

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of application CRC175709 to take and use groundwater from the Waipara Groundwater Zone for community supply

DECISION OF HEARING COMMISSIONER EMMA CHRISTMAS
12 October 2018

The Application

1. The Hurunui District Council (HDC) has applied to take groundwater for community water supply from existing bore M34/5707 and a new bore to be located close by. The bores are located in the Waipara Groundwater Zone.
2. Water will be taken at a combined rate not exceeding 25 litres per second, with a maximum annual volume of 681,374 cubic metres.

Decision

3. The consent to take and use groundwater is granted subject to the conditions attached in Annexure 1.

The hearing

4. The application was heard on 24 September 2018 at the Environment Canterbury Council Chambers in Christchurch. The following appearances were made:

Applicant:

- (a) Mr Brett Beer, Team Leader Three Waters – Assets, Hurunui District Council
- (b) Mr David Edge, Manager Infrastructure Services – Assets, Hurunui District Council
- (c) Mr John Talbot, Environmental Engineering Consultant, Bowden Environmental

Environment Canterbury Section 42A Reporting Officers:

- (d) Mr David Birch, Consents Planner
 - (e) Mr Hamish Graham, Groundwater Scientist
5. The hearing was adjourned on 24 September 2018 pending the provision of additional information from the Reporting Officers and the applicant's right of reply. The latter was received on 1 October and the hearing was closed on 2 October 2018.

BACKGROUND

6. The background to this application is described in both the application and s42A Report. In brief, the applicant operates a community supply bore at Racecourse Road, 4 km north of Amberley. Water from the bore is used for community supply for Amberley township and two rural supply areas, Broomfield and Amberley Beach. The take is authorised by consent CRC070201, which expires on 12 November 2018. The authorised rate and volume of take (15 l/s and 472,040 m³/year) is not sufficient to meet demand within the supply areas, and the take is supplemented by water from a bore on SH1 and a take from Leithfield Beach. The Leithfield Beach take will

ultimately be required to supply a community water scheme near Leithfield Beach, and the water taken from the SH1 bore suffers from being hard and high in iron. There are also additional concerns about potential contamination of this bore, so the preference is to use this as a back-up only, rather than part of the regular supply.

7. Consequently, the applicant seeks to increase the take from bore M34/5707 to 25 l/s and 681,374 m² per year. The bore is 147 m deep, screened between 120 and 130m and between 138 and 146m, and is considered a secure supply. In addition, the applicant seeks to take water from a new bore, located immediately adjacent to the existing bore and drilled to the same depth. This bore will provide a back-up for the when the existing bore requires maintenance. The rate of take applied for will be from both bores combined.
8. The take is located in the Waipara Groundwater Zone which is presently over-allocated.
9. The applicant has investigated alternative supplies. The application states that surface water resources are problematic due to water quality issues, and deep groundwater sources in the Waipara Basin are limited due to the complex geology.

PLANNING BACKGROUND

Overview

10. The relevant plan is the Waipara Catchment Environmental Flow and Water Allocation Regional Plan (Waipara Plan). On page 10 of the Waipara Plan it explains that the provisions of the Natural Resources Regional Plan (NRRP) (now replaced by the Land and Water Regional Plan (LWRP)), apply to activities not covered by the Waipara Plan. It goes on to say that while the provisions of the NRRP [LWRP] do not apply to taking and use of groundwater, the assessment methods and techniques developed under the NRRP are broadly applicable when considering whether to exercise discretion under the plan.
11. The LWRP mirrors this statement, stating in section 2.8: “Any objective, policy or rule on the same subject matter in the Waipara Catchment Environmental Flow and Water Allocation Regional Plan prevails over the objectives, policies and rules contained in this Plan.”

Activity status

12. The take and use does not comply with the conditions of any of the permitted or restricted discretionary rules in the Waipara Plan, as it is a replacement take for a greater rate and volume than currently authorised, and existing consented takes from the Waipara Groundwater Zone exceed the allocation limit of 10.7million m³ / year.
13. The relevant rule is therefore Rule 7.1, which specifies that unless the take and use of groundwater is classed as permitted or restricted discretionary, it is a non-complying activity.

SUBMISSIONS

14. Three submissions were received; a submission in support from the Canterbury District Health Board (CDHB) and submissions in opposition from John Curtis Ltd and David Evans and Ingrid Davis.
15. The CDHB noted that the bore provides a high quality, reliable source of potable water. It is a well protected source of water which enables HDC to take a 'multi-barrier' approach to the supply of safe water. The CDHB also supported the development of a second bore in the same vicinity, which will improve resilience of the supply, allowing for maintenance to be undertaken without supply outages.
16. The remaining submitters were both concerned with the potential impact on their own bores and consented takes. Mr Evans and Ms Davis were also concerned about the potential effect on springs and drains on their property. Both submitters have properties on Racecourse Road.
17. These submitters both initially indicated they wished to be heard, but later withdrew this right. The applicant volunteered to provide John Curtis Ltd with water from the community supply scheme. The property belonging to Mr Evans and Ms Davis is already connected to the scheme.

ASSESSMENT UNDER SECTION 104

Section 104(1)(a) – Actual and potential effects on the environment

18. A number of potential effects were considered by both Mr Talbot and Mr Birch to be less than minor. These are discussed in both the application and the Officer's report. I accept the evidence provided and agree that the following effects will be no more than minor:

- a) Effect on other users from seawater intrusion. There will be no effect due to the distance between the take and the coast.
 - b) Effect on groundwater quality from cross-connection of aquifers or backflow from the irrigation system into the aquifer. The existing bore is (and the new bore will be) screened in only one aquifer and applicant has proposed a condition requiring that backflow prevention is installed.
 - c) Direct effect on surface water flows (stream depletion). There will be no effect due to the distance from nearby surface water bodies, and the vertical separation between the screens and the shallow aquifer which may be connected to surface water.
 - d) Effect on tangata whenua values. No comments were received from Te Ngāi Tuahuriri Rūnanga or Te Rūnanga o Ngāi Tahu in response to the application. The application, being of a deep groundwater take, unconnected to surface water, is generally consistent with the Mahaanui Iwi Management Plan and Te Rūnanga o Ngāi Tahu's Freshwater Policy Statement. The Mahaanui Iwi Management Plan highlights the issue of over-allocation in the Waipara catchment, but this is primarily in terms of surface water resources. Consequently, I am satisfied that effects on tangata whenua values will be no more than minor.
 - e) Effect on aquifer stability. As the aquifer is predominantly gravel based, this is not a concern.
 - f) Effect of noise from the pumps. There will be no noise effects as submersible pumps are used. The nearest residential dwelling is 150m away.
19. Four potential effects require further discussion: well interference effects, the cumulative effects on groundwater levels, efficient use of the water resource, and the adequacy of the drinking water protection zone.

Well interference

20. Policy 2.4 of the Waipara Plan is that:

"Where ground water is provided for under Policies 2.1, 2.2 or 2.3, to ensure any bores and any associated groundwater abstraction are sited and operated to:

- a. ensure adequate penetration of the aquifer;*

b. other than for replacement of existing lawfully established takes with no increase in rate and volume of take, to not cause drawdown in other lawfully established bores used for groundwater takes of more than 0.1m and 20% of available drawdown;”

21. The explanation to the policy states that the NRRP contains a detailed methodology for how adequate aquifer penetration and zones of influence can be calculated. The Canterbury Regional Council will use these methods to establish potential effects and any appropriate resource consent conditions.
22. This methodology has been replaced by the very similar methodology in the LWRP (Schedule 12). There was no dispute between the parties as to the method of determining well interference.
23. Mr Talbot provided an assessment using aquifer parameters derived from an aquifer test carried out on the applicant's bore in 2006. A separate, overlying aquifer was identified as being less than 60m deep, with bores in a shallow aquifer (up to 10m deep) being excluded from the analysis. Mr Talbot determined that there were no adversely affected parties.
24. ECan staff initially accepted most of these aquifer parameters and also assessed the well interference effects, finding two adversely affected bores: M34/0738 and M34/5672, both apparently owned by Dalray Farm Limited.
25. ECan staff subsequently had concerns that the values used for transmissivity and storativity of the overlying aquifer were not substantiated by the aquifer test results. Consequently, Mr Birch undertook a 'sensitivity analysis' using more conservative values of storativity (S) and transmissivity (T). This identified two additional potentially affected bores: M34/0677, also owned by Dalray Farm, and M34/0581, owned by N. McGirr.
26. After the s42A report had been circulated, but prior to the hearing, Mr Birch received further advice from Mr Hamish Graham. Mr Graham agreed with the separation between aquifers being at 60m depth, but considered more conservative T and S values were appropriate. Mr Birch then assessed the effects a third time, again identifying the same wells owned by Dalray Farm and N. McGirr as potentially affected.
27. Mr Birch's view was that despite these results, there were no effects on Dalray Farm, as it was included in the list of neighbouring properties that had the right to be supplied water by HDC under condition 10 of the current consent (which is carried into the new

application), and Dalray Farm was directly notified of the application. However, the land parcel to which condition 10 relates, RS9225, is now owned by Evans and Davis and is not the parcel of land on which bores M34/0677 and M34/0738 are located.

28. Mr Birch recommended that the applicant be required to undertake a constant rate discharge test and use the results to assess the well interference effects on neighbouring wells. Under recommended condition 8, water could not be taken from the production bore(s) until the test is carried out and well interference assessed and shown to be acceptable, or mitigation undertaken.
29. In his right of reply, Mr Talbot provided the following assessment in respect of the four bores.
30. M34/5672 is the number allocated to the deepening of existing bore M34/0690, but has not yet been installed. The property (now owned by Evans and Davis) is supplied with domestic water by the HDC.
31. M34/0738 (Dalray Farm) is a 101m bore located on a vineyard, which is used for stockwater. The available drawdown is 59m, but the effect of the take is a relatively small proportion of this, leaving over 40m available drawdown for a small stockwater take. He concluded that the bore would easily be able to supply stockwater and was not adversely affected.
32. M34/0677 (Dalray Farm) is an 11.8m bore used for stockwater on the same property as M34/0738. Given its very shallow depth, Mr Talbot considered that it should be treated as drawing water from the same shallow aquifer as bores less than 10m deep, and so should be excluded as being unaffected.
33. M34/0581 (N. McGirr) is a 27.8m bore used for domestic supply. During the pump test on the applicant's bore, a similarly shallow bore was monitored and showed no drawdown. Mr Talbot did not consider that this bore would be affected, but advised that HDC proposed to supply domestic water to this property (Part RS 9521) to ensure there were no effects.
34. I generally agree that when the details of the affected bores, as outlined by Mr Talbot, are considered, the effects predicted by Mr Birch are minor. However, given that the parameters used in the analysis have not been derived from a pump test, I consider it best to be cautious in terms of the potential effects on them, particularly in terms of bores M34/0581 and M34/0677, which although shallow may still be affected by the abstraction. I therefore consider it reasonable that the applicant provide the property

where each bore is located with a connection to community supply, should the owners wish to take up this option. The applicant has already volunteered to provide the McGirr property with water; I have included a condition requiring that the Dalray Farm property also be provided with a connection.

35. With this mitigation in place, I consider that the effects on neighbouring wells will be no more than minor.

Cumulative effects on long term water levels

36. Objective 3 of the Waipara Plan is:

“The economic and social benefits of groundwater abstraction from the Waipara River catchment are recognised and provided for, while avoiding any increase in adverse effects of groundwater abstraction on surface water bodies, seasonal groundwater recharge rates, or the reliability of supply for existing abstractors.”

37. The plan also identifies anticipated environmental results, number 8 of which is:

“There is no significant continuing long term decline in mean annual groundwater levels.”

38. The plan aims to achieve these objectives by setting a groundwater allocation limit within the Waipara Groundwater Zone, the part of the plan area in which the majority of groundwater takes are located. This limit is 10.7 million m³/year. Mr Birch advised that an assessment undertaken in 2017 (Graham, 2017¹) was that 12.53 million m³/year is allocated (17% over the limit), but there is now potentially up to 20% over-allocation.

39. Mr Talbot was critical of the way that the allocation limit had been set, being based on a proportion of average annual rainfall or land surface recharge, rather than an assessment of the effects of a given allocation, and so could not be said to be a ‘sustainable limit’. The appropriate question was whether the additional increase in abstraction from this application would cause significant effects to the extent that the resource is ‘mined’, with a continuing decline in water levels, reduction in spring-fed streams to an undesirable level or movement of the saltwater interface inland. He acknowledged that this situation would represent unsustainable allocation.

¹ Graham, H. Hydrogeology of the Waipara Catchment, Environment Canterbury Technical Report no. R17/29, July 2017.

40. He argued that all abstraction causes a change in groundwater levels; however, this may lead to a new equilibrium being established rather than a long-term decline in levels. Groundwater levels usually recover after good winter rainfall if abstraction is not excessive.
41. The application included water level information from nearby monitoring bores showing a clear decline in groundwater levels in 2015 and 2016 in response to low rainfall recharge. Mr Talbot noted that the water levels recover during winter, showing that recharge is occurring, and prior to the 2015 - 2016 drought there was no apparent decline in water levels in any deep bores. His view was that the additional abstraction was unlikely to change this state and so would not be unsustainable.
42. In his written evidence, Mr Talbot provided updated groundwater plots showing a recovery in groundwater levels following two years of good winter recharge (2017 and 2018). His view was that there is no continuing decline in water levels and therefore that the current groundwater abstraction was sustainable. The additional abstraction was relatively small and would not alter that situation.
43. Mr Birch relied on Graham (2017) to assess the effects on groundwater levels. He first commented that ECan are confident that the assessed allocation from the groundwater zone is accurate, and that the zone is over-allocated.
44. Graham (2017) analysed trends in water levels in monitoring wells in the Waipara Groundwater Zone using the seasonal Mann-Kendall method. This assesses the trend from one month to the same month in the following year to more accurately analyse trends over several years. The analysis showed that water levels in 67% of the monitored bores in the zone (22 bores) had generally declined. Nine bores (29% of the total) showed a decline prior to 2015 / 2016, suggesting that abstraction is the cause. Six of these bores were located on the banks or south of the Waipara River (including the Glasnevin Flats area). The report concluded that current abstraction may be unsustainable, particularly if drought frequency increases in future (Graham, 2017; p. 31)
45. Mr Graham presented water level plots showing updated trend lines at the hearing. He acknowledged that the water levels in some of the monitoring bores had recovered in the previous two years; however, statistical analysis still showed a long-term decline in several of the bores, including all the bores south of the river which showed declines prior to 2015. The affected bores cover a range of depths, from 17m to 131m deep. Two of the deep bores (M34/5606 and M34/5629) are close to the HDC bore and were

still below pre-drought levels. It was not clear whether the deep bores would recover further (i.e. recovery was delayed due to their depth), or whether declines would continue. He reiterated that the bores showed a decline under 'normal' recharge years prior to the drought.

46. His view remained that abstraction exceeds recharge in the groundwater zone and a long-term decline was to be expected. He considered that the primary impact would be on other users: the bores were too far from the coast for saltwater intrusion to be an issue, and there were few springs in the area. He considered the closest spring, at Broomfield, to be too far away to be directly affected. Declining water levels added to the cumulative effects of pumping due to the high density of bores south of the Waipara River. Shallow bores had gone dry during the drought; however, it was not possible to show whether this was due to pumping or lack of recharge.
47. Mr Graham advised that modelling was required to estimate the degree of effect, but there was insufficient data at present to undertake this. A further constant rate aquifer test was required to identify appropriate parameters for the overlying aquifer (above 60m depth). With this information, it would be possible to model the additional effects on the system.
48. In the applicant's right of reply, Mr Talbot reiterated that water levels had recovered significantly in the two 'more normal' recharge years of 2017 and 2018. He commented that the nature of the Waipara Basin was that shallow groundwater levels are very responsive to abstraction and recharge whereas deep groundwater is slower to respond. This was reflected in the shallower bores responding more quickly and recovering to a greater degree than the deeper bores, although most of the deeper bores also showed a significant recovery. He noted that the closest monitoring bore to the applicant's bore, M34/5684 (78m deep), has recovered over the past two years (I note that this well was not assessed in Graham (2017), presumably due to its record being too short, beginning only in 2012). M34/0578 (66m deep), located directly to the west, had also recovered.
49. Mr Talbot noted that the deep bores that were highlighted by Mr Graham (M34/5629 (113m deep) and M34/5606 (117m deep)) show recovery to the 2011/13 water levels. Normal recharge years result in a substantial level of recovery in deep bores and no continuing decline. In his view, the additional abstraction would not change that.
50. I agree that most of the shallow bores have recovered significantly over the past two years to pre-drought levels. An exception is M34/0311, to the north-west of the

applicant's bore, which has shown very limited recovery. Likewise, all the deep wells show recovery from the 2015 / 2016 levels, even if some have not reached pre-drought levels. However, I cannot dismiss the evidence showing a decline in water levels in a number of bores in the general vicinity of the applicant's bore over several prior to 2015 / 2016. Mr Graham's evidence was that the recharge prior to the drought was 'normal'.

51. There is clear evidence, therefore, of cumulative effects of existing pumping on the aquifer, and while signs of recovery are encouraging, it is too soon to know whether this will translate into stable water levels in these bores in the future. The future impacts of climate change are unknown and may result in increased dry spells and less recharge. I cannot put much weight on Mr Talbot's view that climate change may cause more variable (i.e. high intensity) rainfall, which will maintain recharge rates, in the absence of clear evidence on this.
52. I agree with Mr Talbot's assessment that an allocation limit based on a crude percentage of recharge does not necessarily represent a sustainable aquifer limit. However, in this case Mr Graham has demonstrated a clear decline in water levels in parts of the aquifer. It therefore appears that the sustainable allocation limit has been reached at least in parts of this groundwater zone.
53. Overall, assuming recharge rates are equivalent to those over the last 10 years or so, it appears likely that water levels will continue to decline, as they did before the 2015 / 16 drought. Any additional abstraction will add to those effects. I conclude, therefore, that the increased abstraction will, cumulatively with other abstraction, affect groundwater levels and other users, although the increase in take is a small proportion of the total abstraction from the aquifer and a small part of the total effect.

Efficient use of the water resource

54. Objective 4 of the WRRP is that "*Water that is abstracted within the Waipara catchment is used efficiently*".

55. Policy 3.3 is:

"To work towards maximum efficiency in the taking and use of water in the Waipara River Catchment, including:

- (a) minimising any leakage in the design and operation of infrastructure used to take or convey water;*

(d) requiring any water take to be for a specified use of water and ensure the rate of abstraction is appropriate and reasonable to the proposed end use; ...”

56. Mr Beer outlined the use of water from the bore. The water taken is used to supply Amberley township, a metered on-demand supply, and two rural water schemes, where users can purchase units as required. Mr Beer provided data on current water use in each of the schemes, converted to a litre per second rate of take, then calculated demand over 35 years, assuming 1% growth in population per year, based on conservative growth projections. The showed a demand, by 2053, for 696,716 m³/day. I note that using Mr Beer’s calculations, the demand in 30 years (the requested duration of consent) will be 662,902 m³/day. The application is for 681,374 m³/day.
57. The current use is the equivalent of 357 l/person/day in the Amberley township, and 830 l/person/day for the two rural schemes. The higher rate in the rural schemes is explained by the demand for stockwater. This has been affected by changes over recent years to exclude stock from water bodies, resulting in a higher demand for reticulated stockwater.
58. Mr Birch provided a range of water use data from across New Zealand, with town supply use ranging from 184 l/person/day to 414 l/person/day, with a national average of 275 l/person/day.
59. Mr Beer and Mr Edge explained that the council has an ongoing programme of leak detection. Current water losses are estimated to be 20%; HDC has a goal of reducing this to 16% this year. Methods to attain this include putting meters on rural lines to try and assess rural losses and educating rural users to maintain their tanks and pipes. A project for re-use of grey water is also in the concept phase.
60. At times of water shortage there are four levels of restriction, focussed on garden watering.
61. On the basis of the information presented by Mr Birch, the water use within the Amberley township is within the range of other New Zealand centres, and comparable with the nearby Kaiapoi area (360 l/person/day). Mr Birch’s summary of water use in New Zealand did not appear to include any data for rural schemes; however, given the additional use for stockwater and significant lengths of pipe in the reticulation network, a higher use is to be expected. There was no evidence to suggest that the use is not reasonable.

62. Mr Birch highlighted that applications for community supply under the LWRP are required to develop a water supply strategy, in accordance with Schedule 25 of that plan. This requires an assessment of existing and future demand for water, a description of water conservation methods, measures to minimise water loss, performance targets and a review of water conservation methods.
63. The applicant provided an excerpt from an (untitled and undated) Council document headed '3.0. Managing and planning for demand', which includes an assessment of demand and a description of water conservation measures. Mr Talbot advised that this was the HDC's water supply strategy. It does not meet the LWRP requirements of a water supply strategy, but Mr Talbot advised that it is regularly updated and future versions would be provided to ECan.
64. Overall, I am satisfied that the current and predicted water use is reasonable, except that the volume authorised should reflect the predicted demand over the term of the consent (i.e. 662,902 m³/day over 30 years). Provision of, and adherence to, a water supply strategy that addresses the matters in Schedule 25 of the LWRP will assist in the use improving in efficiency.

Adequacy of the drinking water protection zone

65. Mr Birch noted that there is a provisional protection zone of 100m surrounding bore M34/5707. This zone is recorded in the Ministry of Health's Drinking Water Register.
66. The applicant assessed that this zone will be sufficient for the increased rate of take, including water taken from the new bore which will be located immediately adjacent to it. The bores are deep and there are several layers of impermeable material that provide very good protection from nearby land uses.
67. Mr Birch agreed with this assessment, also noting that there are no active consents within or overlapping the zone, and that groundwater samples indicate water of good quality. In addition, given the small size of the protection zone, there are no more than minor effects on land owners.
68. Despite this, Mr Birch proposed a condition requiring that within 12 months the applicant review the extent of the protection zone using the methodology in Schedule 12 of the LWRP. This outlines the information to be used to determine the dimensions of a drinking water zone, including the depth and construction of the bore, pump rate, geology of the site and type of aquifer, types of contaminants, levels of treatment the water will receive and any potential risk to water quality.

69. I consider that the applicant's assessment, which considered the geology, depth, aquifer type and risk of contamination is sufficient for the purposes of determining the dimensions of the protection area. It is highly unlikely that any matters will change within the next 12 months. Given the applicant's responsibilities to provide a safe drinking water supply for its community it is not in their interests to underestimate the protection zone.
70. Consequently, I consider the size of the protection zone to be adequate and there is no need for a further assessment.

Section 104(1)(b) - Relevant provisions of planning and policy documents

71. Both Mr Talbot and Mr Birch provided a thorough analysis of the relevant planning and policy documents and assessed the application against these. Relevant documents are the Waipara Plan, the National Policy Statement on Freshwater Management (NPS-FM), the Regional Policy Statement (RPS), and the Mahaanui Iwi Management Plan 2013, Te Rūnanga o Ngāi Tahu's Freshwater Policy Statement, and the Canterbury Water Management strategy (under s104(1)(c)).

Waipara Plan

72. Before assessing the application against the Waipara Plan provisions, I make some comments on the plan. When determining which objectives and policies are relevant to this application, it appears that there is a potential issue in the plan drafting in relation to the use of the terms 'Waipara River Catchment' and 'Waipara Catchment'.
73. The 'Waipara River Catchment' is defined in the plan as 'that area shown in maps 1a, 1b and 1c of Appendix 1'. These 3 maps show the area covered by the plan, but omit the Glasnevin Flats to the south of the Waipara River. This is the area where the take is located. So, on the face of it, any provisions applying only to the 'Waipara River Catchment' do not apply to this application.
74. The term 'Waipara Catchment' is also used in the plan. This is not defined, but Map 1, which shows the full extent of the area covered by the Plan, is titled 'Index Map: Waipara Catchment', so I assume that the term applies to the full plan area.
75. (As an aside, maps 1a – 1c, which are intended to show the Waipara River Catchment', are unhelpfully labelled 'Waipara catchment and sub-catchments').
76. The Glasnevin Flats area is within the Waipara Groundwater Zone, which is a sub-area of the Waipara Catchment, and is shown on maps 2a – 2c.

77. The term 'Waipara River Catchment' has been used in multiple places through the plan where it would seem that the entire plan area (or 'Waipara Catchment') is what was intended. These include:
- Plan Structure section, p. 7
 - Plan Purpose and Scope section, p. 7
 - Populations and Communities section, p. 13
 - Part 5 – Issues, p. 16. This includes the statement: 'The Waipara Groundwater Zone is fully contained within the Waipara River Catchment', which is clearly incorrect.
78. In terms of objectives and policies, Objective 3, which is concerned with groundwater abstraction but refers to the 'Waipara River Catchment' would seem to logically apply to the whole plan area.
79. The same applies to Policy 2.1 and Policy 3.3. Policy 2.1 is:
- "To prevent any additional abstraction of groundwater within the Waipara River Catchment (except for that part of the catchment contained within the Culverden Basin Groundwater Zone) except where:*
- (a) The abstraction is a replacement of an existing lawfully established take, at the same location, at the same or lesser rate of take and the same or lesser total annual volume; or*
 - (b) The activity is to provide for domestic or stock drinking water; or*
 - (c) Policy 2.2 applies."*
80. Policy 3.3 is:
- "To work towards maximum efficiency in the taking and use of water in the Waipara River Catchment, including:*
- (a) Minimising any leakage in the design and operation of infrastructure;*
 - (b) Encouraging the surrender or transfer of unused water takes;*
 - (c) Requiring at least 80% irrigation efficiency in the application of water;*
 - (d) Requiring any water take to be for a specified use of the water and ensure the rate of abstraction is appropriate and reasonable to the proposed end use; and*

(e) Requiring all resource consents to take water to include daily and annual volume limits.”

81. There is no obvious reason why these policies would not apply to the whole plan area, and no alternate policy or distinction in the rules that suggests they do not apply everywhere.
82. Other provisions seem to correctly refer to the Waipara River Catchment (for example when referring to surface water abstraction), or to the 'Waipara Catchment'. There is no discussion in the Decision on Submissions and Further Submissions to the Plan on the use of the two terms.
83. Another possible conclusion is that the terms are meant to be inter-changeable. Either way, it appears that the plan drafting is poor.
84. I conclude that the term 'Waipara River Catchment' has been used erroneously on some occasions, most relevantly for this application in Objective 3 and policies 2.1 and 3.3. It is my view that to disregard these provisions as applying to this application may result in inappropriate management of the groundwater resource, be contrary to Part 2 of the RMA and therefore be incorrect. Consequently, I have considered them along with other relevant objectives and policies.
85. I also note that the Waipara Plan was drafted prior to the RPS (the RPS was notified during the Waipara plan hearing process) and the LWRP. As highlighted by Mr Birch, it does not reflect or implement some of the policy direction within the RPS and treats community water takes in a different way to those managed under the LWRP.
86. In particular, the RPS Policy 7.3.4 requires that water abstraction is managed by:

“.. establishing environmental flow regimes and water allocation regimes which provide for any existing or reasonably foreseeable needs of groundwater for individual, marae or community drinking water or stockwater supplies. ...”
87. The LWRP addresses this by exempting community supply takes from allocation limits providing a water supply strategy is provided, although “the effect on the environmental flow and allocation limits” is a matter of discretion. Policy 4.49 the LWRP is to:

“Enable the taking of water for a community water supply by not requiring compliance with any minimum or residual flow or partial restriction conditions and the environmental flow and allocation regime or groundwater allocation limit provided a

water supply strategy developed in accordance with Schedule 25 is in place and the water supply is so managed as to restrict the use of water from those supplies during periods of low flow or water levels.”

88. The Waipara Plan has no equivalent provision. It provides a discrete allocation for surface water takes for community supply but no corresponding groundwater allocation.
89. Returning to the assessment of the application against the plan, the relevant objectives and policies are objectives 3 and 4 and policies 2.1, 2.2, 2.4, 3.3 and 3.4.
90. Objective 4 and Policy 3.3 address efficient use, which has been discussed above. Policy 3.4 addresses metering. The take will be metered and the abstraction data recorded in accordance with ECan’s standard requirements. Policy 2.4 is concerned with adequate penetration of the bore, well interference effects and saltwater intrusion. The bore is deep and no evidence was presented suggesting that it does not adequately penetrate the aquifer. Well interference effects have been discussed earlier. Potential interference effects can be mitigated by providing those users with an alternative source of drinking and stock water. The take is too far from the coast for saltwater intrusion to be an issue.
91. The critical provisions are Objective 3 and policies 2.1 and 2.2.
92. Objective 3 is:

“The economic and social benefits of groundwater abstraction of the Waipara River Catchment are recognised and provided for, while avoiding any increase in adverse effect of groundwater abstraction on surface water bodies, seasonal groundwater recharge rates, or the reliability of supply for existing abstractors.”
93. The taking of water for community supply provides economic and social benefits. There are no obvious alternatives to this particular take, and water is a basic requirement. There are no effects on surface water or associated effects on mauri, life-supporting capacity, ecological or recreational values.
94. The direct effects on the reliability of supply for other groundwater users have been discussed earlier. The unknown effect is on the long-term reliability of supply of groundwater users, though a decline in water levels resulting from additional abstraction. As discussed above, on the basis of current information it is impossible to conclude that these effects, when considered cumulatively with the effect of other

takes, will be minor; however, the increase in take is a small proportion of the total abstraction from the aquifer.

95. Policy 2.1 is outlined above. Clause (c) allows additional groundwater abstraction where it complies with Policy 2.2. This sets a groundwater allocation limit of 10.7 Mm³/year, which is exceeded.
96. Clause (b) allows additional groundwater abstraction where it is for domestic or stock drinking water. The explanation to the policy states that this exception reflects the provision in s14(3) of the RMA, which gives an individual rights to take water to meet their reasonable needs for drinking or stockwater. While community supply can be broader than stock and drinking water (including irrigation of gardens and commercial use), this policy provides some justification for treating community supply more leniently than other uses. This is reinforced when other documents, such as the RPS and LWRP, as discussed earlier, are also considered. Policies 2.1 and 2.2, if they do not provide for allocation for community supply, appear to be inconsistent with RPS Policy 7.3.4.

National Policy Statement on Freshwater Management

97. The NPS-FM's objectives in relation to water quality require the safeguarding of life-supporting capacity of water, protecting significant wetlands, avoiding over-allocation, maximising efficient allocation and enabling communities to provide for their economic wellbeing while sustainably managing freshwater within limits.
98. B5 Policy B5 states:

“By every regional council ensuring that no decision will likely result in future over-allocation – including managing fresh water so that the aggregate of all amounts of fresh water in a freshwater management unit that are authorised to be taken, used, dammed or diverted does not over-allocate the water in the freshwater management unit.”
99. The application is inconsistent with this policy as it clearly exceeds the allocation limit within the plan; however, consideration must also be given to economic wellbeing (Objective B5 - to enable communities to provide for their economic well-being, including productive economic opportunities, in sustainably managing fresh water quantity, within limits).

Canterbury Regional Policy Statement

100. The RPS Objective 7.2.1 is to manage freshwater resources sustainably, to enable people and communities to provide for their economic and social wellbeing, providing life-supporting capacity, natural values and community and stockwater requirements are provided for.
101. As highlighted earlier, Policy 7.3.4 is to establish allocation regimes which provide for community water supply.
102. Policy 7.3.8 supports improving the efficiency of infrastructure used to convey water and that the water allocated is no more than necessary.
103. Policy 5.3.5 is to ensure development is appropriately and efficiently served for the provision of potable water, in part by requiring these services to be designed, built, managed or upgraded to maximise their ongoing effectiveness.
104. Failing to use the existing supply to its full capacity and consequently requiring an alternative supply to be located and developed would be an inefficient use of existing infrastructure, which the applicant has valued in excess of \$50 million. An alternative supply would likely require considerable new infrastructure and probably significant new pipework to connect to the supply areas.

Canterbury Water Management Strategy

105. The CWMS classes community supply as a first order priority, along with the environment and customary use. The s42A Report highlights a number of decisions and recommendations within the Hurunui – Waiau Zone Implementation Plan, demonstrating the concern of the local community for safe, secure community water supply for its communities, but also that water used for community water supply should be progressively reduced, as efficiency gains are made.
106. The applicant aims to reduce water losses and improve efficiency.
107. The existing take is a safe, reliable supply, being taken from a deep bore. Alternative supplies may not be so reliable or secure from contamination.

Mahaanui Iwi Management Plan 2013 and Te Rūnanga o Ngāi Tahu's Freshwater Policy Statement

108. The application, being of a deep groundwater take, unconnected to surface water, is generally consistent with the Mahaanui Iwi Management Plan and Te Rūnanga o Ngāi Tahu's Freshwater Policy Statement. The Mahaanui Iwi Management Plan highlights

the issue of over-allocation in the Waipara catchment, but this is primarily in terms of surface water resources.

109. Several policies in the Mahaanui Iwi Management Plan 2013 focus on the need to protect water quality to provide for safe drinking water. Policy KP1.2 encourages community drinking water supplies to have priority over other uses of water by reviewing existing permits in catchments where community water supply is compromised or at risk.
110. In conclusion, the relevant plans and policy statements highlight the need to consider the economic and social benefits of the use of water, particularly in terms of provision of community water supply. This is given primacy in the Canterbury Water Management Strategy, and reflected in Policy 7.3.4 of the RPS. While the application exceeds the allocation limit in the groundwater zone, the benefits of retaining a secure reliable water source, including through the use of existing infrastructure, means the application is generally consistent with these policies and plans.

Section 104D

111. As the application is a non-complying activity it must pass through the threshold test in section 104D. Section 104D states that consent for a non-complying activity may only be granted if either the adverse effect of the activity on the environment will be minor (s104D(1)(a)), or the activity will not be contrary to the objectives and policies of the relevant plans (s104D(1)(b)).
112. The earlier discussion has covered the evidence and my conclusion that the effects on the environment in terms of cumulative effects on long term water levels, with consequent effects for other users, cannot be said to be no more than minor.
113. Mr Birch raised the possibility of considering the permitted baseline under section 104(2), which states that when forming an opinion for the purposes of subsection 104(1)(a), a consent authority may disregard an adverse effect of the activity on the environment if a national environmental standard or the plan permits an activity with that effect. Rule 5.1 in the Waipara permits the taking of up to 10m³ of water per day per property for an individual's domestic and stockwater use. The argument, if I understand it correctly, is that in terms of the effect on long term water levels in the aquifer, the community supply take is the equivalent of everyone in the district taking their own water for stock and domestic use as a permitted activity, and so the effects of the take can be disregarded.

114. I do not consider that approach to be appropriate for several reasons. Firstly, it is not clear whether s104(2) applies specifically to the s104D gateway test, as this is distinct from an assessment under s104(1)(a). Secondly, the water taken is likely to be used for more than domestic and stockwater, as it will no doubt include some commercial use in Amberley. Thirdly, it seems unlikely that the effect of taking small volumes of water over a large area are the same as taking the equivalent volume from one location, given the complex nature of the aquifer system, the diffuse nature of the recharge and the different flow paths by which water must pass through the groundwater zone. I have therefore not relied on this argument.
115. However, in terms of the second limb of the gateway test, giving weight to the economic and social benefits of the use of water for community supply, I am satisfied that the proposal is not contrary (not repugnant to²) the relevant objectives and policies of the Waipara Plan. I therefore consider that the s104D test is met.

Part 2

116. The conclusions reached under section 104D and 104 are subject to an assessment against the purpose and principles of the RMA set out in Part 2 of that Act.
117. In regard to sections 6(e), 7(a) and 8, Te Rūnanga o Tuahuriri and Te Rūnanga o Ngāi Tahu were given the opportunity to submit on the application and chose not to do so. As discussed earlier, I do not consider there will be any adverse effects on values of significance to tangata whenua.
118. The applications will not adversely affect any of the other matters of national importance under section 6 of the RMA.
119. Other relevant considerations under section 7 include 7(b) - *the efficient use and development of natural and physical resources*. Conditions are proposed, including an annual volume and monitoring conditions, which provide for efficient use of water, as well as regular evaluation of network water losses through the water supply strategy. In addition, maximising the use of existing built infrastructure, rather than requiring an alternative water source to be found, is the most efficient use of existing physical resources.
120. Finally, the application must be considered in light of the overriding purpose of Part 2 of the RMA, as set out in section 5. This section seeks to enable people to meet their

² Elderslie Paerk Limited v Timaru District Council [1995] NZRMA 433

needs, including their social and economic wellbeing, while sustaining the resource for future generations and avoiding, remedying or mitigating adverse effects.

121. While there are potential effects on long-term groundwater levels, I consider that the positive social and economic effects of enabling and maximising the community water supply from the existing bore outweighs these effects. The costs and uncertainty associated with locating and developing an alternative supply, with no guarantee that any alternative will be as reliable or secure, are likely to be significant. The effects of the take are limited to the reliability of supply of other users and will not impact on surface water resources, or any of the ecological and cultural values associated with those, as an alternative supply might.
122. Overall, I am satisfied that the purpose of the Act will be achieved by granting the application.

Duration

123. The consent duration sought is 30 years. There is no guidance in the Waipara Plan on consent duration, so I have referred to the LWRP. Policy 4.74 is that “consents for water take and use in catchments or groundwater allocation zones that are over-allocated will generally be for a specified term not exceeding 15 years”. However, it also states that: “the general presumption of a 15 year maximum term will not necessarily be applicable in relation to the taking and use of water for regionally significant infrastructure.”
124. While not regionally significant, the community supply is locally significant and is valued by the applicant in excess of \$15 million. There was no evidence that a 30 year term is not appropriate in this instance. Overall, I conclude that the duration sought is acceptable.

Consent conditions

125. The conditions are based on those recommended by the Reporting Officer. As discussed earlier, I do not consider it necessary to re-evaluate the water protection zone so this condition is not included.
126. I have added RS 38023 (Curtis) and Part RS 9521 (McGirr) as requested by the applicant, to the condition requiring community supply is provided to certain properties, and corrected the owner of RS 9225 to Evans and Davis. I have also added RES 1639 (Dalray Farm), as discussed in the decision.

127. Having concluded that the effects on long term water levels are acceptable when balanced against the need for ongoing reliable community supply, I do not consider there is a specific need for an aquifer test to model the long term impacts of the take.
128. The annual volume of take has been limited to that predicted to be required in 30 years (the current use assuming 1% growth per annum over 30 years as per Mr Beer's evidence). The conditions are attached in Annexure 1.



E Christmas

Annexure 1 – Conditions of consent CRC175709

	SCOPE
1	Water may be taken only from bore M34/5707 and a proposed bore, both 147 metres deep and 250 millimetres diameter, at or about map reference NZTM 2000: 1577094 mE 5226280 mN as shown on Plan CRC175709, which is attached to and forms part of this consent.
2	Water may be taken from bore M34/5707 and the proposed bore: <ul style="list-style-type: none"> a. at a combined rate not exceeding 25 litres per second; b. at a combined rate not exceeding 2,160 cubic metres per day; and c. with a combined volume not exceeding 662,902 cubic metres between 1 July and the following 30 June.
3	Water shall only be used for: <ul style="list-style-type: none"> a. community drinking water supply; and b. stock drinking water <p>for the Amberley District reticulated public supply.</p>
	PROPOSED NEW BORE
4	The proposed new bore, which is the subject of conditions 1 and 2 of this consent: <ul style="list-style-type: none"> a. shall be located within 10 metres laterally of the existing bore; b. shall have a screened interval (top and bottom of the bore screen) no more than plus or minus 10 metres vertical alignment with the screened interval of the screening of bore M34/5707; and c. shall have a Community Supply Protection Zone that does not encompass any land not intersected by the Community Supply Protection Zone shown on CRC175709 Location Plan.
	PRIOR TO COMMENCEMENT
5	The Canterbury Regional Council, Attention: Regional Leader Monitoring and Compliance shall be informed at least two working days prior to the first exercise of this consent.
6	In order to prevent the backflow of water into bore M34/5707 or the proposed new bore, the consent holder shall ensure, for each bore, that: <ul style="list-style-type: none"> a. An effective backflow prevention device is installed and operated within the pump outlet plumbing or within the mainline to prevent the backflow of contaminants into the water source; and

	<ul style="list-style-type: none"> b. The backflow prevention device is tested at the time of installation and annually thereafter by a suitably qualified or certified person in accordance with Canterbury Regional Council approved test methods for the device used; and c. The test report is provided to the Canterbury Regional Council Attention Regional Leader - Monitoring and Compliance, within two weeks of each inspection. <p>Advice Note: This is not authorisation to discharge fertiliser or other contaminants to land, water or air under section 15 of the Resource Management Act.</p>
7	<p>Step test requirements</p> <p>Prior to first exercise of this consent:</p> <ul style="list-style-type: none"> a. the consent holder shall arrange for a suitably qualified person to measure the maximum rate at which water is able to be taken from the proposed new bore, 250 millimetres diameter and 147 metres deep; and b. the rate measured together with a certificate signed by the suitably qualified person shall be provided to the Canterbury Regional Council within 20 working days of the measurement.
	<p>MONITORING, RECORDING AND REPORTING</p>
8	<p>The consent holder shall, before the first exercise of this consent, install an easily accessible straight pipe(s), with no fittings or obstructions that may create turbulent flow conditions, of a length at least 15 times the diameter of the pipe, as part of the pump outlet plumbing or within the mainline distribution system.</p>
9	<ul style="list-style-type: none"> a. The consent holder shall before the first exercise of this consent, for each bore authorised under this consent: <ul style="list-style-type: none"> i. install a water meter(s) that has an international accreditation or equivalent New Zealand calibration endorsement, and has pulse output, suitable for use with an electronic recording device, which will measure the rate and the volume of water taken to within an accuracy of plus or minus five percent as part of the pump outlet plumbing, or within the mainline distribution system, at a location(s) that will ensure the total take of water is measured; and ii. install a tamper-proof electronic recording device such as a data logger(s) that shall time stamp a pulse from the flow meter at least once every 60 minutes, and have the capacity to hold at least one season's data of water taken as specified in clauses (b)(i) and (b)(ii), or which is telemetered, as specified in clause (b)(iii). b. The recording device(s) shall: <ul style="list-style-type: none"> i. be set to wrap the data from the measuring device(s) such that the oldest data will be automatically overwritten by the newest data (i.e. cyclic recording); and ii. store the entire season's data in each 12-month period from 1 July to 30 June in the following year, which the consent holder shall then download and store in a commonly used format and provide to the

	<p>Canterbury Regional Council upon request in a form and to a standard specified in writing by the Canterbury Regional Council; or</p> <p>iii. shall be connected to a telemetry system which collects and stores all of the data continuously with an independent network provider who will make that data available in a commonly used format at all times to the Canterbury Regional Council and the consent holder. No data in the recording device(s) shall be deliberately changed or deleted.</p> <p>c. The water meter and recording device(s) shall be accessible to the Canterbury Regional Council at all times for inspection and/or data retrieval.</p> <p>d. The water meter and recording device(s) shall be installed and maintained throughout the duration of the consent in accordance with the manufacturer's instructions.</p> <p>e. All practicable measures shall be taken to ensure that the water meter and recording device(s) are fully functional at all times.</p>
10	<p>Within one month of the installation of the measuring or recording device(s), or any subsequent replacement measuring or recording device(s), and at five-yearly intervals thereafter, and at any time when requested by the Canterbury Regional Council, the consent holder shall provide a certificate to the Canterbury Regional Council, Attention Regional Leader - Monitoring and Compliance, signed by a suitably qualified person certifying, and demonstrating by means of a clear diagram, that:</p> <p>a. The measuring and recording device(s) has been installed in accordance with the manufacturer's specifications; and</p> <p>b. Data from the recording device(s) can be readily accessed and/or retrieved in accordance with clauses (b) and (c) of condition 9.</p>
11	<p>Access to allow water level measurements to be taken in the bore(s) shall be established, and maintained, via a bung and socket with a minimum diameter of 20 millimetres installed in the bore casing or headworks.</p>
	<p>CONNECTION OF PROPERTIES POTENTIALLY AFFECTED BY WELL INTERFERENCE</p>
12	<p>The consent holder shall by no later than 1 December 2018 connect free of charge the following properties to the Amberley Water Supply scheme and shall as soon as possible after water storage tanks are available on these properties, connect the supply to the tanks:</p> <p>Lot 1 DP 341007 (Hulsman) Lot 5 DP 78383 (Norrie) Lot 3 DP 78383 (Chaney) Lot 10 DP 77039 (Mitchell) RS 9225 (Evans and Davis) Lot 1 DP 78382 (Robinson) Pt RS 7997 (Robinson) Lot 2 DP 82052 (Upritchard) Lots 3 & 7 DP 82052 (Upritchard) Lot 5 DP 82052 (Upritchard) Lot 6 DP 82052 (Upritchard)</p>

	RS 38023 (John Curtis Ltd) Part RS 9521 (McGirr) RES 1639 (Dalray Farm)
13	The consent holder will, upon request of any or all of the owners of the properties listed in condition 12, supply water from the Amberley Water Supply scheme to the water tank on that properties. Water to be supplied at the maximum rate of 1,800 litres per day on the terms and conditions including charges applicable for the Amberley Water Supply scheme for such part of any year as is specified in the owner's request.
	COMMUNITY SUPPLY PROTECTION ZONE
14	The well protection zone as shown on Location Plan CRC175709, which is attached to, and forms part of this consent shall apply to bore M34/5707 and the proposed bore described in conditions 1 and 2 of this consent.
	WATER SUPPLY STRATEGY
15	Within two years of the commencement of this consent, the consent holder shall prepare a Water Supply Strategy in accordance with Schedule 25 of the Canterbury Land and Water Regional Plan. The Water Supply Strategy shall be provided to Canterbury Regional Council, Attention: Regional Leader Monitoring and Compliance within two months of completion of the Strategy, for verification that it complies with the Plan requirements.
16	The Water Supply Strategy shall identify when drought management plan actions will be undertaken, and what methods will be employed to reduce water supply infrastructure inefficiencies and annual demand for water from the Amberley community.
17	Following the verification of the Water Supply Strategy in accordance with condition 15, the consent holder shall implement the actions identified in the Strategy.
18	The Water Supply Strategy shall be reviewed by the consent holder every six years. The review shall ensure that the Strategy demonstrates compliance with this consent and Schedule 25 of the Canterbury Land and Water Regional Plan. The results of the review shall be provided to Canterbury Regional Council, Attention: Regional Leader Monitoring and Compliance within two months of completing the review.
19	<p>Annual Compliance Report</p> <p>The consent holder shall provide an annual report for the period of 1 July to 30 June to the Canterbury Regional Council, Attention: Regional Leader Monitoring and Compliance by 30 September each year. The annual report shall include, but not be limited to:</p> <ul style="list-style-type: none"> a. a summary of the total volume of water abstracted under this consent in comparison to the projected demand for the year; b. if the total volume of water abstracted is more 10% greater than or 10% less than the projected demand, an explanation for the difference; c. a summary of the Water Supply Strategy actions implemented in the previous 12 months; and

	d. details of the Water Supply Strategy actions to be implemented in the following 12 months.
20	The consent holder shall take all practicable steps to: <ul style="list-style-type: none"> a. avoid leakage from pipes and structures; and b. avoid the use of water onto non-productive land such as impermeable surfaces and river or stream riparian strips.
	ADMINISTRATION
21	The Canterbury Regional Council may, once per year, on any of the last five working days of May or November, serve notice of its intention to review the conditions of this consent for the purposes of: <ul style="list-style-type: none"> a. dealing with any other adverse effect on the environment which may arise from the exercise of the consent; or b. requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment or c. requiring the consent holder to carry out monitoring and reporting instead of, or in addition to, that required by the consent; or d. to alter monitoring requirements or reporting requirements in light of previous monitoring results and/or changed environmental conditions or circumstances.
22	The water authorised to be taken under this consent shall not be transferred for any usage other than that authorised under condition 3 of this consent.
23	The lapse date for the purpose of Section 125 of the Resource Management Act 1991 shall be 31 December 2021.

