

SUMMARY DOCUMENT FOR 24 APPLICATIONS FOR NEW GROUNDWATER TAKES FROM THE AUPOURI AQUIFER.

In the period between February 2018 and August 2019, the Northland Regional Council (council) received 24 applications for new groundwater takes from the deep shell bed aquifer of the Aupōuri Peninsula to service proposed avocado orchards at multiple locations. Table 1 below provides each application number, the applicant's name and the requested volume of water. The **attached** Figure 1 shows the location of each application.

The council considered that further information was required regarding the cumulative effects of the combined applications for the new water takes on both groundwater levels within the aquifer and saline intrusion. The processing time for the applications was extended to allow this information to be provided by Williamson Water & Land Advisory (WWLA), being the groundwater expert acting on behalf of 23 of the 24 applicants. The council contracted an independent groundwater expert, Land Water People, to undertake a peer review of the individual applications and the requested further information, to confirm that the potential adverse effects of the combined applications had been adequately addressed. The applicants also offered conditions of consent and a groundwater monitoring schedule that are based on the recent consents granted by the Environment Court for 17 groundwater takes known as MWWUG.

Based on the information above, the council considers that the potential adverse effects of the 24 groundwater takes on the environment, including saline intrusion and surface water features such as wetlands, will be no more than minor.

However, the combined additional water taken by the 24 applications could potentially lower groundwater within the Aupouri Aquifer to a level that may adversely affect the ability of some people in the area between Ngataki and Ahipara to take water from an existing bore or surface water body. The timing and magnitude of this potential adverse effect will be dependent on bore depth and construction, the nature of the surface water body from where water is being taken, and the severity of any drought that may be occurring.

The Aupouri Aquifer consists of two layers that are generally described as the shallow sand aquifer and the deep shell bed aquifer. Water moves downward between these two layers and any restriction on this movement can influence the level of potential drawdown in each of the two aquifer layers. WWLA have used its model to produce possible worst case (maximum) groundwater level drawdown maps from the combined applications, on top of the existing water takes, during a 1 in 50 year drought. These maps have been **attached** for your information as Figures 2, 3 and 4.

The maps have been produced using two different scenarios named: Scenario 2 (leaky) and Scenario 3 (less leaky). The "leaky" scenario is where there is very little restriction of water movement through the two aquifer layers, whereas the "less leaky" scenario is where there may be a localised anomaly that fully restricts the vertical movement of groundwater in an area. It is very important to note that the Scenario 2 (leaky) drawdown map was produced using a calibrated version of the model and is therefore the most representative of the potential adverse effects that may occur on a regional scale. It would be incorrect to consider the Scenario 3 (low leakage) drawdown map as representative of groundwater drawdown over the entire area. This map has been included though as council has used it as the worst-case scenario in its assessment of affected parties.

The following technical documents that have been provided as part of these applications, and have been used by the council in making its assessments, are available on the Northland Regional Council website page <https://www.nrc.govt.nz/Consents/Notified-resource-consents/>:

- Documents 1 - 24 – Individual application and environmental assessment documents for all applications in Table 1;
- March 21, 2019 - Aupouri Aquifer Model Factual Technical Report – Modelling, WWLA;
- April 4, 2019 - Addendum to Assessment of Effects Reports Pertaining to Aupouri Aquifer Resource Consent Applications Compiled by WWLA;
- May 16, 2019 - Aupouri Aquifer Groundwater Model – Saline Intrusion Assessment for Combined Applications, WWLA

A copy of these documents, including the attached maps, can also be viewed at the following council office:

Kaitiāia Area Office
192 Commerce Street
Kaitiāia

Office Hours 8.30 a.m. – 4.00 p.m.

TABLE 1: Summary of Applications

Note: Applications identified with '**' are for increased volumes from existing consented takes

Map ID	Application Number	Applicant's Name	Daily volume (m3)	Annual volume (m3)
1	APP.039859.01.01	Te Aupouri Commercial Development Ltd	10,735	1,170,000
2	APP.040601.01.01*	Waikopu Avocados Ltd	736	83,360
3	APP.017428.02.01*	Henderson Bay Avocados Ltd	178	45,000
4	APP.040600.01.01	Far north Avocados Ltd	240	32,000
5	APP.041211.01.01	P McLaughlin	700	78,400
6	APP.040121.01.01	NE Evans Trust & WJ Evans & J Evans	1,675	160,000
7	APP.040231.01.01	P & G Enterprises (PJ & GW Marchant)	350	28,000
8	APP.039644.01.01	MP Doody & DM Wedding	2,375	304,000
9	APP.040397.01.01	A Matthews	95	12,000
10	APP.040652.01.01	SE & LA Blucher	720	96,000
11	APP.040919.01.01	NA Bryan Estate, SG Bryan, CL Bryan, KY Bryan Valadares & D Bryan (Property No 1)	500	80,000
12	APP.040979.01.01	MV Evans (Property No 2)	1,125	126,000
13	APP.040558.01.01	MV Evans (Property No 1)	350	36,400
14	APP.040130.01.01	Tuscany Valley Avocados Ltd (M Bellette)	375	36,000
15	APP.040918.01.01	NA Bryan Estate, SG Bryan, CL Bryan, KY Bryan Valadares & D Bryan (Property No 2)	1,000	160,000
16	APP.008647.01.06*	Avokaha Ltd (c/- K Paterson & A Nicholson)	70	5,600
17	APP.039628.01.04*	KSL Ltd (c/- S Shine)	90	3,600
18	APP.040361.01.01	Tiri Avocados Ltd.	3,876	581,250
19	APP.040362.01.01	Valic NZ Ltd	1,158	173,700
20	APP.040363.01.01	Wataview Orchards (Green Charteris Family Trust)	225	33,750
21	APP.039841.01.02	Mate Yelavich & Co Ltd	450	52,000
22	APP.040386.01.01	Robert Paul Campbell Trust	3,350	360,000
23	APP.040364.01.01	Elbury Holdings Ltd (C/-K J & F G King)	1,875	200,000
24	APP.020995.01.04*	Te Rarawa Farming Ltd and Te Make Farms Ltd	10,705	776,000
		Total	54,886	6,230,662

Figure 2. Shallow aquifer drawdown for Scenario 2 (leaky)
 i.e. worst case scenario for shallow aquifer

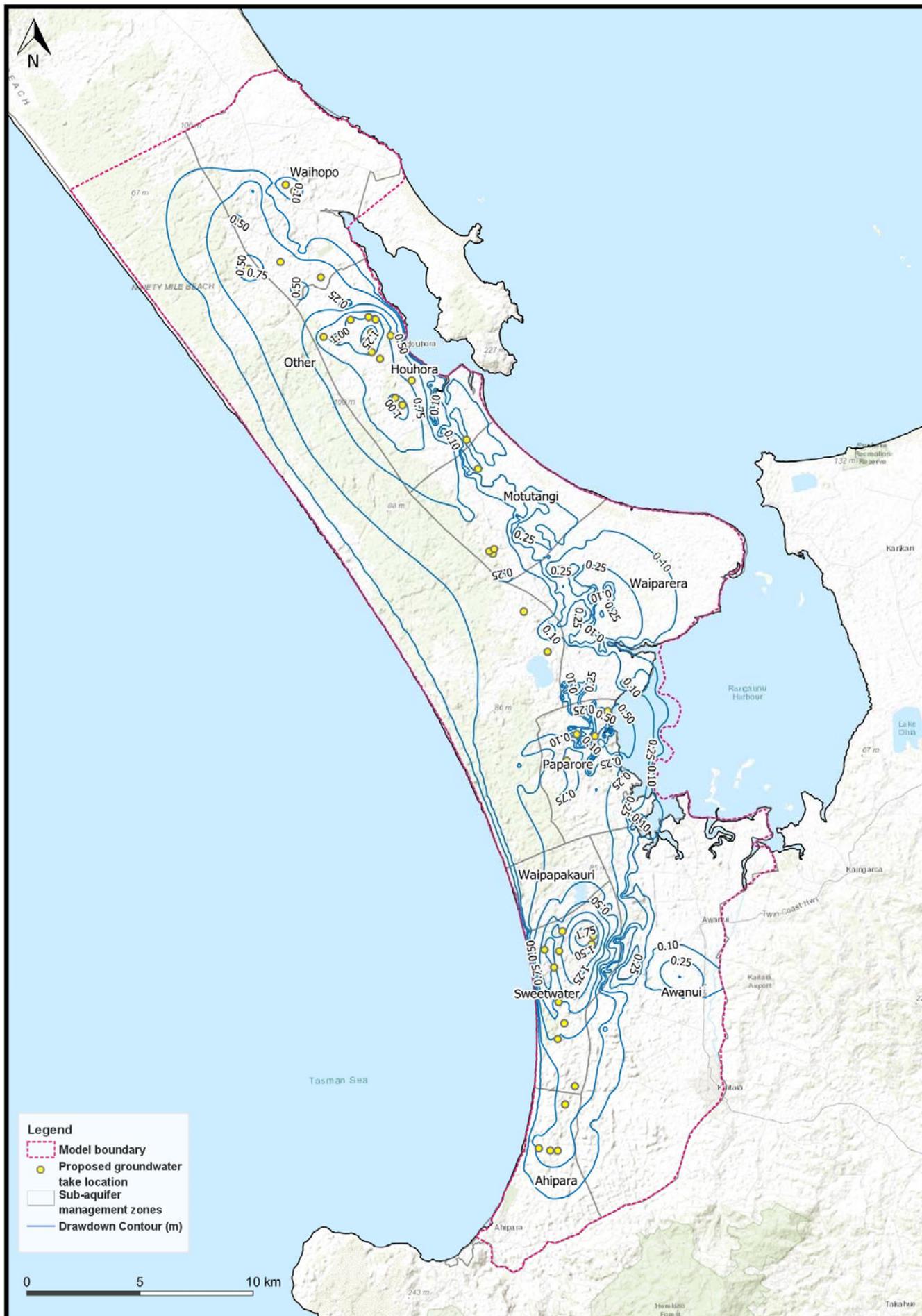


Figure 3. Deep aquifer drawdown for Scenario 2 (leaky)

Most likely drawdown effects. This Scenario has been calibrated with actual groundwater data.

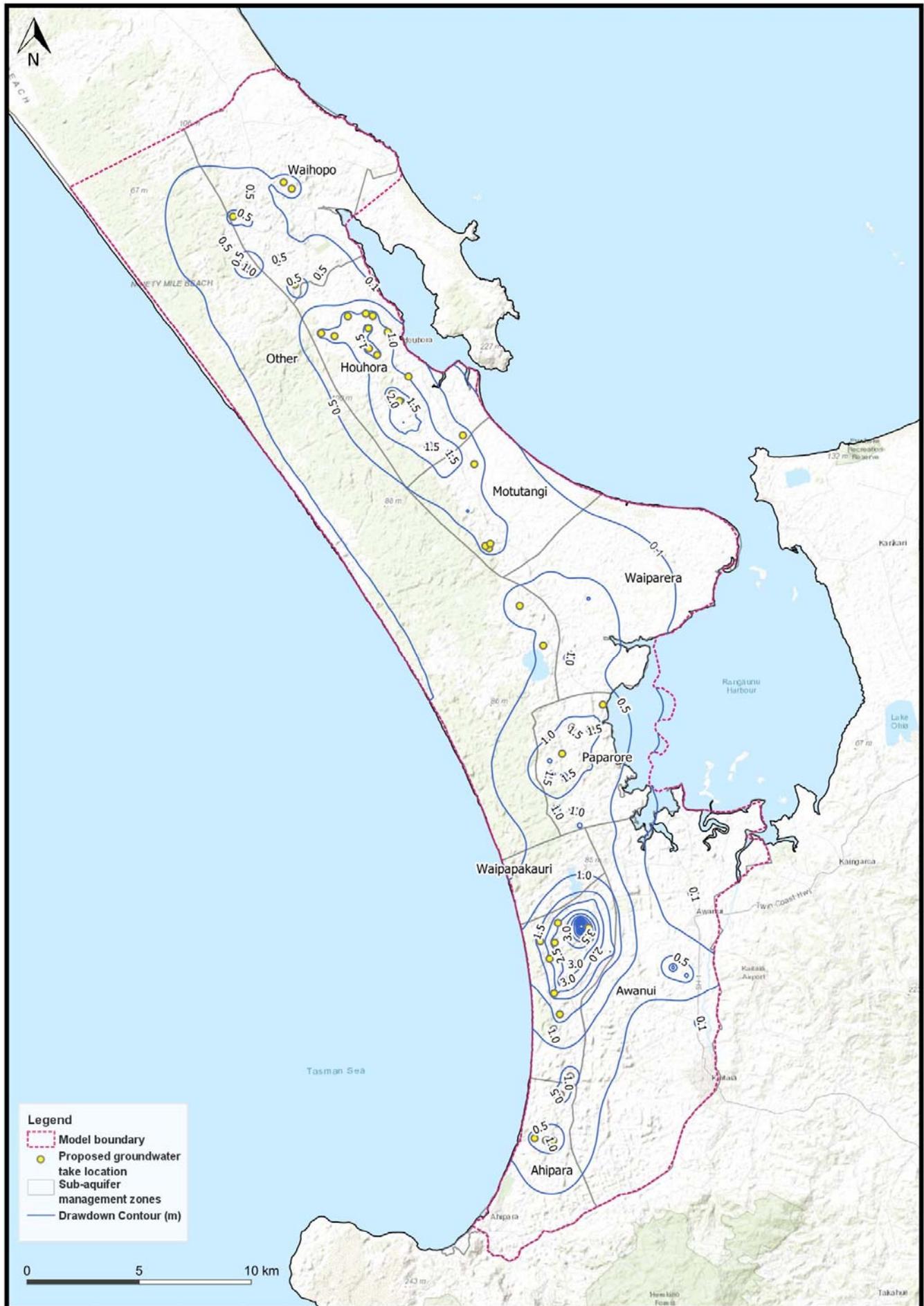


Figure 4. Deep aquifer drawdown for Scenario 3 (least leaky)

Worst case scenario, to show potential drawdown in locations where there may be a localised anomaly such as an impermeable hard pan limiting vertical recharge in a particular area. Not accurate for entire aquifer, but has been used for notification purposes.

