## Borehole Infrastructure Report

<table>
<thead>
<tr>
<th>Borehole Type</th>
<th>Piezometer Monitoring Bore</th>
<th>Location</th>
<th>Willunga Super Science Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unique Well ID</td>
<td>WSS-SHR-2b</td>
<td>Installed By</td>
<td>Geodrill</td>
</tr>
<tr>
<td>Completion Date</td>
<td>1/12/2010</td>
<td>DepthInstalled</td>
<td>11 mBGL</td>
</tr>
<tr>
<td>Drilled By</td>
<td>Geodrill</td>
<td>Depth Drilled</td>
<td>11 mBGL</td>
</tr>
<tr>
<td>Monument Type</td>
<td>Lockable standpipe</td>
<td>Drilled Diameter/Method</td>
<td>125 mm, Auger</td>
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<tr>
<td>Monument Diameter/Width</td>
<td>80 mm</td>
<td>Screen Depth</td>
<td>10.5-11.0 mBGL</td>
</tr>
<tr>
<td>T.O.M. offset from G.L. (Top of Open Monument)</td>
<td>0.871 m</td>
<td>Screen Size/Aperture/Type</td>
<td>50 mm/0.4 mm/PVC18</td>
</tr>
<tr>
<td>PVC Casing to T.O.M offset</td>
<td>-6.1 cm</td>
<td>Level of Bentonite</td>
<td>9.0-10.0 mBGL</td>
</tr>
<tr>
<td>Ground Elevation (mAHD)</td>
<td>36.713</td>
<td>Casing Size/Type</td>
<td>50 mm/PVC18</td>
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<tr>
<td>GPS Easting</td>
<td>(MGS-94 Zone 54)</td>
<td>SWL after Development</td>
<td>NA</td>
</tr>
<tr>
<td>GPS Northing</td>
<td>6101343</td>
<td>Development Details</td>
<td>Air lifted</td>
</tr>
</tbody>
</table>

**Project Comments:** WSS-SHR-2b is a single piezometer monitoring bore, located north of Pedler Creek and west of Stump Hill Road.

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**Map of Willunga Super Science Project Shallow Monitoring Well Sites**

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

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**Checked by:** Prof Peter Cook
Location and Well Installation of WSS-SHR-1, WSS-SHR-2a and WSS-SHR-2b
Lithology and Well Completion Log

0.0-1.0: Clay: Olive brown calcareous stiff clay
1.0-2.0: Clay: Light brown calcareous stiff clay
2.0-3.0: Clay: Light brown strongly calcareous stiff clay
3.0-3.5: Clay: Light brown strongly calcareous medium stiff clay
3.5-4.0: Gravel: Poorly sorted sub-angular to sub-rounded fine to coarse gravel with yellow silty clay
4.0-4.5: Gravel: Poorly sorted sub-angular to sub-rounded fine to coarse gravel with yellow calcareous silty clay
4.5-5.0: Gravel: Poorly sorted sub-angular to sub-rounded coarse gravel with yellow calcareous silty clay
5.0-6.0: Gravel: Poorly sorted sub-angular to sub-rounded coarse gravel with yellow silty clay
6.0-6.5: Clay: Pale brown medium stiff clay with 5-10% moderately sorted angular to rounded coarse sand to fine gravel
6.5-7.0: Clay: Yellow brown soft to medium soft clay with 10-20% sub-rounded coarse sand and fine gravel
7.0-7.5: Clay: Yellow brown soft to medium stiff clay with 5-10% poorly sorted and rounded medium to coarse calcareous sand
7.5-8.0: Clay: Yellow brown soft to medium stiff clay with 20-30% sub-rounded to rounded medium to coarse calcareous sand and some fine gravel
8.0-8.5: Clay: Yellow brown soft to medium stiff clay with 10-20% moderately sorted, sub-rounded medium calcareous sand and some fine gravel
8.5-9.0: Clay: Yellow brown medium stiff clay with <5% moderately sorted mildly calcareous medium sand
9.0-9.5: Silty Clay: Pale brown soft silty clay with <5% moderately sorted, sub-angular to rounded weakly calcareous medium sand
9.5-10.0: Silty Clay: Pale brown soft silty clay with 10-20% well sorted, sub-angular to rounded weakly calcareous medium sand
10.0-11.0: Silty Clay: Yellow brown silty soft clay with <10% well sorted sub-angular to sub-rounded medium sand
Geophysical Logs

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

A slug test was performed on WSS-SHR-2b by placing a level logger at a depth of 9.8 mTOC and using a pump (9 mTOC) to remove the standing water column above the pump. 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-SHR-2b are presented below, along with chemical parameters measured in the field.

<table>
<thead>
<tr>
<th>Well ID</th>
<th>Date Sampled</th>
<th>SWL</th>
<th>mTOC</th>
<th>pH</th>
<th>EC</th>
<th>Temp</th>
<th>Alkalinity</th>
<th>Field Parameters</th>
<th>Laboratory Analyses @ CSIRO ASU</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSS-SHR-2</td>
<td>14/12/2011</td>
<td>5.89</td>
<td>7.49</td>
<td>1031</td>
<td>20.8</td>
<td>5.0</td>
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<td>µS/cm</td>
<td>µS/cm</td>
<td>meq/L</td>
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</table>

- Field Parameters:
  - SWL: Specific Weight of the Layer
  - mTOC: Measured Total Organic Carbon
  - pH
  - EC: Electrical Conductivity
  - Temp: Temperature
  - Alkalinity

- Laboratory Analyses:
  - E.C.: Electrical Conductivity
  - Total Alkalinity
  - F⁻, Cl⁻, Br⁻, NO₃⁻, SO₄²⁻, Ca, K, Mg, Na, S, Al, As, B, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, P, Pb, Sb, Se, Si, Sr, Zn

All concentrations are in mg/L or meq/L, depending on the parameter.