

Barossa Prescribed Water Resources Area

2025 Groundwater triggers assessment



The amended **Barossa Water Allocation Plan** (the plan) considers the high level of water use that, combined with a changing climate, is placing pressure on the water resources and the environment. In some instances, an adaptive management approach is needed to ensure water is taken sustainably. Although the plan provides the framework for determining the volume of water available to be used for consumptive purposes (the consumptive pool) the Minister has ultimate discretion to determine the volume of water available for annual allocation.

Please note: Information provided in this fact sheet about proposed policies in the amended plan are indicative only and subject to change pending consideration of the amended plan by the Minister for Climate, Environment and Water.

Regional context

The groundwater resources of the Barossa Prescribed Water Resources Area (PWRA) are managed under the Water Allocation Plan for the Barossa PWRA (the plan). The amended plan will be submitted for Ministerial approval in 2026 for implementation by 1 July 2026.

The Barossa PWRA consists of three major groundwater aquifers: two sedimentary aquifers (Upper and Lower) and fractured rock aquifers (*Figure 2*).

Groundwater adaptive management

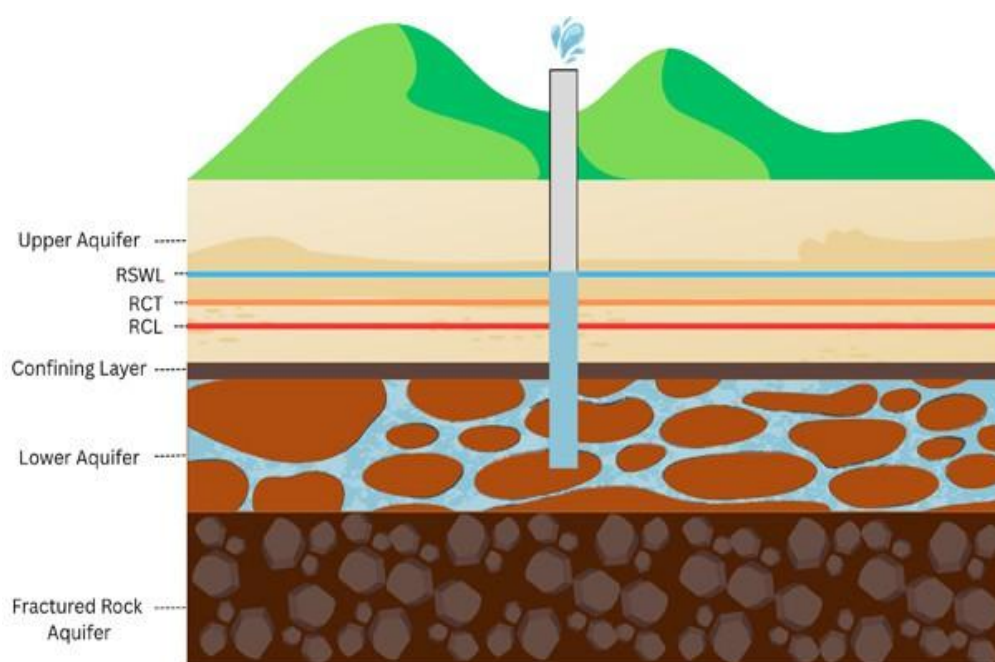
The plan proposes an adaptive management approach designed to reduce the risk of falling water levels and deteriorating groundwater dependent ecosystems, while ensuring water resources are used sustainably and efficiently. It applies particularly in areas where the groundwater resource is at highest risk of unacceptable impacts should water use increase to authorised volumes – the **Upper Aquifer Central** and **Lower Aquifer Consumptive Pools**.

The proposed adaptive management approach is underpinned by the most up to date groundwater data and employs a tiered approach to implementation, described in Table 1. A conceptual model of the framework based on a series of trigger levels (groundwater level/pressure within specified monitoring wells) is shown in Figure 1. If breached, these triggers will be used to redetermine the volume of the consumptive pool annually. The Minister will consider the volume of the consumptive pool when determining annual allocations.

The framework is discussed in more detail within the plan (principally section 6.5) and summarised below (*Table 1*).

The groundwater monitoring data collected across the Barossa PWRA in 2025 has been collated and assessed. Should the plan be approved by the Minister prior to 1 July 2026, the plan recommends the volume of water to be made available for allocation from each consumptive pool, as outlined in Table 1, with a final decision to be made by the Minister for Climate, Environment and Water.

Figure 1: Conceptual model of the measures used for the assessment of the groundwater resource triggers proposed in the plan.



Definitions of measures used for the groundwater triggers of the adaptive management:

Reduced Standing Water Level (RSWL) = measure of groundwater level relative to mean sea level.

Resource Condition Trigger (RCT) = early warning system used to notify that the RCL is at risk of being breached.

Resource Condition Limit (RCL) = quantifiable limit representing a state beyond which the physical condition of the resource becomes unacceptable requiring a management response.



Figure 2: Map of the Barossa PWRA groundwater consumptive pools. Note, Lower Aquifer extent is visible within the extent of the Upper Aquifer Regional.

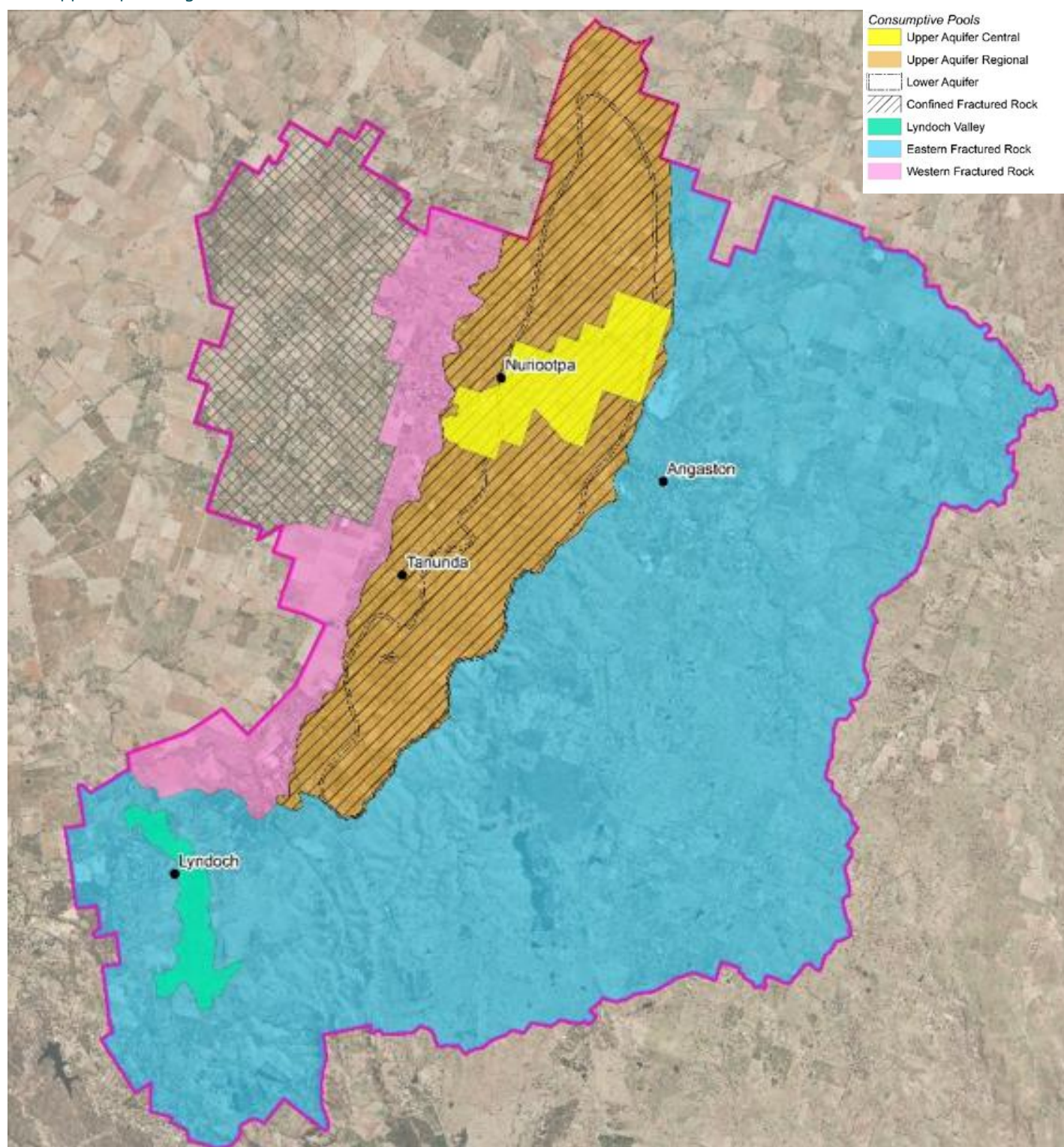


Table 1: High level summary of the adaptive management framework to be implemented for the **Upper Aquifer Central** and **Lower Aquifer Consumptive Pools** for the prescribed groundwater resources of the Barossa PWRA.

Resource	Applicable trigger	Management response
Groundwater tier 1	Aquifer water level/pressure shows suitable winter recovery (RCT is not breached)	When aquifer groundwater level/pressure shows suitable winter recovery (RCT is not breached) , the volume of the consumptive pool is set at 100% of the 'Maximum Consumptive Pool Volume'.
Groundwater tier 2	Aquifer water level/pressure do not show suitable winter recovery in a single year (RCT is breached)	When there is poor aquifer groundwater level/pressure winter recovery in two or more wells within one of the consumptive pools in a single year (RCT is breached) the volume of the consumptive pool remains at 100% of the Maximum Consumptive Pool Volume but notice will be provided to the licence holders in that consumptive pool to inform them of the initial breach of the trigger level.
Groundwater tier 3	Aquifer water level/pressure do not show suitable winter recovery across subsequent years (RCT remains breached and possibly RCL is also breached)	If aquifer groundwater level/pressure do not show sufficient recovery in two or more consecutive years (RCT remains breached and possibly RCL is also breached) , the volume of the consumptive pool is reduced to the sum of the Resource Extraction Limit and non-licensed volume . The Minister will determine the volume of water available for allocation in accordance with the reduced volume of the consumptive pool. If recovery improves in future years, the volume of the consumptive pool returns to the Maximum Consumptive Pool Volume.

More information

Northern and Yorke Landscape Board

 www.landscape.sa.gov.au/ny
 08 8841 3444
 @NYLandscapeSA
 @LandscapeSA-NY
 @LandscapeSA.NY

Upper Aquifer Central Consumptive Pool

Post winter water level is the parameter being used for the Upper Aquifer Central Consumptive Pool, which designates the area of concentrated extraction along the North Para River, and where reducing extractions would likely have immediate benefit to the groundwater resource.

Table 2 and Figure 3 present 2025 post winter water table level, RCT and RCL for four monitoring wells. The RCT is set above the RCL to act as a notification trigger for a possible future management response within a sufficient time for it to be successful in preventing unacceptable impacts. If water levels fall to the RCL, this is likely to result in unacceptable impacts to the resource such as yield declines and bores becoming dry.

In 2025, as shown in green, none of the four wells have shown post winter levels that have breached the RCT for that well and the Tier 1 approach (Table 1) is recommended.

Red or green shading in Table 2 reflects meeting the RCT/RCL assessment. **Red** means level is **below** the RCT/RCL. **Green** means level is **above** the RCT. If annual monitoring shows that the level of **two or more of the wells** has breached the RCT, the Tier 2 management approach (Table 1) is recommended. If the following year of annual monitoring shows this breach has continued, the Tier 3 management approach (Table 1) is recommended.

Table 2: Post Winter Water Levels, Resource Condition Triggers (RCT) and Resource Condition Limits (RCL) for the **Upper Aquifer Central Consumptive Pool**.

Observation Well	MOR080	MOR102	MOR197	MOR199
2025 Post Winter Water Level (WL)	265.97	268.75*	268.14	268.10
2024 Post Winter Water Level (WL)	265.97	269.16	268.38	268.65
RCT (10% decline from 2024 WL)	264.14	266.45	266.69	267.22
RCL (25% decline from 2024 WL)	260.40	262.40	264.16	265.06
Base of Aquifer	247.7	242.1	251.5	254.3

* Estimated reading

Lower Aquifer Consumptive Pool

Post winter pressure level is the parameter being used for the central part of the valley where extractions are concentrated and where the confining bed is deep and the risk from depressurisation is highest.

Given the consistency of the pressure level variations across approximately 50 years of monitoring data any change in this variation should be considered statistically significant and warrant a management response.

Table 3 and Figure 4 present 2025 post winter groundwater pressure level, RCT, RCL and top of the confining layer for six monitoring wells of the Lower Aquifer Consumptive Pool. The use of these wells was determined based on the length of monitoring and/or geographic position.

The RCL is set 5 m above the confining layer to allow for a sufficient margin for variations in the location of the confining layer. The RCT is set 4 m above this RCL (at 9m above the confining layer) to trigger notification for a possible future management action within a sufficient time for it to be used in managing unacceptable impacts that can occur following breaching of the RCL.

Red or green shading in Table 3 reflects meeting the RCT/RCL assessment. **Red** means level is **below** the RCT/RCL. **Green** means level is **above** the RCT. If annual monitoring shows that the level of **any two wells** has breached the RCT, the Tier 2 management approach (Table 1) is recommended. If the following year of annual monitoring shows this breach has continued, the Tier 3 management approach (Table 1) is recommended.

Following winter recovery, if groundwater pressure is below the RCT for two or more of the targeted monitoring wells then a management response process is initiated for the consumptive pool. In the first year of breaching the RCT, notification of all licensees in the consumptive pool is recommended. If a breach is maintained in subsequent years, the management approach of allocation reduction to the Resource Extraction Limit in the Plan is recommended.

In 2025, as shown in red in Table 3 and in the respective hydrograph in Figure 4, only one of the six wells have shown post winter levels that have breached both the RCT and the RCL for that well and the Tier 1 approach (Table 1) is recommended.

Table 3: Post Winter Groundwater Pressure in 2025, Resource Condition Triggers (RCT), Resource Condition Limits (RCL), and Top of confining layer for the updated targeted monitoring bores of the **Lower Aquifer Consumptive Pool**.

Observation Well	MOR062	MOR096	MOR097	MOR201	MOR202	MOR277
2025 Post Winter Pressure Level	249.84	266.72	258.55	225.43	246.06	260.66
RCT (4 m above RCL)	247.80	250.10	243.80	232.70	231.50	257.20
RCL (5 m above TOCL)	243.80	246.10	239.80	228.70	227.50	253.20
Top of confining layer	238.80	241.10	234.80	223.70	222.50	248.20

Figure 3: Locations and hydrographs of the historical data for the four targeted monitoring bores being used to assess the groundwater resource triggers for the area of concentrated extraction designated by the **Upper Aquifer Central Consumptive Pool** in the Plan. (Blue/Green dotted lines = groundwater levels; Yellow lines =Resource Condition Triggers; Red lines = Resource Condition Limits; Brown dotted lines = Base of the aquifer).

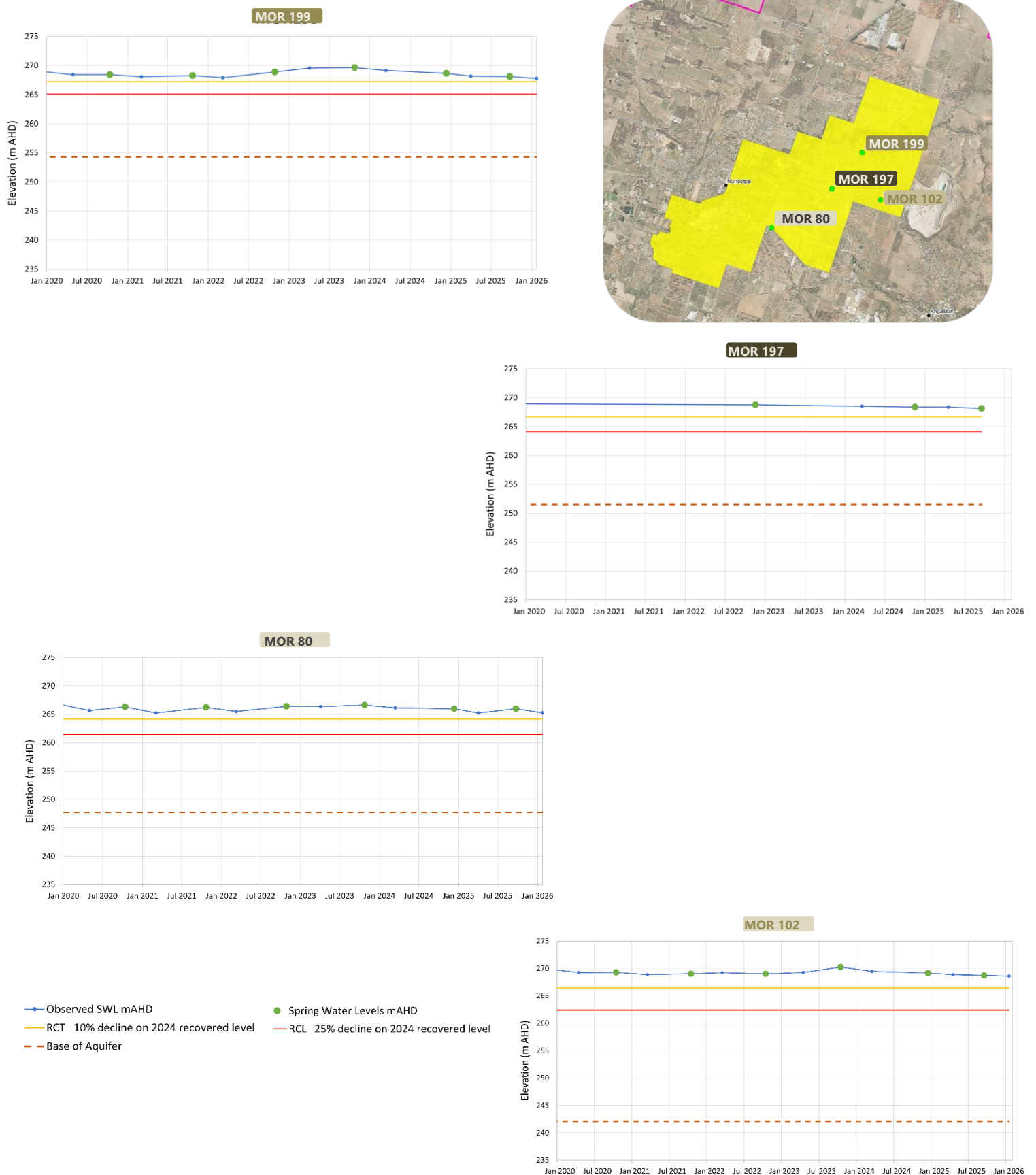


Figure 4: Locations and hydrographs of the historical data for the six targeted monitoring bores being used to assess the groundwater resource triggers for the **Lower Aquifer Consumptive Pool** in the Plan. (Blue/Green dotted lines = groundwater level; Yellow lines = Resource Condition Trigger; Red lines = Resource Condition Limit; Brown dotted lines = Top of Confining Layer;).

