

**BEFORE THE HEARING COMMISSIONERS
APPOINTED BY CANTERBURY REGIONAL COUNCIL**

UNDER THE Resource Management Act 1991

AND

IN THE MATTER of application CRC190445 by the Christchurch City Council for a comprehensive resource consent to discharge stormwater from within the Christchurch City area and Banks Peninsula settlements on or into land, water and into coastal environments

**SUMMARY OF SECTION 42A OFFICER REPORT OF
MICHELE STEVENSON FOR CANTERBURY REGIONAL COUNCIL**

14 November 2018

INTRODUCTION

- 1 My name is Michele Stevenson. I here summarise key points of my Section 42A Officer Report, highlighting areas of agreement and disagreement between my opinion and that expressed by or on behalf of the Applicant and submitters.

KEY POINTS RAISED

- 2 My report focussed on the potential effects of the proposed stormwater discharges on (a) freshwater (surface water) receiving environment water quality, and (b) freshwater aquatic habitat and ecology.
- 3 In general, I support the overall approach of the consent application. Within the application the key aspects of relevance to mitigating effects on surface waterways are:
 - (a) the development and implementation of Stormwater Management Plans (SMPs) that have been or will be developed for individual catchments (or other smaller geographic areas);
 - (b) an Environmental Monitoring Programme (EMP) that will be used to assess whether the Applicant is meeting the Receiving Environment Objectives (REOs) and Attribute Target Levels (ATLs), as set out in Schedules 4 to 6 of the proposed consent conditions; and
 - (c) a programme of stormwater quality investigations and other actions that are designed to improve the management of stormwater quality and reduce stormwater effects on the receiving environment (Tables 3 and 4 of the proposed consent conditions).
- 4 I note that the REOs and ATLs for waterways (Schedule 4) are well aligned with the outcomes and standards in the Land and Water Regional Plan (LWRP) and consider that these should be the reference point for all decisions when (a) SMPs are being developed and reviewed, and (b) stormwater management investigations, actions and other initiatives are being prioritised and implemented.
- 5 In my report I expressed concern about the lack of detail in the application around the management of high risk sites post-2025, including development sites and industrial sites, which present a higher

risk of contamination to surface water. I acknowledge that the Applicant has since proposed additional consent conditions that provide an approach to managing industrial sites (Condition 3) and development sites (four conditions following Condition 40). I am satisfied that the potential risk to surface water from the inclusion of these sites post-2025 has now been given due consideration by the Applicant. These new conditions require the Applicant to develop a Transition Plan for industrial sites and a Sediment Discharge Management Plan for development sites. The content of those Plans is currently unknown and this contributes to the uncertainty surrounding implementation of this consent. Their development will require close collaboration with CRC staff and, in my opinion, a significant level of CCC resourcing for effective implementation into the future.

KEY AREAS OF AGREEMENT

- 6 I provided a list of recommendations (under paragraph 117 of my report) for changes to either the consent conditions or the EMP, to address issues or concerns raised within my report. Most of these recommendations have been addressed by the Applicant and there is a table of these provided as an Appendix to this summary for reference purposes.
- 7 In particular, I am now in agreement with the Applicant about all aspects of the EMP relating to surface water quality and aquatic ecological monitoring in freshwater waterways.

KEY AREAS OF DISAGREEMENT

- 8 There are two key areas of disagreement related to recommendations that I made in my report. These relate to:
 - (a) The use of a Stormwater Technical Advisory Panel (TAP) for the review of SMPs and for providing independent opinion on investigations proposed under Table 3 of the consent conditions; and

- (b) The Christchurch Contaminant Load Model (C-CLM) and how it is proposed to be incorporated into the consent conditions and the overall adaptive management approach within this consent.

The use of a Technical Advisory Panel (TAP)

- 9 My initial recommendation for the use of a TAP in the SMP process was in response to the lack of a certification process for new SMPs within the consent conditions. I recommended that the SMPs should be audited and approved by a Technical Advisory Panel (paragraph 73 of my report). I note that the Applicant has since revised Condition 4 to require that SMPs are submitted to CRC for certification. I agree that CRC should have ultimate responsibility for certifying SMPs. However, I still consider that a Stormwater TAP should be established. My rationale for this is provided in paragraph 73 of my report. In brief, I believe that review of the draft SMP by multiple independent technical experts that cover the multiple disciplines involved in an SMP, will provide certainty that the adaptive management approach adopted for this consent will incorporate technical best practice.
- 10 The Applicant has proposed as an addition under Condition 7 that there will be a peer review of the draft SMP from independent experts. When questioned about this by Commissioners at the hearing last week, Mr David Adamson stated that this would involve multiple experts to cover the range of topics required. The peer review proposed by the Applicant sounds similar to what I have recommended, however I believe that the use of a Stormwater TAP provides an additional level of independence and scrutiny to the process, beyond what could be achieved by a peer review.
- 11 In addition to the SMP review process, I also proposed that relevant members of the Stormwater TAP could be called on to provide independent opinion on aspects of the investigations and other actions proposed in Table 3 of the consent conditions. In paragraph 79 of my report I describe how many of the actions listed under Table 3 are contingent on whether the consent holder considers that a previous feasibility investigation shows 'sufficient merit'. I note that the Applicant has revised the wording of these investigations in Table 3 and now proposes that further investigations will take place if the consent holder 'determines that it is feasible'. It is not clear how feasibility will be determined. I still consider that there is a high risk of many of the actions

beyond feasibility studies not being progressed due to lack of CCC funding and staff resourcing, unless there is some independent input into the decision making for these investigations.

- 12 CRC staff have drafted conditions that we consider would be appropriate if the Hearing Panel agrees with these recommendations and these will be presented by Mr Nick Reuther, the reporting officer.

The Christchurch Contaminant Load Model (C-CLM)

- 13 I made recommendations regarding how the C-CLM is proposed to be used and the relevant consent conditions (Conditions 16 to 18), including Table 2 that specifies stormwater contaminant load reductions (CLRs) that the consent holder must achieve at intervals through the duration of the consent. In brief, the recommendations were:

- (a) That there should be flexibility within the consent conditions to allow the Applicant to use the best modelling tools available at the time to assess compliance with Table 2, rather than being fixed to the use of the C-CLM for the duration of the consent;
- (b) That Table 2 should include catchment-specific CLRs rather than being presented as a single figure;
- (c) That the C-CLM should be updated to account for local Christchurch conditions and to make use of information that arises from relevant investigations in Table 3, such as assessment of contaminant reduction performance of stormwater treatment facilities and devices in Christchurch.

- 14 I have been part of discussions between CCC and CRC staff about the modelling conditions. I will not comment further on point (a) above as I now consider that is a matter for the consent planners to advise upon regarding the practicalities of drafting consent conditions.

- 15 With reference to point (b) above, I consider it important that CLRs are provided at the catchment scale rather than simply as an overall reduction across the city. While the Table 2 CLRs provide a general indication of the scale of contaminant reduction we may see in the stormwater discharges across the city in future years, this does not provide any indication of what might be achieved in individual catchments to help with moving towards the REOs and ATLs in Schedule 4 (and the LWRP outcomes and standards). The National

Policy Statement for Freshwater Management requires that degraded catchments are improved and it is therefore important that there is transparency about where improvements are or are not occurring within the scope of this consent.

- 16 Through our discussions with CCC staff we have come to agreement that catchment-specific CLRs should be included within SMPs rather than in Table 2 of the consent conditions. An advantage of this approach is that it will allow the catchment-specific CLRs to be developed using a CLM, or alternative modelling approach, that uses input data that is relevant to particular catchment characteristics. CRC staff have drafted a revised framework for the CLR conditions and this will be presented by Mr Reuther.
- 17 Regarding point (c) above, it is my view that contaminant load modelling to aid with decision making within this adaptive stormwater management approach should make use of relevant local input data wherever possible and be as accurate as possible, or at least be transparent about the level of uncertainty through the use of sensitivity analyses. As new technologies arise, as they invariably do over time, it is also important that the methods used by the Applicant are adapted to maintain a best practice approach. The revised framework for the CLR conditions mentioned above includes suggested conditions to ensure this can occur.
- 18 In my report I noted that there is no relationship between the CLRs specified in Table 2 and the Schedule 4 REOs and ATLS (paragraph 34). Furthermore, it is not possible to comment on what the CLRs might achieve in the receiving waterways, due to the scale of the assessment and also a lack of knowledge regarding the link between contaminant loads, instream concentrations and ecological indicators in receiving waterways (paragraph 44). I strongly support the proposed investigations that will seek to develop an instream contaminant concentration model and a method to predict responses in the receiving environment (Investigation Actions 1 to 5 in Table 3). In my opinion, it will be important that future contaminant load modelling incorporates the outputs from these investigations so that CLRs can become a tool within the adaptive management approach for achieving REOs and ATLS.

RECOMMENDED ADDITIONAL CHANGES

- 19 There have been questions from the Hearing Panel to Dr Belinda Margetts about wet weather monitoring and her disagreement with a recommendation from Dr Lesley Bolton-Ritchie that a minimum of three sampling days within the annual baseline monitoring should be rainfall days. I agree with Dr Margetts around the practicalities of adding in this requirement to the sampling programme.
- 20 As an alternative, I have suggested to Dr Margetts that an additional sentence could be added to the EMP at Section 5.3.1 that states that the regular surface water quality monitoring should take place on a routine basis regardless of weather conditions, i.e. it should take place rain or shine. This will ensure that the current monitoring regime, which Dr Margetts explained does include 3 rainfall days on average, is implemented in this way into the future. In my view this should ensure that the conditions on sampling days are random and representative of rainfall conditions for that year.

Michele Stevenson

14 November 2018

Appendix

Recommendations that have been addressed to my satisfaction

Recommendation (with reference to relevant paragraph in my s42A report)	Applicant's response
Paragraph 46: A note should be added to the top of Schedule 4 that refers the reader to the EMP for details of the methodology to be used when assessing data against the Attribute Target Levels, to avoid confusion with the use of 'lower limit' and 'upper limit' within the Schedule 4 table.	A note has been added to the top of Schedules 4-6 in the conditions.
Paragraphs 51-52: Appropriate target levels for TSS concentrations in baseflow and wet weather conditions could be derived using the 80 th percentile approach that is used in ANZECC (2000) for physico-chemical stressors, using existing CCC and CRC data sets.	The wet weather ATL has been removed from Schedule 4 with the baseflow ATL to apply to monthly monitoring data. <i>I consider this to result in a conservative ATL for TSS. Future developments at the national level (NPS-FM) may provide guidance on sediment indicators and effects-based attribute target levels.</i>
Paragraph 55: Schedule 4 should include a separate target level for copper, lead and zinc concentrations for the Cashmere Stream catchment, as listed in Table 3 of the EMP.	Schedule 4 now includes specific ATLs for Cashmere Stream.
Paragraph 64: The consent conditions should include a Receiving Environment Objective or a standard similar to those stated in proposed Conditions 23 and 24 that addresses sites with a higher risk of contaminating surface water or groundwater.	New proposed condition 3 addresses this by including a requirement for site-specific monitoring plans for high-risk sites.
Paragraph 70: The purpose of the SMPs stated in Condition 5(a) should be amended to include a 'maintain' requirement to prevent future degradation of high quality receiving environments.	Brian Norton's evidence (para 224) points out that the REOs and ATLs have been written to require maintenance of existing high quality receiving environments and considers that no changes to Condition 5 are required. <i>I agree and also note that Condition 5(a) is referring to <u>improvement in discharge quality</u> so this should contribute to either improving or maintaining receiving environment quality, i.e. not degradation.</i>
Paragraph 71: The objectives in the existing SMPs for the Huritini/Halswell	Graham Harrington's evidence addresses this (para 22) and

<p>River, Puharakekenui/Styx River and Ōtākaro/Avon River catchments will need to be reviewed to ensure alignment with the CSNDC REOs and ATLS. This review, in advance of the programmed review date listed in Table 1, should include revision of objectives and inclusion of appropriate measures to address the revised objectives within the SMP.</p>	<p>proposes a successive review programme for existing SMPs (Halswell 2021, Styx 2023 and Avon 2025). <i>Agree with revised dates. In ideal world I'd prefer an earlier revision date for the Avon SMP but I can understand the constraints with timeframes, work programmes and the RRZ decision-making process.</i></p>
<p>Paragraph 72: Information that is to be included in SMPs, listed in proposed Condition 6, should also include:</p> <ul style="list-style-type: none"> • Assessment of the impact of development and land use change planned for the catchment on catchment characteristics such as the percent impervious surface area, as well as characterisation of the pathways for stormwater within different parts of the catchment (e.g. treated vs untreated, to ground or to surface water); • Identification of areas of high aquatic ecological or cultural value, including but not limited to springs and wetlands, and habitat for threatened species; • Assessment of water quality modelling results in terms of potential impact on the state of the receiving water quality and ecology, specific to the catchment and the proposed mitigation measures, with reference to Receiving Environment Objectives and Attribute Target Levels and LWRP outcomes; • An options assessment, to clearly demonstrate the key drivers behind the mitigation measures selected for implementation; • A list of sites identified as 'high risk' within the catchment, including the likely contaminants and their risk to receiving environments, based on the processes that CCC will need to develop to mitigate the risks on large construction sites and contaminated sites that will be within the scope of the CSNDC after 2025; 	<p>These have been addressed by evidence or discussed with CCC, as follows:</p> <p>First bullet point: Agreed that these points will be included in SMPs as standard content without the need for a consent requirement.</p> <p>Second bullet point: Agreed that this is adequately covered by the need to prioritise stormwater treatment in catchments that discharge to these areas (Condition 6(d)v)</p> <p>Third bullet point: Proposed to add to Condition 6(d) to refer to REOs via Conditions 20/21</p> <p>Fourth bullet point: Proposed to add a clause to refer to an options assessment</p> <p>Fifth bullet point: In Brian Norton's evidence (para 208) he agrees that a list of high risk sites could be included as an appendix to an SMP. <i>I note that this is not currently proposed by CCC as an amendment to the condition and is recommended by CRC.</i></p>

<p>Paragraph 74: The SMP review period should be decreased from 10 years to 5 years to ensure that relevant findings from the monitoring and research proposed under this consent are incorporated into the selection, design and implementation of mitigation measures for individual catchments.</p>	<p>David Adamson's evidence (para 63 onwards) disagrees with a 5 year review period for SMPs, primarily for resourcing reasons but also mentions that 10 year review period is a maximum and reviews can occur at any time, and that implementation and improvements will be gradual so a 10 year period enables measurement, identification of trends and assessment of results to provide reliable feedback into the next SMP review. <i>I agree with this rationale</i></p>
<p>Paragraph 75: Change proposed Condition 13(e) to refer to a plan or programme for additional testing or water quality monitoring to check the performance of facilities or to inform prioritisation of areas for mitigation. Subsequently, add the reporting on this plan or programme to the annual reporting requirements listed in proposed Condition 53.</p>	<p>Brian Norton has proposed deletion of 13(e) as the plan or programme is proposed in Table 3, item 9, and will thus be reported on under condition 53(n). <i>Agreed</i></p>
<p>Paragraphs 76 and 81: Strengthen the requirement that <i>may</i> be included in the proposed Implementation Plan (Condition 14) for details of maximum stormwater contaminant concentrations that CCC will accept into the network. This aligns with an existing mechanism through the CCC Water Supply, Wastewater and Stormwater Bylaw 2014 (section 35(1)) and would be a robust and effective means of managing discharge quality into and from the stormwater network.</p>	<p>Brian Norton has proposed deletion of Condition 14 in its entirety <i>Agreed</i></p>
<p>Paragraph 78: Amend the wording of the investigations and actions proposed in Tables 3 and 4 of the consent conditions to make the purpose and desired outcome of each action clear. Also include outcomes from Table 4 in the reporting requirements, i.e. add Condition 38 to the group of conditions listed under Condition 53(a).</p>	<p>There have been some minor wording amendments to Tables 3 and 4. Condition 38 has been added to Condition 53(a).</p>
<p>Paragraph 90: A specific purpose description should be added to each section of the EMP to make it clear how each component is related to the stormwater discharge activities that fall under the CSNDC.</p>	<p>EMP amended</p>
<p>Paragraph 92: The Templetons Road site on the Ōpāwaho/Heathcote River should</p>	<p>EMP amended</p>

be re-located downstream to a site with permanent flow that is upstream of the inflow from Haytons Stream.	
Paragraph 92: The EMP should identify tidal river sites where salinity is highly variable as many guideline values will not be applicable to these sites.	EMP amended
Paragraphs 95 and 99: The EMP needs to include the wet weather Attribute Target Level for TSS and should include details of how the monthly data and wet weather monitoring data will be analysed to assess compliance with both the baseflow and wet weather target levels.	Belinda has clarified that only monthly monitoring data will be used for compliance and this will not be partitioned between dry and wet weather sampling. No change to the EMP but proposed change to Schedule 4 to remove the wet weather ATL of 100 mg/L. <i>I consider this change to result in a conservative ATL for compliance purposes.</i>
Paragraph 96: The proposed five-yearly reviews of the data for modifying the trigger values for copper, lead and zinc should commence as soon as possible given that the current HMTVs were derived in 2012 based on 2010-2012 data, and I suggest this should be in 2019.	Review date changed to 2020 (earliest practical date following likely decision on consent after which 12 months of hardness data will be available). Amended in Condition 45 and the EMP
Paragraph 97: Dissolved organic carbon should be added to the list of parameters for testing in Table 3 of the EMP.	Already in there
Paragraph 104: The number of monthly monitoring sites at which fine sediment monitoring is undertaken should be increased to four or five rather than just two in each catchment, to provide a greater spatial coverage of the data gathered on this important monitoring component.	EMP amended to include 7 additional sites – 2 Avon, 3 Heathcote and 2 Styx – to address this issue. Insufficient sites in Halswell, Otukaikino and BP to justify additional sites.
Paragraph 107: A requirement for integrated reporting of the monitoring components that are part of the five-yearly rotational cycle of monitoring should be incorporated into the EMP or into the wording of Condition 53(a) of the proposed consent conditions.	Amendment to Condition 53(a) and Section 10 of the EMP
Paragraph 108: Water quality and ecological health should be measured, and appropriate criteria established to assess the impact of stormwater on Te Oranga/Horseshoe Lake.	I agree with the response from Dr Margetts (para 105.2) on this recommendation. No change.
Paragraph 112: Condition 51 outlines the requirement for an investigation if Attribute Target Levels are breached for	Amendments to Conditions 51 and 53.

<p>TSS, copper, lead or zinc and this should be amended to include a timeframe for the investigation report, which I suggest should be within the annual report of the year following the breach. I also suggest that the Implementation Plan proposed in Condition 14 should include details of how the Applicant proposes to prioritise issues that are highlighted by the monitoring programme.</p>	
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