

From: [Georgina Hamilton](#)
To: [Plan Hearings](#)
Cc: [Glenire Farm](#); ["Andrew Mockford"](#); [Julia Crossman](#); [Greg Ryder](#); [Richard Measures](#); [Keri Johnston](#); [Tim Ensor](#)
Subject: Plan Change 7: Opuha Water Limited - Evidence
Date: Friday, 17 July 2020 5:22:45 pm
Attachments: [Evidence in chief of Ryan O'Sullivan \(OWL\) 17.7.20.pdf](#)
[Evidence in Chief of Andrew Mockford \(OWL\) 17.7.20.pdf](#)
[Evidence in Chief of Julia Crossman \(OWL\) 17.7.20.pdf](#)
[Quick reference guide \(Annexure A to Evidence in Chief of Julia Crossman \(OWL\)\).pdf](#)
[Evidence in Chief of Richard Measures \(OWL\) 17.7.20.pdf](#)
[Evidence in Chief of Keri Johnston \(OWL\) 17.7.20.pdf](#)
[Evidence in Chief of Dr Gregory Ryder \(AMWG & OWL\) 17.7.20.pdf](#)
[Evidence in Chief of Tim Ensor \(OWL\) 17.7.20.pdf](#)

Dear Tavisha

We act for Opuha Water Limited (**OWL**), submitter no. PC7-381.

We **attach** for filing, in relation to the above matter, statements of evidence in chief of the following witnesses on behalf of OWL:

1. Ryan O'Sullivan (OWL Board Chair)
2. Andrew Mockford (OWL CEO)
3. Julia Crossman (OWL Environmental Manager)
4. Dr Greg Ryder (Lake Opuha - water quality) – note this statement of evidence addresses matters also pertaining to the submissions of the Adaptive Management Working Group (AMWG) and has also been filed with other AMWG evidence today.
5. Richard Measures (water quality)
6. Keri Johnston (hydrology/allocation)
7. Tim Ensor (planning)

We note that:

- Annexure A to the evidence of Ms Crossman comprises a "Quick Reference Guide" providing a location map and key information regarding the Opuha Scheme. This is also attached as a separate document for the assistance of the Hearings Commissioners.
- a flyover video of the Opihi catchment accompanies Mr Mockford's evidence. A link is provided within Mr Mockford's evidence by which the video can be accessed (<https://youtu.be/Kp6luxCqWsk>). The video is also downloadable in mp3 format from the following link, which can then be shared/posted (e.g. on ECan's PC7 webpage):
<https://we.tl/t-YgyExCMmGF>

Kind regards

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**BEFORE INDEPENDANT 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

**STATEMENT OF EVIDENCE IN CHIEF OF KERI JOY JOHNSTON ON BEHALF OF
OPUHA WATER LIMITED
(SUBMITTER NO. PC7-381)**

Dated: 17 July 2020

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1. INTRODUCTION

- 1.1 My full name is Keri Joy Johnston. I am a director and principal of Irricon Resource Solutions Limited (**Irricon**), a role I have been in since 2007. Irricon is a resource management and environmental engineering consultancy, working extensively in the field of water resources management.
- 1.2 Prior to this, I worked for RJ Hall Civil and Environmental Consulting Limited as an Environmental Engineering Consultant, Environment Canterbury as a Consents Planner and Environmental Management Systems Engineer, and Meridian Energy Limited as a Graduate Civil Engineer.
- 1.3 I have 20 years' experience as a Natural Resources Engineer. My expertise is in managing water resources (quantity and quality) from all aspects including design of flow and allocation regimes, planning and consenting, hydrology, farm environment planning, and modelling.

Qualifications and experience

- 1.4 I hold a Bachelor of Engineering in Natural Resources Engineering from the University of Canterbury. I am a Professional Member of Engineering New Zealand and a Chartered Professional Engineer (CMEngNZ).
- 1.5 I also hold a National Certificate (Level 4) in Irrigation Evaluation, a certificate in the design and management of farm dairy effluent systems, and I am an accredited RMA Decision Maker.
- 1.6 Since 2019, I have been the chair of Irrigation New Zealand.

Background

- 1.7 For the last two and a half years, I have been providing hydrological and consenting advice to Opuha Water Limited (**OWL**). This has been in regard to the current consented allocation for the Opihi River, Lake Opuha, and tributary waterbodies, compliance, and consenting frameworks.
- 1.8 I am familiar with the provisions of PC7 to which these proceedings relate. In preparing my evidence, I have reviewed the relevant parts of the section 32

Report and the section 42A Report. In preparing my evidence, I have also reviewed:

- (a) Resource Consent Inventory for the Orari, Temuka, Opihi and Pareora Canterbury Water Management Strategy Zone, prepared by Don Vattala, April 2019 (**Consent Inventory**).
- (b) Hydrology Technical Summary Report to support the Orari-Temuka-Opihi-Pareora Limit Setting Process (R19/67), prepared by Dan Clark, March 2019 (**Hydrology Technical Summary Report**).
- (c) Current State of the Surface Water in the Greater Opihi Catchment (R18/80), prepared by Jen Dodson and Kate Steel, December 2018.
- (d) Evidence of other OWL witnesses, Dr Greg Ryder, Ms Julia Crossman, Mr Andrew Mockford

Code of Conduct

- 1.9 I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court's Practice Note as updated in 2014. My evidence has been prepared in compliance with that Code. In particular, unless I state otherwise, this evidence is within my area of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

2. SCOPE OF EVIDENCE

- 2.1 My evidence addresses the following matters:

- (a) Background information setting out the basis of the A and B blocks in the Opihi Catchment.
- (b) Dual management of tributary abstractions.
- (c) A review of the Opihi Freshwater Management Unit A and B allocation limits.
- (d) Matters arising from the S42 report.

3. BACKGROUND INFORMATION

The Basis of the A and B Blocks in the Opihi catchment

- 3.1 Ms Crossman has provided a detailed summary of the background to the Opihi River Regional Plan (**ORRP**)'s development and the consenting framework established by it for water permits across what PC7 refers to as the Opihi Freshwater Management Unit (Opihi FMU). In the following paragraphs, I provide a brief background on those matters to provide context to the evidence that follows.
- 3.2 The ORRP became operative in 2000. During the development of the plan, it was clear that the Opihi River could not sustain the existing demands while maintaining the then specified minimum flows.
- 3.3 In short, the river was already over-allocated and no further natural flow could be abstracted. For this reason, existing resource consents were capped at the current consented allocation of 5,600 L/s and these were classified as A permits. This is discussed later in my evidence.
- 3.4 Any new takes were classified as B permits and could only be exercised during times of high flows (when the flow in the Opihi River at State Highway One was at or above 15,000 L/s). There was no allocation limit on B permit abstractions in the ORRP.
- 3.5 The construction of the Opuha Dam enabled shareholders to abstract water provided that instream flow requirements were met, and water was released from the dam as necessary for augmentation of their takes. To differentiate between those that were augmenting the river (shareholders) and those that were not, shareholders takes are subject to a minimum flow of the actual river flow, whereas non-shareholders are subject to a minimum flow on the basis of the unmodified flow.
- 3.6 The gap between when A permits and B permits could abstract was designed to ensure that a block of water was retained for instream use before B permits could be exercised.

Tributary Abstractions

- 3.7 For shareholders on the tributary catchments, water could be taken when the flow in the relative tributary was above its specified rate and water was being released from the dam in order to meet the required minimum flow at Saleyards Bridge on the Opihi River plus the sum of affiliated (shareholder) takes downstream of Saleyards Bridge.
- 3.8 The requirements for OWL to maintain sufficient flow at Saleyards Bridge to meet the required minimum flows as well as that of affiliated (shareholder) takes downstream of Saleyards Bridge means that the dam is compensating for the effects of all abstractions including takes from tributaries and hydraulically connected groundwater, and would have to do so if the tributary takes were only subject to a tributary minimum flow because of the requirement to maintain the Opihi River flow at Saleyards Bridge.
- 3.9 If tributary abstractors are subject to tributary minimum flows only, and decoupled from minimum flows on the Opihi River as well, then those takes could be exercised at times when the natural flows in the Opihi River were below the required unmodified flow at State Highway One. The takes would still be subject to partial restrictions, so abstraction would be occurring at reduced rates, but still occurring.
- 3.10 I am aware of one occasion where this has been allowed to occur, and it was during the 2014/15 irrigation season. The dam was not able to meet the Opihi River flow requirements and water shortage directions had been implemented. Under the water shortage directions, tributary shareholders were given permission to recommence abstraction as tributary flows were holding up even though the dam was not able to meet the Opihi River flow requirements.
- 3.11 Therefore, it is vital that tributary abstractions remain subject to restrictions on both the relevant tributary as well as the Opihi River. Dual management serves two purposes:
- (a) It is the mechanism by which augmentation of the Opihi River is managed; and
 - (b) It preserves inflows to the Opihi River mainstem in water short periods.

4. A AND B PERMIT ALLOCATION

- 4.1 It is important that the allocation limits or blocks specified in the plan are correct, but also include all the consented abstractions that they should.
- 4.2 Separate flow and allocation regimes have been proposed for each of the main tributary catchments in the Opihi Freshwater Management Unit. These are North Opuha River, South Opuha River, Upper Opihi River and Te Ana Wai River.
- 4.3 In preparing my evidence for the PC7 hearing, I carried out a review of ECan's PC7's proposed allocation limits for AA, AN and BA permits in these waterbodies against the Consent Inventory. The purpose of my review was to confirm that the proposed allocation limits reflect the current level of abstraction in accordance with the directives of ZIPA Recommendation 4.9.3(II) and as stated in the Section 32 report.¹
- 4.4 There are differences between PC7 and the Consent Inventory, and I note these in the comment's column of my assessment tables in **Appendix One** of my evidence. One of the key differences is how community supply takes are treated. Allocation for community supply takes should sit outside any of the A and B allocation blocks. In the Consent Inventory, these takes have often been attributed to an allocation block. However, as these abstractions are not subject to any minimum flow regime including partial restrictions, and are a first priority use, under the current region-wide policy approach for community takes (which would apply under PC7), they would not be included in any allocation limit.
- 4.5 In the following sections of my evidence, I address PC7's proposed approach to "A" and "B" allocations for the Opihi catchment, and the recommendations offered in the Section 42A Report and subsequent 26 June 2020 Supplementary Report, to address related issues raised in submissions, including by OWL.

¹ Page 165 of the Section 32 report under the heading *Increase recreational opportunities in the zone by ensuring appropriate management of river flows* – In the Opihi FMU, establish allocation limits that reflect the current lawful levels of abstraction.

“A” allocation

- 4.6 The Section 42 Report recommends an allocation block for AA and AN consents from the “Opuha River and Opihi Mainstem” of 5,600 L/s (Table 14(ua)).² The basis of this figure is its presence in the ORRP.
- 4.7 As I have already noted, this was considered to be the sum of the existing “A” resource consents in the Opihi River catchment at the time the ORRP was drafted (i.e. those permits granted prior to 30 July 1994)³, which the ORRP defines as AA and AN permits.
- 4.8 The AA and AN allocation specified in this table should, therefore, include all of that allocation for the entire Opihi FMU (being the PC7 equivalent to the ORRP’s “Opihi River catchment”, which includes not only the Opuha River and Opihi River mainstem, but the sub-catchments as well, and including those not currently listed in any other table such as Totara Creek, German Creek and Pleasant Point Creek.
- 4.9 My assessment (set out in **Appendix One**) indicates that the combined current consented level of AA and AN allocation for the Opihi FMU is 4,581.33 L/s. This is less than the allocation limit of 5,600 L/s, and there is one reason primarily – stream depletion and how it is has been treated in regard to allocation methodology.
- 4.10 Under the ORRP, if the stream depletion rate was greater than 5 L/s after 30 days pumping, the full rate of take of stream depleting groundwater consents was included in the allocation. Under PC7, Schedule 9 of the Canterbury Land and Water Regional Plan determines how much is included, and for high and moderate degrees of connection, it is only the stream depletion rate that is included in the allocation, as opposed to the full rate of take. Therefore, because of a change in allocation methodology, the allocation has reduced.
- 4.11 On this basis, I am comfortable that the allocation limit recommended in Table 14(ua) accommodates the current level of AA and AN abstraction within the Opihi River catchment, but that it should be attributed to AA and AN allocation

² The heading for Table 14(ua) is “Allocation Blocks in the Opihi Freshwater Management Unit”.

³ ORRP, Policy 4(c).

for the Opihi FMU, rather than the “Opuha River and Opihi Mainstem” as recommended by the authors of the Section 42A Report.

- 4.12 For completeness, I note that as AA and AN consents are defined by PC7 with respect of the date of original grant (i.e. pre 30 July 1994), the balance of allocation between the limit (5,600 L/s) and that currently consented (4,581.33 L/s) can no longer be allocated to “new” takes.

“B” Allocation

- 4.13 The B allocation (being BA + BN) across the Opihi FMU is more complex.
- 4.14 Under PC7 as notified, “BA” allocation limits were only included for the tributaries in Tables 14(m) – (s). In relation to “BN” allocation, Table 14(y) specifies limits for BN allocation for the South Opuha, North Opuha, Upper Opihi, Te Ana Wai Rivers. Table 14(y) also specifies a BN allocation limit for the Opihi Mainstem of 1,700 L/s.
- 4.15 OWL raised concerns about PC7’s approach to “B” allocation in its submission, seeking that PC7 include a BA and BN allocation for the Opihi FMU. As Ms Crossman has noted, at the time, OWL considered that ECan should have completed the exercise of identifying appropriate allocation limits as part of the preparatory work for PC7. I agree.
- 4.16 How the limits for tributary BN allocation in Table 14(y) were arrived at is discussed in my evidence for the FAWP, but in short, the BN allocation limits proposed are not fully subscribed at present and with storage, are a means of helping to offset the decreased availability of water expected as a result of the changes proposed by Plan Change 7 to the tributary minimum flow regimes for AA, AN and BA permits. The Opihi Mainstem proposed BN allocation limit of 1,700 L/s in Table 14(y) is not fully subscribed either.
- 4.17 The issue highlighted in OWL’s submission has recently been identified in the 26 June 2020 Supplementary Report. The recommendation in that Report is for the issue to be addressed by modifying the recommended new Table 14(ua) to include BA allocation in the proposed “AA+AN” allocation limit of 5,600 L/s. The rationale is stated in the Supplementary Report as follows:

...we note that this part of PC7 is derived from the Opihi River Regional Plan. Policy 4 of that Plan sets out allocation limits, and includes, at (c): 'The "A" allocation limit for the Opihi River Catchment (excluding the Temuka River Catchment) is a maximum of 5.6 cubic metres per second.

- 4.18 With respect, the authors of this report have interpreted Policy 4 of the ORRP incorrectly. As I have explained earlier in my evidence, the term "A" permits in the ORRP with respect to the Opihi River catchment is a term used to refer to permits granted prior to 30 July 1994, i.e. AA and AN permits only. It does not, and was never intended to, include BA permits. I therefore consider that to be consistent with the ORRP, Table 14(ua) should be amended to include a further row with an allocation limit for BA and BN permits across the Opihi FMU.
- 4.19 The assessment that I have undertaken, set out in **Appendix One**, indicates that the allocation limit would need to be 6,818.89 L/s to reflect the current consented level of BA and BN allocation across the Opihi FMU. However, this does not take into account the fact that the proposed BN allocation limits for the North Opuha, South Opuha, Te Ana Wai and Upper Opihi Rivers as well as the Opihi Mainstem not being fully subscribed. To address that it would be necessary to add in the proportion of the BN allocations in Table 14(y) that is still available, which is 3,346.51 L/s.
- 4.20 When undertaking this assessment, it also became apparent that this approach would have a very serious unintended consequence, which relates to the way in which PC7 treats BA permits where the permit holder no longer holds shares in OWL. If that occurs, under PC7 (through its proposed "permit" definitions), the BA permit defaults to BN.
- 4.21 This issue arises due to (i) the way in which the AA, BA and AN allocation limits are described in Tables 14(m) – (r) and (ii) the BN allocation limits in Table 14(y), which do take account of the "default" BA allocation. As a consequence of the proposed framework, the Table 14(y) allocation limits could be breached by tributary BA permits defaulting to BN permits.
- 4.22 The quick fix would be to modify the BN allocation limits in Table 14(y) to accommodate the "default" BA allocation. However, I am not in favour of this

option as it essentially double counts the allocation limits for AA, AN and/or BA permits in Tables 14(m) – (r).

- 4.23 Mr Ensor has proposed an alternative and relatively simple fix to this issue, which involves including in PC7 policy direction as to how BA permits should be treated in this situation. In accordance with the intent of PC7, the approach would direct that the BA permit becomes subject to the relevant tributary BN minimum flows in Table 14(y) depending on its location.

Tributary to Lake Opuha or mainstem take “swaps”

- 4.24 I note that the inclusion of a BA and BN allocation for the Opihi FMU in Table 14(ua) would also serve another important purpose.

- 4.25 As Ms Crossman has explained in her evidence, with an evolving freshwater management framework it is essential that opportunities for future infrastructure solutions are not foreclosed by the PC7 planning framework. Specifically, OWL seeks to ensure consenting pathways are available for existing tributary AA and BA permits to essentially be swapped for either direct takes from Lake Opuha or the mainstem of the Opuha or Opihi Rivers.

- 4.26 Such takes can be supported from a hydrological perspective, as OWL already releases water in the Opihi mainstem to compensate for these takes. In other words, there would be no change to the existing situation from a water balance perspective.

- 4.27 However, without an Opihi FMU BA and BN allocation limit that I have recommended earlier in my evidence these “swaps” would be prohibited by Rule 14.5.6 because they would result in a breach condition 2b of Rule 14.5.4 (breach of allocation limits). The breach occurs because:

- (a) The recommended limit of 5,600 L/s for “AA, AN and BA” permits (per Appendix E.1 to the Section 42A Report, 26 June 2020 version) does not account for all current AA, AN and BA allocation in the Opihi FMU; and
- (b) As recommended, the limit would be for the “Opuha River and Opihi mainstem”, which does not expressly include Lake Opuha.

- 4.28 The Opihi FMU allocation limit is also required as a mechanism for ensure the BA allocation attributed to permits that are moved from the tributaries to Lake Opuha or the Opuha/Opihi mainstem does not become available for abstraction under new “BA” permits. In other words, it essentially provides a ‘sinking lid’ mechanism for BA allocation on the tributaries. From a hydrological perspective, moving BA allocation off the tributaries would obviously be beneficial to river flows.
- 4.29 As noted above, that issue does not arise with respect to AA allocation in the tributaries, as any new permits issued under PC7 would be classified as “BA” permits (assuming it was still possible for the holder to obtain OWL shares, agreements or entitlements).
- 5.31 In my opinion, for the reasons outlined above, it is not unreasonable for PC7 to allow the consenting of these types of takes.

5. MATTERS ARISING FROM THE SECTION 42 REPORT

OWL Scheme and Share Allocations

- 5.1 In Appendix D of the Section 42 report, paragraphs 6.3 to 6.16, the analysis undertaken by Mr. Clark is suggesting that the Adaptive Management Working Group’s proposed changes to enable the Opihi River mainstem flow regime to be managed on a more flexible basis is problematic from a compliance and enforcement point of view. This is stated as being on the basis of:
- Discrepancies between the volume of water required to achieve application depths for the areas irrigated in the tributary catchments, based on advice from the FAWP, and shares held.
 - Discrepancies in either how the share volumes and flow rates are accounted for, and/or reported.
 - In the upper part of the Opuha Scheme, share entitlements are in excess of the volume required to irrigate for a full season, and further down the catchment, the opposite occurs in that there is insufficient water to irrigate for a full irrigation season.

- 5.2 The information on which Mr. Clark's assessment has been based is a submission from the FAWP to the Zone Committee. This was one of the earliest submissions prepared by the FAWP in March 2018 (not May 2018 as suggested in the Section 42 Report). Subsequent fine tuning of this information was carried out, and this has been used to form the basis of evidence for PC7 prepared for both OWL and the FAWP.
- 5.3 However, there are other reasons why rate, volume and application depth can look out of kilter when looked at on a catchment-wide scale.
- 5.4 As Mr. Clark has stated (and confirmed by Mr Mockford), one OWL share equates to a standard flow rate of 0.41336 L/s per hectare on an application rate equivalent to 25 mm per week (3.57 mm/hectare/day) and a seasonal cap of 5,625 cubic metres per hectare per each irrigation season.
- 5.5 An application depth of 3.57 mm/hectare/day, by modern standards, is low. Environment Canterbury guidelines indicate that the acceptable range for application depth in order to meet peak demand is between 4mm/hectare/day and 6.5 mm/hectare per day depending on soil type, location and climate.
- 5.6 It is important to note that shareholding only limits the maximum amount of water that a shareholder is entitled too. It does not limit the shareholders irrigation area. Therefore, shareholders can opt to irrigate a larger area than perhaps the water entitlements would normally allow for (decreasing the application depth). Conversely, shareholders can also opt to irrigate a smaller area and increase the application depth.
- 5.7 An example of this is CRC992793. The consent has a rate of take of 64 L/s with a volume not exceeding 36,864 cubic metres in any seven-day period. The consented irrigation area is 206 hectares. The application depth is 2.6 mm/hectare/day. This consent is operated in a way in which, during the spring, the larger area is irrigated, but as conditions dry, the irrigation area is reduced, and the application depth increased.
- 5.8 The addition of on farm storage into an irrigation system also affects these calculations as the water applied then comes from storage, which may be taken again at a higher or lower rate compared to the take into the storage itself. An example of this is resource consents CRC171708 and CRC991792.3. These

consents have a combined consented rate of take of 103 L/s. The consent holder also has a BN allocation of 350 L/s, and with storage of 365,000 cubic metres on farm. Water is able to be taken from the dam at a rate of 230 L/s, for the irrigation of 388 hectares. From the dam, this is an application depth of 5 mm/hectare/day, compared to 2.3 mm/hectare/day without storage.

- 5.9 In my evidence for the FAWP, I also note that on occasions, the consented rate of take does not match the OWL shareholding. This is important because even if the shareholding is less than the consented rate of take, the unshared balance of the take defaults to the non-affiliated regime (for example BA defaults to BN). BN takes are more restrictive than BA takes, but there may be opportunities during the season to take the full consented flow rate as river flows are high enough to do so.
- 5.10 The area irrigated and the corresponding application depth, and whether storage is part of the equation, is assessed as part of a resource consent application process.
- 5.11 Annual volume is also part of the consenting considerations. OWL shareholding is based on 5,625 cubic metres per hectare per year. However, using either Schedule 10 of the Land and Water Regional Plan, or Irricalc, the annual volume required can be larger or smaller than the volume allocated to shareholders.
- 5.12 In any case, the consent is limited to the smaller of the numbers (either calculated annual volume or shareholding annual volume). I assume that this will continue under PC7.
- 5.13 I am unsure from the Section 42 Report why this presents an issue for compliance monitoring. Every resource consent is monitored on an individual basis as well. If shareholding changes, Environment Canterbury is notified so that the appropriate minimum flow regime is assessed for monitoring purposes. Flow rate, and volumetric restrictions are specified on resource consents to take and use water and flow meter data provided to them each year allows compliance to be determined.

5.14 Therefore, I do not consider the statements made by Mr. Clark have any logical base. The consenting and compliance process addresses his concerns, and this is the appropriate place to do so as it varies highly between individual consents and consent holders' circumstances.

Keri Joy Johnston

17 July 2020

APPENDIX ONE

<u>Table</u>	<u>Waterbody</u>	<u>AA</u>	<u>BA</u>	<u>AN</u>	<u>BN</u>	<u>Community Supply</u>	<u>Comments</u>
SD8	Opihi River	-	-	194.35	196.1	2.09	CRC001348.1 & CRC090125.1 are for stockwater and not to be included in the allocation
SD9	Opihi River	300.87	583.39	-	-	334.5	CRC981008.2 & CRC093305 are for community water supply and not to be included in the allocation
SD17	German Creek	-	-	9.41	12.92	-	
SD18	Pleasant Point Creek	-	-	53.9	31.37	-	
SD19	Pleasant Point Creek	92.44	-	-	-	121	CRC010349 & CRC101875 are for community water supply and not to be included in the allocation
SD22	Totara Creek	-	-	4.9	24.1	1.7	CRC185775 is for stockwater and not to be included in the allocation
SD23	Totara Creek	20.28	-	-	-	-	
SD24	Opuha River	28.7	124.5	-	-	-	
SW8	Opihi River	2393.6	2012.5	-	-	122	CRC012183 & CRC101875 are for community water supply and not to be included in the allocation
SW9	Opihi River	-	-	898.4	-	-	
SW21	Totara Creek	53.3	7.5	-	-	-	
SW24	Opuha River	-	1440.2	-	-	-	CRC051460 is presently included in this table. It is a take from Lake Opuha and therefore, should not be included in this allocation.
-	Lake Opuha	-	33.1	-	-	-	See comment above.
	TOTAL	2889.19	4201.19	1160.96	264.49	581.29	

<u>Table</u>	<u>Waterbody</u>	<u>AA</u>	<u>BA</u>	<u>AN</u>	<u>BN</u>	<u>Community Supply</u>	
SW27	Station Creek	-	30.6	-	-	-	
SW28	Station Creek	-	-	-	254	-	
-	Unnamed Stream	-	8.3	-	-	-	This allocation is presently considered to be in the South Opuha allocation. This is not correct. Please refer to my evidence for the Flow and Allocation Working Party where I address this issue.
	TOTAL	0	38.9	0	254	0	

FAWP	Waterbody	AA	BA	AN	BN	Community Supply	
	North Opuha	61	7	145.2	20	7.5	
	South Opuha	-	634.4	-	200		
	Upper Opihi	-	449.36	65.4	46.9	122	
	Te Ana Wai	250.2	2	9.38	721.95	96	
	TOTAL	311.2	1092.76	219.98	988.85	225.5	

Grand Totals (L/s)

AA	3200.39
AN	1380.94
AA + AN	4581.33
Community Supply	806.79
BN	1507.34
BA	5311.55
BA + BN	6818.89

Unsubscribed BN allocation Totals

North Opuha 480 L/s

South Opuha 600 L/s

Upper Opihi 753.1 L/s

Te Ana Wai 78.05 L/s

Opihi Mainstem 1,435.51 L/s