

**INDEPENDENT HEARING COMMISSIONERS**

**DATE OF REPORT: 8 August 2022**

**DATE OF HEARING COMMENCEMENT: 30 August 2022**

<b>Applicants:</b>	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.
<b>Application numbers:</b>	Various – see Table 1
<b>Consent type:</b>	Water Permits
<b>Activity status:</b>	Discretionary activities
<b>Type/date of notification:</b>	Public notification 17 December 2021

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

Application no.	Applicant	Tranche 2 total groundwater take volume applied for (m <sup>3</sup> /year)	Application description	Property location
APP-123563	Te Awahohonu Forest Trust	4,914,920	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	1,005,213	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	952,400	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	3,751,225	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

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

<b>APP-123565 and APP-124498</b>	Papawai Partnership	1,475,517	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
<b>APP-123566 and APP-124500</b>	I&P Farming Limited	1,200,010	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
<b>APP-123546</b>	Buchanan Trust No. 2	1,145,794	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
<b>APP-125281</b>	Purunui Trust	554,921	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

## 1. Report status, author and format

1. This report is a section 42A report prepared under the Resource Management Act 1991 (RMA). It provides an independent assessment and recommendation on the applications made by the applicants set out in Table 1. This section allows a Council officer to provide a report to the decision-maker on a resource consent made to the Council and allows the decision-maker to consider the report at the hearing.
2. This report does not represent any decision on the application and only provides the assessment and opinions of the report author. This report will be considered by the Independent Commissioners in conjunction with the consent application and all other technical evidence and submissions which have been received to date and any further material that may be presented at the hearing. The report and recommendations do not have any greater weight than any other material or submissions that will be considered by the Commissioners.
3. This report has been prepared by Paul Barrett who works as Consents Team Leader at Hawke's Bay Regional Council. I have worked for HBRC as a consent planner for over 13 years and in that time, I have processed consents for a range of activities, including processing of a number of consent applications for surface and groundwater abstraction in the Tukituki River catchment.
4. I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Notes (2014). I agree to comply with this Code of Conduct. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.
5. In preparing this report I have referred to, and have been guided by the technical advice provided by from the following experts. Their expertise and qualifications are set out in their evidence, in summary:
  - Ms Hilary Lough

Ms Lough is an environmental engineer and Technical Director with the environmental engineering and science company Pattle Delamore Partners Ltd (PDP). She has worked at PDP since October 2004 on a wide range of environmental engineering and water resources projects, with a specialist focus on groundwater and surface water resources and groundwater-surface water interaction.

- Mr Neil Thomas

Mr Thomas is a principal hydrogeologist with PDP, and he has been employed in that role since 2011. He works on a wide range of groundwater management issues including assessments of groundwater quality and quantity within the Hawke’s Bay region, and elsewhere in New Zealand. He has extensive experience of groundwater models gained both in New Zealand and in the UK.

- Ms Laura Drummond.

Ms Drummond is Technical Director – Ecology. She has been employed at PDP since April 2018, where she specialises in surface water quality and freshwater ecology projects. Her evidence focuses on the surface water and ecology effects of the proposal.

- Ms Katherine McCusker

Ms McCusker is a Farm Consultant with PDP. She has thirty years of experience as a farm consultant and farm environment consultant and has particular experience in mitigation for the environmental effects that can arise from the land use change in farming systems.

6. This planning report is presented as follows:

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

7. These applications have been in process since 2014. The supporting technical information and the applications have continued to evolve over this time, and new or updated information and changes to the proposal were received recently.
8. Submissions received regarding the proposal show a high level of concern over the potential effects of the groundwater abstraction proposed.
9. Based on the information available to me at the time of completing this report, I recommend that the applications should be refused. After consideration of the evidence available to me, I consider that the adverse effects from the proposal could be significantly adverse, that there is a high level of uncertainty over the scale and extent of effects. I have concluded 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. The applicants have provided a suite of draft conditions. These conditions are proposed to be attached to two separate resource consents, one for taking of water and one for use of water. The applicants' proposal now involves taking of up to 15 million m<sup>3</sup>/year of groundwater and use of 12.98 million m<sup>3</sup>/year of water for irrigation and augmentation purposes. The residual volume of water (approx. 2 million m<sup>3</sup>/year) is proposed to be available for mitigation purposes. The details of this mitigation are yet to be supplied.
11. Despite the recommendation to refuse consents, draft conditions have been prepared which build on the conditions proposed by the applicant. These draft conditions are provided as Appendix 6 to this Report and may be refined through the hearing process by the commissioners when formulating their decision, should the consents be granted.

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

12. In summary, the proposal involves the abstraction (taking) of up to 15 million cubic metres per year (m<sup>3</sup>/year) groundwater from the Ruataniwha Basin via a number of deep wells (screened at deeper than 50 m). Water will be used for irrigation, and a significant proportion (35%) of the abstracted groundwater is proposed to be discharged to streams and rivers to augment flow and mitigate the flow losses predicted to occur as a result of the groundwater abstraction (stream depletion).
13. The applicants applied for resource consents separately between November 2014 and April 2020 but subsequently joined together as a group to prepare the technical supporting information, assessment of environmental effects (AEE) and planning assessment<sup>2</sup>. A significant source of information on the expected effects of abstraction and efficacy of augmentation is a transient groundwater model developed by Aqualinc. An update to this modelling report was received on 12 July 2022<sup>3</sup>.

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<sup>2</sup> Sage Planning (2021). 'Revised Applications for Take, Use and Discharge of Tranche 2 groundwater – Ruataniwha Basin'. August 2021.

<sup>3</sup> Aqualinc (2022). 'Groundwater Report – Ruataniwha Basin Tranche 2 Groundwater Modelling (revised)'. WL18045, 30 June 2022.

14. In July 2022 the Applicants provided a combined assessment of environmental and economic impacts which refined the proposed use of water for agricultural (irrigation) purposes from 9.6 million m<sup>3</sup>/year to 8.4 million m<sup>3</sup>/year, and for augmentation of surface water bodies from 5.1 million m<sup>3</sup>/year to 4.5 million m<sup>3</sup>/year.
15. This change sees some applicants proposing to use less than the proposed volume to be taken, and less than the volumes set out in the AEE and revised modeling report. My understanding is that the volumes set out in these more recent documents supersede those described in the AEE and revised modelling report.
16. The residual volume is proposed to be available for mitigation, as the applicants are still requesting an overall combined water take of 15 million m<sup>3</sup>/year. The draft consent conditions provided by the applicants<sup>4</sup> include a drafting note that indicates that the 'other mitigation purposes' will be explained in evidence and at the hearing.
17. The applicants have proposed a management regime whereby augmentation of surface water bodies using groundwater will commence each season from the time that specified flow triggers are reached at key flow measuring sites. These specified levels are set above the minimum flow levels specified by the regional plan. Augmentation will start before the rivers reach low flow levels and before surface water consent holders are required to cease abstraction under the conditions of their consents.
18. The applicants seek a 20 year term of consent.
19. The 15 million m<sup>3</sup>/year is provided for in POL TT8(ca) and Rule TT4 of the Tukituki River Catchment provisions (TCP) of the Hawke's Bay Regional Resource Management Plan, developed through the Plan Change 6 (PC6) Board of Inquiry (BoI) Process. It is referred to as 'Tranche 2' groundwater allocation, with Ruataniwha Basin 'Tranche 1' groundwater having separate allocation limits that total 28.5 million m<sup>3</sup>/year, also set in POL TT8 (Table 5.9.5). Tranche 1 ground water was provided to reflect existing groundwater allocation at the time Plan Change 6 was considered and is considered to be fully allocated.
20. The proposal and applications are discussed in more detail later in this report.

#### **4. Classification of the activities**

##### **Relevant Rules and Provisions**

21. As discussed above, the Tranche 2 allocation was introduced through the PC6 process. Some of the earlier applications in the group were received prior to PC6 becoming operative. The water take and use provisions changed through the plan development process. PC6 introduced provisions and rules specific to activities within the Tukituki River Catchment. In addition to new water take allocation limits and minimum flows, rules were also introduced to manage production land use activities. These include requirements for Farm

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<sup>4</sup> Gerard Willis, Enfocus, email 'Draft consent conditions', dated 22 July 2022.

Environment Management Plans (FEMP) and stock exclusion. Resource consents are now required for farms within catchments that exceed the specified dissolved inorganic nitrogen limits.

22. The Tukituki Catchment Provisions (developed as Plan Change 6) (TCP) was notified on 4 May 2013 as Plan Change 6 (PC6). PC6 was considered by a Board of Inquiry (BoI) and Council decisions were issued on 26 June 2014. PC6 became operative on 1 October 2015.
23. PC6 as notified, did not include provisions for Tranche 2 water. It set a groundwater allocation limit for the two Ruataniwha Basin Groundwater Allocation Zones of 21.45 million m<sup>3</sup>/year, water takes in exceedance of this limit were non-complying activities under proposed Rule TT5.
24. The BoI released a draft decision on PC6 in April 2014. This included the Tranche 2 allocation provisions and applications under these provisions were received shortly afterwards<sup>5</sup>. The final decision was issued by the BoI in June 2014. This was appealed to the High Court, and several matters were referred back to the BoI for reconsideration. A final decision on these matters was issued by the BoI in June 2015.
25. The applications were received on the dates set out in Table 2 below:

**Table 2. Dates applications received**

Application no.	Applicant	Date application received
APP-123563	Te Awahohonu Forest Trust	19 November 2014
APP-123991	Springhill Dairies Partnership (then Ingleton Farms)	26 January 2015
APP-123541	Tuki Tuki Awa Ltd	17 February 2015
APP-123547	Plantation Road Dairies	5 December 2016
APP-123565	Papawai Partnership	7 April 2017
APP-123566	I&P Farming Limited	7 April 2017
APP-123546	Buchanan Trust No. 2	1 May 2017
APP-124498	Papawai Partnership	19 August 2019
APP-124500	I&P Farming Limited	22 August 2019
APP-125281	Purunui Trust	3 April 2020

26. The applications received from Te Awahohonu Forest Trust, Springhill Dairies Partnership (then Ingleton Farms) and Tuki Tuki Awa Ltd therefore predated the final decision on PC6. The notified rules in PC6 had immediate legal effect under 86B of the RMA. Below I have considered the activity status that should be

<sup>5</sup> Two earlier Tranche 2 applications received in May and August 2014 were subsequently withdrawn.

applied when considering the three applications that were made prior to the PC6 decision that changed the activity status in Rule TT4 from non-complying to discretionary.

27. Under s88A of the RMA, an application continues to be processed for the type of activity that it was for the time the application was first lodged.

28. To assist with this issue, legal advice on this matter was sought from Simpson and Grierson. The advice<sup>6</sup> received states that *"...case law has held that s88A is impliedly subject to section 86F which governs when a plan or proposed plan is operative. Therefore, as a decision has been made on PC6 prior to consideration of the Applications, the Applications should be processed and considered under the PC6 provisions"*.

29. And that:

*"While differing approaches have been taken in different cases, the preferred position now appears to be that when new plan rules become operative, and previous rules become inoperative, section 88A no longer functions to preserve the activity status that applied to an application at the time it was lodged"*.

30. On the basis of the above advice, I consider that all of the applications can be treated as discretionary activities under Rule TT4 of the Regional Resource Management Plan (RRMP).

31. There are some additional consents required for the proposal that have not yet been applied for, including:

- Bore permits for new wells under Rule 1 of the RRMP (controlled activity). The AEE (section 3) indicates that around 15 new bores will be required; and,
- Discharge permits are potentially required for the discharge of augmentation water under Rule 47 (discretionary activity) (see section 10 of this report).

## **5. Background and physical environment**

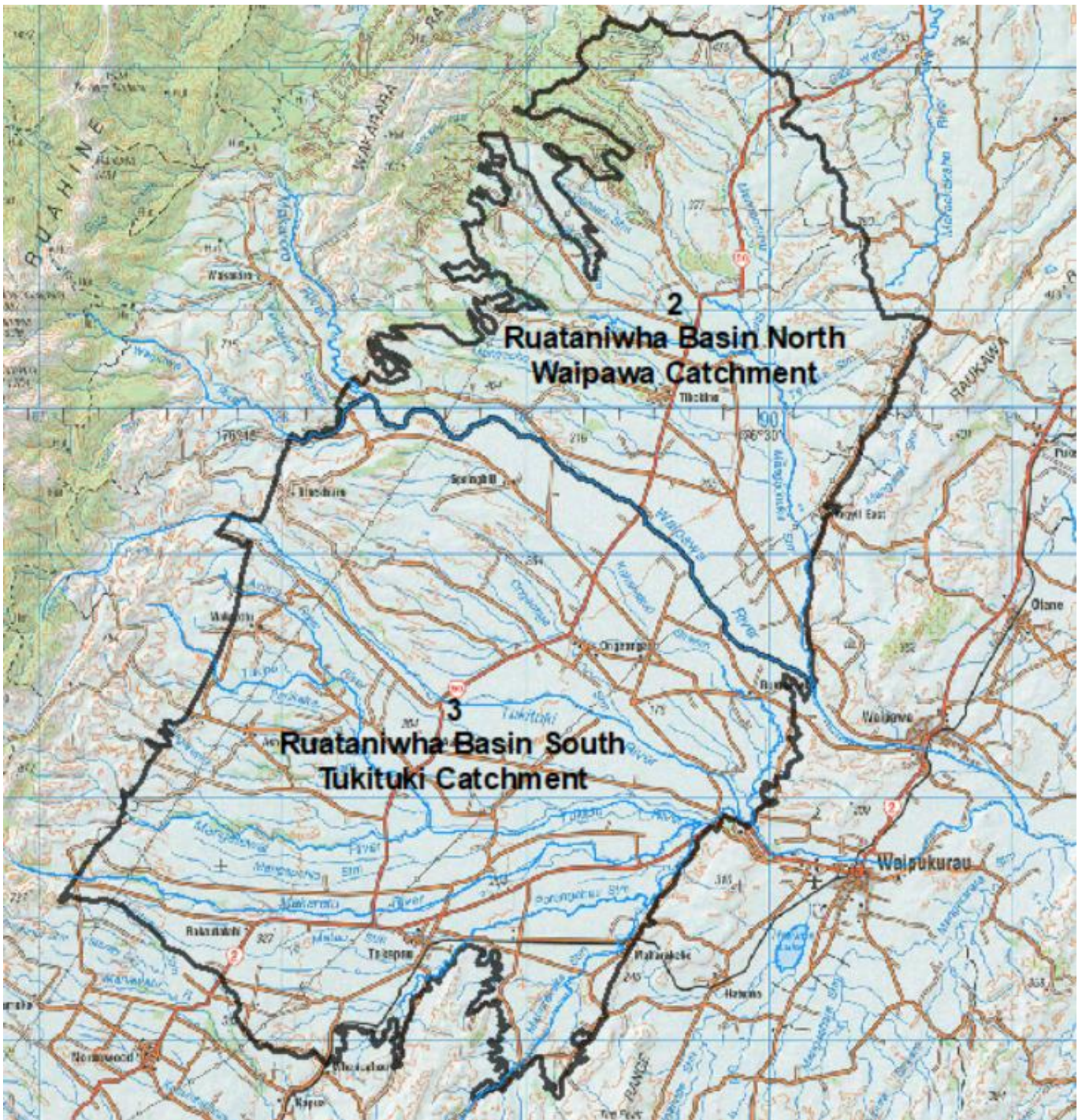
### **Background**

32. Under the TCP, groundwater allocation limits were established for the Ruataniwha Basin, based on two Groundwater Allocation Zones (2 and 3). The Waipawa River forms the boundary of these two zones (Figure 1) but the Tranche 2 water is able to be allocated from the Ruataniwha Basin across the combined area of these two zones.

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<sup>6</sup> Dated 11 July 2022





**Figure 1. Ruataniwha Basin Groundwater Allocation Zones 2 and 3**

33. The groundwater allocation limits established for these zones were based on the existing consented uses at that time and an allocation limit of 28.5 million m<sup>3</sup>/year was set (“Tranche 1”). Tranche 1 groundwater is fully allocated.
34. As explained above, the TCP, under POL TT8, Table 5.9.5 and Rule TT4, establishes an allocation limit for Tranche 2 groundwater (15 million m<sup>3</sup>/year).
35. The groundwater allocation limits set by the TCP are set out in Table 3 below:

**Table 3. Ruataniwha Basin Groundwater allocation limits under TCP**

Allocation Zone	Allocation Limit (m <sup>3</sup> /year)
Zone 2 – Ruataniwha Basin north of the Waipawa River	7,224,000
Zone 3- Ruataniwha Basin south of the Waipawa River	21,277,000
Zones 2 and 3 collectively – Tranche 2	15,000,000

36. Since the establishment of Tranche 2 groundwater allocation, the following parties have applied to take and use water from this groundwater management zone at the locations shown in Figure 2 below:
- 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
37. In combination, these applicants have applied to take the full allocable Tranche 2 volume of 15 million m<sup>3</sup>/year.

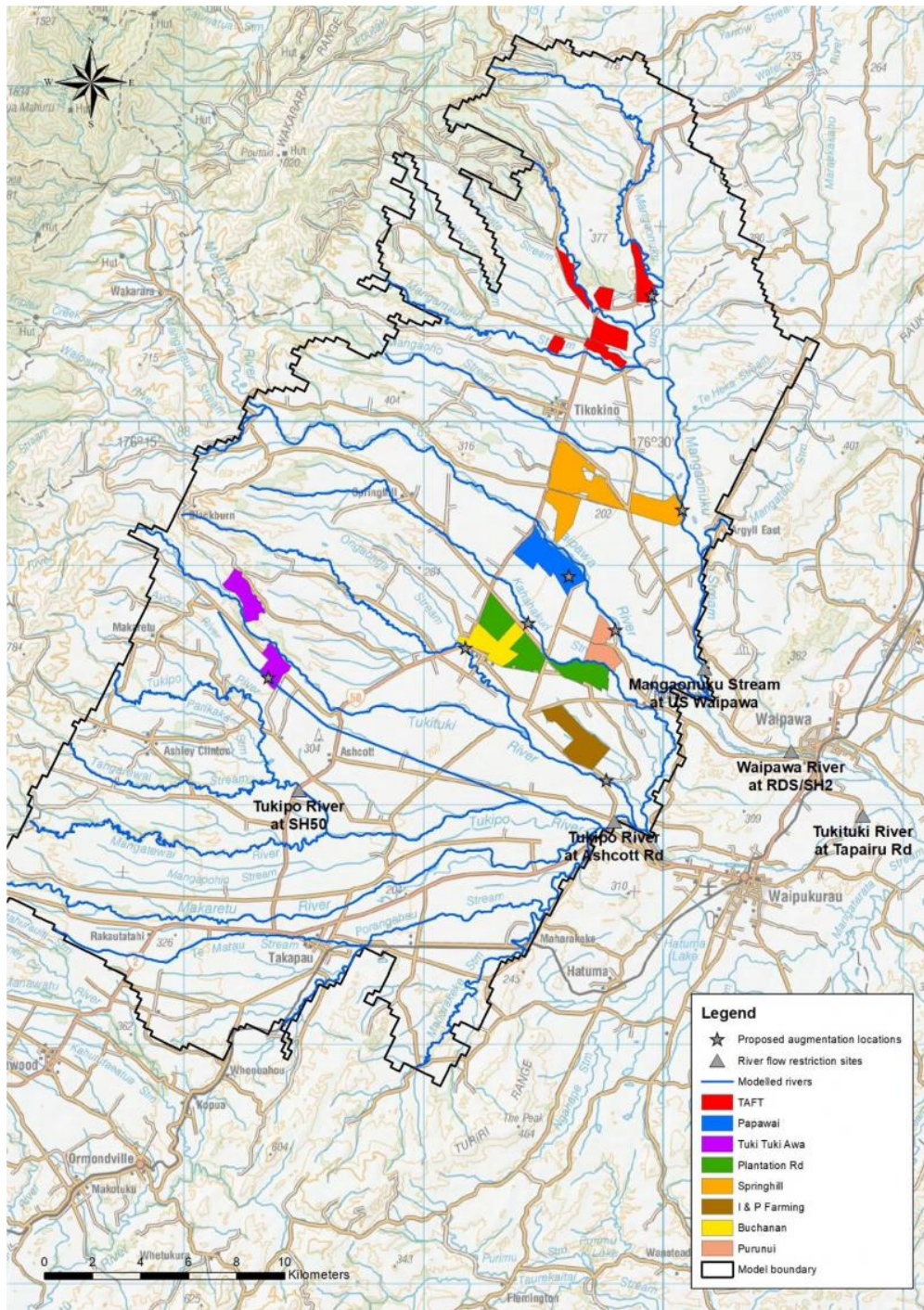


Figure 2. Location of subject properties<sup>7</sup>

## The physical environment

38. The Ruataniwha basin contains two main groundwater bearing formations. The Younger gravels which overlie the older Salisbury gravels represent the most productive formation. The Younger gravels are generally more permeable and less consolidated than the older Salisbury gravels<sup>8</sup>.

<sup>7</sup> Figure from Aqualinc 2021, Figure 6

<sup>8</sup> HBRC (2013). 'Tukituki Groundwater Resources'. January 2013, HBRC Plan no. 4452. [HBRC web link](#)

39. The HBRC (2013) report summarises the hydrogeology of the Ruataniwha basin as follows:

*Most wells are located on the plains where the Younger gravels overlie the Salisbury formation. Well distribution is relatively even across the Younger gravels with the exception of domestic takes at Takapau, Ongaonga and Tikokino where the density of wells is greater due to the number of domestic and stock watering takes to supply individual households and lifestyle blocks.*

*Well depths range between 1 to 350 metres below land surface with the majority of wells drilled between 1 and 60 metres below land surface and about 20% between 60 to 170 metres. In most well logs the distinction between Salisbury gravel and Younger gravel formations is not clear (Francis, 2001) however based on well depths and in comparison with geological maps, most wells are considered to be abstracting groundwater from the Younger gravel formation.*

*Both the Younger gravels and the Salisbury gravels contain multiple aquifers. The Younger gravel formation, which is typically less than 40 metres deep, is mostly unconfined, whereas aquifers within the Salisbury gravels are typically confined. According to aquifer test results, the Younger gravel layer is more permeable and less consolidated than the Salisbury gravels. The thickness of each formation increases gradually from the edge to the basin toward the centre and both formations reach a thickness of about 200 metres in the middle of the basin (Baalousha, 2009).*

40. As summarised in Mr Thomas' evidence, 'The Ruataniwha Basin represents a closed inland basin from which groundwater and surface water discharge via the Waipawa and Tukituki Rivers. Groundwater is used extensively throughout the basin for irrigation and water supply purposes and as a result of the closed nature of the basin, all groundwater abstraction will eventually deplete flows in the surface waterways that exit the basin'.

41. The hydrology of the Tukituki River and its tributaries is described in a 2012 HBRC report<sup>9</sup>, which is summarised as follows:

- River flow originates from rainfall, some of which is lost to evaporation or temporarily stored as groundwater before reaching streams and rivers. The Tukituki River receives much of its runoff from the Ruahine Ranges.
- Several rivers originating from the Ruahine Ranges transition to intermittent streams as they flow across the Ruataniwha Plains because water soaks through the permeable gravels into the groundwater aquifer. In particular, the Waipawa, Tukituki and Makaretu Rivers lose flow over considerable lengths of stream. These three rivers tend to lose flow as they traverse more recent alluvial deposits of the eastern Ruataniwha Plains. The Tukituki and Waipawa Rivers have reaches prone to drying.

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<sup>9</sup> HBRC (2012). 'Hydrology of the Tukituki Catchment Flow metrics for 17 sub-catchments'. September 2012, HBRC Plan no. 4405. [HBRC web link](#)

- The water that is lost from the rivers then re-emerges, together with local rainfall recharge, in spring-fed streams of the Ruataniwha Plains (e.g. Kahahakuri Stream). At the eastern edge of the Ruataniwha Plains, both gaining and losing tributaries come together to form the mainstem of the Tukituki River.

## State of the existing environment

### Groundwater levels in the Ruataniwha Plains

42. The Council’s most recent State of the Environment (SoE) monitoring report indicates that overall, most of the trends detected in the groundwater monitoring network indicate declining groundwater level conditions. The Council’s Tukituki Catchment SoE report for the period 2018-2021<sup>10</sup> states that:

*“In the Ruataniwha Plains, the volume and number of groundwater takes has been increasing for decades, and therefore groundwater levels have declined. The largest impacts occur over summer and autumn when groundwater use is at its peak. Table 19-1 [shown below as Figure 3] shows the average rate of groundwater level change for monitoring wells in the Ruataniwha Plains”.*

Table 19-1. Rate of change in monthly groundwater levels in the Ruataniwha Plains (m/year) <sup>1</sup>.

	July	August	September	October	November	December	January	February	March	April	May	June
Mean rate of change (m/yr)	-0.18	-0.14	-0.11	-0.10	-0.10	-0.12	-0.26	-0.31	-0.31	-0.31	-0.28	-0.20

Figure 3. Table 19-1 from Tukituki Catchment SOE report<sup>11</sup>

43. This indicates that groundwater levels in late summer and autumn are declining at greater rates than during other times of the year. This is thought to reflect increasing groundwater use during these periods of time.

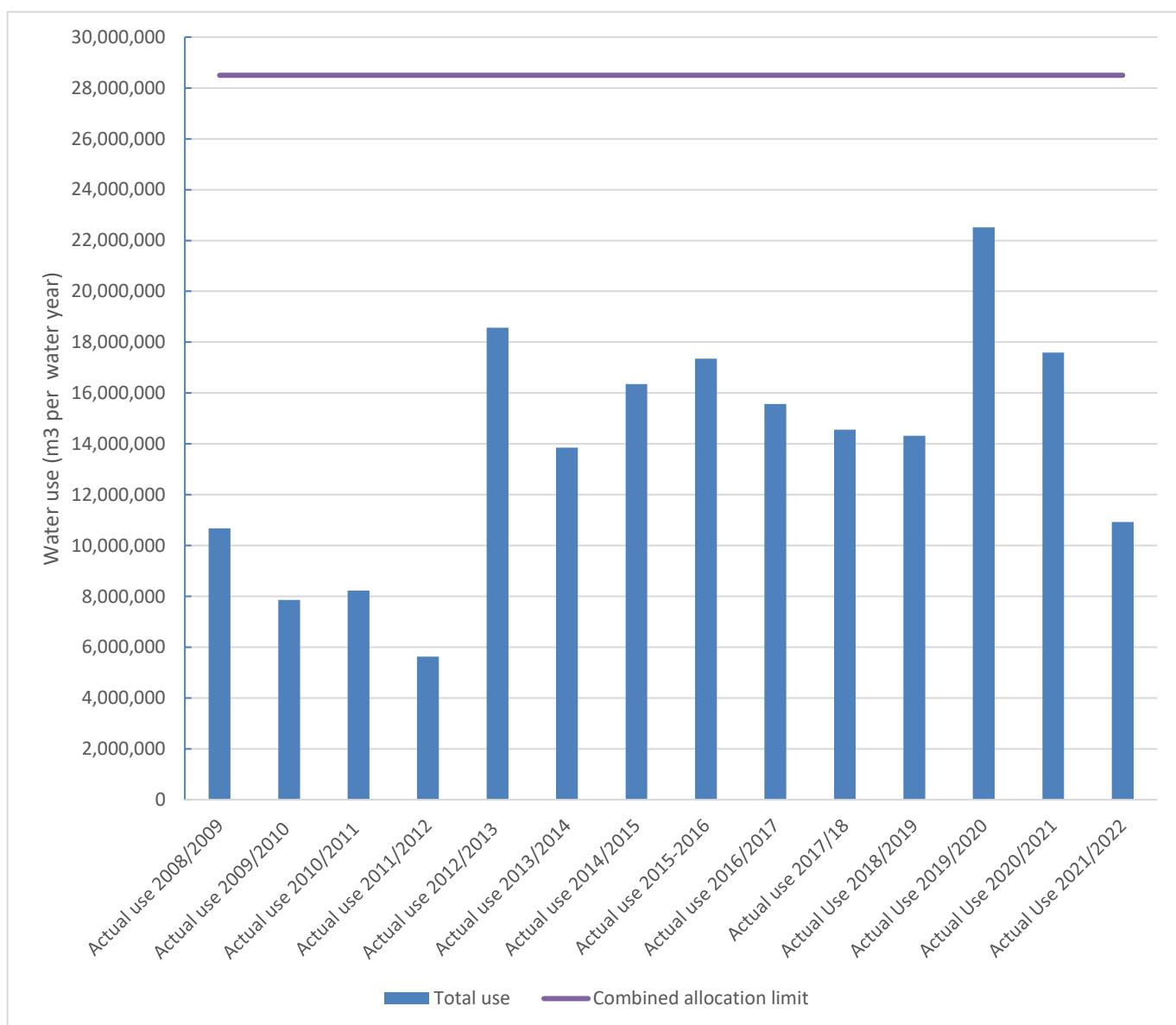
### Ruataniwha Basin Groundwater use

44. Tranche 1 groundwater is fully allocated but has not been fully used, even in dry years such as 2019/2020. A review of recorded water use has been undertaken for Tranche 1 consents since 2008/2009. This is based on water meter use data returned to the Council. There is less confidence about water use data prior to 2012.
45. This data indicates that maximum recorded groundwater abstraction occurred in the 2019/2020 water year. In that water year, abstraction of 22.5 million m<sup>3</sup>/year was reported, being approximately 80% of the allocation limit (28.5 million m<sup>3</sup>/year). Average annual use since 2008/2009 is around 14 million m<sup>3</sup>/year (approximately 50% of the combined allocation limit).

<sup>10</sup> HBRC ‘Hawke’s Bay State of the Environment 2018 -2021’. - Section 19 Tukituki Catchment. See: [HBRC web link](#)

<sup>11</sup> Table 19-1 is based on each well’s full monitoring period

46. Figure 4 below, presents recorded water use for each water year<sup>12</sup> for consented groundwater takes within the two Ruataniwha Basin Groundwater Allocation Zones (combined).



**Figure 4. Recorded water use (m<sup>3</sup> per water year) for Tranche 1 groundwater consents within Ruataniwha Basin Groundwater Allocation Zones (Zones 2 and 3 combined).**

### River flows

47. The SoE report also discusses short and long term trends in river flows. The report states:

*“Flows in the Tukituki River were relatively normal between July 2018 and June 2019. However, flows were very low for the next two years, when compared against low-flow conditions that are typically observed in summer and autumn (7-day low flow) as well as the average conditions that are generally observed all year round (mean flows).”*

<sup>12</sup> 1 July to 30 June

*Extensive bans on surface water takes were in place during the low flows of 2019/20 and 2020/21, with the ban lasting more than three weeks during the summer months of 2019/20 at most sites. Because abstraction was banned during the periods with extremely low flows, the river flows were largely unaffected by surface water takes at those times. Long-term records show the annual low flow has been decreasing in both the Tukituki and Waipawa Rivers over the last 30 years”.*

48. Graphs included in the report (Figure 19-11) show significant reductions in 7-day low flows over a 30 year period.
49. A review of the HBRC low flow ban records indicates that minimum flow bans were in place at most sites during the 2019-2020 and 2020-2021 irrigation seasons. The year 2019-2020 was particularly dry, and drought conditions were prevalent through summer and autumn.
50. The number of days the river was on low flow ban during these two dry years is shown in in Table 4, below<sup>13</sup>:

**Table 4. Low flow ban days 2019/2020 and 2020/2021**

Site	Minimum flow level (Ls)	Total days on ban 2019-2020	Total days on ban 2020-2021
Tukituki River at Red Bridge	4,300	84	86
Tukituki River at Red Bridge	5,200*	117	104
Waipawa River at SH2/RDS	2,500	113	109
Tukituki River at Tapairu Rd	2,300	106	77
Tukipo River at SH50	150	133	104
Tukipo River at Ashcott	1,043	119	77
Mangaonuku River at U/S of Waipawa	1,170	175	122

\* The minimum flow at Red Bridge increases to 5,200 L/s from 1 July 2023.

### Surface water quality

51. The SOE report also provides a summary of surface water quality in the Tukituki Catchment. In summary, macroinvertebrate community index (MCI) scores suggest that stream health is impaired at more than 80% of monitored sites. Phosphorus is a widespread problem. Nitrogen levels are high in some sub-catchments but have not exceeded toxicity levels. Six of 17 sub-catchments are failing the TCP DIN target of 0.8 mg/L.

<sup>13</sup> From: <https://www.hbrc.govt.nz/environment/low-flows/>

52. Production land use consents are required for farms greater than 4 ha in size in the sub-catchments that exceed the DIN target. These are the Kahahakuri, Mangaonuku, Tukipo, Porangahau and Maharakeke sub-catchments. Some of these sub-catchments are well over the 0.8 mg/L target, for example the Kahahakuri and Porangahau sub-catchments, which are approximately four times over the target<sup>14</sup>.
53. The Tukituki River catchment are generally in a state of over-allocation with respect to instream DRP limits and targets. Phosphorus levels are also a widespread problem, with only four sub-catchments passing the Tukituki Plan targets, and phosphorus levels considered moderately or highly elevated at more than 80% of sites. The Papanui, Porangahau, Maharakeke, Tukipo, Kahahakuri and upper Tukituki corridor sub-catchments are considered particular priorities for management of phosphorus.

### **Groundwater quality**

54. Groundwater quality has been assessed using State of the Environment monitoring wells over the period 2014 to 2018<sup>15</sup>. The state and trends of groundwater quality were analysed for the main Hawke's Bay aquifer systems, including the Ruataniwha Basin. The SoE report for this period indicates that groundwater quality is generally good but there are localised areas of concern related to shallow unconfined aquifers underlying intensive land use activities. Groundwater with higher nitrate concentrations (> 2.5 mg/L) occur predominantly where monitoring wells are shallow (< 30 m deep) and the aquifer is unconfined.
55. The TCP groundwater quality target for nitrate of 5.65 mg/L (Table 5.9.2), is half of the Drinking Water Standard NZ (DWSNZ) MAV of 11.3 mg/L. SOE Monitoring data indicates that the DWSNZ MAV is exceeded in one Ruataniwha Basin monitoring well and the TCP target is exceeded in a further seven monitoring wells.
56. The SOE monitoring data indicates an increasing nitrate trend for three monitoring wells in the Ruataniwha. Five wells also indicate a possible increasing trend and six wells a possible decreasing trend. One of the wells (2749) that exhibits an increasing nitrate trend is screened in a deeper part of the aquifer<sup>16</sup> and this indicates that contaminated groundwater is reaching greater depths where nitrate may not otherwise be expected.

### **Climate Change**

57. Climate change is predicted to significantly impact on the Tukituki Catchment. Advice on potential changes under climate change scenarios over the proposed consent term (20 years) was sought from Council's Team Leader Marine, Air and Land Science (Dr Kathleen Kozyniak). This is included in full as Appendix 1. In summary, Dr Kozyniak advised that the frequency and intensity of droughts is expected to increase by 2040 and that droughts are expected to occur more frequently and earlier, increasing the risk of 'back-to-back' drought.

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<sup>14</sup> Based on 5 year rolling averages presented on the Tukituki Dashboard [HBRC web link](#)

<sup>15</sup> HBRC (2019). 'Groundwater Quality – 5 yearly State of the Environment Report 2014 -2018. December 2019, Report no. 19-243. See: [HBRC web link](#)

<sup>16</sup> Screened from 43 to 49 m. see SoE report page 46.



## 6. Cultural context and values

58. In the absence of a specific cultural impact or cultural values assessment, I have relied on published information to provide a very brief summary, as best as I am able to, of some of the key cultural values and context of the Ruataniwha Basin and Upper Tukituki and Waipawa River catchments. I have also referred to information that has been provided in submissions from tangata whenua.
59. Statements of Association for Statutory Acknowledgment Areas are also included in full as Appendix 2. Of particular relevance are Statutory Acknowledgment Areas including the Tukituki and Waipawa Rivers, the Mākāretu River and Tukipō River and their tributaries, and also Inglis Bush.
60. This summary is not to be construed as a cultural values assessment or cultural impact assessment. It is merely a very brief overview of some of the relevant values that are described in publicly available documents.
61. The Cultural Values Assessment that was undertaken for the Ruataniwha Water Storage Scheme<sup>17</sup> discusses some key concepts and values for Tukituki River catchment. Included are explanations of the interconnectedness of tangata whenua with the natural world, expressed through mātauranga Māori that is authentic to each marae and hapu. The report explains how *“Māori are connected through whakapapa-ranga to all living things and through the exercise of Kaitiakitanga, are responsible for the protection of biodiversity values”*<sup>18</sup>. Key freshwater taonga species identified include tuna, koura, kōkopu, and kākahi. The report states that: *‘Historically mana whenua had access to an abundant variety of food sources and are still harvesting some of these to the present day’*<sup>19</sup>.
62. The report explains that the Tukituki River catchment is viewed holistically, as a whole system. Table 3 of the Cultural Values Assessment identifies values and the flow/water quality that supports them. Values include waipuna, which *‘emanate from the aquifer and are used as an indicator for groundwater and river health, sustaining of degrading the mauri. River flows and quality are intrinsically linked to rainfall, aquifer recharge and discharge’*<sup>20</sup>.
63. The report also states that Mana whenua have observed changes in access to and abundance of mahinga kai within the Tukituki River catchment, including significant declines in tuna populations in particular. These declines are attributed to agricultural runoff, pollutants impacting on the water quality and the over allocation of water. This also reflected in the Ratu submission, which expresses concern over drying reaches and the impact on mahinga kai species such as tuna.
64. A summary of cultural values of the Tukituki River was also prepared for the HBRC Outstanding Water Bodies Plan Change (Plan Change 7) (OWB)<sup>21</sup>. This emphasises the cultural significance of the Tukituki River as a

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<sup>17</sup> Te Taiwhenua O Tamatea, in partnership with Te Taiwhenua O Heretaunga (2012). ‘Tukituki River Catchment Cultural Values and Uses – report for Hawke’s Bay Regional Council’ (2012). June 2012. [HBRC web link](#)

<sup>18</sup> Ibid, Page 23

<sup>19</sup> Ibid, Page 25

<sup>20</sup> Ibid, Table 3, page 30

<sup>21</sup> HBRC (2020). ‘Tukituki River and Estuary – summary of values – for proposed Plan Change 7’. August 2020. See: [HBRC web link](#).

tupuna awa, and its associated waterways and springs. The river is important for a range of reasons, particularly for providing an abundance of kai and for transportation of people and goods, and in providing for the spiritual and physical wellbeing.

65. The OWB decision confirmed the Tukituki River, downstream of SH50, as having outstanding cultural and spiritual values. It states that:

*‘The Tukituki River is significant for Heretaunga Tamatea hapū, lying at the heart of their spiritual and physical wellbeing. It is also significant to Ngāti Kahungunu Iwi Incorporated. It is a tupuna awa (ancestral river), integral to the web of whakapapa connections shared by the different hapū along its banks’.*<sup>22</sup>

*‘There is evidence of at least 7-8 centuries of occupation by Māori, making this area one of the earliest settled. The river was traditionally used as a highway connecting whanau to each other, to their gardens, to trade links, to their pā sites, to wāhi tapu and to their wai tupuna. Much of the river was navigable for canoes over winter, and it was the main transport route through Heretaunga.’*<sup>23</sup>

66. Several submissions also provide comment on cultural context and values, and the potential effects on this from the proposal. The Ngāti Kahungunu Iwi Incorporated submission, for example, explains how the Ruataniwha Plains aquifer system is a taonga, and that protection and preservation of their mauri and mana, their natural processes, existence and interconnections, water quality and quantity and their relationship with tangata whenua is of utmost importance.
67. The submission also highlights the importance of springs (puna), stating that: *“Springs and puna are culturally significant for tangata whenua due to their origins and whakapapa, the values of ki utu ki tai and connectivity, and due to their purity and high water quality”.*

## **7. The proposal in detail**

68. A total of 10 individual resource consent applications were lodged with the Regional Council between 2014 and 2020 seeking a combined water take volume of 15 million m<sup>3</sup>/year of Tranche 2 groundwater from the Ruataniwha Basin Groundwater Allocation Zones 2 and 3.
69. Groundwater is proposed to be taken from deep wells (screened deeper than 50m) and used for irrigation. When specified flow levels are reached, augmentation will commence. Augmentation will involve abstraction of deep groundwater and discharging it either directly to streams or to shallow wells located next to streams.
70. The applicants propose to work as a group, so that the augmentation discharges collectively mitigate the stream depletion effects of groundwater abstraction. The scale of augmentation required has been calculated using the Aqualinc model. The model also accounts for the discharge of augmentation water back into the surface water system.

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<sup>22</sup> Decision of the Independent Hearing Panel – Proposed Plan Change 7, Regional Resource Management Plan – Outstanding Water Bodies’. June 2021, para 6.141. See: [HBRC web link](#)

<sup>23</sup> Ibid, para 6.143

71. The applicants propose that augmentation would start each year at the time when trigger flows are reached, regardless of whether or not pumping for abstraction has commenced. It is also proposed that augmentation would be done on a pro rata basis, proportional to the amount of irrigation water that is expected to be taken each season by each individual consent holder.
72. The proposed trigger flow levels are based at the minimum flow sites specified by the TCP. The proposed trigger flows are shown in Table 5 below. The location of these sites is shown in Figure 5 of the Aqualinc revised modelling report (June 2022).

**Table 5. Proposed augmentation trigger flows and TCP specified minimum flows (Table 5.9.3)**

Site Name	TCP specified minimum flow (L/s)	Proposed trigger flow for augmentation (L/s)
Waipawa River at SH2/RDS	2,500	2,725
Tukituki River at Tapairu Rd	2,300	2,360
Tukipo River at SH50	150	155
Tukipo River at Ashcott	1,043	1,085
Mangaonuku River at U/S of Waipawa	1,170	1,295

73. The applications are each described in the AEE<sup>24</sup> and the revised modelling report<sup>25</sup>. Further changes have since been made to how the water will be used by each applicant. These are described in the AgFirst report and draft consent conditions (July 2022)<sup>26</sup>. The proposals have changed over time, but still propose the taking of the same overall volume (15 million m<sup>3</sup>/year). The figures presented in the AEE are different to those presented in more recent information. Where there are differences, figures have been used from the most recently provided report.
74. This information is summarised below for each application. A summary of key application details, as I currently understand them, is also provided in Table 6.

#### **Te Awahohonu Forest Trust (APP-123563)**

75. Te Awahohonu Forest Trust (TAFT) owns and operates a 540 ha farm at 5740 State Highway 50 and 97 Matheson Road, Tikokino. TAFT lodged its application in November 2014 and seeks to take up to 4,914,920 m<sup>3</sup>/year of Tranche 2 groundwater.
76. TAFT proposes to take groundwater for irrigation from four existing bores; well nos. 16563, 16592, 16593 and 5515 which range in depth from 66 m to 220 m, and from one new bore which is yet to be drilled. The proposal

<sup>24</sup> AEE, August 2021, section 3.

<sup>25</sup> See Aqualinc June 2022: Table 35 (pg 74) (optimised augmentation rates, irrigated pasture areas and associated seasonal volumes) and Sections 3.3 – 3.10.

<sup>26</sup> AgFirst (2022). 'Applications for take, use and discharge of Tranche 2 groundwater: combined assessment fo environmental and economic impacts. July 2022.

is to use up to 2,841,220 m<sup>3</sup>/year for irrigation and up to 2,073,700 m<sup>3</sup>/year for augmentation at a maximum combined rate of 420 L/s. The proposed maximum rate of take from each point of take is 100 L/s.

77. Water will be used in the 'short to medium' term for irrigation of horticulture (including 200 ha of apples), mixed cropping, and sheep and beef finishing.
78. An additional bore is to be drilled for augmentation water, which will be discharged to the Mangaonuku Stream. Augmentation is proposed at a minimum rate of 189 L/s and up to a volume of 2,073,700 m<sup>3</sup>/year.

#### **Papawai Partnership (APP-123565 and APP-124500)**

79. Papawai Partnership (Papawai) holds current groundwater resource consent (AUTH-121535-08) to take Tranche 1 groundwater from Well Nos. 1859 and 16508 at a combined rate of 130 L/s to irrigate part of 320 ha of crops and pasture. This existing Tranche 1 consent grants a maximum volume of 608,212 m<sup>3</sup>/year (until 2025) with a maximum consented abstraction rate of 130 L/s. From 1 July 2025, the annual volume drops to 557,212 m<sup>3</sup>/year.
80. Papawai have therefore made two applications for Tranche 2 groundwater, to enable ongoing irrigation of 260 ha of pasture or a larger area of crops.
81. The original application was submitted in March 2017, to change the existing consent to take up to 423,062 m<sup>3</sup>/year of Tranche 2 groundwater, and then a new application was submitted in August 2019 to take up to an additional 1,052,455 m<sup>3</sup>/year of Tranche 2 groundwater. These combine to a total of 1,475,517 m<sup>3</sup>/year, which comprises 1,010,817 m<sup>3</sup>/year for irrigation and 464,700 m<sup>3</sup>/year for augmentation.
82. Irrigation water would be abstracted from two existing deep bores on the property (well no. 16508 and 1859) and augmentation water would be taken from well no. 16508 and discharged to an existing unused shallow bore, located 300 m from the Waipawa River. Augmentation is proposed at a minimum rate of 24 L/s and up to a volume of 464,700 m<sup>3</sup>/year.

#### **Tuki Tuki Awa Limited - APP-123541**

83. Tuki Tuki Awa Limited (TTA Limited) owns and operates a 136 ha dairy farm at 406 Tuki Tuki Road, Takapau. The applicant currently irrigates 116 ha of crops and pasture under resource consent AUTH-121855-02, which authorises abstraction from shallow wells and galleries adjacent to the Tukituki River. This take is subject to low flow restrictions and TTA Limited is required to cease taking water when the specified minimum flow levels in the Tukituki River are reached. The proposed groundwater take is to be utilised during periods when the Tukituki River is on low-flow restriction and the existing surface water take cannot be used.
84. TTA Limited has applied to take Tranche 2 groundwater from four proposed 300 mm diameter bores, that will be screened to a depth greater than 50 m below ground level. These bores have not yet been drilled and therefore the availability of groundwater at this location has not been proven. Augmentation water is to be discharged into the Tukituki River at a minimum rate of 5 L/s.

85. While a total volume 952,400 m<sup>3</sup>/year was originally sought, the latest AgFirst report indicates that 607,000 m<sup>3</sup>/yr is required for irrigation of 116 ha of pasture (1 in 10 year demand) and 29,600 m<sup>3</sup>/yr is required for augmentation (a total of 636,600 m<sup>3</sup>/yr)<sup>27</sup>. Table 35 of the Aqualinc revised modelling report states that as the applicant will only take Tranche 2 water during times of minimum flow restriction, that the actual volume estimated to be required for irrigation is 258,400 m<sup>3</sup>/year. TTA Limited's existing irrigation area will not increase.

#### **Buchanan No. 2 Trust (APP-123546)**

86. Buchanan No. 2 Trust (BNT) has an existing consent to take Tranche 1 groundwater and currently irrigates 57 ha of process crops. A further allocation of Tranche 1 groundwater has been secured through a transfer, and this would increase the irrigated area to 102 ha.
87. BNT originally applied to take up to 1,631,018 m<sup>3</sup>/year from existing and three new wells. The volume of take sought was subsequently adjusted to 1,145,794 m<sup>3</sup>/year so as to fit within the Tranche 2 allocation volume.
88. AgFirst now estimate that 550,960 m<sup>3</sup>/year is required for irrigation use in a 1 in 10 year event and 251,567 m<sup>3</sup>/year for augmentation (802,558 m<sup>3</sup>/year total). Irrigation is proposed over a 215 ha area of pasture and crops<sup>28</sup>.
89. Augmentation would be via a discharge at a minimum rate of 51 L/s to the Ongaonga Stream, which flows into the Tukituki River 4 km downstream of the property.

#### **Plantation Road Dairies Limited (APP-123547)**

90. Until recently, Plantation Road Dairies Limited (PRDL) owned and operated a 1,077 ha farm dairy farm at 1404 Ongaonga Road, and Wakarara Road, Ongaonga. It is understood that the dairy platform (465 ha) has now been sold and PRDL has retained ownership of the dairy support land (578 ha). The current total irrigation area on the dairy support and dairy platform is 520.8 ha, and Tranche 2 water would be used to increase the irrigation area on the dairy support land.
91. PRDL originally applied to take 6 million m<sup>3</sup>/yr. The take volume has been revised down to 3,751,225 m<sup>3</sup>/year, which is proposed to be abstracted from an existing deep bore (well no. 4830) and two proposed new deep bores. The new bores are yet to be drilled.
92. The AgFirst report now confirms that some land has been sold and leases on some land not renewed and that this has reduced the amount of water required for Irrigation. AgFirst has estimated that 1,645,279 m<sup>3</sup>/year is now required for irrigation on a 1 in 10 year basis. This would support expansion of irrigation by 327 ha, from 521 ha (across the dairy support and dairy platform) to 847 ha.

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<sup>27</sup> AgFirst (2022), Table 4, page 9

<sup>28</sup> The AgFirst report states that the farm is dairy and dairy support - this is assumed to be an error.

93. Augmentation water (up to 906,928 m<sup>3</sup>/year) is to be taken from a deep bore and discharged directly to the Kahahakuri Stream at a minimum rate of 103 L/s. The total volume of proposed use is 2,552,207 m<sup>3</sup>/year.

**I and P Farming Limited (APP-124500 and APP-123566)**

94. I & P Farming Limited (IPF Limited) operates a mixed cropping and livestock finishing farm. The land is currently unirrigated, flat and comprises a high proportion of quality soils well suited to crop production
95. IPF Limited has applied for two new separate resource consents. The first application was lodged in 2017 to take and use Tranche 2 groundwater totalling 477,122 m<sup>3</sup>/year. In August 2019 a second Application was lodged for an additional 722,888 m<sup>3</sup>/year, with groundwater planned to be abstracted from a proposed new, yet to be drilled, well (or wells). The volumes applied for total 1,200,010 m<sup>3</sup>/year.
96. The applicant proposes use of 916,010 m<sup>3</sup>/year for irrigation of 278 ha of crops and 284,000 m<sup>3</sup>/year for augmentation. Augmentation water is to be discharged to a small unnamed stream that flows into the Tukituki River at a minimum rate of 22 L/s.

**Springhill Dairies Partnership (APP-123991)**

97. Springhill Dairies Partnership (SDP) own dairy farm and dairy support land at 665 State Highway 50 and 326 Butler Road, Tikokino.
98. SDP seeks consent to take 1,005,213 m<sup>3</sup>/year, in addition to the Tranche 1 groundwater (3,023,864 m<sup>3</sup>/year;) already able to be abstracted under the existing consent, giving a total of 4,029,077 m<sup>3</sup>/year.
99. SDP now seeks to use 497,652 m<sup>3</sup>/year for irrigation on a dairy support block. This would enable an increase to existing 65 ha irrigation area, irrigated using Tranche 1 groundwater, to 158 ha.
100. A number of existing wells would be used, and augmentation would be to the Mangaonuku Stream at a minimum rate of 38 L/s, up to a volume of 352,655 m<sup>3</sup>/year. The total use volume is therefore 850,307 m<sup>3</sup>/year.

**Purunui Trust (APP-125281)**

101. The Purunui Trust applied in April 2020 for 1,575,000 m<sup>3</sup>/year to irrigate 175 ha of pasture and process crops, but only 544,931 m<sup>3</sup>/year was available within the 15 million m<sup>3</sup>/year allocation limit.
102. The Purunui Trust's land was previously leased and used for unirrigated dairy support. A new lease intends to change the land use to an irrigated sheep, beef and cropping system.
103. AgFirst reports that up to 370,321 m<sup>3</sup>/year would be used for irrigation of up to 83 ha of pasture or crops and 184,600 m<sup>3</sup>/year for augmentation use.
104. Augmentation water would be discharged at a minimum rate of 14 L/s into an unused shallow well located close to the Waipawa River.

**Table 6. Details of proposals**

Application no.	Applicant	Property sub-catchment(s)	Total Tranche 2 TAKE volume applied for (m <sup>3</sup> /year) *	Total Tranche 2 USE volume applied for (m <sup>3</sup> /year) ^	Irrigation USE Volume (m <sup>3</sup> /year) ^	Irrigation area (ha) (and change (ha) from existing irrigation area where applicable) ^	Augmentation volume (m <sup>3</sup> /year) ^	Augmentation location #	Augmentation minimum rate (L/s) #	Other water permits for the same property, source and volume (see Table 7)
APP-123563	Te Awahohonu Forest Trust	Mangaonuku	4,914,920	4,914,920	2,841,220	820	2,073,700	Mangaonuku Stream	189	None
APP-123565, APP-124498	Papawai Partnership	Waipawa	1,475,517	1,475,517	1,010,817	260 (+0)	464,700	Shallow bore, near Waipawa River	24	Tranche 1 groundwater
APP-123541	Tuki Tuki Awa Ltd	Upper Tukituki Tukipo	952,400	636,600	607,000	122 (+0)	29,600	Tukituki River	5	Tukituki River surface water
APP-123547	Plantation Road Dairies	Waipawa, Kahahakuri	3,751,225	2,552,207	1,645,279	847 (+327)	906,928	Kahahakuri Stream	103	Tranche 1 groundwater and Waipawa surface water
APP-123991	Springhill Dairies Partnership	Mangaonuku Waipawa	1,005,213	850,307	467,652	158 (+93)	352,655	Mangaonuku Stream	38	Tranche 1 groundwater
APP-123566, APP-124500	I&P Farming Limited	Kahahakuri	1,200,010	1,200,010	916,010	288	284,000	Unnamed tributary of Tukituki River	22	None
APP-123546	Buchanan Trust No. 2	Kahahakuri	1,145,794	802,558	550,960	215 (+151)	251,597	Ongaonga Stream	51	Tranche 1 groundwater
APP-125281	Purunui Trust	Kahahakuri	554,921	554,921	370,321	62	184,600	Shallow well near to Waipawa River	14	None

\* From Enfocraft draft consent conditions – water take consent (July 2022)

^ From AgFirst (July 2022)

# Aqualinc revised modelling report

## Existing Water Permits

105. Some applicants currently hold water permits relating to the subject properties. These are set out in Table 4 below.

**Table 7: Existing Water Permits**

Existing Consent No.	Consent holder	Description of Activity/Consents Purpose	Expires	Comment
<b>AUTH-121855-02</b>	Tuki Tuki Awa Limited	To take and use water from the Tukituki River for artificial aquifer storage and/or for storage within a reservoir or dam, for subsequent use for irrigation of 136 hectares of pasture and crops and for use within a dairy shed and/or for augmentation of Tranche 2 groundwater take effects	31 May 2035	Unexercised consent authorising abstraction of high flow water from the Tukituki River.
<b>AUTH-124683-01</b>	Tuki Tuki Awa Limited	to take and use water from well no. 2747 (750 mm diameter), well no. 3092 (1000 mm diameter) well no. 4411 (900 mm diameter), well no. 16053 (200 mm diameter) (adjacent to the Tukituki River), and two galleries in the bed of the Tukituki River to use for the irrigation of 136 hectares of pasture and crops, and for use in a dairy shed	31 May 2030	Consent authorising abstraction of surface water from the Tukituki River. Subject to minimum flow cessation conditions.  Allows for abstraction of 78 L/s; 174,180 m <sup>3</sup> /28-days and 630,000 m <sup>3</sup> /year.
<b>AUTH-121586-03</b>	Buchanan Trust No. 2	to take and use water from well no. 16408 (250 mm diameter) to irrigate 115 hectares of process crops	31 May 2035	Authorises abstraction of 318,420 m <sup>3</sup> /year of Tranche 1 groundwater from Allocation Zone 3. Recently increased through the transfer of 100,000 m <sup>3</sup> /year.
<b>AUTH-120449-03</b>	Plantation Road Dairies & Apatu Farms Limited	to take water from well no's 4764 and 4830 (300 mm diameters) and well no. 16817 (400 mm diameter) to use for the irrigation of 610 hectares of crops and pasture, and to take from well no. 4994 (150 mm diameter) for use in a dairy shed	31 May 2035	Authorises abstraction of 1,931,682 m <sup>3</sup> /year of Tranche 1 groundwater from Allocation Zone 3.  Application (APP-127488) currently in process to split the consent between the new owners of the milking platform (Apatu Farms Ltd) and the owner of the support block land (Plantation Road Dairies Ltd).  The dairy support block consent will be for irrigation of 155 ha and have an annual volume of 650,000 m <sup>3</sup> /yr. The dairy platform (463 ha irrigation) would have an annual volume of 1,281,682 m <sup>3</sup> /yr.
<b>AUTH-124775-02</b>	Apatu Farms Limited (previously held by Plantation Road Dairies)	to take and use water from a trench adjacent to the Waipawa River to irrigate 460 hectares of pasture and for use in a dairy shed.	31 May 2030	Authorises abstraction of water from the Waipawa River to irrigate land across the dairy platform (now owned by Apatu Farms Ltd). Water can be taken at 237 L/s and a volume of 573,350 m <sup>3</sup> /28-days and 2,786,600 m <sup>3</sup> /yr, subject to minimum flow restrictions.



<b>AUTH-121548-02</b>	Springhill Dairies Partnership	To take and use water from well no. 1518 (200 mm diameter), well no. 5167 (250 mm diameter) and well no's 3870, 4593, 4122 and 5497 (300 mm diameters) to irrigate 680 ha of pasture and crops and for a supply of domestic/stock water to neighbouring properties and for use in a dairy shed	31 May 2035	Authorises the abstraction of up to 3,023,864 m <sup>3</sup> /yr of Tranche 1 groundwater from Allocation Zone 2.
<b>AUTH-121535-08</b>	Papawai Partnership	To take and use water from well no. 1859 (250 mm diameter) and well no. 16508 (300 mm diameter) to irrigate part of 320 hectares of crops and pasture, and for spray filling	31 May 2035	Authorises abstraction of Tranche 1 groundwater from Allocation Zone 3. Temporary transfers have been made which affect the volumes available under this consent over time. Until 1 July 2025 608,212 m <sup>3</sup> /yr is available. From 1 July 2025 557,212 m <sup>3</sup> /yr is available.

## 8. Site visit

106. Over the course of my employment at HBRC I have visited a number of the properties and am familiar with many of the areas and locations discussed. I also intend to undertake a site visit with the technical experts prior to the hearing commencing.
107. The hearing panel will make a site visit on Monday 29 August 2022.

## 9. Notification and submissions

108. The applicant requested public notification. Public notification occurred on 20 November 2021.
109. Seventy-two submissions were received. Of these submissions, one submission was neutral, one was in support of the proposal and the remainder were in opposition to the proposal. A summary of submissions is provided in Appendix 3. One submission has since been withdrawn.
110. Out of the 72 submissions made, four submissions were late, being received after 5 pm on Friday 17th December. These submissions were received from the following parties and are all in opposition of the application:
- Mike O'Grady, received on 18 December 2021,
  - Julia May Evans, received on 18 December 2021,
  - Rakautatahi Marae, received on 19 December 2021, and
  - Waipukurau Community Marae, received on 19 December 2021.
111. Section 37(1) and s37A(4) of the RMA allows the Council to extend a timeframe in relation to a resource consent application if the applicant agrees or if special circumstances exist. After taking into account the matters listed under s37A(1), it was decided under delegated authority to extend the submission period timeframe by one working day under s37A(4) to allow these submissions to be accepted.

112. Some common themes from submissions are briefly summarised below:

- Well interference: Submitters with existing groundwater takes, including for irrigation and for domestic and stock water supply are concerned about the impact on their wells.
- Te Mana o Te Wai: Submitters consider the proposal to contravene Te Mana o Te Wai in the sense that it prioritises a perceived unsustainable take and use of water for the benefit of a select few, over sustaining the mauri of the freshwater resource which is considered to have been diminished over decades.
- Cultural values/effects: Submitters exercising kaitiakitanga as mana whenua are concerned about the lack of formal engagement to seek their views and address any potential effects on cultural values.
- Aquifer sustainability: Submitters are concerned that the freshwater resource is already over-allocated and consider the proposed augmentation to be inadequate for sustaining the recharge of the aquifer,
- Climate change: Submitters are concerned about the potential effects of the proposed increase in groundwater abstraction in addition to reduction in aquifer recharge due to climate change on existing groundwater takes and freshwater quality.

113. The one submission in support of the application was received from SJ Lusk & Associates on 14 December 2021. This noted that these applications provide an opportunity to test the law with regard to the liability of councillors and council staff, in an event that the water is over allocated in the Tukituki and water quality fails to meet set levels.

## **10. Pre-hearing meeting**

114. A pre-application meeting was held virtually on Wednesday, 30th March 2022, to provide the Applicants with the opportunity to give an overview of their applications and associated technical work, and for discussion and clarification of the issues and questions associated with the applications, including those raised by submitters. A prehearing meeting report is attached as Appendix 4 of this report.

## **11. Environmental effects**

115. The applicant commissioned a number of specialist studies to inform their applications. This includes the following:

- Aqualinc - groundwater model and associated reports/memorandums.
- Rabbitte / Lattey– Well interference effects

- Bay Geological – well interference, effects on streams/wetlands, and Papawai Partnership augmentation to a shallow well
  - Boffa Miskell – Effects on stream ecology and wetlands
  - AgFirst – water use and associated land use effects, economic benefits
116. The Council engaged PDP to review the technical information and provide expert comment and evidence in regard to these matters. The information provided by the applicants, including recent information provided in July 2022, and the review memorandum provided by PDP are displayed on the Council’s website<sup>29</sup>.
117. The PDP technical reviewers have also prepared expert evidence which has been circulated with this this report. Evidence has been prepared by the following experts on behalf of the Council:
- Mr Neil Thomas: Groundwater modelling and effects
  - Ms Laura Drummond: Surface water and ecological effects
  - Ms Katherine McCusker: Water and land use effects
  - Ms Hilary Lough: Summary of technical reviews, practical application and effects
118. Where possible I refer to, rather than repeat information that is contained within the applicants’ technical assessment or PDP statements of evidence.
119. For this report, the assessment of effects is presented under the following topics being:
- 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

### **Groundwater modelling**

120. The groundwater model produced by Aqualinc has been used as a basis for most aspects of the effects assessment, including well interference, stream flow effects, the augmentation programme and effects on wetlands/streams. It is therefore important to consider the groundwater modelling undertaken and how reliable this is for informing the effects of the proposal.

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<sup>29</sup> See: <https://www.hbrc.govt.nz/services/resource-consents/notified-consents/groundwater-takes-ruataniwha-basin-tranche-2/>

121. PDP reviewed the modelling reports and outputs and have provided comments on a number of occasions over the period that these applications have been in process. The most recent review provided a summary of key issues and commented on the additional information provided by the applicants in November 2021<sup>30</sup>. The PDP review comments are available on the Council's website<sup>31</sup>. The model report and revised a number of times, most recently in June 2022 in response to a peer review commissioned by the applicants from Lincoln Agritech.
122. Mr Thomas' evidence outlines in detail his concerns with the modelling. In his evidence, he agrees that numerical groundwater modelling is an appropriate tool to use to understand the potential effects of large scale groundwater abstraction, but has concerns over the use of the applicants' model to estimate precise changes in groundwater levels and flows. He considers<sup>32</sup> that the model can be used to:
- Estimate changes in the low flow regime at the surface water calibration points (Waipawa and Tukituki Rivers) at the Basin outlet points.
  - Provide some information about the likely direction of change in flow in other tributaries across the basin, but not to provide specific estimates of the magnitude of changes.
  - Estimate the general effect of increased groundwater abstraction on groundwater levels, but not to provide specific values of drawdown interference effects at specified locations, unless matching well with local aquifer test data.
123. In summary, he considers that due to the way it is calibrated, the model has a relatively large range of uncertainty in its predictions, and the predictions for impacts of groundwater abstraction on small streams and rivers will have a wide range. Concerns over model calibration are set out in section 7 of Mr Thomas' evidence.
124. With these concerns in mind, the following provides an assessment of the actual and potential effects of the proposal as required by s104(a) of the RMA.

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

125. The modelling report indicates<sup>33</sup> that for the optimised Scenario 4, there will be minimal changes in 7-day MALF compared to status quo groundwater abstraction. An increase in 7-day MALF is predicted for the Tukituki at Tapairu Rd and Tukituki at Ashcott Rd flow sites. Very small changes are predicted for other flow sites.
126. The uncertainty over the modelled predictions is discussed above and in the evidence of Mr Thomas. Mr Thomas agrees that the model can adequately estimate changes in low flows at the Basin outlet sites, and that augmentation (if implemented as modelled, and while it is available) could mitigate changes in flow at these sites. However, there is more uncertainty over the estimated effects on flows at sites located within the Basin.

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<sup>30</sup> PDP (2022). 'Memorandum – review of further information for applications to take and use Ruataniwha Tranche 2 groundwater'. 5 May 2022.

<sup>31</sup> See: <https://www.hbrc.govt.nz/services/resource-consents/notified-consents/groundwater-takes-ruataniwha-basin-tranche-2/>

<sup>32</sup> Neil Thomas evidence, para 7.14

<sup>33</sup> Aqualinc June 2022, Table 36, page 74.

The effects on the flows of these smaller streams and rivers are potentially significant relative to the flows in those streams.

127. The optimised Scenario 4 is based on the following:

- Release of augmentation water from all of the applicant's sites upon, and for the duration of, river flows reaching and remaining below the specified trigger levels (except for Tuki Tuki Awa who would only take and augment using Tranche 2 water during minimum flow periods when they cannot take surface water).
- A maximum volume of augmentation is specified for each site, along with a minimum augmentation rate.
- Modelling assumes augmentation water discharge to shallow wells and tributaries is directly to the main stems.

128. The modelling report suggests some practical approaches to implementation including the following:

- *Pro rata* of augmentation water each season, based on how much irrigation water is expected to be taken. Each applicant would nominate a maximum irrigation volume to the Council each season. The maximum augmentation volume would be set at the same proportion as the irrigation volume.
- Monitoring for trigger flows using telemetered flow sites only (ie Tukipo at SH50, Tukituki at Tapairu Rd and Waipawa at SH2).
- Use of a water year that differs from the standard approach (1 July to 30 June). The applicants' proposed water year for irrigation commences 1 October and the augmentation year would start one month later on 1 November.

129. There are some practical issues with the augmentation regime as proposed which also create a risk that effects on flow will not be mitigated to the degree predicted.

130. Augmentation volumes are based on 1 in 10 year irrigation volumes. As explained by Ms Lough<sup>34</sup> and Mr Thomas<sup>35</sup>, 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. This risk is recognised by the applicants with the proposed augmentation water year starting later in the year (November). However, minimum flow conditions usually occur from Late December or January and in particularly dry years have carried on into May or June (see Section 4, Table 4 of this report). These figures are based on minimum flow levels, and river flows would have been below the proposed trigger flow levels for longer.

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<sup>34</sup> Evidence of Hilary Lough, para 4.3

<sup>35</sup> Evidence of Neil Thomas, para. 13.2

131. In dry years, minimum flows have been reached and bans have been in force for over 100 days at some of the key flow sites. The proposed augmentation rates and volumes would not in all cases provide for augmentation over the duration of low flows. This means it is possible that augmentation water will run out when the river is still experiencing low flow conditions. Climate change predictions, as discussed in section 4 and Appendix 1 of this report, indicate that ‘back to back’ droughts, and more frequent and severe droughts are likely for this catchment.

132. Augmentation rates for each individual abstraction appear to combine to offset the combined stream depletion effects, and that mitigation relies on applicants operating together. The revised modelling report confirm this, and noting Tuki Tuki Awa as an exception, states<sup>36</sup>.

*“It has been assumed that the full augmentation rate is taken (sourced from Tranche 2 water) and discharged at the locations described above for each applicant whenever restrictions on any one of the above RRMP Table 5.9.3 minimum flow sites occurs. Furthermore, as all Tranche 2 applicants are operating collaboratively, and effects from any one take potentially propagate across several streams, it has been assumed that augmentation will occur by all of the applicants if any one of the RRMP Table 5.9.3 minimum flow sites experiences a low-flow restriction”.*

133. While it appears that the augmentation must work in a combined manner to address flow reductions caused by the group’s abstraction, it is not clear how this will be maintained if augmentation is on an individual *pro rata* basis as proposed. For example, if an applicant fails to develop Tranche 2 abstraction and augmentation at the same time as others in the group, it is not clear how the effects on flows would be mitigated so that the neutral or positive effects presented by the modelling report are achieved across all flow sites.

134. Mr Thomas and Ms Lough also identify<sup>37</sup> a potential issue due to augmentation in some cases being discharged to shallow wells and drying reaches of streams. The modelling assumes that these augmentation flows are into the target rivers and streams, and this may not be the case.

135. For Tuki Tuki Awa, irrigation and augmentation using Tranche 2 water is only proposed during minimum flow periods when they cannot abstract surface water under their existing consent. This is confirmed by Aqualinc in the revised modelling report<sup>38</sup>, which states:

*“Tuki Tuki Awa’s augmentation reduced to 20% of the previously modelled rate since irrigation is only being used to gap fill and augment river flows when their river take is on low-flow restriction”*

*“Tuki Tuki Awa propose to use their Tranche 2 groundwater take only to gap-fill the surface water supply and augment rivers when the existing low-flow conditions on their take are triggered. This reduced take has been modelled under augmentation scenario 4.”*

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<sup>36</sup> Aqualinc, revised modelling report, page 47.

<sup>37</sup> Evidence of Neil Thomas, para. 10.5; Evidence of Hilary Lough para. 4.3

<sup>38</sup> Aqualinc, revised modelling report, page 58.

136. The footnote to Table 31 of the Aqualinc revised modelling report<sup>39</sup> explains that:
- “However, because the Tranche 2 take is to be used only when their surface water take is restricted, the Tranche 2 irrigation use in most years will be less than this. Assuming past climatic patterns, the 90 percentile demand for irrigation only when their surface water take is restricted is approximately 258,400 m<sup>3</sup>/year, and it is this smaller allocation volume that has been modelled.”*
137. This explains why the Tuki Tuki Awa augmentation volume is much lower relative to other applicants’ requirements. It also means that the use of more than 258,400 m<sup>3</sup>/year by Tuki Tuki Awa will result in additional effects on flows that are not mitigated under the current proposal. If the full proposed Tranche 2 volume is used, significantly more augmentation would be required from that site.
138. Once groundwater abstraction commences, its effects will carry on even if abstraction stops. Augmentation from Tuki Tuki Awa also forms part of the overall package of augmentation, and while it is a relatively small augmentation rate, is required to ensure the package as a whole addresses the effects of abstraction. It is therefore unclear why Tuki Tuki Awa is not undertaking augmentation above trigger flow levels as proposed for the other takes.
139. Existing surface water abstractors are tied to multiple minimum flow sites, including local site(s) and the Red Bridge site in the lower river. Abstraction must cease when any of the minimum flows at the specified sites are met.
140. Provided augmentation occurs as modelled, and the augmentation volumes are sufficient for the season, effects on security of supply of existing users tied to the Waipawa and Tapairu Rd minimum flow sites are not expected to be negatively impacted. There is less certainty about other flow minimum flow sites within the Basin. As set out above there is also some risk that augmentation will not practically achieve the flow increases required at all times.
141. 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. For this reason, it is recommended 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.

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

142. A number of submitters are concerned about the impact of abstraction on their own wells, and their ability to continue to take water for domestic supply, irrigation and stock drinking water. Central Hawkes Bay District Council, for example, expresses concern about the impact of abstraction on the communities of Ongaonga and Tikokino, where individual property owners rely on abstracting groundwater for their domestic water needs.

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<sup>39</sup> Aqualinc, revised modelling report, page 58.

143. The applicant has utilised the modelling results to undertake an assessment of well interference effects on shallow (< 50m deep) and deep wells (> 50 m deep) located across the Basin. The original assessment was outlined in a report by Lattey dated December 2020<sup>40</sup>. This assessment was updated in July 2022, and a check for any more recently drilled bores undertaken<sup>41</sup>. The applicant also specifically assessed, where possible, the impact on the wells of submitters.
144. This assessment utilised the modelled drawdown impact, and in particular two contour maps that were produced. The contour map shows the difference in water level between status quo abstraction and abstraction under Tranche 2 “Scenario 4”. This indicated “...*how groundwater levels are predicted to change spatially during dry periods*”<sup>42</sup>. The maps show that shallow groundwater levels are predicted to lower by up to 0.8 m close to the areas of abstraction, and elsewhere by up to 0.3 m. Model outputs for the deeper wells (> 50m) show increasing changes in water levels northward in the Basin to around 8 m or more in the north-eastern area.
145. The assessment uses the well details from the HBRC well database, such as total depth, screen depth, water level (at time of construction) and recorded HBRC SoE seasonal water level variations to estimate the available head remaining in each well. Where the available water level was negative, the well was classified as ‘inefficient’, because the seasonal water level change already exceeds the depth of available water, they were not considered able to be affected. If estimated drawdown from Tranche 2 abstraction exceeded 20% of the available head the well was considered to be potentially affected. Using this method, as updated in July 2022, nine deep and 10 shallow wells were identified that could be affected.
146. As set out in earlier PDP technical reviews, Mr Thomas continues to have concerns with the well interference effects assessment provided. These concerns include:
- Use of static water levels for each well based on the date (and season) the well was drilled.
  - It is not appropriate to group wells into two coarse categories (deep and shallow). Effects on intermediate depth bores (20-50 m) may be greater than predicted.
  - The cumulative effects of full Tranche 1 abstraction have not been considered, and that the use of 20% of remaining head as a determining factor as to degree of effects does not take this into account.
  - Seasonal water level changes may not fully represent cumulative pumping effects away from the observed locations.

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<sup>40</sup> Lattey (2020). ‘Ruataniwha Basin Tranche 2 Irrigation Water Permit Consent Application – Assessment of Well Interference Effects’. December 2020, Project no. J19220-REP-01 T2-WI.

<sup>41</sup> Rabbitte (2022). ‘RE: Review and Update of Ruataniwha Basin Tranche 2 Consent Application – Assessment of Well Interference effects’. 11 July 2022.

<sup>42</sup> Rabbitte (2020), page 3.



- A number of the proposed bores are not yet drilled and the exact depth and location of the bores, and the aquifer characteristics at these sites, is not yet known.

147. In conclusion, Mr Thomas considers that the well interference assessment has some crucial flaws and is not likely to have identified all of the bores that could be adversely affected by the applicants' takes. He considers that the drawdown effects, particularly to shallow bores *"have not been defined with sufficient certainty for the magnitude of these applications"*.
148. Mr Thomas also considers<sup>43</sup> that cumulative pumping effects may be greater than observed seasonal variation at monitoring well locations, and that the full effect of Tranche 1 abstraction has not been provided for.
149. Intermediate depth bores have been assumed to be affected like shallow bores. There are over 230 wells that are between 20 m and 50 m in depth, where it is assumed that drawdown is 0.8 m or less. The drawdown effects on these bores may have been underestimated. Mr Thomas has noted<sup>44</sup> an example of a well in Ongaonga where the drawdown effects was assessed at 0.16 m but the revised modelling indicates drawdown effects are around 2 m or more.
150. The applicants' well interference assessments do consider the 'efficiency' of wells against Policy 77 of the RRMP. Policy 77(c) is to manage new groundwater takes that existing 'efficient' groundwater takes are not disadvantaged. "Efficient taking" of groundwater is defined by the RRMP as being: *"the abstraction by a bore which penetrates the aquifer from which water is being drawn at a depth sufficient to enable water to be drawn all year (i.e. the bore depth is below the range of seasonal fluctuations in groundwater level), with the bore being adequately maintained, of sufficient diameter and screened to minimise drawdown, with a pump capable of drawing water from the base of the bore to the land surface"*<sup>45</sup>.
151. There are a number of wells identified in the Lattey (2020) assessment where a negative available head is calculated, indicating that the well may already be compromised in dry conditions<sup>46</sup>. These wells are not likely to be 'efficient' under Policy 77, although Mr Thomas does raise concerns about use of seasonal water level data and static water level measurements which may affect consideration of a well's 'efficiency'.
152. The Council already receives a number of complaints from well owners in Ongaonga in dry seasons when current seasonal declines mean these wells are no longer able to draw water. I agree that a number of the shallower wells, particularly those with surface pumps, are unlikely to be considered to be 'efficient' takes under the RRMP definition. The Plan therefore affords little protection to these takes.
153. Notwithstanding Mr Thomas' concerns, and the risk that effects will be greater than predicted on some wells, the applicants' own assessment identifies 11 shallow and 10 deep wells that are potentially affected. These are shown in Table 5 of the revised well interference report. Four of these identified wells are authorised for

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<sup>43</sup> Evidence of Neil Thomas, para. 9.10

<sup>44</sup> In para. 9.7 of his evidence

<sup>45</sup> RRMP footnote 21, to Pol 77(c).

<sup>46</sup> See Appendix 3, Well Group 0 – 9.99 m.

use for irrigation under existing water permits. The potentially affected wells that have existing irrigation consents are as follows in Table 8.

**Table 8. Potentially affected wells (from Rabbitte 2022, Table 5) with existing irrigation consents**

Well no.	Well depth (m bgl)	Associated water permit no.	Consent holder
2902	4.11	WP180666T	Tuturo Farm Ltd
5211	18.5		
3882	52.5	WP140582Tb	Sandford Pastoral Holdings Ltd
5435	54	WP060284Tb	Ashton Family Trust

154. The applicants’ draft conditions include provision to contribute financially to measures to improve the security of supply for up to 20 affected shallow well owners (including 10 shallow wells not currently shown in HBRC well records). Mr Thomas considers that the suggestion to lower pumps to mitigate against water level declines within wells may not always be feasible. Storage tanks maybe useful for domestic supplies, which typically have smaller rates of take, but may not assist people taking water for irrigation.
155. No specific mitigation is proposed for potentially affected deeper wells. Proposed consent conditions do require an interference effects assessment for each abstraction well (new or existing) but do not clearly set out the framework by which the effects will be considered and the response mechanism if they exceed what is assessed as ‘unreasonably reduced’, which is not defined.
156. In summary, the interference effects on other wells in the Basin may be underestimated, particularly in wells less than 50 m deep. There are likely to be adverse effects on existing wells, and while some of these wells may be ‘inefficient’, particularly those that are shallow, there is likely to be adverse effects on wells that are efficient. While the applicant proposes to contribute financially towards increasing the security of supply in some shallow wells, this is not likely to benefit all affected wells.

**Effects on small streams and wetlands**

157. The applicants are not able to augment into all affected streams. There will be effects on the flow in smaller streams across the Basin. The effects on smaller streams and wetlands have been assessed using the outputs from the groundwater model.
158. As noted by Mr Thomas, for streams and sites that are augmented during periods of low flow, there may be flow benefits, but reaches upstream of augmentation points and un-augmented streams will experience reductions in flow. Due to the method of modelling and associated uncertainties, the effects on smaller streams may be greater than is predicted by the applicants.

159. The applicant provided an updated assessment<sup>47</sup> on the effects of the takes on smaller streams and wetlands within the Basin, using the predicted shallow drawdown estimates from the groundwater model.
160. The applicant considers that effects on smaller streams will be minimal, because the streams most likely to be affected are ephemeral or intermittent, and they have adapted to periods of low or no flow. These streams are considered to be resilient to changes in flow and periods of drying.
161. The applicant also assessed the changes in depth on wetlands. A number of potential wetland areas were visited and assessed. The conclusion was that most were not considered natural wetlands, and were modified areas best described as farm dams/ponds. Changes in water level as predicted by the model were assessed as not likely to cause adverse effects on these features.
162. Inglis Bush was also visited and assessed. The applicant's assessment considers that this remnant bush area is a terrace or flood plain forest remnant and is not a wetland or swamp forest. They do not consider it likely to be affected by the predicted groundwater level predictions.
163. Ms Laura Drummond has reviewed the applicant's assessment for the Council. Her evidence concludes that effects could occur to streams and rivers upstream of augmentation sites and where flow augmentation is delayed through injection of groundwater or where augmentation occurs to dry reaches. Ms Drummond considers that use of averaged data does not account for seasonal variability and effects could be underestimated. Ms Drummond also concludes that effects on smaller streams are uncertain, but that there will likely be reductions in water levels, flows and available habitat in addition to increasing frequency, duration and/or extent of existing seasonal drying<sup>48</sup>.
164. Based on the groundwater modelling, and noting the uncertainties raised by Mr Thomas, Ms Drummond considers that effects on flows at the two main flow sites downstream of the Basin are largely addressed while augmentation is available, but effects could be much greater in drier years if augmentation cannot occur during low flow periods<sup>49</sup>.
165. Ms Drummond's evidence refers to the applicant's assessment of effects on water levels in small streams and highlights possible water level reduction effects in nearly all waterways assessed. Some of the predicted effects indicate complete drying of stream reaches. Some of the predicted changes could represent relatively large decreases in flow for particular water bodies.
166. Ms Drummond agrees that while aquatic organisms can be resilient to drying, this is as a result of stress responses and is not a mitigating technique for reducing water levels in waterways<sup>50</sup>.

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<sup>47</sup> Boffa Miskell (2022). 'Ruataniwha Small streams and wetlands – ecological assessment of potential effects related to deep water harvesting'. 21 July 2022.

<sup>48</sup> Evidence of Laura Drummond, para. 3.7

<sup>49</sup> Evidence of Laura Drummond, para. 6.3

<sup>50</sup> Evidence of Laura Drummond, para. 6.16

167. Ms Drummond also discusses the ability of fish to move away from affected areas but notes that a range of factors impact on this ability, and that potential effects from drying of reaches include loss of habitat, connectivity, and mortality<sup>51</sup>.
168. These sorts of effects are already experienced and are described in the submission of Ngati Kahungunu Iwi Incorporated and Tautoko and Crystal Ratu. For example, the Ratu submission explains that: *"...the Kakahakuri stream dried up. Eels were stranded in a little pool. We saved up to 86 eels on this day and released them east of the Waipawa train bridge. In our cultural narrative, eels not only play a huge role in the ecosystems of environmental wellbeing, but they are a treasured taonga for māori as descendants from the heavens (Rangituhaha). During this week hundreds of eels died in dried up streams."*
169. For effects on wetlands, Ms Drummond refers to HBRC wetland mapping, that has recently become available, and which indicates that the potential effects on a number of wetlands in the predicted area of drawdown has not been considered. This is understandable given the applicants did not have access to the HBRC mapping at the time of their assessment.
170. Ms Drummond considers that: *"Overall, the assessments provided in Keesing (2021, 2022) conclude that reductions in wetland water levels within the predicted draw down area will not change detrimentally as a result of the predicted water level changes and that the wetlands assessed are deep enough that the predicted reduction in water level will not impact the ecological condition of the wetlands. While this could be correct, one-off water level measures during a wet period is not indicative of 'worst-case' conditions, or even summer base flow conditions in wetlands within or downgradient of the predicted drawdown, therefore impacts on wetlands within the Ruataniwha Basin could be higher, or more widespread, than those assessed"*<sup>52</sup>.
171. The Inglis Bush Community Trust submission expresses concern that current levels of water abstraction have had a significant negative effect on the Inglis Bush Scenic Reserve and that abstraction will lead to further detrimental effects. They state that *'piezometers installed in the reserve in the late 1990's to monitor surface water levels are now entirely dry year round'* and are concerned that seepage springs feeding the reserve have declined in flow. The submission identifies that Inglis Bush Scenic Reserve and the wetland contained within it is home to significant native fauna and flora.
172. The applicant visited Inglis Bush as part of their wetland assessment and concluded that it is not a wetland or swamp forest, and that adverse effects on it were not likely. Ms Drummond notes Mr Thomas' evidence on predicted groundwater effects and she considers that the effects on Inglis Bush remain uncertain, that no formal wetland survey was completed, and that the springs that reportedly feed this area were not assessed.
173. Effects on water quality can also occur as a result of changes in stream flows. As flows increase or decrease, the assimilative capacity of streams will change. Ms Drummond identifies a potential effect whereby smaller

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<sup>51</sup> Evidence of Laura Drummond, para. 6.17

<sup>52</sup> Evidence of Laura Drummond, para. 6.27

streams that are not augmented experience reduced flow rates, and this leads to reduction in assimilative capacity of the stream to dilute contaminants from diffuse and direct discharges. The scale and extent of this potential effect has not been assessed.

174. In summary, there are likely to be adverse effects on smaller streams, including relatively significant flow losses and increased extent and duration of drying of some reaches. The scale and extent of adverse effects on wetlands is less certain, but could be worse than assessed by the applicant.

### Efficiency of use/need for water

175. The applicant has provided draft conditions for the take and use of groundwater that indicate that there is a use for around 13.5 million m<sup>3</sup>/year.

176. Further detail was then provided in the AgFirst report. This report indicates that as a group, the applicants intend to use 8,439,260 m<sup>3</sup>/year for agricultural purposes (irrigation) and 4,547,780 m<sup>3</sup>/year for augmentation, a total of 12,987,040 m<sup>3</sup>/year. Augmentation remains at 35% of the total volume of water to be used.

177. The residual volume of water 2,012,960 m<sup>3</sup>/year is proposed to be available for mitigation purposes These are yet to be described. The draft conditions provided include a drafting note that states

*“the sum of the volume authorised for use for irrigation and augmentation by the eight individual applications will total ~13.5 million m<sup>3</sup>/yr not the 15 million m<sup>3</sup>/yr authorised by the collective take consent. The approximately 1.5M m<sup>3</sup>/yr is intended to be reserved for use for other mitigation purposes, which will be further explained in evidence and at the hearing”.*

178. The applicant has also confirmed that the applications remain unchanged and are for the volumes of abstraction that are presented in the revised Aqualinc modelling report. This is summarised in Table 6 of this report. The key differences in the volumes sought and able to be used appear to be for four applications as set out in Table 9 below.

**Table 9. Applications where volume of take exceeds volume of use**

Application no.	Applicant	Volume of take proposed (m <sup>3</sup> /year)	Volume of use proposed (m <sup>3</sup> /year)
APP-123541	Tuki Tuki Awa Ltd	952,400	636,600
APP-123547	Plantation Road Dairies	3,751,225	2,552,207
APP-123991	Springhill Dairies Partnership	1,005,213	850,307
APP-123546	Buchanan Trust No. 2	1,145,794	802,558

179. At this stage it is not known where or how this residual volume of water will be used. Once the details of this have been provided there should be consideration as to whether this is within the scope of what was applied

for and notified. If this was to occur at a different location, the effects of this abstraction, the scale of augmentation required, and its location would need to be reassessed.

180. Ms McCusker has reviewed the proposed irrigation volumes for the irrigation areas and considers that water can be used efficiently, if good management practices are followed.
181. Where the volume of water to be used is less than the proposed take volume, 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 (i.e. the volumes set out for use in Table 9).
182. For Tuki Tuki Awa, it remains unclear why the volume of water that is sought for irrigation is required. The application continues to be based on replacement of surface water when minimum low bans are in force, but a 1 in 10 year volume for the full irrigation area is sought, and a higher 'take' volume again is sought.
183. As discussed above, the full irrigation volume could not be taken without changes to the augmentation requirements. I recommend that if granted, this consent be for the volume of abstraction that the modelling of effects and augmentation requirements are based, which I understand to be 258,400 m<sup>3</sup>/year.

#### **Effects on water quality from the use of water**

184. All of the farms except for Papawai Partnership are located within (in whole or part) sub-catchments that exceed the DIN target set by the TCP. All farms except for Papawai therefore require production land use consents.
185. The effects of water use and associated land use have been considered by the applicants. Initially each application provided information relating to their intended use of water and the impact on the farm system. Subsequently, AgFirst completed an assessment of water and land use under Tranche 2 and associated economic benefits.
186. The AgFirst report sets out how water use can facilitate farms systems which will not likely lead to increases in contaminant losses. This is particularly important because most of the applicant's farms are located within sub-catchments which exceed the dissolved inorganic nitrogen targets set by the TCP (0.8 mg/L). In some cases, the AgFirst reports shows how water use can lead to farm systems that are likely to have less nitrogen loss than the current farm system.
187. The AgFirst report identifies that:
- "However, with increased cropping there is increased bare soil and therefore increased loss of sediment. This is represented in Overseer by an increase in the loss of phosphorus (P), as P is lost primarily through loss of sediment".<sup>53</sup>*
188. Ms McCusker has reviewed the Ag First report and, in her evidence, she considers that the

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<sup>53</sup> AgFirst, page 25, Table 16.

“...nitrogen losses to groundwater are:

- Likely to remain at a similar level: Papawai, Tukituki Awa, I & P farming, Buchanan Trust No. 2
- Likely to decrease: Plantation Road Dairies, Springhill Dairies, TAFT (if the 200ha orchard is developed)
- Insufficient information to determine: Purunui (baseline or current information is missing and recent Overseer modelling is significantly higher than earlier modelling).”

189. Ms McCusker considers that “the proposed land uses with irrigation could be managed to result in either a decrease or at least no increase in the discharge of nitrogen, phosphorus, sediment and *E. coli* through FEMPs, farmer/farm manager training, good record keeping and good nutrient management practices”. She notes that further detail and the careful development of consent conditions will be necessary for the individual land use consent applications.

190. I note that some of the improvements require changes in land use. For example, the TAFT farm system as described includes a change to 200 ha of horticulture. This is to occur in the ‘short to medium’ term (10+ years).<sup>54</sup> It is not clear how this will be implemented and whether increased N losses could occur over the interim period.

191. Production land use applications have been received for all but one of the farms proposing Tranche 2 water use. Papawai have also applied for a production land use consent despite not being in a DIN exceeding sub-catchment<sup>55</sup>. Some of these applications incorporate Tranche 2 water use and some are based on the *status quo* farming systems. A summary is provided in Appendix 5. The applications are currently being processed with the group of applications for each sub-catchment and some may be completed and issued prior to the hearing commencing.

192. Where changes to farm systems result from implementation of Tranche 2 water, a change or new production land use consent with an updated Farm Environmental Management Plan will be required. A proposed condition of consent ensures that this will occur, and I consider this appropriate. Conditions of consent and advice notes will also be included in the production land use consents for existing farms that will require review and updates to FEMP’s in the event of Tranche 2 water use and identify the need for changes to consents or the need for new production land use consents.

193. Where the sub-catchment exceeds the DIN target, reductions in nitrogen loss from current levels is likely to be required from farms in these catchments over time. There will need to be an understanding from applicants that, whether or not resource consents are granted for taking the Tranche 2 water, their land use activities, along with others in these sub-catchments, need to be progressively reducing the impact they are having on catchment stream quality.

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<sup>54</sup> AgFirst, page 10

<sup>55</sup> Farms require production land use consents under Rule TT2 and TT2A of the TCP if under Rule TT1(d) the Table 5.9.1D LUC based nitrogen loss limits are exceeded. This is estimated using Overseer but given the concerns with use of Overseer for regulatory purposes, consents are only currently required where farms are located in DIN exceeding sub-catchments.

## Effects on water quality from augmentation discharges

194. The discharge of water to water can be a permitted activity under Rule 31 of the RRMP. Rule 31 states that the discharge of water into water is a permitted activity if the discharge does not cause or contribute to flooding, cause scouring or erosion beyond the discharge point and does not cause the temperature of the receiving water to change by more than 3 degrees Celsius from normal seasonal water temperature fluctuations after reasonable mixing.
195. However, this does not provide for a discharge of contaminants to water. Groundwater can contain substances which could be considered contaminants<sup>56</sup> in surface water. Ms Drummond's evidence identifies that deep groundwater quality monitoring for the Ruataniwha Basin indicates that nitrate-nitrogen, ammoniacal-nitrogen, dissolved reactive phosphorus, dissolved oxygen and metals concentrations in groundwater could cause adverse effects to smaller streams receiving augmentation water and that further assessment of the potential effects is required<sup>57</sup>.
196. A separate rule (Rule 47) regulates discharges of contaminants into surface water. A condition of this rule limits the discharge to not exceeding 50 m<sup>3</sup>/day for the discharge to be a permitted activity. In some cases, the discharge of groundwater could represent a discharge of contaminants, if groundwater (or included constituent substances) was likely to cause changes to the physical, chemical or biological condition of the receiving water.
197. Ms Drummond's review indicates the potential for adverse effects on water quality from the augmentation discharges. Whether or not this is the case will depend on the quality of groundwater discharges at any particular augmentation site. This will require testing at the time of development. There may be a need for further consents and assessments of the effect resulting from the augmentation discharges. A condition of consent requiring testing and confirmation of water quality prior to commencement of augmentation is also recommended.

## Effects on cultural values

198. The protection of Maori and their culture and traditions is recognised under the RMA as a matter of national importance as is the protection of protected customary rights.

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<sup>56</sup> Contaminant as defined is:

*Includes any substance (including gases, liquids, solids, and micro-organisms) or energy (excluding noise) or heat, that either by itself or in combination with the same, similar, or other substances, energy, or heat:*

*(a) When discharged into water, changes or is likely to change the physical, chemical, or biological condition of water, or*

*(b) When discharged onto or into land or into air, changes or is likely to change the physical, chemical, or biological condition of the land or air onto or into which it is discharged.*

<sup>57</sup> Evidence of Laura Drummond, para. 6.30



199. I am not an expert in tikanga Maori or in Maori culture and values and those who hold mana whenua are best placed to identify and express these matters. In the absence of a cultural impact assessment, I have referred the submissions received on cultural values and effects.
200. Concerns have been expressed over the effects on cultural values resulting from abstraction. These include effects resulting from a diminishment of mauri and mana of the aquifer and associated springs and surface water bodies. Effects on cultural values are related to, but not wholly encompassed by the biophysical effects described above.
201. The loss of habitat and decline in key mahinga kai species is a particular concern of some submitters. As discussed above, some submitters have had recent experience with drying streams and fish stranding and mortality.
202. The Cultural Values Assessment referenced in section 5 of this report<sup>58</sup> also identifies the declines in mahinga kai species, attributed in part to water abstraction and the drying of smaller streams. This report describes how stream flows have been considered very low and below what is sustainable for tuna and other taonga. This assessment notes that *'within the Ruataniwha plains there has been significantly degraded land and in-stream values, with little protection afforded to small tributaries, creeks and streams'*.
203. Some submitters point to Te Mana o te Wai, and question whether the proposal meets the principals set out to enable this, and note concerns over their ability to exercise kaitiakitanga, mana whakahaere and manakitanga. Submitters also identify a lack of consultation and consideration of cultural values and concerns<sup>59</sup>.

### **Positive effects**

204. The potential positive effects associated with the proposal must be given consideration because they contribute towards the purpose and principles of the RMA by enabling people and communities to provide for their social, economic, and cultural well-being and for their health and safety<sup>60</sup>.
205. Positive effects associated with the project are described in the AEE and in the work prepared by AgFirst. The positive effects include increased economic returns, increases in local employment and changes to farming systems that might reduce associated contaminant losses.
206. The AgFirst report has assessed N loss from the applicants' properties as they are currently operated, compared to how they are likely to operate with use of Tranche 2 water. This assessment indicates the potential for a small reduction in the average N loss across all properties by 2 kgN/ha/year.

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<sup>58</sup> Te Taiwhenua O Tamatea, in partnership with Te Taiwhenua O Heretaunga (2012). 'Tukituki River Catchment Cultural Values and Uses – report for Hawke's Bay Regional Council' (2012). June 2012.

<sup>59</sup> For example, the submission of Kohine Thompson Associated Organisation (of applicable) Whataarakai 1E2B and Tarewa A2B Ahu Whenua Trust; Tautoko & Crystal Ratu of Ōtāne; Ngati Kahungunu Iwi Inc; Mataweka Marae

<sup>60</sup> RMA, Part 2, Section 5

207. Proposed conditions set out that there would be riparian planting on each farm. While this may not mitigate the effects that would be caused by the proposal, if established successfully it would increase biodiversity, provide shade and filter overland flow.
208. It is estimated that the proposed use of water could lead to a combined net economic benefit to the properties of \$4.4 million per annum before tax. The benefit to the GDP is estimated at \$5.7 million/annum. It is identified that the Tranche 2 water will improve security of existing water takes, improve resilience of the farming operations by protecting against climate uncertainty and can allow for a move to horticultural enterprises, with increased labour demands.

### **Conclusion on effects**

209. I have concluded that potentially significant adverse effects could occur as a result of this proposal and that these effects will not be avoided, remedied or mitigated under the current proposal. In summary, I have concluded that:

- The modelling is uncertain for sites within the Basin area. The predicted results may be too uncertain to be used with confidence when assessing effects within the Basin area.
- 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.
- While uncertain, there are potentially adverse effects on some existing wells, including wells that are otherwise considered 'efficient'.
- There are likely to be adverse effects on smaller, un-augmented streams, including increased drying. This can also lead to effects on cultural values.
- It is unclear why all of the water sought is required. Further information will be provided by the applicants to demonstrate a need for the residual volume of water.
- Increased abstraction of Tranche 1 water and the predicted effects of climate change are likely to exacerbate these effects.
- There are positive effects from the proposal, including a small reduction in nitrogen losses compared to existing practices and economic benefits.

## **12. Policy context and evaluation**

210. The policy assessment undertaken by the applicant is set out in section 9 of the AEE document. I have tried to avoid unnecessary duplication, but there are a number of provisions which I consider have been omitted and

that are worthy of consideration. There are also a number of areas where I have reached a different conclusion from the applicants.

211. Section 104(1) is subject to the matters contained in Part 2 of the RMA, which contains sections 5, 6, 7 and 8.

212. In terms of section 104(1)(b) the relevant documents may be:

- a) a national environmental standard;
- b) other regulations;
- c) a national policy statement;
- d) New Zealand coastal policy statement;
- e) a regional policy statement or proposed policy statement; and
- f) a plan or proposed plan.

### **National Policy Statement for Freshwater Management 2020 (NPS-FM 2020)**

213. The NPS-FM 2020 came into effect on the 3rd September 2020 and provides an updated national direction on how freshwater should be managed. It replaces the NPS-FM 2011 and 2014. Central to the NPS-FM 2020 is the concept of Te Mana o Te Wai.

214. When PC6 was drafted it gave effect to the NPS-FM 2011. Aspects of PC6 were amended and were found to give effect to NPS-FM 2014 post the High Court appeal in 2015<sup>61</sup>.

215. As noted above, section 104(1)(b)(iii) of the RMA requires that decision makers have regard to the relevant provisions of a national policy statement. Te Mana o te Wai is a fundamental concept underpinning the NPS-FM 2020 and is relevant to all freshwater management and as a framework that informs the NPS-FM 2020 and its implementation<sup>62</sup>.

216. The NPS-FM 2020 requires all Councils to give effect to te Mana o te Wai, and its objective provides a prioritisation hierarchy for the use of freshwater. The NPS-FM objective is directive, and is to *‘ensure that natural and physical resources are managed in a way that prioritises:*

- a) First, the health and well-being of water bodies and freshwater eco-systems;*
- b) Second, the health needs of people (such as drinking water); and*
- c) Third, the ability of people and communities to provide for their social, economic and cultural well-being, now and in the future’.*

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<sup>61</sup> Board of Inquiry (2015). ‘Final report and decision of the Board of Inquiry into the Tukituki Catchment Proposal – In relation to the matters referred back to the Board by the High Court’. 19 June 2015. Para. 73-74, in relation to Rule TT1(j).

<sup>62</sup> NPS-FM 2020, Part 1, para 1.3

217. In my view the applicants' proposed water takes would fall third under the hierarchy specified by Te Mana o Te Wai.
218. Te Mana o te Wai is supported by the six principles set out in section 1.3(4), relating to roles of tangata whenua and other New Zealanders in managing freshwater. The submission of Ngati Kahungunu (and others) indicate that the principles of Mana whakahere and kaitiakitanga are not being provided for.
219. The RRMP was amended to include the objectives required by the NPS-FM 2020 relating to fish passage, wetlands and loss of river extent, but it has not yet given full effect to NPS-FM 2020. Work is underway on a new regional plan that will give effect to the NPS-FM 2020, and as required by the NPS-FM, this is to be notified by the end of 2024.
220. Because PC6 was developed before the NPSFM 2020, my view is that considerable weight needs to be given to the NPSFM 2020 and Te Mana o Te Wai because the TCP cannot be giving effect to the NPSFM 2020.
221. The applicant has provided an assessment of the proposed application against the relevant the objective and policies of the NPS-FM 2020. Overall, based on their assessment of effects, the applicant considers that the proposal is generally consistent with, and not contrary to the relevant objectives and policies of the NPSFM 2020.
222. I agree that the policies identified by the applicant are relevant, but I consider that other policies are also relevant. I have summarised my assessment against the NPSFM 2020 Objective and Policy in Table 10 below and commented on where I have reached a different conclusion from the applicant. Further comments are provided below where required.

**Table 10. NPSFM 2020 – Relevant Objective and Policies – Summary**

<b>Objective and Policy</b>	<b>NPSFM 2020 – Relevant Objective and Policy</b>	<b>Summary comment</b>
<b>OBJ 1</b>	<i>Ensure that natural and physical resources are managed in a way that prioritises: (a) first, the health and well-being of water bodies and freshwater ecosystems (b) second, the health needs of people (such as drinking water) (c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future</i>	The applicant considers that the effects on freshwater (rivers, wetlands and minor surface waterbodies) and on wells will be negligible or no more than minor, and that the activities will be generally consistent with, and not contrary to this objective and relevant policies of the NPS.
<b>POL 1</b>	Freshwater is managed in a way that gives effect to Te Mana o te Wai	I have reached a different conclusion on the scale of adverse effects and do not consider the proposal to meet this objective.
<b>POL 2</b>	Tangata whenua are actively involved in freshwater management (including decision making processes), and Māori freshwater values are identified and provided for	There is no evidence that this has been or will be achieved. Submissions from tangata whenua indicate Māori freshwater values may not be provided for.

<b>POL 3</b>	<i>Freshwater is managed in an integrated way that considers the effects of the use and development of land on a whole-of-catchment basis, including the effects on receiving environments.</i>	Consistent with this policy, the work by AgFirst indicates that water use and associated land uses will not lead to increased nutrient losses. But it should be noted that other specific Tukituki Policies require improvements in water quality through improvements in land management.
<b>POL 4</b>	Freshwater is managed as part of New Zealand's integrated response to climate change.	Not considered relevant by the applicant. Climate change is a significant issue for the Tukituki catchment and may exacerbate effects of Tranche 2 abstraction.
<b>POL 5</b>	<i>Freshwater management through a National Objectives Framework (NOF) to ensure the health and wellbeing of water bodies is maintained and (if communities choose) improved.</i>	Relevant in that the TCP has freshwater limits for quality and quantity. Limits have not yet been set under NOF set by NPSFM 2020.
<b>POL 6</b>	<i>There is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted.</i>	The applicant considers proposal consistent with this given their conclusion about effects. I consider the proposal may be inconsistent with this because effects on wetlands may be more significant than currently assessed.
<b>POL 7</b>	<i>The loss of river extent and values is avoided to the extent practicable</i>	The applicant considers proposal consistent with this given their conclusion about effects. I consider the proposal inconsistent with this policy because it does not avoid loss of river extent and values.
<b>POL 8</b>	The significant values of outstanding water bodies are protected.	Not considered relevant by the applicant. I consider the proposal may be inconsistent with this policy.
<b>POL 9</b>	<i>The habitats of indigenous freshwater species are protected.</i>	The applicant considers proposal consistent with this given their conclusion about effects. I consider the proposal inconsistent with this policy because it will likely lead to adverse effects on instream habitat.
<b>POL 10</b>	<i>The habitat of trout and salmon is protected, insofar as this is consistent with Policy 9.</i>	The applicant considers proposal consistent with this given their conclusion about effects. I consider the proposal may be inconsistent with this policy especially if augmentation cannot sufficiently mitigate effects on rivers and this exacerbates the effects of low flows on instream habitat.
<b>POL 11</b>	<i>Freshwater is allocated and used efficiently, all existing over-allocation is phased out, and future over-allocation is avoided.</i>	Further information on the use of water is required.

223. Consistent with Policy 3, the applicants have shown how the effects stemming from the farming systems that would make use of Tranche 2 water will be managed to avoid further degradation in water quality from diffuse discharges. As identified by Ms Drummond, there may be some water quality impacts from the use of water, where this relates to augmentation water quality and loss of flow reducing assimilative capacity in small streams.

224. Climate change is a significant issue for the Tukituki Catchment. Policy 4 seeks to ensure that freshwater is managed as part of the country's integrated response to climate change. Climate change could increase the impact of the proposed takes. A cautious approach should be taken to allocation of significantly more groundwater in light of the effects of climate change on this catchment, and predictions of reduced aquifer recharge and river flows.
225. Policy 6 and 7 are about avoiding the loss of extent and values of natural inland wetlands and rivers. Policies 9 and 10 are related and seek protection of habitat for indigenous fish species and trout and salmon. My conclusion is that there is likely to be losses in the extent of non-augmented streams. Effects on river flows could also occur where augmentation is not as effective as has been modelled, and these could occur at times of particularly low flow when habitat values are not being provided for, including when augmentation volumes are exhausted in some drier years.
226. Policy 8 is to protect the significant values of outstanding water bodies. The Tukituki River, below SH50, is identified as an outstanding water body because of its cultural and spiritual values and ecology. This is discussed further below in relation to Plan Change 7, but in summary I consider that that this policy means that the proposal will need to avoid negative impacts on these values.
227. Policy 11 seeks to avoid over-allocation and to phase out over-allocation. Based on the TCP allocation limits, over-allocation would not occur. However, Policy 11 also seeks that water is allocated and used efficiently. At this stage the applicant has not yet demonstrated a need for all the water that is sought.
228. Policy 15 is to enable communities to provide for their social, economic, and cultural wellbeing in a way that is consistent with the NPS-FM 2020. While this proposal will provide for economic benefits to the applicants and the local community, based on the submissions received, it appears unlikely to provide for cultural wellbeing or the general wellbeing of the community if their access to water is impacted due to Tranche 2 takes.
229. Overall, I have reached a different conclusion from the applicant on whether the application is consistent with the NPSFM 2020. As explained in section 10 of this report, the adverse effects of the proposal on the environment could be significantly adverse. The proposal does not prioritise the health and wellbeing of freshwater eco-systems. It may also adversely affect the health needs of people, for example if drinking water supplies are adversely affected by well interference (see section 10 and NES Sources Human Drinking Water discussion below) and I consider it to be inconsistent with Objective 1 and Policy 1 of the NPSFM 2020.
230. I discuss the relevant TCP provisions below, and while I recognise that the Tranche 2 allocation is established under these provisions, I consider that significant weight should be placed on giving effect to the NPS-FM 2020 and Te Mana o Te Wai.

## **Resource Management (National Environmental Standard for Freshwater Regulations 2020) (NES-F)**

231. Some farming intensification activities now require consent under Subpart 2 of the NES-F. This includes the expansion by more than 10 ha of irrigation on dairy farmland and expansion by more than 10 ha of dairy support land, compared to the relevant areas during the specified reference period.
232. Springhill Dairies have applied for a separate consent (APP-127567) to expand dairy support land. While this application is related to use of Tranche 2 water, it is not dependent on it and so is being considered separately from this process.
233. The applicant has not indicated any activity non-compliance under Part 2, Subpart 2 (agricultural intensification) of the NES-F. Any future farming activity will have to comply with the relevant standards of Part 2 of the NES-F.
234. Regulations in Part 3 of the NES-F also apply to the taking, discharge or use of water within 100m of natural inland wetland. Regulation 54 specifies that these are non-complying activities.
235. The applicants' AEE states:
- This AEE relates to an assessment of effects on the environment for the take of Tranche 2 groundwater and the discharge of a portion of that groundwater for augmentation. It does not include an assessment of effects relating to any applications for resource consents to Hawke's Bay Regional Council that may be needed by the subject applicants in the future (e.g. to drill wells, or install infrastructure for irrigation or augmentation, if within 100 m/10 m of a natural wetland). Given the above, it is considered that no consents are currently required under the NES-F in relation to the subject applications.*
236. The applicant's ecologist did not identify any natural wetlands within 100 m of a proposed point of take, use or discharge. This may require further consideration, and if taking, use or discharges are to occur within 100 m of any natural wetlands additional resource consents will be required.

## **Resource Management (National Environmental Standard for Sources of Human Drinking Water) Regulations, 2007 (NES-DW)**

237. The NES-DW regulates activities that may contaminate sources of human drinking water from contaminants like microorganisms, which can pose a risk to human health if they enter human drinking water. The NES-DW requires consenting authorities to ensure that the effects of activities on drinking water sources are considered in decisions on resource consents, particularly water permits and discharge permits.
238. Regulations 7 and 8 of the NES-DW apply to water and discharge permits issued by regional councils. Regulation 7 states that regional councils cannot grant water permits or discharge permits if they are likely to –
- a) introduce or increase the concentration of any determinands in the drinking water, so that, after existing treatment, it no longer meets the health quality criteria; or

b) introduce or increase the concentration of any aesthetic determinands in the drinking water so that, after existing treatment, it contains aesthetic determinands at values exceeding the guideline values.

239. Regulation 8 applies to discharge and water permits that will occur upstream of an abstraction point where water is not tested or does not meet the health quality criteria.

240. There are several registered sources of drinking water from the Ruataniwha Basin. These include supplies from bores in Ongaonga and Tikokino, as listed<sup>63</sup> in Table 11, below.

241. The Ongaonga water supplies are located less than 2km from the abstraction points proposed by Buchanan Trust and Plantation Rd Dairies. The Tikokino supply is approximately 2.5km from abstraction points proposed by Te Awahohonu Forest Trust and Springhill Dairies. The Takapau water supply bore is much further away from sites of proposed abstraction.

242. The proposed takes are not likely to affect groundwater quality at the registered supply abstraction wells.

**Table 11. Registered Drinking Water Supplies – Ruataniwha Basin Groundwater**

Supply name	Supplier	Supply population	Supply source	Comment
<b>Tikokino School</b>	Tikokino School	60	Bore	Neighbourhood - Specified self-supplier. From HBRC well no. 16011, screened from 56.79 m, and 60 m deep.
<b>Ongaonga School</b>	Ongaonga School	150	Bore	Small - Specified self supplier Unclear which HBRC well is used: Assumed to be HBRC well no. 5359, drilled 2005 to 37.5m in depth.
<b>Ongaonga Hall &amp; Playcentre</b>	Central Hawke's Bay District Council	40	Bore (Bridge St bore)	Neighbourhood- Specified self supplier Assumed to be from HBRC well no. 10929, screened from 9 m in depth.
<b>Takapau (TAK001)</b>	Central Hawke's Bay District Council	570	Bore (Meta Street bore)	On-demand supply for Takapau Township From HBRC well no. 1762 under AUTH-121511-01. Well 1762 is 48.9 m deep, screened from 31.08m.

243. Regulation 12 only applies to an activity that has the potential to affect a registered drinking-water supply that provides no fewer than 25 people with drinking water for not less than 60 days each calendar year. As there are registered drinking water supplies of this nature within approximately 2 – 2.5 km from some the proposed take points, in the event that consents are granted, it is recommended that a condition of consent

<sup>63</sup> Registered self-suppliers are taken from the Register of Specified Self Supplies 1 November 2021. The registered network supply (Takapau) details are from Taumata Arowhai Public register of Drinking Water Supplies.  
see: <https://www.taumataarowhai.govt.nz/for-communities/public-register/>



under Regulation 12 be included. This will help to ensure the operators of the supplies are notified if an event occurs that may have a significant adverse effect on the quality of the water at this abstraction point.

244. RMA s104G was inserted in November 2021 and requires that regard must be given to any drinking water supply that is registered under s 55 of the Water Services Act (WSA) 2021, and risks that are identified in a source water risk management plan.
245. In his evidence, Mr Thomas specifically considers the potential drawdown effects on registered drinking water supply bores. For the reasons previously discussed in section 10 of this report, he considers that well interference drawdown may be underestimated by the applicants, particularly for the Ongaonga School bore which is classified and assessed as shallow. However, Mr Thomas considers that the reduction in groundwater levels is not likely to restrict the use of the bores, but that the lowering of the pumps may be required if it is practicable. The Playcentre bore is thought to be shallow and could be adversely affected. The Takapau well, given its location further from the applicants' wells, is not likely to be adversely affected.

### Hawke's Bay Regional Policy Statement

246. This Regional Policy Statement is incorporated in the Hawke's Bay Regional Resource Management Plan, which became operative in 2006. The Regional Policy Statement is set out in Chapters 1 to 4 of the plan.
247. Table 12 sets out key objectives and related policies of the Regional Policy Statement which are relevant to the project<sup>64</sup>. Those identified in italics were identified and assessed by the applicant.

**Table 12: Summary of Key Objective and Policy Themes of the Regional Policy Statement relevant to the applications**

Objective and Policy	HB Regional Policy Statement Objective and Policy Theme
<b>OBJ LW 1- 3</b>	Integrated management of freshwater, land use and development, and integration of tangata whenua values in the management of freshwater, land use and development.
<b>POL LW1</b>	Integrated management approach – problem solving
<b>OBJ 1</b>	<i>Achieving integrated sustainable management, while recognising the importance of resource use.</i>
<b>OBJ 15</b>	The preservation and enhancement of remaining areas of significant indigenous vegetation, significant habitats of indigenous fauna and ecologically significant wetlands.
<b>OBJ 22</b> <sup>65</sup>	Maintenance or enhancement of groundwater quality in aquifers in order that it is suitable for human consumption and irrigation
<b>OBJ 23</b>	<i>Avoidance of any significant adverse effects of water takes on the long-term quantity of groundwater in aquifers and on surface water resources.</i>
<b>OBJ 24</b>	<i>Avoidance or remedy of any significant adverse effects of water takes on the operation of existing lawful efficient groundwater takes</i>

<sup>64</sup> Policies 27, 30 and 31 are considered of secondary relevance. These matters can be addressed through conditions of consent on the water permits or at the time bore permits are sought for new wells.

<sup>65</sup> Footnote 6A of the RPS indicates that Objective 21 was superseded by Plan Change 6 provisions.

<b>POL 28</b>	<i>Avoid, remedy or mitigate any significant interference of new takes of groundwater on existing lawfully established efficient groundwater takes</i>
<b>POL 29</b>	Avoidance of any significant long-term reduction in the groundwater level or piezometric pressure in aquifers
<b>POL 32</b>	Allocation of groundwater for irrigation on the basis of a 1 in 10 year drought.
<b>OBJ 25</b>	The quantity of water in wetlands, rivers and lakes is suitable for sustaining aquatic ecosystems
<b>OBJ 26</b>	Avoidance of any significant adverse effects of water takes on lawfully established activities in surface water bodies.
<b>OBJ 27</b>	The water quality in rivers, lakes and wetlands is suitable for sustaining or improving aquatic ecosystems
<b>OBJ 27A</b>	Encourages riparian planting
<b>POL 38</b>	<i>Avoidance of significant adverse effects of new takes on lawfully established activities in surface water bodies</i>
<b>OBJ 34</b>	To recognise tikanga Maori values and the contribution they make to sustainable development and the fulfilment of HBRC's role as guardians, as established under the RMA, and tangata whenua roles as kaitiaki, in keeping with Maori culture and traditions.
<b>OBJ 35</b> <b>POL 59</b>	Consultation with iwi/hapu
<b>POL 60</b>	Encourage and use Iwi/hapu management plans
<b>POL 61</b>	Resource management decisions to have regard to consultation
<b>POL 62 and 63</b>	Consultation with iwi, hapu and whanau
<b>OBJ 36</b>	To protect and where necessary aid the preservation of waahi tapu (sacred places), and tauranga waka (landings for waka).
<b>OBJ 37</b>	To protect and where necessary aid the preservation of mahinga kai (food cultivation areas), mahinga mataitai (sea-food gathering places), taonga raranga (plants used for weaving and resources used for traditional crafts) and taonga rongoa (medicinal plants, herbs and resource).
<b>POL 64</b>	Activities should not have any significant adverse effects on waahi tapu, or tauranga waka
<b>POL 65</b>	Activities should not have any significant adverse effects on taonga raranga, mahinga kai or mahinga mataitai.
<b>POL 66</b>	The importance of coastal, lake, wetlands and river environments and their associated resources to Maori should be recognised in the management of those resources.

248. OBJ LW1 to OBJ LW3, and associated POL LW1 and LW2 are intended to “*outline the broad principles for policy-making and regional plan preparation to improve integrated decisions being made about the way the region’s land and freshwater resources are used, developed or protected across the region’s varying catchments and sub-catchments*”<sup>66</sup> and so are of less relevance as there is a specific catchment plan in place for the Tukituki Catchment. However, the proposal is not fully consistent with OBJ LW1, in relation to protecting outstanding water bodies, wetlands and safe-guarding life-supporting capacity of freshwater ecosystems.

<sup>66</sup> RPS OBJ LW1-3, Principal reasons and explanations

249. Objective 15 is the preservation and enhancement of remaining areas of significant indigenous vegetation, significant habitats of indigenous fauna and ecologically significant wetlands. The applicant's assessment indicates that the changes to water levels within the assessed wetlands will not impact on the ecological condition of these wetlands, but there is uncertainty over the applicability of this conclusion to different and drier climatic conditions and there may be other wetlands that could also be affected.
250. Objective 22 is to maintain or enhance groundwater quality so that it continues to be suitable for human consumption and irrigation. Objective 27 is the maintenance or enhancement of the water quality of rivers/streams, lakes and wetlands in order that it is suitable for sustaining or improving aquatic ecosystems in catchments as a whole, and for contact recreation purposes where appropriate. These are relevant to the effects of water use on water quality. The applicants have provided information that indicates water use is not likely to lead to land use that will increase nitrogen losses. The reduction in flow of smaller streams could reduce dilution and increase contaminant concentrations, but the scale and extent of this effect has not been determined.
251. Objectives 23 and Policy 29 seek the avoidance of significant adverse effects on the long-term quantity of groundwater in aquifers and surface water resources, including the avoidance of any long-term reduction in groundwater levels or pressure. The Council's SoE monitoring indicates that there is a generally declining trend in groundwater levels across the Ruataniwha Basin. These declines could be exacerbated by climate change and further abstraction of Tranche 1 groundwater. Lowering of groundwater levels is expected as a result of groundwater abstraction, with stabilisation at a new equilibrium occurring once abstraction has stabilised. However, I believe caution is required because of the effects from increased Tranche 1 abstraction and climate change are not yet known and the modelling provided does not accurately predict the effect on groundwater levels and flows within the Basin from significantly increasing abstraction under the Tranche 2 proposal.
252. Objective 24 and Policy 28 are about avoiding adverse effects on existing groundwater users, where these users have existing lawfully established efficient groundwater takes. An efficient groundwater take is defined as<sup>67</sup>:
- Efficient groundwater take:*** *Abstraction by a bore which penetrates the aquifer from which water is being drawn at a depth sufficient to enable water to be drawn all year (i.e. the bore depth is below the range of seasonable fluctuations in groundwater level), with the bore being adequately maintained, of sufficient diameter and screened to minimise drawdown, with a pump capable of drawing water from the base of the bore to the land surface.*
253. The applicant has assessed the likely impact on existing wells, and while the predicted effects may be underestimated, this assessment indicates that some efficient wells may be adversely affected.

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<sup>67</sup> RRMP Glossary, 9.78.

254. Shallow wells, especially those with surface pumps may be impacted, but may not be considered efficient. These wells are already often impacted, and the Council regularly receives reports of groundwater access loss from shallow well users in Ongaonga.
255. Policy 32 is that groundwater should be allocated for irrigation based on actual crop water requirements on the basis of a 1 in 10 year drought. Allocation is also to be on the basis of an efficient irrigation system. As discussed in section 10, for some applications, there is a lack of clarity about where the abstracted water will be used and the need for the volume that is proposed to be taken. Some applicants have sought more water than can be justified under this policy, and it is recommended that if consents are granted, the volumes allocated for irrigation use do not exceed a 1 in 10 year volume that is based on the demonstrated area of land and crop type that can be irrigated.
256. Objectives 25 and 26, and related Policy 38 are about managing water quantity of wetlands, lakes, and rivers so that aquatic ecosystems are sustained, and existing takes and uses of surface water are not impacted. The proposal is not consistent with meeting these objectives as it is likely to cause further reductions in water level and extent of wetted area in some un-augmented streams. The proposal may also reduce flows within augmented streams in particularly dry seasons, or if the augmentation package does not work as has been modelled and this could affect instream values and surface water users. The adverse effects on wetlands may be also more significant than has been assessed by the applicant.
257. As discussed in section 10, it is difficult to judge the significance of these potential impacts. There is uncertainty over the scale and extent of potential effects within the Basin. The applicant's modelling indicates widespread small effects, but even these small effects over large areas and over a number of water bodies could be significant in a cumulative sense. This is of concern given the pattern of declining groundwater levels and surface water flows, the potential impacts of climate change, and because there is further scope for increased abstraction (and associated effects) under Tranche 1 consents.
258. Objective 27A recognises riparian vegetation and that improving riparian planting can help with improvements to biodiversity, ecosystem health and water quality. The ecological assessment report indicates that riparian planting enhancement is not necessary but could be undertaken. Draft conditions of consent require this through implementation of Farm Environment Management Plans (FEMP) and while it may not mitigate the effects of abstraction, it will be consistent with this objective.
259. Māori values are addressed by Objectives 34 (respecting tikanga) and 35 (consultation) and Policies 58, and 59 which encourage consultation and sharing of information. Objectives 36 and 37, along with Policies 64 and 65 relate to protection of culturally significant places, areas, resources and practices. Policy 66 recognises the importance of coastal, lake, wetlands and river environments and their associated resources to Māori should be recognised in the management of those resources.

260. Due to the lack of a cultural impact assessment, it is difficult to assess effects on cultural values and the consistency of the proposal with these provisions. Submissions received from iwi and hapū highlight that the proposal may not adequately recognise the values expressed in these provisions, particularly Policy 66. I understand that the applicant has undertaken consultation with iwi, but that this has happened only more recently. The outcomes of this consultation have not yet been reported on.
261. Overall, I have concluded that the proposal is not consistent with key relevant objectives and policies of the RPS, including those that relate to avoiding effects on existing groundwater users, managing water quantity to sustain aquatic ecosystems, allocation of water and potentially, the protection of cultural values.

### Hawke's Bay Regional Resource Management Plan (RRMP)

262. The RRMP contains provisions specific to the Tukituki Catchment, set out in Chapter 5.9 (i.e. the provisions introduced by PC6).
263. Several objectives and policies have been added as Chapter 5.1A as a result of national directives, for example as required by a National Policy Statement. Most recently, objectives and policies relating to fish passage, wetland and river extent and values were added as directed by the NPS FW (2020).
264. Objectives and policies that I consider are relevant to the proposal are set out in Table 13 below. Those identified in italics were identified and assessed by the applicant.

**Table 13: Summary of Key Objectives and Policy Themes of the RRMP**

<b>Objective and Policy</b>	<b>RRMP Objective and Policy Theme</b>
<b>POL66A</b>	Avoid the loss of natural inland wetlands and protect their values (inserted as directed by NPS FM 2020)
<b>POL 66B</b>	Avoid the loss of river extent and values (inserted as directed by NPS FM 2020)
<b>OBJ 44</b>	<i>Maintenance of a sustainable groundwater resource</i>
<b>POL 77</b>	<i>Environmental guidelines for managing groundwater quantity</i>
<b>OBJ TT1</b>	<i>Sustainably manage the use and development of land, discharge of contaminants and the taking and use of water in the Tukituki Catchment to meet specified objectives.</i>
<b>OBJ TT2</b>	Avoid further degradation of freshwater quality and improve it progressively over time
<b>OBJ TT4</b>	Manage abstraction of surface water and groundwater within a minimum flow and allocation limits that achieve OBJ TT1
<b>OBJ TT4A</b>	Recognise that industry good practices for land and water management can help achieve OBJ TT1, TT2 and TT4
<b>POL TT8</b>	<i>Allocation limits for surface water and groundwater, including Tranche 2 groundwater abstraction</i>
<b>POL TT9</b>	Implementing minimum flows and allocation limits
<b>POL TT14</b>	Consent categorisation durations
<b>POL TT15</b>	Water metering and reporting

265. POL66A and POL66B were inserted as directed by the NPSFM 2020. They relate to protecting the extent and values of wetlands and streams. As set out in section 10 and the evidence of Ms Drummond and Mr Thomas, there is uncertainty over the scale of potential effects, particularly on un-augmented streams within the Basin. However, the assessment shows that adverse effects are likely to occur, and these cannot be mitigated by the augmentation proposal. This may lead to streams having reaches that are drier for a longer duration or that are drier over a greater distance. The applicants' riparian planting proposal does not necessarily mitigate or compensate for these effects. The proposal is therefore not consistent with these policies.
266. OBJ 44 and POL 77 relate to sustainable management of the groundwater resource to ensure that effects on efficient existing users and surface water bodies are avoided. The Environmental Guidelines (Table 11) recognise that there is a specific management framework in place for the Tukituki Catchment and that some reduction in river flows and levels could occur under this framework.
267. Objective TT1 sets out the overall freshwater objective for the Tukituki Catchment. It aims for the sustainable management of land use and water resources to achieve a number of outcomes, including the following which are of relevance to the proposal:
- a) Groundwater levels, river flows, lake and wetland levels and water quality maintain or enhance the habitat and health of aquatic ecosystems, macroinvertebrates, native fish and trout;
  - b) Water quality enables safe contact recreation and food gathering;
  - c) Water quality and quantity enables safe and reliable human drinking water supplies;
  - d) The frequency and duration of excessive periphyton growths that adversely affect recreational and cultural uses and amenity are reduced;
  - e) The significant values of wetlands are protected;
  - f) The mauri of surface water bodies and groundwater is recognised and adverse effects on aspects of water quality and quantity that contribute to healthy mauri are avoided, remedied or mitigated.
268. As identified and discussed in section 10, the proposal could lead to adverse effects that will not maintain or enhance habitat and health of aquatic ecosystems.
269. Objective TT2 is that where freshwater quality has been degraded by human activities to such an extent that OBJ TT1 is not being achieved, water quality shall not be allowed to degrade further and shall be improved progressively over time so that OBJ TT1 is achieved by 2030.
270. Objective TT4A is relevant and is to recognise that industry good practice (IGP) for land and water management can assist with achieving Objective TT1. The applicant has set out how land use can be facilitated by Tranche 2 water use and not lead to increased losses of contaminants. The FEMPs for these farms under the Tranche 2

system will need to clearly outline the IGP to be employed, and these will need to be required through associated production land use consents.

271. OBJ TT4 is to manage surface and groundwater abstraction within a minimum flow and allocation framework that achieve OB TT1 while recognising existing take support existing investment. As recognised by the applicant, POL TT8(ca) provides the sole policy direction in relation to Tranche 2 allocation. The policy is:

*Enabling additional groundwater to be abstracted as a discretionary activity (Table 5.9.5 Tranche 2) provided that river flows are augmented to maintain the relevant minimum flows specified in Table 5.9.3 commensurate to the scale of effect of the Tranche 2 groundwater take*

272. This policy is supported by Rule TT4(b):

*No new groundwater takes from Groundwater Allocation Zones 2 and 3 utilising Tranche 2 groundwater may be exercised under this rule unless and until augmentation flows are discharged that are commensurate to the scale of effect of the proposed take, during the same irrigation season as the Tranche 2 groundwater takes are exercised, to each of the Waipawa River and the Upper Tukituki River or one or more of their respective tributaries at a rate of up to 715 l/s to each river catchment at the highest practicable elevation as required to maintain the relevant downstream minimum flows specified in Table 5.9.3*

273. Because of the requirement that augmentation is ‘commensurate to the scale of effect’, the holding up of river flows above the specified minimum flow levels is not considered necessary, but rather the ‘replacement’ of the effects on flows from Tranche 2 abstraction is the minimum requirement. POL TT8 does not provide direction on the level of protection to be provided by augmentation. The applicant has based on augmentation meeting requirements in a 1 in 10 year event, which is the level of security on which allocation of irrigation water is based under Policy 32. This means that augmentation will be insufficient in 1 out of 10 years on average. With climate change, extreme drought events are expected become more common over time.

274. The applicant identifies the relevant parts of the Bol decision<sup>68</sup> in relation to Tranche 2. In addition to what the applicant has included, I note that the Bol considered minimum flows to be the ‘yardstick for safeguarding environmental values’<sup>69</sup> and elsewhere that minimum flow levels are ‘bottom lines’ for protection of habitat<sup>70</sup>. It is important that Tranche 2 takes do not affect minimum flow duration and frequency for the security of supply of existing surface water abstractors, but also so that instream habitat requirements are protected. An abstraction/augmentation regime that leads to a reduction of flows further below the minimum flow level ‘bottom lines’ would be contrary to OBJ TT1 and achieving Te Mana o te Wai under the NPS FM.

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<sup>68</sup> AEE, pages 8 and 9

<sup>69</sup> Bol Final decision 2014, para. 564

<sup>70</sup> Bol Final decision 2014, para. 530

275. For the reasons set out in Section 10, I am not convinced that the requirements of POL TT8 will be achieved by the proposed scheme, and therefore also consider that OBJ TT4 may not be achieved. This is particularly the case for minimum flow sites located within the Basin, and for all sites in extreme years when augmentation may be insufficient, or when the applicants are at different phases of use and development and the full collective augmentation package is not available.
276. POL TT11 is not directly relevant because it sets out a framework for managing the stream depletion effects of groundwater takes from wells less than 50 m deep. The stream depletion effects of Tranche 2 takes are set out in POL TT8(ca).
277. Requirements for water metering and consent duration, are considered under POL14 and POL15, later in this report.
278. I have concluded that the proposal is inconsistent with some key provision so the Regional Plan, including those that relate to protecting the values of streams and wetlands, maintaining or enhancing the health of aquatic ecosystems, and ensuring key river flows are maintained as necessary by augmentation.

#### **Plan Change 7 – Outstanding Water Bodies (OWB)**

279. Proposed Plan Change 7 proposes changes to the Regional Resource Management Plan (RRMP) to include a list of the region’s outstanding water bodies, together with a framework which prescribes a high level of protection for these water bodies in future plan making.
280. Decisions on this plan change were issued on 26 June 2021, and the Tukituki River, downstream of SH50, is included as an outstanding water body, due to its cultural and spiritual values and ecology, particularly in relation to bird habitat.
281. Three appeals have been received. These appeals are wide ranging. While the plan change provisions are not yet operative, given a decision has been issued on the plan change, it is considered worthy of consideration in accordance with section 104(1)(b)(vi), especially because none of the appeals seek that the Tukituki River be removed from the OWB schedule.
282. Chapter 3.1A has been amended to include objectives and policies that relate to protecting outstanding water bodies. Objective LW1 is to protect the outstanding and significant values of outstanding water bodies. POL LW3A sets out decision making criteria for new activities affecting OWB, but these do not apply until after 31 December 2025 or until a catchment based regional plan change is operative (whichever is sooner).
283. This is also addressed in the NPDFM (2020) Policy 8, which requires protection of the values of outstanding water bodies without deferral. The proposal may be inconsistent with this requirement if it is found to not protect the associated values that make the Tukituki River outstanding, such as its cultural and spiritual values.



## Section 104(c) – Other matters

284. Section 104(1) (c) requires the consent authority to consider any other matter that it considers is relevant and reasonably necessary to determine the application.
285. The Kahungunu Ki Uta, Kahungunu ki Tai Marine and Freshwater Fisheries Strategic Plan 71 is considered an iwi/ hapu management plan and is relevant to the wider Ngāti Kahungunu rohe from Mahia in the north to southern Wairarapa in the south.
286. This Strategy focuses on the use and management of marine and freshwater fisheries and aims to integrate the management of fisheries, freshwater and coastal resources within the Kahungunu rohe. It sets out the aspirations of Kahungunu for the use of marine and freshwater fisheries with their rohe. It articulates that Kahungunu are concerned about the current state of ecosystems and fisheries within the rohe, and some of the practices of agencies responsible for managing them.
287. A key issue identified is the dissatisfaction and concern at the decline in the abundance of fisheries, particularly iconic species including tuna. The Strategy prioritises local management in accordance with Tikanga and the mana of hapu.
288. The Strategy states that *“insufficient attention appears to have been given to environmental issues affecting inland waterways and coastal waters, including pollution, habitat destruction or modification, water abstraction, damming/diversion”*. A goal of the Strategy is that environmental issues are managed so that mauri is restored and enhanced, and to avoid, remedy or mitigate adverse effects on fisheries and their habitats.
289. The above is relevant to these applications as it reinforces the significant cultural values associated with mahinga kai species such as tuna to Ngati Kahungunu and reinforces the need to protect freshwater habitat and ecosystems of these species.

## Part 2 of the RMA

290. Part 2 of the RMA is the Act’s purpose and principles, including matters of national importance in section 6, other matters which particular regard must be had in section 7, and Treaty principles in section 8.
291. Section 104(1) of the RMA makes all decisions on resource consent applications subject to Part 2. I am aware that case law has found that the words “subject to Part 2” show that a consent authority must have regard to the provisions of Part 2 where it is appropriate to do so. I have therefore provided a brief consideration of Part 2 below.
292. In terms of section 6, the preservation of natural character of wetlands and rivers is relevant. The applicant’s proposed augmentation seeks to ensure flows are not impacted by abstraction, but this will not be achieved in un-augmented streams and if the augmentation is not as effective as has been modelled.

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<sup>71</sup> Marine and Freshwater Fisheries Strategic Plan mai Paritu ki Tarakirae. See: [HBRC web link](#)

For similar reasons, the proposal may not provide for the relationship of Māori and their culture and traditions.

293. In terms of section 7, matters including kaitiakitanga, maintenance and enhancement of the quality of the environment, the effects of climate change and intrinsic values of ecosystems have not been given sufficient regard.
294. Section 8 requires that Treaty of Waitangi principles must be taken into account. It is unclear if this is the case given that preparation of a CIA has not occurred. The applicant may wish to provide an update on the consultation that has been occurring with tangata whenua over this proposal.
295. Finally, section 5 sets out the purpose of the RMA as being the promotion of sustainable management as defined within the section. There are significant uncertainties over the effects of the proposal, and it has not been demonstrated that the life-supporting capacity of water and ecosystems will be safeguarded. Overall, I consider that the actual and potential adverse effects which could be associated with the project have not been sufficiently avoided, remedied or mitigated.

### **13. Recommended consent conditions**

296. The applicant provided an updated set of draft consent conditions on 22 July 2022. The conditions are structured in two water permits, one to authorise the taking for water and one to authorise the use of water.
297. The recommended consent conditions are provided in Appendix 6 for consideration. These conditions are based on the conditions provided by the applicant and have been amended as marked. For the avoidance of doubt, while I have included and added to the set of draft conditions provided by the applicant so as to address some of the issues discussed in this report, I am not convinced that these are sufficient to ensure the adequate mitigation or avoidance of adverse effects. I do not recommend granting consent, even in light of the proposed conditions in place.
298. The proposed take consent enables abstraction of up to 15 million m<sup>3</sup>/year as originally proposed, with the split of water between applicants as shown in section 5 and Table 6 of this report. The take consent is proposed to be held in common by the group of applicants.
299. The use consent includes conditions relating to augmentation and a drafting note is including indicating that approximately 13.5 million m<sup>3</sup>/year will be used by the applicants. It is recognised that more information about the use of water will be provided by the applicants with their evidence.
300. Recent case law from the Court of Appeal<sup>72</sup> indicates that separating the taking and use of water and authorising these separately is not always possible, and that the nature and wording of the relevant rules in

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<sup>72</sup> Court of Appeal CA430/2020 [2022] NZCA 325. Aotearoa Water Action v Canterbury Regional Council. See: <https://www.courtsofnz.govt.nz/assets/cases/2022/2022-NZCA-325.pdf>

the plan can affect the ability to consent water take and use in a separated fashion as is proposed here. The relevant rule in the TCP is Rule TT4, which describes the activity requiring consent as the 'take and use' of surface water or groundwater'. On that basis I consider that it would be more appropriate for the water take and use to be consented together.

301. The conditions that have been proposed by the applicant for the taking of water include:

- That Tuki Tuki Awa will only take water when minimum flow bans are in force.
- Upon request, a sum of money is to be provided to owners of the 10 shallow wells that have been assessed as potentially affected by the applicant. Money would also be provided to up to 10 existing shallow well owners, where their well is not recorded in the HBRC wells database.
- New wells are to be added to the consent after they are drilled through a s127 change of conditions. Information about the well and testing results are to be provided to show effects on neighbouring wells and that the intended rate of take can be sustained. Measures to reduce well interference so that the security of supply in affected wells is not 'unreasonably reduced'

302. Notable conditions proposed through the water use consents include:

- Inclusion of the *pro rata* approach to augmentation requirements, except for Tuki Tuki Awa.
- That augmentation commences when trigger flows are met regardless of whether irrigation is occurring.
- For Tuki Tuki Awa, augmentation requirements only apply when they are taking Tranche 2 groundwater.
- A requirement for stock exclusion and riparian planting. Riparian planting is to be 3m wide and over a length of 750 m or 20% of total stream length on the land holder (whichever is less).
- A requirement for water use to be undertaken in compliance with a production land use consent for the farm.

303. The proposed take consent allocates the applicants in combination the right to take the full 15 million m<sup>3</sup>/yr, when at this stage, a use for this water has not been demonstrated. It also establishes a mitigation package for affected well owners (condition 5).

304. Any new entrant wanting to use Tranche 2 water would first need to obtain the applicant's approval to change the take consent to add wells and land holdings. I recommend that water only be allocated where it can be reasonably demonstrated that there is an actual intended use for this water. There would be no need for a separate take consent in this case, although some other mechanism of establishing a mitigation package as provided for in condition 5 would need to be developed.

305. I have suggested the following changes to the conditions proposed by the applicant:

- Extending the well interference mitigation so it applies to deep and shallow wells. There may be actions that would improve security of supply in deep wells, such as lowering of pumps.
- Testing of groundwater quality where it is to be used for augmentation purposes.
- Combining irrigation and augmentation volumes to allow more water to be used for augmentation if required and using a common water year.
- Requiring augmentation requirements to be determined in advance of each season, and ensuring that all augmentation sites are established as necessary to provide the required augmentation flow rates.
- Including Red Bridge as a trigger flow site.
- Requiring Tuki Tuki Awa to augment in the same manner as the other abstractors.
- Setting maximum irrigation areas and specifying crop types that can be irrigated.

306. I consider that the approach of tying the water use consents to the need for a production land use consent for the farms is warranted and appropriate.

#### **14. Consent duration**

307. The applicants have sought a duration of 20 years. This is consistent with POL TT14(fc) of the TCP, which states that water permits should have a duration not exceeding 20 years. Section 8.2.4 of the RRMP also provides some guidance on consent duration and indicates that shorter consent term may be warranted when there is a need to align expiry dates with others so that cumulative effects can be considered, when there are effects that are unknown or potentially significant.

308. A common expiry date for a majority of the Tranche 1 groundwater consents is 31 May 2035. If consent is granted, I recommend that it be granted so that it expires at the same time as the Tranche 1 consents. This will enable reconsideration of all of the Ruataniwha Basin takes at the same time and consideration of cumulative effects from groundwater abstraction. It also provides a reasonable time period for development and use of the Tranche 2 water.

309. The applicant has not applied for a specified lapse period. The default five year lapse date is recommended.

#### **15. Monitoring**

##### **Monitoring by consent holder**

310. The applicant has not proposed any ongoing monitoring of the effects of the takes. Testing of wells and assessment of well interference effects is proposed. It would be difficult to develop a monitoring framework that could be used to assess the impact of these takes, given they will occur at the same time as Tranche 1 abstraction, and that Tranche 1 abstraction may increase from current levels over time.

## **Monitoring by Council**

311. It is recommended that should consents be granted that there be provision for Council to undertake monitoring during establishment of the irrigation and augmentation take and discharge infrastructure, and regularly (up to annually) thereafter.
312. Monitoring of water use data would also occur. Telemetry data for the irrigation and augmentation takes would be required to be returned to the Council on a daily basis.
313. The applicants propose a system whereby they inform the Council each year of the maximum irrigation and augmentation volumes. This will need to be monitored to ensure that irrigation does not exceed the specified volumes. This is likely to require annual manual entry and checking of data by Council staff. Some changes to Council's water monitoring data system may be required to facilitate these requirements.
314. If consents are granted, the costs of routine monitoring will be charged to the consent holder in accordance with the Annual Plan current at the time. "Non-routine" inspections will be made on other occasions if there is reason to believe (e.g. following a complaint from the public, or monitoring) that the consent holder is in breach of the conditions of this consent. The cost of non-routine monitoring will be charged to the consent holder in the event that non-compliance with conditions is determined, or if the consent holder is deemed not to be fulfilling the obligations specified in the RMA.
315. All holders of resource consents subject to low flow conditions (or in this case, trigger flows) are charged an annual low flow monitoring fee. As this consent includes monitored trigger flow conditions, the consent holder will be invoiced annually for the costs of low flow monitoring. The low flow monitoring fee is set through the Council's Annual Plan process.

## **16. Conclusion**

316. This assessment has been carried out in accordance with s104 and 104B of the RMA.
317. There is uncertainty over the accuracy and applicability of the modelling that underpins the assessment of effects. The scale and extent of adverse effects may be underestimated by the applicants' assessments, and some predicted adverse effects, such as those on other wells and smaller, un-augmented streams could be significant.
318. The efficacy of the applicants' augmentation regime is also uncertain. Augmentation as proposed will not be sufficient in drier seasons, it is unclear how the augmentation package will work collectively if abstraction develops at uneven rates across the group of applicants, and it remains unclear whether augmentation to shallow wells and dry stream reaches will provide the flow benefits that have been modelled.
319. The Tukituki River and its tributaries are recognised as Statutory Acknowledgment Areas and have significant cultural value. This is also recognised by the Tukituki River (downstream of SH50) being considered as an Outstanding Water Body. Based on the submissions from tangata whenua, the proposals may result in adverse


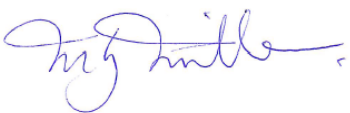
effects on cultural values, but consultation is ongoing and further information may become available on this at the hearing.

- 320. There is a generally declining trend in groundwater levels across the Ruataniwha Basin. These declines could be exacerbated by climate change and increased abstraction of Tranche 1 groundwater. I have concerns about the additional cumulative adverse effects that may result from this proposal and the ability to appropriately mitigate these effects.
- 321. There will be some economic benefits from the proposal. Land use changes as a result of water use will need to be managed carefully through the production land use consent process, but land use changes are possible without leading to increased contaminant losses. However, in the longer term these and others in DIN exceeding catchments will need to be contributing to reductions in contaminant losses if the TCP target is to be met.
- 322. I have concluded 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.
- 323. For these reasons I have recommended that the consents be refused.
- 324. Recognising that the panel may reach a different conclusion, draft conditions are provided for consideration.

## 17. Recommendation

- 325. The recommendation is that the resource consents be refused.

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Recommending Officer	Recommendation Confirmed
	
<b>Paul Barrett</b> <b>Team Leader Consents</b> POLICY AND REGULATION GROUP 8 August 2022	<b>Malcolm Miller</b> <b>Manager Consents</b> POLICY AND REGULATION GROUP 8 August 2022

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## APPENDIX 1. CLIMATE CHANGE IMPACTS – CENTRAL HAWKE’S BAY

# MEMO

**To:** Paul Barrett  
**From:** Kathleen Kozyniak  
**Date:** 30<sup>th</sup> June 2022  
**Subject:** CLIMATE CHANGE IMPACTS – CENTRAL HAWKE’S BAY  
**File Ref:**  
**CC:**

Hi Paul,

Below is my response to your two questions –

1. Are there reports predicting what would happen under climate change scenarios for Central Hawke’s Bay?
2. Could 1 in 10-year drought events (or worse) become more common? This would be a relevant consideration for the 20-year duration proposed for these consents.

The climate change work that NIWA completed for us in November 2020 looked at two future scenarios of climate change, namely RCP8.5 and RCP4.5, and their impact across the region. RCP8.5 is a “high-end” scenario and RCP4.5 is a more moderate or realistic scenario assuming global mitigation measures are implemented. Modelling was undertaken for the 20-year periods centred on 2040 and 2090. I note that you’re interested in the next twenty years so the 2040 projections will be of most interest to you. The two scenarios aren’t too dissimilar in that timeframe. Differences between the scenarios become starker when looking out to 2090.

NIWA’s climate change report can be found at this link <https://www.hbrc.govt.nz/assets/Document-Library/Reports/Climate-change-projections-and-impacts-for-Tairawhiti-and-Hawkes-Bay.pdf>. The relevant part of the report is section 6, which discusses drought measures, but you may also be interested in section 7, which covers changes in river flows.

NIWA included three drought indicators, namely potential evapotranspiration deficit (PED), extreme PED (>300 mm) and soil moisture deficit (SMD). Changes in the frequency of a 1 in 10-year drought, which is difficult to define, weren’t specifically addressed but the main conclusion was that drought is likely to occur more frequently and with increasing intensity.

In Central Hawke’s Bay annual PED is approximately 200-300 mm and by 2040 that is expected to increase by 100-150 mm. Figure 6-5 in the document shows a national comparison (though for 2090 and RCP8.5), suggesting projected PED changes in Central Hawke’s Bay are amongst the highest in the country. The probability of exceeding extreme PED levels in Central Hawke’s Bay in any year is currently about 40-50% and is expected to increase to 50-80% by 2040. Parts of central Hawke’s Bay have 200-300 SMD days per year. An increase of 10-15 days or more annually is projected by 2040. The projected changes are again amongst the highest in the country.

Section 7 of the report shows that the mean annual discharge of rivers is projected to decrease 5-10% in Central Hawke’s Bay by 2040 and possibly 20-50% under RCP8.5. Decreases in mean annual low flow of more than 20% could affect Central Hawke’s Bay rivers. High flows are also projected to decrease by similar margins. It is noted in the report that the latter appears counterintuitive because rainfall intensity is expected to increase in a warming

climate. However high flows (flow exceeded 5% of the time or roughly 18 days per year) are different to extreme flows like 1 in 100-year floods. Projections for mean annual flood are variable in that area.

Impacts on horticulture and agriculture are discussed in general terms in sections 10.2 and 10.3 of the report respectively. They include a likely increase in irrigation demand due to higher temperatures and reduced rainfall, an increase in the prevalence and length of droughts, an increase in fire risk, an increase in heatwaves, less river flow reliability and groundwater recharge potentially affected by reductions in river flows.

In a separate letter report (included below) the severity of drought in Central Hawke's Bay, as measured by the NZ Drought Index, is expected to increase. The time of onset is likely to occur earlier, increasing the risk of "back to back" droughts.

The studies don't directly answer your question about 1-in-10 year droughts but they do indicate that the frequency and intensity of droughts are expected to increase by 2040 in Central Hawke's Bay. If there is any further information you need, let me know.

Regards,

Kathleen Kozyniak

Team Leader Marine, Air and Land Science





30 June 2020

**Dr Kathleen Kozyaniak**

Principal Scientist Air  
Hawke's Bay Regional Council  
Napier

**Hawke's Bay drought predictions**

Dear Kathleen

In accordance with MBIE Envirolink Small Advice Grant 2047-HBRC243, I am pleased to present this letter report on **“Projected changes in droughts conditions based on the NZDI for the Hawke’s Bay region”** using NIWA’s latest climate change projection data (Mullan et al. 2018). So far only estimates of regional changes in the percentage of time spent in drought have been provided to regional councils. This new information will provide some background that may inform the development of climate-related regional policies and actions.

Droughts are complex phenomena exacerbated by the reduction of soil moisture caused by a lack of rainfall and/or increased evapotranspiration. The New Zealand Drought Index (NZDI) and the constituent drought indicators (DIs) are determined using bias-corrected regional climate model (RCM) projections downscaled on 5 km horizontal grid (Sood 2014) based on 6 selected CMIP5 (Coupled Model Intercomparison Project 5) models. For more information, please refer to Mullan and others (2018). The latest analysis of New Zealand’s risk to droughts under climate change based on recent climate projections (Sood and Mullan 2019; Sood and Mullan 2020; Mullan et al. 2018) suggests that the incidence of droughts will increase as the climate warms. Based on preliminary examination, the past droughts in the historic reference period (1986-2005) are slightly underestimated in model projections compared with observation based NZDI values suggesting that we may be underestimating future droughts.

The NZDI, which combines different critical drivers of droughts, is a novel way of demonstrating the potential changes in drought risk. Using additional information of drought conditions based on the NZDI, the future droughts are compared in their timing (e.g., onset), duration and intensity with the historic droughts for all emission scenarios. The occurrence of severely damaging multiannual or “back-to-back” droughts is also observed in future projections. The NZDI also helps identify droughtprone regions or catchments (hot spots) and changes in the NZDI and enables us to anticipate the future bottlenecks in water resource availability for drinking water or irrigation compared with current conditions. Future changes in regional drought frequency, spatial distribution and intensity are linked to climate change, with the largest change expected under the highest greenhouse gas emission scenario (RCP8.5).

## NEW ZEALAND DROUGHT INDEX (NZDI)

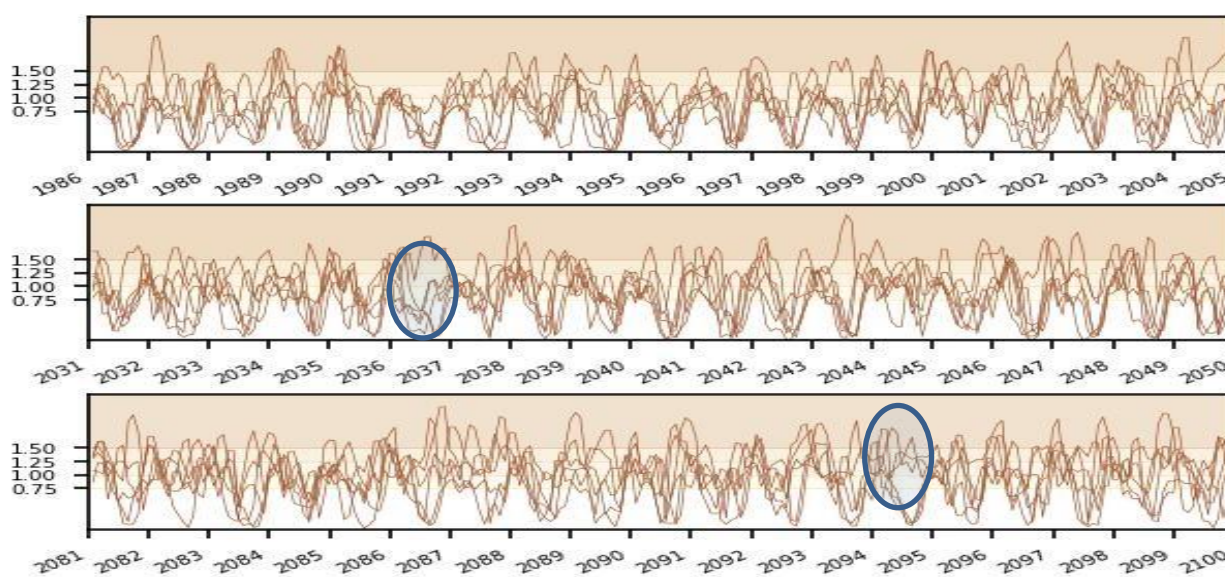
The NZDI is a merged drought indicator based on a set of four selected “Drought Indices (DIs)” characterised by the drivers of drought – rainfall and evapotranspiration, as well as their time evolution and the local characteristics. The earlier operational NZDI version used for monitoring current drought conditions was based on the Standardised Precipitation Index (SPI), Soil Moisture Deficit (SMD) and its local anomaly (SMDA), and Potential Evapotranspiration Deficit (PED) (Mol et al. 2017), which we have developed further and modified for climate application (Sood and Mullan 2019) and refer to as “climate-NZDI” (“climate” prefix is dropped in this report). The NZDI is computed for a 60-day reference period as the mean value of the four drought indices (DIs). The DIs are first re-scaled relative to their maximum values to align their range, and then log transformed to enable consolidated evaluation for extreme values. The threshold of 0.75 indicates drier than normal conditions and above 1.5 indicates the onset of drought.

## EVALUATING FUTURE DROUGHTS IN THE HAWKE’S BAY REGION

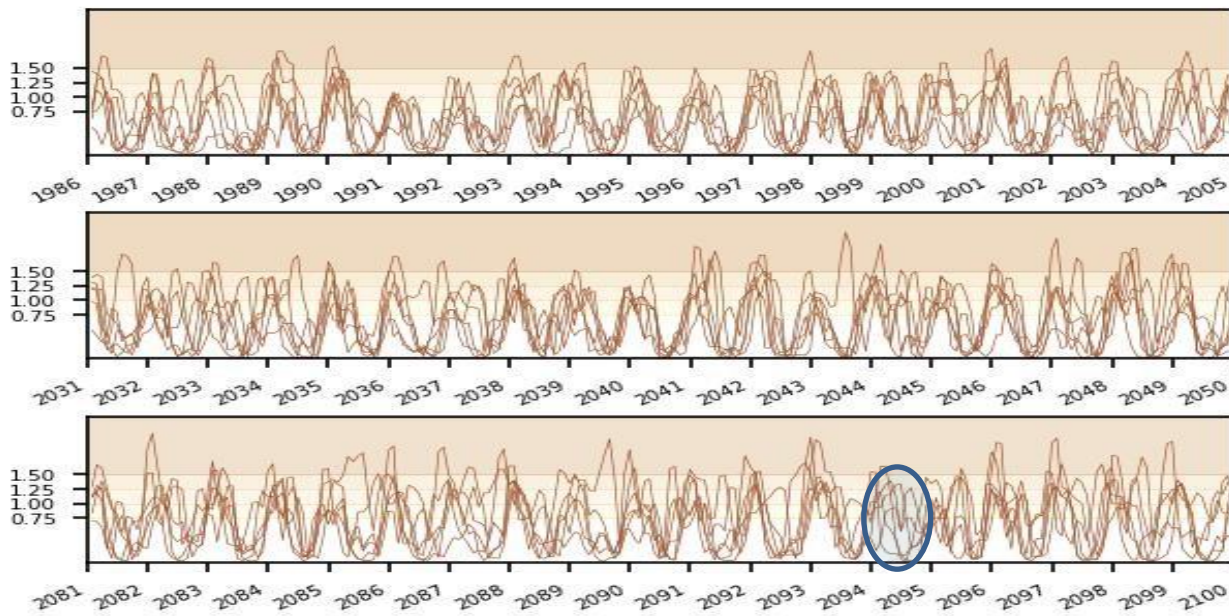
In the following plots we present the 20-year daily time series of the NZDI for past (1990s) and two future projections (2040s and 2090s) of the high emission scenario (RCP8.5) for two sites, Bridge Pa and Wairoa. The six model outputs are plotted together to illustrate climate variability over the three time periods and across the models.

The lowest values close to zero that represent saturated soil conditions are prevalent in the wetter winter season, but drier winters are predicted to become more frequent in the 2090s or earlier, especially under high emission scenarios. Increases in drought occurrence and frequency over the 21st century are predicted at all four sites (two sites are shown here), but based on the NZDI, droughts at different sites will exhibit noticeable differences in characteristics such as onset, duration, and intensity. The increased likelihood of occurrence of “back-to-back” droughts (marked by blue ovals) are present in the future projections for both sites.

Bridge Pa Site (39.675 S, 176.775 E)



Wairoa Site (39.025 S,177.425 E)



**DROUGHT ONSET AND CHANGE**

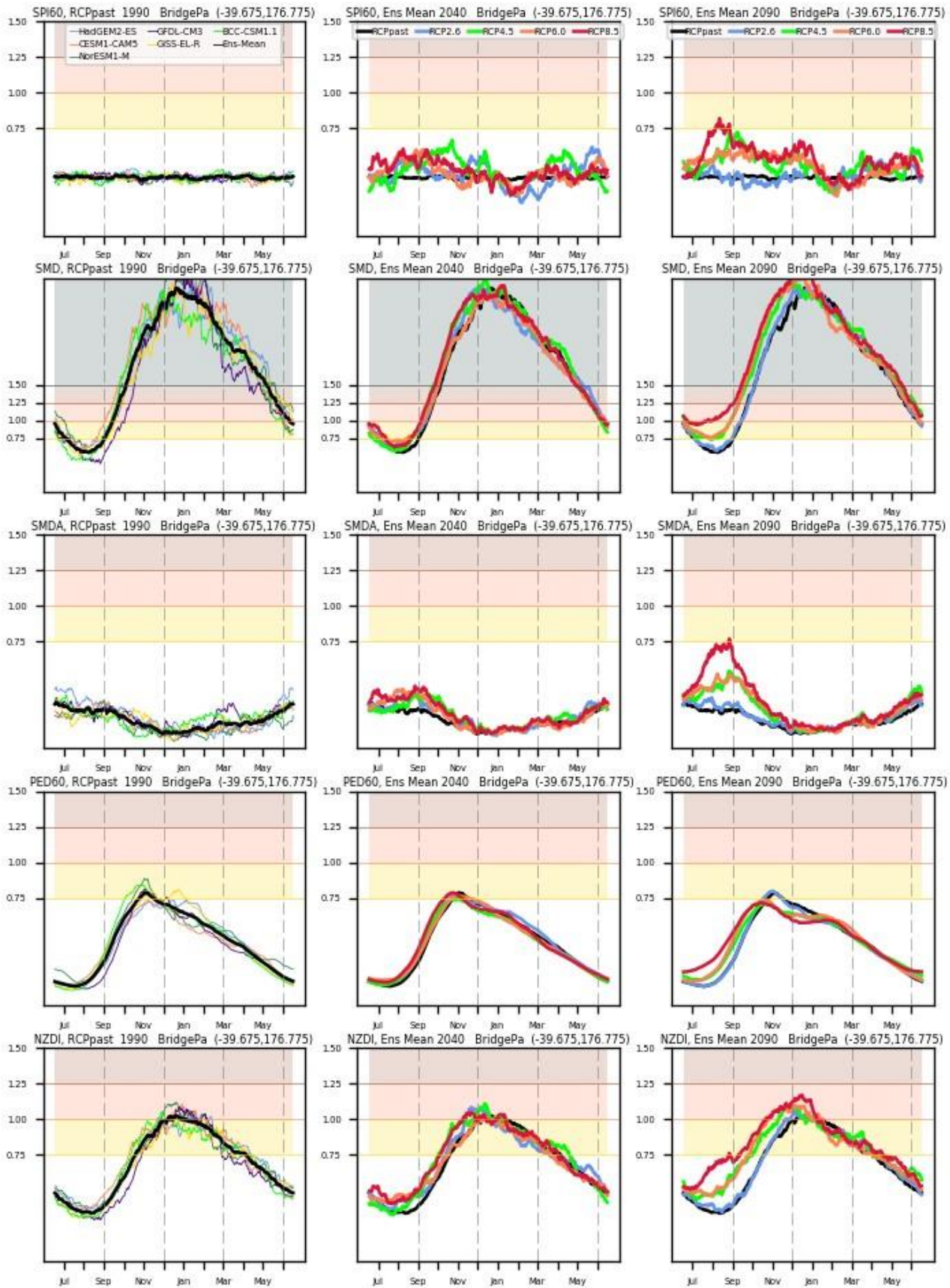
In the following four 15-member (multi-)plots, we present the mean annual cycle (July-June) of the four drought indices and the NZDI (bottom row) for four locations in the Hawke’s Bay region: Bridge Pa, Wairoa, Waipukurau and Ruahine Range. Please note that the mean climatologies presented here enable determination of the underlying conditions under which droughts may occur rather than the droughts themselves. The time series information is required to determine drought characteristics. In the time series plots in section 2, drought onset occurs when the NZDI crosses 1.5 threshold, drought duration is determined when it falls below it, and drought intensity is the average value of NZDI when under drought. The drought classification from dry (0.75) to drought (1.50) is indicated by the background colours.

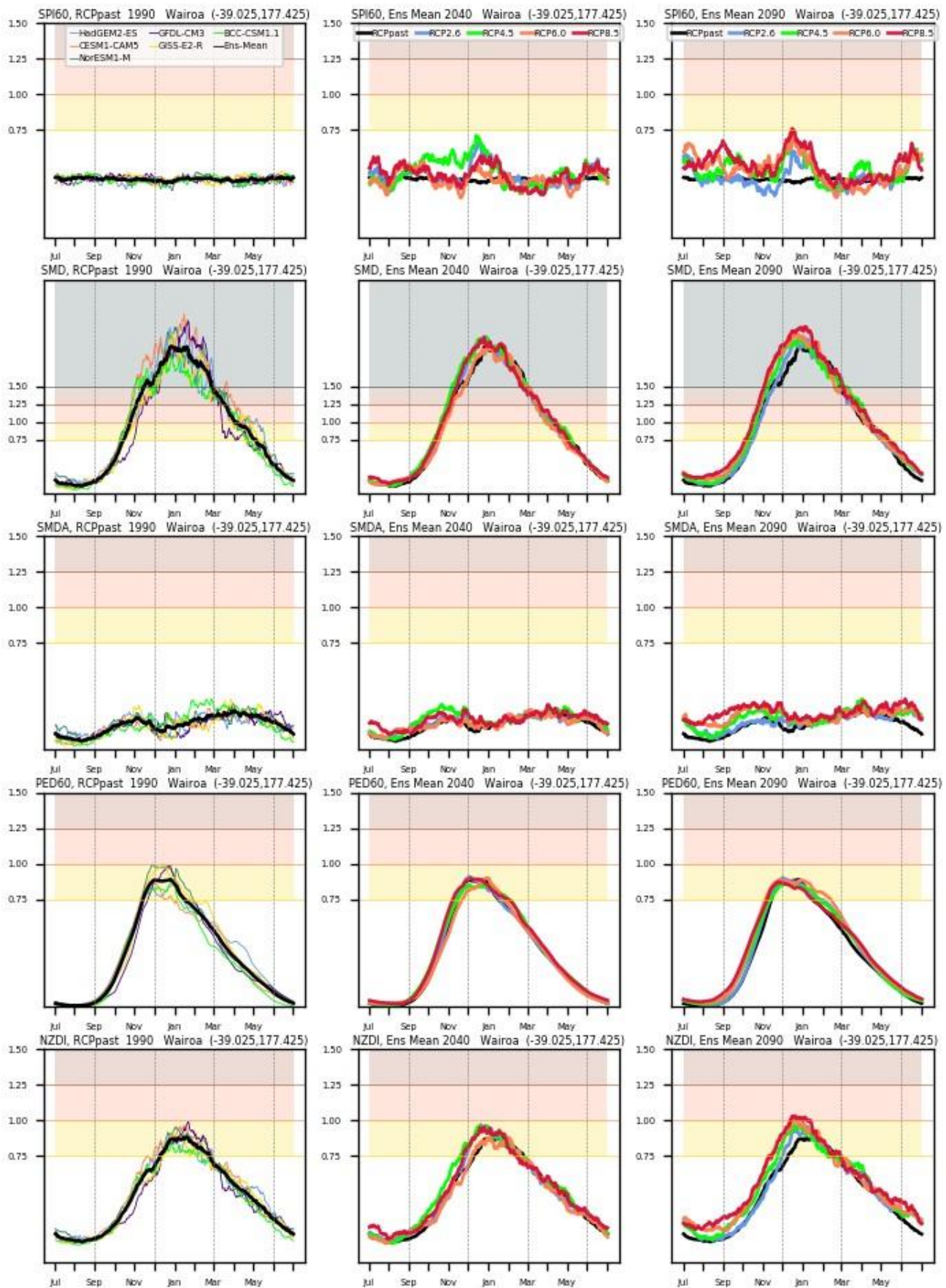
The 20-year mean annual cycle for the six-models (coloured, thin line) and their ensemble mean (black, thick line) for each site in the historic period presented in the most left-hand column of each plot are compared with the ensemble mean for the four RCPs in the 2040s (middle column) and the 2090s (right column) periods. The middle and right panels depict the changes in the annual cycle of the NZDI (bottom row) and its constituent indices (first four rows), respectively. In general, a larger and steeper increase in the DIs earlier in the spring season in the 2090s relative to the historic period (1990s) indicates higher likelihood of earlier drought onset. With more frequent occurrence of larger values at the beginning and end of the annual cycle, there is also an increased risk of "back-to-back" droughts.

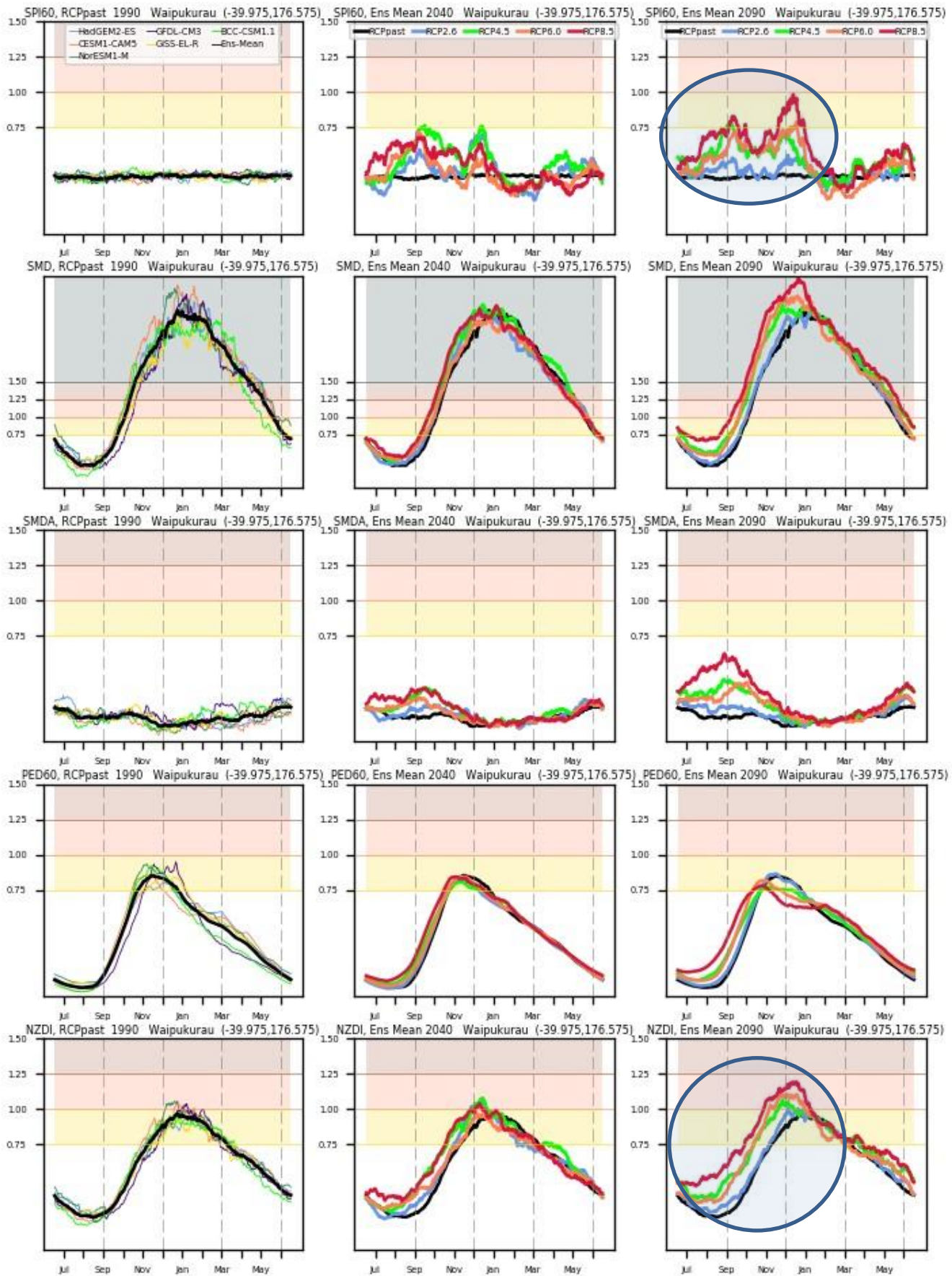
The strongest signal seen the higher emission scenario is mostly due to a large increase in surface temperature (Sood and Mullan 2019; Sood and Mullan 2020), resulting in increasing evapotranspiration and indicated by the large increase in the soil moisture deficit (SMD) accompanied by only a modest decrease in rainfall as indicated by SPI60. On the other hand, for the optimistic low emission scenario (RCP2.6, blue) mostly insignificantly small increases in drought likelihood (bottom left) is expected in the summer season.

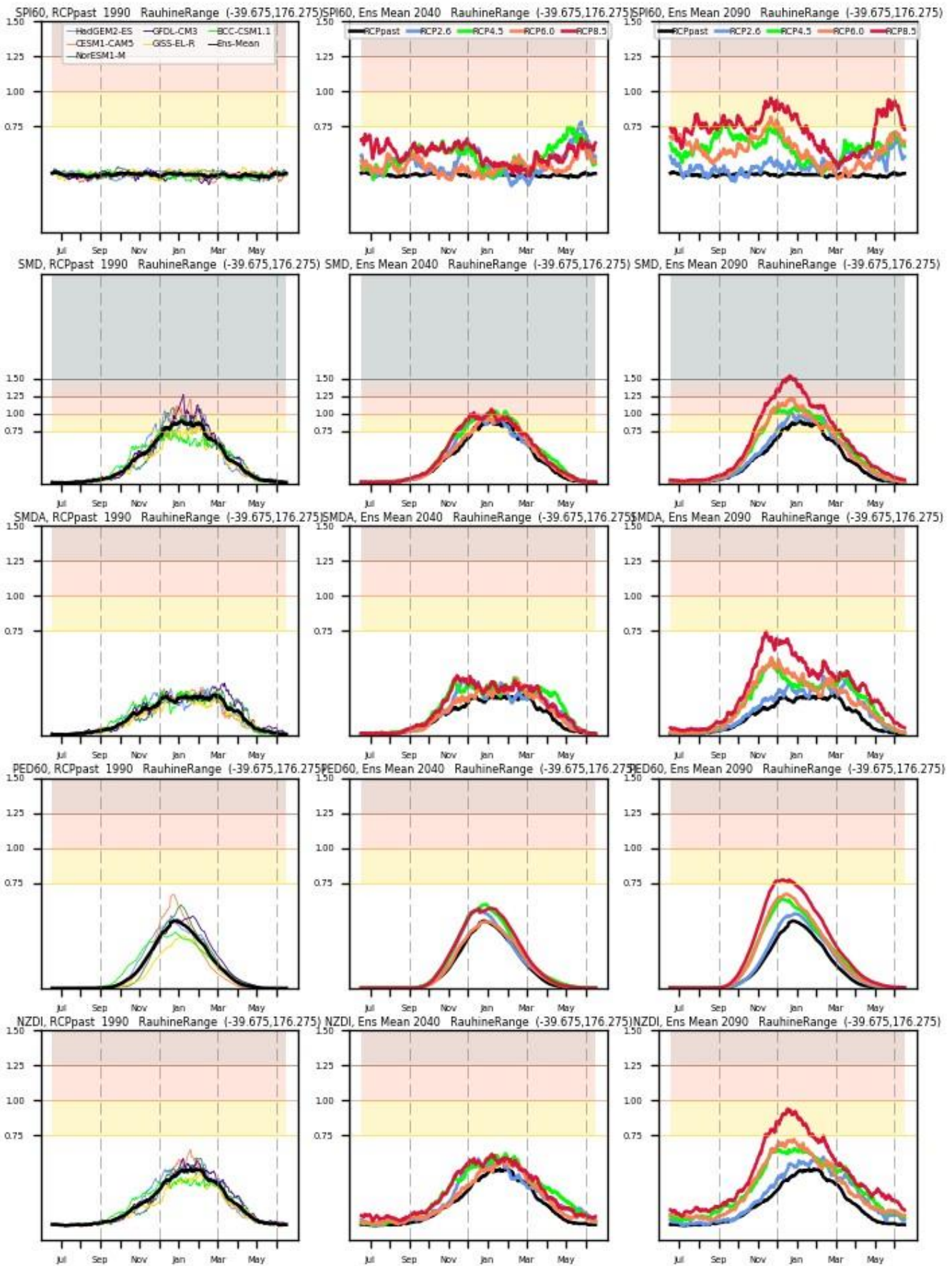
In addition, the impact of soil moisture recharge in the winter season is low since temperature rather than moisture is the limiting factor for plant growth. Despite replenishment of soil moisture content in the winter, if soil moisture deficit increases earlier in the spring season with the drier than normal

conditions, the benefit of soil water recharge to pasture growth may be negligible. Thus, the region will effectively experience “back to back” drought despite adequate rainfall in the winter season. There is an increased likelihood of “back-to-back” droughts at all four sites. It is most pronounced at the Waipukurau site (39.975 S, 176.575) due to considerable decrease in rainfall (except from midsummer to mid-autumn) by the late 21<sup>st</sup> century (as indicated by blue ovals).





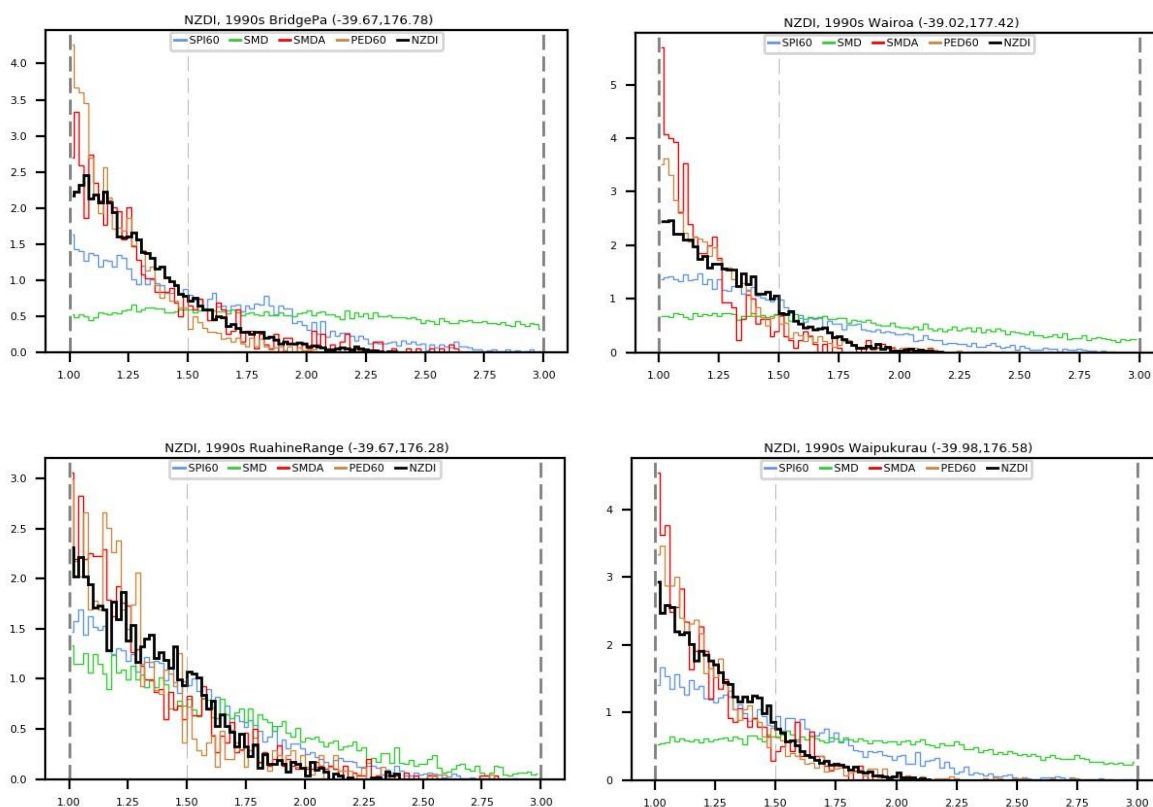




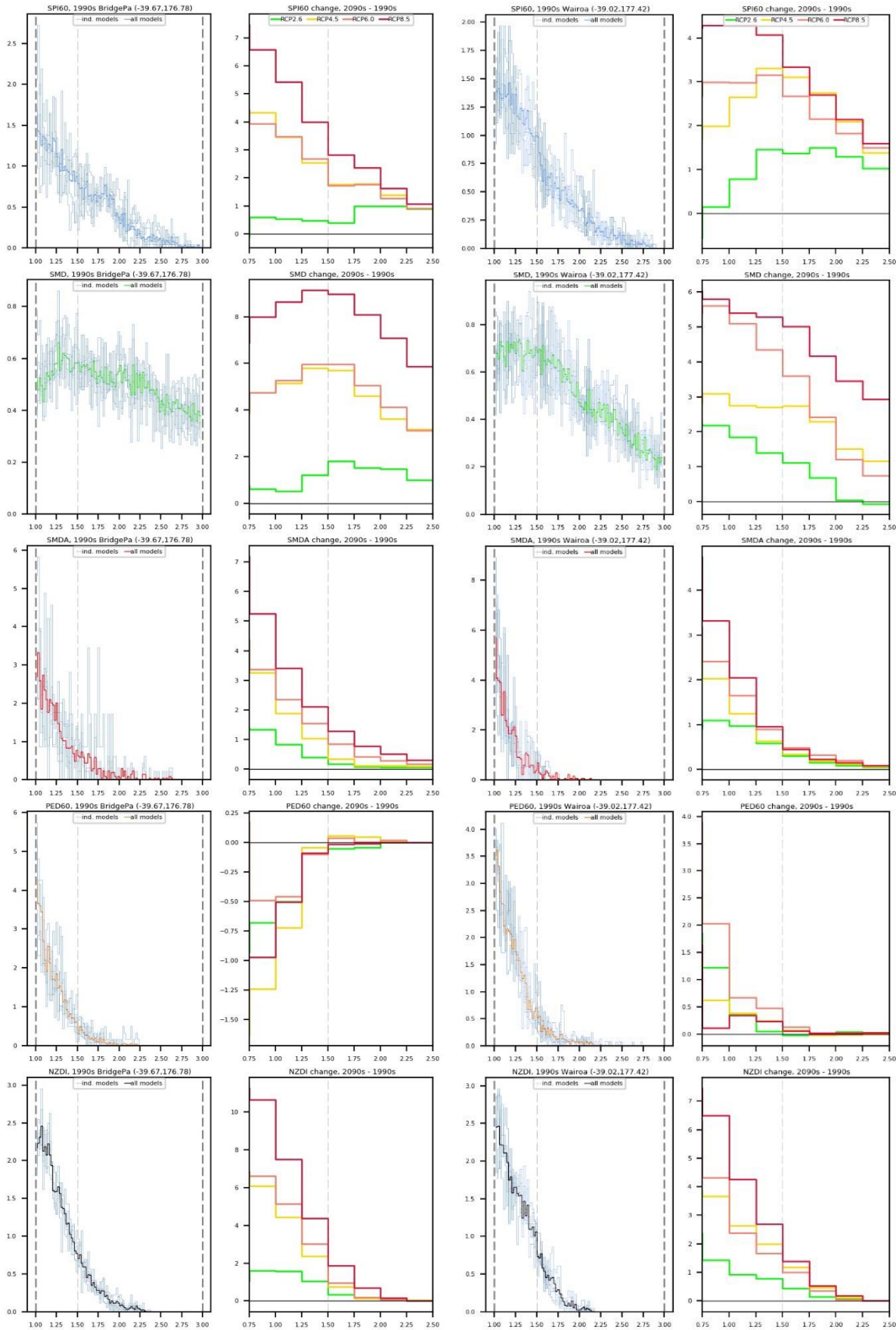


## CHANGE IN PROBABILITY DISTRIBUTION OF THE NZDI

The tail of the probability distribution (in %) for the six-model ensemble mean of DIs for the historic reference period (1990s), representing very dry to severe drought conditions, is presented below for four sites: Bridge Pa, Wairoa, Ruahine Range and Waipukurau. The four drought indices are indicated by coloured lines and the NZDI is presented as a thick black line. In the plots below, the y-axis represents the likelihood of occurrence and the x-axis represents the severity of droughts, with 1.50 marking the drought threshold. The area under the black lines (NZDI) above 1.50 is the total likelihood of drought in the 20-year historic period (1990s).



The frequency and intensity of the droughts are related to increased frequency of extremes in arid conditions and droughts compared with the historic past. In the first and the third columns of plots, the distribution of the DI for all models and their ensemble means are presented for the Bridge Pa and Wairoa sites for the 1990s; in the second and the fourth column the difference with respect to historic conditions (black line indicates no change) of occurrence above the threshold for all RCPs for the 2090s with respect to the 1990s is shown. The two sites presented here are expected to experience a reduction in precipitation (higher frequency of higher SPI index), in addition to drying (SMD) due to higher evapotranspiration (PED) above the drought threshold (1.50). For example, for the Bridge Pa site, the drought conditions (NZDI > 1.5) are likely to increase by 2% in the 2090 under RCP8.5 emission scenario than in the 1990.



## CONCLUSIONS

The Hawke's Bay region is expected to become drier, as indicated by the preliminary analysis presented for selected sites. More detailed analysis and validation may be necessary for specific applications. Please also note the following considerations:

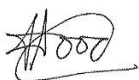
- ✦ The confidence in the results presented here is moderate. The projections of rainfall and climate extremes show strong variability and high uncertainty, but we have confidence in the predicted increasing air temperatures with increased greenhouse gas emissions. Since air temperature is the main driver of drought, the uncertainty in our drought predictions is moderate. The results are (semi-) qualitative because detailed analysis was limited to six simulations for each emissions scenario.
- ✦ Future analysis assessing and validating "hindcasts" of past droughts is being conducted by NIWA in ongoing projects. This may lead to further improvements or alternative formulations for evaluating and assessing droughts. At present, the analysis presented here has limited applications.
- ✦ All figures presented and mentioned in the report are attached in the zip folder for HBRC's internal use.

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Please do not hesitate to contact me if you have any queries.

Yours sincerely



Abha Sood

**Dr Abha Sood**

**Climate Scientist**

**Climate Variability Group**

+64 4 386 0577

abha.sood@niwa.co.nz

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## APPENDIX 2. RELEVANT STATUTORY AREAS AND STATEMENTS OF ASSOCIATION

The following is an extract from the Statutory Acknowledgment information for Heretaunga-Tamatea Hapū under the Heretaunga Tamatea Claims Settlement Act 2018 contained in the RRMP:

Statement Of Association ID	Area/Feature	Deed Of Settlement Map Reference
11	Māharakeke Stream (with recorded name Maharakeke Stream) and its tributaries	As shown on OTS-110-26
10	Mākāretu River (with recorded name Makaretu River) and its tributaries within the Heretaunga Tamatea area of interest	As shown on OTS-110-27
12	Tukipō River (with recorded name Tukipo River) and its tributaries	As shown on OTS-110-29
9	Tukituki River and its tributaries within the Heretaunga Tamatea area of interest	As shown on OTS-110-30
15	Waipawa River and its tributaries within the Heretaunga Tamatea area of interest	As shown on OTS-110-31
14	Kāhika Conservation Area	As shown on OTS-110-10
16	Inglis Bush Scenic Reserve	As shown on OTS-110-09
17	Monckton Scenic Reserve	As shown on OTS-110-18
18	Springhill Scenic Reserve	As shown on OTS-110-23
13	Te Aute Conservation Area	As shown on OTS-110-24

### Tukituki River and its tributaries (as shown on As shown on OTS-110-30)

A narrative exists on the way in which the Tukituki River came into existence. A large lake was located in what is now the Ruataniwha Plains. Two taniwha lived in this lake. On one occasion a boy fell into the lake and the two taniwha fought over their prey. The resulting destruction on the landscape created breaks in the hills through which the lake drained away. One of the channels was the Tukituki River.

After the arrival of the Ngāti Kahungunu tīpuna to Heretaunga, the Tukituki River was established as the first boundary between Taraia, who took the land to the west of this river, and Te Aomatarahi who took the land to east and south of the river. The Tukituki is a significant waterway for the hapū of Heretaunga Tamatea. It was used extensively for mahinga kai, and for transporting people and goods.

All along the Tukituki River are signs of occupation and sites that record key events in tribal history. On the lower section of river, there are a number of sites that relate to the actions of the ancient tipuna, Māhu. On the north bank is a white rock, Papaotihi. It is said the rock was once a man who was fishing in the river, but he was turned to stone by Māhu. A little further on is another rock, Tauhou, where Māhu turned another man to stone. Down river near Te Kauhanga pā is another spot touched by Māhu. Here he put a curse on the paepae and people died.

The river mouth was renowned for the abundance of fish species that were taken there. These included; kahawai, pātiki, kanae, kātaha, kōkopu, inanga and tuna. Near the river mouth is Whakamarino where a battle took place at which another iwi was defeated by Tamaiawhitia. The kāinga of Haumoana is also located here. Another pā is Te Kauhanga which was occupied first by Taraia I and then Te Whatuiapiti. Further up the river there is a large cliff, Pariwaiehu. Here Te Waka's pā was located, later taken by Hawea.

In the lower reaches of the Tukituki, to the east of Havelock North, the pā Te Korokoro sits on a western bank. From here the river runs below Parikārangaranga, Te Mata-o-Rongokako, and the smaller peak of Te Hau. Below both these peaks there are pits, terraces and other indications that people once lived here. From the river a track led to the summit of the range.

Further upstream above Kaiwaka on the river's eastern bank looms Kahurānaki maunga, a site of special significance to all hapū of Heretaunga Tamatea. It is said that as he lay dying Te Hāpuku asked to be placed at Kaiwaka so that

Kahurānaki would be the last thing he saw. This is also the place at which Rongokako, the father of Tamatea-pokai-whenua, is said to have lived.

Some distance upstream an old pā called Ngawhakatātara was located on an island while opposite was a kāinga and pā named Kurīwaharoa. Other more recently built pā on the Tukituki include Pātangata and Tāmumu.

### **Mākāretu River (as shown on OTS-110-27)**

This river takes its name from a type of scented grass that grew along its banks. From its source in the Ruahine Range to a point on the river known as Rākautihia, the hapū associated with this section of the Mākāretu River are Ngāi Te Rangitotohu and Ngāti Mārau. These hapū had mahinga kai along the banks and sourced food such as aruhe, tuna, koura, ngaore and birds from the river area. There are several wāhi tapu in the form of urupā in different locations on the higher banks above the river.

On the northern bank of the upper section river was Horoure pā. There were a number of crossing points in this section of this river. The most well-known tracks were Te Tāwai which took travellers to Te Kūhā o Hinekura on the northern side of the river, and Te Takanga-o-Tauterangi which ran from the southern bank to Rākautihia on the northern side of the river.

Also in the upper section of the river was a flax swamp named Te Harakeke-a-Te Hinekai where flax was collected.

From Rākautihia heading east to Karitaki and on to Tūpokoruru the hapū associated with the river include, Ngāi Tahu ki Takapau, Ngāi Te Kikiri o Te Rangi and Ngāi Toroiwaho.

From Tūpokoruru to Te Whare o Hinetaia, near where the Mākāretu joins with Māharakeke Stream and the Tukipō River, the hapū associated with this section include Ngāi Tahu ki Takapau and Ngāi Toroiwaho. Both the middle and lower sections of the river had the kareū grass growing along the banks as well as hinau trees which were the source of berries.

### **Māharakeke Stream (as shown on OTS-110-26)**

The hapū associated with this stream include Ngāi Tahu ki Takapau and Ngāi Toroiwaho. The Pā o Te Rangitahia was located on the banks above the middle section of this river. The cultivations for this pā were named Hinerangi and were located along the banks of the river. Inanga were caught at Tūrangawhāia while tuna were caught in hīnaki at Taumatawhāia, on the eastern bank of the river.

Whītau flax was the main type of harakeke found along the banks of this river, giving rise to its name. It was collected and used by the people of the hapū mentioned above. There were other mahinga kai at Te Mori o Hawea, where kūmara were planted, and at Ngutumara where kākā were taken.

### **Tukipō River (as shown on OTS-110-29)**

Earliest associations with the Tukipō River area were in the time Hikarerepari, the great-grandfather of Te Rangitotohu and Te Whatuiapiti who first arrived in this area after he returned from Wairarapa. Te Whatuiapiti built a fortified pā which was named Pōhatunui-a-Toru pā. This pā was located in the upper reaches of the Tukipō River, in the area between Tukipō and the Mangatewai stream. This pā was his base from which he made his early encounters with the people of Heretaunga.

In later generations some of the hapū associated with Manawakawa - a great grandson of Te Whatuiapiti - lived in the lower reaches of the Tukipō River.

### **Te Aute Conservation Area (as shown on OTS-110-24)**

The Te Aute Conservation Area is riverbed land that lies along the western bank of the Tukituki River. Key tīpuna for this area are Tapuhara and his wife Te Whangaoterangi as well as Te Manawaakawa. Hapū of Ngāi Te Whatuiāpiti also have ancestral links to this area.

The Te Aute Conservation Area includes the Papanui Stream which was formerly the outlet that linked Te Roto-a-Tara wetlands area with the Tukituki River. The Papanui Stream was a rich source for tuna. The area was known for its bush food resources. The bush standing in the vicinity of the Te Aute Conservation Area was known as Purapurahikitia.

#### **Kahika Conservation Area (as shown on OTS-110-10)**

The Kahika Conservation Area is primarily located in the riverbed of the Tukituki River. The tīpuna and hapū associated with the Kahika Conservation Area were Te Rehunga and his Ngāti Mihiroa descendants. Other tīpuna associated with this area included Ketekai and Te Whareupoko and their descendants.

#### **Waipawa River and its tributaries (as shown on OTS-110-31)**

The headwaters of the Waipawa River rise in the Ruahine Range from where the waterway runs in a south-easterly direction over the Ruataniwha Plains and through to the river mouth where it empties into the Tukituki River just southeast of the town of Waipawa.

A narrative exists on the way in which the Waipawa River came into existence. A large lake was located in what is now the Ruataniwha Plains. Two taniwha lived in this lake. On one occasion a boy fell into the lake and the two taniwha fought over their prey. The resulting destruction on the landscape created breaks in the hills through which the lake drained away. One of the channels through which the lake drained was the Waipawa River.

The Waipawa River and adjacent lands were associated with the tipuna Te Whatuiapiti. The river was also a significant boundary.

The Waipawa River was significant for its resources and the inland access it provided. Close to its mouth, and just to the southeast of the town of Waipawa, a number of archaeological sites have been recorded along Pourērere Road. These indicate the presence of pā and kāinga. Upriver, in the vicinity of the current town of Waipawa, the river flowed through the Tārewa Forest.

Other riverside pā are located upriver towards the mountains. This shows the strategic significance of the Waipawa River. The pā include Te Pari-o-Koro pā and Tukipoho pā, which belonged to Te Rangitetaiho and his son-law Te Rangitotohu. Near the headwaters of the Waipawa River was Motu-o-Puku pā which belonged to the descendants of Te Rangitekahutia and the descendants of Te Upokoiri who married into the hapū of Te Rangitekahutia. The main rangatira associated with the pā were Te Kiiapatu and his son Tuawāhia from the Ngāti Mārau hapū.

The Waipawa River provides an access way into the Ruahine Range through which the hapū of Heretaunga Tamatea would cross into Mōkai Pātea. The River also provided access to resources in the Ruahine Range. Te Waineo was a camping place near Taumata-a-Meikura where hunters of Ngāti Hinemanu would stay. In the near vicinity of this camp there were several mahinga kai sites along the river. Tahunaatara was a hill where tītī were caught. Omaru and Te Iringa-te-rakau-otane-koeka were places renowned for catching kiwi and huia.

#### **Inglis Bush Scenic Reserve (as shown on OTS-110-09)**

Inglis Bush Scenic Reserve is located along the southern bank of the Tukituki River as it flows out over the Ruataniwha Plains. It is in close proximity to the Monckton Scenic Reserve.

This reserve is a remnant of the forest that covered the foothills of the Ruahine Range and spread onto the western parts of the Ruataniwha Plains. These foothills were used as a travel corridor by Ngāti Mārau, Ngāti Te Rangitotohu, Ngāti Pouwharekura, Ngāti Kūhā, Ngāti Honomōkai, Ngāi Te Upokoiri and Ngai Te Ao, who travelled regularly from north to south and vice versa. Pā and mahinga kai such as pua tāhere, wai tāhere, ara kiore were located here. The hapū also gathered food such as hīnau, miro and other fruit and berries.

The bush area was a pua tāhere for the hapū of Ngāi Tūrāhui and Ngāti Pouwharekura.

#### **Monckton Scenic Reserve (as shown on OTS-110-18)**

Monckton Scenic Reserve is located to the immediate north of the kainga Takapau and Rākautātahi. It is a remnant of the forest that covered the foothills of the Ruahine Range and spread onto the western parts of the Ruataniwha Plains. Hapū associated with this reserve include Ngāi Te Kīkiri o te Rangi, Ngāi Tahu ki Takapau and Ngāi Toroiwaho, Ngāti Mārau o Kahungunu and Ngāi Te Rangitotohu.

The foothills were used as a travel corridor by the associated hapū, as well as Ngāti Pouwharekura, Ngāti Kūhā, Ngāti Honomōkai, Ngāi Te Upokoiri and Ngāi Te Ao, who travelled regularly from north to south and vice versa. Pā and mahinga kai such as pua tāhere, wai tāhere, ara kiore were located here. The hapū also gathered food such as hīnau, miro and other fruit and berries.

Springhill Scenic Reserve (as shown on OTS-110-23)

Springhill Scenic Reserve sits on the Ruataniwha Plains in close proximity to the Waipawa River. It is associated with the narrative of the fighting of the two taniwha after whom the plains are named. The reserve was part of a larger forest that covered the western end of the Ruataniwha Plains. The hapū of Ngāti Pouwharekura, Ngāi Te Rangitekahutia, Ngāi Te Ao and Ngāti Mārau were amongst those hapū who visited this area to gather birds and other foods such as berries and mamaku.



### APPENDIX 3. SUBMISSION SUMMARY

#	Submitter name	Date submission received	Position	Summary
1	Gregory Wilson Trust	23/11/2021	Neutral	I seek from the council, that if these consents are passed that there is protection in place for tranche 1 water and that Tranche 1 water will always have priority if wells develop problems. Concerned aquifer will not handle the extra pressure of this volume of extraction.
2	Tom Belford	23/11/2021	Oppose	I oppose each Tranche 2 abstraction consent in its entirety. The Ruataniwha aquifer is already over-allocated.
3	Sharleen Baird	29/11/2021	Oppose	No consent should be approved for this purpose – the Mauri of the rivers should be paramount. Some Tranche 2 applicants have majority of CHB's over allocated water and still want even more.
4	Tony Robson	30/11/2021	Oppose	Allowing larger intakes from water tables affects those who rely on bores and springs for water. This leads to domestic water sources drying up.
5	Karen Bedogni	30/12/2021	Oppose	I am concerned with the duration of this consent, the volume of tranche 2 groundwater applied for, the augmentation into streams and risks on the environment.
6	George Harper	4/12/2021	Oppose	I am strongly opposed the proposal to take any further groundwater from our precious deep Ruataniwha Basin aquifer. This is a ridiculous state of affairs, irrigating farmland with pristine deep tranche water We should be curbing our extravagant use of scarce water to maintain inappropriate land use.
7	Alistair Ford	5/12/2021	Oppose	I am totally against intensive farming on inappropriate land requiring irrigation to grow grass, with particular regard to dairy farming. For reasons of nitrate levels, water quality and the effects it has on my own access to my own bore. I have witnessed over a long period of time the slow degradation of these streams and rivers. I hope the regional council make an effort to protect our aquifers instead of continuing to give it away.
8	James Giles	7/12/2021	Oppose	They are taking all the water around my farm. I was told in 2019 by HBRC that there were no more consents for water taking and new large bores. I find it unfair that one farm can take all the water under them as well as from the surrounding farms. It is draining the bores of people around my farm and the Ongaonga town. I seek for reconsideration the information the HBRC to tell other farmers about water takes.
9	Morley Davis	7/12/2021	Oppose	Halt further granting of deep-water extraction consents and enter into a full and comprehensive consultation process with all stakeholders, scientists etc.  It is a basic human right to access surface water from a living. The first in line and take as much as you need is simply wrong. The groundwater table has clearly been lowering steadily over the last 25 years. This cannot go on – I realise there is no easy solution but don't take water away from those dependants on the river – it needs to be 10guaranteed before any more deep-water extraction takes place.
10	Inglis Bush Community Trust	7/12/2021	Oppose	The Inglis Bush Community Trust oppose the applications because the current extraction levels have had a significant effect on the reserve. Surface water levels at reserve are now entirely dry year-round. We believe the environmental assessment is inadequate and methods to identify wetlands

			(like our reserve) has been entirely overlooked. I request HBRC rejects all applications for Tranche 2 water.	
11	Gren Christie	10/12/2021	Oppose	I am opposed to granting tranche 2 water consents because water in our aquifer is already over allocated. Potential for earlier minimum river flows, negative economic effect on existing surface water takers and businesses. Water quality problems in the future. Need less of intensive high-water usage farming (like dairy) and means others won't miss out on water. Pollution to waterways, harm for biodiversity and water depletion for from droughts becoming more frequent due to climate change.
12	Adrienne Tully	13/12/2021	Oppose	I am opposed to all the applications to access Tranche 2 water. This water needs to stay in the ground. Decline all applications.
13	Peter Meredith	13/12/2021	Oppose	I oppose the Tranche 2 allocation of water because the water is already overallocated. The aquifer water levels drop yearly, shallow water takes compromised and further deep water takes will make the situation worse. Climate change and water allocations important for everyone. Surface water depletion and augmentation will not mitigate all environmental implications. Depleting a natural resource for personal gain to such an extent is a crime, I strongly oppose these consents.
14	Totara Hills	13/12/2021	Oppose	We oppose because the excessive water take from the over allocated aquifer means the risk of water loss for stock water bores and irrigation. Negative effects on DIN levels in catchment. Negative effects on CHB underground water flows. Animal welfare. Decline in household water supplies. Less surface water and altering natural surface water flows resulting in impacts on biodiversity.
15	Te Taiwhenua o Heretaunga	13/12/2021	Oppose	Oppose all the applications Tranche 2 groundwater in their current form as they are deficient due to a significant lack of detail in Assessment of Environmental Effects and requires a range of robust consent conditions to help avoid/remedy adverse effects of proposed activities that are more than minor, conform to or give effect to higher level policy in NPSFM 2020, NES and RRMP.
16	Mowat Family Enterprises Limited	13/12/2021	Oppose	We oppose because the excessive water take from the over allocated aquifer means the risk of water loss for stock water bores and irrigation. Negative effects on DIN levels in catchment. Negative effects on CHB underground water flows. Animal welfare. Decline in household water supplies. Less surface water and altering natural surface water flows resulting in impacts on biodiversity.
17	Sheryl Bayliss	12/12/2021	Oppose	I oppose Tranche 2 groundwater takes as I am concerned about the impact it has on water level of the aquifer. Already, the amount of water removed has effects on the environment, the proposal to take more water will only increase this problem resulting in negative effects on streams, wetlands and animals.
18	Louise Phillips	14/12/2021	Oppose	I am opposed because the Ruataniwha aquifer is depleting and is currently over allocated and used by predominantly dairy farming. Granting water to more than eight applicants highlights the inequities by water availability and allocation. Augmentation will involve monitoring and resource paid by rate payers for unknown benefit. The springs have been drying up (Inglis Bush) and native trees are being lost. Historical environmental damage and effects on

				this scheme are unknown and therefore contradicts all the work being done to address these issues.
19	Thomas Frater	14/12/2021	Oppose	I'm asking HBRC to not make the same mistake made in the South Island. Loss of habitat is irretrievable – we are already seeing ecosystem decline under the status quo and cannot afford to accelerate it. There is a limit to the amount of intensification that can be sustained and I would argue the status quo is close to this limit. Water availability is not the only factor limiting intensification. I recommend augmentation is rejected as a mitigation tool, that each applicant is considered separately, and a moratorium on all applications for at least 20 years to see actual effects of projected climate change. HBRC should therefore reject all Tranche 2 applications.
20	SJ Lusk & Associates	14/12/2021	Support	In the event that water is over allocated in the Tukituki & water quality fails to meet set levels I intend to test the law with regard to the liability of councillors & council staff. There is currently no case law testing liability of councillors or council staff, and while the initial reaction may be that I do not have a case, I believe the court will hear a claim of negligence, and if it does not my intention is to take it as far as the Supreme Court.
21	Laurence Gordon	14/12/2021	Oppose	I write as an Ongaonga resident of 26 years. I would urge the Council to reject all the current Tranche 2 applications. HBRC need to consider the interconnected nature of water issues and how they impact both human and natural systems. Current water use in the Ruataniwha Plains is not sustainable, equity and health of the environment. Human health and well-being are intimately connected to the health and well-being of our environment. With existing water takes, land, water, and people in Ongaonga are under stress. I would urge the Council to look to the long term and make decisions that are sustainable, equitable and respectful of both the natural and social environment of our community.
22	Springvale Station Ltd	14/12/2021	Oppose	I oppose the applications and want the HBRC to stop a handful taking such a large take.
23	Sheep City Ltd	15/12/2021	Oppose	Taking 15 million cubic out of the aquifer while at the same time replenishing the aquifer through MAR makes no sense. HBRC should keep the 15 million cubic as a strategic reserve as was originally intended. Now is the chance to rectify that mistake of giving out Tranche 2 water. HBRC seems to think it is legally required to offer Tranche 2 water to applicants. The process is unfair and unethical due to the cost of processing consents and the risk of failing to gain it.
24	Horseshoe Farm	15/12/2021	Oppose	These water applications are huge, and I do not believe the consent holders will be capable of augmenting the river flows and mitigating the negative effects of nutrient burdens especially nitrogen and phosphorous entering the waterways. This conflicts with the Government directives to strive for cleaner water ways. Algae blooms are likely to increase. Insufficient study has been done on the effects of large ground water extraction on the nearby streams and water ways to allow a decision on these new water rights. I seek the HBRC to oppose the granting of any new water rights. I seek a review of all large, (those exceeding 100, 000 cu metres per week,) irrigation consents being sought for renewal. This would need to show that the river/ streams flows are not significantly impacted before these consents are renewed. I seek a

				postponement of any decision regarding new consents until such time as the Govt has come up with a replacement for Overseer.
25	Marilyn Scott	15/12/2021	Oppose	I am concerned generally about our water quality and the state of our aquifer and rivers in particular which have been impacted by the increasing amount of water that has been allocated, over recent decades in particular to support industrialized farming practices and large-scale agricultural operations. We rely on the Regional Council to protect our environment for the benefit of all not just for the few. It is not just an equity issue but more importantly an environmental one and as kaitiaki of the environment. We also rely on our Councils to lead the way in finding sustainable and lasting ways to conserve and use our water which should involve encouraging us to look at changing our farming practices and lifestyles to work in harmony with nature - to conserve and protect - not simply consume and deplete - our natural resources such as water.
26	Gerald Wilson	15/12/2021	Oppose	The water opportunity is to a select few. This mentality of first up best dressed does not encourage equitable opportunity and creates division in the community. Tranche 2 is an excessive amount of water in a tightly held catchment that already has many problems with fair distribution. We are also extremely concerned that drawing water from a 27medium depth aquifer to augment water back into the river for offset in summer months has value and from where these consents are being sought their augmentation does nothing to correct any depletion to the west catchments. The very source of all the catchments water. I strongly believe the HBRC should decline the applications for Tranche 2 water from all applicants.
27	Joseph Wuts	15/12/2021	Oppose	As the water take on the Heretaunga Plains has been over-allocated in the past, it would be irresponsible to now permit taking even more water than before. As a recent immigrant in 1967 I had great pleasure swimming in the Tukituki River at the end of Tennant Road. The river was swift flowing with a large volume of water. In the last 50 years I have seen a gradual deterioration in the river level and volume. To remedy this sad state of affairs we have to tackle the reasons for the decline in the health of the river. It does not take a science degree to realise that if you keep taking water out without replenishment, eventually this resource will dry up. Decline all of the current applications for the taking of water.
28	Duncan Smith	15/12/2021	Oppose	I am highly concerned as to the possible effects on the water flows with further depletion of the aquifer. We are already dealing with major issues from the lifting of the low flow limits and has had a major impact on our ability to finish stock for our two local butcher shops and run our farm in the way we planned to when we decided to make the investment in our irrigation system. We were connected to the RWS as we knew the impact of the flow changes would have on the viability of our farming operation from the effects of PC6. Tranche 2 will add even more uncertainty in flow rates which would potentially have such a massive impact on our business it could become unsustainable to farm and produce protein for our shops or export markets. The effect on our businesses equity could be fatal.
29	Schaw Partnership	15/12/2021	Oppose	I strongly believe the HBRC should decline the applications for Tranche 2 water from all applicants. I am also very concerned the affect this will have on all farmers, lifestylers and our village communities in the Ruataniwha catchment areas.Excessive water take from an already over allocated aquifer. Negative

				impacts on household water supplies, surface water and the potential to alter natural water flows directly effecting native biodiversity.
30	Temco Ag Ltd	15/12/2021	Oppose	<p>Risk to our on farm water infrastructure and investments to date. Clear directive for land use intensification following the allocation of tranche 2 water. Subsequent further negative effects on DIN levels in the catchment. Negative effects on CHB underground water flows in general. Modelling lacks substance, appears subjective and claims unfounded. Significant animal welfare concerns at risk of losing drinking water when stock water bores run dry. This will put hundreds of farmers livelihoods at risk, which in turn will have a major effect on all CHB. Less surface water available</p> <p>Not one more drop of water can be taken from our over allocated aquifer!!! Potential to alter current natural water flows directly effecting native biodiversity.</p>
31	Pauline Elliott	15/12/2021	Oppose	<p>My submission strongly opposes the allocation of Tranche 2 water to any/all of the eight farming group applicants. Each of these farming groups wishes to further grow their crop and pasture / horticulture businesses commercially at the expense of community water supply and the health of our rivers. As we see increasing evidence of dramatic climate change it is not feasible or acceptable to allocate any Tranche 2 water, especially to a select few. As a region, we must prepare for climate change collectively. A huge part of that is managing our water. We simply cannot afford to approve allocating 15,000,000 cm of Tranche 2 water to a select few farming entities.</p>
32	CHB Forest & Bird	16/12/2021	Oppose	<p>I have significant concerns about the issuing of consents to take groundwater from the 'tranche 2' allocation of the Hawke's Bay Regional Resource Management Plan (RRMP). I am worried that issuing these resource consent could effectively destroy ecosystems. Water draw off in the Ruataniwha basin is already causing issues for residents of Tikokino and Ongaonga. I understand the need for a more stable water supply but these applications will only benefit a few at the expense of the rest. Like other submitters, I am confident that there are better ways to develop health and resilience for the region, and its industries, in the face of climate change. I find that it is not logical to increase exploitation and drive degradation with our activities as a response build resilience against an issue of over exploitation and environmental degradation.</p>
33	Peter Butler	16/12/2021	Oppose	<p>I strongly believe the H B R C should decline the application for Tranche 2 from all applicants. From 2010 to 2016 I was the elected Mayor of the C H B District Council and noticed issues in water levels by residents and bores running dry. The Onga Onga villagers do not have C H B D C supplied water scheme or sewage disposal. These people have to supply their own and if Tranche 2 is enacted it will only exacerbate their problem. I now plead with you duly elected HBRC Councillors to give thought (much of it) to the village people of Onga Onga before you decide on the Tranche 2 decision.</p>
34	Rose Hay	16/12/2021	Oppose	<p>I am opposed to the granting of tranche 2 consents on environmental grounds. The water in the Ruataniwha Basin is already over allocated. There are only a few applicants for this proposal but those applicants are asking for a large volume of groundwater. These additional water takes would mean over a 50% increase in extracted water from the aquifer, up to 15 million cubic metres. Once granted, these consents will be impossible to take back. It is time to show our respect to these awa and revere them. It is not the time any more to let a few take, take, take from nature, for short term gains. With Climate Change</p>

				firmly in the forefront of any thoughtful decision making, I urge the HBDC to consider the wise use of water. I oppose the granting of tranche 2 consents.
35	Robert Wilson	16/12/2021	Oppose	I oppose because of the excessive water take from an already over allocated aquifer. The risk of water loss to irrigation bores. The risk to farm infrastructure. The DIN levels with higher stocking rates and intensive farming. The negative effects on CHB underground water flows. The loss of surface water and the potential to alter the natural water flow impacting biodiversity.
36	Neil Bayliss	16/12/2021	Oppose	That no new consents be granted to increase the uptake of water from Tranche 2 of the Ruataniwha Basin. The negative depletion of groundwater is becoming more obvious as the demand increases. The need to deeper existing bores, the drying up of springs and waterways and the death of trees indicates the need to reduce takes.
37	Mynthurst Farm	16/12/2021	Oppose	I oppose the Tranche 2 applicants and want the HBRC to lower water take requested and/or tax relative to the amount of water used by the applicant. Research direct effects of nitrogen fertiliser on the water, ultimately to understand the effect this fertiliser has on the watercress that is strangling the water ways (as I write this submission, there is a massive blockage in the 'Mate' creek waterway only due to the abundant watercress).
38	Kathryn Bayliss	15/12/2021	Oppose	Groundwater levels decline already having adverse effects on the environment, these will worsen if more water is taken from the groundwater. Additional extraction will increase the risk to wetlands, trees and biodiversity. These are at risk with lower water tables. The 3D aquifer mapping by HBRC should be completed first. Decline applications I in their entirety.
39	Ngarangikaunuhia	16/12/2021	Oppose	We believe that HBRC seek long term trusted and effective relationships with Mana Whenua that empower partnership through participation and the protection of rights. The continuation of the tranche 2 application process will create significant tension moving forward with not the very near future. We believe when organisations disregard technical expertise, other mitigating factors of unethical practices will reveal themselves by the end.
40	Tony Murphy	16/12/2021	Oppose	Water use in Central Hawkes Bay is unsustainable at current levels of consented abstraction. Adding further abstraction will only worsen the current situation. I also feel the issuing of these consents would be contradictory to the legislation, policies, and plans guiding the management of freshwater and the environment in Aotearoa and Hawke's Bay. I do not think that these resource consents, the 'augmentation' that supposedly mitigates them, or the land uses that will be associated with them are consistent with te mana o te wai or the aspirations New Zealanders have for freshwater I seek the following decision from the Hawke's Bay Regional Council: that all applications be declined.
41	Alistair Setter	16/12/2021	Oppose	Water use in Central Hawkes Bay is unsustainable at current levels of consented abstraction. Climate change is starting to affect farming and the environment in Central Hawkes Bay. Mental health and general wellbeing of our community is a critical aspect. The augmentation of the Waipawa and Tukituki Rivers does not alleviate the negative effects of the takes on other streams, springs, wetlands and waterways in Central Hawkes Bay. From a policy viewpoint granting the consents would be wrong given that the plan change needs to be notified in 2024 and as a community will be moving away from Plan Change 6.

42	Tui Craven	16/12/2021	Oppose	I have significant concerns about the issuing of consents to take groundwater from the 'tranche 2' allocation of the Hawke's Bay Regional Resource Management Plan (RRMP). I am worried that issuing these resource consent in an area of Aotearoa where rivers, streams, lakes, and wetlands are already under significant stress could effectively destroy these ecosystems. And I am concerned that this will undermine the aspirations many New Zealanders (and Hawke's Bay residents) have for freshwater, including for future generations. I also feel the issuing of these consents would be contradictory to the legislation, policies, and plans guiding the management of freshwater and the environment in Aotearoa and Hawke's Bay. I do not think that these resource consents, the 'augmentation' that supposedly mitigates them, or the land uses that will be associated with them are consistent with te mana o te wai or the aspirations New Zealanders have for freshwater.
43	Mataweka Marae	16/12/2021	Oppose	The Ruataniwha Aquifer which sustains the mauri of the Tukituki and Waipawa Awa has been severely diminished over decades, due to the over-allocation of water consents to the agricultural and horticultural communities in Tamatea. This continued and an ever-increasing abstraction of an already over allocated water take from our Tupuna Awa directly contravenes Te Mana o te Wai or the vital importance of water for everyone, not just a select few. The principles contained within the National Policy Statement for Freshwater Management 2020, clearly states that Tangata Whenua may exercise their right to the principles of: Mana Whakahaere, Manakitanga and Kaitiakitanga. Therefore, not only are we Tangata Whenua, but we exercise our Kaitiakitanga as Mana Whenua of Waipawa over our Taonga tuku iho; being the Tukituki and Waipawa Awa. Tangata Whenua within the Rohe of Tamatea, but more specifically Mana Whenua of Waipawa have not been formally engaged through any of these Tranche 2 applications or processes. Therefore it would seem that the views of Tangata and Mana Whenua have not been considered and are largely absent on these extremely important and vital matters pertaining to freshwater management allocations. Hence a strong opposition to the current applications
44	Paul Bailey	17/12/2021	Oppose	One of the more surprising developments in the ongoing saga of water security in Central Hawke's Bay has been the application by eight landowners for an additional 16 million cubic meters of water to be taken from the Ruataniwha Aquifer under Tranche 2. This follows very closely after HBRC has applied for consents for their proposed Managed Aquifer Recharge trial. I remain concerned about how HBRC is attempting to maintain the status quo and the application for the additional water take consents only exacerbate this. Water security in Central Hawke's Bay is about more than just ensuring security of supply for the farming community. We need to do more than just attempt to maintain the status-quo. We need to rethink the strategy around water security and acknowledge that having intensive dairy operations on the Ruataniwha Plains is an inefficient use of water which has had serious consequences for the environment. Not only with the lowering of the water table but also the increasing nitrogen issues we are facing.
45	John Hamilton Farm	17/12/2021	Oppose	Not allow further water access
46	Mark Corkran	17/12/2021	Oppose	My submission is as an individual but primarily on behalf of my grandchildren. If the HBRC grants these consents, it seems likely that the activities of some applicants -already the largest dairy farming businesses in the area but who are asking for additional water for their operations, will have more than minor

			adverse effects on the environment. It is the view of some that the council's inability or unwillingness to roll back these largest consents is simply wrong. That in excess of 40% of all allocated water goes to just 6 large intensive dairy farms, seems criminal. At the same time the local community have been told by councils and businesses that we are short of water and needed a dam to remove this risk. While it is apparently acceptable for these businesses that public money, and water is being used for their private benefit and profit.	
47	Graham Anderson	17/12/2021	Oppose	The report conducted by PATTLE DELAMORE PARTNERS LTD dated 29 September 2021 raises a number of concerns that I do not believe have been addressed adequately for the proposal to go ahead as presented. The main issue is point 12 -Cumulative effect on wells. The existing seasonal range of groundwater levels in bore 15048 is around 5 to 6 m, which provides some indication of the potential scale of existing cumulative effects in this area including the effects from pumping from deeper takes and natural seasonal variations. It is worth noting that groundwater levels in the bore appear to show an overall long term declining trend, although the scale of that effect is small, in the order of 1 m over 15 years. Greater seasonal variations have occurred since 2011, which may reflect an increase in local abstraction at that time. There are other bores in the Ruataniwha Basin that display greater declining trends and seasonal variations. This data suggests well levels are already declining, without further water being extracted.
48	Trevor Le Lievre	17/12/2021	Oppose	I ask the submission panel to decline all applications to take Tranche 2 water. Over allocation is manifest in the falling water table in the Ruataniwha basin, which is having a devastating effect on both the rural communities and smaller-scale farming enterprises that rely on bores for sustenance and income, respectively. To allocate more water from an already depleted aquifer will simply enable a handful of corporate landowners who already use a disproportionate volume of aquifer water to endure, and intensify, their inappropriate land use practices.
49	Hawke's Bay Fish and Game Council	17/12/2021	Oppose	Hawke's Bay Fish & Game Council (Fish & Game) consider issuing of consents to take groundwater from the 'tranche 2' allocation of the Hawke's Bay Regional Resource Management Plan (RRMP) would be contradictory to the legislation, policies, and plans guiding the management of freshwater and the environment in Aotearoa and Hawke's Bay. Fish & Game consider those applications lodged under proposed plan change 6 should be assessed as non-complying activities. Fish & Game seek that all applications be declined by Hawke's Bay Regional Council (HBRC).
50	KMG STUD LIMITED	17/12/2021	Oppose	No new bores should be permitted that increase the water take, and therefore contribute to further lowering of the water table that permitted water takes should be held at existing levels, or preferably by reduced to allow for the increasing effects of climate change on the water table that resource consent conditions should include conditions to prevent wastage of extracted water, and that such extraction should be confined to evening, night-time and early morning hours to minimize evaporation loss and maximize irrigation effectiveness. that applicants be held liable for the impacts of any increased water take and consequential lowering of the water table in the surrounding area. It should not be necessary for domestic bore water users to personally have to bear the costs of increasing their bore depths consequential on increased surrounding commercial water takes reducing the water table level.



51	Mary Ellen Warren	17/12/2021	Oppose	There are two large issues that need to be studied prior to determining approval for these consents. How will future climate change affect rainfall and evaporation in the watershed and hence river levels and aquifer recharge. Has there been a recent survey of bores in the watershed? Based on limited personal experience there can be two bores on a farm property for each one permitted. What are the implications of possible unregulated takes on this proposal?
52	Ngāti Kahungunu Iwi Incorporated	17/12/2021	Oppose	Ngāti Kahungunu Iwi Incorporated (NKII) consider the issuing of consents to take groundwater from the 'tranche 2' allocation of the Hawke's Bay Regional Resource Management Plan (RRMP) would be contradictory to the legislation, policies, and plans guiding the management of freshwater and the environment in Aotearoa and Hawke's Bay. In particular, NKII consider the issuing of consents would be contradictory to the National Policy Statement for Freshwater Management 2020 (NPSFM) and its direction to manage freshwater in a way that gives effect to Te Mana o te Wai (Policy 1), to actively involve tangata whenua in freshwater management and recognise and provide for Māori freshwater values (Policy 2), and to phase out existing over-allocation and avoid future over-allocation (Policy 11). NKII consider those applications lodged under proposed plan change 6 should be assessed as non-complying activities.
53	Forest and Bird	17/12/2021	Oppose	The intention of augmentation only works if it is a one-off remediation to restore equilibrium. These applications for consent, if granted would amount to a blatant disregard for the fact that groundwater levels are currently in decline, reliability of precipitation is vulnerable to climate change scenarios, and as duration and frequency of rainfall changes, recharge to groundwater will become more insecure, and that surface water systems would be affected. Any perceived benefits to surface water will be outlived by long term negative impacts.
54	Amelia McQueen	17/12/2021	Oppose	My view is the applications should be declined.
55	CHBDC	17/12/2021	Oppose	Central Hawke's Bay District Council (the Council) objects to the notified water permit consent applications for the combined take of Tranche 2 groundwater from the Ruataniwha Basin. The Council objects to the granting of these water permits because of the potential negative effects to a great number of people and the environment, all of whom depend on the Ruataniwha Aquifer. The proposed water takes will also have a huge impact on those businesses and farms that are reliant on groundwater takes. Council's objection to the HBRC granting consent to the eight water permit applications is based on a number of significant considerations which have the potential to impact directly and adversely on our rural communities and the growth and prosperity of our district.
56	Clint Deckard	17/12/2021	Oppose	I believe it is unreasonable to expect interested parties to make considered, researched submissions on such an important and complex issue in 20 days just prior to the holiday season. Given that the applicants have had many years to prepare and research for this application, the imbalance is stark. I am very concerned that almost all the assumptions behind the original concept of increased extraction and river augmentation are based on models.  Models have many drawbacks; Most models can't incorporate all the details of complex natural phenomena Models are approximations Models require trade-offs. You want as much predictive power as possible. At the same time,

				<p>you also want the model to be as simple as possible. Nature is indifferent to the human need for simplicity and ease of comprehension. A model can only be based on what is known at the time. However, once settled on, there is a natural reluctance to adapt the model.</p> <p>Models used in the past to set water allocation limits have demonstrably failed to predict actual real world outcomes. The lowering of water table has actually been more than predicted as evidenced by the number of failed bores and native forest death. I believe it is foolish to grant these applications before the results of the SkyTEM survey are fully analysed. I understand the importance of reliable water supply for agriculture and have some sympathy for the applicants but do not believe this is the best way to address this issue. Firstly, we must take stock of how the water we are already extracting is being used to ensure that this is wise use of a precious resource. Only then can we begin to explore new sources or management regimes.</p>
57	Andrew Robb	17/12/2021	Oppose	I oppose the allocation of more water from the aquifer for irrigation or for intensive farming.
58	Choose Clean Water	17/12/2021	Oppose	We seek that all applications are declined.
59	Anna Lorck	17/12/2021	Oppose	<p>I object to all applications in their entirety. As the Local Member of Parliament for Tukituki I am making this submission in support of constituents, representing both farmers and local residents, who have approached me to advocate their significant concern and opposition to the Hawke's Bay Regional Council's (HBRC) Tranche 2 resource consent. Everyone who has contacted me has spoken passionately about needing a strong voice to advocate against Tranche 2. The concern about high water-take is expressed by both farmers and residents who reside in rural communities. During the years, continuous and increased water-take has left both Ongaonga and Tikokino residents worried for their own water supplies since 2004. I understand, from what farmers have told me, that in 2012 five houses ran out of water completely. Many households in the villages of Ongaonga and Tikokino had to modify existing bores at their own expense to access groundwater from their bores and wells. This will only continue to worsen through the impact of climate change. Residents stated that any further water take from the Ruataniwha Basin Groundwater meant that individuals would be unable to supply water to their households and would be forced to seek consents to drill new or extend the depot of their existing bores in order to be able to draw water for drinking and domestic household use. Concerned farmers have told me that the rapidly emerging issue of the over-allocation of groundwater resources will prevent residents' access to such a critical resource. The locals who have spoken with me have raised serious concerns that if the Tranche 2 consent were to go ahead, it would increase unnecessary competition for water consumption and put further pressure on the mental health on an already fragile rural community and wellbeing of their livestock, but most importantly, it would put the Ruataniwha aquifer at serious risk.</p>
60	SUBMISSION WITHDRAWN			

61	Paul Baker	17/12/2021	Oppose	<p>The time period for objectors to consider or object to the applications is too short and just prior to Christmas during a global pandemic. The Ruataniwha Basin has part of it subject to sub-catchments exceeding the Dissolved Inorganic Nitrogen (DIN) Rule. Some applicants want to have a water allocation from the irrigation consent to dilute their excess nitrogen levels. This seems backwards to me. The addition of the water volumes sought sums to 16.018 million cubic meters per annum. Plan Change 6 is cited as a measure that Applicants have to comply with. Plan Changes 7, 8, 9, 10 .... will occur with time and the new revised Resource Management Act may well impact the allocation of water in even tighter nitrogen / phosphorus / other organic element constraint. Groundwater for irrigation is already fully allocated in the area... (Thesis, pg. 17.)</p> <p>* For the irrigation proposal to proceed it will be important to produce new detailed information about soil properties....(Thesis, pg. 19.) Soil properties on the intermediate terraces landscape appear to be much less diverse than they first appear... (Thesis.). These comments applied prior to the termination of Ruataniwha Dam by the Court. The tenor of the comments still applies in part, at least, in 2021 and beyond. Where T2 irrigation impacts existing water users, it would be fair to identify these and compensate them or mitigate the reduced water at the expense of those drawing water from deeper down and upslope of the people who lose out.</p>
62	Mr Apple NZ limited	17/12/2021	Oppose	<p>The Tranche 2 consent would create even more pressure on this resource. Not only as an apple grower in CHB would we be affected by Tranche 2 but the townships all utilise direct river take consents which would affect their water use during ban levels. The augmentation of the Waipawa and Tukituki Rivers does not alleviate the negative effects of the takes on other streams, springs, wetlands and waterways in Central Hawkes Bay. The consequences are large and complex, making them completely unknown. This uncertainty is unacceptable for the environment, the many farms and households that rely on these types of water and for irrigators that use water from sources other than the Waipawa and Tukituki Rivers. Climate change is starting to affect farming and the environment in Central Hawkes Bay so putting further pressure on water supply when we are likely to have to endure hotter, drier summers creates future uncertainty.</p>
63	Whataarakai 1E2B and Tarewa A2B Ahu Whenua Trust	17/12/2021	Oppose	<p>The Ruataniwha Aquifer which sustains the mauri of the Tukituki and Waipawa Awa has been severely diminished over decades, due to the over-allocation of water consents to the agricultural and horticultural communities in Tamatea. This continued and an ever-increasing abstraction of an already over allocated water take from our Tupuna Awa directly contravenes Te Mana o te Wai or the vital importance of water for everyone, not just a select few. The principles contained within the National Policy Statement for Freshwater Management 2020, clearly states that Tangata Whenua may exercise their right to the principles of: Mana Whakahaere, Manakitanga and Kaitiakitanga. Therefore, not only are we Tangata Whenua, but we exercise our Kaitiakitanga as Mana Whenua of Waipawa over our Taonga tuku iho; being the Tukituki and Waipawa Awa. Tangata Whenua within the Rohe of Tamatea, but more specifically Mana Whenua of Waipawa have not been formally engaged through any of these Tranche 2 applications or processes. Therefore, it would seem that the views of Tangata and Mana Whenua have not been considered and are largely absent on these extremely important and vital matters pertaining to freshwater</p>

				management allocations. Hence a strong opposition to the current applications.
64	Royal Forest and Bird Protection Society (CHB)	17/12/2021	Oppose	We have serious concerns that the issuing of these consents will have a detrimental effect on the flora, fauna and waterways of the entire Ruataniwha Basin. The lowering of the shallow aquifer has led to the failure of springs system throughout the area. If granted these consents will exacerbate the problems. We cannot see how issuing of these consents is in line with Te Mana o te Wai. The needs of our waterways should be paramount. Augmentation is far from a proven practice indeed the BoI recognised that this was a 'novel' approach. We have serious concerns that the models upon which these consents are based are not fit for purpose or sufficient enough. These applications should not be granted until the results of the SkyTEM aerial survey are completed and a more informed understanding of the Ruataniwha basin is obtained. We have concerns that if granted these consents will lead to further failures of domestic water supply bores and the consequent financial and health costs. We have concerns that granting these consents will lead to further intensification, particularly of dairy, and the consequent environmental problems. Ground water readings are already more than twice the MAV for Nitrates. We are very concerned that the applicants' environmental assessments, particularly around wetlands, do not have sufficient effort or rigour. At least one significant wetland has been entirely overlooked.
65	Crystal & Tautoko Ratu	17/12/2021	Oppose	We oppose these applications. The wellbeing of our Awa, Wai (water) is a principal source and a reflection in the wellbeing of the local people. Furthermore, the condition of the water. Our ultimate obligations and responsibility as Tangata whenua is to treat our environment as our relation and not that of property. We have a duty as Kaitiaki to ensure our environment is left in a good state for future generations ahead. If we lose water due to those that choose to continually take in the name of commercial gain this, then removes our cultural narrative and identity
66	Jimmy Fisher	17/12/2021	Oppose	As a ratepayer I would like to state that I am strongly opposed to extra allocation of water for irrigation be granted to the small group of dairy farmers, who seeking even more water from the Tranche 2. Given the forthcoming drought to give consent for even more water for the greed and benefit of a few is crazy. Hopefully the council will see sense and decline these applications.
67	Kiwi Farming Enterprise	14/12/2021	Oppose	That the take from this Applicant APP-123563 will have a significant effect on Aquifer levels and could leave some of my pumps without a good head on them((water above the pumps)). I seek the following decision from the Hawke's Bay Regional Council: Give precise details, including the parts of the application you wish to have amended and the general nature of any conditions sought: They are Applying for 4914920 cu metres which is a huge amount .I feel that applying for this much is excessive and will have roll on effects.
68	Gerard Pain	17/12/2021	Oppose	Ruataniwha already over allocated; taking this water will make things worse. The applicants will be using this for intensive farming that is inappropriate to the region. If there is spare water, it needs to be supplied to Ongaonga and Tikokino residents.

LATE SUBMISSIONS				
69	Mike O'Grady	18/12/2021	Oppose	Priority must be given to our natural environment. We (humans) are entirely reliant on the environment, and have already caused significant and irreparable damage. Further damage, through take of large amounts of water, for the financial benefit of few, is short sighted and should not be allowed. Climate change is evident now, and will be felt more keenly in the years to come. We need to carefully plan our land use and adapt accordingly. High input models which will require more and more water going forward is not the answer.
70	Rakautatahi Marae	19/12/2021	Oppose	I, Henry John Nepe Apatu Kaitiaki of Rakautatahi Marae, that holds mana whenua over the Manawatu, Makaaretu, Maharaunui, Maharauti, Mana Te Wai, Tukipo, Tukituki, Mangapoho, Makaroro, Waipawa, Mangaanuku, Porangahau and Maharakeke, which all fill the Tukituki River unreservedly object to any further water or resources being taken from these water sources. I write and speak on behalf of my people of the Tamatea Rohe and have full support of my people
71	Waipukurau Community Marae	19/12/2021	Oppose	The Waipukurau Community Marae seek that all applications be declined by Hawke's Bay Regional Council (HBRC). The Hawkes Bay Regional Council practice of 'Water Augmentation' that enables Consent Holders to raise the river level to their consent level for continued irrigation by drawing up ground water from the Ruataniwha aquifer. Iwi, Hapū, Whanau (inclusive of the Waipukurau Marae Community) were neither notified and or informed of this practice and instead found out by accident. It is a practice that the Hawkes Bay Regional Council do not manage or mitigate and certainly do not include or consider the opportunity of Iwi, Hapū, Whanau Kaitiakitanga to support any form of regulation in order to provide integrity to this practice. This is an insidious practice that seriously undermines the intent and principles of Te Mana o Te Wai and clearly breaches the National Policy Freshwater 2020 regulations, direction, and intent.
72	Julia May Evans	18/12/2021	Oppose	We oppose all the consents and am writing because I hope and continue belief that Hawkes Bay has the welfare of ordinary people and principals of fairness, compassion and equity. It is obvious that small rural properties and villages cannot continue to exist without water. This isn't about who has the money and power to control the outcomes for everyone else, its about what type of society do we want for ourselves, children, grandchildren to live in. The consequences of ignoring the fundamentals of a health society are clear.

## **APPENDIX 4. PREHEARING MEETING REPORT**

### **Ruataniwha Trance 2 prehearing meeting notes 30 March 2022.**

A prehearing meeting was held on 30 March 2022. This was held as a virtual meeting and was recorded.

This was initiated at the request of the applicants.

Attending online were:

Applicants: Gerard Willis, Bal Matheson, Julian Weir, Ewan Gardiner, Myka Nuku, Duncan Abernethy,

Submitters: Rob Kent, Pauline Elliot, Tom Kay, Gren Christie, Ngaio Tiuka, Shade Smith, Laura Billings, Dianne Smith, Sharleen B, Leon Collier, Bruno Chambers, Greg Frater, Anna Lorck, Tom Belford.

HBRC, Malcolm Miller (Chair), Paul Barrett (Reporting Officer), Michaela Tinker (Consents Administrator)

The applicants shared a power point presentation and spoke to this. This is attached to the summary. This was considered to be a non technical presentation. More technical conferencing may occur at a later stage. Questions followed.

### **Summary of presentation by the applicants.**

Eight applications have been lodged for the 15 million cubic metres of water. Of this volume the modelling has shown an upper limit of 9.8 million cubic meters being taken and used for irrigation with the balance (35%) to be taken and used to augment flows. These applications are spread around the basin with a concentration around Ongaonga. These are being processed together as a group. This was considered useful to help in the assessment of basin wide effects and in combining options for mitigation.

It was stated that this is an irrigation proposal but not a dairy expansion proposal. The regulatory framework (Plan Change 6) provides for allocation of the 15 million cubic meters of water per year. The applications for taking this water are identified as discretionary activity under Plan Change 6. Council has full discretion to approve or decline and impose conditions. Policy requires there to be mitigation of the effects on surface flows in the form of augmentation so as not to make low flows worse. Duration applied for is 20 years as per the plan. The assessment of effects includes assessment of groundwater, wetlands, well interference, shallow bores, ecological effects.

Modelling was explained. It was considered to have used conservative assumptions leading to predictions that are larger than likely in most years. It uses a 40 yr record (from 1972 to 2012). The modelled effects of augmentation showed estimated improvements on the mean annual low flow (MALF) in the Tukituki River at Tapairu Road. Modelling of shallow groundwater levels also showed the estimated draw down effects on bores. It was pointed out that the effect on Tikokino and Ongaonga bores was in the 20 cm range of drawdown. The highest level impact was modelled as an 80 cm drawdown. Some further work is to be done on the most affected bores.

End use of water. The Tukituki Plan Change does not allow for an increase in N losses from farms in catchments where water bodies exceed the DIN limit of 0.8 mg/L and these catchments need to decrease their DIN levels. Applications have been lodged for Production land use consents for existing farms. They have also modelled for new configurations. Each have demonstrated there are configurations that can reduce N losses. Eg shift from pasture systems to cropping and horticulture. Or pasture system shifting from high supplements to more pasture fed systems. NES regulations also overlie this, establishing that farms can't increase their discharges and requiring consent for new irrigation of dairy farms or for expansion of dairy support farms.

Submissions assessment by the applicants identified 5 key themes: Impacts on cultural values; well interference; ecological impacts and particularly the effects on conservation values of Inglis Bush; future landuse; and water

quality impacts. This has led to further work and engagement. CIA, engaging with mana whenua and other land owners, further ecological work on small streams, further investigative work on shallow wells, summary of intended land use of all applicants, economic benefits to the community of the proposals.

It was advised that further technical work was due by the middle of May (weather / flow dependent).

At the time of the prehearing it was anticipated that a hearing would be held on 4<sup>th</sup> July. This hearing date has since been moved out to 29 August 2022.

**Issues identified by questions from submitters:**

- Ground and surface water modelling results. Better explanation is needed of the modelling process. In particular the use of the 40 year record up to 2012 and how this can be used to demonstrate the full effect of current abstraction, the effect of additional abstraction on existing takes and on streams and the impact of climate change.
- The effect of further abstraction on the parts of streams that are to the west and therefore lie upstream of the points at which augmentation is proposed.
- How the provisions of the NPS and the principle of te mana o te wai are being given regard to? Noting that the priority in the NPS is first the health and well-being of water bodies and freshwater ecosystems.
- That these applications are proceeding now when a new plan is required by the NPS by 2024 which may reflect different community aspirations.
- That aquifer levels are dropping and augmentation won't benefit these.
- That this is competing with and contradicts other projects such as managed aquifer recharge in the Ruataniwha Basin and Tukituki water security.
- What happens (including compensation) if wells do go dry contrary to what the modelling is indicating?
- How to address the limitations of Overseer, when it is being used to identify that there will be no increases in N loss with changes of land use?
- Does more water being extracted from the groundwater mean there is less water for dilution of nutrients that do leach to ground?
- What assessment and consideration has there been of the stygofauna that live in the groundwater system? FYI use of eDNA is a method that is available.
- Can further allocation be justified and what is the purpose of taking this water.

The applicants answered some of these questions and also acknowledged that they would take them away for further consideration. There was no attempt to resolve any of these issues via this prehearing.

Report prepared by Malcolm Miller (Chair) 22 June 2022.

## APPENDIX 5: RELATED PRODUCTION LAND USE CONSENT APPLICATIONS

The following table provides details of the production land use consents current being processed that relate to the applicants' landholdings.

Resource Consent Applications No.	Applicant	Description of Activity/Consents Purpose	Comment
APP-127039	Tuki Tuki Awa Limited	To operate a farm inside the Tukipo DIN exceeding sub-catchment	<p>The application is for a 300 ha dairy farm at 406 Tuki Tuki Road, Ashley Clinton. The farm consists of two main blocks – a dairy platform and (135ha) and a support block. A part of the farm (34ha) is in the Tukipo sub-catchment.</p> <p>The FEMP notes that with access to Tranche 2 groundwater, the Applicant is proposing to increase the irrigation area and the duration of irrigation is expected to increase as it currently occurs only when the Tukituki River is above its minimum flow.</p>
APP-127057	Buchanan Trust No. 2	To operate a farm inside the Kahahakuri DIN exceeding sub-catchment	The FEMP indicates that with access to tranche 2 groundwater, the numbers of bulls wintered will decrease, lambs will increase, and there will be an increase in irrigated cropping, including of beans, peas, radish, corn, carrots and maize silage.
APP-126662	Apatu Farms limited (ex-Plantation Road Dairies (PRD))	To operate a farm inside the DIN exceeding Kahahakuri sub-catchment	This application is for production land use consent for a 479 ha dairy farm, with 414 ha currently under irrigation. Until recently this property was owned by PRD and was operated as part of a single farming enterprise with the dairy support land to which APP-127453 relates. The farm is located within the Kahahakuri and Waipawa sub-catchments.
APP-127543	Plantation Road Dairies	To operate a farm inside the DIN exceeding Kahahakuri sub-catchment	This application relates to 424 ha production land use for dairy support, cropping and beef finishing purposes at 313 Wakarara Road. The farm is located within the Kahahakuri sub-catchment. The application and FEMP are based on the farm system as at April 2022, with 106 ha of irrigation currently in place.
APP-125458	Franklin Springhill Trust (related to the Springhill Dairies Partnership water permit application)	To operate a farm inside a DIN exceeding sub-catchment (Mangaonuku)	This application relates to the dairy farm at 1212 Wakarara Road. It is understood that Tranche 2 water is no longer proposed to be used.
APP-127567	Franklin Springhill Trust	To operate a farm inside the Mangaonuku DIN exceeding sub-catchment	This application relates to 348 ha of diary support and cropping land within the Mangaonuku sub-catchment at 36 and 132



Resource Consent Applications No.	Applicant	Description of Activity/Consents Purpose	Comment
		and to use land as dairy support land greater than the maximum area in the reference period (Reg 22 NEW FW 2020).	Butler Rd, Tikokino. This is where Tranche 2 water is now proposed to be used. There is 65ha currently irrigated on this property.  Consent is required under the TCP and the NES FW. The application proposes to increase use of dairy support land by 120 ha. The application is currently on hold under s92 while further information is provided on the proposal.
APP-125334	Papawai Partnership	To operate a farm exceeding individual land use capability for Nitrogen leaching within the Waipawa Catchment	This farm is located in the Waipawa sub-catchment and does not require consent because the DIN limit in this catchment is not exceeded. However, an application has been lodged, on the basis that the estimated N loss exceeds the LUC Table 5.9.1D limit. While this aspect of the rule is no longer being enforced by the Council, due to issues with Overseer, a consent has been sought and so will be processed.  This application relates to production land use for an irrigated cropping and sheep/beef farm. The application specifically includes and considers Tranche 2 water use. No increase in the current irrigation area is proposed. The FEMP notes that the nitrogen loss to groundwater from the farm has been estimated to decrease from the current level based on a suite of actions to be implemented.
APP-126691	Te Awahohonu Forest Trust	To operate a farm inside the Mangaonuku DIN exceeding sub-catchment and to operate a farm exceeding individual land use capability for Nitrogen leaching	The application is for a 1600 ha sheep and beef breeding and finishing farm at 5740 SH50, within the Mangaonuku and Waipawa sub-catchments. The application covers three blocks of unirrigated land, representing the existing farm.  The FEMP notes that with access to Tranche 2 groundwater there will be a shift in the current farm operation from a predominantly winter cropping regime to a summer regime to finish cattle before winter, which has been estimated in overseer to reduce nitrogen loss to water.
APP-125282	I and P Farming Limited	To operate a farm inside a DIN exceeding sub-catchment (Upper Tukituki and Kahahakuri)	The application is for a 305 ha sheep, beef and cropping farm at 337 Onagaonga-Waipukurau Road, Waipukurau. The farm is located within the Kahahakuri and Upper Tukituki sub-catchments.  The application is supported by a FEMP for the current operation. An updated FEMP has also been provided to cover the

Resource Consent Applications No.	Applicant	Description of Activity/Consents Purpose	Comment
			addition of irrigation (220-240 ha) on his farm using Tranche 2 water.
NA	Purunui Trust	To operate a farm inside the DIN exceeding Kahahakuri sub-catchment	<p>It is understood that this land was, until recently, leased to PRD.</p> <p>The FEMP indicates that with access to Tranche 2 groundwater, dairy grazing cattle over the year will be reduced and replaced with cropping, and lamb trading over winter.</p>

## APPENDIX 6: DRAFT RECOMMENDED CONDITIONS OF CONSENT

**Note:** If the consents are granted, the final consent conditions will be issued by HBRC in Council's standard consent document format. The consents sought are presented below in a format best suited to this report. These show changes to the proposed consents and include comments to provide additional reasoning for changes. At this stage, the conditions are presented with separation into take and use components, but the need for this approach is questioned.

	Condition	Comment																														
	<b>TAKE</b>	This separate take consent may not be required if water is only allocated to the degree that there is a demonstrable use.																														
1	The site of the take shall be from Well no/s [insert] at map reference NZTM [easting / northing] and [legal description of sites] <del>or, if no suitable currently exists, elsewhere on the landholdings described in Schedule 1</del> Wells shall be located on the landholdings described in Schedule 1.	Because a s127 change is required to add any new well, the condition can just stipulate that they need to be on the landholdings.																														
2	<p>The volume and rate of take shall not exceed the following limits for each component landholding:</p> <table border="1" data-bbox="252 1193 1193 1921"> <thead> <tr> <th data-bbox="252 1193 600 1480">Landholding</th> <th data-bbox="600 1193 906 1480">Total rate of take (from all wells in combination) (L/s daily average)</th> <th data-bbox="906 1193 1193 1480">Total volume of take from all wells in combination within the 12-month period (1 October to 30 September in consecutive calendar years) (m<sup>3</sup>)</th> </tr> </thead> <tbody> <tr> <td data-bbox="252 1480 600 1552">Te Awahohonu Forest Trust</td> <td data-bbox="600 1480 906 1552">529</td> <td data-bbox="906 1480 1193 1552">4,914,920</td> </tr> <tr> <td data-bbox="252 1552 600 1592">Papawai Partnership</td> <td data-bbox="600 1552 906 1592">150</td> <td data-bbox="906 1552 1193 1592">1,475,517</td> </tr> <tr> <td data-bbox="252 1592 600 1632">Tuki Tuki Awa</td> <td data-bbox="600 1592 906 1632">99</td> <td data-bbox="906 1592 1193 1632">952,400</td> </tr> <tr> <td data-bbox="252 1632 600 1673">Plantation Road Dairies</td> <td data-bbox="600 1632 906 1673">383</td> <td data-bbox="906 1632 1193 1673">3,751,225</td> </tr> <tr> <td data-bbox="252 1673 600 1744">Springhill Dairies (formerly Ingleton Farms)</td> <td data-bbox="600 1673 906 1744">123</td> <td data-bbox="906 1673 1193 1744">1,005,213</td> </tr> <tr> <td data-bbox="252 1744 600 1816">I &amp; P Farming (formerly Abernethy Partnership)</td> <td data-bbox="600 1744 906 1816">137</td> <td data-bbox="906 1744 1193 1816">1,200,010</td> </tr> <tr> <td data-bbox="252 1816 600 1856">Buchanan Trust No.2</td> <td data-bbox="600 1816 906 1856">142</td> <td data-bbox="906 1816 1193 1856">1,145,794</td> </tr> <tr> <td data-bbox="252 1856 600 1897">Purunui Trust</td> <td data-bbox="600 1856 906 1897">57</td> <td data-bbox="906 1856 1193 1897">554,921</td> </tr> <tr> <td data-bbox="252 1897 600 1921">Total</td> <td data-bbox="600 1897 906 1921">-</td> <td data-bbox="906 1897 1193 1921">15,000,000</td> </tr> </tbody> </table>	Landholding	Total rate of take (from all wells in combination) (L/s daily average)	Total volume of take from all wells in combination within the 12-month period (1 October to 30 September in consecutive calendar years) (m <sup>3</sup> )	Te Awahohonu Forest Trust	529	4,914,920	Papawai Partnership	150	1,475,517	Tuki Tuki Awa	99	952,400	Plantation Road Dairies	383	3,751,225	Springhill Dairies (formerly Ingleton Farms)	123	1,005,213	I & P Farming (formerly Abernethy Partnership)	137	1,200,010	Buchanan Trust No.2	142	1,145,794	Purunui Trust	57	554,921	Total	-	15,000,000	The need for these volumes is not yet clear. Water should only be allocated to the degree that it can be demonstrated as being reasonably required, and therefore, subject to consideration of additional information from the applicant, should match the volumes specified in the 'use' consent.
Landholding	Total rate of take (from all wells in combination) (L/s daily average)	Total volume of take from all wells in combination within the 12-month period (1 October to 30 September in consecutive calendar years) (m <sup>3</sup> )																														
Te Awahohonu Forest Trust	529	4,914,920																														
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Purunui Trust	57	554,921																														
Total	-	15,000,000																														
3	The consent holder shall not take Tranche 2 groundwater unless, and until, the use of that water is authorised by a resource consent issued by the regional council.																															

4	<p>The taking of Tranche 2 groundwater for irrigation by Tuki Tuki Awa shall only occur when its existing surface water take (Consent No. AUTH-124683-01) <u>or any succeeding consent</u> is restricted due to low flow bans on the Tukituki River.</p>	
5	<p>The consent holder shall, if requested to do so, pay a sum of [\$5000 (inclusive of GST if any)] to enable the supply and installation of equipment to maintain or improve security of supply to any of the following persons if requested to do so by any of the following persons:</p> <ul style="list-style-type: none"> <li>a. The identified owners of wells with the following HBRC well reference numbers: <ul style="list-style-type: none"> <li>i. [list well numbers of <del>~10 shallow</del> <u>21</u> well owners with assessed well interference effects beyond trigger levels.]</li> </ul> </li> <li>b. Up to 10 additional persons that are not the owners of a well listed in a. above provided that any request for payment is accompanied by evidence clearly establishing (to the consent holder's satisfaction) that: <ul style="list-style-type: none"> <li>i. the person is the owner of a well <del>less than 50 m deep</del> that existed on or before 19 August 2021; and</li> <li>ii. the well was not recorded on the HBRC well database as at 30 June 2022; and</li> <li>iii. the existing well is located within the area shown in Appendix 1 of this permit; and</li> <li>iv. the request for payment is made within 5 years of abstraction commencing at all land holdings <del>commencement of this consent</del>.</li> </ul> </li> <li>c. A record of all payments made under this consent shall be provided to the regional council. For the avoidance of doubt, the consent holder's obligation is limited to the payment of the amount to the identified well owner (with only one payment per well), and there is no obligation for any on-going operational or other costs associated with any equipment installed. There is no obligation on the consent holder to ensure that any money provided is spent for any particular purpose, and only one payment needs to be made to each of the persons identified in (a) above.</li> </ul>	<p>Extended to also allow for provision to affected 11 deep wells.</p> <p>Appendix 1 has not been provided but is assumed to refer to areas most impacted by abstraction based on the model results.</p> <p>Should provide for the effects of abstraction to occur, and so start after abstraction at all sites has begun.</p>
6	<p><del>Should at any stage a consent holder intend to drill a new well for the purpose of taking water for irrigation and/or augmentation authorised or required by this consent, having first obtained the necessary bore permit (RRMP Rule 1 or 2) and having subsequently drilled the well the consent holder shall thereafter apply for a change of consent conditions under s127 of the RMA (or its successor) to add the well to Condition 1 and shall at that time also submit a report from a suitably qualified expert to the Council (Manager Compliance) (or nominee) that includes the following information:</del></p> <ul style="list-style-type: none"> <li><del>a) Details of the new well, including its depth, location, screening and static water level;</del></li> <li><del>b) An assessment of potential adverse (well interference) effects of take(s) from the well(s) on neighbouring groundwater users within a 2 km radius of each proposed new well; and</del></li> </ul>	<p>This is not required if it would go through a s127 process anyway.</p>

	<p><del>c) Results of a pump test that demonstrates that the well can sustain the intended rate of take.</del></p> <p><del>d) The measures to be taken to ensure that the effects on neighbouring groundwater abstractors can be managed to ensure that existing abstractors' security of supply is not unreasonably reduced.</del></p>	
7	<p><del>If the consent holder uses an existing well to take Tranche 2 water, the requirements under condition 6 a) to d) for a report from a suitably qualified person to provide certain information shall apply as if the take was from a new well.</del></p> <p>The consent holder shall provide a report from a suitably qualified person prior to abstraction commencing from each well. The report shall include, but not be limited to the following:</p> <p>a) Details of the well, including its depth, location, screening and static water level;</p> <p>b) An assessment of potential adverse (well interference) effects of take(s) from the well(s) on neighbouring groundwater users within at least a 2 km radius of each proposed new well, including an assessment of available water levels in each well; and</p> <p>c) Results of a pump test that demonstrates that the well can sustain the intended rate of take.</p> <p>d) The measures to be taken to ensure that the effects on neighbouring groundwater abstractors can be managed to ensure that existing abstractors' <del>security of supply is not unreasonably reduced</del> <u>access to groundwater is not reduced. This may include (but not limited to) setting a defined minimum groundwater level that ensures, or is likely to ensure, their ongoing ability to access groundwater taking into account the use of the well and associated abstraction rates (where known).</u></p> <p>e) <u>Testing and an assessment of the quality of groundwater from the well if it is to be used for augmentation, relative to the water quality in the receiving stream.</u></p> <p><u>(Note: a separate resource consent may be required where the discharge of contaminants to surface water will occur).</u></p>	<p>For existing wells, the report on potential well security is required.</p> <p>Amended to try and ensure access to groundwater is protected in deeper wells.</p>
8	<p>The take of water is logged, monitored and reported as specified in the applicable consent to use the Tranche 2 water on the landholding within which the well is located.</p>	
9	<p><u>No water shall be taken during "no take" periods specified by the Council for the purpose of obtaining accurate hydrological measurements, provided that: a) the "no take" period specified by Council is no longer than twenty four (24) hours in duration; and, b) the Council gives at least 7 days' notice to the consent holder of the start and finish time of the "no take" period; and, c) consecutive "no take" periods are separated by an interval of at least 14 days.</u></p>	<p>Standard HBRC condition included to provide for environmental/hydrological investigations</p>
<b>USE</b>		

1A	<u>Water may be used under this resource consent to irrigate an area not exceeding xx hectares of [crop type]. The consent holder shall, upon request by the Council (Manager Compliance), supply details of the crop type and areas irrigated under this consent</u>	Added to set a limit on the irrigation area and crop type, to assist with managing potential N loss
1	The volume used for irrigation shall not exceed [insert volume] m3 within a 12-month period (1 October to 30 September in consecutive calendar years).	This should not exceed the 1 in 10 year volume for the irrigation area and crop type. Or Tuki Tuki Awa it should be the volume modelling (understood to 258,400 m <sup>3</sup> /yr).  Where an existing Tranche 1 consent exists for a shared irrigation area this volume may need to be in combination with the Tranche 1 volume so that the combined volume does not exceed the 1 in 10 year volume for the area.
2	The volume used for <u>irrigation and</u> augmentation shall not exceed [insert volume] m3 within a 12-month period ( <del>1 November to 31 October</del> to <u>30 September</u> in consecutive calendar years)	Not setting a specific augmentation limit will mean that more water could be used for augmentation if it is available
3	<p>Prior to 1 September each year, the consent holder shall notify Council (Manager Compliance) in writing stating the:</p> <ul style="list-style-type: none"> <li>a) The percentage of the total consented area that has been developed for irrigation with the consented Tranche 2 groundwater,</li> <li>b) The maximum seasonal volume of consented Tranche 2 groundwater that will be used to irrigate the developed area <u>over the next water year</u>, and</li> <li>c) The associated augmentation rate will be applied over the next water year (1 October to 30 September).</li> <li>d) Prior to the full amount of allocation being used, the minimum augmentation rate required shall be calculated on a <i>pro rata</i> basis as set out in <del>[xx]</del> <u>the Augmentation Management Plan required by condition 3A.</u></li> </ul> <p>This condition shall apply until such time as the entire consented area has been developed for irrigation and the maximum seasonal volume of consented Tranche 2 groundwater can be taken to irrigate the total developed area.</p>	

	<u>Advice note: augmentation may be required prior to irrigation being developed if it is needed for the mitigation of the effects of another Tranche 2 take.</u>															
3A	<p><u>Prior to abstraction commencing each season, the consent holder shall provide an augmentation management plan (AMP), prepared by a suitably qualified expert, that demonstrates how augmentation of the effects of the take will be mitigated, including:</u></p> <p>a) <u>The augmentation rate required from this consent holder</u></p> <p>b) <u>The augmentation rates relied on from other sources/consent holders, and location and rates of 'off site' augmentation required.</u></p> <p>c) <u>The rate of augmentation relied on by other parties that are to occur under this consent.</u></p> <p>d) <u>The total rate of augmentation to be provided for the next year.</u></p> <p><u>The consent holder shall not commence abstraction unless and until all contributors to required augmentation, as specified in the AMP, are able to undertake augmentation as required to ensure that the combined effects of the takes are augmented.</u></p>	<p>This condition attempts to ensure that the necessary augmentation occurs across the group each season.</p> <p>This would mean that no party could commence abstraction until all require augmentation wells and sites are established.</p>														
4	<p>The consent holder shall commence the discharge of augmentation water (sourced from Tranche 2 groundwater taken in accordance with this consent) when <del>the Council provides notification that</del> the low flow rate measured at any of the following river sites is triggered falls to or below the augmentation trigger flow rate specified in the following table:</p> <table border="1" data-bbox="269 1079 1091 1612"> <thead> <tr> <th>River</th> <th>Augmentation trigger Low Flow Rate (L/s)</th> </tr> </thead> <tbody> <tr> <td>Waipawa River at RDS/State Highway 2 (HBRC site 23211)</td> <td>2,725</td> </tr> <tr> <td>Tukituki River at Tapairu Road (HBRC site 23207)</td> <td>2,360</td> </tr> <tr> <td>Tukipo River at State Highway 50</td> <td>155</td> </tr> <tr> <td>Tukipo River at Ashcott Road (HBRC site: 23213)</td> <td>1,085</td> </tr> <tr> <td>Mangaonuku River at Upstream of the Waipawa River Confluence (HBRC site: 23294)</td> <td>1,295</td> </tr> <tr> <td>Tukituki River at Red Bridge (HBRC site: 23201)</td> <td>&gt;5,200</td> </tr> </tbody> </table> <p><u>All flow rate specified in this condition and in condition 6 are as determined by the Hawke's Bay Regional Council.</u></p>	River	Augmentation trigger Low Flow Rate (L/s)	Waipawa River at RDS/State Highway 2 (HBRC site 23211)	2,725	Tukituki River at Tapairu Road (HBRC site 23207)	2,360	Tukipo River at State Highway 50	155	Tukipo River at Ashcott Road (HBRC site: 23213)	1,085	Mangaonuku River at Upstream of the Waipawa River Confluence (HBRC site: 23294)	1,295	Tukituki River at Red Bridge (HBRC site: 23201)	>5,200	<p>Red Bridge site and minimum flow added – a trigger flow above this level should be set.</p>
River	Augmentation trigger Low Flow Rate (L/s)															
Waipawa River at RDS/State Highway 2 (HBRC site 23211)	2,725															
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Tukituki River at Red Bridge (HBRC site: 23201)	>5,200															
5	Augmentation shall be undertaken regardless of whether the consent holder is irrigating at the time, using Tranche 2 groundwater authorised by this consent.															
6	Augmentation required under Condition 4 shall be discharged at [insert location] at the minimum rate of [insert discharge rate]:															

	<p>The consent holder shall <u>may</u> cease augmentation when either:</p> <p>a) the flow rates <u>measured</u> at all river sites exceeds the <u>augmentation trigger</u> flow rates identified under Condition 4; and/or</p> <p>b) the volume of augmentation has reached the maximum volume <del>of take for augmentation</del> for the relevant 12-month period allowed under Condition 2.</p>	
7	<p><del>Subject to the low flow rate at any of the river sites specified in condition 4 being triggered, the consent holder shall discharge augmentation water (sourced from Tranche 2 groundwater authorised by separate consent) at the location specified in condition 5 when, and for the duration that, it is using Tranche 2 groundwater for irrigation authorised by this consent. Augmentation shall cease on the earlier of either the use of Tranche 2 water ceasing or all of the river sites specified in condition 4 increasing above the flows specified.</del></p>	<p>Applies to Tukituki Awa only.</p> <p>I recommend that augmentation requirements apply to this applicant as for the rest of the group.</p>
8	<p>A water meter with a data logger and telemetry unit(s) compatible with the Council's telemetry system shall be installed on each well used for irrigation and/or augmentation prior to the use of the well for those purposes, and be operated and maintained to measure the volume of water taken for each use (<u>augmentation or irrigation</u>) to an accuracy of +/- 5%.</p> <p><u>For augmentation takes, there shall be no water offtakes located between the meter and the discharge point.</u></p>	<p>The addition is to prevent offtakes occurring after measurement of the augmentation rate (eg for stock water).</p>
9	<p>The device(s) required by Condition 8 shall be installed and maintained in accordance with the Council's "Technical Specifications and Installation Requirements for Flow Meters" (February 2010) (See Advice Note I).</p>	
10	<p>Water take and use data supplied to the Council in accordance with conditions of this consent shall be collected by a water measuring device or system that has been verified by a suitably qualified person to be accurate to within +/-5% at that point of take within the following time periods:</p> <p>a) For existing devices or systems: within the previous 5 water years (water year is 1 October - 30th September); or,</p> <p>b) For new devices or systems: before the end of the first water year (ending 30 September) for that water permit.</p>	
11	<p>All water measuring devices or systems shall be re-verified by a suitably qualified person as accurate to within +/-5% within a maximum of 5 years from the date of the previous verification.</p>	
12	<p>Where a portable pump is used to take water as authorised by this consent, both the water meter and telemetry devices must be installed, operated and maintained in accordance with the Council's Technical Publication "HBRCs Requirements for the use of Portable pumps used to report water use" (February 2013) (see Advice Note I).</p>	
13	<p>The telemetry unit(s) shall record the rate and volume of take every 15 minutes. Each 15 minute interval of data shall be date and time stamped with the New Zealand Standard</p>	



	Time at the end of the 15 minute interval. Data shall be transmitted to the Council's telemetry system at least once per day.	
14	The telemetry unit(s) shall be installed so as to provide an accurate record of the flow meter data by a suitably qualified person. A record of installation shall be provided to the Council (Manager Compliance) in writing using the Council's "Telemetry Installation Form" within one week of installation of the new or reinstalled unit(s) having occurred (see Advice Note I).	
15	A manual water meter reading shall be taken during the month of September each year. The water meter reading and the date and time the reading was taken shall be provided in writing to the Council (Manager Compliance) prior to 10 October each year.  <u>Advice note:</u> It is recommended that a photograph of the meter, with the meter reading clearly visible, is also provided at the same time as the reading required by condition 15.	
16	Where the telemetry equipment fails, the consent holder shall notify the Council (Manager Compliance) of the failure within 3 working days, shall read the water meter at daily intervals and shall provide the Council with a record of the following:  <ul style="list-style-type: none"> <li>a) The meter reading (in cubic metres); and,</li> <li>b) The daily volume of water taken (in cubic metres); and,</li> <li>c) The date and time of each reading.</li> <li>d) <u>The use to which the reading relates (eg augmentation or irrigation)</u></li> </ul> <p>This information shall be supplied no later than 7 days after the end of each calendar month. Where the telemetry equipment is returned to full operation, the information shall instead be supplied within 7 days of this return to full operation occurring.</p>	
17	The consent holder shall exclude stock from, and plant appropriate plant species within, the riparian margins of streams that are within the consent holder's landholding to a total stream length that is the lesser of 20% of the total stream length on the consent holder's land holding or 750 linear metres. For the purpose of this condition:  <ul style="list-style-type: none"> <li>a) The 'riparian margins of streams' refers to both sides of the stream unless the centre line of the stream forms the boundary of the landholding in which case the riparian margin that must be planted is the margin on the consent holder's landholding.</li> <li>b) Each metre of riparian planting that is on one side of a stream only shall account for 0.5 of a linear metre for the purpose of meeting the requirements of this condition.</li> <li>c) The width of planting shall be a minimum of 3 metres landward of the edge of the bed unless the stream is already permanently fenced to exclude stock in which case the width of planting shall be the width between the edge of the bed and the existing fencing.</li> <li>d) 'Appropriate plant species' means native species found naturally in the riparian margins of streams in the Ruataniwha Basin and [include native grasses like karetu, as well as harakeke, toitoi, aruhe (bracken fern)]</li> </ul>	

	<p>e) The density of planting shall be no less than 45 plants per 100m<sup>2</sup></p> <p>f) A 'stream' includes any permanently flowing stream with a bed wider than 1m and any intermittent streams that have a bed that is and predominantly devoid of terrestrial vegetation and comprises sand, gravel boulders or similar material or aquatic vegetation that has a bed wider than 1m.</p> <p>g) The 'consent holder's landholding' does not include land that is leased from another party.</p>	
18	<p>The consent holder shall include the riparian planting required in accordance with condition 18 in their FEMP and lodge that updated FEMP with the Council (Manager Compliance) within [24] months of the date this consent is granted. The updated FEMP shall:</p> <p>a. Map, or show on an aerial photograph, the area to be planted; and</p> <p>b. Describe the maintenance programme to ensure the survival and, if necessary replacement, of plants within a 5 year establishment period</p> <p>c. Set out the timeframe within which the planting will occur. This shall commence no later than six months after the day on which Tranche 2 water is used for irrigation by the consent holder and shall be completed within [3] years of commencement.</p>	
19	<p>No use of Tranche 2 groundwater shall occur except in accordance with the conditions set out in a <u>production</u> land use consent and associated farm environment management plan authorising the use of land in conjunction with irrigation of Tranche 2 groundwater.</p>	
20	<p>All works and structures relating to this resource consent shall be designed and constructed to conform to best engineering practices and at all times maintained to a safe and serviceable standard.</p>	
21	<p>The consent holder shall undertake all operations in accordance with any drawings, specifications, statements of intent and other information supplied as part of the application for this resource consent. In the event that there is conflict between the information supplied with the application and any consent condition(s), the condition(s) shall prevail.</p>	
22	<p>Where spray filling and/or fertigation or injection of agrichemicals into the irrigation system (chemigation) is to occur, the consent holder shall ensure that the irrigation system is designed, constructed and maintained in accordance with the Irrigation New Zealand "New Zealand Guideline for the Safe Management of Irrigation Systems with Effluent, Fertiliser and/or Agrichemical Injection" (28/02/14) (see Advice Note VI) and to prevent the movement of contaminants into groundwater or surface water. The consent holder shall provide the details and specifications of the back flow prevention device/system at the request of the Council (Manager Compliance).</p>	
23	<p>If an event occurs on-site that may lead to contamination of groundwater or surface water the Consent Holder shall notify the &lt;insert name of registered drinking water supply&gt; and the Hawke's Bay Regional Council (Manager Compliance) of the event as soon as reasonably practicable after the event occurs.</p> <p><u>Advice Note:</u> Such an event might include for example a chemical or effluent spill. The &lt;name of registered drinking water supply&gt; can be contacted on &lt;insert phone number&gt;.</p>	<p>Council often applies this condition under Regulation 12 of the NES-SHDW when a water take is within 2km of a registered drinking water supply</p>

	The Regional Council 24 hour Pollution Hotline should also be contacted on 0800 108 838.	
24	<p><u>To minimise the risk of contaminants entering groundwater, the consent holder shall:</u></p> <p>a) <u>Ensure that well headworks are constructed and maintained to prevent any leakage and/or movement of water or contaminants between the ground surface and groundwater, and shall ensure that there are no openings through which contaminants might enter the well. This shall include (but not be limited to) ensuring that there are no gaps around any pipework and/or cables at the wellhead.</u></p> <p>b) <u>Ensure that the well is maintained and serviced by a suitably qualified and experienced person at a frequency suitable for ensuring that condition 24(a) is met, and provide records of this maintenance and servicing to the Council (Manager Compliance) upon request.</u></p> <p>c) <u>In the absence of sufficient records to demonstrate to the satisfaction of the Council (Manager Compliance) that condition 20(a) is met, the consent holder, upon request by the Council (Manager Compliance), or at a frequency not exceeding once every five years, shall engage at their cost a suitably qualified and experienced person to inspect and certify that the wells(s) meet the requirements of condition 24(a). The certification shall be provided to the Council (Manager Compliance) within 7 days of its receipt.</u></p> <p><b><u>Advice note:</u></b> <u>For the purposes of this condition, an acceptable “suitably qualified and experienced person” is a professional well driller or well engineer (or equivalent), with demonstrable experience in the field of wellhead security, design, construction and maintenance.</u></p>	Added to ensure well security is maintained

The Council may review conditions of this consent pursuant to sections 128, 129, 130, 131 and 132 of the RMA. The actual and reasonable costs of any review undertaken will be charged to the consent holder, in accordance with section 36 of the RMA. The review may be undertaken in May of any year, for the following purposes:

To deal with any adverse effect on the environment which may arise from the exercise of this consent, which it is appropriate to deal with at that time or which became evident after the date of issue;

To require that the installation and reading of the water-measuring device or water meter data reporting system is consistent with any policies or rules in a regional plan, a National Environmental Standard;

To modify any monitoring programme, or to require additional monitoring if there is evidence that current monitoring requirements are inappropriate, inaccurate or inadequate;

To ensure that the rate and volume of water authorised by the consent, or either irrigation and/or augmentation purposes, is consistent with actual water needs for an efficient take and is physically able to be taken;

To modify or add any condition to ensure that water is allocated in accordance with an operative plan;

To modify and/or add conditions of consent in order to ensure that it is consistent with the operative provisions of a regional plan. This shall include (but not be limited to) conditions specifying any maximum or minimum levels, minimum flows and associated implementation timeframes, and/or abstraction rates or volumes (including allocation limits) (see Advice Note).

To review and amend augmentation requirements and location if information becomes available that indicates that a change to the current augmentation framework is required to address adverse effects on river and stream flows.