

Lower Lachlan Groundwater Source Summary Report 2008-2015

Water sharing plan

The alluvial aquifers of the Lower Lachlan Groundwater Source (hereafter referred to as the water source) have been managed under *the Water Management Act 2000 (WMA, 2000)* since the commencement of the Water Sharing Plan for the Lower Lachlan Groundwater Source 2003 (hereafter referred to as the Plan) on 1st February 2008. The Plan sets the framework for managing groundwater in the water source until June 2018.

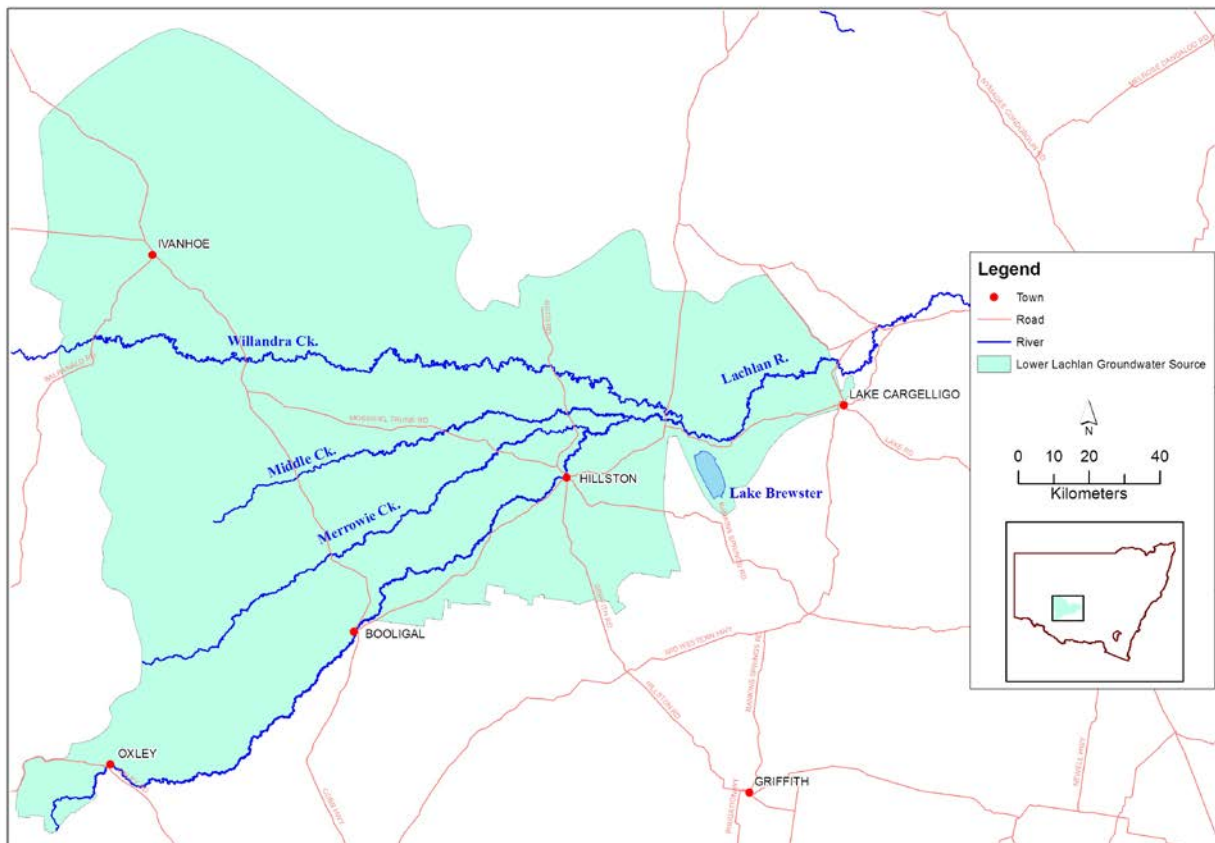
A copy of the Plan can be viewed and downloaded from the NSW legislation website or from the following link:

<http://www.water.nsw.gov.au/Water-management/Water-sharing-plans/Plans-commenced/Water-source/Lower-Lachlan-Groundwater-Source>.

Location and description of water source

The water source includes all water contained in the unconsolidated alluvial aquifers from Lake Cargelligo through to immediately downstream of Oxley/Ivanhoe in the area shown in **Figure 1**.

Figure 1 Map of the Lower Lachlan Groundwater Source



Access licences

There are four categories of groundwater access licenses held in the water source. These are:

- local water utility access licence,
- aquifer (subcategory 'town water supply')
- aquifer access licence, and
- supplementary access licence.

The local water utility access licences are held by local government for town water supply purposes for which the share component is for a specified volume of groundwater. The share components of aquifer access licences, and supplementary water access licences are issued for a specified number of unit shares as shown in **Table 1**.

Table 1 Existing access licences Lower Lachlan Groundwater Source

Category	ML/yr	Unit shares
Local water utility access licences	2,922	
Aquifer access licence (town water supply)		2
Aquifer access licences		105,678
Supplementary access licences		21,238

Annual extraction limit and available water determination

The long-term average annual extraction limit for the water source is 108,000 ML/yr plus total water made available to supplementary water access licences plus the total requirements for basic landholder rights at the commencement of the Plan. The total requirement for basic landholder rights at the commencement of the Plan was estimated to be 4,000 ML/yr.

At the start of each water year an available water determination is made which sets the allocation of groundwater for the different categories of access licences.

The annual available water determinations for the various categories of access licences since commencement of the Plan are provided in **Table 2**. Note that the available water determination for supplementary water access licences for each water year has been set in the Plan. The Plan requires that if the average annual extraction volume over any 3 year period exceeds the long-term average annual extraction limit by 5% or greater, then an available water determination for aquifer access licences for the following water year, should be reduced by an amount that is assessed necessary by the Minister to return subsequent total water extraction to the extraction limit.

Table 2 Available water determinations for access licence categories

Year of Plan	Water Year	Supplementary Water (ML per unit share)	Aquifer (ML per unit share)	Local Water Utility (%)
1	Feb. 2008- Jun. 2008	1.0	1	100
2	2008-2009	0.9	1	100
3	2009-2010	0.8	1	100
4	2010-2011	0.7	1	100
5	2011-2012	0.6	1	100
6	2012-2013	0.5	1	100
7	2013-2014	0.4	1	100
8	2014-2015	0.3	1	100

Access licence account management rules

The Plan allows for accrual of unused allocation in aquifer access licence accounts. This includes the yearly allocations for the aquifer access licences made through available water determinations plus any carryover of unused allocation up to a maximum of 2 ML per unit of share component.

The maximum amount of water permitted to be debited from an account in any one water year (i.e. account take limit) cannot exceed 1.5 ML per unit share component plus any allocation transferred in, and minus any allocation transferred out. This means that metered extraction plus transfers out cannot exceed 150% of the of share component, unless transfer in occurs.

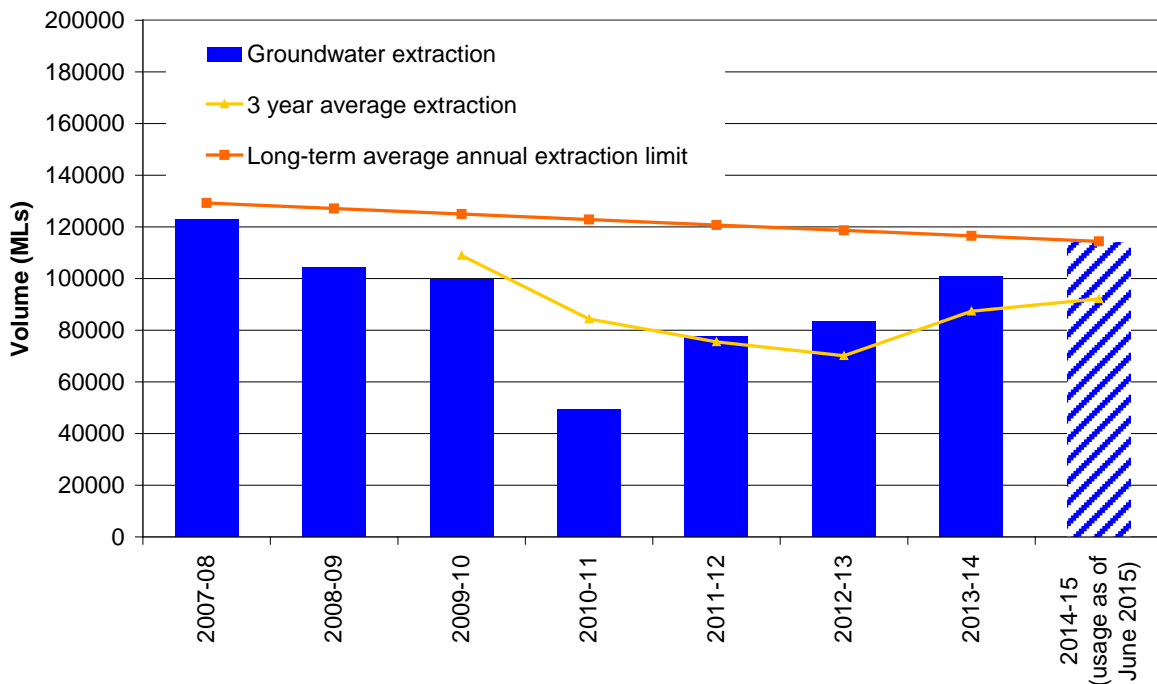
Local water utility and supplementary water access licences do not have any provisions for carryover.

Groundwater extraction

There are approximately 175 production bores (work approvals) within the Lower Lachlan Groundwater Source. All bores are metered and the usage is recorded by the Water NSW at regular intervals ranging 2 to 4 readings per year.

Annual extractions plotted against long-term average annual extraction limits since the commencement of the Plan are provided in **Figure 2**. The three year average extractions have remained below the long-term average annual extraction limit since Plan commencement.

Figure 2 Annual groundwater extractions – Lower Lachlan Groundwater Source



Groundwater dealings (trades)

Under the WMA 2000 dealings are permitted in access licences, shares, account water and the nomination of supply works.

All trades in this groundwater source require a hydrogeological assessment of the potential impact to neighbouring water supply works (bores) and the water source prior to being approved.

The most common dealings are assignment of allocation (sale or purchase of account water – s71T), and assignment of rights (sale or purchase of share component – s71Q). A summary of these dealings since the commencement of the Plan are provided in **Table 3**. This information may also be obtained from the following link:

<http://www.water.nsw.gov.au/Water-licensing/Registers>.

Table 3 Dealings completed since Plan commencement

Lower Lachlan Groundwater Source				
Year	71T dealings		71Q dealings	
	number	Volume (ML)	number	Volume (ML)
Feb. 2008- Jun. 2008	10	5,136	0	0
2008-2009	63	37,680	8	6,564
2009-2010	43	24,298	7	3,412
2010-2011	4	2,470	1	120
2011-2012	7	2,738	1	200
2012-2013	14	10,074	2	2,487
2013-2014	36	29,109	2	3,670
2014-2015*	35	24,099	3	1,577

*Total dealings as at 17/06/2015, water year still in progress

Groundwater levels

There are 189 monitoring pipes (bores) at 90 sites within this groundwater source that are monitored for groundwater levels (**Figure 3**). At most monitoring sites there are two or more pipes monitoring different depths. The pipes at each site are identified by a common work number with each pipe numbered from shallowest to deepest (e.g. GW030105/1 is the shallow and GW030105/2 is the deeper pipe). The depth monitored by each pipe corresponds to the depth at which the casing is slotted to allow groundwater entry into the pipe. The hydrographs (**Figures 4 to 11**) illustrate the water level variations (natural or induced by pumping) over time from the depth indicated by the pipe's slots. The water levels (or pressures) are expressed as metres below ground level. The locations of the monitoring sites for which the graphs have been constructed are also shown in **Figure 3**.

The monitoring network includes 20 sites equipped with data loggers that record water levels continuously. These are all telemetered so continuous real time data is available at http://www.water.nsw.gov.au/Real-time-data/hydro_index.

Figure 3 Monitoring bore locations – Lower Lachlan Groundwater Source

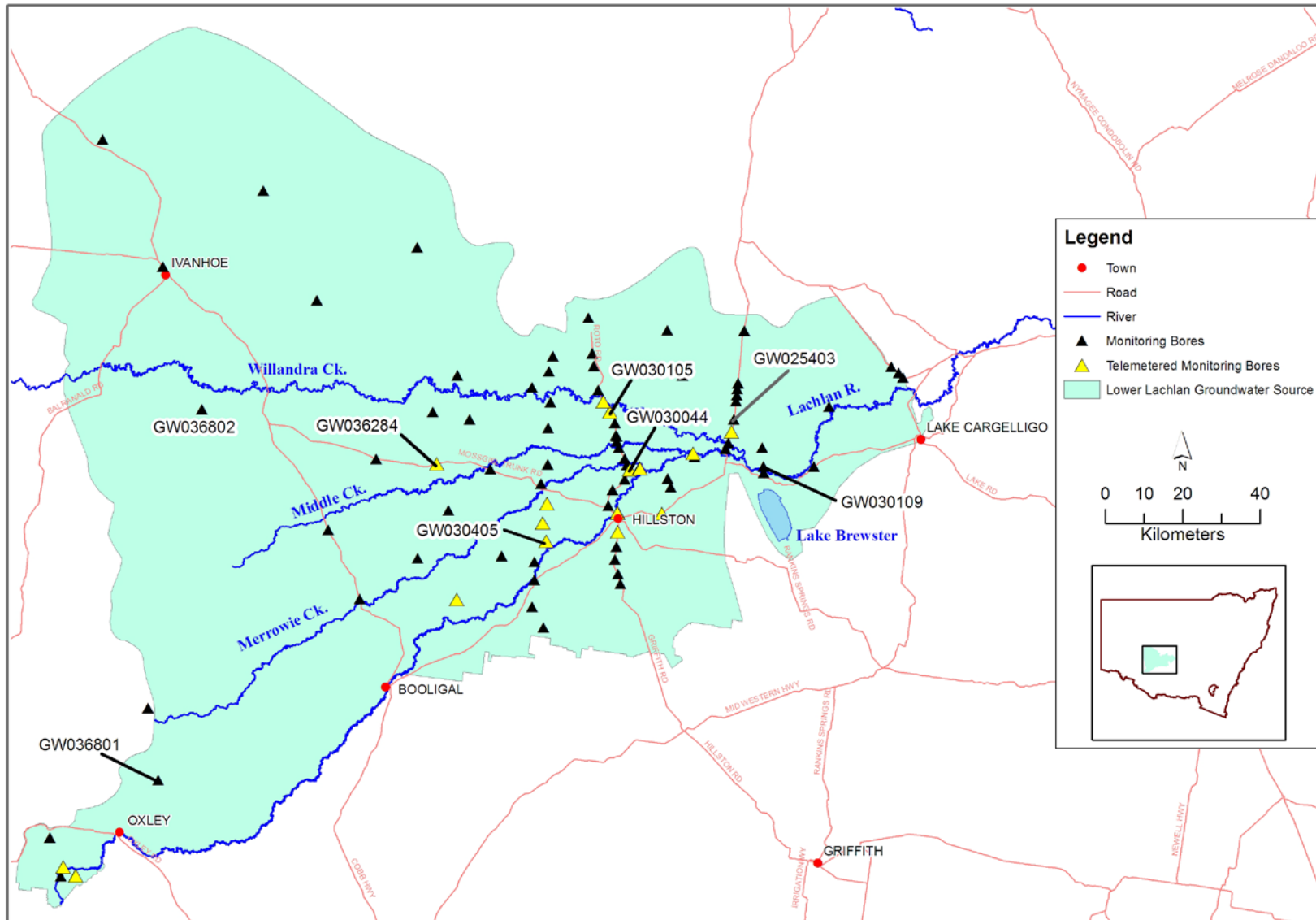


Figure 4 Hydrograph for monitoring site GW025403

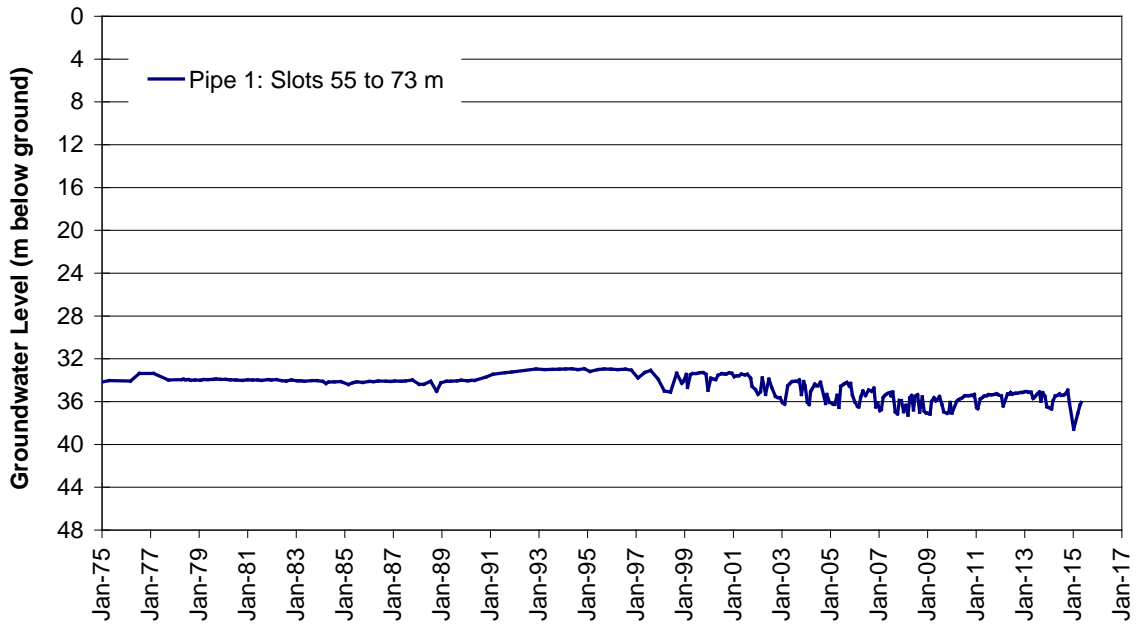


Figure 5 Hydrograph for monitoring site GW030044

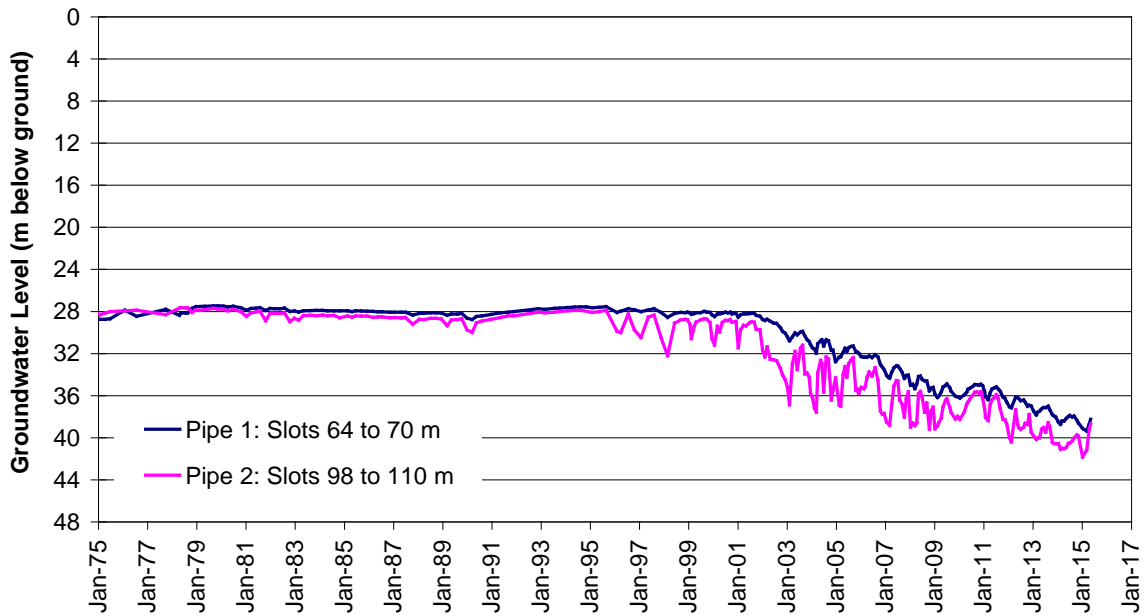


Figure 6 Hydrograph for monitoring site GW030105

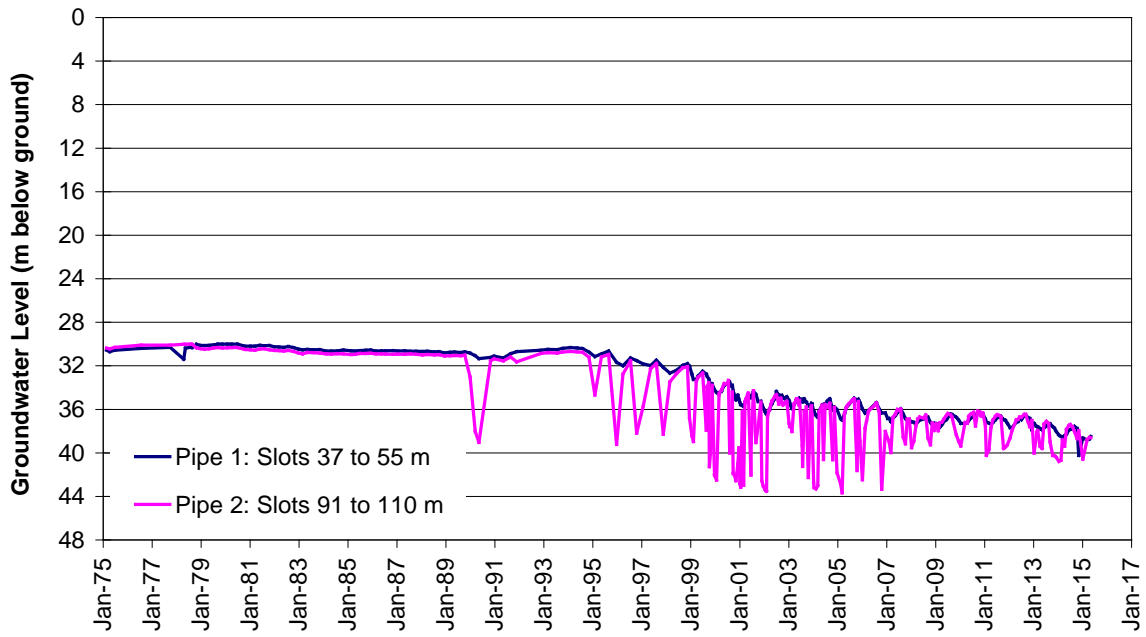


Figure 7 Hydrograph for monitoring site GW030109

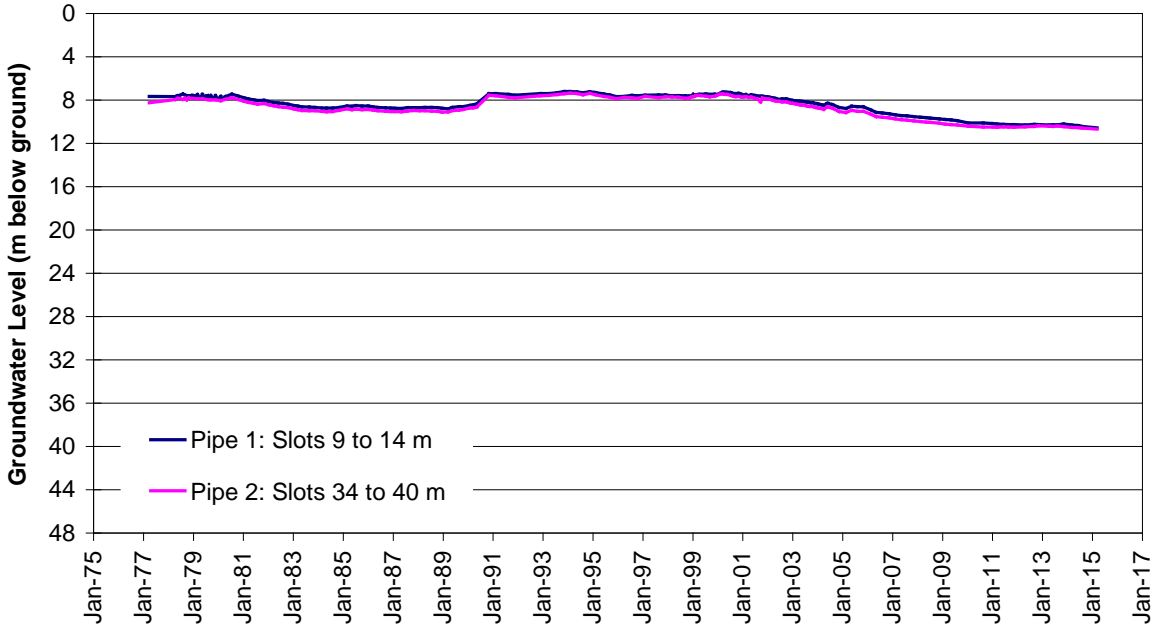


Figure 8 Hydrograph for monitoring site GW030405

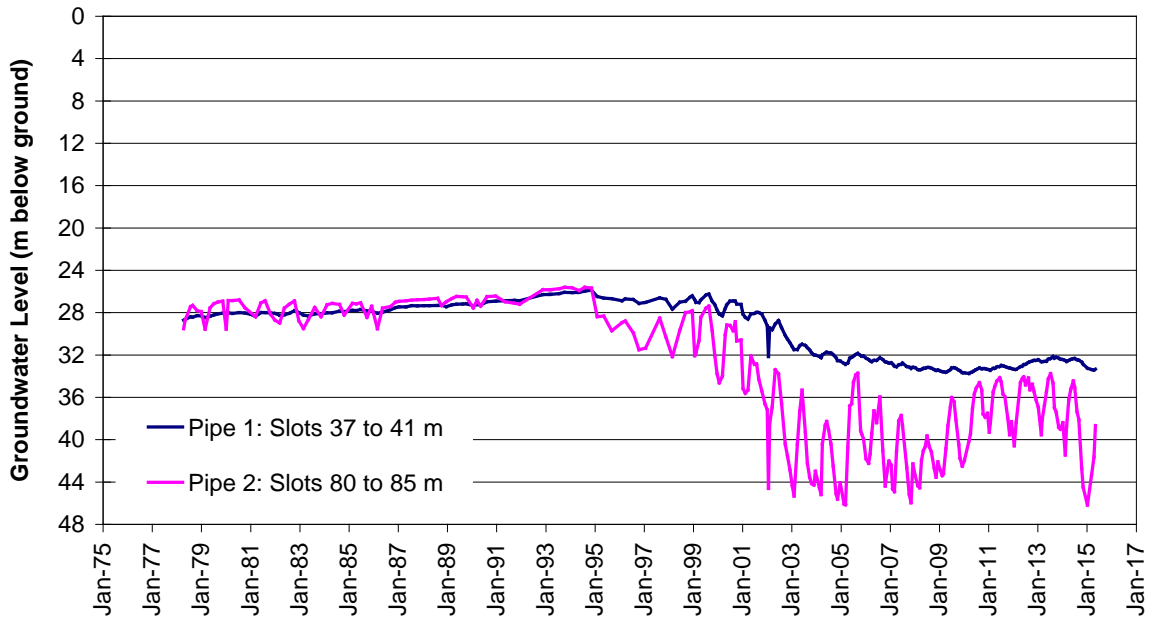


Figure 9 Hydrograph for monitoring site GW036284

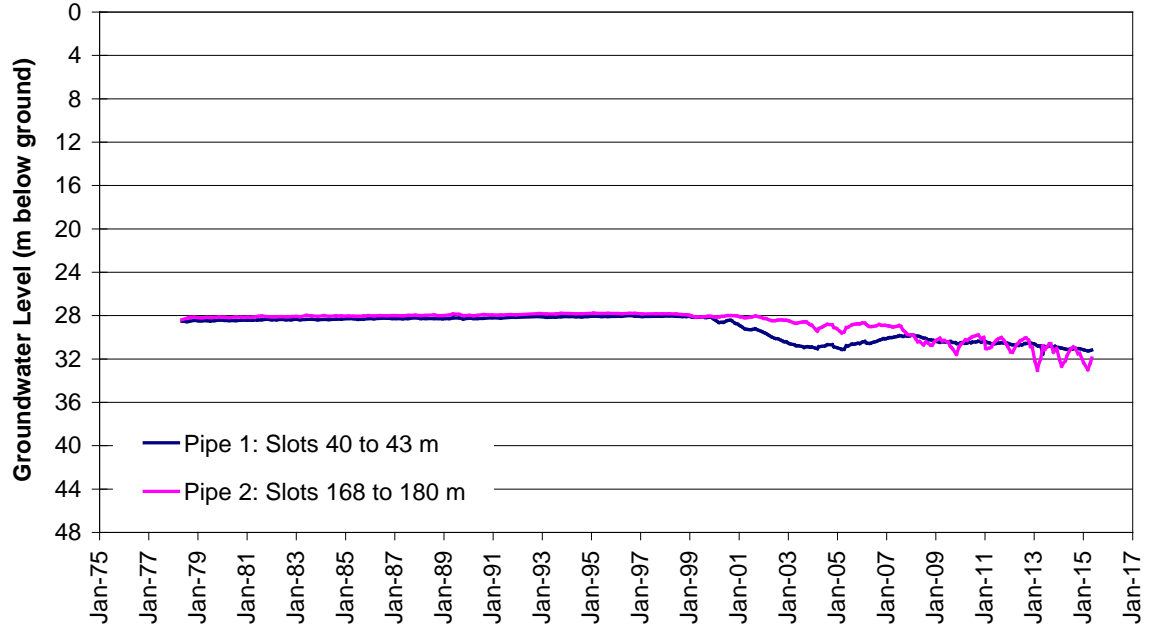


Figure 10 Hydrograph for monitoring site GW036801

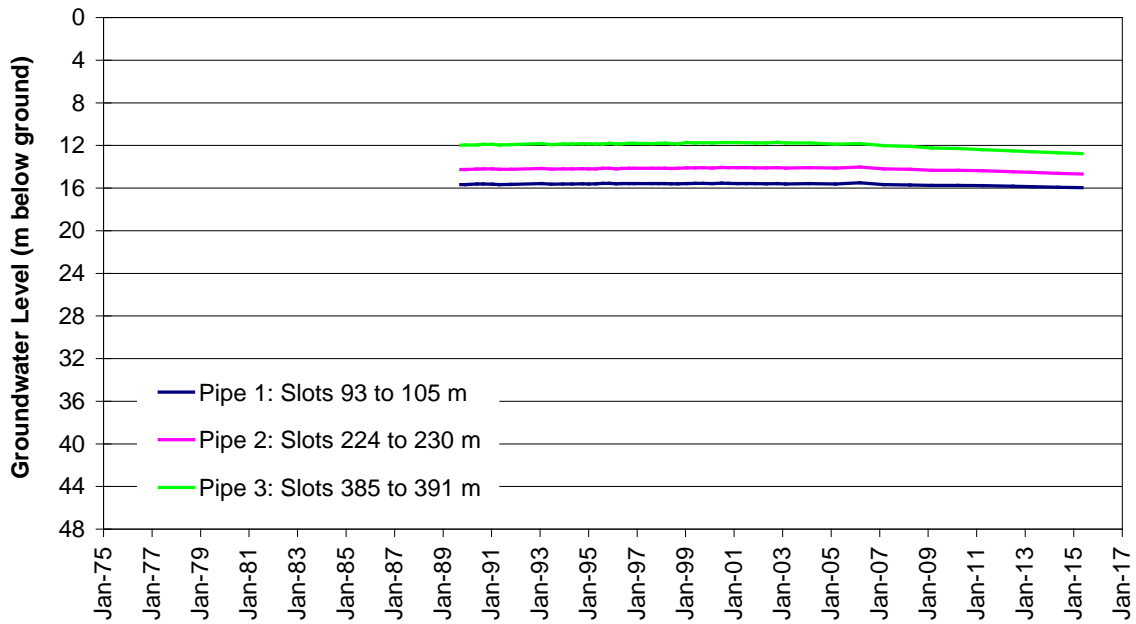
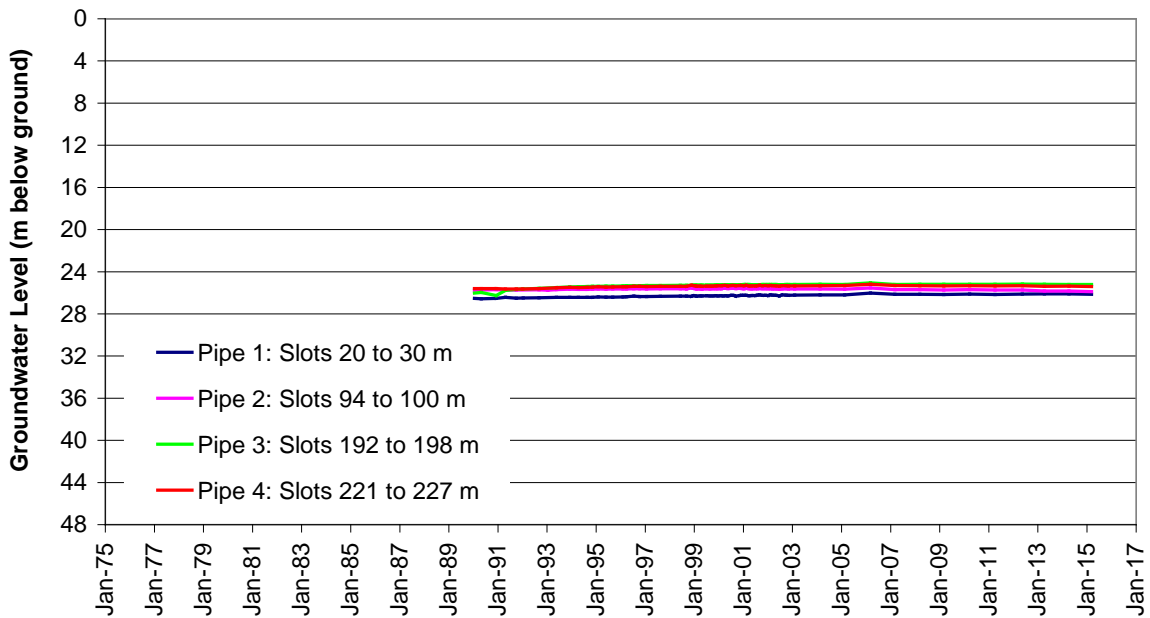


Figure 11 Hydrograph for monitoring site GW036802



More information

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