BEFORE NORTHLAND REGIONAL COUNCIL

UNDER	the Resource Management Act 1991
A N D	
IN THE MATTER	of applications to renew the resource consents associated with the operation of the wastewater treatment plants at Opononi and Kohukohu
BETWEEN	**FAR NORTH DISTRICT COUNCIL**
	Applicant
	NORTHLAND REGIONAL COUNCIL
	Consent Authority

EVIDENCE OF MELISSA PAMELA PARLANE

(ASSET MANAGER)

3 MAY 2023

Counsel instructed:
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INTRODUCTION

Qualifications and experience

1. My full name is Melissa Pamela Parlane. I am employed by the Far North District Council (**FNDC**) as an Asset Manager in the Far North Waters Alliance (**FNW**). In this role I have the responsibility to drive strategic asset management of three waters infrastructure.

2. I have a Bachelor of Science in Mechanical Engineering from the University of Alberta, Canada. I have 12 years working experience at the FNDC where I have held roles responsible for project management, infrastructure planning and asset management with a focus on water and wastewater assets.

3. I am authorized to give this evidence on behalf of FNDC.

Purpose and scope of evidence

4. In my evidence I will:

    a. Briefly outline the current situation at each of the two wastewater treatment plants;

    b. Explain the proposed upgrades;

    c. Confirm the availability of financing for the proposed upgrades;

    d. Address the issues raised by submitters that are not addressed by either the technical specialists or the operator;

    e. Comment on the proposed conditions of consent.

EXECUTIVE SUMMARY

Opononi

5. Drawing on desk-top analysis the Council concluded that land discharge for Opononi WWTP is impractical and economically challenging.

6. A two-stage upgrade of the wastewater treatment plant is proposed:

    a. Stage One includes:

        i. complete wetland reinstatement

        ii. installation of baffle curtains in the ponds

        iii. solids removal downstream of the pond, and

        iv. UV treatment at the final discharge pumpstation.

    b. Stage Two consists of an ammonium removal system, the technical requirements of which will be informed following the completion of Stage One and the confirmation of the full WWTP process, as well as influent and interstage sampling data.

7. I confirm that finance will be available to undertake stage one of the upgrade within 3 years of the commencement of the consent (if granted).

8. The requirement to maintain a Community Liaison Group is fraught and needs careful consideration. The proposed conditions for a Community Liaison Group are not workable in my view.

Kohukohu

9. Drawing on desk-top analysis the Council concluded that land discharge for Kohukohu WWTP is impractical and economically challenging.

10. Improvements to the Kohukohu WWTP are proposed including relocation of the inlet and installation of a baffle designed to increase retention time and effectiveness of the ponds.

11. I confirm that finance will be available to undertake the upgrade by 1 July 2025.

12. The proposal to maintain a Kaitiaki Liaison Group is fraught and needs careful consideration. The proposed conditions for a Kaitiaki Liaison Group are not workable in my view.

WASTEWATER TREATMENT PLANTS ON THE HOKIANGA HARBOUR

13. Four settlements along the Hokianga Harbour are serviced with wastewater reticulation: Omapere, Opononi, Rawene and Kohukohu. The wastewater from these communities is treated at wastewater treatment plants (**WWTPs**) in Opononi (for Omapere and Opononi), Rawene and Kohukohu. The receiving environment for each plant's treated effluent is the Hokianga Harbour. Treated effluent from the Kaikohe WWTP is also discharged into a tributary of the Hokianga Harbour.

Land disposal

14. FNDC acknowledge that the discharge of treated human wastewater into the Hokianga Harbour is abhorrent in te ao māori.

15. I confirm that investigating land-disposal options for our wastewater treatment plant discharges is a high priority for the FNDC. FNDC are actively investigating land discharge schemes with four working groups for the Rawene, Kaikohe, Ahipara and Taipa wastewater treatment plants. FNDC together with BECA have developed a Good Practice Guide to implementing wastewater discharge to land. The guide is a useful document outlining the high-level steps to successfully delivering a land discharge scheme. We use this document to help engage with hapu and community. This document is available on the FNDC website.

16. FNDC have also indicated that implementing land discharge schemes is a high priority in the early drafts of the Asset Management Plans for the Affordable Waters Reform entities. Land discharge schemes as a concept for Rawene WWTP and Kaikohe WWTP are included in our early draft capital programmes.

Kaikohe WWTP

17. Through a signed Terms of Reference, FNDC is committed to working with Ngā Hapu O Kaikohekohe to fully investigate the options for achieving a land-based discharge of treated wastewater from the Kaikohe WWTP. If a viable option for full land discharge of effluent from the Kaikohe WWTP is found, the total annual wastewater discharge into the Hokianga Harbour could be reduced by more than 60%. In practical terms it is looking like this is a moisture deficit system which could prevent a discharge to water 50% of the time.

Rawene WWTP

18. Through conditions of consent, a side agreement and the "Better Off" funding agreement, FNDC is committed to working with Te Mauri o te Wai to find a culturally appropriate solution for treatment and discharge of treated wastewater from the Rawene township.

Opononi WWTP

19. The Opononi wastewater scheme services the residential and light commercial area of Omapere and Opononi. There is a total of 510 separately used or inhabited parts (**SUIP**) connected to the scheme. Another 96 properties are considered "able to connect" and are charged a capital rate commonly known as "Availability" within Council. The below figure shows the general extent of the Opononi wastewater scheme:

20. The Opononi wastewater scheme is a traditional gravity sewer system. Waste is collected and transferred to the WWTP located in the valley which separates Opononi from Omapere.

21. The Opononi WWTP consists of a mechanical screen, an oxidation pond and a maturation pond followed by a surface flow wetland divided into four cells. Effluent from the wetlands is stored in a holding pond until an outgoing tide when it is pumped into the Hokianga Harbour via a submerged outfall.

22. A desktop investigation into land disposal options for Opononi WWTP took place in 2011 and 2014.

23. The work undertaken by VK in 2011 identified that full disposal of treated wastewater to land would require a very large land area. This was because the soils in the area are not very free draining, meaning that the treated wastewater needs to be spread over a large area to make sure there is no runoff.

24. In addition, when it rains the ability for poor draining soils to absorb treated wastewater is minimal, so on wet days wastewater needs to be stored. These storage requirements are significant. The above issues are compounded by the steepness of the land in the vicinity of the treatment plant because the steepness of the land further increases the risk of runoff.

25. Flat sites were identified around Pakanae, Waimamaku and Koutu Loop. However, the costs associated with building the pipework to get the wastewater to these sites is significant.

26. The work undertaken by Mott MacDonald in 2014 looked at the option of partial land disposal at the two closest sites to the wastewater treatment plant identified in the VK report.

27. The investigation looked at whether it would be practicable to discharge treated wastewater to these sites only on dry days, with the wastewater discharged via the outfall during wet weather. This would remove the requirement for storage and significantly reduce the land area necessary to carry out land disposal.

28. Even with partial land disposal option, the report identified that the land areas were unsuitable for irrigation due to high slopes and the poor drainage properties of the soil.

29. The conclusion drawn from these studies is that land discharge for Opononi WWTP is impractical and economically challenging.

Kohukohu WWTP

30. The Kohukohu wastewater scheme services the residential and light commercial/retail area of Kohukohu. There is a total of 103 SUIP connected to the scheme. Another nine properties are considered “able to connect” and are charged a capital rate commonly known as “Availability” within Council. The below figure shows the general extent of the Kohukohu wastewater scheme:

31. The Kohukohu wastewater scheme is an effluent disposal system (**EDS**). Generally, connections to the reticulation are via a septic tank on the customer's property maintained by the Council. The EDS network is typically smaller than a traditional sewer as the septic tanks provide some flow buffering and prevent gross solids from entering the reticulation.

32. The Kohukohu WWTP treats the liquid effluent from the town's septic tanks and consists of a facultative pond followed by a surface flow wetland divided into five cells. Effluent from the wetlands is discharged by gravity into a channel running through the tidal mud flats next to the WWTP. The channel joins the main Hokianga Harbour approximately 240 meters south of the WWTP.

33. A desktop investigation into land disposal options for Kohukohu WWTP took place in 2020. An estimated 3ha of land is required for discharge. Taking into consideration the slope of the land, its propensity to flood and soil conditions, the study found no suitable sites for land discharge within a 7km radius of the WWTP.

34. The conclusion drawn from this study is that land discharge for Kohukohu WWTP is impractical.

PROPOSED UPGRADES

Opononi WWTP

35. The evidence of Dr Macdonald explains the options' assessment undertaken for this WWTP.

36. The preferred solution is to upgrade the WWTP to improve nitrification and disinfection. Just under $5.0M was included in the LTP 21-31 for this upgrade, with delivery timed over financial years (FY) 2022-2024. The capital cost of the entire preferred solution has increased since 2020 and in 2022 was estimated to be $6.6M. The budgetary provision in the 2021-31 LTP is therefore estimated to have a shortfall of approximately $1.6M. This is primarily due to rising construction costs resulting from inflation and global supply shortages.

37. A large portion of the upgrade cost is attributed to an ammonium removal system, for which the technical requirements are currently unclear. Ammonium levels have been increasing since 2016, prior to which the WWTP was mostly compliant. It is possible that upgrading the existing pond infrastructure (including reinstating wetland Cell 1) may offer some improvement on ammonium levels and potentially alleviate the requirements for an external unit. To design this system now, prior to addressing operational deficits and without sufficient evidential data, risks overspecification and over capitalisation.

38. The intention is to deliver the upgrades in two stages:

    a. Stage One includes:

        i. complete wetland reinstatement

        ii. installation of baffle curtains in the ponds

        iii. solids removal downstream of the pond, and

        iv. UV treatment at the final discharge pumpstation.

    b. Stage Two consists of an ammonium removal system, the technical requirements of which will be informed following the completion of Stage One and the confirmation of the full WWTP process, as well as influent and interstage sampling data.

39. The investment objectives for the treatment plant improvements are:

a. Consistent compliance with new and future resource consents, with no non-conformances from time of upgrade (unless caused by extreme events).

b. Community ability to engage and enjoy the Hokianga Harbour is not impacted by WWTP, with no beach closures, shellfish bans or rāhui attributable to the WWTP.

c. WWTP discharge is culturally appropriate to iwi and community.

d. Optimised whole of life cost and impact to ratepayers.

e. WWTP is adaptable to variable influent and external conditions.

f. A proactive approach to asset management using robust process and procedures that are auditable and achievable.

g. Health and safety risks to Operator's are minimised through automation and online monitoring.

Kohukohu WWTP

40. When considering the achieved WWTP effluent quality and the hydrodynamic modelling study findings, no major weaknesses have been identified which substantiate the requirement for an improvement in effluent quality via a substantial WWTP upgrade investment. However, there are some cost-effective modifications to the pond which would align the design with modern standards. The modifications will increase retention times and improve the disinfection performance of the WWTP.

41. The Kohukohu wastewater treatment plant upgrade was described by Jacobs New Zealand Limited (Jacobs, May 2022) in their report dated 4 May 2022 and, as explained in the evidence of Dr Macdonald, has been partly implemented already.

FINANCE AVAILABLE

42. FNDC produces a Long Term Plan (**LTP**) every 3 years. The LTP includes forecast spend for the next 30 years. In the two years between an LTP cycle, FNDC prepare an Annual Plan (**AP**) for that year's expenditure. In each LTP and AP, Council approves and adopts a budget for a single financial year only.

The future-year forecasts indicate potential spending but are not approved budgets.

Opononi

43. In the 2021 LTP FNDC approved a budget of $400,000 in year one, forecast $4,037,600 in year two and $528,400 in year three. This is a total forecast spend of $4,966,000 for treatment plant upgrades at Opononi WWTP.

44. The 2023 AP retimed the spend and approved $437,600 budget in 2022/23 and forecast $4,528,400 in 2023/24 (retaining the total at $4,966,000).

45. The delivery of the treatment plant upgrades at Opononi wastewater treatment plant has been retimed and the draft 2024 AP reflects this. The draft 2024 AP forecasts $1,000,000 in 2023/24, and $3,904,600 in 2024/25. This totals $4,904,600 forecast.

46. I confirm that finance will be available to undertake stage one of the upgrade within 3 years of the commencement of the consent (if granted).

Kohukohu

47. In the 2021 LTP FNDC forecast $189,520 in year two (2022/23) for treatment plant upgrades at Kohukohu wastewater treatment plant.

48. The 2023 AP approved budget of $189,520 for treatment plant upgrades at Kohukohu wastewater treatment plant.

49. The delivery of the treatment plant upgrades at Kohukohu wastewater treatment plant has been retimed to financial year 2024 and the draft 2024 AP reflects this.

50. I confirm that finance will be available to undertake the upgrade by 1 July 2025.

ISSUES RAISED BY SUBMITTERS

Opononi

51. The majority of issues raised by submitters have been addressed by the technical specialists and the operator. However, I will address the following issues:

a. The requests for land-based disposal

b. The health of the Waiarohia Stream

c. The system's ability to cope with rain events

d. The condition of the submerged outfall

e. The term of the consent applied for

f. The community liaison group

52. Judith Reinken (25) expressed concern regarding "When the previous consent expired and hearings for its renewal were held Maori from all those hapu and iwi objected. The consent asked for then was rejected and Council was granted a ten-year extension to enable Council to find an acceptable alternative." Other submitters have also challenged the ongoing discharge to water. FNDC was required by the consent to investigate land areas that are considered to be suitable for the discharge of treated wastewater. This investigation was completed, and the conclusion found land discharge would be impractical and economically challenging.

53. Green Party Northland Branch (27) and the Director General of Conservation (50) expressed concerns regarding leaching from the wastewater treatment plant polluting the Waiarohia Stream. Unfortunately, the lower stretches of the Waiarohia Stream are in poor condition for a variety of reasons. However, I am not aware of any evidence of leaching from the wastewater treatment plant. When source tracking of faecal matter in the Waiarohia stream was undertaken some years ago by FNDC in conjunction with the community liaison group, the results showed pollution from bovine sources but no human, avian or dog indicative PCR markers were detected.

54. Green Party Northland Branch (27), Ana Josephine Bercich (31) and others expressed concerns regarding the plant's ability to cope with rain events. Heavy rain and flooding are a major source of pollution for the Hokianga Harbour. Our wastewater systems are designed to cope with most rain events. The increase in frequency of severe weather events is a challenge for the wastewater systems. During rain events high volumes of low-load influent are received at the WWTP. This influent is treated through the entire WWTP process and released via the outlet on an outgoing tide. Only in exceptional storms do we

have a higher risk of unplanned discharges from our network (untreated). Unplanned discharges or wastewater spills are notified to NRC.

55. Green Party Northland Branch (27) expressed concerns regarding the condition of the submerged discharge pipe. The submerged outlet pipe is inspected by divers in line with the condition of consent and is performing how we expect it to.

56. Janice Irene Barratt (30) expressed concerns regarding the volume of wastewater being discharged from homes. Water use in Opononi and Omapere is not excessive. FNDC have universal metering which is widely accepted to be a very effective demand management tool. FNDC welcome safe water-saving measures that customers want to employ on their property.

57. Hokianga Health Enterprise Trust (39), Te Mauri o te Wai (52), Director General of Conservation (50) and others expressed concerns regarding the length of the consent term applied for; 35 years. The proposed WWTP improvements and the consenting process warrants a significant investment which is amortised over the life of the consent. If the consent issued meets the needs of the community socially, culturally, and environmentally then economically it makes sense to maximise the term of the consent.

58. Opononi and Omapere Water Liaison Group (51), Ngatikorokoro Trust for Nga Hapu o te Wahapu o Hokianga Nui a Kupe (7) and others expressed concerns regarding the apparent conclusion of the Community Liaison Group (**CLG**) and lack of community engagement since 2019. Mr. Tucker provides some background to the situation at the time. I wrote to the OOWLG on behalf of Council on 17 December 2019. I also wrote to other parties on the same day with the same undertaking to obtain a legal opinion on the appropriate membership for the Community Liaison Group (CLG). I requested legal advice on the matter from our in-house legal counsel. When I returned from the Christmas Break in 2020, I was seconded into a crisis response team to manage the drought affected water supplies. As the drought wrapped up a few months later, the pandemic set in. The Council never completed a legal review to my knowledge. A meeting with the CLG has not been called since.

59. Community liaison groups (and variations thereof) provide a regular connection between Council and community. They build trust by enabling transparency. For a CLG to be effective they require a huge amount of resourcing from both community and Council. The effectiveness of the CLG is often hindered by staff

turnover at FNDC. In my experience exposure to CLG can contribute to staff turnover; staff are not adequately supported (by admin staff or by decision makers) and the often-confrontational meetings take their toll on staff's wellbeing. Any decision to continue a CLG, Working Group or similar needs careful thought as to the make-up of the group, their purpose, and their longevity.

Kohukohu

60. Te Mauri o te Wai expressed concerns regarding the ownership and maintenance of the septic tanks in Kohukohu. Septic tanks connected to the wastewater network in Kohukohu are generally owned by the Council. All properties paying the operational rate for sewerage in Kohukohu will have their septic tanks maintained by FNDC.

61. Hokianga Health Enterprise Trust, Te Mauri o te Wai and Te Rūnanga Papa Atawhai o Te Tai Tokerau (Northland Conservation Board) expressed concerns regarding the length of the consent term applied for; 15 years. The consenting process warrants a significant investment which is amortised over the life of the consent. If the consent issued meets the needs of the community socially, culturally, and environmentally then economically it makes sense to maximise the term of the consent.

62. Joanne Lillian Shanks expressed concerns about the Kohukohu WWTP's in ability to remove microplastics and drugs. Microplastics and other emerging contaminants in wastewater are a concern for the industry. However the Council is prioritising investment in land discharge schemes and compliance (with consents, water services act and health and safety) through its early draft asset management plans.

CONDITIONS OF CONSENT

Opononi

63. The consent description refers to the Operative District Plan to define the townships of Opononi and Omapere. The intent of the wording appears to be to limit the service area of the WWTP. FNDC consider it important that our process for reviewing connection requests at each of the wastewater schemes is consistent. The process is described below:

a. The area serviced by a wastewater scheme is determined by the rates paid by surrounding properties. Properties that are connected to the sewerage pay a connected capital rate, which covers the cost of depreciation and interest on the assets that make up the sewer scheme in that area, as well as an operational rate, which covers the cost of operating the schemes across the district (electricity, chemicals, labour, etc.). Properties that have the capability to connect but are not currently connected are charged an availability rate, which is equivalent to the connected capital rate.

b. Requests to connect to the sewerage networks in the Far North District are considered on a case-by-case basis. Properties that are paying the availability rate are entitled to connect if it is practical. If it is found that a property has been paying the availability rate, but it is impractical for them to connect at the time of development, a refund of those rates can be provided for the period of time they have been paying them, up to a maximum of five years.

c. If a connection request comes from a property that is not currently paying availability rates, then their request is considered on a case-by-case basis. Professional judgement is used to make a decision on their request. FNDC does not have an official connections policy or development contributions policy. When considering such a connection request, staff take into consideration factors such as the size and zoning of the property, its ability to cater for its own wastewater treatment, the distance from the nearest manhole, expected flows of the new connection, and the capacity of the existing infrastructure. A Development Agreement can be put in place if the connection is to be approved. The Development Agreement could require the developer to build and vest assets to Council or upgrade components of the existing system.

64. Conditions 5, 6 and 7 describe the formation, membership, and purpose of a community liaison group (**CLG**). One of the challenges with the running of the CLG in the current consent was the definition of membership. When the community representation was challenged by others in the community, the conditions of consent were not specific enough to help resolve the issues. FNDC's position was to default to an open-door policy and allow anyone to attend the meetings. Members had concerns that the meetings would become

unproductive, as we revisited work done to date, and confrontational about representation and decision making. It resulted in the CLG being put on hold and not operating as intended. I am concerned that conditions 5, 6 and 7 of the draft conditions lack specificity and risk wasting the time of all involved. There are more efficient methods for sharing information on the performance of the wastewater treatment plant with the community.

65. Condition 8 requires that Council invite and allow representatives of the CLG to attend monitoring of the wastewater discharge. This monitoring of the wastewater discharge is a core operational task and should not be burdened with the administrative and logistical challenges of enabling community engagement.

66. I accept the intent of Condition 17 being to ensure that FNDC implement the BPO upgrades without undue delay. For that reason, I believe that the purpose of the CLG in condition 6 should not include (b) which gives the CLG the impression that they have influence over the design of the BPO by being encouraged to make recommendations. Meaningful engagement with the CLG on the upgrades to the WWTP required by condition 6 (b) will extend the timeframe of condition 17 by two years in my estimation.

67. The funding approved and forecast in the draft Annual Plan is sufficient to deliver stage one of the upgrade. This is equivalent to part (a) and (b) in condition 17. The additional funding for stage two will be sought through the LTP and Affordable Waters Reform entity planning processes.

68. Condition 27 incorporates the proposed CLG in on the operationalisation of the consent conditions by requiring notice be given to them prior to undertaking an inspection. The pipeline inspections are undertaken by hired professionals and the work is weather dependant. This inspection is a task that should not be burdened with the administrative and logistical challenges of enabling community engagement.

69. I acknowledge the reporting officer's assessment of Policy D.2.14 and recommendation of a 20-year consent term. I accept the reporting officer's conclusions and support a 20-year consent term.

70. I refer to Ms Letica's evidence for a set of proposed set of changes to the draft conditions for Opononi which reflect my comments above.

Kohukohu

71. Conditions 11 and 12 describe the formation, membership, and purpose of a new Kaitiaki Liaison Group (**KLG**). I have concerns for the KLG similar to what I have expressed for the CLG in Opononi. I feel strongly that there are more efficient methods for sharing information on the performance of the wastewater treatment plant with the community than the proposed KLG.

72. I refer to Ms Letica's evidence for a set of proposed set of changes to the draft conditions for Kohukohu which reflect my comments above.

Melissa Pamela Parlane

3 May 2023