KSL
Kōmanawa Solutions Ltd

Bendigo-Ophir Gold Project - Matakanui Gold Ltd 17 August 2026

Report No: Z24002BOG-4

Report on Compliant Aquifer Test at BOGP Water Supply Bore Field

Kōmanawa:

1. ***(verb) spring, well up (of water)***
2. ***(verb) to spring, well up (of thoughts, ideas)***

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Version control

Date	Report no	Issue notes
8/08/2026	Z24002BOG-4_Rev0	Initial draft written by Jens Rekker
14/08/2026	Z24002BOG-4_DFC	Draft For Client, by Jens Reker
17/08/2026	Z24002BOG-4_Final	Final version of report.

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Executive Summary

The Fast Track Panel convened to consider and decide on Matakanui Gold Ltd's (MGL's) application for to establish, operate, and remediate an open pit and underground gold mine at Bendigo, issued a specific further information request (RFI 11, 25 June 2026) as follows:

6. In order to understand the potential effects on other users of the aquifers, please provide the results of a compliant bore pump test for the Bendigo aquifer.

The aquifer test information within the substantive application was limited to a 48-hour constant rate test undertaken in July 2024 at a rate of 20.7 litres per second followed by an 8-hour step rate test at rates up to 100 litres per second. These July 2024 pumping tests determined the fundamental aquifer parameters of transmissivity and storage coefficient. However, the Panel found these elements of aquifer testing non-compliant with the Otago Regional Council (ORC) guidelines on the undertaking of aquifer tests in support of applications for groundwater takes. This resulted in the panel requesting a compliant pumping test as noted above. The primary part of aquifer testing falling short of the ORC guideline standards was the constant rate test, which reviewers considered too short in duration and with low pumping rates substantially below the 110 litres per second application rate specified in the FTAA applications.

MGL applied for and was granted a temporary groundwater take consent by ORC on 13 July 2026, authorising an extended period pumping test up to 110 litres per second for up to 21 days. On 24 July 2026 MGL began a constant rate aquifer test at a mean rate of 97.1 litres per second using the combined pumping of the existing 400 mm diameter test bore (at up to 80 L/s) and a former observation bore of 150 mm diameter (at up to 18.7 L/s). This two-bore configuration was employed due to the need to spread dynamic drawdown for a six-day aquifer test. The test was operated for six days of continuous pumping at the conclusion of which surrounding groundwater levels largely stabilised as monitored at two observation bores in the localised drawdown zone plus a more distant regional council monitoring bore also in the Bendigo Aquifer. Overall, this constant rate test was compliant with the ORC aquifer testing guideline. However, it should be noted that the aquifer test as designed and operated averaged 97.1 litres per second and could not achieve 110 litres per second with available pumping bores.

The resulting aquifer test data allowed the analysis of the constant rate test using the best observation bore, Obs-2 within the drawdown and recovery phases. These analyses indicated a transmissivity of 4,100 m^2/d and specific yield of 0.12 – 0.14. Allied Theis recovery analyses using the residual drawdown at the principal pumped bore (PB-1) indicated transmissivities in the range of 5,300 to 5,500 m^2/d, which may be values influenced by far-field aquifer conditions.

The apparent establishment of quasi-steady state drawdown conditions allowed Thiem – Dupuit analyses for the estimation of aquifer transmissivity and the radius of influence for the MGL bore field operating at a mean rate of 97 litres per second. The transmissivity thus derived ranged between 4,900 m^2/d and 5,250 m^2/d, depending on the steady state corrected drawdown selected. Furthermore, a radius of influence of 1,060 metres was estimated from the semi-logarithmic radial distance – drawdown plot, which touches the till and schist rock margins of the Bendigo Aquifer. It was also suggested in conclusion that assessments of drawdown effect on surrounding bores should use a transmissivity of 4,100 m^2/d and specific yield of 0.15 (15%).

This report relies on the following 1 September 2025 reports specifically commissioned for the Bendigo – Ophir Gold Project:

- Bendigo–Ophir Gold Mine Project – Bendigo Groundwater Bore Take Effects Assessment, Kōmanawa Solutions Ltd (B.02).
- Surface Water & Catchment Existing Environment & Effects Assessment, Kōmanawa Solutions Ltd (B.03).

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1 Background

Matakanui Gold Ltd (MGL) made its application to the Fast Track process in November 2025. The EPA received the application and a Panel was convened under the Fast-Track Approvals Act 2024 (FTAA). The Panel thus began processing MGL's application to establish, operate, and remediate an open pit and underground gold mine at Bendigo. On 25 June 2026, the Panel made a request under Section 67 of the FTAA for information from MGL in relation to the Bendigo-Ophir Gold Project (BOGP). Under the subject area of Water, the Panel issued a specific request as follows:

> *"6. In order to understand the potential effects on other users of the aquifers, please provide the results of a compliant bore pump test for the Bendigo aquifer."*

The background to this above request is as follows:

In May 2024, MGL applied for bore consent applications to Otago Regional Council (ORC) for the installation of a single observation bore and a test production bore. These were subsequently drilled within the Bendigo Aquifer and installed in late June and early July 2024, respectively. MGL calculated its future water requirements from the two bores planned for the project's supply bore field, which equated to 97 litres per second, while the estimated water take consent envelope was 110 litres per second or 100 litres per second equivalent on an annual basis.

ORC allows the taking of 2 megalitres (2,000 cubic metres) per day for three consecutive days within a permitted activity rule for "down-hole testing" related to drilling and water bores. MGL wished to operate aquifer testing to support groundwater effects assessment within the aforementioned permitted activity rule and avoid the need to make an application for a groundwater take consent before its intended application under the foreshadowed FTAA (passed into law later in 2024).

ORC outlines the role of aquifer testing in the Regional Plan: Water as a means of determining relevant groundwater parameters of Transmissivity and Storage Coefficient within policy, Schedule 5 and explanatory notes within the plan. The parameters are subsequently employed to calculate well pumping drawdown or well pumping surface water depletions as outlined in Schedule 5 of the Regional Plan: Water. Kōmanawa Solutions ("Kōmanawa") reasoned that aquifer testing that accurately derived the parameters while observing the volume restrictions of the permitted activity rule would conform with the Water Plan. Kōmanawa developed a process utilising a step rate test that achieved a peak pumping rate of 100 litres per second and a constant rate test that observed the 23.1 litres per second constant pumping limit within the permitted activity rule conditions. These tests would thus derive the requisite parameters while also demonstrating the pumping capacity of the test production bore (well number CB13/0215). The tests were undertaken in July 2024 and the detailed in the substantive application technical documentation (file B.02) attached to the Fast Track applications.

However, ORC had also developed aquifer testing guidelines outside of the policies, schedules or explanatory notes of the Regional Plan: Water. Neither of the two guidelines was dated but the later of these specified that the constant rate test must be operated at 100% or more of the proposed peak pumping rate and be run for at least 72 hours while being observed by at least two observation bores. Once the Bendigo – Ophir Gold Project substantive application technical documentation was reviewed by ORC, it was clear that the supporting aquifer tests did not conform with the ORC aquifer test guidelines. This lack was covered in several correspondences and workshops, including the expert hearing of 8-19 June 2026. Soon after the 19 June 2026 hearing on groundwater, the Panel made a further information request (RFI) for a 'compliant aquifer test' as outlined below the first paragraph above. This request is interpreted as an aquifer test of the Bendigo Aquifer in the direct vicinity of the proposed mine water supply bore field so designed as to be compliant with the latest ORC aquifer testing guidelines, namely a step drawdown test and constant rate test at pumping rates consistent with the rates of extraction proposed.

2 Preparations for Aquifer Testing

2.1 Existing Aquifer Testing Assets

In June and July 2024 a single observation bore and a test production bore, respectively, were installed near the Santana Minerals' exploration base at 305 Bendigo Loop Road, Bendigo. Table 1 outlines the details for these aquifer testing assets still available from 2024.

Table 1: Summary of bores installed at the proposed mine water supply bore field in June and July 2024

Bore Label (and ORC Well Record Number)	Depth (m BGL)	Main Casing Diameter (mm)	Initial Manual Depth To Water (m ToC)	Screen Length (m)	Tested Specific Capacity [short-term] (L/s/m)	Radius [Distance from centre of PB] (m)
PB-1 (CB13/0215)	42.5	400	20.96	6	10.1	0.2
Obs-1 (CB13/0216)	42.2	150	20.62	3	3.3	13

Notes: PB= Pumped Bore, Obs-# = observation bore and its number, BGL = with respect to Below Ground Level, ToC = with respect to Top of Casing, L/s/m = units of litres per second per metre of drawdown i.e., a specific capacity.

Pumped groundwater was conducted away from the bores to the west (down-gradient) and discharged to land during the July 2024 pumping tests.

2.2 Additional Aquifer Testing Assets

A groundwater take application was made in late June 2026 and granted on 13 July 2026. The terms and conditions of the short-term groundwater take consent (RM26.356.01) can be summarised as follows:

- Groundwater must not be taken at a rate that materially exceeds 110 litres per second,
- The constant rate discharge test must not exceed a duration in excess of 14 consecutive days,
- The Consent Holder must undertake the step test and the constant rate discharge test (the aquifer tests) in a manner that meets the minimum requirements set in the Otago Regional Council Aquifer Test Guidelines.

These limits and requirements allowed a compliant aquifer test to be undertake in a lawful manner.

2.2.1 Additional observation bores

Additional observation bores at greater distance than the 13 m distance of Obs-1 (CB13/0216) were required to observe the planned multi-day, high capacity aquifer test. MGL applied for land use consent to install two observation bores on 3 July and were granted consent on 9 July 2026. The observation bores were drilled to 42 metres depth, the same depths as other bores in the area, on 15 and 16 July 2026 making them available for aquifer test observation.

2.2.2 New Bendigo Creek pump discharge

During the July 2024 aquifer tests pumped groundwater was conducted away from the bores to the west (down-gradient) and discharged to land. Commitments in the 2026 groundwater take consent for the avoidance of erosion or turbidity compelled the choice of a new test discharge system. Therefore, a discharge zone for pump discharge was established as armoured rip-rap cobbles in the bed of Bendigo Creek. The discharge zone was connected with the site of bore pumping by two 250-metre-long pipelines compromising 'lay-flat' hose lain over the land surface. A geotextile was lain across the creek bed surface and two tonne of coarse cobble rip-rap was lain over the discharge zone. Discharge pipe(s) were directed into the discharge zone.

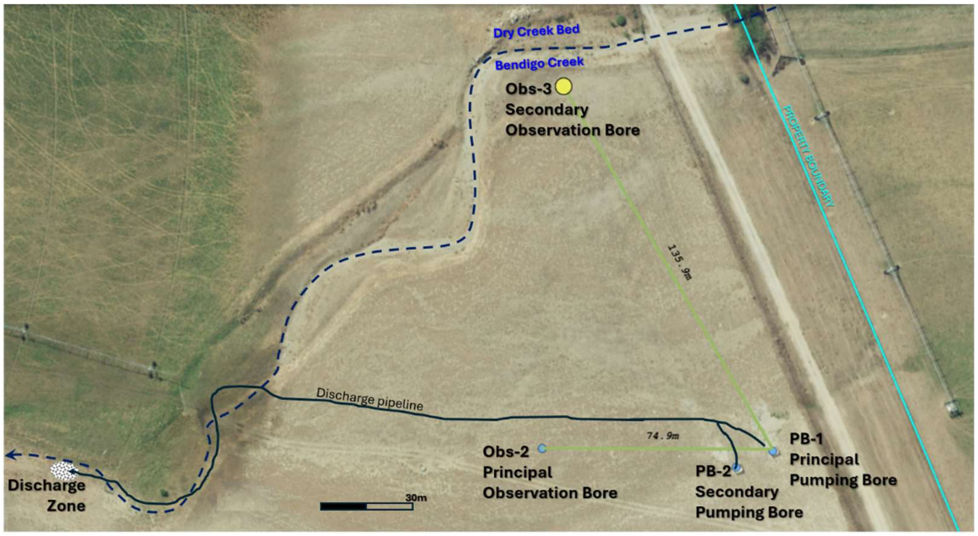

Figure 1: Layout of July 2026 aquifer test site, including pumped bores, discharges & Bendigo Creek

2.2.3 Multi-day bore pumping capacity

The 2024 step drawdown test that indicated a test production bore (CB13/0215) capacity from 90 - 100 litres per second, averaging 95 litres per second over 2 hours and 9.4 metres of drawdown. However, for a multi-day pumping test at rates between 90 and 110 litres per second would impose greater long-period dynamic drawdown than could be sustained by the existing test production bore.

In response to the capacity gap of the existing test production bore and the requirement for an aquifer test to be run at pump rate range between 90 – 110 litres per second, the pumping capacity of the existing Obs-1 (CB13/0126) observation bore was added to create a bore pumping centre. Fortuitously, this nearby bore was constructed at 150 mm diameter and had been fitted with a three-phase, multiple pump bowl submersible pump providing a capacity to pump 15 – 20 litres per second. This auxiliary pumped bore was subsequently labelled PB-2. Thus the test production bore and original observation bore could be combined to have a longer term pumping capacity reaching 100 litres per second.

3 Process of Aquifer Testing

3.1 Step Rate Test

An initial step drawdown test (also known as a step rate test) was undertaken on Tuesday 21 July 2026. The test was undertaken was three hours, forty-eight minutes in duration with four steps between 41.3 and 88 litres per second, as listed in Table 2. Its purpose was to characterise the safe test pumping capacity of PB-1.

Table 2: Summary of 21 July 2026 Step Rate Test Steps & Pump Rates of PB-1

Step No.	Interval (min)	Duration (min)	Mean Rate (L/s)	Step Rate Change (L/s)
Step-1	1 - 48	48	41.3	+41.3
Step-2	49 – 108	60	59.5	+18.2
Step-3	109 - 168	60	80.0	+20.5
Step-4	169 - 228	60	88.0	+8.0
Recovery	228 – Rec	_	0	-88.0

The last step was judged to be the highest stable flow rate at a rate of 88 Litres per second. As context to the estimate of bore capacity, ten minutes of pumping at a measured rate of 102 litres per second the preceding day (Monday 20 July) led to incipient vortexing with a risk of the submersible pump sucking air. Therefore, 88 litres per second was judged to be the peak step rate pumping test flow rate that remained stable. For a multi-day constant rate test, a flow rate of 80 litres per second was nominated as a safe maximum rate allowing the test to be undertaken without risk of the pump unit being affected by vortexing and/or loss of yield.

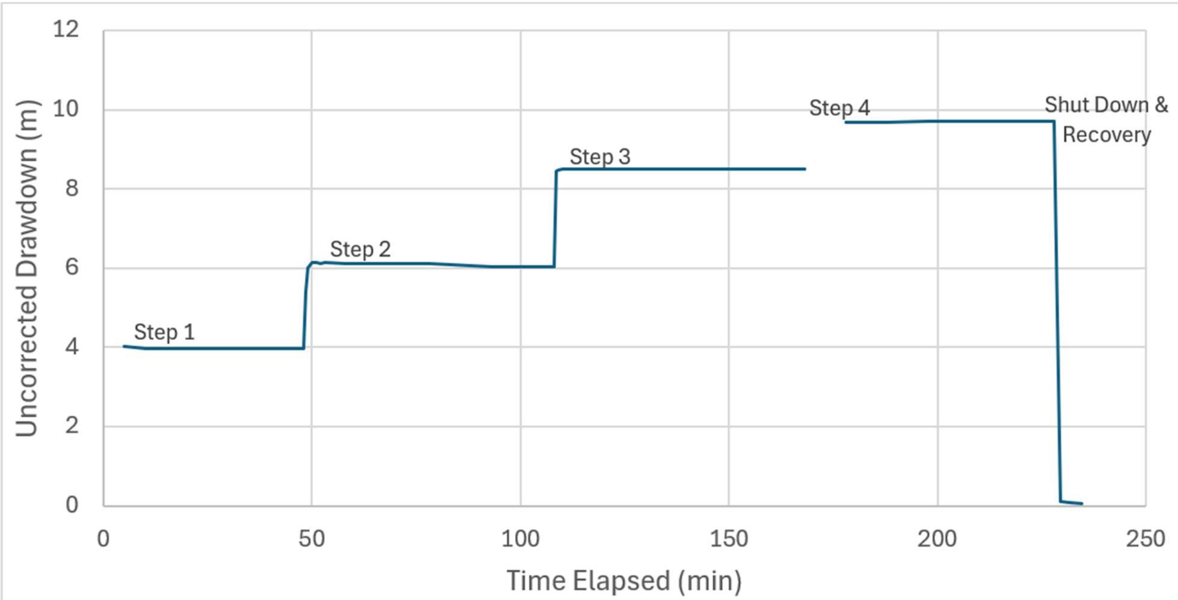

Figure 2: Plot of step rate test (SRT) drawdown measured in the pumped bore; PB-1 (CB13/0215)

A superior step test was undertaken on the test production bore 25 July 2024. The more recent step rate test in July 2026 was intended largely to check the operation of electrical generator, submersible pump, flow meter, discharge pipeline and discharge zone. Following the July 2026 step rate test, MGL decided to proceed with combining pumping from the 400 mm production bore and nearby 150 mm observation bore as a two-bore pumping centre for the constant rate aquifer test.

3.2 Constant Rate Test

3.2.1 Compliant constant rate test criteria

The ORC aquifer test guideline lists the fundamental requirements for a constant rate bore tapping an unconfined aquifer as follows:

> **Unconfined aquifers:** water levels must be monitored in the pumped bore AND at least two more observation bores located within the area of localised drawdown and screened in the same aquifer as the pumped bore.

Further requirements can be summarised as follows:

- Groundwater levels at surrounding observation bores, and opportunistic surrounding bores or piezometers must be recorded at a frequency appropriate to the needs of later curve fitting, and if automated preferably at 1 minute intervals,
- In order to adequately stress the aquifer, the highest feasible pumping rate, the constant rate test should be run at 100% of the proposed rate,

- Atmospheric (or barometric) pressure should be measured during the pumping test to assess the effect of barometric influences on groundwater level,
- Special attention should also be paid to the immediate period after turning off the pump, monitored in pumped bore and observation bores for the possible use in curve fitting with data analysis, and
- The discharge of pumped water from the test needs to occur outside the zone of pumping effects[1].

3.2.2 Implemented constant rate test elements

The following elements were implemented, as summarised in Table 3.

Table 3: Summary of constant rate test elements as implemented

Consideration	Element Implemented	Remarks
Aquifer Type	Unconfined	Aquifer pressure status well accepted
Pumping rate	A steady pumping rate of 97.1 L/s	Maximum achievable for a six day test
Monitoring of pumped bores	Manual and electronic level recorded implemented in pumped bores.	High frequency LevelScout loggers installed and set to 1 minute intervals
Observation Bores	Two observation bores (Obs-2 and Obs-3) are located within the localised drawdown zone and Bendigo Aquifer, both fitted with LevelScouts	High frequency LevelScout loggers installed and set to 1 minute intervals. Short transducer range (5 m) for higher precision utilised in observation bores
Opportunistic groundwater level logging	The ORC groundwater level monitoring bore utilised	SOE aquifer water level monitoring at CB13/0159, maintained by ORC
Atmospheric (or barometric) pressure monitoring	A BaroScout deployed at test site	Cromwell climate site barometric record also available
Ambient & Recovery groundwater level monitoring	Four groundwater level monitoring loggers deployed within the localised effect zone, plus ORC level monitoring on Bendigo Loop Road.	Three days before and three days after constant rate test
Discharge management	Water conveyed at least 250 metres downstream and cross-gradient in pipelines	Groundwater pumping volumes conveyed to the bed of Bendigo Creek flow energy dissipated at rip-rap zone.

Overall, the implemented constant rate aquifer test conformed with the requirements of the guidelines. The main area of departure is that of maximum sustained pumping rate during the multi-day aquifer test. MGL's application specifies a daily rate in equivalent litres per second units of 110 L/s. During the July 2026 testing the use of portable generators / pumps, plus the nearby observation bore were required to be harnessed to develop constant pumping rate of 97.1 L/s. The taking of 110 L/s in a sustained fashion will only be feasible once the second production bore of the proposed bore field is installed and powered.

[1] Pumped groundwater can be diverted to a drain, water race or surface water body that is not hydraulically connected to the pumped aquifer. The objective is to avoid the discharged groundwater affecting the height of the water table or groundwater pressures and thus influencing the water level measurements used in aquifer test analysis.

The pumped groundwater discharge was conducted away from the pumped and observation bores by a distance of 250 metres from the pumping centre to the bed of Bendigo Creek. The bed of Bendigo Creek was dry throughout the period of constant rate test pumping (24-30 July) other than the discharge of 97 litres per second of groundwater. Little if any natural, upstream Bendigo Creek flow extended over the Bendigo Loop Road ford approximately 1.5 kilometres upstream of the aquifer test site during the test period. Bendigo Creek loses water to the underlying regional water table that is a vertical distance of 20 – 25 metres beneath the creeks bed. The hydrogeological assessment is that the creek bed infiltration may induce a water table mound, but the mounding would be at a remove and have little potential of interfering with the test-induced drawdown.

The following justifications for the discharge practices are provided:

- The thick unsaturated zone comprising at least 20 metres of dry gravels would absorb much of the infiltrating discharge water,
- The infiltrating discharge water would be drawn out in a thin line beneath the wetted course of Bendigo Creek course, approximately a few hundred metres, thus minimising the height of any water table mounding,
- The closest part of the discharge zone is cross-gradient and partially down-gradient therefore with little potential for water table mounding to affect the closest observation bore (Obs-2), and
- The pumped groundwater would return to the Bendigo Aquifer rather than flow out directly to Lake Dunstan thereby retaining the groundwater within Bendigo Aquifer storage.

3.2.3 Summary of constant rate aquifer test

A constant rate test of the 400-millimetre and 150-millimetre pumped bores was commenced at 11:00am on Friday 24 July 2026 and run for 144 hours (8,640 minutes) averaging a pumping rate of 97.1 litres per second. The constant rate test (CRT) was also observed within the two pumped bores and two the observation bore; 75 m and 136 m distant from the bore pumping centre. A more distant regional council monitoring bore (CB13/0159) was also available for use in the drawdown analysis.

3.2.4 Drawdown and Recovery Phase Responses

The pumped bores responded instantaneously to the onset of pumping with an average rate of 97.1 litres per second, and the observation bores responded two minutes later. The level transducers in the pumped bore and observation bore supplied by SouthDrill used the Seametrics LevelScout units with 20 and 5 metre measuring range for the main pumped bore and observation bore, respectively. The LevelScouts have a precision of 0.05% of full measuring range, meaning that the measurements were accurate to within 10 mm to 2.5 mm for the 20 metre and 5 metre range transducers, respectively. Manual dipping has a precision of approximately 0.01 m (or 10 mm) but requires a testing technician to be on-site to take measurements. Summary information on the level and pump rate measurements are supplied in Table 4 and Table 5, below.

Table 4: Summary of Different Down-Hole Water Level Measurement Systems

	Frequency	Sites & Duration
Manual dipping	As required, as frequently as a half minute	In test bores, before, during and after the CRT
Van Walt LevelScouts (loggers)	1 minute	In test bores from 17 July to 4 August

The LevelScout transducer – loggers were installed in the pumped bores and observation bores on 17 July 2026, allowing a minimum three-day period of ambient water level recording prior to initial test CRT pumping on 24 July 2026. The headline results of the constant rate test are summarised in

Table 6.

Table 5: Summary of Pump Rate Metering

	Frequency	Sites & Duration
South Drill's Flow Meter	Observation and manual recording (no auto logging) Readings of the initial and final meter total also made	In test pumped bores while testing, during SRT and CRT.

Table 6: Manually recorded Depths to Water, Drawdown and Specific Capacity for 144-hour CRT (Uncorrected)

Bore Label (and ORC Well Record Number)	Initial Manual Depth To Water (m ToC)	Mean Pump Rate (L/s)	Final Manual Depth To Water (m ToC)	Drawdown (uncorrected) (m)	Specific Capacity (L/s/m)
PB-1 (CB13/0215)	20.81	78.7	30.40	9.6	9.45
PB-2 (CB13/0216)	20.47	18.4	27.67	7.2	2.55
Obs-2 (CB13/0262)	20.10	_	20.69	0.59	_
Obs-3 (CB13/0263)	20.08	_	20.49	0.41	_
Combined	_	97.1	_	_	_

Note: ToC = with respect to or below Top of Casing. L/s/m = litres per second per metre of drawdown. PB = Pumped Bore. Obs = Observation bore. Mean pumping rates for each pumped bore can be seen from flow meter data in Appendix 5.

3.2.5 Sources of Water Level Interference during Constant Rate Test

3.2.5.1 Rainfall During Aquifer Test

At the nearby Cluden Stream at Stockyards (20 km to the northeast of the test site) hydrological station, relatively light rainfall was recorded on the night of 25-26 July 2026. Otherwise, the aquifer testing period was almost free of rainfall.

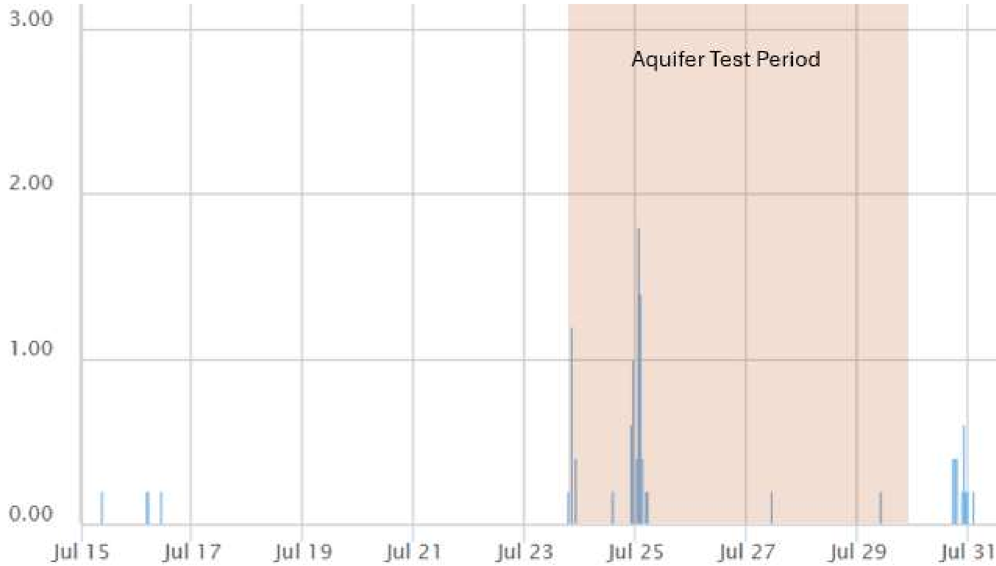

Figure 3: Measured 15 minute rainfall tips at Cluden Stream rainfall recorder, including test period

MGL's weather station at Lake Clearview 3 km from the test site recorded 2.2 millimetres, shown in Figure 4, falling throughout the full aquifer test pumping period following a prior period of less than 0.5 millimetres of rain for up to a week prior to testing. The day after the cessation of pumping a further 1.6 millimetres fell within the recovery period. For the whole period of 15-31 July only 4.8 millimetres of rain fell. Such a low magnitude of rainfall falling onto the thick unsaturated zone above the Bendigo Aquifer regional water table would be highly unlikely to induce short- or medium- term water table rise.

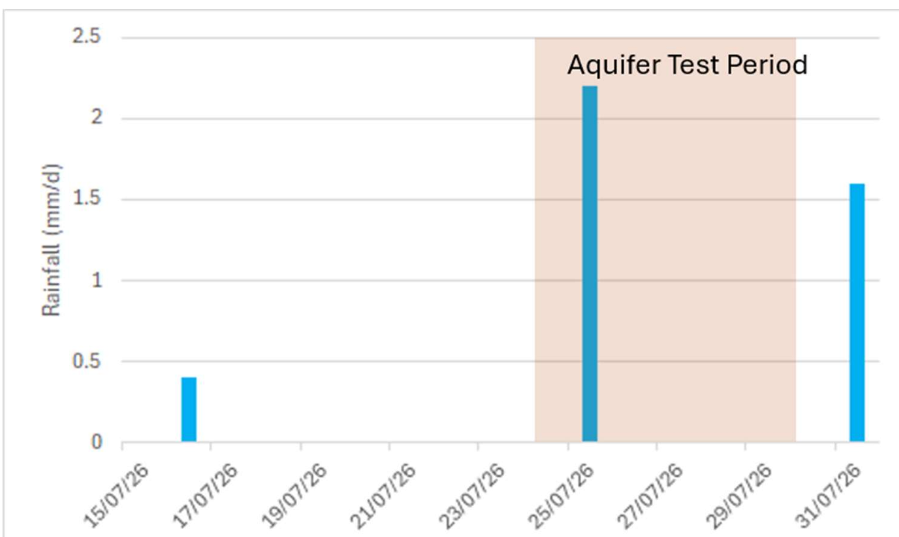

Figure 4: Daily rainfall totals at Lake Clearview to illustrate total rain falling the period

3.2.5.2 Lake Dunstan during Aquifer Test

The head of Lake Dunstan touches the southwest edge of the Bendigo Aquifer at Crippletown.

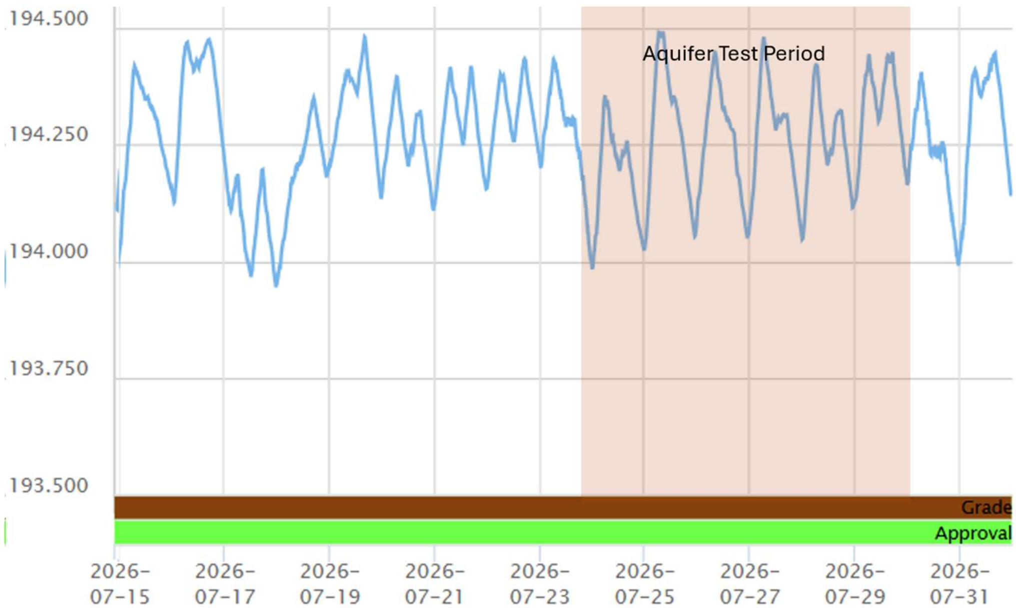

Figure 5: Measured 15 minute lake level measurement trend at Deadmans Point, including test period

Lake Dunstan varied between 194.0 m and 194.5 m AMSL across the aquifer test period. A median lake level of 194.3 m AMSL prevailed across much of the test period. The daily hydro-electric generation lake level cycles that these variations were bracketing would have been almost self-cancelling across the longer period of the test and the relatively long distance of 1.7 km between the aquifer test site and the lake.

3.2.5.3 Clutha River / Mata Au River Stage

The Clutha River is influential in the groundwater levels measured within the Bendigo Aquifer.

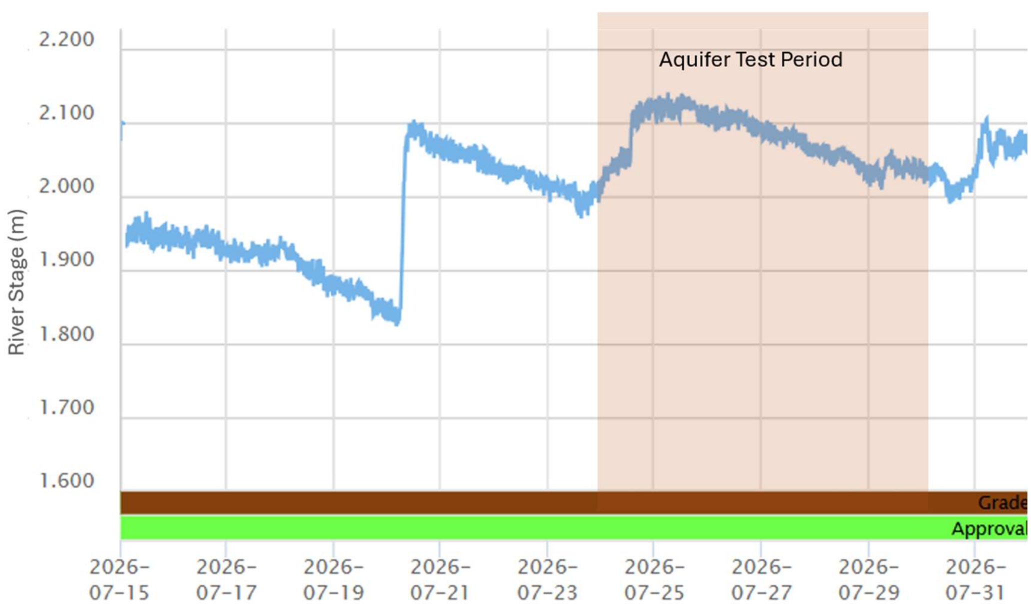

Figure 6: Measured 15 minute river stage at Cardrona River Confluence, including test period

Figure 6 plots relates to the Clutha River / Mata Au downstream of the Cardrona River Confluence, upstream of the test site. The river stage at the Cardrona confluence will have some resemblance to the river stage applied to the river channel downstream alongside the Bendigo Aquifer. The comparable Clutha River / Mata Au river flow at Cardrona River Confluence is plotted Figure 7.

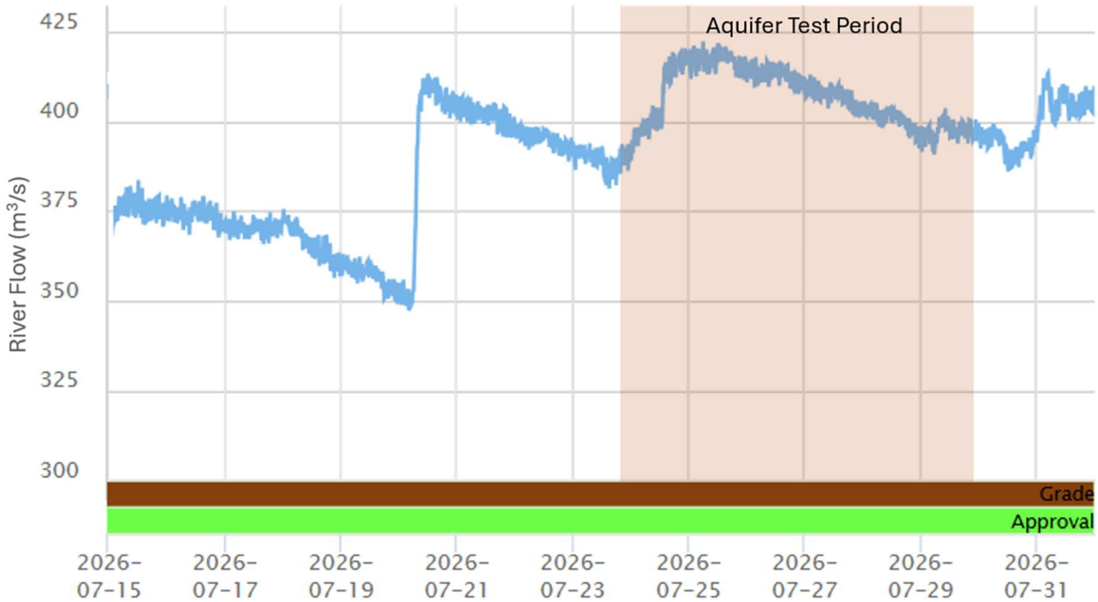

Figure 7: Measured 15 minute river flow at Cardrona River Confluence, including test period

A flow variation of only 40 cumecs was exerted across the pre-test, test and post-test period. In addition, the last hydro-electric system step in flow was during 22 July, therefore not potentially affecting water levels within the aquifer at Bendigo.

3.2.5.4 Groundwater Pumping

The Bendigo Aquifer has a measured mean depth of 33 m, and a mean depth to the water table of 12 m below ground level (BGL). Approximately 30 production bores are scattered across the surface of the Bendigo Aquifer. The aquifer has some of the highest well yields of aquifers in the Otago region comparable to the Hāwea groundwater basin, up to 120 litres per second per individual bore. The mean aquifer depth and depth to water table across the test site is 41 metres and 20.5 metres, respectively.

Volumetrically, irrigation of pasture and horticultural or viticultural plantings are the dominant uses of water in the Bendigo district. The district is lightly populated, so the domestic and drinking water demand is similarly lightly distributed, but the availability of groundwater from bores is highly valued by the district's inhabitants.

The period of the six-day aquifer test was in late July, a period in which:

- Irrigation pumping is typically not required to meet soil moisture plant growth and/or precluded by the conditions of the groundwater take consents.
- Frost-fighting water pumping is not required and/or precluded by the conditions of consent in July.
- Other lawful uses of groundwater such as stock water or domestic water with or without water take consent are typically at very low rates of utilisation, typically 1 – 2 litres per second.

Accordingly, the ambient groundwater levels measured outside the period of aquifer testing contained no sign of neighbouring groundwater pumping effects on water levels. Such pumping effects would typically manifest as scalloped declines and recovery of groundwater level as the more distant bores are turned on and off.

As a result, no corrections for external pumping effects were required.

3.2.6 Removal of Ambient Trend

In the analysis of ambient groundwater level trends prior to aquifer testing, it became clear the ambient trend was a simple rise as plotted in Figure 8, below:

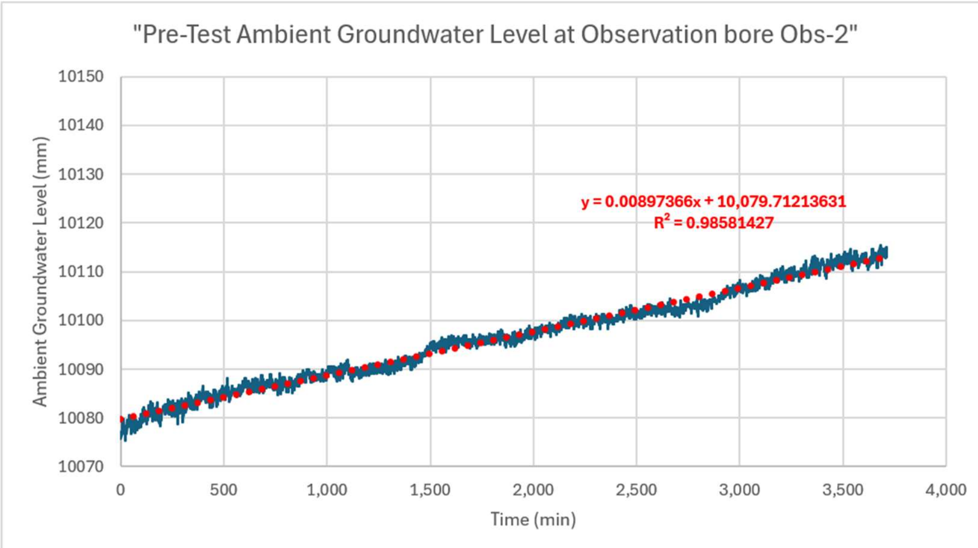

Figure 8: ORC monitoring bore CB13/0159 groundwater ambient level trend preceding the CRT test

Ambient groundwater level rise in the aquifer test observation bore shown in Figure 8 was measured from 17/07/2026 1:35am to 20/07/2026 3:26am and averaged 15 millimetres per day. Observed medium term water level rise was removed from the measured pumping affected drawdown data for Obs-2 and Obs-3 by simple subtraction.

Otago Regional Council (ORC) maintains a State of the Environment (SOE) water level monitoring bore in the Bendigo Aquifer CB13/0159 (located 875 metres to the northeast). Examination of the ambient bore water level prior to the start of constant rate pumping indicated that a steady rise in background groundwater level. The inferred rate of rise for the entire period from 19/07/2026 11:00am to 24/07/2026 11:00am averaged 7.3 millimetres per day. This observed medium term water level rise was removed from the measured pumping affected data for the ORC monitoring record.

The upward trend in groundwater levels is shallow but consistent. The trend could be readily fitted with regression correlation line of best fit. The overall regression correlation coefficient (R^2) was 0.98, implying a high level of correlation predictivity. Consequently, the regression correlation could be modelled forward beyond the start of the constant rate pumping test as a representation of the ambient groundwater level as if the pumping test was not exerting a water level decline. The shallow and consistent rise in groundwater is likely the aggregate of quantitative influences on the southeast portion of the Bendigo Aquifer. The volumetric balance of these influences is likely to be sources of recharge accruing in the late winter period, including Bendigo Creek infiltration and soil drainage.

3.2.7 Correction of Electronic Water Level Data

Corrections were made to the pumping phase and recovery phase water level measurements in the bore site water levels to remove the external influence of this antecedent, background trend. These corrections resulted in adjusted final drawdowns of the pumped and observation bores.

The water level response in both bores was initially rapid but thereafter manifested a relatively low gradient of increasing drawdown over 144 hours (see Figure 9).

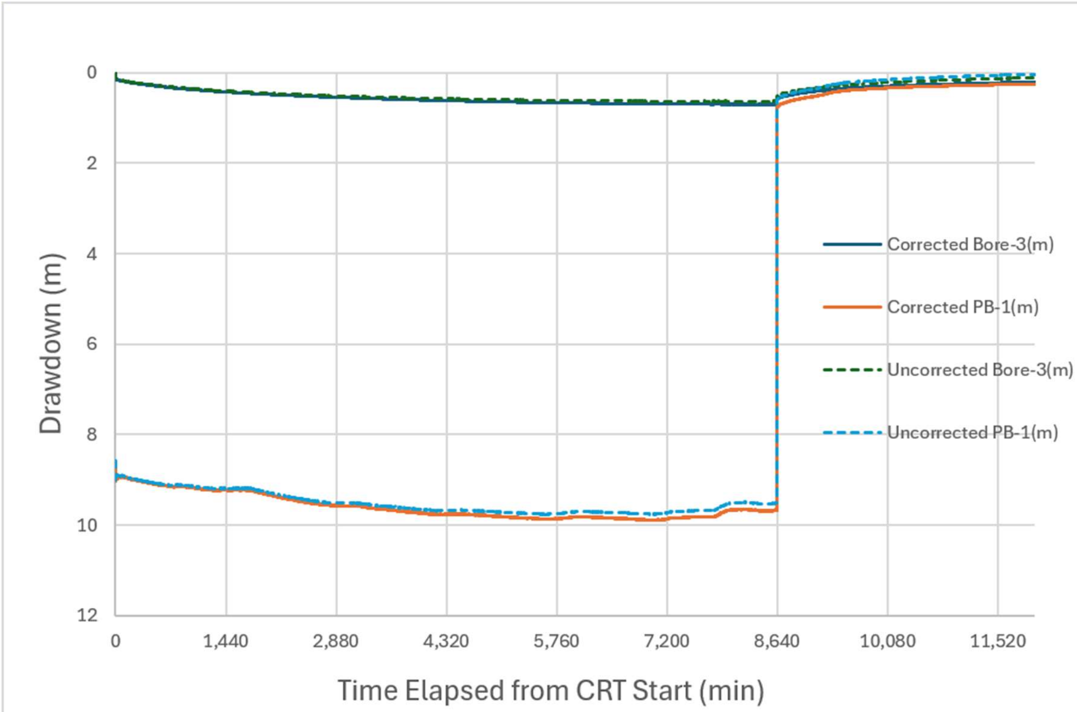

Figure 9: Pumped bore and observation bore corrected and uncorrected drawdown responses during the CRT

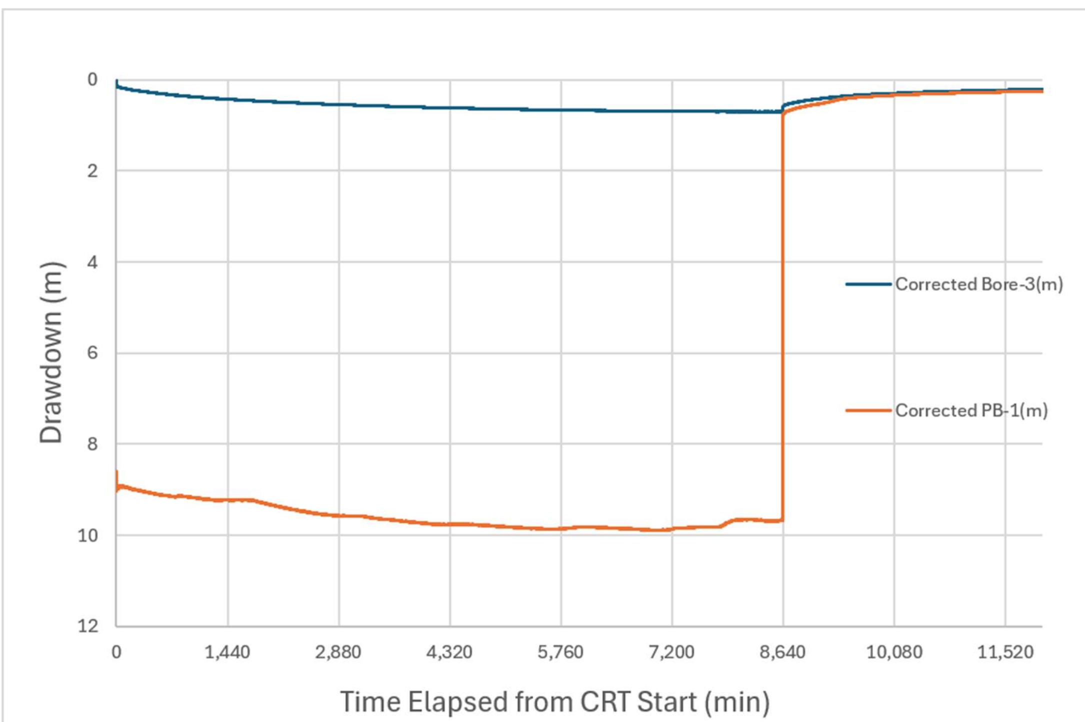

Figure 10: Pumped bore and observation bore corrected drawdown responses during the CRT

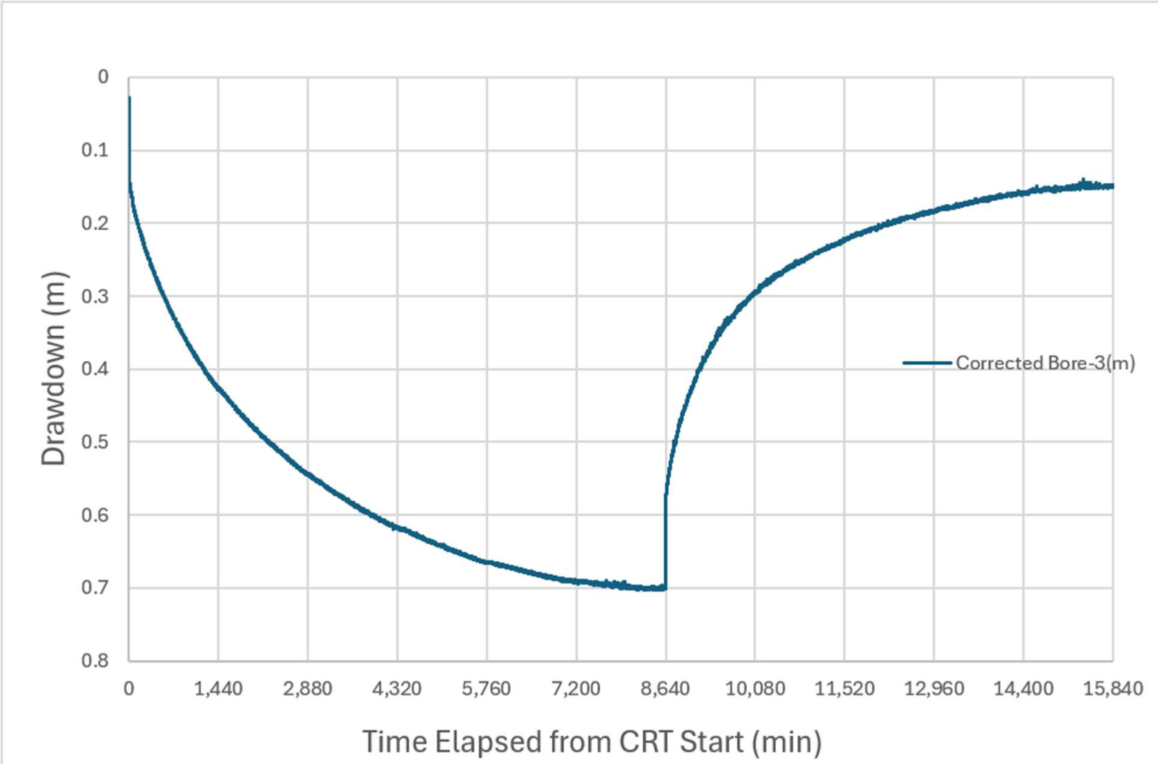

Figure 11: Principal observation bore (Obs-2) corrected drawdown responses during the CRT

Aside from the principal observation bore (Obs-2 @ 75 m), a second observation bore opposite the bed of Bendigo Creek is located 136 metres from the pumped bores (Obs-3 @ 136 m, “Bore 4”). Figure 12 plots the calculated drawdown without correction for ambient trend. The drawdown trace should be smooth and scalloped as the trace for the principal observation bore (Obs-2) and plotted in Figure 11.

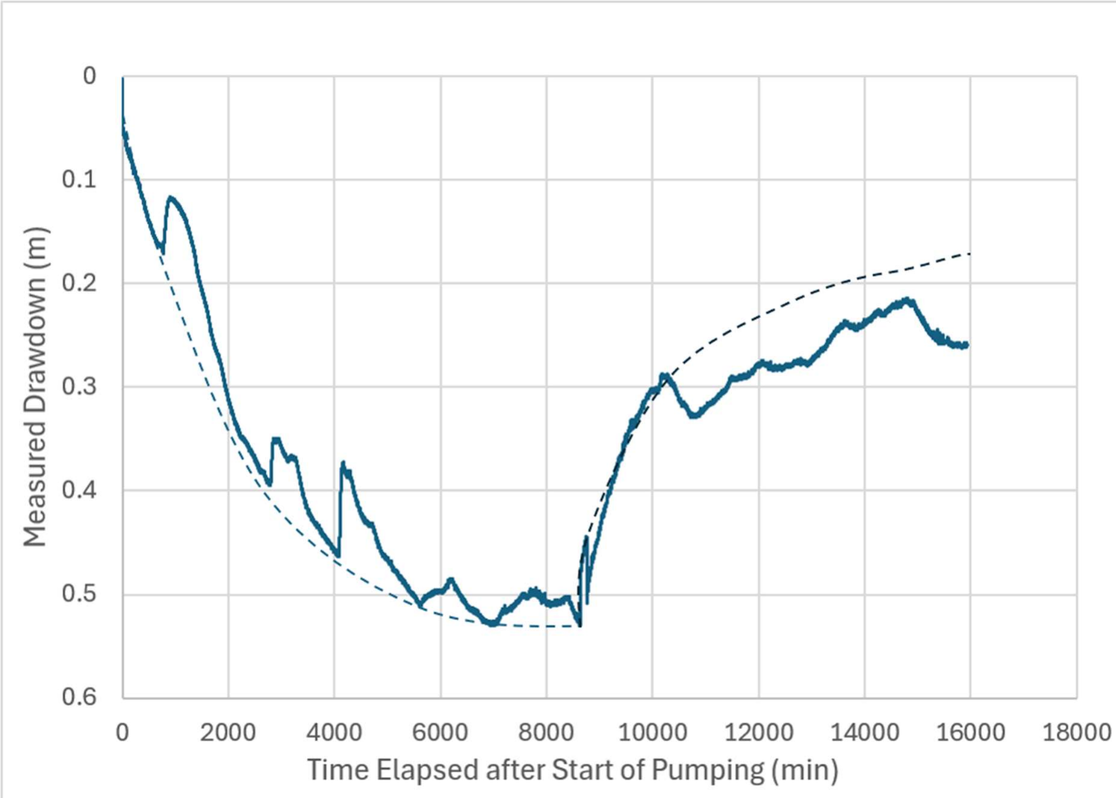

Figure 12: Secondary observation bore (Obs-3 or "Bore4") measured (uncorrected) drawdown during the CRT

Figure 12 includes dashed curves approximating the likely 'clean' drawdown and recovery curves. These drawdown and recovery curves highlight the degree to which the measured curves differ from the theoretical. It is supposed that the location of secondary observation bore within floodplain of Bendigo Creek has an influence on groundwater levels measured at observation bore Obs-3.

Figure 13 shows the aquifer test site, including the pumped and observation bores. It can be noted from Figure 13 that Obs-3 ("Bore 4") rests on the edge of the Bendigo Creek dry channel and certainly within the creek's floodplain. Figure 14 plots the groundwater levels measured in Obs-2 and Obs-3 during the prelude to the Base Bore aquifer test. The effects on groundwater level of brief test pumping periods (e.g., the step rate test) were also removed from the Figure 14 plot. It is evident that the ambient groundwater level in Obs-2 was straight and rising, whereas that for Obs-3 was undulating. While the saturated – unsaturated hydrology of Bendigo Creek is not well known, it is feasible that infiltrating through its bed travels laterally along the bed alluvium before infiltrating to the underlying to the regional water table. It is further feasible that pulses in such percolation to the regional water table induced the rises and falls in the ambient groundwater level measured at the secondary observation bore.

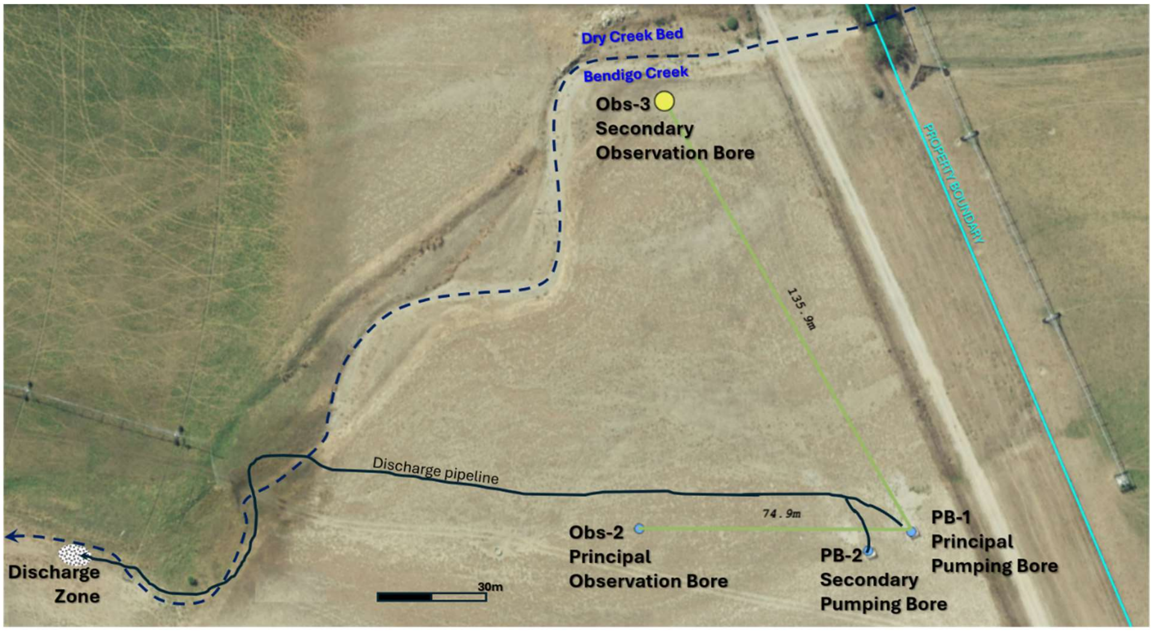

Figure 13: Aquifer Test Site layout showing pumped and observations bores, discharge pipelines & discharge

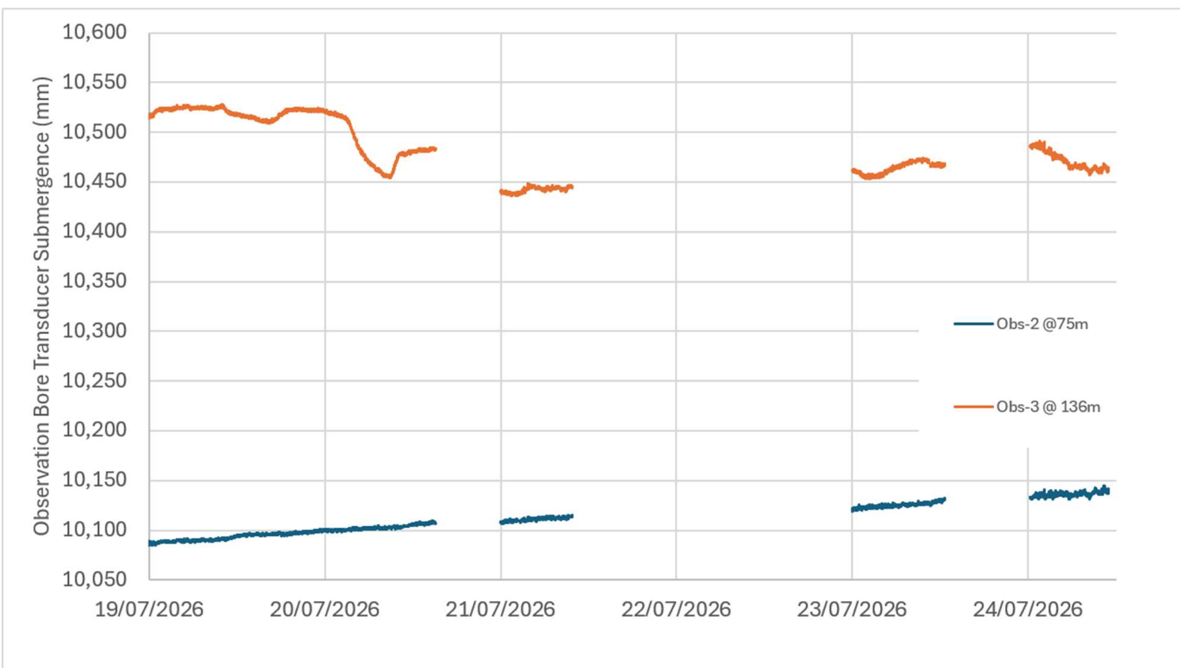

Figure 14: Comparison of the principal and secondary observation bore in ambient (non-pumped) periods

The groundwater levels of Obs-2 and Obs-3 are both useable in aquifer test analysis. However, Obs-2 was more useable due to the associated water levels stability and a reasonable ability to resolve the steady ambient rise. On the other hand, Obs-3 was not a candidate for correction of the groundwater levels and therefore its precision in curve fitting would be diminished.

The ORC SOE monitoring bore response to the six-days of pumping at 97 litres per second is tangible and truncates a largely uninterrupted water table rise that had been sustained since 6 April 2026. Figure 15 plots the ORC monitoring bore water level rise, the onset of pumping at PB-1 and PB-2, delayed water level response and recovery.

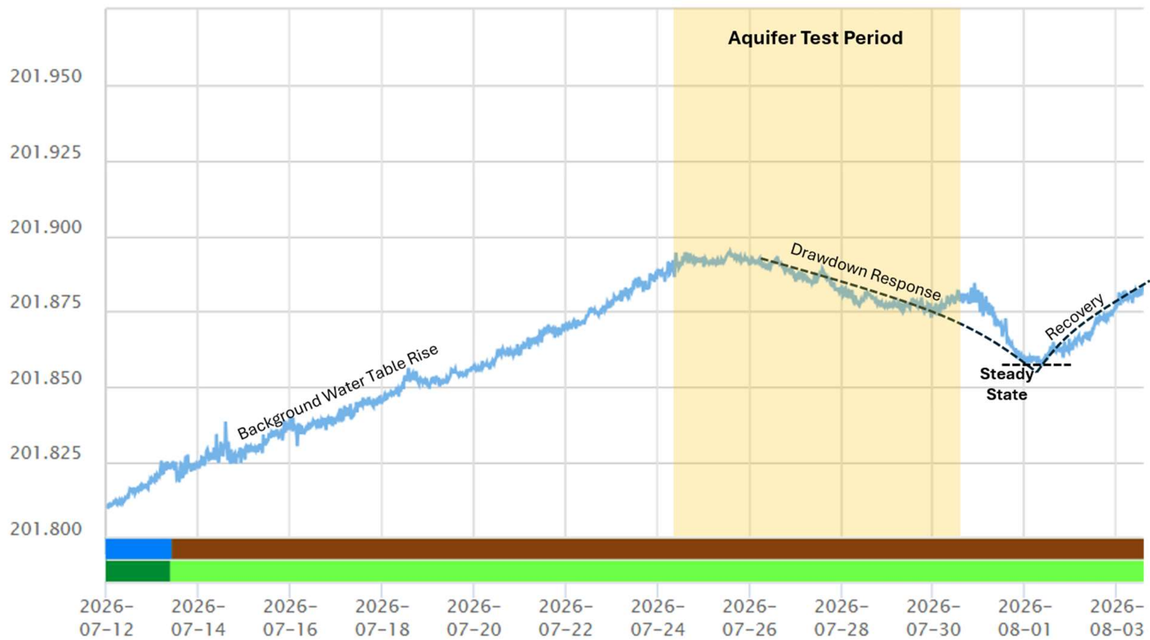

Figure 15: ORC monitoring bore water level trend, aquifer test period, and water level responses

It is notable in Figure 15 that the onset of groundwater level response to pumping at the ORC monitoring bore and indeed the later onset of recovery was somewhat delayed. Discernible responses to pumping at Obs-2 at 75 metres from the pumping centre were almost instantaneous, within 1 minute. The most likely explanation for the approximately two-day delay in responses the ORC monitoring bore is that an additional 800 metres of distance lies between the groundwater pumping centre, and this further-afield observation bore. The outer edge of the drawdown cone of depression may take appreciable time to reach its full extent. It should be noted that the July 2024 constant rate test (20.7 L/s pumping rate and 48 hours of pumping) did not induce a discernible drawdown at the ORC monitoring bore despite efforts to detect drawdown within the monitoring bores records.

While the water level response shows less signs of having achieved a steady state in the same manner that observation bore Obs-2 at only 75 metre offset did, the corrected drawdown at the transition between drawdown and recovery response transit was measured as 0.057 metres (57 mm). This drawdown was nominated as the quasi-steady state drawdown and used in Section 4.2.3, which relates to steady state condition analysis in the chapter that follows.

4 Interpretation of Aquifer Test Data

The interpretation of test data falls into these following categories

Step Rate Test

- Analysis using the Eden – Hazel method and employing manual and electronic data

Aquifer Test – Constant Rate Test

- Observation data curve fitting using Neuman Method, including drawdown and recovery phases
- Steady State drawdown data analysis using the Thiem-Dupuit Method

4.1 Step Rate Test

A comprehensive step rate test was undertaken in July 2024 and included in document B.02 of substantive application. Step rate tests are primarily intended for providing information on the hydraulic performance of the test production bore well screen. The July 2024 includes a four steps from 36.7 to 95 litres per second over 8 hours of 2-hour pumping steps.

A more recent step rate test was undertaken on the morning of 21 July 2026 comprising four steps from 40.5 to 88 litres per second over 3.8 hours. The step rate testing of pumped bore PB-1 (CB13/0215) induced internal (dynamic, s') drawdown in the pumped bore as listed in Table 2 and plotted in Figure 2.

The Eden – Hazel interpretation (Eden & Hazel, 1973) may be illustrated as follows in Figure 16 to Figure 19.

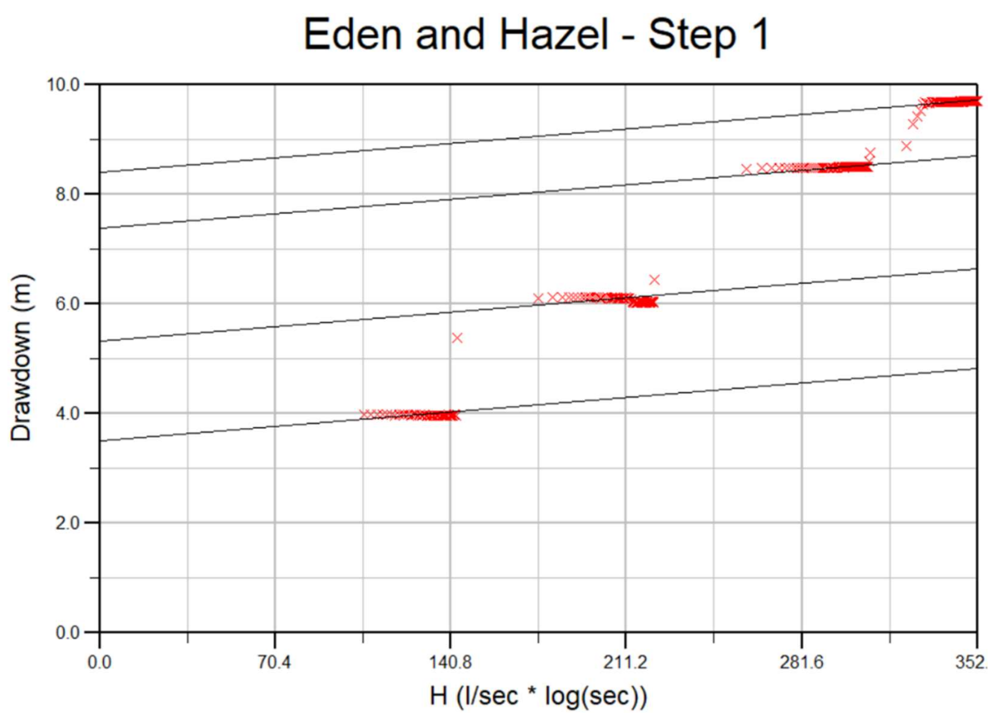

Figure 16: Eden – Hazel, first process matching type curves (black lines) to field data points (x)

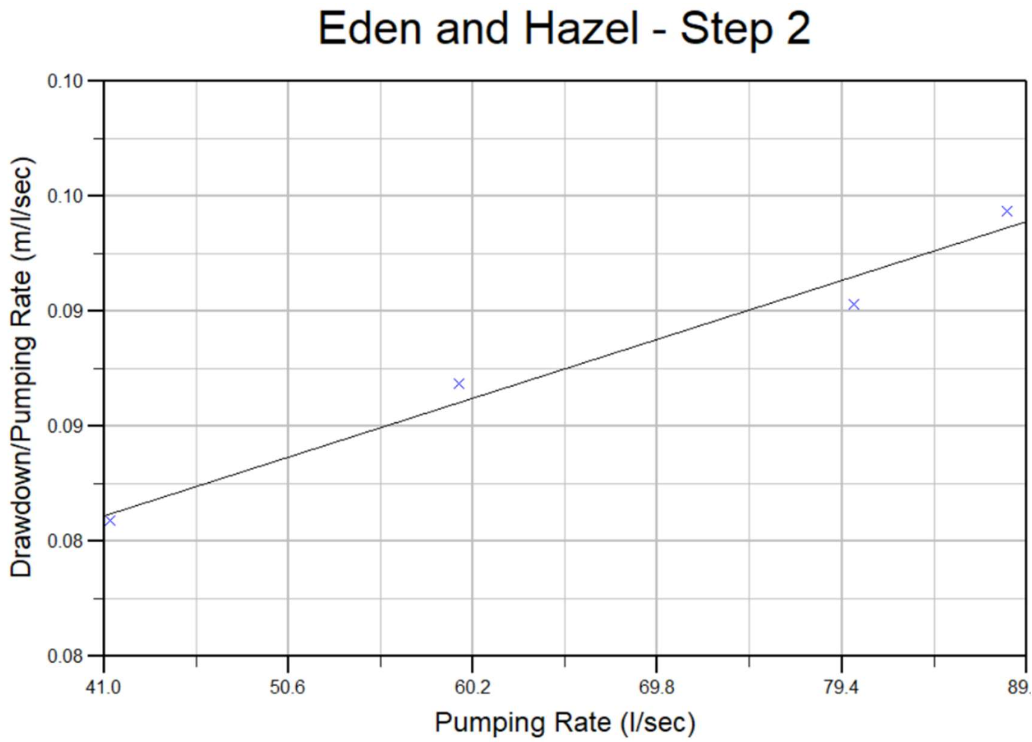

Figure 17: Eden – Hazel, secondary process matching the final drawdown/rate ratio to step rates

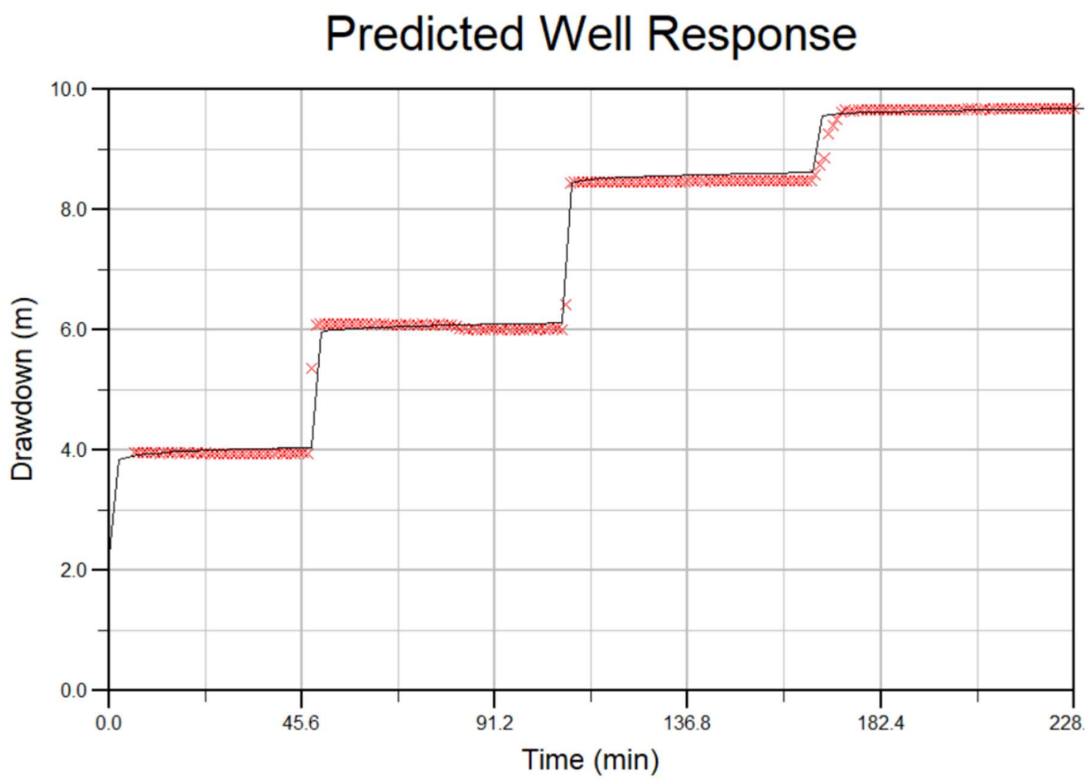

Figure 18: Eden – Hazel result, the predicted match of the derived function (black) and measured data (x)

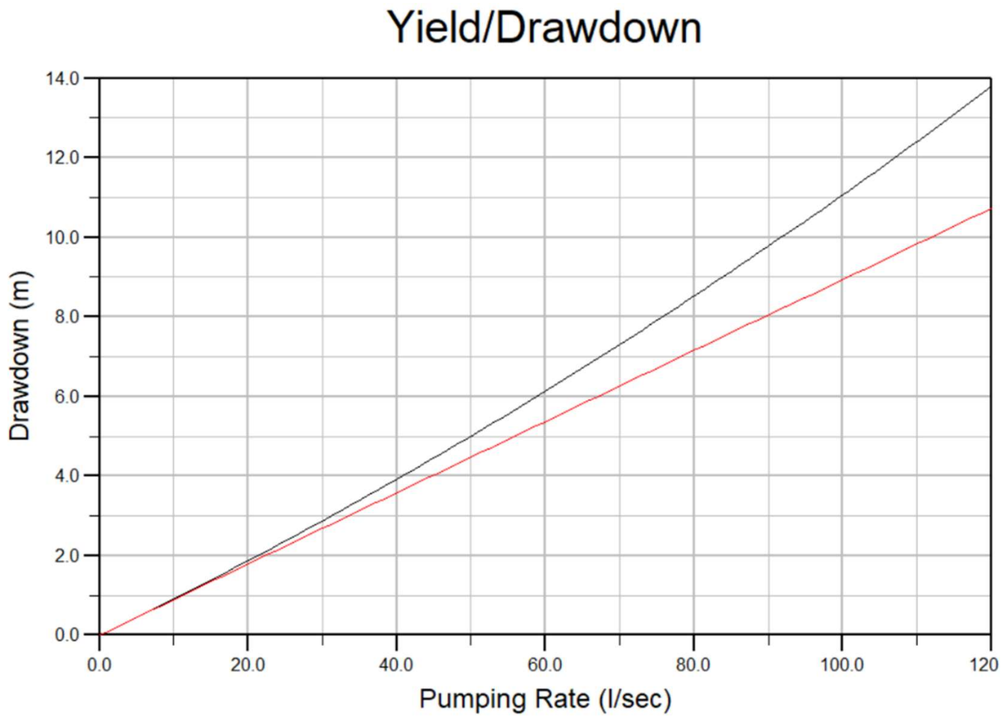

Figure 19: Eden – Hazel result, plot of derived short-term pumping yield and associated drawdown[2]

Table 7: Summary of Eden -Hazel Analysis Results as Error (Residual) Statistics

Statistic Defining Measured – Derived Fit	Value (m)
Mean Error	-0.027851
Standard Deviation of Errors	0.124314
Absolute Mean of Errors	0.072416
Minimum Error	-0.712390
Maximum Error	1.317219

Results of the Eden – Hazel analysis are summarised in Table 8 -

Table 8: Summary of Eden -Hazel Analysis Results as derived Hydraulic Parameters

Hydraulic Parameter	Value
Transmissivity (m^2/d)	4,217
A Coefficient	8.81324×10^{-4}
B Coefficient	4.34028×10^{-5}
C Coefficient (Turbulent Head Loss)	2.85673×10^{-8}

[2] The plotted **black line** indicates total drawdown, while the red line indicates the aquifer drawdown component.

The purpose of this brief test was to estimate the long-term pumping capacity of the 400-millimetre diameter test production bore (i.e., PB-1). The initial analysis of the step rate test on 21 July 2026 was that a long-term pumping test at 110 litres per second would result in the submersible pump sucking air into its intake. It was decided to operate the principal test bore at 80 Litres per second plus a nearby 150 millimetre (6-inch) diameter bore at a rate of 20 litres per second. This was achieved by sacrificing the nearest observation bore (Obs-1, CB13/0216) to create a pumping centre of two pumped bores separated by 13 metres.

4.2 Aquifer Test – Constant Rate Test

4.2.1 Drawdown Phase Curve Fitting

The six-day aquifer test was observed at two observation bores screened in the same aquifer and within the zone of localised drawdown. These observation bores therefore recorded tangible and numerically significant responses to test pumping. The closest and principal of the two observation bores was employed in curve fitting and derivation of aquifer properties. The reason for neglecting the secondary observation bore is covered in the discussion and examination of groundwater level interferences but relates to irregularity (bumps) in the observed groundwater level record suspected of being the result of Bendigo Creek interflow percolation.

Figure 20 illustrates the main Neuman Method (Neuman, 1974) plot of recorded and corrected drawdown in Obs-2 as a log-log representation of several well functions for the method.

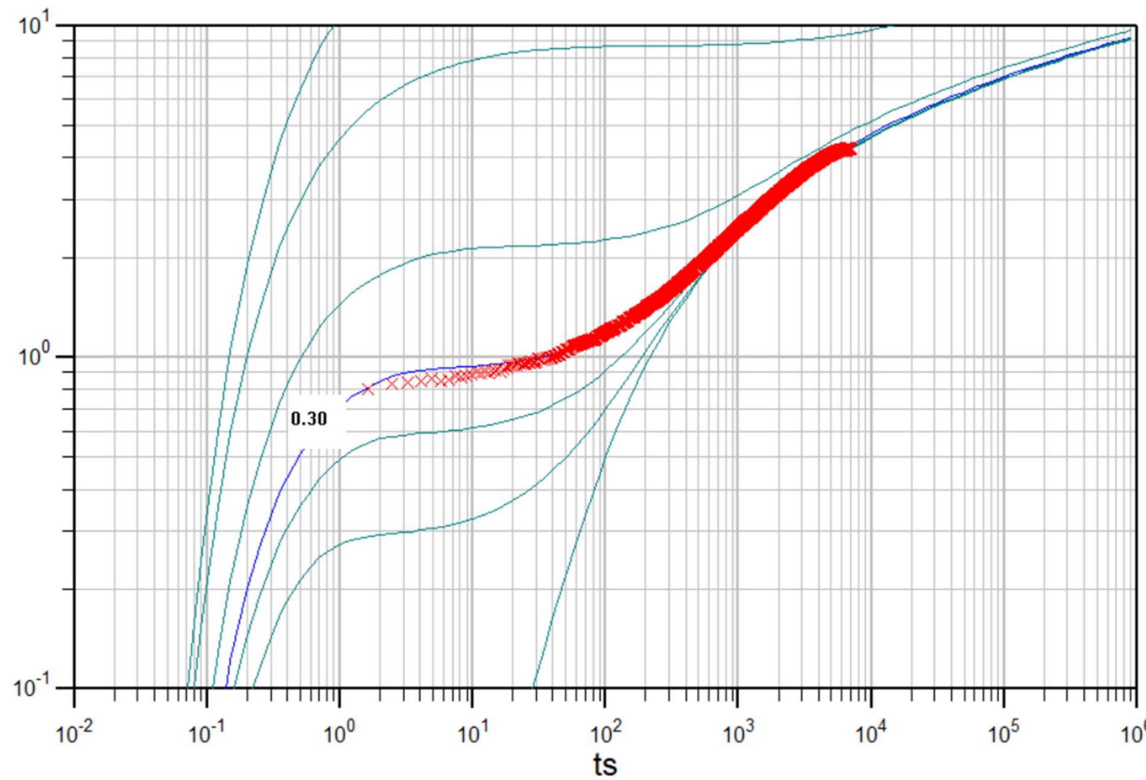

Figure 20: Interpretative plot of Obs-2 drawdown against Neuman Method type curve, with matched β = 0.30

The uncertainty within the Neuman analysis could be assessed by referring to the statistical analysis of error between field measurements and the matched curve or well function. These statistics are listed in Table 9, below.

Table 9: Summary of Neuman Analysis Results as Error (Residual) Statistics

Statistic Defining Measured – Derived Fit	Value (m)
Mean Error	0.001336
Standard Deviation of Errors	0.007918
Absolute Mean of Errors	0.227012
Minimum Error	-0.023921
Maximum Error	0.014983

A further Neuman Method analysis incorporating the measured (and corrected) residual drawdown as well as the drawdown phase data was provided from the AQTESOLV package, as displayed in Figure 21.

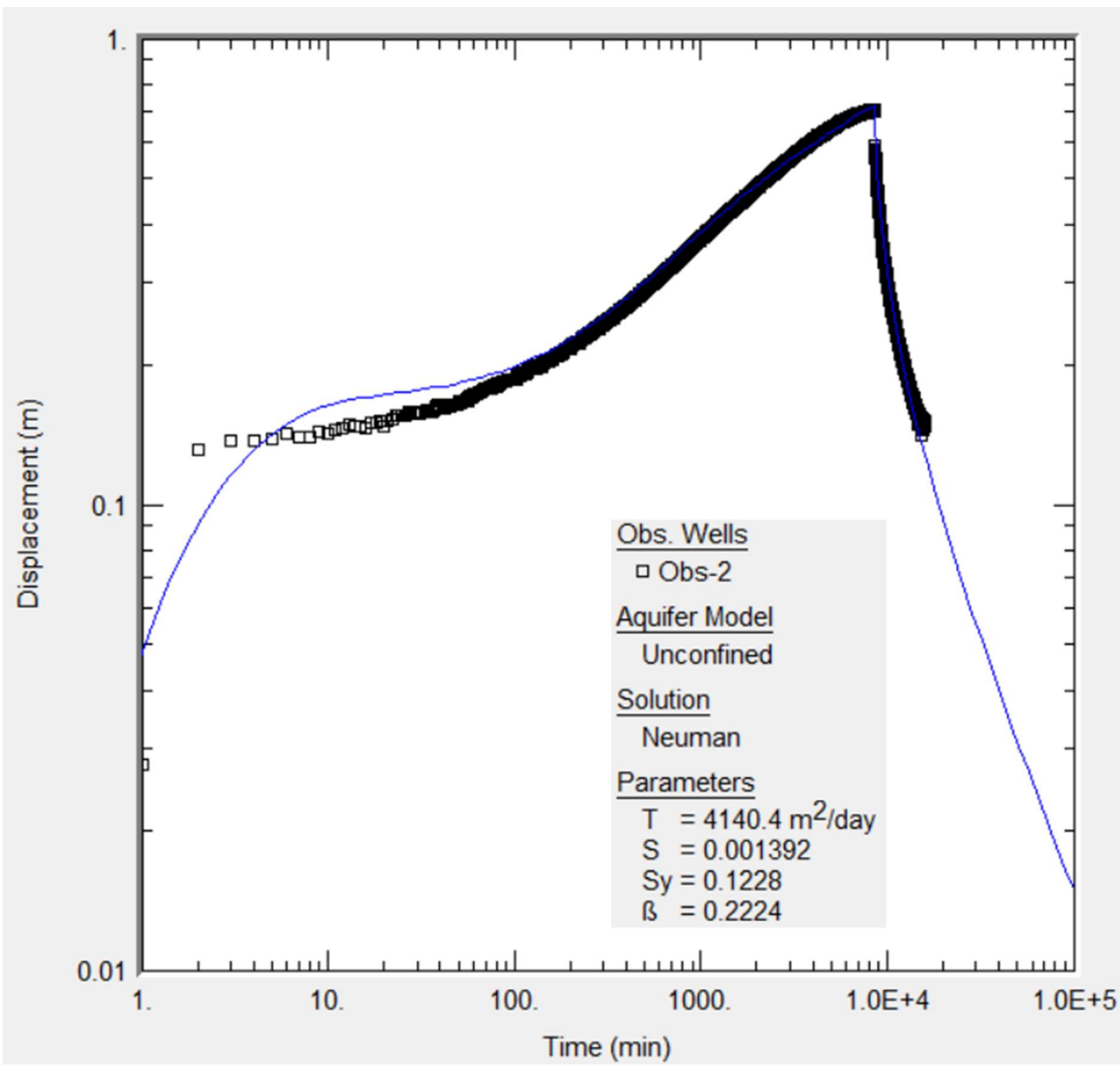

Figure 21: Plot of Obs-2 drawdown and residual drawdown and Neuman curve (AQTESOLV), matched β = 0.22

Results of the Neuman analyses with drawdown and recovery using Aquifer^{Win32} and AQTESOLV are summarised in Table 10.

Table 10: Summary of Neuman Analysis as derived Hydraulic Parameters for Observation Bore Obs-2

Hydraulic Parameter	Drawdown Phase (using Aquifer^{Win32})	Drawdown & Recovery Phases (using AQTESOLV)
Transmissivity (m^2/d)	4,098	4,140
Storage coefficient	6.349×10^{-4}	1.392×10^{-3}
Unconfined Storage Coefficient; Specific Yield	0.14 (14%)	0.12 (12%)
Beta, β	0.3	0.2224

The Neuman analysis results for transmissivity from both approaches derived values close to 4,100 m^2/d. The derived results for specific yield were similarly close in value.

4.2.2 Recovery Analysis

Recovery analysis using the Theis Method (Neuman, 1975; Theis, 1935) was applied to electronic residual drawdown (i.e., recovery) data from the pumped bores PB-1 & PB-2, plus observation bore Obs-2. The analyses were illustrated in Figure 22 to Figure 24.

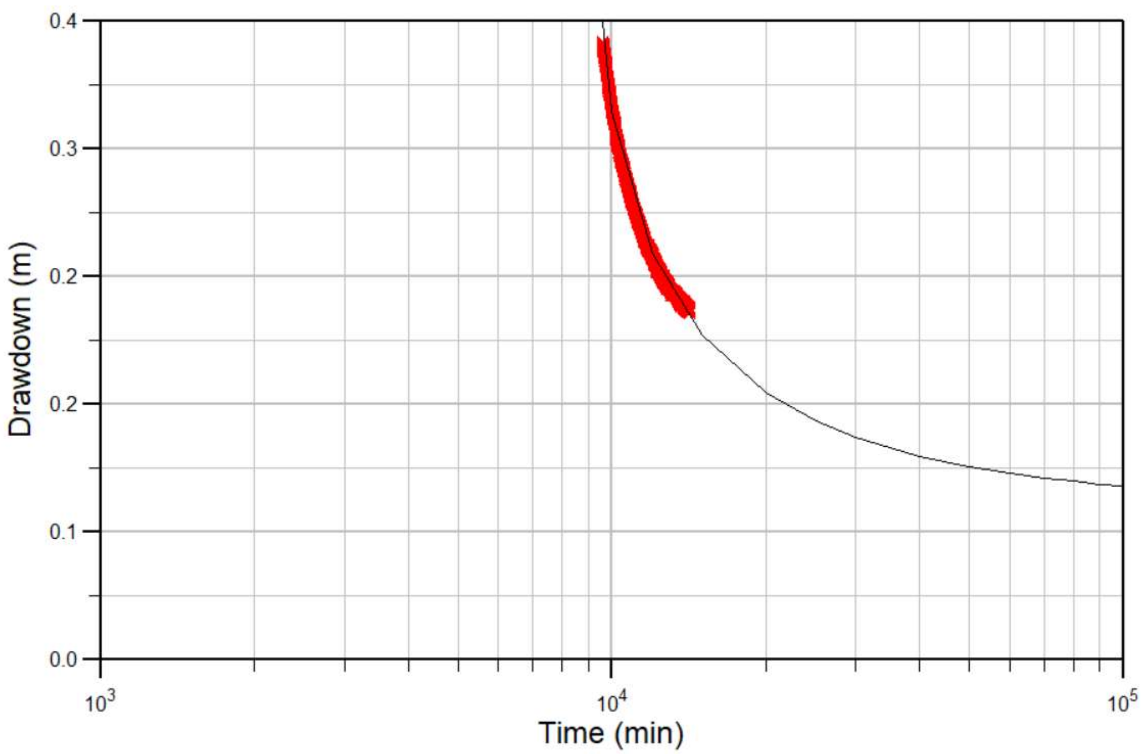

Figure 22: Pumped bore PB-1 recovery curve fit using the Theis Method

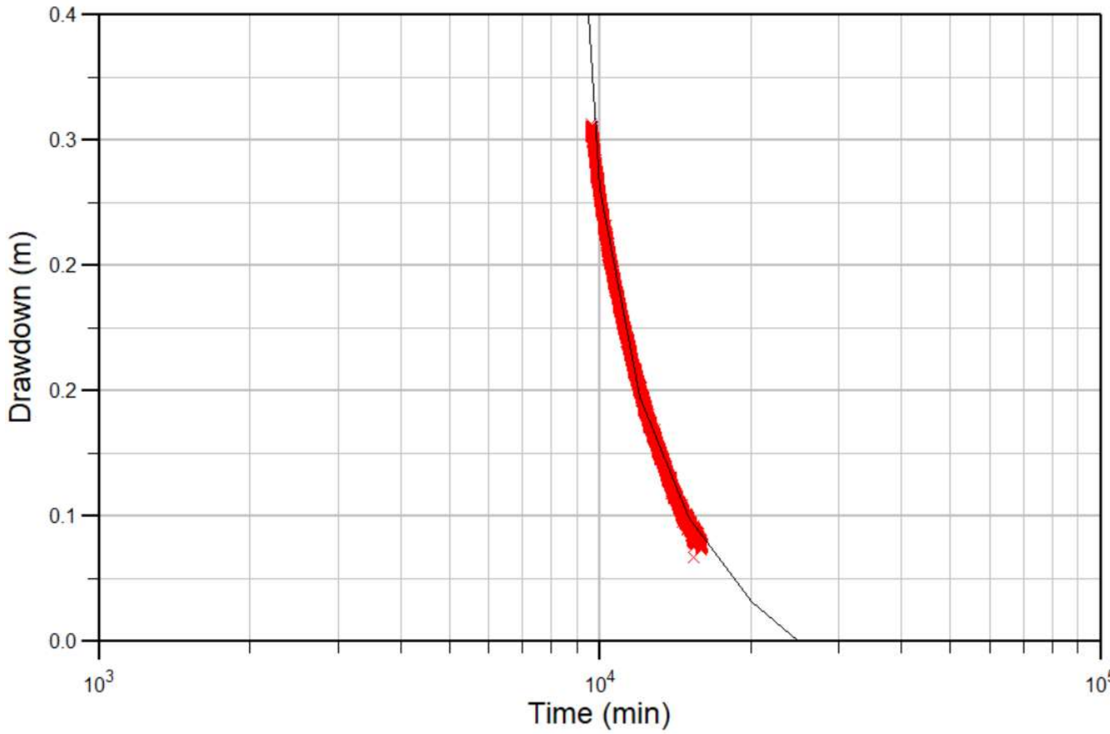

Figure 23: Pumped bore PB-2 recovery curve fit using the Theis Method

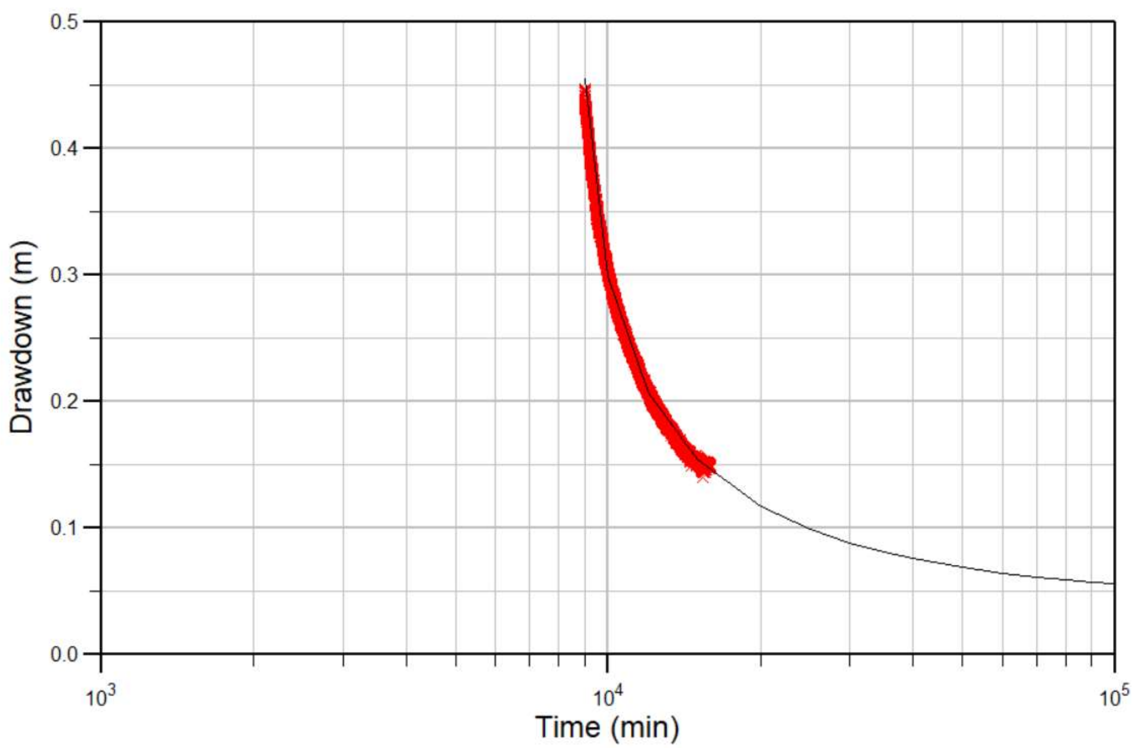

Figure 24: Observation bore Obs-2 recovery curve fit using the Theis Method

Results of the Theis recovery analysis using Aquifer[Win32] are summarised in Table 11.

Table 11: Summary of Hydraulic Parameters for Obs-2, PB-1 and PB-2 employing Theis Recovery Method

Hydraulic Parameter	Pumped Bore, PB-1	Pumped Bore, PB-2	Observation Bore, Obs-2
Transmissivity (m^2/d)	5,518	3630	5,327
Storage coefficient ratio, *S/S'*	0.4514	1.5292	0.7031

Note: S/S' is found from the intersection of the line with the $\log(t/t')$ axis of the plot. In the absence of boundary effects, S/S' should be close to unity. A value of $S/S'>1$ suggests recharge during the test; whereas $S/S'<1$ may indicate a no-flow boundary. Theis Recovery analysis of bore PB-2 may violate some of the basic preconditions or limitations due to the close proximity of PB-1 and the larger bore's dominating rate of pumping.

4.2.3 Steady State (Equilibrium) Drawdown Interpretation

Although an aquifer test arriving at steady state is a theoretical impossibility, the last half day of the six-day aquifer test manifested steady drawdown, especially at the observation bore Obs-2. Groundwater hydrological science has several techniques available for interpreting steady state or equilibrium drawdown measurements.

Figure 25 displays a semi-logarithmic plot of radial distance of various final drawdowns assumed to represent a steady state condition. The observation bores; Obs-2 @ 75m, Obs-3 @ 136m and ORC Bore CB13/0159 @ 875m, all plot on the same logarithmic line of best fit, with the pumped bore steady state drawdown plotting significantly lower than the line of best fit derived from the three observation bore drawdown measurements.

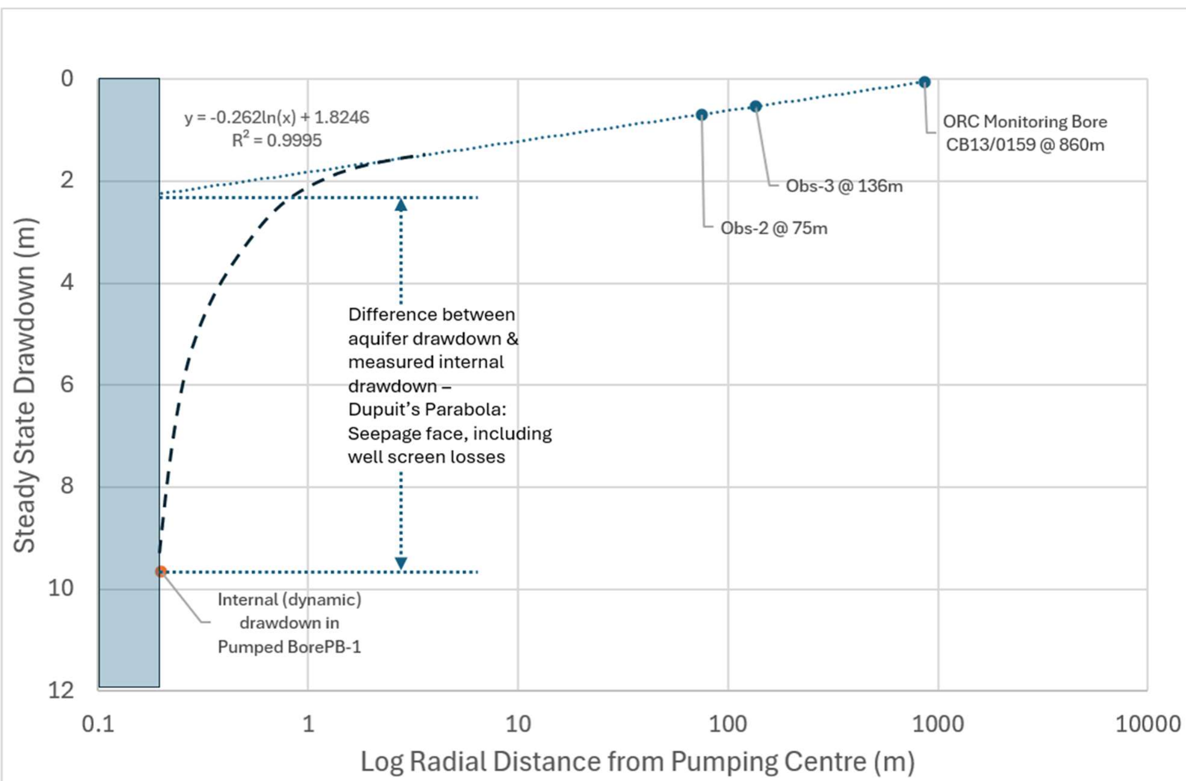

Figure 25: Semi-log plot of radial distance and steady state drawdown for observation bores & pumped bores

The difference between the pumped bore implied internal drawdown of 9.66 metres and the indicated aquifer drawdown from the line of best fit to the observation bores in Figure 25 of 2.24 metres is inferred to be related to two additive factors:

- The 'Dupuit seepage face' (Kirkham, 1967) decline in groundwater level in close proximity to the well screen, and also
- Well screen head losses of groundwater passing through the natural gravel pack and screen slotting.

4.2.3.1 Radius of Influence

The steady state plot and the logarithmic equation in Figure 25 is also useful in estimating the radius of influence, i.e., the radial distance from the pumped bore beyond which little discernible drawdown would persist in equilibrium conditions. Figure 26 illustrates the line of best fit to the observation bore drawdown extends outwards beyond 1,000 metres of radial distance.

Substitution of zero drawdown into the logarithmic equation joining the three steady state drawdowns derived a radial distance of 1,060 metres. This indicates that the ORC monitoring bore CB13/0159 is within 100 metres of the edge of measurable drawdown while pumping long-term from the MGL production bore, which is consistent with the slender drawdown effect measurable there.

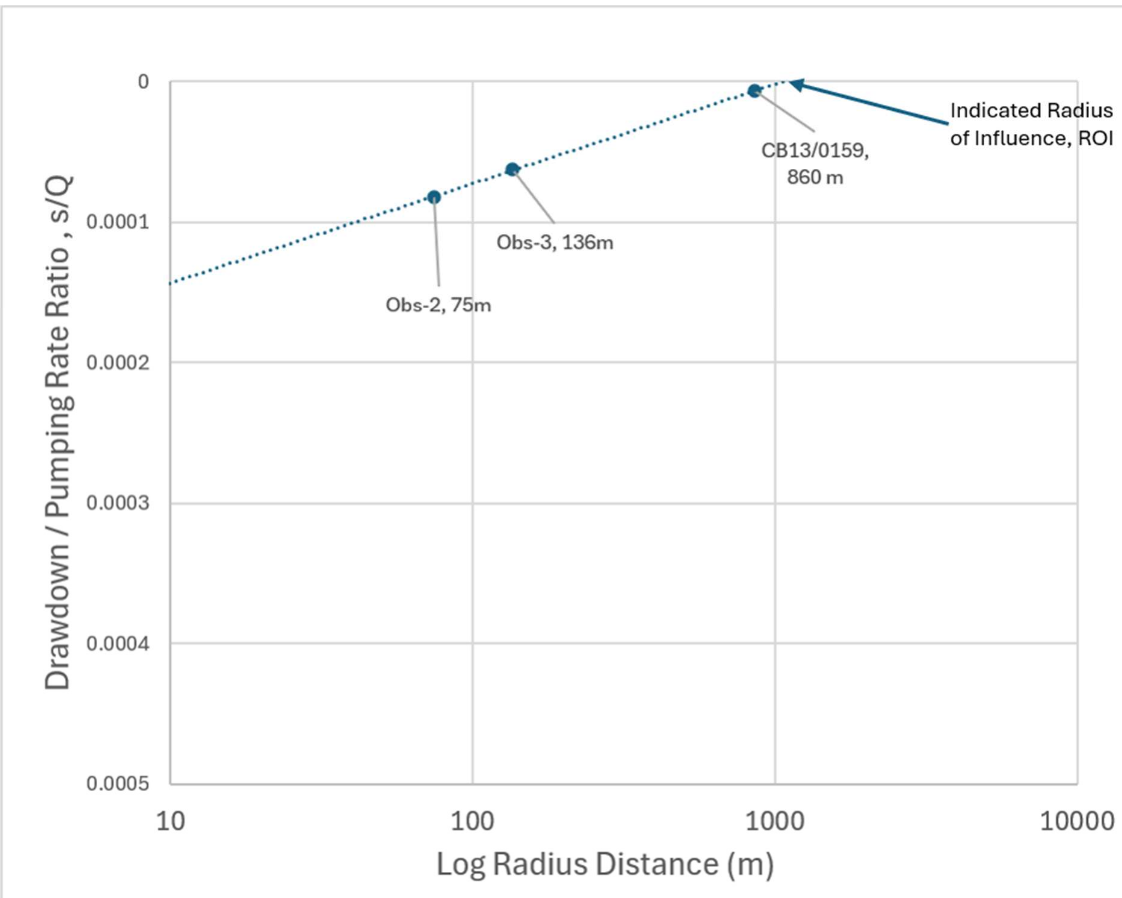

Figure 26: Semi-log plot Radius and Drawdown/ Pumping ratio fitted line to observation bore drawdowns

4.2.3.2 *Steady State Estimation of Hydraulic Properties*

The related hydraulic properties of transmissivity and hydraulic conductivity estimable from the curvature and slope of the best fit line of radial distance and pumping rate already defined in Figure 25 and Figure 26. The Thiem – Dupuit Method (Thiem, 1906) for the derivation of horizontal hydraulic conductivity (K) may be derived using the following equation:

Equation 1

$$K = \frac{Q \ln(r_1/r_2)}{\pi(h_1^2 - h_2^2)}$$

Where:

Q = pump rate (m^3/d)

r_x = radial distance of observation bore (m)

h_x = head of groundwater above base of aquifer at observation bores

The Thiem – Dupuit Method (Kruseman & Ridder, 1994), adapted for unconfined aquifer processes, provides a means of estimating the permeability-related hydraulic properties of the surrounding aquifer. Table 12 lists the results of Thiem – Dupuit equation for the three steady state aquifer test groundwater responses as three sets of unique pairs.

Table 12: Derived Hydraulic Properties of the surrounding Bendigo Aquifer with observed Drawdown Pairs

	Observation Bore Drawdown Pairs		
Hydraulic Parameter	Obs-2 and Obs-3	Obs-2 and ORC Bore	Obs-3 and ORC Bore
Radial Distance, r (m)	75m and 136m	75m and 875m	136m and 875m
Transmissivity, T (m^2/d)	4,900	5,250	4,950
Saturated Thickness, b (m)	21.5	21.5	21.5
Hydraulic Conductivity, K_h (m/d)	228	245	230

The steady state drawdown provided a range of transmissivities consistent with results derived using transient drawdown curve fits as tabulated in Table 8, Table 10, Table 11 and summarised in Table 13; essentially in the range of 4,000 – 5,500 m^2/d. Steady state hydraulic property estimation methods provide no means of estimating storage coefficients as these methods are independent of time components.

4.2.3.3 *Significance of Steady State Analysis*

The analysis of steady state aquifer responses measured at distance from the test site has relevance to the role of the schist rock and till sediment geohydrological boundaries known to be located to the east and south of the proposed MGL bore field. This quadrant of the Bendigo Aquifer is edged by the Lindis Glaciation till to the east and Otago Schist to the south. Bendigo Creek infiltrates into the upper surface of the Bendigo Aquifer in the aquifer's southeast corner and approximately separates the till and schist aquifer margins. Along the western margin of the Bendigo Aquifer is the Clutha River / Mata Au and Lake Dunstan with both being in two-way hydraulic communication with the aquifer. These boundaries are mapped on Figure 27.

Figure 27 maps the key elements of the Bendigo Aquifer, its hydrological boundaries and the location of the aquifer test site. The pumped bores and observation bores within the localised drawdown zone are visible as a cluster. The ORC monitoring bore touched by 0.57 metres of drawdown once steady state conditions established is also shown in its position close to the till boundary. The derived radius of influence (ROI) from the aquifer test pumping centre of 1,060 metres is also plotted onto Figure 27.

Figure 27 shows the radius of influence extending to the east and south across the geohydrological barrier boundaries. The touching of the barrier boundary by late-time drawdown during the aquifer test running operating at 97.1 litres per second suggests that a degree of barrier reverberation[3] may occur during sustained groundwater pumping at the test bores. However, the anticipated maximum of amplification of drawdown would be double the drawdown without a boundary. Given that the closest approaches of the schist and till margins are approximately 850 metres, perhaps 7 centimetres of drawdown with MGL bore field pumping at 97 litres per second. Accordingly, the induced drawdown at the affected aquifer margin could increase from 7 cm to 14 cm.

Assessing the effect of the barrier basement boundaries conditions should be balanced by the presence of recharge boundary conditions in the same radius of influence zone. More specifically, the Bendigo Creek infiltrates into the ground as it passes over the transition from schist basement bed geology to alluvial drift and the outwash gravels of the Bendigo Aquifer. The creek has a mean flow of 120 litres per second and discharges all of its water resource to the Bendigo Aquifer (ref. B.04), the creek's losses to the aquifer impose a water table mound in the water levels of the inner southeast quadrant of the aquifer. Drawdown reverberation due to basement barriers would be largely absent in this part of the Bendigo Aquifer.

[3] An aquifer boundary alters groundwater drawdown when a pumping cone of depression reaches a physical limit such as a river or a fault. Reverberation in this context describes how drawdown trends composite against these edges, modifying the expected water-level response over time.

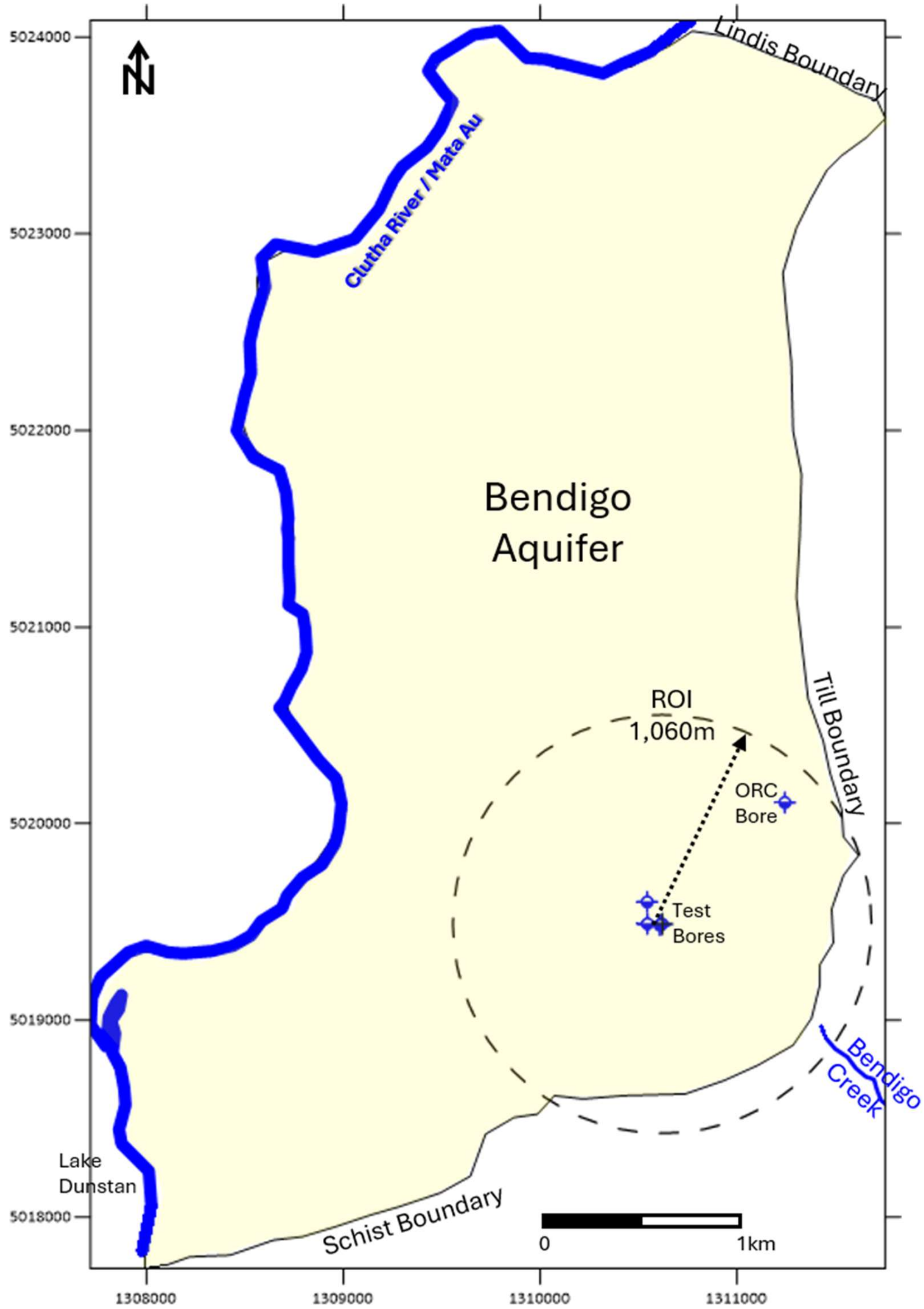

Figure 27: Simplified map of Bendigo Aquifer highlighting the test site and Radius of Influence (ROI)

4.3 Summary of Aquifer Test Results

The analysis of test data included step rate test (SRT) but predominantly the constant rate test (CRT). Additionally, time series (transient) and steady state (equilibrium) groundwater levels were also examined using tailored methods. A mix of Aquifer^{Win32}, AQTESOLV, and the Thiem - Dupuit analytical methods was employed in test data analysis.

Table 13: Summary of derived Hydraulic Parameters for each Bore and by all Methods

	T	S	S_y	S/S'	K_h	Eden-Hazel Screen Loss Parameters
Units:	m^2/d	_	_	_	m/d	Dimensionless ratios
Obs-2 Drawdown	4,098	6.349×10^{-4}	0.14 (14%)	_	190	_
Obs-2 Drawdown & Recovery	4,140	1.392×10^{-3}	0.12 (12%)	_	190	_
PB-1 Recovery	5,327	_	_	0.7031	250	_
PB-2 Recovery [a]	3630	_	_	1.5292	170	_
Obs-2 Recovery	5,518	_	_	0.4514	255	
PB-1 Step Rate Test	4,217	_	_	_	200	$A = 8.81324 \times 10^{-4}$ $B = 4.34028 \times 10^{-5}$ $C = 2.85673 \times 10^{-8}$
Steady State Analysis						
Obs-2 & 3 SS	4,900	_	_	_	228	_
Obs-2 & ORC SS	5,250	_	_	_	245	_
Obs-3 & ORC SS	4,950	_	_	_	230	_

Note: [a] Theis Recovery analysis of bore PB-2 may violate some of the basic preconditions or limitations due to the close proximity of PB-1 and the larger bore's dominating rate of pumping. SS = Steady State analysis. ORC = State of Environment monitoring bore CB13/0159.

Parameters defined as follow:

T =	Transmissivity	K_h =	Hydraulic Conductivity
S =	Storativity	A =	A Coefficient (linear)
S_y =	Specific Yield	B =	B Coefficient (non-linear)
S/S'	Storativity Ratio	C =	C Coefficient (turbulent)

The derived hydraulic parameters of aquifer testing may be expected to vary when analysed by different methodologies and using different observation bore data. The most derived hydraulic parameter in Table 13 was transmissivity and the values for transmissivity ranged from 4,098 to 5,518 m^2/d (setting aside the value for PB-2 recovery analysis). The transmissivity within the zone of localised drawdown would best be represented by the Neuman analyses of observation bore, Obs-2, which ranged from 4,098 to 4,140 m^2/d. Similarly, the hydraulic conductivity and specific yield values and to a lesser extent the storativity values of these analyses should rank as most representative of the localised zone of drawdown hydraulic parameterisation.

Somewhat independent analyses of transmissivity were made using the Eden – Hazel step rate test methodology and Thiem – Dupuit steady state drawdown methodology. The step rate test methodology relates to the transmissivity and hydraulic conductivity of the immediate contact zone of the saturated aquifer to the well screen, while corresponding reasonably well to transmissivity and hydraulic conductivity of the localised drawdown zone recorded in observation bore Obs-2. The step rate test analysis derived 4,217 m^2/d and 200 m/d for transmissivity and hydraulic conductivity, respectively. The hydraulic coefficients for linear, non-linear and turbulent head losses have relevance to the pumped bore only and the latter two coefficients

The steady state distance – drawdown methodology sampled a wider slice of the aquifer, utilising correlations between corrected drawdowns at further spaced observation bores Obs-3 and CB13/0159, 136 m and 875 m radii, respectively. It is therefore unsurprising that the transmissivity and estimated hydraulic conductivities on the whole differ from the values obtained from the localised drawdown zone.

4.3.1 Accepted Hydraulic Parameters for Use in Assessments

Standard approaches to utilising the results of aquifer tests in groundwater resource assessment include the selection of accepted values for hydraulic parameters to be taken forward into assessments. The 2025 groundwater take effects assessment by Kōmanawa Solutions (document B.02) selected the values listed in Table 14.

Table 14: Accepted Values: "Summary of derived Aquifer Test and Step Rate Test Hydraulic Properties" (B.02)

	Transmissivity, T (m^2/d)	Hydraulic Conductivity, K_h (m/d)	Specific Yield (dimensionless)
Accepted Value	4,500	250	0.25

These accepted values were selected with the support largely with the support of a July 2024 constant rate test at 20.7 litres per second and 48 hour duration, while being observed at a single observation bore. The above values of transmissivity and specific yield were used in drawdown calculations as to the long-term drawdown effect on surrounding bores.

On the basis of the six-day constant rate test of July 2026, the following accepted values are proposed as suitable for groundwater resource assessments, as shown in Table 15.

Table 15: Proposed Accepted Values based on July 2026 Aquifer Testing

	Transmissivity, T (m^2/d)	Hydraulic Conductivity, K_h (m/d)	Specific Yield (dimensionless)
Accepted Value	4,100	190	0.15

The permeability-related values have been decreased by approximately 9%. This could increase the calculated drawdown effect on surrounding bores in the 500 m radial distance of the bore field but may also reduce the overall radial extent of MGL bore field's drawdown effects at the margins. Lower specific yield (S_y) restricts water release from gravity drainage, steepening the cone of depression and increasing drawdown calculations. The overall effect of reduced transmissivity and specific yield is for the calculated drawdown effect to be increased. At the same time, the area extent of the drawdown-affected aquifer, and therefore the number of affected surrounding bores, would diminish.

5 Conclusions & Recommendations

5.1 Conclusions

The following conclusions are drawn from the conduct of the larger-scale, ORC-compliant aquifer test, and the analysis of test data.

1. The requirements for multi-day constant rate pumping were assessed to exceed the ability of the existing test production bore PB-1 to sustain 110 litres per second;
    a. Therefore, it was decided to increase pumping capacity by including a pump unit in the nearest observation bore (i.e., Obs-1 became PB-2),
    b. This secondary pumping bore duplicated flow meter and discharge pipeline to the discharge zone in the bed of Bendigo Creek, and
    c. Combining PB-1 and PB-2, a long-term mean rate of 97.1 litres per second (8,390 m^3/d) was sustained over six days.
2. An analysis comparing the ORC aquifer test guideline and good other practice guidelines with the conduct of the July 2026 aquifer test indicated that the more recent six-day constant rate was compliant.
3. Constant rate pumping and observation of groundwater level provided the raw materials for several interlocking analytical methods and the derivation of hydraulic parameters, using;
    a. Observed drawdown,
    b. Observed recovery after the cessation of pumping,
    c. Steady state drawdown recorded towards the close of test bore pumping, and
    d. A brief step rate test with Eden – Hazel analysis carried out on the pumping bore, PB-1.
4. An ambient trend was removed from pre-test, pumping phase and post-test groundwater levels, providing the required corrections for the simple rising trend probably related to elevated winter recharge.
5. The closest observation bore at 75 metre distance was found to be the more useable of the two observation bores within the localised drawdown zone, with 0.7 metres of corrected drawdown at the conclusion of the six-day constant rate test.
6. The more distant observation bore, Obs-3 at 136 metre radial distance, was found to be affected by suspected Bendigo Creek interflow infiltrating to the regional water table producing a 'lumpy' groundwater level record, less suitable for analytical curve matching.
7. The six-days of pumping at a stable and high rate of flow manifested in the zone of localised drawdown as quasi-steady state groundwater level response.
8. Groundwater level response was also measured at the ORC SOE groundwater level monitoring bore, CB13/0159, of approximately 0.057 metres of drawdown effect at a distance of 875 metres to the northeast of the aquifer test site.
9. These equilibrium groundwater drawdowns were readily profiled in a radial distance – drawdown plot.
10. The radial distance - drawdown plot allowed the estimation of the aquifer test at 97 litres per second as approximately 1,060 metres around the aquifer test site, which touches the till and schist rock margins of the Bendigo Aquifer.
11. This aquifer test report summarised the July 2026 in Table 13 in terms of derived hydraulic parameters, plus proposed accepted values of hydraulic parameters for use in groundwater resource assessment in Table 15.
12. The steady state radius of influence provided technical guidance relevant to the question of basement barrier and recharge boundary conditions affecting groundwater hydrology of the Bendigo Aquifer.

5.2 Recommendation

MGL is in the process of equipping the test production bore, CB13/0215, with submersible pump, power, control circuits, switchgear, flow metering and pipework connection, converting it to a finished production bore. These works are to be followed by the installation of the same infrastructure for the second production bore approximately 150 metres to the west, which is included in the BOGP FTAA substantive application.

In line with the Joint Witness Statement (Groundwater) and related statements, MGL has undertaken to conduct a staged set of commissioning aquifer tests, follow-up investigations and remedial measures as may be indicated necessary to protect the access of surrounding bore owners to groundwater. This set of post-grant measures is proposed to be conditioned within the Bendigo-Ophir Gold Project groundwater take consent.

1. Therefore, a commissioning pumping test that builds on the results of this compliant aquifer test should be undertaken within the outlines of the relevant proposed conditions of consent and optimal technical practice to provide information relevant to the management of groundwater drawdown effects on Bendigo Aquifer water users.

6 References Cited

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Appendices

Appendix 1. Bore Logs

CB13/0215 400 mm PB-1 Pumped Bore

Bore Construction Report

SOUTHDRILL EXPLORATION & PILING

OFFICE USE ONLY		
Date received:	Accession number:	Signed:
Bore number: **2661**	Entered IRIS date:	Invoice date:

GENERAL DETAILS		
Client/Consent holder's name: **Santana Gold**		Consent number: **RM24.272.10**
Location/Address: **santana gold mine**		
Grid reference - Easting: **1310616m E**	Northing: **5019488m N**	Mobile phone:
Sketch plan attached:	Photos attached: **Yes**	Home phone:

DRILLING DETAILS	
Drilling company: **SouthDrill Ltd**	Driller: **Rowland Harrex**
Machine/Rig: **Western Star Drilling Rig [QCL493]**	Fleet no. **2030**
Drill method(s): **Air Rotary**	

BORE CONSTRUCTION DETAILS	
Start date: **24/06/2024**	Finish date: **04/07/2024**
Bore diameter: **400mm**	Casing material: **Steel**
Screen material: **s/s**	
Screen diameter (inside): **350mm**	Screen diameter (outside): **370mm**
Screen slots: **2.5mm**	Overdrilled: **No**

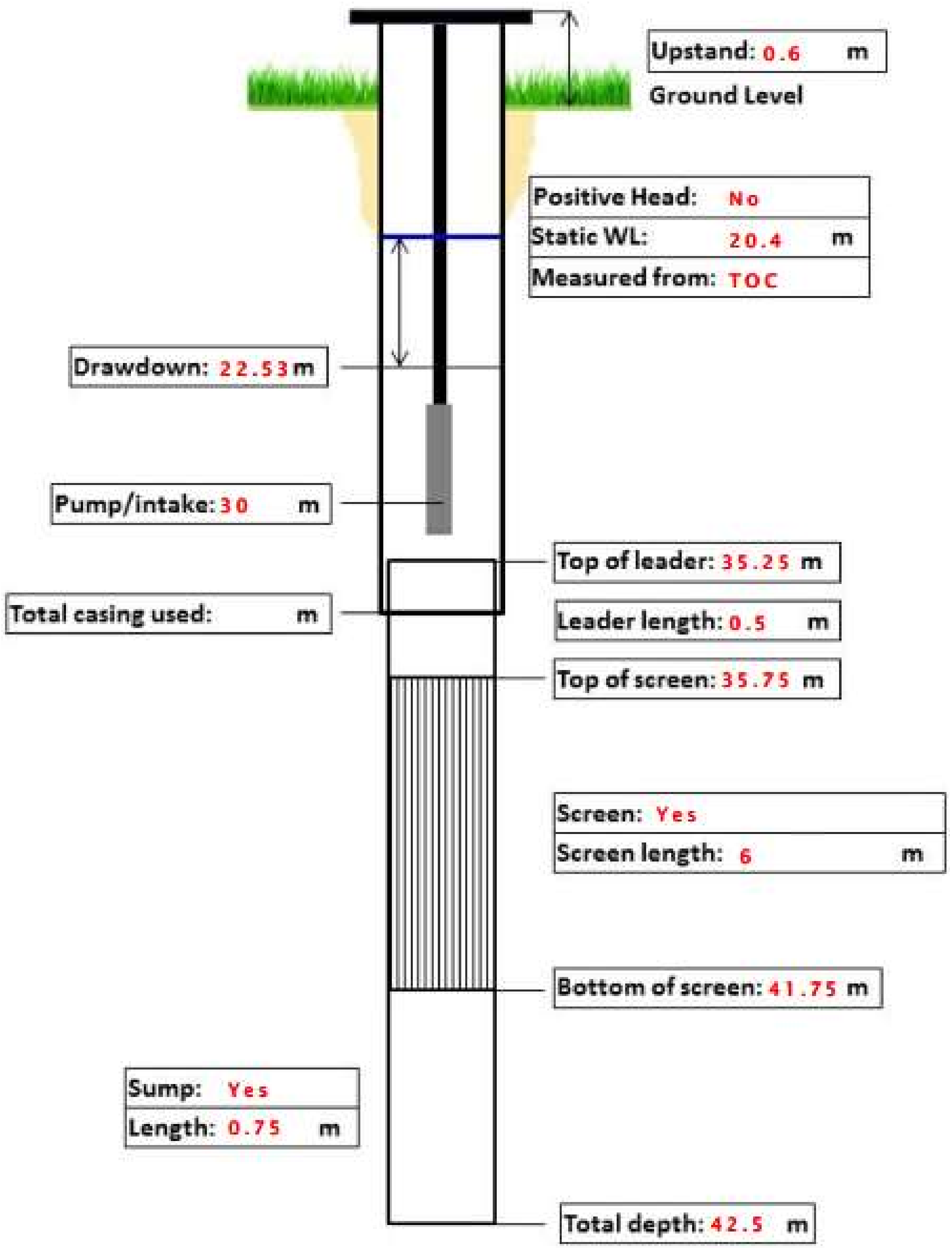
PUMPING/WATER DETAILS		
Dry bore: **No**	If dry, was casing retrieved?	Bore filled in:
Development period: **54 hours**	Development method: **Airlifted**	
Yield/test pumping: **Pumped**	Test pump period: **56 hours**	
Test pump rate: **21 litres/second**	Method of measuring reate: **flow meter**	
Comments:		
Pumped water level: **22.53 metres**		

WATER QUALITY ETC	
Bacterial water test: **No**	Chemical water test: **No**
Casing top sealed: **Yes**	Impervious seal at ground: **Yes**
Comments:	

BORE LOG (METRES BELOW REFERENCE POINT)	
0m	sandy gravels
10.2m	cobble
10.6m	sands fine gravels
11.8m	sand corse gravels
30.7m	sand and fine gravels
37m	corse sandy gravels
41m	tight gravels
42m	blue silts
42.5m	
Do you intend to drill more bores under this Land Use Consent number? **No**	
If yes, number of bores drilled:	Number of bore logs provided:

Bore Construction Diagram

Bore number:
2661



CB13/0216 150 mm PB-2 Secondary Pumped Bore

Bore Construction Report

SOUTHDRILL EXPLORATION & PILING

OFFICE USE ONLY		
Date received:	Accession number:	Signed:
Bore number: **2661 150mm tubex test hole**	Entered IRIS date:	Invoice date:

GENERAL DETAILS		
Client/Consent holder's name: **Santana Gold Mine Matakanui Gold Ltd**		Consent number: **RM24.272.01**
Location/Address: **305 Bendigo Loop Road**		
Grid reference - Easting: **1310607m E**	Northing: **5019489m N**	Mobile phone:
Sketch plan attached: **Yes**	Photos attached: **Yes**	Home phone:

DRILLING DETAILS	
Drilling company: **SouthDrill Ltd**	Driller: **Rowland Harrex**
Machine/Rig: **Western Star Drilling Rig [QCL493]**	Fleet no. **2030**
Drill method(s): **Tubex**	

BORE CONSTRUCTION DETAILS	
Start date: **24/06/2024**	Finish date: **25/06/2024**
Bore diameter: **150mm**	Casing material: **Steel**
Screen material: **s/s**	
Screen diameter (inside): **138mm**	Screen diameter (outside): **140mm**
Screen slots: **2.5mm**	Overdrilled: **No**

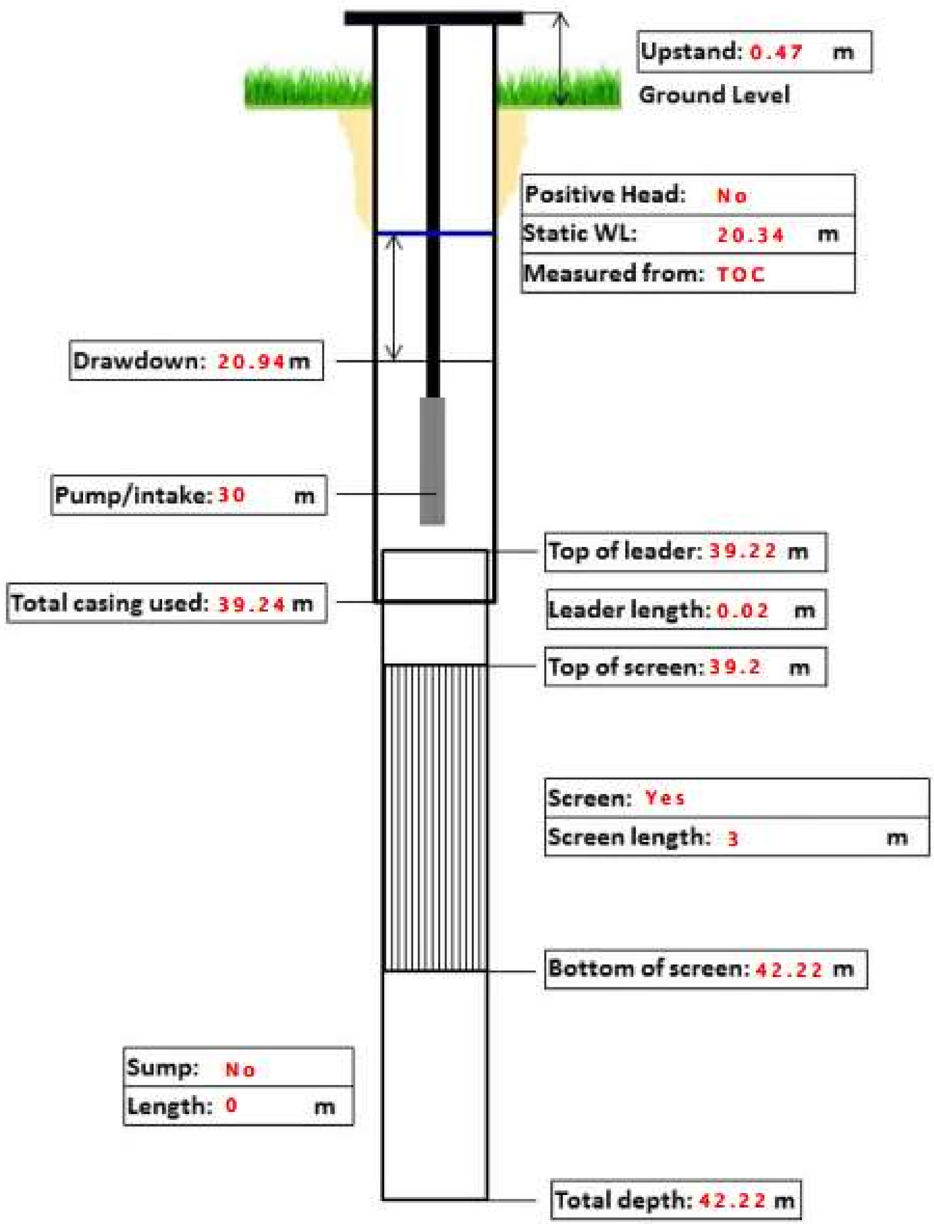
PUMPING/WATER DETAILS		
Dry bore: **No**	If dry, was casing retrieved?	Bore filled in:
Development period: **5 hours**	Development method: **Airlifted**	
Yield/test pumping: **Pumped**	Test pump period: **3 hours**	
Test pump rate: **2 litres/second**	Method of measuring reate: **Volumetric test**	
Comments: **test hole didnt do large pumptest just clean up for test hole for 400mm pump hole**		
Pumped water level: **20.94 metres**		

WATER QUALITY ETC	
Bacterial water test: **No**	Chemical water test: **No**
Casing top sealed: **Yes**	Impervious seal at ground: **Yes**
Comments:	

BORE LOG (METRES BELOW REFERENCE POINT)	
0m	coarse sandy gravels
10.3m	cobble
10.6m	sandy fine gravels
11.8m	sandy coarse gravels
30.7m	sands fine gravels
37m	tight coarse gravels
42m	blue silts
42.5m	
Do you intend to drill more bores under this Land Use Consent number? **No**	
If yes, number of bores drilled:	Number of bore logs provided:

Bore Construction Diagram

Bore number:
2661 150mm tubex test hole



CB13/0262 150 mm Obs-2 Observation Bore

Bore Construction Report

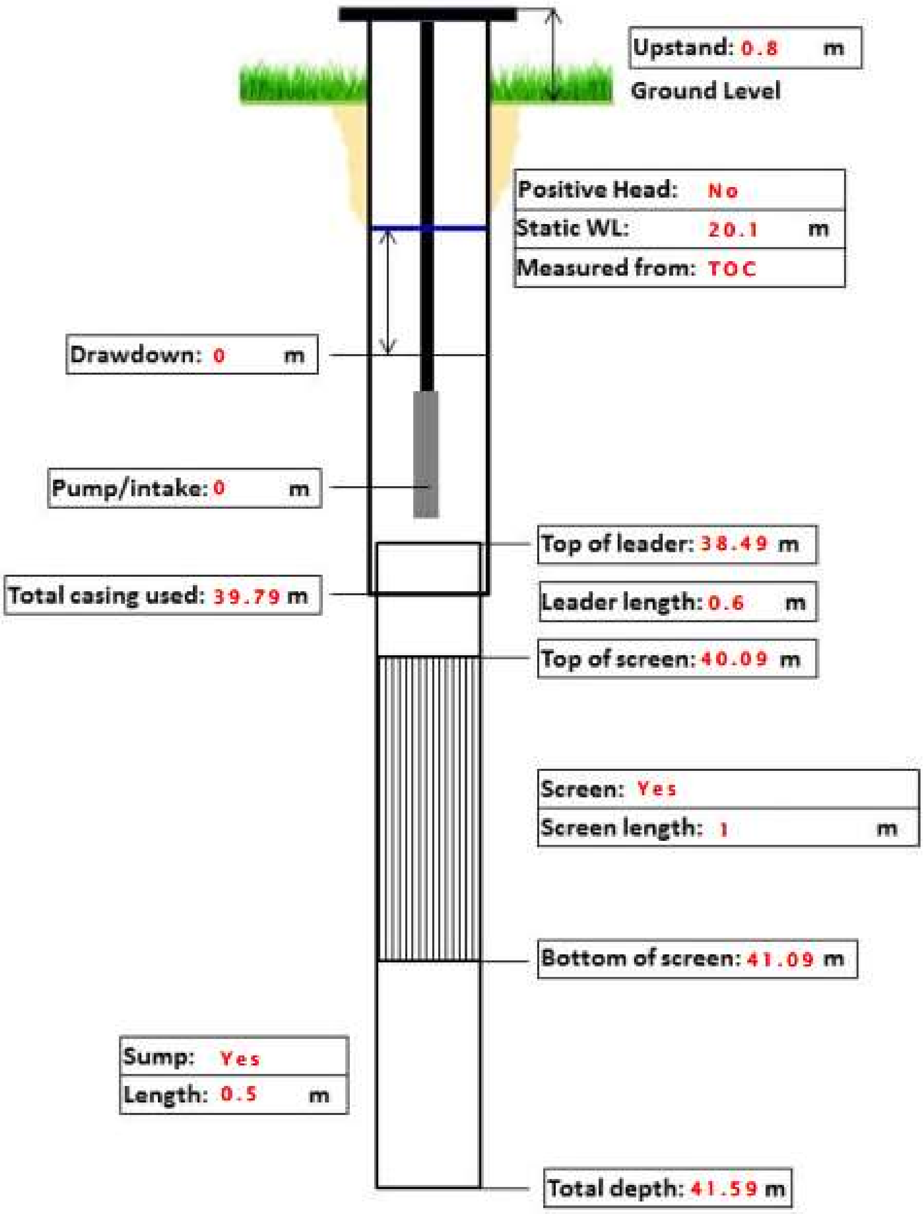
SOUTHDRILL EXPLORATION & PILING

OFFICE USE ONLY		
Date received:	Accession number:	Signed:
Bore number: **2833 hole no2**	Entered IRIS date:	Invoice date:

GENERAL DETAILS		
Client/Consent holder's name: **Santana Minerals**		Consent number:
Location/Address: **Bendigo**		
Grid reference - Easting: **1310545m E**	Northing: **5019488m N**	Mobile phone:
Sketch plan attached:	Photos attached:	Home phone:
DRILLING DETAILS		
Drilling company: **SouthDrill Ltd**		Driller: **Rowland Harrex**
Machine/Rig: **Western Star Drilling Rig Truck [QCL493]**		Fleet no. **2030**
Drill method(s): **Tubex**		
BORE CONSTRUCTION DETAILS		
Start date: **14/07/2026**	Finish date: **15/07/2026**	
Bore diameter: **160mm**	Casing material: **Steel**	
Screen material: **pvc**		
Screen diameter (inside): **100mm**	Screen diameter (outside): **138mm**	
Screen slots: **2.5mm**	Overdrilled: **No**	
PUMPING/WATER DETAILS		
Dry bore: **No**	If dry, was casing retrieved?	Bore filled in:
Development period: **2 hours**	Development method: **Airlifted**	
Yield/test pumping:	Test pump period: **0 hours**	
Test pump rate: **0 litres/second**	Method of measuring reate:	
Comments: **tranducer hole for pump test .400mm bore**		
Pumped water level: **0 metres**		
WATER QUALITY ETC		
Bacterial water test: **No**	Chemical water test: **No**	
Casing top sealed: **Yes**	Impervious seal at ground: **Yes**	
Comments: **welded steel cap**		
BORE LOG (METRES BELOW REFERENCE POINT)		
0m–0.2m	top soil	
0.2m–39.5m	sandy coarse gravels odd cobble	
39.5m–41.59m	silty coarse gravels	
41.59m		
Do you intend to drill more bores under this Land Use Consent number? **No**		
If yes, number of bores drilled:	Number of bore logs provided:	

Bore Construction Diagram

Bore number:
2833 hole no2



CB13/0263 150 mm Obs-3 Observation Bore

Bore Construction Report

SOUTHDRILL EXPLORATION & PILING

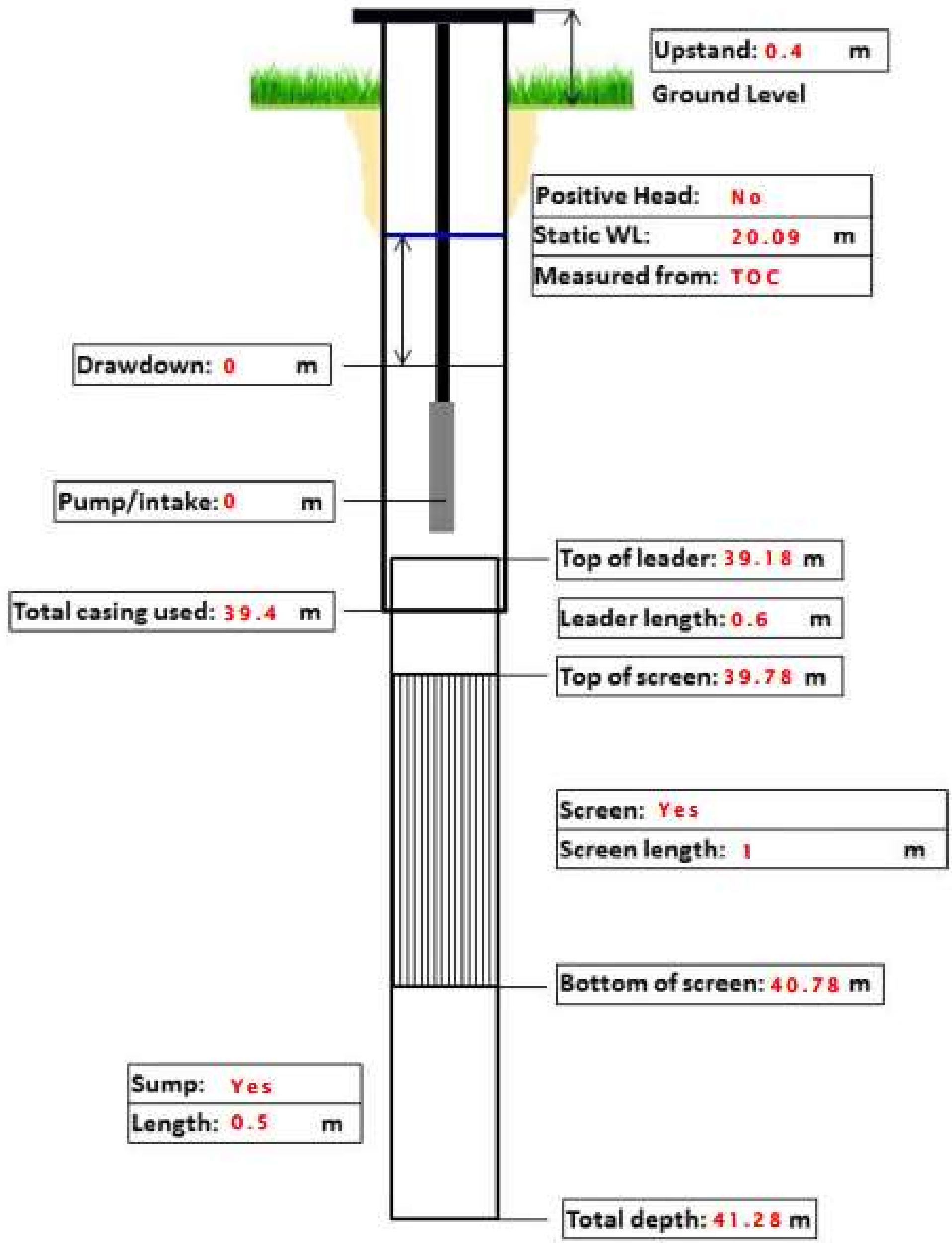
OFFICE USE ONLY		
Date received:	Accession number:	Signed:
Bore number: **2833 hole no3**	Entered IRIS date:	Invoice date:

GENERAL DETAILS		
Client/Consent holder's name: **Santana Minerals**		Consent number: **26**
Location/Address: **Bendigo**		
Grid reference - Easting: **1310543m E**	Northing: **5019603m N**	Mobile phone:
Sketch plan attached:	Photos attached:	Home phone:
DRILLING DETAILS		
Drilling company: **SouthDrill Ltd**		Driller: **Rowland Harrex**
Machine/Rig: **Western Star Drilling Rig Truck [QCL493]**		Fleet no. **2030**
Drill method(s): **Tubex**		
BORE CONSTRUCTION DETAILS		
Start date: **15/07/2026**	Finish date: **16/07/2026**	
Bore diameter: **160mm**	Casing material: **Steel**	
Screen material: **pvc**		
Screen diameter (inside): **100mm**	Screen diameter (outside): **138mm**	
Screen slots: **2.5mm**	Overdrilled: **No**	
PUMPING/WATER DETAILS		
Dry bore: **No**	If dry, was casing retrieved?	Bore filled in:
Development period: **2 hours**	Development method: **Airlifted**	
Yield/test pumping:	Test pump period: **0 hours**	
Test pump rate: **0 litres/second**	Method of measuring reate:	
Comments: **pesso hole no3 for .400mm pump hole**		
Pumped water level: **metres**		
WATER QUALITY ETC		
Bacterial water test:	Chemical water test:	
Casing top sealed:	Impervious seal at ground:	
Comments:		

BORE LOG (METRES BELOW REFERENCE POINT)	
0m–0.1m	top soil
0.1m–13.6m	sandy coarse gravels odd cobbles
13.6m–14.8m	sands wet
14.8m–38.2m	sandy coarse gravels
38.2m–41.28m	silty coarse gravels
41.28m	
Do you intend to drill more bores under this Land Use Consent number? **No**	
If yes, number of bores drilled:	Number of bore logs provided:

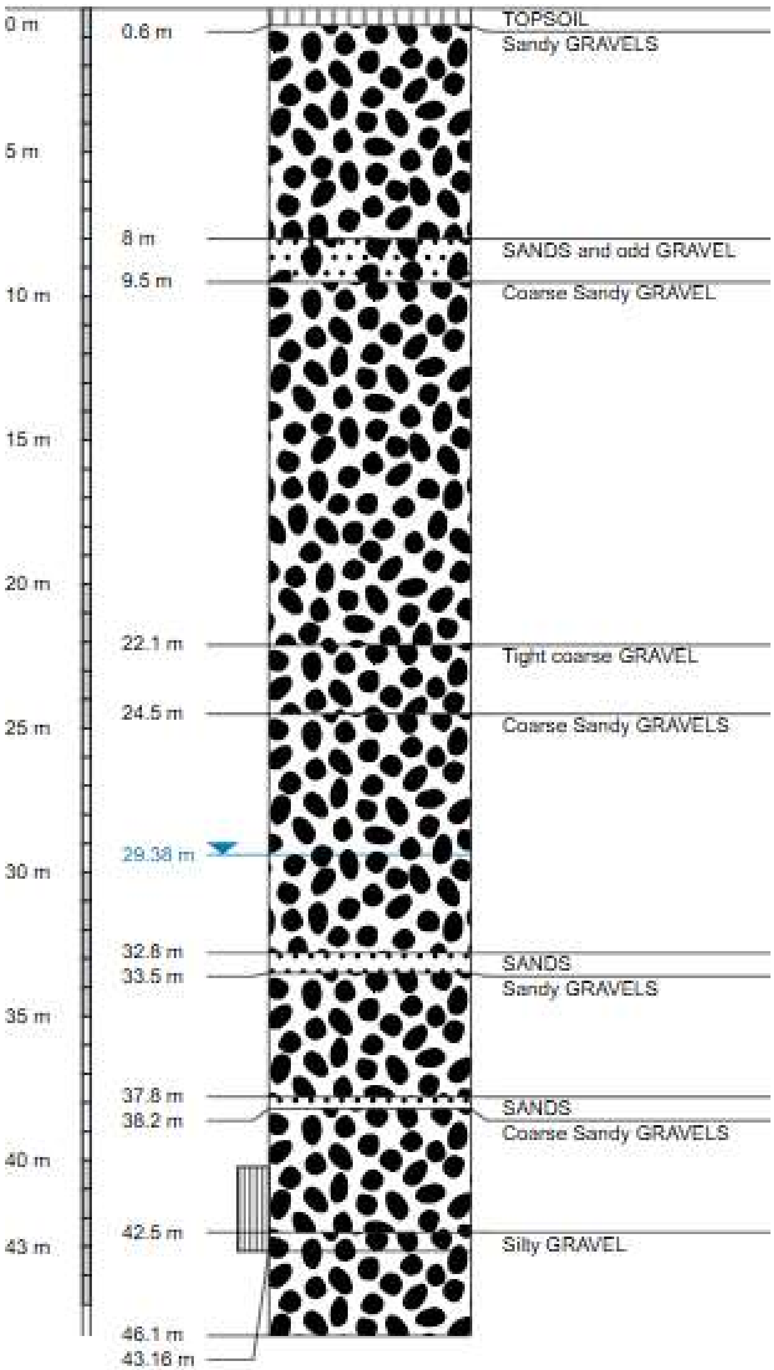
Bore Construction Diagram

Bore number:
2833 hole no3



CB13/0159 50 mm Bendigo Aquifer Monitoring Bore

Council well number	: CB13/0159
Well name	: Bendigo Bore / Loop Road Bore
Drilling company	: SouthDrill
Drilling date	: 21/05/2021
Drilling method	: Tubex
Locality	: -
Total depth drilled	: 43.16m
NZTM	: 1311243 : 5020109



Appendix 2. Step Rate Test Data (Manual)

Pumped Bore 400mm

SOUTHDRILL

4x STEP TEST

Client :	Santana Minerals	2.35pm	Piezo #2 SWL 20.12, Piezo #3 SWL 20.10
Date :	21.07.26		

SWL :	20.79
Rainfall :	
GPS Discharge :	
Bore ID :	400mm bore

TIME STARTED FLOW: 9.42 am		LPS	NTU
30			
1m			
2m			
3m			
4m			
5m	24.840	40.68	
10m	24.790	41.42	
15m	24.790		
20m	24.790		
30	24.790	41.82	
45	24.790		
1 hour			

NEXT STEP FLOW: 10.30am		LPS	NTU
30	26.200		
1m	26.830		
2m	26.940	60.2	
3m	26.940		
4m	26.935		
5m	26.940	58.99	
10m	26.935		
15m	26.930	59.95	
20m	26.930		
30	26.925	59.91	
45	26.850		
1 hour	26.850		

NEXT STEP FLOW: 11.30am		LPS	NTU
30	29.260	80.0	
1m	29.290		
2m	29.290		
3m	29.300		
4m	29.300		
5m	29.300	80.0	
10m	29.300		
15m	29.300		
20m	29.305		
30	29.310		
45	29.350		
1 hour	29.320		

NEXT STEP FLOW: 12.30pm		LPS	NTU
30			
1m			
2m			
3m			
4m			
5m			
10m	30.490	88.0	
15m	30.490		
20m	30.500		
30	30.505		
45	30.515		
1 hour	30.525		

Recovery:			
30			
1m	20.920		
2m	20.890		
3m	20.880		
4m	20.875		
5m	20.870		
10m	20.870		
15m	20.865		
20m	20.865		
30	20.860		
45	20.855		
1 hour	20.850		

Step Rate Test Data (Manual): Observation Bore Obs-1 (later becomes PB-2)

4x STEP TEST

Client :	Santana Minerals
Date :	21.07.26

SWL :	21.44
Rainfall :	
GPS Discharge :	
Bore ID :	Pizzo 1

TIME STARTED FLOW: 9.42 am		LPS	NTU
30			
1m			
2m	22.010		
3m	21.950	Adjusting flow	
4m	21.890		
5m	21.420	40.68	
9.52am 10m	21.080	41.42	
15m	21.086		
20m	21.080		
30	21.090		
45			
10.30am 1 hour			

NEXT STEP FLOW: 10.34		LPS	NTU
30	21.250		
1m	21.350		
2m	21.380	60.2	
3m	21.390		
4m	21.390		
5m	21.390	58.99	
10m	21.385		
15m	21.390	59.98	
20m	21.390		
30	21.390	59.9	
45	21.390		
1 hour	21.395		

NEXT STEP FLOW:		LPS	NTU
30	21.650		
1m	21.710		
2m	21.710	80.0	
3m	21.710		
4m	21.710		
5m	21.710	80.0	
10m	21.710		
15m	21.710		
20m	21.710		
30	21.720		
45	21.725		
1 hour	21.725		

NEXT STEP FLOW:		LPS	NTU
30		81.0	
1m		82.0	
2m		86.0	
3m		86.0	
4m		85.0	
5m		88.0	
10m		89.0	
15m	21.880		
20m	21.880		
30	21.880		
45	21.890		
1 hour	21.900		

Recovery:			
30			
1m			
2m			
3m			
4m	20.530		
5m	20.530		
10m	20.530		
15m	20.525		
20m	20.525		
30			
45			
1 hour			

Appendix 3. Step Rate Test Data (Manual Data)

	Pumped Bore #1 (PB-1)	
GPS Location	1310621mE	5019482mN
Transducer Label	"SD Bore No.1 30m"	
Pump Details	Intake @ 32.52 m	
Static Water Level (m)	20.81 m ToC	
Main Casing Diameter	400 mm	
Radius (m)		0.2

	Time (min)	Time (hr)	Cumulative Time (min)	DTW (m)	Drawdown (m)	Rate (L/s)	Mean Rate (L/s)
Step 1	5	0.08	5.00	24.84	4.030	40.68	
	10	0.17	10.00	24.79	3.980	41.42	
	15	0.25	15.00	24.79	3.980		
	20	0.33	20.00	24.79	3.980		
	30	0.50	30.00	24.79	3.980	41.82	
	45	0.75	45.00	24.79	3.980		
End Step 1	48	0.80	48.00	_	_		41.30667
Step 2	0.5	0.8083	48.50	26.2	5.390		
	1	0.8167	49.00	26.83	6.020		
	2	0.8333	50.00	26.94	6.130		
	3	0.8500	51.00	26.94	6.130		
	4	0.8667	52.00	26.935	6.125		
	5	0.8833	53.00	26.94	6.130	58.49	
	10	0.9667	58.00	26.935	6.125		
	15	1.0500	63.00	26.93	6.120	59.98	
	20	1.1333	68.00	26.93	6.120		
	30	1.3000	78.00	26.925	6.115	59.91	
	45	1.5500	93.00	26.85	6.040		
End Step 2	60	1.8000	108.00	26.85	6.040		59.46
Step 3	0.5	1.8083	108.50	29.26	8.450	80	
	1	1.8167	109.00	29.29	8.480		
	2	1.8333	110.00	29.3	8.490		
	3	1.8500	111.00	29.3	8.490		
	4	1.8667	112.00	29.3	8.490		
	5	1.8833	113.00	29.3	8.490	80	
	10	1.9667	118.00	20.3	8.490		
	15	2.0500	123.00	29.3	8.490		
	20	2.1333	128.00	29.3	8.490		
	30	2.3000	138.00	29.31	8.500		
	45	2.5500	153.00	29.315	8.505		
End Step 3	60	2.8000	168.00	29.32	8.510		80

	Time (min)	Time (hr)	Cumulative Time (min)	DTW (m)	Drawdown (m)	Rate (L/s)	Mean Rate (L/s)
Step 4	0.5	2.8083	168.50	_	_		
	1	2.8167	169.00	_	_	82	
	2	2.8333	170.00	_	_	86	
	3	2.8500	171.00	_	_	86	
	4	2.8667	172.00	_	_	85	
	5	2.8833	173.00	_	_	88	
	10	2.9667	178.00	30.49	9.680	89	
	15	3.0500	183.00	30.49	9.680		
	20	3.1333	188.00	30.5	9.690		
	30	3.3000	198.00	30.505	9.695		
	45	3.5500	213.00	30.515	9.705		
End Step 4	60	3.8000	228.00	30.525	9.715		88
Recovery	0.5	3.8083	228.50			0	0
	1	3.8250	229.50	20.92	0.110	0	0
	2	3.8583	231.50	20.89	0.080	0	0
	3	3.9083	234.50	20.88	0.070	0	0
	4	3.9750	238.50	20.875	0.065	0	0
	5	4.0583	243.50	20.87	0.060	0	0
	10	4.2250	253.50	20.87	0.060	0	0
	15	4.4750	268.50	20.865	0.055	0	0
	20	4.8083	288.50	20.865	0.055	0	0
	30	5.3083	318.50	20.86	0.050	0	0
	45	6.0583	363.50	20.855	0.045	0	0
	60	7.0583	423.50	20.85	0.040	0	0

Note: ToC = Measured with respect to Top of Casing

DTW = Depth to Water

Appendix 4. Constant Rate Test Data (Manual)

Client :	Santana	12.44pm 17/07/2026	Transducer 34.5m	12.56pm 17/07/2026	
Production Bore	400mm	**PUMP BORE**	150mm Pizo#1	**MONITORING BORE 2**	
GPS Location:	E1310621 N501982	GPS location	E1310607 N5019486	GPS location	E1310546 N5019485
Transducer #	SD Bore No. 1 30m	SWL	20.47	SWL	20.10
Pump Details	Intake 32.52	Upstand casing		Upstand casing	80cm
SWL	20.81 17/07/2026 12.30pm	Piezo dia	150mm	Piezo dia	150mm
Upstand casing		Piezo depth		Piezo depth	
Casing Dia	400mm	Transducer #	SD Bore #2	Transducer #	SD Bore #3
Notes		**MONITORING BORE 3**	1.20pm 17/07/2026	**MONITORING BORE 4**	
Rainfall		GPS location	E1310545 N5019603	GPS location	
GPS discharge		SWL	20.1	SWL	
Date started		Upstand casing	40cm	Upstand casing	
date ended		Piezo dia	150mm	Piezo dia	
		Piezo depth		Piezo depth	
		Transducer #	SD Bore #4	Transducer #	

TIME STARTED FLOW:

SWL	400mm	Pumped Bore 150mm			400mm	150mm
TIME SINCE START	PUMPED BORE	MONITORING BORE 1	MONITORING BORE 2	MONITORING BORE 3	FLOW LPS	FLOW LPS
30				20.080		
1m				20.100	81.5	18.5
2m				20.100		
3m			20.175	20.100		
4m			20.180	20.110		
5m				20.130		
10m			20.180	20.150	79.8	18.5
15m			20.185	20.150		
20m			20.190	20.150		
30m	29.7	27.025	20.190	20.155	79.8	18.5
45m			20.200	20.150		
1 hour			20.205	20.160		
1.5 hours	29.71	27.075	20.220	20.150	80.0	18.5
2hours			20.230	20.150		
2.5 hours			20.240	20.150		
3 hours			20.245	20.170		
4 hours	29.78	27.12	20.265	20.150	80.0	18.5
5 hours			20.280	20.160		
7 hours	29.83		20.310	20.180	80.0	18.5
9 hours						
12 hours						
05.30 am	29.995	27.320			80.0	18.5
07.00am 20 hours			20.340	20.270		
24 hours	30.050	27.340	20.460	20.290	80.0	18.5
28 hours	30.075	27.365	20.480	20.310	80.0	18.5
07.00pm 32 hours	30.120	27.420	20.505	20.330	80.0	18.5
36 hours						
40 hours						
07.00am 44 hours	30.200	27.480	20.560	20.370	80.0	18.8
48 hours	30.200	27.495	20.570	20.385	80.0	18.8
52 hours	30.200	27.480	20.580	20.390	80.0	18.8
07.00pm 56 hours	30.235	27.530	20.600	20.410	80.0	18.8
60 hours						
64 hours						
07.00am 68 hours	30.300	20.640	20.640	20.430	80.0	18.8
72 hours	30.290	27.575	20.640	20.440	80.0	18.8
76Hours	30.275	27.560	20.640	20.440	80.0	18.8
07.00pm 80Hours	30.290	27.590	20.650	20.450	80.0	18.8
84Hours						
88Hours						
07.00am 92Hours	30.345	27.625	20.675	20.470	80.0	18.8
96Hours	30.340	27.615	20.675	20.470	80.0	18.5
100Hours	30.310	27.610	20.670	20.470	80.0	18.5
07.00pm 104Hours	30.340	27.630	20.680	20.475	80.0	18.5
108Hours						
112Hours						
07.00am 116Hours	30.375	27.655	20.690	20.490	80.0	18.8
120Hours	30.355	27.645	20.690	20.490	80.0	18.5
124Hours	30.330	27.620	20.690	20.490	80.0	18.5
07.00pm 128Hours	30.340	27.655	20.690	20.490	80.0	18.8
132Hours						
136Hours						
07.00pm 140Hours	30.360	27.670	20.695	20.485	80.0	18.5
10.50am 144Hours	30.335	27.640	20.695	20.485	80.0	18.5

Appendix 5. Flow Meter Data (PB-1 and PB-2)

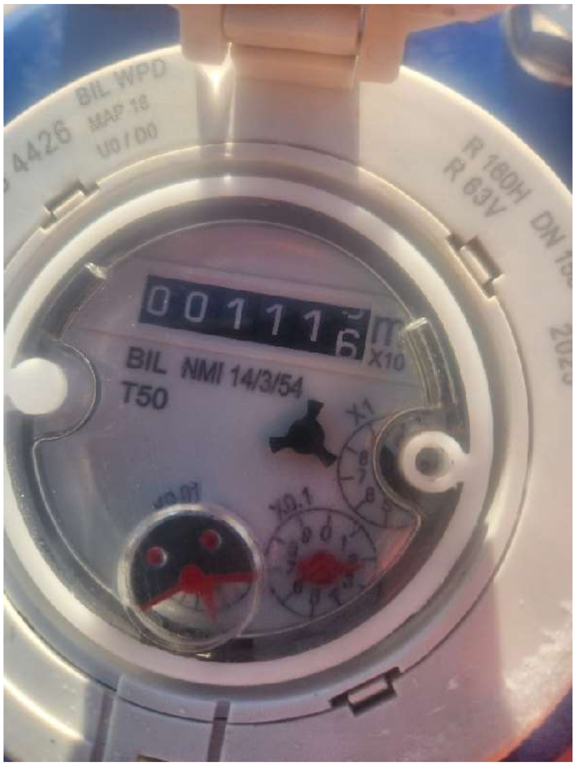
Date & Time of Reading	PB-1 Meter	PB-2 Meter	Combined
24/07/2026 10:56	12162.69	14300.7	
3/08/2026 17:48	52966.75	23844.31	
Total for Test	40,804.06	9,543.61	50,347.67
Mean Daily Volume (m^3/d)	6,800.7	1,590.6	8,391.3
Mean Pumping Rate (L/s)	78.7	18.4	97.1

Photographs of the flow meter face readings are provided alongside the date and time of the taking of the photograph, overleaf.

Photographs of the flow meter faces were taken 15 minutes prior to the start of constant rate test pumping and four days after the conclusion of the six-day pumping test. No pumping was undertaken at either pumped bore following the conclusion of the test at 11 am 30 July 2026, therefore the photographs taken on 5:48 pm 3 August 2026 relate to meter readings that were the same as the readings on 11 am 30 July 2026.

PB-1 Flow Meter Readings

24/07/2026 10:56



3/08/2026 17:48

PB-2 Flow Meter Readings

24/07/2026 10:56

3/08/2026 17:48

Appendix 6. Water Permit RM26.365.01

Otago Regional Council

Our Reference: 2129690870-14236 Consent No. RM26.356.01

WATER PERMIT

Pursuant to Section 104C of the Resource Management Act 1991, the Otago Regional Council grants consent to:

Name:	Matakanui Gold Limited
Address:	Cuffs Limited, Level 2, Como House, 51 Tancred Street, Hokitika, 7810, New Zealand

To take and use ground water for the purpose of undertaking an aquifer test

For a term expiring 13 October 2026

Location of Point of Abstraction:	Bendigo, approximately 2.8 kilometres northeast of the intersection of Bendigo Loop Road and Tarras-Cromwell Road (State Highway 8)
Legal Description of land at point of abstraction:	Lot 2 Deposited Plan 316124
Legal Description of land (s) where water is to be used:	Lot 2 Deposited Plan 316124
Map Reference at point of abstraction (NZTM2000):	E1310619 N5019489

Conditions

Specific

1. The taking and use of groundwater must be carried out in accordance with the plans and all information submitted with the application, detailed below, and all referenced by the Consent Authority as consent number RM26.356.

   a) Form 1 – Application for resource consent, dated 29 June 2026
   b) Form 5 – Application To Take and Use Groundwater (not allocated as surface water)
   c) Covering letter Application to Take Groundwater from Bendigo Aquifer for Temporary Aquifer Test Activities, Jens Rekker Kōmanawa Solutions, dated 26 June 2026;
   d) Aquifer test discharge plan, dated 25 June 2026;
   e) Location Map of Aquifer Test Site, 305 Bendigo Loop Road;
   f) Water Use Efficiency Statement, Jens Rekker Kōmanawa Solutions, dated 26 June 2026;
   g) Schedule 5A Identification of Depletion Effects on Surrounding Waterbodies, Jens Rekker Kōmanawa Solutions, dated 25 June 2026;
   h) Schedule 5B Identification of Drawdown and Bores, Jens Rekker Kōmanawa Solutions, dated 25 June 2026;

   If there are any inconsistencies between the above information and the conditions of this consent, the conditions of this consent will prevail.

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2. The Consent Holder must undertake the step test and the constant rate discharge test (the aquifer tests) in a manner that meets or exceeds the minimum requirements set in the Otago Regional Council Aquifer Test Guidelines. https://www.orc.govt.nz/media/14441/aquifer-test-guidelines.pdf

3. Notwithstanding Condition 2, the Consent Holder must not undertake the constant rate discharge test for a duration in excess of 14 consecutive days.

4. Groundwater must not be taken at a rate that materially exceeds 110 litres per second at any time during the aquifer tests.

Performance Monitoring

5. No less than five working days prior to commencing the aquifer testing, the Consent Holder must notify the Consent Authority in writing of the proposed commencement date.

6. a) Prior to the first exercise of this consent, the Consent Holder must install a calibrated ultrasonic flow meter with data-logging capability, with an error accuracy range of +/- 5% over the meter's nominal flow range at or about the headworks of bore CB13/0215 or affixed to the pump discharge manifold. The datalogger must time stamp a pulse from the flow meter at least once every 15 minutes and must have the capacity to hold at least one month's data of water taken.

   b) The water meter must record the hourly volume to an uncertainty of no greater than 5%.

   c) Data must be provided by a Consent Authority approved data host to the Consent Authority once daily in 15-minute period volumes. The Consent Holder must ensure data compatibility with the Consent Authority's time-series database and conform with the Consent Authority's data standards.

   d) The water meter and datalogger (water measuring system) must be installed and maintained according to the manufacturer's specifications and instructions.

   e) The Consent Holder must ensure the full operation of the water measuring system at all times during the exercise of this consent.

   f) The Consent Holder must ensure that the water measuring system is sealed so that no contamination can occur.

Advice note: the water meter and data logger should be safely accessible by the Consent Authority and its contractors at all times.

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7. No more than five working days following completion of the aquifer tests, the Consent Holder must notify the Consent Authority of writing that the activity has been completed.

8. Within 20 working days of completing the aquifer tests, the Consent Holder must provide to the following information to the Consent Authority:

   a) All raw test data, in excel spreadsheet format, including any analysis files;
   b) All data analysis and associated reporting, including any analysis files.

   All information must be provided to the Consent Holder electronically in accordance with Condition 9.

9. Where information is required to be provided to the Consent Authority in conditions this must be provided in writing to watermetering@orc.govt.nz, and the email heading is to reference RM26.356.01 and the condition(s) to which the information relates.

Notes to Consent Holder

1. *The Consent Holder will be required to pay the Consent Authority an administration and monitoring charge to recover the actual and reasonable costs incurred to ensure ongoing compliance with the conditions attached to this consent, collected in accordance with Section 36 of the Resource Management Act 1991.*

2. *The Consent Holder is responsible for obtaining all other necessary consents, permits, and licences, including those under other Acts. This consent does not remove the need to comply with all other applicable Acts (including the Property Law Act 2007 and the Health and Safety at Work Act 2015), regulations, relevant Bylaws, and rules of law.*

Issued at Dunedin this 13th day of July 2026

Rebecca Manson
Team Leader Consents