



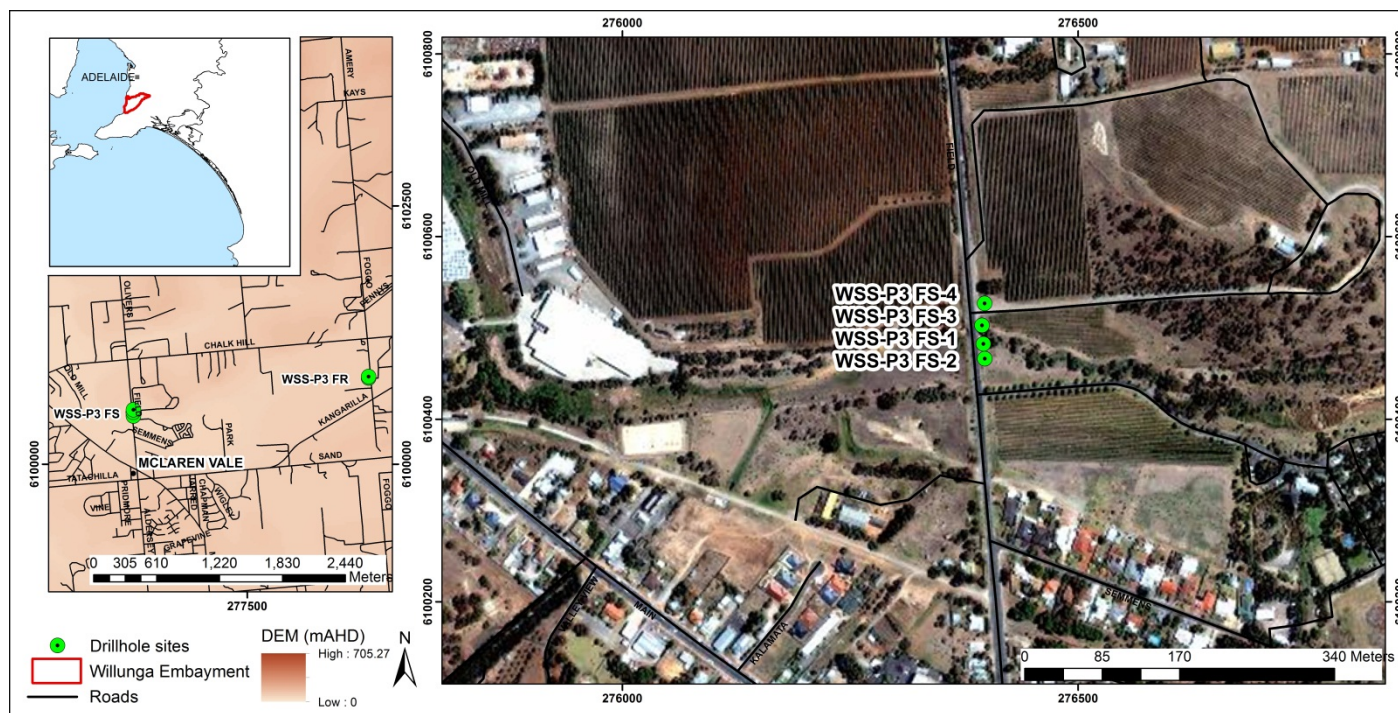
An Australian Government Initiative

Groundwater Education Investment Fund Project

Borehole Infrastructure Report

Borehole Type		Piezometer Monitoring Bore	Location	Willunga Super Science Site
Unique Well ID		WSS-P3FS-4	Installed By	Town & Country Drilling Services
Completion Date		17/12/2012	Depth Installed	7.93 mBGS
Drilled By		Town & Country Drilling Services	Depth Drilled	8.5 mBGS
Monument Type		Flush mounted	Drilled Diameter/Method	150 mm/Air-blade
Monument Diameter/Width		165 mm	Screen Depth	6.93-7.93 mBGS
T.O.M. offset from G.L. (Top of Open Monument)		0 m	Screen Size/Aperture/Type	50 mm/slotted/PVC 18
PVC Casing to T.O.M offset		-0.08 m	Level of Bentonite	6-6.5 mBGS
Ground Elevation (mAHD)		49.798	Casing Size/Type	50 mm/PVC 18
GPS Easting	(MGA-94 Zone 54)	276397	SWL after Development	4.65 mTOC
GPS Northing		6100527	Development Details	Submersible pump

Project Comments: WSS-P3FS-4 is a single piezometer monitoring bore, adjacent to Pedler Creek on Field Street, McLaren Vale.



Map of Willunga Super Science Project Shallow Monitoring Well Sites

Note* Appendix includes Lithology and Well Completion Logs, Geophysical Logs, Hydraulic Test and Chemical Analysis.

Infrastructure Report prepared by:	Contact Details:	Checked by:
	stephanie.villeneuve@flinders.edu.au Office: 08 8201 2724	Prof Peter Cook

Lithology

WSS-P3FS-4

mBGS

0.0

1.0

2.0

3.0

4.0

5.0

6.0

7.0

8.0

SAND, silt: Sand. Light brown/fawn. Fine-medium grained well sorted sub-rounded. Minor milky quartz and sandstone gravels sub-angular/sub-rounded 1-3mm.

SAND, clay: Sand. Yellowish Orange. Fine grained. Some calcrete flecks and nodules 0.5-2mm. Low HCL reaction.

GRAVEL, sand: Gravels. Light brown/Brown. milky quartz, sandstone and ferricrete (ironstone) gravels sub-angular/sub-rounded 10-40mm.

CLAY, sand: Clay. White/grey. Very Stiff. Medium grained.



Well Completion Log

WSS-P3FS-4

mBGS

0.0

1.0

2.0

3.0

4.0

5.0

6.0

7.0

8.0

Cement grout

50 mm PVC casing

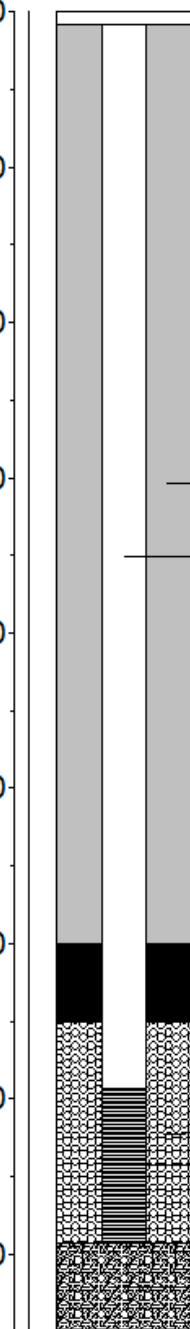
150 mm hole

Bentonite

Gravel

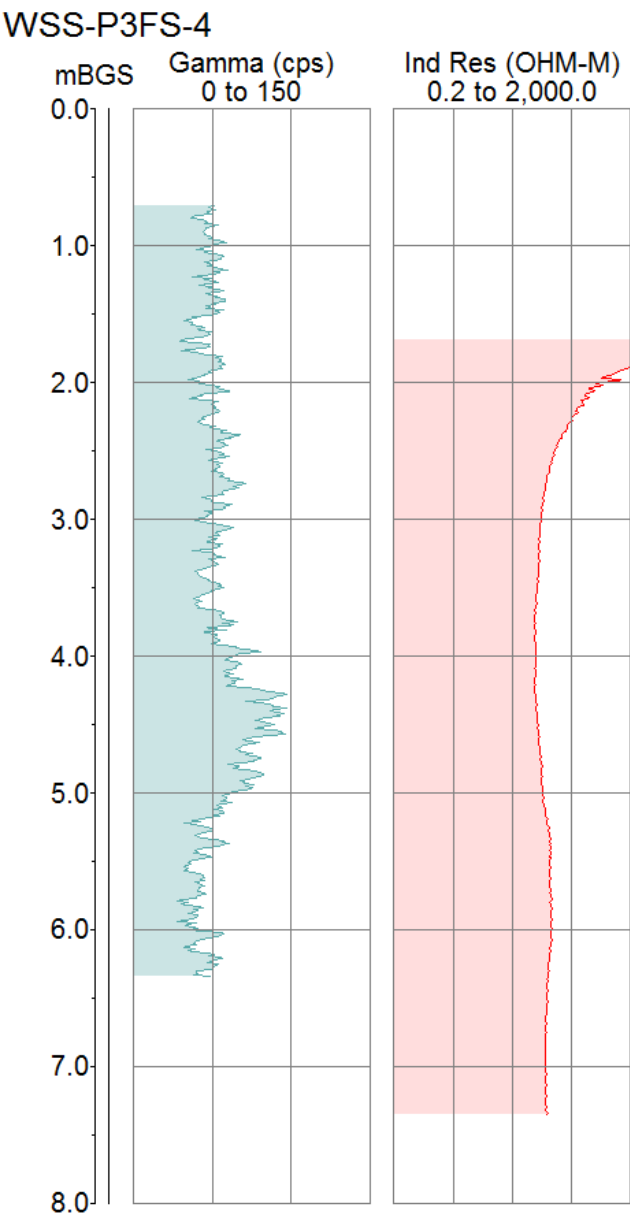
50 mm PVC screen

Aquifer material



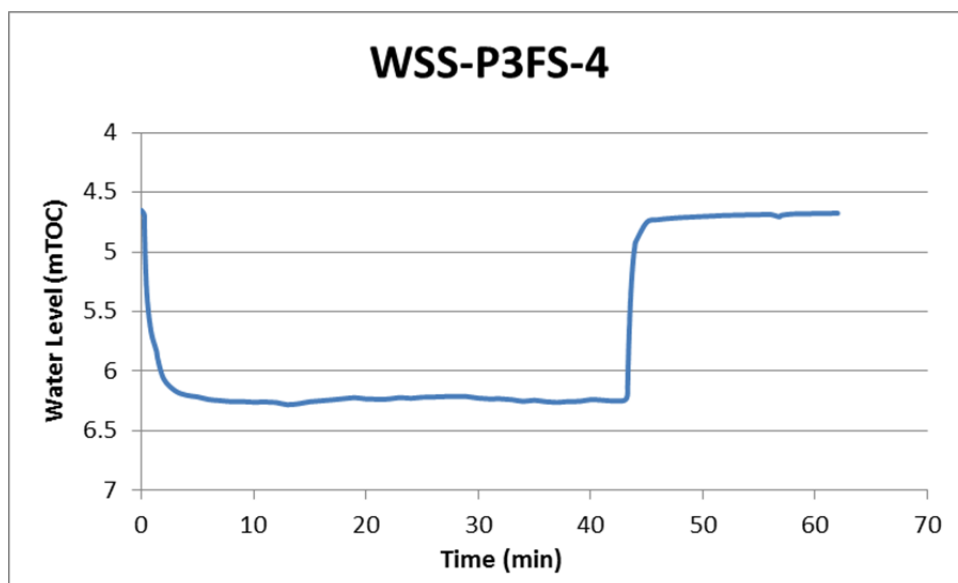
Geophysical Logs

The portable Mount Sopris logging system was used to collect geophysical data from bore WSS-P3FS-4. The 2PGS probe was used to collect natural gamma measurements, and the 2PIA probe was used to measure conductivity/induced resistivity.



Pumping Test

A pumping test was performed on piezometer WSS-P3FS-4 on 17/01/2013 with a water level logger and a submersible pump using a flow rate of 8.3 L/min. The results of the test are presented below. The report author may be contacted for the full data set.



Chemical Analysis

The results of major ion chemistry on WSS-P3FS-4 are presented below, along with chemical parameters measured in the field.

Well ID	Date Sampled	SWL	Field Parameters				Laboratory Analyses @ CSIRO ASU											
			pH	EC	Temp	Alkalinity	pH	E.C.	Total Alkalinity	F ⁻	Cl ⁻	Br ⁻	NO ₃ ⁻	SO ₄ ⁼	Ca	K	Mg	
		mTOC		μS/cm	°C	meq/L		μS/cm	meq/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS-P3FS-4	17/01/2013	4.65	6.98	2878	19.3	5.8	7.2	3793	6.2	0.2	942	2.6	2.4	246	186	9.86	75.2	
							Na	S	Al	As	B	Cd	Co	Cr	Cu	Fe	Mn	
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
							479	75.5	<0.05	<0.05	0.141	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	
							Mo	Ni	P	Pb	Sb	Se	Si	Sr	Zn			
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L			
							<0.05	<0.05	<0.1	<0.05	<0.1	<0.05	24.3	2.1	<0.05			