

Upper Namoi Zone 1 Groundwater Source

Groundwater annual report 2022

Introduction

This report is a summary of water accounts, volume pumped and groundwater levels for the Upper Namoi Zone 1 Groundwater Source up to 2022, including the start of year water account volumes for the 2022/2023 water year (1 July to 30 June).

For detailed information of the hydrogeology, management and past long-term water level behaviour of this water source refer to the Groundwater Resource Description Report for the Namoi Alluvial Groundwater Sources at:

www.industry.nsw.gov.au/_data/assets/pdf_file/0017/230804/Namoi-Alluvium-WRP-resource-description.pdf

Description

The Upper Namoi Zone 1 Groundwater Source is located within the Namoi River catchment. The alluvium extends along Borambil Creek to the south and west of Quirindi (**Figure 1**).

The Upper Namoi Zone 1 Groundwater Source is made up of sediments deposited by the Borambil Creek and its tributaries and is comprised of clay, silt, sand and gravel.

Water resource management

Water sharing plan

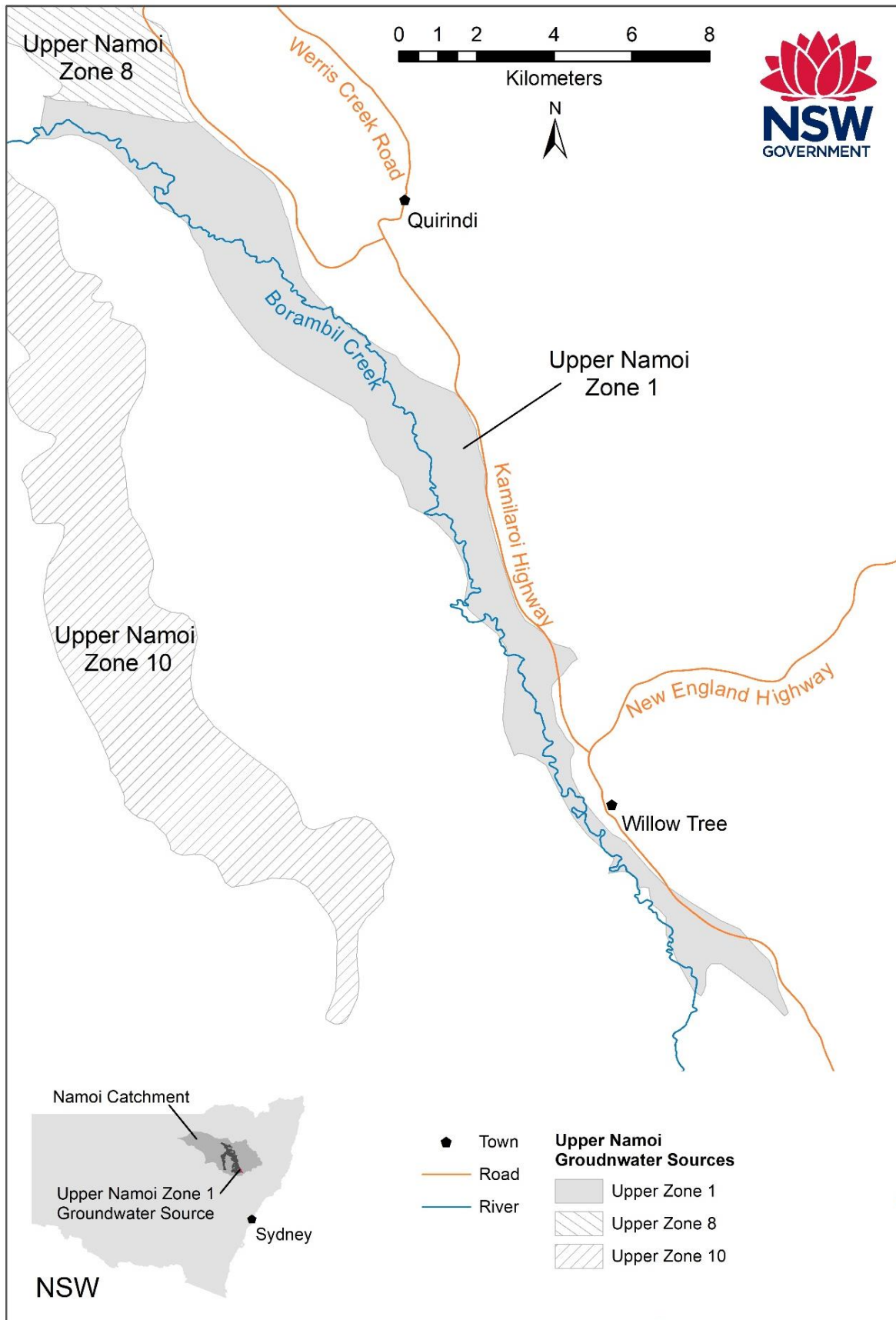
The Upper Namoi Zone 1 Groundwater Source is managed by the rules defined in the Water Sharing Plan for the Namoi Alluvial Groundwater Sources 2020. This water sharing plan is available for viewing at: legislation.nsw.gov.au/view/html/inforce/current/sl-2020-0346

Basic rights

Basic landholder rights are available in this groundwater source for domestic and stock watering requirements. While landholders do not need an access licence to take water for domestic and stock purposes from groundwater below their property, the bore must be authorised by WaterNSW.

The volume of water set aside in the water sharing plan for basic landholder rights is 27 megalitres (ML).

Figure 1: Location map



An approval holder is responsible for monitoring water quality from the bore to ensure it is suitable for its intended purpose for the duration of the approval. Inherent water quality and land use activities may make the water in some areas unsuitable for use.

Water from the groundwater sources should not be used without first being tested and, if necessary, appropriately treated to ensure it is fit for purpose. Such testing and treatment are the responsibility of the water user.

Groundwater access licences

Groundwater access licence share components to 30 June 2022 are presented in **Table 1**.

Table 1: Upper Namoi Zone 1 Groundwater Source share component 30 June 2022

| Access Licence Category | Number of Licences | Total Volume |
|----------------------------------|--------------------|--------------|
| Local Water Utility ¹ | 2 | 1,216 |
| Aquifer ² | 36 | 384 |

¹Megalitres/year (ML)

²Megalitres per unit share

Extraction limit

All groundwater sharing plans have rules to manage extraction in a water source to the long-term average annual extraction limit.

The extraction limit for Upper Namoi Zone 1 Groundwater Source is 2,127 ML/year.

Extraction in the Upper Namoi Zone 1 Groundwater Source is not compliant if the 5 years average annual extraction is more than 105% of the extraction limit (known as the compliance trigger). If average extraction exceeds the compliance trigger, then the available water determination made for aquifer access licences for the following water year, may be reduced by an amount that would return subsequent total water extraction to the extraction limit.

Information on tracking groundwater extraction against extraction limit for the groundwater source including the likelihood of compliance being triggered in the current water year can be found at: www.industry.nsw.gov.au/water/allocations-availability/tracking-groundwater

For each inland groundwater source, the dashboard shows for the current water year:

- Volume that if extracted will reach the compliance trigger (in ML, calculated annually)
- Volume remaining to be extracted before reaching the compliance trigger (in ML, calculated throughout the year)
- The likelihood that access to groundwater may be reduced in the next water year

Note: the information on the dashboard is limited by the extraction data available at the time.

Available water

Total water availability in a water year is controlled by the available water determination (AWD) credited to an access licence account, and the carryover rules that dictate the allowable volume to be brought forward from one year to the next.

Total available water for use is controlled by the annual account usage limits, which define the maximum volume of allocated water that can be taken in that water year. The rules and limits that are applicable to the Upper Namoi Zone 1 Groundwater Source are provided in **Table 2**.

The available water determination for aquifer access licences in Upper Namoi Zone 1 has been set at 2.3 ML/share since the 2010/2011 water year to distribute 500 ML of unused local water utility shares between the licence holders.

Table 2: Upper Namoi Zone 1 Groundwater Source access licence account rules

| Access Licence Category | Carryover Limit | Annual Use Limit | Maximum AWD |
|-------------------------|-----------------|------------------|--------------|
| Local Water Utility | 0% | 100% | 100% |
| Aquifer | 4.6 ML/share | 4.6 ML/share | 2.3 ML/share |

The account rules changed for the Upper Namoi Zone 1 Groundwater Source on commencement of the Water Sharing Plan for the Namoi Alluvial Groundwater Sources 2020 to allow carryover and take equivalent to the other groundwater source in the plan.

The maximum amount of water that can be debited from an aquifer access licence account in a water year cannot exceed 4.6 ML per unit share component (annual use limit) plus any allocation transferred in (temporary trade), and minus any allocation transferred out. This means that metered extraction plus transfers out can't exceed 460% of the of share component, unless water is transferred in.

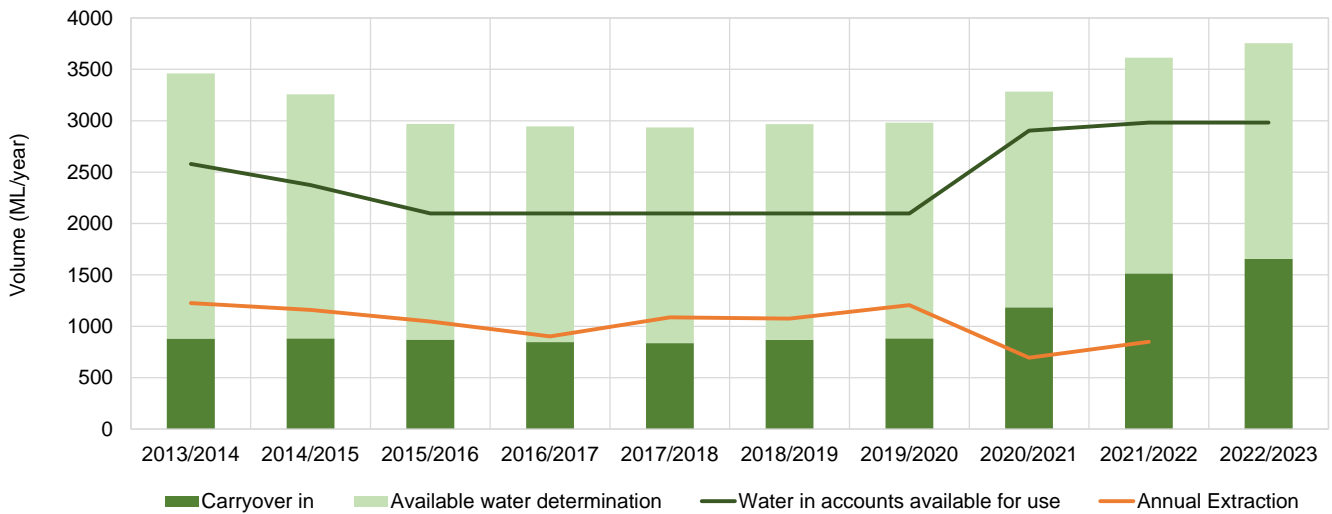
Total account water for period 2013/2014 to 2022/2023 is displayed in **Figure 2**, showing the proportion available for use and what is not available for use in a year. Total yearly extraction is also displayed.

Note: all access licence categories have been combined in **Figure 2**.

The access licence account information for the Upper Namoi Zone 1 Groundwater Source on 1 July 2022 is summarised below:

- Carryover: 1,655 ML
- Available water determination: 2,099 ML
- Total water in account: 3,754 ML
- Total water available for use: 2,982 ML

Figure 2: Account water availability and usage summary for Upper Namoi Zone 1 Groundwater Source



Groundwater trading

Trades are permitted within but not between Upper Namoi Zone 1 and any other groundwater source. Trades to Upper Namoi Zone 10 groundwater source are permitted but subject to conditions and assessment.

Allocation assignments (temporary trade)

Trading statistics for the Upper Namoi Zone 1 Groundwater Source are illustrated in **Figure 3**, excludes trades for less than \$1 per megalitre. There was one temporary trade greater than \$1 per megalitre in Upper Namoi Zone 1 in 2021/2022, the value paid per megalitre was \$110.

Further information on water licences, approvals, water trade and water dealings and other matters related to water entitlements in NSW can be found on the NSW Water Register at:

waterregister.watarnsw.com.au/water-register-frame

Figure 3: Upper Namoi Zone 1 Groundwater Source temporary trade statistics



Bores

There are approximately 132 registered bores across the Upper Namoi Zone 1 Groundwater Source (Figure 4). The majority of these bores are used for stock and domestic purposes (Basic Landholder Rights). There is also significant use of groundwater for irrigation (Table 3).

Production bores in the Upper Namoi Zone 1 Groundwater Source are concentrated in south and west of Quirindi. The majority of production bores produce supply in the range of 80 ML/year (Figure 5).

Table 3: Approximate number of licensed bores in Upper Namoi Zone 1 Groundwater Source (2022)

| Groundwater Source | Registered Bore Purpose | | |
|--------------------|-------------------------|------------|---------------------|
| | Basic Landholder Rights | Production | Local Water Utility |
| Upper Namoi Zone 1 | 85 | 47 | 4 |

Figure 4: Upper Namoi Zone 1 Groundwater Source registered bores

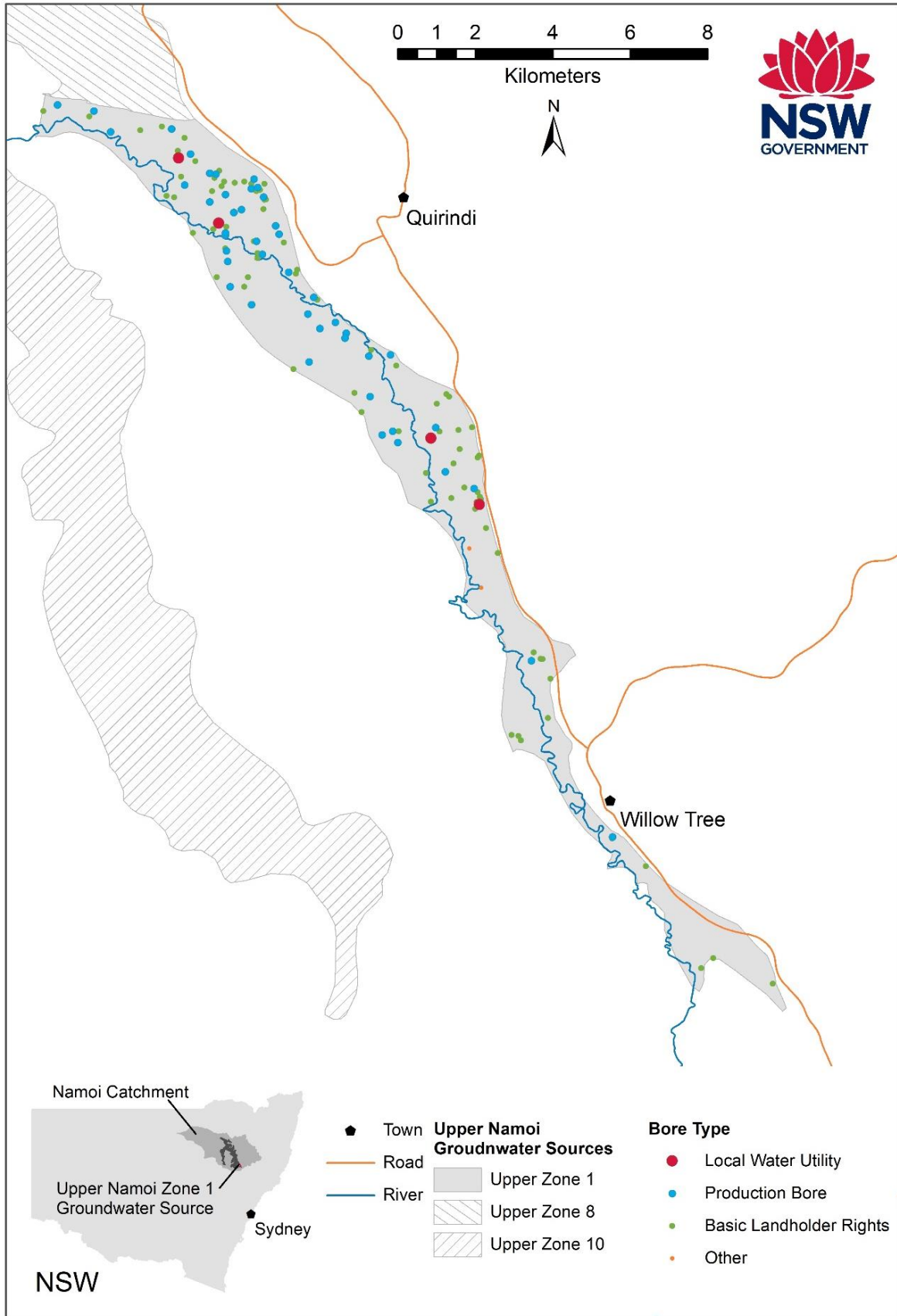
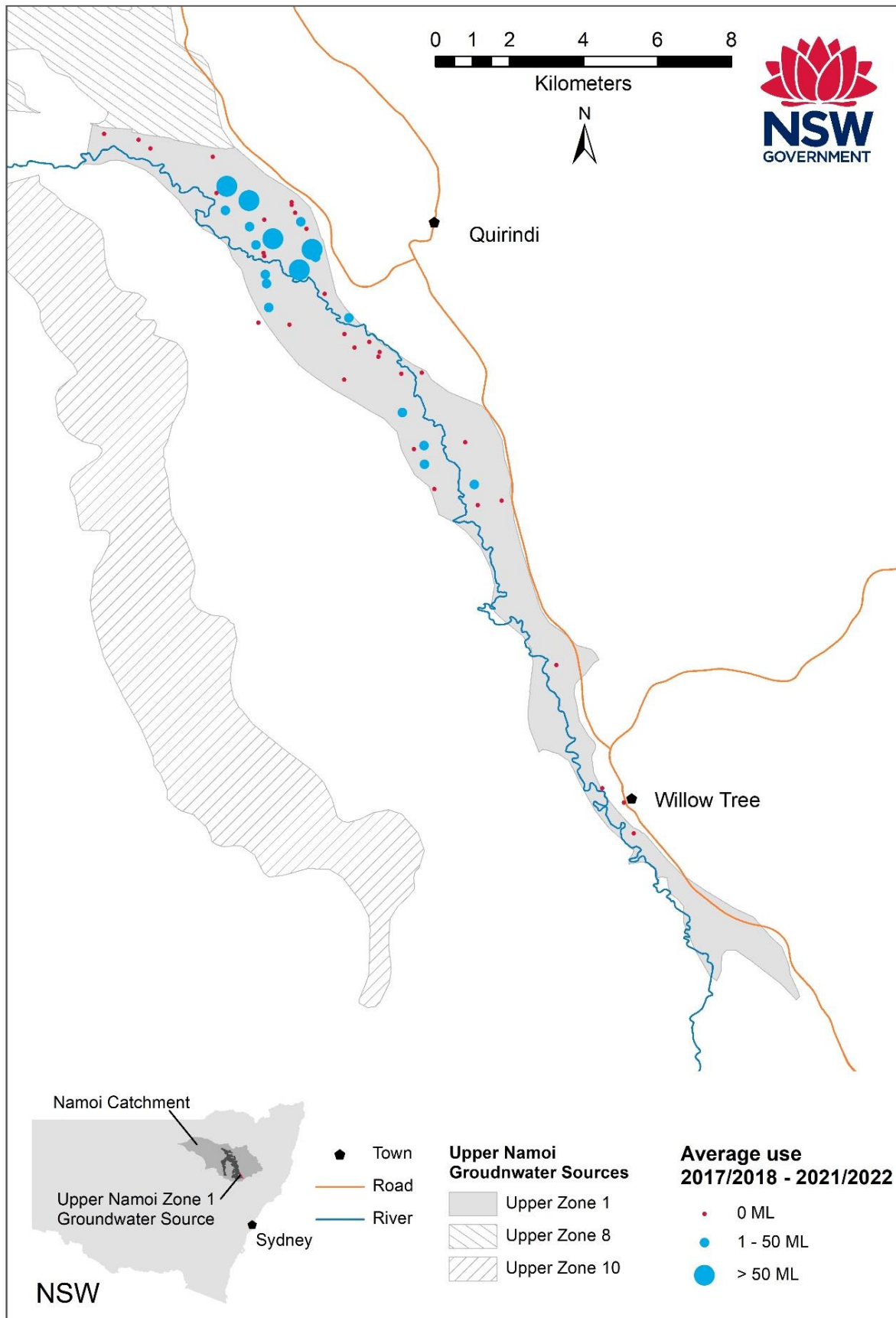


Figure 5: Upper Namoi Zone 1 Groundwater Source water supply bores and distribution of extraction



Water level monitoring

WaterNSW monitors groundwater levels at 17 monitoring bores at 11 sites in the Upper Namoi Zone 1 Groundwater Source (**Figure 6**). At some monitoring sites there are two or more pipes monitoring different depths. The depth monitored by each pipe reflects the depth where the casing is slotted to allow groundwater entry into the pipe.

A hydrograph is a plot of groundwater level or pressure from a monitoring bore over time. A representative sample of hydrographs from monitoring bores have been selected and are presented in **Figure 7** to **Figure 9**.

Data for the monitored bores as well as private bore information can be obtained from the WaterNSW real time data portal at: realtimedata.waternsw.com.au/

You can also request information via: Customer.Helpdesk@waternsw.com.au

Figure 6: Upper Namoi Zone 1 Groundwater Source monitoring bore sites

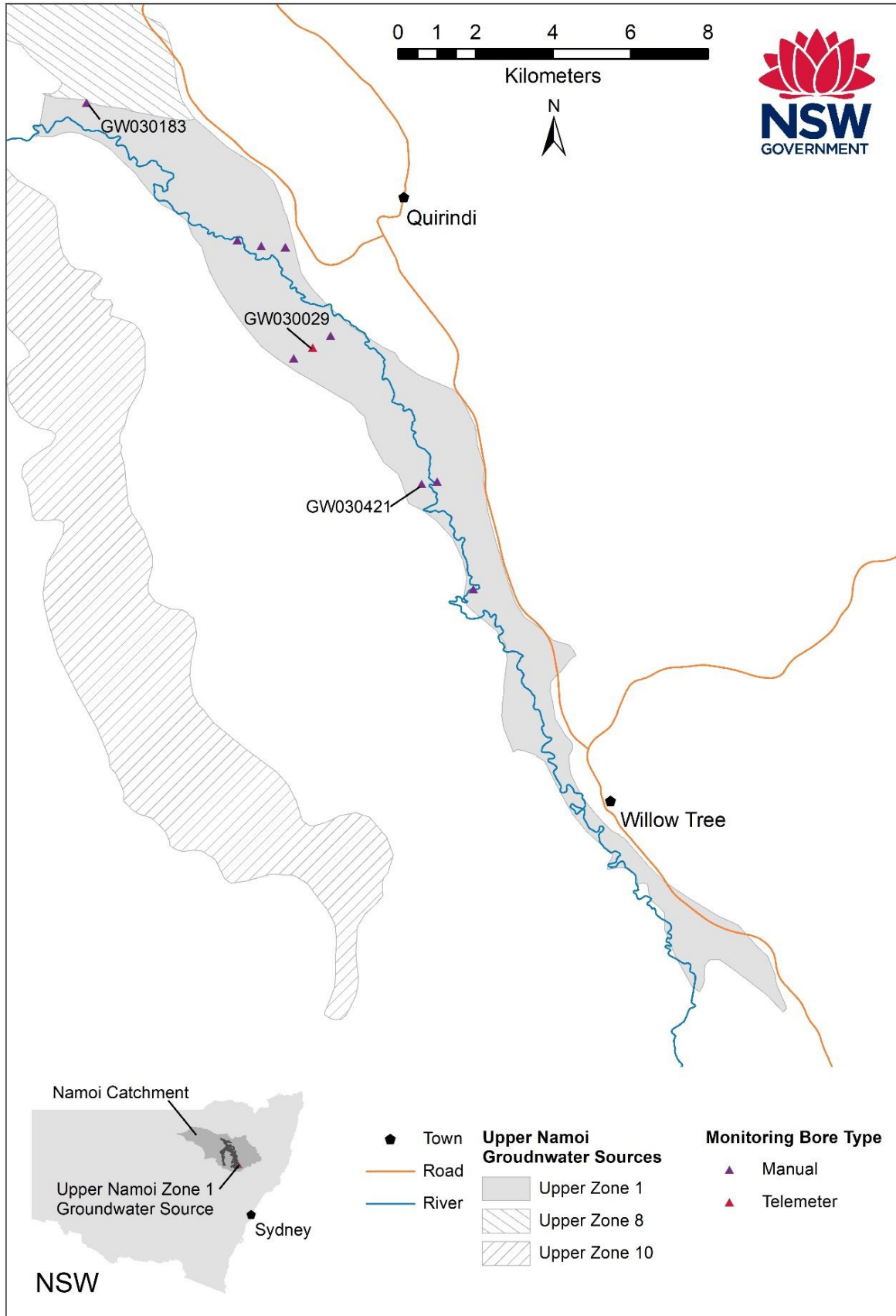


Figure 7: Hydrograph for monitoring bore GW030029

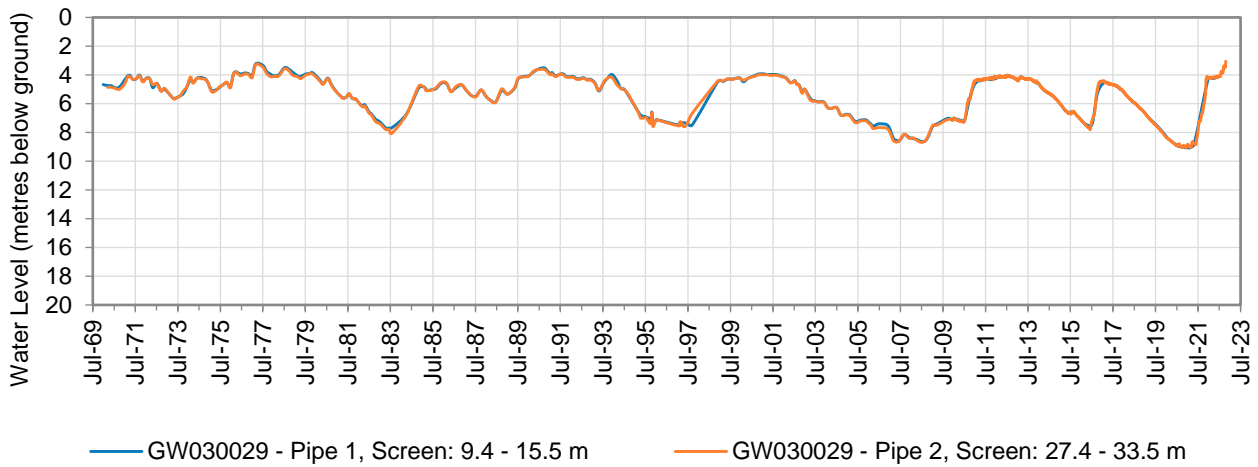


Figure 8: Hydrograph of monitoring bore GW030183

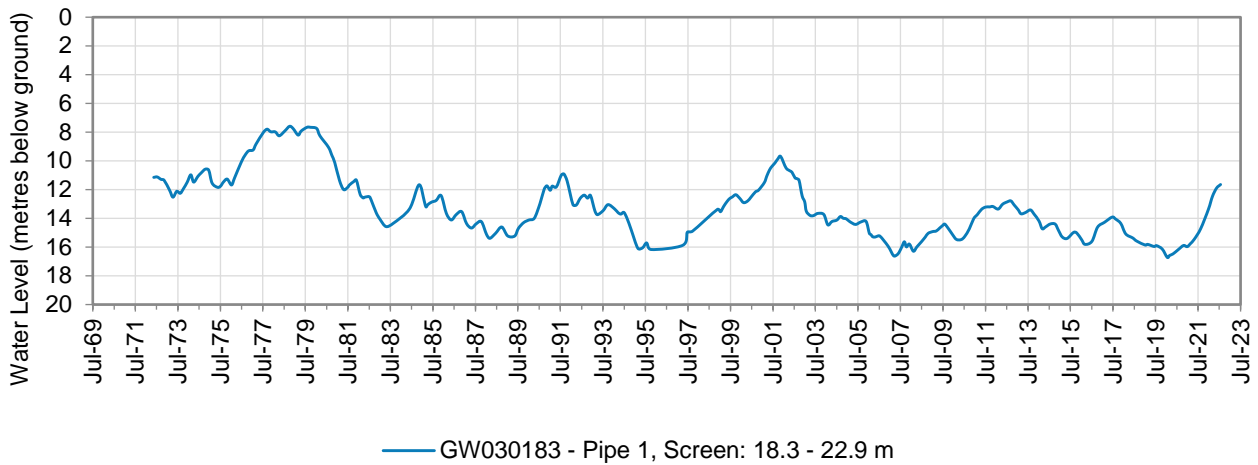


Figure 9: Hydrograph of monitoring bore GW030421

