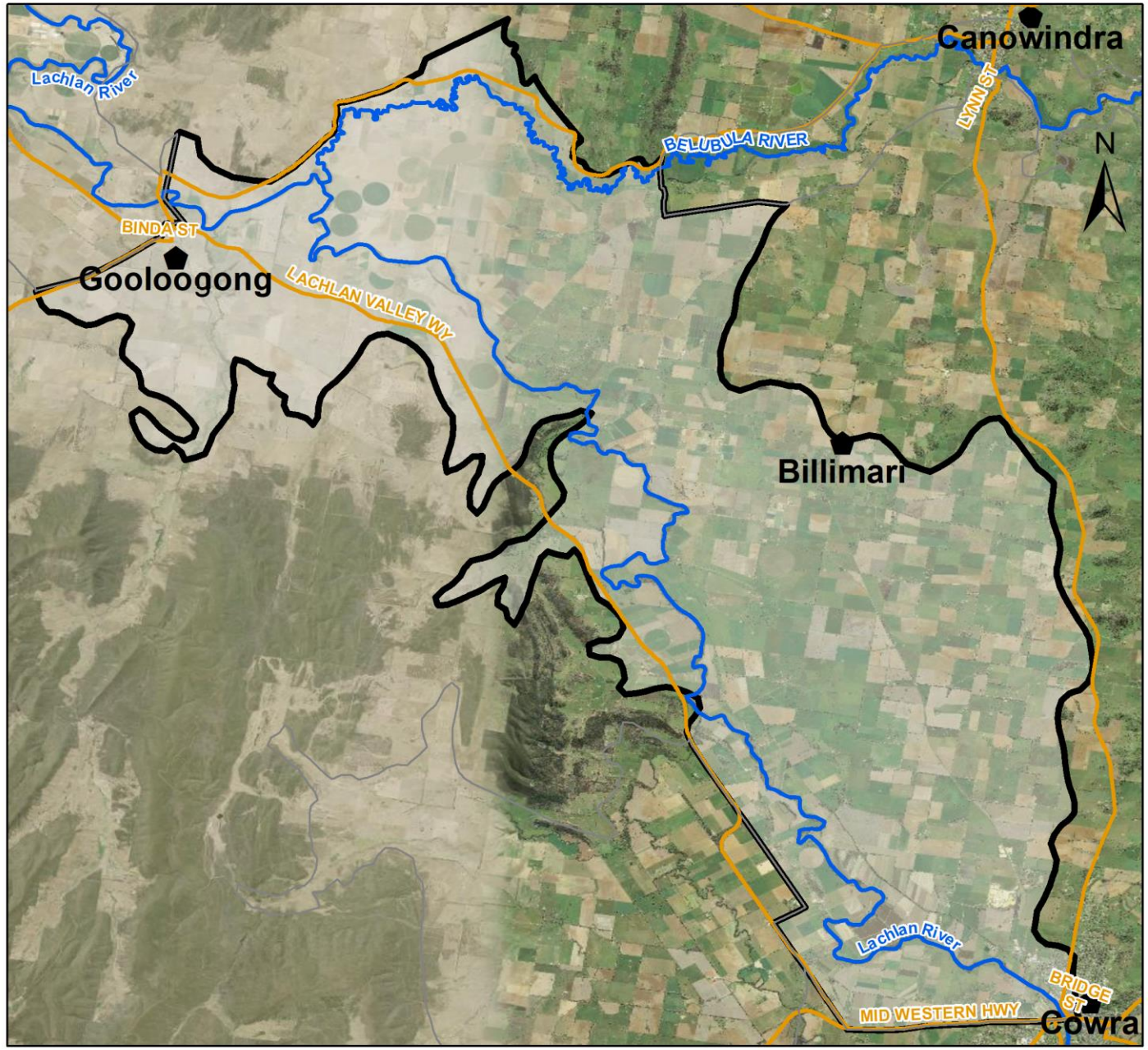
Upper Lachlan Management Zone 2 Groundwater Level Update

March 2022

Department of Planning and Environment

Introduction

- Demand for groundwater in the most recent drought 2017-2020 increased in inland NSW.
- As a result DPE Water reviewed response to increased pumping in several inland alluvial systems that rely heavily on groundwater.
- 3 areas were identified with concerns in Upper Lachlan Alluvial Groundwater Source within Management Zones 1, 2 and 7 (see published report).
- This presentation focusses on analysis of groundwater levels in Management Zone 2 (Zone 2) only.



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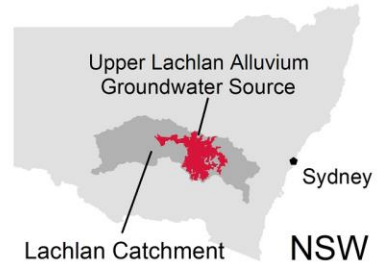


- Town
- Road
- River
- Upper Lachlan Management Zone 2

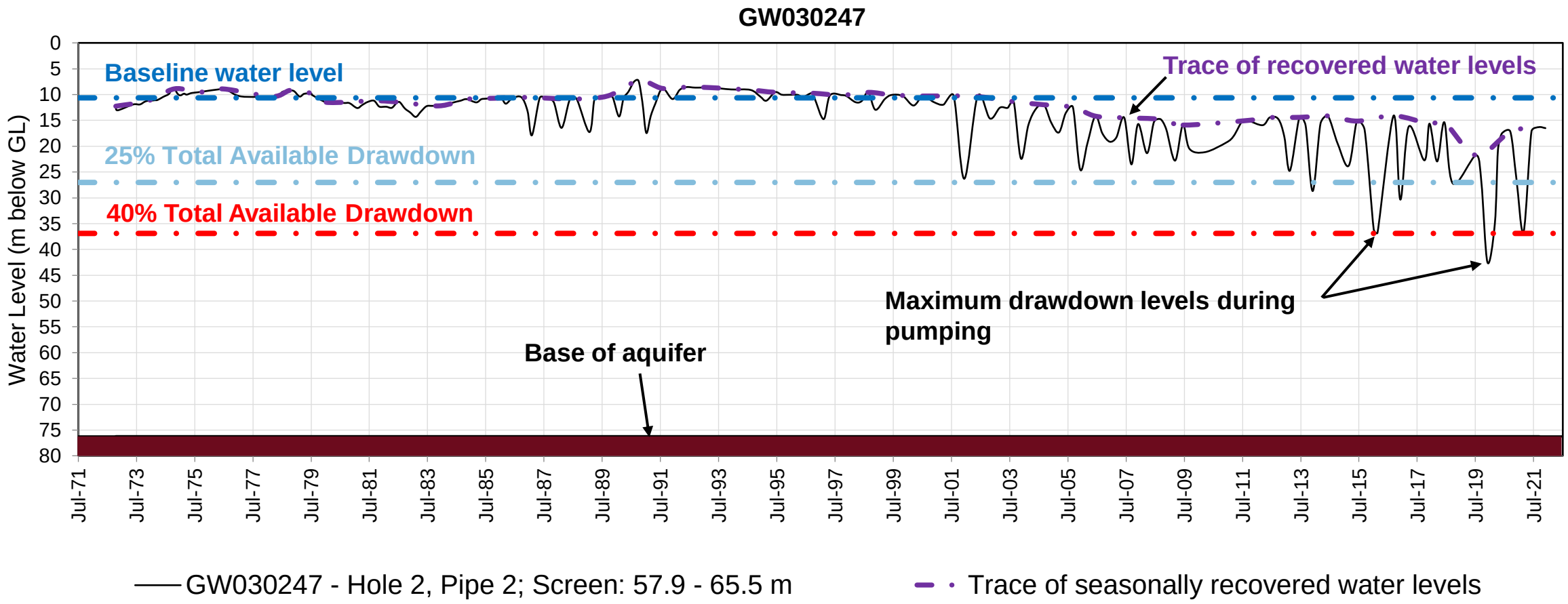
0 2 4 6 8

Kilometers

Groundwater Level Analysis

- Analysing pumping impacts on groundwater levels was undertaken by looking at:
  - seasonally recovered levels; and
  - maximum drawdown levels during pumping.
- Groundwater levels recover when pumping slows or stops, typically during winter months.
- Conversely, maximum drawdowns occur when pumping is at its greatest, typically during summer months.
- Total Available Drawdown (total aquifer thickness) = Base of aquifer – Baseline water level (explained further in next slide).
- Thresholds for seasonally recovered and maximum drawdown levels developed based on a percentage of Total Available Drawdown (or saturated thickness).

Groundwater Level Management Concept



GW030247 - Hole 2, Pipe 2; Screen: 57.9 - 65.5 m

Trace of seasonally recovered water levels

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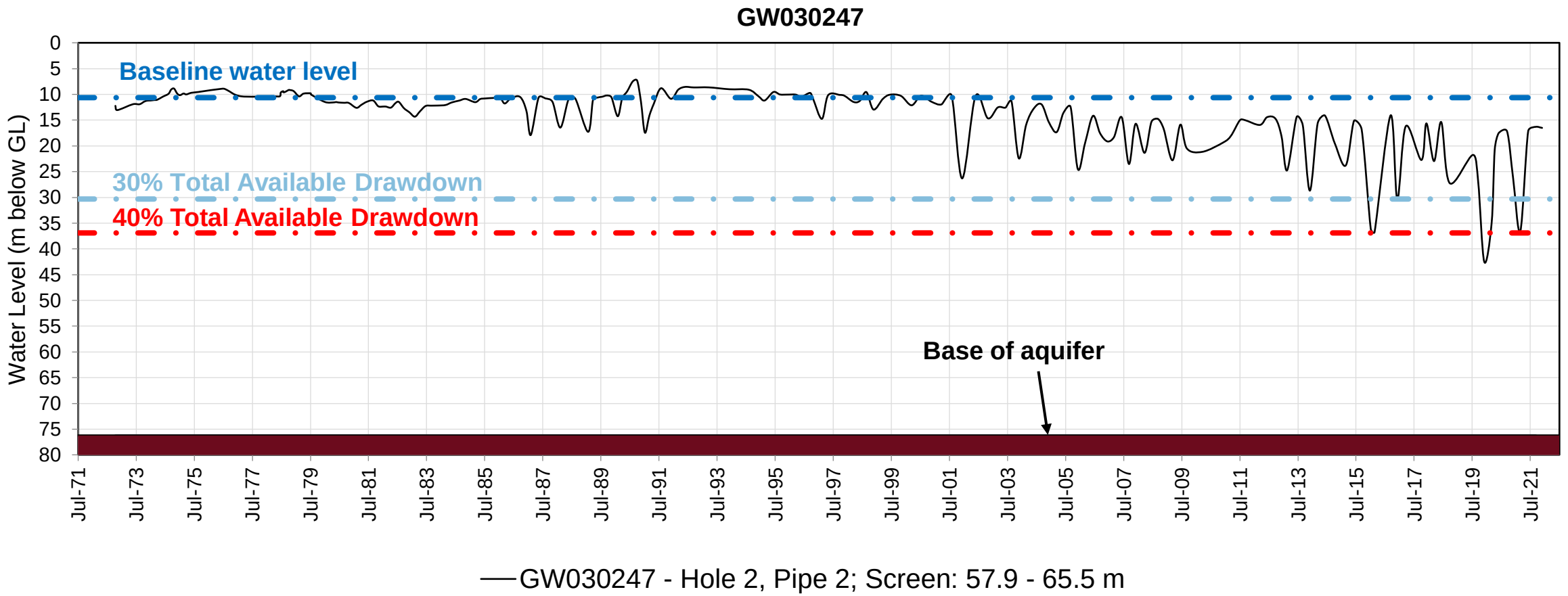
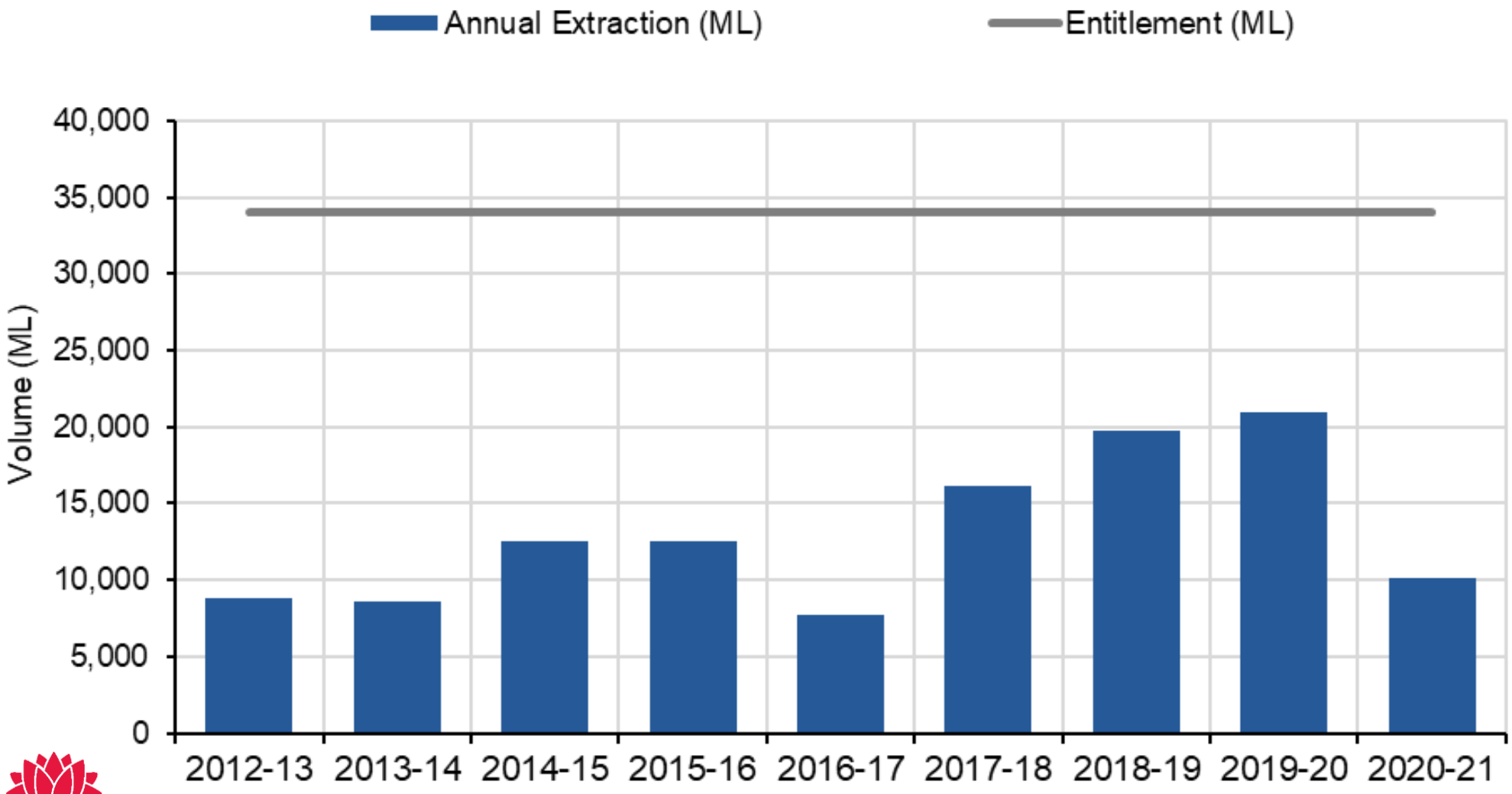
Groundwater Level Analysis

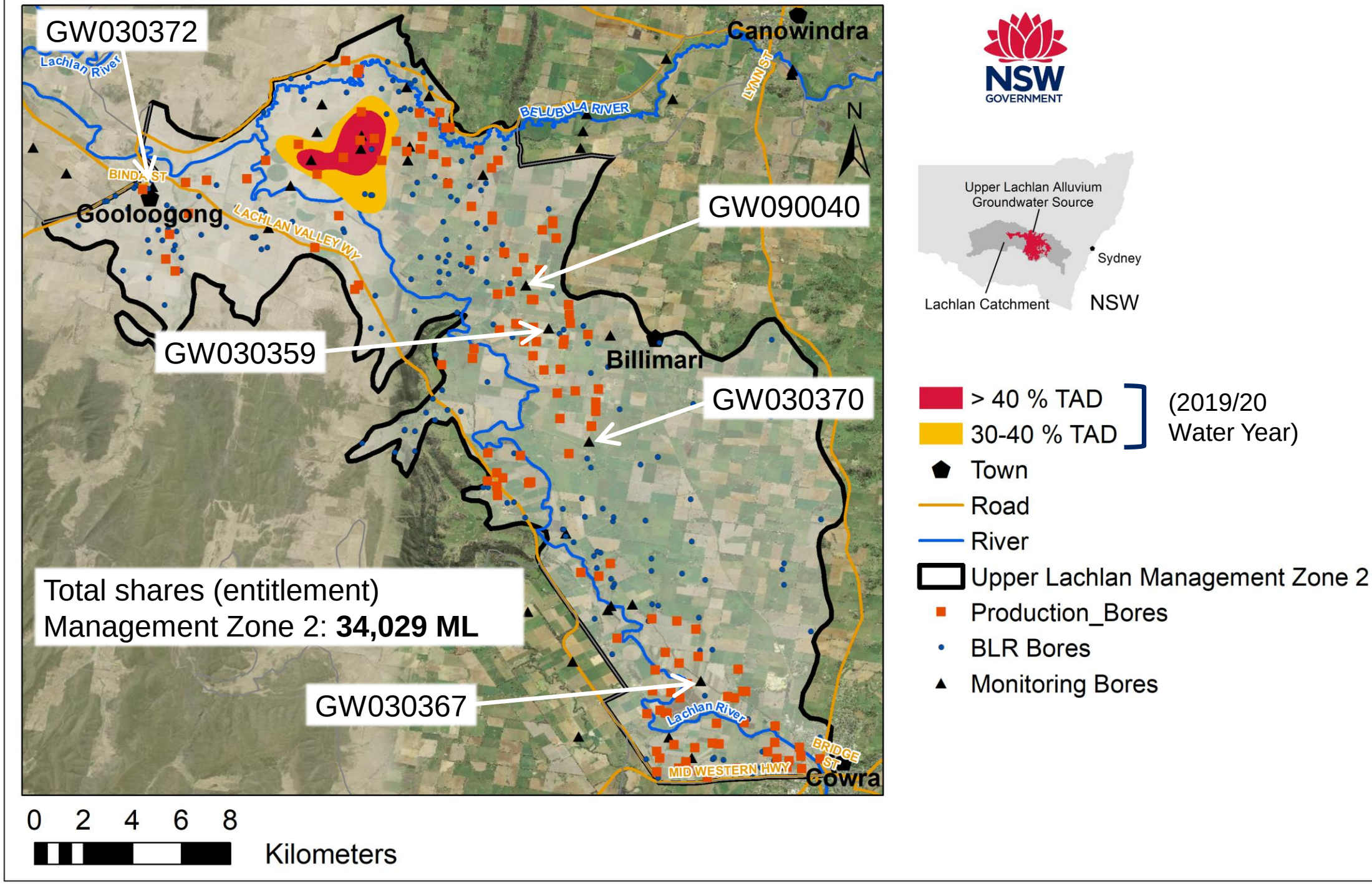
- Analysis identified that seasonally recovered water levels has not declined to levels of concern.
- However, maximum drawdowns have in some cases reached 30 and 40 % Total Available Drawdown (e.g. GW030247).
- Therefore, analysis focused on comparison of maximum measured drawdowns against the following levels:
  - ✓30% of Total Available Drawdown
  - ✓Maximum Drawdown Level – 40 % of Total Available Drawdown

Groundwater Levels



Upper Lachlan – Zone 2 Usage vs Shares




GW030372
Canowindra
Lachlan River
BELUBULA RIVER
LYNN ST
N
BINDA ST
Gooloogong
LACHLAN VALLEY WY
GW090040
GW030359
Billimari
GW030370
Total shares (entitlement)
Management Zone 2: 34,029 ML
GW030367
Lachlan River
BRIDGE ST
MID WESTERN HWY
Cowra
0 2 4 6 8
Kilometers
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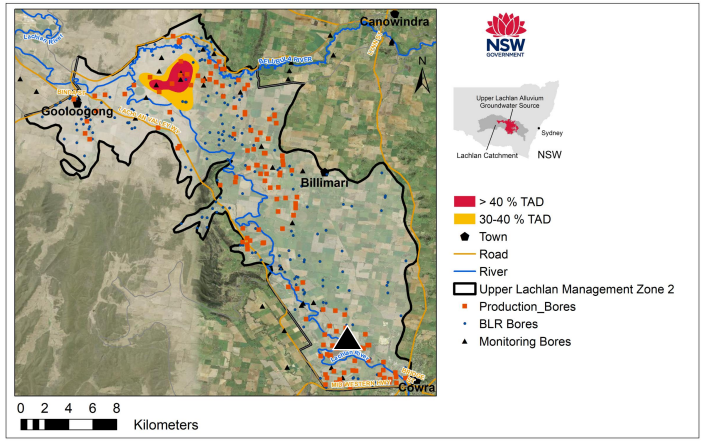
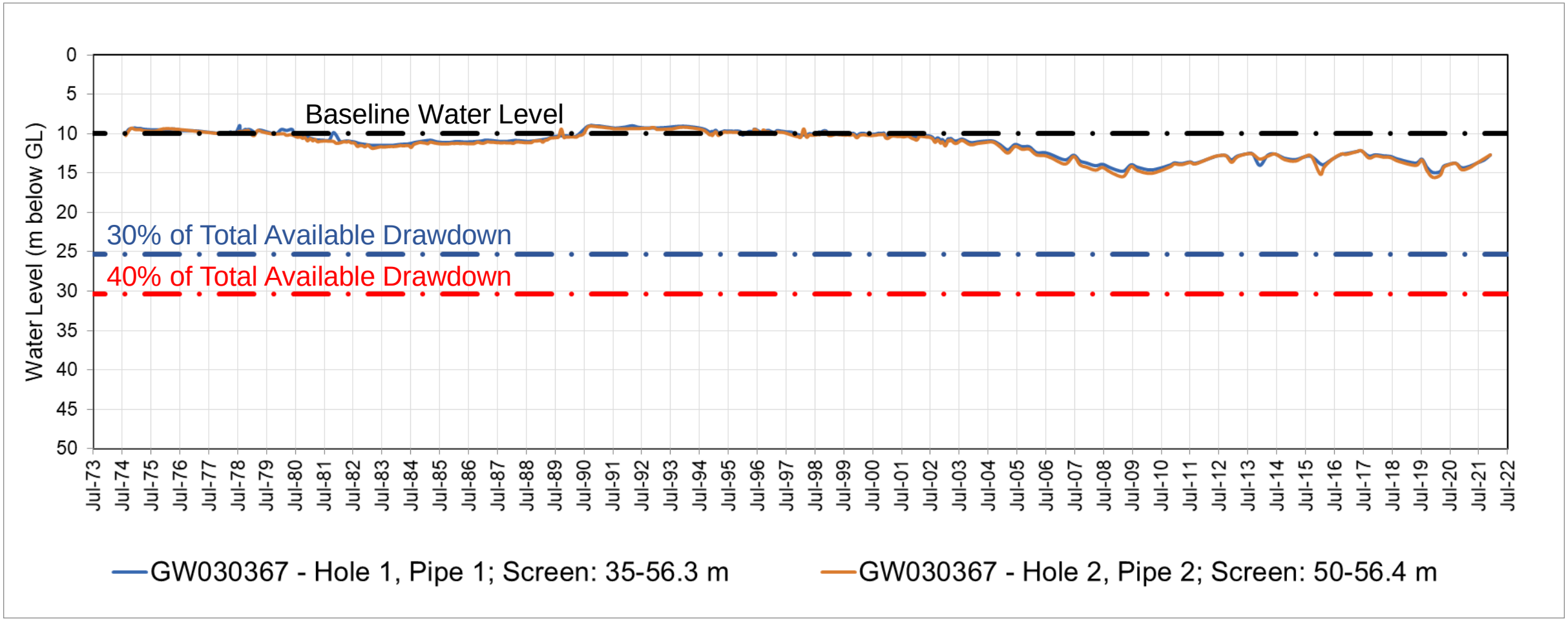
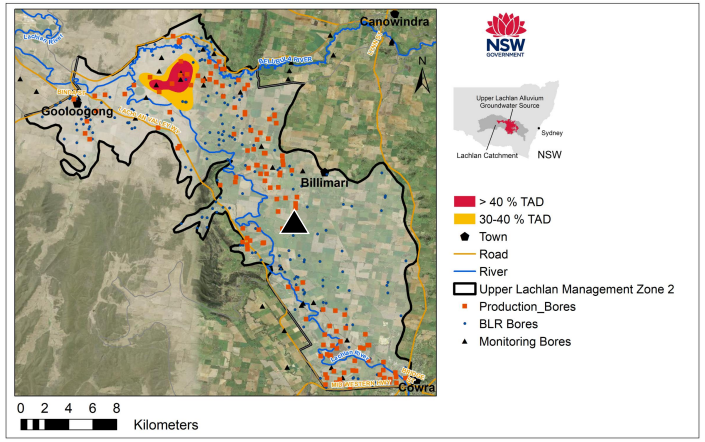
Upper Lachlan Alluvium Groundwater Source
Sydney
Lachlan Catchment
NSW
> 40 % TAD
30-40 % TAD
(2019/20 Water Year)
Town
Road
River
Upper Lachlan Management Zone 2
Production_Bores
BLR Bores
Monitoring Bores

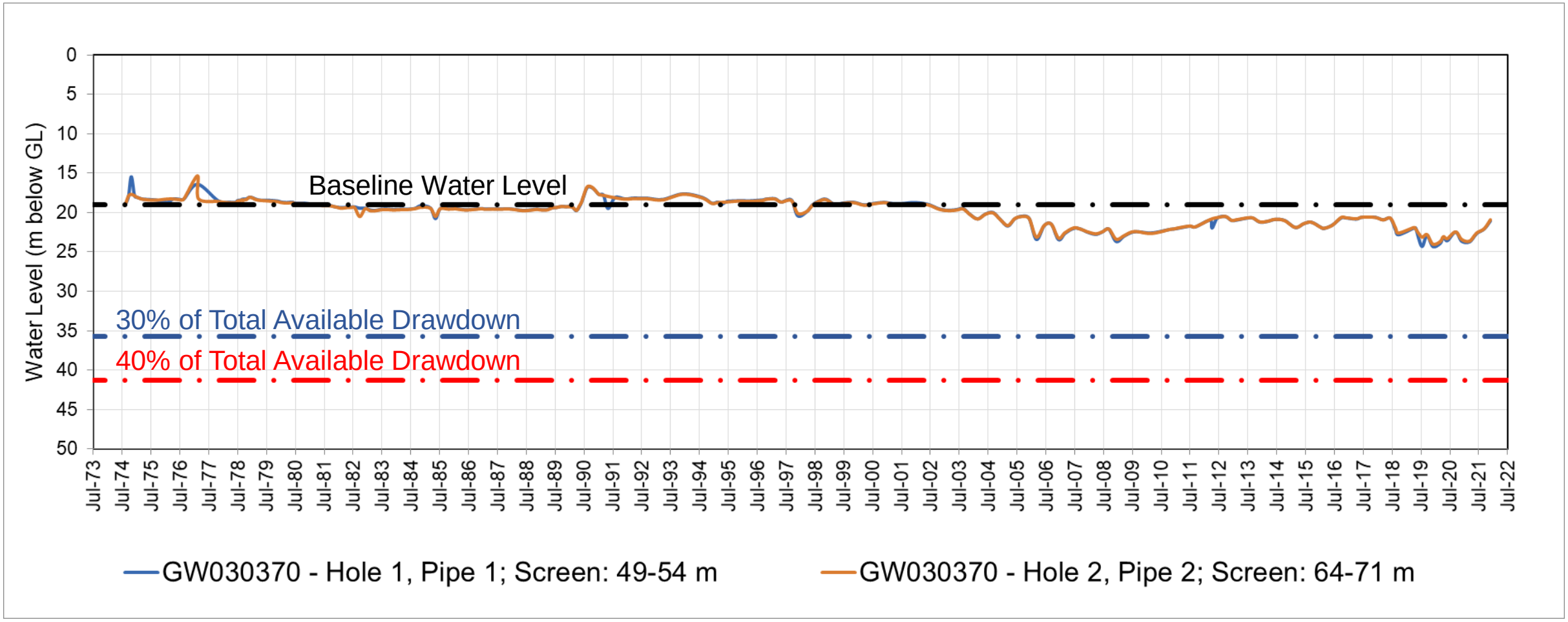
Hydrograph – GW030367



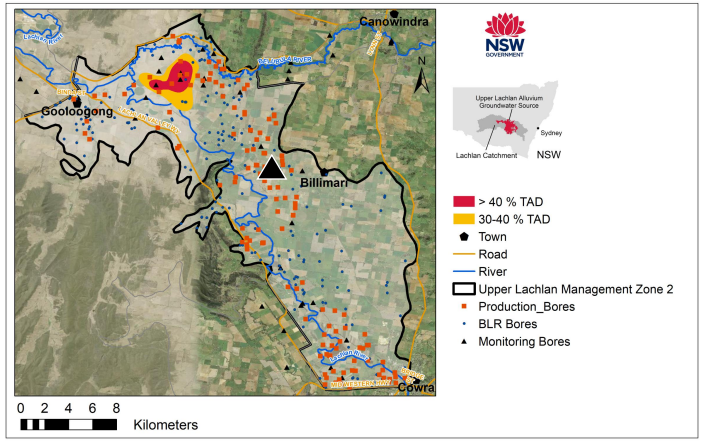


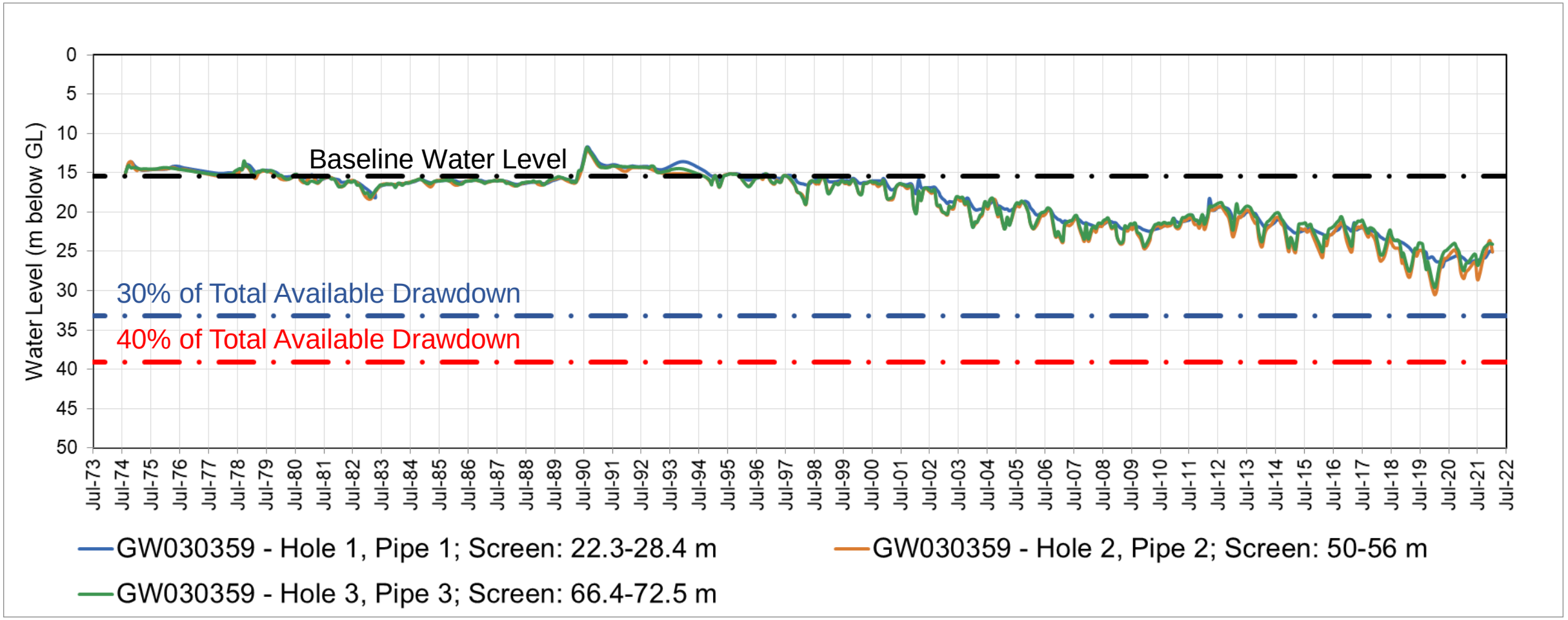
Hydrograph – GW030370



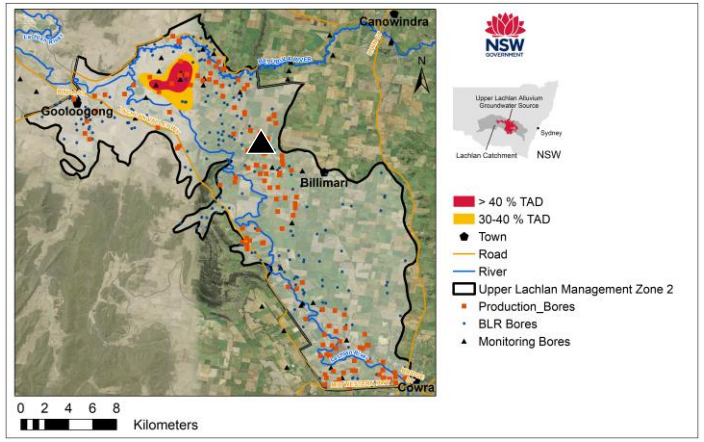


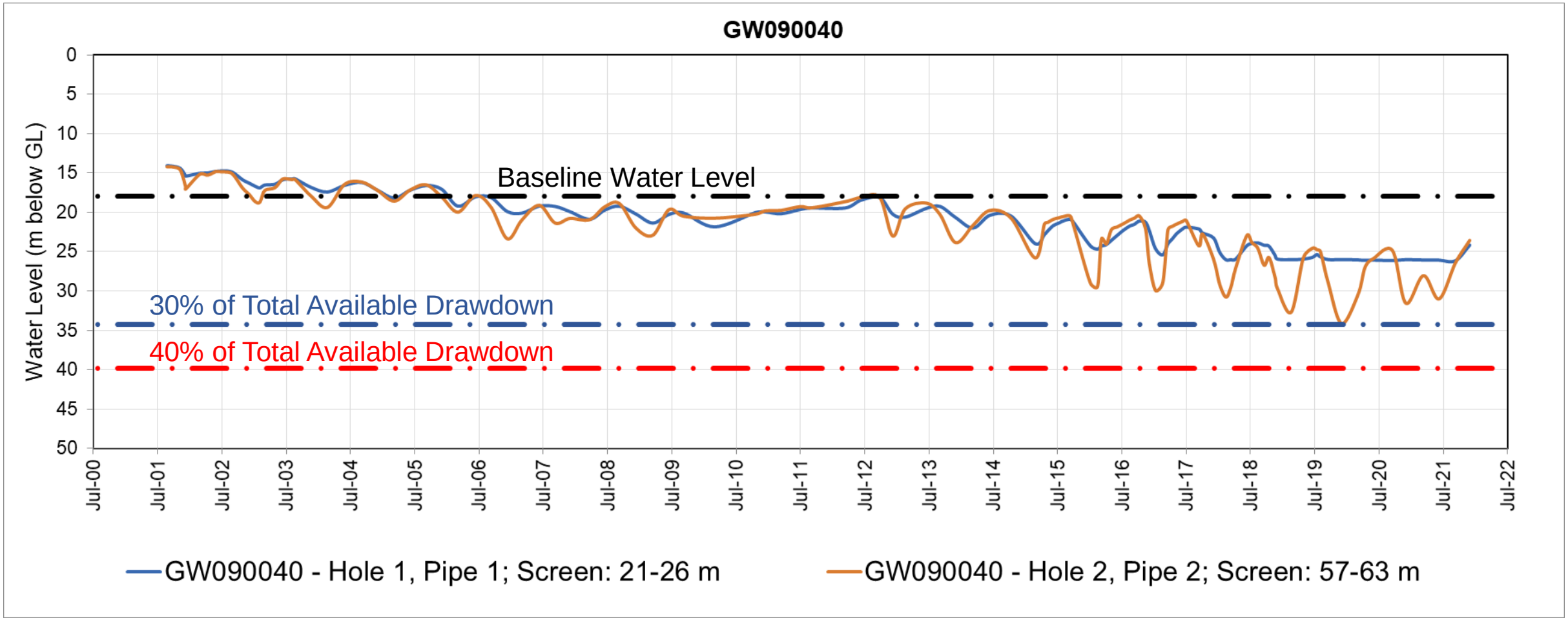
Hydrograph – GW030359



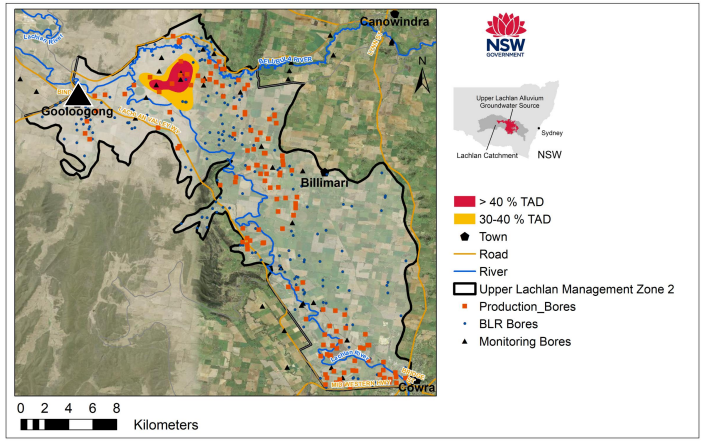


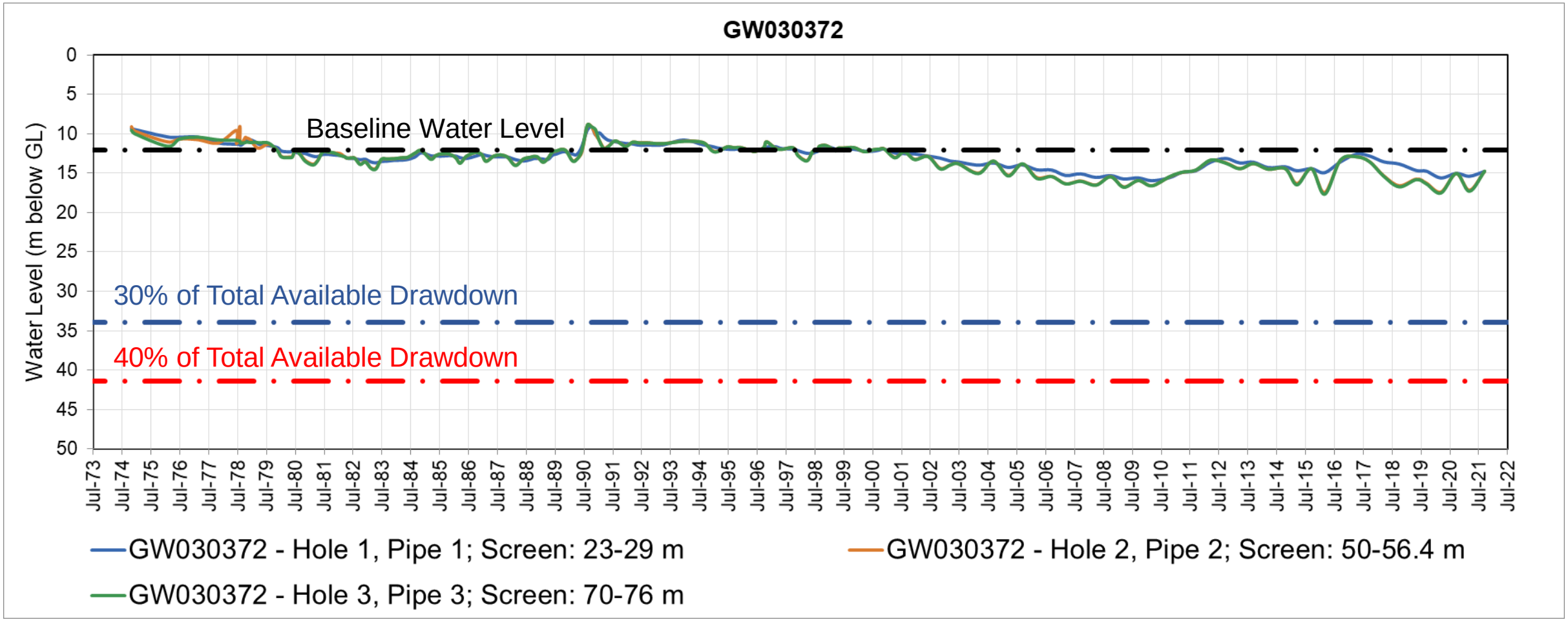
Hydrograph – GW090040

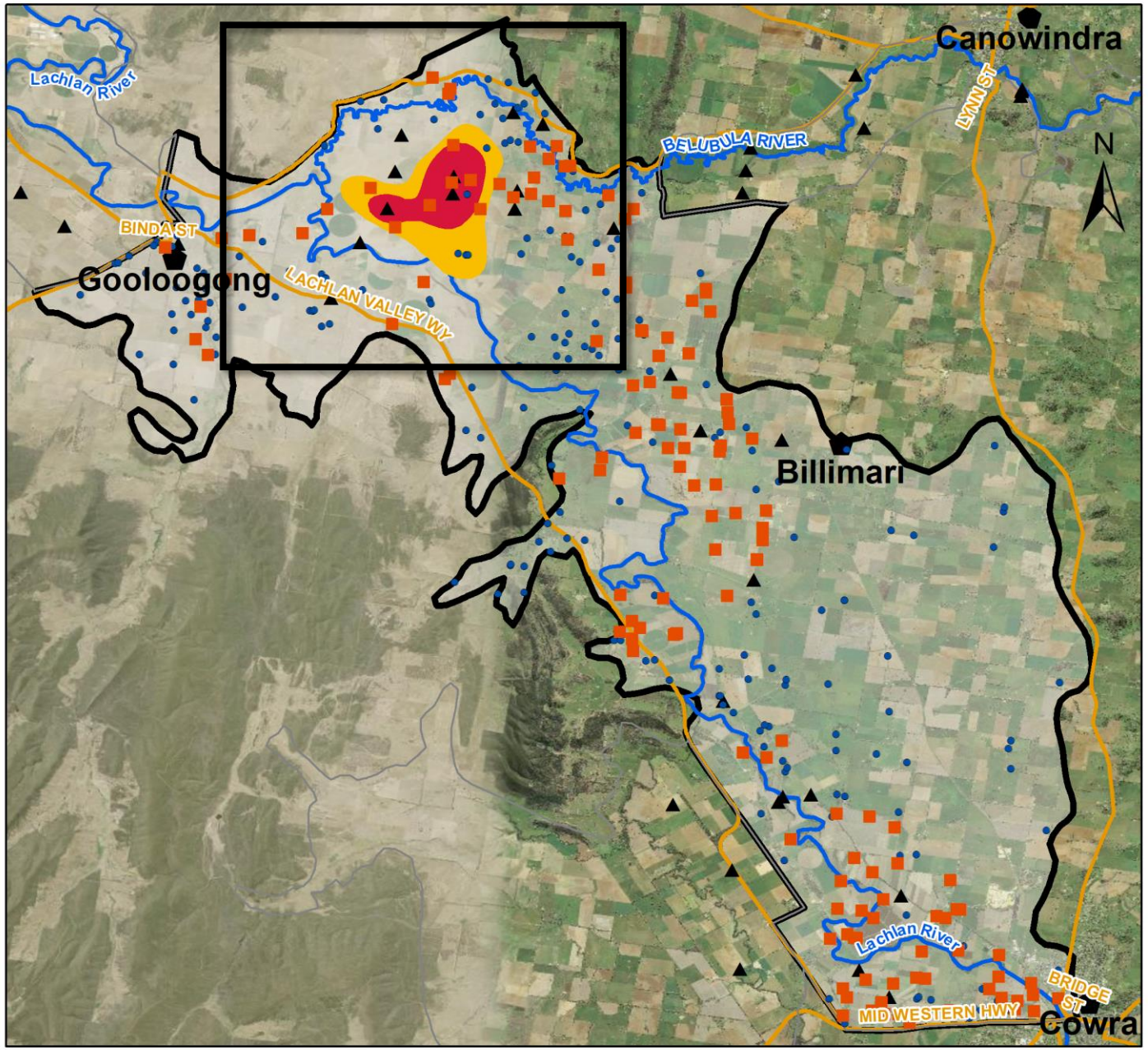




Hydrograph – GW030372







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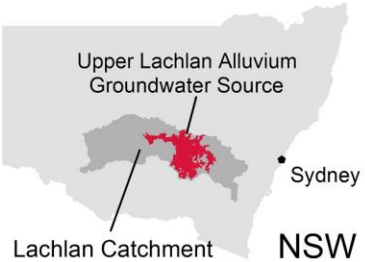


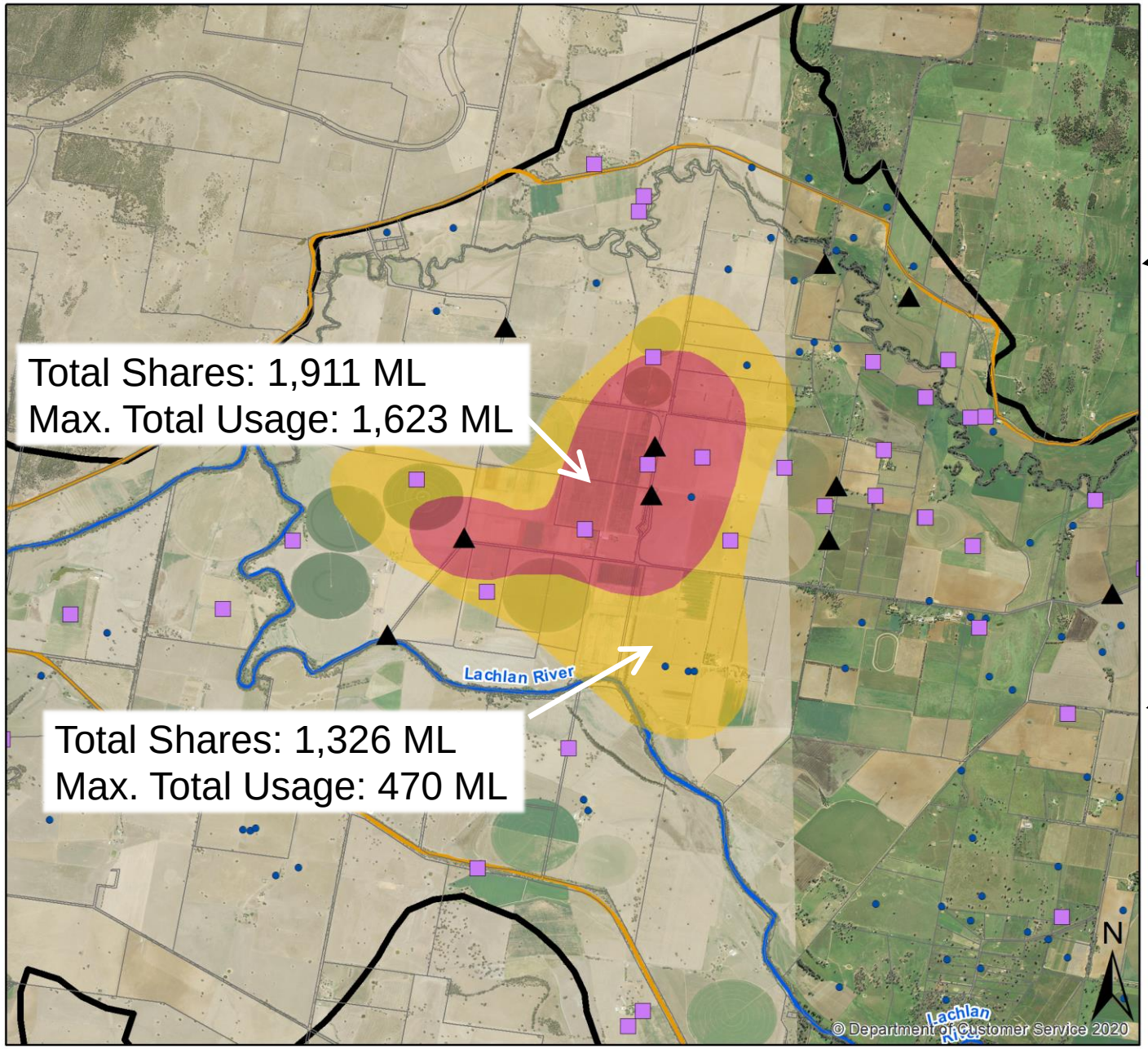
- > 40 % TAD
- 30-40 % TAD

(2019/20 Water Year)

- Town
- Road
- River
- Upper Lachlan Management Zone 2
- Production_Bores
- BLR Bores
- Monitoring Bores

0 2 4 6 8

Kilometers



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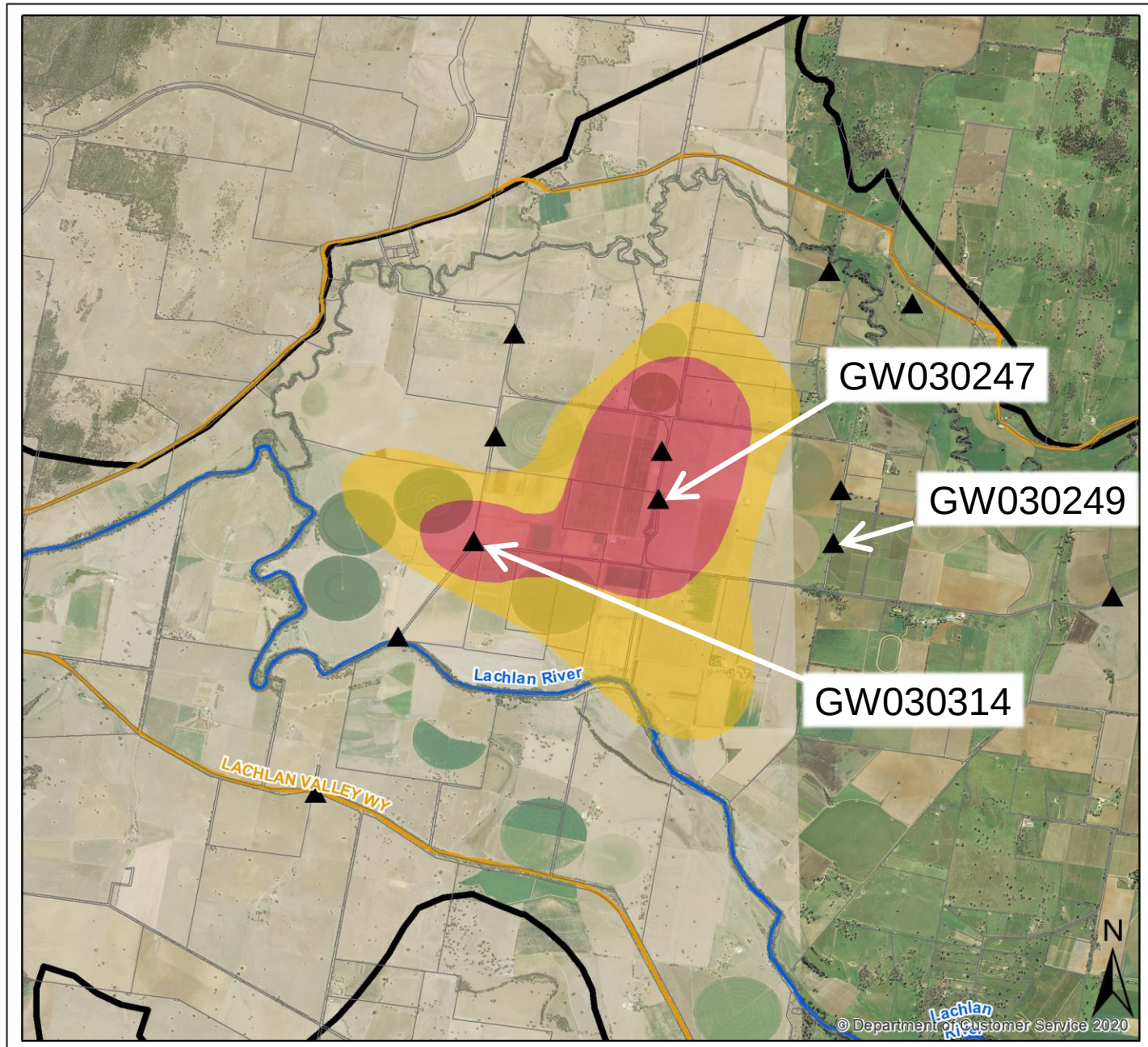
Total shares (entitlement) in this map extent: **11,355 ML**

Total shares (entitlement) in Zone 2: **34,029 ML**

Max. total usage in this map extent: **6,190 ML**

Max. total usage in Zone 2: **20,938 ML**



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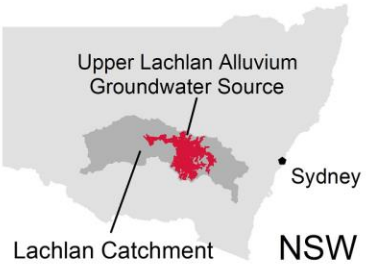


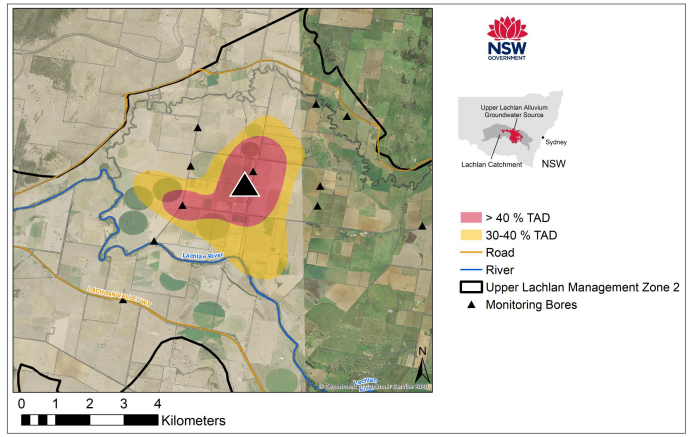
- > 40 % TAD
- 30-40 % TAD

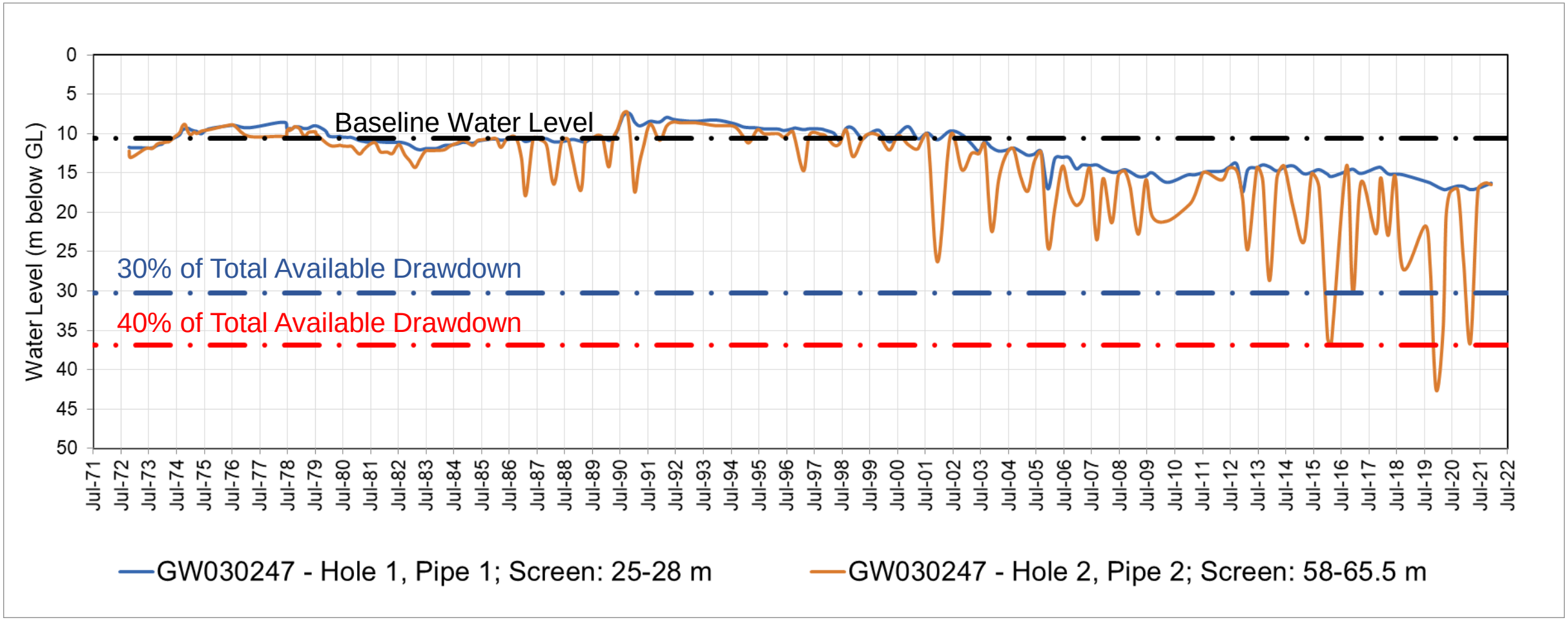
(2019/20 Water Year)

- Road
- River
- Upper Lachlan Management Zone 2
- ▲ Monitoring Bores

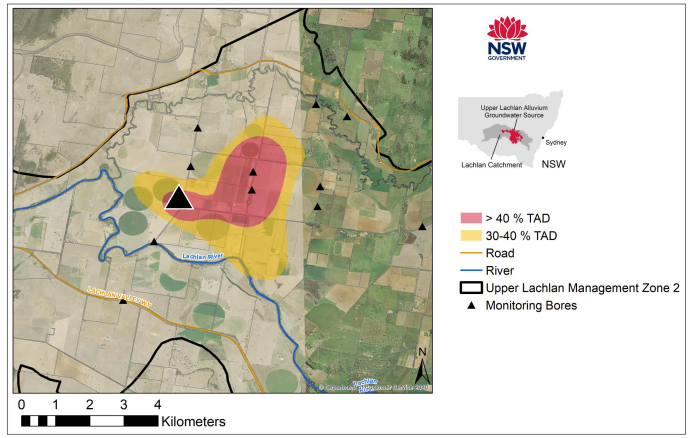
0 1 2 3 4 Kilometers

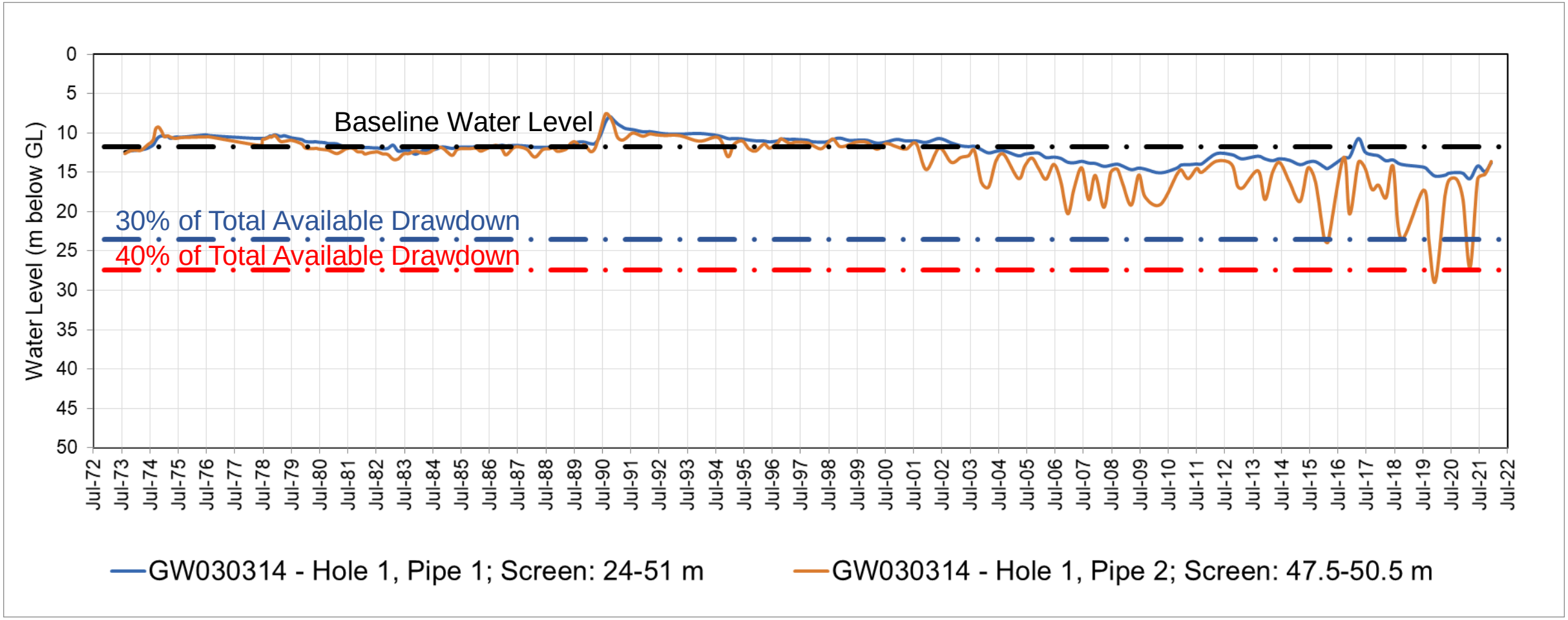
Hydrograph – GW030247



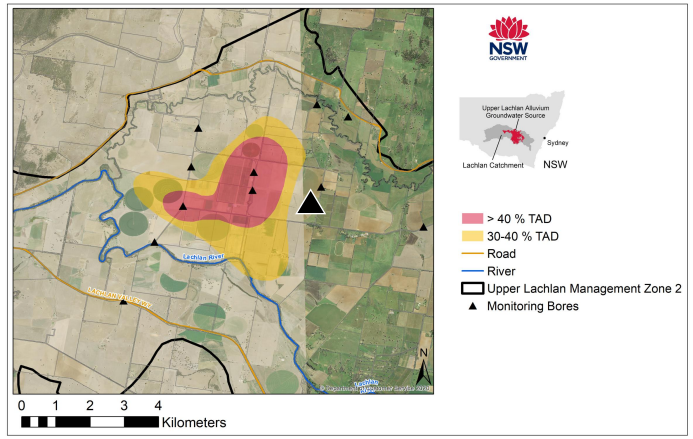


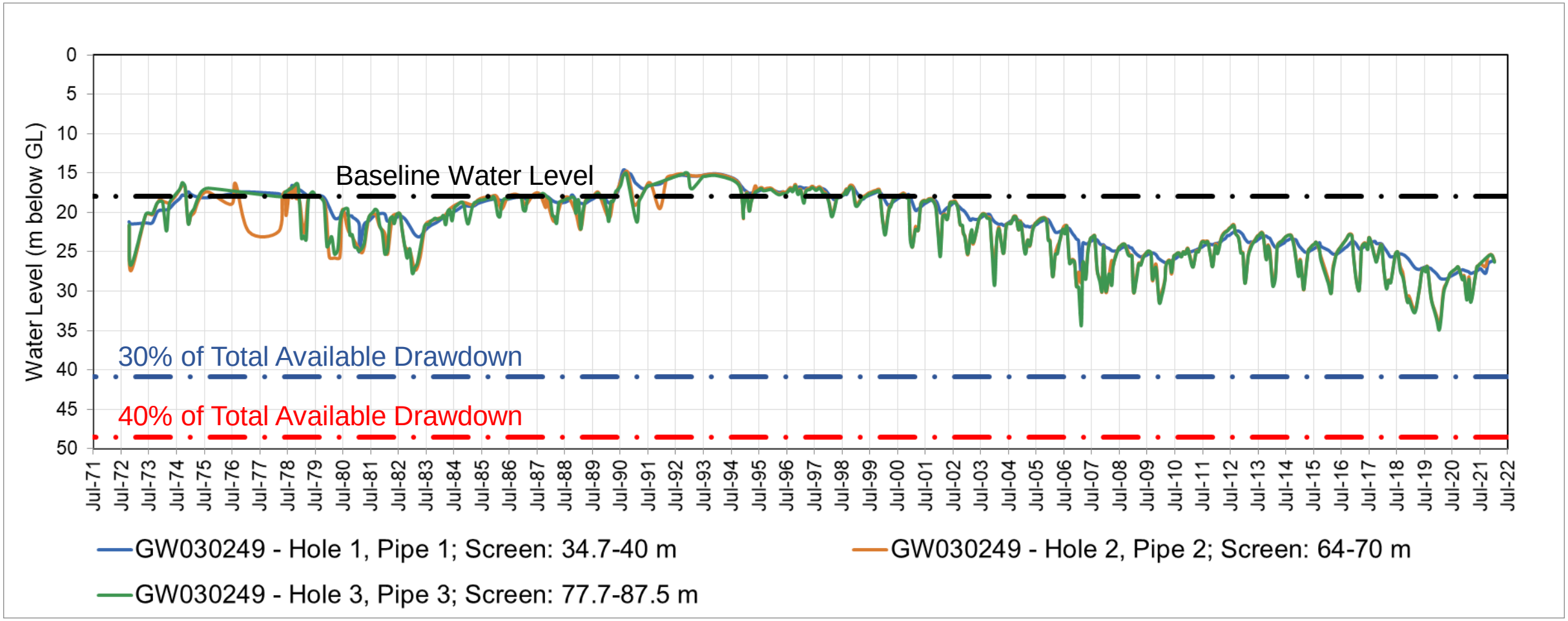
Hydrograph – GW030314





Hydrograph – GW030249





Next Steps

- Water levels will be reviewed annually
- Options will be developed in consultation with users for actions to ensure that the drawdowns during pumping remain above the 40% Total Available Drawdown.

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Department of Planning and Environment