BEFORE WAIKATO REGIONAL COUNCIL
HEARINGS PANEL

UNDER the Resource Management Act 1991 (**RMA**)

IN THE MATTER OF Proposed Plan Change 1 to the Waikato Regional Plan and Variation 1 to that Proposed Plan Change: Waikato and Waipā River Catchments

---

CLOSING SUBMISSIONS

ON BEHALF OF THE AUCKLAND/WAIKATO & EASTERN REGION FISH AND GAME COUNCILS ("FISH & GAME")

Dated: 26 September 2019

Counsel instructed

Sarah Ongley
Barrister
Bank Chambers
PO Box 8213
New Plymouth
Telephone: 06 769 9400
Email: sarah@ongley.co.nz

Closing Submissions

1. Fish & Game attaches as Appendix 1 to these submissions a marked-up version of the Plan Change. This version consolidates the amendments sought by Fish & Game and sets out where amendments respond to evidence. This includes an updated version[1] of Dr. Canning's Table 1 (*Proposed nutrient criteria for Waikato River tributaries*) which recommends annual median Nitrate-nitrogen (N) and Dissolved reactive phosphorus (DRP) levels to assist in meeting the desired ecosystem health states based on modelling.

2. Because Fish & Game does not support the overall framework of the Plan[2], some of the amendments sought by Fish & Game set out in Appendix 1 are only put forward on the basis that the Panel rejects the alternative allocation framework (based on the 'natural capital' of land) that has been sought by Fish & Game, both in its original submission and in its further submissions supporting elements of the Director-General's and Beef & Lamb's submissions.

3. Counsel for Beef and Lamb's legal submissions at Block 3 addressed the 'Nutrient Attributes' for the Waikato River. Counsel for Beef and Lamb referenced the academic paper cited in Dr. Canning's Block 1 evidence.[3] This paper is the basis for Dr. Canning's Table 1. At paragraph 50 of the legal submissions Counsel stated that because of concerns noted about the attribute values in the mainstem, there is a need to re-examine the approach to the sub-catchments and tributaries.

4. Table 1 included in Dr. Canning's evidence relates to recommendations for attributes in the Waikato River tributaries. To clarify, Dr. Canning supports the application of the NPSFM criteria for lakes in the Waikato River mainstem, however has made detailed recommendations regarding the attributes which should be included for *tributaries*. Dr. Canning's evidence is consistent with a 'mountains to the sea' approach, which works from the top

---

[1] Update advised in Memorandum of Counsel for Fish and Game dated 16 July.
[2] Evidence of Helen Marr Block 2 at [6.9] – [6.15], particularly at [6.17].
[3] Beef and Lamb Legal Submissions, Block 3, at [40] - [50] referring to Death, R. G., Magierowski, R., Tonkin, J. D., Canning, A. D. (unpublished). Clean But Not Green: A Weight-of-Evidence Approach for Setting Nutrient Criteria in New Zealand Rivers

of a catchment downstream, recognising all the differing freshwater ecosystems as water flows through tributaries to mainstem.

5. Finally, Fish and Game's submission is that where the desired state for a site is already met, water quality should be maintained.[4]

S J Ongley
Counsel for the Auckland/Waikato and Eastern Fish & Game Regions

[4] PC1-11007.

APPENDIX 1

PC1 Consolidated Reccomendations

Red tracked changes are insertions or deletions due to Variation 1

Black tracked changes are insertions or deletions recommended by the Council Officers

Blue tracked changes are insertions or deletions recommended by Helen Marr in planning expert evidence.

Green tracked changes are insertions or deletions recommended in non-planning expert evidence and submissions brought by Fish and Game.

3.11.1 Values and uses for the Waikato and Waipa Rivers/Ngā Uara me ngā Whakamahinga o ngā Awa o Waikato me Waipā

~~The National Policy Statement – Freshwater Management Policy CA2 requires certain steps to be taken in the process of setting limits^. These include establishing the values^ that are relevant in a FMU^, identifying the attributes^ that correspond to those values^, and setting objectives based on desired attribute states^. This section describes values and uses for the Waikato and Waipa Rivers, to provide background to the objectives and limits^ in later sections.~~

This section describes the values and uses for the Waikato and Waipā Rivers. The values and uses reflect the Vision and Strategy for the Waikato River. The values and uses set out below apply to all FMU's unless explicitly stated, and provide background to the freshwater objectives, and the attributes and attribute states outlined in Table 3.11-1.

Vision and Strategy for the Waikato River/Te Ture Whaimana o Te Awa o Waikato[1]

"Our vision is for a future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come."[2]

The values below have been prepared and are supported by the Collaborative Stakeholder Group.

Te Mana o te Wai: Mana Atua, Mana Tangata

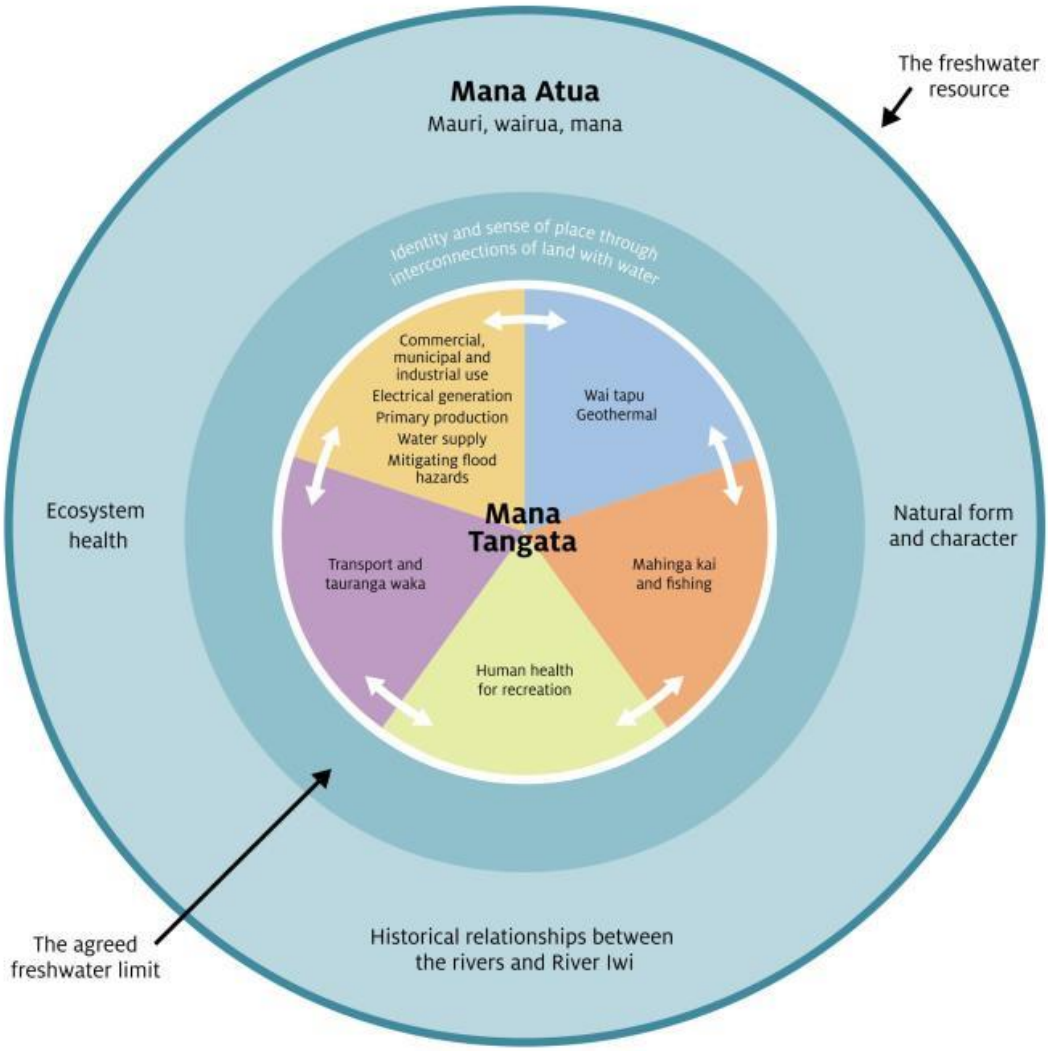
Values can be thought of in terms of Mana Atua and Mana Tangata, which represent Te Mana o te Wai[3]. Mana Atua represents the intrinsic values of water including the mauri (the principle of life force), wairua (the principle of spiritual dimension) and inherent mana (the principle of prestige, authority) of the water and its ecosystems in their natural state. Mana Tangata refers to values of water arising from its use by people for economic, social, spiritual and cultural purposes. Mana Atua and Mana Tangata values encompass past, present and future.

A strong sense of identity and connection with land and water (hononga ki te wai, hononga ki te whenua) is apparent through the Vision and Strategy and the many values associated with the rivers. This is represented in the figure below as a unifying value that provides an interface between the Mana Atua and Mana Tangata values.

[1] *The Nga Wai o Maniapoto (Waipa River) Act 2012 extended Te Ture Whaimana o te Awa o Waikato to also cover the Waipa River and its catchment*

[2] *The Vision and Strategy is intended by Parliament to be the primary direction setting document for the Waikato River and activities within its catchment affecting the Waikato River. Values and uses are intrinsic to, and embedded in the Vision and Strategy.*

[3] *The National Policy Statement for Freshwater Management 2014 states that the aggregation of a range of community and tangata whenua values, and the ability of fresh water to provide for them over time, recognises the national significance of fresh water and Te Mana o te Wai.*



Note: New diagram from Variation 1 to be inserted.

Hononga ki te wai, hononga ki te whenua - Identity and sense of place through the interconnections of land with water

- The rivers contribute to a sense of community and sustaining community wellbeing.
- The rivers are an important part of whānau/family life, holding nostalgic feelings and memories and having deep cultural and historical significance.
- For River Iwi and other iwi, respect for the rivers, wetlands and springs lies at the heart of the spiritual and physical wellbeing of iwi and their tribal identity and culture. The river, wetlands and springs are ~~is~~ not separate from the people but part of the people, "Ko au te awa, ko te awa ko au" (I am the river and the river is me).
- Whanaungatanga is at the heart of iwi relationships with rivers, wetlands and springs. Te taura tāngata is the cord of kinship that binds iwi to rivers, wetlands and springs. It is a braid that is tightly woven, tying in all its strands. It is unbroken and infinite, forming the base for kaitiakitanga and the intergenerational role that iwi have as kaitiaki.
- The rivers are a shared responsibility, needing collective stewardship: kaitiakitanga – working together to restore the rivers. There is also an important intergenerational equity concept within kaitiakitanga.
- Mahitahi (collaborative work) encourages us all to work together to achieve common goals.

3.11.1.1 Mana Atua – Intrinsic values

~~**Intrinsic values - Ancestry and History**~~

~~Ko te whakapapa o ngā iwi ki ōna awa tūpuna~~ Ko ngā hononga tūpuna me ngā hononga o mua i waenga i ngā iwi o te awa me ētehi atu iwi me ngā awa, ngā repo me ngā puna / Ancestral and Historical ~~relationships~~ connections between the rivers, wetlands, springs and River Iwi and other iwi

Ko ngā kōrero tūpuna me ngā Kōrero o Mua~~o neherā~~ / Ancestry and History

~~Each~~ River Iwi and other iwi have ~~has~~ their own unique and intergenerational relationship with the rivers, wetlands and springs.	▪ ~~The~~ Rrivers, wetlands and springs have always been seen as taonga (treasures) to all River Iwi and other iwi. ▪ ~~The~~ Rrivers, wetlands and springs have always given River Iwi and other iwi a strong sense of identity and connection with the land and water. ▪ Rivers, wetlands and springs were used holistically; River Iwi and other iwi understood the functional relationships with and between all parts of the rivers, wetlands and springs, spiritually and physically as kaitiaki. ▪ Tribal taniwha and tupua dwell in the rivers which are also the location of continued spiritual and cultural traditions and practices maintained over the many centuries. ▪ Iwi tupuna inhabited a rohe that teemed with life in the rivers, wetlands and springs. These resources were subject to access and use rights as an essential part of kaitiakitanga. ▪ Iwi strive to maintain and restore these relationships despite the modification and destruction that has occurred through different types of development ~~along~~ affecting the rivers, wetlands and springs.

~~**Intrinsic values - Ecosystem health**~~

Ko te hauora me te mauri o te wai / The health and mauri of water

Ecosystem health

The Waikato and Waipa catchments support resilient freshwater ecosystems and healthy freshwater populations of indigenous plants and animals and valued introduced species.	▪ Clean fresh water restores and protects aquatic native vegetation to provide habitat and food for native aquatic species, trout and for human activities or needs, including swimming and drinking. ▪ Clean fresh water restores and protects macroinvertebrate communities for their intrinsic value and as a food source for native fish, trout, native birds and introduced game species. ▪ Clean fresh water supports native freshwater fish species.

	▪ Wetlands are healthy and functioning including having ecological and hydrological integrity supported by good water quality and their extent is maintained and improved. ▪ Clean fresh water supports healthy populations trout and their habitats in appropriate locations, including spawning and migration habitats. ▪ Wetlands and floodplains provide water purification, refuge, feeding and breeding habitat for aquatic species, habitat for water fowl and other ecosystem services such as flood attenuation. ▪ Fresh water contributes to unique habitats including peat lakes, shallow riverine lakes and karst formations which all support unique biodiversity. ▪ Rivers and adjacent riparian margins have value as ecological corridors.

[Or:]

Trout fishery

The Waikato and Waipā catchments support resilient freshwater ecosystems and healthy populations of rainbow and brown trout.	▪ The rivers provide clean water that supports healthy populations of trout ▪ Clean fresh water supports healthy populations trout and their habitats in appropriate locations from headwaters and tributaries to the sea, including spawning and migration habitats. ▪ Trout populations exhibit individuals in good condition, across a rage of sizes. ▪ Trout are suitable for human consumption and their numbers support fishing activities. ▪ People are able to safely enjoy fishing and the outdoor experience it gives them; it contributes to their health and wellbeing. ▪ Trout are able to move been appropriate habitat at all stages of their life.

Trout spawning

The appropriate tributaries of the Waikato and Waipā catchments provide appropriate habitat for trout spawning.	▪ The tributaries provide habitat for spawning which supports healthy populations of trout. ▪ The tributaries provide clean, cool and clear water for spawning. ▪ The tributaries provide an appropriate gravel substrate for spawning beds, egg and juvenile survival.

~~**Intrinsic values - Natural form and character**~~

Ko te hauora me te mauri o te taiao / The health and mauri of the environment

Natural form and character

Retain the integrity of ~~the~~ lakes, rivers and wetlands within the landscape and its aesthetic features and natural qualities for people to enjoy.	▪ ~~The~~ Lakes, rivers and wetlands have amenity and naturalness values, including native vegetation, undeveloped stretches, and significant sites. ▪ Matters contributing to natural form and character include the natural movement of water and sediment including hydrological and fluvial process, the colour of the water and the clarity of the water. ▪ People are able to enjoy the natural environment; it contributes to their health and wellbeing. ▪ The rivers are an ecological and cultural corridor. ▪ The lakes, rivers and wetlands as a whole living entity.

3.11.1.2 Mana Tangata – Use values

~~**Use values - Wai tapu**~~

Ko ngā wai tapu me ngā wai kino / Sacred and harmful waters

Wai tapu and wai kino

Area of water body set aside for spiritual activities that support spiritual, cultural and physical wellbeing or have properties that require additional caution or care.	▪ ~~The~~ Lakes, rivers and wetlands are a place for sacred rituals, wairua, healing, spiritual nurturing and cleansing. ▪ ~~The~~ Lakes, rivers and wetlands provide for cultural and heritage practices and cultural wellbeing, particularly at significant sites. ▪ ~~The~~ Lakes, rivers and wetlands have different states of wai tapu and wai kino that are adhered to and respected.

~~**Use values – Geothermal**~~

Ko ngā Ngāwhā / Geothermal

Geothermal

A valued resource that is naturally gifted to sustain certain activities (meeting spiritual and physical needs).	▪ Geothermal areas and their various resources were prized by tūpuna (ancestors) for their many uses and are still valued and used today. ▪ Geothermal areas of the river have natural form and character, and unique flora found only in the geothermal environment. ▪ Geothermal areas are a special microclimate.

~~**Use values – Mahinga kai**~~

Ko ngā wāhi mahinga kai / Food gathering, places of food

Mahinga kai and fishing

The ability to access the Waikato and Waipa Rivers, lakes, and wetlands and their tributaries to gather sufficient quantities of kai (food) that is safe to eat and meets the social and spiritual needs of their stakeholders.	▪ ~~The~~ Lakes, rivers and wetlands provide for freshwater native species, native vegetation, and habitat for native animals. ▪ ~~The~~ Lakes, rivers and wetlands provide for freshwater game and introduced kai species, incuding trout. ▪ ~~The~~ Lakes, rivers and wetlands provide for cultural wellbeing, knowledge transfer, intergenerational harvest, obligations of manaakitanga (to give hospitality to, respect, generosity and care for others) and cultural opportunities, particularly at significant sites. ▪ The rivers should be safe to take food from, both fisheries and kai. ▪ ~~The~~ Lakes, rivers and wetlands support aquatic life, healthy biodiversity, ecosystem services, flora and fauna and biodiversity benefits for all. ▪ The rivers are a corridor. ▪ ~~The~~ Lakes, rivers and wetlands provide resources available for use which could be managed in a sustainable way. ▪ The rivers provide for recreation needs and for social wellbeing.

[Or, include separate fishing value (and trout spawning value) as requested above under ecosystem health]

~~**Use values – Human health for recreation**~~

Ko te hauora me te mauri o ngā tāngata / The health and mauri of the people

Human health for recreation

~~The~~ Lakes and rivers are a place to swim and undertake recreation activities in an environment that poses minimal risk to health.	▪ ~~The~~ Lakes, ~~and~~ rivers and wetlands provide for recreational use, social needs and social wellbeing, are widely used by the community, and are a place to relax, play, exercise and have an active lifestyle. ▪ An important value for the lakes, ~~and~~ rivers and wetlands is cleanliness; the lakes, ~~and~~ rivers and wetlands should be safe for people to swim in. ▪ The lakes, ~~and~~ rivers and wetlands provide resources available for use (including for hunting and fishing) which could be managed in a sustainable way.

~~**Use values - Transport and tauranga waka**~~

He urungi / Navigation

Transport and tauranga waka

All communities can use ~~the~~ lakes and rivers to pilot their vehicles and waka and navigate to their destinations.	▪ ~~The~~ Lakes and rivers provide for recreational use (navigation), and sporting opportunities. ▪ ~~The~~ Lakes and rivers are a corridor, mode of transport and mode of communication. ▪ ~~The~~ Lakes and rivers provide for culture and heritage, cultural wellbeing, and social wellbeing, particularly at significant sites.

~~**Use values - Primary production**~~

Ko ngā mahi māra me ngā mahi ahu matua / Cultivation and primary production

Primary production

The rivers support regionally and nationally significant primary production in the catchment (agricultural, horticultural, forestry). These industries contribute to the economic, social and cultural wellbeing of people and communities, and are the major component of wealth creation within the region. These industries and associated primary production also support other industries and communities within rural and urban settings.	▪ The rivers support a wide variety of primary production in the catchment, including dairy, meat, wool, horticulture and forestry. ▪ Due to the economies of scale of these industries, other service sectors, such as agritech, aviation and manufacturing, are able to operate. ▪ These industries combined contribute significantly to regional and national GDP, exports, food production and employment. ▪ The rivers and the surrounding land offer unique opportunities for many communities and industries to operate, contributing to the lifestyle and sense of community, pride and culture in rural and urban Waikato.

~~**Water supply**~~

Ko ngā hapori wai Māori / Municipal and domestic water supply

Water supply

The rivers provide for community water supply, municipal supply and~~,~~ drinkable water supply ~~and health~~.	▪ The catchments' surface and subsurface water is of a quality that can be effectively treated to meet appropriate health standards for both potable and non-potable uses.

~~**Use values - Commerical, municipal and industrial use**~~

Ko ngā āu putea / Economic or commercial development

Commercial, municipal and industrial use

The rivers, lakes, and wetlands provide economic opportunities to people, businesses and industries.	Fresh water is used for industrial and municipal processes, which rely on the assimilative capacity for discharges to surface water bodies. In addition: ▪ ~~The~~ Lakes, rivers and wetlands provide for economic wellbeing, financial and economic contribution, individual businesses and the community and the

	vibrancy of small towns. They are working lakes, rivers and wetlands; they create wealth. ▪ Those industries are important to the monetary economy of Waikato region, enabling a positive brand to promote to overseas markets. ▪ ~~The~~ Lakes, rivers and wetlands provide for domestic and international tourism. Promotion of a clean, green image attracts international and domestic visitors. ▪ ~~The~~ Lakes, rivers and wetlands provide assimilative capacity for wastewater disposal, flood and stormwater, and ecosystem services through community schemes or on site disposal.

~~**Use values - Electricty generation**~~

Electricity generation

The river provides for reliable, renewable hydro and geothermal energy sources and thermal generation, securing national self-reliance and resilience. New Zealand's social and economic wellbeing are dependent on a secure, cost-effective electricity supply system. Renewable energy contributes to our international competitive advantage. Electricity also contributes to the health and safety of people and communities.	▪ Waikato hydro scheme extends over 186km, comprising Lake Taupō storage, dams, lakes, and power stations. Tongariro Power scheme adds 20 per cent to natural inflows to Lake Taupō. ▪ Huntly Power Station's role in the New Zealand electricity system is pivotal, particularly when weather dependent renewable generation is not available. Fresh water is used for cooling and process water. ▪ Geothermal power stations located on multiple geothermal systems use fresh water for cooling, process water and drilling.

~~**Use values - Mitigating flood hazards**~~

Mitigating flood hazards

Flood management systems protect land used and inhabited by people and livestock.	▪ River engineering, including stopbanks and diversions, protect land and infrastructure from damage by flooding.

3.11.2 Objectives and freshwater objectives/Ngā Whāinga

Objective 1~~: Long-term restoration and protection of water quality for each sub-catchment and Freshwater Management Unit/Te Whāinga 1: Te whakaoranga tauroa me te tiakanga tauroa o te kounga wai ki ia riu kōawaawa me te Wae Whakahaere i te Wai Māori~~

~~By 2096 at the latest, a reduction in the discharges of nitrogen, phosphorus, sediment and microbial pathogens to land and water results in achievement of the restoration and protection of the Waikato and Waipā Rivers, such that of the 80-year water quality attribute targets states in Table 3.11-1 are met.~~

To restore and protect the health and wellbeing of the Waikato and Waipā catchments so that the values are provided for and the 80 year water quality attribute states in Table 3.11-1 to 3.11-1C are achieved by 2096.

Objective 2~~: Social, economic and cultural wellbeing is maintained in the long term/Te Whāinga 2: Ka whakaūngia te oranga ā-pāpori, ā-ōhanga, ā-ahurea hoki i ngā tauroa~~

~~Waikato and Waipa communities and their economy benefit from t~~The restoration and protection of water quality in the Waikato and Waipā River catchments, and achievement of the water quality attribute states in Table 3.11-1 to 3.11-1C provides for the values and uses identified in section 3.11.1 while ~~which~~ enable~~s~~ing the people and communities to continue to provide for their social, economic and cultural wellbeing.

Objective 3~~: Short-term improvements in water quality in the first stage of restoration and protection of water quality for each sub-catchment and Freshwater Management Unit/Te Whāinga 3: Ngā whakapainga taupoto o te kounga wai i te wāhanga tuatahi o te whakaoranga me te tiakanga o te kounga wai i ia riu kōawāwa me te Wae Whakahaere Wai Māori~~

Actions put in place and implemented by 2026 to reduce diffuse and point source discharges of contaminants ~~nitrogen, phosphorus, sediment and microbial pathogens~~, are sufficient to achieve the short-term water quality attribute states in Table 3.11-1 by 2030 (for contaminants other than nitrogen) or 2035 (for nitrogen). ~~ten percent of the required change between current water quality and the 80-year water quality attribute targets in Table 3.11-1. A ten percent change towards the long-term water quality improvements is indicated by the short-term water quality attribute targets in Table 3.11-1.~~
Actions put in place and implemented by 2036 to reduce diffuse and point source discharges of contaminants, are sufficient to achieve the medium-term water quality attribute states in Table 3.11-1 by 2040 (for contaminants other than nitrogen) or 2045 (for nitrogen).

~~Objective 4: People and community resilience/Te Whāinga 4: Te manawa piharau o te tangata me te hapori~~

~~A staged approach to change enables people and communities to undertake adaptive management to continue to provide for their social, economic and cultural wellbeing in the short term while:~~

~~a. considering the values and uses when taking action to achieve the attribute^ targets^ for the Waikato and Waipa Rivers in Table 3.11-1; and~~

~~b. recognising that further contaminant reductions will be required by subsequent regional plans and signalling anticipated future management approaches that will be needed to meet Objective 1.~~

[OR]

Objective 4: ~~People and community resilience/Te Whāinga 4: Te manawa piharau o te tangata me te hapori~~

A staged approach to reducing contaminant losses ~~change~~ enables people and communities to ~~undertake adaptive management to continue to~~ provide for their social, economic and cultural wellbeing in the short term while:

a. ~~considering~~ Providing for the values and uses when taking action to achieve the attribute^ ~~targets^~ states for the Waikato and Waipa Rivers in Table 3.11-1; and

b. recognising that further contaminant reductions will be required by subsequent regional plans ~~and signalling anticipated future management approaches that will be needed~~ in order to meet Objective 1.

Objective 5~~: Mana Tangata – protecting and restoring tangata whenua values/Te Whāinga 5: Te Mana Tangata – te tiaki me te whakaora i ngā uara o te tangata whenua~~

Tangata whenua values are integrated into the co-management of the rivers and other water bodies within the catchment such that:

a. tangata whenua have the ability to:
   i. manage their own lands and resources, by exercising mana whakahaere, for the benefit of their people; and
   ii. actively sustain a relationship with ancestral land and with the rivers and other water bodies in the catchment; and
b. new impediments to the flexibility of the use of tangata whenua ancestral lands are minimised; and
c. improvement in the rivers' water quality and the exercise of kaitiakitanga increase the spiritual and physical wellbeing of iwi and their tribal and cultural identity.

~~Objective 6: Whangamarino Wetland/Te Whāinga 6: Ngā Repo o Whangamarino~~

~~a. Nitrogen, phosphorus, sediment and microbial pathogen loads in the catchment of Whangamarino Wetland are reduced in the short term, to make progress towards the long-term restoration of Whangamarino Wetland; and~~
~~b. The management of contaminant loads entering Whangamarino Wetland is consistent with the achievement of the water quality attribute^targets^ in Table 3.11-1.~~

Objective 6~~: Whangamarino Wetland/Te Whāinga 6: Ngā Repo o Whangamarino~~

The significant values and uses of wetlands identified in 3.11.1 and their ecosystems and hydrological functioning are protected and the extent and condition of wetlands is maintained and improved so that the water quality attribute states in Table 3.11-1B are achieved by 2096.

Whangamarino Wetland is recognised as an outstanding waterbody and its significant values, including habitat for threatened species and sensitive raised bog ecosystem, are protected, including by ensuring that:

a. ~~Nitrogen, phosphorus, sediment and microbial pathogen~~ Contaminant loads in the catchment of Whangamarino Wetland are reduced in the short term, to make progress towards the long-term restoration of Whangamarino Wetland; and
b. The management of contaminant loads entering Whangamarino Wetland is consistent with the achievement of the water quality attribute^state~~targets~~^ in Table 3.11-1B and Table 3.11-1C.
c. An integrated approach is taken so that the hydrological regime of the Whangamarino wetland is actively managed to ensure the short, medium and long term water quality attribute states in Table 3.11-1B and Table 3.11-1C can be achieved.

~~Principal Reasons for Adopting Objectives 1-6/Ngā Take Matua me Whai ngā Whāinga 1 ki te 6~~

[All reasons for adopting Objectives deleted consistent with s42A report recommendations]

3.11.3 Policies/Ngā Kaupapa Here

Policy 1: Manage diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens/Te Kaupapa Here 1: Te whakahaere i ngā rukenga roha o te hauota, o te pūtūtae-whetū, o te waiparapara me te tukumate ora poto

Reduce ~~Manage and require reductions in~~ catchment-wide and sub-catchment~~-wide~~ diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens, by:

a1. Requiring all farming activities to operate at Good Farming Practice, or better; and

a2. Establishing, where possible, a Nitrogen Reference Point for all properties or enterprises; and

a. Enabling through permitted activity rules, activities with a low level of risk of contaminant discharge to water bodies provided those discharges do not increase and and adverse effects, including cumulative effects, are avoided, remedied or mitigated; and

b. Requiring, through the resource consent process, **farming activities** with moderate to high levels of contaminant discharge to water bodies to reduce their discharges proportionate to the amount of the 2016 discharge (those discharging more are expected to make greater reductions) and proportionate to the water quality improvements required in the sub-catchment, based on Tables 3.11-3 and 3.11-4[4]; and

b1. Calculating the 75th percentile and 50th percentile nitrogen leaching values and requiring farmers with a Nitrogen Reference Point greater than the 75th percentile to reduce nitrogen loss to below the 75th percentile within 3 years of consent being granted and farmers with a Nitrogen Reference Point between the 50th and 75th percentile to demonstrate real and enduring reductions of nitrogen leaching within 3 years of the consent being granted, with resource consents specifying an amount of reduction or changes to practices required to take place; and

c. Progressively excluding cattle, horses, deer and pigs from rivers, streams, **drains**, wetlands and lakes; and~~.~~

ca. Where cattle, horses, deer or pigs are not excluded from waterbodies, ensure that access of stock to waterbodies does not cause adverse effects on the waterbody including conspicuous pugging and exacerbated erosion, and where a resource consent is required for the activity use consent conditions to require mitigation measures to address the damage to habitat and discharge of contaminants, such as the provision of additional vegetated riparian buffers; and

d. Providing riparian buffers (with appropriate riparian vegetation where necessary) adjacent to rivers, streams, drains, wetlands and lakes to reduce overland flow of contaminants and improve the habitat quality of rivers and streams; and

e. Allocating diffuse discharges to land based on science defined limits and targets, and progressively phasing out the over allocation of contaminant discharges over time.

Policy 2: Tailored approach to reducing diffuse discharges from farming activities/Te Kaupapa Here 2: He huarahi ka āta whakahāngaihia hei whakaiti i ngā rukenga roha i ngā mahinga pāmu

Reduce ~~Manage and require reductions in~~ catchment-wide and sub-catchment~~-wide~~ diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens from farming activities on properties and enterprises, through Farm Environment Plans that:

a1. Set out clear, specific and timeframed minimum standards for actions that reduce discharges of contaminants, including the use of Good or Best Farming Practice where this is appropriate; and

a. Take ~~Taking~~ a tailored, risk based approach to define ~~mitigation~~ management actions on the land that will reduce or mitigate diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens~~, with the mitigation actions to be specified in a Farm Environment Plan either associated with a resource consent, or in specific requirements established by participation in a Certified Industry Scheme~~; and

a2. Where stock exclusion from waterbodies is not carried out in accordance with Schedule C, the actions that will be undertaken on the land to minimise stock access to water (for example, low stocking rates adjacent to waterbodies, provision of alternative water supply and shade) and to mitigate the effect of stock access to water where it occurs (for example, riparian planting in other places).

b. Undergo ~~Requiring~~ the same level of rigour in developing, monitoring and auditing ~~of mitigation actions on the land that is~~ set out in a Farm Environment Plan, whether the consent holder is a member of a Certified Sector Scheme or not ~~it is established with a resource consent or through Certified Industry Schemes~~; and

[4] [Evidence of Adam Canning, Block 1, para 4.5; Evidence of Helen Marr, Block 1, Para 132-134.]

b2. Are flexible and able to be updated so that continuous improvement, new technologies and mitigation practices can be adopted, such that diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens further reduce over time.

c. Establishing a **Nitrogen Reference Point** for the **property** or **enterprise**; and

d. Requiring the degree of reduction in **diffuse discharges** of nitrogen, phosphorus, sediment and **microbial pathogens** to be proportionate to the amount of current discharge (those discharging more are expected to make greater reductions), and proportionate to the scale of water quality improvement required in the **sub-catchment**; and

e. Requiring stock exclusion or mitigation measures where stock exclusion is not achieved, to be completed within 3 years following the dates by which a **Farm Environment Plan** must be provided to the Council, or in any case no later than 1 July 2026.

Policy 3: ~~Tailored approach to r~~ Reducing diffuse discharges from commercial vegetable production systems/Te Kaupapa Here 3: He huarahi ka āta whakahāngaihia hei whakaiti i ngā rukenga roha i ngā pūnaha arumoni hei whakatupu hua whenua

~~Provide for commercial vegetable production while reducing~~ ~~Manage and require reductions in~~ Reduce diffuse discharges of contaminants from commercial vegetable production activities ~~nitrogen, phosphorus, sediment and microbial pathogens~~ by: ~~from commercial vegetable production through a tailored, property or enterprise specific approach where:~~

a. Enabling ~~commercial vegetable production activities~~, ~~Flexibility is provided~~ ~~including the~~ flexibility to undertake crop rotations on changing parcels of land ~~for commercial vegetable production,~~ within sub-catchments, while ~~reducing average contaminant discharges over time~~ adopting sector-based initiatives and other mitigation measures to progressively reduce losses of contaminants ~~nitrogen, phosphorus, sediment and microbial pathogens~~; ~~and~~

b. ~~The maximum area in production for a property or enterprise is established and capped utilising commercial vegetable production data from the 10 years up to 2016; and~~

c. Establishes baselines for each property from the baseline period using commercial vegetable production data from each of the 5 years up to 2016 for;
   (i) the maximum area of land in commercial vegetable production; and
   (ii) the nitrogen and phosphorus surpluses (ie total applied nutrient inputs, less crop uptake) for each commercial vegetable production crop; and
   (iii) sediment control measures; ~~Establishing a Nitrogen Reference Point for each property or enterprise;~~ and

d. Requiring a 10% decrease in the diffuse discharge of nitrogen and ~~A 10% decrease in the diffuse discharge of nitrogen and~~ ~~Enabling commercial vegetable production that~~ a clearly demonstrated~~s~~ ~~a~~ tailored reduction in the diffuse discharge of other contaminants ~~nitrogen, phosphorus, sediment and microbial pathogens~~ as measured against the baselines identified in c~~b~~ above of all contaminants through adherence to Good Farming Practice, Farm Environment Plans and the water quality limits/targets of Tables 3.11-1 to 3.11-1C ~~relevant minimum standards~~; ~~is achieved across the sector through~~ the implementation of Best or Good Management Practices; and

e. ~~Identified mitigation actions are set out and implemented within timeframes specified in either a Farm Environment Plan and associated resource consent, or in specific requirements established by participation in a Certified Industry Scheme.~~

f. ~~Commercial vegetable production enterprises that reduce nitrogen, phosphorus, sediment and microbial pathogens are enabled; and~~

g. ~~The degree of reduction in diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens is proportionate to the amount of current discharge (those discharging more are expected to make greater reductions), and the scale of water quality improvement required in the sub-catchment.~~

h. Providing for resource consents for enterprises to encompass multiple properties within a single sub-catchment, provided that:
   (i) a to d above are met; and

(ii) There is clear accounting against contaminant baselines across the multiple properties, including on any land that is no longer used for commercial vegetable production, such that sub-catchment-wide diffuse discharges progressively decrease. [5]

[5] [Legal Submissions, Sarah Ongley, Block 3, Para 3 – Fish and Game supports the evidence of the Director General (FSPC1-404).]

Policy 4: Future discharge reductions ~~Enabling activities with lower discharges to continue or to be established while signalling further change may be required in future/~~Te Kaupapa Here 4: Te tuku kia haere tonu, kia whakatūria rānei ngā tūmahi he iti iho ngā rukenga, me te tohu ake ākuanei pea me panoni anō hei ngā tau e heke mai ana

~~Manage sub-catchment wide diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens, and enable existing and new low discharging activities to continue provided that cumulatively the achievement of Objective 3 is not compromised. Activities and uses currently defined as low dischargers may in the future need to~~ To recognise that future regional plan changes or regional plans are likely to require all farming activities make further reductions in the ~~take mitigation actions that will reduce~~ diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens in order for Objective 1 to be met.

~~To grant resource consents that authorise farming activities for a duration that will enable further reductions in contaminant losses to be implemented through replacement resorce consents rather than by way of a review of consent conditions; unless the application demonstrates clear and enduring ongoing reductions of contaminant losses beyond those imposed in response to the short-term water quality attribute states in Table 3.11-1 and the property is not in a Priority 1 sub-catchment.~~

Policy 5: Staged approach/Te Kaupapa Here 5: He huarahi wāwāhi

To recognise that:

a. All farmers, businesses and communities will need to contribute to achieving the water quality attribute states in Table 3.11-1; and

b. Changes in practices and activities need to start immediately; and

c. The rate of change will need to be staged over the coming decades to minimise social, economic and cultural disruption and enable innovation and new practices to develop;

c1 There is a need to make changes before 80 years if objectives are to be achieved within 80 years because of lag between actions on land and improvements in water quality; and

d. Responding to the reasonably foreseeable effects of climate change will mean that different regulatory and non-regulatory responses may be needed in future.

~~Recognise that achieving the water quality attribute^ targets^ set out in Table 11-1 will need to be staged over 80 years, to minimise social disruption and allow for enable innovation and new practices to develop, while making a start on reducing discharges of nitrogen, phosphorus, sediment and microbial pathogens, and preparing for further reductions that will be required in subsequent regional plans.~~

~~**Policy 6: Restricting land use change/Te Kaupapa Here 6: Te here i te panonitanga ā-whakamahinga whenua**~~

~~Except as provided for in Policy 16, land use change consent applications that demonstrate an increase in the diffuse discharge of nitrogen, phosphorus, sediment or microbial pathogens will generally not be granted.~~

~~Land use change consent applications that demonstrate clear and enduring decreases in existing diffuse discharges of nitrogen, phosphorus, sediment or microbial pathogens will generally be granted.~~

Policy 6: Restricting land use change/Te Kaupapa Here 6: Te here i te panonitanga ā-whakamahinga whenua

Except as provided for in Policy 16, land use change consent applications that ~~demonstrate~~ are likely to result in an increase in the **diffuse discharge** of nitrogen, phosphorus, sediment or **microbial pathogens** will ~~generally~~ not be granted.

Land use change consent applications that demonstrate clear and enduring and meaningful decreases in existing **diffuse discharges** of nitrogen, phosphorus, sediment or **microbial pathogens** ~~will generally~~ may be granted if those decreases are proportionate to the amount of the 2016 discharge (those discharging more are expected to make greater reductions) and proportionate to the water quality improvements required in the sub-catchment, based on Tables 3.11-3 and 3.11-4[6].

[6] [Evidence of Adam Canning, Block 1, para 4.5; Evidence of Helen Marr, Block 1, Para 132-134.]

~~**Policy 7: Preparing for allocation in the future/Te Kaupapa Here 7: Kia takatū ki ngā tohanga hei ngā tau e heke mai ana**~~

~~Prepare for further diffuse discharge reductions and any future property or **enterprise** level allocation of **diffuse discharges** of nitrogen, phosphorus, sediment and **microbial pathogens** that will be required by subsequent regional plans, by implementing the policies and methods in this chapter. To ensure this occurs, collect information and undertake research to support this, including collecting information about current discharges, developing appropriate modelling tools to estimate contaminant discharges, and researching the spatial variability of land use and contaminant losses and the effect of contaminant discharges in different parts of the catchment that will assist in defining 'land suitability'.~~

~~Any future allocation should consider the following principles:~~

~~a. Land suitability[7] which reflects the biophysical and climate properties, the risk of contaminant discharges from that land, and the sensitivity of the receiving water body, as a starting point (i.e. where the effect on the land and receiving waters will be the same, like land is treated the same for the purposes of allocation); and~~

~~b. Allowance for flexibility of development of **tangata whenua ancestral land**; and~~

~~c. Minimise social disruption and costs in the transition to the 'land suitability' approach; and~~

~~d. Future allocation decisions should take advantage of new data and knowledge.~~

Policy 7: Preparing for allocation in the future/Te Kaupapa Here 7: Kia takatū ki ngā tohanga hei ngā tau e heke mai ana

Prepare for further diffuse discharge reductions and any future property or **enterprise**-level allocation of **diffuse discharges** of nitrogen, phosphorus, sediment and **microbial pathogens** that will be required by subsequent regional plans, by implementing the policies and methods in this chapter. To ensure this occurs, collect information and undertake research to support this, including collecting information about current discharges, developing appropriate modelling tools to estimate contaminant discharges, and researching the spatial variability of land use and contaminant losses and the effect of contaminant discharges in different parts of the catchment that will assist in defining 'land suitability'.

Any future allocation should consider the following principles:

a. Land suitability[8] which reflects the biophysical and climate properties, the risk of contaminant discharges from that land, and the sensitivity of the receiving water body, as a starting point (i.e. where the effect on the land and receiving waters will be the same, like land is treated the same for the purposes of allocation); and

b. Allowance for flexibility of development of **tangata whenua ancestral land**; and

c. Minimise social disruption and costs in the transition to the 'land suitability' approach; and

d. Future allocation decisions should take advantage of new data and knowledge.

[7] ~~*Future mechanisms for allocation based on land suitability will consider the following criteria:*~~
~~*a) The biophysical properties of the land that determine productive potential and susceptibility to contaminant loss (e.g. slope, soil type, drainage class, and geology); and*~~
~~*b) the local climate regime that determines productive potential and the likelihood of water storage and runoff patterns (e.g. frost, rainfall and its seasonal distribution); and*~~
~~*c) The natural capacity of the landscape to attenuate contaminant loss; and*~~
~~*d) the Objective 1 water quality limits^ related to nitrogen, phosphorus, microbial pathogens and sediment for the surface waters that the land is hydrologically connected to; and*~~
~~*e) the desired values^ in those receiving waters (ecological and human health) and how they are influenced by the four contaminants.*~~
~~*The future weightings are to be determined.*~~
~~*For the avoidance of doubt, land suitability criteria exclude current land use and current water quality, the moderating effects of potential mitigations, and non-biophysical criteria (economic, social and cultural). Instead these factors will be of importance in analysing the implications of a completed land suitability classification.*~~

[8] *Future mechanisms for allocation based on land suitability will consider the following criteria:*
a) The biophysical properties of the land that determine productive potential and susceptibility to contaminant loss (e.g. slope, soil type, drainage class, and geology); and
b) the local climate regime that determines productive potential and the likelihood of water storage and runoff patterns (e.g. frost, rainfall and its seasonal distribution); and
c) The natural capacity of the landscape to attenuate contaminant loss; and
d) the Objective 1 water quality limits^ related to nitrogen, phosphorus, microbial pathogens and sediment for the surface waters that the land is hydrologically connected to; and
e) the desired values^ in those receiving waters (ecological and human health) and how they are influenced by the four contaminants.
The future weightings are to be determined.
For the avoidance of doubt, land suitability criteria exclude current land use and current water quality, the moderating effects of potential mitigations, and non-biophysical criteria (economic, social and cultural). Instead these factors will be of importance in analysing the implications of a completed land suitability classification.

[Either Policy 7 remain in the plan, along with Implementation Method 3.11.4.7 and 3.11.4.8; or the content of Policy 7 be incorporated into Method 3.11.4.7 and 3.11.4.8 and that these methods remain part of PC1]

Policy 8: Prioritised implementation/Te Kaupapa Here 8: Te raupapa o te whakatinanatanga

Prioritise the management of land and water resources by implementing Policies 2, 3 and 9, and in accordance with the prioritisation of areas set out in Table 3.11-2. Priority areas include:

a. **Sub-catchments** where there is a greater gap between the water quality targets^ in Objective 1 (Table 3.11-1) and current water quality; and

b. Lakes Freshwater Management Units^; and

c. Whangamarino Wetland.

In addition to the priority **sub-catchments** listed in Table 3.11-2, the **75th percentile nitrogen leaching value** dischargers will also be prioritised for **Farm Environment Plans**.

[Consistent with Notified provision, rather than Officers' amendments]

Policy 9: Sub-catchment (including edge of field) mitigation planning, co-ordination and funding/Te Kaupapa Here 9: Te whakarite mahi whakangāwari, mahi ngātahi me te pūtea mō te riu kōawāwa (tae atu ki ngā taitapa)

Take a prioritised and integrated approach to sub-catchment water quality management by undertaking sub-catchment planning, and use this planning to support actions including edge of field mitigation measures. Support measures that efficiently and effectively contribute to water quality improvements. This approach includes:

a. Engaging early with tangata whenua and with landowners, communities, local authorities and potential funding partners in sub-catchments in line with the priority areas listed in Table 3.11-2, the sub-catchments of lakes and the Whangamarino wetland; and
b. Assessing the reasons for current water quality and sources of contaminant discharge, at various scales in a sub-catchment; and
c. Encouraging cost-effective mitigation~~s~~ measures where they have the biggest effect on improving water quality; and
d. Allowing, where multiple farming enterprises contribute to ~~a~~ mitigation measures, for the resultant reduction in diffuse discharges to be apportioned to each enterprise in accordance with their respective contribution to the mitigation and their respective responsibility for the ongoing management of the mitigation, provided that the reduction can be confidently secured for the duration of any resource consent~~;~~ and each enterprise continues to reduce contaminants from individual properties at the same time; and
e. Recognising the contribution of sub-catchments to whole of catchment water quality by u~~U~~~~sing~~ sub-catchment monitoring information to measure progress toward ~~the freshwater objectives~~ the achievement of water quality limits/targets in Tables 3.11-1 to 3.11-1C ~~across the whole of each FMU~~.[9]

~~Policy 10: Provide for point source discharges of regional significance/Te Kaupapa Here 10: Te whakatau i ngā rukenga i ngā pū tuwha e noho tāpua ana ki te rohe~~

~~When deciding resource consent applications for **point source discharges** of nitrogen, phosphorus, sediment and **microbial pathogens** to water or onto or into land, provide for the:~~

~~a. Continued operation of regionally significant infrastructure´; and~~
~~b. Continued operation of regionally significant industry´.~~

[9] [FSPC1-412]

Policy 11: Application of Best Practicable Option and mitigation or offset of effects to point source discharges/Te Kaupapa Here 11: Te whakahāngai i te Kōwhiringa ka Tino Taea me ngā mahi whakangāwari pānga; te karo rānei i ngā pānga ki ngā rukenga i ngā pū tuwha

Require any person undertaking a point source discharge of nitrogen, phosphorus, sediment or microbial pathogens to water or onto or into land in the Waikato and Waipa River catchments to, as a minimum, adopt the Best Practicable Option* to avoid or mitigate the adverse effects of the discharge~~, at the time a resource consent application is decided~~.

Where ~~it is not practicable to avoid or mitigate all~~ any adverse effects~~,~~ cannot be reasonably avoided, they should be mitigated, and where they cannot be reasonably mitigated, an offset measure ~~may~~ should be ~~proposed~~ provided for in an alternative location or locations to the point source discharge, for the purpose of ensuring positive effects on the environment to lessen any residual adverse effects of the discharge(s) that will or may result from allowing the activity provided that the:

a. Primary discharge does not result in any significant or toxic adverse effect at the point source discharge location; and
b. Offset measure is for the same contaminant; and
c. Offset measure occurs preferably within the same sub-catchment in which the primary discharge occurs and if this is not practicable, then a sub-catchment ~~within the same Freshwater Management Unit^ or a Freshwater Management Unit^~~ located upstream, and
d. Offset measure remains in place for the duration of the consent and is secured by consent condition or another legally binding mechanism so that it offsets the residual adverse effect for at least the duration of the effect, and
e. Offset measure provides for a net decrease in the amount of the relevant contaminant in the receiving environment.

Policy 12: ~~Additional considerations for~~ Considering point source discharges ~~in relation to water quality targets~~/Te Kaupapa Here 12: He take anō hei whakaaro ake mō ngā rukenga i ngā pū tuwha e pā ana ki ngā whāinga ā-kounga wai

When deciding a resource consent application, c~~C~~onsider the contribution made by a point source discharge to the nitrogen, phosphorus, sediment and microbial pathogen catchment loads and the impact of that contribution on the ~~likely~~ achievement of the short term water quality attribute states~~^ targets^~~ in Table 3.11-1~~Objective 3~~ or the progression towards the 80-year water quality attribute states~~^ targets^~~ in ~~Objective 1~~Table 3.11-1, taking into account:

aa. The benefits of the continued operation of regionally significant infrastructure and regionally significant industry; and
a. The relative proportion of nitrogen, phosphorus, sediment or microbial pathogens that the particular point source discharge contributes to the catchment load; and
b. Past ~~technology~~ upgrades undertaken to ~~model, monitor and~~ reduce the discharge of nitrogen, phosphorus, sediment or microbial pathogens within the previous consent term; and
c. ~~The ability~~Whether it is appropriate to stage future mitigation actions to allow investment costs to be spread over time ~~and~~ to meet the water quality attribute states~~^ targets^~~ specified above.~~; and~~
~~d. The diminishing return on investment in treatment plant upgrades in respect of any resultant reduction in nitrogen, phosphorus, sediment or **microbial pathogens** when treatment plant processes are already achieving a high level of contaminant reduction through the application of the Best Practicable Option*.~~

Policy 13: Point sources consent duration/Te Kaupapa Here 13: Te roa o te tukanga tono whakaaetanga mō te pū tuwha

When determining an appropriate duration for any point source discharge consent granted consider the following matters:

a. The appropriateness of a longer consent duration ~~A consent term exceeding 25 years,~~ where the applicant demonstrates that the discharge is consistent with achieving the water quality attribute states set out in Table 3.11-1 ~~the approaches set out in Policies 11 and 12 will be met~~; and
ab the risk of a longer consent duration where the discharge is not consistent with achieving the water quality attribute states set out in Table 3.11-1 or where future regional plan changes or regional plans are likely to provide a comprehensive approach to allocation of both point and nonpoint source discharges
b. The magnitude and significance of the investment made or proposed to be made in contaminant reduction measures and any resultant improvements in the receiving water quality; and
c. The need to provide appropriate certainty of investment where contaminant reduction measures are proposed (including investment in treatment plant upgrades or land based application technology).

Policy 15: Whangamarino Wetland/Te Kaupapa Here 15: Ngā Repo o Whangamarino

Protect and restore the ~~make progress towards restoration of~~ Whangamarino Wetland by:

aa. reducing the diffuse discharge of contaminants ~~nitrogen, phosphorus, sediment and microbial pathogens in the sub-catchments that flow into~~ entering the wetland system; and ~~to:~~[10]

a. ~~Reduce and minimise~~ Avoiding further loss of the bog ecosystem; and

ab. Providing for the protection of other significant values of the wetland complex; and

b. Provide~~e~~ing increasing availability of mahinga kai; and

ba. Managing the hydrological regime including the impacts of the Lower Waikato Waipā Flood Control Scheme; and

c. Supporting implementation of any catchment plan prepared in future by Waikato Regional Council that covers Whangamarino Wetland.

Policy 16: Flexibility for development of land returned under Te Tiriti o Waitangi settlements and multiple owned Māori land/Te Kaupapa Here 16: Te hangore o te tukanga mō te whakawhanaketanga o ngā whenua e whakahokia ai i raro i ngā whakataunga kokoraho o Te Tiriti o Waitangi me ngā whenua Māori kei raro i te mana whakahaere o te takitini

For the purposes of considering land use change applications under Rule 3.11.5.7, land use change that enables the development of tangata whenua ancestral lands shall be managed in a way that recognises and provides for:

a. The relationship of tangata whenua with their ancestral lands; and
b. The exercise of kaitiakitanga; and
c. The creation of positive economic, social and cultural benefits for tangata whenua now and into the future;

Taking into account:

i. Best management practice actions for nitrogen, phosphorus, sediment and microbial pathogens for the proposed new type of land use; and
ii. The suitability of the land for development into the proposed new type of land use, reflecting the principles for future allocation as contained in Policy 7, including the risk of contaminant discharge from that land and the sensitivity of the receiving water body; and
iii. The short term water quality attribute states ~~targets^~~ to be achieved in Objective 3.

Policy 17: Considering the wider context of the Vision and Strategy/Te Kaupapa Here 17: Te whakaaro ake ki te horopaki whānui o Te Ture Whaimana

When applying policies and methods in Chapter 3.11, seek opportunities to advance ~~those~~ matters in the Vision and Strategy and the values^ for the Waikato and Waipa Rivers ~~that fall outside the scope of Chapter 3.11~~[11]~~, but could be considered secondary benefits of methods carried out under this Chapter~~, including, but not limited to:

a. Opportunities to enhance biodiversity, wetland values^ and the functioning of ecosystems; and
b. Opportunities to enhance access and recreational values^ associated with the rivers.

[10] [aa. Includes an amenment to HM Block 1 Evidence version in support of the Director General's evidence; HM verbal comment in support of the Director General's submission, Block 3].

[11] [Fish and Game made clear at the hearings that it does not consider these matters out of scope (PC1-10906).]

3.11.4 Implementation methods/Ngā tikanga whakatinana *[ALL DELETED in s42A Report; provisions recommended to be reinstated from the Notified PC 1 are shown in black; provisions recommended to be reinstated from the Notified V1PC1 are shown in red. Footnotes indicate source of recommendation to reinstate. Blue track changes are recommended insertions or deletions to the reinstated provisions by Helen Marr; green track changes are further insertions or deletions to reinstated provisions recommended by expert witnesses or submissions brought by Fish and Game]*

3.11.4.x Initiate allocation of diffuse discharges[12]

The Waikato Regional Council will initiate a framework for the allocation of diffuse discharges including reductions in nitrogen load according to specified timeframes for reductions by sub-catchment. The Waikato Regional Council will:

a. Use science-based limits for the total allowable load of a contaminant for subcatchment which will meet the water quality objectives of the plan;
b. Implement contaminant leaching rates for diffuse discharges from properties and enterprises by allocating to limits, targets and timeframes;
c. Quantify nitrogen load reductions based on over-allocation of nitrogen beyond the science-based limit for sub-catchments; and
d. Define timeframes for sub-catchment nitrogen load reductions to be made.

3.11.4.4 Lakes and Whangamarino Wetland/Ngā Roto me ngā Repo o Wangamarino[13]

Waikato Regional Council, working with others, will:

a. As a priority, b~~B~~uild on the Shallow Lakes Management Plan and existing information,data and Lake Catchment Plans by developing Lake Catchment Plans and investigat~~e~~ing lake-specific options to ~~improve~~ achieve water quality limits/targets in Tables 3.11-1 to 3.11-1C and ecosystem health, and manage pest species. In many instances, this may require an adaptive management approach.
b. Prepare and implement Lake Catchment Plans with community involvement which include:
    i. A vision for the lake developed in consultation with the community.
    ii. Description of the desired state of lake and recognition of the challenges (e.g. costs) and opportunities (e.g. benefits) in achieving it.
    iii. An evidence-based description of the problem (i.e. what is the gap between the current state and desired state) that recognises the presence of multiple stressors and uncertainty in responses and time frames.
    iv. Community engagement in defining actions that will move the lake towards its desired state.
    v. Responsibility for achieving the agreed actions and expected timeframes, developed in consultation with those who will be undertaking the work.
    vi. A monitoring regime that will provide evidence of the implementation of the defined actions and any changes in the state of the lake.
c. As a priority, undertake the development and implementation of the Lake Waikare and Whangamarino Wetland Catchment Management Plan using the process set out in b).
d. Work towards managing the presence of pest weeds and fish in the shallow lakes and connected lowland rivers area, including Whangamarino Wetland.
e. Support research and testing of restoration tools and options to maintain and enhance the health of shallow lakes and Whangamarino Wetland (e.g. lake modelling, lake bed sediment treatments, constructed wetlands, floating wetlands, silt traps, pest fish management, and farm system management tools).
f. Support lake and Whangamarino Wetland restoration programmes including, but not limited to, advice, funding, and project management. Restoration programmes may have a wider scope than water quality, including hydrological restoration, revegetation and biodiversity restoration.
g. Develop a set of 10-year water quality attribute^ targets^ for each lake Freshwater Management Unit^.

3.11.4.7 Information needs to support any future allocation/Ngā pārongo e hiahiatia ana hei taunaki i ngā tohanga o anamata[14]

Gather information and commission appropriate scientific research to inform any future framework for the allocation of diffuse discharges including:

[12] [PC1-10910]
[13] [Reinsertion recommended in submissions referred to in the Block 3 Legal Submissions of Sarah Ongley (FSPC1-429); (V1PC1-1571)].
[14] [Reinsertion recommended in the Block 3 evidence of Helen Marr, para 2.3.]

a. Implementing processes that will support the setting of property or enterprise-level diffuse discharge limits in the future.
b. Researching:
    i. The quantum of contaminants that can be discharged at a sub-catchment and Freshwater Management Unit^ scale while meeting the Table 3.11-1 water quality attribute^ targets^.
    ii. Methods to categorise and define 'land suitability'.
    iii. Tools for measuring or modelling discharges from individual properties, enterprises and sub-catchments, and how this can be related to the Table 3.11-1 water quality attribute^ targets^.

3.11.4.8 Reviewing Chapter 3.11 and developing an allocation framework for the next Regional Plan/Te arotake i te Upoko 3.11, te whakarite hoki i tētehi anga toha mō te Mahere ā-Rohe e whai ake ana[15]

Waikato Regional Council will:
a. Develop discharge allocation frameworks for individual **properties** and **enterprises** based on information collected under Method 3.11.4.7, taking into account the best available data, knowledge and technology at the time; and
b. Use this to inform future changes to the Waikato Regional Plan to manage discharges of nitrogen, phosphorus, sediment and **microbial pathogens** at a **property** or **enterprise**-level to meet the targets^ in the Objectives.

3.11.5 Rules/Ngā Ture

3.11.5.1A Interim Permitted Activity Rule – Farming

Rule 3.11.5.1A – Interim Permitted Activity Rule – Farming

The use of land for farming, and the associated diffuse discharge of nitrogen, phosphorus, sediment and microbial pathogens onto or into land in circumstances which may result in those contaminants entering water which is not a permitted activity under Rule 3.11.5.2, is a permitted activity until:
1. The later of 1 September 2021 or 6 months after this Plan becomes operative, for properties in Priority 1 sub-catchments listed in Table 3.11-2, and all properties with a Nitrogen Reference Point greater than the 75th percentile nitrogen leaching value; and
2. The later of 1 March 2025 or 1 year after this Plan becomes operative for properties in Priority 2 sub-catchments listed in Table 3.11-2; and
3. 1 January 2026 for properties in Priority 3 sub-catchments listed in Table 3.11-2;

subject to the following conditions:
1. The property is registered with the Council in conformance with Schedule A; and
2. Cattle, horses, deer and pigs are excluded from water bodies in conformance with Schedule C; and
3. No commercial vegetable production occurs; and
4. A Nitrogen Reference Point is produced for the property in conformance with Schedule B; and
5. Full electronic access to Overseer or any other software or system that models or records diffuse contaminant losses for the farming land use authorised by this rule is granted to the Council; and

6. There has been less than a cumulative net total of 4.1 hectares of change in the use of land from that which was occurring at 22 October 2016 within a property or enterprise from:
    1. Woody vegetation to farming activities; or
    2. Any farming activity other than dairy farming to dairy farming; or
    3. Any farming activity to Commerical Vegetable Production

Permitted Activity Rule – Small and Low Intensity farming activities/Te Ture mō ngā Mahi e Whakaaetia ana – Ngā mahi iti, ngā mahi pāiti hoki i runga pāmu

Rule 3.11.5.2 - Permitted Activity Rule – ~~Other~~ Low intensity farming ~~activities~~

The use of land for farming ~~activities (excluding commercial vegetable production)~~ and the associated diffuse discharge of nitrogen, phosphorus, sediment and microbial pathogens onto or into land in circumstances which may result in those contaminants entering water ~~where the property area is greater than 4.1 hectares, and has more than 6 stock units per hectare or is used for arable cropping,~~ is a permitted activity subject to the following conditions:
A. For all properties:

[15] [Reinsertion recommended in the Block 3 evidence of Helen Marr, para 2.3.]

1. The property is registered with the Waikato Regional Council in conformance with Schedule A; and
2. Cattle, horses, deer and pigs are excluded from water bodies in conformance with Schedule C ~~and Conditions 3(c) and 4(c) of this Rule~~; and

2A. The farming activities do not form part of an enterprise; and

2B. No commercial vegetable production occurs; and

2C. No dairy farming or grazing of dairy cattle occurs; and

2D. There are no Grade A CSAs (specified in Schedule D)[16] on the property; and

2E. There are no Grade B CSAs (specified in Schedule D)[17] that are within 10 metres of a waterbody on the property.

[...]

D. There have been less than a cumulative net total of 4.1 hectares of change in the use of land from that which was occurring at 22 October 2016 within a property or enterprise from woody vegetation to farming activities.

[Other parts of this rule as recommended in s42A report.]

~~**OPTION**~~

~~3.11.5.2A Controlled Activity Rule – Medium intensity farming/~~

~~**Rule 3.11.5.2A Controlled Activity Rule – Medium intensity farming**~~

~~The use of land for farming, which is not a permitted activity under Rules 3.11.5.1A to 3.11.5.2, is a controlled activity subject to the following conditions:~~

~~1. The property is registered with the Council in conformance with Schedule A; and~~

~~2. A Nitrogen Reference Point is produced for the property in conformance with Schedule B; and~~

~~3. Cattle, horses, deer and pigs are excluded from water bodies in conformance with Schedule C; and~~

~~4. The farming activities do not form part of an enterprise; and~~

~~5. No commercial vegetable production occurs; and~~

~~6. Full electronic access to Overseer or any other software or system that models or records diffuse contaminant losses for the farming land use authorised by this rule is granted to the Council; and~~

~~7. A Farm Environment Plan has been prepared in conformance with Schedule 1 and has been approved by a Certified Farm Environment Planner, and is provided to the Council at the time the resource consent application is lodged; and~~

~~8. Either:~~

~~a. The Nitrogen Refernce Point is not exceeded; or~~

~~b. The stocking rate of the land is no greater than 18 stock units per hectare and has not increased above the stocking rate during the Reference Period in Schedule B; and~~

~~6. There has been less than a cumulative net total of 4.1 hectares of change in the use of land from that which was occurring at 22 October 2016 within a property or enterprise from:~~

~~1. Woody vegetation to farming activities; or~~

~~2. Any farming activity other than dairy farming to dairy farming; or~~

~~3. Any farming activity to Commerical Vegetable Production~~

~~Waikato Regional Council reserves control over the following matters:~~

~~i. The content, compliance with and auditing of the Farm Environment Plan.~~

~~ii. The actions and timeframes to achieve Good Farming Practices or better in order to reduce the diffuse discharge of nitrogen, phosphorus, sediment or microbial pathogens to water or to land where they may enter water.~~

~~iii. For enterprises, the procedures and limitations, including Nitrogen Reference Points, to be applied to land that enters or leaves the enterprise.~~

~~iv. Where the Nitrogen Reference Point exceeds the 75th percentile nitrogen leaching value, actions, timeframes and other measures to ensure the diffuse discharge of nitrogen is reduced so that it does not exceed the 75th percentile nitrogen leaching value by 1 July 2026.~~

~~v. The term of the resource consent.~~

~~vi. The timeframe and circumstances under which the consent conditions may be reviewed.~~

~~vii. Procedures for reviewing, amending and re-approving the Farm Environment Plan.~~

[16] [Evidence of Rebecca Eivers, Block 2, para 5.14]

[17] [Evidence of Rebecca Eivers, Block 2, para 5.14]

~~OPTION~~

~~3.11.5.3 Permitted Restricted Discretionary Activity Rule – Farming activities with a Farm Environment Plan under a Certified Industry Sector Scheme/Te Ture mō ngā Mahi e Whakaaetia ana – Ngā mahi i runga pāmu kua whai Mahere Taiao ā-Pāmu i raro i te Kaupapa ā-Ahumahi kua Whai Tohu~~

~~Rule 3.11.5.3 - Permitted Restricted Discretionary Activity Rule – Farming activities with a Farm Environment Plan under a Certified Industry Sector Scheme~~

~~Except as provided for in Rule 3.11.5.1 and Rule 3.11.5.2 t~~The use of land for farming activities (excluding commercial vegetable production) where the land use is registered to a Certified Industry Sector Scheme, and the associated diffuse discharge of nitrogen, phosphorus, sediment and microbial pathogens onto or into land in circumstances which may result in those contaminants entering water is a permitted ~~restricted discretionary~~ activity subject to the following conditions:

1. ~~The property is registered with the Waikato Regional Council in conformance with Schedule A; and~~
2. ~~A Nitrogen Reference Point is produced for the property or enterprise in conformance with Schedule B; and~~
3. ~~Cattle, horses, deer and pigs are excluded from water bodies in conformance with Schedule C; and~~
4. ~~The Certified Industry Sector Scheme meets the criteria set out in Schedule 2 and has been approved by the Chief Executive Officer of the Waikato Regional Council as meeting the standards set out in Schedule 2; and~~
5. ~~A Farm Environment Plan which has been prepared in accordance with Schedule 1 and has been approved by a Certified Farm Environment Planner, and is provided to the Waikato Regional Council at the time the resource consent application is lodged; and as follows:~~
   a. ~~By 1 July 2020 1 March 2022 for properties or enterprises within Priority 1 sub-catchments listed in Table 3.11-2, and all properties or enterprises with a Nitrogen Reference Point greater than the 75th percentile nitrogen leaching value;~~
   b. ~~By 1 July 2023 1 March 2025 for properties or enterprises within Priority 2 sub-catchments listed in Table 3.11-2;~~
   c. ~~By 1 July 2026 for properties or enterprises within Priority 3 sub-catchments listed in Table 3.11-2; and~~

5a. ~~Full electronic access to Overseer or any other software or system that records farm data and models or records diffuse contaminant losses for the farming land use authorised by this rule is granted to the Waikato Regional Council; and~~

5b. ~~There have been less than a cumulative net total of 4.1 hectares of change in the use of land from that which was occurring at 22 October 2016 within a property or enterprise from:~~
   ~~1. Woody vegetation to farming activities; or~~
   ~~2. Any farming activity other than dairy farming to dairy farming; or~~
   ~~3. Any farming activity to Commerical Vegetable Production~~

6. ~~The use of land shall be undertaken in accordance with the actions and timeframes specified in the Farm Environment Plan; and~~
7. ~~The Farm Environment Plan provided under Condition 5 may be amended in accordance with the procedure set out in Schedule 1 and the use of land shall thereafter be undertaken in accordance with the amended plan; and~~
8. ~~A copy of the Farm Environment Plan amended in accordance with condition (7) shall be provided to the Waikato Regional Council within 30 working days of the date of its amendment.~~

~~Waikato Regional Council restricts its discretion to the following matters:~~

~~i. The content, compliance with and auditing of the Farm Environment Plan.~~
~~ii. The actions and timeframes to achieve Good Farming Practices or better in order to reduce the diffuse discharge of nitrogen, phosphorus, sediment or microbial pathogens to water or to land where they may enter water.~~
~~iii. The effects, including cumulatively, of diffuse discharge of nitrogen, phosphorus, sediment and microbial pathogens, particularly where the activity may lead to an increase in the discharge of one or more contaminants.~~
~~iv. For enterprises, the procedures and limitations, including Nitrogen Reference Points, to be applied to land that enters or leaves the enterprise.~~
~~v. Where the Nitrogen Reference Point exceeds the 75th percentile nitrogen leaching value, actions, timeframes and other measures to ensure the diffuse discharge of nitrogen is reduced so that it does not exceed the 75th percentile nitrogen leaching value by 1 July 2026.~~
~~vi. The term of the resource consent.~~
~~vii. The timeframe and circumstances under which the consent conditions may be reviewed.~~
~~viii. Procedures for reviewing, amending and re-approving the Farm Environment Plan.~~

3.11.5.6A Discretionary Activity Rule

Rule 3.11.5.6A - Discretionary Activity Rule

The use of land for farming and the associated diffuse discharge of nitrogen, phosphorus, sediment and microbial pathogens onto or into land in circumstances which may result in those contaminants entering water that does not meet one or more of [conditions (1) to (4) ~~(5a)~~ of Rule 3.11.5.3 or conditions (1) to (3) or (6) of Rule 3.11.5.4 is a Discretionary activity.

3.11.5.6AB Non-Complying Activity Rule – Farming Activities that do not have a Farm Environment Plan prepared in accordance with Schedule 1

Rule 3.11.5.6AB – Non-Complying Activity Rule

The use of land for farming and the associated diffuse discharge of nitrogen, phosphorus, sediment and microbial pathogens onto or into land in circumstances which may result in those contaminants entering water that does not meet condition 5 of Rule 3.11.5.3 or condition 4 Rule 3.11.5.4 is a Non-Complying activity.

3.11.5.7 Non-Complying Activity Rule ~~– Land Use Change~~/Te Ture mō ngā mahi kāore e whai i ngā ture – Te Panonitanga ā-Whakamahinga Whenua

Rule 3.11.5.7 - Non-Complying Activity Rule – Land Use Change

The use of land for farming and the associated diffuse discharge of nitrogen, phosphorus, sediment and microbial pathogens onto or into land in circumstances which may result in those contaminants entering water that does not meet [condition (5b) of Rule 3.11.5.3 or] condition (7) of Rule 3.11.5.4 is a non-complying activity.

Notwithstanding any other rule in this Plan, any of the following changes in the use of land from that which was occurring at 22 October 2016 within a property or enterprise located in the Waikato and Waipa catchments, where prior to 1 July 2026 the change exceeds a total of 4.1 hectares:

1. Woody vegetation to farming activities; or
2. Any livestock grazing other than dairy farming to dairy farming; or
3. Arable cropping to dairy farming; or
4. Any land use to commercial vegetable production except as provided for under standard and term g. of Rule 3.11.5.5

is a non-complying activity (requiring resource consent) until 1 July 2026.

~~**Notification:**~~

~~Consent applications will be considered without notification, and without the need to obtain written approval of affected persons, subject to the Council being satisfied that the loss of contaminants from the proposed land use will be lower than that from the existing land use.]~~

~~3.11.5.8 Permitted Activity Rule – Authorised Diffuse Discharges~~

~~The diffuse discharge of nitrogen, phosphorus, sediment and or microbial contaminants from farming onto or into land in circumstances that may result in a contaminant entering water that would otherwise contravene section 15(1) of the RMA is a permitted activity, provided the following conditions are is met:~~

~~1. the land use activity associated with the discharge is authorised under Rules 3.11.5.1 to 3.11.5.7; and~~

~~2. the discharge of a contaminant is managed to ensure that after reasonable mixing it does not give rise to any of the following effects on receiving waters:~~

~~(a) any conspicuous oil or grease films, scums or foams, or floatable or suspended materials; or~~

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

~~(c) the rendering of fresh water unsuitable for consumption by farm animals; or~~

~~(d) any significant adverse effects on aquatic life.~~

~~**3.11.5.9 Non-Complying Activity Rule – Unauthorised Diffuse Discharges**~~

~~The diffuse discharge of nitrogen, phosphorus, sediment and or microbial contaminants from farming onto or into land in circumstances that may result in a contaminant entering water that would otherwise contravene section 15(1) of the RMA that does not meet one or more of the conditions of Rule 3.11.5.8 is a non-complying activity.~~

Schedule C - Stock exclusion/Te Āpitihanga C – Te aukatinga o ngā kararehe

Except as provided by Exclusions I. ~~and II.~~ and III, cattle, horses, deer and pigs ~~stock~~ must be excluded from the water bodies listed in 6. ~~i. to iv.~~ below as follows:

1. The water bodies on land with a slope of up to X degrees must be fenced to exclude cattle, horses, deer and pigs, unless those animals are prevented from entering the bed of the water body by a stock proof natural or constructed barrier formed by topography or vegetation.

   Advice note: Clause 1 does not authorise the construction of fences or other barriers in the bed of a river or lake, or in a wetland.

2. New temporary, permanent or virtual fences installed after 22 October 2016 must be located to ensure cattle, horses, deer and pigs will be excluded from the bed of the water body. The fences must be located at a distance of not less than ~~cannot be within one metre of the water body (excluding constructed wetlands).~~
   a. 1 metre from the outer edge of the bed for intermittent artificial watercourses ~~land with a slope of less than 15 degrees~~[18]; and
   a2. Where cattle, horses, deer or pigs are not excluded from waterbodies, the access of stock to waterbodies must not cause conspicuous pugging and exacerbated erosion on bed or the banks of the waterbody.
   b. 5 ~~3~~ metres from the outer edge of the bed for waterbodies not covered by the specific categories listed at 2c.-g. below[19] ~~land with a slope between 15 and 25 degrees; and~~
   c. 10 metres from the outer edge of the bed for artificial or modified watercourses that are the full responsibility of a territorial authority or Waikato Regional Council for maintenance purposes.
   d. 20 meters from the outer edge of the bed for all lakes for all stock listed above as well as sheep and goats;
   e. 5 metres from the outer edge of the bed for all intermittent/ephemeral rivers and streams not listed in 2 a.;
   f. 20 metres from the outer edge of the bed for all waterbodies where large galaxids including īnanga are known or predicted to spawn for all stock listed above as well as sheep and goats;
   g. 10m from the outer edge of the bed of all natural wetlands for all stock listed above as well as sheep and goats.[20]

3. ~~Livestock~~ Cattle, horses, deer and pigs must not ~~be permitted to~~ enter onto or pass across the bed of the water body, except when using a livestock crossing structure [OPTION TO ADD or when they are being supervised and actively driven across a water body in one continuous movement provided no more than one crossing per week occurs].

   Advice note: Clause 3 does not authorise the construction of stock crossing structures in the bed of a river or lake, or in a wetland.

4. For land use authorised under Rules 3.11.5.1 or 3.11.5.2, clauses 1 and 2 must be complied with:
   a. By 1 July 2023 for properties ~~and enterprises~~ within Priority 1 sub-catchments listed in Table 3.11-2.
   b. By 1 July 2026 for properties ~~and enterprises~~ within Priority 2 and Priority 3 sub-catchments listed in Table 3.11-2.

5. For land use authorised under Rules [3.11.5.3,] 3.11.5.4 or 3.11.5.5, clauses 1 and 2 must be complied with by the date and in the manner specified in the property's ~~or enterprise's~~ Farm Environment Plan, which shall be within 3 years following the dates by which a Farm Environment Plan must be provided to the Council, or in any case no later than 1 July 2026.

6. Water bodies from which cattle, horses, deer and pigs must be excluded:

[18] [Evidence of Dr. Rebecca Eivers, Block 2, Para 2.3.]
[19] [Evidence of Dr. Rebecca Eivers, Block 2, Para 5.19.]
[20] [FSPC1-441; Evidence of Dr. Rebecca Eivers, Block 2, Para 5.21.]

a. The bed of a river (including any stream and modified river or stream) or artificial watercourse that is permanently or intermittently flowing ~~[OPTION TO ADD and where the bed is predominantly unvegetated and comprises exposed fine sediment, sand, gravel, boulders or similar material or aquatic vegetation]~~;[21] and

b. The bed of any lake; and

c. Any wetland or seep,[22] including a constructed wetland.

~~i. Any river that continually contains surface water.~~

~~ii. Any drain that continually contains surface water.~~

~~iii. Any wetland, including a constructed wetland.~~

~~iv. Any lake.~~

Exclusions:

The following situations are excluded from clauses 1, 2 and ~~2~~3:

I. Where the entry onto or passing across the bed of the water body is by horses that are being ridden or led.

~~II. Where the entry onto or passing across the bed of the water body is by a feral animal.~~

III. Constructed ponds or constructed wetlands in which deer or pigs wallow that are located at least 10m away from the bed of a water body and which are not connected by an overland flow path to a water body.

Schedule D – Critical Source Areas for Rule 3.11.2

Grade A Critical Source Areas	Moderate-Low Risk Critical Source Areas
Effluent ponds	Feed storage areas, including hay barns, wrapped silage stacks, and grain silos.
Effluent irrigation	Holding pens or paddocks
Feed pads	Stock yards
Stand-off pads	Water troughs
Feed storage areas, including pits for in situ silage and imported feeds	Mobile feed wagons
Fertiliser storage pits	Shade trees
Raceways	Summer and autumn forage crops grazed in situ
Sacrifice paddocks	
Winter forage crops grazed in situ	
Break-feeding	
Crop cultivation	

[21] Evidence of Dr. Rebecca Eivers, Block 2, Para 5.12.]

[22] [Evidence of Dr. Rebecca Eivers, Block 2, Para 5.14.]

Schedule 1 - Requirements for Farm Environment Plans/Te Āpitihanga 1: Ngā Herenga i ngā Mahere Taiao ā-Pāmu

[S42A Report deleted proposed notified Schedule 1 and replaced with new wording shown in black and underlined]

The Farm Environment Plan (FEP) will be prepared in accordance with Parts A, and B below, reviewed in accordance with Part C, and changed in accordance with Part D.

PART A – PROVISION OF FEP

An FEP must be submitted to Waikato Regional Council (the council) using either:

1. A council digital FEP tool including the matters set out in Part B below to the extent relevant; OR
2. An industry prepared FEP that:
    a) includes the following minimum components:
        i. the matters set out in Parts B below to the extent relevant; and
        ii. performance measures that are capable of being reviewed as set out in Part C below
    b) has been approved by the Chief Executive of Waikato Regional Council as meeting the criteria in (a) and capable of providing FEPs in a digital format, consistent with the council data exchange specifications.

The Waikato Regional Council data exchange specifications will set out the standards and detail of the data exchange process to be used by external industry parties in the provision of FEPs.

PART B – FEP CONTENT

The Farm Environment Plan shall identify all potential sources of sediment, nitrogen, phosphorus and microbial pathogens, and identify farm management actions, and timeframes for those actions to be completed, in order to reduce the diffuse discharges of these contaminants.

The Farm Environment Plan must clearly identify how specified minimum standards are or will be complied with.

Descriptions of farm practices must be clearly linked to the risk of sediment, nitrogen, phosphorus and microbial pathogens that they are targeted at minimising.

Descriptions of farm practices must be written in clear and certain language, so that current and future landowners, farm managers and the council have no doubt about the actions or restrictions that are required by the Farm Environment Plan and the obligations of the landowner.

Language such as 'where appropriate' or 'when practicable' or 'as far as possible' and similar uncertain phrases must not be used, and instead the circumstances when an action or restrictions will and will not be followed must be set out clearly.

In this Schedule 'minimise' means: reducing the relevant losses of contaminants to the greatest extent necessary to achieve proportionate reductions and contribute to the achievement of the water quality goals of the sub-catchment as set out in the assessment required by 2A, 2B and 2C below.

The FEP shall contain as a minimum:

1. The property or enterprise details:
    a) Full name, address and contact details (including email addresses and telephone numbers) of the person responsible for the land use activities;
    b) Legal description of the land which constitutes the property or enterprise:

    (i) The physical address and ownership of each parcel of land (if different from the person responsible for the property or enterprise) and any relevant farm identifiers such as the dairy supply number, Agribase identification number, valuation reference; and
    (ii) The legal description of each parcel of land and any relevant farm identifiers such as dairy supply number.

2. A map(s) at a scale that clearly shows:
    a) The boundaries of the property or land areas being farmed;
    aa) The sub-catchment that the property or land areas being farmed are within and their location within that sub-catchment;
    b) The boundaries of the main land management units or land uses on the property or within the farm enterprise;

c) The location (and for named water bodies, the names) of any waterbodies on the property including wetlands, lakes, streams and rivers, and identify specifically any waterbodies that meet the criteria for stock exclusion in Schedule C ~~waterbodies~~;
d) The location of riparian vegetation and fences (or other stock proof barriers) adjacent to water bodies;
e) The location on any waterways where stock have access or there are stock crossings and stock crossing structures;
f) The location of any critical source areas and hotspots for contaminant loss to groundwater or surface water identified in the assessment of objectives and principles and minimum standards listed in section 3; and
g) The location(s) of any required actions to support the achievement of the objectives and principles listed in section 3.

2A. A description of the water quality state and goals of the sub-catchment (as set out in Table 3.11-1) that the property or land areas being farmed are within and an assessment of how much reduction in contaminants is required to achieve the water quality goals of the sub-catchment.

2B. An assessment of the 2016 level or risk of losses of sediment, microbial pathogens, phosphorus and nitrogen from the property or land areas being farmed.

2C. An assessment of the level of reduction in losses of sediment, microbial pathogens, phosphorus and nitrogen that the property or land areas being farmed must make that is proportionate to the 2016 level of losses and proportionate to the water quality improvements that must be made in the sub-catchment, based on Tables 3.11-3 and 3.11-4.
3. An assessment of whether farming practices are consistent with each of the ~~following~~ objectives and principles and minimum standards listed in section 3; and

a. a description of those farming practices that will continue to be undertaken in a manner consistent with the objectives and principles;
b. A description of those farming practices that are not consistent with the objectives or principles, and a description of the time bound actions or practices that will be adopted to ensure the objectives or principles are met.

3a – Management area: Whole farm

Objective 1
To manage farming activities according to good farming practice, and in a way that minimises the loss of contaminants from the farm.
Principles

1. Identify the characteristics of the farm system, the risks that the farm system poses to water quality, and the good farming practices that minimise the losses of sediment, microbial pathogens, phosphorus and nitrogen.
2. Maintain accurate and auditable records of annual farm inputs, outputs and management practices.
Minimum standards
A. The following records must be retained for the life of the relevant consent and provided to Waikato Regional Council at its request:

i. Records of stock numbers and stock classes, births and deaths, stock movements on and off the property, grazing records and transport records;
ii. Total annual milk solids as stated in the milk supply statement;
iii. Records of fertiliser type and amount, including annual accounts, and any records of fertiliser application rates and placement;
iv. Quantity and type of feed supplements sold or purchased and used on the property;
v. Water use records for irrigation (to be averaged over 3 years or longer) in order to determine irrigation application rates (mm/ha/month per irrigated block) and areas irrigated;
vi. Crops grown on the property (area and yield), quantities of each crop consumed on the property, and quantities sold off farm; and
vii. The Nitrogen Reference Point Data as defined in Schedule B clause d; and
viii. Soil test data – including anion storage capacity.

3. Manage farming operations to minimise losses of sediment, microbial pathogens, phosphorus and nitrogen to water, and maintain or enhance soil structure.

3b – Management Area: Nutrient management

Objective 2
To minimise nutrient losses to water ~~while maximising nutrient use efficiency~~.

Principles

4. Monitor soil phosphorus levels and maintain them at or below the agronomic optimum for the farm system.
5. Manage the amount and timing of fertiliser inputs, taking account of all sources of nitrogen and phosphorus, to match plant requirements and minimise risk of losses.

Minimum standard

B. Plan and undertake fertilizer application in accordance with Section 5 of the Code of Practice for Nutrient Management (with Emphasis on Fertiliser Use) Fertiliser Association 2013.

6. Store and load fertiliser to minimise risk of spillage, leaching and loss into waterbodies.
7. Ensure equipment for spreading fertilisers is well maintained and calibrated.
8. Store, transport and distribute feed to minimise wastage, leachate and soil damage.

Objective 3

To farm in accordance with the nitrogen management requirements of PC1.

Principle

Either, where the property's NRP is ≤75th percentile:

9a. Farm in a manner that does not result in farm nitrogen losses exceeding the farm's NRP;

Or, where the property's NRP is > the 75th percentile but < than the 50th percentile:

9b. Farm in a manner that results in farm nitrogen losses reducing below their estimated 2016 losses;

Or, where the property's NRP is > than the 75th percentile

9c. Farm in a manner that does not result in farm nitrogen losses exceeding the 75th percentile for the FMU; or

3c – Management Area: Waterways

Objective 4

To minimise losses of sediment, microbial pathogens, phosphorus and nitrogen to waterways.

Principles

10. Identify risk of overland flow of phosphorus, sediment and microbial pathogens on the property and implement measures to minimise losses of these to waterbodies.
11. Locate and manage farm tracks, gateways, water troughs, self-feeding areas, stock camps, wallows and other sources of run-off to minimise risks to water quality.

Minimum standards

C. identify ephemeral waterways, overland flow paths and areas prone to flooding and ponding, and assess opportunities to minimise losses from these areas through appropriate stocking policy, stock exclusion and/or measures to detain floodwaters and settle out or otherwise remove sediment, nitrogen, phosphorus and microbial pathogens (e.g. detention bunds, sediment traps, natural and constructed wetlands); and

D. Assess of the risk of diffuse discharge of sediment, nitrogen, phosphorus and microbial pathogens from tracks and races and livestock crossing structures to waterways, and the identification of appropriate measures to minimise these discharges (e.g. cut-off drains, shaping); and

E. Identify areas where effluent accumulates including yards, races, livestock crossing structures, underpasses, stock camps, and feed-out areas, and assess and identify appropriate measures to minimise the risk of diffuse discharges of contaminants from these areas to groundwater or surface water; and

F. Identify other 'hotspots' such as fertiliser, silage, compost, or effluent storage facilities, wash-water facilities, offal or refuse disposal pits, and feeding or stock holding areas, and an assess and identify appropriate measures to minimise the risk of diffuse discharges of contaminants from these areas to groundwater or surface water. Where these 'hotspots' and effluent accumulating locations or facilities are located within 10 metres of a waterbody, a clear plan to relocate those facilities so they are further than 10 metres from a waterbody by 2026 must be included in the Farm Environment Plan.

Objective 5

To exclude stock from waterbodies and minimise stock damage to the beds and margins of wetlands and riparian areas.

Principle

12A. Exclude stock in a manner consistent with the requirements of Schedule C.

Minimum standards

G. Identify all waterbodies on the property or land areas being farmed that are identified in Schedule C.
H. Identify where existing fences will be maintained and where new fences are required to be installed to meet the requirements of Schedule C and identify a timeframe (prior to 2026) when all required fences will be installed.

I. Where stock are not excluded from waterbodies in accordance with Schedule C, identify those waterbodies (note: this triggers a more stringent resource consent process):
J. Identify the waterbodies identified in Schedule C that stock are not to be excluded from.
K. Identify the practical constraints that mean stock exclusion will not be achieved.
L. Identify the mitigation measures that will be undertaken to minimize stock access to the waterbodies identified in K (for example, lower stock rates in the affected paddocks, provision of alternative water and shade at least 20 metres away from the waterbody).
M. Identify the mitigation measures that will be undertaken to mitigate or remedy the impacts of stock access to waterbodies identified in K, for example sediment filters, edge of paddock wetland treatment or expanded planted riparian margins up or downstream of the affected stream.

12. In addition to the requirements of Schedule C, exclude stock from waterbodies to the extent that it is compatible with land form, stock class and stock intensity. Where exclusion is not possible, mitigate impacts on waterways.

Minimum standards

N. Where stock are not excluded from waterbodies, identify those waterbodies on the farm map:
O. Identify the practical constraints that mean stock exclusion will not be achieved.
P. Identify the mitigation measures that will be undertaken to minimize stock access to the waterbodies (for example, lower stock rates in the affected paddocks, provision of alternative water and shade at least 20 metres away from the waterbody)
Q. Identify the mitigation measures that will be undertaken to mitigate or remedy the impacts of stock access to waterbodies, for example sediment filters, edge of paddock wetland treatment or expanded planted riparian margins up or downstream of the affected stream.

~~13. Exclude stock in a manner consistent with the requirements of schedule C.~~

3d – Management Area: Land and soil

Objective 6

To minimise contaminant losses to waterways from soil disturbance and erosion.

Principles

14. Manage periods of exposed soil between crops/pasture to reduce risk of erosion, overland flow and leaching.
15. Manage or retire erosion-prone land to minimise soil losses through appropriate measures and practices.

Minimum standards

R. Identify actively eroding areas, erosion prone areas, and areas of bare soil and assessment and identify appropriate measures for erosion and sediment control and re-vegetation.

16. Select appropriate paddocks for growing crops and intensive grazing, recognising and mitigating possible nitrogen and phosphorus, faecal, and sediment loss from critical source areas.

Minimum standards

S. The provision of minimum cultivation setbacks of 10 metres from all waterbodies
T. The identification of slopes over 15° and how cultivation on them will be avoided; unless contaminant discharges to water bodies from that cultivation can be avoided; and

(i) Identify how the adverse effects of cultivation on slopes of less than 15° will be mitigated through appropriate erosion and sediment controls for each paddock that will be cultivated including by:

(a) assessing where overland flows enter and exit the paddock in rainfall events; and
(b) identifying appropriate measures to divert overland flows from entering the cultivated paddock; and
(c) identifying measures to trap sediment leaving the cultivated paddock in overland flows; and
(d) maintaining appropriate buffers between cultivated areas and water bodies (minimum 10 metre setback).

17. Manage grazing and crops to minimise losses from critical source areas.

Minimum standards

U. An assessment of appropriate land use and grazing management for specific areas on the farm in order to maintain and improve the physical and biological condition of soils and minimise the diffuse discharge of sediment, nitrogen, phosphorus and microbial pathogens to water bodies, including:

(i) matching land use to land capability; and

(ii) identifying areas not suitable for grazing; and

(iii) stocking policy to maintain soil condition and pasture cover; and

(iv) the appropriate location and management of winter forage crops; and

(v) suitable management practices for strip grazing.

3e – Management Area: Effluent

Objective 7
To minimise contaminant losses to waterways from farm animal effluent.
Principles

18. Ensure the effluent system meets industry-specific Code of Practice or equivalent standard.
19. Have sufficient storage available for farm effluent and wastewater and actively manage effluent storage levels.

Minimum standard
V. Appropriate storage volumes will be calculated using the Storage Pond Calculator and if sufficient storage is not currently available on the property it will be installed by 2026.

20. Ensure equipment for spreading effluent and other organic manures is well maintained and calibrated.
21. Apply effluent to pasture and crops at depths, rates and times to match plant requirements and soil water holding capacity.

3f – Management Area: Water and irrigation

Objective 8
To operate irrigation systems efficiently and ensuring that the actual use of water is monitored and is efficient.
Principles

22. Manage the amount and timing of irrigation inputs to meet plant demands and minimise risk of leaching and run off.
23. Design, check and operate irrigation systems to minimise the amount of water needed to meet production objectives.

4. The FEP shall include for each objective and principle in section 3 above:

a) Detail and content that reflects the scale of environmental risk posed by the activity
b) A defined and auditable description of the actions and practices to be undertaken to farm in accordance with the objectives and principles in Part B;
c) The records and evidence that must be kept that demonstrate performance and the achievement of an objective or principle listed in Part B.

PART C – FEP REVIEW REQUIREMENTS
The FEP shall be reviewed by a Certified Farm Environment Planner for consistency with this schedule:

1. Prior to lodging a landuse consent application with the Council under rule 3.11.5.3 – 3.11.5.5 of PC1; and

The FEP and the farming activities shall be reviewed by a Certified Farm Environment Planner for consistency between the farming activities and the FEP:

2. Within 12 months of the granting of that consent application; and
3. In accordance with the review intervals set out in the conditions of that resource consent.

The purpose of the first review is to provide an expert opinion on whether:
a) the FEP is consistent with the FEP objectives and principles set out in Part B of this schedule, and
b) whether the current farming activities on the property are being undertaken in a manner consistent with the description of current farming activities set out in the FEP.
The purpose of the subsequent reviews are to provide an expert opinion whether the farming activities on the property are being undertaken in a manner consistent with the FEP ~~objectives and principles set out in Part B of this schedule~~.
The reviews shall be undertaken by a Certified Farm Environment Planner who holds a reviewing endorsement (issued by WRC), and must be undertaken in accordance with the review process set out the Waikato Regional Councils FEP Independent Review manual.
The review shall be undertaken by re-assessing the FEP in accordance with the requirements set out in this schedule.

The results of the review shall be provided to the Waikato Regional Council, within 20 working days of the review due date.

PART D – FEP CHANGES

Unless otherwise required by the Waikato Regional Council in accordance with any conditions of the resource consent, changes can be made to the FEP without triggering the need for review by a CFEP, provided:

1A. The nature and scale of the farming activity does not materially change from that authorized by the resource consent for the property (for example the farming type does not change and the stocking rate does not materially change), and

1B. The nature, scale or extent of the losses of sediment, microbial pathogens, phosphorus and nitrogen from the farm property does not materially change from those when the farming activity was first authorized by the resource consent, and

1. The farming activity remains consistent with Part B of this schedule including compliance with Objective 3, farming in accordance with the nitrogen management requirements of PC1 ~~.~~ and

2. The change to the FEP does not contravene any mandatory requirement of the resource consent, or any requirement of the Regional Plan that is not already authorised~~.~~ and

3. The nature of the change is documented in writing, including provision of updated OVERSEER modelling where this is appropriate, and made available to any CFEP undertaking a review, ~~or~~ and to the Waikato Regional Council, within 20 working days of the change to the FEP ~~on request~~.

All material changes will require review by a CFEP. For the avoidance of doubt, material changes include all change that could have more than a *de minimis* effect on the environment, considered on an individual basis or a cumulative basis in the relevant subcatchment or catchment.

3.11.6 List of Tables and Maps/Te Rārangi o ngā Ripanga me ngā Mahere

Table 3.11-1: ~~Short term~~ water quality limits and targets and ~~long term numerical desired~~ Freshwater Objective water quality attribute states ~~targets~~ for rivers and streams in the Waikato and Waipa River catchments/Ngā whāinga ā-tau taupoto, tauroa hoki mō te kounga wai i te riu o ngā awa o Waikato me Waipā

Table 3.11-1A Water quality limits and targets and Freshwater Objective water quality attribute states for lake FMU's in the Waikato and Waipā River catchments.

Table 3.11-1B Water quality limits and targets and Freshwater Objective water quality attribute states for wetlands in the Waikato and Waipā River catchments.

Table 3.11-1C Water quality limits and targets and Freshwater Objective water quality attribute states for Whangamarino Wetland FMU.

Table 3.11-3 Annual median concentrations for nitrate-nitrogen and DRP (mg/L) at Waikato River Tributaries, along with the percent reductions in concentrations needed to achieve either an A, B or C band, and the corresponding desired instream nutrient load (T/y) to achieve the desired nutrient concentration band.[23]

Table 3.11-4. Annual median concentrations for TN and TP (mg/L) for Waikato mainstem sites, along with the percent reductions in concentrations needed to achieve either an A, B or C band (based on NPS lake criteria), the corresponding desired instream nutrient load (T/y) to achieve the desired nutrient concentration band.[24]

Table 3.11-2 List of sub-catchments showing Priority 1, Priority 2, and Priority 3 sub-catchments/Te rārangi o ngā riu kōawaawa e whakaatu ana i te riu kōawaawa i te Taumata 1, i te Taumata 2, me te Taumata 3

Map 3.11-1: Map of the Waikato and Waipa River catchments, showing Freshwater Management Units

Map 3.11-2: Map of the Waikato and Waipa River catchments, showing sub-catchments

Table 3.11-1: ~~Short term~~ water quality limits and targets and ~~long term numerical desired~~ Freshwater Objective water quality attribute states ~~targets~~ for rivers and streams in the Waikato and Waipa River catchments/Ngā whāinga ā-tau taupoto, tauroa hoki mō te kounga wai i te riu o ngā awa o Waikato me Waipā

Within rivers and streams in the Waikato and Waipa River catchments, these limits, targets, and Freshwater Objective ~~desired~~ water quality attribute states are used in decision-making processes guided by the objectives in Chapter 3.11 and for future monitoring of changes in the state of water quality within the catchments. There are additional tables for lakes, wetlands and Whangamarino wetland in Tables 3.11-1A to 3.11-1C

The numerical values in Table 3.11-1 are freshwater objective attribute states. Some of the numerical values are also limits or targets – these are clearly labelled as such in the table. The numerical values are to be treated as 'limits' at locations where existing water quality is better than the relevant numerical value and as 'targets' at locations where the existing water quality is worse than the relevant numerical value. Where the numerical value is a target, it is to be achieved by the relevant date set out in the table.

With regard to consent applications for diffuse discharges or point source discharges of contaminants ~~nitrogen, phosphorus, sediment and microbial pathogens~~, it is not intended, nor is it in the nature of water quality limits, targets and the Freshwater Objective ~~desired~~ water quality attribute states, that they be used directly as receiving water compliance ~~limits/~~standards. Reference should also be made to Method 3.2.4.1.

Explanatory note to Table 3.11-1

The tables set out the concentrations (all attributes except clarity) or visibility distance (clarity attribute) to be maintained or achieved by actions taken in the short term, medium term and ~~at~~ over 80 years for rivers and tributaries, and in the short term and over ~~at~~ 80 years for lakes FMUs. Where water quality is currently high (based on 2010-2014 monitoring data), the short term targets and 80-year desired water quality states ~~targets~~ will be the same as the current state and there is to be no decline in quality (that is, no increase in attribute concentration or decrease in clarity). Where water quality needs to

[23] [Evidence of Adam Canning, Block 1, Table A2.]
[24] [Evidence of Adam Canning, Block 1, Table A3.]

improve, the water quality states ~~values~~ to be achieved at a site indicate a short term and long term reduction in concentration or increase in clarity compared to the current state.

For example, at Otamakokore Stream, Upper Waikato River FMU:

- the current state value for median nitrate is 0.740 mgNO3-N/L. The short term targets and 80-year Freshwater Objective ~~desired~~ water quality attribute states ~~targets~~ are set at 0.740 mgNO3-N/Lto reflect that there is to be no decline in water quality
- the current state value for E.coli is 696 E.coli/100ml. The 80-year Freshwater Objective ~~desired~~ water quality attribute states ~~target~~ is set at 540 E.coli/100ml and the short term target is set at 10% of the difference between the current state value and the 80 year desired water quality state ~~target~~.

The achievement of the attribute targets in Table 3.11-1 will be determined through analysis of 5-yearly monitoring data. The variability in water quality (such as due to seasonal and climatic events) and the variable response times of the system to implementation of mitigations may mean that the targets are not observed for every attribute at all sites in the short term.

The effect of some contaminants (particularly nitrogen) discharged from land has not yet been seen in the water. This means that in addition to reducing discharges from current use and activities, further reductions will be required to address the load to come that will contribute to nitrogen loads in the water. There are time lags between contaminants discharged from land uses and the effect in the water. For nitrogen in the Upper Waikato River particularly, this is because of the time taken for nitrogen to travel through the soil profile into groundwater and then eventually into the rivers. This means that there is some nitrogen leached from land use change that occurred decades ago that has entered groundwater, but has not yet entered the Waikato River. In some places, water quality (in terms of nitrogen) will deteriorate before it gets better. Phosphorus, sediment and microbial pathogens and diffuse discharges from land have shorter lag times, as they reach water from overland flow. However, there will be some time lags for actions taken to address these contaminants to be effective (for example tree planting for erosion control).

Table 3.11-1: Upper Waikato River Freshwater Management Unit

3.11-1: Upper Waikato River Freshwater Management Unit (A)																											
	Attributes																										
							Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target		
Site	Annual Median Chlorophyll a (mg/m³)			Annual Maximum Chlorophyll a (mg/m³)			Annual Median Total Nitrogen (mg/m³)			Annual Median Total Phosphorus (mg/m³)			Annual Median Nitrate (mg NO_3-N/L)			Annual 95th percentile Nitrate (mg NO_3-N/L)			DRP Annual Median (mg/L)			Annual Median Ammonia (mg NH_4-N/L)			Annual Maximum Ammonia (mg NH_4-N/L)		
	short term	Med. term[25]	80 year	short term	Med. term[26]	80 year	short term	Med. term[27]	80 year	short term	Med. term[28]	80 year	short term	Med. term[29]	80 year[30]	short term	Med. term[31]	80 year	short term[32]	Med. term[33]	80 year[34]	short term	Med. term[35]	80 year	short term	Med. term[36]	80 year
Waikato River Ohaaki Br	1.5	1.5	1.5	13	13	13	134	134	134	10	10	10	0.039	0.039	0.039	0.062	0.062	0.062				0.002	0.002	0.002	0.013	0.013	0.013
Waikato River Ohakuri Tailrace Br	3.2	3.2	3.2	11	11	11	206	192	160	17	17	17	0.084	0.084	0.084	0.172	0.172	0.172				0.003	0.003	0.003	0.017	0.017	0.017
Waikato River Whakamaru Tailrace			5			25	260	230	160	20	20	20	0.101	0.101	0.101	0.230	0.230	0.230				0.003	0.003	0.003	0.010	0.010	0.010
Waikato River Waipapa Tailrace	4.1	4.1	4.1	25	25	25	318	271	160	25	23.5	20	0.164	0.164	0.164	0.320	0.320	0.320				0.007	0.007	0.007	0.017	0.017	0.017
Pueto Stm Broadlands Rd Br													0.450	0.450	0.450	0.530	0.530	0.530	0.072	0.056	0.019	0.003	0.003	0.003	0.009	0.009	0.009
Torepatutahi Stm Vaile Rd Br													0.500	0.488	~~0.500~~ 0.46	0.800	0.800	0.800	0.084	0.065	0.019	0.002	0.002	0.002	0.011	0.011	0.011
Waiotapu Stm Homestead Rd Br													1.257	1.018	~~1.0~~ 0.46	1.563	1.544	1.500	0.034	0.030	0.019	0.112	0.087	0.03	0.176	0.138	0.05

[25] [Medium term Chlorophyll-a state reflects 30% of the required change [PC1-10809; V1PC1-1560] at 2040 (HM Block 1 Evidence, Objective 3).]
[26] [Medium term Chlorophyll-a state reflects 30% of the required change [PC1-10809; V1PC1-1560] at 2040 (HM Block 1 Evidence, Objective 3).]
[27] [Medium term TN state reflects 30% of the required change [PC1-10809; V1PC1-1560] at 2045 (HM Block 1 Evidence, Objective 3).]
[28] [Medium term TP state reflects 30% of the required change [PC1-10809; V1PC1-1560] at 2040 (HM Block 1 Evidence, Objective 3).]
[29] [Medium term Nitrate state reflects 30% of the required change [PC1-10809; V1PC1-1560] at 2045 (HM Block 1 Evidence, Objective 3). Where desired state is already met, medium term reflects "maintain" (PC1-11007).]
[30] [Long term Nitrate state: Evidence of Adam Canning, Block 1, Table A4. Where desired state is already met, medium term reflects "maintain" (PC1-11007).]
[31] [Medium term Nitrate state reflects 30% of the required change [PC1-10809; V1PC1-1560] at 2045 (HM Block 1 Evidence, Objective 3).]
[32] [Short term DRP targets are current state: Evidence of Adam Canning, Block 1, Table A2.]
[33] [Medium term DRP state reflects 30% of the required change [PC1-10809; V1PC1-1560] at 2045 (HM Block 1 Evidence, Objective 3).]
[34] [Long term DRP state: Evidence of Adam Canning, Block 1, Table A4. Where desired state is already met, medium term reflects "maintain" (PC1-11007).]
[35] [Medium term Ammonia state reflects 30% of the required change [PC1-10809; V1PC1-1560] at 2045 (HM Block 1 Evidence, Objective 3).]
[36] [Medium term Ammonia state reflects 30% of the required change [PC1-10809; V1PC1-1560] at 2045 (HM Block 1 Evidence, Objective 3).]

	Attributes																										
							Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target		
Site	Annual Median Chlorophyll a (mg/m^3)			Annual Maximum Chlorophyll a (mg/m^3)			Annual Median Total Nitrogen (mg/m^3)			Annual Median Total Phosphorus (mg/m^3)			Annual Median Nitrate (mg NO_3-N/L)			Annual 95th percentile Nitrate (mg NO_3-N/L)			DRP Annual Median (mg/L)			Annual Median Ammonia (mg NH_4-N/L)			Annual Maximum Ammonia (mg NH_4-N/L)		
	short term	Med. term	80 year	short term	Med. Term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year
Mangakara Stm (Reporoa) SH5													1.270	1.027	~~1.0~~ 0.46	1.590	1.563	1.500	0.048	0.039	0.019	0.008	0.008	0.008	0.062	0.058	0.050
Kawaunui Stm SH5 Br													2.580	1.944	~~2.4~~ 0.46	2.850	2.445	1.500	0.052	0.042	0.019	0.006	0.006	0.006	0.079	0.070	0.050
Waiotapu Stm Campbell Rd Br													0.915	0.779	~~0.915~~ 0.46	1.100	1.100	1.100	0.004	0.004	0.004	0.291	0.276	0.240	0.315	0.236	0.050
Otamakokore Stm Hossack Rd													0.740	0.656	~~0.740~~ 0.46	1.190	1.190	1.190	0.152	0.112	0.019	0.006	0.006	0.006	0.024	0.024	0.024
Whirinaki Stm Corbett Rd													0.770	0.677	~~0.770~~ 0.46	0.870	0.870	0.870	0.061	0.048	0.019	0.002	0.002	0.002	0.012	0.012	0.012
Tahunaatara Stm Ohakuri Rd													0.555	0.527	~~0.555~~ 0.46	0.830	0.830	0.830	0.034	0.030	0.019	0.003	0.003	0.003	0.015	0.015	0.015
Mangaharakeke Stm SH30 (Off Jct SH1)													0.525	0.506	~~0.525~~ 0.46	0.750	0.750	0.750	0.032	0.028	0.019	0.003	0.003	0.003	0.015	0.015	0.015
Waipapa Stm (Mokai) Tirohanga Rd Br													1.189	0.97	~~1.0~~ 0.46	1.500	1.500	1.500	0.089	0.068	0.019	0.003	0.003	0.003	0.005	0.005	0.005

	Attributes																										
							Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target		
Site	Annual Median Chlorophyll a (mg/m^3)			Annual Maximum Chlorophyll a (mg/m^3)			Annual Median Total Nitrogen (mg/m^3)			Annual Median Total Phosphorus (mg/m^3)			Annual Median Nitrate (mg NO_3-N/L)			Annual 95th percentile Nitrate (mg NO_3-N/L)			DRP Annual Median (mg/L)			Annual Median Ammonia (mg NH_4-N/L)			Annual Maximum Ammonia (mg NH_4-N/L)		
	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year
Mangakino Stm Sandel Rd													0.650	0.593	~~0.650~~ 0.46	0.860	0.860	0.860	0.038	0.032	0.019	0.003	0.003	0.003	0.012	0.012	0.012
Whakauru Stm SH1 Br													0.260	0.260	0.260	0.450	0.450	0.450	0.025	0.023	0.019	0.003	0.003	0.003	0.033	0.033	0.033
Mangamingi Stm Paraonui Rd Br													2.760	2.070	~~2.4~~ 0.46	3.120	2.634	1.500	0.265	0.191	0.019	0.091	0.073	0.030	0.296	0.222	0.050
Pokaiwhenua Stm Arapuni - Putaruru Rd													1.680	1.206	~~1.0~~ 0.1	2.040	1.878	1.500	0.092	0.066	0.006	0.002	0.002	0.002	0.020	0.020	0.020
Little Waipa Stm Arapuni - Putaruru Rd													1.522	1.203	~~1.0~~ 0.46	2.020	1.864	1.500	0.056	0.045	0.019	0.002	0.002	0.002	0.085	0.075	0.050

Upper Waikato River Freshwater Management Unit (B)																					
	Attributes																				
	Limit/Target															Limit/Target			Limit/Target		
Site	95th percentile *E. coli* (*E. coli*/100mL)			MCI [%reduction from reference state]			Fish Q-IBI			Dissolved Oxygen 7-day mean minimum (mg/L)			Dissolved Oxygen 1-day minimum (mg/L)			Deposited sediment (% cover)			Clarity (m)		
	short term	Medium term[37]	80 year	short term[38]	Medium term	80 year	short term[39]	Medium term	80 year	short term[40]	Medium term	80 year	short term	Medium term	80 year	short term[41]	Medium term	80 year	short term[42]	Medium term[43]	80 year[44]
Waikato River Ohaaki Br	70	70	70																3.8	3.8	3.8
Waikato River Ohakuri Tailrace Br	15	15	15																3.4	3.4	3.4
Waikato River Whakamaru Tailrace	60	60	60																2.0	2.3	3.0
Waikato River Waipapa Tailrace	162	162	162																2.0	2.3	3.0
Pueto Stm Broadlands Rd Br	92	92	92	[15%-20%]	[15%-20%]	110	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				1.8	2.2	3.0
Torepatutahi Stm Vaile Rd Br	216	216	216	[15%-20%]	[15%-20%]	105	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0						
Waiotapu Stm Homestead Rd Br	281	281	281	[15%-20%]	[15%-20%]	100	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0	20	20	20			
Mangakara Stm (Reporoa) SH5	1584	1271	540	[15%-20%]	[15%-20%]	105	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.9	0.9	1.0
Kawaunui Stm SH5 Br	2335	1797	540	[15%-20%]	[15%-20%]	105	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0	20	20	20	1.4	1.5	1.6
Waiotapu Stm Campbell Rd Br	18	18	18	[15%-20%]	[15%-20%]	100	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				1.2	1.3	1.6
Otamakokore Stm Hossack Rd	680	638	540	[15%-20%]	[15%-20%]	105	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0	20	20	20	1.2	1.3	1.6
Whirinaki Stm Corbett Rd	98	98	98	[15%-20%]	[15%-20%]	105	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0	20	20	20	2.7	2.8	3.0

[37] [Medium term E. Coli state reflects 30% of the required change [PC1-10809; V1PC1-1560] at 2040 (HM Block 1 Evidence, Objective 3).]
[38] [Short and medium term states for MCI reflect regional bottom line, being a % reduction from reference condition: Evidence of Adam Canning, Block 1, Table A1.]
[39] [Short and medium term states for Fish Q-IBI reflect regional bottom line: Evidence of Adam Canning, Block 1, Table A1.]
[40] [Short and medium term states for dissolved oxygen reflect regional bottom line: Evidence of Adam Canning, Block 1, Table A1.]
[41] [Short and medium term states for deposited fine sediment cover reflect regional bottom line: Evidence of Adam Canning, Block 1, Table A1.]
[42] [Shor term Clarity state: Evidence of Adam Daniel, Block 1, Table 1.]
[43] [Medium term Clarity state reflects 30% of the required change [PC1-10809; V1PC1-1560] at 2040 (HM Block 1 Evidence, Objective 3).]
[44] [Long term Clarity state: Evidence of Adam Daniel, Block 1, Table 1.]

	Attributes																				
	Limit/Target															Limit/Target			Limit/Target		
Site	95th percentile *E. coli* (*E. coli*/100mL)			MCI [%reduction from reference state]			Fish Q-IBI			Dissolved Oxygen 7-day mean minimum (mg/L)			Dissolved Oxygen 1-day minimum (mg/L)			Deposited sediment (% cover)			Clarity (m)		
	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year
Tahunaatara Stm Ohakuri Rd	783	710	540	[15%-20%]	[15%-20%]	105	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0	20	20	20	1.3	1.4	1.6
Mangaharakeke Stm SH30 (Off Jct SH1)	684	641	540	[15%-20%]	[15%-20%]	100	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				1.1	1.3	1.6
Waipapa Stm (Mokai) Tirohanga Rd Br	1147	965	540	[15%-20%]	[15%-20%]	110	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				~~1.2~~ 1.5	1.7	~~1.6~~ 2.2
Mangakino Stm Sandel Rd	251	251	251	[15%-20%]	[15%-20%]	115	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0	20	20	20	1.8	2.2	3.0
Whakauru Stm SH1 Br	2106	1636	540	[15%-20%]	[15%-20%]	100	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0	20	20	20	0.8	0.9	1.0
Mangamingi Stm Paraonui Rd Br	2151	1668	540	[15%-20%]	[15%-20%]	100	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.8	0.9	1.0
Pokaiwhenua Stm Arapuni - Putaruru Rd	1363	1116	540	[5%-15%]	[5%-15%]	115	36	36	47	7.0	7.0	8.0	5.0	5.0	7.5	20	20	20	~~1.3~~ 1.5	1.6	~~1.6~~ 1.8
Little Waipa Stm Arapuni - Putaruru Rd	1377	1126	540	[15%-20%]	[15%-20%]	105	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0	20	20	20	~~1.5~~ 1.6	1.7	~~1.6~~ 1.8

Table 3.11-1: Middle Waikato River Freshwater Management Unit

Middle Waikato River Freshwater Management Unit (A)																												
	Attributes																											
							Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target		
Site	Annual Median Chlorophyll a (mg/m³)			Annual Maximum Chlorophyll a (mg/m³)			Annual Median Total Nitrogen (mg/m³)			Annual Median Total Phosphorus (mg/m³)			Annual Median Nitrate (mg NO_3-N/L)			Annual 95th percentile Nitrate (mg NO_3-N/L)			DRP Annual Median (mg/L)			Annual Median Ammonia (mg NH_4-N/L)			Annual Maximum Ammonia (mg NH_4-N/L)		
	short term	Med. term	80 Yr	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year
Waikato River Narrows Boat Ramp	5.5	5.4	5	23	23	23	404	388	350	28	26	20	0.235	0.235	0.235	0.500	0.500	0.500				0.009	0.009	0.009	0.018	0.018	0.018
Waikato River Horotiu Br	6.1	5.8	5	23	23	23	432	407	350	34	30	20	0.260	0.260	0.260	0.530	0.530	0.530				0.007	0.007	0.007	0.029	0.029	0.029
Karapiro Stm Hickey Rd Bridge													0.520	0.502	~~0.520~~ 0.46	1.689	1.632	1.500	0.049	0.040	0.019	0.008	0.008	0.008	0.031	0.031	0.031
Mangawhero Stm Cambridge-Ohaupo Rd													1.990	1.531	~~1.0~~ 0.46	2.490	2.193	1.500	0.0365	0.031	0.019	0.041	0.038	0.03	0.072	0.065	0.05
Mangaonua Stm Hoeka Rd													1.455	1.157	~~1.0~~ 0.46	1.878	1.765	1.500	0.0125	0.0125	0.0125	0.036	0.034	0.03	0.051	0.051	0.05
Mangaone Stm Annebrooke Rd Br													2.580	1.944	~~2.4~~ 0.46	2.940	2.508	1.500	0.063	0.050	0.019	0.009	0.009	0.009	0.020	0.020	0.020
Mangakotukutuku Stm Peacockes Rd													0.800	0.698	~~0.800~~ 0.46	1.788	1.702	1.500	0.169	0.124	0.019	0.077	0.063	0.03	0.132	0.107	0.05
Mangakara Stm (Reporoa) SH5													0.880	0.754	~~0.880~~ 0.46	1.240	1.240	1.24	0.025	0.023	0.019	0.256	0.251	0.24	0.318	0.238	0.05
Kawaunui Stm SH5 Br													0.815	0.709	~~0.815~~ 0.46	1.572	1.55	1.5	0.012	0.012	0.012	0.096	0.076	0.03	0.183	0.143	0.05

Middle Waikato Freshwater Management Unit (B)																						
	Attributes																					
	Limit/Target															Limit/Target			Limit/Target		
Site	95th percentile *E. coli* (*E. coli*/100mL)			MCI [%reduction from reference state]			Fish Q-IBI			Dissolved Oxygen 7-day mean minimum (mg/L)			Dissolved Oxygen 1-day minimum (mg/L)			Deposited sediment (% cover)			Clarity (m)		
	short term	Medium Term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year
Waikato River Narrows Boat Ramp	340	316	260																~~1.7~~ 1.8	1.9	~~1.7~~ 2.0
Waikato River Horotiu Br	774	704	540																~~1.4~~ 1.8	1.9	~~1.6~~ 2.0
Karapiro Stm Hickey Rd Bridge	4518	3325	540	[15%-20%]	[15%-20%]	90	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.9	0.9	1.0
Mangawhero Stm Cambridge-Ohaupo Rd	2920	2206	540	[15%-20%]	[15%-20%]	95	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0	20	20	20	0.3	0.5	1.0
Mangaonua Stm Hoeka Rd	6372	4622	540	[15%-20%]	[15%-20%]	95	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0	20	20	20	1.0	1.0	1.0
Mangaone Stm Annebrooke Rd Br	2052	1598	540	[15%-20%]	[15%-20%]	95	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.9	0.9	1.0
Mangakotukutuku Stm Peacockes Rd	11394	8138	540	[15%-20%]	[15%-20%]	95	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.5	0.7	1.0
Mangakara Stm (Reporoa) SH5	5922	4307	540	[15%-20%]	[15%-20%]	95	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.4	0.6	1.0
Kawaunui Stm SH5 Br	2124	1649	540	[15%-20%]	[15%-20%]	95	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.5	0.7	1.0

Table 3.11-1: Lower Waikato River Freshwater Management Unit

Lower Waikato River Freshwater Management Unit (A)																											
	Attributes																										
							Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target		
Site	Annual Median Chlorophyll a (mg/m³)			Annual Maximum Chlorophyll a (mg/m³)			Annual Median Total Nitrogen (mg/m³)			Annual Median Total Phosphorus (mg/m³)			Annual Median Nitrate (mg NO_3-N/L)			Annual 95th percentile Nitrate (mg NO_3-N/L)			DRP Annual Median (mg/L)			Annual Median Ammonia (mg NH_4-N/L)			Annual Maximum Ammonia (mg NH_4-N/L)		
	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Medium term	80 year	short term	Medium term	80 year
Waikato River Huntly-Tainui Br	5.9	5.6	5	19	19	19	562	498	350	43	36	20	0.365	0.365	0.365	0.900	0.900	0.900				0.005	0.005	0.005	0.015	0.015	0.015
Waikato River Mercer Br	10.0	8.5	5	30	29	25	631	547	350	49	40	20	0.365	0.365	0.365	0.870	0.870	0.870				0.003	0.003	0.003	0.010	0.010	0.010
Waikato River Tuakau Br	11.3	9.4	5	37	33	25	571	505	350	50	41	20	0.325	0.325	0.325	0.880	0.880	0.880				0.003	0.003	0.003	0.008	0.008	0.008
Komakorau Stm Henry Rd													1.279	1.033	~~1.0~~ 0.46	4.400	4.130	3.5	0.0085	0.0085	0.0085	0.250	0.247	0.24	0.419	0.413	0.40
Mangawara Stm Rutherford Rd Br													0.765	0.674	~~0.765~~ 0.46	2.760	2.382	1.5	0.0465	0.038	0.019	0.103	0.081	0.03	0.172	0.135	0.05
Awaroa Stm (Rotowaro) Sansons Br @Rotowaro-Huntly Rd													0.700	0.628	~~0.700~~ 0.46	1.190	1.190	1.190	0.004	0.004	0.004	0.021	0.021	0.021	0.089	0.077	0.05
Matahuru Stm Waiterimu Road Below Confluence													0.715	0.639	~~0.715~~ 0.46	1.689	1.632	1.5	0.235	0.170	0.019	0.016	0.016	0.016	0.059	0.056	0.05

	Attributes																										
							Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target		
Site	Annual Median Chlorophyll a (mg/m³)			Annual Maximum Chlorophyll a (mg/m³)			Annual Median Total Nitrogen (mg/m³)			Annual Median Total Phosphorus (mg/m³)			Annual Median Nitrate (mg NO_3-N/L)			Annual 95th percentile Nitrate (mg NO_3-N/L)			DRP Annual Median (mg/L)			Annual Median Ammonia (mg NH_4-N/L)			Annual Maximum Ammonia (mg NH_4-N/L)		
	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 yr	short term	Med. term	80 year	short term	Medium term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Medium term	80 year
Whangape Stm Rangiriri-Glen Murray Rd													0.004	0.004	0.004	0.690	0.690	0.690	0.004	0.004	0.004	0.006	0.006	0.006	0.134	0.109	0.05
Waerenga Stm SH2 Maramarua													0.820	0.712	~~0.820~~ 0.46	1.410	1.410	1.410	0.020	0.020	0.019	0.005	0.005	0.005	0.022	0.022	0.022
Whangamarino River Jefferies Rd Br													0.625	0.576	~~0.625~~ 0.46	1.842	1.739	1.5	0.029	0.026	0.019	0.012	0.012	0.012	0.147	0.118	0.05
Mangatangi River SH2 Maramarua													0.110	0.107	~~0.110~~ 0.100	1.120	1.120	1.120	0.021	0.017	0.006	0.005	0.005	0.005	0.038	0.038	0.038
Mangatawhiri River Lyons Rd Buckingham Br													0.013	0.013	0.013	0.370	0.370	0.370	0.012	0.010	0.006	0.003	0.003	0.003	0.011	0.011	0.011
Whangamarino River Island Block Rd													0.075	0.075	0.075	0.700	0.700	0.700	0.006	0.006	0.006	0.011	0.011	0.011	0.054	0.053	0.05
Whakapipi Stm SH22 Br													3.390	2.511	~~2.4~~ 0.46	5.120	4.634	3.5	0.028	0.025	0.019	0.006	0.006	0.006	0.081	0.072	0.05
Ohaeroa Stm SH22 Br													1.473	1.169	~~1.0~~ 0.46	1.806	1.714	1.5	0.008	0.008	0.008	0.003	0.003	0.003	0.015	0.015	0.015
Opuatia Stm Ponganui Rd													0.740	0.656	~~0.740~~ 0.46	1.060	1.060	1.060	0.006	0.006	0.006	0.005	0.005	0.005	0.016	0.016	0.016
Awaroa River (Waiuku) Otaua Rd Br Moseley Rd													1.369	1.096	~~1.0~~ 0.46	2.310	2.067	1.5	0.004	0.004	0.004	0.021	0.021	0.021	0.135	0.110	0.05

Lower Waikato River Freshwater Management Unit (B)																						
	Attributes																					
Limit/Target													Limit/Target			Limit/Target			Limit/Target		
Site	95th percentile *E. coli* (*E. coli*/100mL)			MCI [%reduction from reference state]			Fish Q-IBI			Dissolved Oxygen 7-day mean minimum (mg/L)			Dissolved Oxygen 1-day minimum (mg/L)			Deposited sediment (% cover)			Clarity (m)		
	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year
Waikato River Huntly-Tainui Br	1944	1523	540																0.9	0.9	1.0
Waikato River Mercer Br	1494	1208	540																		
Waikato River Tuakau Br	1584	1271	540																0.7	0.8	1.0
Komakorau Stm Henry Rd	3474	2594	540	[15%-20%]	[15%-20%]	90	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.3	0.5	1.0
Mangawara Stm Rutherford Rd Br	4955	3631	540	[15%-20%]	[15%-20%]	85	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.3	0.5	1.0
Awaroa Stm (Rotowaro) Sansons Br @ Rotowaro-Huntly Rd	1800	1422	540	[15%-20%]	[15%-20%]	90	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.8	0.9	1.0
Matahuru Stm Waiterimu Road Below Confluence	6147	4465	540	[15%-20%]	[15%-20%]	90	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.4	0.6	1.0
Whangape Stm Rangiriri-Glen Murray Rd	548	546	540	[5%-15%]	[5%-15%]	100	36	36	47										0.3	0.5	1.0
Waerenga Stm SH2 Maramarua	5098	3731	540	[15%-20%]	[15%-20%]	95	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.9	0.9	1.0
Whangamarino River Jefferies Rd Br	4712	3460	540	[15%-20%]	[15%-20%]	90	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.6	0.7	1.0

	Attributes																				
Limit/Target													Limit/Target			Limit/Target			Limit/Target		
Site	95th percentile *E. coli* (*E. coli*/100mL)			MCI [%reduction from reference state]			Fish Q-IBI			Dissolved Oxygen 7-day mean minimum (mg/L)			Dissolved Oxygen 1-day minimum (mg/L)			Deposited sediment (% cover)			Clarity (m)		
	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year
Mangatangi River SH2 Maramarua	5567	4059	540	[5%-15%]	[5%-15%]	100	36	36	47	7.0	7.0	8.0	5.0	5.0	7.5				0.5	0.7	1.0
Mangatawhiri River Lyons Rd Buckingham Br	5108	3738	540	[5%-15%]	[5%-15%]	110	36	36	47	7.0	7.0	8.0	5.0	5.0	7.5	20	20	20	~~1.6~~ 1.8	1.9	~~1.6~~ 2.0
Whangamarino River Island Block Rd	655	621	540	[5%-15%]	[5%-15%]	95	36	36	47	7.0	7.0	8.0	5.0	5.0	7.5				0.3	0.5	1.0
Whakapipi Stm SH22 Br	1773	1403	540	[15%-20%]	[15%-20%]	85	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0	20	20	20	1.1	1.1	1.1
Ohaeroa Stm SH22 Br	4667	3429	540	[15%-20%]	[15%-20%]	90	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.8	0.9	1.0
Opuatia Stm Ponganui Rd	2898	2191	540	[15%-20%]	[15%-20%]	95	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0	20	20	20	0.6	0.7	1.0
Awaroa River (Waiuku) Otaua Rd Br Moseley Rd	1017	874	540	[15%-20%]	[15%-20%]	85	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.4	0.6	1.0
	ETI																				
	short term	Medium term	Long term																		
Waikato at Port Waikato[45]	0.75	0.75	0.5																		

[45] [Evidence of Adam Canning, Block 1, Table 2.]

Table 3.11-1: Waipā River Freshwater Management Unit

Waipā River Freshwater Management Unit (A)																												
	(AAttributes																											
							Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target		
Site	Annual Median Chlorophyll a (mg/m³)			Annual Maximum Chlorophyll a (mg/m³)			Annual Median Total Nitrogen (mg/m³)			Annual Median Total Phosphorus (mg/m³)			Annual Median Nitrate (mg NO_3-N/L)			Annual 95th percentile Nitrate (mg NO_3-N/L)			DRP Annual Median (mg/L)			Annual Median Ammonia (mg NH_4-N/L)			Annual Maximum Ammonia (mg NH_4-N/L)		
	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 yr	short term	Medium term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Medium term	80 year	short term	Medium term	80 year
Waipā River Mangaokewa Rd													0.380	0.296	~~0.380~~ 0.10	0.600	0.600	0.600	0.0055	0.006	0.006	0.003	0.003	0.003	0.017	0.017	0.017
Waipā River Otewa													0.228	0.190	~~0.228~~ 0.10	0.502	0.502	0.502	0.008	0.007	0.006	0.003	0.003	0.003	0.008	0.008	0.008
Waipā River SH3 Otorohanga													0.370	0.289	~~0.370~~ 0.10	1.050	1.050	1.050	0.008	0.007	0.006	0.004	0.004	0.004	0.020	0.020	0.020
Waipā River Pirongia-Ngutunui Rd Br													0.565	0.534	~~0.565~~ 0.46	1.270	1.270	1.270	0.014	0.014	0.014	0.008	0.008	0.008	0.023	0.023	0.023
Waipā River Whatawhata Bridge													0.673	0.609	~~0.673~~ 0.46	1.319	1.319	1.319	0.017	0.017	0.017	0.009	0.009	0.009	0.026	0.026	0.026
Ohote Stm Whatawhata/Horotiu Rd													0.495	0.485	~~0.495~~ 0.46	1.370	1.370	1.370	0.02	0.02	0.019	0.023	0.023	0.023	0.052	0.051	0.05
Kaniwhaniwha Stm Wright Rd													0.350	0.275	~~0.350~~ 0.10	0.890	0.890	0.890	0.007	0.007	0.006	0.007	0.007	0.007	0.022	0.022	0.022
Mangapiko Bowman Rd Stm													1.369	1.096	~~1.0~~ 0.46	2.490	2.193	1.5	0.118	0.088	0.019	0.022	0.022	0.022	0.076	0.062	0.03
Mangaohoi Stm South Branch Maru Rd													0.230	0.230	0.230	0.390	0.390	0.390	0.041	0.034	0.019	0.003	0.003	0.003	0.008	0.008	0.008

	Attributes																										
							Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target			Limit/Target		
Site	Annual Median Chlorophyll a (mg/m³)			Annual Maximum Chlorophyll a (mg/m³)			Annual Median Total Nitrogen (mg/m³)			Annual Median Total Phosphorus (mg/m³)			Annual Median Nitrate (mg NO_3-N/L)			Annual 95th percentile Nitrate (mg NO_3-N/L)			DRP Annual Median (mg/L)			Annual Median Ammonia (mg NH_4-N/L)			Annual Maximum Ammonia (mg NH_4-N/L)		
	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year	short term	Med. term	80 year
Mangauika Stm Te Awamutu Borough W/S Intake													0.210	0.210	0.210	0.280	0.280	0.280	0.004	0.004	0.004	0.002	0.002	0.002	0.003	0.003	0.003
Puniu River Bartons Corner Rd Br													0.650	0.485	~~0.650~~ 0.10	1.280	1.280	1.280	0.022	0.017	0.006	0.007	0.007	0.007	0.029	0.029	0.029
Mangatutu Stm Walker Rd Br													0.380	0.380	0.380	0.880	0.880	0.880	0.009	0.009	0.009	0.003	0.003	0.003	0.012	0.012	0.012
Waitomo Stm SH31 Otorohanga													0.520	0.502	~~0.520~~ 0.46	0.830	0.830	0.830	0.027	0.025	0.019	0.008	0.008	0.008	0.025	0.025	0.025
Mangapu River Otorohanga													0.860	0.740	~~0.860~~ 0.46	1.360	1.360	1.360	0.019	0.019	0.019	0.015	0.05	0.015	0.057	0.055	0.05
Waitomo Stm Tumutumu Rd													0.630	0.579	~~0.630~~ 0.46	0.800	0.800	0.800	0.010	0.010	0.010	0.004	0.004	0.004	0.013	0.013	0.013
Mangaokewa Stm Lawrence Street Br													0.530	0.509	~~0.530~~ 0.46	0.980	0.980	0.980	0.015	0.015	0.015	0.004	0.004	0.004	0.013	0.013	0.013

Waipā River Freshwater Management Unit (B)

	Attributes																				
	Limit/Target															Limit/Target			Limit/Target		
Site	95th percentile *E. coli* (*E. coli*/100mL)			MCI [%reduction from reference state]			Fish Q-IBI			Dissolved Oxygen 7-day mean minimum (mg/L)			Dissolved Oxygen 1-day minimum (mg/L)			Deposited sediment (% cover)			Clarity (m)		
	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year
Waipā River Mangaokewa Rd	2417	1854	540	[5%-15%]	[5%-15%]	125	36	36	47	7.0	7.0	8.0	5.0	5.0	7.5	20	20	20	~~1.5~~ 1.6	1.7	~~1.6~~ 2.0
Waipā River Otewa	2036	1587	540	[5%-15%]	[5%-15%]	115	36	36	47	7.0	7.0	8.0	5.0	5.0	7.5	20	20	20	2.1	2.1	2.1
Waipā River SH3 Otorohanga	3289	2464	540	[5%-15%]	[5%-15%]	110	36	36	47	7.0	7.0	8.0	5.0	5.0	7.5	20	20	20	~~1.2~~ 1.8	1.9	~~1.6~~ 2.0
Waipā River Pirongia-Ngutunui Rd Br	4441	3271	540	[15%-20%]	[15%-20%]	100	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.7	0.8	1.0
Waipā River Whatawhata Bridge	3657	2722	540	[15%-20%]	[15%-20%]	95	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.6	0.7	1.0
Ohote Stm Whatawhata/Horotiu Rd	2142	1661	540	[15%-20%]	[15%-20%]	90	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.6	0.7	1.0
Kaniwhaniwha Stm Wright Rd	1917	1504	540	[5%-15%]	[5%-15%]	110	36	36	47	7.0	7.0	8.0	5.0	5.0	7.5				~~0.9~~ 1.2	1.4	~~1.0~~ 1.8

	Attributes																					
	Limit/Target															Limit/Target			Limit/Target		
Site	95th percentile *E. coli* (*E. coli*/100mL)			MCI [%reduction from reference state]			Fish Q-IBI			Dissolved Oxygen 7-day mean minimum (mg/L)			Dissolved Oxygen 1-day minimum (mg/L)			Deposited sediment (% cover)			Clarity (m)		
	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year	short term	Medium term	80 year
Mangapiko Bowman Rd Stm	7074	5114	540	[15%-20%]	[15%-20%]	90	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.6	0.7	1.0
Mangaohoi Stm Sth Branch Maru Rd	943	822	540	[15%-20%]	[15%-20%]	110	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0	20	20	20	1.6	1.6	1.6
Mangauika Stm Te Awamutu Borough W/S Intake	1008	868	540	[15%-20%]	[15%-20%]	120	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0	20	20	20	3.3	3.3	3.3
Puniu River Bartons Corner Rd Br	2790	2115	540	[5%-15%]	[5%-15%]	110	36	36	47	7.0	7.0	8.0	5.0	5.0	7.5				~~0.9~~ 1.2	1.4	~~1.0~~ 1.8
Mangatutu Stm Walker Rd Br	738	679	540	[15%-20%]	[15%-20%]	100	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				1.5	1.5	1.6
Waitomo Stm SH31 Otorohanga	1453	1179	540	[15%-20%]	[15%-20%]	100	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.6	0.7	1.0
Mangapu River Otorohanga	4284	3161	540	[15%-20%]	[15%-20%]	95	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				0.7	0.8	1.0
Waitomo Stm Tumutumu Rd	2241	1731	540	[15%-20%]	[15%-20%]	100	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				1.1	1.3	1.6
Mangaokewa Stm Lawrence Street Br	6224	4519	540	[15%-20%]	[15%-20%]	100	27	27	36	5.0	5.0	7.0	4.0	4.0	5.0				1.4	1.5	1.6
Moakurarua Stm (Ormsby Road)[46]																			1.8	1.9	2.0

[46] [Evidence of Adam Daniel, Block 1, Table 1.]

Table 3.11-1A: Water quality limits and targets and Freshwater Objective water quality attribute states for Lake FMU's in the Waikato and Waipa River catchments/Ngā whāinga ā-tau taupoto, tauroa hoki mō te kounga wai i te riu o ngā awa o Waikato me Waipā

Within Lake FMU's in the Waikato and Waipa River catchments, these limits, targets, and Freshwater Objective water quality attribute states are used in decision-making processes guided by the objectives in Chapter 3.11 and for future monitoring of changes in the state of water quality within the catchments.

The numerical values in Table 3.11-1A are freshwater objective attribute states. Some of the numerical values are also limits or targets – these are clearly labelled as such in the table. The numerical values are to be treated as 'limits' at locations where existing water quality is better than the relevant numerical value and as 'targets' at locations where the existing water quality is worse than the relevant numerical value. Where the numerical value is a target, it is to be achieved by the relevant date set out in the table.

With regard to consent applications for diffuse discharges or point source discharges of contaminants, it is not intended, nor is it in the nature of water quality limits, targets and the Freshwater Objective water quality attribute states, that they be used directly as receiving water compliance standards. Reference should also be made to Method 3.2.4.1.

[replace Lake attributes table with a more appropriate FMU categorisation and table of attributes, limits and targets which reflects good ecosystem health]

	Attributes								
~~Lake FMU~~	~~Annual Median Chlorophyll a (mg/m^3)~~	~~Annual Maximum Chlorophyll a (mg/m^3)~~	~~Annual Median Ammonia[1] ($mg\ NH_4\text{-}N/L$)~~	~~Annual Maximum Ammonia[1] ($mg\ NH_4\text{-}N/L$)~~	~~Annual Median Total Nitrogen (mg/m^3)~~	~~Annual Median total Phosphorus (mg/m^3)~~	~~95th percentile *E. coli* (*E. coli*/100mL)~~	~~80th percentile cyanobacteria (biovolume mm^3/L)~~	~~Clarity (m)[1]~~
	~~80 year*~~	~~80 year*~~	~~80 year*~~	~~80 year*~~	~~80 year*~~	~~80 year*~~	~~80 year*~~	~~80 year*~~	~~80 year*~~
~~Dune~~	~~12~~	~~60~~	~~0.24~~	~~0.40~~	~~750~~	~~50~~	~~540~~	~~1.8+~~	~~1~~
~~Riverine~~	~~12~~	~~60~~	~~0.24~~	~~0.40~~	~~800~~	~~50~~	~~540~~	~~1.8+~~	~~1~~
~~Volcanic Zone~~	~~12~~	~~60~~	~~0.24~~	~~0.40~~	~~750~~	~~50~~	~~540~~	~~1.8+~~	~~1~~
~~Peat~~	~~12~~	~~60~~	~~0.24~~	~~0.40~~	~~750~~	~~50~~	~~540~~	~~1.8+~~	~~1~~

[1] The annual median and annual maximum ammonia have been adjusted for pH.
[2] Median black disc horizontal sighting range under baseflow conditions

*unless a lake is already of better water quality, in which case the water quality is to not decline

+1.8mm^3/L biovolume equivalent of potentially toxic cyanobacteria or 10mm^3/L total biovolume of all cyanobacteria

Table 3.11-1B: Water quality limits and targets and Freshwater Objective water quality attribute states for wetlands in the Waikato and Waipa River catchments

For wetlands within the Waikato and Waipa River catchments, Freshwater Objective water quality attribute states are used in decision-making processes guided by the objectives in Chapter 3.11 and for future monitoring of changes in the state of water quality within the catchments.

The narrative states in Table 3.11-1B are freshwater objective attribute states.

Table 3.11-1B: Water quality limits and targets and Freshwater Objective water quality attribute states for wetlands in the Waikato and Waipa River catchments

Wetland type	Wetland type description	Attribute relating to water quality (narrative target)			
		TP	TN	Sedimentation	Hydrological regime
Bog	Bog wetlands are nutrient poor, poorly drained and aerated and usually acid. The water table is often close to or just above the ground surface, with rainwater the only source of water. These wetlands are dominated by indigenous vegetation that is representative of bogs in the Waikato, including peat forming plant species.	Nutrient status (TP) is within healthy range for the specific wetland type	Nutrient status (TN) is within healthy range for the specific wetland type	Inputs of external sediment are within healthy range for the specific wetland type	Hydrological regime, if altered, does not exacerbate water quality impacts
Fen	Fen wetlands are of low to moderate acidity and fertility and the water table is usually close to or just below the surface. These wetlands are dominated by indigenous vegetation that is representative of fens in the Waikato, including species adapted to low nutrient environments, such as sedges.				
Swamp	Swamp wetlands are generally of high fertility, receiving nutrients and sediment from surface run-off and ground water. These wetlands are dominated by indigenous vegetation that is representative of swamps in the Waikato, including vegetation cover that is often intermingled.				
Marsh	Marsh wetlands are mineral wetlands with good to moderate drainage that are mainly groundwater or surface water fed and characterised by fluctuation in the water table. Marsh wetlands can be differentiated from swamp wetlands by having better drainage, generally a lower water table and usually more mineral substrate and higher pH.				

Table 3.11-1C: Water quality limits and targets and Freshwater Objective water quality attribute states for Whangamarino Wetland FMU

For Whangamarino Wetland FMU, these limits, targets, and Freshwater Objective water quality attribute states are used in decision-making processes guided by the objectives in Chapter 3.11 and for future monitoring of changes in the state of water quality within the catchments.

The numerical values in Table 3.11-1C are freshwater objective attribute states. Some of the numerical values are also limits or targets – these are clearly labelled as such in the table. The numerical values are to be treated as 'limits' at locations where existing water quality is better than the relevant numerical value and as 'targets' at locations where the existing wter quality is worse than the relevant numerical value. Where the numerical value is a target, it is to be achieved by the relevant date set out in the table.

With regard to consent applications for diffuse discharges or point source discharges of contaminants, it is not intended, nor is it in the nature of water quality limits, targets and the Freshwater Objective water quality attribute states, that they be used directly as receiving water compliance standards. Reference should also be made to Method 3.2.4.1.

Table 3.11-1C: Water quality limits and targets and Freshwater Objective water quality attribute states for Whangamarino Wetland.

In addition to the attributes for all wetlands in Table 3.11-1B, and the relevant attributes for contributing rivers in Table 3.11-1, the following attributes apply in the Whangamarino FMU:

	Short term	**Medium term**	**80 Year**
TP Median Conc (mg/m3)	10% reduction	20% reduction	50 mg/m3
TN Median Conc (mg/m3)	10% reduction	20% reduction	750 mg/m3
TSS Annual Load (T/yr)	10% reduction	20% reduction	>30% reduction (10% reduction by 2030)

Table 3.11-2: List of sub-catchments showing Priority 1, Priority 2, and Priority 3 sub-catchments/Te rārangi o ngā riu kōawaawa e whakaatu ana i te riu kōawaawa i te Taumata 1, i te Taumata 2, me te Taumata 3

If more than fifty percent of a farm enterprise is in a particular sub-catchment, then the dates for compliance for that sub-catchment apply.

Sub-catchment identifier	Sub-catchment number	Priority
Mangatangi	2	1
Whakapipi	3	1
Whangamarino at Jefferies Rd Br	8	1
Whangamarino at Island Block Rd	10	1
Opuatia	11	1
Waerenga	12	1
Waikare	13	1
Matahuru	14	1
Whangape	16	1
Mangawara	17	1
Awaroa (Rotowaro) at Harris/Te Ohaki Br	18	1
Waikato at Huntly-Tainui Br	20	1
Kirikiriroa	23	1
Waikato at Horotiu Br	25	1
Waikato at Bridge St Br	27	1
Waitawhiriwhiri	28	1
Mangakotukutuku	30	1
Mangawhero	35	1
Moakurarua	42	1
Little Waipa	44	1
Pokaiwhenua	45	1
Mangamingi	48	1
Waipa at Otorohanga	51	1
Waitomo at Tumutumu Rd	52	1
Mangapu	53	1
Mangarapa	55	1
Mangaharakeke	57	1
Mangarama	61	1

Mangaokewa	63	1
Waikato at Waipapa	64	1
Waiotapu at Homestead	65	1
Waipa at Mangaokewa Rd	68	1
Waipapa	70	1
Torepatutahi	72	1
Waikato at Tuakau Br	4	2
Waikato at Port Waikato	6	~~2~~ 1
Waikato at Rangiriri	15	~~2~~ 1
Awaroa (Rotowaro) at Sansons Br	19	~~2~~ 1
Firewood	21	2
Komakorau	22	~~2~~ 1
Waipa at Waingaro Rd Br	24	2
Mangaone	31	2
Waipa at SH23 Br Whatawhata	34	~~2~~ 1
Kaniwhaniwha	36	2
Mangapiko	38	2
Puniu at Bartons Corner Rd Br	40	2
Waipa at Pirongia-Ngutunui Rd Br	43	2
Waitomo at SH31 Otorohanga	46	2
Whakauru	49	2
Tahunaatara	54	2
Otamakokore	59	2
Waipa at Otewa	60	2
Kawaunui	62	2
Waikato at Whakamaru	67	2
Mangakara	69	2
Mangakino	71	2
Mangatawhiri	1	3
Awaroa (Waiuku)	5	~~3~~ 1
Ohaeroa	7	3
Waikato at Mercer Br	9	3

Ohote	26	3
Mangaonua	29	3
Karapiro	32	3
Waikato at Narrows	33	~~3~~ 1
Mangauika	37	3
Mangaohoi	39	3
Waikato at Karapiro	41	3
Mangatutu	47	3
Puniu at Wharepapa	50	3
Whirinaki	56	3
Waiotapu at Campbell	58	~~3~~ 1
Waikato at Ohakuri	66	3
Waikato at Ohaaki	73	~~3~~ 1
Pueto	74	3

Table 3.11-2: List of sub-catchments showing Priority 1, Priority 2, and Priority 3 sub-catchments

~~* part sub-catchment~~

Table 3.11-3 The annual median concentrations for nitrate-nitrogen and DRP (mg/L) at Waikato River Tributaries, along with the percent reductions in concentrations needed to achieve either an A, B or C band, and the corresponding desired instream nutrient load (T/y) to achieve the desired nutrient concentration band. Also provided are the MCI grades required to meet either an A, B or C band for each tributary site, and estimated lag time from Semadeni-Davies *et al.* (2015).[47]

The shaded band shown for each site indicates the desired long term state, and the water quality improvements required in the subcatchment to achieve this.[48]

River site		Current median concentrations (mg/L)		Current annual in-stream loads (T)		NO3-N reduction required to meet desired band (%)			TN annual in-stream load required to meet desired band (T)			DRP reduction required to meet desired band (%)			TP annual in-stream load required to meet desired band (T)			MCI scores to meet desired band		
Upper Waikato	Lag time?	NO3-N	DRP	TN	TP	A-band	B-band	C-band	A-band	B-band	C-band	A-band	B-band	C-band	A-band	B-band	C-band	A-band	B-band	C-band
Pueto Stm Broadlands Rd Br	?	0.45	0.072	96	11.7	78	0	0	21	N/A	N/A	92	74	47	1.0	3.1	6.2	125	110	105
Torepatutahi Stm Vaile Rd Br	?	0.48	0.084	79	12.1	79	3	0	17	77	N/A	93	77	55	0.9	2.7	5.5	115	105	95
Waiotapu Stm Homestead Rd Br	Short	1.33	0.034	299	40.9	92	65	44	22	103	166	82	44	0	7.2	22.9	N/A	115	100	95
Mangakara Stm (Reporoa) SH5	Moderate	1.29	0.048	24	2.0	92	64	43	2	9	14	88	60	21	0.3	0.8	1.6	120	105	100
Kawaunui St SH5 Br	?	2.60	0.052	12	2.1	96	82	72	0	2	3	88	63	27	0.2	0.8	1.5	120	105	100
Waiotapu Stm Campbell Rd Br	Moderately long	0.93	0.004	102	5.7	89	51	20	11	51	81	0	0	0	N/A	N/A	N/A	110	100	90
Otamakokore Stm Hossack Rd	Likely long	0.74	0.152	49	9.7	86	38	0	7	30	N/A	96	87	75	0.4	1.2	2.4	115	105	95
Whirinaki Stm Corbett Rd	Long	0.78	0.061	12	0.9	87	41	5	1	7	11	90	69	38	0.1	0.3	0.6	120	105	100
Tahunaatara Stm Ohakuri Rd	Moderately long	0.57	0.034	169	15.6	82	19	0	30	137	N/A	82	44	0	2.8	8.7	N/A	115	105	95
Mangaharakeke Stm SH30 (Off Jct SH1)	Moderately long	0.51	0.032	30	2.2	80	10	0	6	27	N/A	81	41	0	0.4	1.3	N/A	115	100	95

[47] [Evidence of Adam Canning, Block 1, Table A2.]
[48] [Evidence of Adam Canning, Block 1, Table A4.]

River site		Current median concentrations (mg/L)		Current annual in-stream loads (T)		NO3-N reduction required to meet desired band (%)			TN annual in-stream load required to meet desired band (T)			DRP reduction required to meet desired band (%)			TP annual in-stream load required to meet desired band (T)			MCI scores to meet desired band		
Upper Waikato	Lag time?	NO3-N	DRP	TN	TP	A-band	B-band	C-band	A-band	B-band	C-band	A-band	B-band	C-band	A-band	B-band	C-band	A-band	B-band	C-band
Waipapa Stm (Mokai) Tirohanga Rd Br	?	1.21	0.089	60	7.8	92	62	39	5	23	37	93	79	57	0.5	1.7	3.3	120	110	100
Mangakino Stm Sandel Rd	?	0.66	0.038	212	12.2	85	30	0	32	147	N/A	84	50	0	1.9	6.1	N/A	125	115	105
Whakauru stm SH1 Br	Moderately long	0.37	0.025	5	1.4	73	0	0	1	N/A	N/A	76	22	0	0.3	1.1	N/A	115	100	95
Mangamingi Stm Paraonui Rd Br		2.60	0.265	274	27.8	96	82	72	11	49	78	98	93	86	0.6	2.0	4.0	115	100	95
Pokaiwhenua St Arapuni – Putaruru Rd	Moderately long	1.77	0.092	379	19.1	94	74	58	21	99	159	93	79	59	1.2	3.9	7.9	115	100	95
Little Waipa Stm Arapuni Putaruru Rd	Long lags	1.62	0.056	154	5.3	94	72	54	9	44	70	89	66	32	0.6	1.8	3.6	115	105	100
Mid-Waikato																				
Karapiro Stm Hickey Rd Bridge	Moderate	0.52	0.049	ND	ND	81	12	0	ND	ND	ND	88	61	22	ND	ND	ND	100	90	85
Mangawhero Stm Cambridge-Ohaupo Rd	Moderately short	1.99	0.0365	45	8.7	95	77	63	2	10	17	84	48	0	1.4	4.5	N/A	105	95	90
Mangaonua Stm Hoeka Rd	Moderately short	1.46	0.0125	78	3.8	93	68	49	5	25	40	52	0	0	1.8	N/A	N/A	105	95	90
Mangaone St Annebrooke Rd Br	Moderately short	2.50	0.063	96	5.2	96	82	70	4	18	29	90	70	40	0.5	1.6	3.1	110	95	90
Mangakotukutuku Stm Peacockes Rd	Short	0.81	0.169	30	8.7	88	43	8	4	17	27	96	89	78	0.3	1.0	2.0	105	95	90

River site		Current median concentrations (mg/L)		Current annual in-stream loads (T)		NO3-N reduction required to meet desired band (%)			TN annual in-stream load required to meet desired band (T)			DRP reduction required to meet desired band (%)			TP annual in-stream load required to meet desired band (T)			MCI scores to meet desired band		
Mid-Waikato	Lag time?	NO3-N	DRP	TN	TP	A-band	B-band	C-band	A-band	B-band	C-band	A-band	B-band	C-band	A-band	B-band	C-band	A-band	B-band	C-band
Waitawhiriwhiri Stm Edgecumbe Street	Moderately short	0.84	0.025	29	1.4	88	45	12	3	16	26	76	24	0	0.3	1.1	N/A	105	95	90
Kirikiriroa Stm Tauhara Dr	Moderately short	0.74	0.012	12	0.6	86	38	0	2	7	N/A	50	0	0	0.3	N/A	N/A	105	95	85
Lower Waikato																				
Komakorau Stream Henry Road	Short	1.34	0.0085	241	10.4	93	66	45	18	83	133	29	0	0	7.3	N/A	N/A	100	90	85
Mangawara Stm Rutherford Rd Br	Moderately short	0.79	0.0465	620	82.9	87	42	6	79	361	581	87	59	18	10.7	33.9	67.7	95	85	80
Awaroa Stm (Rotowaro) Sansons Br @ Rotowaro-Huntly Road	Short to moderate	0.64	0.004	73	5.5	84	28	0	11	52	N/A	0	0	0	N/A	N/A	N/A	100	90	85
Matahuru Stm Waiterimu Road Below Confluence	?	0.74	0.0235	108	9.3	86	38	0	15	67	N/A	74	19	0	2.4	7.5	N/A	100	90	85
Whangape Stm Rangiriri- Glen Murray Rd	?	0.00	0.004	9	1.9	0	0	0	N/A	N/A	N/A	0	0	0	N/A	N/A	N/A	100	90	85
Waerenga Stm Taniwha Rd	?	0.82	0.02	9	1.9	88	44	10	1	5	8	70	5	0	0.6	1.8	N/A	110	95	90
Whangamarino River Jefferies Rd Br	Short	0.63	0.029	152	15.0	84	26	0	24	112	N/A	79	34	0	3.1	9.8	N/A	100	90	85
Mangatangi River SH2 Maramarua	Moderately short	0.12	0.021	116	13.1	17	0	0	96	N/A	N/A	71	10	0	3.7	11.9	N/A	100	90	80
Mangatawhiri River Lyons Road Buckingham Br	Short	0.03	0.012	18	1.6	0	0	0	N/A	N/A	N/A	50	0	0	0.8	N/A	N/A	110	100	90

River site		Current median concentrations (mg/L)		Current annual in-stream loads (T)		NO3-N reduction required to meet desired band (%)			TN annual in-stream load required to meet desired band (T)			DRP reduction required to meet desired band (%)			TP annual in-stream load required to meet desired band (T)			MCI scores to meet desired band		
Lower Waikato	Lag time?	NO3-N	DRP	TN	TP	A-band	B-band	C-band	A-band	B-band	C-band	A-band	B-band	C-band	A-band	B-band	C-band	A-band	B-band	C-band
Whangamarino River Island Block Rd	?	0.13	0.006	655	54.9	23	0	0	505	N/A	N/A	0	0	0	N/A	N/A	N/A	95	85	80
Whakapipi Stm SH 22 Br	Moderately short	3.45	0.028	121	5.0	97	87	79	4	16	26	79	32	0	1.1	3.4	N/A	95	85	80
Ohaeroa Stm SH22 Br	Short	1.54	0.008	17	0.4	93	70	52	1	5	8	25	0	0	0.3	N/A	N/A	100	90	85
Opuatia Stm Ponganui Rd	Moderately short	0.73	0.006	81	5.1	86	37	0	11	51	N/A	0	0	0	N/A	N/A	N/A	105	95	90
Awaroa River (Waiuku) Otaua Rd Br Moseley Rd	Moderate	1.37	0.004	36	0.9	93	66	46	3	12	20	0	0	0	N/A	N/A	N/A	95	85	80
Waipā																				
Waipa River Mangokewa Rd	Moderately short	0.33	0.0055	25	0.6	70	0	0	7	N/A	N/A	0	0	0	N/A	N/A	N/A	125	110	105
Waipa River Otewa	Moderate to short	0.25	0.008	242	30.5	60	0	0	96	N/A	N/A	25	0	0	22.9	N/A	N/A	115	100	95
Waipa River SH3 Otorohanga	Moderately short	0.41	0.008	121	8.2	76	0	0	30	N/A	N/A	25	0	0	6.2	N/A	N/A	110	100	95
Waipa River Pirongia-Ngutunui Rd Br	Short	0.58	0.014	2968	150.5	83	20	0	516	2374	N/A	57	0	0	64.5	N/A	N/A	110	100	90
Waipa River Whatawhata Br	Moderately short	0.70	0.017	3986	284.6	86	34	0	571	2627	N/A	65	0	0	100.4	N/A	N/A	110	95	90
Ohote Stm Whatawhata/Horotiu Rd	Short	0.46	0.02	35	2.2	78	0	0	8	N/A	N/A	70	5	0	0.7	2.1	N/A	105	90	85
Kaniwhaniwha Stm Wright Rd	Short	0.39	0.007	106	9.2	74	0	0	27	N/A	N/A	14	0	0	7.9	N/A	N/A	110	100	95

River site		Current median concentrations (mg/L)		Current annual in-stream loads (T)		NO3-N reduction required to meet desired band (%)			TN annual in-stream load required to meet desired band (T)			DRP reduction required to meet desired band (%)			TP annual in-stream load required to meet desired band (T)			MCI scores to meet desired band		
Waipā	Lag time?	NO3-N	DRP	TN	TP	A-band	B-band	C-band	A-band	B-band	C-band	A-band	B-band	C-band	A-band	B-band	C-band	A-band	B-band	C-band
Mangapiko Bowman Rd Stm	Moderately short	1.50	0.118	429	76.5	93	69	51	29	131	211	95	84	68	3.9	12.3	24.6	100	90	85
Mangaohoi Stm South Branch Maru Rd	Moderately short	0.23	0.041	1	0.1	56	0	0	0	N/A	N/A	85	54	7	0.0	0.0	0.1	120	110	100
Mangauika Stm Te Awamutu Borough W/S Intake	Short	0.21	0.004	4	0.2	52	0	0	2	N/A	N/A	0	0	0	N/A	N/A	N/A	135	120	115
Puniu River Bartons corner Rd Br	?	0.65	0.022	ND	ND	85	29	0	ND	ND	ND	73	14	0	ND	ND	ND	110	95	90
Mangatutu Stm Walker Rd Br	Moderately short	0.33	0.009	ND	ND	70	0	0	ND	ND	ND	33	0	0	ND	ND	ND	110	100	95
Waitomo Stm SH31 Otorohanga	Short	0.53	0.027	ND	ND	81	13	0	ND	ND	ND	78	30	0	ND	ND	ND	110	100	95
Mangapu River Otorohanga	?	0.81	0.019	ND	ND	88	43	9	ND	ND	ND	68	0	0	ND	ND	ND	105	95	90
Waitomo Stm Tumutumu Road	Moderately short	0.62	0.01	ND	ND	84	26	0	ND	ND	ND	40	0	0	ND	ND	ND	110	100	95
Mangaokewa Stm Lawrence street bridge	?	0.57	0.015	ND	ND	82	19	0	ND	ND	ND	60	0	0	ND	ND	ND	115	100	95

Table 3.11-4. The current annual median concentrations for TN and TP (mg/L) for Waikato mainstem sites, along with the percent reductions in concentrations needed to achieve either an A, B or C band (based on NPS lake criteria), the corresponding desired instream nutrient load (T/y) to achieve the desired nutrient concentration band, and estimated lag time from Semadeni-Davies *et al.* (2015).[49]

The shaded band shown for each site indicates the desired long term state, and the water quality improvements required in the subcatchment to achieve this [50]

	Lag time?	Current median concentrations (mg/L)		Current annual in-stream loads (T)		TN reduction required to meet desired band (%)			TN annual in-stream load required to meet desired band (T)			TP reduction required to meet desired band (%)			TP annual in-stream load required to meet desired band (T)		
Upper Waikato		TN	TP	TN	TP	A-band	B-band	C-band	A-band	B-band	C-band	A-band	B-band	C-band	A-band	B-band	C-band
Waikato River - Ohaaki Br	Moderate to long	0.14	801	0.010	58.5	0	0	0	N/A	N/A	N/A	0	0	0	N/A	N/A	N/A
Waikato River Ohakuri Tailrace Br	Moderately long	0.22	1520	0.020	135.4	27	0	0	1105	N/A	N/A	50	0	0	67.7	N/A	N/A
Waikato River Whakamaru Tailrace	Moderately long	0.27	2059	0.020	160.3	41	0	0	1220	N/A	N/A	50	0	0	80.2	N/A	N/A
Waikato River Waipapa Tailrace	Moderately short	1.36	2654	0.140	218.8	88	74	45	312	683	1463	93	86	64	15.6	31.3	78.1
Mid-Waikato																	
Waikato River Narrows Boat Ramp	Moderately short	0.41	4414	0.030	301.5	61	15	0	1723	3768	N/A	67	33	0	100.5	201.0	N/A
Waikato River Horotiu Br	Moderately short	0.44	4385	0.040	353.2	64	20	0	1594	3488	N/A	75	50	0	88.3	176.6	N/A
Lower Waikato																	
Waikato River Huntly-Tainui Br	Moderately short	0.59	10301	0.05	719.8	73	41	0	2793	6111	N/A	80	60	0	144.0	287.9	N/A
Waikato River – Mercer Br	Moderately short	0.66	13706	0.05	960.5	76	47	0	3323	7268	N/A	80	60	0	192.1	384.2	N/A
Waikato River Tuakau Br	Moderately short	0.60	13191	0.06	958.7	73	42	0	3518	7695	N/A	83	67	17	159.8	319.6	798.9

[49] [Evidence of Adam Canning, Block 1, Table A3.]
[50] [Plan Change 1, as drafted.]

~~PART B~~

5.1.5 Conditions for Permitted Activity Rule 5.1.4.11 and Standards and Terms for Controlled Activity Rules/Ngā āhuatanga o te Ture 5.1.4.11 mō ngā Mahi e Whakaaetia ana, me ngā Paerewa me ngā Herenga mō ngā Ture mō ngā Mahi ka āta Whakahaerehia

q) In the Waikato and Waipa Catchment the Waikato Regional Council shall be notified in writing at least 20 working days prior to commencing harvest operations in a forest. The written notice must include a harvest plan unless otherwise agreed with Waikato Regional Council.

Harvest Plan

For the purposes of 5.1.5 (q) a forest harvest plan means a documented plan, including a harvest plan map, which clearly identifies the area to be harvested and the method to be followed to ensure identified risks to water bodies arising from the harvesting operation are managed.

The harvest plan should include:

a. A harvest plan map to a scale of up to 1:10,000 showing:

   i. Title, date, north arrow and harvest area boundary.

   ii. The locations of all existing and proposed roads, tracks, landings, fire breaks and stream crossings.

   iii. The locations of all water bodies, streams and wetlands.

   iv. The location of any protected riparian vegetation including significant natural areas.

   v. The proposed harvest methodology including cable and ground based harvest areas and the proposed direction of extraction.

   vi. Proposed slash disposal areas.

b. Associated text specifying the controls on the harvest operations to manage the identified risks to water bodies in the block from the harvesting operations including:

   i. Measures to control sediment discharges to water.

   ii. Management of slash.

   iii. Operations restrictions around water bodies.

   iv. Areas of existing riparian vegetation to be protected.

~~c. Associated text specifying the controls on the harvest operations to manage the identified risks to water bodies in the block from the harvesting operations including:~~

~~i. Measures to control sediment discharges to water.~~

~~ii. Management of slash.~~

~~iii. Operations restrictions around water bodies.~~

~~iv. Areas of existing riparian vegetation to be protected.~~

5.1.4x Controlled Activity Rule

In the Waikato and Waipā Catchments, the following activities associated with the harvest of plantation forest, occurring in any continuous 12 month period:

1. Vegetation clearance which is within 20 metres on either side, of the banks of a permanently or intermittently flowing river water body of greater than 50 metres in length per kilometre of that water body,
2. Vegetation clearance which is within 20 metres of a lake or wetland.

and any associated deposition of slash into or onto the beds of rivers and any subsequent discharge of contaminants into water or air are **controlled activities** (requiring resource consent) subject to the standards and terms as specified in Section 5.1.5.

5.1.4xx Additional condition for all Plantation Forestry activities otherwise controlled by the NES-PF

In the Waikato and Waipā Catchment, for Plantation Forestry activities managed by the NES-PF and required to produce a forestry earthworks management plan or a harvest plan, the plan must include identification of all waterbodies (regardless of size) within the affected area and must identify risks of mobilised sediment on all sites (not only those with a perennial river).

Additions to Glossary of Terms/Ngā Āpitihanga ki te Rārangi Kupu

Livestock crossing structure: means a lawfully established structure installed to allow that enables livestock to cross a water body such that the livestock do not enter or have access to the bed of the water body or any water (flowing or still) within the water body.

Offset/s: For the purpose of Chapter 3.11 means for a specific contaminant/s a measurable conservation action, demonstrated through robust and appropriate methodology, that reduces the intensity, extent and/or duration of residual adverse effects on water quality and achieves conservation outcomes above and beyond that which would have been achieved if the offset had not taken place.

Consequential amendments to Waikato Regional Plan/Ngā whakatikahanga ka hua ake mō roto i te Mahere ā-Rohe a Waikato

Formatting used:

- Note that for the following text the new wording underlined and deleted wording has ~~strikethrough~~
- Blue "filling" marks different chapters/sections of the WRP and is inserted for ease of reference only
- Italics are for information only and are not matters to be submitted on

[…]

3.6 Damming & Diverting	
Objective 3.6.2 (a)	*Amend Objective 3.6.2:* (a)….in Sections 3.1.2 and 3.11.2
Principal Reasons for Adopting the Objectives	*Amend first sentence:* … in Sections 3.1.2 and 3.11.2 and for….
Policy 2	*Amend Policy 2:* Manage the damming and diverting of water in perennial water bodies in a manner that ensures: a) Adverse effects on surface water bodies that are inconsistent with the policies in Section 3.2.3 and 3.11.3 of this Plan are avoided as far as practicable and otherwise remedied and mitigated.[51]
Policy 4	*Amend Policy 4:* Wetlands and Peat Lakes Enhance or maintain the extent and quality of the Region's wetlands by encouraging activities that will either maintain or reinstate agreed water levels in wetland areas or peat lakes. Enhance and maintain the extent and quality of the Whangamarino Wetland by implementing the methods set out in Section 3.11.3 of the Plan.[52]
3.6 Rules	*Amendment to WRP 3.6 rules so they are the most appropriate way to achieve the Objectives of the Plan, including for the Whangamarino wetland, Objective 6 and Policy 15.*

3.7 Wetlands	
Objective 3.7.2	*Amend the wording:* Refer to Objectives 3.1.2 and 3.11.2 Objective 6.
Policy 2	*Amend Policy 2:* Use a mixture of non-regulatory and regulatory methods (including education and incentives) to achieve an increase in the extent and quality of the Region's wetlands.
Table 3.7.7	*Ammend Table 3.7.7 to include all wetlands in the Waikato catchment.*[53]

[51] [V1PC1-317].
[52] [V1PC1-318].
[53] [PC1-11007].