Proposed Plan Change 7 to the Canterbury Land and Water Regional Plan

First set of Responses to Questions of Hearing Commissioners from the First Hearing Day (29 September 2020).

06 October 2020

Response Authors: Shirley Hayward, Andrea Richardson, Matthew McCallum-Clark, Angela Fenemor, Philip Grove[1]

Question	Response
Please compile a table illustrating how the PC7 Table 1a and 1b management units relate to the NPSFM 2020 Appendix 2C Tables 23 to 26. Questioning how those management units 'mesh' or 'don't mesh'.	Shirley Hayward (surface water quality and ecology): Commissioner Van Voorthuysen requested that Council Officers compile a table to illustrate how the PC7 Tables 1a and 1b management units relate to the NPSFM 2020 Appendix 2C Tables 23 to 26 sediment classification tables, and to comment on how comparable those PC7 management units are to the NPSFM 2020. In response to this question, please refer to the attached memorandum '*Comparison of river management units in Table 1a with NPSFM 2020 sediment classes*'. The NPSFM 2020 attributes 'suspended fine sediment' (Table 8) and 'deposited fine sediment' (Table 16) do not apply to lakes, and for this reason, the management units in PC7 Table 1b have not been assessed.
Has any analysis been done in respect of the existing planning framework and the Stock Exclusion Regulations?	Matthew McCallum-Clark (planning): A preliminary analysis has now been completed. In summary, the following points are noted: 1. The Stock Exclusion Regulations, in general terms, exclude the presence of specified animals from specified spaces (water and land), with exceptions, over time. 2. Although similar, many of the specified animals, specified places and timeframes to which the Regulations relate are different to those in the Land and Water Regional Plan. Therefore, there will be a need for people managing stock to review both the Land and Water Regional Plan and the Regulations to determine compliance in each situation. The regional council, and other organisations, are providing guidance on this. 3. PC7 generally seeks to add some additional types of waterbodies to which the region-wide stock exclusion requirements apply.

[1] Philip Grove holds the position of Science Team Leader, Land Ecology at Environment Canterbury. It was signalled by the freshwater ecologists at the hearing that they would need to take advice from a wetlands specialist in order to respond to this question – accordingly the response of Philip Grove, as a wetlands specialist, is incorporated into this answer.

	4. Clause 19 of the Regulations specifies that …, a more stringent rule in a regional plan prevails over a provision in these regulations that relates to the same matter. 5. In most situations the Land and Water Regional Plan provisions, as amended by PC7 will be more stringent than the Stock Exclusion Regulations, but as noted above, are often not on 'the same matter'. 6. There is no requirement under the Regulations to remove any duplication between the Land and Water Regional Plan and the Regulations. 7. It is unlikely that the Stock Exclusion Regulations will trigger the need for any specific changes to the PC7 provisions. 8. In future, the regional council could choose to undertake a further plan change to the Land and Water Regional Plan in response to the Regulations, which would be subject to a separate Schedule 1/Freshwater Planning process.
In relation to provisions inserted into the Plan as required by the NPSFM 2020 (i.e. those related to wetlands, rivers and fish passage) – what, if any, consequential amendments are required to the PC7 provisions to ensure consistency throughout those provisions? For example, the fish passage provision (being an objective) would have widespread application throughout the document.	Andrea Richardson (planning)/Matthew McCallum-Clark (planning)/Angela Fenemor (planning): Below is a list of PC7 provisions that will likely require consequential amendments to ensure consistency with the provisions inserted into the CLWRP as required by the NPSFM 2020. The redrafted provisions will be included in the final Officer recommendations as part of the Reply report. We will also identify if there are any Restricted Discretionary Activity rules that require new matters of discretion to implement the new policies, and include a discussion on the scope within submissions to make the identified changes. **Part A of PC7**: Rivers: No consequential amendments recommended. Wetlands: Policy 4.47 clause (b). Fish passage: Policy 4.102; definition of 'Defence against water' associated with Rule 5.138. **Part B of PC7**: Rivers: No consequential amendments recommended. Wetlands: No consequential amendments recommended. Fish passage: Policies 14.4.27 and 14.4.43, and Rule 14.5.34. **Part C of PC7:** Rivers: Policy 8.4.19 Wetlands: Policy 8.4.32 Fish passage: Policies 8.4.19 and 8.4.32 There are a large number of provisions in the wider Land and Water Regional Plan, and some of the PC7 provisions where there is no scope in submissions to make changes. That will require amendment in due course. The regional council will need to undertake a normal Schedule

	1/Freshwater Planning process to make those changes, when it chooses to do so.
What classifies wetlands as 'natural'? How far inland is an 'inland wetland'? Would reinstated, or partially reinstated be considered 'natural'?	Matthew McCallum-Clark (planning)/ Philip Grove (ecology) The term 'natural wetland' is defined in the NPSFM 2020 as: ***natural wetland*** *means a wetland (as defined in the Act) that is not:* *(a) a wetland constructed by artificial means (unless it was constructed to offset impacts on, or restore, an existing or former natural wetland); or* *(b) a geothermal wetland; or* *(c) any area of improved pasture that, at the commencement date, is dominated by (that is more than 50% of) exotic pasture species and is subject to temporary rain-derived water pooling* Wetland ecosystems will naturally establish where suitable hydrological conditions exist. This includes areas where hydrological regime may be modified by, or even wholly derived from, human influences. In the developed landscape of lowland and coastal Canterbury (and other regions) this is in fact the typical situation. On this basis, clause (a) of the above definition is assumed to refer to wetlands that have been 'constructed', rather than inadvertently created. For example, the hydrological regime of Te Waihora/Lake Ellesmere, a large coastal lake, is controlled by periodic openings. Although the extent of the lake and associated margin wetlands are human-influenced, Te Waihora is recognised as an internationally-significant wetland habitat. Other examples of significant wetland habitats that have naturally developed as a result of human actions are those located around the Waitaki Valley hydro dams. Excluding such areas from consideration as 'wetlands' would undermine regional and national policy objectives relating to ecosystem health, biodiversity values and natural character of wetlands and associated ecosystems. A reinstated wetland is a wetland that has been deliberately reinstated (generally by some sort of engineering or earthworks) within an area that was formerly wetland habitat prior to human modifications over the last 150 or so years. A well-known local example would be Travis Wetland. The term 'natural inland wetland' is defined in the NPSFM 2020 as: ***natural inland wetland*** *means a natural wetland that is not in the coastal marine area.* This means that 'inland wetlands' are all wetlands that are not in the coastal marine area (more or less below the high-tide mark). Typical examples of the kinds of natural wetlands that are **not** 'natural inland wetlands' would be wetlands around the edges of estuaries or at river

	mouths. For these wetlands, the New Zealand Coastal Policy Statement provides guidance in a similar vein to the NPSFM 2020.
Correction of strike-out/underline question	Andrea Richardson (planning): Page 22 of the Second Errata to the s42A Report proposes amendments to clause b of Policy 4.31. The phrase "…for surface water takes …" in clause b was unintentionally written twice, firstly with the text struck out (indicating deletion) and then with the text underlined (indicating new text). The Panel questioned whether this text was intended to be shown as struck through or underlined. Due to some confusion between officers, an incorrect answer was given. Officers clarify that the phrase "… for surface water takes …" is recommended to be deleted. The recommended wording of clause b of Policy 4.31 is shown in Update #2 to Appendix E Part 1 without this error, and is as follows: *b. excluding stock from within freshwater bathing sites listed in Schedule 6, salmon spawning sites listed in Schedule 17, Community Drinking-water Protection Zones ~~for surface water takes~~ as set out in Schedule 1, other sensitive water body areas; and the water body bed and banks closely adjacent to and upstream of these areas; and*

Memo

Date	1 October 2020
To	Proposed Plan Change 7 Hearing Panel
CC	
From	Shirley Hayward (surface water quality and ecology)

Comparison of river management units in Table 1a with NPSFM 2020 sediment classes

Commissioner Van Voorthuysen requested that Council Officers compile a table to illustrate how the PC7 Tables 1a and 1b management units relate to the NPSFM 2020 Appendix 2C Tables 23 to 26 sediment classification tables, and to comment on how comparable those PC7 management units are to the NPSFM.

Background

Table 1a of the Canterbury Land and Water Regional Plan (LWRP) specifies freshwater outcomes for Canterbury rivers grouped according to mapped river management units (MUs). The river management units were originally developed to inform the Canterbury Natural Resources Regional Plan (NRRP). The starting point for the NRRP management units was the River Environment Classification (REC) developed by NIWA on behalf of the Ministry for the Environment but was considerably modified and simplified by using key hydrological and landscape features to provide river groupings that reflected their broad range of expected values and sensitivities (Hayward et al 2009; Gray 2017).

The NPSFM 2020 specifies river sediment classes for the attributes suspended fine sediment (NPSFM 2020 Table 8) and deposited fine sediment (NPSFM 2020 Table 16), based on a classification defined in Appendix 2C of the NPSFM 2020. These classes are based on the REC hierarchical category combinations of climate/source of flow/geology, with some further clustering of REC classes provided in Table 26 (Appendix 2C NPSFM 2020).

The NPSFM 2020 attributes 'suspended fine sediment' (Table 8) and 'deposited fine sediment' (Table 16) do not apply to lakes, and for this reason, the management units in PC7 Table 1b have not been included in the tables below.

Comparison of management units and sediment classes

Using a GIS layer that combines the LWRP river MUs with REC categories, I have identified and grouped the LWRP river MUs and REC categories that match the clustered REC groups in Table 26 of the NPSFM 2020, and then matched these to the 'suspended sediment' and 'deposited fine sediment' classes in Tables 23 and 24 respectively.

Appendix 1 below gives a detailed example of the 'clustered' REC classes in Table 26 that are matched with the management units for alpine rivers and Banks Peninsula streams. What is apparent is that the broad LWRP river MUs encompass several REC classes over climatic, source of

flow and geological categories. Furthermore, REC classes are replicated across many of the LWRP river MUs. Despite this diversity of REC categories for each river MU, the majority of river MUs are matched with generally only a small number of dominant REC categories (as assessed by river length in Appendix 3 of the NPSFM 2020). Over the past 10 years of the LWRP river MUs being in place, we have assessed water quality and ecological attributes against the existing river MUs and found them to continue to be relevant and valuable broad river groupings (e.g. Stevenson et al 2010).

Table 1 below shows the relationship between the LWRP Table 1a river MUs and the suspended fine sediment class as well as the attribute state bands for each class. Table 2 similarly shows the relationship between LWRP river MUs, deposited fine sediment class and attribute state bands along with the LWRP numeric outcomes for deposited fine sediment. The LWRP does not set water clarity attributes in Table 1a or in any water quality limits tables, except for a percent clarity change standard related to the visual effects of discharges. The classes in bold text in both tables indicate the dominant sediment class (>80% of river length for each MU).

In comparing the attribute states for deposited fine sediment with the outcomes in Table 1a, it is important to note that the NPSFM 2020 assessment for deposited fine sediment uses a median value calculated from 5 years of at least monthly data, while the LWRP deposited fine sediment outcome is assessed as a maximum value that should not be exceeded. This means the LWRP outcome statistic for deposited fine sediment is more restrictive than an equivalent value assessed as a median statistic.

In the case of the deposited fine sediment attribute, the values set in the LWRP for all river units except for Spring-fed Plains-urban are at least better than the national bottom line, and especially given the more restrictive statistic used, in most cases would likely be comparable to NPSFM 2020 attribute states A and B. The Spring-fed Plains-urban outcome is set as a maximum value of 30% cover, while the national bottom line for sediment class 3 is 27% as a median statistic. This means that despite the national bottom line deposited sediment value being slightly lower than the LWRP outcome, the assessment criteria mean the LWRP is more restrictive than the national bottom line.

Regarding soft-bottomed streams referred to in Table 25 of Appendix 2C of the NPSFM 2020, our general view is that there are very few, if any, naturally soft-bottomed streams in Canterbury, and based on that view, the LWRP outcomes for deposited fine sediment are intended to apply to all rivers and streams.

However, my reading of Clause 3.25 of the NPSFM 2020 is that despite our view that streams in Canterbury are not naturally soft-bottomed, there many streams that are now heavily silted (i.e., unnaturally soft-bottomed) and therefore we need to determine whether these should be subject to an action plan to restore their habitat as per Clause 3.25. This would need to be done in discussion with rūnanga and the community, and therefore is not something we can comment on at this stage.

References:

Gray, D. 2017: Details of river water quality classification approach for Waimakariri. Memorandum to Matt Dodson, 27/7/2017.

Hayward, S. Meredith, A. Stevenson, M. 2009: Review of proposed NRRP water quality objectives and standards for rivers and lakes in the Canterbury region. Environment Canterbury technical report R09/16.

Stevenson, M. Wilks, T. Hayward, S. 2010: An overview of the state and trends in water quality of Canterbury's rivers and streams. Environment Canterbury technical report R10/117.

Table 1 Comparison of river management units in Table 1a of LWRP and suspended fine sediment classes in Appendix 2C Table 23 (NPSFM 2020)

LWRP river management unit	SS_class (from Table 23 and 26 NPSFM 2020)	Table 8 (NPSFM 2020) - Suspended fine sediment attribute state				
		A	B	C	National bottom line	D
		Visual clarity (metres)				
		Median value of 5 years of monthly data				
Natural	**1**	**≥1.78**	**<1.78 and ≥1.55**	**<1.55 and ≥1.34**	**1.34**	**<1.34**
	3	≥2.95	<2.95 and ≥2.57	<2.57 and ≥2.22	2.22	<2.22
	4	≥1.38	<1.38 and ≥1.17	<1.17 and ≥0.98	0.98	<0.98
Alpine - upland	**1**	**≥1.78**	**<1.78 and ≥1.55**	**<1.55 and ≥1.34**	**1.34**	**<1.34**
	2	≥0.93	<0.93 and ≥0.76	<0.76 and ≥0.61	0.61	<0.61
	3	≥2.95	<2.95 and ≥2.57	<2.57 and ≥2.22	2.22	<2.22
Alpine - lower	**1**	**≥1.78**	**<1.78 and ≥1.55**	**<1.55 and ≥1.34**	**1.34**	**<1.34**
	2	≥0.93	<0.93 and ≥0.76	<0.76 and ≥0.61	0.61	<0.61
	3	**≥2.95**	**<2.95 and ≥2.57**	**<2.57 and ≥2.22**	**2.22**	**<2.22**
Hill-fed- upland	1	≥1.78	<1.78 and ≥1.55	<1.55 and ≥1.34	1.34	<1.34
	2	≥0.93	<0.93 and ≥0.76	<0.76 and ≥0.61	0.61	<0.61
	3	**≥2.95**	**<2.95 and ≥2.57**	**<2.57 and ≥2.22**	**2.22**	**<2.22**
	4	≥1.38	<1.38 and ≥1.17	<1.17 and ≥0.98	0.98	<0.98
Hill-fed - lower	**1**	**≥1.78**	**<1.78 and ≥1.55**	**<1.55 and ≥1.34**	**1.34**	**<1.34**
	2	**≥0.93**	**<0.93 and ≥0.76**	**<0.76 and ≥0.61**	**0.61**	**<0.61**
	3	**≥2.95**	**<2.95 and ≥2.57**	**<2.57 and ≥2.22**	**2.22**	**<2.22**
	4	≥1.38	<1.38 and ≥1.17	<1.17 and ≥0.98	0.98	<0.98
Hill-fed lower urban	**1**	**≥1.78**	**<1.78 and ≥1.55**	**<1.55 and ≥1.34**	**1.34**	**<1.34**
Lake-fed	1	≥1.78	<1.78 and ≥1.55	<1.55 and ≥1.34	1.34	<1.34
	3	**≥2.95**	**<2.95 and ≥2.57**	**<2.57 and ≥2.22**	**2.22**	**<2.22**
Banks Peninsula	**1**	**≥1.78**	**<1.78 and ≥1.55**	**<1.55 and ≥1.34**	**1.34**	**<1.34**
	2	≥0.93	<0.93 and ≥0.76	<0.76 and ≥0.61	0.61	<0.61
	4	≥1.38	<1.38 and ≥1.17	<1.17 and ≥0.98	0.98	<0.98
Spring-fed - upland	**1**	**≥1.78**	**<1.78 and ≥1.55**	**<1.55 and ≥1.34**	**1.34**	**<1.34**
	2	≥0.93	<0.93 and ≥0.76	<0.76 and ≥0.61	0.61	<0.61
	3	**≥2.95**	**<2.95 and ≥2.57**	**<2.57 and ≥2.22**	**2.22**	**<2.22**
Spring-fed lower basin	**1**	**≥1.78**	**<1.78 and ≥1.55**	**<1.55 and ≥1.34**	**1.34**	**<1.34**
	2	≥0.93	<0.93 and ≥0.76	<0.76 and ≥0.61	0.61	<0.61
	3	**≥2.95**	**<2.95 and ≥2.57**	**<2.57 and ≥2.22**	**2.22**	**<2.22**
	4	≥1.38	<1.38 and ≥1.17	<1.17 and ≥0.98	0.98	<0.98
Spring-fed plains	**1**	**≥1.78**	**<1.78 and ≥1.55**	**<1.55 and ≥1.34**	**1.34**	**<1.34**
	2	≥0.93	<0.93 and ≥0.76	<0.76 and ≥0.61	0.61	<0.61
	3	≥2.95	<2.95 and ≥2.57	<2.57 and ≥2.22	2.22	<2.22
	4	≥1.38	<1.38 and ≥1.17	<1.17 and ≥0.98	0.98	<0.98
Spring-fed plains-urban	**1**	**≥1.78**	**<1.78 and ≥1.55**	**<1.55 and ≥1.34**	**1.34**	**<1.34**
	2	≥0.93	<0.93 and ≥0.76	<0.76 and ≥0.61	0.61	<0.61

Table 2 Comparison of river management units in Table 1a of LWRP and deposited fine sediment classes in Appendix 2C Table 24 (NPSFM 2020)

LWRP river management unit	DFS class (from Table 24 NPSFM 2020)	Table 16 (NPSFM 2020) - Deposited fine sediment attribute state					LWRP Table 1A Siltation attribute % fine sediment cover Maximum value
		A	B	C	National bottom line	D	
		% fine sediment cover					
		Median value of 5 years of monthly data					
Natural	2	≤10	<10 and ≤19	>19 and ≤29	29	>29	Rivers are maintained in their natural state
	3	≤9	>9 and ≤18	>18 and ≤27	27	>27	
	4	**≤13**	**>13 and ≤19**	**>19 and ≤27**	**27**	**>27**	
Alpine Upland	2	≤10	<10 and ≤19	>19 and ≤29	29	>29	10
	4	**≤13**	**>13 and ≤19**	**>19 and ≤27**	**27**	**>27**	
	Nat_SB						
Alpine Lower	3	≤9	>9 and ≤18	>18 and ≤27	27	>27	10
	4	**≤13**	**>13 and ≤19**	**>19 and ≤27**	**27**	**>27**	
Hill-fed Upland	1	≤7	>7 and ≤14	>14 and ≤21	21	>21	15
	2	**≤10**	**<10 and ≤19**	**>19 and ≤29**	**29**	**>29**	
	3	≤9	>9 and ≤18	>18 and ≤27	27	>27	
	4	**≤13**	**>13 and ≤19**	**>19 and ≤27**	**27**	**>27**	
	Nat_SB						
Hill-fed Lower	**1**	**≤7**	**>7 and ≤14**	**>14 and ≤21**	**21**	**>21**	15
	2	**≤10**	**<10 and ≤19**	**>19 and ≤29**	**29**	**>29**	
	3	**≤9**	**>9 and ≤18**	**>18 and≤27**	**27**	**>27**	
	4	≤13	>13 and ≤19	>19 and ≤27	27	>27	
	Nat_SB						
Hill-fed Lower Urban	**2**	**≤10**	**<10 and ≤19**	**>19 and ≤29**	**29**	**>29**	20
Lake-fed	**2**	**≤10**	**<10 and ≤19**	**>19 and ≤29**	**29**	**>29**	10
	3	≤9	>9 and ≤18	>18 and ≤27	27	>27	
	4	≤13	>13 and ≤19	>19 and ≤27	27	>27	
Banks Peninsula	**2**	**≤10**	**<10 and ≤19**	**>19 and ≤29**	**29**	**>29**	20
	3	≤9	>9 and ≤18	>18 and ≤27	27	>27	
	4	≤13	>13 and ≤19	>19 and ≤27	27	>27	
	Nat_SB						
Spring-fed Upland	**2**	**≤10**	**<10 and ≤19**	**>19 and ≤29**	**29**	**>29**	10
	3	≤9	>9 and ≤18	>18 and ≤27	27	>27	
	4	**≤13**	**>13 and ≤19**	**>19 and ≤27**	**27**	**>27**	
Spring-fed Lower Basin	**2**	**≤10**	**<10 and ≤19**	**>19 and ≤29**	**29**	**>29**	10
	3	**≤9**	**>9 and ≤18**	**>18 and ≤27**	**27**	**>27**	
	4	≤13	>13 and ≤19	>19 and ≤27	27	>27	
Spring-fed Plains	2	≤10	<10 and ≤19	>19 and ≤29	29	>29	20
	3	**≤9**	**>9 and ≤18**	**>18 and ≤27**	**27**	**>27**	
	4	≤13	>13 and ≤19	>19 and ≤27	27	>27	
	Nat_SB						
Spring-fed Plains-Urban	3	≤9	>9 and ≤18	>18 and ≤27	27	>27	30
	Nat_SB						

Nat_SB = naturally soft bottomed as defined in Table 25 (Appendix 2C NPSFM 2020)

Appendix 1 – Example of the range of clustered REC groups in Table 26 (Appendix 2C NPSFM 2020) that match LWRP river management units

		Data			
LWRP river management units	**Clustered_REC groups Table 25 NPSFM 2020**	**Sum of River Length (m)**	**Percent of River type length**	**SS_class**	**DFS_class**
Alpine Lower	CD_Low_AL	11790	3%	1	3
	CD_Low_SS	29590	8%	2	3
	CW_Hill_HS	103801	29%	3	4
	CW_Mount_HS	212666	59%	1	4
Alpine Upland	CD_Hill_Al	150741	1%	3	2
	CD_Hill_HS	403519	4%	3	2
	CD_Hill_SS	23315	0%	1	2
	CD_Hill_VA	3695	0%	1	4
	CD_Mount_Al	74954	1%	1	4
	CD_Mount_HS	930536	9%	3	4
	CD_Mount_SS	3469	0%	3	4
	CD_Mount_VA	2585	0%	3	4
	CW_Hill_Al	426260	4%	1	4
	CW_Hill_HS	616150	6%	3	4
	CW_Hill_SS	102228	1%	1	4
	CW_Hill_VA	6001	0%	1	2
	CW_Lake_HS	5631	0%	3	2
	CW_Low_HS	1656	0%	3	4
	CW_Mount_Al	833627	8%	1	4
	CW_Mount_HS	6959500	66%	1	4
	CW_Mount_SS	1007	0%	1	4
	CW_Mount_VA	56802	1%	1	4
	WD_Low_SS	2247	0%	2	Nat_SB
Banks Peninsula	CD_Hill_SS	499	0%	1	2
	CD_Hill_VA	94307	6%	1	4
	CD_Low_AL	5017	0%	1	3
	CD_Low_SS	128550	8%	2	3
	CD_Low_VA	639645	42%	1	2
	CW_Hill_SS	687	0%	1	4
	CW_Hill_VA	376033	25%	1	2
	CW_Low_SS	8529	1%	4	2
	CW_Low_VA	255893	17%	1	2
	WD_Low_AL	717	0%	1	Nat_SB
	WD_Low_SS	1895	0%	2	Nat_SB
	WD_Low_Va	5753	0%	2	Nat_SB

Nat_SB = naturally soft bottomed as defined in Table 25 (Appendix 2C NPSFM 2020)