



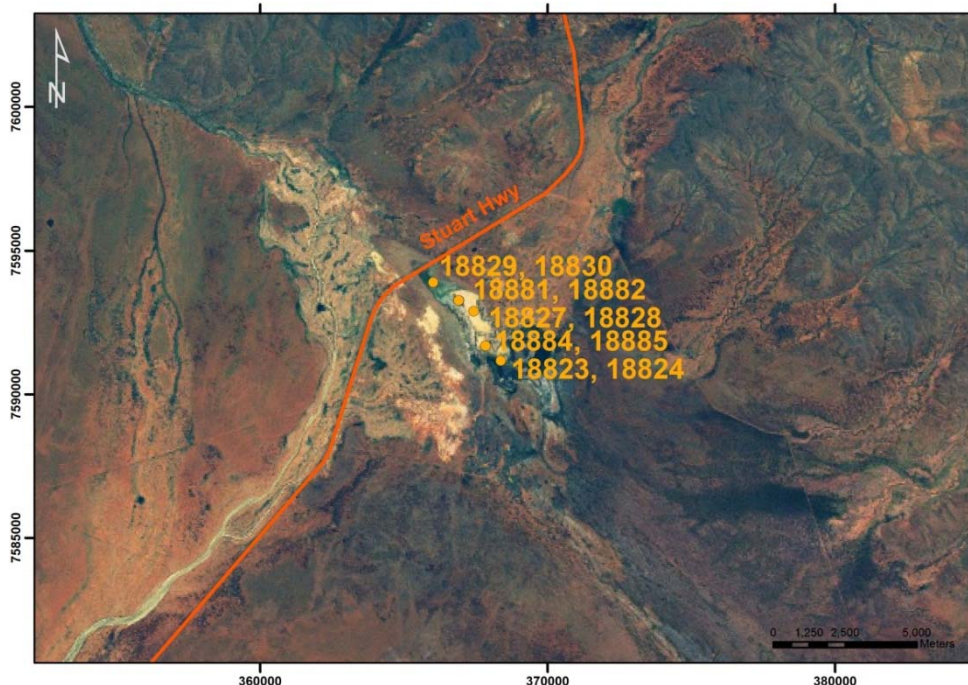
An Australian Government Initiative

Groundwater Education Investment Fund Project

Borehole Infrastructure Report

Borehole Type	Multi-Level Piezometer	GPS Easting	(MGA-94 Zone 53)	367431
Unique Well ID	18827	GPS Northing		7592890
Completion Date	31 May 2012	Location		Stirling Swamp, NT
Drilled By	NRETAS	Installed By		NRETAS
Monument Type	Round-Swing Top	Depth Drilled		11.5 m
Monument Diameter/Width	216 mm	Drilled Diameter/Method		200 mm (min), Rotary Air
Development Details	Airlift 3 L/s			
Project Comments: 18827 is a triple completion multi-level piezometer. It is located adjacent to 18828. Together, these bores provide a nest of four piezometers sampling different depths in the unconfined aquifer.				

Bore ID	Casing Size (mm)/ Type	TOC (mAHD)	Casing Depth (mBGL)		Screen Size (mm)/ Aperture (mm)/ Type	Cement (mBGL)		Screen Depth (mBGL)		SWL (mTOC)
	200/Steel		-1.0	1.0	NA	0.0	1.0	NA	NA	NA
18827-1	50/PVC12	475.391	-0.935	5.54	50/0.5/UPVC18	4.1	4.48	4.72	5.35	2.27
18827-2	50/PVC12	475.392	-0.925	7.5	50/0.5/UPVC18	5.54	6.5	6.6	7.0	2.27
18827-3	50/PVC12	475.304	-0.845	10.2	50/0.5/UPVC18	9.39	9.54	9.7	10.2	2.22

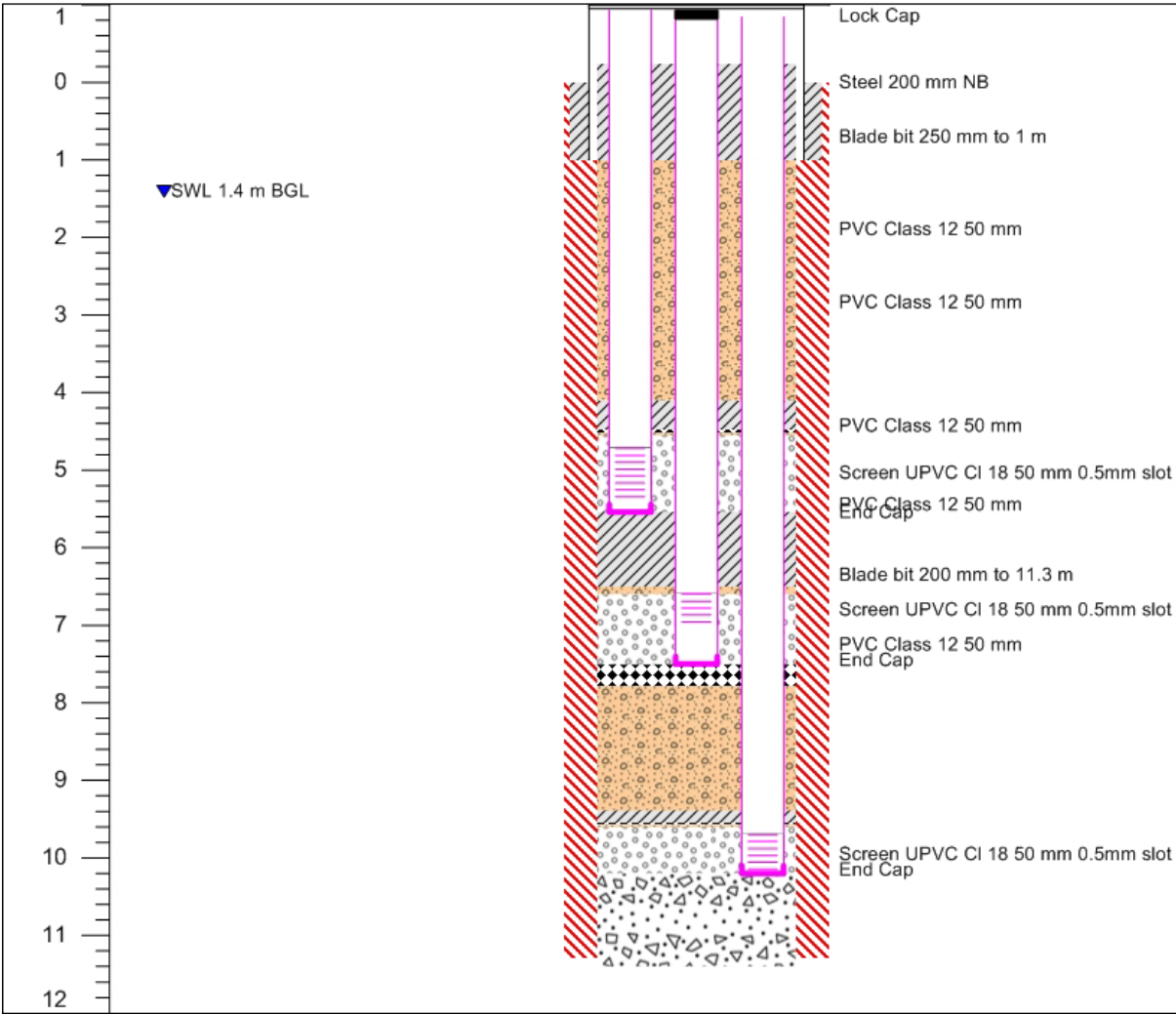


Map of Ti Tree Super Science Piezometer Locations, Stirling Swamp, NT.

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

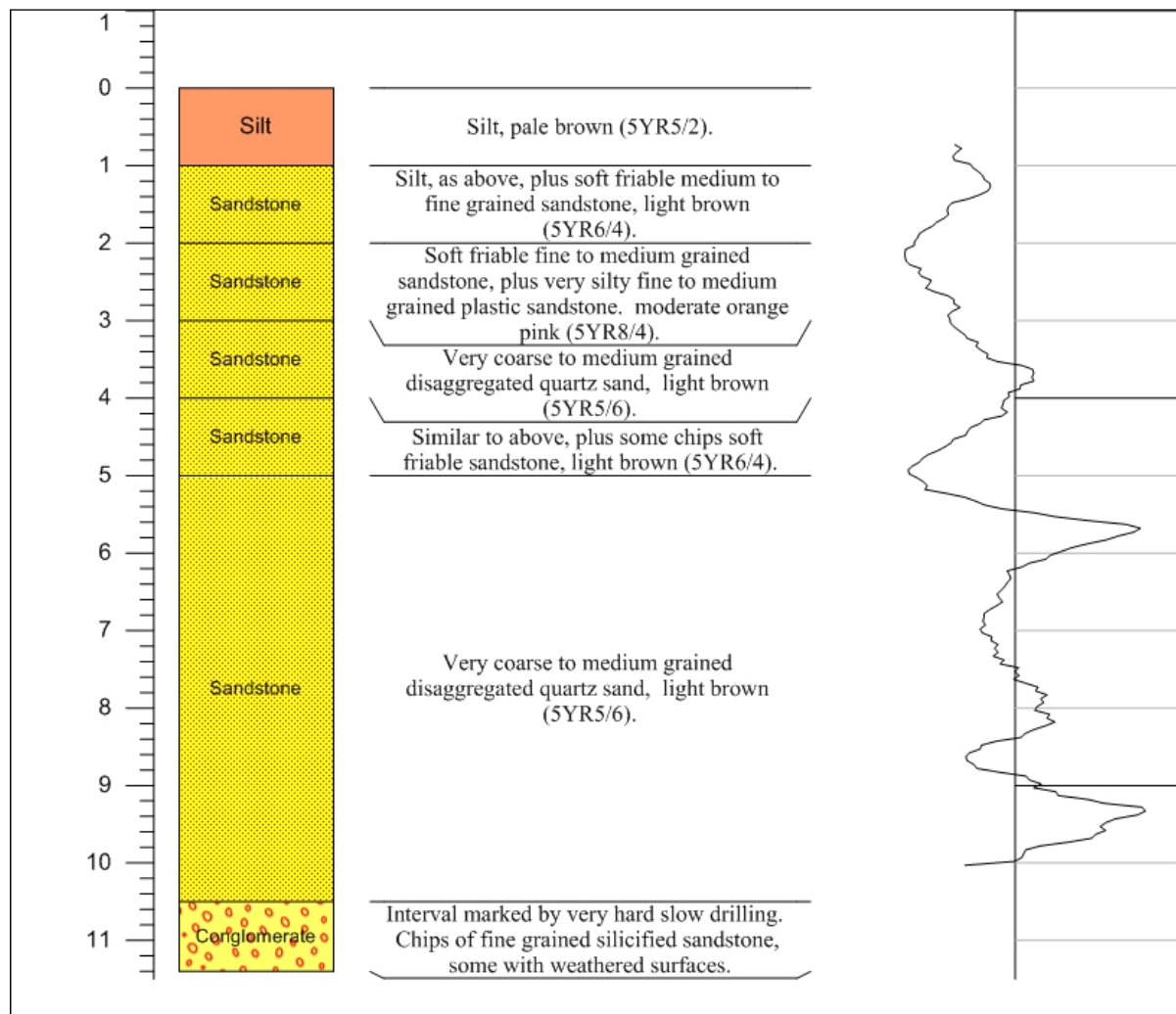
Infrastructure Report prepared by:	Contact Details:	Checked by:
	stephanie.villeneuve@flinders.edu.au Office: 08 8201 2724	Prof Peter Cook 

Well Completion Log



Page 1 of 1		Construction Legend		
Date Start 22/05/2012	Steel	Gravel Pack	Creek Sand	
Completed 31/05/2012	PVC	Lock Cap	Fall Back	
Contractor NRETAS	Slots	Bung	Soil	
	Hole	End Cap	Cuttings	
	Cement	Bentonite	Screen	

Lithology Log



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Air Lift Yield L/s

3

Date Start 22/05/2012 Electrical Conductivity μ Siemens/cm

129000

Completed 31/05/2012 Standing Water Level m BGL

1.4

Contractor NRETAS

Status

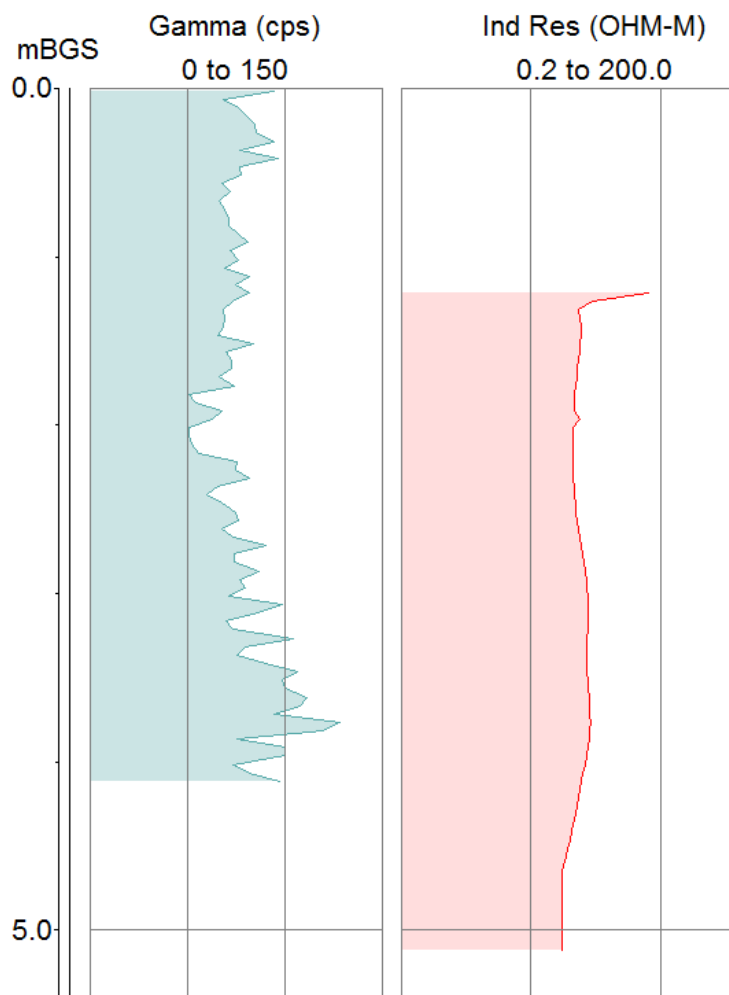
Piezometer

Gamma cps
Depth of casing at logging 1 m

Geophysical Logs

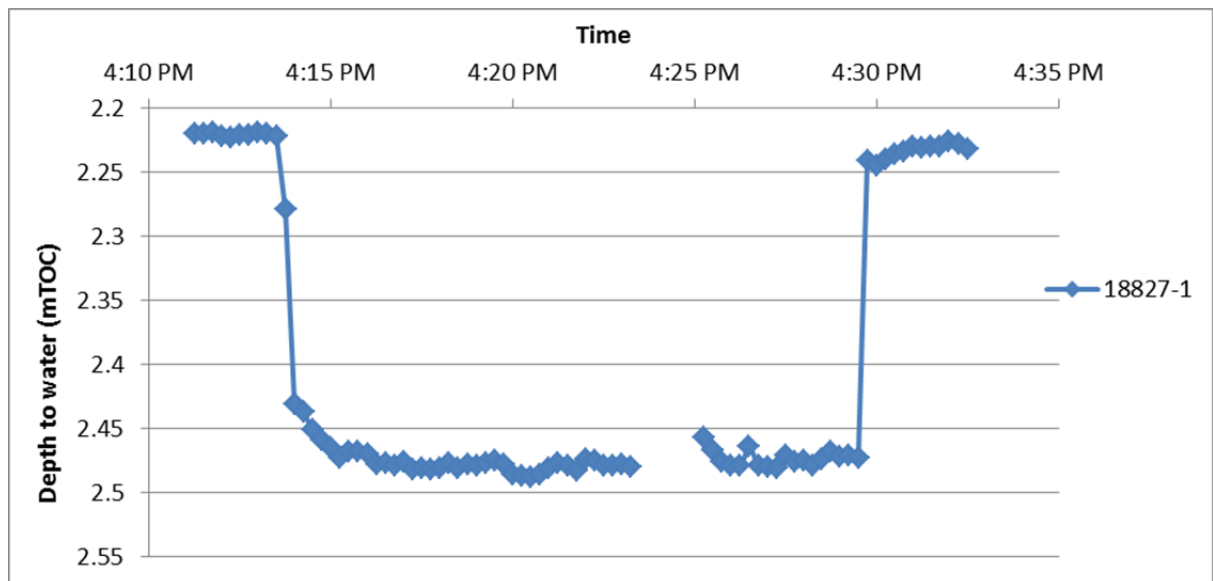
The portable Mount Sopris logging system was used to collect geophysical data from bore 18827-1, the shallowest peizometer. The 2PGS probe was used to collect natural gamma measurements, and the 2PIA probe was used to measure conductivity/induced resistivity.

18827-1

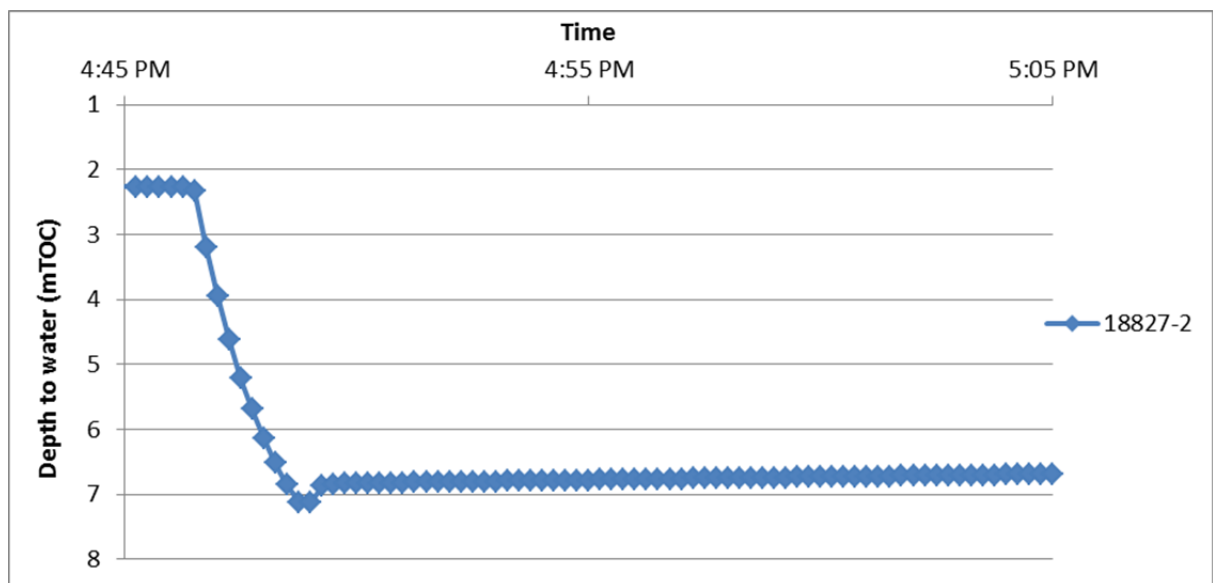


Pumping Test

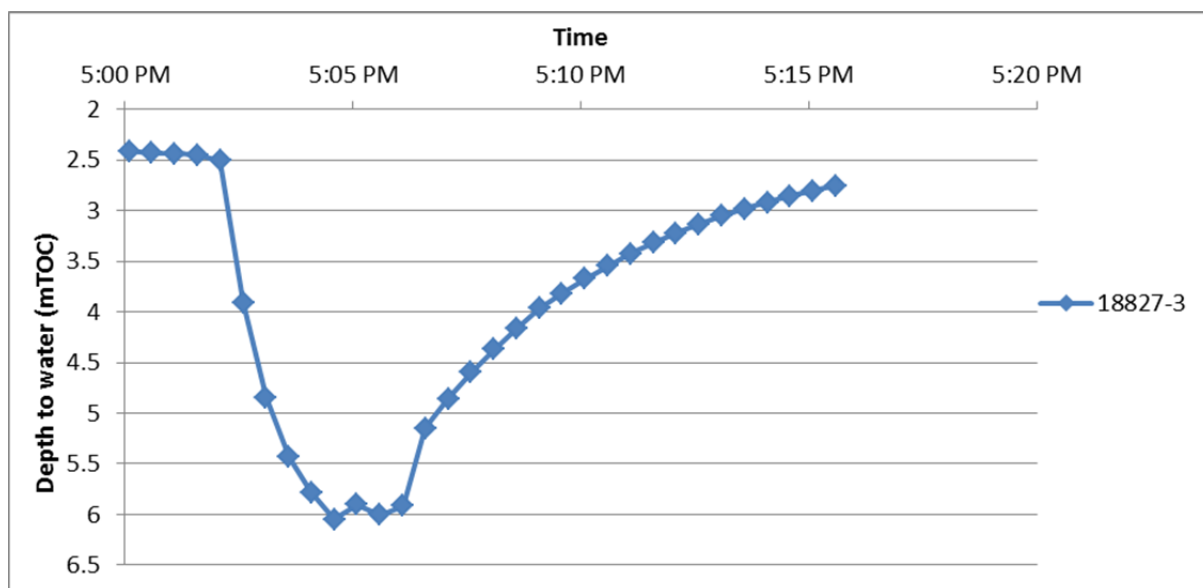
A pumping test was performed on piezometer 18827-1 on 27/06/2012 by attaching a level logger to a submersible Whale pump, lowering the pump to a depth of 4.9 mTOC and using a flow rate of 7.7 L/min. The results of the test are presented below. The report author may be contacted for the full data set.



A pumping test was performed on piezometer 18827-2 on 27/06/2012 by attaching a level logger to a submersible Whale pump, lowering the pump to a depth of 7.2 mTOC and using a flow rate of 7.7 L/min. The bore pumped dry rapidly and the pump was turned off. The results of the test are presented below. The initial recovery from 7.11-6.87 m is likely from water in the tubing draining back into the well. The report author may be contacted for the full data set.



A pumping test was performed on piezometer 18827-3 on 28/06/2012 by attaching a level logger to a submersible Whale pump, lowering the pump to a depth of 7 mTOC and using a flow rate of 1.8 L/min. The results of the test are presented below. Some of the initial recovery from 5.9-5.2 m is likely from water in the tubing draining back into the well. The report author may be contacted for the full data set.



Chemical Analysis

Basic chemical analysis of the dissolved solutes and concentration of ions in the borehole was performed. The testing also included hydrogen ion activity (pH) and fluid electrical conductivity (EC). Data from the chemical analysis is shown below.

Well ID	Date Sampled	SWL	Field Parameters				Laboratory Analyses							
		m TOC	pH	EC μS/cm	Temp °C	Alkalinity mg/L CaCo ³	Ca ²⁺ mg/L	K ⁺ mg/L	Mg ²⁺ mg/L	Na ⁺ mg/L	Si mg/L	Cl ⁻ mg/L	NO ₃ ⁻ mg/L	SO ₄ ²⁻ mg/L
18827-1	27/06/2012	2.27	7.53	131,300	25	2100	621	5630	4190	37300	<10	57764	674	31829
18827-2	28/06/2012	2.265	-		-		1060	5600	<10	37100	<10	56620	578	13522
18827-3	27/06/2012	2.22	8	123,500	23.7	1550	646	5280	3680	34600	<10	53169	518	29192