



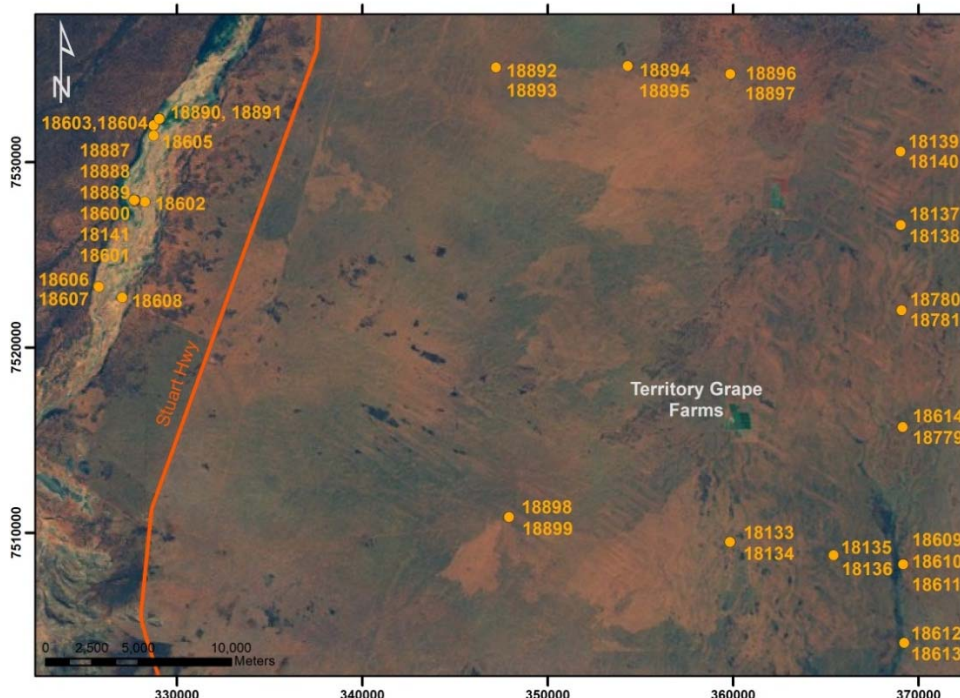
An Australian Government Initiative

Groundwater Education Investment Fund Project

Borehole Infrastructure Report

Borehole Type	Multi-Level Piezometer	GPS Easting	(MGA-94 Zone 53)	369019
Unique Well ID	18139	GPS Northing		7530574
Completion Date	2 December 2011	Location		Pine Hill Station, NT
Drilled By	NRETAS	Installed By		NRETAS
Monument Type	Round-White-Swing Top	Depth Drilled		72.0 m
Monument Diameter/Width	216 mm	Drilled Diameter/Method		200 mm (min), Rotary Air
Development Details	Airlift 12 L/s.			
Project Comments: 18139 is a triple completion multi-level piezometer. It is located adjacent to 18140. Together, these bores provide a nest of five 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		-0.8	5.7	NA	0.0	5.7	NA	NA	NA
18139-3	50/PVC9	545.282	-0.76	45	50/1/PVC			40	41	11.892
18139-2	50/PVC9	545.271	-0.745	49	50/1/PVC			47	48	11.872
18139-1	50/PVC9	545.236	-0.725	60	50/1/PVC			58	59	11.839

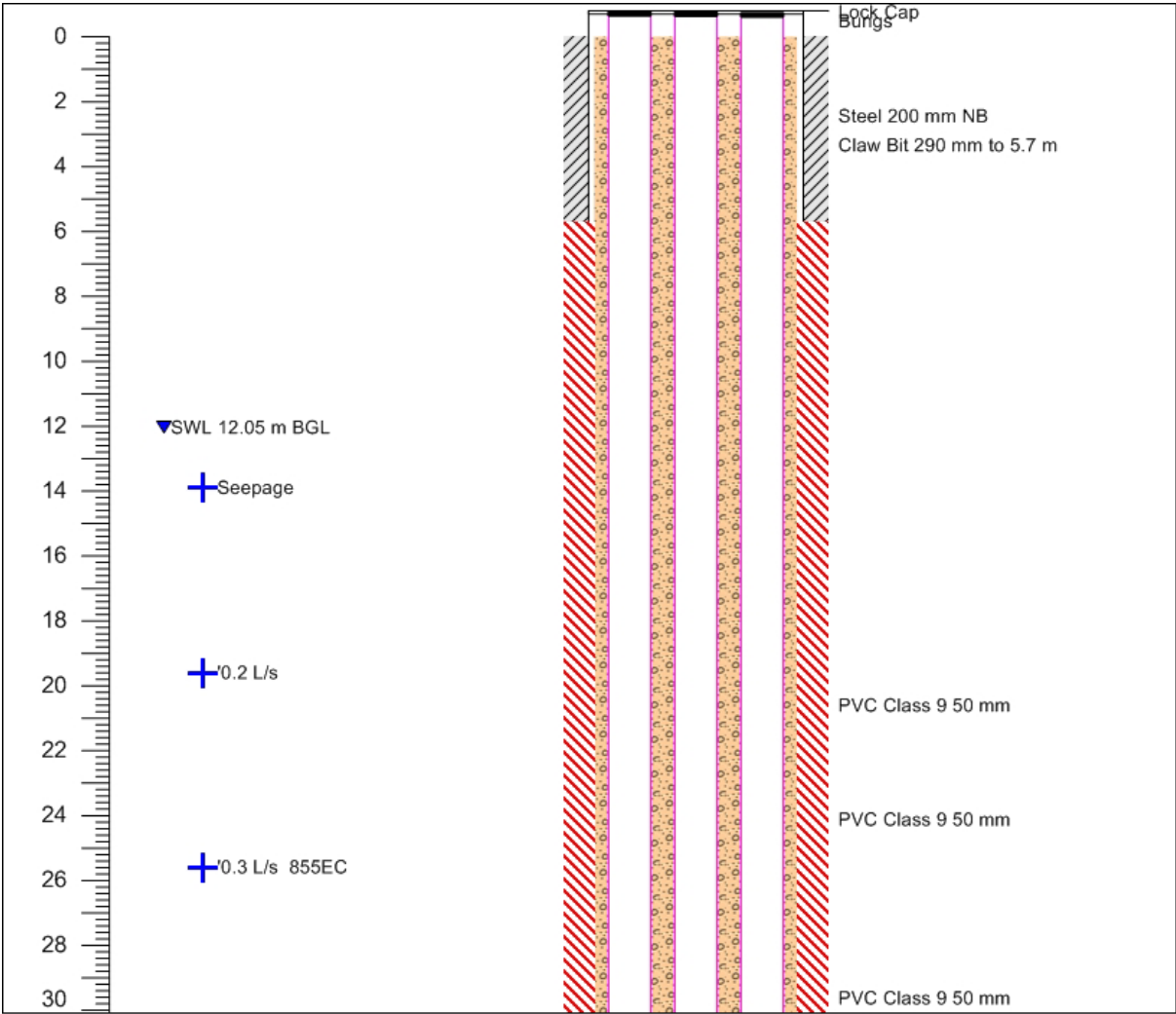


Map of Ti Tree Super Science Piezometer Locations, Pine Hill Station, NT.

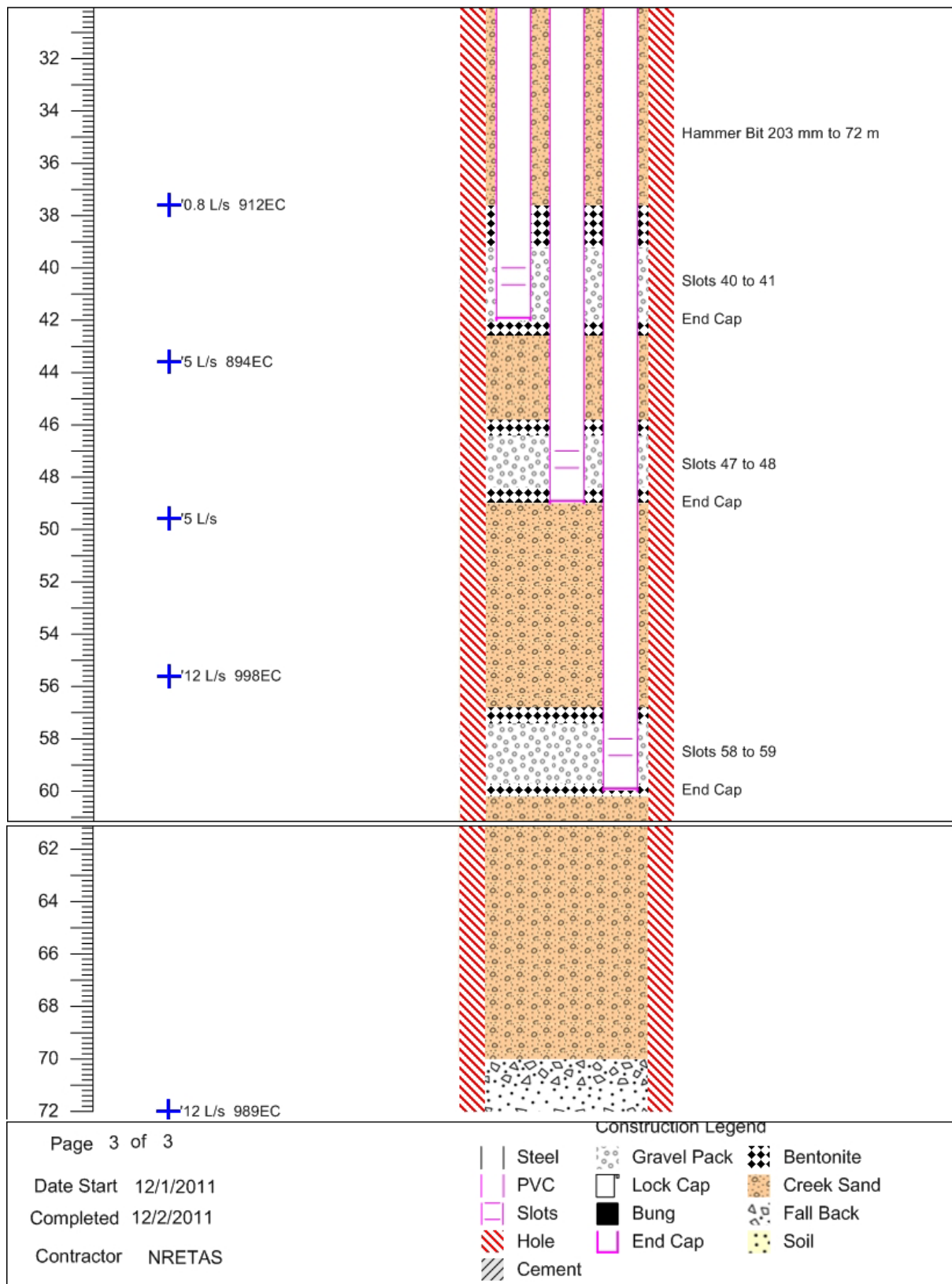
Note* Appendix includes Well Completion, Lithology and Geophysical Logs, Hydraulic Test and Chemical Analysis.

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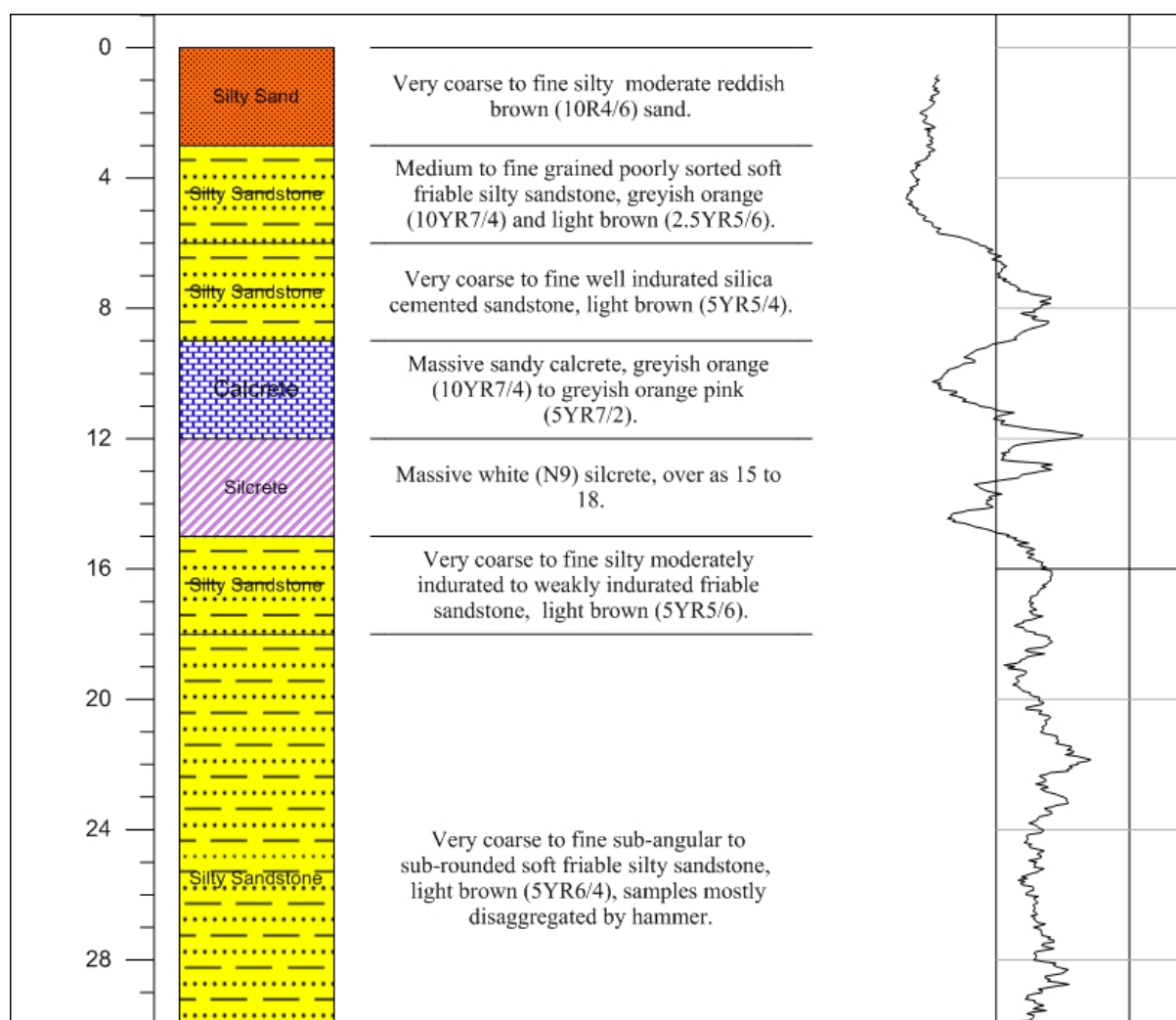
Well Completion Log



Page 1 of 3	Construction Legend			
Date Start 12/1/2011	Steel	Gravel Pack	Bentonite	
Completed 12/2/2011	PVC	Lock Cap	Creek Sand	
Contractor NRETAS	Slots	Bung	Fall Back	
	Hole	End Cap	Soil	
	Cement			



Lithology Log



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Air Lift Yield L/s 12

Date Start 12/1/2011 Electrical Conductivity μ Siemens/cm 989

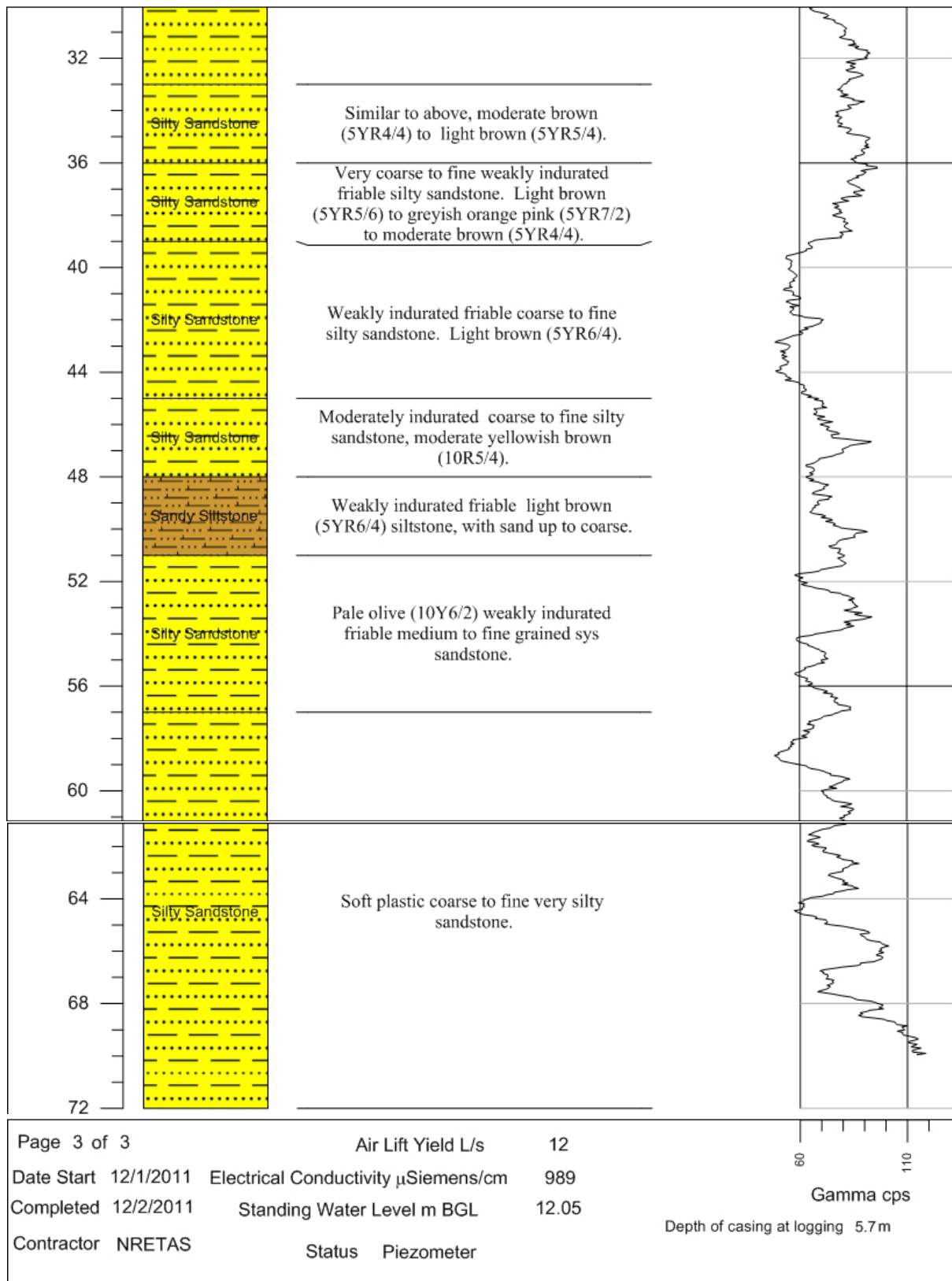
Completed 12/2/2011 Standing Water Level m BGL 12.05

Contractor NRETAS

Status Piezometer

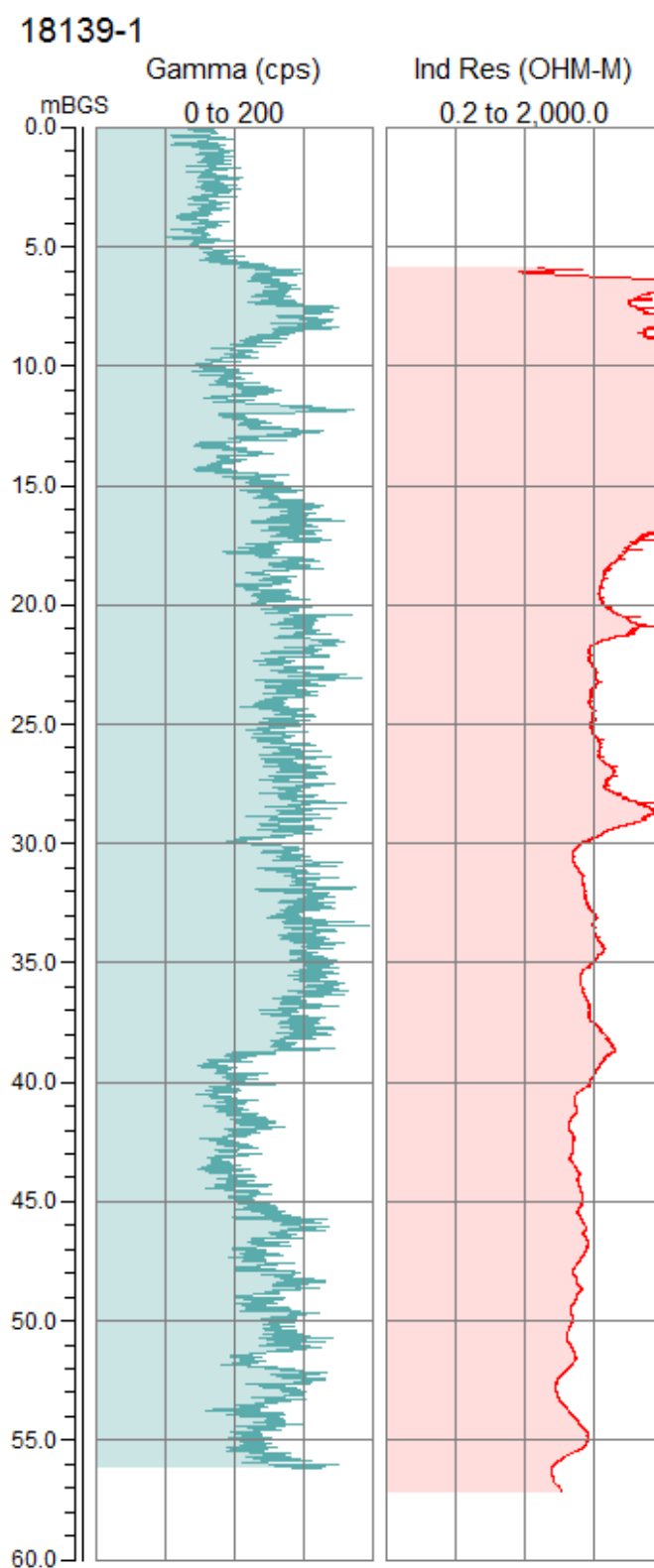
Gamma cps

Depth of casing at logging 5.7m



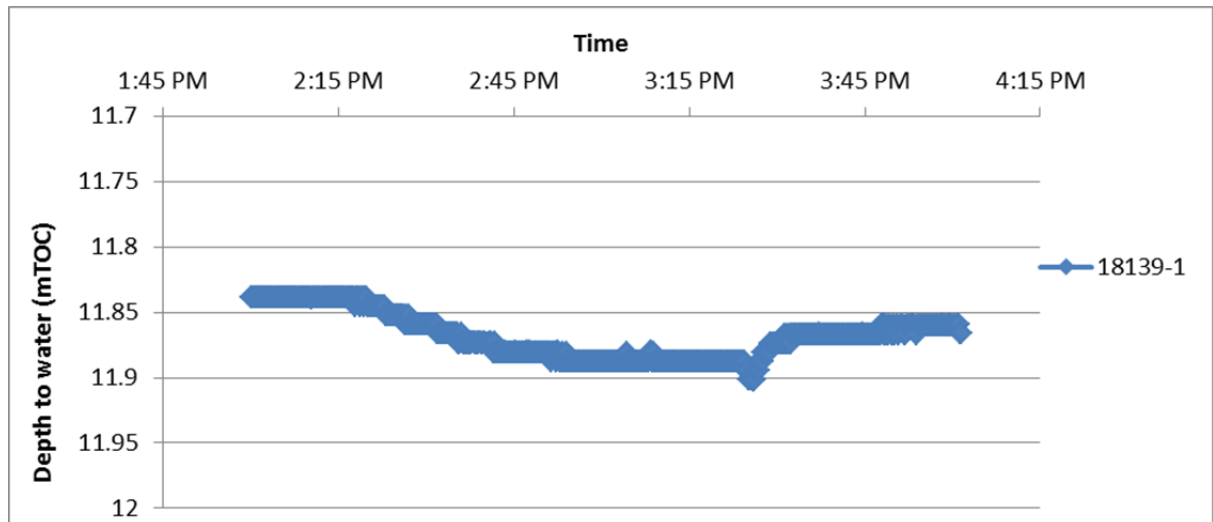
Geophysical Logs

The portable Mount Sopris logging system was used to collect geophysical data from bore 18139-1. The 2PGS probe was used to collect natural gamma measurements, and the 2PIA probe was used to measure conductivity/induced resistivity.

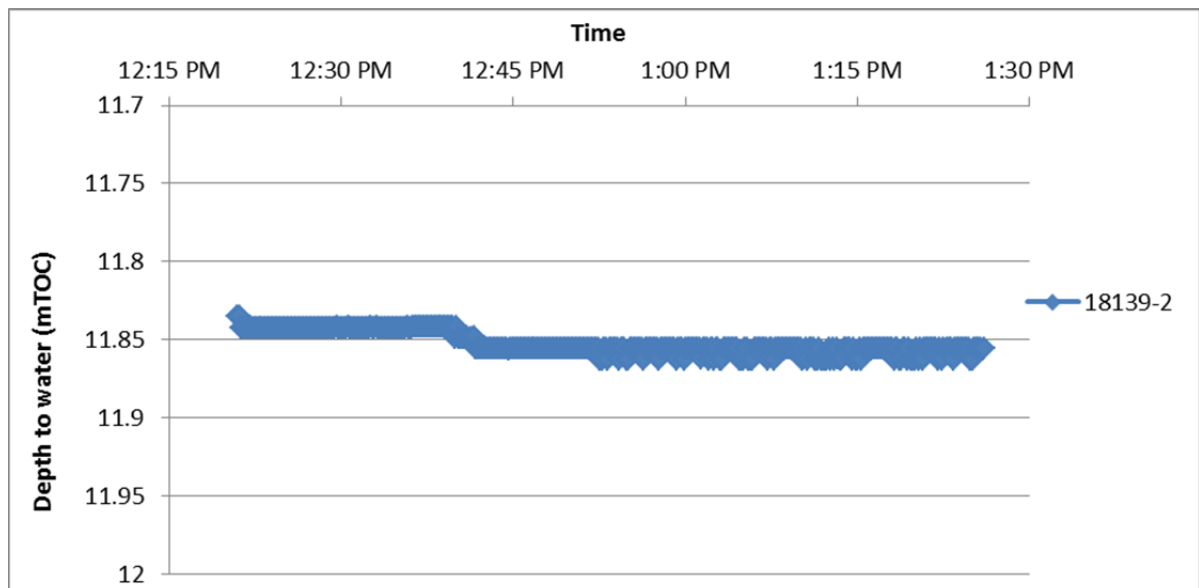


Pumping Test

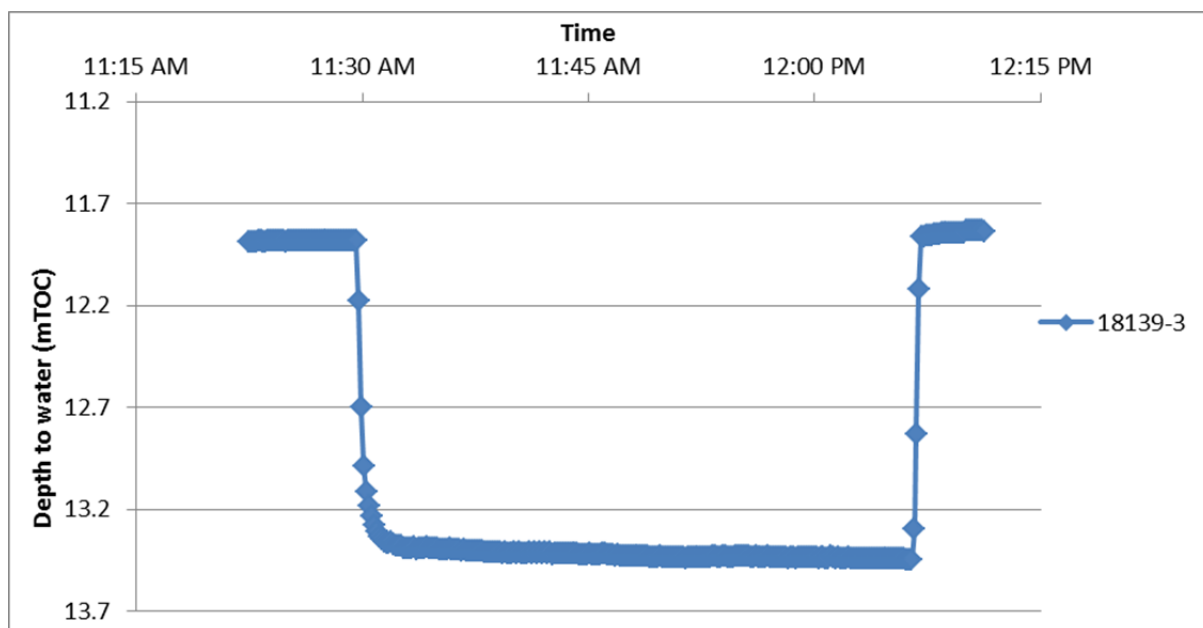
A pumping test was performed on piezometer 18139-1 on 5/02/2012 by attaching a level logger to a submersible Grundfos MP1 pump, lowering the pump to a depth of 20 mTOC and using a flow rate of 7.5 L/min. The results of the test are presented below; water depth is below top of casing. The report author may be contacted for the full data set.



A pumping test was performed on piezometer 18139-2 on 5/02/2012 by attaching a level logger to a submersible Grundfos MP1 pump, lowering the pump to a depth of 20 mTOC and using a flow rate of 8.5 L/min. The results of the test are presented below. The pump was not able to draw down the water level very much. The report author may be contacted for the full data set.



A pumping test was performed on piezometer 18139-3 on 5/02/2012 by attaching a level logger to a submersible Grundfos MP1 pump, lowering the pump to a depth of 20 mTOC and using a flow rate of 9.2 L/min. The results of the test are presented below. 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	pH	EC	Temp	Alkalinity	Ca ²⁺	K ⁺	Mg ²⁺	Na ⁺	Si	Cl ⁻	NO ₃ ⁻	SO ₄ ²⁻
		TOC		μS/cm	°C	mg/L CaCo ³	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
18139-3	6/02/2012	11.89	7.27	1100	29.7	247	38.4	21.4	24	111	32.8	108	79.9	67.41
18139-2	6/02/2012	11.87	7.23	1159	30	239	41	21.8	24	118	32.4	116	82.8	89.85
18139-1	6/02/2012	11.83	7.12	1217	30.4	200	41.7	19.2	23.2	124	25.3	127	144	92.22