

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

UNDER the Resource Management Act 1991

IN THE MATTER of Proposed Plan Change 7 to the Canterbury Land and
Water Regional Plan – Section 14: Orari-Temuka-Opihi-
Pareora

**JOINT MEMORANDUM OF COUNSEL REGARDING AGENDA FOR
HYDROLOGY EXPERT WITNESS CONFERENCING
6 August 2020**

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MAY IT PLEASE THE HEARING COMMISSIONERS

- 1 This Joint Memorandum of Counsel is filed on behalf of the Canterbury Regional Council, the Adaptive Management Working Group, the Opihi Flow and Allocation Working Party and Opuha Water Limited (collectively **the Parties**) and follows the Joint Memorandum of Counsel filed on 31 July 2020.
- 2 In that Memorandum, Counsel noted that they were working with the expert witnesses for the Parties to confirm an agenda for each expert witness conferencing session.
- 3 Accordingly, enclosed as Appendix 1 to this Joint Memorandum is the agenda in respect of the hydrology expert witness conferencing session, scheduled for Friday 7 August 2020.
- 4 Counsel are continuing to work with the expert witnesses for the Parties, in consultation with the Department of Conservation, Central South Island Fish and Game Council, and Te Rūnanga o Ngāi Tahu and Te Rūnanga o Arowhenua regarding arrangements for the ecological expert witness conferencing session, including agenda.

Dated this 6th day of August 2020



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Appendix 1 – Agenda for hydrology expert witness conferencing

AGENDA FOR EXPERT WITNESS CONFERENCING

Topic: Hydrology – Orari-Temuka-Opihi-Pareora Sub-Region

Date: Friday 7 August 2020 9:30 am

Location: George Jenkins Room – BreakFree on Cashel Street (165 Cashel Street, Christchurch Central)

Attendances:

- Daniel Clark (Canterbury Regional Council)
- Keri Johnston (Opihi Flow and Allocation Working Party and Opuha Water Limited)
- Dr Tim Kerr (Adaptive Management Working Group)
- Richard Measures (Adaptive Management Working Group)

Introductions

- Acknowledging Environment Court Practice Note – 7.1 Code of Conduct for Expert Witnesses and Appendix 3 Protocol for Expert Witness Conferences.

Environmental Flow, Allocation and Partial Restriction Regimes – (Dan & Keri)

- Definition of “pro-rata partial restriction”
- Definition of “water availability”
- Table 14(m) (North Opuha)
 - What is the current allocation in each of the allocation blocks?
 - How does Deep Creek relate to the North Opuha?
- Tables 14(N) and (o) (South Opuha)
 - What is the current allocation in each of the allocation blocks?
 - How does the 8.3l/s take from the unnamed tributary relate to the South Opuha?
- Tables 14(p) and (q) (Upper Opihi)
 - What is the current allocation in each of the allocation blocks?
- Tables 14(r) and (s) (Te Ana Wai)
 - What is the current allocation in each of the allocation blocks?
 - How does the flow change below the minimum flow site?
- Compliance monitoring
 - Complexity of individual consents, OWL shares, multiple minimum flows and water sharing agreements be monitored with confidence? Particularly in relation to

Opihi FMU Allocation Limits – (Dan & Keri)

- Table 14(ua)
 - What is the total current A and B allocation for the Opihi mainstem?

Artificial Freshes – (Dan, Richard & Tim)

- Policy 14.4.35(e)
 - Flushing wave attenuation downstream of the dam. Implications for artificial fresh effectiveness at different locations in the river system will be discussed in the ecological caucusing.
 - Effectiveness of artificial freshes for opening the river mouth

- Artificial fresh parameters (peak flow/duration) required to achieve the outcomes recommended for Policy 14.4.35(e) in the section 42A Report. (Much of this will be covered by the ecological caucusing, we will focus on any hydrological parameters)
- Compensatory flows – How could the volume of an artificial fresh be determined?
- What are the hydrological effects and implications of artificial freshes during restrictions?
- What are the impacts on lake storage and river flow as a result of the changes to Policy 14.4.35(e)?

Environmental Flow, Allocation and Partial Restriction Regimes; Alternative Management Regime Thresholds – (Dan & Tim)

- How is the effectiveness of an Alternative Management regime measured?
- Tables 14(v) and (w) (Opuha/Opihi Mainstem)
 - What are the differences between AMWG's and ECan's models?
 - How do changes in the mainstem of the Opihi impact the Tributaries and vice versa?
 - How do the restrictions affect the Alternative Management regime effectiveness?
 - How do the minimum flows affect the Alternative Management regime effectiveness?
- Table 14(x) (Alternative Management)
 - What are the differences in the methods used to determine the thresholds in Table 14 (x)
 - Which distribution is most appropriate the determine thresholds?
 - Determining the lake level threshold. Discussion on using historic data verses management experience.
- How do entry/exist strategy and minimum application period affect the Alternative Management regime effectiveness?