

MEMO

TO: Paul Waanders (KDC) **DATE:** 8-April-2024
FROM: Annabeth Cohen **PROJECT NO.:** J000841
COPY: Jonathan Clease (Planz)
SUBJECT: PPC84 Mangawhai Hills application review: National Environment Standards - Freshwater

INTRODUCTION

Mangawhai Hills Ltd have applied for a Private Plan Change (the plan change) to the Kaipara District Plan Operative District Plan (ODP) to rezone and modify planning provisions on 218.3 hectares of land at between Tara Road, Cove Road, Moir Road, and Old Waipu Road in Mangawhai.

Awa Environmental Ltd. (Awa) has been engaged by Kaipara District Council (KDC) at the Section 42A stage to review application consenting pathway relating to National Environment Standards for Freshwater (NES-F) and submissions regarding the PPC84 Mangawhai Hills application.

DOCUMENTS REVIEWED

DOCUMENT NAME	AUTHOR	DATE	REV
Appendix 4 – Urban Design Statement and Structure Plan	B&A Urban and Environment	01/03/23	0
Appendix 9 – Stormwater Management Plan (Draft)	Chester Consultants Ltd.	23/02/24	0
Appendix 11 – Ecological Impact Assessment	Bioresearchers	03/03/23	1
Appendix 13a – APEX wastewater proposal	Apex Water	23/04/24	0
Appendix 13b – APEX EOI Wastewater Management	Apex Water	23/11/22	0
Mangawhai Hills Section 32 Report	B&A Urban and Environment	05/03/24	
Applicants Response to Request for Further Information - 24 May 2023	B&A Urban and Environment	24/05/23	0
Infrastructure Response to Request for Further Information - 12 May 2023	Chester	12/05/23	0
PPC84 Summary of Submissions	KDC	07/12/24	0
PP 84 Mangawhai Hills – Summary of Further Submissions	KCD	19/02/24	0

NATIONAL ENVIRONMENTAL STANDARDS - FRESHWATER

The National Environment Standards for Freshwater (NES-F or the National Standards) are designed to “regulate activities that pose risk to the health of freshwater and freshwater ecosystems.”¹ Section 6 state that this regulation prevails unless a district rule, regional rule or resource consent is “more stringent.”

The aspects of the NES-F that apply to this Plan Change are:

- I. natural inland wetlands,
- II. urban and rural streams, and
- III. connectivity of fish habitat (i.e. fish passage).

Activities associated with PPC 84 that need to align with the NES-F are construction activities, infrastructure (i.e. roading, stormwater, wastewater) and discharges. Infrastructure and discharges are discussed below.

I. NATURAL INLAND WETLANDS

NES-F Section 45C Urban Development sets forth **restricted discretionary** status for the following activities, if the activity occurs within a particular setback:

- vegetation clearance (10m),
- earthworks or land disturbance (10m to 100m),
- taking, use, damming or diversion of water (100m), and
- discharging of water (100m).²

For earthworks or land disturbance the status applies if the activity occurs and is “likely to result in complete or partial drainage of all or part of the wetland.” Or in the case of taking, use, damming, or diversion of water within the wetland or within the 100m setback, the status applies if “there is a hydrological connection [...] and [...] will change, or is likely to change, the water level range or hydrological function of the wetland.” In the case of a discharge into water within a natural inland wetland or within the 100m setback, the status applied if “the discharge will enter the wetland; and [...] will change or is likely to change, the water level range or hydrological function of the wetland.”

The proposed plan change appears in principle to be designed around setback distances, with proposed revegetation of a 10m buffer around existing wetlands. The ability of the applicant to know if the NES restricted discretionary status applies relies on having accurate delineation of wetland locations, infrastructure placement and design.

A. INFRASTRUCTURE

The Structure Plan, Appendix 4 sets out the location of the Primary Roads and the location and indicative extent of the wetlands (Figure 1) as in Appendix 11 Ecological Impact Assessment.³

¹ [National environmental standards for freshwater | Ministry for the Environment](#)

² Part 3, *Standards for other activities that relate to freshwater*, Subpart 1 – *Natural inland wetlands* s45C.

5.1 Structure Plan

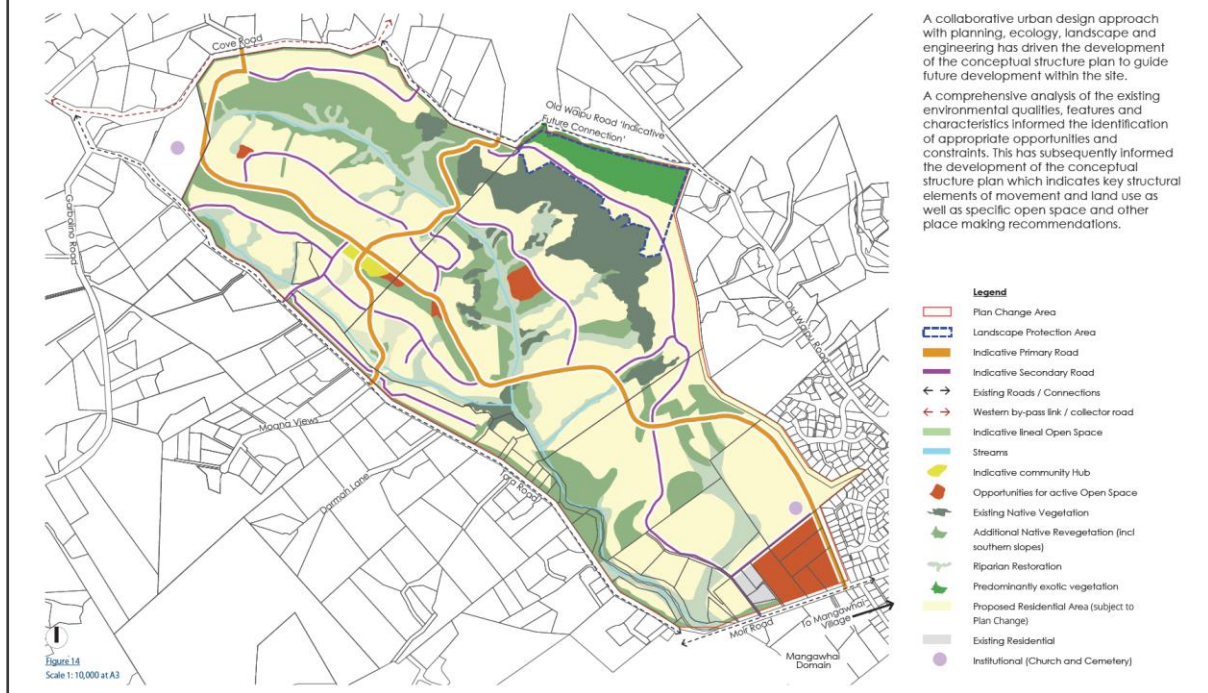


Figure 1. Private Plan Change 84 Mangawhai Hills proposed structure plan (Appendix 4).

Issues raised in submissions include references to uncertainty around wetland extents and seek relief to update the wetland extent on the proposed structure plan. This step is necessary to understand where activities are occurring within the setback distance and trigger the required consent.

As noted by the review of Appendix 11 Ecological Assessment undertaken by Wildlands, there are instances where the placement of roads as proposed in the structure plan (Map 5.1) will go through areas where additional wetland locations have been indicated. Findings by Wildlands (2024) support submission points with concerns that the current extent is inaccurate (Figure 2).

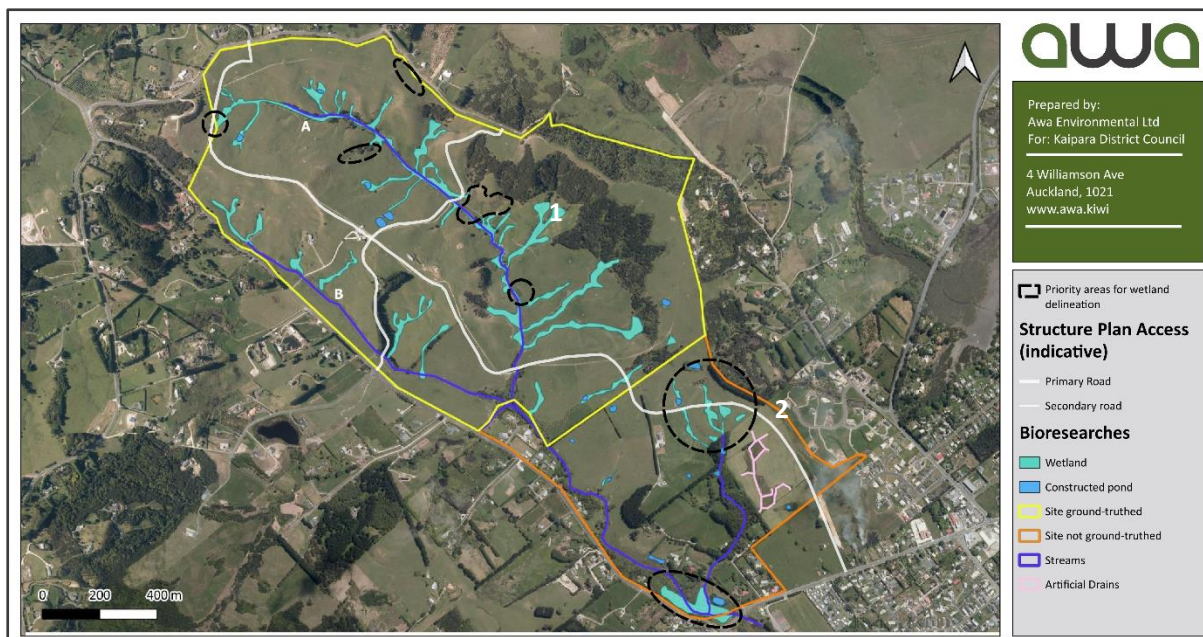


Figure 2. Wetlands indicated in Appendix 11 Ecological Impact Assessment overlaid with additional indicative wetland locations as indicated by Wildland Consultants Ltd as marked by black dashed polygons.

The applicant’s Section 32 Report states that “if crossings are required over wetlands, bridges or arched culverts will be utilised to avoid full or partial wetland drainage.”⁴

The construction of the Primary Roads is likely to require vegetation clearance, earthworks and land disturbances. There is a potential for diversion of water both in and around natural inland wetlands and within the setbacks indicated which could change the water level range or hydrological function of the wetland. However, a resource consent level of design has not been provided at this stage, because the project is at a plan change stage only. and consent has not been sought for these potential activities.

NES-F section 45C (6) states that:

- (6) A resource consent for a restricted discretionary activity under this regulation must not be granted unless the consent authority has first—
 - (a) satisfied itself that the urban development—
 - (i) will contribute to a well-functioning urban environment; and
 - (ii) will provide significant national, regional, or district benefits; and
 - (b) satisfied itself that—
 - (i) there is no practicable alternative location for the activity within the area of the development; or
 - (ii) every other practicable alternative location in the area of the development would have equal or greater adverse effects on a natural inland wetland; and
 - (c) applied the effects management hierarchy.

Figure 3. Screenshot of Resource Management (National Environment Standards for Freshwater) Regulations 2020 (Source: New Zealand Legislation).

In this proposed plan change change, primary roads cross wetlands in various locations. While bridges and arched culverts will reduce impact on wetlands, they may not **avoid** impact (first level of the effects management hierarchy). At a resource consenting stage the Council will need to be assured that s45C(6) is satisfied and that all alternative locations for the activity have been examined as having equal or greater

⁴ Page 49.

adverse effects on the natural inland wetlands, and that the effects management hierarchy has been applied.

Based on our review of the structure plan, the location of the primary access road has potential to be designed to manage effects on wetlands identified to date. While there may be flexibility in the design of secondary roads, the location of one or more of the secondary roads potentially intersect with wetlands recently identified through Wildlands review of the site.

B. DISCHARGES: STORMWATER AND WASTEWATER

Section 55(3)(a)(v) outlines general conditions on natural inland wetland activities and states that the activity must not result in a discharge of a contaminant which may cause “adverse effects on aquatic life that are more than minor.” Then following on from this: (b) indicates that the activity must not increase the level of flood waters, (c) states that the activity “must not alter the natural movement of water into, within, or from any natural inland wetland.”

The proposed plan change stormwater and wastewater activities could change the volume of water and the level of contaminants entering the natural system (wetlands and rivers).

Wastewater is proposed to be discharged to land through subsurface drip irrigation. Figure 3 below can be found in Appendix 13b and indicates the location of the wastewater discharge (blue polygon). Following treatment, this either discharges directly into natural inland wetlands or through overland flow or shallow subsurface water. The structure plan also identifies this location as being an area for additional native revegetation.

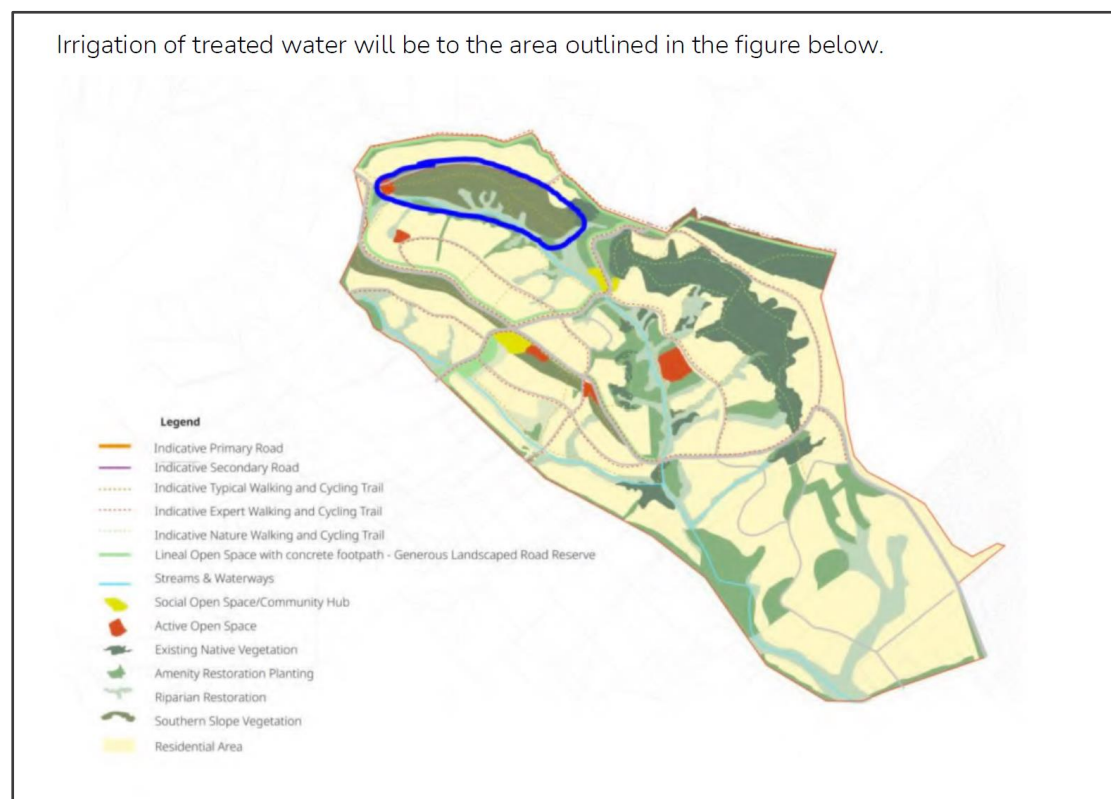


Figure 4. Indicative area (blue polygon) for discharge of treated wastewater blue polygon from Appendix 13b APEX EOI Wastewater Management.

Appendix 13b provides a table that indicates that between 27,000 – 57,000 m² of land would be required to meet the minimum volume discharge requirements i.e. 10mm/day (lower limit) or the maximum nitrogen load restrictions i.e. less than 180 kg/N/ha/year (upper limit).⁵ Information from SCO Consulting indicates that 160,000 m² will be required, however Awa estimate that the land indicated by the blue polygon above will fall short. Awa asked SCO Consulting where the additional drip irrigation will occur on 21-March, and at the time of submitting this evidence had not received a response.⁶

Awa has been informed by KDC that the applicant has applied for the necessary regional consents for the proposed wastewater treatment solution, and that this consent is still being processed. The Council has also indicated that a decision will have been confirmed prior to the hearing date.

Even with the historic dairy-farm land-use, it is assumed that given the current land use that the profile of nitrogen entering natural inland wetlands will lead to change in the maximum loading frequency and duration when compared to the current land use fluxes. While stormwater and wastewater treatment aims to reduce the contaminant load, there will still be contaminants entering the waterway (e.g. nitrogen, phosphorus, sediment, E.coli) as a result of an increase imperviousness and change in land. (Note that sediment contaminant loading continues post construction phase due the increase in volume and peak velocities of water entering the stream.)⁷ As such, analysis will be needed to determine if the discharges result in a change in water quality which will have **adverse effect on aquatic life which is more than minor**. When consents from Northland Regional Council are sought, more information will be needed on the current contaminant loading, future contaminant loading, and the tolerances associated with the current species found in the natural inland wetlands to determine the effect.

It is assumed that the volume of water entering current wetlands could be altered by the wastewater and stormwater discharges and that the plan change therefore will alter the natural movement of water into, within, or from the natural inland wetlands downstream of this discharge. Appropriate revegetation in wetland setback zones may mitigate this risk of excess water from wastewater discharges. And the Stormwater Management Plan outlines that the NES-F setbacks will be respected, and that wetland baseflows will “need to be maintained to ensure the ongoing health of the natural wetland” are also maintained.⁸ This is in relation to the decrease of groundwater recharge with the landuse conversion from pasture to impermeable surfaces.

However, for this plan change, the activities can be addressed using demonstration of functional need, and the effects management hierarchy, provided that:

1. confirmation of the spatial area required for wastewater treatment is confirmed to understand whether there is sufficient space for implementing the structure plan outcomes across the site, and
2. a final stormwater management design is confirmed, as intended, to maintain wetland baseflows.

II. URBAN AND RURAL STREAMS

Part 3, Subpart 2 addresses the reclamation of rivers (i.e. loss of river extent and values) is to be avoided, however is a discretionary activity requiring a resource consent that must not be granted unless the

⁵ Page 23.

⁶ Email correspondence with Director, Clinton Cantrell from SCO Consulting 21-March-2024.

⁷ McCord, Jacqui. (2019). Literature Review: Sediment attributes and Urban Development. Prepared for Ministry for the Environment, New Zealand. Morphum Environmental Ltd., Auckland, New Zealand.

⁸ Appendix 9 Stormwater Management Plan. Page 32.

consenting authority has been able to establish that there is a functional need and has applied the effects management hierarchy in the National Policy Statement for Freshwater Management (NPS-FM) 3.24(3).

A. INFRASTRUCTURE

The Section 32 Report states that “the construction of stream crossings to support roading connections across the site, will be developed to avoid adverse effects on water quality [...] utilising existing stream crossings where possible, and ensuring that the 10m riparian yard setback required on either side of the streams are enhanced and protected through revegetated planting.” And that “the proposed re-zoning will not result in any significant adverse effects on freshwater values, rather the proposal will result in positive effects, being the significant enhancement of freshwater values by the removal of grazing stock and planting of riparian margins.”⁹ Our review agrees that it is possible for the plan change to result in positive effects on freshwater values through appropriate buffer **and** riparian revegetation.

The applicant mentions the use of bridges or arched culverts for wetlands however hasn't clearly stated that this is the case for stream crossings. We would like the proposal to be amended to include a statement to that effect. The assessment on streams can be followed through at the resource consent stage.

B. DISCHARGE

The effect of the wastewater discharged as subsurface drip irrigation (i.e. effect on hydrology and water quality) on river values can be assessed at the resource consent stage.

III. CONNECTIVITY OF FISH HABITAT

These matters have not been assessed as part of this application because they are a regional consenting matter.

CONCLUSION

1. The extent of wetlands will need to be reassessed. See Figure 2.
2. Works adjacent to wetlands are restricted discretionary, and loss of waterway extent and values are to be “avoided.” As such, resource consent applications require demonstration of functional need, and the effects management hierarchy applied.^{10,11}
3. The area of land receiving the wastewater discharge will need to be larger in order to accommodate the expected nutrient loads, which would have implications for the Structure Plan. However, Northland Regional Council may have issued a consent for this activity prior to the hearing which would mean that the discharge field (Awa Environmental estimates to be approximately 90,000 m²) may limit the development or require the development to put forward additional treatment solutions to handle the volume and associated expected concentration of nutrient loading of the wastewater discharge. The final stormwater management design will confirm if, as intended, the wetland baseflows will be maintained and setback distances required by the NES-F will be observed. The stormwater discharges appear to be able to be consented provided these two conditions are verified, baseflows specifically by a hydrologist.

⁹ Page 49.

¹⁰ National Policy Statement for Freshwater Management 2020. Subpart 3, section 3.24.

¹¹ Resource Management (National Environment Standards for Freshwater) Regulations 2020. Part 3. Urban Development. Section 45C (1) – 45C (11).

4. Our review agrees that it is possible for the plan change to result in positive effects on freshwater values through appropriate buffer **and** riparian revegetation in combination, and the uses of bridges and arched culverts when crossing wetlands **or streams**.

BIOGRAPHY STATEMENT

1. My full name is Annabeth Elaine Cohen. I have been a Water Team Leader in the Environmental Services Team at Awa Environmental Limited since 2022.
2. I have 9 years of experience working in freshwater science and policy in New Zealand and hold a Bachelor of Science in Mathematics from Muskingum University in Ohio, United States, and a Master of Science in Hydro-informatics and Water Management from Erasmus Mundus consortium of five universities called EuroAqua.
3. I have experience in diverse projects such as investigating groundwater pressure changes after the Christchurch earthquakes with GNS, with Parliamentary Services providing advice to the Green Party of Aotearoa's co-leaders, and in freshwater science communication, legal advice and policy advocacy at the Royal Forest & Bird Society (Forest & Bird).
4. I have also delivered evidence to a Special Tribunal for the Waikoropupū Springs Water Conservation Order and participated in the hydrology caucus in 2018.
5. During the five years as Forest & Bird's National Freshwater Advocate, I contributed technical knowledge and advice to the legal team regarding national regulations and policies. This included drafting the organisation's submission to the National Policy Statement for Freshwater Management (NPS-FM) in 2017 and 2020, with the latter including a submission relating to the draft National Environment Standards for Freshwater (NES-F). As part of this process, I was involved in providing advice to the Minister for the Environment. After the NES-F and NPS-FM were notified, I had the role of communicating the implications of these updated regulations to the membership, branches, advocacy groups and the general public. Immediately following the notification of the regulations, I was involved in providing technical and policy advice to branches and the national office of Forest & Bird with the drafting of the submissions to council plan changes.
6. At Awa Environmental Ltd. I am leading a small team and providing technical input to deliver projects such as stormwater quality modelling in catchments under growth conditions, monitoring river water quality before, during and after discharges to fulfill consent conditions, conducting wetland feasibility studies for a district and mana whenua on catchment restoration planning, and pre-development environmental assessments.



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