From:	Lionel Hume
To:	Plan Hearings
Subject:	PC7 evidence statements
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Attachments:	LWRP PC 7 Hearing Evidence Ivon Hurst.pdf LWRP PC 7 Hearing Evidence. Brendan Caird .pdf LWRP PC 7 Hearing Evidence. Peter Bonifacio .pdf

Dear Tavisha

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

Attached are 3 hearing evidence statements on behalf of the Combined Canterbury Provinces of Federated Farmers of New Zealand.

Yours sincerely

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BEFORE THE	Canterbury Regional Council
IN THE MATTER OF	the Environment Canterbury (Temporary Commissioners and Improved Water Management) Act 2010
AND	
IN THE MATTER OF	Submission and Further Submission on Proposed Plan Change 7 to the Proposed Canterbury Land and Water Regional Plan

STATEMENT OF EVIDENCE OF IVON WALTER HURST ON BEHALF OF THE COMBINED CANTERBURY PROVINCES OF FEDERATED FARMERS OF NEW ZEALAND

Dated 17 July 2020

Introduction

1. My name is Ivon Walter Hurst. My farm is located at 326 Clelands Road, Pleasant Point, 16 kms. west of Pleasant Point and within the Te Ana Wai catchment group area. I have been involved in its management for the past 55 years. My first 22 years of farming was within a family farming company with my father and brother. In those days the home farm provided the financial backstop while developing an unimproved tussock run at the southern end of the Two Thumb Range. When the family company was dissolved in 1987, my brother took the run, and I the family farm.

2. The farm comprises 243 ha of unirrigated clay downlands, 223 Ha of Timaru and Timaru/Claremont hill soils, plus 20 ha of alluvial Eyre stoney silt loam. Altitude ranges from 120m – 238m A.S.L. Average annual rainfall is 600mm. Snow can be expected once every 3 years. Carrying capacity averages 10 stock units /ha with currently a 50% - 50% mix of cattle and sheep. The cattle policy is structured to allow maximum flexibility in times of drought which can occur in any season.

3. I am a past Provincial President of South Canterbury Federated Farmers. I currently chair a Sustainable Farming Fund project involving Federated Farmers, and Landcare Research, Lincoln, looking at the medium to long term effects of irrigation on Canterbury soils. I hold a BSc, Geography, from Otago University.

High Runoff Risk Phosphorus Zone

4. Federated Farmers has serious concerns about the accuracy, intent and effectiveness of the High Runoff Risk Phosphorus Zone (Policy 14.4.17 (d) of PC7 as notified, Policies 4.36 and 4.38I of the Canterbury Land and Water Regional Plan and Rule 14.5.17 of PC7) for the following reasons:

   a) Environment Canterbury analysis has failed to provide substantiated evidence that the South Canterbury downlands are contributing elevated levels of dissolved reactive phosphorus to the waterways draining those areas.

   b) Identifying slope on the downlands as a justification for special rules over and above the rules contained in Plan Change 5 is unnecessary given the best management practice guidelines which are already being promoted by Environment Canterbury staff and followed by farmers.

5. The primary intent of Plan Change 7 is to ensure that rivers contain 'clean water' free from excessive nutrient loadings. Nutrient loading from point pollution has been easy to identify. Non-point pollution from farmland has until now been difficult to identify and plan for. Plan Change 7 is a worthwhile attempt to address the issues. However, to be effective, the issues and solutions must be based on scientific evidence.

6. The term 'High Runoff Risk Phosphorus Zone' is emotive and inaccurate when describing the South Canterbury rolling downlands. They are complex clay based soils varying in slope from 2 - 20 degrees.

7. They are mainly found in water deficit areas, with rainfall ranging from 600 – 800 mm/annum. Frequent drought combined with infrequent soil saturation events have led in recent years to adoption of direct drilling and minimum cultivation practices to conserve moisture and minimize soil erosion. These have become universal farming practices.

8. The question around phosphorus loss revolves around soil erosion. Sediment loss is a major mechanism for the loss of phosphorus. Thus, as a rule of thumb, accelerated erosion will increase soil sediment loss which will increase phosphorus loss. Correct soil management on the clay downs is an important part of best management practice, hence the adoption of direct drilling techniques which have been developed independently from regional rules or direction. Current grazing advice for winter forage crops as promoted by Ecan staff under plan Change 5 guidelines, have been readily adopted.

9. I undertook a soil depth/slope trial on my downland property in 1989-91 with David Stringer from the former South Canterbury Catchment Board. The trial was an attempt to find a correlation between slope and soil depth/movement. 200 sites were selected across the full range of slopes with 3 soil depth measurements and one slope measurement taken at each site. The hypothesis that the farm had lost significant A horizon soil was not proven. However, soil had moved significantly, resulting most probably from the original horse drawn plough days when 6 month fallows were practiced along with turning plough furrows down-hill. The result was gullies with 60cm + depth of soil and hill tops with less than 5cm. There was no evidence of soil loss off-farm.

10. While that may be regarded as anecdotal evidence, the proof of phosphorus loss must be reflected in river nutrient loadings if the High Runoff Risk Phosphorus Zones are to be justified.

11. The following data (in Table 1) is taken from the LAWA website:

Table1

River	Site	DRP g/m³	NPS attribute band	Trend
Opihi	Milford Lagoon	0.0029	A	Improving
	Grassy Banks	0.0032	A	Improving
	Taumatakahu Cr.	0.0156	C	Indeterminate
Te Ana Wai	Tengawai Br.	0.0061	B	Improving
Opuha	Skipton Br.	0.0012	A	Indeterminate
Waihi	@ Waimarie	0.00395	A	Improving
Raukapuka Cr.	@ Coach Rd.	0.00425	A	Indeterminate
Smithfield Cr.	@ Te Awa Rd.	0.15	C	Degrading
Temuka	@ Manse Br.	0.00775	B	Degrading
Pareora	@ SH1	0.00625	B	Degrading?
Orari	Ohapi Cr	0.068	B	Improving

The rivers listed above form the catchments of the OTOP Zone.

12. The dissolved reactive phosphorus (DRP) figures are the collated water quality measurements supplied by Environment Canterbury, presented as 5 year median measurements.

13. The NPS values are taken from the consultation draft of the National Policy Statement for Fresh Water Management. It should be noted that any figures at or below 0.006 g/m³ indicate 'ecological communities and ecosystem processes similar to those of natural conditions' (NPS A attribute band) (ref: NPS explanation).
B values indicate ecological communities are slightly impacted by minor DRP levels.
C values indicate impacted ecological communities by moderate DRP levels.
D values indicate substantial impacts from elevated levels of DRP.

14. The Taumatakahu Creek, Smithfield Creek and Ohapi Creek at Guilds Road all drain alluvial soils. The Temuka River drains extensive alluvial soils plus clay downland soils. All other rivers flow through substantial downland areas.

15. If the rolling downlands within the OTOP Zone were in fact 'high risk runoff phosphorus areas', one would expect to see similar river nutrient loadings to those in South Otago and Southland. There, annual rainfall exceeds 1200mm / annum, the soils are constantly wet and sediment with phosphorus attached has a greater chance of being added to the river nutrient load. For example Table 2:

Table2

River	Site	DRP g/m^3	NPS attribute band
Pomahaka, Otago	Burkes Ford	0.014	C
	Clydevale	0.042	D
	Crookston Burn	0.034	D
	Glenken	0.008	B
Mataura	at Mouth	0.009	B
Minihau Stream	at Wyndham	0.012	C
	nr. Balfour	0.033	D

16. The higher nutrient loads in the examples in Table 2 compared with Table 1, clearly demonstrate the effect that higher rainfall has on nutrient loadings compared with those in water deficit areas.

Recommendation

17. I recommend that the OTOP designation of 'high runoff risk phosphorus zone' in the OTOP area, be abolished and that the rules on winter grazing areas be reinstated as per Plan Change 5.

Ivon Hurst

17 July 2020