

**IN THE MATTER** of the Resource Management Act 1991

**AND**

**IN THE MATTER** of application CRC182004 - to change the conditions of consent CRC001779.8 (to take groundwater within the Mayfield-Hinds Groundwater Allocation Zone)

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**DECISION OF HEARING COMMISSIONER EMMA CHRISTMAS**  
**3 May 2018**

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## **The Application**

1. Longland Dairies Limited has applied to change conditions of consent CRC001779.8, a consent to take and use groundwater in the Mayfield Hinds Groundwater Allocation Zone. The applicant proposes to take water from a new deep bore, BY20/0182 (130.29m deep), and cease taking water from a shallow bore and associated gallery, K37/0557 and K37/1049 respectively.
2. Water will be taken from BY20/0182 at a maximum rate of 56 litres per second, and will be used in conjunction with other bores already authorised by CRC001779.8 (two deep bores, K37/2352 and K37/3307, 90m and 133m deep respectively; and two shallow bores, K37/0558 and K37/0559, both 15m deep). The maximum combined rate of take from all bores (195 l/s) and the combined seasonal volume (2,085,823 m<sup>3</sup>) will not be altered.
3. The applicant also wishes to specify that the uses of the water are for irrigation, stockwater and dairy shed supply, and to remove conditions relating to taking water from the Mayfield Hinds irrigation scheme, as no water is taken from that source.
4. CRC001779.8 expires on 30 May 2034, and this expiry date will not change.

## **Decision**

5. The application to change conditions is granted. New conditions are shown in Annexure 1.

## **The hearing**

6. The application was heard on 16 April 2018 at the Hotel Ashburton, Racecourse Road, Ashburton. The following appearances were made:

### *Applicant:*

- (a) Mr Bede Williams, Legal Counsel
- (b) Mr Martin Furrer, Longland Dairies Ltd
- (c) Mr Matthew Bubb, Senior Water Research Engineer, Aqualinc Research Limited
- (d) Mr Martin Rupert, Longland Dairies Ltd

*Submitters:*

- (a) Mrs Beverley Bagrie, Drumblade Farm Ltd
- (b) Mr Lindsay Bagrie, Drumblade Farm Ltd
- (c) Ms Christine Mawhinney, Environmental Consultant, Bowden Environmental

*Environment Canterbury Section 42A Reporting Officers:*

- (d) Mr Dylan Marriott, Consents Planner
- (e) Mr Matt Smith, Principal Consents Planner

**BACKGROUND**

7. The background to this application is covered fully in both the application and s42A report. In brief, the applicant operates a 314ha dairy farm near Hinds, which is irrigated under consent CRC001779.8. This allows irrigation from both shallow and deep bores. The shallow bores are subject to low flow conditions on Moffats Drain.
8. The purpose of the application, as outlined by Mr Furrer, was to provide a more reliable source of water and protect the shallow aquifer and surface water resource.
9. The hearing focussed on two main issues: well interference effects on the Drumblade Farm Ltd bore K37/2184, and potential impacts on water quality due to the location of bore BY20/0182. In terms of well interference issues, there is significant history between Longland Dairies and Drumblade Farm in relation to the processing of previous consents to take deep groundwater. While that is not relevant to this application, it did result in a report being prepared by Mr Ian Lloyd of Golder Associates, which was tabled by both the submitter and the Reporting Officer, and referred to by all three parties. This report ('the Ian Lloyd Report') was commissioned by Environment Canterbury in 2015 to review the processing of previous consents issued to Longland Dairies, and summarises various information in relation to the aquifer and the nature of the Drumblade Farm's bore, and makes recommendations about future processing of consents.
10. Relevantly, bore K37/2184 was drilled in 2004 and was the first deep bore in the area. As explained by Mr Lloyd, the bore was drilled to 74m depth with a 300mm diameter casing. Due to the hardness of the ground at that point, drilling continued with a 250 mm diameter casing down to 132m. The bore was referred

to as being 'telescoped'. The 250mm casing was then withdrawn, and a slotted 200mm casing (with slots at 90 – 102m and 123.5 – 129.5m) was lowered into the hole. This casing stretches from 73m depth to the base of the bore.

11. The bore contains a pump sized to pump the desired 70 l/s; however, due to its diameter, it is too large to fit in the 200mm casing and sits above it, at approximately 70m below ground level (bgl). There is a water level cut-off switch at 63m depth.

## **PLANNING BACKGROUND**

12. The relevant regional plan is the operative Land and Water Regional Plan (LWRP). Plan Change 2 to the LWRP amends the LWRP to include includes policies and rules to manage nutrient discharges from farming activity in the Hinds area. Decisions on PC2 were released in February 2016 and are subject to appeals.
13. The LWRP sets an allocation limit of 126.1 Mm<sup>3</sup>/yr, which is currently 97.82% allocated. There is also an additional allocation of 28.3 Mm<sup>3</sup>/yr to transfer surface or shallow groundwater takes to deep groundwater, to reduce pressure on the surface water.
14. As the application is for a change of conditions, the status is discretionary under section 127(2) of the RMA.

## **NOTIFICATION AND SUBMISSION**

15. The application was limited notified to Drumblade Farm Ltd on 23 January 2018, due to concerns about potential well interference. Drumblade Farm Ltd lodged a submission opposing the application and raised two concerns. Firstly, the impact on water levels in the aquifers and consequent effects on their bore K37/2184. This is the same depth as the Longland Dairies' deep bores, including BY20/0182. The submission explained that K237/ initially performed well, but subsequent drilling of neighbouring bores to a similar depth significantly affected the performance, with low water levels causing the pump to cut out.
16. The second concern was the effect on water quality in the deep aquifer, as the new bore was (allegedly) drilled though the existing gallery which it will replace.

The submitter was concerned that contaminated water from the shallow aquifer would be drawn down to the deep aquifer through the gallery gravels.

## EVIDENCE PRESENTED

17. The main points made by each witness are briefly summarised as follows:
18. **Mr Williams** noted that due to the appeals on Plan Change 2 being limited, a high degree of weight can be placed on its objectives and policies. Policy 13.4.5 provides for the replacement of surface water take consents with deep water takes, in order to improve flows in lowland streams which are currently over-allocated.
19. Mr Williams discussed the well interference provisions in the LWRP (specifically Policy 4.59 and Schedule 12), and the notion that the RMA does not intend to prevent adverse effects; it is a question as to whether effects are acceptable. Schedule 12 outlines the degree of acceptable well interference effect and the concept that only bores that 'adequately penetrate the aquifer' will be protected. His submission was that the Drumblade Farm bore does not adequately penetrate the aquifer.
20. He noted the history of the well interference provisions, from their inception in the Natural Resources Regional Plan (NRRP). Relevant case law, particularly the Opiki Water Action Group case<sup>1</sup>, is that existing water users do not have a guarantee of, or right to, water in any particular form (for example through pressure in a particular bore). He argued that there was no presumption that Drumblade Farm Ltd could expect ongoing ability to access water with its current well set-up, and that it might need to undertake works to improve its ability to access water. He concluded that the effect of Longland Dairies' application on the Drumblade bore was within that provided for by Schedule 12.
21. **Mr Furrer** explained the history of irrigation on Longland Dairies farm. He attached a letter from Gavin Briggs, of Rainer Irrigation Group, who installed the mainline and pump stations for the original irrigation system (taking water from three shallow bores). Mr Briggs had recommended a location for the new bore in order to avoid any of the previous earthworks. Mr Briggs provided a diagram of

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<sup>1</sup> Opiki Water Action Group Inc v Manawhatu Wanganui Regional Council W64/2—4 12 August 2004

the approximate location of the original gallery. This was shown to be in an area immediately to the west of BY20/0182.

22. Mr Furrer also provided a letter from Wayne O'Donnell of Barber Welldrilling Services, which installed BY20/0182, with details of the bore log. This shows a number of water bearing layers interspersed with unsaturated clay and gravels. Mr O'Donnell stated that this shows no connection between water bearing layers, and that the geology of the bore was consistent with normal Canterbury gravels. No gallery material was found.
23. **Mr Bubb** discussed the background to the application, focusing on well interference and bore construction, including aquifer testing undertaken on BY20/0182. He reviewed the NRRP well interference provisions in order to understand the purpose of the LWRP Schedule 12, noting that the NRRP provisions, on which the LWRP provisions are based, represented a fundamental shift in the assessment of well interference, to avoid poor bores 'sterilising' an area.
24. He also considered the productivity of the Drumblade Farm bore, concluding that if the pump was adjusted to abstract 50 l/s (or a new pump installed at the same depth in the bore and with the same water level cut-off), this, along with Mayfield Hinds Irrigation Scheme water, would provide water for 5.08 mm/day across the Drumblade Farm property. If it was pumped at 40 l/s, this would achieve 4.74mm/day, and if it was pumped at 30 l/s, it could provide 4.4 mm/day. He considered the bore to be 'good' and that it could still provide a useful quantity of water.
25. He then reviewed groundwater levels in the area, concluding that current abstraction rates are sustainable and the groundwater system is not under significant stress due to abstraction.
26. In relation to the risk of groundwater contamination from the drilling of bore BY20/0182, Mr Bubb queried what the impact was likely to be, given that any bore would pass through the shallow aquifer.
27. Finally, he disagreed with the Reporting Officer's recommendation to require the ability to measure water levels in all bores on the consent, as this was beyond the scope of the change of conditions application.

28. **Ms Mawhinnie**, for the submitter, outlined the concerns that Drumblade Farm Ltd has had in terms of interference from the bores drilled by Longland Dairies in the past.
29. She discussed the drawdown caused by BY20/0182, noting that it exceeds the allowable drawdown threshold for interference effects under Schedule 12.
30. In relation to groundwater quality, the risk of water draining down the outside of the casing into the deep aquifer was of particular concern. The shallow aquifer is contaminated and water for the farm cottage is now being taken from the deep bore.
31. She questioned whether the deep aquifer can sustain the number of deep bores within a 2km radius (8 in total, with a combined pump rate of 432.34 l/s) and noted that the allocation limit for the groundwater zone does not distinguish between different aquifers. She provided a graph showing the drawdown in Drumblade Farm's bore K37/2184 plotted against the volume pumped from one of Longland Dairies deep bores, K37/2352. This showed a drawdown pattern approximately matching the volume pumped from K37/2352.
32. Ms Mawhinnie also provided a map prepared by Mr Bagrie, showing his understanding of the location of the former gallery, which was the same location as bore BY20/0182.
33. **Mr Bagrie** commented that the way Drumblade Farm's bore K32/2184 was installed was acceptable and standard practice at the time. The pump worked well, producing 66 l/s, until the first Longland Dairies' bore began operation. A storage pond was installed and water use efficiency improved. The bore is not used for irrigation at present, but it is needed as back up for the future. He had priced making alterations to the bore and pump but these were expensive.
34. Mr Bagrie was present when gallery K37/1049 was installed and was confident that it was in the same location as BY20/0182. He noted that the water quality issue was his primary concern.
35. He tabled a diagram showing how the gallery was constructed: a boulder filled trench approximately 1m wide, with a nova flow pipe laid in the bottom. To install

the gallery, a significantly larger area of ground was excavated. This was then backfilled with clay and gravels.

36. **Mr Marriott** summarised his s42A report, noting that the decision to notify the application was based on a well interference assessment taking account of the Drumblade Farm's pump's actual depth at 70m. His recommendation to grant the change of conditions was based on an assessment of well interference that assumed the screen depth was 123.5m, based on the advice of ECan Senior Hydrogeologist, Mr Patrick Durney.
37. Mr Marriott tabled a copy of the Longland Dairies permit to alter the depth of gallery K37/1049 (dated 2009). Condition 1 of that permit states that the gallery must be orientated in a north-south direction, although he noted that compliance with the condition had not been monitored.
38. He agreed with the minor changes to conditions proposed by Mr Bubb, with the exception of the removal of the requirement for water level monitoring in all bores. He considered this was good practice and should be included on the consent.
39. In his closing address, **Mr Williams** focussed on the scope of the application, being a change to conditions relating to one bore. There is no scope to impose conditions on other bores. Furthermore, bore BY20/0182 was installed as a permitted land use activity, and its installation was not a matter for this consent application.

## **ASSESSMENT UNDER SECTION 104**

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

40. A number of potential effects were considered by both Mr Bubb and Mr Marriott to be less than minor, and are discussed in both the application and the Officer's report. There was no dispute raised by the submitters in relation to these matters. 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 is unlikely to be any effect due to the distance between the take and the coast (12 km).
  - b) Effect on groundwater quality from backflow from the irrigation system into the aquifer. Consent CRC001779.8 has a condition requiring backflow



prevention, and this will be maintained on the new consent. This ensures that LWRP Policy 4.78 is met.

- c) Direct effect on surface water flows (stream depletion). The depth at which the bore is screened (118 m) means there it is highly unlikely there is any impact on surface water. There will be a positive effect from the removal of shallow bore K37/0557 from the consent.
  - d) Technical efficiency of the use of water. The maximum daily rate of the take for the consent, and the seasonal volume, will not change. The daily rate is equivalent to an application rate of 5.4mm/day across the 314 ha irrigation area. The seasonal volume was assessed as being reasonable at the time of the original application. This is consistent with Objective 3.9, which is that: *'Abstracted water is shown to be necessary and reasonable for its intended use and any water abstracted is used efficiently'*.
  - e) Effect on tangata whenua values. No comments were received from Arowhenua rūnanga in response to the application. The relevant iwi management plan, the Iwi Management Plan of Kāti Huirapa for the area Rakaia to Waitaki, July 1992, does not discuss groundwater takes. Both this plan, and Te Rūnanga o Ngāi Tahu's Freshwater Policy Statement, focus on maintaining flow in surface water bodies sufficient to restore and maintain the mauri of waterways, and maintain healthy mahika kai populations and habitats. There will be an overall benefit to stream flows as a result of this application. Consequently, I am satisfied that effects on tangata whenua values will be no more than minor.
  - f) Effect on aquifer stability. As the aquifer is gravel based, this is not a concern.
  - g) Effect on biodiversity and dryland habitat. As there is no change in land use, and a lessening of effects on surface water, the overall impact on biodiversity is likely to be positive.
  - h) Effect of water use on water quality. There is no change to the land use and therefore no additional impacts on groundwater from the use of water. The applicant holds a land use consent for farming (CRC181720).
41. Three potential effects were of concern to the submitter and require further discussion: well interference effects, the cumulative effects on groundwater levels, and effects on groundwater quality as a result of the location of the bore.

## Well interference

42. Policy 4.59 of the LWRP is that: *“The direct cumulative interference effect from new groundwater takes on existing groundwater takes shall not exceed the acceptable threshold criteria in Schedule 12, unless it can be demonstrated that there will be no more than minimal adverse effects on yield of existing adequately penetrating bores.”*
43. Schedule 12 requires that a well interference assessment is undertaken of the cumulative effects of all bores within 2km. It allows cumulative interference effects of up to 20% of the available drawdown within a bore, and protects the remaining 80% of the available drawdown.
44. Before considering the detail of the assessment, I note that there was no dispute between the parties in relation to the type of interference assessment undertaken, and the aquifer parameters used in that assessment. These were derived from a constant discharge test of BY20/0182 and were considered by Mr Patrick Durney (ECan Senior Hydrogeologist) and Mr Hamish Graham (ECan Hydrogeologist) to be conservative for the purposes of the interference assessment.
45. The issue in dispute is the depth at which the Drumblade Farm’s pump, in bore K37/2184, should be assumed to be located for the purpose of the assessment.
46. As previously discussed, the pump is located at approximately 70m depth, some 20m above the uppermost slotted casing (the screen). The initial analysis, undertaken by ECan for the purposes of notification, assessed the effects on the bore with the pump at this depth. This was considered appropriate by Mr Williams.
47. It was also the submitter’s view that using the actual pump depth was the correct depth to use. This means there is a total available drawdown in the bore of 53.3m, as outlined in the Ian Lloyd Report. Ms Mawhinnie noted that Mr Lloyd had recommended that ECan’s database be amended to highlight the position of the pump and assign an available drawdown of 53.3m to the bore. Of the 53.3m total available drawdown, 42.6m is protected and 10.7m is available for interference effects. Ms Mawhinnie noted that when BY20/0182 is pumped at 56 l/s, this causes a cumulative drawdown of 13.2m, greater than the allowable drawdown threshold.

48. Given the focus on the interpretation of Schedule 12, both Mr Marriott and Mr Bubb turned to the previous plan, the Natural Resources Regional Plan (NRRP), for guidance on the reasoning behind Policy 4.59 and Schedule 12. The NRRP contained a similar policy and Schedule, but with additional explanation of the approach taken. This was to prevent bores that are not appropriately constructed from locking up the groundwater resource. Both Mr Marriott and Mr Bubb were of the view that the LWRP Policy 4.59 and Schedule 12 have the same aim. I agree.

*Schedule 12 analysis*

49. This first part of Schedule 12 defines how the direct cumulative interference effect is calculated. There was no dispute on this matter.

50. It then defines what an acceptable direct cumulative interference effect is:

*'An "acceptable" direct cumulative interference effect is when the direct cumulative interference effect is no greater than 20% of the total available drawdown at times of low water level that is exceeded 80% of the time during the period of proposed water use, having taken into account individual bore and pump installation details (see Figure S12.1).'*

51. Figure S12.1 demonstrates this method using a diagram of a bore, with the protected available drawdown and available drawdown for interference effects marked. It also shows a pump located immediately above the screen, with a footnote that reads:

*'The pump is assumed to be located immediately above the top screen, or the intake located at the bottom of the bore when a surface pump is being used. This may not be the case in the situation such as a telescoped bore where the pump cannot be placed in this location.'*

52. Mr Williams' interpretation was that the reference to a telescoped bore was simply an example of a bore that is not constructed in the manner shown in the diagram. That is not to say that telescoped bores should be treated differently, rather to highlight that these must be treated as if the pump was above the bore.

53. I agree with this interpretation.

54. Mr Marriott discussed the phrase '*... having taken into account individual bore and pump installation details*'. This created what he considered to be an internal conflict in the wording of Schedule 12, as it later states that '*where an existing bore inadequately penetrates an aquifer, the interference effect ....will be assessed as if the existing bore is also adequately penetrating the aquifer*'. He noted that the phrase referring to pump installation details was in the NRRP Schedule WQN10, but was removed from the notified version of the LWRP Schedule 12 as it "did not allow for the application of the adequate depth policies". It was reinstated in the decisions version of Schedule 12. Mr Marriott considered this had been an error on the part of the s42A Reporting Officer, as neither the submission nor s42A Report gave a reason for its re-introduction.
55. It is my opinion that the phrase: '*having taken account individual bore and pump installation details (see Figure S12.1)*' must be read with the emphasis on 'see Figure S12.1'. The figure is intended to explain how the bore and pump installation is to be treated, and both the diagram and footnote are clear in regards to the location at which the pump must be assumed to be. I do not think the phrase is intended to override Figure S12.1 and indicate that a different pump set up can be used for a particular bore.
56. This interpretation is the only possible one if the purpose of Policy 4.59 and Schedule 12 is considered to be the same as their predecessors in the NRRP.
57. The final part of Schedule 12 deals with adequate penetration of the aquifer. The Schedule states that:
- 'Where an existing bore adequately penetrates an aquifer, the existing bore should not have its protected available drawdown reduced due to the direct cumulative interference effects from other bores, unless it can be demonstrated that the proposal will not have an impact upon the yield of the bore that is any more than minor, or the effect is mitigated.*
- Where an existing bore inadequately penetrates an aquifer, the interference effect of a new bore will be assessed as if the existing bore is also adequately penetrating the aquifer.'*
58. A method for determining adequate penetration is outlined in the Schedule, as follows:

1. *where the aquifer is included in Section 6 to 15, the depth specified in Section 6 to 15; or*
  2. *for aquifers where the depth is not specified in Section 6 to 15:*
    - a. *either a depth below the calculated minimum water level, or below the level to which 50% of the bores within 2km penetrating the aquifer are already established at 1 January 2002, whichever is the deeper; or*
    - b. *a depth determined by the application of the best available technical information and/or advice to be an adequate penetration depth.*
59. There is no depth specified in Sections 6 to 15 for this aquifer.
60. There were also no bores penetrating the deep aquifer in this location in 2002. I assume the 'calculated minimum water level' (which is not defined) is the same as the 'low water level that is exceeded 80% of the time during the period of the proposed water use', referred to earlier in Schedule 12. This depth, according to the Ian Lloyd Report, is 14.2m, which is clearly nonsensical as an 'adequate penetrating depth' for a bore in a deep aquifer.
61. The 'best available technical information and /or advice' must therefore be used. Mr Marriott's view was that this was provided by Mr Durney, who indicated that an adequate penetrating depth is 123.5m. Mr Bubb concurred with this figure, but also pointed out that the depth to which 50% of deep bores are drilled now, which could be used a proxy for adequate penetrating depth, is 132m. Ms Mawhinnie did not dispute the depth of 123.5m.
62. The Drumblade Farm bore is drilled to 132m, and so by any measure is adequately penetrating the aquifer in terms of Schedule 12.
63. As discussed earlier, for the purposes of the interference assessment the pump must be assumed to be located immediately above the screen, as shown in Figure S12.1.
64. The uppermost screen is at 90m. An assessment assuming the pump was located immediately above this screen was carried out by Mr Bubb and the direct cumulative interference effect on K37/2184 was shown to be acceptable.

65. I therefore conclude that the application is consistent with Policy 4.59 and the well interference effects are acceptable.

### **Cumulative effects on water levels in the aquifer**

66. While this issue is related to the well interference effects on the Drumblade bore, Ms Mawhinney specifically questioned whether the deep aquifer could support further abstraction, given the rate that is currently authorised to be abstracted in the vicinity (432 l/s). She made the point that the allocation limit for the aquifer does not discriminate between the deep and shallow aquifers.
67. Mr Bubb reviewed the groundwater levels in the area, noting that water levels fluctuate seasonally due to climatic variation, abstraction and recharge. Water levels in nearby deep monitoring bores show water levels declining between 2015 and 2017 due to low recharge, then recovering to 'normal to high' water levels. He concluded that current abstraction rates are sustainable and the groundwater system is not under significant stress due to abstraction.
68. He also noted that the groundwater allocation limit for the zone, which was reviewed through the Plan Change 2 process, has not yet been reached. This limit effectively sets a level at which cumulative effects on groundwater levels are considered acceptable.
69. While I accept that the allocation limit is for all aquifers together, given that the allocation limit for this groundwater zone was revised during the Plan Change 2 process, and that an additional allocation was provided for shallow takes to be replaced by deep takes, ECan is clearly satisfied that the allocation limit is appropriate and will achieve the relevant objectives and policies in the plan, including Objective 3.13 (groundwater supports base flows and levels in surface water bodies, and avoids salt-water intrusion) and Policy 4.4 (groundwater abstractions do not cause: a continuing long-term decline in groundwater levels or pressures, seawater contamination, downward movement of contaminants, or a decline in overall water quality in aquifers; and the exercise of customary uses and values is supported).
70. No evidence was presented at this hearing suggesting that this was not the case. I therefore conclude that there will be no more than minor cumulative effects on water levels in the aquifer.

## **Effects on groundwater quality as a result of the location of bore BY20/0182**

71. The third issue, and the most important for Mr Bagrie, is the potential for contaminated water from the shallow aquifer entering the deep aquifer due to bore BY20/0182 allegedly being drilled in the location of the former gallery, K37/1049.
72. The concern, as explained by Ms Mawhinnie, is that a cavity around the casing will allow shallow groundwater to drain down the outside of the bore into the deep aquifer. Ms Mawhinnie considered that there is no evidence that sealing had occurred to prevent interconnection between the aquifers.
73. Mr Bagrie highlighted an example of a deep bore drilled with a loose casing, which required a significant quantity of gravel to be put around it and which was clearly not sealed between water bearing layers.
74. There was much discussion at the hearing about whether the bore had been located in the area excavated when the gallery was installed. It appears clear from the bore log that it did not pass through the gallery itself. There was disagreement about the exact location of the excavated area. Two witnesses, Mr Briggs and Mr Bagrie, were present when the excavation was undertaken and indicated different locations.
75. The bore log appears to show the normal Canterbury strata, and as Mr Bubb pointed out, it is not clear what additional impact the bore would have if it was drilled through excavated area, given it would be drilled through the shallow aquifer anyway.
76. It was the applicant's and Mr Marriot's view that as installation of the bore was a land use activity and subject to separate rules (in this case, a permitted activity), it was beyond the scope of this application. The land use consent would be monitored using ECan's normal processes and if it had not been installed correctly, appropriate action would be taken. The conditions on the permitted activity rule are designed to prevent contamination of this nature, including backfilling bores with gravel.

77. I accept that this is the appropriate process and water quality issues due to bore construction are not a relevant consideration for this change of conditions application.

**Positive effects**

78. Granting the application will result in improved reliability for irrigating the property and lessened impacts on shallow groundwater and stream flows. This will potentially improve ecological values, cultural values and reliability of supply for others accessing this shallow aquifer for irrigation or other uses.

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

79. The relevant provisions of the LWRP have been discussed in terms of the potential effects. Other relevant policies are noted in the s42A report. Having regard to these, I consider that the application is consistent with the LWRP.
80. Other planning documents to which regard must be had include the National Policy Statement on Freshwater (NPS) and the Regional Policy Statement (RPS).
81. The requirements of the NPS have been included in the LWRP, by identifying freshwater objectives, and setting and maintaining allocation limits. The application is within the allocation limit for the Mayfield Hinds Groundwater Allocation Zone. It will not affect the life-supporting capacity of freshwater and so is not contrary to this policy. As such, the application is consistent with section B (water quantity) of the NPS.
82. There will be no additional impact on water quality as a result of the change of conditions, and the application is therefore consistent with section A (water quality) of the NPS.
83. The Regional Policy Statement became operative in 2013. Relevant objectives and policies are detailed in the s42A report. The RPS is implemented by the LWRP. Having considered the relevant objectives and policies, I find that the application is consistent with the RPS.

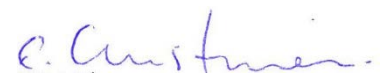


## Part 2

84. The conclusions reached under section 104 are subject to an assessment against the purpose and principles of the RMA set out in Part 2 of that Act.
85. The applications will not affect any of the matters of national importance under section 6 of the RMA.
86. Relevant considerations under section 7 include 7(b) - *the efficient use and development of natural and physical resources*. Granting this application will ensure the resource can be used efficiently and is not 'tied up' by the design of the Drumblade Farm bore.
87. In regard to section 8, Te Rūnanga o Arowhenua has been given an opportunity to comment on the application and has chosen not to. As discussed earlier, I do not consider there will be any adverse effects on values of significance to tangata whenua.
88. Finally, the application must be considered in light of the overriding purpose of Part 2 of the RMA, set out in section 5. This section seeks to enable people to meet their needs, including their social and economic wellbeing, while sustaining resources for future generations and avoiding, remedying or mitigating adverse effects.
89. There will clearly be benefits to the applicant in terms of economic and social wellbeing, through improved reliability of supply, and positive effects on local surface water resources. I have concluded that adverse effects will be acceptable and consistent with those anticipated by the LWRP. Overall, I am satisfied that the purpose of the Act will be achieved.

## Consent conditions

90. The conditions are attached in Annexure 1. These are slightly amended from those proposed by the applicant and Mr Marriott, to improve clarity. I agree with Mr Bubb that it is beyond the scope of the application to require water measuring facilities to be installed in all bores under this consent.





## Annexure 1 – Conditions of consent CRC182004

1	<p>Water shall only be taken at a combined rate not exceeding 195 litres per second from:</p> <ul style="list-style-type: none"> <li>a. Bore K37/0558, 600 millimetres diameter and 15 metres deep, and associated gallery, length 50 metres, depth 14 metres and width 20 metres at map reference NZMT 2000: 1485012 mE 5123878 mN; and</li> <li>b. Bore K37/0559, 600 millimetres diameter and 15 metres deep, and gallery K37/1050, length 50 metres, depth 14 metres and width 1.5 metres at map reference NZMT 2000: 1485040 mE 5124110 mN; and</li> <li>c. Bore K37/2352, 300 millimetres diameter and 133.3 metres deep at map reference NZMT 2000: 1483558 mE 5122593 mN; and</li> <li>d. Bore K37/3307, 300 millimetres diameter and 90 metres deep at map reference NZMT 2000: 1486152 mE 5124942 mN and</li> <li>e. Bore BY20/0182, 300 millimetres diameter and 130.29 metres deep at map reference NZMT 2000: 1484261 mE 5123049 mN.</li> </ul>
2	<p>Water may be taken from bores as follows:</p> <ul style="list-style-type: none"> <li>a. K37/2352 at a rate not exceeding 60 litres per second;</li> <li>b. K37/3307 at a rate not exceeding 70 litres per second;</li> <li>c. BY20/0182 at a rate not exceeding 56 litres per second;</li> </ul> <p>with a combined volume from all bores not exceeding 2,085,823 cubic metres between the 1st of July and the following 30th of June.</p> <p><b>Advice note:</b> Bores K37/0558 and K37/0559 are authorised to take up to 195 litres per second from each bore in accordance with condition 1.</p>
3	<ul style="list-style-type: none"> <li>a. The taking of water from bore K37/0558 and associated gallery; and bore K37/0559 and gallery K37/1050, in terms of this permit, shall cease whenever the flow in Moffats Drain at Boundary Road (at or about map reference NZMS 260 K37:947-850), as estimated by the Canterbury Regional Council, falls below 25 litres per second.</li> <li>b. Condition (3)(a) does not apply whenever there is no flow in Moffats Drain at Surveyors Road (at or about map reference NZMS 260 K37:962-819)</li> </ul>
4	<p>Water shall only be used for stockwater, dairymilk supply and domestic purposes within the area of land shown in attached plan CRC182004 which forms part of this consent.</p>
5	<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 of bores K37/2352, K37/0558, BY20/0182, K37/0559 and K37/3307.</p>
6	<p>The consent holder shall before the first exercise of this consent:</p>

	<p>a.</p> <ul style="list-style-type: none"> <li>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</li> <li>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 15 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).</li> </ul> <p>b. The recording device(s) shall:</p> <ul style="list-style-type: none"> <li>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</li> <li>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 Canterbury Regional Council upon request in a form and to a standard specified in writing by the Canterbury Regional Council; and</li> <li>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.</li> </ul> <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>
7	<p>Within one month of the installation of the measuring or recording device(s) required by condition (6), 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: RMA Compliance and Enforcement Manager, signed by a suitably qualified person certifying, and demonstrating by means of a clear diagram, that:</p> <ul style="list-style-type: none"> <li>a. The measuring and recording device(s) has been installed in accordance with the manufacturers specifications; and</li> </ul>

	<p>b. Data from the recording device(s) can be readily accessed and/or retrieved in accordance with clauses (b) and (c) of condition (6).</p>
8	<p>If the irrigation system is used to distribute diluted effluent, fertiliser or added contaminants the consent holder shall ensure:</p> <ul style="list-style-type: none"> <li>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</li> <li>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</li> <li>c. The test report is provided to the Canterbury Regional Council Attention Regional Leader - Monitoring and Compliance, within two weeks of each inspection.</li> </ul> <p><b>Advice Note:</b> This is not authorisation to discharge fertiliser or other contaminants to land, water or air under section 15 of the Resource Management Act.</p>
9	<p>The consent holder shall take all practicable steps to:</p> <ul style="list-style-type: none"> <li>a. Ensure that the volume of water used for irrigation does not exceed that required for the soil to reach field capacity; and</li> <li>b. Avoid leakage from pipes and structures; and</li> <li>c. Avoid the use of water onto non-productive land such as impermeable surfaces and river or stream riparian strips.</li> </ul>
10	<p>The taking of water in terms of this permit shall cease for a period of up to 48 hours, on notice from the Canterbury Regional Council, to allow measurement of natural groundwater levels.</p>
11	<p>Access to allow water level measurements to be taken in the bore BY20/0182 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>
12	<p>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 dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.</p>



Plan CRC182004

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Scale: 1:15,000 @A3

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