undertaken during, or immediately after, a rain event on at least three occasions.

A sample of water must be collected from the following sampling sites:

(a) 101579: Waiarohia Stream upstream of treatment plant, approximate location coordinates 1635907E 6069331N; and

(b) 100756: Waiarohia Stream downstream of treatment plant, approximate location coordinates 1635728E 6069372N.

These water samples must then be analysed for Escherichia Coli concentration.

4. COLLECTION OF SAMPLES

All samples must be collected using National Environmental Monitoring Standards (NEMS) procedures and stored in appropriate laboratory supplied containers.

All samples collected must be transported in accordance with NEMS procedures to the laboratory.

All samples must be analysed at an accredited laboratory with registered quality assurance procedures, and all analyses are to be undertaken using standard methods, where applicable. Registered Quality Assurance Procedures are procedures which ensure that the laboratory meets recognised management practices and would include registrations such as ISO 9000, ISO Guide 25, Ministry of Health Accreditation.

5. REPORTING

By the 15th of each month, the following information for the previous calendar month shall be forwarded to the Northland Regional Council and the Community Working Group[1]:

(a) The monitoring results for Sections 1, 2 and 3 of this Schedule;

(b) The written verification of the tidal clock calibration as required by Condition 20 of the consent;

(c) An assessment of compliance with Condition 14 in accordance with Schedule 1 of this Schedule;

(d) An assessment of compliance with Condition 22 in accordance with Section 2 of this Schedule;

(e) An assessment of compliance with Condition 25 in accordance with Section 3 of this Schedule.

This information shall be in electronic format that has been agreed to by the Northland Regional Council.

[1] As named in the Terms of Reference for this group to receive these reports.

FAR NORTH DISTRICT COUNCIL – KOHUKOHU WASYEWATER TREATMENT PLANT

To undertake the following activities associated with the operation of the Kohukohu Wastewater Treatment Plant on Part Section 86 Block X Mangamuka Survey District:

Note: All location co-ordinates in this document refer to Geodetic Datum 2000, New Zealand Transverse Mercator Projection.

AUT.003839.01.03 **To discharge treated wastewater into the coastal marine area of the Hokianga Harbour at or about location co-ordinates 1648970E 6085775N.**

AUT.003839.02.02 **To discharge treated wastewater to land (seepage) from the base of a wastewater treatment system at or about location co-ordinates 1648970E 6085775N.**

AUT.003839.03.02 **To discharge contaminants (primarily odour) to air from the operation of the wastewater treatment system at or about location co-ordinates 1648970E 6085775N.**

Subject to the following conditions:

General Conditions

1 The Consent Holder must maintain the treatment system so that it operates effectively at all times and keep a written record of all maintenance required and undertaken. A copy of this record must be forwarded to Northland Regional Council's assigned monitoring officer immediately upon written request.

2 The Consent Holder must provide a System Management Plan that covers all operations, maintenance and repairs of the Kohukohu Wastewater Treatment System to the Northland Regional Council' assigned monitoring officer within six months of the date of commencement of this consent. The System Management Plan must cover, but not be restricted to, the operation and maintenance of:

(a) All septic tanks that are a part of the common effluent drainage service (CEDS). This section must include the Septage Management Plan required by Condition 6;

(b) The reticulation network and associated pumping stations;

(c) The facultative pond. This section should include measures which would be implemented to remedy low concentrations of dissolved oxygen;

(d) The surface flow wetland. This section should include a programme that covers how the Consent Holder will maintain the vegetation cover that is established around the constructed wetland. It should also include measures to prevent the re- establishment of pampas grass on any of the embankments around and within the wetland~~.~~;

(e) The perimeter fencing and access arrangements. This section should include measures to avoid illegal dumping of septage at the site; and

(f) Contingency measures for unforeseen or emergency situations.

3 The Consent Holder must complete a review of the System Management Plan at least once during the exercise of this consent. The purpose of the review is to identify, evaluate and determine improvements to the operation and maintenance of the treatment plant and discharge to better ensure good plant performance and compliance with conditions of these consents. The System Management Plan must be revised to address any findings from the review.

4 A written copy of the review's findings and any revised System Management Plan must be provided to the Northland Regional Council' assigned monitoring officer and the Community Working Group within one month of completion of the review.

5 The Consent Holder must, as a minimum, operate and manage the wastewater treatment plant in accordance with the most recent version of the System Management Plan required by Condition 4.

6 Within three months of the date of commencement of these consents, the Consent Holder must commission a suitably qualified and experienced person to prepare a Septage Management Plan to demonstrate how the septic tanks that are a part of the common effluent drainage service (CEDS) are to be operated and maintained. The Septage Management Plan must, at minimum, contain the following information:

(a) A suitable record of each individual tank connected to the CEDS that contains, at minimum, the following information:

i. Location details (i.e. GPS coordinates) of the septic tank on each property;

ii. Basic property information (legal description, address);

iii. Contact information for the property owner;

iv. The number of years the septic tank has been in service (the age of the septic tank).

(b) A protocol for tank inspections which includes

i. The frequency at which tanks will be inspected;

ii. The methods of inspection that may be used.

(c) Details on how education and advice will be shared with properties connected to the CEDS for proper septic tank use and operation.

(d) A template for recording tank inspection information which generally follows tank inspection requirements under AS/NZS 1547:2012.

(e) A desludging programme for the septic tanks connected to the CEDS which recognises that older tanks may need to be desludged more frequently than newer tanks.

(f) A works programme for the implementation of any repairs, maintenance or upgrade works required to fully implement the Septage Management Plan.

7 The Consent Holder must inspect and maintain the Septic tanks that are a part of the CEDS in accordance with the Septage Management Plan required by Condition 6.

8 The Consent Holder shall assist in the facilitation of, and actively participate in, meetings with a Community Working Group. The Consent Holder must meet the reasonable costs of meetings associated with venue hire and other disbursements directly related to facilitation of each Community Working Group meeting.

9 Within one month of commencement of these Consents, the Consent Holder must invite representatives from the following groups to form a Community Working Group:

(a) Te Ihutai Hapū, supported by Nga hapū o Hokianga, Te Rūnanga o Te Rarawa, and Te Rūnanga A Iwi o Ngāpuhi; and

(b) The Kohukohu community (duly appointed).

The Community Working Group may appoint or invite other people to participate in meetings.

10 In the event the invitations are accepted, the Consent Holder must appoint two senior officers as representative(s) of the Consent Holder in the Community Working Group.

11 The purpose of the Community Working Group is to provide a forum to:

(a) Develop, adopt, and maintain a Terms of Reference which must include names of members who will receive and distribute monitoring information to be reported to the Community Working Group in accordance with Schedule 1 (attached);

(b) Involve the CLG in the drafting, preparation, and development of the plans to be prepared by the Consent Holder as set out in the conditions of this consent;

(c) Share and discuss information on the performance of the wastewater treatment plant and monitoring of the Hokianga Harbour;

(d) Review, discuss and make recommendations on the maintenance programme, and opportunities to improve the quality of the wastewater discharge;

(e) Be involved in the investigation of discharge options for the treated wastewater as required by Condition 13;

(f) Address any other matters relating to the wastewater treatment plant as identified by the Group.

12 The Consent Holder must:

(a) Alongside the Community Working Group, review the Terms of Reference at least annually or as set out in the Terms of Reference;

(b) Provide the Community Working Group with technical support from an independent person qualified and specializing in wastewater engineering and land disposal systems (appointed by the Community Working Group;

(c) Schedule and hold regular meetings for the duration of the Consent, at least annually unless the Community Working Group agrees a different schedule and this is formalized and adopted within the Terms of Reference; and

(d) Prepare and circulate an agenda for each meeting and prepare minutes recording actions. A copy of the minutes must be provided to the members of the group within one month period following a meeting.

13 The Consent Holder must, no later than one-year from commencement of the consent, provide a report to the Northland Regional Council's assigned monitoring officer which assesses the options for avoiding, remedying and mitigating adverse effects on cultural values and the Hokianga Harbour, including a recommendation as to which discharge option is considered to be the best practicable option (BPO). The assessment must include options of discharging the treated wastewater to land and must identify the costs and benefits of all practicable discharge options, including capital costs and ongoing operation and maintenance costs. The assessment of options must be undertaken by a suitably qualified and experienced person(s) and must involve the Community Working Group established in accordance with Condition 9.

Advice Note: *Should the Consent Holder authorise, construct and commission infrastructure to discharge treated wastewater to land within the 3-year consent term, then Resource Consent AUT.002667.01.04 will be surrendered. The terms of the surrender are expected to be set out in any consent that authorises that discharge to land.*

14 The Consent Holder must, on becoming aware of any discharge associated with the Consent Holder's operations that is not authorised by these consents:

(a) Immediately take such action, or execute such work as may be necessary, to stop and/or contain the discharge; and

(b) Immediately notify the Northland Regional Council by telephone of the discharge; and

(c) Take all reasonable steps to remedy or mitigate any adverse effects on the environment resulting from the discharge; and

(d) Report to the Northland Regional Council's Compliance Monitoring Manager in writing within one week on the cause of the discharge and the steps taken, or being taken, to effectively control or prevent the discharge.

For telephone notification during the Northland Regional Council's opening hours, the Northland Regional Council's assigned monitoring officer for these consents must be contacted. If that person cannot be spoken to directly, or it is outside of the Northland Regional Council's opening hours, then the Environmental Hotline must be contacted.

15 The Northland Regional Council may, in accordance with Section 128 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions annually during the month of May for any one or more of the following purposes:

(a) To deal with any adverse effects on the environment that may arise from the exercise of the consents and which it is appropriate to deal with at a later stage, or

(b) To require the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

AUT.003839.01 and AUT.003839.02 – Discharges to Coastal Marine Area and Land

16 The quantity of treated wastewater discharged to the Hokianga Harbour must not exceed 40 cubic meters per day.

17 The Consent Holder must maintain easy and safe access to the NRC Sampling Sites 323 and 2051 at all times.

18 Notwithstanding Condition 16, the Consent Holder shall minimise, as far as practicable, any increase in the quantity of wastewater discharged to the Hokianga Harbour as a result of stormwater inflow and infiltration into the sewage reticulation network and treatment system. This shall include the prevention, as far as practicable, of stormwater run-off from the surrounding land entering the treatment system.

19 The Consent Holder shall maintain a meter on both the inlet to, and the outlet from, the treatment system that has a measurement error of +/- 5% or less. These meters must be used to determine compliance with Conditions 16 and 18.

20 The Consent Holder shall re-calibrate the meters required by Condition19 at least annually to ensure the specified accuracy is maintained. Written verification from a suitably qualified person that the meter has been calibrated during the previous 12-month period shall be forwarded to the Northland Regional Council's assigned monitoring officer by 1 May each year.

21 The Consent Holder must keep a written record of the daily volume of wastewater through the flow measuring devices required by Condition 19. A copy of these records shall be forwarded to the Northland Regional Council and Community Working Group in accordance with Schedule 1 (**attached**), and also immediately upon request by the Northland Regional Council's assigned Monitoring Officer.

22 The Consent Holder must, no later than 1 July 2025, de-sludge the facultative pond, remove the excess vegetation present in the wetland, install baffles and move the influent inlet to the north-eastern corner of the pond, as recommended in the *Kohukohu WWTP Issues and Options Report, prepared by Jacobs, dated 15 October 2020, ref.IZ134400.*

23 The quality of the treated wastewater, as measured at NRC Sample Site 323 (discharge from the wetland), must meet the following standards based on the results of samples collected in accordance with **Schedule 1** (**attached**):

Parameter	Unit	50th Percentile	90TH Percentile	Max limit
Ammoniacal Nitrogen	g/m³	20	32	40
Faecal Coliforms	CFU/100ml	5,000	13,500	15,000

24 Notwithstanding Condition 23, if at any time the concentration of total ammoniacal nitrogen in any sample taken from NRC Sampling Site 323 (discharge from the wetland) exceeds 40 grams per cubic metre, then additional monitoring must be undertaken at fortnightly intervals until the total ammoniacal nitrogen is below 40 Garms per cubic metre.

25 Notwithstanding any other conditions of this Consent, the discharge must not cause the water quality of the Hokianga Harbour at NRC Sampling Site 231 to fall below the following standards:

(a) The natural pH of the water must not be changed by more than 0.2 units;

(b) The median concentration of faecal coliform bacteria in the water must not exceed 14 per 100 millilitres and the 90th percentile concentration must not exceed 43 per 100 millilitres, based on not fewer than 10 (ten) samples taken over any 30 day period;

(c) The visual clarity of the water must not be reduced by more than 20%;

(d) There must be no production of significant oil or grease films, scums or foams, floatable or suspended materials, or emission of objectionable odour;

(e) The dissolved oxygen concentration must not be reduced below 80% of saturation; and

(f) The concentration of total ammoniacal nitrogen must not exceed the following:

Salinity – 10 g/kg					
pH	**10°C**	**15°C**	**20°C**	**25°C**	**30°C**
7.0	16	12	7.7	5.4	3.6
7.2	9.9	7.2	4.9	3.4	2.3
7.4	6.4	4.4	3.0	2.1	1.5
7.6	4.1	2.8	2.0	1.4	0.99
7.8	2.6	1.8	1.2	0.91	0.62
8.0	1.6	1.2	0.80	0.57	0.39
8.2	1.1	0.72	0.51	0.36	0.26
8.4	0.67	0.46	0.34	0.24	0.17
8.6	0.44	0.30	0.22	0.16	0.12
8.8	0.28	0.21	0.15	0.12	0.09
9.0	0.19	0.14	0.11	0.08	0.07

Salinity – 20 g/kg					
pH	**10°C**	**15°C**	**20°C**	**25°C**	**30°C**
7.0	17	12	8.0	5.4	3.9
7.2	11	7.4	5.1	3.6	2.5
7.4	6.7	4.6	3.4	2.2	1.6
7.6	4.4	2.8	2.1	1.4	0.99
7.8	2.8	1.9	1.3	0.91	0.64
8.0	1.7	1.2	0.82	0.59	0.41
8.2	1.1	0.77	0.54	0.39	0.26
8.4	0.69	0.49	0.36	0.25	0.18
8.6	0.46	0.34	0.23	0.16	0.12
8.8	0.30	0.21	0.16	0.12	0.09
9.0	0.20	0.15	0.11	0.08	0.07

Salinity – 30 g/kg					
pH	**10°C**	**15°C**	**20°C**	**25°C**	**30°C**
7.0	18	12	9.1	6.0	4.5
7.2	12	8.0	5.4	3.9	2.6
7.4	7.2	4.9	3.4	2.4	1.6
7.6	4.6	3.0	2.6	1.5	1.1
7.8	2.8	2.0	1.4	0.99	0.67
8.0	1.8	1.3	0.91	0.62	0.44
8.2	1.2	0.82	0.57	0.41	0.28
8.4	0.74	0.51	0.36	0.26	0.19
8.6	0.49	0.34	0.25	0.18	0.13
8.8	0.30	0.22	0.16	0.12	0.09
9.0	0.21	0.16	0.12	0.09	0.07

APP.003839.03 – Discharge to Air

26 The exercise of this consent must not result in the discharge of contaminants to air which is deemed by a Monitoring Officer of the Northland Regional Council to be noxious, dangerous, offensive or objectionable at or beyond the boundary of the area legally occupied by the wastewater treatment system.

27 The Consent Holder must prepare an Odour Management Plan in consultation with representatives of Tauteihiihi Marae that details the management measures to be followed to ensure that odour does not impact Tauteihiihi Marae and the customary practices required for a functioning marae and, once agreed, must:

(a) Provide a copy to the Northland Regional Council's assigned monitoring officer; and

(b) Implement any agreed measures within six months of the commencement of the consent.

EXPIRY DATE: **Three years from the commencement of the consents, as in accordance with Section 116 of the RMA**

SCHEDULE 1

MONITORING PROGRAMME

The Consent Holder must undertake the monitoring specified in this schedule.

1. WASTEWATER TREATMENT SYSTEM

1.1. Daily Wastewater Flows

The Consent Holder must keep a written record of both the daily, midday to midday, inflow volumes to the treatment system and the wastewater discharge volume using the meters required by Condition 16 of this Consent.

1.2. Sampling and Analysis

At no more than monthly intervals, the following samples and analyses shall be undertaken. The time of sampling is to vary for each sampling visit.

At NRC Sampling Site 323 (discharge from the wetland) a composite* sample of wastewater will be undertaken and analysed for the following:

Determinant
5 day Biochemical Oxygen Demand (grams per cubic metre)
Faecal Coliforms (per 100 millilitres)
Total ammoniacal nitrogen (grams per cubic metres)
Total suspended solids (grams per cubic metre)

**A sample made up of equal volumes from three samples taken at least five minutes apart during the same sampling event.*

Temperature, pH and dissolved oxygen concentration are to be recorded at NRC Sampling Site 323 using an appropriate meter, and in accordance with standard procedures.

1.3. Wastewater Concentrations

Compliance with the 50th and 90th percentile values shall be determined OVER a fixed 12-month period. The 50th and 90th percentile values shall be calculated using the "monthly" monitoring results required by Section 1.2 of this schedule and any monitoring results from audit sampling undertaken by the Northland Regional Council.

The number of allowable exceedances within a 12-month period for the 50th and 90th percentile is shown in the following table:

Number of Samples	50th Percentile value: Allowable number of exceedances	90th percentile value: Allowable number of exceedances
12	6	1
13	7	1
14	7	1
15	8	2
16	8	2
17	9	2

18	9	2
19	10	2
20	10	2
21	11	2
22	11	2
23	12	2
24	12	2
25	13	3
26	13	3
27	14	3
28	14	3

A non-compliance occurs when the number of exceedances for a percentile value is greater than that allowable for the number of samples used to calculate the percentile. If non-compliance occurs, then the 12-month period for that determinand and percentile begins again. An allowable exceedance of a percentile value shall only be as a result of natural variation in the treated wastewater quality from a well maintained and effectively operating treatment system.

2. RECEIVING WATER QUALITY

The following sampling and analyses shall occur at least bi-annually.

Sampling at NRC Sampling Sites 231, 323, 2051, 2052 and 5815 (see **attached** map) is to occur on the same day and is to be undertaken on the ebb tide as close to low tide as is practicable.

2.1. NRC Sampling Sites 323, 2051 and 2052

(a) At NRC Sampling site 323 a composite* sample shall be taken.

(b) At NRC Sampling Sites 2051 and 2052, three samples of equal volume shall be taken at least five minutes apart.

All samples taken at NRC Sampling Sites 323, 2051 and 2052 shall be analysed for the following:

Determinant
Total ammoniacal nitrogen (grams per cubic metres)
Faecal coliforms (grams per cubic metre)

**A sample made up of equal volumes from three samples taken at least five minutes apart during the same sampling event.*

Temperature, pH and dissolved oxygen concentration are to be recorded at NRC Sampling Sites 323, 2051 and 2052 using an appropriate meter and in accordance with standard procedures.

2.2. NRC Sampling Sites 231 and 5815

(a) At NRC Sampling Site 231 and 5815, ten samples of equal volume shall be taken at least five minutes apart.

All samples taken at NRC Sampling Site 231 and 5815 shall be analysed for the following:

Determinant
Total ammoniacal nitrogen (grams per cubic metre)
Faecal coliforms (grams per cubic metre)

Temperature, pH, dissolved oxygen concentration and salinity are to be measured at NRC Sampling Sites 231 and 5815 using an appropriate meter, and in accordance with standard procedures.

3. COLLECTION OF SAMPLES

All samples must be collected using National Environmental Monitoring Standards (NEMS) procedures and stored in appropriate laboratory supplied containers.

All samples collected must be transported in accordance with NEMS procedures to the laboratory.

All samples must be analysed at an accredited laboratory with registered quality assurance procedures, and all analyses are to be undertaken using standard methods, where applicable. Registered Quality Assurance Procedures are procedures which ensure that the laboratory meets recognised management practices and would include registrations such as ISO 9000, ISO Guide 25, Ministry of Health Accreditation.

4. Reporting

By the 15th of each month, the following information for the previous calendar month shall be forwarded to the Northland Regional Council and the Community Working Group:

(a) The monitoring results for Sections 1, 2 and 3 of this Schedule; and

(b) An assessment of compliance with Conditions 23, 24, and 25 in accordance with Section 1 and 2 of this Schedule.

This information shall be in electronic format that has been agreed to by the Northland Regional Council.

Monitoring Locations: