

INTRODUCTION

1. My full name is Timothy Patrick Hegarty. I am an Associate Planner for Jacobs New Zealand Limited and have held this position since August 2017. Prior to this role I was the Manager of the Major Infrastructure Projects team at Auckland Council.
2. I hold the qualifications of a Bachelor of Science majoring in Biological Science from the University of Auckland and a Master of Regional and Resource Planning with Credit from the University of Otago. I am a full member of the New Zealand Planning Institute.
3. I attended the Principles and Trends of Wastewater Treatment course at the New Zealand Environmental Training Centre in 2014. I am also a certified hearings commissioner having undertaken the Ministry for the Environment's Making Good Decisions course.
4. I have over 15 years' experience as a planner, both in New Zealand and the United Kingdom. This experience includes working as both a resource consents and strategic planner for local government involving both land development and infrastructure projects. I have also worked as a planning enforcement officer and in private consultancy for a range of clients.
5. My previous experience includes the following relevant projects:
 - a. Consents officer at Auckland Council for the processing of discharge permits for the Omaha Wastewater Treatment Plant;
 - b. Consents officer at Auckland Council for the processing of resource consents for the North Harbour 2 watermain and Northern Interceptor wastewater projects; and
 - c. Chief author of the AEE in relation to the replacement of the Snells Beach Wastewater Treatment Plant; and
 - d. Chief author of Auckland Council's inaugural 30 Year Infrastructure Strategy.

6. I have been involved in the Project since May 2019 following appointment to the Project by Far North District Council (FNDC).
7. This evidence relates to the resource consent applications lodged by FNDC in 2008 for the renewal of discharges from the East Coast Bays Wastewater Treatment Plant (the "WWTP")

CODE OF CONDUCT

8. I have read the Code of Conduct for Expert Witnesses as contained in the Environment Court Practice Note 2014, and I agree to comply with it as if this hearing was before the Environment Court. My qualifications as an expert are set out above. I confirm that the issues addressed in this brief of evidence are within my area of expertise. I have not omitted to consider material facts known to us that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

9. My evidence will address the following:
 - a. A summary of the proposal;
 - b. A description of the WWTP;
 - c. A description of the existing receiving environment;
 - d. Assessment of effects on the environment;
 - e. Statutory assessment;
 - f. A response to submissions; and
 - g. Proposed conditions.
10. My evidence is supported by the following documents that were prepared in support of the application:
 - a. The AEE prepared by VK Consulting Environmental Engineers Ltd (VK);
 - b. The section 92 response prepared by VK; and
 - c. The ecological assessment prepared by Wildlands Limited (Wildlands).

11. I note that both documents by VK are more than 10 years old. Given the age of these documents and their data, I reserve the right to reconsider my evidence should the applicant, the Council or submitters present more recent data at the hearing.
12. I have read the evidence prepared by the other witnesses on behalf of FNDC and have relied on such evidence in preparing this brief of evidence. I have also read the submissions lodged in relation to the application to the extent that they are relevant to this evidence.

SUMMARY OF THE PROPOSAL

13. FNDC has sought resource consent for the discharge of wastewater to water and land, as well as discharges to air for the WWTP.
14. This current application package is an interim solution while longer-term treatment and disposal options are studied by FNDC. These studies will also need to consider the ability of the community and FNDC to both fund the construction of any new assets and operate them.
15. FNDC seek approval for the daily discharge of up to 790m³ of treated wastewater discharge daily (dry weather flow) by 2029 to an unnamed tributary of the Parapara Stream. This is less than the 1570m³ sought in the original application and the methodology for the calculation of this flow volume is detailed in Dr MacDonald's evidence.
16. Consent has also been sought for the discharge of wastewater to land, specifically via seepage from the wetlands and main WWTP site. However, while there is limited information available regarding the scale and location of this seepage, Dr MacDonald has advised that the rate of seepage is likely to be low. While, I am unable to provide comment on the potential effects of this seepage, I consider the inclusion of a groundwater monitoring plan as a condition of consent would rectify this issue.

The recommended wording of this condition is provided as Appendix A to my evidence.

17. Additionally, FNDC has also sought an air discharge consent associated with the operation of the WWTP.
18. I note that no physical changes to the site or treatment process have been proposed by FNDC prior to the outcome of the current application process and the imposition of updated effluent discharge standards.
19. In summary, the following consents are required:
 - a. A discharge permit under section 15 of the RMA for the discharge of treated wastewater to an unnamed tributary of the Parapara Stream. This is a discretionary activity under Rule 15.3.2 of the Operative Regional Water and Soil Plan and a discretionary activity under Rule C.6.2.2 of the Proposed Regional Plan (Decision Version).
 - b. A discharge permit under section 15 of the RMA for the discharge of wastewater to land due to seepage from both the treatment ponds and wetland. This is a discretionary activity under Rule 15.3.1 and a discretionary activity under Rule C.6.2.2 of the Proposed Regional Plan (Decision Version).
 - c. A discharge permit under section 15 of the RMA for the discharge to air of odour from the WWTP. This is a discretionary activity under Rule 10.3 of the Operative Air Quality Plan and a discretionary activity under Rule C.7.2.11 of the Proposed Regional Plan (Decision Version).

Overall, the bundled application requires resource consent as a discretionary activity.

DESCRIPTION OF THE EXISTING WWTP

20. The section 42A report provides a detailed history of the WWTP, including its design and consenting history. I will not repeat the material presented in the section 42A report, rather I will give a brief description of the existing plant and its key features.

21. The WWTP is located across two sites at Taipa, Northland. The first site (the "main site") contains the treatment works, with screening, three aerated facultative ponds and a maturation pond. This site is designated under the Operative Far North District Plan (Plan Reference: FN162) (the "District Plan").
22. Primary flows from the network undergo screening before being discharged into the facultative ponds for primary treatment. Within these three ponds, primary treatment is undertaken, with the settling of biosolids to the pond beds where both aerobic and anaerobic microbiological processes begin the reduction of ammonia and Biochemical Oxygen Demand (BOD).
23. Flows from these three ponds is then directed to the maturation pond, where further anaerobic processes reduce ammonia and BOD. The pond also provides an opportunity to reduce Total Suspended Solids (TSS) through settlement.
24. After the maturation pond, the effluent is pumped to a series of four constructed wetlands (the "wetland site"). These wetlands provide further treatment, with additional removal of ammonia through nitrification and denitrification.
25. After the final round of treatment in the wetlands, the treated effluent is discharged into a farm drain. This drain ultimately flows 900m before entering a tributary of the Parapara Stream. Eventually the effluent enters into the Coastal Marine Environment (CMA) via the Awapoko Estuary as shown in Figure 1.



Figure 1: Location of WWTP, wetlands and Awapoko Estuary (Source: Google Maps)

26. There have been also instances of non-compliance with existing consent conditions, principally in the levels of ammonia, as highlighted in Appendix 2 of the section 42A report.

DESCRIPTION OF THE EXISTING ENVIRONMENT

27. Both of the sites which comprise the WWTP are located in rural locales. The main site is located southwest of Taipa, between a forestry block and orchards. To the WWTP's east is Ryders Creek which discharges into the Oruru River. Ryders Creek is identified in the Proposed Northland Regional Plan (the "Proposed Plan") as having outstanding natural character and is described in that plan as follows:
- "Ryders Creek estuary with mangrove shrubland & forest, salt herbfield & saltmarsh. Clean creek, sandy substrate in north, relatively stable catchment."*¹

¹ <https://nrcgis.maps.arcgis.com/apps/webappviewer/index.html?id=a8e411843cc749d3af8eab5a7b26f196>
downloaded 30 May 2019.

28. Ryders Creek is also identified as a scheduled site of cultural significance to Maori (District Plan Reference: MS05-42) "Putangarau - waahi tapu", although it I note that no direct wastewater discharges occur at this site (though ground seepage may occur).
29. The wetland site is located amongst pastoral farmland in the Awapoko River Catchment. The immediate discharge location is a farm drain, which runs for 900m before discharging into the Parapara Stream.
30. As identified by Wildlands, the drain's biophysical properties differ during winter and summer months. These differences are summarised in Table 1 below²:

Property	Winter	Summer
Water Depth	0.3m – 1m	0.1m – 1 m
Wetted Width	1m – 2m	1m – 2m
Fish Species Present	Inanga (<i>Galaxias maculatus</i>) Common Bully (<i>Gobiomorphus cotidianus</i>)	Inanga (<i>Galaxias maculatus</i>) Mosquitofish (<i>Gambusia affinis</i>)

Table 1: Biophysical Properties of the Farm Drain

31. Wildlands has assessed the drain and immediate downstream environment as having low ecological values. This is due in part to the lack of mature riparian vegetation, runoff from rural land uses, and livestock grazing within riparian margins. Their assessment notes that discharge from the WWTP also contributes to the low ecological values, with Wildlands stating:

*"Overall, the ecological values of the receiving watercourses, relative to other streams in the Far North, are low."*³

² Site 3 of the Wildlands Ecological Assessment, April 2015.

³ Page 5, Wildlands Ecological Assessment, April 2015

32. It is noted that the drain and stream are also habitat for both native and introduced fish. In addition to the species identified in Table 1 above, Wildlands also identified the presence of longfin and shortfin eels, as well as the likely presence of banded kokopu⁴.
33. The Parapara Stream discharges into the Awapoko River/Aurere Estuary, which is identified by the Proposed Plan as having high natural character and is described as:
- "Small sandy estuary with sandy intertidal flats and some mud. Vehicle tracks in lower reaches (access). Taller mangroves in upper reaches. Mangroves & saltmarsh widespread in mid and upper reaches. Part of estuary had only been recently fenced so still some stock damage in part. Otherwise quality good."*⁵
34. The Aurere Estuary is also identified by the Proposed Plan as being an ecologically significant marine area for wading and aquatic birds. Avian species present within this area include the Australian Bittern (*Botaurus poiciloptilus*), Banded Dotterel (*Charadrius bicinctus bicinctus*) and the Variable Oystercatcher (*Haematopus unicolor*)⁶.
35. The landward margins of the Aurere Estuary are identified in the District Plan as an outstanding landscape, while the estuary's spit includes a scheduled site of cultural significance to Maori. This site is the "*Okokori/Kaimaua Recreation Reserve & waahi tapu*" (District Plan Reference MS05-38) and I understand this is in Maori ownership.
36. The wider Awapoko River Catchment, as shown in the Doubtless Bay Catchment Plan⁷, has a range of land uses present. Each of these land uses can generate different forms of water pollution. Figure 2, which is taken from the Catchment Plan, shows that a large area of the catchment is used for pastoral farming activities.

⁴ Page 3, *Ibid*

⁵ <https://nrcgis.maps.arcgis.com/apps/webappviewer/index.html?id=a8e411843cc749d3af8eab5a7b26f196> downloaded 30 May 2019.

⁶ <https://www.nrc.govt.nz/media/13603/seas-coastal-and-island-birds-doubtless-rangaunu-and-great-exhibition-bay.pdf> downloaded 30 May 2019.

⁷ Doubtless Bay Catchment Management Plan, Northland Regional Council, August 2017.

Pastoral farming can generate nutrient and pathogen rich surface runoff, principally through fertiliser use and animal waste.

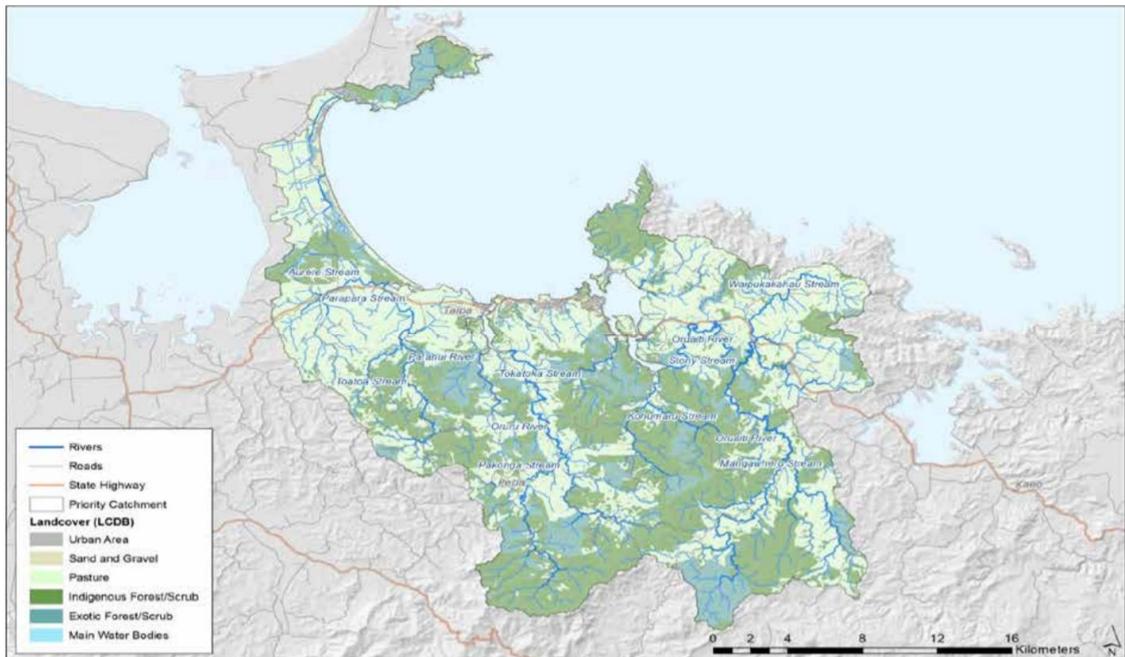


Figure 2: Land Uses within the Doubtless Bay Catchment (Source Northland Regional Council)

37. There are also some areas of plantation forestry, which can contribute to the TSS within waterbodies. In addition, a number of small settlements, such as Parapara and Kaingaroa, are located within the catchment, with these settlements having the potential to generate nutrient and pathogen rich runoff from poorly performing on-site disposal fields. Lastly, further contaminants are likely to be generated by both public roads and farm tracks across the catchment.
38. In summary, the WWTP is located within a largely rural environment, with a range of pollution sources present within the receiving catchment.

ASSESSMENT OF ENVIRONMENTAL EFFECTS

39. The section 42A report has identified the following actual and potential effects arising from the proposed discharges:

- a. Effects on the relationship of Maori and their culture with the receiving waters and ancestral land;
- b. Effects on aquatic ecosystems;
- c. Effects on human health associated with contact recreation and food gathering;
- d. Effects on amenity values; and
- e. Positive effects.

I concur with the report and consider that these are the principal effects arising from the proposed discharges. I will address each of these effects below with consideration to the existing environment as described in my evidence and defined by *Hawthorn Estate Limited NZRMA 424*⁸.

Positive effects

40. Firstly, I wish to consider the positive effects of the application. As noted in the section 42A report, the WWTP was established by the Mangonui County Council following a lengthy planning process between the late 1950s and 1980s. The WWTP was originally identified as being necessary by the local council due to public health risks arising from the poor performance of on-site disposal systems⁹.
41. It is well established that domestic and commercial wastewater has the potential to be harmful to public health, given the presence of pathogens and other environmental contaminants. The WWTP has been a mechanism to alleviate this risk to the local community, alleviating the need for properties to dispose of their own wastewater and increasing the risk that high flows of untreated effluent enter both surface waterbodies or the area's aquifers.
42. I note that the WWTP treated discharges will allow for the continuation of this public health protection for communities within this area of Doubtless Bay and this will be

⁸ The assessment of a proposal's adverse effects against the existing environment is an established principle in law (*Hawthorn Estate Limited NZRMA 424*). Under this case, the existing environment may include unimplemented resource consents and utilisation of rights to carry out permitted activities under a district or regional plan. It does not include future possible resource consents or the ecological potential of watercourses.

⁹ Page 10 of the section 42A report.

augmented by the production of a quantitative microbiological risk assessment (QMA) (as required by the recommended consent conditions¹⁰).

Effects on Maori and their culture

43. I note that a number of submissions received raise the adverse cultural effects of the application, particularly in regard to:
 - a. That the discharge of effluent to water is culturally abhorrent;
 - b. Decreased water quality affects freshwater species;
 - c. The WWTP makes it unsafe to swim; and
 - d. Impacts on customary kai resources.

44. I am aware and acknowledge that the disposal of wastewater directly to water can be culturally offensive to Maori, given the importance of the mauri of water and the role it has in purification and food resources. However, I note that this cultural belief must be taken in the context of other water pollution sources occurring within the Awapoko River Catchment, including those associated with on-site disposal systems and pastoral farming.

45. Any assessment of the WWTP effects must consider this “existing environment”, particularly given the numerous other potential sources of nutrient and pathogen loads. While this may not alleviate the fundamental cultural aspect of the discharge to water (although the wetlands themselves are manmade), it is important when considering the potential for adverse effects on the cultural uses of the Awapoko River Catchment.

46. I note that the discharge location at the farm drain is located 900m from the nearest natural watercourse (i.e. Parapara Stream) and is surrounded by grazing livestock. I am not aware of any culturally significant sites within the vicinity of this discharge point and none are shown on the planning maps of the District Plan.

¹⁰ Condition 6, Appendix 3 of the section 42A report.

47. I am aware that the estuary of the Awapoko River is culturally significant, with the northern side of the estuary identified as a waahi tapu by the District Plan. It is also my understanding that the estuary is an important fisheries resource, both for shellfish and fish.
48. However, I note that the river, by this point, has collected surface water flows and runoff from across its catchment
49. Putting aside these biophysical considerations, I still acknowledge the cultural importance of freshwater and consider that there are opportunities for FNDC to work with local iwi to address their concerns. I understand that FNDC is willing to engage with iwi to discuss their concerns and possible solutions, but in the interim it has a duty to continue providing wastewater services to the wider community.
50. To facilitate this engagement, I recommend the inclusion of consent conditions that establish a community liaison group. The purpose of this group will be to explore possible solutions to resolving the cultural effects of the WWTP and give iwi the opportunity to access monitoring information and studies for the WWTP. In my experience such an approach has been successful for other treatment plants. I have provided draft conditions that provide a suitable mechanism in Appendix A.
51. I also consider that the use of liaison group is an appropriate mechanism to review longer-term solutions for the community's wastewater needs, such as disposal to land. Any such disposal studies would be required to consider any effects on cultural values and the assessment of such effects could include direct engagement through the liaison group with potentially affected hapū.
52. Furthermore, I support the conditions proposed by the section 42A report as they relate to the undertaking of a QMA within one year of the granting of consent and the improvement of the WWTP to reduce ammonia concentrations. I consider that these measures will assist with improving water quality at the discharge location and will also assist in both FNDC's and the community's understanding of the effects of the WWTP on cultural values.

53. The discharge to farm drain is likely to be an interim solution while further disposal studies are undertaken. As Dr MacDonald has advised, improvements to the quality of the discharge can be undertaken, thereby reducing the effects on discharge on the immediate environment. These physical changes to effluent treatment will be augmented by the use of the community liaison group and the development of long-term disposal options. I consider that this two-pronged approach to managing the future of the WWTP will assist in addressing the outstanding cultural effects associated with the current discharge.

Effects on freshwater ecology

54. Wildlands has investigated the freshwater ecology effects generated by the WWTP. In summary, the current operation of the WWTP has resulted in some non-compliance with maximum allowable ammonia levels. Wildlands have identified that ammonia levels at the discharge point and immediately downstream can reach toxic levels for native fish, as well as potentially adversely affect macroinvertebrates.
55. To address these potential effects on freshwater species, the recommended conditions of the section 42A report include the commissioning an engineering analysis to address the non-compliance of the ammonia discharge levels, followed by the implementation of any recommended treatment changes.
56. I agree with this approach given it will allow for the continued operation of the WWTP thereby protecting public health, whilst requiring improvements to its operation to meet water quality standards. The timeframes proposed by the condition are also realistic, given the need to collect data across all seasons and allowing a sufficient period to design, fund and construct any new treatment facilities at the WWTP.

57. Lastly, I note that other than the elevated ammonia levels, the WWTP appears to adequately treat effluent to meet water quality standards for BOD, pathogens and TSS as discussed in Dr MacDonald's evidence.

Effects on human health associated with contact recreation and food gathering

58. As raised earlier, there is little data to suggest that the WWTP discharge generates any risks for human health, either with contact recreation or food gathering within the Awapoko River.

59. Prior to commissioning of the WWTP, Taipa, Cable Bay, Mangonui and Coopers Beach were reliant on on-site disposal. It is well established that concentrated use of numerous on-site systems can result in significant public risks, either due to poor operation of these systems or the unsuitable geology and topography of their location. Without the WWTP, these communities would have been at continued risk of exposure to unsafe levels of pathogens, risking both public health and the enjoyment of the local coastal environment.

60. While there is likely to be a very low risk to human health associated with the discharge, I concur with the section 42A recommended conditions requiring a QMA to be undertaken. I consider that the use of this assessment will assist FNDC in the management of the WWTP, help identify what (if any) upgrading is required and provide the community with some certainty in regard to the effect of the WWTP discharge on the catchment. It will also allow for the updating of the water quality information (as it relates to coliforms and enterococci) collected in 2009 as part of VKs section 92 response to the Council.

Amenity effects

61. I note that one submission (Rachel Harris) has raised odour issues. However, I note that the WWTP is located approximately 630 from the nearest dwelling (622 State Highway 10), although a recent residential subdivision appears to have been approved within approximately 300m (50 Taipa View Road).

62. Given separation distances there is unlikely to be any significant effects which could arise from odour from the site and this is reflected in the lack of any recommended air discharge conditions (other than a standard nuisance condition) in the section 42A report. In order to ensure that odour from the WWTP does not create an ongoing nuisance, I recommend the inclusion of conditions requiring an Odour Management Plan. This is a standard practice for the operation of treatment plans and will ensure amenity effects on neighbouring sites is minimised. A draft condition for this management plan is provided in Appendix A.
63. Lastly, I am also unaware of the discharge generating any general amenity effects, given that it does not give rise to discolouration or odour at the discharge location or further downstream.

Overall effects

64. Given the above, I consider that the ongoing discharges to water and air from the WWTP will result in no more than minor effects once the ammonia concentrations from the site are reduced and the proposed conditions are employed. I am unable to determine the scale of effects from the seepage of effluent to land given the lack of information regarding its impacts on both surface and groundwater.

STATUTORY ASSESSMENT

Statutory tests

65. Given the discretionary activity status of the resource consent application, assessment is required under sections 104 and 104B of the RMA. Section 104(1) details the matters to which a consent authority must have regard to, including:
- a. Actual and potential effects on the environment from the activity;
 - b. Measures proposed or agreed to by the applicant for the purpose of ensuring positive effects to offset or compensate for any adverse effects;
 - c. The relevant provisions of statutory planning documents; and
 - d. Any other matter considered relevant by the consent authority

66. I have previously addressed within my evidence, the actual and potential effects on the environment from the activity and I consider that the application will have no more than a minor adverse effect on the environment.
67. I have also undertaken an assessment of the application against the following statutory planning documents:
- a. The National Policy Statement for Freshwater Management 2014 (the 'NPSFM');
 - b. The Northland Regional Policy Statement (the 'RPS');
 - c. The Northland Regional Water and Soil Plan (the 'WSP');
 - d. The Northland Regional Air Quality Plan (the 'AQP');
 - e. The Proposed Northland Regional Plan (the 'Proposed Plan')

A summary of the relevant objectives and policies of these documents is provided as Appendix B to my evidence.

National Policy Statement for Freshwater Management 2014

68. I consider that Objectives AA1, A1, A2, A4, C1 and D1 are all relevant to the proposed discharges. In particular, Objectives AA1 and D1 refer to the consideration of cultural values and the involvement of iwi and hapū in the management of freshwater. As noted in submissions and by my evidence, there are concerns raised by the local community that the WWTP discharges are in conflict with cultural values.
69. While there is no evidence that the WWTP discharges physically affect the ability to undertake customary food collection or contact recreation (e.g. swimming), I must acknowledge that disposal of wastewater to water is culturally offensive.
70. While disposal to land may be the ultimate solution to rectifying the cultural effects of the WWTP's operation, it will take at least several years to complete such site investigations, undertake the required statutory planning and consultation processes

and complete construction. Furthermore, funding for such a scheme would need to be secured through FNDC's Long Term Plan process.

71. In the interim, it will be necessary to continue operating the WWTP to treat wastewater from the local community. In order to address cultural effects during this interim period, the community liaison group required by my proposed conditions will allow for consultation with local iwi regarding treatment improvements at the WWTP and possible future disposal options. This engagement with iwi and the wider community will be supplemented by both the microbiological and ammonia studies required by the s42A report's recommended conditions.
72. I consider this approach by FNDC to be the most pragmatic approach, given that the WWTP is not a new facility and there is a public health requirement to continue its operation while the land disposal study is completed. Furthermore, the inclusion of iwi in this process, including the sharing of any WWTP studies, is consistent with both Objectives AA1 and D1.
73. I note that Objective A2 seeks the overall maintenance and improvement of freshwater quality. While the WWTP discharge has historically been non-compliant with ammonia limits, the studies required by the conditions, will assist FNDC in improving the treatment at the WWTP and allow for an improvement in freshwater quality downstream of the wetland discharge. These studies and any subsequent WWTP upgrades will also assist in the integrated management of the Doubtless Bay catchment, thereby meeting the requirements of Objective C1.
74. Lastly, I consider that the application is consistent with Objective A4, given its role in providing for the economic wellbeing of the community. Without the WWTP there would be a reliance of on-site treatment systems. The operation of such systems and the loss of development capacity (due to the need to provide adequate space for disposal fields) would incur an economic cost on landowners and residents. At a community level, I note that the FNDC's Long Term Plan has identified the financial

limitations for ratepayers to fund new infrastructure¹¹. While disposal to land may be a future disposal method for the WWTP, the funding source for this new infrastructure has yet to be determined by FNDC. As such, the continued use of the current discharge method, with improvements made to treatment processes and community engagement represents an affordable interim infrastructure solution.

Northland Regional Policy Statement

75. I consider that the proposed discharges, subject to the recommended conditions, are consistent with the objectives and policies of the RPS, in particular Objectives 3.2, 3.4, 3.5, 3.7, 3.12 and 3.14.
76. Objective 3.2 relates to region-wide water quality goals, including the increasing macroinvertebrate community index statuses, improving microbiological water quality and protecting drinking water resources. I note that the primary purpose of the WWTP is the protection of public health by removing the need for on-site disposal of wastewater in Mangonui, Coopers Beach, Cable Bay and Taipa. By removing this need for on-site treatment, the WWTP allows for the controlled and monitored disposal of wastewater effluent. While there are some effects immediately downstream of the primary discharge location (i.e. the farm drain), there is limited evidence that the WWTP discharge generates any noticeable adverse effects on water quality at a catchment level. Furthermore, I consider the studies and water quality improvements required by the recommended conditions will assist the WWTP in further complying with Objective 3.2.
77. Objective 3.4 refers to the safeguarding of Northland's indigenous ecosystems and biodiversity, which is further reinforced by Objective 3.14. I note that the primary discharge location is a farm drain and is approximately 9km upstream of the Awapoko River catchment and an estuary. Improvements to effluent quality, including reductions in ammonia concentrations will reduce the ecotoxicity of the discharge and support the wellbeing of the local native fish population. However, any improvements to the discharge must be tempered by the fact that the farm

¹¹ Page 39, Far North District Council Long Term Plan 2018 – 2028.

drain passes through active pastoral farming land, which itself is likely to have adverse water quality effects.

78. Objective 3.5 requires the enabling of economic wellbeing for Northland and its communities, while Objective 3.6 recognises the importance of regionally significant infrastructure. As stated previously, the WWTP is a vital infrastructure asset, protecting public health and generally preventing water pollution. Without the WWTP, each property would be responsible for its own wastewater.
79. As a consequence, water quality would likely to be affected and public health risks would increase. This would impact on the ability for the local community to market itself as a tourist destination, there would be individual costs for the management and installation of on-site disposal systems and increased health costs due to exposure to pathogens.
80. I also note the importance of Objective 3.12 which addresses the role of tangata whenua in decision-making. As previously acknowledged, the disposal of treated effluent to water is inconsistent with cultural values. While disposal to land is more culturally appropriate, further study and planning is needed before this disposal method can be confirmed, funded and built.
81. As such, the continued operation of the WWTP is required, at least as an interim measure and I consider that there are opportunities for iwi to be involved in both the water quality studies required by the recommended consent conditions, further investigation regarding land disposal and the establishment of a community liaison group.

The Northland Regional Water and Soil Plan

82. The Northland Regional Water and Soil Plan (WSP) reflects many of the matters identified and discussed in the RPS, including the recognition of the traditional and cultural relationships of tangata whenua with land and water, and the maintenance and enhancement of water quality. I consider that my assessment of the application against the RPS suitably addresses both these matters.

83. I draw attention to Objectives 8.6.1 and 8.6.2 which relate to discharges to land and water. I consider that the application is an effective method for the treatment and disposal of wastewater given the presence of existing infrastructure investment and the ability for high ammonia levels from the WWTP to be addressed through treatment improvements.
84. I also consider that the application is the best practicable option in accordance with Policy 8.7(1)(b)(ii). The adverse effects of the discharge to the receiving environment will be reduced through the implementation of improved ammonia removal (and possibly microbiological organism reductions), thereby improving the quality of the freshwater habitat provided by the farm drain and Parapara Stream.
85. These improvements to effluent quality are likely to be achievable without the need for significant financial investment or complicated treatment technology, as highlighted by Dr MacDonald. The low-cost and simplicity of these improvements, as opposed to the construction of a new WWTP and trunk infrastructure, is a critical factor given the limited ability for the local community to absorb both the capital and operational costs of such infrastructure. These improvements can be undertaken while further studies are undertaken to determine the most appropriate long-term disposal method (e.g. disposal to land).

Northland Regional Air Quality Plan

86. The AQP contains several objectives and policies relevant to the application, including Objectives 6.6.1 and 6.6.2. The principal air quality issue for the WWTP is odour, either through the management of screenings or anaerobic processes in the ponds.
87. I note that only one submission has raised odour as an issue, while the nearest existing dwellings are at least 600m from the screening area. The WWTP's rural location is appropriate for the activity and there is limited potential for noxious odours to affect residential amenity or other sensitive land uses (e.g. schools).

However, I do recommend a condition requiring the preparation and use of an odour management plan.

Proposed Northland Regional Plan (Decision Version)

88. With regard to the Proposed Plan, I consider the following objectives to be relevant to the application:
- a. D.1.1 - When an analysis of effects on tangata whenua and their taonga is required;
 - b. D.1.2 - Requirements of an analysis of effects on tangata whenua and their taonga;
 - c. D.1.5 - Managing effects on Places of Significance to Tangata Whenua;
 - d. D.2.2 – Social, cultural and economic benefits of activities;
 - e. D.2.5 - Benefits of regionally significant infrastructure;
 - f. D.2.6 - Minor adverse effects arising from the establishment and operation of regionally significant infrastructure;
 - g. D.2.13 - Recognising other plans and strategies;
 - h. D.2.16 - Managing adverse effects on indigenous biodiversity;
 - i. D.3.1 - General approach to managing air quality;
 - j. D.3.3 - Dust and odour generating activities;
 - k. D.4.1 - Maintaining overall water quality
 - l. D.4.3 - Municipal, domestic and production land wastewater discharges; and
 - m. D.4.6 – Zone of reasonable mixing.
89. While these objectives are largely similar to those in the operative regional plans and have been addressed by my evidence regarding the operative plans, I note the importance of undertaking the QMA and reductions in ammonia concentrations in order to address Objectives D1.1 and D.4.1. Both these actions, as required by the recommended conditions, will assist in reducing the effects of the discharge on both taonga and indigenous biodiversity.
90. Furthermore, Objective D3.3 requires the preparation of an Odour Management Plan where there is a:

“likelihood that there will be objectionable and offensive discharges of dust and/or odour across the property boundary of where the activity is to take place.”

91. While the WWTP is located in a rural location and is located some distance from the nearest existing dwellings, I consider that a condition requiring the development and implementation of an odour management plan, which is included within the recommended conditions is appropriate in order for the activity to be consistent with this objective.
92. I also note that Objective D.4.3 states that the discharge of municipal wastewater to water will 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”*
93. In regard to Point (1), Dr MacDonald’s evidence demonstrates that wastewater treatment at the WWTP can be improved to meet good management practices, including the reduction of ammonia concentrations. These improvements will reduce the adverse effects of the discharge on the receiving environment and are required by the s42A report’s recommended conditions.
94. FNDC has undertaken a previous study for the disposal of wastewater to land. While I consider that further investigation is warranted, the investigation of land disposal and any subsequent commissioning of such a disposal scheme will take time and in the interim there is still a requirement for the treatment and disposal of the community’s wastewater. The discharge of wastewater to land would also likely require significant financial investment by FNDC and it is unclear how these costs would be met by the local community given the Long-Term Plan has identified the

affordability of infrastructure as a strategic issue for the district¹². I also consider that this issue identified by the Long-Term Plan is critical given the direction set by Objective D.2.13.

95. The affordability issue raised by the Long-Term Plan and Objective D.2.13 are reinforced by section 104(1)(c), which states that a consent authority can consider any other matter that it deems to be relevant and reasonably necessary to determine the application. Mr Somers from FNDC has given evidence regarding the FNDC's Long Term Plan and the financial implications for both the council and the community for any significant infrastructure investment. I consider that these financial constraints, including the ability for the community to fund any new treatment schemes, is a critical factor in addressing the current application¹³.
96. I consider that these financial issues require a pragmatic approach to the current application. While FNDC have stated that further studies will be undertaken in regard to disposing of wastewater to land, these studies may indicate that such a disposal method is unaffordable. This would leave the current WWTP and discharge type as the only available option to FNDC.
97. Given the potential for this to occur and the time needed to undertake such studies, the only disposal option currently available to FNDC is the continued operation of the WWTP. However, as noted by Dr MacDonald, the performance of the WWTP can be improved to meet effluent standards and these improvements can be achieved in an affordable manner for the local community.

Section 105 and section 107

98. Both sections 105 and 107 relate to discharge permits. Section 105 states:

¹² Page 43, Far North District Council Long Term Plan 2018 - 2028.

¹³ I note that this includes consideration of the Best Practicable Option, which section 2 of the RMA includes assessment of " *the financial implications ... of that option when compared with other options*".

“If an application is for a discharge permit or coastal permit to do something that would contravene section 15 or section 15B, the consent authority must, in addition to the matters 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.”

99. I note that the proposed discharge will have no more than a minor adverse effect on the environment and these effects will be improved by a reduction in the discharge’s ammonia concentration. This discharge is also likely to be only a small component of the overall contamination present in the Awapoko River catchment with limited effects (if any) on estuary or indigenous biodiversity.

100. With consideration to 105(1)(b) and 105(1)(c), FNDC has undertaken an options assessment for disposal to land. However, further work is required not least an economic assessment to determine whether such an option is affordable for the community. In the interim, the WWTP and associated network is needed to protect public health and minimise the discharge of nutrients to the environment.

101. Section 107 states:

“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

(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.:

102. I note that the discharge to the farm drain is currently consistent with section 107, with the exception of (g). However, the planned improvements to ammonia loads and the QMA will assist the WWTP in meeting both sub-sections of section 107(1).

103. The proposed improvements to treatment and further study of long-term future of the WWTP are also relevant when considering section 107(2). This sub-section states:

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

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

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

(c) that the discharge is associated with necessary maintenance work—”

104. I consider that the current WWTP and associated discharge to the farm drain is an “exceptional circumstance” under section 107(2)(a) and refer to *Paokahu Trust v Gisborne District Council*¹⁴. In this case, consent was sought for an existing wastewater outfall into the CMA and involved an appeal by the Paokahu Trust on cultural grounds. With regard to “exceptional circumstances” the Court stated:

¹⁴ Paokahu Trust V Gisborne District Council A162/2003 [2003] NZEnvC 354

“Exceptional circumstances connotes something out of the ordinary. The consequences of a coastal permit to discharge being refused, would mean that the City would be unable to legally use its sewerage and wastewater system. The likely social, economic and health related affects have already been referred to. Notwithstanding the tardiness of the Council to address a problem that has been extant for many years, we are compelled to grant consent...”

105. The current application for the WWTP is a similar circumstance given that the continued removal and treatment of wastewater from the communities of Taipa, Coopers Beach, Cable Bay and Mangonui is required in order to protect public health. While there are some outstanding issues regarding cultural effects and effluent quality, these can be resolved by the imposition of s42A report’s recommended conditions and those proposed in Appendix A under the direction set by section 107(3).

PART 2 – PURPOSE AND PRINCIPLES

Section 5 -Purpose

106. Section 5 of the RMA states:

“(1) The purpose of this Act is to promote the sustainable management of natural and physical resources.

(2) In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—

(a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and

(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and

(c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.”

107. The application provides for the sustainable use of natural and physical resources in a manner which avoids and minimises its adverse effects through planned improvements to effluent treatment and measures agreed to by FNDC. As a consequence of these factors, the Project will have no more than minor adverse effects on the environment, while supporting the wellbeing of the local community in an affordable manner.

Section 6 - Matters of National Importance

108. Section 6 covers matters of national importance that shall be recognised and provided for:

"In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:

(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:

(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:

(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:

(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:

(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:

(f) the protection of historic heritage from inappropriate subdivision, use, and development:

(g) the protection of protected customary rights:

(h) the management of significant risks from natural hazards."

109. Subject to the reduction in ammonia concentrations and the QMA, I consider that the application is consistent with section 6 (with the exception of sub-section (e)).
110. In regard to section 6(e), I note that a number of submitters have identified that the discharge of effluent to water is culturally offensive. While FNDC has previously investigated disposal of land, which would be more culturally acceptable, further study is needed before funding and the necessary planning applications can be prepared.
111. In the interim, I recommend that FNDC engage with iwi to determine what measures can be employed at the existing WWTP and discharge site to reduce the scale of adverse cultural effects. In light of this recommendation, I have prepared a draft condition requiring community consultation which is attached in Appendix A.

Section 7 – Other Matters

112. Section 7 states the matters that particular regard shall be given to when managing the use, development and protection of natural and physical resources. These matters include:

“(a) kaitiakitanga:

(aa) the ethic of stewardship:

(a) the efficient use and development of natural and physical resources:

(c) the maintenance and enhancement of amenity values:

(d) intrinsic values of ecosystems:

(f) maintenance and enhancement of the quality of the environment:

(g) any finite characteristics of natural and physical resources:

(h) the protection of the habitat of trout and salmon”.

113. As previously discussed in my evidence, the application is largely consistent with these matters, subject to improvements to the WWTP's operation. The application makes use of an existing significant infrastructure investment and ensures the protection of public health through the treatment of wastewater. While disposal to

land may be an option available in the future to FNDC, further planning and economic assessment is needed before a new WWTP scheme can be built and commissioned. As such, the current application represents a practical and pragmatic solution to the community's wastewater needs and it can be operated in a manner, as identified by Dr MacDonald, which will improve its historic non-compliance with water quality standards.

Section 8 – Treaty of Waitangi

114. Section 8 states that in achieving the purpose of the RMA, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).
115. Mr Somers of FNDC has detailed in his evidence the consultation which has been undertaken with local iwi to address their concerns about the WWTP discharge. While iwi would prefer disposal to land, an interim solution is required, and this will need to rely on the use of the existing WWTP and discharge location. However, in order to secure iwi's continued involvement in the area's wastewater management and incorporate the principles of the Treaty, I have recommended a condition requiring ongoing consultation with iwi. Subject to the imposition of this condition, I consider that the application will be consistent with section 8.

Submissions

116. It is clear that the majority of submissions are opposed to the application due to:
- a. The discharge to the farm drain being in contravention of cultural values;
 - b. The historic non-compliance of the WWTP's discharge;
 - c. Odour;
 - d. Effects on culturally important food sources;
 - e. Effects on indigenous biodiversity;
 - f. Lack of adequate monitoring;
 - g. Lack of consultation with iwi.

117. I consider that these matters have been largely addressed throughout my evidence and by the recommended conditions of consent. While the ongoing operation of the WWTP may be offensive to some cultural values, the lack of viable alternatives at present require its continued use and I consider that further engagement with affected iwi would be a useful mechanism to find solutions to these cultural effects.

RESPONSE TO OFFICER'S REPORT

118. I have read the Council Planner's Report, and generally concur with the conclusions reached regarding the approval of the discharges.

PROPOSED CONDITIONS

119. I have reviewed the conditions recommended in the s42a report and recommend several additional conditions as outlined previously in my evidence. These changes are provided as Appendix A and are summarised below:

Consultation Condition

120. In order to address the ongoing cultural effects associated with the discharge to the farm drain, I recommend the following additional general consent condition:
1. *Within three months of the consent commencing the consent holder is to invite representatives of stakeholders with a specific interest in the East Coast Bays Wastewater Treatment Plant and all submitters on the resource consent applications described in condition 1 to participate in an East Coast Bays Wastewater Treatment Plant Consultative Group ("WWTP Consultative Group").*
 - a. *The purposes of the WWTP Consultative Group, the meetings that will be held with the WWTP Consultative Group, and the consent holder's obligations to the WWTP Consultative Group are:*
 - i. *To discuss plant operation, performance, complaints, investigations and planned upgrade works, and the effects or potential effects of these on the community and receiving environment, including the Awapoko River and Parapara Stream;*
 - ii. *To make recommendations to the consent holder and/or the Council on appropriate changes to the monitoring framework to*

- understand the effects of the East Coast Bays Wastewater Treatment Plant on the receiving environment better;*
- iii. To discuss updates on issues that have been resolved;*
To discuss trends in wastewater treatment volume increases and ways in which volumes beyond those authorised by this consent will be treated and disposed of; and
- iv. To discuss any new developments in the area, including whether there are any new users of shallow groundwater or surface water immediately down-gradient of the wetlands, and whether any new users of groundwater or surface water are envisaged;*
- v. A process for informing new users of shallow groundwater and surface water in the area down-gradient of the discharge activities and possible effects on the groundwater and surface water;*
- vi. To consider other issues raised by the WWTP Consultative Group or the consent holder.*
- b. At least once a year, the consent holder is to invite the Northland Regional Council representatives and the WWTP Consultative Group to a meeting to discuss matters relating to the exercise and monitoring of these consents. At this time the consent holder is to provide information on matters relating to the exercise and monitoring of this consent and the proposed work programme for the following 12 months. The information must be provided to the WWTP Consultative Group sufficiently in advance of the meeting so that the WWTP Consultative Group has time to review and to consider*
- c. The consent holder is to keep minutes of the meetings held in accordance with clause (b) and to forward them to all attendees within one month of the meeting being held.*
- d. The consent holder is to provide final electronic copies of the reports prepared in accordance with the conditions of this consent to the WWTP Consultative Group concurrently with them being submitted to the Council."*

Odour Management

121. In order to meet the requirements of Objective D3.3 of the Proposed Plan, I recommend the following additional conditions to air discharge permit AUT.004007.03.03:

- 1. The consent holder is to prepare and maintain an Odour Management Plan to describe measures to control and reduce the potential for odour generation to occur, which could give rise to off-site effects. The Odour Management Plan must be to a standard acceptable to the Northland Regional Council and is to be submitted to the Northland Regional Council for approval in a technical certification capacity within six months from the date of commencement of this consent. Once approved, the Odour Management Plan is to be implemented immediately by the consent holder.*
- 2. When preparing the Odour Management Plan the consent holder is to ensure that immediately adjacent landowners / occupiers and key stakeholders are consulted. This process is to include submitting a draft of the Odour Management Plan to those parties for comment and allowing no less than 10 working days for any responses. When submitting the Odour Management Plan for certification, the consent holder is to provide to the Council with a summary of consultation undertaken, a copy of any written feedback received, how any feedback received has been incorporated, and where feedback has not been incorporated the reasons why.*

Groundwater Monitoring

122. I recommend the following conditions to address the discharge to land sought under AUT.004007.03.03:

“The consent holder must commence a groundwater monitoring programme in the vicinity of the wastewater wetland within 60 working days of commencement of these consents as follows:

- (a) The groundwater monitoring programme must be to a standard acceptable to the Northland Regional Council;*
- (b) Monitoring must be undertaken on a monthly basis and reported to the Northland Regional Council;*
- (c) The groundwater monitoring programme is required to be designed and implemented such that any obvious temporal trends in water quality in the vicinity of the wetlands and treatment ponds can be delineated, and is to include:*
 - i. Bore sites both upstream and downstream of the wetlands and treatment ponds;*
 - ii. Test results for the following:*
 - Ammonia (mg NH₄-N/L)*
 - Escherichia coli (E. coli/100 mL)*
 - Enterococci (Enterococci/100 mL)*
 - pH*
 - Dissolved oxygen (g/m³)”*

CONCLUSIONS

- 123. While the current operation of the WWTP has led to non-compliant discharges to water, the high levels of ammonia can be addressed through treatment process improvements. This will reduce the water quality and freshwater ecological effects of the WWTP.
- 124. The continued operation of the WWTP also represents the most practical interim solution while further work is undertaken to determine whether disposal to land is both a practical and affordable option for the community. The creation of a community liaison group will assist in these studies and also in the daily operation of the WWTP, with improved community oversight of its performance and any upgrades.

125. The application is also consistent with the relevant statutory tests and planning documents, particularly given the regional significance of the WWTP, the role it performs in protecting public health, and its social and economic benefits under the Proposed Plan.
126. Overall, I consider that the proposed discharges can be granted consent, subject to the conditions recommended by the Council and proposed in my evidence

A handwritten signature in black ink, appearing to read 'T. Hegarty', enclosed in a thin black rectangular border.

Timothy Patrick Hegarty

10 June 2019

APPENDIX A – PROPOSED CONDITIONS

Consultation Condition

2. *Within three months of the consent commencing the consent holder is to invite representatives of stakeholders with a specific interest in the East Coast Bays Wastewater Treatment Plant and all submitters on the resource consent applications described in condition 1 to participate in an East Coast Bays Wastewater Treatment Plant Consultative Group (“WWTP Consultative Group”).*
 - a. *The purposes of the WWTP Consultative Group, the meetings that will be held with the WWTP Consultative Group, and the consent holder’s obligations to the WWTP Consultative Group are:*
 - i. *To discuss plant operation, performance, complaints, investigations and planned upgrade works, and the effects or potential effects of these on the community and receiving environment, including the Awapoko River and Parapara Stream;*
 - ii. *To make recommendations to the consent holder and/or the Council on appropriate changes to the monitoring framework to understand the effects of the East Coast Bays Wastewater Treatment Plant on the receiving environment better;*
 - iii. *To discuss updates on issues that have been resolved; To discuss trends in wastewater treatment volume increases and ways in which volumes beyond those authorised by this consent will be treated and disposed of; and*
 - iv. *To discuss any new developments in the area, including whether there are any new users of shallow groundwater or surface water immediately down-gradient of the wetlands, and whether any new users of groundwater or surface water are envisaged;*
 - v. *A process for informing new users of shallow groundwater and surface water in the area down-gradient of the discharge activities and possible effects on the groundwater and surface water;*
 - vi. *To consider other issues raised by the WWTP Consultative Group or the consent holder.*

- b. At least once a year, the consent holder is to invite the Northland Regional Council representatives and the WWTP Consultative Group to a meeting to discuss matters relating to the exercise and monitoring of these consents. At this time the consent holder is to provide information on matters relating to the exercise and monitoring of this consent and the proposed work programme for the following 12 months. The information must be provided to the WWTP Consultative Group sufficiently in advance of the meeting so that the WWTP Consultative Group has time to review and to consider*
- c. The consent holder is to keep minutes of the meetings held in accordance with clause (b) and to forward them to all attendees within one month of the meeting being held.*
- d. The consent holder is to provide final electronic copies of the reports prepared in accordance with the conditions of this consent to the WWTP Consultative Group concurrently with them being submitted to the Council.”*

Odour Management

- 3. The consent holder is to prepare and maintain an Odour Management Plan to describe measures to control and reduce the potential for odour generation to occur, which could give rise to off-site effects. The Odour Management Plan must be to a standard acceptable to the Northland Regional Council and is to be submitted to the Northland Regional Council for approval in a technical certification capacity within six months from the date of commencement of this consent. Once approved, the Odour Management Plan is to be implemented immediately by the consent holder.*
- 4. When preparing the Odour Management Plan the consent holder is to ensure that immediately adjacent landowners / occupiers and key stakeholders are consulted. This process is to include submitting a draft of the Odour Management Plan to those parties for comment and allowing no less than 10 working days for any responses. When submitting the Odour Management Plan for certification,*

the consent holder is to provide to the Council with a summary of consultation undertaken, a copy of any written feedback received, how any feedback received has been incorporated, and where feedback has not been incorporated the reasons why.

Groundwater Monitoring

5. *“The consent holder must commence a groundwater monitoring programme in the vicinity of the wastewater wetlands within 60 working days of commencement of these consents as follows:*

(d) The groundwater monitoring programme must be to a standard acceptable to the Northland Regional Council;

(e) Monitoring must be undertaken on a monthly basis and reported to the Northland Regional Council;

(f) The groundwater monitoring programme is required to be designed and implemented such that any obvious temporal trends in water quality in the vicinity of the wetlands and treatment ponds can be delineated, and is to include:

iii. Bore sites both upstream and downstream of the wetlands and treatment ponds;

iv. Test results for the following:

- Ammonia (mg NH₄-N/L)*
- Escherichia coli (E. coli/100 mL)*
- Enterococci (Enterococci/100 mL)*
- pH*
- Dissolved oxygen (g/m³)”*

APPENDIX B – STATUTORY PLANNING DOCUMENT EXERTS

National Policy Statement for Freshwater Management 2014

Objective	Wording
AA1	To consider and recognise Te Mana o te Wai in the management of fresh water.
A1	To safeguard: a) the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems, of fresh water; and b) the health of people and communities, as affected by contact with fresh water; in sustainably managing the use and development of land, and of discharges of contaminants.
A2	The overall quality of fresh water within a freshwater management unit is maintained or improved while: a) protecting the significant values of outstanding freshwater bodies; b) protecting the significant values of wetlands; and c) improving the quality of fresh water in water bodies that have been degraded by human activities to the point of being over-allocated.
A4	To enable communities to provide for their economic well-being, including productive economic opportunities, in sustainably managing freshwater quality, within limits.
C1	To improve integrated management of fresh water and the use and development of land in whole catchments, including the interactions between fresh water, land, associated ecosystems and the coastal environment.
Objective D1	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.

Northland Regional Policy Statement

Objective	Wording
3.2 Region-wide water quality	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.

	(And Policy 4.2.1).
3.4 Indigenous ecosystems and biodiversity	Safeguard Northland's ecological integrity by: a) Protecting areas of significant indigenous vegetation and significant habitats of indigenous fauna; b) Maintaining the extent and diversity of indigenous ecosystems and habitats in the region; and c) Where practicable, enhancing indigenous ecosystems and habitats, particularly where this contributes to the reduction in the overall threat status of regionally and nationally threatened species. (And Policies 4.4.1(3), 4.4.1(4), 4.6.1(1) and 4.6.1(2)).
3.5 Enabling economic wellbeing	Northland's natural and physical resources are sustainably managed in a way that is attractive for business and investment that will improve the economic wellbeing of Northland and its communities.
3.7 Regionally significant infrastructure	Recognise and promote the benefits of regionally significant infrastructure, (a physical resource), which through its use of natural and physical resources can significantly enhance Northland's economic, cultural, environmental and social wellbeing. (And Policies 5.2.2, 5.3.2 and 5.3.3,)
3.12 Tangata whenua role in decision-making	Tangata whenua kaitiaki role is recognised and provided for in decision-making over natural and physical resources. (And Policies 8.1.1, 8.1.2, 8.1.3 and 8.1.4)
3.14 Natural character, outstanding natural features, outstanding natural landscapes and historic heritage	Identify and protect from inappropriate subdivision, use and development; (a) The qualities and characteristics that make up the natural character of the coastal environment, and the natural character of freshwater bodies and their margins; (b) The qualities and characteristics that make up outstanding natural features and outstanding natural landscapes... (And Policies 4.4.1(3), 4.4.1(4), 4.6.1(1) and 4.6.1(2)).

Northland Regional Water and Soil Plan

Objective	Wording
6.3.1	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. (And Policies 6.4(1), (2) and (3)).
7.4.1	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 water

	<p>and disregarding the effect of any natural events, for such of the purposes listed below as may be appropriate: Lakes, rivers, streams – aquatic ecosystems, contact recreation, water supplies, aesthetic and cultural purposes.</p> <p>(And Policies 7.5.2(3), (4), (5), (6) and (7)).</p>
8.6.1	<p>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 value.</p> <p>(Policy 8.7(1) and (3)).</p>
8.6.2	<p>The reduction and minimisation of the quantities of contaminants entering water bodies, particularly those that are potentially toxic, persistent or bio-accumulative.</p> <p>(Policy 8.7(1) and (3)).</p>

Northland Regional Air Quality Plan

Objective	Wording
6.6.1	<p>The sustainable management of Northland's air resource including its physical, amenity and aesthetic qualities by avoiding, remedying or mitigating adverse effects on the environment from the discharge of contaminants to air.</p> <p>(And Policies 6.7(1), 6.7(2), 6.7(3), 6.7(4) and 6.15(1)).</p>
6.6.2	<p>The maintenance and, where necessary, enhancement of the quality of the environment so that it is free from noxious, dangerous, offensive or objectionable adverse effects associated with discharges to air, such as odour, dust, smoke and poor visibility.</p> <p>(And Policies 6.7(1), 6.7(2), 6.7(3), 6.7(4) and 6.15(1)).</p>

Proposed Northland Regional Plan (Decision Version)

Objective	Wording
D.1.1 - When an analysis of effects on tangata whenua and their taonga is required	<p>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 the following is likely:</p> <ol style="list-style-type: none"> 1) adverse effects on mahinga kai or access to mahinga kai, or 2) any damage, destruction or loss of access to wāhi tapu, sites of customary value and other ancestral sites and taonga with which Māori have a special relationship, or 3) adverse effects on indigenous biodiversity in the beds of waterbodies or the coastal marine area where it impacts on the ability of tangata whenua to carry out cultural and traditional activities, or 4) the use of genetic engineering and the release of genetically modified organisms to the environment, or

	<p>5) adverse effects on tāiapure, mataitai or Māori non-commercial fisheries, or</p> <p>6) adverse effects on protected customary rights, or</p> <p>7) adverse effects on sites and areas of significance to tangata whenua mapped in the Regional Plan.</p>
D.1.2 - Requirements of an analysis of effects on tangata whenua and their taonga	<p>If an analysis of the effects of an activity on tangata whenua and their taonga is required in a resource consent application, the analysis must:</p> <ol style="list-style-type: none"> 1) include such detail as corresponds with the scale and significance of the effects that the activity may have on tangata whenua and their taonga, and 2) have regard to (but not be limited to): <ol style="list-style-type: none"> a) any relevant planning document recognised by an iwi authority (lodged with the Council) to the extent that its content has a bearing on the resource management issues of the region, and b) the outcomes of any consultation with tangata whenua with respect to the consent application, and c) statutory acknowledgements in Treaty Settlement legislation, and 3) follow best practice, including requesting, in the first instance, that the relevant tangata whenua undertake the assessment, and 4) specify the tangata whenua that the assessment relates to, and 5) be evidence-based, and 6) incorporate, where appropriate, mātauranga Māori, and 7) identify and describe all the cultural resources and activities that may be affected by the activity, and 8) identify and describe the adverse effects of the activity on the cultural resources and cultural practices (including the effects on the mauri of the cultural resources, the cultural practices affected, how they are affected, and the extent of the effects), and 9) identify, where possible, how to avoid, remedy or mitigate the adverse effects on cultural values of the activity that are more than minor, and 10) include any other relevant information.
D.2.1 Rules for managing natural and physical resources	<p>Include rules to manage the use, development and protection of natural and physical resources that:</p> <ol style="list-style-type: none"> 1) are the most efficient and effective way of achieving national and regional resource management objectives, and 2) are as internally consistent as possible, and 3) use or support good management practices, and 4) minimise compliance costs, and 5) enable use and development that complies with the Regional Policy Statement for Northland and the objectives of this Plan, and 6) focus on effects and, where suitable, use performance standards.
D.2.2 - Social, cultural and economic benefits of activities	<p>Regard must be had to the social, cultural and economic benefits of a proposed activity, recognising significant benefits to local communities, Māori and the region including local employment and enhancing Māori development, particularly in areas of Northland where alternative opportunities are limited.</p>

D.2.5 - Benefits of regionally significant infrastructure	Particular regard must be had to the national, regional and locally significant social, economic, and cultural benefits of regionally significant infrastructure.
D.2.6 - Minor adverse effects arising from the establishment and operation of regionally significant infrastructure	<p>Enable the establishment and operation (including consenting) of regionally significant infrastructure by allowing any minor adverse effects providing:</p> <ol style="list-style-type: none"> 1) The regionally significant infrastructure proposal is consistent with: <ol style="list-style-type: none"> a) all policies in Section D.1 Tangata whenua, and b) Rule D.2.14 Managing adverse effects on historic heritage, and c) Rule D.2.15 Managing adverse effects on natural character, outstanding natural landscapes and outstanding natural features, and d) Rule D.2.7 Managing adverse effects on indigenous biodiversity, and 2) the regionally significant infrastructure proposal will not likely result in over-allocation having regard to the allocation limits in H.4.3 Allocation limits for rivers, and 3) other adverse effects arising from the regionally significant infrastructure are avoided, remedied, mitigated or offset to the extent they are no more than minor.
D2.13 - Recognising other plans and strategies	When considering a resource consent application have regard to issues, uses, values, objectives and outcomes identified in an operative plan or strategy adopted by the Regional Council that has followed a consultation process carried out in accordance with the consultative principles and procedures of the Local Government Act 2002, to the extent that the content of the plan or strategy has a bearing on the resource management issues of the region.
D.2.16 - Managing adverse effects on indigenous biodiversity	<p>Manage the adverse effects of activities on indigenous biodiversity by:</p> <ol style="list-style-type: none"> 1) in the coastal environment: <ol style="list-style-type: none"> a) avoiding adverse effects on: <ol style="list-style-type: none"> i. indigenous taxa that are listed as Threatened or At Risk in the New Zealand Threat Classification System lists, and ii. areas of indigenous vegetation and habitats of indigenous fauna that are assessed as significant using the assessment criteria in Appendix 5 of the Regional Policy Statement, and iii. areas set aside for full or partial protection of indigenous biodiversity under other legislation, and b) avoiding significant adverse effects and avoiding, remedying or mitigating other adverse effects on: <ol style="list-style-type: none"> i. areas of predominantly indigenous vegetation, other than areas of mangroves to be pruned or removed for one of the purposes listed in D.5.26, and ii. habitats of indigenous species that are important for recreational, commercial, traditional or cultural purposes, and iii. indigenous ecosystems and habitats that are particularly vulnerable to modification, including estuaries, lagoons, coastal wetlands, intertidal zones,

	<p>rocky reef systems, eelgrass, northern wet heathlands, coastal and headwater streams, spawning and nursery areas and saltmarsh, and</p> <p>2) outside the coastal environment:</p> <p>a) avoiding, remedying or mitigating adverse effects so they are no more than minor on:</p> <p>i. indigenous taxa that are listed as Threatened or At Risk in the New Zealand Threat Classification System lists, and</p> <p>ii. areas of indigenous vegetation and habitats of indigenous fauna, that are significant using the assessment criteria in Appendix 5 of the Regional Policy Statement, and</p> <p>iii. areas set aside for full or partial protection of indigenous biodiversity under other legislation, and</p> <p>b) avoiding, remedying or mitigating adverse effects so they are not significant on:</p> <p>i. areas of predominantly indigenous vegetation, and</p> <p>ii. habitats of indigenous species that are important for recreational, commercial, traditional or cultural purposes, and</p> <p>iii. indigenous ecosystems and habitats that are particularly vulnerable to modification, including wetlands, wet heathlands, headwater streams, spawning and nursery areas, and</p> <p>3) recognising areas of significant indigenous vegetation and significant habitats of indigenous fauna include:</p> <p>a) Significant Ecological Areas, and</p> <p>b) Significant Bird Areas, and</p> <p>c) Significant Marine Mammal and Seabird Areas, and</p> <p>4) recognising damage, disturbance or loss to the following as being potential adverse effects:</p> <p>a) connections between areas of indigenous biodiversity, and</p> <p>b) the life-supporting capacity of the area of indigenous biodiversity, and c) flora and fauna that are supported by the area of indigenous biodiversity, and d) natural processes or systems that contribute to the area of indigenous biodiversity, and</p> <p>5) assessing the potential adverse effects of the activity on identified values of indigenous biodiversity, including by:</p> <p>a) taking a system-wide approach to large areas of indigenous biodiversity such as whole estuaries or widespread bird and marine mammal habitats, recognising that the scale of the effect of an activity is proportional to the size and sensitivity of the area of indigenous biodiversity, and</p> <p>b) recognising that existing activities may be having existing acceptable effects, and</p> <p>c) recognising that discrete, localised or otherwise minor effects impacting on the indigenous biodiversity may be acceptable, and</p> <p>d) recognising that activities with transitory effects may be acceptable, and</p>
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	<p>6) recognising that appropriate methods of avoiding, remedying or mitigating adverse effects may include:</p> <ul style="list-style-type: none"> a) careful design, scale and location proposed in relation to areas of indigenous biodiversity, and b) maintaining and enhancing connections within and between areas of indigenous biodiversity, and c) considering the minimisation of effects during sensitive times such as indigenous freshwater fish spawning and migration periods, and d) providing adequate setbacks, screening or buffers where there is the likelihood of damage and disturbance to areas of indigenous biodiversity from adjacent use and development, and e) maintaining the continuity of natural processes and systems contributing to the integrity of ecological areas, and f) the development of ecological management and restoration plans, and <p>7) recognising that significant residual adverse effects on biodiversity values can be offset or compensated:</p> <ul style="list-style-type: none"> a) in accordance with the Regional Policy Statement for Northland Policy 4.4.1, and b) after consideration of the methods in (6) above, and <p>8) recognising the benefits of activities that:</p> <ul style="list-style-type: none"> a) include the restoration and enhancement of ecosystems, habitats and indigenous biodiversity, and b) improve the public use, value or understanding of ecosystems, habitats and indigenous biodiversity.
<p>D.3.1 - General approach to managing air quality</p>	<p>When considering resource consent applications for discharges to air:</p> <ul style="list-style-type: none"> 1) ensure that discharges of contaminants to air do not occur in a manner that causes, or is likely to cause, a hazardous, noxious, dangerous or toxic effect on human or animal health or ecosystems, and 2) apply the best practicable option when managing the discharge of contaminants listed in the National Environmental Standards Air Quality, and 5) take into account the Ambient Air Quality Guidelines (Ministry for the Environment, 2002) when assessing the effects of the discharge on ambient air quality, and 6) take into account the cumulative effects of air discharges and any constraints that may occur from the granting of the consent on the operation of existing activities, and 7) recognise that discharges to air may have adverse effects across the property boundary (including reverse sensitivity effects) and adverse effects on natural character, and 8) take into account the current environment and surrounding zoning in the relevant district plan including existing amenity values, and 9) consider the following factors when determining consent duration: <ul style="list-style-type: none"> a) scale of the discharge including effects, and b) regional and local benefits arising from the discharge, and c) location of the discharge including its proximity to sensitive areas, and d) alternatives available, and

	<p>10) use national guidance produced by the Ministry for the Environment, including:</p> <ul style="list-style-type: none"> a) the Good Practice Guide for Assessing and Managing Odour (Ministry of the Environment, 2016), and d) any subsequent update or revision of these national guidance documents.
D3.3 - Dust and odour generating activities	<p>When considering resource consent applications for discharges to air from dust or odour generating activities:</p> <p>1) require a dust or odour management plan to be produced where there is a likelihood that there will be objectionable or offensive discharges of dust or odour at the boundary of the site where the activity is to take place. The dust or odour management plan must include:</p> <ul style="list-style-type: none"> a) a description of dust or odour generating activities, and b) potentially affected dust sensitive areas or odour sensitive areas, and c) details of good management practices that will be used to control dust or odour to the extent that adverse effects from dust or odour at the boundary of the site are avoided, remedied or mitigated, and <p>2) take into account any proposed use of low dust generating blasting mediums when assessing the effects of fixed or mobile outdoor dry abrasive blasting or wet abrasive blasting.</p>
D.4.1 - Maintaining overall water quality	<p>When considering an application for a resource consent to discharge a contaminant into water:</p> <ul style="list-style-type: none"> 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 H.3 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 H.3 Water quality standards and guidelines.
D.4.3 - Municipal, domestic and production land wastewater discharges	<p>An application for resource consent to discharge municipal, domestic, horticultural or farm wastewater to water will generally not be granted unless:</p> <ul style="list-style-type: none"> 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.
D.4.4 Zone of reasonable mixing	<p>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:</p> <ul style="list-style-type: none"> 1) using the smallest zone necessary to achieve the required water quality in the receiving waters as determined under Policy D.4.1, and 2) ensuring that within the mixing zone contaminant concentrations and levels of dissolved oxygen will not cause acute toxicity effects on aquatic ecosystems.