

# Upper Namoi groundwater sources status update

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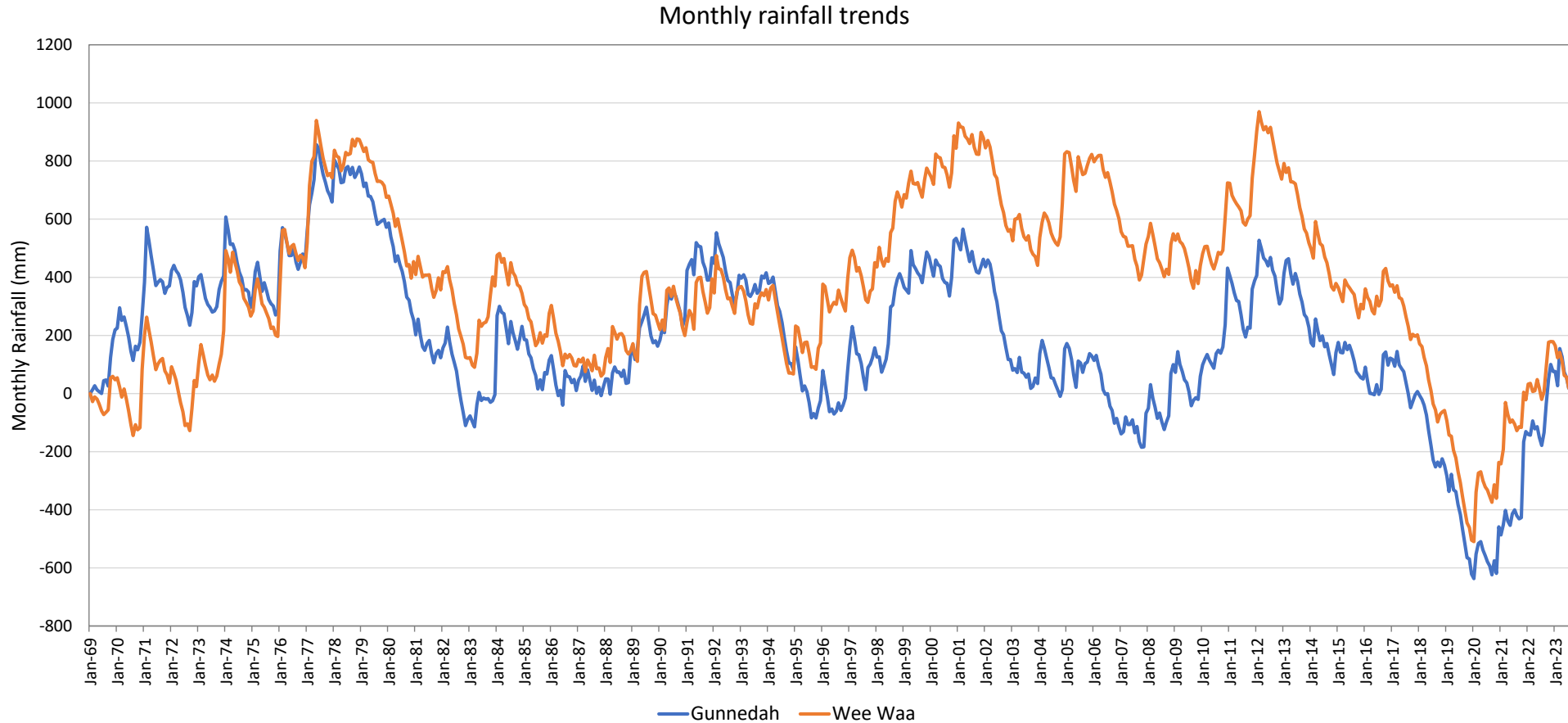
Department of  
Planning and  
Environment

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August 2023



# Rainfall Trends 1969 to July 2023



Monthly rainfall trend graph constructed using monthly data sourced from the Scientific Information for Land Owners (SILO) database. The rainfall residual mass graph plots the cumulative difference from the monthly average rainfall and provides a visual representation of the rainfall history in an area.

A falling trend indicates a period of lower than average rainfall, a rising trend showing periods of above average rainfall.

# Rainfall trends summary

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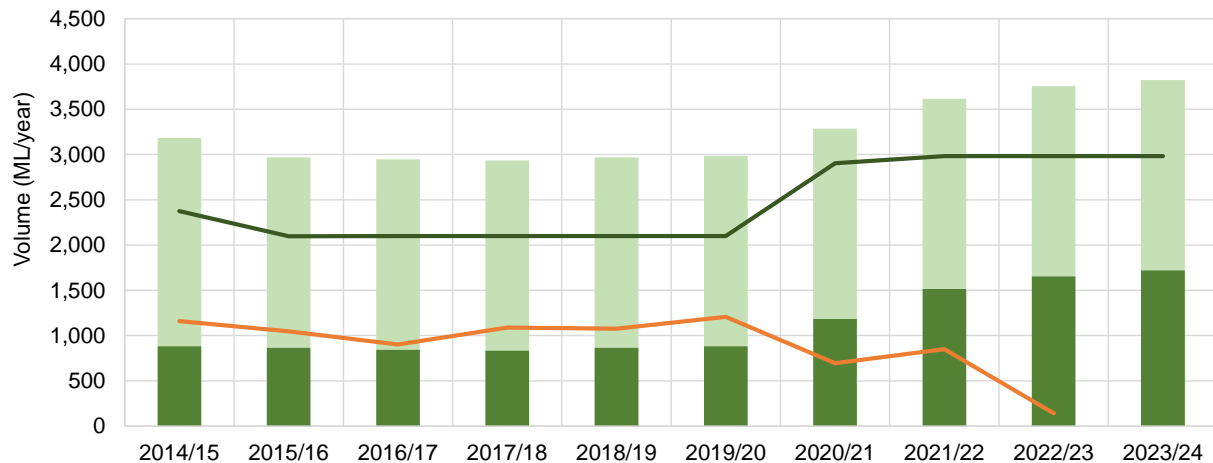
- The Gunnedah and Wee Waa rainfall trend graphs show:
  - below average rainfall in the recent drought
  - above average rainfall trends from 2020 to 2023
- Decent rainfall has resulted in low groundwater extraction since 2020.
- The BOM are forecasting lower than average rainfall in the next few months.

# Upper Namoi groundwater sources accounts 1



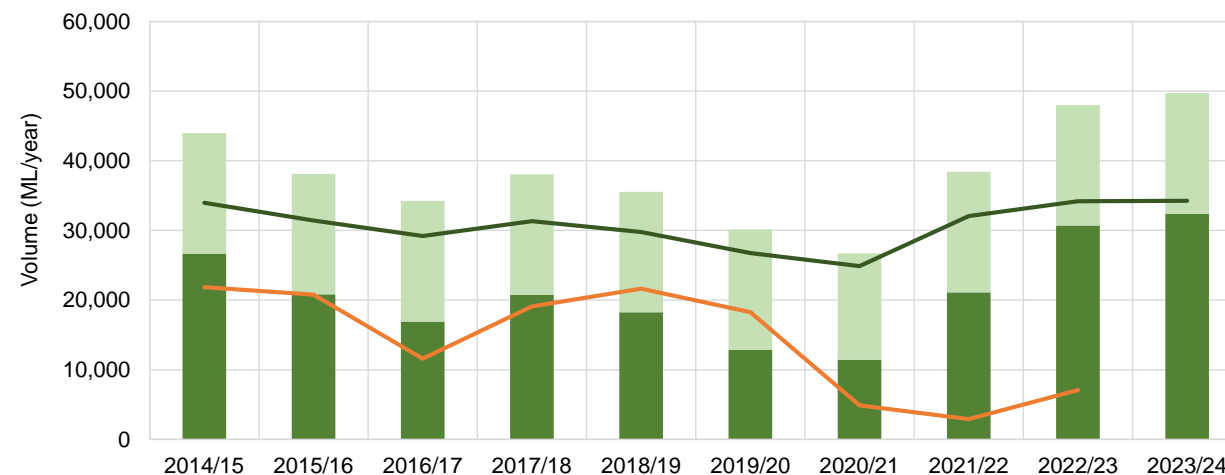
## Upper Namoi Zone 1

■ Carryover in 
 ■ Available water determination 
 — Water in accounts available for use 
 — Annual extraction



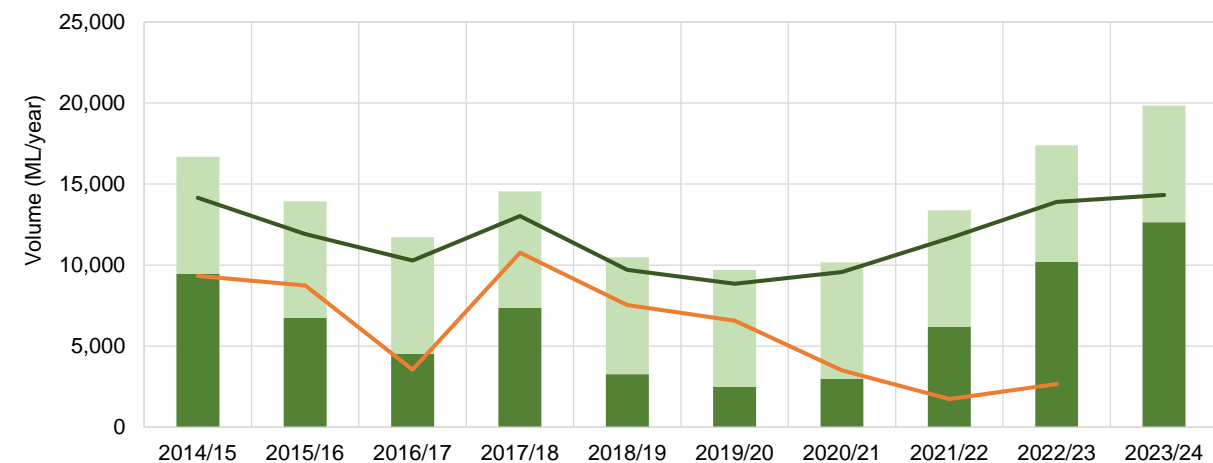
## Upper Namoi Zone 3

■ Carryover in 
 ■ Available water determination 
 — Water in accounts available for use 
 — Annual extraction



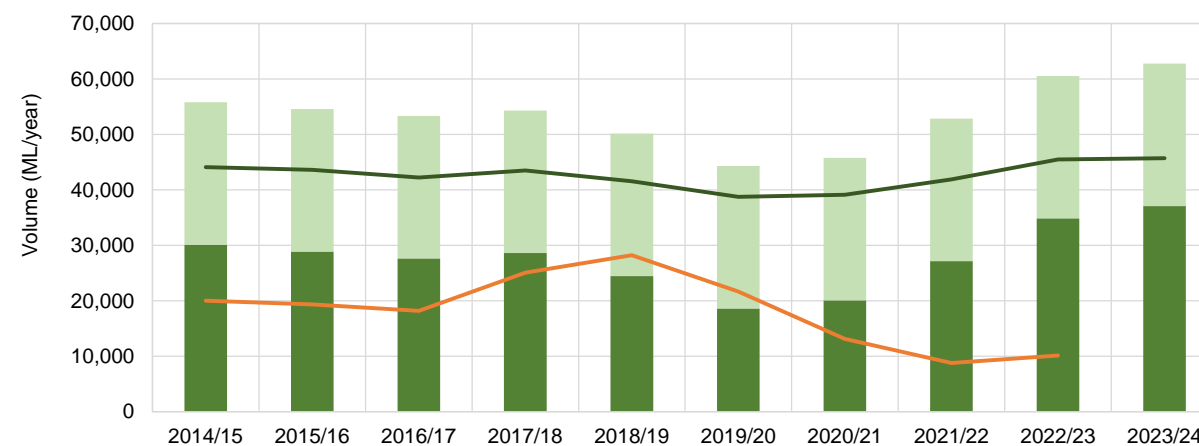
## Upper Namoi Zone 2

■ Carryover in 
 ■ Available water determination 
 — Water in accounts available for use 
 — Annual extraction



## Upper Namoi Zone 4

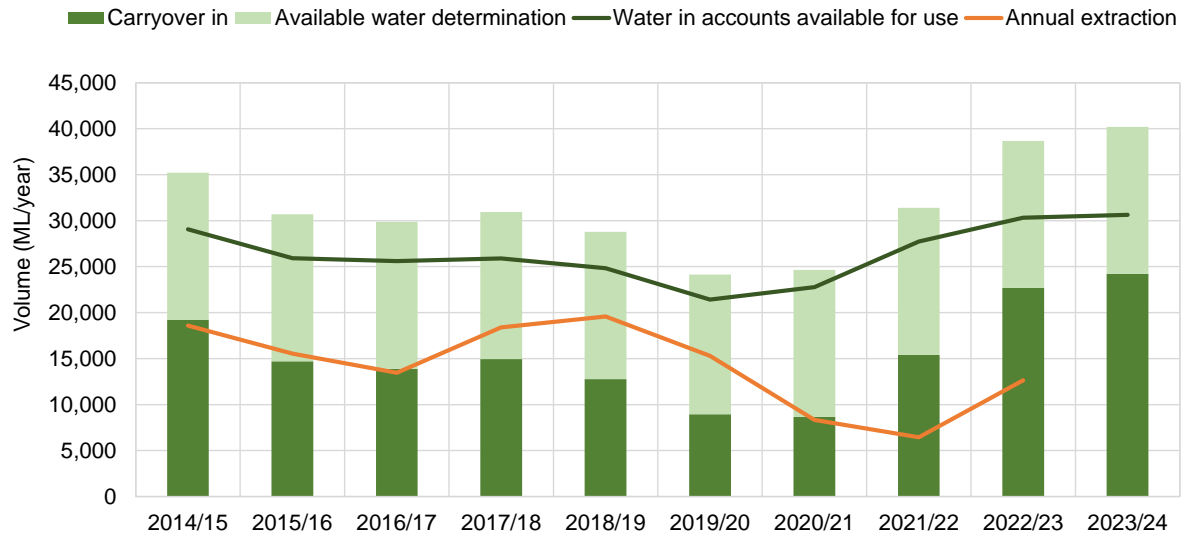
■ Carryover in 
 ■ Available water determination 
 — Water in accounts available for use 
 — Annual extraction



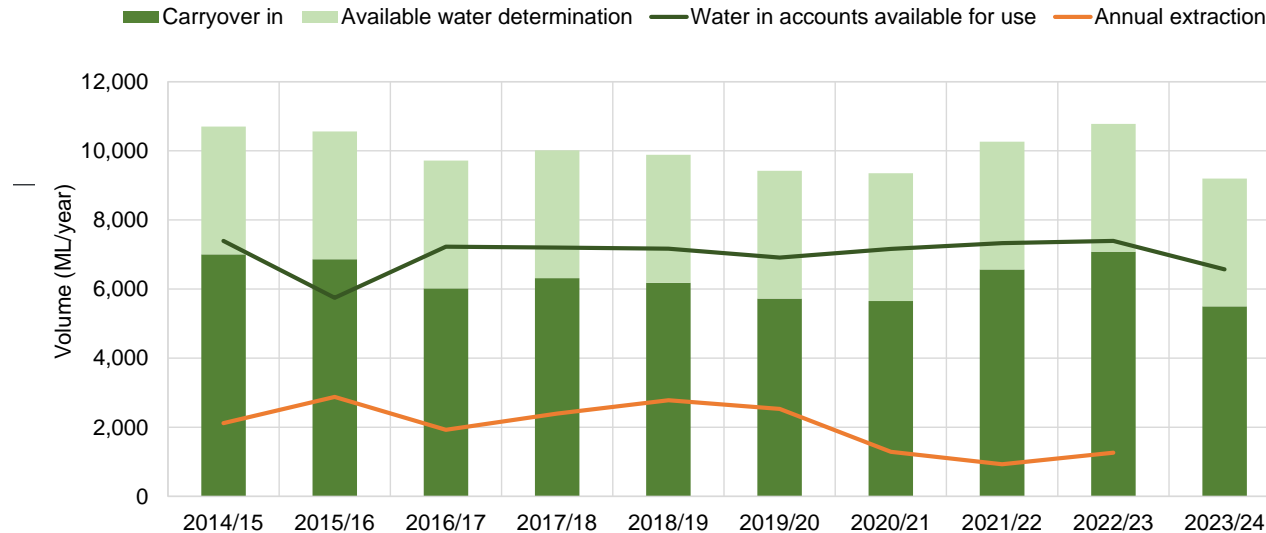
# Upper Namoi groundwater sources accounts 2



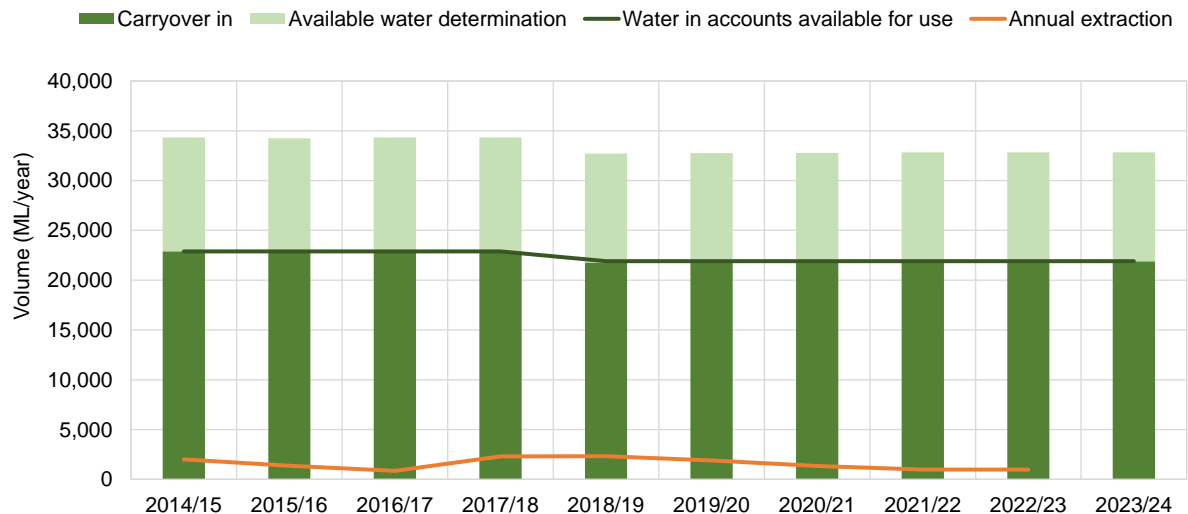
## Upper Namoi Zone 5



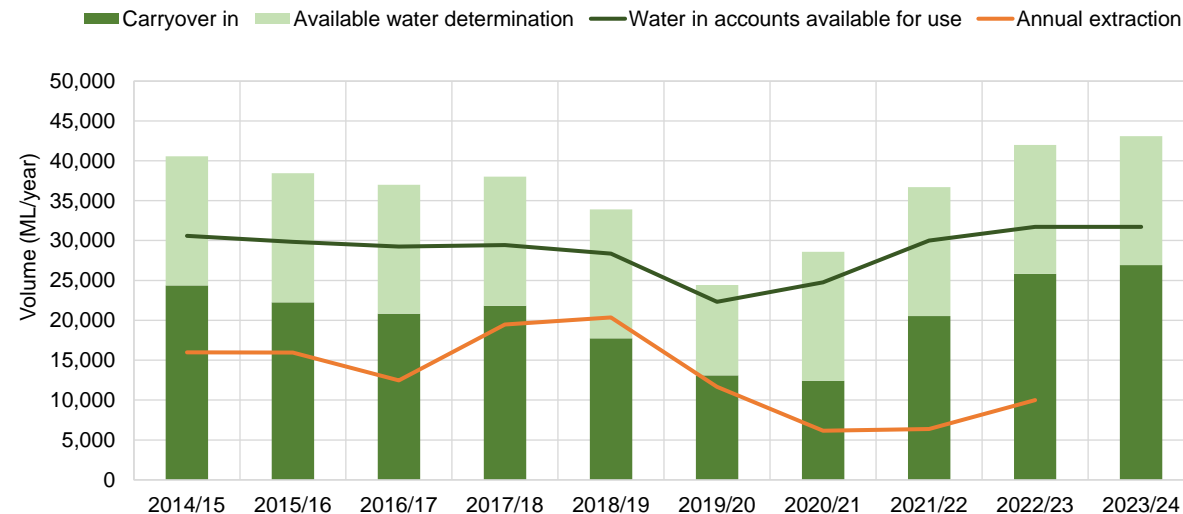
## Upper Namoi Zone 7



## Upper Namoi Zone 6



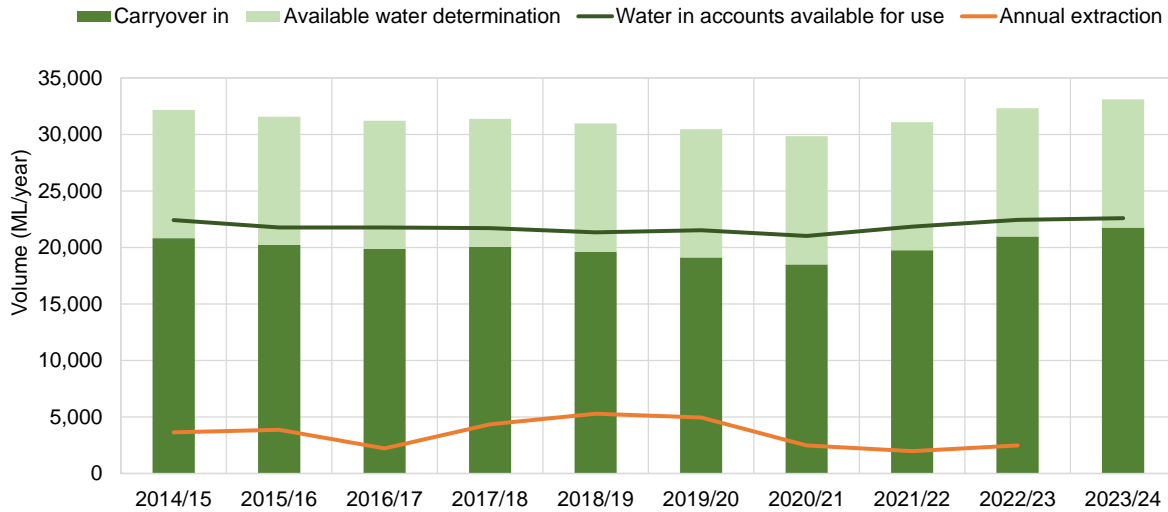
## Upper Namoi Zone 8



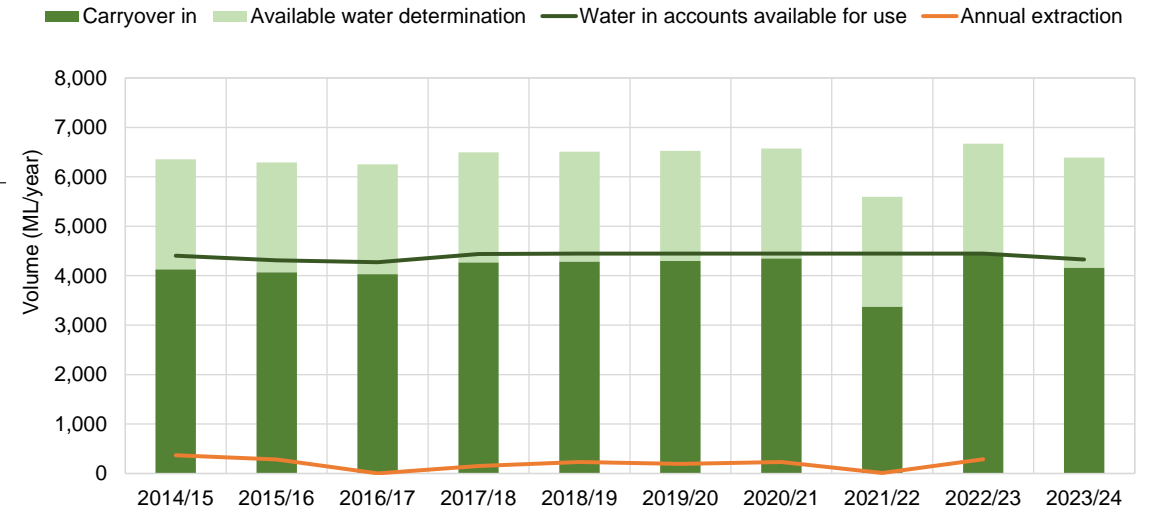
# Upper Namoi groundwater sources accounts 3



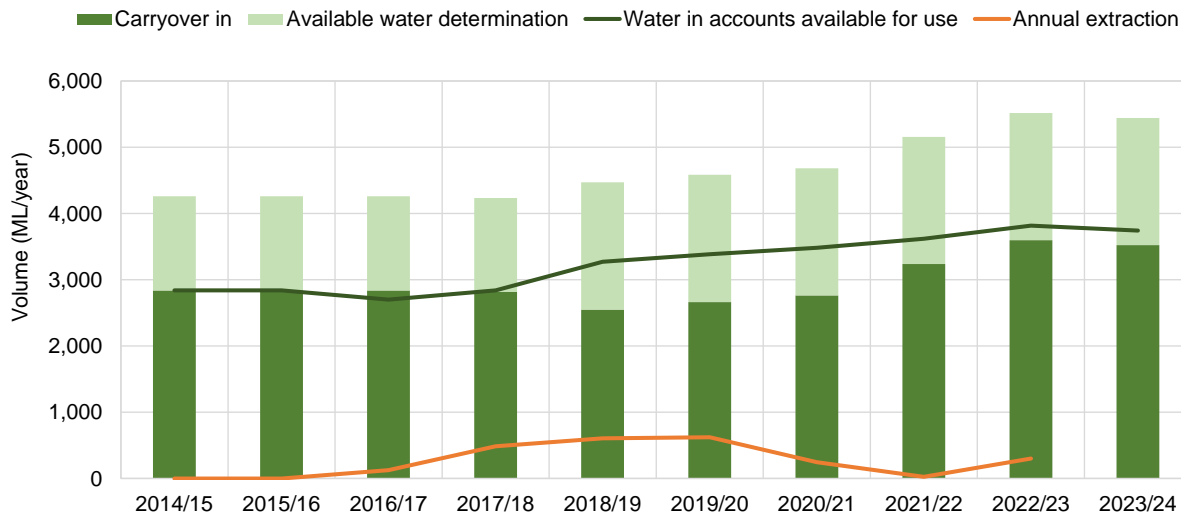
## Upper Namoi Zone 9



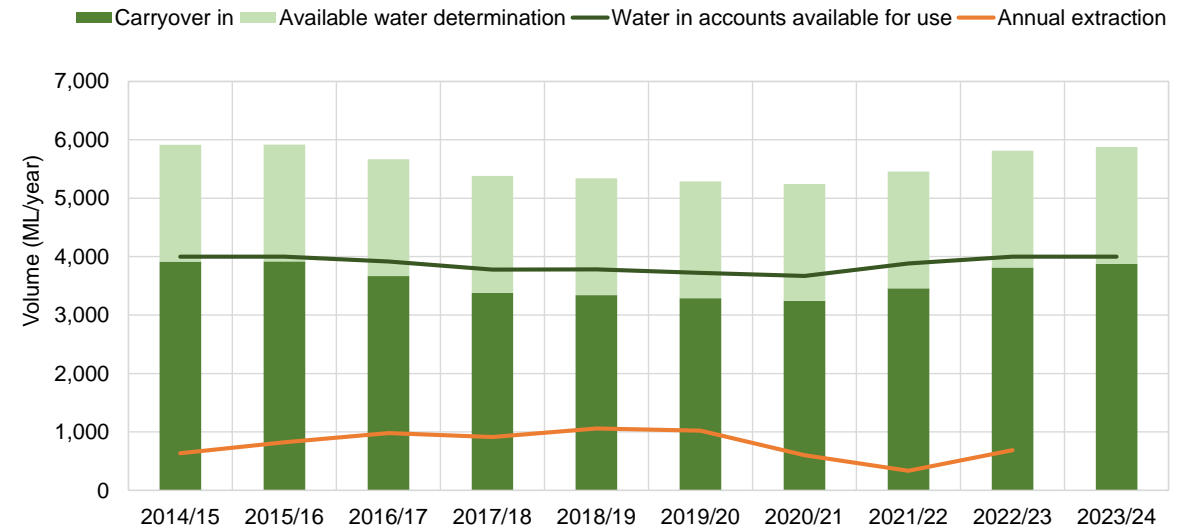
## Upper Namoi Zone 11



## Upper Namoi Zone 10



## Upper Namoi Zone 12



# Upper Namoi groundwater sources accounts summary



Groundwater source	LTAEL ML/year	Local Water Utility Entitlement	Access Licence Shares	2023/2024 total volume available for extraction ML	2023/2024 total volume available for extraction as % of maximum
Zone 1	2,127	1,216	884	2,982	100%
Zone 2	7,327	59	7,141	14,325	99%
Zone 3	17,499	198	17,101	34,256	99%
Zone 4	26,121	4,660	21,032	45,698	98%
Zone 5	16,128		15,992	30,628	96%
Zone 6	14,096		10,948	21,896	100%
Zone 7	3,721		3,697	6,568	89%
Zone 8	16,114	50	16,122	31,705	98%
Zone 9	11,441	97	11,245	22,587	100%
Zone 10	4,518		1,920	3,743	97%
Zone 11	2,269		2,223	4,329	97%
Zone 12	2,042		1,999	3,998	100%

LTAEL = long term average annual extraction limit as listed in the water sharing plan

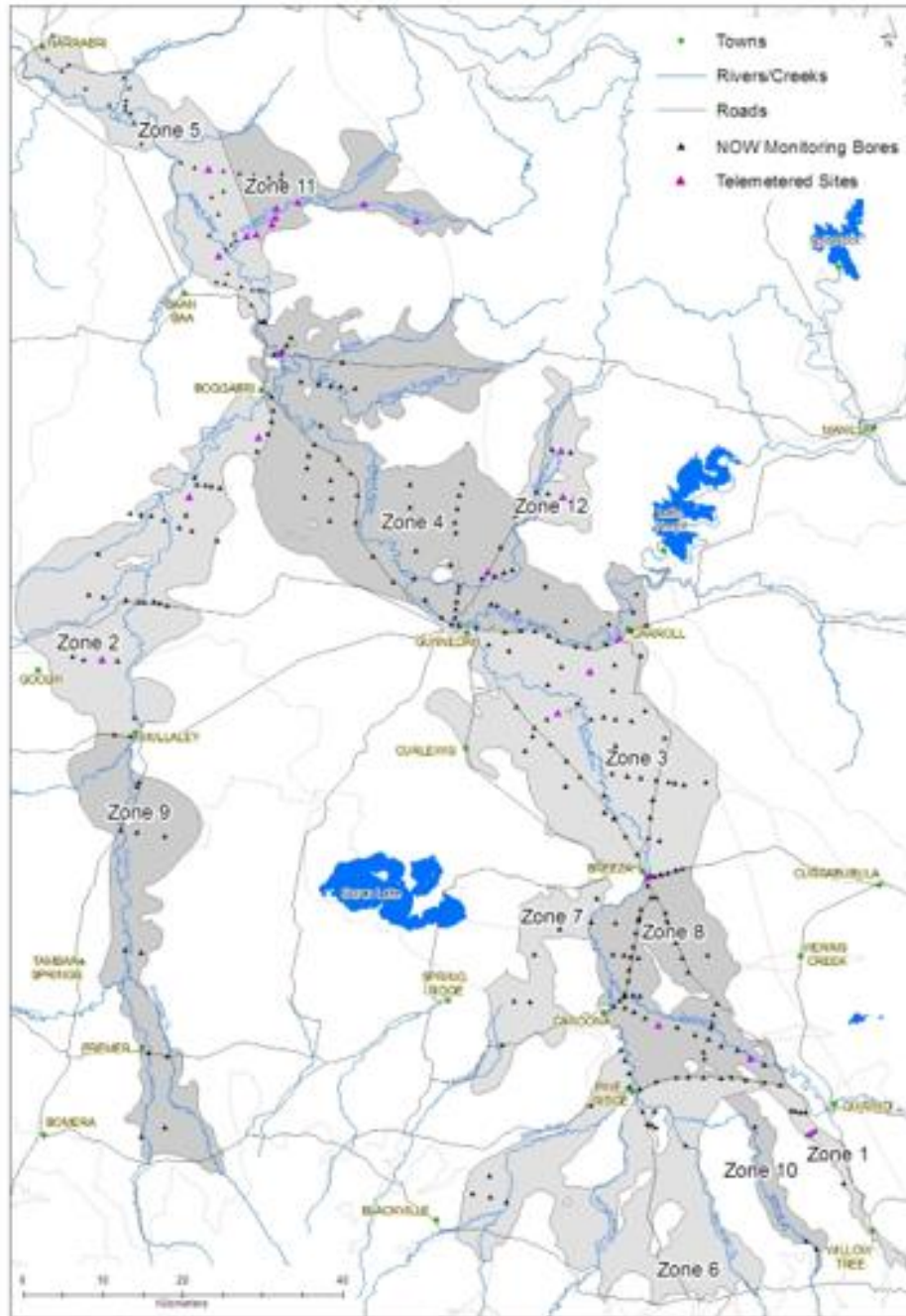
# Upper Namoi accounts

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- The carry over and account water has increased in the last few years in response to decreased extraction.
- 2023/2024 accounts are between 89% and 100% full across all groundwater sources.



# Upper Namoi groundwater level monitoring

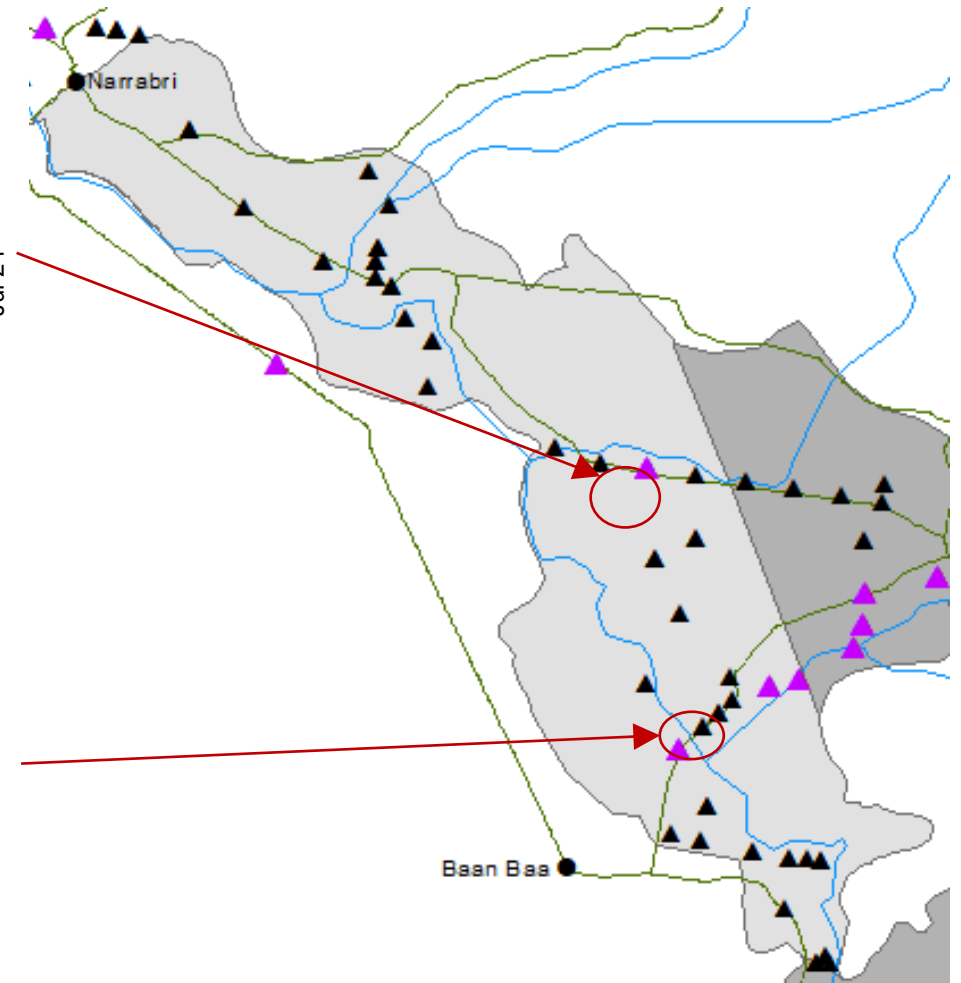
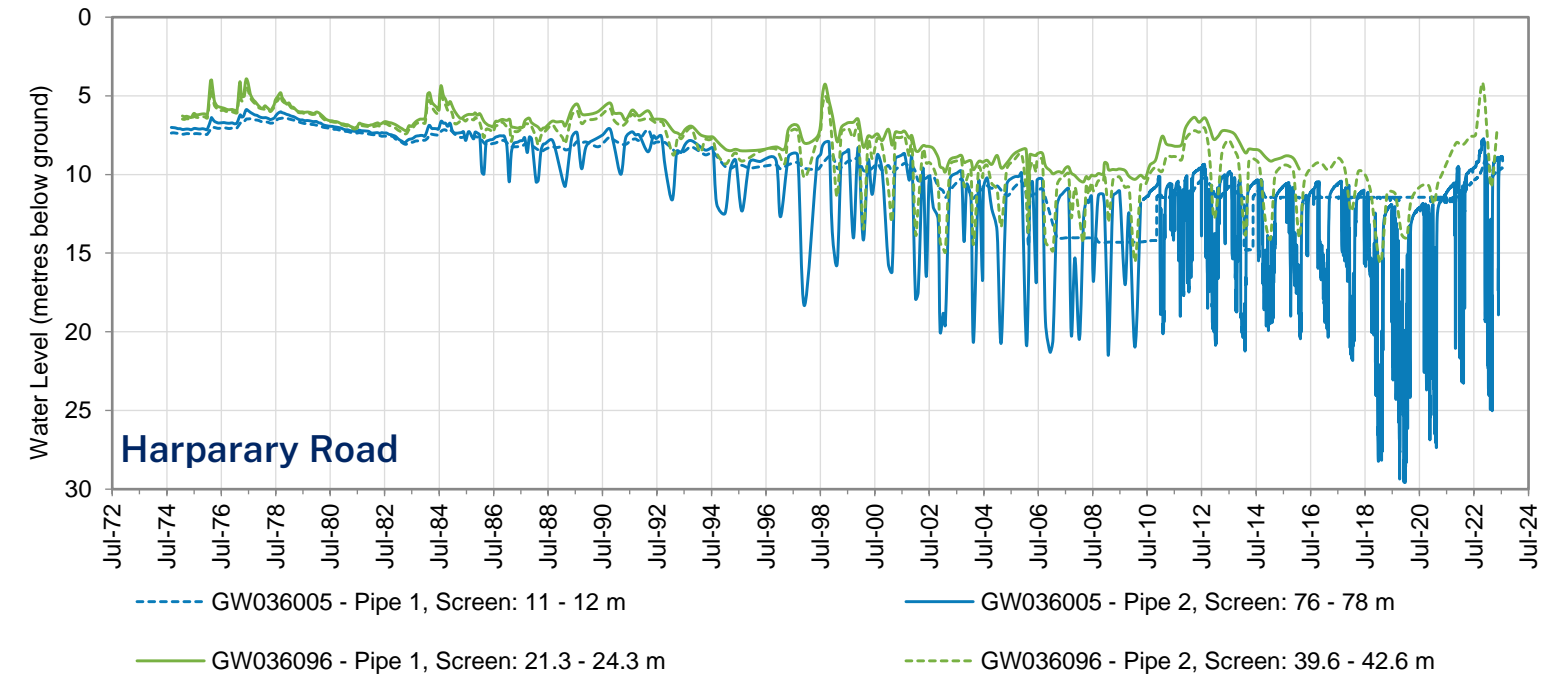
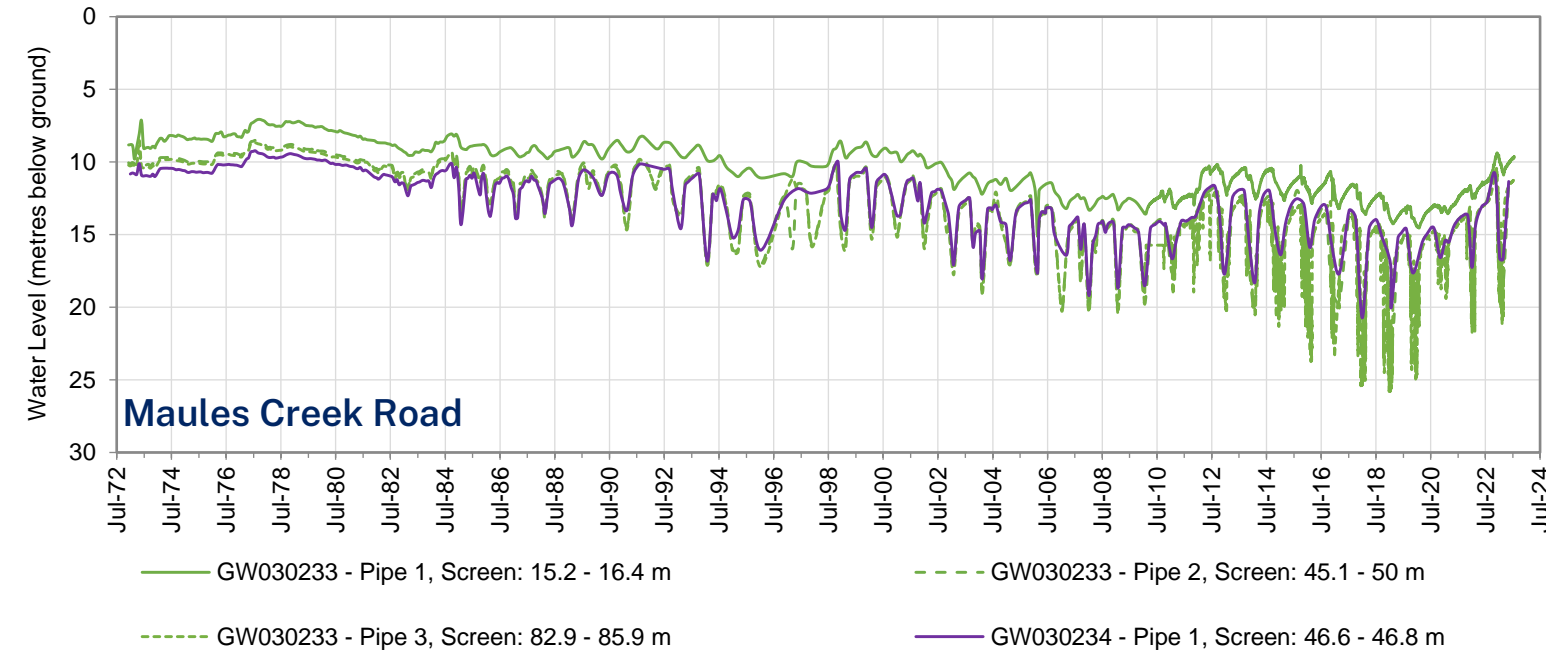


- The following slides show groundwater level hydrographs across the Upper Namoi.

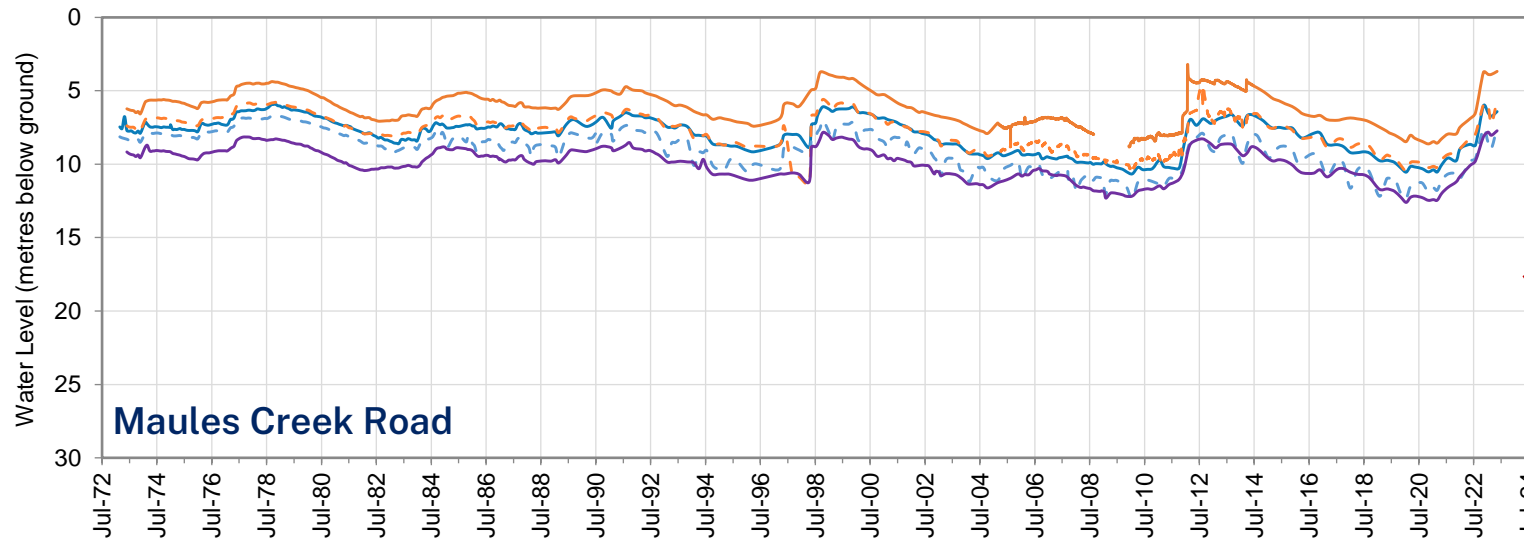
## Note:

- The graphs are displayed, generally, from north to south.
- Each graph is the same horizontal scale.
- The vertical scale set at either 30 or 40 m.

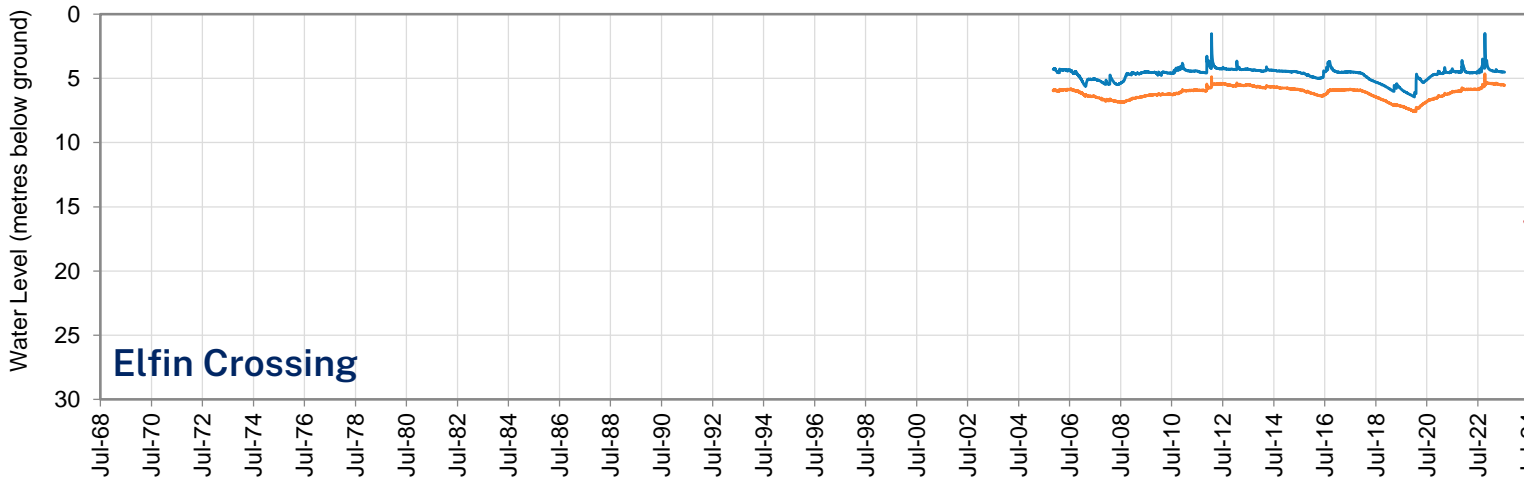
# Upper Namoi Zone 5



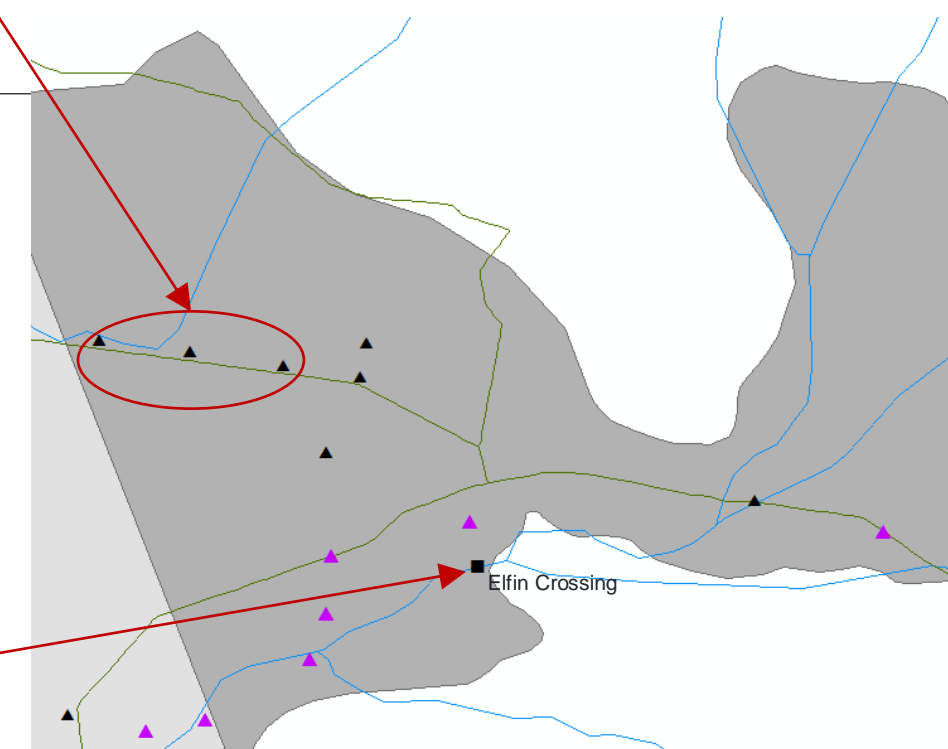
# Upper Namoi Zone 11

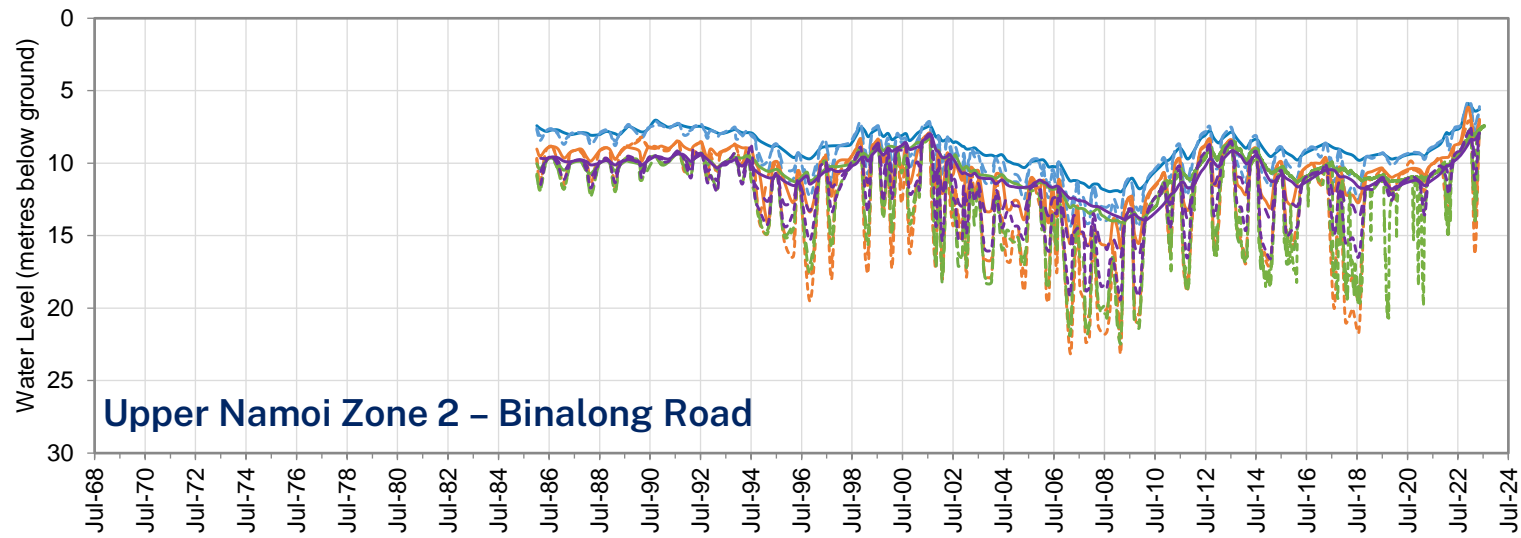


- GW030235 - Pipe 1, Screen: 25 - 25.7 m
- - - GW030235 - Pipe 2, Screen: 50.9 - 51.1 m
- GW030236 - Pipe 1, Screen: 12.8 - 15.2 m
- - - GW030236 - Pipe 2, Screen: 54.3 - 55.8 m
- GW030237 - Pipe 1, Screen: 63.4 - 64.9 m

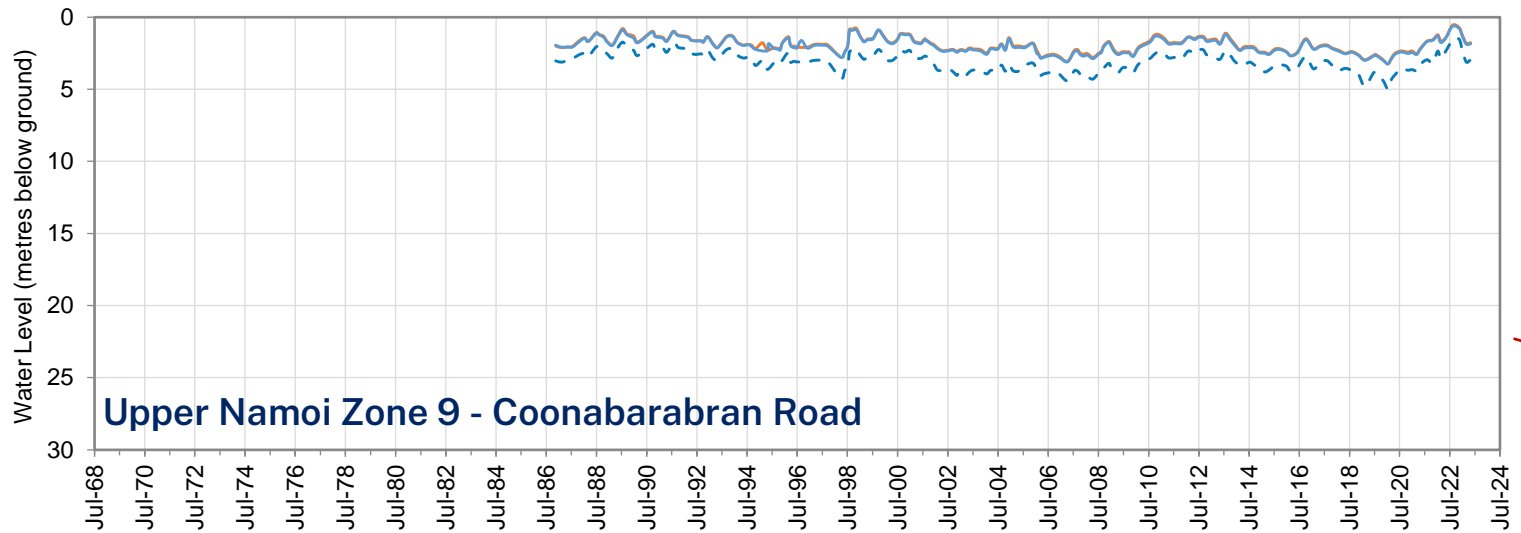


- GW967137 - Pipe 1, Screen: 8 - 11 m
- GW967137 - Pipe 2, Screen: 72 - 75 m

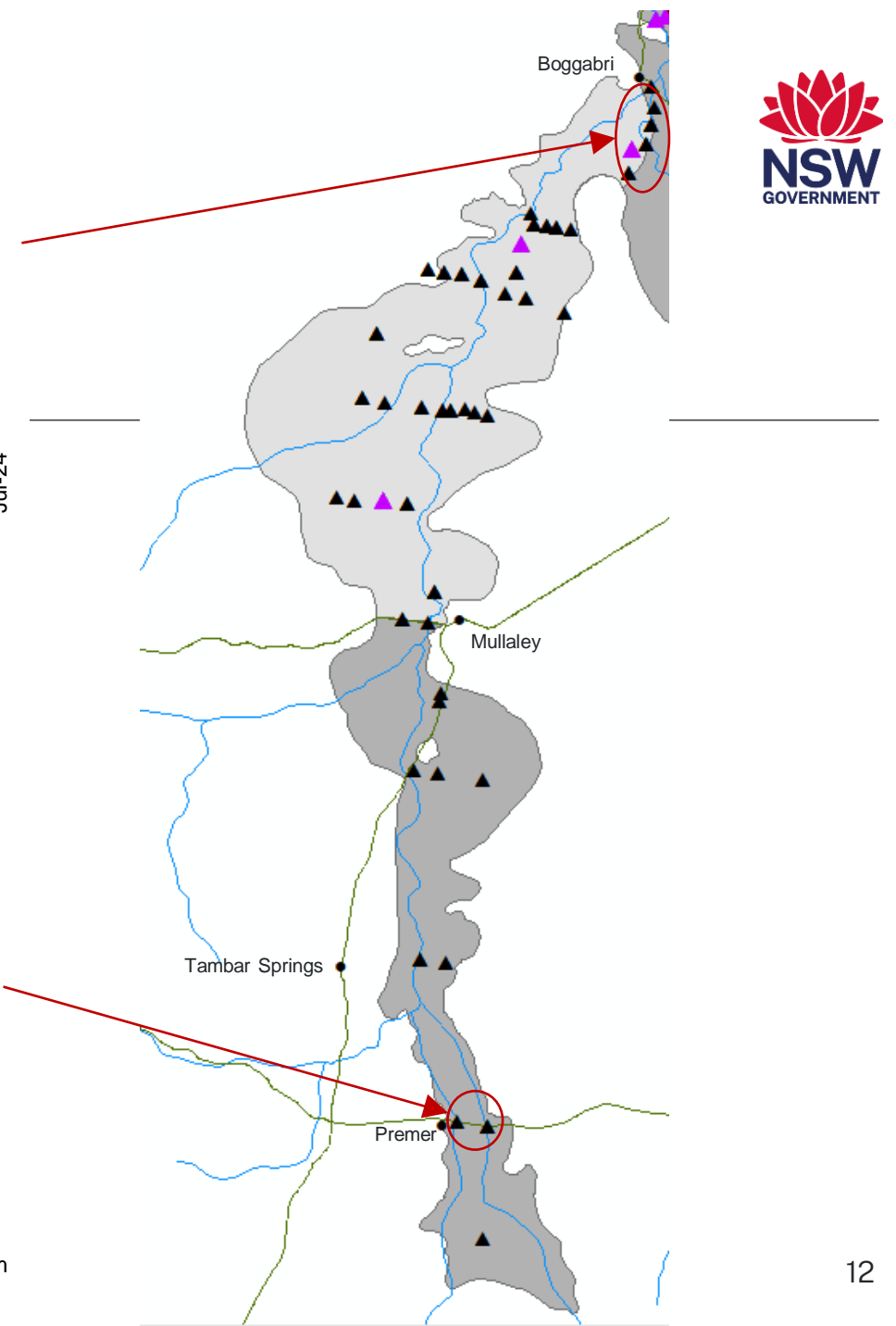




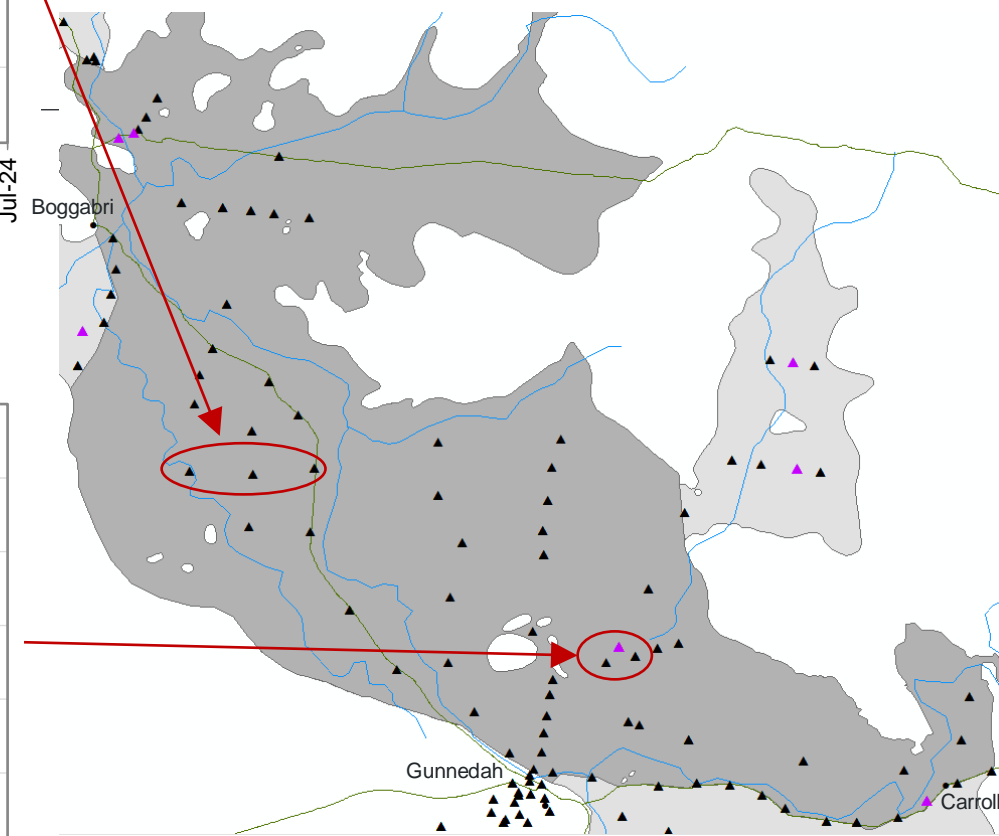
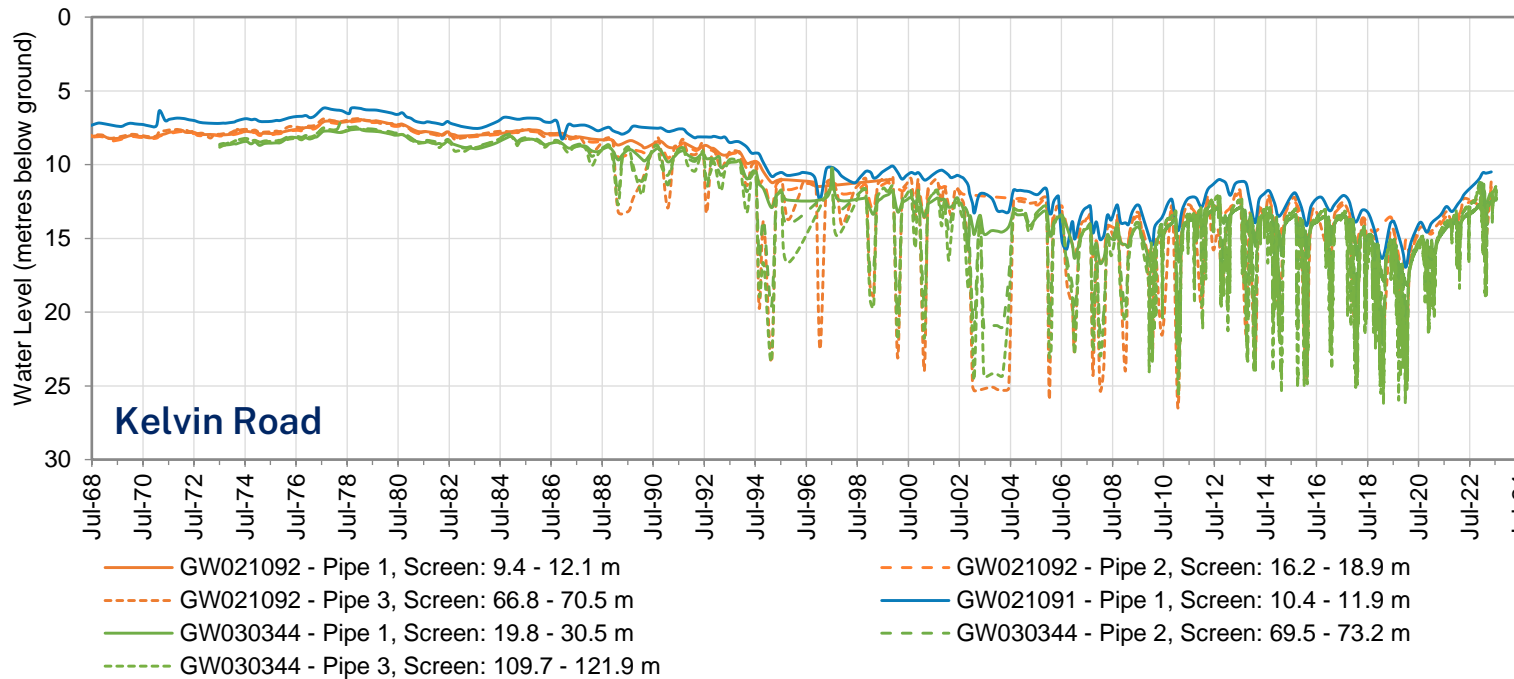
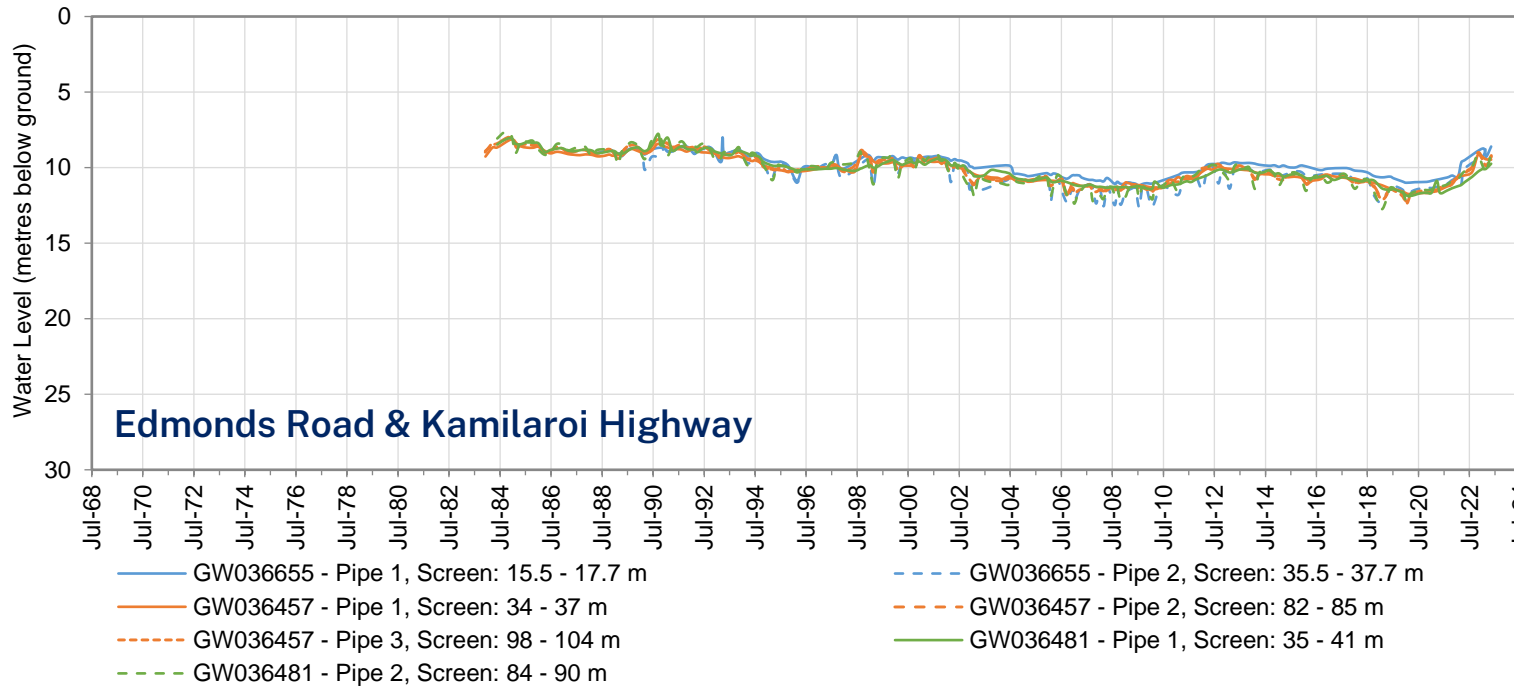
- GW036568 - Pipe 1, Screen: 15 - 17 m
- - - GW036568 - Pipe 2, Screen: 26.5 - 30.5 m
- - - GW036568 - Pipe 3, Screen: 28 - 30 m
- - - GW036598 - Pipe 1, Screen: 25 - 31 m
- - - GW036598 - Pipe 2, Screen: 74 - 79 m
- - - GW036598 - Pipe 3, Screen: 123 - 129 m
- GW036600 - Pipe 1, Screen: 13 - 15 m
- - - GW036600 - Pipe 2, Screen: 100 - 105 m
- - - GW036600 - Pipe 3, Screen: 122 - 127 m
- GW036602 - Pipe 1, Screen: 15 - 19 m



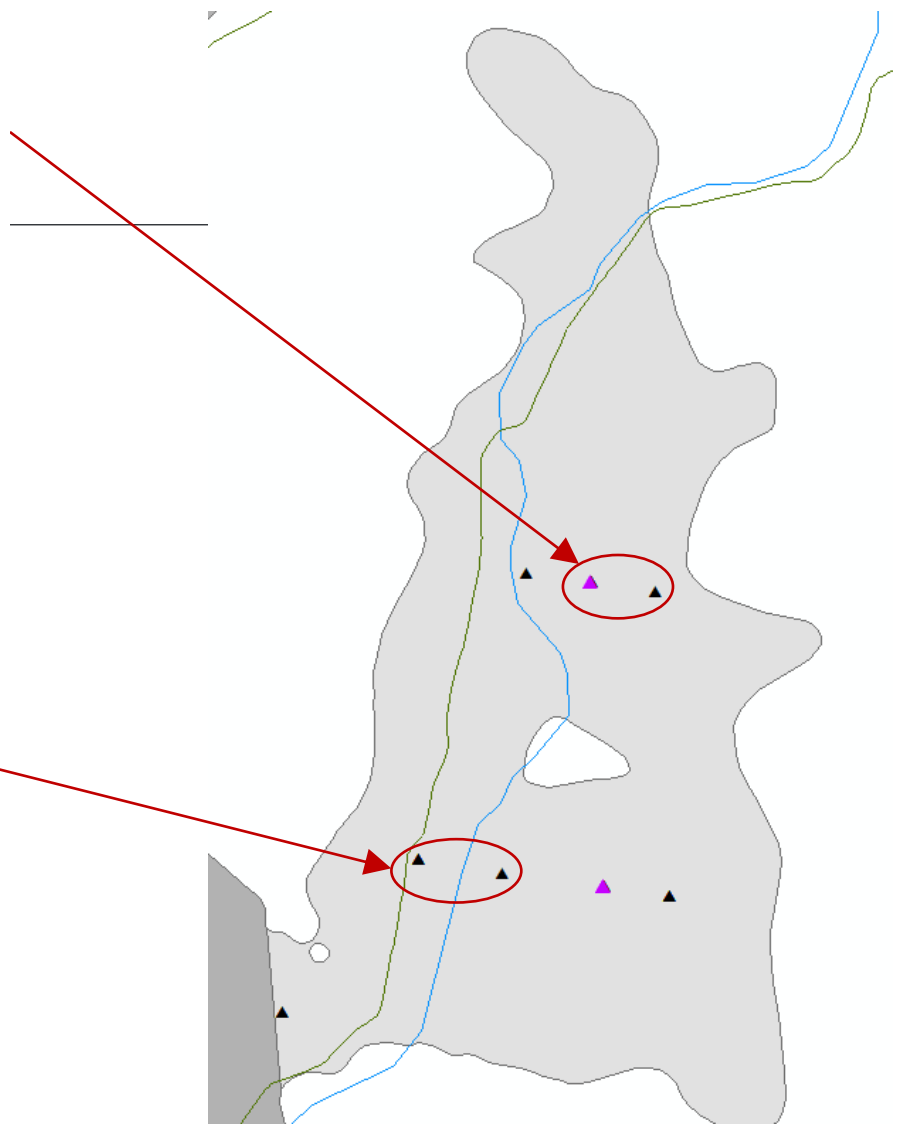
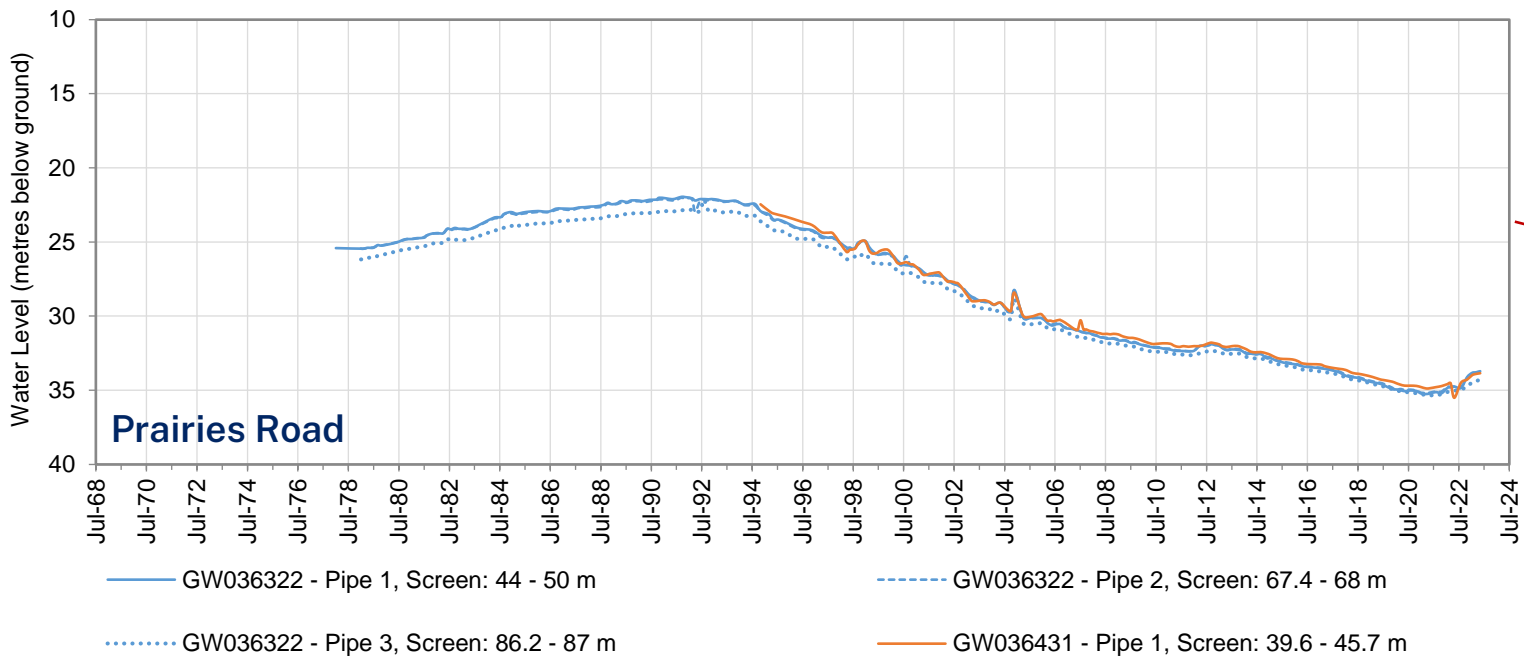
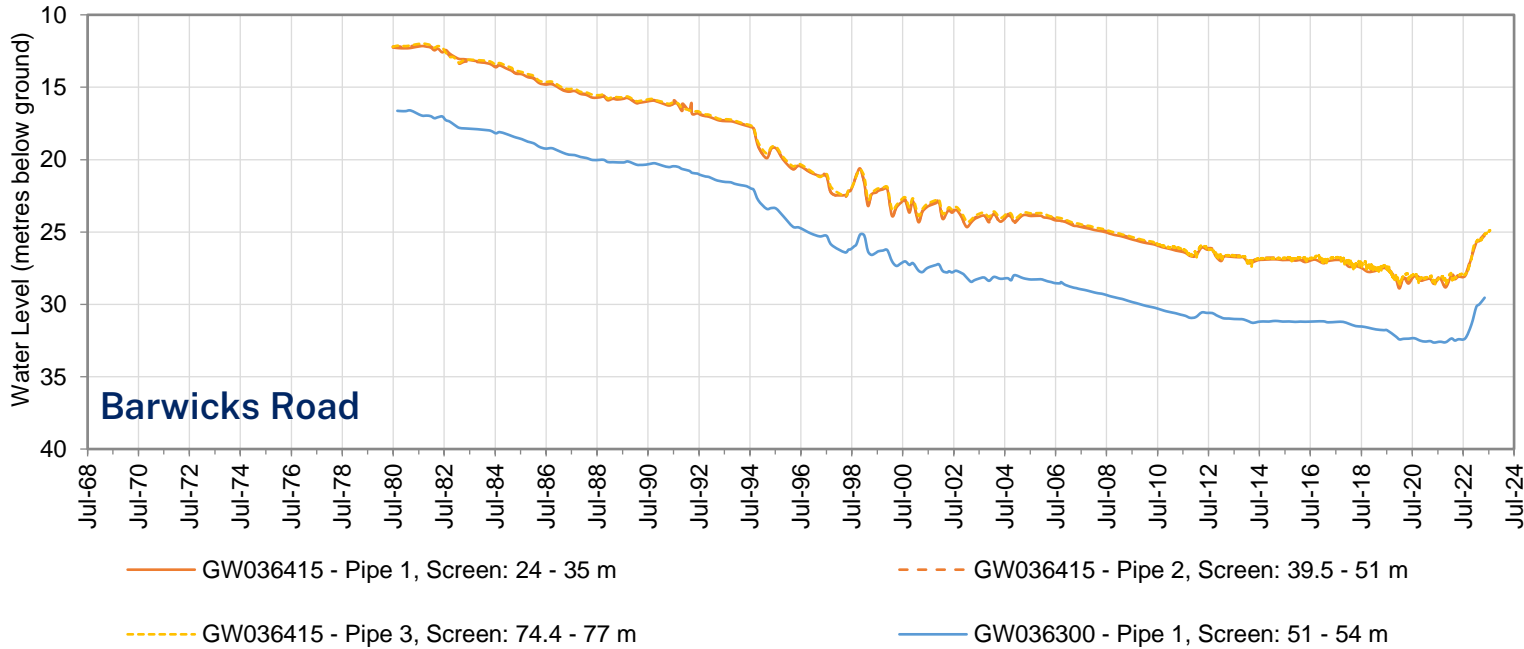
- GW036654 - Pipe 1, Screen: 11 - 15 m
- GW036654 - Pipe 2, Screen: 34 - 35 m
- - - GW036657 - Pipe 1, Screen: 15 - 20 m



# Upper Namoi Zone 4

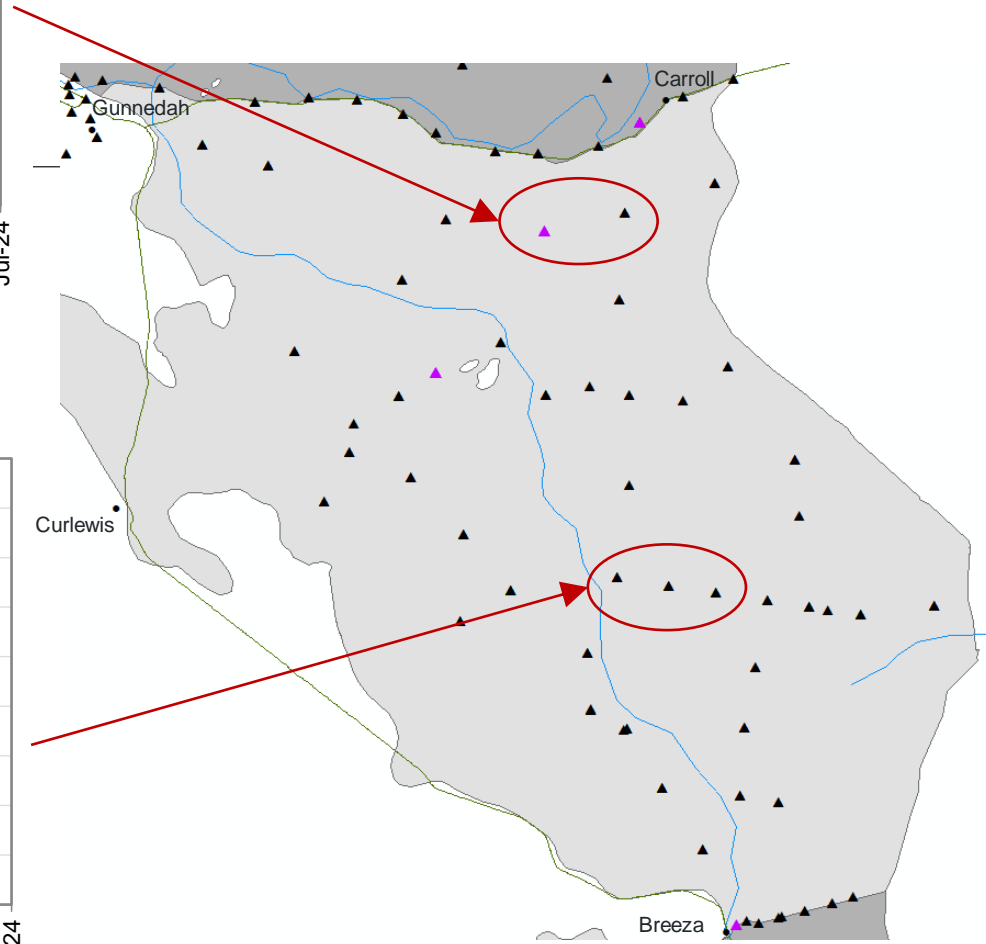
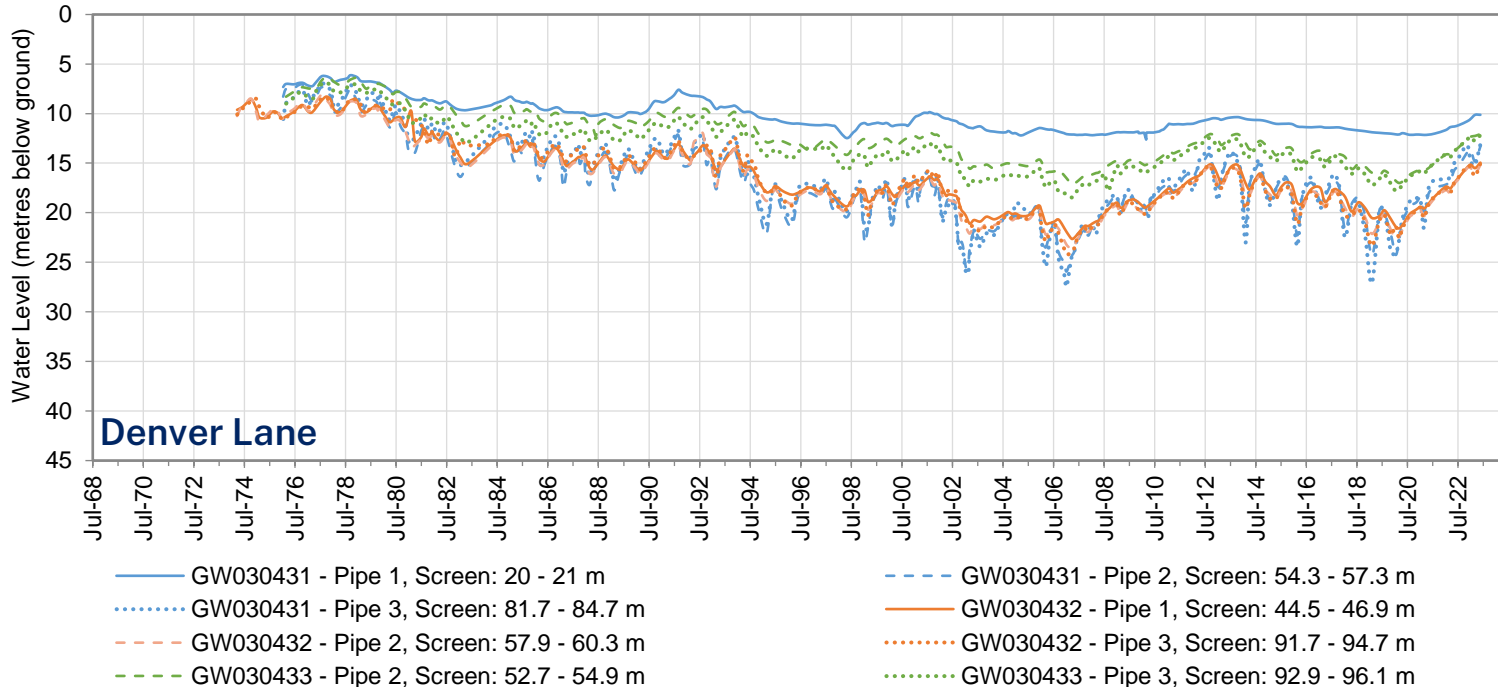
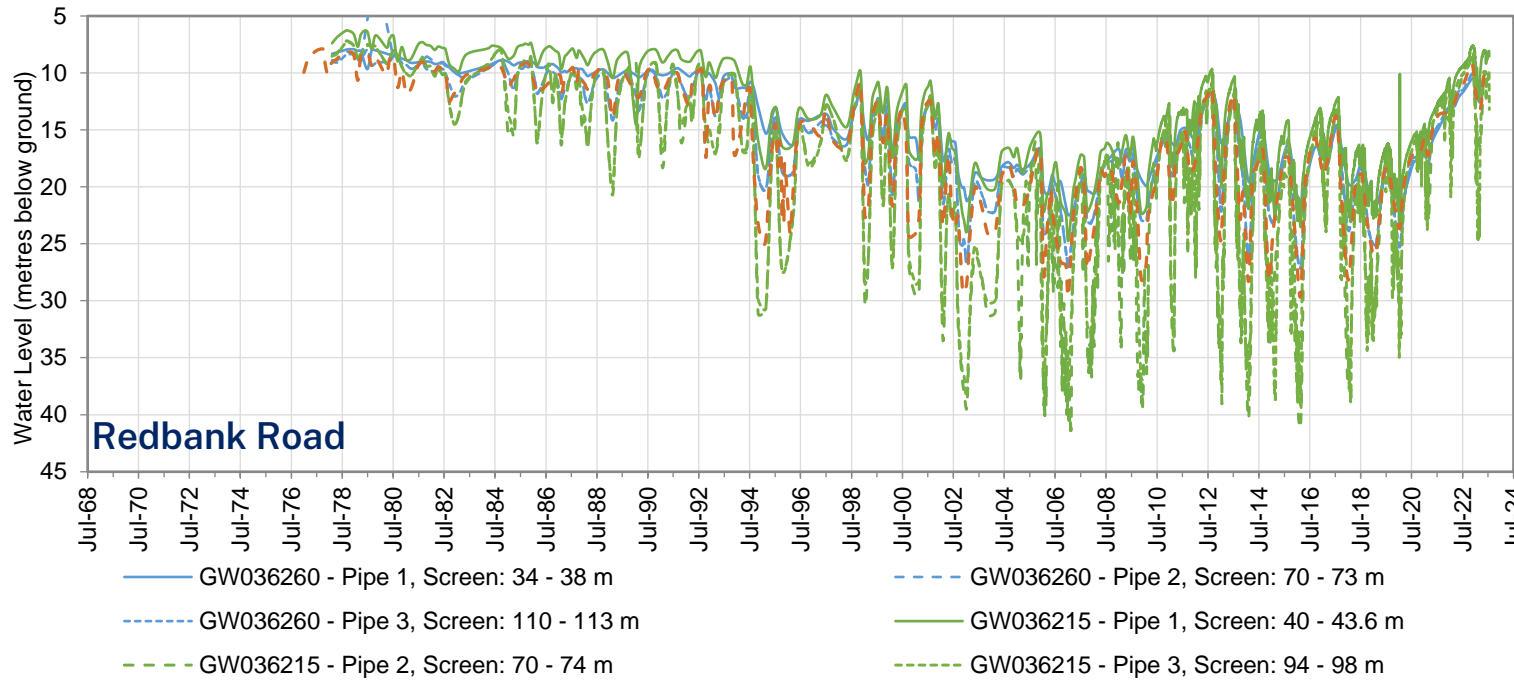


# Upper Namoi Zone 12

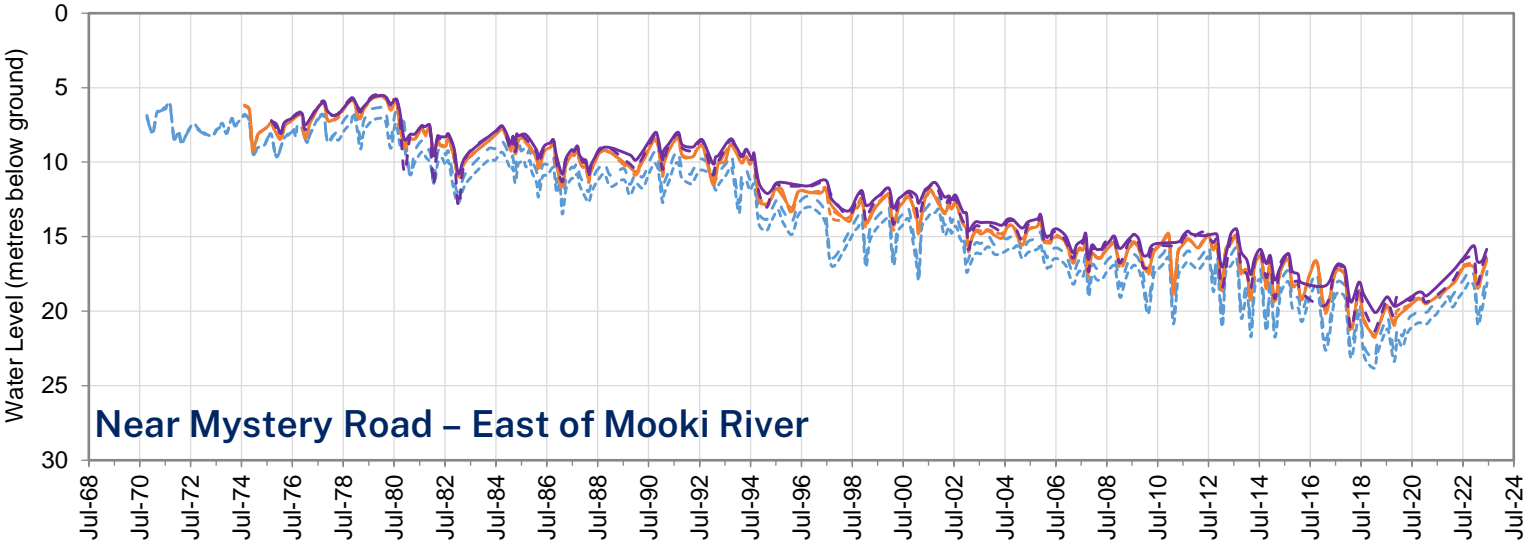




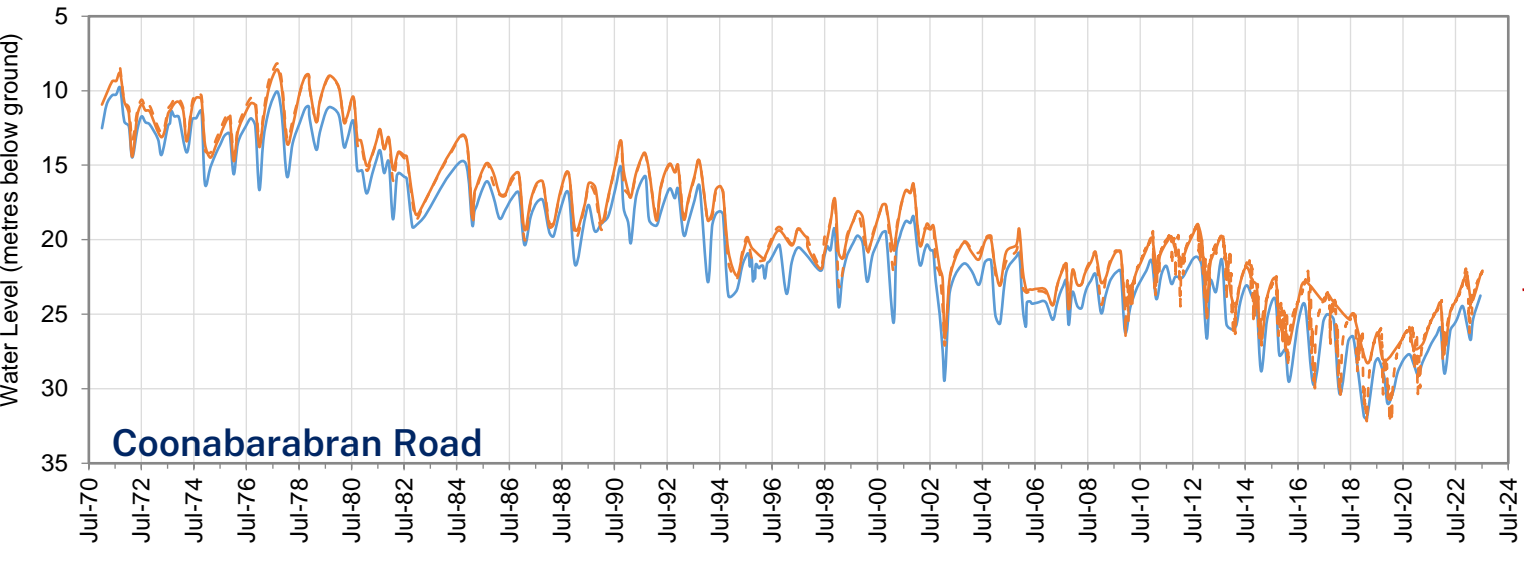
# Upper Namoi Zone 3



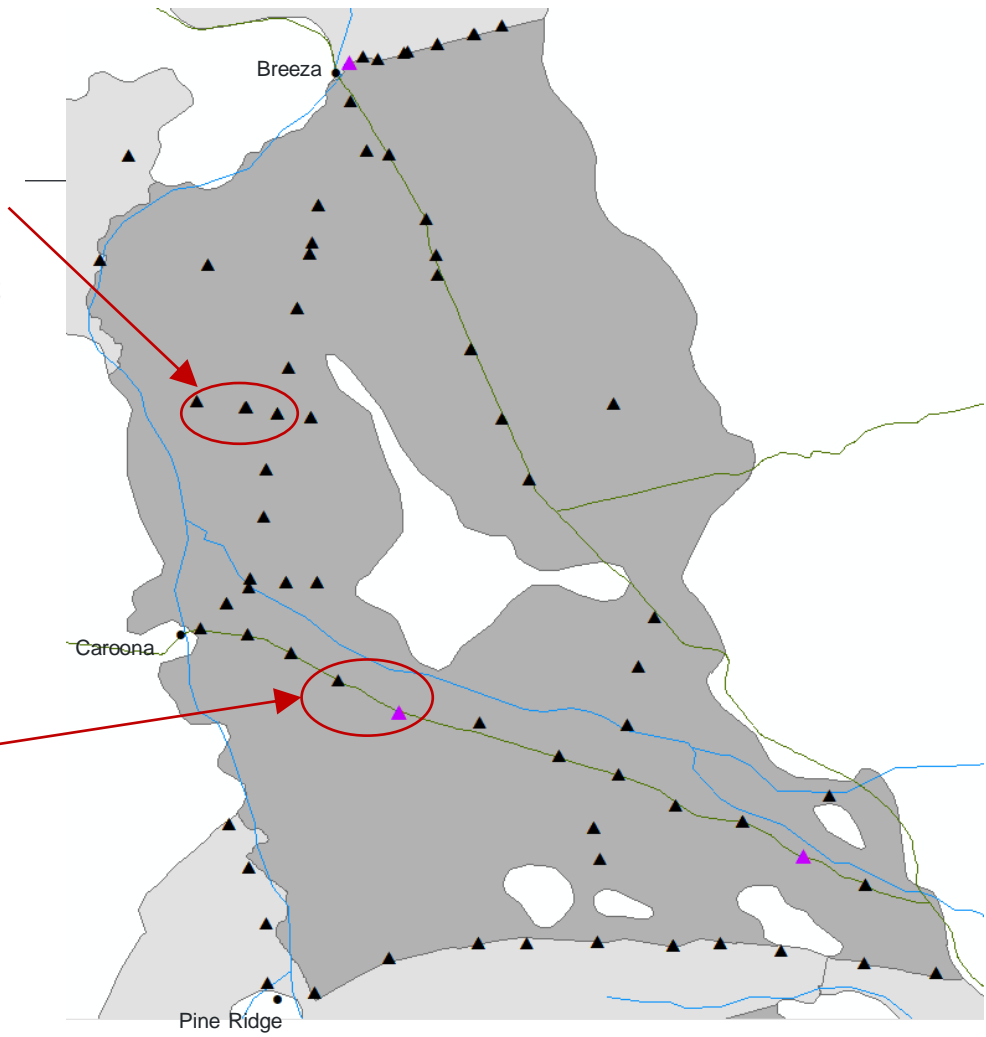
# Upper Namoi Zone 8



- GW030011 - Pipe 2, Screen: 35.1 - 39.7 m
- GW030011 - Pipe 3, Screen: 49.4 - 53.4 m
- GW030419 - Pipe 1, Screen: 72.8 - 78.6 m
- GW030419 - Pipe 2, Screen: 44.1 - 48.7 m
- GW030419 - Pipe 3, Screen: 73.1 - 77.7 m
- GW036122 - Pipe 1, Screen: 27.4 - 30.5 m
- GW036122 - Pipe 2, Screen: 51.8 - 57.9 m

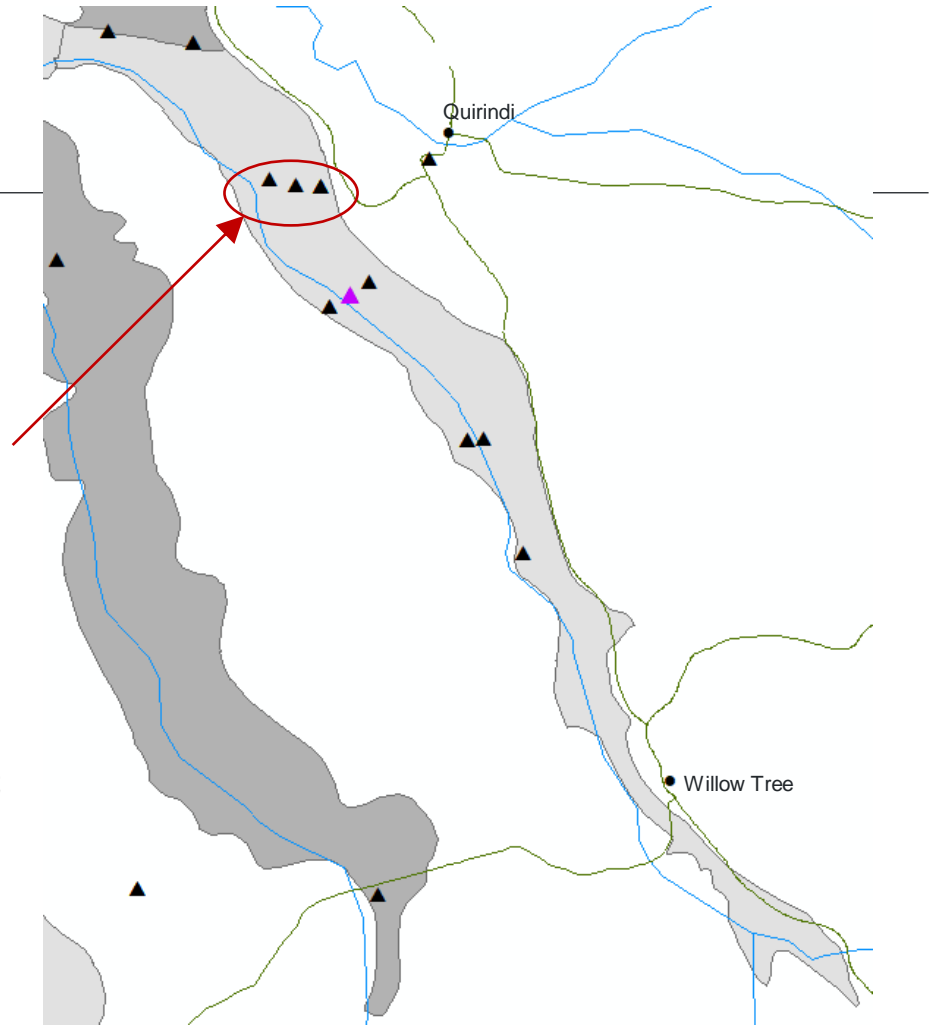
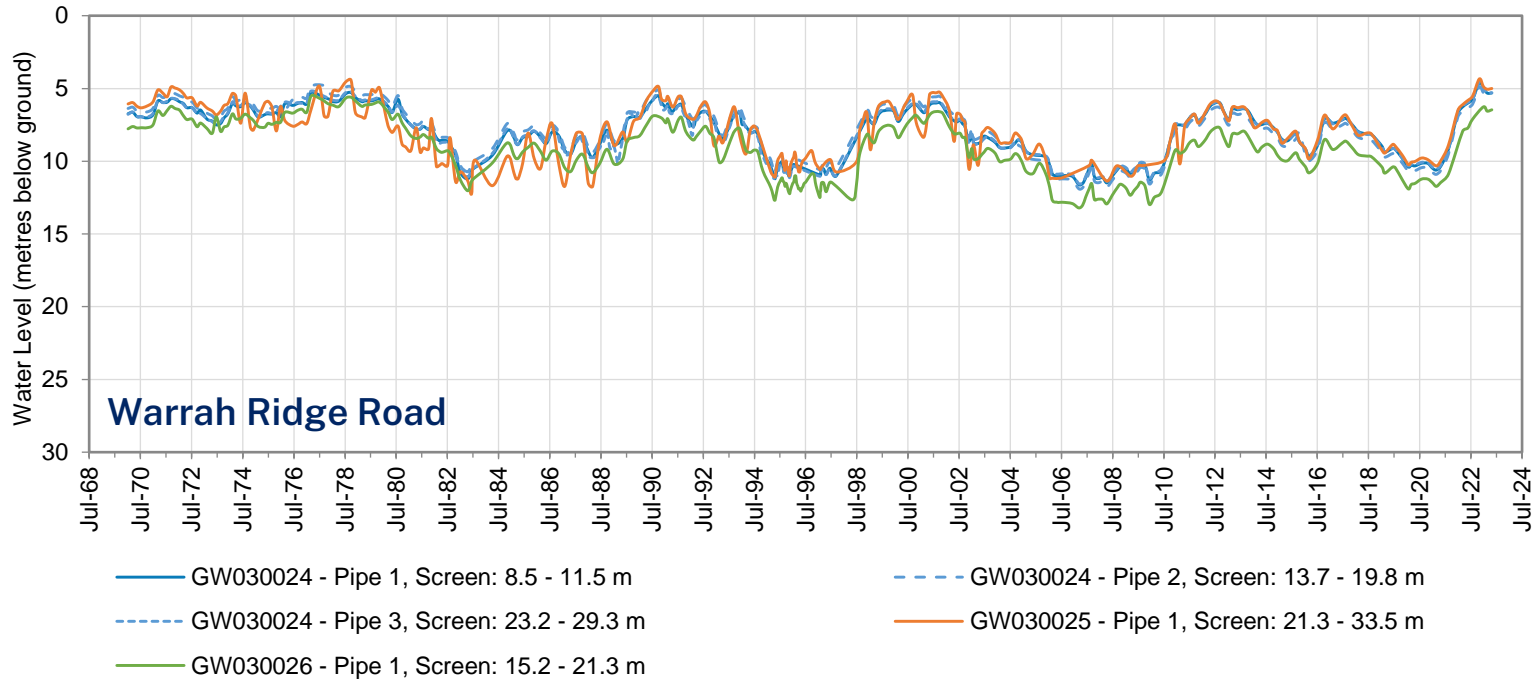


- GW030082 - Pipe 1, Screen: 49.7 - 55.8 m
- GW030083 - Pipe 1, Screen: 26.8 - 28.9 m
- GW030083 - Pipe 2, Screen: 35.7 - 41.8 m





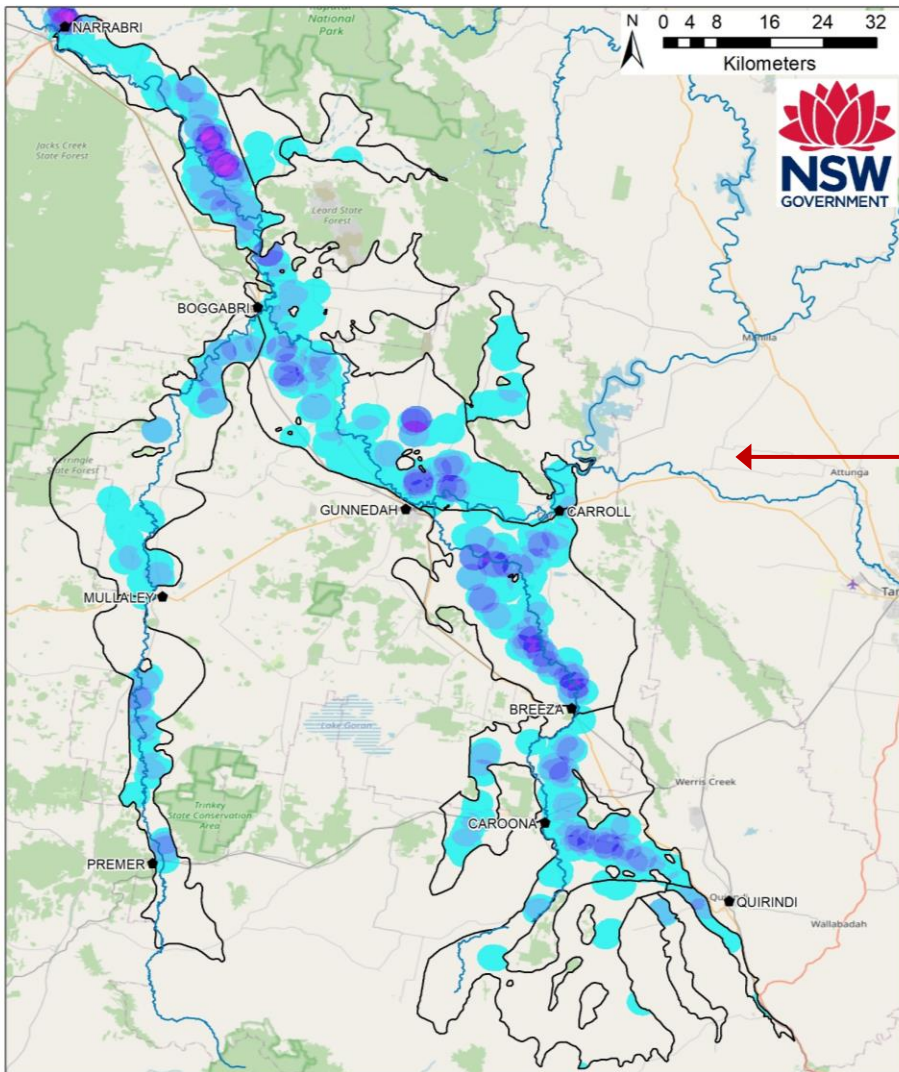
# Upper Namoi Zone 1



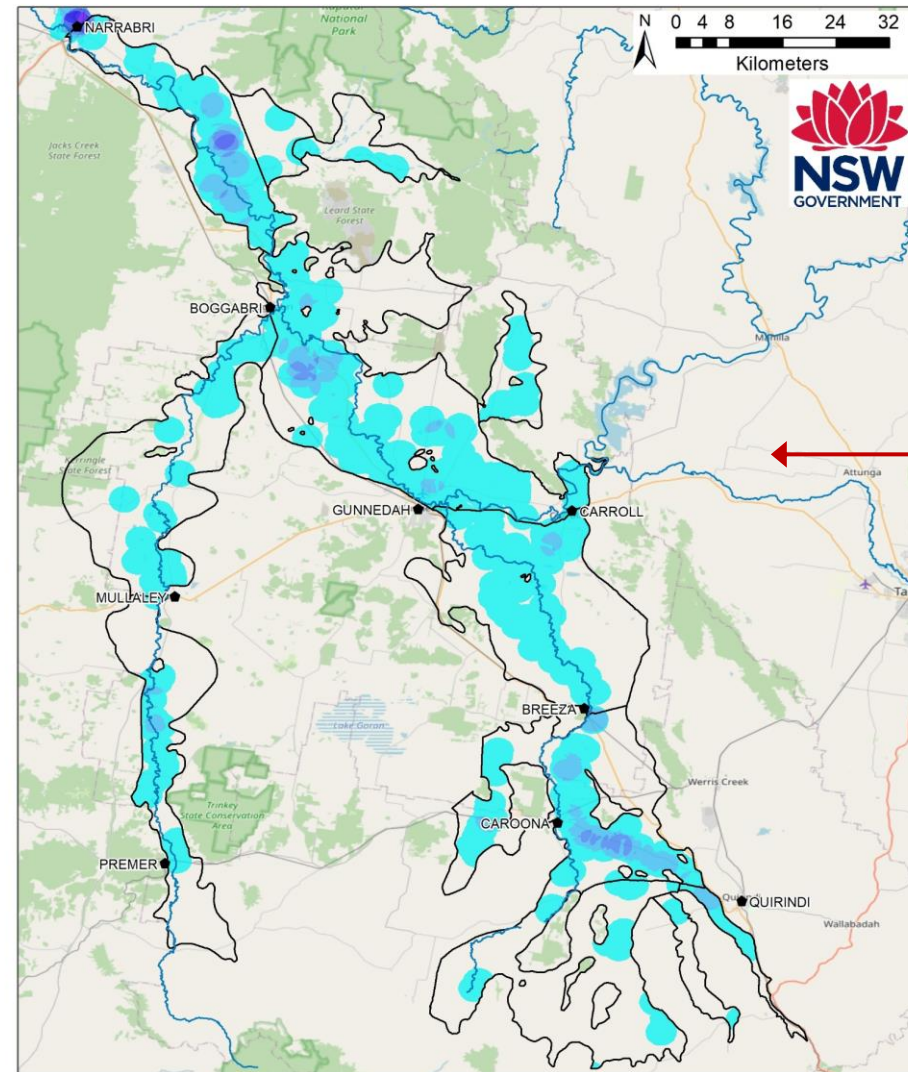
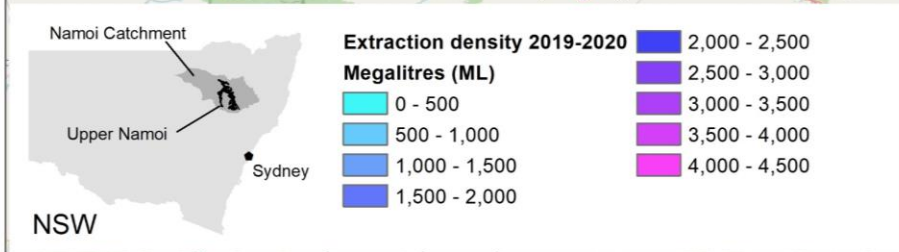
# Extraction density maps

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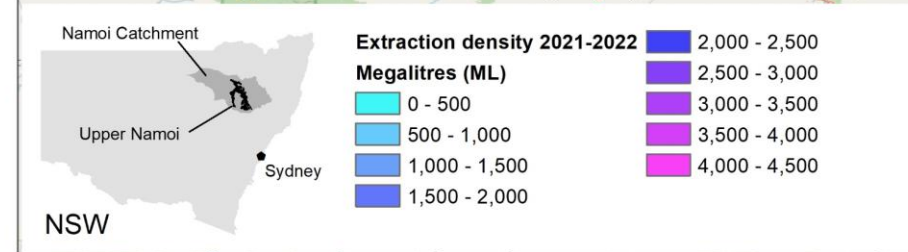
- The following maps plot the recorded groundwater extraction from all bores across the Upper Namoi for 2019/2020 (drought year) and 2020/2021 (wet year).
- Each bore is plotted with a 2 km buffer.
- The buffer is coloured based on the volume extracted by the bore.
- If any 2 km buffers overlap, then the sum total extraction of the overlap is calculated and coloured.
- The method shows areas where extraction is concentrated.



Extraction density 2019-2020



Extraction density 2021-2022



# Conclusions

- Decent rainfall has resulted in low groundwater extraction since 2020 across the Upper Namoi.
- The carry over and account volumes have increase in the last few years.
- 2023/2024 water accounts are between 89% and 100% full across all groundwater sources.
- Overall, the long-term groundwater level trends across the majority of the Upper Namoi are tracking ok, there has been good groundwater level recovery in most areas since 2020.
- Upper Namoi Zone 8 shows groundwater level recovery, however:
  - the recovered water level is at a lower level than the previous wet period around 2012
  - this indicates groundwater levels are still at risk of continuing to decline over time
- As expected, the density of extraction changes significantly between a dry and wet climate.

# Additional information

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- The groundwater annual reports are available for 2022 for all Upper Namoi groundwater sources at:  
[www.dpie.nsw.gov.au/water/science-data-and-modelling/groundwater-management-and-science/groundwater-annual-reports](http://www.dpie.nsw.gov.au/water/science-data-and-modelling/groundwater-management-and-science/groundwater-annual-reports)
- These reports are due to be updated for 2023 and should be available by the new year.