NORTHLAND REGIONAL COUNCIL
NOTIFIED STAFF REPORT

APPLICATION NO.:	APP.004007.01.03	
REPORT BY:	Ben Tait Policy Specialist – Water	
SUB APPLICATION NOS.:	**APP.004007.01.03**	**To discharge treated municipal wastewater to an unnamed tributary of the Parapara Stream, at or about location co-ordinates 1640435E 6126160N.**
	APP.004007.02.03	**To discharge contaminants to land from the base of a wastewater treatment system, at or about location co-ordinates 1641450E 6126950N and 1640435E 6126160N.**
	APP.004007.03.03	**To discharge contaminants to air (primarily odour) from a wastewater treatment system, at or about location co-ordinates 1641450E 6126950N and 1640435E 6126160N.**
APPLICANT(S):	Far North District Council	
NATURE OF ACTIVITY:	Discharges to water, land and air from the East Coast Bays Wastewater Treatment System.	
LEGAL DESCRIPTIONS:	Pt Allot 57, Pt Sec 33, and Pt Allot 24, Blk IV Mangonui SD.	
LOCALITY:	Taipā, Doubtless Bay.	
DURATION OF CONSENT SOUGHT:	25 years.	
RELEVANT STATUTORY PLANNING INSTRUMENTS:	▪ Resource Management Act 1991. ▪ National Policy Statement for Freshwater Management. ▪ Regional Policy Statement for Northland. ▪ Regional Water and Soil Plan for Northland. ▪ Regional Air Quality Plan for Northland. ▪ Proposed Regional Plan for Northland.	

ACTIVITY CLASSIFICATION: Discretionary.

Consent Type	For	Classification
Discharge Permit	▪ Discharge of treated municipal wastewater to water.	▪ Discretionary activity: Rule 15.3.1 Regional Water and Soil Plan for Northland
Discharge Permit	▪ Discharge of contaminants and water to land.	▪ Discretionary activity: Rule 15.3.1 Regional Water and Soil Plan for Northland
Discharge Permit	▪ Discharge of contaminants to air	▪ Discretionary activity: Rule 9.3.2 Regional Air Quality Plan for Northland

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1. INTRODUCTION

1.1 Purpose of this Report

1. I prepared this report in accordance with Section 42A of the Resource Management Act 1991 (RMA). Section 42A of the RMA states that at any reasonable time before a hearing a regional council can require a council officer or a consultant to prepare a report on information provided by a person making an application for a resource consent or any person who made a submission on the application.

2. I am an officer of the Northland Regional Council. I have read the Code of Conduct for Expert Witnesses contained in the Practice Note issued by the Environment Court December 2014, and have complied with the code when preparing this report and agree to comply with it at the hearings.

3. The recommendations that I make in this report to the Hearing Panel are mine and are not binding on the panel, and I recognise that the panel may not agree with my findings or recommendations. It is also important to note that I may change my recommendations in response to evidence presented to the Hearing Panel by other people.

1.2 Structure of this Report

4. This report is set out as follows. Section 2 contains an overview of the activities that the Far North District Council has applied for a resource consent to authorise. Section 3 contains a description of the site where the East Coast Bays Wastewater Treatment System is located. Section 4 contains an overview of the history of the system and the current resource consent application. Section 5 contains an overview of the wastewater treatment system, including its performance. Section 6 contains an overview of Section 104 of the RMA, which directs consent authorities how to consider applications for resource consents. Section 7 contains an assessment of the actual and potential effects on the environment, including on Ngāti Kahu and the wider community. Section 8 contains an assessment of relevant planning provisions. Section 9 identifies other matters that are relevant to deciding whether to decline or grant a resource consent for the discharges. Section 10 concludes the report and contains my recommendations to the Hearing Panel.

2. ACTIVITY DESCRIPTION

5. Far North District Council owns and operates a wastewater treatment system (WWTP), which is situated at the end of Ryder Road in the Taipā River Catchment. The WWTP receives wastewater that is reticulated from Mangonui, Coopers Beach, Cable Bay and Taipā. The WWTP consists of two parts, being a series of ponds at Ryder Road, and a constructed wetland in an adjacent catchment. (Section 5 has more information on the treatment system).

6. The treated wastewater is discharged from the final outlet of the constructed wetland into a drain that connects to an unnamed tributary of the Parapara Stream, which flows into the Awapoko River. Some wastewater is expected to seep through land from the facultative and maturation ponds and constructed wetlands (i.e. discharges to land). The WWTP also generates odour (i.e. discharges to air).

7. The discharges from the WWTP are authorised by Resource Consent 4007. On 28 May 2008, Far North District Council applied to Northland Regional Council for a resource consent to replace the consent, as it was due to expire in November 2008. Under s124 of the RMA, this allows the applicant to continue to operate the WWTP under the "expired" consent until a determination has been made on the renewal application.

8. The application was made pursuant to discretionary activity rules 15.3.1 and 15.3.2 in the Regional Water and Soil Plan for Northland and discretionary activity rule 9.3.2 of the Regional Air Quality Plan. Resource consent 4007 expired on 30 November 2008. Northland Regional Council has subsequently allowed the Far North District Council to continue to exercise the consent under Sections 37 of the RMA so that it could adequately explore land disposal and alternative wastewater treatment options, and try to resolve Ngāti Kahu and wider community opposition to the discharge to water.

3. SITE DESCRIPTION

9. The pond system of the WWTP is located at the end of Ryder Road in Taipā, close to Ryders Creek. The wetland complex, to which the treated wastewater is pumped prior to it being discharged, is in the Awapoko River Catchment approximately 1.1 kilometres southwest of the WWTP and 1.2 kilometres south of Taipā View Road.

10. The pond system is in a low-lying, secluded area and is largely bounded by trees (exotic and native). The wetland system is situated at the bottom of a small valley and is surrounded by open pasture. It is abutted by drains intercepting water flowing to the wetlands from the surrounding catchment.

11. The following aerial photos (next page) show the wastewater reticulation network, the pond system and constructed wetlands.

FIGURE 3-1: East Coast Bays Water Reticulation Network (red lines) and the pond system and constructed wetlands (white arrows)

FIGURE 3-2: Aerial photo showing the location of the ponds and constructed wetlands (white arrows). The red line represents the location of the pipes through which wastewater enters and leaves the WWTP.

FIGURE 3-3: Approximately 9 km flow path (red line) for the treated wastewater after discharge from the constructed wetlands

4. BACKGROUND

12. This section contains a brief overview of the history of the WWTP. It is useful and important to describe the history to better understand Far North District Council's resource consent application and the opposition to it. This section also contains a brief overview of what has happened since the district council lodged its resource application with the regional council in May 2008.

4.1 Brief Overview of the History of the East Coast Bays WWTP

13. A wastewater reticulation and treatment system to service the communities of Mangonui, Coopers Beach, Cable Bay and Taipā was planned in 1959. A wastewater reticulation and treatment system was deemed necessary by Mangonui County Council (a predecessor of the Far North District Council) and later the Health Board because existing septic tanks (domestic on-site wastewater treatment systems) in the area were not working well due to the dominance of poorly draining, heavy clay soils. Some people were also relying on pan privies.

14. In 1969, Mangonui County Council decided to instruct consultant engineers to design a wastewater reticulation and treatment system to service the coastal strip extending from Mangonui to Taipā.

15. In 1970, a report was received from Mangonui County Council's consultants that recommended a system. Ratepayers were then consulted. A public meeting held in Mangonui on 8 June 1971 set up a committee to investigate the proposals and report back. A further public meeting, held on 10 January 1972 and attended by approximately 200 people, heard the report of the committee and unanimously passed a resolution rejecting the proposal because they considered the scheme was too big and unnecessary. [This was not a new situation, a new sewerage scheme had previously been proposed for Coopers Beach and Cable Bay but was rejected by ratepayers in 1963. Other schemes promoted by the county council were rejected by ratepayers in 1965 and 1967 for the reason of cost.]

16. I understand that Mangonui County Council then wrote to the Board of Health explaining how the scheme had been blocked by the ratepayers and inviting an investigation.

17. In April 1972, the Board of Health did a sanitary survey of the East Coast Bays area. Of 300 dwellings visited, 60 had pan privies (although there was no night soil collection service) and 153 had septic tanks that were defective. Poorly and untreated domestic wastewater (sewage) was polluting streams and coastal waters, including the Taipā estuary and beaches. Shallow groundwater at Taipā was tested in 1972 by the Board of Health and was found to be contaminated by sewage.

18. On 11 December 1972, the Board of Health directed Mangonui County Council, pursuant to the Health Act 1956, to provide wastewater treatment for Taipā, Cable Bay, Coopers Beach and Mangonui, however, the directive did not require that the treatment scheme considered by the council in 1970 be constructed.

19. In 1973, the county council proposed a change to its district planning scheme under the Town and County Planning Act 1977 to designate a site for an oxidation pond at Taipā (the current site of the WWTP).

20. On 11 April 1974, the county council applied to the Regional Water Board and Northland Catchment Commission (a predecessor of the Northland Regional Council) for a water right to discharge treated effluent from the proposed oxidation pond at Taipā to the ocean via an outfall. The original application was declined because there was insufficient information about the effects of the discharge on inshore coastal waters. Further research was done and meetings held, and in 1977 the Mangonui County Council adopted the Taipā Wastewater District System as proposed by its consultant engineers (Steven, Fitzmaurice and Partners).

21. The Mangonui County Council then applied again for a water right to discharge effluent to the ocean via an outfall. On 29 October 1980, the Mangonui County Council was granted a water right (No. 1747) to discharge treated effluent from oxidation ponds to coastal water at a point off Otengi Headland. The water right was granted under the Water and Soil Conservation Act 1967 with an expiry date of 31 December 1995. The Environmental Defence Society appealed to the High Court against the decision. That appeal was dismissed.

22. A consultant's report to the Mangonui County Council in December 1980 stated:[1]

> *The scheme was first proposed in 1970 and in the ten years to date the cost has escalated dramatically and now stands at a point where the annual cost to each ratepayer will be a substantial sum.*

23. Although Water Right 1747 was granted, the county council recognised objectors' concerns about the ocean outfall (i.e. the potential effects of the discharged wastewater on the water quality of Doubtless Bay). It then considered several alternatives to the ocean outfall.

24. In December 1983, the current site of the WWTP at Taipā was designated under the Town and Country Planning Act for the proposed oxidation ponds. In July 1985, the Mangonui County Council applied for a new Water Right (4007) to discharge treated wastewater via a constructed wetland system to an unnamed tributary of the Parapara Stream.

25. Craig Thompson, an employee of the Mangonui County Council stated, in his evidence on behalf of the County Council for Water Right Application Number 4007:[2]

> *…I have been employed in the position of Design Engineer by Mangonui County Council since July 1983. I have been involved in the feasibility studies for council's three proposed sewerage schemes, including the obtaining of the necessary statutory rights.*

1 Consultants Report to Mangonui East Coast County Council. December 1980. Mangonui East Coast Sewerage Scheme.
2 Craig Thompson. 28 November 1985. Evidence for Water Right Application Number 4007 – East Coast Sewerage.

The proposed East Coast Sewerage Scheme covers the urban areas from Taipā to Mangonui. Various attempts have been made to provide a sewerage system for the East Coast since 1961 but methods of financing the scheme have always hindered progress. The Health Board in 1972 served a requisition on council requiring it to provide an approved sewerage scheme. That requisition still stands today [November 1985]. The current scheme proposal uses modified conventional reticulation to convey effluent to a trunk sewer which pumps the effluent to the treatment site at Taipā. The original proposal was then to discharge into Doubtless Bay off Otengi headline using an existing Water Right (Number 1747). However, it is now proposed to discharge to an inland artificial marsh site located in a catchment to the west of the Taipā River catchment, and a further Water Right is, therefore, required.

…

Possible methods of disposal include:

(1) Disposal to sea.

(2) Evapotranspiration from detention ponds.

(3) Disposal to ground.

Disposal to sea is a method used commonly throughout New Zealand and was the disposal method used for the original sewerage scheme proposal. Because of environmental and cultural factors this option is now considered less desirable.

Evaporation from detention ponds is possible where evaporation exceeds precipitation. This occurs in Summer months only, ***and spreading the effluent over a larger surface area to increase evaporation makes this option economically unfeasible. This option has been previously investigated by Murray-North Partners in 1981 and Council staff in October 1983***. [my emphasis]

Disposal to ground can be achieved by rapid sand infiltration, irrigation or marsh systems. The marsh disposal option has been chosen, firstly because of its additional polishing effect, especially the reduction of Nitrogen and Phosphorus levels, and secondly because plant selection means a significant proportion of the treated effluent can be removed by transpiration.

…

The excess treated effluent will flow to a drain which in turn flows to an unnamed tributary of Te Moho Stream.

26. The Water Resource Report to the Regional Water Board by its water quality officer (L L Parker) concluded:[3]

3 L L Parker. November 1985. Water Resources Report on Mangonui County Council Water Right Application 40007 – East Coast Sewerage Scheme. Regional Water Board.

The [wetland] effluent will be afforded tertiary treatment in a cultivated marsh system to be constructed on 4 hectares of land before discharge to ground in the catchment of a maintained drain which flows for some 1000 metres before entering the Parapara Stream.

…

Results from Regional Water Board water quality monitoring of the upper Parapara Stream show that the faecal coliform levels are the equivalent of a B classification which allows for faecal coliform levels of 2000/100ml.

Investigations have shown that this contamination is largely from non-point sources resulting from fairly intensive farming and rain water runoff.

…

During the summer months when the receiving waters are most sensitive the volume of effluent discharged will be markedly reduced by evaporation from the pond surfaces and transpiration from the planted marsh areas together with absorption into ground after the marsh.

***I am confident that the proposed system of sewage treatment and disposal will produce an effluent quality superior to the existing water quality** established by surveys carried out on the Parapara Stream during investigations prior to this report.* [my emphasis]

27. The Regional Water Board and Northland Catchment Commission granted Water Right 4007 on 24 March 1986, with an expiry date of 31 October 1996.

28. In late 1986, an agreement was made for the transfer to Ngāti Kahu of the balance of the Mr and Mrs G P Adamson's farm for a concessionary price (part of it had previously been gifted to Ngāti Kahu by the Adamson's in 1974). Part of the soon to be returned land had been identified by the Mangonui County Council as the suitable location for oxidation ponds (the current site of the WWTP). Ngāti Kahu saw that land that they were purchasing as having *"the potential to contribute to the future economic wants and needs of the tribe".*[4]

29. On 30 March 1987, MacCully Matiu and the Ngāti Kahu Trust Board on behalf of Ngāti Kahu and associated tribes lodged a claim with the Waitangi Tribunal objecting to the siting of a WWTP at the current site in Taipā and several related issues.

30. Construction of the wastewater treatment ponds was deferred because of the claim to the Waitangi Tribunal, and because the county council had not been able to acquire the land on which the treatment plant was to be located.

31. On 20 October 1986, the Waitangi Tribunal began its hearing on the Ngāti Kahu Trust Board Claim against Mangonui County Council ("Ngāti Kahu – Mangonui Sewerage Claim").

4 Waitangi Tribunal. Report of the Waitangi Tribunal of the Ngāti-Kahu – Mangonui Sewerage Claim [Wai 17]. August 1988. Page 33

32. The Waitangi Tribunal heard the claim and issued its decision on 23 August 1988.[5] It addressed compulsory acquisition of the highly valued ancestral land of Ngāti Kahu, the siting of the WWTP on it, and the discharge of wastewater from the treatment plant to waters in the Taipā catchment and Parapara Stream. The Waitangi Tribunal's decision in 1988 was comprehensive and considered. The Tribunal concluded in by stating, among other things:

> *…There are times when Maori interests must take priority, accordingly to the Treaty's terms, for the solemn guarantees in the Treaty were a small price to pay of the cession of sovereignty and Pakeha settlement rights that cannot now be denied. But there are times to recall that our forebears agreed to no less than a Pakeha settlement, and a world of our two peoples could belong. The claim is a salient reminder that if the cultures of our founding inheritance are both to stand proud, a compromise is sometimes required.*
>
> *Construction of any sewage works necessarily imposes certain costs, both financial and cultural, on the local community. Ngāti Kahu had good cause to bring their claim and reason to feel aggrieved and yet, the cost to the community, of which Ngāti Kahu forms part, would be too great in this instance, if their claim was allowed. We have therefore no recommendations to make in its support.*
>
> *That is not to say that the Ngāti Kahu concerns need not be addressed. They must be. Developments on their once isolated homeland have placed them on the threshold of a new frontier. It is fundamental to the Treaty that Maori would not be threatened in the enjoyment of their ancestral lands for so long as they should wish to keep them. Ngāti Kahu area threatened now, and in our view, special measures are needed.*
>
> *The issues are complex and lateral thinking will be required to maintain the Treaty's goals in our own times, but they are best reserved for the Ngāti Kahu land claim that is yet to be heard.*
>
> *E kore e taea he whakatau.*
>
> *Ko te tumanoko kia pa tonu atu ringa kit e tai.*
> *Kia mau te takenga o te ingoa Taipā.*

33. The current site of the WWTP was acquired under the Public Works Act in 1989 and construction began.

34. I understand that the Crown and Ngāti Kahu have yet to agree to a settlement of historical Treaty of Waitangi claims.

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5 Waitangi Tribunal. Report of the Waitangi Tribunal of the Ngāti-Kahu – Mangonui Sewerage Claim [Wai 17]. August 1988.

4.2 The Current Proposal

35. In May 2008, the Far North District Council applied to the Northland Regional Council for a new resource consent to authorise the discharge of treated wastewater to surface water and to ground (seepage), and discharges to air (primarily odour). The consent would replace Resource Consent 4007, which was first issued in December 1985 under the Water and Soil Conservation Act 1967 and renewed in 1996 and 2001 under the Resource Management Act 1991. The resource consent has an expiry date of 30 November 2008.

36. On 12 June 2008, the Northland Regional Council requested, pursuant to Section 92(1) of the RMA, further information relating to the Far North District Council's application. The information was requested because the regional council considered that the proposed discharge to water may have significant adverse effects on the environment and the information provided in the application was insufficient to meet the requirements of Section 88(2) and Schedule 4 of the RMA.

37. In August 2009, the Northland Regional Council granted the Far North District Council an extension to the consent application processing time limit to allow the district council to undertake further consultation with Ngāti Kahu. In July 2010, the regional council decided to publicly notify the application for the resource consents, pursuant to Section 93 of the RMA. The regional council received 54 submissions, most opposing the application. The list of people who submitted on the resource consent application is set out in Appendix 1, along with a summary of each submission.

38. In December 2010, the Hearing Committee (consisting of Commissioner Loraine Hill and Hamish Lowe), appointed by the Northland Regional Council, granted the Far North District Council an extension under Section 37 of the RMA to allow an investigation into alternative treatment and land disposal options. The hearing date was revised to 3 June 2011, but the hearing did not reconvene.

39. The Far North District Council commissioned work to identify potential land disposal options, including irrigating wastewater to the Kerifresh citrus orchard which borders the WWTP. A resource consent application was prepared for this proposal. However, the orchard owner was reluctant to commit to irrigating the orchard with wastewater and the application did not proceed any further.

40. The Far North District Council also commissioned further research to help gain a better understanding of the environmental effects of its proposal. This included an initial ecological assessment by Wildland Consultants Limited in August 2014. A more detailed assessment was done in January 2015 to determine the effects of the discharge during dry summer months.

41. The Far North District Council has consulted and engaged representatives of Ngāti Kahu and other community members. A working group was formed and, as recently as May 2018, it considered seven WWTP upgrade options and potential land disposal sites[6]. I understand that the Taipā WWTP Working Group have declined to choose a specific option until it has undertaken site visits to all example options.

6 Zhou Chen and Rebecca Forgesson. 25 May 2018. Taipā WWTP Upgrade Issues and Options Report: For use at Taipā WWTP Working Group Hui #2. Prepared for Far North District Council by AECOM New Zealand Limited.

42. In early 2019, the Northland Regional Council decided that a substantial and more than ample amount of time had passed since the application was made and it should go to a formal hearing. The hearing was scheduled for June 2019. The Far North District Council and people who lodged submissions in 2010 were made aware of the decision.

43. I also understand that, at the time of writing this report (May 2019), the Far North District Council has not decided on an upgrade option or on obtaining land for land disposal,[7] and it *"is in the process of engaging a consultant to investigate options to achieve the consent application's proposed discharge parameters".*[8]

44. That is, in the decade since the application was first lodged the Far North District Council had not decided on, or committed to, an upgrade option for the WWTP to improve the quality of the discharged effluent and/or to discharge it to land.

5. THE TREATMENT SYSTEM

45. The WWTP consists of three mechanically aerated facultative ponds, one maturation pond and three constructed wetlands. It was designed for a population equivalent of 5,475.[9]

46. Wastewater enters the WWTP from the East Coast Bay's Wastewater Reticulation Network (Figure 3-1) and undergoes pre-treatment[10] and then primary and secondary treatment[11] in the three facultative ponds and maturation pond. Wastewater also undergoes tertiary treatment in the maturation pond and constructed wetlands where ammonia is oxidised to nitrate (nitrification). Some denitrification is also expected (conversion of nitrate to nitrogen gas).

47. The aerated facultative ponds run in series with influent entering the first facultative pond and exiting the third facultative pond before being discharged to the maturation pond. Treated wastewater is then pumped over a hill to the west (out of the Taipā River Catchment) into a system of four constructed wetlands in the Awapoko River Catchment. Treated wastewater is then discharged to a farm drain which connects approximately 900 metres downstream to an unnamed tributary of the Parapara Stream which flows into the Awapoko River and then the Awapoko/Aurere Estuary, which is approximately 9 kilometres downstream of the discharge (see Figures 3-2 and 3-3 above).

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7 Melissa Parlane, Natalie Blandford and Jessica Crawford, pers. comm., 5 April 2019.

8 Natalie Blandford. 30 April 2019. Responses to NRC questions on Taipā WWTP consent renewal. Far North District Council.

9 Fraser Thomas Partners Limited. 1991. East Coast Sewerage Scheme – Operation and Maintenance Manual.

10 Pre-treatment involves the removal of large objects and materials with a screen.

11 Primary treatment involves the settling of smaller particulate matter. Secondary treatment involves the breakdown of organic compounds (e.g. human and food waste) using aerobic processes. That is, the microorganisms that breakdown the organic compounds require oxygen. Hence the need for mechanical aeration of the ponds.

48. The Far North District Council advised me that:[12]

> *The third aerated lagoon has been in operation since 2013. The aerated ponds now run in series with raw influent entering #1 and flowing through system to #2, then #3, before discharging to the main pond. With the advent of putting #3 aerobic pond in series, this should be capable of reaching the flow rate of 1775 m³/day. We note that the plant will not cope with this loading without an upgrade to reach resource consent compliance.*

49. The New Zealand Municipal Monitoring Wastewater Monitoring Guidelines comments on the performance of pond systems:[13]

> *BOD [biochemical oxygen demand] and SS [suspended sediment] removal rates are reasonable, but limited nutrients and ammonia removal occurs. Pathogen removal in conventional pond systems is relatively good, due to microbial predation and the action of UV light (in sunlight). Ponds provide flow buffering, which means their response to sudden volume slugs is good.*

50. According to the Far North District Council, facultative and maturation ponds have sufficient mechanical aeration installed to maintain the upper surface water layer in a fully aerobic state at current peak loading in order to provide sufficient oxygen for the biological reduction of organic matter.

51. Table 5-1 below sets out the effect of the wastewater treatment system on the pH, temperature, dissolved oxygen, ammonia and biological oxygen demand in the raw wastewater influent. It is important to note that the results are for the period December 2016 to March 2017 (the only data available to me at the time of writing this report).

TABLE 5-1: Effect of the WWTP and Constructed Wetlands on Key Water Quality Parameters in the Raw Wastewater Influent (% change between untreated influent and treated effluent in the discharge) for the period December 2016 – March 2017. Negative Sign indicates a Decrease in the Parameter.

	pH	Temperature (C°)	Dissolved Oxygen (g/m³)	NH_4-N (g/m³)	BOD (g/m³)
Mean	4.75%	-2.72%	994.02%*	-66.23%	-93.31%
Median	3.47%	0.22%	1305.98%*	-71.72%	-93.33%

52. The following tables show the performance of the three treatment steps (facultative ponds, maturation pond and constructed wetlands) on the wastewater during the same period.

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12 Natalie Blandford. April 2019. Responses to NRC questions on Taipā WWTP consent renewal. Far North District Council.

13 NZWERF. 2002. New Zealand Municipal Wastewater Monitoring Guidelines. Edited by D E Ray. NZ Water Environment Research Foundation. Wellington, New Zealand. Page 45.

Table 5-2: Effect of Facultative Ponds on Key Water Quality Parameter in the Raw Wastewater Influent (% change) for the period December 2016 – March 2017

	pH	Temperature (C˚)	Dissolved Oxygen (g/m^3)	NH_4-N (g/m^3)	BOD (g/m^3)
Mean	2.76%	6.58%	598.46%	3.78%	-84.41%
Median	0.95%	4.37%	723.93%	6.21%	-90.59%

Table 5-3: Effect of Maturation Pond on Key Water Quality Parameter in the Wastewater from Facultative Ponds (% change) for the period December 2016 – March 2017

	pH	Temperature (C˚)	Dissolved Oxygen (g/m^3)	NH_4-N (g/m^3)	BOD (g/m^3)
Mean	9.95%	-1.32%	111.57%	-53.14%	-30.80%
Median	11.31%	-3.56%	123.03%	-53.25%	-6.25%

Table 5-4: Effect of Constructed Ponds on Key Water Quality Parameter in the Wastewater from Maturation Pond (% change) for the period December 2016 – March 2017

	pH	Temperature (C˚)	Dissolved Oxygen (g/m^3)	NH_4-N (g/m^3)	BOD (g/m^3)
Mean	-7.29%	-7.51%	-25.97%	-30.54%	-37.97%
Median	-7.92%	-0.43%	-23.49%	-43.06%	-24.44%

53. The current treatment system does not have any dedicated treatment device solely for pathogen removal (for example, artificial UV light, or ozone or chlorine dossing). That said, some tertiary treatment happens within the facultative ponds, maturation pond and wetlands.

54. I understand that the removal of faecal pathogens in the ponds and wetlands is "moderate to good (due to the action of UV sunlight, and [microbial] predation)".[14]

5.1 Discharge Volume

55. The current resource consent allows a daily discharge volume of 1,005 cubic metres per day (m^3/d), based on dry weather flows. The resource consent application states:[15]

[14] New Zealand Water Environment Research Foundation. 2002. New Zealand Municipal Wastewater Monitoring Guidelines. Page 66.

[15] Supporting Information. Page 15.

Based on the FNDC growth strategy figures (which predict that the number of connections in 2033 will be 1955 with a growth rate of 2% per annum) then an expected average daily dry weather flow can be calculated. This flow is based on an average occupancy rate of 4 persons per household utilising 200 litres of water per day. This equates to a flow of 1,570 m³/day.

Therefore this application is to renew the existing consent to discharge up to 1,570 m³/day of treated wastewater on an average dry weather flow basis.

56. Table 5-5 below sets out flow statistics for the untreated wastewater inflow to the WWTP, volumes of treated wastewater pumped to the constructed wetlands and volumes discharged from the wetlands.

57. At the time of writing this report, daily inflow data was only available for the period 22 May 2018 to 28 February 2019. Whereas, daily discharge flow data was available for the period 1 January 2010 to 28 February 2019.

TABLE 5-5: Flow Statistics for Wastewater Inflow and Outflow of Wastewater

	Inflow (m³/day)	Outflow from the Ponds (m³/day)	Discharge from Wetlands (m³/day)	Dry Weather Discharge from Wetlands (m³/day)*
Mean	448	473	544	317
Median	413	419	398	276
Minimum	35	0	0	0
Maximum	2150	2722	2782	2213
5th percentile	235	155	103	45
95th percentile	740	959	1424	803
Count	283	2933	3342	999

*Dry weather flow means the daily discharge from the wetland when the maximum rainfall on the day and previous three days is less than 1.0 mm.

58. It is important to note that the maximum daily dry weather volume (1,005 m³/d) was only exceeded on 15 out of 999 days, and that the 95th percentile of the dry weather flows is 803 m³/d.

59. I used Time Trends[16] to analyse the pond outflow and discharge volumes data for trends. The following figures reveal that there is a small but increasing (virtually certain) trend in the outflow volume from the facultative and maturation ponds and the constructed wetlands. This is to be expected given that there have been new connections to the WWTP.

16 See https://www.niwa.co.nz/freshwater/management-tools/water-quality-tools/analysis-of-water-quality-trends

FIGURE 5-1: Trend for Wastewater Outflow Volumes from the Facultative Ponds

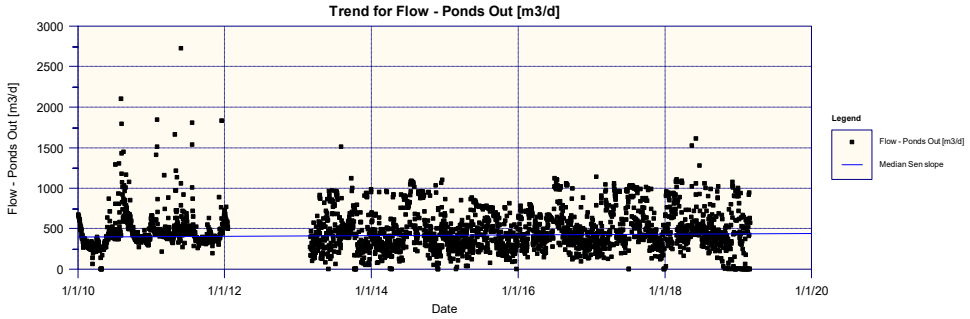


TABLE 5-6: Assessment of Trend Using Seasonal Kendall Test and Slope Analysis

Sample Size	Median Sen Slope (annual)	Percent Annual Change	95% Confidence Limits for Slope	P	Trend Direction and Confidence
2933	4.844	1.156	2.284 to 7.423	0.000	Increasing trend virtually certain

FIGURE 5-2: Trend for Wastewater Outflow Volumes from the Maturation Pond

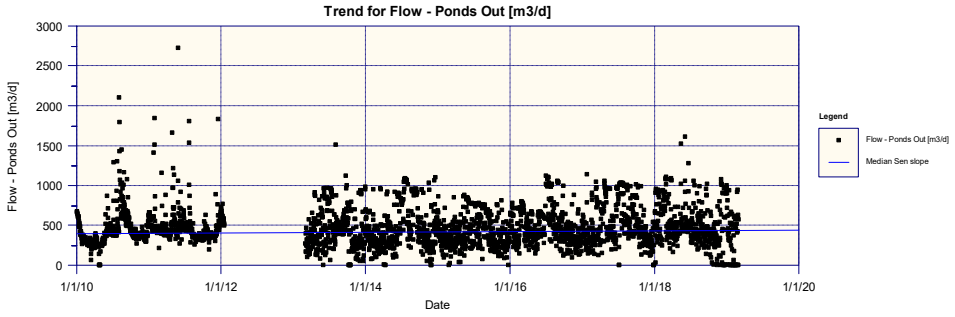


TABLE 5-7: Assessment of Trend using Seasonal Kendall Test and Slope Analysis

Sample Size	Median Sen Slope (annual)	Percent Annual Change	95% Confidence Limits for Slope	P	Trend Direction and Confidence
2933	4.844	1.156	2.284 to 7.423	0.000	Increasing trend virtually certain

FIGURE 5-3: Trend for Treated Wastewater Discharge Volumes from the Constructed Wetlands

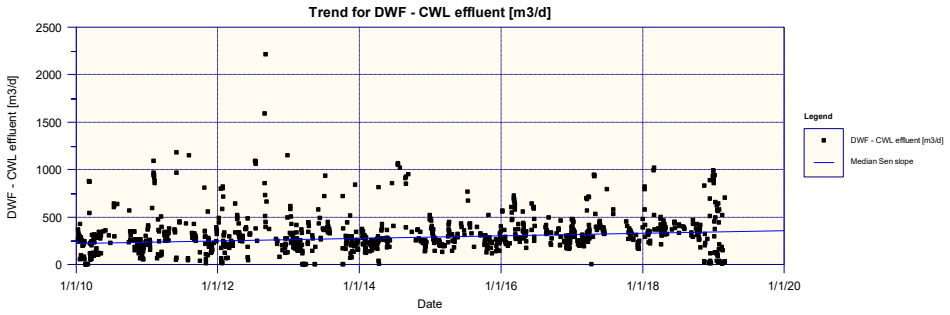


TABLE 5-8: Assessment of Trend using Seasonal Kendall Test and Slope Analysis

Sample Size	Median Sen Slope (annual)	Percent Annual Change	95% Confidence Limits for Slope	P	Trend Direction and Confidence
998	13.783	4.989	10.592 to 17.153	0.000	Increasing trend virtually certain

60. Far North District Council stated that:[17]

> *…logs indicate the following during significant rain events:*
>
> - *60+ mm of rain doubles the flow rate through the plant and flows reduce back to normal dry weather flows within five days.*
> - *100+ mm of rain triples the flow rate through the plant. Continuous rain days will cause the flow rate to remain high for extended periods of time.*

61. The cause of the increased flows is inflow and infiltration into the wastewater reticulation network, which is typical for most networks.

62. The district council also stated that:[18]

> *The effects on the plant are an increase in PH and DO with a slight reduction in NH_4 initially then reverting back to our normal NH_4 results as the infiltration and dilution drops.*

[17] Natalie Blandford. April 2019. Responses to NRC questions on Taipā WWTP consent renewal. Far North District Council.

[18] Ibid

5.2 Discharge Quality and Effects on Downstream Water Quality

63. Condition 2 of Resource Consent 4007 states:

> 2 The discharge shall not cause the water quality in the unnamed tributary of the Parapara Stream at NRC Sample Site No 5941 (see NRC Plan No. 3078, attached), to fall below the following standards:
>
> a) The natural pH of the water shall be within the range 6.5 to 9.0 except where due to natural causes.
>
> b) The visual clarity of the water shall not be reduced by more that 50%.
>
> c) There shall be no production of significant oil or grease films, scums or foams, floatable or suspended materials, or emissions of objectionable odour
>
> d) The median concentration of the faecal coliform bacteria in the water shall not exceed 600 per 100 millilitres, and the 80 percentile concentration shall not exceed 2400 per 100 millilitres, based on not fewer than 5 samples taken over any 30 day period.
>
> e) The dissolved oxygen concentration shall not be reduced below 80% of saturation.
>
> f) The concentration of total ammoniacal N shall not exceed the following:

Water Quality Criteria for Freshwater Aquatic Life based on Total Ammonia (milligrams per litre) (Four day average)

	Total Ammonia, NH_4-N g/m³				
pH	10°C	15°C	20°C	25°C	30°C
6.50	1.81	1.81	1.22	0.86	0.60
6.75	1.81	1.81	1.22	0.86	0.60
7.00	1.81	1.81	1.22	0.86	0.61
7.25	1.81	1.81	1.23	0.86	0.61
7.50	1.81	1.81	1.23	0.86	0.61
7.75	1.73	1.64	1.15	0.81	0.58
8.00	1.13	1.09	0.76	0.54	0.39
8.25	0.64	0.62	0.44	0.32	0.23
8.50	0.37	0.36	0.26	0.19	0.14

64. The resource consent requires the Far North District Council, or its agent, to monitor the discharge at Sampling Site No 1687 (the discharge point from the constructed wetlands) at not less than four monthly intervals for:

- Total ammonia
- Five-day biochemical oxygen demand
- Suspended Solids
- Faecal Coliforms

65. Additional monitoring is required at all sample sites (1687, 5939, 5940, 5941) if the concentration of ammonium nitrogen exceeds 5 g/m³ or the concentration of faecal coliforms exceed 1,000/100mL. The FNDC or its agent are also required to, at the same time, measure temperature, pH and dissolved oxygen at all sampling sites. The sites are shown in Figure 5-4 below.

66. Table 5-9 below provides an overview of the water quality monitoring results for the period January 2008 – February 2019 at the discharge point (1687).

TABLE 5-9: (Sample Site 1687) Water Quality Monitoring Results for Treated Wastewater

	pH	Temp (C˚)	Dissolved Oxygen (g/m³)	NH_4-N (g/m³)	TSS (g/m³)	Biochemical Oxygen Demand (g/m³)	Faecal Coliforms (c/100mL)
Mean	7.5	18.6	7.9	11.0	24.7	15.4	731
Median	7.4	19.5	7.9	9	20	14	300
Minimum	6.1	11.7	3.2	0.01	3	2	9
Maximum	9.1	24.8	17.9	34	111	52	8000
5th percentile	7.4	19.5	7.9	9	20	14	300
20th percentile	7.2	14.6	5.3	1.9	8	7.6	100
80th percentile	7.6	22.6	10.4	20	36	22	1100
95th percentile	8.4	24	14.3	29	58	31.6	3058
Count	43	41	41	121	97	97	105

67. I used Time Trends to analyse the water quality data for Sample Site 1687. The trends are set out below. Note that I was unable to analyse the inter-stage wastewater data (from facultative and maturation ponds) because there was insufficient data.

FIGURE 5-4: Sampling Sites (Reproduced from Resource Consent 4007)

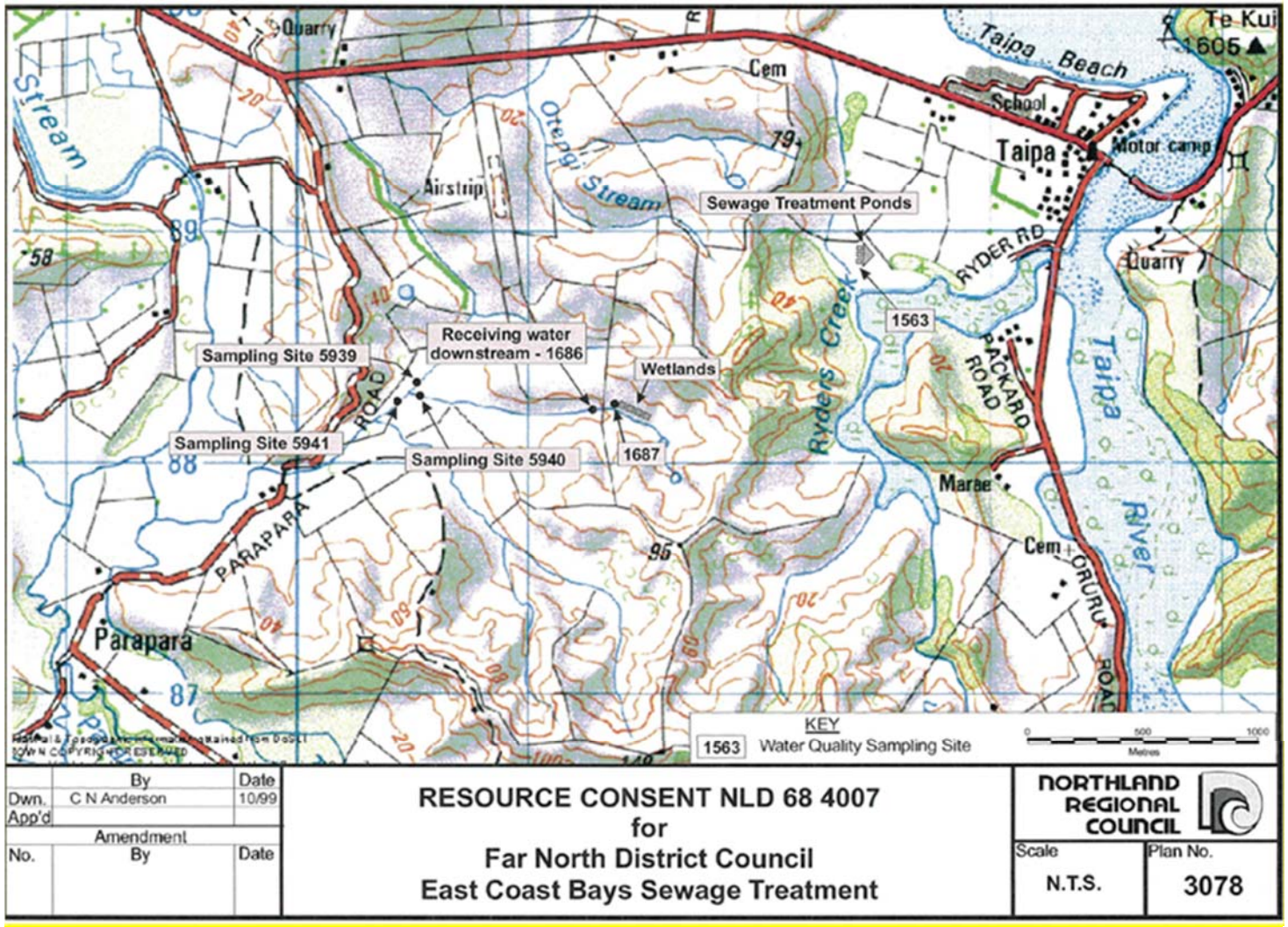


FIGURE 5-5: Trends for pH, Dissolved Oxygen, Ammonia, Biochemical Oxygen Demand and Faecal Coliforms in the Discharge at Sample Site 1687 across the Available Sample Record

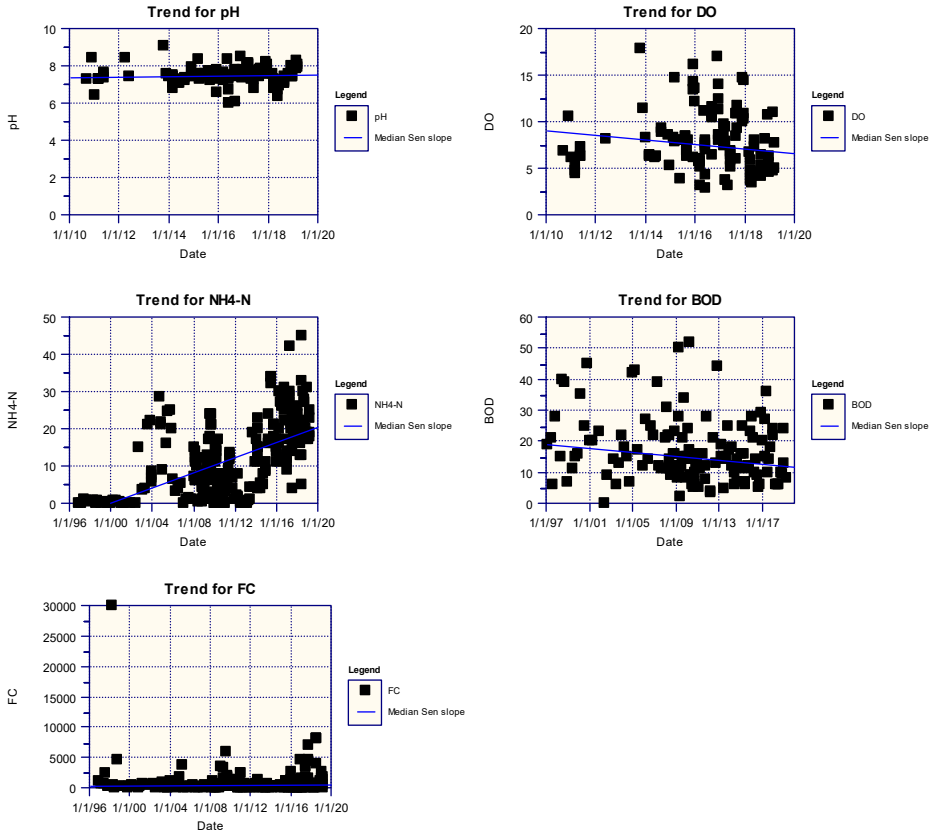


TABLE 5-10: Assessment of pH Trend using Seasonal Kendall Test and Slope Analysis

Sample Size	Median Sen Slope (annual)	Percent Annual Change	95% Confidence Limits for Slope	P	Trend Direction and Confidence
123	0.010	0.134	-0.020 to 0.050	0.487	Increasing trend about as likely as not

TABLE 5-11: Assessment of DO Trend using Seasonal Kendall Test and Slope Analysis

Sample Size	Median Sen Slope (annual)	Percent Annual Change	95% Confidence Limits for Slope	P	Trend Direction and Confidence
113	-0.253	-3.439	-0.537 to 0.005	0.065	Decreasing trend likely

TABLE 5-12: Assessment of NH_4-N Trend using Seasonal Kendall Test and Slope Analysis

Sample Size	Median Sen Slope (annual)	Percent Annual Change	95% Confidence Limits for Slope	P	Trend Direction and Confidence
253	1.014	8.451	0.850 to 1.222	0.000	Increasing trend virtually certain

TABLE 5-13: Assessment of BOD_5 Trend using Seasonal Kendall Test and Slope Analysis

Sample Size	Median Sen Slope (annual)	Percent Annual Change	95% Confidence Limits for Slope	P	Trend Direction and Confidence
134	-0.312	-2.153	-0.599 to 0.000	0.013	Decreasing trend very likely

Table 5-14: Assessment of FC Trend using Seasonal Kendall Test and Slope Analysis

Sample Size	Median Sen Slope (annual)	Percent Annual Change	95% Confidence Limits for Slope	P	Trend Direction and Confidence
212	7.002	2.334	0.000 to 17.207	0.109	Increasing trend possible

68. The analysis reveals that it is virtually certain that ammonia concentrations in the discharge are increasing over time and that it is very likely that there is a decreasing trend for BOD, and it is likely that there is a decreasing trend for dissolved oxygen. The Far North District Council stated that it:[19]

> *…hypothesizes that the following causes of the increased trend of ammoniacal nitrogen levels [are]:*
>
> - *Sludge volumes impeding treatment processes*
> - *Increased development (99 new connections over ten years, which is lower than predicted, see graphs below)*
> - *Increased use of private holiday accommodation within the area of benefit, e.g.:*
> - *Air B&B: 102 properties*
> - *BookaBach: 94 properties*
> - *HolidayHouses: 77 properties*
> - *Bachcare: 15 properties*
>
> *(Note that there may be some double-ups in the figures if properties are listed with more than one website).*

[19] Natalie Blandford. April 2019. Responses to NRC questions on Taipā WWTP consent renewal. Far North District Council.

69. Figure 5-6 below shows the number of new connections per year since 2008. Figure 5-7 below shows the actual connections versus predicted connections to the East Coast Bays Wastewater Treatment Reticulation Network. Both figures were provided by the Far North District Council.

FIGURE 5-6: Number of New Connections to the East Coast Bays Wastewater Treatment Reticulation Network 2009 – 2019

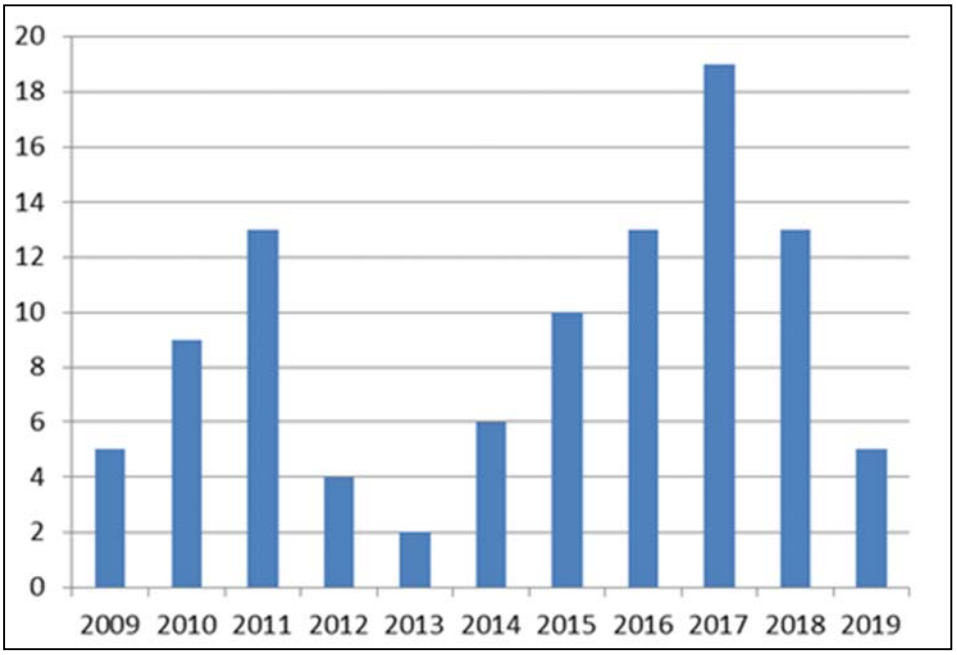
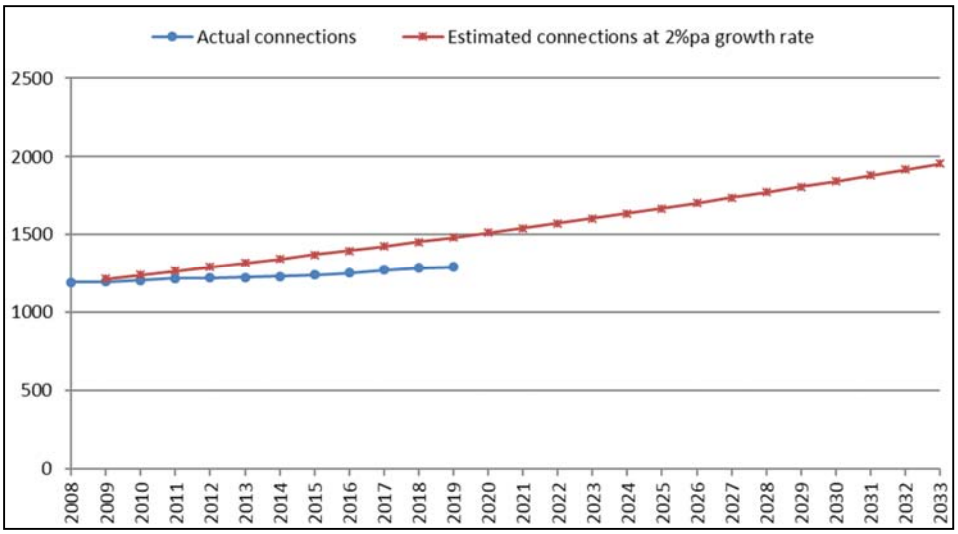


FIGURE 5-7: Actual Connections Versus Estimated Connections to the East Coast Bays Wastewater Treatment Reticulation Network 2008 – 2033



70. The following tables provide an overview of water quality monitoring data collected from NRC sampling sites 5939 (upstream of the discharge), 5940 (at the end of the farm drain) and 5941 (compliance monitoring site on the unnamed tributary of Parapara Stream.

TABLE 5-15: Sample Site 5939 – Quality of Water in the Unnamed Tributary of the Parapara Stream Upstream of the Discharge (August 2001 to November 2018)

	Dissolved Oxygen (g/m^3)	Faecal Coliforms (c/100mL)	NH_4-N (g/m^3)	pH	NH_4-N (g/m^3) pH adjusted
Median	6.30	600	0.03	6.16	0.01
Mean	5.90	1579	0.19	6.21	0.08
Minimum	1	10	0.00	5.20	0.002
Maximum	10.81	11100	10.00	8.28	3.57
5th percentile	1.88	60	0.01	5.64	0.00
20th percentile	3.00	180	0.01	5.84	0.00
80th percentile	8.51	1800	0.08	6.48	0.03
95th percentile	9.43	5800	0.84	7.14	0.34
Count	68	67	99	77	76

TABLE 5-16: Sample Site 5940 – Quality of Water at the end of the Discharge Drain, at the Confluence with Unnamed Tributary of Parapara Stream (February 2011 to February 2019)

	Dissolved Oxygen (g/m^3)	Faecal Coliforms (c/100mL)	NH_4-N (g/m^3)	pH	NH_4-N (g/m^3) pH adjusted
Median	5.37	730	1.65	6.60	0.58
Mean	5.66	3,245	4.32	6.70	2.36
Minimum	2.00	20	0.01	5.71	0.003
Maximum	10.29	111,000	19.00	8.10	14
5th percentile	2.39	100	0.02	5.95	0
20th percentile	3.18	204	0.18	6.12	0
80th percentile	7.98	2,780	10.20	7.25	5
95th percentile	9.05	5,855	15.00	7.67	10
Count	70	68	80	77	76

TABLE 5-17: Sample Site 5941 – Quality of Water in the Unnamed Tributary of Parapara Stream immediately Downstream of the Farm Drain Confluence (August 2001 to February 2019)

	Dissolved Oxygen (g/m^3)	Faecal Coliforms (c/100mL)	NH_4-N (g/m^3)	pH	NH_4-N (g/m^3) pH adjusted
Median	4.80	190	2.91	6.81	1.67
Mean	4.72	425	5.36	6.85	3.28
Minimum	0.30	10	0.01	5.70	0.00
Maximum	7.90	2200	24.00	8.13	17.24
5th percentile	0.34	25	0.01	6.05	0.06
20th percentile	1.64	56	0.43	6.40	0.49
80th percentile	6.56	528	9.06	7.15	4.83
95th percentile	7.68	1640	18.30	7.66	10.33
Count	9	11	148	110	109

71. The following figures and tables show trends for ammonia concentrations in the water upstream (Sample Site 5939) and downstream (Sample Site 5941) in the unnamed tributary that receives the treated wastewater

FIGURE 5-8: Sample Site: 5939 – Trend for NH_4-N in water flowing in the unnamed tributary of Parapara Stream upstream of the confluence of the farm drain and the stream (August 2001 to February 2019)

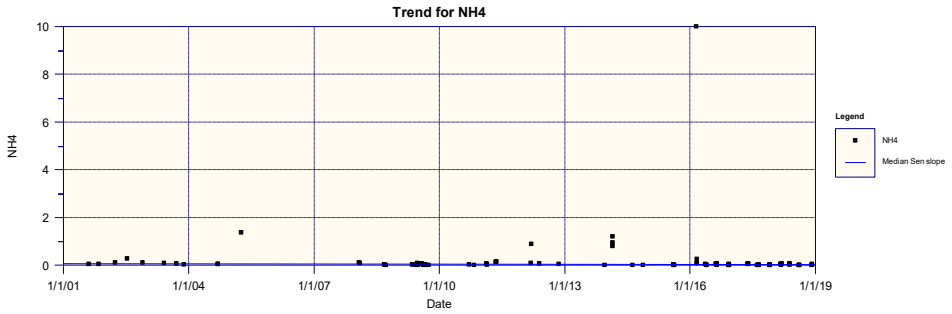


TABLE 5-18: Assessment of Trend using Seasonal Kendall Test and Slope Analysis

Sample Size	Median Sen Slope (annual)	Percent Annual Change	95% Confidence Limits for Slope	P	Trend Direction and Confidence
99	-0.002	-5.366	-0.003 to 0.000	0.000	Decreasing trend virtually certain

72. It is not clear why there is a decreasing trend for ammonia in the unnamed tributary upstream of where the treated wastewater enters. It could be due to dairy cattle being excluded from the stream or improved on-farm good management practices, for example.

FIGURE 5-9: (Sample Site 5941) Trend for NH_4-N in Water Flowing in the Unnamed Tributary of Parapara Stream Downstream of the Confluence of the Farm Drain and the Stream

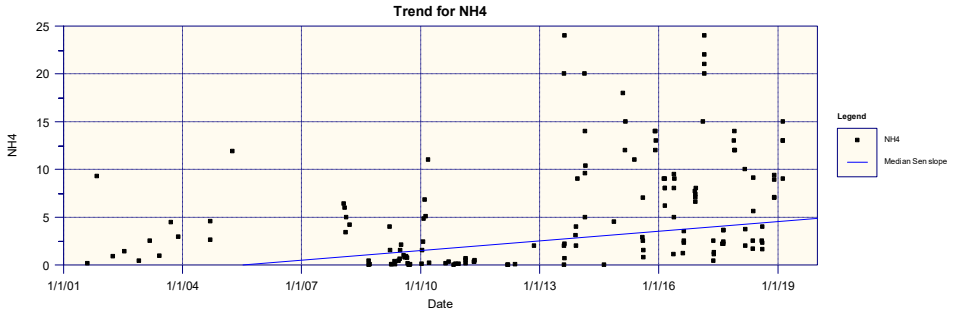


Table 5-18: Assessment of Trend using Seasonal Kendall Test and Slope Analysis

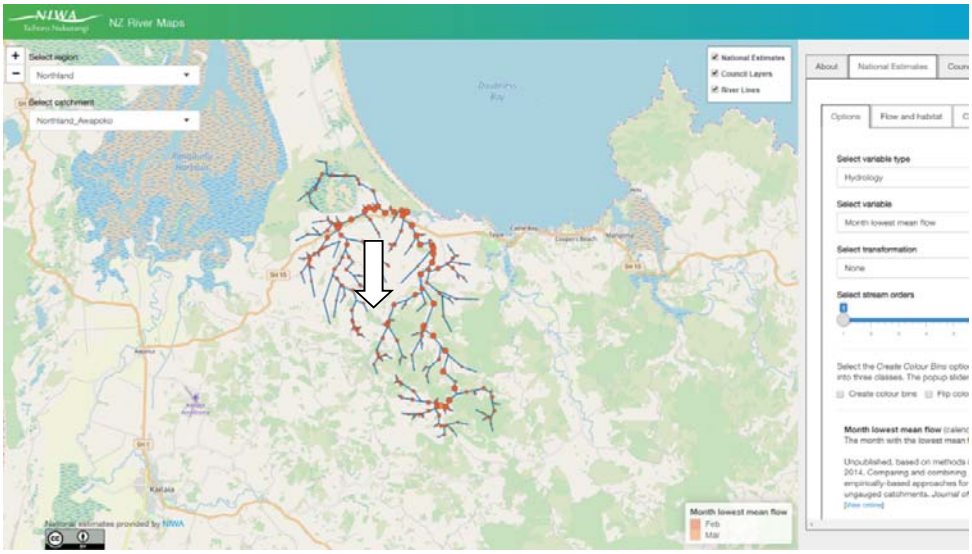
Sample Size	Median Sen Slope (annual)	Percent Annual Change	95% Confidence Limits for Slope	P	Trend Direction and Confidence
148	0.338	11.610	0.210 to 0.499	0.000	Increasing trend virtually certain

73. I estimated the effect of dilution on ammonia concentrations in fresh water downstream of the discharge during annual mean flow and February mean flow conditions (the month with the lowest mean flow).

74. I did this by using water quality monitoring data and the New Zealand River Maps web-based tool[20]. The tool is based on data available for version 1 of the River Environment Classification (REC1), which is a database of catchment spatial attributes, summarised for every segment in New Zealand's network of rivers. The REC1 representation of the Awapoko River Catchment, in which the constructed wetlands are situated, is shown in the following screenshot from New Zealand River Maps

20 https://www.niwa.co.nz/freshwater-and-estuaries/management-tools/new-zealand-river-maps

Figure 5-10: Screenshot of the REC1 representation of the Awapoko River Catchment in New Zealand River Maps. The dots are the midpoint of each river reach, and in this case the month of lowest mean flow (February). The white arrow shows the point of discharge.

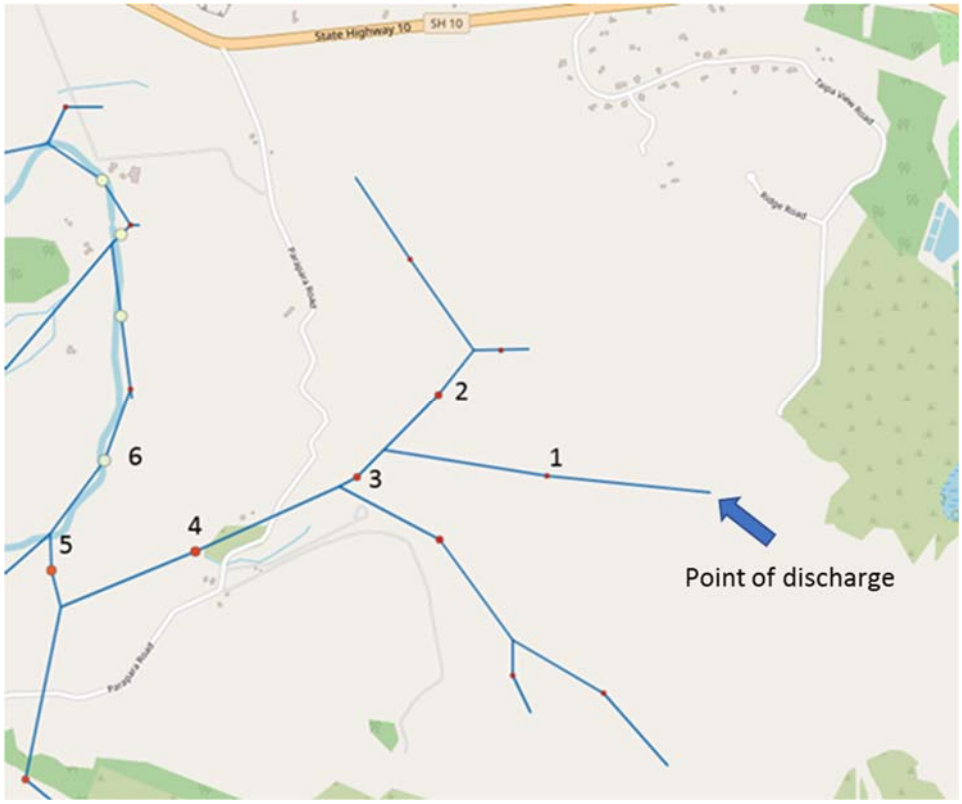


75. I obtained modelled data for the following variables at five river reaches downstream of the discharge and one upstream (see Figure 5-12 below):[21]

- Mean flow (m^3/s) – The mean flow over all time.
- February flow seasonality (unitless) – Mean flow in February divided by mean flow over all time. Provides an estimate of flow seasonality. Values lower than one indicates mean flow in February is less than overall mean flow.

21 Flow variable data is from Booker, D J, Whitehead, A L (2017). NZ River Maps: An interactive online tool for mapping predicted freshwater variables across New Zealand. NIWA, Christchurch. https://shiny.niwa.co.nz/nzrivermaps/

Figure 5-11: Screenshot from New Zealand River Maps showing the six reaches in relation to the discharge point (blue arrow).[22]



76. To calculate the mean flow in February, I multiplied the mean flow by the February flow seasonality value.

77. The dilution factors were derived using the mean flow, February mean flow, and the February mean discharge volume from the constructed wetlands (4.43 L/s). I then calculated the estimated total ammonia concentration at each reach by dividing the sum of the mean total ammonia concentration in the discharge and the modelled background total ammonia concentration in the receiving waters by the likely dilution factor. I did this for the mean flow and February mean flow at each site.

78. It is important to note that I relied on a combination of modelled and measured data. That said, it is useful to consider the broad findings rather than the absolute numbers. The results are set out in Table 5-19 below. Note that I did not compare the modelled results with monitoring data from downstream monitoring sites because the data is not representative. That is, they were obtained when the trigger values for suspended solids, BOD_5, ammoniacal nitrogen or faecal coliforms in the discharge were exceeded.

22 The circles on each reach represent the centre of an NZReach in Version 1 of the National River Network (River Environment Classification, RECv1). Each circle is coloured by the estimated value of the selected variable, indicated by the map legend.

Table 5-19: Discharge Volumes and Ammonia Concentrations (Sampling Site 1687)

Statistic
Mean discharge volume: 6.30 L/s or 0.0063 m³/s (Based on the available flow record – Feb 2010 – Feb 2019)
Mean February discharge volume: 4.43 L/s or 0.0044 m³/s (Based on the available flow record – Feb 2010 – Feb 2019)
Mean NH_4-N concentration: 13.67 g/m³ (February 2008 – Feb 2019)
80th percentile NH_4-N concentration: 20 g/m³ (February 2008 – Feb 2019)
95th percentile NH_4-N concentration: 29 g/m³ (February 2008 – Feb 2019)
Mean February NH_4-N concentration: 11 g/m³ (February 2008 – Feb 2019)
80th percentile February NH_4-N concentration: 20.6 g/m³ (February 2008 – Feb 2019)
95th percentile February NH_4-N concentration: 29 g/m³ (February 2008 – Feb 2019)

TABLE 5-20: Summary of Results

Variable	Reach					
	1	2	3*	4	5	6
Mean flow (m³/s)	0.0121	0.0217	0.0344	0.0660	0.1500	0.9020
February flow seasonality (unitless)	0.5770	0.7320	0.6630	0.5710	0.4870	0.4610
February mean flow (m³/s)	0.0070	0.0160	0.0230	0.0380	0.0730	0.4160
Modelled background median NH_4-N conc. (g/m³)	0.03	0.04	0.04	0.04	0.03	0.02
Likely dilution factor at mean flow	3.75	N/A	8.82	16	35.1	206
Estimated mean NH_4-N conc. (g/m³) at mean flow	3.65	N/A	1.55	0.86	0.39	0.07
Estimated 80th percentile conc. (g/m³) at the mean flow	5.52	N/A	2.27	1.25	0.57	0.10
Estimated 95th percentile conc. (g/m³) at the mean flow	7.74	N/A	3.29	1.82	0.83	0.14
Likely dilution factor at February mean flow	2.59	N/A	6.23	9.64	17.59	95.55
Estimated mean February NH_4-N conc. (g/m³) after dilution at mean February flow	4.26	N/A	1.77	1.15	0.63	0.12
Estimated 80th percentile conc. (g/m³) at the mean February flow	7.97	N/A	3.31	2.14	1.17	0.22
Estimated 95th percentile conc. (g/m³) at the mean February flow	11.2	N/A	4.66	3.01	1.65	0.30

* Location of the compliance site (Sample Site 1687)

79. The results suggest that the discharge is having a marked effect on ammonia concentrations in water at the compliance point in the unnamed tributary of Parapara Stream relative to guideline levels. I comment on the likely ecological effects resulting from elevated levels of ammonia in Section 7.

6. SECTION 104 OF THE RMA – CONSIDERING AN APPLICATION FOR RESOURCE CONSENT

80. For the benefit of people who submitted on the Far North District Council's resource consent application, Section 104 of the RMA requires the consent authority (in this case the Hearing Panel) to, when considering an application for a resource consent and any submissions received, have regard to any relevant provisions of:

- any actual and potential effects on the environment[23] of allowing the activity;
- 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;
- 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 proposed regional policy statement;
  - a plan or proposed regional plan; and
- any other matter the consent authority considers relevant and reasonably necessary to determine the application.

81. Section 104 also contains other direction to the Hearing Panel, including the requirement to have regard to the value of the investment that Far North District Council has in the East Coast Bays WWTP.

82. After considering the application for the resource consents to authorise the discretionary activities, the Hearing Panel may grant or decline the application pursuant to Section 104B of the RMA. If it grants the application, it may impose resource consent conditions under Section 108 of the RMA.

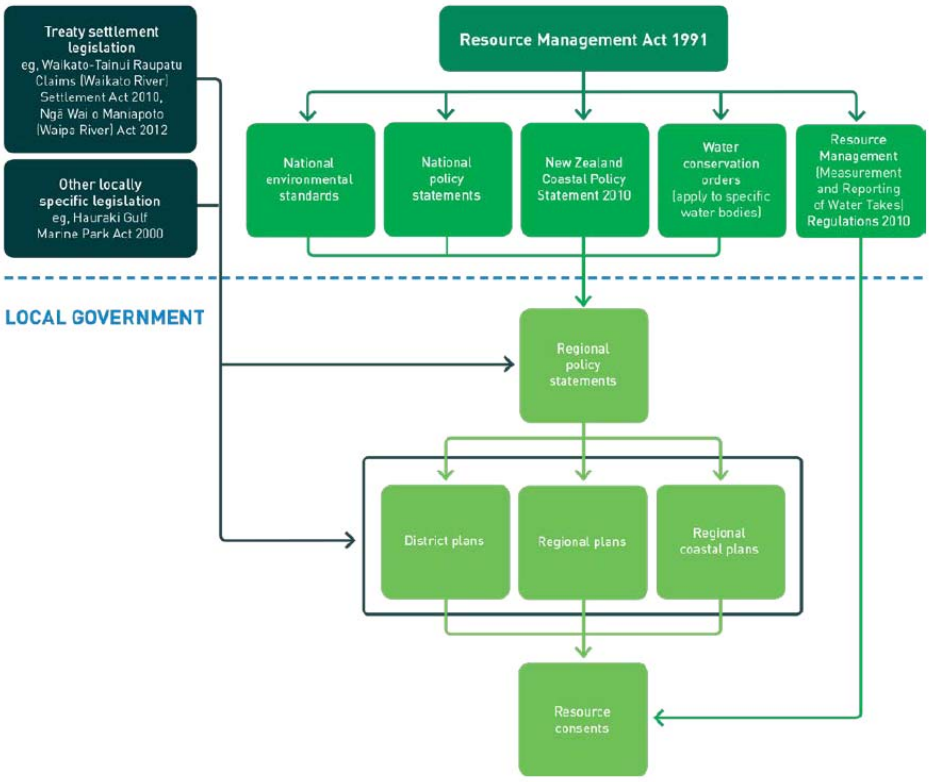
83. It is useful to note the relationships between the RMA and other associated national instruments and documents that influence the management of fresh water. Those relationships are shown below in the following figure.

84. Regional plans contain rules for discharges of contaminants into the environment. Rules either permit, prohibit, or require resource consents for discharges. Regional plans and higher order documents such as regional policy statements and national policy statements contain policy direction on the management of discharges into the environment.

---

23 It is useful to note that the RMA broadly defines the word "environment" to include:
(a) ecosystems and their constituent parts, including people and communities; and
(b) all natural and physical resources; and
(c) amenity values; and
(d) the social, economic, aesthetic, and cultural conditions which affect the matters stated in paragraphs (a) to (c) or which are affected by those matters.

Figure 6-1: Legislative and Regulatory Instruments that Influence the Management of Fresh Water[24]



85. There is much case law on Section 104 of the RMA. I briefly summarise a small but relevant, part of it. First, it is important to note that the directive "must have regard to" is not to be elevated to mean "must give effect to". Rather, "the requirement for the decision maker is to give genuine attention and thought to the matters set out in Section 104, but they do not have to accept them".[25]

86. Second, Section 104 does not give any of the matters that the Hearing Panel is required to have regard to primacy over any other matter. All matters are to be given such weight as the Hearing Panel sees fit in all the circumstances.[26]

87. Third, the Hearing Panel must have regard to all relevant provisions in higher order documents (regional and national policy statements), rather than rely on the assumption that the objectives and policies in regional plans give effect to higher order documents and in turn the direction in Part 2 of the RMA. That is because:[27]

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24 Reproduced from Ministry for the Environment. 2017. *A Guide to the National Policy Statement for Freshwater Management 2014 (as amended 2017).* Wellington: Ministry for the Environment.

25 Foodstuffs (South Island) Limited v Christchurch CC (1999) 5 ELRNZ 308; [1999] NZRMA 481 (HC).

26 Kennett v Dunedin CC (1992) 2 NZRMA 22 (PT).

27 Royal Forest and Bird Protection Society of New Zealand Incorporated vs Bay of Plenty Regional Council, 2017, NZHC 3080.

…there is a distinct risk that the intent and effect of higher order [documents] can be diluted or even lost, in the provisions of plans lower in the planning hierarchy. Put colloquially, the story can be lost in re-telling.

88. I understand that the weight given by consent authorities to higher order planning instruments will vary from case to case because of several factors.[28]

89. Lastly, the Hearing Panel must have regard to relevant objectives and policies in a proposed plan. In this case, the Proposed Regional Plan for Northland. The question of how much weight to give a proposed plan is a common question, which is ultimately a question for the decision maker to determine after having regard to the following case law principles:

(a) The extent that the plan has progressed through the plan-making process

(b) The extent that the proposed provision has been subject to independent testing or decision making

(c) Circumstances of injustice, and

(d) The extent to which a new provision, or the absence one, might implement a coherent patter of objectives and policies in a plan.

7. ASSESSMENT OF EFFECTS ON THE ENVIRONMENT

90. The proposal has both positive and negative effects on the environment.

7.1 Effects on the Relationship of Maori and their Culture with the Receiving Waters for the Discharge and their Ancestral Land

91. A significant concern that has been well articulated by many people is the effect the discharge of treated wastewater is having (and will have if the consent is granted as requested) on the relationship that Ngāti Kahu have with Parapara Stream and the downstream waters of the Awapoko River and Awapoko/Aurere Estuary. It is patently clear that the discharge to their waters is of a fundamental issue to Ngāti Kahu and also other members of the community.

92. Te Rūnanga-ā-Iwi o Ngāti Kahu explained in its submission that "Ngāti Tara (kaitiaki of the waterways, which includes Parapara Stream and Aurere) no longer feel assured of their wellbeing when collecting kaimoana from their rivers". It also questioned why the customary practices of "Ngāti Tara…and many thousands of people from the other 14 marae of Ngāti Kahu [who] have fished and collected shellfish from the Aurere for over 800 years" have not been protected.

[28] See Infinity Investment Group Holdings Limited v Canterbury Regional Council, 2017, NZEnvC 36, and R J Davidson Family Trust v Marlborough District Council [2016] NZEnvC 81.

93. Robin Oxborough's submission, which was widely endorsed and supported (including by Te Rūnanga-ā-Iwi o Ngāti Kahu), stated:[29]

> *In examining and discussing with some members of the hapū, the cultural issues in respect of this application are seen as being:*
>
> - *Kaitiakitanga and Tangata Whenua values being adversely effected, disregarded and marginalised.*
> - *Impact on customary and traditional activities such as fishing and gathering.*
> - *Adverse effects on the mauri of the waterways through discharges which overload the waterways of phosphates and nitrates and diminish the life-giving capacity of the waterways both indigenous and exotic.*
> - *Historical, spiritual and cultural insensitivity and adverse effects.*
> - *Failure to consult with Mana Whenua effectively.*
> - *AEE does not identify nor investigate all the adverse effects from the activity and thus fails to address genuinely held concerns by iwi and hapū.*
> - *High risk of pollution.*
> - *Potential Health risks associated with customary and traditional harvesting practices.*
> - *Potential to destroy, damage and degrade sites of cultural, historical, spiritual significance to our people.*

94. Robin Oxborough then described in detail how the proposal affects kaitiakitanga, mana whenua, mauri, and kaimoana. He then concluded by stating:

> *We, the hapū understand that this matter is not ours alone and acknowledge that the wider community is also affected.*
>
> *Although the hapū of this rohe find the act of discharging wastewater into waterways (treated or untreated) as repulsive, we understand that development is inevitable. Therefore by using the RMA as a tool and identifying the provisions relevant to this situation, we the hapū want to assist the applicant to find mutually beneficial solutions to this dilemma.*
>
> *We cannot support the application in its current form.*

95. Ngāti Kahu identified many issues associated with the proposal. Some relate to actual and potential adverse effects on the ecological health of the Parapara Stream and downstream waters, and on human health. I look at them now.

---

29 Robin Oxborough. 10 August 2010. Submission on Far North District Council's application for resource consent.

7.2 Effects on Aquatic Ecosystems

7.2.1 Nature of the Receiving Environment

96. The treated wastewater is discharged into a drain, which was probably constructed to replace an intermittent stream/wetland at some point in time. The drain connects to an unnamed tributary of the Parapara Stream. The immediate receiving environment (being the farm drain and the unnamed tributary) appear to have low ecological value due to the nature of the surrounding land use, lack of adequate riparian vegetation, and flow conditions. Wildland Consultants Limited assessed the receiving environment in 2014/2015 and concluded:[30]

> *The Taipā WWTP discharge empties into a drain and stream that flow through a highly modified catchment. In addition to the wastewater discharge, run-off of stock effluent into the waterways, grazing along the banks of the watercourses, and a lack of overhead shade are likely to contribute to poor water quality in the receiving environment. Overall, the ecological values of the receiving watercourses, relative to other streams in the Far North District, are low.*
>
> *The aquatic habitats of the receiving environment are subject to pronounced seasonal change. During the wetter winter months, the discharge is diluted in the receiving environment by the combined flows of other drains and streams. Under these conditions the discharge flow path, the receiving drain, and the stream further down in the catchment support populations of at least three indigenous fish species: common bully, inanga, and longfin eel. Other species, such as banded kokopu, are also likely to either be resident, or migrate through these reaches as they move between the sea and headwater streams. Two of these fish species, inanga and longfin eel, are classified as "At Risk-Declining" (Goodman et al. 2014). These species are still widespread, but numbers are in decline nationally due to factors such as overfishing, habitat degradation and loss, and migration barriers. The Parapara Stream and its tributaries therefore provide habitat, at least during the wetter winter months, for at least two indigenous freshwater fish species of conservation concern. During the drier summer months, when the discharge accounts for most, if not all, of the flow in the receiving drain and stream, water quality is fair or poor and fish populations are much reduced. Whilst two indigenous fish species, inanga and shortfin eel, persist in the receiving environment during summer low flows, few were seen or caught during the February survey. Based on the MCI scores for the three sites sampled in February 2015, water quality, and associated aquatic habitat values, decline from the compliance point in a downstream direction. This is likely to be attributable to grazing of the banks of the watercourse by cattle, and potential input of effluent from a dairy shed oxidation pond.*

30 Tim Martin et al. April 2015. Ecological Assessment of the Compliance Point for the Taipā Wastewater Treatment Plant Discharge, Taipā. Prepared by Wildland Consultants Limited for Far North District Council. Contract Report No. 3458. Page 5.

97. I visited the site in April 2019 and generally concur with Wildland Consultants' findings. It may also be correct that factors such as grazing of banks and dairy effluent are adversely affecting MCI scores, water quality and downstream habitat values. However, I consider that elevated levels of ammonia in the stream caused by the discharged effluent from the WWTP are most likely to be the main reasons for poor water quality and aquatic ecosystem health, especially during summer when flows are low. As an aside, I understand that the farm on which the dairy effluent pond is situated is no longer a dairy farm.[31]

7.2.2 Key Contaminants in the Discharge

98. Treated wastewater can affect the quality of water and the health of aquatic ecosystems and species, and other water quality related values and uses. From an ecosystem health perspective, the following water quality parameters are normally the main 'contaminants'[32] of concern:

- Temperature
- pH
- BOD
- Dissolved oxygen
- Suspended solids
- Heavy metals
- Nutrients (nitrogen and phosphorus)
- Ammonia
- Nitrate

99. Pond and wetland treatment systems are normally reasonably good at balancing pH and temperature. This is reflected in the water quality monitoring for each of the treatment stages (see Section 5).

100. Pond systems are also good at removing BOD. The supporting information to the Far North District Council's resource consent application states that "[i]t is assumed that the BOD removal after the aerated ponds will be 70%". The constructed wetlands will remove more BOD. The discharge quality monitoring results show this to be true: median and mean BOD concentrations in the discharge are 14 g/m³ and 15.4 g/m³ respectively (January 2008 – February 2019). The 95th percentile was 31.6 g/m³.

101. BOD is calculated for a five-day period, i.e. the effect of five days residence time in a water body. However, the distance from the point of discharge to ocean is only approximately nine kilometres, so biochemical oxygen demand is unlikely to be an issue as the discharge would have entered Doubtless Bay within five days, and oxygen concentrations in the discharge and at downstream locations are satisfactory.

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31 Rachel Anderson, Farm Dairy Effluent Monitoring Manager, NRC, pers. comm., May 2019.

32 The RMA defines a contaminant to include "any substance (including gases, odorous compounds, liquids, solids, and micro-organisms) or energy (excluding noise) or heat, that either by itself of in combination with the same, similar, or other substances, energy, or heat (a) when discharged into water, changes or is likely to change the physical, chemical, or biological condition or water…"

102. Suspended solids are also not an issue given the multiple treatment steps and the concentration in the discharge (median: 20 g/m³, mean: 24.7 g/m³, 95th percentile: 58.4 g/m³). That is, a mean daily discharge volume (544 m³/day) will deliver approximately 11 kg to the receiving water, a trivial load compared to land and streambank erosion in the catchment.

103. Heavy metal concentrations in the discharge are low relative to the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC Guidelines) trigger values for slightly-moderately disturbed systems, except for copper which appears to be slightly above the guideline value.

104. As pointed out by VK Consulting Environmental Engineers Limited in the RMA Section 92 response, nutrient loads from the WWTP are very small relative to the total catchment loads.[33] I agree with this conclusion and consider that nutrient loads from the WWTP are unlikely to be materially affecting the trophic state of the Parapara Stream, Awapoko River and Awapoko/Aurere Estuary. The stream and river are soft bottomed so are unlikely to support conspicuous periphyton, and the relationship between macrophyte biomass and dissolved nutrient concentrations is complex (as I understand aquatic plants generally obtain nitrogen and phosphorus through their roots). The Estuarine Trophic Index (ETI)[34] predicts that the Awapoko Estuary is susceptible to nuisance macroalgae (but not phytoplankton) as a consequence of, among other things, high nitrogen loads from the catchment. However, I am not aware of any information on nuisance macroalgae in the estuary.

105. I consider that ammonia is the main contaminant of interest in the discharged wastewater in relation to aquatic ecosystem health. Concentrations of ammonia in the discharge are often very high relative to water quality guidelines and the "national bottom lines" in the National Policy Statement for Freshwater Management 2017.

106. The National Policy Statement for Freshwater Management requires regional councils to, through discussions with communities, including tangata whenua, establish numeric freshwater quality objectives (effectively water quality standards) for a range of attributes (measurable characteristics of fresh water, including physical, chemical and biological properties, which support particular values). The numeric objectives must reference a particular attribute state for each attribute. The freshwater objectives must be set at least within the same attribute state as existing water quality, and the numeric objectives cannot be set below the national bottom lines. The attribute and attribute states for ammonia in Appendix 2 of the national policy statement are reproduced below (see Table 7-1). I understand that the numeric attribute states were derived using data for the most sensitive aquatic species.

33 Stephan Kreegher. April 2009. East Coast Bays Wastewater Treatment System Resource Consent 4007 Renewal. Response to Section 92. Prepared for Far North District Council by VK Consulting Environmental Engineers Limited. Appendix B.

34 https://shiny.niwa.co.nz/Estuaries-Screening-Tool-1/

107. The Northland Regional Council has stated that it intends to notify a regional plan change to include numeric freshwater objectives, and other freshwater quality provisions to give effect to the National Policy Statement for Freshwater Management, in 2021. **It is important to note that until that time the attribute states in the National Policy Statement for Freshwater Management are expressed as freshwater quality objectives in a regional plan they have no legal effect.** However, they do provide relevant reference points in relation to assessing the actual or potential adverse effects of ammonia and nitrate in the discharge. I comment on the planning provisions in Section 8 of this report.

TABLE 7-1: Attribute Table for Ammonia (reproduced from Appendix 2 of the NPSFM)

Value	Ecosystem health		
Freshwater Body Type	Lakes and rivers		
Attribute	**Ammonia (Toxicity)**		
Attribute Unit	mg NH_4-N/L (milligrams ammoniacal-nitrogen per litre)		
Attribute State	**Numeric Attribute State**		**Narrative Attribute State**
	Annual Median*	**Annual Maximum***	
A	≤0.03	≤0.05	99% species protection level: No observed effect on any species tested
B	>0.03 and ≤0.24	>0.05 and ≤0.40	95% species protection level: Starts impacting occasionally on the 5% most sensitive species
C	>0.24 and ≤1.30	>0.40 and ≤2.20	80% species protection level: Starts impacting regularly on the 20% most sensitive species (reduced survival of most sensitive species)
National Bottom Line	**1.30**	**2.20**	
D	>1.30	>2.20	Starts approaching acute impact level (ie risk of death) for sensitive species

* Based on pH 8 and temperature of 20°C.

Compliance with the numeric attribute states should be undertaken after pH adjustment.

108. Figure 7-1 below shows the ammoniacal nitrogen data for the period August 2001 to February 2019 with respect to the 'national bottom lines' for ammoniacal nitrogen.

109. I estimated the annual median and annual maximum ammoniacal nitrogen concentrations in the discharge necessary to at least meet the 'national bottom lines' for ammoniacal nitrogen at Sampling Site 5941 (the compliance point). I did this by using the following equations based on the dilution mixing assessment in Section 5.2 (note that the NH_4-N concentrations are not pH adjusted).

Annual median 1.30 NH_4-N g/m³ = x/likely dilution factor at mean flow

∴ x = 1.30 NH_4-N g/m³ x 8.8 = 11.4 NH_4-N g/m³

Annual maximum 2.20 NH_4-N g/m³ = x/likely dilution factor at February mean flow

∴ x = 2.20 NH_4-N g/m³ x 6.2 = 13.7 NH_4-N g/m³

110. It is useful to compare these results with ammoniacal nitrogen statistics for the period January 2008 – February 2019:

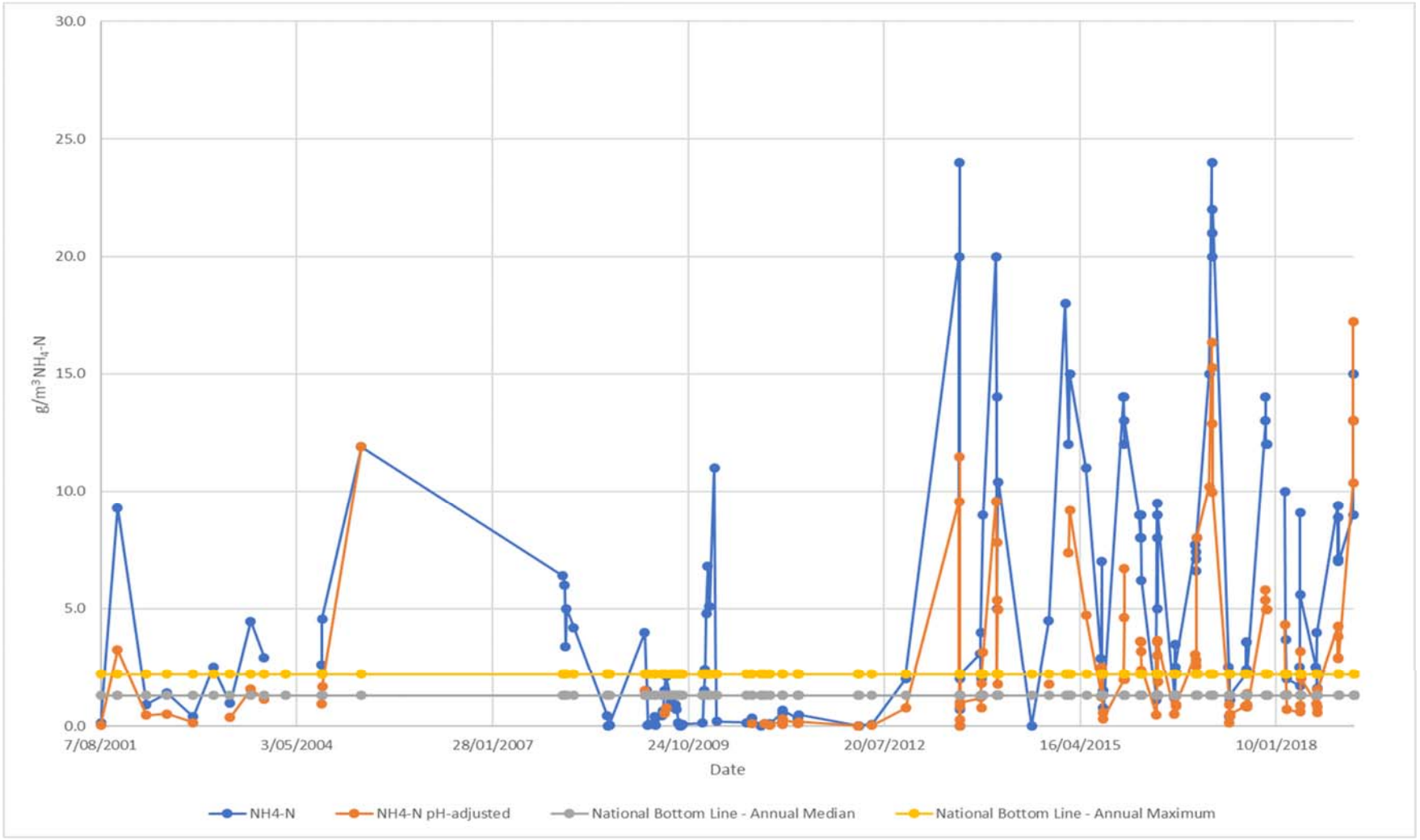
- Mean NH_4-N (g/m³): 11.0
- Median NH_4-N (g/m³): 9.0
- 80th percentile NH_4-N (g/m³): 20
- 95th percentile NH_4-N (g/m³): 29
- Maximum NH_4-N (g/m³): 34

111. The findings suggest that ammoniacal nitrogen levels in the discharged treated wastewater cause what would be deemed an appropriate maximum water quality standard to be exceeded at the current compliance point.

112. The mixing zone could be extended to provide for more dilution, but I do not think that would be appropriate. It would be a retrograde step, particularly because ammonia levels in the discharge appear to be increasing over time.

113. I consider that that the WWTP should be upgraded to reduce ammonia levels in the treated effluent. If a resource consent was to be granted then it should stipulate that the quality of the discharge should not compromise the 'national bottom line' for ammonia at the current compliance point (Sampling Site 5941).

Figure 7-1: Measured total ammonia concentrations (unadjusted and adjusted for pH) at Sample Site 5941 compared to 'national bottom lines' for total ammonia in the National Policy Statement for Freshwater Management 2017.



7.3 Effects on Human Health Associated with Contact Recreation and Food Gathering

114. Treated wastewater can contain faecal pathogens (viruses, protozoa, bacteria and helminths that can cause people to get sick because of consuming them).

115. As mentioned above, the Northland Regional Council asked the Far North District Council to provide, pursuant to Section 92 of the RMA, further information to address the regional council's concern about the effects that the discharge may have on the receiving environment, including the unnamed tributary that receives the discharge, the Parapara Stream, the Awapoko River, and ultimately the coastal water adjacent to Aurere Beach. Specifically:

> *[NRC's] specific concern relates to the effects this discharge may have on the receiving environment, including the unnamed tributary that receives the discharge the Parapara Stream, the Awapoko River and ultimately the coastal water adjacent to the Aurere Beach.*
>
> *We consider that additional information is needed to help establish what risk the discharge from the East Coast Bays Wastewater Treatment Plan poses, current and at your forecast discharge rate of 1,570 m³/d, to users of the receiving waters. The risk assessment may include, but not be limited to, the use of the receiving waters for:*
>
> - *Stock drinking;*
> - *Contact recreation;*
> - *Food gathering; and*
> - *Shellfish gathering.*
>
> *The risk assessment should include the public health risk posed by the discharge, in particular from pathogens in the wastewater, and the risk of the discharge causing adverse effects on the environment, either from particular contaminants (e.g. Ammonia) of cumulative effects (e.g. nutrients and heavy metals).*

116. In response to the RMA Section 92 information request, a report prepared by the district council's consultant (VK Consulting Environmental Engineers Limited, or VKCEE) stated:[35]

> *Firstly it must be noted that the successful collection and treatment of wastewater in a controlled reticulated sewerage scheme has successfully eliminated many diseases which have been prevalent within communities. No longer are septic tank based systems suitable for urbanised communities and territorial authorities must ensure that the wastewater is successfully collected and treated.*

117. It is a valid statement as the alternative of not providing a community wastewater treatment and disposal system is significantly inferior from an environmental, social, economic, cultural and health and safety point-of-view.

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35 Stefan Kreegher. April 2009. East Coast Bays Wastewater Treatment System Resource Consent 4007. Response to Section 92. Prepared for Far North District Council by VK Consulting Environmental Engineers Limited.

118. VKCEE then assessed potential health risks by using faecal coliform and *E.coli* concentrations in the discharge and downstream receiving environments. The company concluded by stating, among other things:[36]

> 1. *The current wastewater treatment plant does not pose a risk in terms of stock water, as the faecal coliform monitoring results are within the acceptable range for stock drinking at the discharge point itself, without any allowance being made for reasonable mixing at the compliance point.*
>
> 2. *Based on the NRC monitoring the tributary of the Parapara Stream **upstream** of the discharge point does not comply with the MfE guidelines for shellfish growing waters in terms of faecal coliforms, but Iwi have indicated that the closest shellfish are at Aurere Beach which is approximately 9 km downstream. The discharge of treated effluent does have a slight effect on the level of faecal coliforms with a slight increase after mixing.*
>
> 3. *Recent monitoring by the FNDC (Jan-Feb 2009) indicates that the median level of faecal coliforms in the discharge is comparable to the background site at the Taumata Rd Bridge, but not as good as the background site at Parapara Rd Bridge. The levels of faecal coliform gradually decrease as the water flows through the catchment and at the Aurere Estuary the levels are below 100cfu/100ml. The monitoring undertaken indicates that overall the discharge of wastewater is not having a significant effect on the catchment in terms of faecal coliforms and that faecal coliforms are naturally occurring in the catchment as demonstrated by the levels at the background sites of Taumata Rd Bridge and State Highway 10 Bridge.*
>
> 4. *The treatment plant currently poses an acceptable risk in terms of contact recreation with regards to the median results for E. coli. Discharge monitoring shows median E coli levels are compliant with the contact recreation standards in the RWSP. There are, however, some samples which have exceeded the allowable maximum for a designated bathing area. It must be noted that these are samples at the **discharge**, not after reasonable mixing. The additional monitoring carried out in January and February 2009 indicates that the levels of E coli within the catchment are high even at background sample sites and that the discharge is not having an adverse effect on the levels of E coli within the catchment.*

119. It is important to consider direction in the Microbiological Water Quality Guidelines for Marine and Freshwater Recreation Areas and the New Zealand Municipal Wastewater Monitoring Guidelines: [37]

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36 Stefan Kreegher. April 2009. East Coast Bays Wastewater Treatment System Resource Consent 4007. Response to Section 92. Prepared for Far North District Council by VK Consulting Environmental Engineers Limited. Page 13.

37 Ministry for the Environment. 2003. Microbiological Water Quality Guidelines for Marine and Freshwater Recreation Areas.

[The Microbiological Water Quality Guidelines for Marine and Freshwater Recreation Areas] cannot be directly used to determine water quality criteria for wastewater discharges because there is the potential for the relationship between indicators and pathogens to be altered by the treatment process. The relationship between indicator bacteria and disease-causing bacteria, viruses and protozoa in the discharge need to be established.

And: [38]

Although a useful monitoring tool, it must be recognised that indicator bacteria have some significant weaknesses as indicators of risk to human health. In some circumstances indicator organisms may not reflect the risk from pathogens, e.g.:

- *If the treatment system removes indicator bacteria in preference to viruses and protozoa (e.g. chlorination). The relationship between indicator bacteria and pathogens should be established for the effluent discharge if possible.*
- *If there is an outbreak of disease in the community (e.g. virus) the increased concentration of viruses may not be reflected by an increased concentration of the indicator bacteria, which generally occur at fairly consistent concentrations.*
- *Where the water quality of the receiving water is greatly influenced by faecal point source.*

120. I am not qualified to comment on the risks that the discharged treated wastewater poses to the health of people coming into contact with downstream waters. However, based on the technical advice in the cited document, I do not think that *E.coli* and faecal coliforms should be used to assess the potential risks of treated wastewater to human health.

121. While I understand that pathogen removal in the pond and wetland system is relatively good, due to microbial predation and the action of UV light (in sunlight), I am not aware of any quantitative microbial risk assessment of the discharge and downstream waters. I consider that unless a dedicated pathogen disinfection device is installed in the treatment system then there will always be a residual but not insignificant risk to human health associated with ingesting receiving waters or shellfish in them.

122. I am also very aware that the issue of actual and potential risks to human health is a fundamental concern to Ngāti Kahu and the wider community.

123. I consider that the Far North District Council has two options to address this issue:

(1) obtain a microbial risk assessment from a person(s) specialising in faecal pathogen risks; or,

[38] New Zealand Water Environment Research Foundation.2002. New Zealand Municipal Wastewater Monitoring Guidelines.

(2) upgrade the WWTP by adding a disinfection device. It is not clear to me though if the transmittance of the wastewater is conducive to effective UV treatment.

7.4 Effects on Amenity Values

124. By their nature, wastewater treatment and disposal systems have the potential to affect amenity values by discharging nuisance or objectionable odour, reduce the recreational water quality opportunities, and impact visual amenity.

125. While I understand that the discharge from the WWTP is affecting the relationship and interaction of people, particularly of Ngāti Kahu, have with downstream waters, I am not aware of any nuisance odour or visual amenity issues.

7.5 Positive Effects on the Environment

126. As pointed out earlier, the WWTP was constructed to reduce risks to human health and aquatic ecosystems, address amenity issues and provide economic benefits. Using the language of the RMA, the WWTP (including the discharge from it) "enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety".

127. Section 104(1)(ab) requires the Hearing Panel 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. It is not clear to me if the Far Northland District Council has proposed such a measure(s).

8. ASSESSMENT OF RELEVANT PLANNING PROVISIONS

128. The Far North District Council has applied for resource consents to authorise discharges to land and water pursuant to rules in the Regional Water and Soil Plan (RWSP), and discharges to air pursuant to a rule in the Regional Air Quality Plan (RAQP).

129. As highlighted above, the Hearing Panel is required to have regard to relevant objectives and policies (provisions) in the RWSP, the RAQP, the Proposed Regional Plan (PRP), the Regional Policy Statement (RPS) and the National Policy Statement for Freshwater Management (NPSFM).

130. In this section, I identify and comment on relevant provisions in the policy statements and plans. I start with the plans and then finish with higher order documents. I think that it is not necessary to consider Part 2 of the RMA in the context of the Far North District Council's resource consent application. That is because I think that the Part 2 matters have been adequately dealt with by the provisions in the RWSP, RAQP, RPS and NPSFM.

8.1 Regional Water and Soil Plan for Northland

131. The RWSP contains provisions (objectives and policies) on how applications for resource consents should be prepared and considered. I consider that several provisions relating to:

(a) the recognition and provision for Maori and their culture and traditions;

(b) water quality management; and

(c) discharges are relevant to the Far North District Council's resource consent application.

8.1.1 The Relationship of Maori and their Culture with Natural and Physical Resources

132. Objective 6.3.1 and policies 6.4.1 – 6.4.4 are specific to the management Northland's natural and physical resources in a way that respects the relationship tangata whenua has with them.

133. Objective 6.3.1 is:

> *The management of the natural and physical resources within the Northland region in a manner that recognises and provides for the traditional and cultural relationships of tangata whenua with the land and water.*

134. The objective embodies Section 6(e) of the RMA – the requirement to recognise and provide for the relationship of Maori and their culture and traditions with their ancestral lands, water, wāhi tapu, and other taonga.

135. Policies 6.4.1 – 6.4.4 set out how this is to be done in Northland. The emphasis is on gaining an understanding, and as far as practicable, providing for the concerns and perspectives of tangata whenua regarding the disposal of waste into water, including by having particular regard to kaitiakitanga and options for the involvement of tangata whenua in monitoring the use, development and protection of resources within the region.

136. The discharge of wastewater into water is considered to be culturally abhorrent in Maori culture, i.e. tapu. And there is a reason for this, it presents risks to human health when drinking, swimming in, or harvesting and eating plants and animals from fresh and coastal waters. It also affects the mauri of water (the "life-force" or "energy" of the environment), and in turn the ability mana to flow into the world through tapu and mauri.[39]

137. Most of the submissions on the Far North District Council's resource consent application raised the fact that the current and ongoing discharge of treated wastewater to water in the Awapoko Catchment was unacceptable from a Maori cultural perspective and, also, people in the wider community.

8.1.2 Water Quality Management

138. Objective 7.4.1 and policies 7.5.1 – 7.5.7 establish the framework for the maintenance and enhancement of Northland's freshwater quality.

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39 https://teara.govt.nz/en/te-ao-marama-the-natural-world/page-5

139. Objective 7.4.1 is:

> *The maintenance or enhancement of the water quality of natural water bodies in the Northland region to be suitable, in the long-term, and after reasonable mixing of any contaminant with the receiving waters and disregarding the effect of any natural events, for such purposes listed below as may be appropriate:*

TYPE OF WATER BODY	***PURPOSES***
Lakes, rivers, streams –	*aquatic ecosystems, contact recreation, water supplies, aesthetic and cultural purposes*
Freshwater wetlands –	*Aquatic ecosystems, cultural purposes*
Groundwater, potentially usable –	*Water supply, protection of uses of receiving water body*
Other groundwater –	*Protection of uses of receiving water body*

140. Policies 7.5.1 – 7.5.7 provide direction on how the quality of fresh water in lakes, rivers and streams should be managed. Direction includes: not allowing the quality of fresh water to be reduced unless it is consistent with the purposes of the RMA to do so (largely repeating Section 69(3) of the RMA) and to not grant a resource consent if it will cause certain affects (also largely repeating Section 108 of the RMA, which I address later in this report). That said, three policies, set out below, are worth closer attention.

141. Policy 7.5.3 states:

> *Until such time as the classification system referred to in Policy 7.05.02 is introduced, when processing applications for discharge permits, the council will have regard to:*
>
> *(a) Existing water quality and uses of the subject water body.*
>
> *(b) Community aspirations for future use of the water body (as expressed in submissions on consent applications);*
>
> *(c) Opportunities for enhancement of water quality;*
>
> *(d) Relevant water quality guidelines (refer also Methods 7.06.07 to 7.6.10).*

142. The existing water quality in the Parapara Stream is affected by contaminants in the treated wastewater and from point and diffuse sources in the catchment. The key contaminants of concern are elevated levels of fine sediment, nutrients (nitrogen and phosphorus) and *E.coli* (an indicator of the presence of faecal pathogens). It is clear, from submissions, that the community want better water quality in Parapara Stream and Awapoko River so as to improve the ecological health and mauri of the waters and reduce risks to human health.

143. The Far North District Council has demonstrated that the WWTP is responsible for only a small part of the total nitrogen load in the catchment. However, the ammoniacal nitrogen levels downstream are high relative to guideline levels for ecological health. The discharge does not appear to be affecting dissolved oxygen, pH or temperature in the receiving waters, and the discharged load of suspended sediment is likely to be trivial with respect to the load from erosion

in the catchment. Similarly, I expect that the load of *E.coli* from the WWTP will pale in comparison with the load from the catchment.

144. The Far North District Council has explored, but not committed to, upgrading the WWTP in order to reduce ammonia levels in the discharge and disinfect the treated wastewater to reduce risks to human health from pathogenic organisms. I consider that an upgrade would be needed for the discharge to meet the relevant water quality guideline for ammonia in method 7.6.7.

145. Policy 7.5.5 states:

> *When determining what constitutes a reasonable mixing zone, the council will take into account:*
>
> *(a) The characteristics of the discharge and the sensitivity of the receiving water;*
>
> *(b) The assimilative capacity of the receiving water body;*
>
> *(c) The proximity and effects of other discharges;*
>
> *(d) The proximity of, and likely effects on, downstream uses;*
>
> *(e) The desirability of keeping the mixing zone as small as practicable;*
>
> *(f) The availability and cost-effectiveness of current treatment technology.*

146. The existing resource consent for the discharge provides for an approximately 900 metre-long mixing zone. The Far North District Council is required to comply with water quality standards that apply at NRC Sample Site No.5941. See Figure 8-1 below.

FIGURE 8-1: Compliance Point (blue arrow) at NRC Sample Site 5941

147. With regard to policy 7.5.5, I consider that the existing mixing zone is appropriate given the nature and volume of the discharge and the sensitivity of the farm drain into which the treated wastewater is discharged. Wildland Consultants Limited also supports retaining the existing compliance point. The company reached the conclusion after assessing alternative ammonia compliance points. It stated:[40]

> *An ideal compliance point would have the following characteristics: permanent flow, populations of species sensitive to ammonia toxicity, and only receiving ammonia from the WWTP discharge. No alternative site met all of these requirements. Any compliance point located further downstream would be subject to fluctuations in ammonia concentrations sourced from the WWTP, the adjacent dairy farm, and dairy oxidation ponds.*

148. If the sought consent is to be granted, I recommend that the mixing zone is not increased.

149. Policy 7.5.7 states:

> *To manage water bodies which are recognised by an iwi authority, or any judicial authority to be a taonga of special significance, having particular regard to those cultural values and traditional uses.*

150. It is not clear to me if the Parapara Stream and downstream waters are recognised as a taonga of special significance. It may be useful to look at the explanation to the policy:

> ***Explanation:*** *The Act provides, in the Third Schedule, for waters to be managed for cultural purposes.*
>
> *A water body will be considered to be a significant taonga where its status is established by an iwi authority or any judicial authority including the Environment Court, Waitangi Tribunal and Maori Land Court.*
>
> *Identification of these water bodies and if appropriate the creation of rules for their management will need to be undertaken by iwi authorities in consultation with the Regional Council, landowners and district councils.*

151. That said, I understand from submitters and reading the history of the WWTP that the area where it is sited, including the waters within it, are highly valued by Ngāti Kahu. It stands to reason that particular regard should be had the cultural values and traditional uses associated with waters to which treated wastewater is discharged into.

8.1.3 Discharges

152. Section 8 of the RWSP addressed point source discharges. The relevant provisions in the section are objectives 8.6.1 and 8.6.2, and policy 8.7.2.

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40 Tim Martin., et al. April 2005. Ecological Assessment of the Compliance Point for the Taipā Wastewater Treatment Plant Discharge, Taipā. Prepared for Far North District Council by Wildland Consultants Limited. Contract Report No. 3458.

153. Objectives 8.6.1 and 8.6.2 are:

> *The effective treatment and/or disposal of contaminants from new and existing discharges in ways which avoid, remedy or minimise adverse effects on the environment and on cultural values.*
>
> *The reduction and minimisation of the quantities of contaminants entering water bodies, particularly those that are potentially toxic, persistent or bio-accumulative.*

154. Policy 8.7.2 is:

> *To require by the year 2004 or according to an upgrading programme established as part of the conditions on a discharge permit all existing discharges of sewage or discharges with a high organic content be:*
>
> *(a) By land disposal; or*
>
> *(b) To water, if after reasonable mixing:*
>
> *(c) it does not cause a discernible adverse change in the physiochemical and/or microbiological water quality of the receiving water at the time of the discharge; and*
>
> *(d) it is the best practicable option (as defined by Section 2 of the Act).*[41]

155. On the face of it the policy is clear. However, the explanation introduces some confusion where it states: "Discharges existing before the notification of this document [April 1995] will be required to be upgraded over a period of time as decided by the council through its Annual Plan process". It appears to me that the policy is to be implemented "…annually during the Regional Council' Annual Plan process following discussions with territorial authorities and other consent holders".[42]

156. Regardless the purpose of the objectives and policy is to improve the level of treatment of wastewater and other discharges with high organic content, with an additional emphasis on discharging treated effluent to land.

8.2 Regional Air Quality Plan for Northland

157. The RAQP for Northland contains objectives and policies relating to discharges of contaminants into air. Earlier in this report I concluded that odour generated at the WWTP is not having adverse effects (in terms of offence or objectionable odour) on people beyond the boundary of the site. I consider that the proposal is not contrary to the relevant provisions in the RAQP, and therefore it is not necessary for comment on the provisions.

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41 The RMA defines as "in relation to a discharge of a contaminant or an emission of noise, means the best method for preventing or minimising the adverse effects on the environment having regard, among other things, to—
(a) the nature of the discharge or emission and the sensitivity of the receiving environment to adverse effects; and
(b) the financial implications, and the effects on the environment, of that option when compared with other options; and
(c) the current state of technical knowledge and the likelihood that the option can be successfully applied.

42 Method 8.8.4 (see also methods 8.10.1).

For ease of reference, the relevant provisions are:

- Objectives 6.6.1 – 6.6.3
- Policies 6.7.1 – 6.7.3, and 6.15.1

8.3 Proposed Regional Plan for Northland

158. The PRP was notified in 2017. It contains objectives and policy direction specific to the management of freshwater quality and associated values. Submissions on the PRP were heard by the Independent Hearing Panel in 2018 and the Northland Regional Council accepted and adopted the recommendations of the Hearing Panel on 16 April 2019. The council's decisions version of the plan was publicly notified on 4 May 2019. The PRP contains water quality objectives and policy direction on the management of discharges and water quality. I briefly comment on the relevant objectives and policies below.

159. I think that it is important to highlight again that the Hearing Panel needs to consider case law on how to weight provisions in a proposed plan when having regard to policies in the PRP.

8.3.1 Water Quality Management

160. Objective F.1.2 and policies D.4.5, D.4.7A, D.4.8, and H.5.1 are relevant to the FNDC's resource consent application.

161. Objective F.1.2 is to:

> *Manage the use of land and discharges of contaminants to water so that:*
>
> *(1) existing overall water quality is at least maintained, and improved where it has been degraded below the river or lake water quality standards set out in Appendix H.5 Water Quality Standards and Guidelines, and*
>
> *(2) the sedimentation of continually or intermittently flowing rivers, lake and coastal water is minimised, and*
>
> *(3) the life-supporting capacity, ecosystem processes and indigenous species, including their associated ecosystems, of fresh and coastal water are safeguarded, and*
>
> *(4) the health of people and communities, as affected by contact with fresh and coastal water, is safeguarded, and*
>
> *(5) the health and safety of people and communities, as affected by discharges of sewage, is safeguarded, and*
>
> *(6) the quality of potable water drinking water sources, including aquifers used for potable supplies, is protected, and*
>
> *(7) the significant values of outstanding freshwater bodies and natural wetlands are protected, and*
>
> *(8) kai is safe to harvest and seat, and recreational, amenity and other social and cultural values are provided for.*

162. The objective is consistent with other regional and national policy direction on maintaining and improving water quality, safeguarding the health of aquatic ecosystems, protecting the health of people as affected by contact with water, and providing for other water quality dependent values.

163. Policy D.4.5 states:

> *When considering an application for a resource consent to discharge a contaminant into water:*
>
> *(1) have regard to the need to maintain the overall quality of water including the receiving water's physical, chemical and biological attributes and associated water quality dependent values, and*
>
> *(2) have regard to the coastal sediment quality guidelines in [Appendix] H.5 'Water quality standards and guidelines', and*
>
> *(3) generally not grant a proposal if it will, or is likely to, exceed or further exceed a water quality standard in [Appendix H.5] 'Water quality standards and guidelines'.*

164. The analysis of ammoniacal nitrogen levels in the discharge between 1996 and 2019 revealed a statistically strong increasing trend which, if it continues, is unlikely to maintain the overall quality of water and associated aquatic ecosystem health in the receiving environment. It is not clear what is causing the increasing trend.

165. Policy H.5.1 in Appendix H.5 sets out the water quality standards for rivers, as follows:

> *The water quality standards in Table 20 'Water quality standards for ecosystem health in rivers' apply to Northland's continually or intermittently flowing rivers, and they apply after allowing for reasonable mixing.*

Table 20: Water quality standards for ecosystem health in rivers

Attribute	*Unit*	*Compliance metric*	*Outstanding Rivers*	*Other Rivers*
Nitrate (toxicity)	*mg NO_3-N/L*	*Annual median*	*≤1.0*	*≤1.0*
		Annual 95th percentile	*≤1.5*	*≤1.5*
Ammonia (toxicity)	*mg NH_4-N/L*	*Annual median*	*≤ 0.03**	*≤0.24**
		Annual maximum	*≤ 0.05**	*≤0.40**
Temperature	*mg/L*	*Summer period measurement of the Cox-Rutherford Index (CRI), averaged over the five (5) hottest days (from inspection of a continuous temperature record).*	*≤ 20^{o}C*	*≤ 24^{o}C*
Dissolved oxygen	*mg/L*	*7-day minimum*	*≥ 8.0*	*≥ 5.0*
		1-day minimum	*≥ 7.5*	*≥ 4.0*
pH		*[missing text]*	*6.5 < pH < 8.0*	*6.0 < pH <9.0*

**Based on pH 8 and temperature of 20 degrees Celsius. Compliance with the water quality standard should be undertaken after pH adjustment.*

166. The median and maximum ammonia (NH_4-N) concentrations as the end of the zone of reasonable mixing (NRC Sample Site 5941) are significantly higher than the water quality standards. The discharge does not appear to be breaching any of the other water quality standards. Simply put, to comply with the water quality standard for ammonia the zone of reasonable mixing will need to be extended (to allow for further dilution by catchment runoff) or the WWTP upgraded. Bearing in mind, again, that the water quality are proposed provisions that are not currently (at the time of writing this report) subject to appeals.

167. Policy D.4.7A states:

> *An application for resource consent to discharge municipal, domestic, horticultural or farm wastewater to water will generally not be granted unless:*
>
> *(1) the storage, treatment and discharge of the wastewater is done in accordance with recognised industry good management practices, and*
>
> *(2) a discharge to land has been considered and found not to be economically or practicably viable.*

168. I understand that the Far North District Council has investigated land disposal options but have not decided to obtain land. On the face of it, the costs of securing land will potentially be cost prohibitive and that suitable land may not exist in the proximity of the WWTP. That is, discharging treated wastewater from the WWTP to land is unlikely to be economically or practicably viable.

169. Policy D.4.8 states:

> *When determining what constitutes the zone of reasonable mixing for a discharge of a contaminant into water, or onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of a natural process from that contaminant) entering water, have regard to:*
>
> *(1) using the smallest zone necessary to achieve the required water quality in the receiving waters as determined under Policy D.4.5, and*
>
> *(2) ensuring that within the mixing zone contaminant concentrations and levels of dissolved oxygen will not cause acute toxicity effects on aquatic ecosystems.*
>
> ***Note:*** *See also the definition of zone of reasonable mixing.*

170. The zone of reasonable mixing is defined in the plan as:

> *For the purpose of a discharge of a contaminant permitted by a rule in this Plan:*
>
> *(1) in relation to flowing surface water bodies, a distance downstream of the point of discharge that is the lesser of:*

(a) 200 metres if the bed width of the surface water body is greater than 30 metres at the point of discharge, or

(b) a distance equal to seven times the bed width of the surface water body, but which must not be less than 50 metres from the point of discharge, or

(2) in relation to a lake, wetland or coastal water, a distance 20 metres from the point of discharge.

…

For the purpose of activities that require resource consent, the zone of reasonable mixing will be determined consistent with (1) or (2) above unless the nature or scale of the discharge requires that a case-by-case basis determination is more appropriate, in which case the extent of departure from the zone defined under (1) or (2) above will be determined in accordance with Policy D.4.4 Zone of reasonable mixing.

171. As discussed, the current mixing zone appears to be reasonable given the nature and volume of the discharge. However, the discharge is compromising the water quality standards for ammonia in the PRP at the end of the mixing zone and levels of ammonia in the discharge are likely to be causing acute toxicity effects in the zone of reasonable mixing.

8.3.2 The Relationship of Maori and their Culture with Natural and Physical Resources

172. The PRP contains objectives and policies that provide direction on how resource consent applications for activities that will have adverse effects on tangata whenua and their taonga should be prepared and assessed.

173. The objectives are about recognising and providing for tangata whenua's kaitiaki role in decision making about the use, development and protection of natural and physical resources (F.1.8) and protecting the values of places of significance to tangata whenua in freshwater bodies and the coastal marine area from inappropriate use and development (F.1.11).

174. Policies D.1.1 – D.1.5 direct how this is to be done. Policy D.1.1 states that a "resource consent application must include in its assessment of environmental effects an analysis of the effects of an activity on tangata whenua and their taonga if one or more of certain outcomes are to occur. It is not clear if the proposal will cause any of the listed events, but it is important to note that the FNDC lodged its application for resource consents almost 10 years before the PRP was notified by the NRC. Therefore, in effect, it is not relevant.

175. This is also the case with respect to policy D.1.2, which sets out the requirements for an assessment of effects on tangata whenua and their taonga if required by policy D.1.1, and D.1.3, which states who must be considered an affected person regarding notification where the adverse effects on tangata whenua and their taonga are minor or more than minor.

176. Policy D.1.4 is relevant, however, in that it states that a "Resource consent for an activity may generally only be granted if the adverse effects from the activity on the values of Places of Significance to Tangata Whenua in the coastal marine area and water bodies are avoided, remedied or mitigated so they are not more than minor".

177. Policy D.1.5 of the PRP sets out criteria by which a Place of Significance to Tangata Whenua is defined. For completeness, the policy states:

> *For the purposes of this Plan, a place of significance to tangata whenua:*
>
> *(1A) is in the coastal marine area, or in a water body, where the values which may be impacted are related to any of the following:*
>
> *(a) soil conservation, or*
>
> *(b) quality and quantity of water, or*
>
> *(c) aquatic ecosystems and indigenous biodiversity, and*
>
> *(1) is:*
>
> *(a) a historic heritage resource, or*
>
> *(b) ancestral land, water, site, wāhi tapu, or other taonga, and*
>
> *(2) is either:*
>
> *(a) a Site or Area of Significance to Tangata Whenua, which is a single resource or set of resources identified, described and contained in a mapped location, or*
>
> *(b) a Landscape of Significance to Tangata Whenua, which is a collection of related resources identified and described within a mapped area, with the relationship between those component resources identified, and*
>
> *(3) has one or more of the following attributes:*
>
> *(a) historic associations, which include but are not limited to:*
>
> *(i) stories of initial migration, arrival and settlement, or*
>
> *(ii) patterns of occupation, including permanent, temporary or seasonal occupation, or*
>
> *(iii) the sites of conflicts and the subsequent peace-making and rebuilding of iwi or hapū, or*
>
> *(iv) kinship and alliances built between areas and iwi or hapū, often in terms of significant events, or*
>
> *(v) alliances to defend against external threats, or*
>
> *(vi) recognition of notable tupuna, and sites associated with them, or*

(b) traditional associations, which include but are not limited to:

(i) resource use, including trading and trading routes between groups (for instance – with minerals such as matā/obsidian), or

(ii) traditional travel and communication linkages, both on land and sea, or

(iii) areas of mana moana for fisheries and other rights, or

(iv) use of landmarks for navigation and location of fisheries grounds, or

(v) implementation of traditional management measures, such as rāhui or tohatoha (distribution), or

(c) cultural associations, which include but are not limited to:

(i) the web of whanaungatanga connecting across locations and generations, or

(ii) the implementation of concepts such as kaitiakitanga and manākitanga, with specific details for each whanau, hapū and iwi, or

(d) spiritual associations which pervade all environmental and social realities, and include but are not limited to:

(i) the role of the atua Ranginui and Papatūānuku, and their offspring such as Tangaroa and Tāne, or

(ii) the recognition of places with connection to the wairua of those with us and those who have passed away, or

(iii) the need to maintain the mauri of all living things and their environment, and

(4) must:

(a) be based on traditions and tikanga, and

(b) be endorsed for evidential purposes by the relevant tangata whenua community, and

(c) record the values of the place for which protection is required, and

(d) record the relationship between the individual sites or resources (landscapes only), and

(e) record the tangata whenua groups determining and endorsing the assessment, and

(f) geographically define the areas where values can be adversely affected.

178. While I understand that the Parapara Stream and the Awapoko River to which it flows are ancestral waters draining ancestral land, it is not obvious to me if they are a Site of Significance to Tangata Whenua.

179. However, the thrust of the policy direction is that a "resource consent for an activity may generally only be granted if the adverse effects from the activity on the values of Places of Significance to Tangata Whenua in the coastal marine area and water bodies are avoided, remedied or mitigated so they are not more than minor".

8.3.3 Sustainable Management of Natural and Physical Resources in the Doubtless Bay Catchment

180. The PRP contains an objective (E.1.1) and an accompanying policy (E.2.1) about the sustainable management of natural and physical resources in the Doubtless Bay Catchment. The objective and policy have their origins in a non-statutory catchment management plan produced by the Doubtless Bay Catchment Group, with the support of the NRC, in 2017.

181. The Catchment Group, which comprised people representing a range of interests in freshwater management, was formed in 2013 to identify solutions to water quality and quantity issues in the catchment. The catchment plan sets out the issues identified by the group and its objectives for water quality and quantity in the Doubtless Bay catchment. It includes a range of methods to achieve the outcomes sought.

182. Objective E.1.1 is to:

> *Recognise the following values in the Doubtless Bay, Waitangi, Poutō, Mangere and Whangārei Harbour catchments:*
>
> *(1) cultural and recreational uses associated with fresh and coastal waters, and*
>
> *(2) the ability to gather mahinga kai, and*
>
> *(3) the natural character of waterbodies and their margins, and*
>
> *(4) the quality of habitat for aquatic native species, and*
>
> *(5) access to freshwater for productive uses.*

183. The values listed in Objective E.1.1 are very much in the front of my mind and the Hearing Panel and are covered in this report.

184. Policy E.2.1 directs decision makers to:

> *When considering resource consent applications in the Doubtless Bay, Waitangi, Poutō, Mangere and Whangārei Harbour catchments, have regard to the following:*
>
> *(1) reducing the amount of sediment entering waterways from hill slope and stream-bank erosion, and*

(2) improving the quality of fresh and coastal water for cultural and recreational uses, particularly contact recreation and the ability to gather mahinga kai, and

(3) protecting the ecosystem health and natural character of freshwater bodies, particularly outstanding lakes, and

(4) enabling the extraction and use of freshwater where this will not compromise other values or exceed a minimum flow or level, or an allocation limit.

185. There is clear policy direction in E.2.1 and other policies in the PRP and RWSP on improving, or at least not degrading, the quality of water for various water quality related uses and values, particularly sociocultural, ecological and recreation values.

8.3.4 Regionally Significant Infrastructure

186. The PRP contains provisions about regionally significant infrastructure and how applications for resource consents relating to regionally significant infrastructure should be considered. The PRP classifies the WWTP as regionally significant infrastructure.

187. Objective F.1.5 and policies D.2.2C – D.2.2DB are about recognising the benefits of regionally significant infrastructure and enabling its development, operation, maintenance, repair, upgrading and removal.

188. I identified and discussed the benefits of the social, economic, cultural and environmental benefits of the WWTP in Section 8.6 of this report. In terms of 'enabling' policy in the PRP, I consider that policies D.2.2D and D.2.2DA are not relevant. That is because they are specific to proposals that will have or are likely to result in minor adverse effects. In my view, the Far North District Council's proposal will have significant adverse effects on the ecological health of the receiving environment, the relationship of Ngāti Kahu with their ancestral land and waters, and potential risks to human health.

189. Policy D.2.2DB directs decision makers to "have regard to and give appropriate weight to" a range of matters "[w]hen considering the appropriateness of a regionally significant infrastructure activity in circumstances where adverse effects are greater than envisaged in Policies D.2.2D and D.2.2DA. Relevant matters include:

- the benefits of the activity;
- any demonstrated functional need for the activity;
- the extent to which any adverse environmental effects have been avoided, remedied or mitigated by route, site or method selection;
- any operational, technical or location constraints that limit the design and location of the activity, including any alternatives that have been considered which have proven to be impractical, or have greater adverse effects;
- whether the activity is for regionally significant infrastructure which is included in Schedule 1 of the Civil Defence Emergency Management Act as a lifeline utility and meets the reasonably foreseeable needs of Northland; and

- the extent to which the adverse effects of the activity can be practicably reduced, inclusive of any positive effects and environmental offsets proposed.

190. Again, I believe that I have addressed these matters in other sections of this report. So, I go no further.

8.4 Regional Policy Statement for Northland

191. The RPS provides an overview of the significant resource management issues of Northland and contains policies and methods to achieve integrated management of the natural and physical resources of the Northland region. It also contains objectives that are sought to be achieved by the policies and methods. The RPS was notified after the Far North District Council lodged the resource consent application.

192. I briefly comment on the provisions in the RPS that are relevant when considering the Far North District Council's application for resource consent for the discharges.

8.4.1 Water Quality Management

193. Objective 3.2 is to:

> *Improve the overall quality of Northland's fresh and coastal water with a particular focus on:*
>
> *(a) Reducing the overall Trophic Level Index status of the region's lakes;*
>
> *(b) Increasing the overall Macroinvertebrate Community Index status of the region's rivers and streams;*
>
> *(c) Reducing sedimentation rates in the region's estuaries and harbours;*
>
> *(d) Improving microbiological water quality at popular contact recreation sites, recreational and cultural shellfish gathering sites, and commercial shellfish growing areas to minimise risk to human health; and*
>
> *(e) Protecting the quality of registered drinking water supplies and the potable quality of other drinking water sources.*

194. It is important to note that the explanation to the objective states:

> *On its own the objective does not require that water quality be improved in every water body. It will be implemented primarily through regional plans by way of objectives for fresh and coastal water quality and policies and methods to achieve them.*

195. I addressed the relevant provisions in the PRP above. Objective 3.2 is to be achieved by the following policy (4.2.1):

> *Improve the overall quality of Northland's water resources by:*
> *…*

(a) Establishing freshwater objectives and setting region-wide water quality limits in regional plans that give effect to Objective 3.2 of this regional policy statement;

(b) Reducing loads of sediment, nutrients, and faecal matter to water from the use and development of land and from poorly treated and untreated discharges of wastewater; and

(c) Promoting and supporting the active management, enhancement and creation of vegetated riparian margins and wetlands.

196. The PRP does not contain freshwater objectives, as defined in the National Policy Statement for Freshwater Management and freshwater quality limits. The Northland Regional Council has stated that it intends to include such provisions in its regional plan by way of a plan change in 2021. Clause (b) of the policy is relevant to the proposal. Clause (c) is not directly relevant to the Far North District Council's proposal.

8.4.2 Regionally Significant Infrastructure

197. The provisions in the RPS on regionally significant infrastructure have, in effect, been carried through (largely repeated verbatim) into the PRP. For this reason I am not going to comment further on the RPS provisions.

8.4.3 The Relationship of Māori and their Culture with Natural and Physical Resources

198. The following provisions are relevant when considering the Far North District Council's application for resource consent. I consider that they are covered by related provisions in the PRP and are like the related provisions in the RWSP.

199. Objective 3.12 is:

> *Tangata whenua kaitiaki role is recognised and provided for in decision-making over natural and physical resources.*

200. Policy 8.1.1 states:

> *The regional and district councils shall provide opportunities for tangata whenua to participate in the review, development, implementation, and monitoring of plans and resource consent processes under the Resource Management Act 1991.*

201. Policy 8.1.3 states:

> *The regional and district councils shall provide opportunities for the use and incorporation of Mātauranga Maori into decision-making, management, implementation, and monitoring of natural and physical resources under the Resource Management Act 1991.*

8.5 National Policy Statement for Freshwater Management

202. The NPSFM, which was first issued in 2011, amended in 2014 and again 2017, is an instrument under the RMA and must be interpreted and given effect to in within the context of the RMA. It was issued approximately three years after the Far North District Council lodged its application for resource consent for discharges from the WWTP.

203. The NPSFM directs regional councils to, among other things, make or change regional plans so that they contain freshwater objectives, fresh quality and quantity limits, and methods (including rules) to ensure that freshwater objectives are met and limits not breached.

204. Most of the policy direction in the NPSFM relates to the content of regional plans, the process by which they should be made or changed, and freshwater monitoring and accounting requirements. That said, several of the objectives of the NPSFM are relevant when considering applications for resource consents. I briefly comment on the relevant objectives and policies below.

205. Objective A1 is:

> *To safeguard:*
>
> *(a) the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems, of fresh water;*
>
> *(b) the health of people and communities, as affected by contact with fresh water.*

206. The objective speaks for itself.

207. Objective D1 is:

> *To provide for the involvement of iwi and hapū, and to ensure that tangata whenua values and interests are identified and reflected in the management of fresh water including associated ecosystems, and decision-making regarding freshwater planning, including on how all other objectives of this national policy statement are given effect to.*

208. Policy D1 states:

> *Local authorities shall take reasonable steps to:*
>
> *(a) involve iwi and hapū in the management of fresh water and freshwater ecosystems in the region;*
>
> *(b) work with iwi and hapū to identify tangata whenua values and interests in fresh water and freshwater ecosystems in the region; and*
>
> *(c) reflect tangata whenua values and interests in the management of, and decision-making regarding, fresh water and freshwater ecosystems in the region.*

209. While not legal direction, the Ministry for the Environment's guide to the NPSFM states the following:[43]

> *To 'take reasonable steps' anticipates local authorities will provide appropriate opportunities for the iwi and hapū to be involved in managing fresh water (including in implementing the NPS) based on current good practice. What constitutes reasonable steps will depend on the local context and available resourcing for both the council and iwi and hapū. Options beyond the RMA can be considered (e.g. Local Government Act committee arrangements or memoranda of understanding). Plan provisions may be necessary in some cases, particularly to ensure appropriate weight can be given to identified values.*
>
> *This policy does not override or alter any existing or future obligations local authorities have under Treaty settlements.*
>
> *Key words to consider in implementing this policy are:*
>
> ***Involve:** This policy does not dictate the form of iwi and hapū involvement in the management of and decision-making regarding fresh water. There is a range of ways iwi and hapū can be involved in the management of fresh water under existing legislation. Involvement may include consultation, but may also include other methods for iwi and hapū to participate in freshwater management. Methods can include, but are not limited to, joint management agreements, joint committees, decision-making roles, relationship agreements, and statutory acknowledgements.*
>
> ***Work with:** Policy D1 (b) clarifies that councils should work with iwi and hapū and should not identify values and interests on their behalf. Councils can work with iwi and hapū in a number of ways including, but not limited to:*
>
> - *engagement with iwi and hapū early in the freshwater planning process to identify locally relevant values for fresh water*
> - *seeking technical advice and input to inform plan or plan change preparation*
> - *commissioning reports from iwi or hapū*
> - *using mātauranga Māori to inform policy decisions*
> - *including members of relevant iwi or hapū on plan hearing committees.*

[43] Ministry for the Environment. 2017. A Guide to the National Policy Statement for Freshwater Management 2014 (as amended 2017). Wellington: Ministry for the Environment. Page88.

Reflect: *Policy D1 requires that local authorities do more than just have regard to tangata whenua values and interests in the management of and decision-making regarding fresh water and freshwater ecosystems. Policy-making needs to reflect tangata whenua values and interests and take them into account in freshwater management decisions. Councils need to be transparent in their decisions and demonstrate how they have reflected the values and interests. This can be documented through the Section 42A or 32 report.*

210. I believe that after the Far North District Council lodged its resource consent application, it took reasonable steps to involve and work with Ngāti Kahu in relation to its proposal to discharge treated wastewater to water from the WWTP. However, I believe that the applicant did not adequately address Ngāti Kahu values and interests in the management of and decision-making regarding fresh water and freshwater ecosystems downstream of the discharge.

8.6 Discussion

211. I consider that the current discharge and the proposal to continue discharging treated wastewater to water is likely to have significant adverse effects on certain freshwater species and broader ecosystem health downstream of the discharge because of elevated levels of ammonia (and potentially nitrate). There is also a residual but significant risk that the discharge may contain faecal pathogens that could enter the lower reach of the Awapoko River and adversely affect the health of people swimming or collecting shellfish from it.

212. I also recognise and appreciate the concern of many people in the local community that discharging wastewater to water is culturally and socially unacceptable, particularly to Ngāti Kahu.

213. Relevant provisions in plans and policy statements place emphasis on maintaining and improving water quality and recognising and providing for the relationship of Maori and their culture with natural and physical resources.

214. I believe that the concerns about the actual and likely adverse effects on the environment are real and must be addressed. The challenge is to determine how.

9. ASSESSMENT OF OTHER MATTERS

9.1 Alterative Locations and Methods

215. Clause 6(1)(d)(i) of Schedule 4 of the RMA requires the Far North District Council to include “a description of…any possible alternative methods of discharge, including discharge into any other receiving environment” in its assessment of environmental effects. Section 6(1)(a) states that the assessment must include a description of any possible alternative locations of methods for undertaking the activity if it is likely that the activity will result in any significant adverse effect on the environment.

216. The supporting information to the Far North District Council's resource consent application contains an assessment of several land disposal options for discharging the treated wastewater. The assessment concluded:

> *…that land disposal within the area of interest is not feasible due to a lack of suitable land". Therefore, at this stage of the investigation, the Best Practicable Option for disposal of effluent from the East Coast Bays Wastewater Treatment Plant is to continue to discharge treated effluent to the tributary of the Parapara Stream.*[44]

217. I understand that the district council and its predecessor (Mangonui County Council) tried but were unable to find and secure suitable land to discharge the treated wastewater onto or into. Indeed, the current resource consent application was put on hold to allow it to find other land for disposal. Yet in the decade since, the district council has not been successful.

218. Considering this information, I agree that the best practicable option is to continue to discharge treated wastewater into the farm drain at the current location, primarily because of the affordability of a land disposal system that could replace the current discharge to water.

9.2 Section 105 of the RMA

219. Section 105(1) states:

> *(1) If an application is for a discharge permit or coastal permit to do something that would contravene Section 15 or Section 15(b), the consent authority must, in addition to the maters in 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 reasons for the proposed choice; and*
>
> *(c) any possible alternative methods of discharge, including discharge into any other receiving environment.*

220. I have addressed the matters in 105(1) in this report.

9.3 Section 107 of the RMA

221. Section 107 states:

> *(1) Except as provided in subsection (2), a consent authority shall not grant a discharge permit or a coastal permit to do something that would otherwise contravene section 15 or section 15A allowing—*
>
> *(a) the discharge of a contaminant or water into water; or*

[44] Stefan Kreegher. May 2008. East Coast Bays Wastewater Treatment System – Resource Consent 4007 Renewal. Supporting Information. Prepared for Far North District Council by VK Consulting Environmental Engineers Limited. Pages 30-31.

(b) a discharge of a contaminant onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water; … –

if, after reasonable mixing, the contaminant or water discharged (either by itself or in combination with the same, similar, or other contaminants or water), is likely to give rise to all or any of the following effects in the receiving waters:

(c) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials:

(d) any conspicuous change in the colour or visual clarity:

(e) any emission of objectionable odour:

(f) the rendering of fresh water unsuitable for consumption by farm animals:

(g) any significant adverse effects on aquatic life.

(2) A consent authority may grant a discharge permit or a coastal permit to do something that would contravene section 15 or section 15A that may allow any the effects described in subsection (1) if it is satisfied –

(a) that exceptional circumstances justify granting of the permit; or

(b) that the discharge is of a temporary nature; or

(c) that the discharge is associated with necessary maintenance.

(3) In addition to any other conditions imposed under this Act, a discharge permit or coastal permit may include conditions requiring the holder of the permit to undertake such works in such stages throughout the term of the as will ensure that upon the expiry of the permit the holder can meet the requirements of subsection (1) and of any relevant regional rules.

222. I consider that the proposal to keep discharging wastewater with the current level of treatment from the WWTP will contravene Section 107(1)(g). That is, it is likely to be having significant adverse effects on aquatic life beyond the proposed zone of reasonable mixing.

223. However, a case could be made that exceptional circumstance may justify granting of the permit. That being, if the consent to discharge treated wastewater to water was to be refused then the Far North District Council would be unable to legally operate the WWTP. That is not a realistic or desired outcome.

224. I believe that the alternative is to grant a resource consent subject to Section 107(2)(a) with conditions that will require the district council to upgrade the WWTP to reduce ammonia levels in the discharge and, if there are material risks to human health from the discharge, install a dedicated pathogen disinfection device.

10. CONCLUSION AND RECOMMENDATION

225. The history of the East Coast Bays WWTP is characterised by controversy, delay and cost.

226. The WWTP was commissioned in 1990. Discharges to air, land and water from the WWTP were authorised by Water Right 4007 under the Water and Soil Conservation Act 1973. The Water Right was to expire in 1996 but was replaced by Resource Consent 4007 under the RMA. It was then due to expire in 2001 and was renewed with an expiration date of 2008. The Far North District Council applied to the Northland Regional Council for a new resource consent to replace the existing resource consent shortly before the consent was due to expire in 2008. The district council requested and was given permission for the resource consent application to be put on hold so that it could consult with Ngāti Kahu and the wider community about alternative wastewater treatment options and methods of discharge (namely land disposal).

227. In March 2019, the Northland Regional Council decided that the Far North District Council had sufficient time to decide to upgrade the WWTP and/or find land to discharge treated effluent onto or into land and decided that the application should go to a formal hearing.

228. I have considered the application and all relevant associated information. I also analysed the discharge quality and flow data, and assessed the effects of the treated effluent on immediate receiving waters.

229. I am not concerned about discharges to air and land from the WWTP because I understand that, at the most, they will only be having minor adverse effects on the environment.

230. However, I am concerned about likely significant adverse effects of elevated levels of ammonia on the ecological health of the aquatic ecosystem of the unnamed tributary of Parapara Stream below the zone of reasonable mixing. I also have lingering concerns about the potential for any residual faecal pathogens in the treated wastewater to pose risks to the health of people recreating in or consuming shellfish from the Awapoko Estuary.

231. Most notably, and related to my two previous concerns, are the adverse effects the discharge of wastewater is having on the relationship of Ngāti Kahu and their culture and traditions with their ancestral waters. I also acknowledge that the discharge of wastewater to water is considered to be abhorrent under Maori custom, and to people of other cultures I add.

232. That said, I am cognisant that there is no obvious, albeit credible, immediate and secured, alternative that the Far North District Council has put forward. Indeed, the applicant has not amended its application since it was publicly notified, or formally committed to an alternative method of treatment and/or disposal.

233. I see parallels with the Environment Court's decision on Mahuta v Waikato Regional Council[45] which accepted that it must have regard to the effects of allowing the proposed discharges, given the association of tangata whenua with the Waikato River, in particular how the effects of the proposal may impact on the present and future relationship of the Tainui-Waikato people with that river. I consider that there will be an effect on the relationship of Ngāti Kahu with the receiving waters for the discharge, whether or not there is discernible effect on water quality from the discharge. That said, I consider that the magnitude of the adverse effect could potentially be reduced if the East Coast WWTP is upgraded to reduce the concentrations of ammoniacal nitrogen and any residual faecal pathogens in the discharge.

234. I consider that Northland Regional Council should grant Far North District a resource consent to discharge treated wastewater to water, and contaminants to land (seepage) and contaminants (odour) to air from the wastewater treatment system provided that, among other things, Far North District Council:

- upgrades the WWTP to reduce ammonia levels in the discharge; and
- commissions an independent person(s) qualified and specialising in faecal pathogen risk analyses to undertake a quantitative microbiological risk assessment of the level of risk that the treated wastewater poses to human health in the Awapoko River (and estuary); and
- if the person(s) who undertakes the microbial risk assessment finds that it is likely that the discharge is likely to pose a risk to human health, installs a dedicated pathogen disinfection system device at the WWTP to avoid risks to human health.

235. I believe that it is unnecessary to impose interim discharge and receiving water quality standards. That is, it would be redundant to require the Far North District Council to comply with discharge and receiving water quality standards between the commencement of the resource consent and the upgrading of the WWTP. The quality of the effluent is unlikely to change significantly during the period, provided the WWTP is well maintained and operated.

[45] Mahuta v Waikato RC EnvC A091/98.

APPENDIX 1: SUMMARY OF SUBMISSIONS

The following table contains a summary of the submissions to the Northland Regional Council on the Far North District Council's resource consent application. I have endeavoured to accurately summarise each submission but there may be gaps.

Date Received	Name of Submitter	Oppose/ Support	Wish to be heard	Issues of Concern	Relief Sought
05.08.2010	Ian Francis Burke	Neutral	Heard	Potential seepage of from the WWTP to Taipā River and Ryders Creek.	▪ Suggests intensive planting of flaxes and other native vegetation and trees around the unnamed tributary to which the WWTP discharges. ▪ Requests discharge quality standards for nitrate (2 mg/L), faecal coliforms (100/100 mL), phosphorus (0.05 mg/L) and dissolved oxygen (>80% saturation). ▪ In time, eliminate the discharge to water.
06.08.2010	Director-General of Conservation	Oppose	Heard	▪ Adverse effects of poorly treated wastewater on water quality and freshwater habitats and species. ▪ The proposal may not be the best practicable option in order to meet the water quality classification and standards for the receiving environments. ▪ The discharge standards and monitoring regime are inadequate, e.g. monitoring results do not demonstrate compliance with previous Condition 2(e) [ammonia]. ▪ The assessment of alternatives if flawed because it does adequately address land disposal options. ▪ The expired consent conditions should not be relied on to provide consent conditions and the conditions relating the mixing zone are too uncertain to be effective. ▪ The treatment system should have adequate buffering to allow flow balancing (therefore it is not necessary to set the discharge volume in terms of dry weather flows).	Decline granting a resource consent unless consent conditions are proposed that: ▪ do not set the discharge volume as dry weather flow, ▪ if the best practicable option includes a continued discharge of treated wastewater to the Parapara Stream, set appropriate enforceable end of pipe standards for the discharge to meet the water quality purposes the Parapara Stream is being managed for, including aquatic ecosystem protection, and ▪ set a robust monitoring programme including the use of pre-defined monitoring dates and time.

Date Received	Name of Submitter	Oppose/ Support	Wish to be heard	Issues of Concern	Relief Sought
17.08.2010	Far North Environment Centre	Oppose	Heard	▪ The WWTP has not been non-compliant with the resource consent's conditions on nutrient concentrations. ▪ Disposal of treated wastewater to water is considered abhorrent by Maori and causes concern in the whole community particularly that the discharge threatens important kaimoana beds at Taipā estuary and Aurere estuary. ▪ The community and local hapū need/want to be better informed about the state of receiving waters and contamination threats to human health.	"That the following conditions be accepted and implemented, they are that: ▪ The Consent Holder shall work within a five year period starting immediately to eliminate all wastewater discharges into waterways associated with the WWTP or put in place alternative solutions that are acceptable to the hapū that will give effect to this outcome by July 2015. ▪ The Consent Holder shall work with hapū on this consent to identify issues that adversely effects [sic] the hapū ensuring that (Part 2 RMA) is given effect and (Part 2 sec6 (e) (g) RMA) recognises and provides for the matters of National Importance as highlighted. ▪ The consent shall include the need for a working relationship with the local community and more importantly hapū representatives to ensure compliance with all legislative requirements are enacted. ▪ The Consent Holder shall monitor all aspects of the discharges on a weekly basis on a broader scale (which is yet to be defined) in partnership with the hapū and community. This shall include monitoring shellfish. ▪ The Consent Holder shall increase the existing level of discharge standards considerably (as they are considered too lenient) in partnership with the hapū and annually, increase these levels whilst ensuring on-going compliance. ▪ In partnership with the hapū and approved community representatives manage the process and operation of the East Coast Bays Wastewater Treatment System including details such as pond size(s), monitoring and desludging."

Date Received	Name of Submitter	Oppose/ Support	Wish to be heard	Issues of Concern	Relief Sought
					The submitter also requested the following discharge quality standards: ▪ The maximum concentration of nitrate shall not exceed 2 mg/L NO_3-N. ▪ The median concentration of faecal coliforms shall not exceed 100/100 mL, and the 80th percentile concentration shall not exceed 500/100 mL, based on not fewer than five samples taken over any 30 day period. ▪ The amount of BOD_5 shall not exceed 20 mg/L. ▪ The amount of Phosphorus shall not exceed 0.05 mg/L. ▪ The dissolved oxygen concentration shall not be reduced below 80% saturation. ▪ The total ammonia concentration shall not exceed the RWSP standard. The submitter also requested that: ▪ The Consent Holder in partnership with a community management team shall include an independent laboratory for monitoring the discharge of wastewater and the conditions in the stream on a weekly basis. ▪ The dissolved oxygen concentration in all the primary and secondary treatment ponds shall not fall below 3.0 grams per cubic metre. ▪ The dissolved oxygen concentration at the discharge point of the wetland shall not fall below 6.0 grams per cubic metre. ▪ The Consent Holder shall in partnership with an independent laboratory, the community management team and operating contractors, optimise the present operation and management of the existing wastewater plant.

Date Received	Name of Submitter	Oppose/ Support	Wish to be heard	Issues of Concern	Relief Sought
					▪ The Consent Holder shall within the next nine months, in partnership with the community management team and an independent laboratory, investigate alternative solutions for the additional treatment of the plant.
03.08.2010	Rachel Harris	Oppose	Heard	▪ No upgrading of the WWTP to allow for additional development. ▪ There is a lack of tuna/eels available in the Parapara Stream. ▪ There is no watercress available. ▪ Pollution of the Aurere Beach – contaminated shellfish. ▪ Risks to human health when swimming in the stream. ▪ Odour. ▪ No consultation.	To not grant the consent.
03.08.2010	Caroline Holloway	Oppose	Heard	▪ Discharges of wastewater to water (treated and untreated) are culturally abhorrent to Ngāti Kahu iwi and the hapū. ▪ The discharge is having a detrimental impact on how Tangata Whenua and the community provide for their social and cultural wellbeing and health and safety. ▪ The proposal fails in the protection of recognised customary activity which includes Tangata Whenua exercising their kaitiaki role and is blatant disregard to the relationship that Maori have with their ancestral lands, water, sites, wāhi tapu and other taonga. ▪ The discharge is impacting on customary and traditional activities such as fishing and gathering and having adverse effects on the Māori of the waterways. ▪ Failure to consult with Mana Whenua effectively. ▪ Health risks.	"That the following conditions be accepted and implemented, they are that: ▪ The Consent Holder shall work within a five year period starting immediately to eliminate all wastewater discharges into waterways associated with the WWTP or put in place alternative solutions that are acceptable to the hapū that will give effect to this outcome by July 2015. ▪ The Consent Holder shall work with hapū on this consent to identify issues that adversely effects [sic] the hapū ensuring that (Part 2 RMA) is given effect and (Part 2 sec6 (e) (g) RMA) recognises and provides for the matters of National Importance as highlighted. ▪ The consent shall include the need for a working relationship with the local community and more importantly hapū representatives to ensure compliance with all legislative requirements are enacted.

Date Received	Name of Submitter	Oppose/ Support	Wish to be heard	Issues of Concern	Relief Sought
				▪ Potential for the discharge to destroy, damage and degrade sites of cultural, historical and spiritual significance to Ngāti Kahu.	▪ The Consent Holder shall monitor all aspects of the discharges on a weekly basis on a broader scale (which is yet to be defined) in partnership with the hapū and community. This shall include monitoring shellfish. ▪ The Consent Holder shall increase the existing level of discharge standards considerably (as they are considered too lenient) in partnership with the hapū and annually, increase these levels whilst ensuring on-going compliance. ▪ In partnership with the hapū and approved community representatives manage the process and operation of the East Coast Bays Wastewater Treatment System including details such as pond size(s), monitoring and desludging."
02.08.2010	Victor C Holloway	Oppose	Heard	The same concerns that Caroline Holloway stated.	The same relief sought by Caroline Holloway.
10.08.2010	Mandy Hudson	Not stated	Heard	Not stated.	The same relief sought by Caroline Holloway.
05.08.2010	Wiremu Kaitoa	Not stated	Heard	Not stated.	The same relief sought by Far North Environment Centre plus: ▪ The Consent Holder shall work with the articles 1, 2 and 3 of the Treaty of Waitangi. ▪ The plant needs to be redesigned to efficiently denitrify waste, renew/design the outlet of the plant to work efficiently.
09.08.2010	Andreas Kurmann	Oppose	Heard	▪ Elevated levels of ammonia in the discharge and downstream in the Parapara Stream. ▪ That the existing wastewater treatment plant cannot cope with an inflow of 190 m^3. ▪ Contamination of waterways with ammonia, nitrates, nitrites and phosphates.	Seeks the same discharge quality standards, independent monitoring, working group, and dissolved oxygen standards for the ponds as the Far North Environment Centre.
10.08.2010	Tyne Low	Not stated	Heard	Not stated.	The same relief sought by Caroline Holloway.
06.08.2010	Rev Lloyd Popata	Not stated	Heard	Not stated.	The same relief sought by Caroline Holloway.
05.08.2010	Theresa Reihana	Not stated	Heard	Not stated.	The same relief sought by Wiremu Kaitoa.
30.08.2010	Julie Rickit	Oppose	Heard	The same concerns that Caroline Holloway stated.	The same relief sought by Caroline Holloway.
05.08.2010	Keith Rupapera	Not stated	Heard	Not stated.	The same relief sought by Wiremu Kaitoa.

Date Received	Name of Submitter	Oppose/ Support	Wish to be heard	Issues of Concern	Relief Sought
05.08.2010	Maryanne Ruri (on behalf of the Williams whānau)	Oppose	Heard	The devastating long-term effects that the discharges will have on current and future generations in accordance with Te Tiriti O Waitangi and the preservation of our land and water.	The same relief sought by Caroline Holloway.
05.08.2010	Kahu Tauhara	Not stated	Heard	Not stated.	The same relief sought by Wiremu Kaitoa.
05.08.2010	Martha Tauhara	Not stated	Heard	Not stated.	The same relief sought by Wiremu Kaitoa.
05.08.2010	Niki Tauhara	Not stated	Heard	Not stated.	The same relief sought by Wiremu Kaitoa.
10.08.2010	Robin S Oxborough	Not stated	Heard	The same concerns that Caroline Holloway stated.	The same relief sought by Caroline Holloway.
05.08.2010	Pereniki Tauhara	Not stated	Heard	Not stated.	The same relief sought by Wiremu Kaitoa.
05.08.2010	Raniera Tauhara	Not stated	Heard	Not stated.	The same relief sought by Wiremu Kaitoa.
05.08.2010	Waha Tauhara	Not stated	Heard	Not stated.	The same relief sought by Wiremu Kaitoa.
22.07.2010	Te Rūnanga-a-Iwi O Ngāti Kahu		Heard	▪ Te Rūnanga-a-Iwi O Ngāti Kahu wants to focus on the cultural and social aspects of the resource consent application. ▪ Opposes any liquid discharge into any river in the rohe of Ngāti Kahu. This includes discharges from quarries, farms and sewerage. ▪ Effects on the Parapara River, Aurere Estuary and Tokerau, which are one of the largest shellfish collecting areas on the East Coast. ▪ There is nothing in the resource consent application that mentions any of the following: – An upgrade/s in the Annual Plan or Long Term Plan. – Biofiltro – Dhara Biotech – Ultra violet screening – Alternative (summer) discharge to land (as discussed with a third party at Taipā). ▪ The proposal contravenes Part 2 of the RMA. ▪ Ngāti Tara no longer feel assured of their wellbeing when collecting kaimoana from their rivers. ▪ The FNDC and NRC are not treating Sections 6(a), (e), (g) and 7(a), (b), (c), (d), and (f) with the respect they deserve.	The same relief sought by Caroline Holloway, and the following: ▪ The Far North District Council must find an alternative means of disposal for the discharge (i.e. not to water). ▪ The FNDC must give priority in its Annual Plan to cleaning up our rivers and waterways.

Date Received	Name of Submitter	Oppose/ Support	Wish to be heard	Issues of Concern	Relief Sought
				▪ Neither council is taking into account the principles of the Te Tiriti o Waitangi (RMA s8). ▪ Ngāti Tara and many thousands of people from 14 other marae of Ngāti Kahu have fished and collected shellfish from Aurere for over 800 years. Their customary practices are not being protected.	
05.08.2010	George Watene	Not stated	Heard	Not stated.	The same relief sought by Wiremu Kaitoa.
30.07.2010	M Wilson	Not stated	Heard	Not stated.	The same relief sought by Caroline Holloway.
09.08.2010	Hazel Armstrong	Oppose	Not Heard	Unacceptable to put human waste into waterways.	Change the treatment system so that it produces gas, ethanol, fuel, fertiliser, etc.
09.07.2010	Gordon Banfield	Support in part	Not Heard	It is a serious error that the applicant does not intend to upgrade the plan to deal with viral issues. The public collection of seafood is at risk. There are pathogenic viruses associated with human sewage. The right to gather kai moana is seriously important to the people of Northland.	The plant must be upgraded to include appropriate treatment of viruses.
27.08.2010	Queenie Ruth Chadwick	Not stated	Not Heard	Not stated.	The same relief sought by Caroline Holloway.
05.08.2010	Campbell Crooks	Not stated	Not Heard	Not stated.	The same relief sought by Wiremu Kaitoa.
05.08.2010	Pania Crooks	Not stated	Not Heard	Not stated.	The same relief sought by Wiremu Kaitoa.
05.08.2010	Bryce Derbyshire	Not stated	Not Heard	Not stated.	The same relief sought by Wiremu Kaitoa.
05.08.2010	Rose Derbyshire	Not stated	Not Heard	Not stated.	The same relief sought by Wiremu Kaitoa.
19.07.2010	Doubtless Bay Water Supply Co Limited	Support	Not Heard	▪ Monitoring by the NRC in conjunction with monthly independent monitoring of groundwater quality over many years conclusively indicates that the operation of the FNDC Wastewater Treatment Plant at Taipā has no detrimental effect on the environment in this area. ▪ DBWS enjoys the benefits provided by the WWTP and supports its continued operation and the discharge of treated wastewater into the Parapara Stream. Any small negative effect created by the discharge is outweighed by the enormous benefits to the greater community.	To grant the consent requested by the FNDC.

Date Received	Name of Submitter	Oppose/ Support	Wish to be heard	Issues of Concern	Relief Sought
				▪ There are examples around the country where non practical and senseless conditions imposed by regional councils have had detrimental effects on the operation of many wastewater treatment plants. The conditions usually result in huge increases in operating costs with no real environmental benefits.	
06.08.2010	Michael & Uschi Eyer	Not stated	Not Heard	It is unacceptable that a modern society is not able to manage such a small sewer system although rates and contribution fees are rapidly rising and should provide the council with enough funds. The problems have dragged on for years. The Far North, especially along the coast line, is a target for tourism and we are ashamed that Cable Bay sometimes has a very unpleasant odour due to the sewer.	No stated.
05.08.2010	Chanel Farrel	Not stated	Not Heard	Not stated.	The same relief sought by Wiremu Kaitoa.
10.08.2010	Nina Gobie	Not stated	Not Heard	Not stated.	The same relief sought by Caroline Holloway.
10.08.2010	Ken Hall		Not Heard	The submission was withdrawn.	The submission was withdrawn.
27.08.2010	Cheryl Henry	Not stated	Not Heard	Not stated.	The same relief sought by Caroline Holloway.
05.08.2010	Lloyd Johns	Not stated	Not Heard	Not stated.	The same relief sought by Wiremu Kaitoa.
10.08.2010	Ted Jones	Oppose	Not Heard	The council's solution to this problem is to simply put even more treated wastewater in to the Parapara Stream. The fear is contamination of kai moana. We have gathered at Aurere for generations. The appearance of the Parapara Stream has progressively worsened.	▪ Refuse to grant the consent. ▪ That a land-based alterative is provided for the months of December – March.
10.08.2010	Suzanne Kennedy	Not stated	Not stated	Not stated.	The same relief sought by Caroline Holloway.
30.07.2010	Laverne King	Not stated	Not Heard	Not stated.	The same relief sought by Caroline Holloway.
25.08.2010	Penny Luke	Not stated	Not Heard	Not stated.	The same relief sought by Caroline Holloway.
31.08.2010	Adam McDonald	Not stated	Not Heard	Not stated.	The same relief sought by Caroline Holloway.
10.08.2010	Lisa McNab	Not stated	Not Heard	Not stated.	The same relief sought by Caroline Holloway.
06.08.2010	Philippa Moran	Not stated	Not Heard	Not stated.	The same relief sought by Far North Environment Centre.
05.08.2010	Abe Peters	Not stated	Not Heard	Not stated.	The same relief sought by Wiremu Kaitoa.
05.08.2010	Susan Peters	Not stated	Not Heard	Not stated.	The same relief sought by Wiremu Kaitoa.
10.08.2010	Benji Phillips	Not stated	Not Heard	Not stated.	The same relief sought by Caroline Holloway.
05.08.2010	Marcia Poharama	Not stated	Not Heard	Not stated.	The same relief sought by Wiremu Kaitoa.

Date Received	Name of Submitter	Oppose/ Support	Wish to be heard	Issues of Concern	Relief Sought
10.08.2010	Hayden Schulze	Not stated	Not Heard	Not stated.	The same relief sought by Caroline Holloway.
10.08.2010	Mercia Z Smith	Not stated	Not Heard	Not stated.	The same relief sought by Caroline Holloway.
05.08.2010	Yvonne Steinemann & Wayne Parsonson	Not stated	Not Heard	The same concerns that Caroline Holloway stated.	The same relief sought by Far North Environment Centre.
30.07.2010	Mere Tipene	Not stated	Not Heard	Not stated.	The same relief sought by Caroline Holloway.
05.08.2010	Mago Kingi Waioua	Not stated	Not Heard	Not stated.	The same relief sought by Wiremu Kaitoa.

APPENDIX 2: COMPLIANCE HISTORY (NOVEMBER 2003 – MARCH 2019)

The following tables document Far North District Council's history of compliance with the conditions of Resource Consent 4007.

Compliance Status	Count
Full compliance	50
Non-compliance	42
Not exercised during period	1
Significant non-compliance	31

Compliance Status	Compliance Status Reasoning	Observation Date	Regime Activity IRIS ID	Activity Name
Full compliance	Upgrades to the treatment system are currently being analysed, new consent is being processed.	26/03/2019	ACT.135089	FNDC Taipā WWTP: Annual Report.
Significant non-compliance	CWL, NH_4: 25 g/m³. Limit: 5 g/m³ CWL, Faecal coliforms: 1700. Limit 1000 c/100mL. Downstream sampling has indicated significantly elevated levels of faecal coliforms and ammonia.	26/03/2019	ACT.135089	FNDC Taipā WWTP: Annual Report.
Full compliance	On-going issue with consent having expired some time ago.	28/02/2019	ACT.134155	FNDC Taipā WWTP: routine resource consent monitoring.
Significant non-compliance	The ammonia result from the marsh outlet is significantly elevated and sampling of the downstream drain is indicating high levels in non-compliance with RC conditions.	28/02/2019	ACT.134155	FNDC Taipā WWTP: routine resource consent monitoring.
Full compliance	No samples were taken during the month.	6/03/2019	ACT.134671	FNDC Taipā WWTP: Annual Report.
Not exercised during period	No sampling undertaken during December.	15/01/2019	ACT.134297	FNDC Taipā WWTP: Annual Report.
Full compliance	On-going issue.	4/01/2019	ACT.133800	FNDC Taipā WWTP: Annual Report.
Significant non-compliance	CWL, NH_4: 31 g/m³. Limit: 5 g/m³ CWL, Faecals: 1600. Limit 1000 c/100mL	4/01/2019	ACT.133800	FNDC Taipā WWTP: Annual Report.
Non-compliance	CWL, NH_4:19 g/m³. Limit: 5 g/m³.	28/11/2018	ACT.133089	FNDC Taipā WWTP: routine resource consent monitoring.
Full compliance	On-going issue.	12/12/2018	ACT.133345	FNDC Taipā WWTP: Annual Report.
Significant non-compliance	CWL, NH_4: 20 g/m³. Limit: 5 g/m³ CWL, Faecal coliforms: 1200. Limit 1000 c/100mL. Downstream monitoring indicates NH_4 is elevated above RC conditions.	12/12/2018	ACT.133345	FNDC Taipā WWTP: Annual Report.

Compliance Status	Compliance Status Reasoning	Observation Date	Regime Activity IRIS ID	Activity Name
Full compliance	No sampling for last month undertaken.	30/10/2018	ACT.132805	FNDC Taipā WWTP: Annual Report.
Full compliance	On-going issue of elevated levels from the wetland outlet.	19/09/2018	ACT.131235	FNDC Taipā WWTP: routine resource consent monitoring.
Significant non-compliance	Ammonia and faecal coliform levels from the wetland outlet are elevated. On-going issue of non-compliance.	19/09/2018	ACT.131235	FNDC Taipā WWTP: routine resource consent monitoring.
Non-compliance	CWL, NH_4: 22 g/m³. Limit: 5 g/m³. Downstream ammonia result was also elevated.	2/10/2018	ACT.132310	FNDC Taipā WWTP: Annual Report.
Significant non-compliance	The ammonia levels from the marsh where significantly elevated and the downstream monitoring also indicated elevated levels.	31/08/2018	ACT.131830	FNDC Taipā WWTP: Annual Report.
Significant non-compliance	CWL NH_4: 30 g/m³. Limit 5 g/m³	2/08/2018	ACT.130985	FNDC Taipā WWTP: Annual Report.
Non-compliance	The ammonia level from the marsh outlet was elevated, downstream sampling by Broadspectrum previously has shown elevated faecal coliform levels.	13/06/2018	ACT.129489	FNDC Taipā WWTP: routine resource consent monitoring.
Non-compliance	CWL Faecal coliforms: 8000. Limit: 1000 c/100mL.	19/06/2018	ACT.130220	FNDC Taipā WWTP: Annual Report.
Non-compliance	The water sample results from the wetland triggered the downstream monitoring which indicated elevated faecal coliforms and ammonia levels.	22/05/2018	ACT.129564	FNDC Taipā WWTP: Annual Report.
Non-compliance	Downstream sample results indicate non-compliance. Options for new treatment system are underway.	4/05/2018	ACT.129104	FNDC Taipā WWTP: Annual Report.
Non-compliance	Water sample results from the marsh outlet indicate elevated ammonia levels. The downstream sampling did not indicate elevated levels. On-going issue.	22/03/2018	ACT.127736	FNDC Taipā WWTP: routine resource consent monitoring.
Non-compliance	One day #39; dry weather flow 1018 m³/day. Limit: 1005CWL NH_4: 17 g/m³. Limit: 5 g/m³ DS NH_4: 10 g/m³. Limit 1.2 g/m³. On-going discussion with renewal of consent.	3/04/2018	ACT.128690	FNDC Taipā WWTP: Annual Report.
Significant non-compliance	The ammonia level at the outlet of the marsh and at the downstream compliance point were significantly elevated. On-going issue, new consent and treatment options are being considered.	28/02/2018	ACT.128362	FNDC Taipā WWTP: Annual Report.
Full compliance	Data is received in monthly spreadsheet format which contains all of the information required.	2/02/2018	ACT.125872	FNDC Taipā WWTP: Annual Report.
Significant non-compliance	The ammonia level at the downstream stream site is significantly elevated.	25/01/2018	ACT.128015	FNDC Taipā WWTP: Annual Report.
Significant non compliance	CWL, NH_4. Limit: 5. Result 20 g/m³. Triggered DS Testing DS NH_4. Limit 1.2. Results: 13, 14, 12, 12 g/m³. DS Med 5 Faecal coliforms. Limit 600. Result 1100 c/100mL.	4/01/2018	ACT.127429	FNDC Taipā WWTP: Annual Report.
Non-compliance	Ammonia levels are elevated at the marsh outlet.	27/11/2017	ACT.126275	FNDC Taipā WWTP: routine resource consent monitoring.

Compliance Status	Compliance Status Reasoning	Observation Date	Regime Activity IRIS ID	Activity Name
Non-compliance	Faecal coliform and ammonia levels from the marsh discharge and at the downstream sampling point are elevated.	24/11/2017	ACT.126960	FNDC Taipā WWTP: Annual Report.
Non-compliance	CWL NH_4. Limit: 5. Result: 18.22 WL Faecal coliforms. Limit: 1000. Result: 1600 Triggered DS Testing DS NH_4. Limit 1.2. Results: 1.3, 2.2, 2.4, 3.6, 3.6, 2.2 DS Med 5 Faecal coliforms. Limit 600. Result 1400.	2/11/2017	ACT.126481	FNDC Taipā WWTP: Annual Report.
Significant non-compliance	Water sampling triggered downstream requirement for sampling which has indicated non-compliance with faecal coliform and ammonia levels. Work is currently being undertaken to remove sludge from the ponds which should assist with treatment.	14/09/2017	ACT.126228	FNDC Taipā WWTP: Annual Report.
Non-compliance	The downstream ammonia and 90% faecal coliform levels were elevated.	29/08/2017	ACT.124455	FNDC Taipā WWTP: Annual Report.
Full compliance	The ammonia levels from the marsh are elevated, downstream monitoring by the contractor is being undertaken as this is the compliance point.	14/08/2017	ACT.123223	FNDC Taipā WWTP: routine resource consent monitoring.
Significant non-compliance	Ammonia levels were elevated significantly higher than the consent levels.	29/06/2017	ACT.123921	FNDC Taipā WWTP: Annual Report.
Non-compliance	Downstream samples indicate elevated faecal and ammonia levels.	19/06/2017	ACT.123269	FNDC Taipā WWTP: Annual Report.
Full compliance	No sampling undertaken during April.	1/05/2017	ACT.122804	FNDC Taipā WWTP: Annual Report.
Full compliance	The ammonia result after the wetland is elevated, however, sampling at the downstream compliance sites do not indicate a breach of the RC conditions.	3/04/2017	ACT.122511	FNDC Taipā WWTP: routine resource consent monitoring.
Non-compliance	Ammonia level at the downstream sample site is in non-compliance with the RC conditions.	30/03/2017	ACT.122411	FNDC Taipā WWTP: Annual Report.
Full compliance	The ammonia result after the wetland is elevated, however, sampling at the downstream compliance sites do not indicate a breach of the RC conditions.	21/02/2017	ACT.121538	FNDC Taipā WWTP: routine resource consent monitoring.
Full compliance	The ammonia level at the wetland outlet was significantly elevated, however, the downstream sampling does not indicate non-compliance.	28/02/2017	ACT.122134	FNDC Taipā WWTP: Annual Report.
Full compliance	No compliance issues.	25/01/2017	ACT.121872	FNDC Taipā WWTP: Annual Report.
Full compliance	Ammonia level after marsh was elevated, downstream samples in compliance.	22/12/2016	ACT.121594	FNDC Taipā WWTP: Annual Report.
Full compliance	Ammonia level after marsh was elevated, downstream samples in compliance.	25/11/2016	ACT.121196	FNDC Taipā WWTP: Annual Report.
Full compliance	On-going high ammonia levels from the outlet of the marsh, however, the downstream sampling is in compliance.	10/11/2016	ACT.120633	FNDC Taipā WWTP: routine resource consent monitoring.
Full compliance	On-going high ammonia results from marsh outlet. Downstream ammonia levels are in compliance with consent conditions.	13/10/2016	ACT.120842	FNDC Taipā WWTP: Annual Report.
Full compliance	On-going high ammonia results from marsh outlet. Downstream ammonia levels are in compliance with consent conditions.	7/10/2016	ACT.120597	FNDC Taipā WWTP: Annual Report.
Non-compliance	On-going non-compliance with ammonia RC condition.	15/08/2016	ACT.118275	FNDC Taipā WWTP: routine resource consent monitoring

Compliance Status	Compliance Status Reasoning	Observation Date	Regime Activity IRIS ID	Activity Name
Full compliance	On-going issues with high ammonia from the wetland discharge. Downstream sampling is compliant with RC conditions.	16/08/2016	ACT.119302	FNDC Taipā WWTP: Annual Report.
Significant non-compliance	Non-compliant with water quality parameters, on-going non-compliance with ammonia conditions of RC.	15/07/2016	ACT.118931	FNDC Taipā WWTP: Annual Report.
Significant non-compliance	Water quality test results were outside RC limits. Long term treatment solutions are being assessed as part of the RC renewal process.	21/06/2016	ACT.118252	FNDC Taipā WWTP: Annual Report.
Full compliance	The ammonia level at the marsh outlet was elevated, however, the downstream monitoring is compliant.	16/05/2016	ACT.116637	FNDC Taipā WWTP: routine resource consent monitoring.
Full compliance	Ammonia levels from the marsh outlet are high, however, DS sample is compliant.	18/05/2016	ACT.116929	FNDC Taipā WWTP: Annual Report.
Full compliance	No sampling undertaken during March.	15/04/2016	ACT.116416	FNDC Taipā WWTP: Annual Report.
Non-compliance		29/03/2016	ACT.116126	FNDC Taipā WWTP: Annual Report.
Non-compliance		23/02/2016	ACT.115588	FNDC Taipā WWTP: routine resource consent monitoring.
Full compliance		26/02/2016	ACT.115935	FNDC Taipā WWTP: Annual Report.
Non-compliance		11/01/2016	ACT.116174	FNDC Taipā WWTP: Annual Report | Other Party Action | Supply data.
Non-compliance		17/12/2015	ACT.115553	FNDC Taipā WWTP: Annual Report.
Non-compliance		26/11/2015	ACT.115118	FNDC Taipā WWTP: Annual Report.
Non-compliance		16/11/2015	ACT.114953	FNDC Taipā WWTP: routine resource consent monitoring.
Non-compliance		12/10/2015	ACT.112796	FNDC Taipā WWTP: Annual Report.
Non-compliance		14/09/2015	ACT.112418	FNDC Taipā WWTP: Annual Report.
Non-compliance		24/08/2015	ACT.111099	FNDC Taipā WWTP: routine resource consent monitoring.
Full compliance		14/08/2015	ACT.111096	FNDC Taipā WWTP: Annual Report.
Full compliance		9/07/2015	ACT.110705	FNDC Taipā WWTP: Annual Report.
Non-compliance		1/06/2015	ACT.109887	FNDC Taipā WWTP: Annual Report.
Non-compliance		13/05/2015	ACT.109562	FNDC Taipā WWTP: routine resource consent monitoring.
Non-compliance		8/05/2015	ACT.109872	FNDC Taipā WWTP.
Non-compliance		11/03/2015	ACT.108556	FNDC Taipā WWTP: routine resource consent monitoring.
Non-compliance	Ammonia is exceeding the consent limits, investigation is on-going in this regard.	27/11/2014	ACT.107800	FNDC Taipā WWTP: routine resource consent monitoring.

Compliance Status	Compliance Status Reasoning	Observation Date	Regime Activity IRIS ID	Activity Name
Non-compliance		13/08/2014	ACT.106193	FNDC Taipā WWTP: routine resource consent monitoring.
Full compliance		22/05/2014	ACT.105031	FNDC Taipā WWTP: routine resource consent monitoring.
Significant non-compliance	The ammonia at the outlet of the marsh is exceeding the RC limits. CH contractor has undertaken further sampling downstream as required. Further action to be discussed with the FNDC regarding continuing breaches.	17/02/2014	ACT.103941	FNDC Taipā WWTP: routine resource consent monitoring.
Non-compliance		11/11/2013	ACT.103317	FNDC Taipā WWTP: routine resource consent monitoring.
Non-compliance		9/09/2013	ACT.100433	FNDC Taipā WWTP: routine resource consent monitoring.
Full compliance		13/05/2013	ACT.100431	FNDC Taipā WWTP: routine resource consent monitoring.
Full compliance	The water sample results taken at the marsh discharge indicated compliance with the resource consent conditions.	27/02/2013	ACT.400701048	Migrated compliance events.
Full compliance	The water sample results taken at the marsh discharge indicated compliance with the resource consent conditions.	7/11/2012	ACT.400701047	Migrated compliance events.
Non-compliance	Self-monitoring data supplied for October indicated elevated suspended solid levels from the marsh discharge, all other determinands were in compliance with the RC.	31/10/2012	ACT.400701046	Migrated compliance events.
Full compliance	The water sample results taken at the marsh discharge indicated compliance with the resource consent conditions.	9/08/2012	ACT.400701045	Migrated compliance events.
Full compliance	Self-monitoring data supplied for May indicated compliance with the RC.	31/05/2012	ACT.400701044	Migrated compliance events.
Full compliance	The water sample results taken at the marsh discharge indicated compliance with the resource consent conditions.	17/05/2012	ACT.400701043	Migrated compliance events.
Full compliance	The water sample results taken at the marsh discharge indicated compliance with the resource consent conditions.	28/02/2012	ACT.400701042	Migrated compliance events.
Full compliance	The water sample results taken at the marsh discharge indicated compliance with the RC conditions.	23/11/2011	ACT.400701041	Migrated compliance events.
Significant non-compliance	The water sample from the outlet of the marsh indicated slightly elevated ammonia levels, all other determinands were within the resource consent limits. Plans have not been submitted as required by the RC.	10/08/2011	ACT.400701040	Migrated compliance events.
Significant non-compliance	The water sample results taken at the marsh discharge indicated compliance with the RC conditions. Plans have not been submitted as required with the RC.	25/05/2011	ACT.400701039	Migrated compliance events.
Significant non-compliance	The water sample results taken at the marsh discharge indicated compliance with the RC conditions. Plans have not been submitted as required with the RC.	23/02/2011	ACT.400701038	Migrated compliance events.

Compliance Status	Compliance Status Reasoning	Observation Date	Regime Activity IRIS ID	Activity Name
Full compliance	The water sample results taken at the marsh discharge and the downstream receiving environment indicated compliance with the resource consent conditions.	23/11/2010	ACT.400701037	Migrated compliance events.
Full compliance	The water sample results taken at the marsh discharge indicated compliance with the resource consent conditions.	25/08/2010	ACT.400701036	Migrated compliance events.
Non-compliance	The water sample from the outlet of the marsh indicated elevated faecal coliform levels, all other determinands were within the resource consent limits.	11/05/2010	ACT.400701035	Migrated compliance events.
Significant non-compliance	The water sample from the marsh discharge indicated elevated ammonia levels, sampling of the downstream environment indicated that the ammonia level was in compliance with the resource consent. There were also elevated blue/green algae levels in the downstream environment.	15/03/2010	ACT.400701034	Migrated compliance events.
Significant non-compliance	The water sample from the marsh discharge indicated elevated ammonia levels, sampling of the downstream environment indicated that the ammonia level was in non-compliance with the resource consent. Water sampling by the CH also has indicated elevated blue/green algae levels in the drain requiring notification to downstream water users.	27/01/2010	ACT.400701033	Migrated compliance events.
Non-compliance	The water sample from the marsh discharge indicated elevated ammonia levels, sampling of the downstream environment indicated that the ammonia level was under the resource consent requirement.	17/11/2009	ACT.400701032	Migrated compliance events.
Full compliance	The water sample from the marsh discharge indicated elevated ammonia levels, sampling of the downstream environment indicated that the ammonia level was just under the resource consent requirement.	18/08/2009	ACT.400701031	Migrated compliance events.
Significant non-compliance	The water sample from the outlet of the marsh indicated elevated ammonia levels. Further sampling of the downstream receiving environment is to be undertaken. CH has been requested to advise what action is to be taken to reduce ammonia levels.	16/07/2009	ACT.400701030	Migrated compliance events.
Non-compliance	The water sample from the marsh discharge indicated elevated ammonia levels. Further sampling is to be undertaken.	21/05/2009	ACT.400701029	Migrated compliance events.
Full compliance	The water sample results taken at the marsh discharge indicated compliance with the resource consent conditions.	19/02/2009	ACT.400701028	Migrated compliance events.
Full compliance	The water sample results taken at the marsh discharge indicated compliance with the resource consent conditions.	19/11/2008	ACT.400701027	Migrated compliance events.
Non-compliance	Further sampling undertaken by the CH indicates continued elevated ammonia levels at the marsh outlet, however, the receiving environment levels were within the resource consent requirements.	4/09/2008	ACT.400701026	Migrated compliance events.

Compliance Status	Compliance Status Reasoning	Observation Date	Regime Activity IRIS ID	Activity Name
Significant non-compliance	The water sample results indicated that the ammonia level was above the consent limit. All other levels were within the resource consent requirements. Further sampling will be undertaken.	21/08/2008	ACT.400701025	Migrated compliance events.
Non-compliance	The water sample results indicated that the ammonia level was above the consent limit. All other levels were within the resource consent requirements. Further sampling will be undertaken.	12/02/2008	ACT.400701024	Migrated compliance events.
Non-compliance	The ammonia level from the outlet of the marsh system was still elevated, further sampling undertaken by the CH from the receiving environment was however, in compliance with the RC conditions.	17/12/2007	ACT.400701023	Migrated compliance events.
Non-compliance	The water sample results indicated that the ammonia level was above the consent limit. All other levels were within the resource consent requirements. Further sampling will be undertaken.	28/11/2007	ACT.400701022	Migrated compliance events.
Full compliance	The water sample results taken at the marsh discharge indicated compliance with the resource consent conditions.	14/08/2007	ACT.400701021	Migrated compliance events.
Full compliance	The water sample results indicated compliance with the resource consent conditions.	22/05/2007	ACT.400701020	Migrated compliance events.
Full compliance	The water sample results indicated that the suspended solids were only slightly above the consent limit. All other levels were within the resource consent requirements.	6/03/2007	ACT.400701019	Migrated compliance events.
Full compliance	The water sample results indicated that the biological oxygen demand was only slightly above the consent limit. All other levels were within the resource consent requirements.	21/11/2006	ACT.400701018	Migrated compliance events.
Full compliance	The water sample results indicated that the ammonia level was only slightly above the consent limit.	22/08/2006	ACT.400701017	Migrated compliance events.
Full compliance	The water sample results indicated compliance with the resource consent conditions.	10/05/2006	ACT.400701016	Migrated compliance events.
Full compliance	The water sample results indicated that the suspended solids level was only slightly above the consent limit.	22/02/2006	ACT.400701015	Migrated compliance events.
Non-compliance	The water sample results indicated that the ammonia level was only slightly above the consent limit.	23/11/2005	ACT.400701014	Migrated compliance events.
Significant non-compliance	A series of water samples taken from the oxidation pond and the wetlands indicated elevated levels of ammonia were not being reduced through the treatment system. Further action is being considered.	26/09/2005	ACT.400701013	Migrated compliance events.
Significant non-compliance	The water sample results indicated elevated levels of ammonia at the discharge from the wetlands. The CH has recently desludged ponds to address the non-compliance issues. Further sampling is being considered.	11/08/2005	ACT.400701012	Migrated compliance events.

Compliance Status	Compliance Status Reasoning	Observation Date	Regime Activity IRIS ID	Activity Name
Significant non-compliance	The water sample results indicated elevated levels of ammonia at the discharge from the wetlands. The CH has been requested to supply a workplan to address the non-compliance issues.	11/05/2005	ACT.400701011	Migrated compliance events.
Significant non-compliance	The water sample results indicated elevated levels of suspended solids and ammonia levels at the discharge from the wetlands. Elevated ammonia levels were also indicated at the downstream receiving environment site. The CH has been requested to supply a workplan to address the non-compliance issues.	30/03/2005	ACT.400701010	Migrated compliance events.
Significant non-compliance	The water sample results indicated elevated levels of suspended solids and faecal coliform levels at the discharge from the wetlands. Further sampling has been scheduled.	28/02/2005	ACT.40070109	Migrated compliance events.
Significant non-compliance	The water sample results indicated elevated levels of ammonia, suspended solids and faecal coliform levels at the discharge from the wetlands. The CH is in the process of investigating options to resolve the non-compliance issues.	10/11/2004	ACT.40070108	Migrated compliance events.
Significant non-compliance	The water sample results indicated elevated levels of ammonia at the discharge from the wetlands and at the downstream receiving environment site. The CH has been requested to supply details of what remedial action is being taken to resolve the non-compliance issues.	9/09/2004	ACT.40070107	Migrated compliance events.
Significant non-compliance	The water sample results indicated elevated levels of ammonia at the discharge from the wetlands and at the downstream receiving environment site.	8/09/2004	ACT.40070106	Migrated compliance events.
Significant non-compliance	The water sample results indicated elevated levels of ammonia at the discharge from the wetlands, therefore further water sampling will be undertaken at the receiving environment in accordance with the resource consent. The dissolved oxygen in pond 1 was not in compliance with the consent limits, and there was a strong odour at the ponds at the time of inspection.	12/08/2004	ACT.40070105	Migrated compliance events.
Full compliance	The water sample results indicate compliance with the resource consent conditions at the time of inspection. The dissolved oxygen in pond 2 was not in compliance with the consent limits, there was a slight odour at the inlet to the pond it was not, however, not noticeable at the property boundary. There is a lot of sludge building-up in the ponds that will require attention.	13/05/2004	ACT.40070104	Migrated compliance events.
Full compliance	The water sample results indicate compliance with the resource consent conditions at the time of inspection. Pond 1 requires desludging and the wave-break requires maintenance around Pond 3.	8/03/2004	ACT.40070103	Migrated compliance events.
Full compliance	Further sampling to check on compliance.	26/11/2003	ACT.40070102	Migrated compliance events.
Non-compliance	Level of NH_4 in the final effluent in excess of consent limits. Impact Services advised. Discharge also having a visual impact on the receiving water.	18/11/2003	ACT.40070101	Migrated compliance events.

APPENDIX 3: RECOMMENDED RESOURCE CONSENT

To undertake the following activities associated with the operation of the East Coast Bays Wastewater Treatment System on Pt Allot 57, Pt Sec 33, and Pt Allot 24 Blk IV Mangonui SD:

AUT.004007.01.03 To discharge treated municipal wastewater to an unnamed tributary of the Parapara Stream, at or about location coordinates 1640435E 6126160N

AUT.004007.02.03 To discharge contaminants to land from the base of a wastewater treatment system, at or about location coordinates 1641450E 6126950N and 1640435E 6126160N

AUT.004007.03.03 To discharge contaminants to air (primarily odour) from a wastewater treatment system, at or about location coordinates 1641450E 6126950N and 1640435E 6126160N.

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

Subject to the following conditions:

AUT.004007.01.03 and AUT.004007.02.03 DISCHARGE TO WATER AND LAND

1 The quantity of treated wastewater discharged to the unnamed tributary of the Parapara Stream must not exceed 1,570 cubic metres per day, as calculated using the average daily dry weather discharge volume. For compliance purposes, the "average daily dry weather discharge volume" must be calculated in accordance with Schedule 1 (**attached**).

2 The Consent Holder must minimise, as far as practicable, any increase in the quantity of wastewater discharged as a result of stormwater inflow and infiltration into the sewage reticulation network and treatment system.

3 The Consent Holder must install and maintain a flow measuring device with a measurement error of ±5% to measure the volume of wastewater discharged into the unnamed tributary.

4 The Consent Holder must keep a written record of the daily volume of wastewater through the flow measuring device required by Condition 3 and the calculated average daily dry weather discharge volume, as in accordance with Schedule 1 (**attached**). A copy of these records must be forwarded to the Northland Regional Council in accordance with Schedule 1 (**attached**), and also immediately upon request by the Northland Regional Council's assigned Monitoring Officer.

5 The accuracy of the meter required by Condition 3 must be verified at least five yearly to ensure that the specified accuracy is maintained. Written confirmation from a suitably qualified person that the meter accuracy has been verified must be forwarded to the Northland Regional Council's assigned Monitoring Officer within one month of the verification being completed.

6 The Consent Holder must, within one year of the commencement date of this consent, provide a written report to the Northland Regional Council's Compliance Manager on a quantitative microbiological risk assessment of the level of risk that the treated wastewater discharge poses to the health of people, as affected by their contact with

water in, and consumption of aquatic species from, the Awapoko River (including estuary). If the outcome of the quantitative microbiological risk assessment indicates that the discharge is likely to have a public health risk in the Awapoko River (including estuary), then the written report must also recommend a level of pathogen reduction required to avoid this risk. The risk assessment must be undertaken by an independent person(s) qualified and specialising in faecal pathogen quantitative microbiological risk assessments. The Consent Holder must make this report publicly available on its website.

7 If the report required by Condition 6 recommends that pathogen reduction in the treated wastewater discharge is required to avoid a public health risk in the Awapoko River, then the Consent Holder must:

(a) Within six months of that report being provided to the Northland Regional Council, provide a written report to the Northland Regional Council's Compliance Manager on how the required pathogen reduction will be achieved in the treated wastewater prior to it being pumped to the wetlands; and

(b) Within six months of providing the report required by Condition 7(a), upgrade the wastewater treatment system in accordance with that report.

Advice Note: *If the method of pathogen removal introduces any new contaminants into the discharge, then a new consent for these contaminants may be required.*

8 The Consent Holder must, within one year of the commencement date of this consent, complete an analysis of options to reduce the ammonia concentrations (NH_4-N) in the discharge from the wetland so that the quality of the discharge does not exceed the following:

(a) Annual Median: 10 grams per cubic metre; and

(b) Annual 92nd percentile: 15 grams per cubic metre.

9 A copy of the analysis of options required by Condition 8 must be provided to the Northland Regional Council's Compliance Manger and must be made publicly available on the Consent Holder's webpage.

10 The Consent Holder must, within three years of the date of commencement of this consent, upgrade the wastewater treatment system so that all wastewater receives treatment within a fully commissioned and operating treatment process specifically designed to reduce the concentration of ammonia within the treated wastewater discharged from the constructed wetlands.

11 Once the upgraded treatment system required by Condition 10 has been commissioned, the ammonia concentration (NH_4-N) in the treated wastewater discharged from the wetland must not exceed the following:

(a) Annual Median: 10 grams per cubic metre, calculated using a minimum of 26 consecutive fortnightly samples; and

(b) Annual 92nd percentile: 15 grams per cubic metre, calculated using a minimum of 26 consecutive fortnightly samples.

12 Once the upgraded treatment system required by Condition 10 has been commissioned, the wastewater discharge from the wetlands must not cause the

ammonia concentration* (NH_4-N) in the unnamed tributary of the Parapara Stream, as measured at NRC Sample Site No 105941 (see **attached** NRC Plan 3078A), to exceed the following:

(a) Annual Median: 1.3 grams per cubic metre, calculated using a minimum of 12 consecutive monthly samples; and

(b) Annual 92nd percentile: 2.2 grams per cubic metre, calculated using a minimum of 12 consecutive monthly samples.

*Based on pH 8 and temperature of 20˚C. Compliance with the standard must be undertaken after pH adjustment.

13 The treated wastewater discharged from the constructed wetlands must not result in any of the following effects on the quality of the water in the unnamed tributary of the Parapara Stream, as measured at NRC Sample Site 105941 (see **attached** NRC Plan 3078A):

(a) The pH must not be outside the range of 6.0 to 9.0.

(b) The natural colour and clarity of the waters must not be changed to a conspicuous extent.

(c) There must be no conspicuous oil or grease films, scums or foams, floatable or suspended materials, nor emissions of objectionable odour.

14 The Consent Holder must maintain easy access to NRC Sampling Site 101687 (discharge point from the wetland), as shown on NRC Plan 3078A (**attached)**.

AUT.004007.03.03 DISCHARGE TO AIR

15 The exercise of this consent must not result in the discharge of contaminants 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 system.

GENERAL CONDITIONS

16 The Consent Holder must maintain the treatment system so that it operates effectively at all times, and a written record of all maintenance undertaken must be kept. A copy of this record must be forwarded to the Northland Regional Council immediately on written request.

17 The Consent Holder must monitor the exercise of these consents in accordance with Schedule 1 (**attached**).

18 The Consent Holder must maintain fencing of the drain, an unnamed tributary of the Parapara Stream between NRC sampling sites 101687 and 105940, as shown on NRC Plan 3078A (**attached**), to prevent stock access.

19 The Consent Holder must, for the purposes of adequately monitoring these consents as required under Section 35 of the Act, on becoming aware of any contaminant associated with the Consent Holder's operations escaping otherwise than in conformity with these consents:

(a) Take immediate action to stop and/or contain such escape; and

(b) Immediately notify the Northland Regional Council by telephone of an escape of contaminant; and

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

(d) Notify the Northland Regional Council in writing within one week on the cause of the escape of the contaminant and the steps taken or being taken to effectively control or prevent such escape.

For telephone notification during the Northland Regional Council's opening hours (8.00 a.m. to 5.00 p.m.), 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.

20 The 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:

(a) annually during the month of May for any one or more of the following purposes:

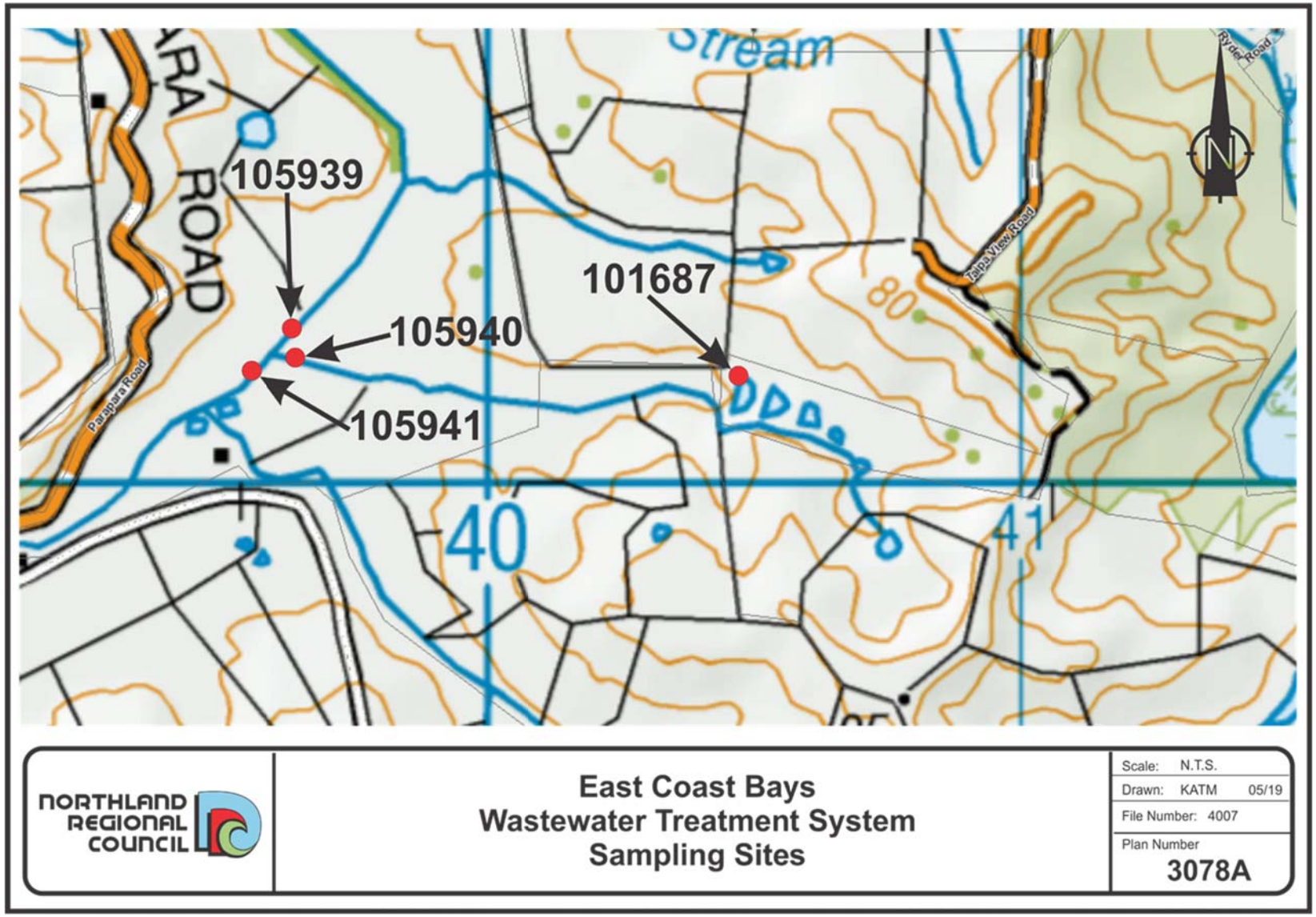
(i) To deal with any adverse effects on the environment that may arise from the exercise of the consents and which it is appropriate to deal with at a later stage, or

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

(b) Within three months of receiving the written report required by Condition 7(a) to insert new conditions to deal with the ongoing monitoring and compliance of the pathogen reduction system that is to be installed.

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

EXPIRY DATE: 30 NOVEMBER 2044



NORTHLAND REGIONAL COUNCIL

East Coast Bays
Wastewater Treatment System
Sampling Sites

Scale:	N.T.S.
Drawn:	KATM 05/19
File Number:	4007
Plan Number	3078A

SCHEDULE 1

MONITORING PROGRAMME

The Consent Holder, or its authorised agent, must undertake the following monitoring:

1. WASTEWATER VOLUMES

The Consent Holder must keep a written record of the daily (midnight to midnight) wastewater flows through the meter required by Condition 3 of the consent.

The average dry weather discharge volume must be a "rolling" (moving) average calculated using the recorded discharge volume from the meter required by Condition 3. For the purposes of this calculation, a "dry weather" day is any day on which there is less than 1 millimetre of rainfall and that day occurs after three consecutive days, each day of which has had less than 1 millimetre of rainfall.

The daily rainfall must be taken from the Northland Regional Council's automatic rain station 530511 (Oruru Bowling Club). This data can either be downloaded from the Northland Regional Council's website or supplied by the Northland Regional Council on request. An alternative rainfall station may be used with the prior written approval of the Northland Regional Council's Compliance Manager.

2. MONITORING OF THE WASTEWATER WITHIN THE WWTP

At fortnightly intervals, samples of wastewater must be collected at the influent to the WWTP, outflow from Pond 3, and the outflow from the Maturation Pond, and analysed for the following:

(a) Ammonia (NH_4-N) (g/m^3)

(b) Biochemical Oxygen Demand (g/m^3)

(c) pH

(d) Dissolved oxygen (g/m^3)

3. MONITORING OF THE DISCHARGE FROM THE CONSTRUCTED WETLAND

At fortnightly intervals, samples of wastewater must be collected at NRC Sampling Site 101687 (discharge point from the wetland) and analysed for the following:

(a) Ammonia (NH_4-N) (g/m^3)

(b) Biochemical Oxygen Demand (g/m^3)

(c) Escherichia coli (E.coli/100 mL)

(d) Enterococci (Enterococci/100 mL)

(e) pH

(f) Dissolved oxygen (g/m^3)

4. MONITORING OF RECEIVING WATER QUALITY

Each calendar month, samples of water must be collected from the unnamed tributaries of the Parapara Stream at NRC Sampling Sites 105939, 105940, and 105941, as shown on NRC Plan 3078A (**attached**), and analysed for the following:

(a) Ammonia (mg NH_4-N/L)

(b) Escherichia coli (E.coli/100 mL)

(c) Enterococci (Enterococci/100 mL)

(d) pH

(e) Dissolved oxygen (g/m^3)

5. SAMPLE COLLECTION, SAMPLE TRANSPORT, AND LABORATORY REQUIREMENTS

All samples must be collected using standard procedures and in appropriate laboratory supplied containers.

All samples collected as part of this monitoring programme must be transported in accordance with standard procedures and under chain of custody to the laboratory.

All samples collected must be analysed at a 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 as would include registrations such as ISO 9000, ISO Guide 25, Ministry of Health Accreditation.*

6. REPORTING

By the 15th of each month, the following information for the previous calendar month must be forwarded to the Northland Regional Council:

(a) The monitoring results for Sections 1, 2, 3 and 4 of this schedule; and

(b) An assessment of compliance with Conditions 1 and 11 to 13 of the consent.

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