

**INDEPENDENT HEARING COMMISSIONERS**

**DATE OF REPORT: 4 November 2022**

**DATE OF HEARING COMMENCEMENT: 15 November 2022**

**Applicants:** Tuki Tuki Awa Limited, Buchanan No. 2 Trust, Plantation Road Dairies Limited, Te Awahohonu Forest Trust, I and P Farming Limited, Springhill Dairies Partnership, Papawai Partnership and Purunui Trust.

**Application numbers:** Various – see Table 1

**Consent type:** Water Permits

**Table 1. Application details<sup>1</sup>**

Application no.	Applicant	Application description	Property location
APP-123563	Te Awahohonu Forest Trust	To take and use Tranche 2 groundwater from four existing wells (well no's 16563, 16592, 16593 and 5515) and up to two new wells to irrigate up to 850 ha of pasture, crops and/or horticulture and to augment the Mangaonuku Stream.	Gwavas Station - 5740 State Highway 50 and 97 Matheson Road, Tikokino
APP-123991	Springhill Dairies Partnership	To take and use Tranche 2 groundwater from well no's 1518, 5167, 3870, 4593, 4122 and 5497 to irrigate up to 188 ha of pasture, crops and/or horticulture and to augment the Mangaonuku Stream.	Cnr Tikokino and Makaroro Roads, Tikokino
APP-123541	Tuki Tuki Awa Ltd	To take and use Tranche 2 groundwater from up to four new wells to irrigate up to 136 ha of pasture and crops and/or horticulture and to augment the Tukituki River.	406 Tukituki Road, Takapau
APP-123547	Plantation Road Dairies	To take and use Tranche 2 groundwater from well no. 4830 and up to three new wells to irrigate up to 459 ha pasture and crops and/or horticulture and to augment the Kahahakuri Stream.	1404 Ongaonga Road, and Wakarara Road, Ongaonga
APP-123565 and APP-124498	Papawai Partnership	To take and use Tranche 2 groundwater from well no's 16508 and 1859 to irrigate up to 320 ha of pasture, crops and/or horticulture to and to augment the Waipawa River.	1041 State Highway 50, Ongaonga
APP-123566 and APP-124500	I&P Farming Limited	To take and use Tranche 2 groundwater from up to two new wells to irrigate up to 310 ha of pasture, crops and/or horticulture and to augment an unnamed tributary of the Tukituki River.	337 Ongaonga - Waipukurau Road, Ongaonga
APP-123546	Buchanan Trust No. 2	To take and use Tranche 2 groundwater from well no. 16408 and up to three new wells to irrigate up to 243 ha of pasture, crops and/or horticulture and to augment the Ongaonga Stream	19 Ngaruru Road, Ongaonga
APP-125281	Purunui Trust	To take and use Tranche 2 groundwater from up to three new wells to irrigate up to 175 ha of pasture, crops and/or horticulture and to augment the Waipawa River	385 and 375 Swamp Road, Ongaonga

<sup>1</sup> Take volumes are totals from the draft consent conditions provided 22 July 2022.

## 1. Report status and format

1. This report is a supplementary section 42A report prepared under the Resource Management Act 1991 (RMA).
2. At the direction of the Panel (Minute #2, dated 26 October 2022), I have prepared this as an update to the original s42A report that I prepared in August 2022. This update was requested because conferencing between the relevant experts has resulted in substantial agreement on a range of issues, particularly with regard to groundwater modelling.
3. In preparing this report I have referred to, and have been guided by the following expert joint witness statements (JWS):
  - JWS on groundwater modelling dated 11 October 2022
  - JWS on freshwater ecology dated 18 October 2022
  - JWS on well interference dated 20 October 2022
4. The applicant recently provided their evidence. To the degree possible given the short amount of time available, this evidence has been reviewed and commented on by the relevant technical experts (from PDP) for the Council. Their summary memo has also been circulated to the parties and should be read in conjunction with this report.
5. This planning report is presented as follows:

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## **2. Summary of approach to recommendation**

6. Based on the information available to me at the time of completing this report, I continue to recommend that the applications be refused.
7. I recognise that substantial progress has been made to address the concerns that I raised in my original s42A report, most significantly in the area around groundwater modelling and associated uncertainty. However, in my view, there remains some key issues that are yet to be clearly addressed.
8. These key issues are:
  - Well interference. The methodology that is being used to assess potential effects on other wells is still unclear and the cumulative effects from Tranche 1 and Tranche 2 abstraction are not yet fully accounted for. A full assessment of the effects has not yet been completed and provided and so the number and location of affected wells remains uncertain. The applicant has indicated that further information will be provided at the hearing, and that clarification on any proposed mitigation will also occur then.
  - Augmentation. The practical implementation of the proposed regime is still uncertain. It is unclear whether augmentation will mitigate for the effects predicted. In more extreme years it is likely that insufficient water will be available. The implications of delayed augmentation onset across the group and the requirement for augmentation based on Red Bridge flows needs further consideration.
  - Adverse effects on small streams. These remain likely and are not easily avoided, remedied or mitigated. Given their nature and the other factors and influences in the catchment, it is very difficult to monitor for and respond to these effects.
9. After consideration of the evidence currently available to me, I still consider that the adverse effects from the proposal could be significantly adverse. I continue to conclude that the proposal is not consistent with the objective of the National Policy Statement for Freshwater Management 2020 to give effect to Te Mana o Te Wai and other critical Regional Policy and Regional Plan provisions.
10. A cultural values report has now been provided. No additional information is available to further explore the potential for effects on these cultural values. This remains a significant unknown at this stage and will be further informed by tangata whenua submitters at the hearing.

## **3. Summary of the proposal**

11. The applications were summarized in the previous s42A report. A summary is also provided in the applicant's evidence. The key changes to the proposal since the last s42A report appear to be the substantial update and changes to the modelling, further development and modelling of Scenario 5 (for use of 13 million m<sup>3</sup>/year) and amended or some additional and amended proposed conditions

12. The details of the now proposed irrigation and augmentation volumes is presented in Table 3 of Mr Willis' evidence. This now includes 2 million m<sup>3</sup>/year for 'potential cultural mitigation'. This volume is predominantly made up from volumes previously sought by Plantation Road Dairies, Buchanan No. 2 Trust, Tukituki Awa, and Springhill Dairies.

#### 4. Expert witness conferencing

13. Expert witness conferring occurred in three separate sessions in October. These occurred as follows:

Conference	Date	Attendees
Groundwater modelling <sup>2</sup>	11 October 2022	Neil Thomas (PDP) – for HBRC Julian Weir (Aqualinc) – for applicants Nick Dudley Ward (SEPCO Technologies) – for applicants
Freshwater ecology <sup>3</sup>	18 October 2022	Laura Drummond (PDP) – for HBRC Vaughan Kessing (Boffa Miskell) – for applicants
Well interference <sup>4</sup>	20 October 2022	Neil Thomas (PDP) – for HBRC Hilary Lough (PDP) – for HBRC Julian Weir (Aqualinc) – for applicants Alexandra Johannsen (Bay Geological) – for applicants Susan Rabbitte - for applicants

14. Joint witness statements (JWS) have been prepared and record where agreement was reached or alternatively, matters where there remains disagreement or where further information was considered to be required.
15. The conferencing that occurred on well interference was on the methodology and data to be used to make the assessment. The actual assessment had not been completed at the time of conferencing.

#### 5. Matters of contention, agreement and uncertainty

16. It was explained in the first s42A report how the groundwater modelling is key to understanding the potential effects of the takes. There were a number of areas where the accuracy of the modelling was questioned by Council's experts. A significant amount of work has since been undertaken by the applicants on the groundwater model. An updated modelling report has been provided (dated 28 September 2022)<sup>5</sup>. This includes further updates to better calibrate the model to stream flows within the Basin, and further analysis of model uncertainty. The JWS records that substantial agreement has now been reached, and importantly it was agreed that:

- The level and method of calibration is now appropriate for the data available and model objectives, which are to predict the likely *changes* in flows and groundwater levels.

<sup>2</sup> See: [HBRC web link](#)

<sup>3</sup> See: [HBRC web link](#)

<sup>4</sup> See: [HBRC web link](#)

<sup>5</sup> See: [HBRC web link](#)

- Uncertainty analysis indicates that there is a narrow band of uncertainty around predicted results and the model provides a reasonable basis for decision making.
  - All available data has now been used in model calibration.
  - The model adequately accounts for losses and gains in river flows.
  - Full water use under the existing (Tranche 1) allocation has been accounted for in the model.
  - Efficacy of indirect augmentation via shallow wells should be demonstrated. Aquifer properties and well yields for as yet undrilled wells should also be characterised.
  - Asynchronous augmentation resulting from staged development across the applicant group will have minimal impact. Monitoring and review during the early stages of the consents can be used to address this.
17. This provides confidence that the results of the modelling can be used to consider the location and scale of the effects of the proposed takes for irrigation and augmentation. Having established this, the implications of the predicted changes in flow and groundwater level can be more confidently considered.
18. For the original s42A report, the assessment of effects was presented under the following topics:
- Effects on river flows and security of supply for surface water users
  - Effects on small streams and wetlands
  - Well interference and effects on other groundwater users
  - Effects on water quality from the use of water
  - Efficiency of use/need for water
  - Effects on Cultural Values
  - Positive Effects
19. For each of these topic areas, the remaining areas of contention, agreement and uncertainty are in my opinion as follows:

**Effects on river flows and security of supply for surface water users**

20. Augmentation volumes are based on 1 in 10 year irrigation volumes. This means in some dry seasons there is a risk that augmentation volumes will be fully used before the river flows increase above the trigger flows. The impact of this has now been assessed in the evidence of Mr Weir (A.44). This assessment indicates that for TAFT, in four of the assessed years augmentation requirements would have exceeded the available augmentation volume.

21. The applicants consider that the effects of this will be infrequent and minor. However, I note that the TAFT proposal has the largest proportion of augmentation to irrigation water. Other applicants, who have less augmentation available will likely experience greater augmentation deficits.
22. This issue is not easily rectified. The applicants' suggestion that an unlimited augmentation be made available would lead to over-allocation and is not supported.
23. As previously identified the effects of climate change remain a concern, with predictions indicating that 'back to back' droughts, and more frequent and severe droughts are likely for this catchment. This could exacerbate augmentation volume deficits.
24. There is also a possibility that Red Bridge, for which the minimum flow increases in 2023 to 5,200 L/s, becomes the dominant minimum flow site for the catchment. I continue to recommend that augmentation also be triggered based on flows at Red Bridge, in case these were to occur at a different time to the proposed upstream trigger flows. Without this in place there will be periods of time when the flow in the lower river will be lower than it would otherwise be due to these takes, and this would occur during periods when the flow is below the 'bottom line' minimum flow level.
25. The JWS for modelling notes agreement on the likely minimal impact of staggered implementation of augmentation. Mr Thomas notes that this is on the assumption that augmentation is developed within the short term (around 7 years). There remains a potential issue for river flows if there is a lag due to augmentation to dry stream reaches and shallow bores, although a condition of consent is proposed to confirm shallow bore connection.
26. Table 4 of Mr Willis evidence describes how development might occur across the group. Some development is not expected to occur until after 5 years, including full development of the TAFT take, which provides the largest single volume of augmentation water, it is unclear what this will mean for augmentation that is required to account for the effects of other group members who reach full development in the first few years (ie how much augmentation of these takes is being addressed by TAFT augmentation).
27. Another potential issue is highlighted in para.15.14 of Mr Willis' evidence, in which he indicates that recent hydrogeological investigations indicate that the proposed groundwater volumes may not be available at the Tukituki Awa site.
28. A risk with this approach is if it is found that augmentation is insufficient for some rivers, and re-balancing must occur across the group. Remodelling (and changes to the use consents) would be required, and this may contribute to issues of insufficient augmentation water being required, for example if one party must use more augmentation than expected to make up for the lack of development by another party.

## **Well Interference and effects on other groundwater users**

29. The JWS statement concentrated on the methodology to be used to assess the well interference effects that could result from the proposed abstraction, in combination with the effects of Tranche 1 takes.
30. Some aspects of the proposed methodology were agreed by the experts. Some other approaches were not agreed. The evidence suggest that some modifications were made in response to the expert conferencing, but aspects of the methodology still remain either unsupported or unclear.
31. The final assessment is yet to be completed and further information is expected at the hearing, including confirmation of what mitigation will be offered to those people with identified impacted wells. The mitigation package offered by the applicants is to be confirmed after completion of the well interference assessment work. Some bores will not be installed and tested for some time.
32. I do have some concerns with the approach of testing wells and developing mitigation strategies at a later date through a condition, as discussed in section 7 below. I also note that the example given of a side agreement to cease pumping may not be possible if it relates to the take for augmentation. If such a condition is to be considered, I support Mr Willis' proposed extension of the condition on well testing so that existing wells are also tested if pumping from them is to increase.

#### **Effects on small streams and wetlands**

33. The applicants are not able to augment into all affected streams. There will be effects on the flow in smaller streams across the Basin and the predicted effects have now been revised based on the updated modelling (Mr Keesing evidence, Table 1). There was not agreement on how the impacts can be monitored and effects reversed if required.
34. It was agreed that many of the affected streams have aquatic fauna adapted to impacted conditions. It was agreed that water level reductions and increased drying will occur as a result of abstraction, and that the magnitude of effects is uncertain. The difference of opinion between the experts appears to be around the impact of the changes predicted and it is not agreed that the effects will be less than minor as concluded by Mr Keesing. There remains a question over whether extreme events have been considered. The use a 'typical' year (March 2001) and lesser abstraction (13 million m<sup>3</sup>/year instead of 15 million m<sup>3</sup>/year) is not understood.
35. Mr Willis notes that further confirmation will be provided on the nature of the potential wetland located at Inglis Bush.

#### **Efficiency of use/need for water**

36. The applicant has provided further commentary on reserving allocation of 2 million m<sup>3</sup>/year for Manawhenua.
37. The proposed approach is that a take consent, held in common by the group, will allow for abstraction fo 15 million m<sup>3</sup>/yr, and separate use consents (held by each individual) will set out the volume able to be used. The difference between the sum of the use consents and the take consent provides the 2 million m<sup>3</sup>/yr. The

mechanism proposed for transfer is a condition on the take consent requiring the consent holder to transfer water (take) upon request from specified a Manawhenua group(s).

38. The Manawhenua group would need to obtain their own 'use' consent. Assuming the chosen use is abstractive, then the effects of the transfer and proposed use would need to be modelled alongside those of the rest of the group and the augmentation requirements rebalanced. As for the other applicants, the Manawhenua group would also need to ensure that the effects of any associated land use change was accounted for and the necessary production land use consent obtained.
39. I agree that an allocation of water to Manawhenua could contribute towards achieving Te Mana o te Wai, if this is what tangata whenua themselves consider is appropriate. I do not however that the first priority under Te Mana o Te Wai is the health and wellbeing of water and freshwater ecosystems, and that the proposed uses fall into the third priority. So regardless of a decision by Manawhenua to take up this offer, it must first be ensured that the health and well-being of water is ensured.
40. Unless there is a clear position provided that Manawhenua wish to take up this offer, I recommend that if consents are granted, they should only provide for taking and use of the volume for which there is a justified and reasonable need.
41. For Tuki Tuki Awa, Mr Willis (para. 15.16) explains that the modelled volume (258,000 m<sup>3</sup>/year) represents what is expected to be required in a 1 in 10 year event compared to what is expected to be available under the surface water consent. He confirms that the full Tranche 2 abstraction volume has now been modelled.
42. I agree with Mr Willis that a suitable condition would restrict combined surface water and Tranche 2 abstraction to a combined maximum of 607,500 m<sup>3</sup>/year. Mr Willis recommended limiting Tuki Tuki Awa's augmentation requirement to 67,900 m<sup>3</sup>/year, which is based on the modelled effect of this take on the Tukituki River. I am not opposed to this approach in principle, provided the effects of other takes that are being dealt with by the Tuki Tuki Awa release continue to be accounted for, and I would like to understand how the difference between the proposed augmentation volume and the modelled/optimised volume (as shown in Table 2 of Mr Weir's evidence) comes about.

#### **Effects on water quality from the use of water / Positive effects**

43. There is no substantial disagreement with the evidence provided by Mr Allen on land use and diffuse water quality effects.
44. I continue to support the approach of tying water use to production land use consents as suggested by the applicants. These production land use consents are in process, along with those for other farms in these catchments.
45. Some residual comments/questions include:



- It is not clear how and when changes to farm system (e.g to horticulture) will occur and so care will be required to ensure that increased nitrogen losses do not occur over the interim period.
- Water use should be tied to a maximum irrigation area if expansion of the irrigation area and associated water demand beyond the modelled area makes a difference to the modelled assumptions. I note though that changes in irrigation areas or crops could (and should) result in a need to update the FEMP and associated production land use consent for the farm.

46. The potential positive effects associated with the proposal are not in contention, except to note that they rely on realisation of the change to farm systems that have been modelled. For the residual volume of water (2 million m<sup>3</sup>/yr), the estimated economic value will need to be treated as indicative only as the location of and nature of use of this water are unknown.

#### **Effects on water quality from augmentation discharges**

47. Experts agree that this can be addressed through condition of consent prior to commencement of abstraction. Except for the general concern expressed in section 7 below, I support Mr Willis' proposed condition that requires testing and any necessary discharge permits to be obtained prior to augmentation commencing. This should be undertaken and confirmed before any irrigation commences (i.e. it should be determined first).

#### **Effects on cultural values**

48. The applicant has provided a report on known and reported cultural values in the Tukituki Catchment. There is no further information available on cultural values or effects. This remains an area of uncertainty and concern to be explored further at the hearing.

49. As discussed above, Mr Willis (para 14.21) notes the benefit of the proposed Manawhenua allocation. There is no detail yet on what this involves or whether it is acceptable to Manawhenua and so I cannot comment further on this.

#### **Conclusion on effects**

50. I still conclude that significant adverse effects could occur. In summary, I have concluded that:

- There is doubt over the ability of the augmentation scheme to mitigate the predicted effects on river flows. Questions remain over how the augmentation will work in practice and whether augmentation flows will be available at critical times or reach the targeted water bodies at the required flow rates and timing.
- The well interference assessment is still to be finalised. It is likely that there will be adverse effects on some existing efficient wells and it is not clear how these can be mitigated.
- There are likely to be adverse effects on smaller, un-augmented streams.

- There are significant cultural values associated with groundwater and surface water in the Tukituki Catchment, and further information is required on if and how these are affected.
- There are positive effects from the proposal, including a small reduction in nitrogen losses compared to existing practices and economic benefits.

## 6. Policy context and evaluation – update

51. A full policy assessment was undertaken in the original s42A report. Some of my views have now changed given the new information and agreement between experts. The brief overview below outlines where there have been changes in my views, or where I comment in response to Mr Willis' evidence.

### *Te Mana o te Wai and NPS FM (2020)*

52. I agree with Mr Willis (para. 5.8) that Te Mana o Te Wai does not mean that water cannot be taken and used for economic and social benefit provided that the health and well being of the water is compromised. In para. 14.24 Mr Willis states that he agrees that if adverse effects were to occur (to the extent that health and well being are compromised) then the proposal would not be consistent with Te Mana o te Wai. I think this highlights the key difference in our current positions. At the current time I remain of the view that the health and wellbeing of water could be compromised, and so do not consider the first priority of Te Mana o te Wai is met.

53. Mr Willis (para. 14.25) concludes that the Tranche 2 applications provide an opportunity for the tangata whenua principles guiding NPS implementation to be promoted. I simply note that at this stage it is not clear what tangata whenua think of these applications and the offer to uptake Tranche 2 water.

54. Given the agreement of the experts about the lack of effects on wetlands (except for a residual concern about Inglis Bush), I now consider that the proposal will be consistent with NPS Policy 6, and wetland related objectives and policies in the RPS and RRMP.

### *Regional Policy Statement*

55. Policy 28 of the RPS and related objectives and policies that flow into the RRMP remain of significant relevance. Policy 28 requires applicants to avoid, remedy or mitigate any significant interference effects on lawfully established efficient groundwater takes. Policy 77 of the RRMP (and Table 11) sets out that new takes should not adversely affected existing efficient takes unless the affected person provides approval.

56. The suggestion is that wells will be tested and well interference effects will be assessed. Recommendations for mitigation of these effects will be provided. This may not adequately protect existing efficient users from effects. It relies on testing and mitigation after the fact and leaves a potential compliance burden on the Council to resolve issues between users unhappy with the type or level of mitigation proposed to ensure that their access is not 'unreasonably reduced'. This is one reason why I consider it is important that the well

interference effects of the Tranche 2 takes are well understood now, and that there is a good and clear understanding of who may be affected and to what degree.

## **7. Recommended consent conditions – update**

57. Mr Willis has recommended some additional conditions, including:

- A condition requiring testing of groundwater before use for augmentation purposes and securing a discharge consent if required.
- For Papawai and Purunui, a requirement for further assessment of the connection between shallow wells and surface water where these are to be used for augmentation.
- Strengthening the condition relating to testing and assessment of well interference effects so that it includes existing wells where pumping will increase for Tranche 2 purposes and having the report (addressing well interference effects and mitigations) be subject to Council approval.
- Changes to Tuki Tuki Awa's augmentation regime (discussed above).
- Adding the requirement for an Ecological Enhancement Plan, replacing the previous riparian planting condition.
- Adding the requirement for a Small Stream Monitoring Plan.
- Adding the requirement for an Augmentation Discharge Management Plan

58. I continue to consider that the proposed conditions may not be able to adequately manage the effects of this proposal. However, some brief comments on the amended or new conditions are provided below.

59. I do have a concern about relying too heavily on plans for future approval and implementation. For this to work the key requirements that determine whether something is acceptable or not should be clearly defined. This would be particularly important for the well inference testing and mitigation requirement and the shallow well testing and assessment.

60. As noted above, I consider that key testing for augmentation such as on groundwater quality and shallow well connection to surface water should occur first, before irrigation is commenced. Similarly, the well interference testing, assessment and implementation of mitigation measures should occur before irrigation under Tranche 2 commences.

61. I note Ms Drummond's comments and agree that it will be difficult after the scheme is in operation to use the small stream monitoring plan to require amendments to the take and augmentation regime through the review of the consents under s128-132 of the RMA.

62. The Augmentation Discharge Management Plan is on the use consent which is to be held by each individual. It covers augmentation location, connection with shallow bores (where applicable) and augmentation water quality. It may be more useful if this Plan was on the take consent and applied to the group and also included

management of staging, non-development or temporary cessation of some members, for example if they are significantly delayed due to issues with finding suitable groundwater yield or quality, or if a side agreement to manage well interference results in a temporary reduction or stoppage in augmentation.

## 8. Conclusion

63. I previously recommended that consents be refused. I held concerns over the modelling accuracy, the efficacy and practicality of the augmentation regime, and the impacts of climate change in light of already declining groundwater levels and flows. I also noted uncertainty around the cultural effects of the proposed activities.
64. While significant improvements have been made to the model, and the predicted effects can be considered with more confidence, I continue to consider that there may be significant adverse effects from this proposal that cannot be appropriately avoided, remedied or mitigated.
65. At this stage, I continue to consider that the proposal is not consistent with the objective of the National Policy Statement for Freshwater Management 2020, Te Mana o Te Wai and other critical Regional Policy and Regional Plan provisions.

## 9. Recommendation

66. For the reasons set out above my recommendation at the current time remains that the applications for resource consent be refused.


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Recommending Officer



**Paul Barrett**  
**Team Leader Consents**  
POLICY AND REGULATION GROUP  
4 November 2022

Recommendation Confirmed



**Malcolm Miller**  
**Manager Consents**  
POLICY AND REGULATION GROUP  
4 November 2022

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