Hearing Block 1 Recommendations Only

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

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~~ R~~r~~ivers, wetlands and springs have always been seen as taonga (treasures) to all River Iwi and other iwi. ▪ ~~The~~ R~~r~~ivers, 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

3.11.1 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 3.11-2 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 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 ~~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 and ~~at~~ over 80 years for rivers and tributaries, 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 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

Example. Full details of attribute states are included in the evidence of Dr Canning and Dr Daniel.

[x] Freshwater Management Unit																											
	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	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	short term	Medium term	80 year	short term	Medium term	80 year

[x] Freshwater Management Unit																											
	Attributes																										
	Limit/Target															Limit/Target			Limit/Target								
Site	95th percentile *E. coli* (*E. coli*/100mL)			MCI			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						

Table 3.11-1: Middle Waikato River Freshwater Management Unit

Table 3.11-1: Lower Waikato River Freshwater Management Unit
Table 3.11-1: Waipa River Freshwater Management Unit

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)[2]~~
	~~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~~