

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of **PROPOSED PLAN CHANGE 1** to the Waikato Regional Plan – hearing of **BLOCK 1** topics

AND

IN THE MATTER of the hearing of the further submission by **WAIKATO REGION LOCAL AUTHORITIES COMPRISING THE WARTA GROUP** in relation to **BLOCK 1** topics

STATEMENT OF EVIDENCE OF MARY ELIZABETH O'CALLAHAN

1. INTRODUCTION

Qualifications and experience

1.1 My name is Mary Elizabeth O'Callahan. I hold a Bachelor of Science degree from Victoria University of Wellington (1992) and a Bachelor of Planning degree from Auckland University (1994). I am a full member of the New Zealand Planning Institute (MNZPI).

1.2 Based in Wellington, I hold the position of Technical Director – Planning with GHD Ltd and have worked as a planning consultant with GHD for 13 years. I have 24 years of experience in my field of practice. Prior to joining GHD, I worked as a planner for several local authorities, including Wellington City Council, the London Boroughs of Hackney and Lambeth in the United Kingdom and Marlborough District Council.

Involvement in Proposed Plan Change 1

1.3 I was engaged by the councils that comprise the Waikato Region Territorial Authority Group ("WARTA") to review and assess submissions filed by individual territorial authorities on Plan Change 1 ("PC1") to the Waikato Regional Plan ("WRP") and then prepare further submissions on behalf of

the group. I was not involved in the preparation of any of the individual council's original submissions.

Purpose and scope of evidence

- 1.4 The purpose of this evidence is to provide a planning evaluation of PC1 and the submissions lodged by individual territorial authorities within the region, along with the further submissions of WARTA.
- 1.5 My evidence is structured as follows:
 - (a) Statutory context (Section 3).
 - (b) WARTA submissions (Section 4).
 - (c) PC1 structure (Section 5).
 - (d) Values (Section 6).
 - (e) Objectives 1 and 3 (Section 7).
 - (f) Objectives 2, 4, 5, and 6 (Section 8).
 - (g) Section 3.11.1 (Section 9)
 - (h) Conclusions (Section 10).
- 1.6 A summary of my evidence is contained in Section 2. I have included my recommended amendments to PC1 as **Appendix 1**.

Expert Witness Code of Conduct

- 1.7 I have read the Code of Conduct for Expert Witnesses, contained in the Environment Court Consolidated Practice Note (2014) and I agree to comply with it. I can confirm that the issues addressed in this statement are within my area of expertise and that in preparing my evidence I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

2. SUMMARY OF EVIDENCE

- 2.1 I support the overall outcome sought by PC1, which is to achieve restoration of water quality within the rivers so that it is safe for people to swim and take food from.

Need to simplify PC1

- 2.2 PC1 has been developed as a predominantly stand-alone section within the WRP in terms of the provisions that relate to diffuse discharges. It contains a range of objectives and policies, including water quality targets. However, objectives, policies and rules relating to point source discharges are already contained in other chapters of the WRP. The upshot is that it will be a complex document to apply to consent applications for point source discharges.
- 2.3 I recommend that the Hearing Panel take every opportunity in terms of the relief before it to simplify or remove superfluous material and clarify the application of key objectives and water quality targets, to make the final plan clear, unambiguous and as simple and straightforward as possible.

Deletion of values recommended

- 2.4 I recommend deletion of the Values sections from PC1, on the basis that the purpose of identifying these values was to inform the objectives and selected attribute states during the plan development phase and they are not required to be in the plan.
- 2.5 Furthermore, the values contain a mixture of existing state, desired state and policy-type provisions which are inconsistent. The values are likely to be considered to be relevant in the context of a resource consent application processes as:
- (a) A plan provision that needs to be considered under section 104(1)(c) of the Resource Management Act 1991 ("RMA" or "the Act"); or
 - (b) Are a matter that is "relevant and reasonably necessary" to consider under section 104(1)(c).
- 2.6 However, in my opinion, the values do not contain the clarity necessary to provide useful guidance to resource consent decision makers.
- 2.7 In my opinion, the listing of values is inconsistent with other parts of the WRP and unnecessarily adds to the complexity of PC1.

Amendments to objectives

- 2.8 I recommend the rewording of Objectives 1 and 3 to include a measurement point for application of the long and short term water quality

attribute states. Without this, there is a risk that the listed water quality targets could be applied at the point of discharge rather than after reasonable mixing in terms of conventional practice in the context of applications for point source discharges, e.g., WWTP discharges.

- 2.9 Objectives 4 and 6 are poorly drafted and essentially duplicate the outcomes captured by Objectives 1 and 3, so I recommend they be reworded or deleted.

Amendments to Table 3.11-1

- 2.10 Changes are sought to Table 13.1-1 to clarify where targets are measured in the context of point source discharges and to clarify the metrics concerning ammonia concentrations.
- 2.11 Further, the explanatory text which supports this table is unclear and does not aid plan users in understanding the correct way to apply the content in relation to point source discharges.

Overall conclusion

- 2.12 My evidence highlights a number of areas in which PC1 could result in the promulgation of provisions that will create uncertainty in the context of resource consent processes. This could in turn have unintended consequences for point source dischargers that might necessitate costly upgrades to municipal infrastructure, without offering any real improvement towards restoration of water quality within the rivers so that it is safe for people to swim and take food from. I recommend that changes be made to ensure that the requirements of PC1 are clear as they relate to future point source discharge applications. I set out my recommended changes in Appendix 1 to my evidence.

3. STATUTORY CONTEXT

- 3.1 Section 32 of the Resource Management Act 1991 ("RMA" or "the Act") requires plan makers to carry out an evaluation of alternatives, benefits and costs. The evaluation for an objective should examine whether the objective is the most appropriate way to achieve the purpose of the RMA?¹
- 3.2 I also note that section 67(3) of the RMA requires that regional plans "give effect to" any relevant national policy statement or regional policy statement. In this case, the National Policy Statement for Freshwater Management 2014 (Updated August 2017) (the "NPS FM"), the National

¹ Resource Management Act 1991, section 32(1)(a)

Policy Statement for Urban Development Capacity 2016 (the "NPS UDC") and the Waikato Regional Policy Statement (Te Tauāki Kaupapahere o Te Rohe o Waikato) 2018 (the "WRPS") are relevant and I have approached my assessment of PC1 with these higher order documents in mind, taking into account all relevant provisions of the RMA.

4. **WARTA SUBMISSIONS**

4.1 The submissions and further submissions arising from council members of the WARTA group that are relevant to the Block 1 hearings cover a broad range of issues including:

- (a) Concerns about PC1 not meeting the requirements of the RMA in respect of enabling the social, economic and cultural well-being of Waikato communities;
- (b) Concern about the adequacy of the section 32 analysis (recognising that a further analysis is necessary in light of the evidence presented);
- (c) Lack of alignment with the NPS UDC and the WRPS, particularly in respect of accommodating urban growth and the likely need to increase municipal wastewater and stormwater discharge volumes in the future in order to service urban growth;
- (d) Uncertainty and cost to the community from both the rural diffuse discharge rules and the provisions that are likely to affect municipal discharges (wastewater and stormwater);
- (e) The Values section not adequately reflecting all applicable municipal-related values associated with the Waikato and Waipa Rivers and uncertainty around the status of this section of PC1;
- (f) Concerns around the drafting of the objectives not reflecting best practice RMA plan drafting, as well as requests for changes to specific aspects of the objectives; and
- (g) Concerns about Table 3.11-1 in relation to how the metrics will be applied to point source discharges, and the uncertainty and concern about the achievability of specific attributes, including some that are below detection limits, along with measurement uncertainty associated with seasonable changes.

5. **PC1 STRUCTURE**

5.1 PC1 proposes changes to the WRP by introducing a new section in Chapter 3 of the WRP specific to improving water quality in the Waikato and Waipa River catchments. New rules are included for rural diffuse discharges. However, for urban point source discharges, the existing rule regime remains:

- (a) New urban stormwater discharges are a discretionary activity under Rule 3.5.11.8 of the WRP; and
- (b) Wastewater treatment plant ("WWTP") discharges as a discretionary activity under Rule 3.5.4.5 of the WRP.

5.2 There are then several layers of objectives and policies to consider upon assessment under the existing WRP, including:

- (a) General objectives and policies in Chapter 1 (Approaches to Resource Management) and Chapter 2 (Matters of Significance to Maori); and
- (b) Various sub-sections in Chapter 3, including 3.1 Water Resources, 3.2 Management of Water Resources, which includes water management classes and water quality standards, and 3.5 Discharges.

5.3 These provisions will sit alongside the new PC1 objectives and policies, in that all will apply to the consideration of applications under the relevant discharge rules applying to municipal discharges and other point source discharges.

Lack of integration with the Waikato Regional Plan

5.4 In my opinion, PC1 appears to have been developed as a predominantly stand-alone section within the WRP, without the drafters necessarily turning their minds to future users, as it is unnecessarily wordy and detailed and, in my opinion, it has not been well integrated within the existing WRP structure, i.e. the new provisions are "tacked" on to the WRP rather than fully integrated into it.

5.5 This is similar to the approach taken in Canterbury with 12 zone specific plan sections that duplicate the original base plan to some degree but with differences resulting from catchment-based collaborative planning processes similar to that used for PC1. Having had to apply the

Environment Canterbury Land and Water Regional Plan on several occasions, I find it overly complex as it has many duplicative provisions across the general and zone specific chapters.

- 5.6 The task of identifying relevant objectives, policies, rules and other provisions that could be relevant to the assessment of an application for consent is so involved that the key themes and priority considerations get lost amongst a multitude of somewhat relevant provisions. The same type of non-user friendly plan structure is potentially arising through PC1, i.e. duplicative or overlapping objectives, policies and explanatory text, leading to a lengthy and inaccessible document. This increases future compliance and consent assessment costs for the community (e.g. through complex or differing interpretations).

Exacerbating complexity

- 5.7 I anticipate that the Hearing Panel will receive numerous requests for additional text (e.g., new or amended values, additional objectives, etc.) to be incorporated into PC1. Such amendments are likely to simply exacerbate the concerns about undue complexity that I outlined above. I therefore recommend that the Hearing Panel take any opportunity it can to remove material (e.g. explanatory material and the like) that is not strictly necessary for future plan users and rely on the “hard” plan content of objectives, policies, rules and water quality attributes to achieve the outcomes sought by PC1 for the Waikato and Waipa Rivers.

Support for PC1

- 5.8 Notwithstanding my concerns about some of the drafting of PC1, I support the overall outcome sought by PC1, which is to achieve restoration of water quality in the Waikato and Waipa Rivers so that it is safe for people to swim and take food from. It is important that this message is clearly articulated in the material that ultimately forms Chapter 3.11 of the WRP. To further illustrate how the key messages can be lost once the plan change process is completed, I note that there are no objectives or policies included in PC1 which reinforce the simple, yet powerful message of “swimmability and fishability”, it is only contained in supporting documents, which have no status in an eventual resource consent application process down the line.

6. SECTION 3.11.1 OF PC1 – “VALUES”

- 6.1 Numerous submissions requesting changes to the content of the “values” set out in Section 3.11.1 of PC1, including submissions and further

submissions from WARTA and its member territorial authorities. Submissions also highlight uncertainty as to the status of the values in the context of resource consent applications.

- 6.2 The Officers’ report acknowledges there is uncertainty as to their application at paragraph 176 (“they are neither policies or methods”) and states that an option might be to delete the values and uses from PC1.

Inconsistencies and confusion

- 6.3 The wording of the different values, even after the Officers’ recommended amendments, is very inconsistent. As notified, each value has three separate heading levels (i.e. a small heading in bold, a large bold heading in English and Te Reo and then a further heading in small plain text). Then, tables are presented for each value, each with two columns. I assume that the left hand column in the values tables are the actual value and then the right hand column is the commentary which provides an explanation of what the value covers (Figure 1).

3.11.1.1 Mana Atua – Intrinsic values

Intrinsic values - History

Ko te whakapapa o ngā iwi ki ōna awa tūpuna / Historical relationships between the rivers and River Iwi

Ko ngā kōrero o neherā / History

<p>Each River Iwi has their own unique and intergenerational relationship with the rivers.</p>	<ul style="list-style-type: none"> • The rivers have always been seen as taonga (treasures) to all River Iwi. • The rivers have always given River Iwi a strong sense of identity and connection with the land and water. • Rivers were used holistically; River Iwi understood the functional relationships with and between all parts of the rivers, spiritually and physically. • Iwi strive to maintain and restore these relationships despite the modification and destruction that has occurred through different types of development along the rivers.
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Figure 1: Example of the format of the values in Section 3.11.1

- 6.4 Assuming that the left hand column is the actual value to be recognised, there is a confused amalgam of values that are worded as existing states, some are desired states or objectives, and others are worded as policies requiring actions. For example, the “wai tapu” and “geothermal” values are existing state values. The “human health for recreation” value is a desired state or objective style value and the “water supply” value, with the inclusion of the words “provide for”, is worded like a policy.

6.5 In my opinion, if values are to be included in PC1 (and I do not think they should be), they ought to be a single word or words (but not a sentence) which reflect a use or aspect for which the river is valued. In this case, selecting one of the three levels of headings above each of the value tables would suffice.

Deleting the values

6.6 Turning to the question of whether “values” need to be included in PC1, the Waikato Regional Council (“WRC”) is required to follow the process set out in Policy CA2 of the NPS FM when developing freshwater objectives, which includes:

- (a) considering the national values in the NPS FM;
- (b) identifying values for each freshwater management unit (FMU) taking account of local and regional circumstances;
- (c) identifying the relevant water quality attributes (nitrogen, phosphorous, etc) for each value; and
- (d) assigning an attribute state and formulating objectives with reference to specific numeric attribute states.

6.7 Policy CA2 does not require a regional plan to list the values that informed the objectives. Section 67(1) of the RMA only requires a regional plan to include the objectives for the region, the policies to implement the objectives and the rules (if any) to implement the policies.

6.8 My concern with inclusion of the values which informed the objectives in the plan is that section 104(1)(b) of the RMA requires a consent authority to have regard to (amongst other things) any relevant provision of a regional plan. So background explanatory material like the PC1 values section can become a focus in the context of a resource consent process, but the values have typically not been drafted with directing consent decision making in mind.

6.9 I am particularly concerned about the inconsistency of the drafting of the values in PC1, which in many cases read like objectives or policies themselves. They are also not FMU specific as envisaged by Policy CA2(b) of the NPS FM which further illustrates the redundancy of the values. Presumably all values apply to all four FMUs included in PC1, as do the objectives and related water quality tables which are more directive and useful to future decision makers as they are location specific.

- 6.10 The values in PC1 are only useful to the extent that they informed the freshwater objectives and associated attributes. Once the objectives and water quality attributes have been developed, the values are simply background context. The inclusion of the values in PC1 creates a risk that the values would be considered to be a relevant provision of a regional plan and therefore require consideration as part of a resource consent process pursuant to section 104(1)(b) of the RMA or a matter that is "relevant and reasonably necessary" to consider under section 104(1)(c) - in my view, this was not intended by the NPS FM. The NPS FM seeks to have the WRP focus on freshwater objectives that reference numeric water quality states and set water quality limits for management of the resource and subsequent allocation of the resource to users.
- 6.11 I recommend that all values are deleted from PC1 and any necessary edits to these arising from submissions be recorded in the Section 32AA report as part of the plan development record. This will resolve the current uncertainty with the drafting and status of the values in PC1. It will also significantly contribute to simplification of the overall WRP by removing unnecessary material from PC1, it will align better with the other sections of the WRP (which do not include values sections) and it will improve plan certainty for future consent processes.
- 6.12 In the event that the Hearing Panel come to a different view and determines that values are to be included, I recommend the value headings only be listed, in order to avoid provisions that could be elevated beyond the background context which they are intended as.
- 6.13 I note that my recommendation aligns with the suggestion made in the Officers' report to delete the values sections from PC1 (albeit not a recommendation included in the Officers' tracked changes document).

7. **OBJECTIVES 1 AND 3**

- 7.1 PC1 includes six objectives. A number of submissions relevant to WARTA were filed in respect of the objectives. The submissions firstly seek clearer, more objective wording that reflects typical RMA statutory plan style objectives and reflects best practice plan drafting. Some specific content amendments were also sought.
- 7.2 I have reviewed the Officers' recommended rewording for all of the objectives, whereby superfluous heading text and objective reasons are removed and I support the approach taken. Without these changes, it was

not possible to identify what portion of the text is the actual objective that should be considered in a consenting process.

7.3 These changes also assist with improving the overall plan structure and reducing complexity. I address Objectives 1 and 3 in this section of my evidence and the remaining objectives in the following section.

7.4 Notwithstanding the changes recommended to the structure of the objectives, I remain concerned that, due to the manner in which they are worded:

(a) Objectives 1 and 3 are uncertain in their intent; or

(b) It will not be possible to demonstrate compliance with those objectives in the context of a resource consent process.

7.5 My concern relates to the risk that the objectives (and associated water quality states or targets) could be interpreted as levels that are required to be met by point source dischargers (including WWTPs) at the point of discharge, rather than the "state of environment" aspirations that they are intended to be. This is primarily due to the absence of any reference to mixing zones², or other guidance on how and where to specifically apply Table 3.11-1 to a point source discharge consent.

Officers' recommended wording

7.6 The Officers' have recommended rewording Objectives 1 and 3 so that they read as follows:

"Objective 1

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 states in Table 3.11-1 are met."

...

Objective 3

Actions put in place and implemented by 2026 to reduce diffuse and point source discharges of nitrogen, phosphorus, sediment and microbial pathogens, are sufficient to achieve the short-term water quality attribute states in Table 3.11-1."

² I refer to the evidence of Mr Tim Harty for WARTA and Mr Garrett Hall for Watercare in that regard.

7.7 My concern with Objectives 1 and 3 is the challenge they present, both to future resource consent applicants and WRC in working out how to apply the water quality attribute states to a specific discharge proposal, as PC1 does not provide a framework for allocation and rules to prevent over-allocation envisaged by the NPS FM. My initial assumption was that these were water quality standards that had to be met and monitored in respect of every discharge, in order to demonstrate compliance with the objective.

7.8 I now understand through reading the explanatory text included at 3.11.1 of PC1, that this is not the intention. The following explanation is included:

"...it is not intended, nor is it in the nature of water quality targets and the desired water quality states³, that they be used directly as receiving water compliance limits/standards."

7.9 I understand the attributes in Table 3.11-1 are intended to be monitored on a regular basis, at specific locations as a part of state of the environment monitoring, rather than specific monitoring for individual discharge permits. While this clarifies my understanding and appears to be appropriate, it still leaves a high level of uncertainty as to how Table 3.11-1 is intended to be applied in the context of a resource consent application.

7.10 Furthermore, without reference to the explanatory text, which is not recorded near the objectives, Objectives 1 and 3, can be read as requiring decision makers to apply the desired water quality states as limits for point source discharges, without any allowance for a mixing zone.

Assimilative capacity and reasonable mixing not recognised

7.11 The evidence of Mr Tim Harty and Mr Garrett Hall outlines their concerns that Table 3.11-1, which forms part of Objectives 1 and 3, could be applied in by regulators to require discharges to meet the desired river water quality standards at the point of discharge. Conventional practice is that where water quality targets are sought to be met, a zone of reasonable mixing is applied so that compliance with a water quality target does not need to be achieved until after the discharge has been assimilated into the water body.

7.12 I understand that scientists often back-calculate the instream target by understanding the mixing reduction to a pipe end measurement, to facilitate easy monitoring at a pipe end (or just prior to discharge) rather than more hazardous instream monitoring up and downstream of a discharge.

³ Underlying indicates text additions, as recommended by the Officers.

- 7.13 I have reviewed a number of WWTP discharge permits held by WARTA councils in preparing this evidence. The consents reviewed indicate that WRC typically applies water quality consent limits just prior to discharge and requires monitoring at this point (i.e. consent limits do not reference mixing zones, so the application of a mixing zone has occurred during the assessment of environmental effects ("AEE") and consent process phase and does not come through into the final consent documents).
- 7.14 Accordingly, given that the WRP now contains detailed metrics for water quality attributes, I consider that there is a real risk that future plan users will be confused or unclear as to how to apply Objectives 1 and 3 and the associated levels in Table 3.11-1 to an individual discharge proposal. My concern is that they are likely to adopt a somewhat literal (albeit unintended) approach by applying the Table 3.11-1 numbers as consent limits, without allowing for a reasonable mixing zone. If that were to occur, Mr Harty's evidence makes clear that the financial impacts for municipal WWTP operators within the PC1 area would be enormous.
- 7.15 There is no reference to reasonable mixing zones within PC1. Policy 8, at Section 3.2.3 of the WRP, sets out criteria for establishing a mixing zone for a discharge on a case by case basis. It is not directive and it does not provide specific mixing zone metrics, as some other plans do⁴.
- 7.16 Policy 8 does not provide any real direction to decision makers, as it is uncertain, when compared to other plans which provide clear metrics for reasonable mixing. In addition, given that Chapter 3.11 will prevail where there are any inconsistencies with other parts of the plan, there could be an interpretation that Policy 8 does not apply and that no mixing zone is the WRP approach for application of water quality states referenced by Objectives 1 and 3.

Amendments to Objectives 1 and 3

- 7.17 Accordingly, it is my opinion that clarification is needed around the manner in which Objectives 1 and 3 are to be applied and, specifically, the Table 3.11-1 water quality attributes in the context of point source discharges.

⁴ Most, but not all regional plans specifically define a zone of reasonable mixing, with reference to metrics such as "not greater than a distance 200 metres downstream of the point of discharge" and/or "a distance equal to seven times the bed width of the surface water body, but not be less than 50 metres", etc. This includes the Horizons One Plan (Glossary section), Environment Canterbury's Land and Water Regional Plan (Schedule 5), Greater Wellington Regional Council's Proposed Natural Resources Regional Plan (Interpretation section); Environment Southland's Proposed Southland Water and Land Plan (Glossary), Marlborough District Council's Proposed Environment Plan (Policy 15.1.14) and Hawkes Bay Regional Council's Regional Resource Management Plan (Glossary).

- 7.18 One option is to address this through rewording the objectives to include a reference to application of a mixing zone in the context of point source discharges. However, I do not consider that this is the most suitable solution, as it is not aligned with the intention of the PC1 desired water quality states, as described previously (i.e. they apply in a state of the environment manner, at specific nominated monitoring locations along the rivers).
- 7.19 Another alternative would be to make reference to a document or details outlining how achievement of the targets is intended to be measured (i.e., a monitoring plan as per Section CB of the NPS FM). This would provide greater clarity around the need for the monitoring to reflect conditions representative of the FMU, not within a mixing zone.
- 7.20 I am not aware whether the locations for monitoring have been mapped in relation to existing point source discharges to check that these locations are not within the mixing zones of any existing point source discharges, but I assume that this would be the case. Accordingly, while a reference to "after mixing" in Objective 1 or 3 would resolve the risk that Table 3.11-1 attribute states could be applied as water quality standards at pipe end, I consider the most straightforward amendment (in the absence of a monitoring plan) is to make clear in the objectives that the measurement is at the state of the environment monitoring sites referred to in Table 3.11-1.
- 7.21 Accordingly, I have suggested revised wording to the Officers' reworded Objective 1 in my Appendix 1, as below (my additions are underlined):

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 states in Table 3.11-1 are met, as measured at the identified state of the environment monitoring sites.

- 7.22 The above wording is similar to that used in the recent Proposed Marlborough Environment Plan water quality objectives, i.e., it specifies where the values are to be monitored. It avoids any possible interpretation that the Table 3.11-1 attribute states ought to be measured at a point of discharge. The state of the environment monitoring sites are those locations listed in the second column of Table 3.11-1. I have suggested an amendment to the table below.
- 7.23 A similar amendment is recommended for Objective 3, as follows (my additions are underlined):

"Actions put in place and implemented by 2026 to reduce diffuse and point source discharges of nitrogen, phosphorus, sediment and microbial pathogens, are sufficient to achieve the short-term water quality attribute states in Table 3.11-1, as measured at the identified state of the environment monitoring sites."

Amendment to Table 3.11-1

- 7.24 I recommend that an additional advisory reference note also be added under each table, in a similar fashion to notes 1-3 recommended by the Officers' Report. The purpose of my note is to clarify that the "site" column references the applicable "state of the environment" monitoring locations and that the applicable numeric values apply at these locations and not at the point of discharge for any point source discharges.
- 7.25 A footnote (4) is recommended for the "Site" column heading. The suggested wording for the advice note is:
- "4. In respect of point source discharges, any relevant attribute targets apply only at these identified state of the environment monitoring sites and not at the point of discharge."*
- 7.26 In terms of the specific values contained within Table 3.11-1, I refer to the evidence of Mr Anthony Kirk and recommend amendment to the criteria format used for ammonia.
- 7.27 I also refer to the evidence of Mr Harty, whose evidence makes clear that the intention of the Collaborative Stakeholder Group was not to address stormwater discharges through PC1 and the problems he outlines with applying and measuring the selected attributes in the context of point source discharges of urban stormwater.
- 7.28 On this basis, I have recommended an advice note to state that none of the water quality attributes in Table 3.11-1 should be applied to stormwater discharges as I understand a future plan is envisaged to develop plan provisions that are suitable for stormwater management. This will make the plan content clearer on its intention and avoid unforeseen issues arising during future consent processes.

8. **OBJECTIVES 2, 4, 5, AND 6**

Objective 2

- 8.1 Objective 2 is an objective which references social, economic and cultural wellbeing outcomes. I agree with the Officers' minor amendments to this objective.

Objective 4

- 8.2 Objective 4 seeks to ensure that a staged approach is adopted when considering the attribute targets. The Officers have recommended either deletion or amendment to Objective 4. In either case, this results in the removal of the only reference in the plan change objectives and policies to the values and uses part of PC1 (which I have recommended be deleted). Accordingly, there are no other consequential changes required in relation to my earlier recommendation to delete these.
- 8.3 Turning to the content and appropriateness of Objective 4, I agree with the Officers that this objective does not describe an outcome or future state. It actually describes a method of implementation as it includes reference to staging and future plan changes, which is not a function for an objective in an RMA planning document. I agree with the Officers' where they recommend the option of deleting this objective because of this and recognising that the matters are well covered by Policies 5 and 7.
- 8.4 I disagree with the Officers' alternative revised wording which references that *"further contaminant reductions will be required by subsequent regional plans in order to meet Objective 1."* (My emphasis.)
- 8.5 An objective cannot state what a future plan change will contain as a future plan change is clearly beyond the scope of the current plan change and the outcome of the First Schedule process cannot be guaranteed.
- 8.6 I do not support sub-clause (a) in the Officers' recommended form, as it repeats reference to "achieve the attribute states for the Waikato and Waipa Rivers in Table 3.11-1" without guidance on the measurement location (as per my comment on Objectives 1 and 3, this could be interpreted at pipe end). Rather than duplicating the monitoring site caveat here, as well as in Objectives 1 and 3, it is more appropriate to delete Objective 4. The intent of staging is adequately communicated by the inclusion of both short and long-term objectives.

Objective 5

- 8.7 I have no comments or particular concerns with the Officers' recommendations in relation to Objective 5 concerning tangata whenua co-management.

Objective 6

- 8.8 Similar to Objective 4, the Officers provide two options for the objective regarding the Whangamarino Wetland, namely:

- (a) Rewording to remove the superfluous heading and explanatory material; or
- (b) Deletion of Objective 6, on the basis that Objectives 1 and 3 can be relied on for the Whangamarino Wetland, as for other waterbodies covered by PC1.

- 8.9 I agree with the reasons provided in relation to their deletion option, as the revised wording option is clearly duplicative of Objectives 1 and 3 and unnecessary. I understand there may be point source discharges which affect water quality in this wetland, as the Te Kauwhata WWTP discharge is into Lake Waikare, which discharges to the Whangamarino Wetland. Accordingly, the same uncertainty with respect to the measurement location for the referenced water quality attributes may apply to this objective.

- 8.10 I therefore recommend that the objective is either amended to not include a reference to the numerical water quality attributes and simply recognise the importance of this feature, or it is deleted as recommended by the Officers.

9. SECTION 3.11.1

- 9.1 Section 3.11.1 is the preamble to Table 3.11-1 and the maps showing the FMUs and sub-catchments. I am generally comfortable with the content of this section of PC1 as it provides vital explanation to the nature of the metrics in Table 3.11-1. However, I am concerned about the Officers' recommended rewording of this section in response to the submission from GBC Winstone.

- 9.2 While I fully endorse aligning terms and language used in PC1 with the higher order NPS FM, I consider that some of the changes recommended,

and indeed the original text, may not be completely aligned and/or are duplicative and unclear. I note Mr Kirk's comments in relation to this also.

- 9.3 I understand that freshwater objectives and limits are two essential components of the NPS FM and they are sometimes thought of as being interchangeable terms. However, it is my understanding that they are about different things. In that regard:
- (a) A freshwater objective is a description of the intended state of the water which is my understanding of the content in Table 3.11-1 of PC1;
 - (b) A limit provides the basis for managing the resource to achieve the objectives. A limit should be a description of the amount of resource use that will allow that state to be achieved, which can ideally be defined for individual resource users or at a catchment/FMU scale (i.e. a limit which is allocated to users).
- 9.4 My understanding is PC1 has specified limits and a grandparenting and partial "claw back" allocation regime for diffuse nitrogen discharges (through the Overseer rules and the requirement to reduce in the case of the worst 25%); however, it is not clear on limits for point source discharges or an allocation proportion between point source and diffuse discharges.
- 9.5 The final term that is used in PC1 which is defined in the NPS FM is "target". Policy A2 of the NPS FM requires targets, which are a limit to be met at a defined time in the future, to be established where freshwater objectives are not being met.
- 9.6 Turning to the language used in Section 3.11.1 of PC1, I find it unclear in the Officers' "Tracked Changes" document, as they have made edits to also use the words "short-term limits and targets" in Section 3.11.1. I could not find sufficient discussion of the reasons why they consider that their recommended terminology is better in their report. In my opinion, a fuller explanation of the reasons for the recommend changes, with a clear explanation of the status of the short and long-term metrics with reference to the NPS FM defined terms would be useful. If necessary, terminology could be defined and added to the plan glossary.
- 9.7 Mr Kirk provides some suggestions for language which better reflects the NPS FM and PC1 intentions. He also recommends that the explanatory text referring to 5 yearly monitoring in Section 3.11.1 be amended to clearly

provide for 5 year rolling average. His suggested rewording for both of these matters have been included in my Appendix 1.

10. **CONCLUSIONS**

- 10.1 PC1 is a partial response to the requirements of the NPS FM and has also been developed in response to the Vision and Strategy. I understand that the WRC will continue to monitor water quality at the locations referred to in Table 3.11-1, gather and analyse information over the next few years and then assess what further planning provisions are required to manage nitrogen, phosphorous, sediment, and microbial pathogens to achieve the desired long term water quality attributes in Table 3.11-1.
- 10.2 Given the amount of effort required of regional councils and communities to give full effect to the NPS FM, I consider that this first stage effort is a reasonable approach for the Council to take. However, it is important that PC1 does not result in unintended consequences for point source dischargers (particularly municipal authorities) that could necessitate costly upgrades to municipal infrastructure, without resulting in any real improvement towards restoration of water quality within the rivers so that it is safe for people to swim and take food from.
- 10.3 Appendix 1 sets out my recommendations that will assist with avoiding unintended consequences and achieve alignment with the NPS FM, in so far as the response has been developed. Further amendments may be required to other parts of PC1, which will be addressed in subsequent briefs of evidence.

Mary O'Callahan
22 February 2019

Appendix 1 – My recommended changes to Officers’ “Tracked Changes” document

My changes are indicated with red underlining and ~~strike-out~~. Black underlining and ~~strike-out~~ is that recommended by the Officers. In some places, only the Officers recommended text has been shown for clarity.

3.11 Waikato and Waipa River Catchments/Ngā Riu o ngā Awa o Waikato me Waipā

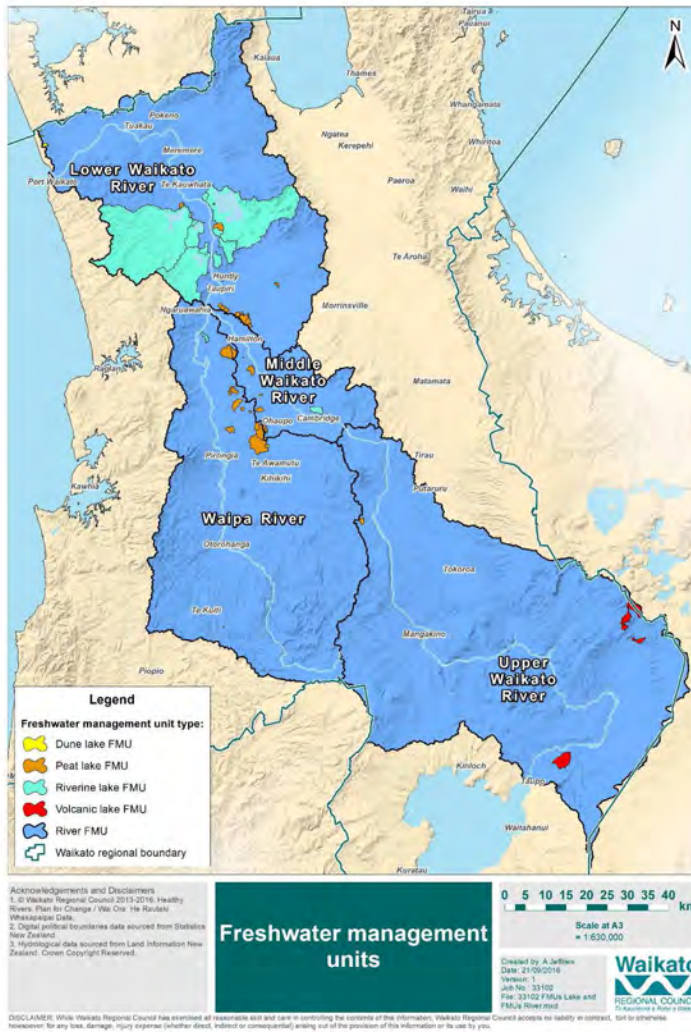
Area covered by Chapter 3.11/Ngā Riu o ngā Awa o Waikato me Waipā

This Chapter 3.11 applies to the Waikato and Waipa River catchments. The map shown in Map 3.11-1 shows the general catchment boundary. This Chapter is additional to all other parts of the Waikato Regional Plan. Where there are any inconsistencies, Chapter 3.11 prevails.

Map 3.11-1 shows the general catchment boundary and includes the boundaries of each Freshwater Management Unit (FMU): The FMUs are:

- Upper Waikato River
- Middle Waikato River
- Lower Waikato River
- Waipa River
- Peat Lakes
- Riverine Lakes
- Dune Lakes
- Volcanic Lakes

FMUs are required by central government’s National Policy Statement for Freshwater Management 2014. FMUs enable monitoring of progress towards meeting targets and limits. The Plan maps of the Waikato and Waipa River catchments are available electronically or for viewing at Waikato Regional Council offices on request.



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

Updated map showing corrected regional boundaries, legend and lake colours to be inserted

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 reflects 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.~~

3.11.1 Vision and Strategy for the Waikato River/Te Ture Whaimana o Te Awa o Waikato

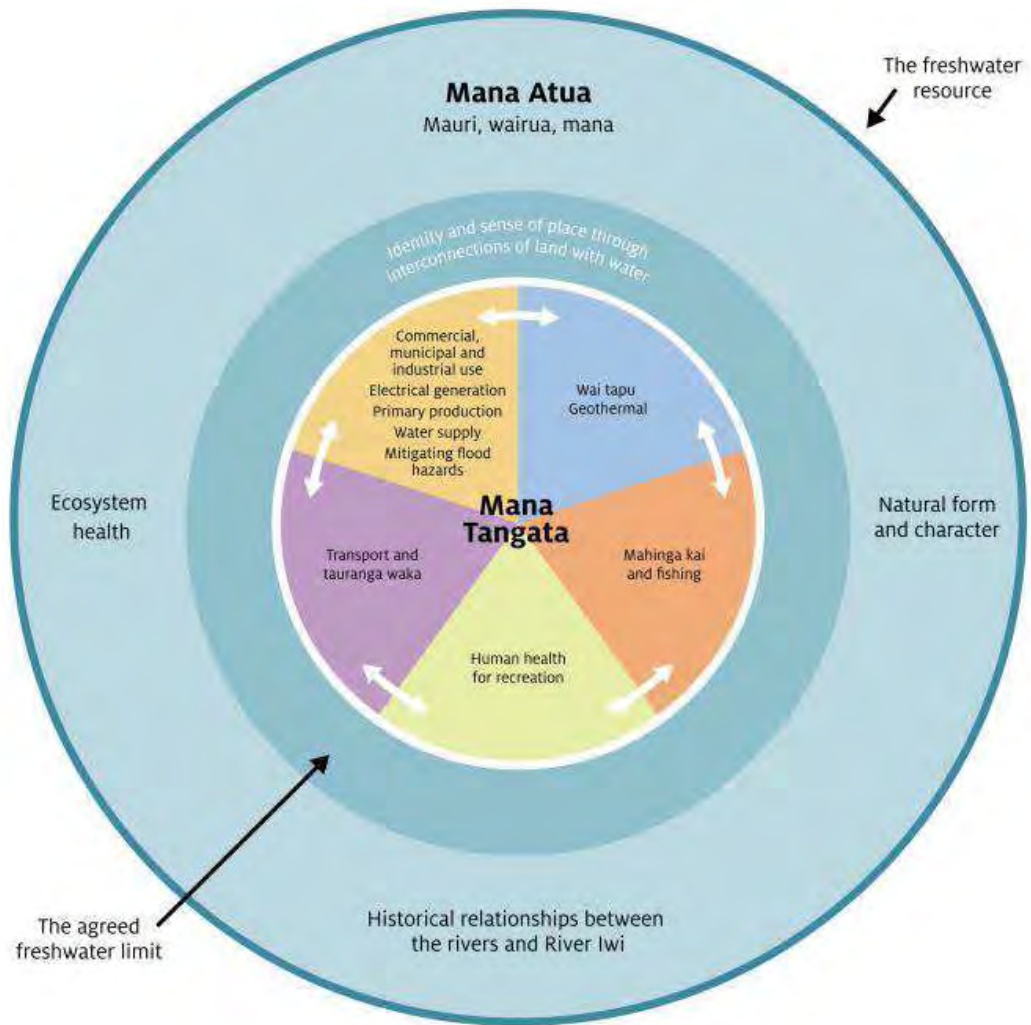
"Our vision is for a future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come."

~~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. 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.



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.

Delete from 3.11.1.1 on page 6 of the Officers Tracked Change document through to where the “Values” section ends on page 10.

The objectives section below has the Officers recommended rewording only (notified PC1 text has been deleted for clarity).

3.11.2 Objectives/Ngā Whāinga

Objective 1:

By 2096 at the latest, a reduction in the discharge 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 the 80-year water quality attribute states in Table 3.11-1 are met, as measured at the identified state of the environment monitoring sites.

Objective 2:

Waikato and Waipa communities and their economy benefit from the restoration and protection of water quality in the Waikato and Waipā River catchments, which enables the people and communities to continue to provide for their social, economic and cultural wellbeing.

Objective 3:

Actions put in place and implemented by 2026 to reduce diffuse and point source discharges of nitrogen, phosphorus, sediment and microbial pathogens, are sufficient to achieve the short-term water quality goals attribute-states in Table 3.11-1, as measured at the identified state of the environment monitoring sites.

~~Objective 4:~~

~~A staged approach to reducing contaminant losses enables people and communities 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[△] 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 in order to meet Objective 1.~~

Objective 5~~4~~:

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:~~

- ~~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.~~

Policy 14: Lakes Freshwater Management Units/Te Kaupapa Here 14: Ngā Wae Whakahaere Wai Māori i ngā Roto

Restore and protect lakes by 2096 through the implementation of a tailored lake-by-lake approach, guided by Lake Catchment Plans prepared over the next 10 years, which will include collecting and using data and information to support

improving the management of land use activities in the lakes Freshwater Management Units[^].

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~~ goals and long term numerical ~~desired~~ water quality states targets for 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 3.11-2 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~~ goals and long term numerical ~~desired~~ water quality states targets for 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 the Waikato and Waipa River catchments, these short term goals and long term targets ~~and desired water quality 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. With regard to consent applications for diffuse discharges or point source discharges of nitrogen, phosphorus, sediment and microbial pathogens, it is not intended, nor is it in the nature of water quality targets ~~and the desired water quality 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 at 80 years for

lakes FMUs. Where water quality is currently high (based on 2010-2014 monitoring data), the short term targets goals 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 goals and 80-year desired water quality states targets are set at 0.740 mgNO₃-N/L to 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 desired water quality state target is set at 540 E.coli/100ml and the short term state goal 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 80 year attribute targets in Table 3.11-1 will be determined through annual analysis of monthly monitoring data collected over the preceding 5 years 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 goals 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).

Amend heading rows in Table 3.1-11 as indicated in red text

Table 3.11-1: Upper Waikato River Freshwater Management Unit

Catchment number	Site (4)	Attributes(5)				
		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)

Add footnote at end of each table as indicated in red text

1 The annual median and annual maximum ammonia have been adjusted for pH

2 Median black disc horizontal sighting range under baseflow conditions

3 Attribute is not applicable to the sub-catchment

4. In respect of point source discharges, any relevant attribute targets apply only at these identified state of the environment monitoring sites and not at the point of discharge.

5. None of the attribute targets apply to point source discharges for stormwater.

For the ammonia targets, replace with standardised pH and temperature conditions for ammonia (toxicity) metrics.