Chowilla Floodplain Groundwater Monitoring Network Expansion

DWLBC REPORT 2004/52

Government of South Australia

Department of Water, Land and Biodiversity Conservation

Chowilla floodplain groundwater observation network upgrade and expansion

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Knowledge and Information Division
Department of Water, Land and Biodiversity Conservation

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Government of South Australia
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FOREWORD

South Australia's natural resources are fundamental to the economic and social well-being of the State. One of the State's most precious natural resources, water is a basic requirement of all living organisms and is one of the essential elements ensuring biological diversity of life at all levels. In pristine or undeveloped situations, the condition of water resources reflects the equilibrium between, rainfall, vegetation and other physical parameters. Development of these resources changes the natural balance and may cause degradation. If degradation is small, and the resource retains its utility, the community may assess these changes as being acceptable. However, significant stress will impact on the ability of the resource to continue to meet the needs of users and the environment. Understanding the cause and effect relationship between the various stresses imposed on the natural resources is paramount to developing effective management strategies. Reports of investigations into the availability and quality of water supplies throughout the State aim to build upon the existing knowledge base enabling the community to make informed decisions concerning the future management of the natural resources thus ensuring conservation of biological diversity.

Ben Bruce

A/Director, Knowledge and Information Division

Department of Water, Land and Biodiversity Conservation

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EXECUTIVE SUMMARY

The Chowilla floodplain is located adjacent to the River Murray in the northwest region of the Murray Basin. The floodplain is located primarily in South Australia, but extends over the border into New South Wales (Fig. 1). The floodplain is an important region for native fauna and flora and is listed as a *Riverland Wetland of International Importance* in 1987 under the UNESCO Ramsar Convention.

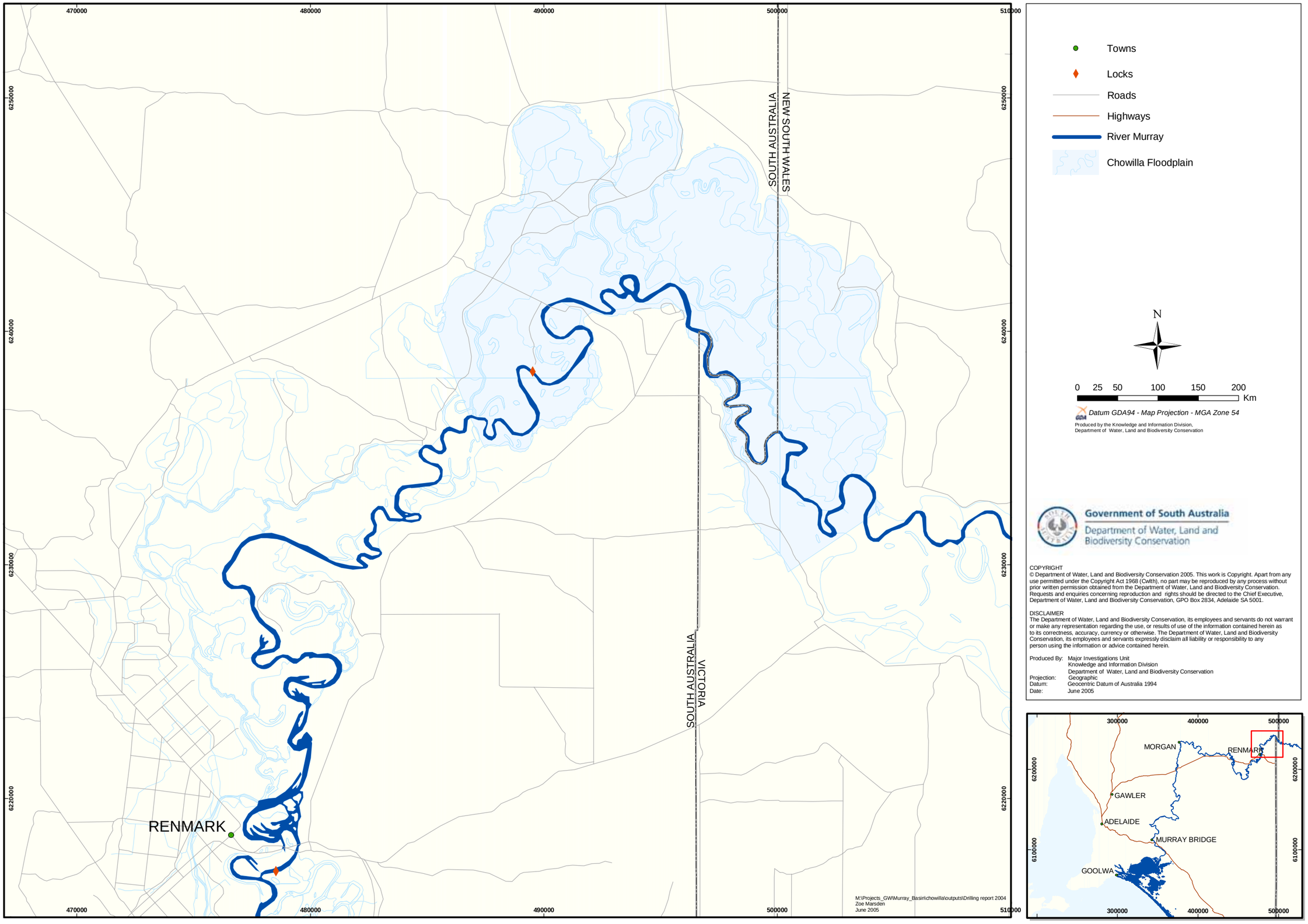
In March 2003, DWLBC Groundwater Assessment Branch was provided with a project brief from DWLBC River Murray Division requesting a review of the current status and condition of the existing groundwater monitoring network on the Chowilla floodplain. In August 2003, Marsden and Howles (2003) identified gaps in the existing monitoring network and provided recommendations for the upgrade and expansion of the current groundwater monitoring network, and additional hydrogeological investigations.

The groundwater network expansion began in early 2004, with a total of 52 new wells installed in the Chowilla region. Forty-five wells were completed in the semi-confined Monoman Formation with water levels ranging from 1–9 m below surface. An additional three wells were completed in the Pliocene Sands aquifer in the floodplain with water levels approximately 5 m below surface. Another two wells in the highland region also monitor the Pliocene Sands aquifer with potentiometric levels 24–35 m below surface. Two wells monitor the Murray Group Limestone aquifer; one in the floodplain and the other in the highland region; with water levels 7 m above ground (artesian) and 27 m below ground respectively. All wells were installed at strategic locations to provide enhanced groundwater head and salinity data.

This report provides details of the upgrade and expansion of the Chowilla groundwater network, and forms Stage II of the Chowilla Floodplain Groundwater Monitoring and Investigation Program.

Recommendations and Future Work

1. Further attempts should be made to access the southeastern side of the Chowilla floodplain to install more monitoring wells as originally planned.
2. Highland wells that monitor the Murray Group Limestone Aquifer within 1.5 km of the Chowilla floodplain should be located and incorporated into the Chowilla monitoring network.
3. Install four wells south of the River Murray in the Murtho highland region to enable preparation of a more accurate potentiometric surface plan of the Monoman Formation/Pliocene Sands aquifer.
4. Install data loggers in selected creek wells to gain continuous groundwater level readings to improve the understanding of surface water and groundwater interaction.
5. Resurvey all wells in the monitoring network to eliminate any anomalies in elevation data.



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Date: June 2005

Figure 1: Chowilla floodplain locality plan

1. INTRODUCTION

1.1 Background

Groundwater levels are currently being monitored across the Chowilla floodplain by several organisations in an uncoordinated manner. On behalf of the Minister for Environment and Conservation, the Department of Water, Land and Biodiversity Conservation (DWLBC) has a commitment to provide accurate and current information on State groundwater resources. This information is used by Government and industry for resource assessment, availability, development, management, strategic planning, and policy. Monitoring is considered to be a core activity of the agency.

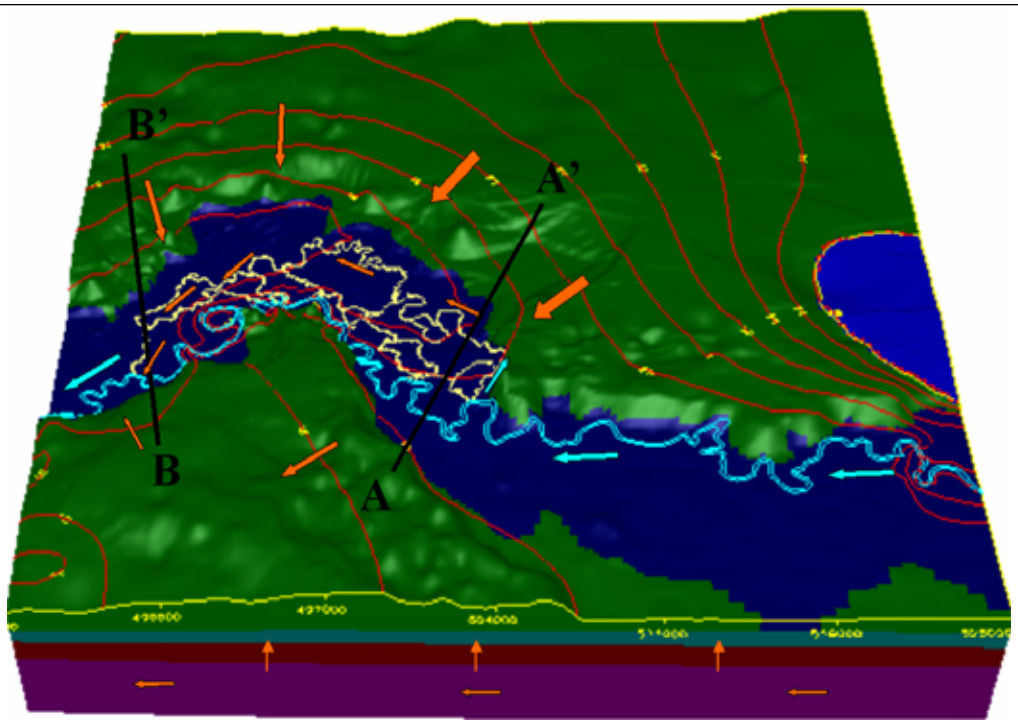
In March 2003, DWLBC Groundwater Assessment Branch was provided with a project brief from DWLBC River Murray Division requesting a review of the current status and condition of the existing groundwater monitoring network on the Chowilla floodplain. The review also encompassed identification of gaps in the existing monitoring network and recommendations for the development of a comprehensive on-going groundwater monitoring program aimed at addressing groundwater responses to flood events and uncertainties surrounding groundwater and surface water interaction along the creek lines.

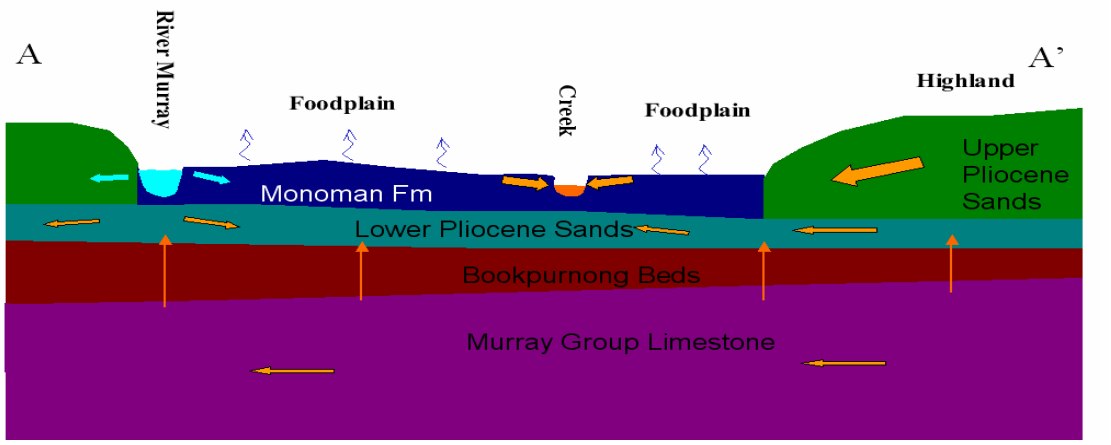
The collection and interpretation of groundwater data is essential for developing a clear understanding of the hydraulic behaviour of the aquifer system, the salinity regime and temporal responses to recharge or major flooding events. Ongoing monitoring will play an essential role in adaptive environmental management on the Chowilla floodplain to reduce the flux of saline groundwater to the River Murray. Monitoring data will be made available to all stakeholders with an interest in environmental issues in the region. DWLBC will be responsible for the management of the groundwater monitoring data and storage within the appropriate corporate database. Monitoring data will also assist with the calibration of numerical models.

In August 2003, Marsden and Howles (2003) provided recommendations for the upgrade of the current groundwater monitoring network, expansion of the groundwater monitoring network and additional hydrogeological investigations. This report provides details of the upgrade and expansion of the Chowilla groundwater network, which will form a component of Stage II of the Chowilla Floodplain Groundwater Monitoring and Investigation Program.

1.2 Regional Hydrogeology

A conceptual hydrogeological model of the 200 km^2 Chowilla floodplain is given in Figure 2 and indicates the hydrogeological units, surface water features, and the flow directions within the floodplain. The cross-section A-A' shows a conceptual cross-section upstream of the anabranch creek system on the eastern site of the floodplain. This cross-section indicates groundwater flow in the aquifer system including lateral flow from the highland area, vertical leakage from Murray Group Limestone, discharge to the anabranch creeks, discharge by evapotranspiration from the extensive areas where a shallow groundwater table exists,





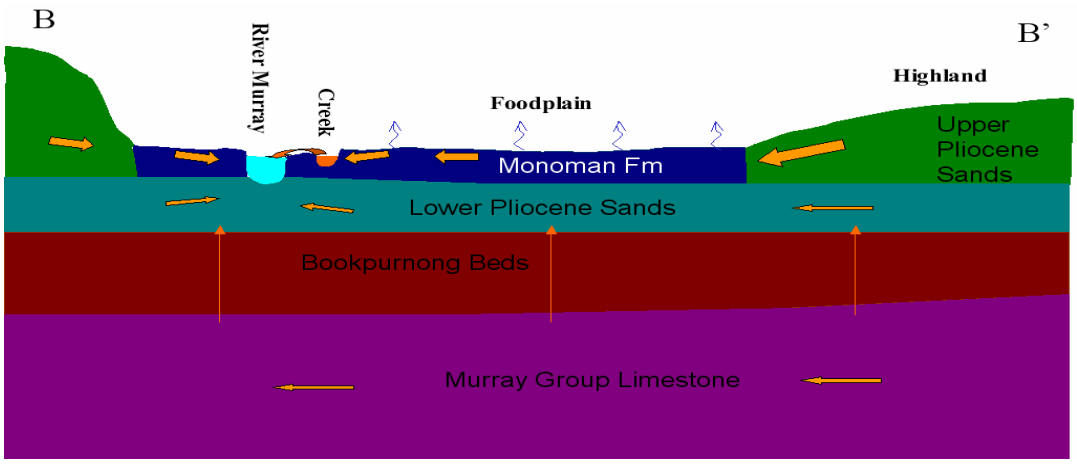


Figure 2: Hydrogeological cross-section of the Chowilla region

and lateral flow from the River Murray to the aquifer system. The cross-section B-B' is located downstream of the anabranch creek system on the western side the floodplain. This cross-section indicates lateral flow from the highland area, vertical leakage from the Murray Group Limestone and direct discharge from the anabranch creeks into the river downstream of Lock-6. The anabranch creeks can be either losing or gaining.

Sharley and Goggan (1995) and Jolly and Walker (1995) determined on average, 130 tonnes/day of salt enters the Chowilla floodplain with groundwater inflow. After extended dry periods and low flows in the River Murray, the salt load entering the anabranch creeks from the aquifer system (and thus the river) is 40–60 tonnes/day. The maximum peak of 1800 tonnes/day was recorded after the 1974 flood.

1.3 Objectives

The objectives of the completed drilling program were to:

- Upgrade and expand the current monitoring network.
- Construct accurate potentiometric surface plans for the (upper) Monoman Formation and the Murray Group Limestone aquifers.
- Improve the current understanding of the floodplain hydrogeologic regime operating across the floodplain.
- Provide enhanced salinity data.
- Gain greater knowledge of the spatial distribution and thickness of aquifers and aquitards on the floodplain.
- Determine the hydraulic relationship between creeks and adjacent aquifers.
- Provide greater confidence in understanding temporal variations to groundwater levels and hydraulic response of aquifers to recharge and major flood events. Such information will be crucial to the design of any groundwater management schemes.

2. DRILLING PROGRAM

The drilling program was undertaken between March and October 2004. Completion details of all installed monitoring are given in Table 1. The well configuration is given on Figure 3. A copy of the Drilling Report for each well is given in Appendix 1 whilst lithological logs are given in Appendix 2. Geophysical logs of all surveyed wells are given in Appendix 3.

All wells installed for this program were GPS surveyed by SA Water.

2.1 Well Configuration

Seven transect lines perpendicular to the River Murray, spanning across the entire floodplain, were used to site well locations. It was important the lines spanned across the entire floodplain to gain a complete hydrogeological coverage of the floodplain. Furthermore, very little or no data was available from the eastern side of the floodplain and therefore, there was a considerable desire to complete a number of observation wells in this area.

There were two specific classes of wells drilled in the floodplains - creek sites and Monoman Formation sites. The purpose of the creek sites was to ascertain groundwater and surface water interaction along creek lines (5–10 m deep into the upper Monoman aquifer), while the intention of the Monoman Formation sites was to monitor both the upper (2–10 m) and the lower (15–25 m) Monoman Formation.

There was an additional lack of information in the highlands to the northwest of the floodplain and as such, one well screening the Pliocene Sands Aquifer and another screening the Murray Group Limestone Aquifer were constructed.

2.2 Well Construction

The following construction design was used for observation wells completed in the upper Monoman Formation at creek sites:

- Holes drilled 5–10 m into the sands;
- 80 mm ID Class 9 PVC casing;
- 0.5 mm slots over the 2 m PVC screen length;
- 1.6–3.2 mm size gravel pack extending a metre above the screened section;
- 0.5 m bentonite seal above the gravel pack; and
- Annulus cemented back to surface from the bottom of the clays.

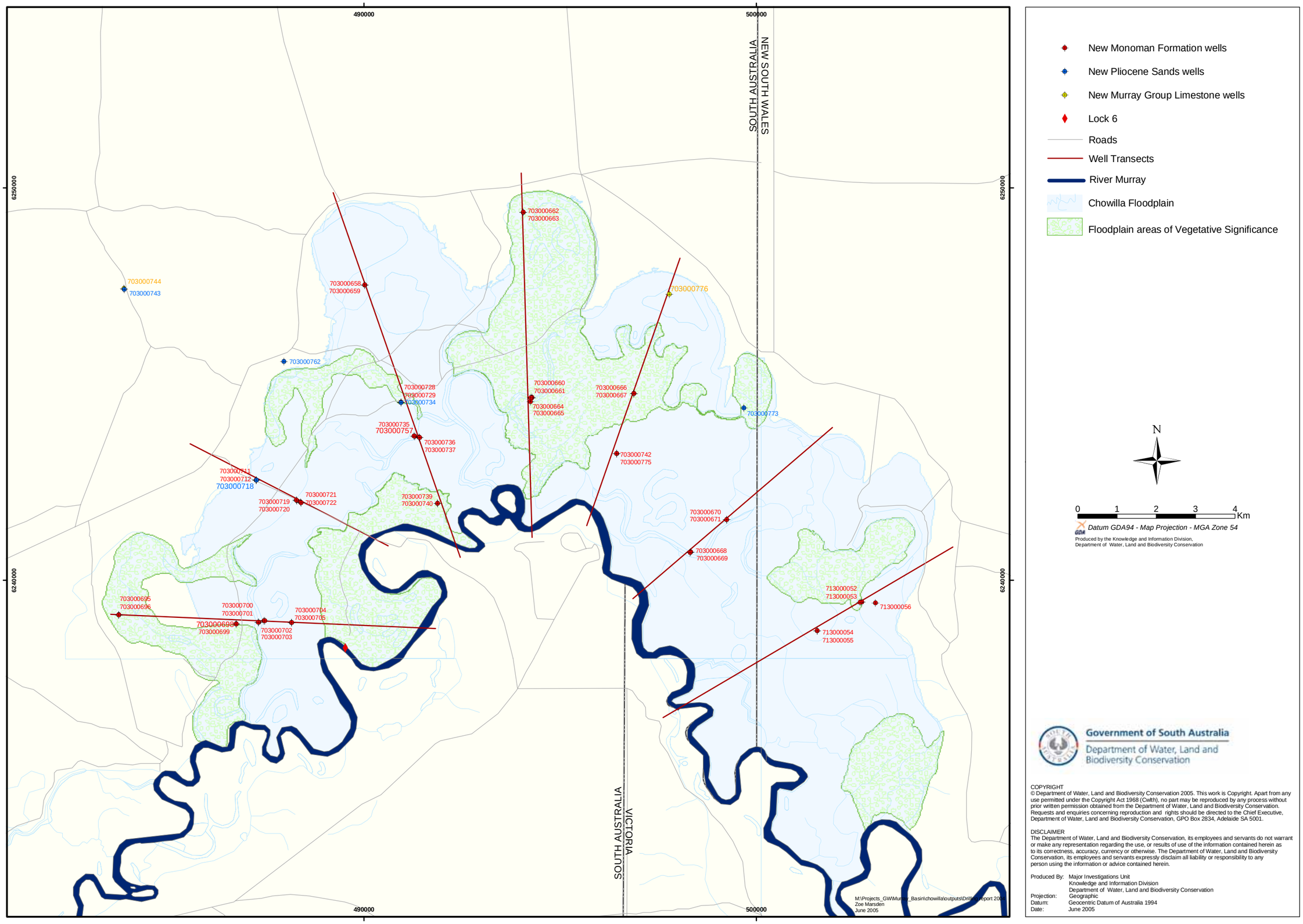
The following construction was proposed for observation wells completed in the upper Monoman Formation at Monoman Formation sites:

- Total depth 5–10 m into the sands;
- 80 mm ID Class 9 PVC casing;
- 0.5 mm slots over the 3 m PVC screen length;

Table 1 New well completion details

Zone	Permit Number	Unit Number	Obs Wells Number	Easting (GDA94)	Northing (GDA94)	Elevation natural surface (m AHD)	Reference Elevation (mAHD)	Target Aquifer	Completed depth (m)	Casing				Production Zone					
										Casing specification	Casing depth (m)	Casing ID (mm)	Grouting	Screen specification	In-line / Open hole	Screened Interval (m)	Screen ID (mm)	Screen aperture (mm)	Gravel pack size (mm)
Floodplain	64252	703000657	CHW71	491299.5	6243673.6	19.8	20.7	Monoman Formation	7.8	Class 9 PVC	5.8	80	Gravity	Slotted casing	Inline	5.8-7.8	80	0.5	1.6-3.2
Floodplain	64237	703000658	CHW66	490025.8	6247526.5	25.5	26.4	Monoman Formation	10.1	Class 9 PVC	7.1	80	Gravity	Slotted casing	Inline	7.1-10.1	80	0.5	1.6-3.2
Floodplain	64238	703000659	CHW67	490021.6	6247529.8	25.5	26.5	Monoman Formation	19.0	Class 9 PVC	16.0	80	Gravity	Slotted casing	Inline	16-19	80	0.5	1.6-3.2
Floodplain	64262	703000660	CHW80	494288.8	6244661.2	18.2	19.0	Monoman Formation	7.8	Class 9 PVC	5.8	80	Gravity	Slotted casing	Inline	5.8-7.8	80	0.5	1.6-3.2
Floodplain	64261	703000661	CHW79	494276.9	6244644.3	17.2	18.2	Monoman Formation	7.6	Class 9 PVC	5.6	80	Gravity	Slotted casing	Inline	5.6-7.6	80	0.5	1.6-3.2
Floodplain	64259	703000662	CHW77	494060.0	6249379.8	18.8	19.8	Monoman Formation	5.5	Class 9 PVC	2.5	80	Gravity	Slotted casing	Inline	2.5-5.5	80	0.5	1.6-3.2
Floodplain	64260	703000663	CHW78	494065.8	6249383.0	18.8	19.7	Monoman Formation	19.1	Class 9 PVC	16.1	80	Gravity	Slotted casing	Inline	16.1-19.1	80	0.5	1.6-3.2
Floodplain	64264	703000664	CHW82	494248.1	6244557.9	19.9	20.6	Monoman Formation	9.1	Class 9 PVC	7.1	80	Gravity	Slotted casing	Inline	7.1-9.1	80	0.5	1.6-3.2
Floodplain	64263	703000665	CHW81	494256.1	6244587.9	19.8	20.7	Monoman Formation	8.7	Class 9 PVC	6.7	80	Gravity	Slotted casing	Inline	6.7-8.7	80	0.5	1.6-3.2
Floodplain	64270	703000666	CHW83	496879.6	6244760.2	20.4	21.2	Monoman Formation	6.1	Class 9 PVC	3.1	80	Gravity	Slotted casing	Inline	3.1-6.1	80	0.5	1.6-3.2
Floodplain	64271	703000667	CHW84	496886.4	6244760.8	20.4	21.2	Monoman Formation	17.7	Class 9 PVC	14.7	80	Gravity	Slotted casing	Inline	14.7-17.7	80	0.5	1.6-3.2
Floodplain	64278	703000668	CHW90	498334.0	6240725.0	19.5	20.2	Monoman Formation	7.7	Class 9 PVC	5.7	80	Gravity	Slotted casing	Inline	5.7-7.7	80	0.5	1.6-3.2
Floodplain	64277	703000669	CHW89	498320.6	6240708.5	19.4	20.0	Monoman Formation	7.4	Class 9 PVC	5.4	80	Gravity	Slotted casing	Inline	5.4-7.4	80	0.5	1.6-3.2
Floodplain	64275	703000670	CHW87	499251.3	6241544.5	21.1	21.8	Monoman Formation	10.3	Class 9 PVC	7.3	80	Gravity	Slotted casing	Inline	7.3-10.3	80	0.5	1.6-3.2
Floodplain	64276	703000671	CHW88	499250.8	6241549.8	21.0	21.7	Monoman Formation	18.1	Class 9 PVC	15.1	80	Gravity	Slotted casing	Inline	15.1-18.1	80	0.5	1.6-3.2
Floodplain	64209	703000695	CHW49	483756.2	6239123.1	19.6	20.6	Monoman Formation	8.8	Class 9 PVC	5.8	80	Gravity	Slotted casing	Inline	5.8-8.8	80	0.5	1.6-3.2
Floodplain	64210	703000696	CHW50	483755.4	6239118.3	19.6	20.6	Monoman Formation	20.6	Class 9 PVC	17.6	80	Gravity	Slotted casing	Inline	17.6-20.6	80	0.5	1.6-3.2
Floodplain	64212	703000698	CHW51	486747.7	6238891.1	19.8	20.7	Monoman Formation	7.8	Class 9 PVC	4.8	80	Gravity	Slotted casing	Inline	4.8-7.8	80	0.5	1.6-3.2
Floodplain	64213	703000699	CHW52	486746.1	6238886.5	19.8	20.7	Monoman Formation	18.2	Class 9 PVC	15.2	80	Gravity	Slotted casing	Inline	15.2-17.2	80	0.5	1.6-3.2
Floodplain	64214	703000700	CHW53	487326.8	6238931.4	19.8	20.6	Monoman Formation	10.6	Class 9 PVC	8.6	80	Gravity	Slotted casing	Inline	8.6-10.6	80	0.5	1.6-3.2
Floodplain	64215	703000701	CHW54	487306.5	6238931.1	18.7	19.6	Monoman Formation	9.4	Class 9 PVC	7.4	80	Gravity	Slotted casing	Inline	7.4-9.4	80	0.5	1.6-3.2
Floodplain	64216	703000702	CHW55	487453.4	6238973.2	18.9	19.6	Monoman Formation	10.2	Class 9 PVC	8.2	80	Gravity	Slotted casing	Inline	8.2-10.2	80	0.5	1.6-3.2
Floodplain	64217	703000703	CHW56	487479.4	6238973.0	17.3	18.2	Monoman Formation	6.8	Class 9 PVC	4.8	80	Gravity	Slotted casing	Inline	4.8-6.8	80	0.5	1.6-3.2
Floodplain	64218	703000704	CHW57	488155.9	6238925.9	19.9	20.5	Monoman Formation	7.8	Class 9 PVC	4.8	80	Gravity	Slotted casing	Inline	4.8-7.8	80	0.5	1.6-3.2
Floodplain	64219	703000705	CHW58	488160.8	6238926.6	19.9	20.8	Monoman Formation	15.6	Class 9 PVC	12.6	80	Gravity	Slotted casing	Inline	12.6-15.6	80	0.5	1.6-3.2
Floodplain	64225	703000711	CHW59	487258.0	6242552.0	20.1	21.0	Monoman Formation	7.7	Class 9 PVC	5.7	80	Gravity	Slotted casing	Inline	5.7-7.7	80	0.5	1.6-3.2
Floodplain	64226	703000712	CHW60	487260.0	6242555.0	20.1	20.9	Monoman Formation	17.1	Class 9 PVC	15.1	80	Gravity	Slotted casing	Inline	15.1-17.1	80	0.5	1.6-3.2
Floodplain	64232	703000718	CHW61	487263.0	6242557.0	20.1	21.0	Pliocene Sands	40.0	Class 9 PVC	38.0	80	Tremmie	Slotted casing	Inline	38-40	80	0.5	1.6-3.2
Floodplain	64233	703000719	CHW62	488294.6	6242035.3	19.5	20.5	Monoman Formation	8.0	Class 9 PVC	6.0	80	Gravity	Slotted casing	Inline	6-8	80	0.5	1.6-3.2
Floodplain	64234	703000720	CHW63	488280.1	6242050.1	19.6	20.3	Monoman Formation	6.9	Class 9 PVC	4.9	80	Gravity	Slotted casing	Inline	4.9-6.9	80	0.5	1.6-3.2
Floodplain	64235	703000721	CHW64	488382.8	6241991.4	19.7	20.5	Monoman Formation	10.0	Class 9 PVC	8.0	80	Gravity	Slotted casing	Inline	8-10	80	0.5	1.6-3.2
Floodplain	64236	703000722	CHW65	488401.5	6241979.7	18.9	19.9	Monoman Formation	9.8	Class 9 PVC	7.8	80	Gravity	Slotted casing	Inline	7.8-9.8	80	0.5	1.6-3.2
Floodplain	64244	703000728	CHW68	490949.0	6244537.0	20.3	21.2	Monoman Formation	7.4	Class 9 PVC	5.4	80	Gravity	Slotted casing	Inline	5.4-7.4	80	0.5	1.6-3.2
Floodplain	64245	703000729	CHW69	490948.0	6244539.0	20.3	21.2	Monoman Formation	24.0	Class 9 PVC	22.0	80	Gravity	Slotted casing	Inline	22-24	80	0.5	1.6-3.2

Zone	Permit Number	Unit Number	Obs Wells Number	Easting (GDA94)	Northing (GDA94)	Elevation natural surface (m AHD)	Reference Elevation (mAHD)	Target Aquifer	Casing					Production Zone					
									Completed depth (m)	Casing specification	Casing depth (m)	Casing ID (mm)	Grouting	Screen specification	In-line / Open hole	Screened Interval (m)	Screen ID (mm)	Screen aperture (mm)	Gravel pack size (mm)
Floodplain	64251	703000734	CHW70	490949.0	6244535.0	20.4	21.2	Pliocene Sands	35.0	Class 9 PVC	33.0	80	Tremmie	Slotted casing	Inline	33-35	80	0.5	1.6-3.2
Floodplain	64253	703000735	CHW72	491279.9	6243678.0	20.3	21.2	Monoman Formation	7.6	Class 9 PVC	5.6	80	Gravity	Slotted casing	Inline	5.6-7.6	80	0.5	1.6-3.2
Floodplain	64254	703000736	CHW73	491405.1	6243646.2	20.4	21.3	Monoman Formation	8.5	Class 9 PVC	6.5	80	Gravity	Slotted casing	Inline	6.5-8.5	80	0.5	1.6-3.2
Floodplain	64255	703000737	CHW74	491424.6	6243639.5	20.0	20.9	Monoman Formation	10.0	Class 9 PVC	8.0	80	Gravity	Slotted casing	Inline	8-10	80	0.5	1.6-3.2
Floodplain	64257	703000739	CHW75	491876.1	6241960.7	20.2	21.0	Monoman Formation	9.8	Class 9 PVC	6.8	80	Gravity	Slotted casing	Inline	6.8-9.8	80	0.5	1.6-3.2
Floodplain	64258	703000740	CHW76	491880.7	6241962.5	20.2	21.0	Monoman Formation	19.7	Class 9 PVC	16.7	80	Gravity	Slotted casing	Inline	16.7-19.7	80	0.5	1.6-3.2
Floodplain	64273	703000742	CHW85	496447.2	6243232.6	20.3	21.0	Monoman Formation	10.1	Class 9 PVC	7.1	80	Gravity	Slotted casing	Inline	7.1-10.1	80	0.5	1.6-3.2
Highland	64285	703000743	CHW92	483893.0	6247418.0	51.8	52.7	Pliocene Sands	50.0	Class 9 PVC	47.0	80	Gravity	Slotted casing	Inline	47-50	80	0.5	0.8-1.6
Highland	64284	703000744	CHW91	483886.0	6247437.0	51.7	52.1	Murray Group Limestone	145.0	Class 12 PVC	125.0	157	Pressure	-	Open hole	125-145	-	-	-
Floodplain	100277	703000762	CHW94	487961.1	6245576.6	40.2	41.1	Pliocene Sands	25.0	Class 9 PVC	22.0	80	Tremmie	Slotted casing	Inline	22-25	80	0.5	1.6-3.2
Floodplain	100290	703000773	CHW95	499684.5	6244389.8	22.8	23.8	Pliocene Sands	15.0	Class 9 PVC	12.0	80	Tremmie	Slotted casing	Inline	12-15	80	0.5	1.6-3.2
Floodplain	64274	703000775	CHW86	496442.4	6243234.4	20.3	21.0	Monoman Formation	17.9	Class 9 PVC	14.9	80	Gravity	Slotted casing	Inline	14.9-17.9	80	0.5	1.6-3.2
Floodplain	65654	703000776	CHW93	497789.0	6247292.0	19.1	19.7	Murray Group Limestone	180.0	Class 12 PVC	85.0	157	Pressure	-	Open hole	85-180	-	-	-
Floodplain	60BL216329	713000052	CHW96	502692.0	6239443.0	21.3	22.1	Monoman Formation	7.6	Class 9 PVC	5.6	80	Gravity	Slotted casing	Inline	5.6-7.6	80	0.5	1.6-3.2
Floodplain	60BL216329	713000053	CHW97	502646.0	6239439.0	21.2	22.0	Monoman Formation	7.5	Class 9 PVC	5.5	80	Gravity	Slotted casing	Inline	5.5-7.5	80	0.5	1.6-3.2
Floodplain	60BL216331	713000054	CHW98	501560.0	6238719.0	20.9	21.9	Monoman Formation	7.3	Class 9 PVC	4.3	80	Gravity	Slotted casing	Inline	4.3-7.3	80	0.5	1.6-3.2
Floodplain	60BL216331	713000055	CHW99	501556.0	6238716.0	20.9	21.7	Monoman Formation	19.6	Class 9 PVC	16.6	80	Gravity	Slotted casing	Inline	16.6-19.6	80	0.5	1.6-3.2
Floodplain	60BL216364	713000056	CHW100	503043.0	6239424.0	21.2	22.1	Monoman Formation	6.1	Class 9 PVC	3.1	80	Gravity	Slotted casing	Inline	3.1-6.1	80	0.5	1.6-3.2



Government of South Australia
Department of Water, Land and Biodiversity Conservation

Produced By: Major Investigations Unit
Knowledge and Information Division
Department of Water, Land and Biodiversity Conservation
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Figure 3: Locality plan for wells installed in 2004

- 1.6–3.2 mm size gravel pack extending a metre above the screened section;
- 0.5 m bentonite seal above the gravel pack; and
- Annulus cemented back to surface from bottom of the clays.

The following construction was proposed for observation wells completed in the lower Monoman Formation at Monoman Formation sites:

- Holes drilled 15–20 m at the end of the Monoman Formation sequence;
- 80 mm ID Class 9 PVC casing;
- 0.5 mm slots over the 3 m PVC screen length;
- 1.6–3.2 mm size gravel pack extending a metre above the screened section;
- 0.5 m bentonite seal above the gravel pack; and
- Annulus cemented back to surface from bottom of the clays.

The following construction was proposed for the Pliocene Sands aquifer observation wells:

- Holes drilled 15–50 m;
- 80 mm ID Class 12 PVC casing;
- 0.5 mm slots over the 2 or 3 m PVC screen length;
- 0.8–1.6 mm or 1.6–3.2 mm size gravel pack extending a metre above the screened section;
- 0.5 m bentonite seal above the gravel pack; and
- Annulus cemented back to surface from the top of the bentonite seal.

The following construction was proposed for the Murray Group Limestone Aquifer observation wells:

- Holes drilled 145–180 m;
- 157 mm ID Class 12 PVC casing;
- Open hole throughout the limestone sequence; and
- Annulus cemented back to surface from above the limestone (end of casing).

2.3 Hydrostratigraphy

The drilling program has shown that the geology of the floodplain is highly variable, even on a localised scale of tens of metres. Such variation is a consequence of the numerous floodplain, lake and river channel sequences that have been incised and deposited through the ancestral river channel over thousands of years. The floodplain aquifers and aquitards are thus likely to be hetergenous and anisotropic.

Table 2 summarises the hydrostratigraphic units within the Chowilla floodplain. The Coonambidgal Formation is a clayey surficial sequence 2–6 m thick that acts as a semi-confining layer. The clays are dark brown grading to fawn in colour, stiff, and slightly silty and loamy in parts. Underlying this unit is the semi-confined Monoman Formation (15–30 m thick). This unit consists of mainly grey and orange/brown medium-coarse grained quartz sand. Clay bands 0.5–3 m thick were intercepted in some areas at 8–12 m depth,

which appear to form localised aquitards. Pump test investigations conducted at Gum Flat in 2002 indicate that this clay layer influences the lower part of the Monoman Formation, such that when a well completed at a lower depth is pumped, it exhibits the response of a semi-confined aquifer (Howles and Marsden, 2002). Therefore, for the purpose of this drilling program, the Monoman Formation has been characterised as two sub-aquifers: upper Monoman (10–15 m thick) and lower Monoman aquifers (5–10 m thick), separated by the clay layer.

Beneath this lies the Pliocene Sands Aquifer. It consists of dark brown/grey silty fine-medium grained quartz sand and is slightly clayey in parts, becoming increasingly so towards the base of the sequence. This aquifer can be 15–40 m thick beneath the floodplain and up to 55 m in the highlands.

Table 2 Hydrostratigraphic units within the Chowilla floodplain

Age	Stratigraphic unit	Symbol	Lithology	Thickness (m)
Quaternary	Coonambidgal Clay	Qhac	Light grey moderate density clay. Moderate plasticity, rollable.	2–6
Quaternary	Upper Monoman Sands	Qam	Yellow/brown and grey fine/medium quartz sand. Moderately well to well sorted. Gravelly in part. Micaceous.	10–15
Quaternary	Lower Monoman Sands	Qam	Grey coarse quartz sand/fine quartz gravel interbeds. Clayey in part. Micaceous.	5–15
Pliocene	Loxton Parilla Sands	Tpp	Dark brown/grey silty fine sand. Clayey in part. Traces fine quartz gravel. Micaceous.	15–55
Mio-Pliocene	Bookpurnong Beds	Tmpb	Grey/green fossiliferous silts and clay. Glauconitic.	5–20
Miocene	Murray Group Limestone	Ty	Grey to off-white fossiliferous limestone.	120

3. OBSERVATION NETWORK

3.1 Finalised Observation Network

Selected locatable wells (including the majority of those that are currently monitored) completed within the Monoman or Coonambidgal Formations that have been incorporated into the revised and expanded groundwater monitoring network are shown on Figure 4. Reference to Figures 4 and 5 clearly illustrates that the:

- Coonambidgal Formation network is extremely limited;
- Monoman Formation (upper and lower) network is sparse;
- Pliocene Sands Aquifer network is extremely limited across the floodplain (although more wells exist in highland areas);
- Murray Group Limestone Aquifer is monitored by only two wells (although more wells exist in highland areas);
- Region is lacking nested sets of wells at strategic sites capable of monitoring vertical head gradients between the relevant aquifers;
- Existing groundwater monitoring network has been developed over a long period of time without integrated planning.

The locations of all selected wells selected to be part of the monitoring network and recently installed observation wells are provided on Figure 5. This figure shows:

- An additional eight creek sites involving observation well pairs completed in the upper Monoman Formation on opposite sides of the creeks (another two sites were completed adjacent to creeks, but these did not have another pair completed on the other side of the creek due to accessibility).
- An additional 12 Monoman Formation sites involving observation well pairs completed in the upper and lower Monoman Formations. Two of these sites were further drilled to become aquifer test sites.

  Note: there was also a well completed in the upper Monoman Formation at the Tareena Bong site.
- An additional five observation wells completed in the Pliocene Sands Aquifer, four on the floodplains and one on the highland. Two of these sites were further drilled to become aquifer test sites.
- A single additional observation well completed in the Murray Group Limestone Aquifer in the highland region to the northwest of the floodplain.

The expanded groundwater monitoring network incorporated the entire floodplain, not just the areas that have been identified as being of interest from the perspective of remnant native vegetation, as a complete regional knowledge is required for the planning of any groundwater management schemes.

The upgraded groundwater monitoring network may indicate the need to install additional wells as data is acquired and interpreted over time.

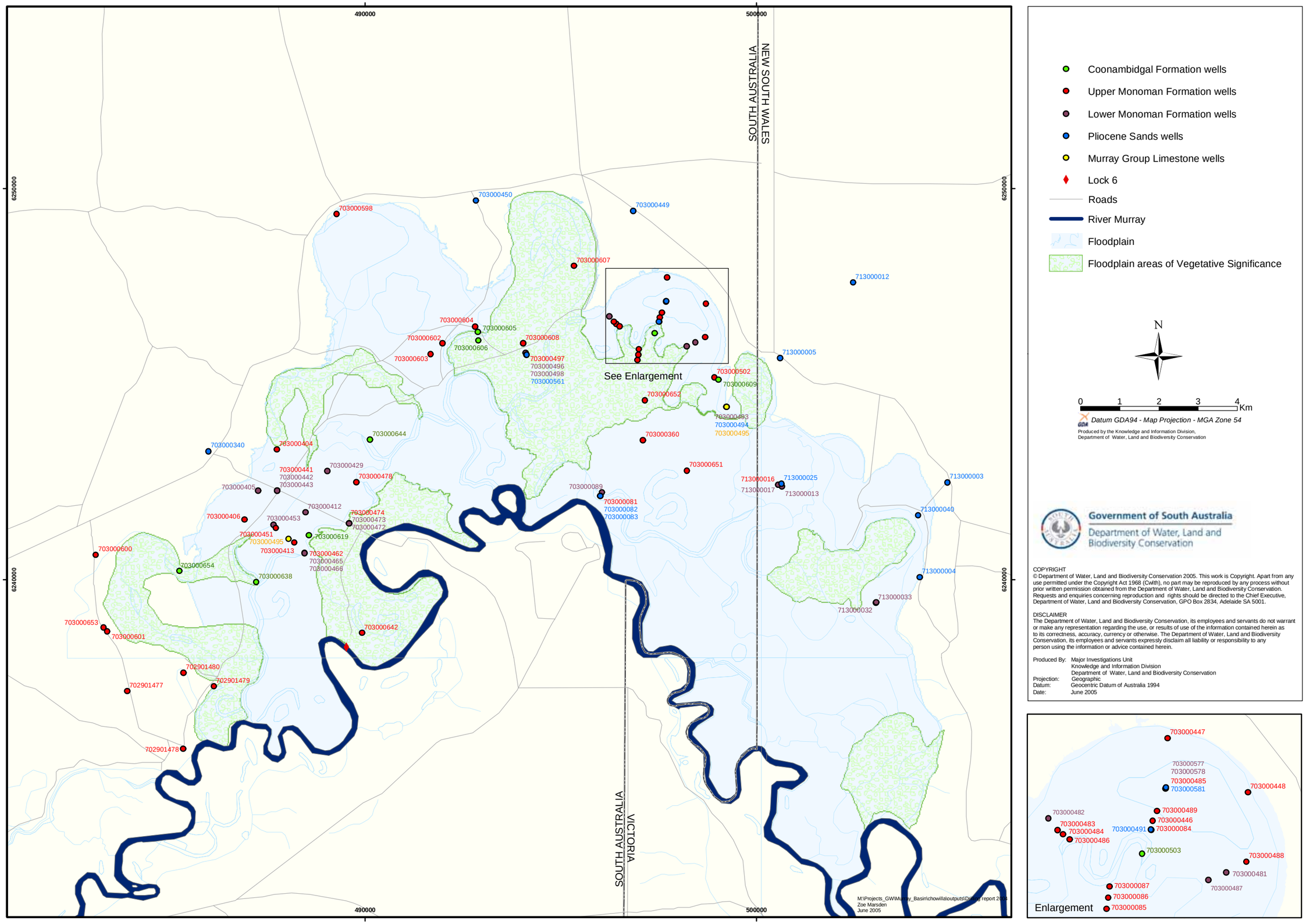
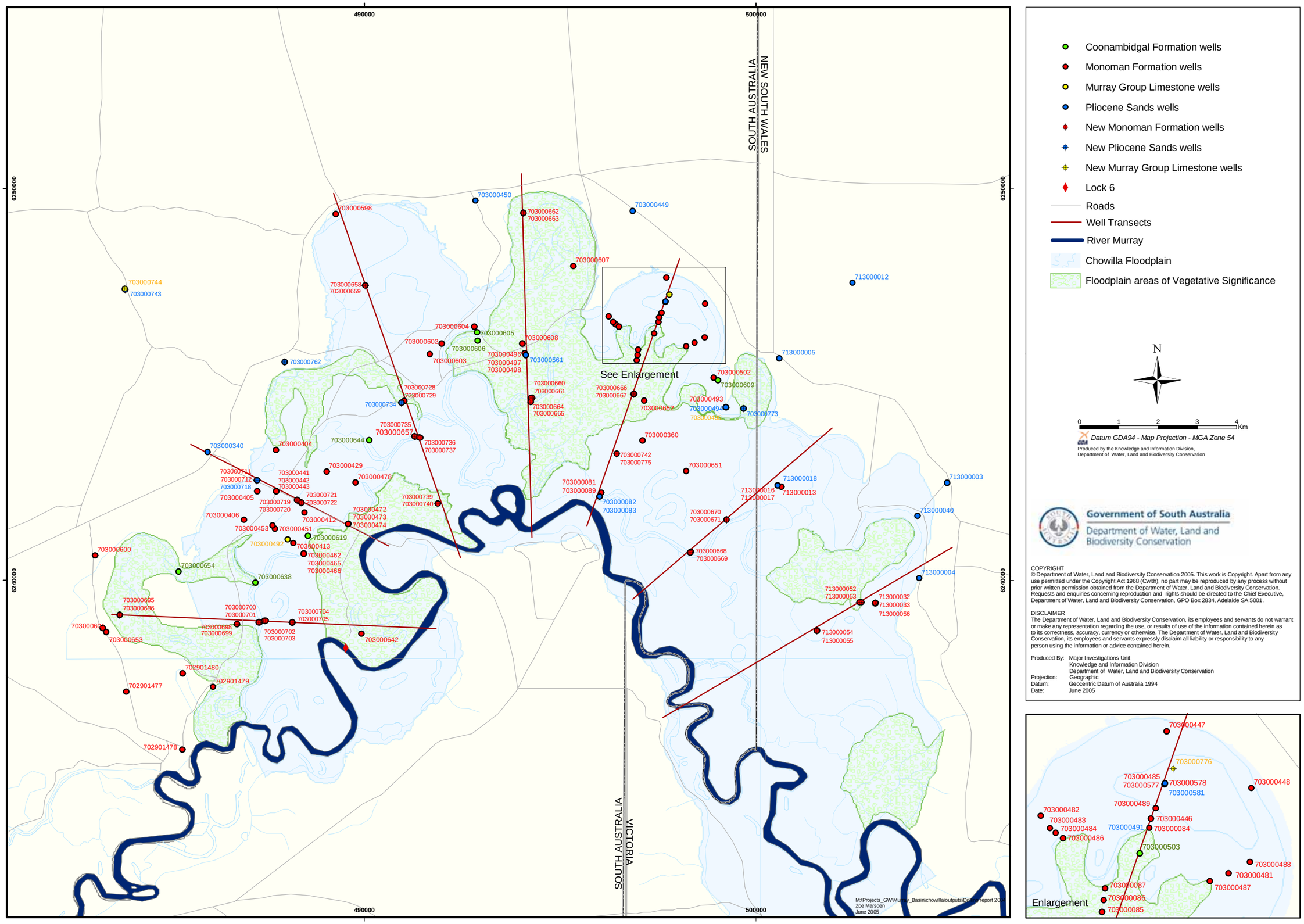


Figure 4: Plan showing selected existing wells (including those completed within the two Monoman sub-aquifer Formations) to be incorporated into the new monitoring network



Coonambidgal Formation wells
Monoman Formation wells
Murray Group Limestone wells
Pliocene Sands wells
New Monoman Formation wells
New Pliocene Sands wells
New Murray Group Limestone wells
Lock 6
Roads
Well Transects
River Murray
Chowilla Floodplain
Floodplain areas of Vegetative Significance

N

0 1 2 3 4 Km

Datum GDA94 - Map Projection - MGA Zone 54

Produced by the Knowledge and Information Division,
Department of Water, Land and Biodiversity Conservation

Government of South Australia
Department of Water, Land and Biodiversity Conservation

Produced By: Major Investigations Unit
Knowledge and Information Division
Department of Water, Land and Biodiversity Conservation
Projection: Geographic
Datum: Geocentric Datum of Australia 1994
Date: June 2005

Figure 5: New Chowilla groundwater monitoring network, including selcted existing well and new wells

3.2 Monitoring Strategy

Now that the groundwater monitoring network has expanded across the Chowilla floodplain, it is recommended that the monitoring schedule presented in Table 3 be adopted.

Key aspects of the monitoring strategy include:

- For the initial 12 months, monitoring of all wells be undertaken every two months to establish the annual fluctuations. Following evaluation of the data, some of the pre-existing scattered Monoman Sands Formation wells are likely to become redundant and will not require further monitoring.
- Following the initial 12 months of monitoring, the monitoring frequency should be reduced to three monthly. Monthly monitoring may be recommenced prior to, and post flooding.
- A selected set of the wells at creek monitoring sites should be fitted with continuously recording data loggers during flood events that will provide information on the response of the aquifer system.
- Baseline water quality (TDS only) monitoring from all wells will be required periodically from the majority of wells but possibly more frequently in those wells adjacent to the creeks.
- Wells adjacent to the creeks will require once off monitoring using a downhole SONDE and then more frequently after a flood event to better characterise the surface/groundwater interactions.

Table 3 Chowilla network groundwater levels and water quality data

Aquifer Monitored	Unit Number	Obs Well Number	Easting (GDA94)	Northing (GDA94)	Latest Depth (m)	Latest SWL Date	Latest SWL (m)	Latest RSWL (mAHD)	Latest TDS Date	Latest TDS (mg/L)	Sample Number
Coonambidgal Formation	702901477	CHW101	483922.1	6237154.7	4.66	11/04/2005	Dry	NA	-	-	-
Coonambidgal Formation	702901478	CHW102	485353.2	6235680.0	4.43	11/04/2005	Dry	NA	-	-	-
Monoman Formation	702901479	CHW103	486140.0	6237278.0	5.95	11/04/2005	5.07	15.9	15/11/2002	23888	624114
Monoman Formation	702901480	CHW104	485362.5	6237626.9	4.19	11/04/2005	Dry	NA	13/11/2002	19381	624113
Monoman Formation	703000081	CHW105	496008.5	6242139.5	9.45	21/02/2005	2.72	17.65	-	-	-
Pliocene Sand	703000082	CHW106	496007.6	6242139.1	32	21/02/2005	2.35	17.96	18/04/1989	42000	586083
Pliocene Sand	703000083	CHW107	496008.3	6242138.9	58	21/02/2005	2.45	17.9	-	-	-
Monoman Formation	703000084	CHW108	497509.9	6246595.7	7.2	11/04/2005	2.32	17.54	1/04/1997	49770	612629
Monoman Formation	703000085	CHW109	496957.3	6245615.8	6	21/02/2005	2.26	17.61	-	-	-
Monoman Formation	703000086	CHW110	496978.0	6245754.0	6	21/02/2005	2.71	17.22	-	-	-
Monoman Formation	703000087	CHW111	496993.1	6245890.7	7.5	21/02/2005	3.4	17.3	-	-	-
Monoman Formation	703000089	CHW112	496050.3	6242234.8	7.46	21/02/2005	3.78	17.5	17/05/1989	9323	586082
Pliocene Sand	703000340	CHW113	485998.0	6243281.1	47.36	11/04/2005	39.6	16.76	5/06/1967	15000	288818
Monoman Formation	703000360	CHW115	497098.5	6243571.8	9.2	21/02/2005	4.44	17.21	18/05/1989	42000	586084
Monoman Formation	703000404	CHW116	487744.9	6243327.9	4.75	11/04/2005	2.78	16.52	-	-	-
Monoman Formation	703000405	CHW117	487264.1	6242279.6	11.89	11/04/2005	3.2	16.39	-	-	-
Monoman Formation	703000406	CHW118	486922.1	6241540.5	7.47	11/04/2005	3.28	16.19	-	-	-
Monoman Formation	703000412	CHW119	488476.8	6241726.9	10.3	11/04/2005	3.96	16.35	-	-	-
Monoman Formation	703000413	CHW120	488189.9	6240950.8	9.14	11/04/2005	3.88	16.15	-	-	-
Monoman Formation	703000429	CHW121	489034.9	6242778.6	10.67	11/04/2005	3.81	16.36	-	-	-
Monoman Formation	703000441	CHW36	487750.8	6242277.4	5.13	11/04/2005	3	16.39	5/03/1983	1832	288835
Monoman Formation	703000442	CHW37	487750.7	6242277.3	11.87	11/04/2005	3.04	16.35	5/03/1983	33360	288836
Monoman Formation	703000443	CHW38	487750.7	6242277.4	19.88	11/04/2005	3.06	16.33	16/04/2004	50260	642607
Monoman Formation	703000446	CHW122	497527.3	6246705.7	6.36	11/04/2005	1.9	17.56	14/04/2004	48720	642609
Monoman Formation	703000447	CHW123	497713.2	6247727.2	6.7	11/04/2005	1.78	17.83	17/04/2004	52920	642610

Aquifer Monitored	Unit Number	Obs Well Number	Easting (GDA94)	Northing (GDA94)	Latest Depth (m)	Latest SWL Date	Latest SWL (m)	Latest RSWL (mAHD)	Latest TDS Date	Latest TDS (mg/L)	Sample Number
Monoman Formation	703000448	CHW124	498705.3	6247060.5	5.97	11/04/2005	1.44	18.02	16/04/2004	67440	642611
Pliocene Sand	703000449	CHW40	496851.0	6249431.8	13.24	11/04/2005	9.06	18.14	-	-	-
Pliocene Sand	703000450	CHW45	492834.7	6249690.9	14.53	11/04/2005	10.36	17.79	16/04/2004	35234	642612
Monoman Formation	703000451	CHW125	487723.0	6241320.6	3.98	11/04/2005	2.22	16.2	-	-	-
Monoman Formation	703000453	CHW126	487658.8	6241403.5	12.15	11/04/2005	3.86	16.27	-	-	-
Monoman Formation	703000462	CHW127	488458.1	6240685.5	3.72	11/04/2005	Dry	NA	-	-	-
Monoman Formation	703000465	CHW128	488455.3	6240684.0	12.37	11/04/2005	3.8	16.34	-	-	-
Monoman Formation	703000466	CHW129	488452.2	6240682.1	24.95	11/04/2005	4.07	16.07	-	-	-
Monoman Formation	703000472	CHW130	489586.5	6241437.5	24.25	11/04/2005	3.09	16.19	-	-	-
Monoman Formation	703000473	CHW131	489587.5	6241440.0	12.16	11/04/2005	2.67	16.62	-	-	-
Monoman Formation	703000474	CHW132	489588.8	6241442.9	6.27	11/04/2005	2.79	16.49	-	-	-
Monoman Formation	703000478	CHW133	489774.0	6242498.7	4.46	11/04/2005	4	15.93	-	-	-
Monoman Formation	703000481	CHW134	498437.3	6246067.4	10.51	11/04/2005	1.67	17.98	31/05/1990	49000	586088
Monoman Formation	703000482	CHW135	496241.0	6246736.6	12	11/04/2005	4.2	17.22	6/06/1990	31892	586089
Monoman Formation	703000483	CHW136	496349.8	6246592.4	9.05	11/04/2005	2.46	17.18	5/06/1990	34155	586090
Monoman Formation	703000484	CHW137	496417.9	6246539.5	8.6	11/04/2005	1.9	17.19	5/06/1990	38500	586091
Monoman Formation	703000485	CHW138	497692.8	6247117.5	7.27	11/04/2005	1.45	17.65	17/04/2004	55020	642613
Monoman Formation	703000486	CHW139	496502.1	6246477.0	8.65	11/04/2005	2.78	17.22	5/06/1990	32643	586093
Monoman Formation	703000487	CHW140	498217.7	6245973.6	10.35	11/04/2005	2.12	18.06	15/04/2004	65680	642614
Monoman Formation	703000488	CHW141	498686.7	6246198.7	9.16	11/04/2005	1.6	18.09	31/05/1990	49000	586095
Monoman Formation	703000489	CHW142	497583.3	6246825.9	9.25	11/04/2005	1.68	17.62	29/05/1990	43400	586096
Pliocene Sand	703000491	CHW144	497507.2	6246597.8	36.48	11/04/2005	2.25	17.54	1/04/1997	72000	612628
Murray Group Limestone	703000492	CHW39	488046.5	6241044.7	96	11/04/2005	-0.14	20.02	9/03/1991	23454	288840
Monoman Formation	703000493	CHW46	499228.0	6244418.9	12.28	11/04/2005	5.39	17.79	1/04/1997	45500	612626
Pliocene Sand	703000494	CHW47	499230.0	6244416.9	45.81	11/04/2005	5.27	17.95	1/04/1997	65360	612627
Murray Group Limestone	703000495	CHW48	499232.7	6244414.5	93.05	21/02/2005	-2.33	25.58	28/09/1990	26000	111394
Monoman Formation	703000496	CHW145	494097.8	6245802.5	11.2	11/04/2005	4.56	16.68	5/03/1992	49000	586100

Aquifer Monitored	Unit Number	Obs Well Number	Easting (GDA94)	Northing (GDA94)	Latest Depth (m)	Latest SWL Date	Latest SWL (m)	Latest RSWL (mAHD)	Latest TDS Date	Latest TDS (mg/L)	Sample Number
Monoman Formation	703000497	CHW146	494123.7	6245750.9	4.6	11/04/2005	Dry	NA	16/04/2004	41440	642615
Monoman Formation	703000498	CHW147	494126.0	6245751.4	20.11	11/04/2005	3.98	16.81	-	-	-
Monoman Formation	703000500		494034.0	6246045.0	6	11/04/2005	Dry	NA	7/04/1992	25308	586102
Monoman Formation	703000502	CHW148	498922.2	6245178.2	6	11/04/2005	3.7	17.7	7/04/1992	49000	586104
Coonambidgal	703000503	CHW149	497399.6	6246299.8	3	21/02/2005	Dry	NA	19/06/1987	38500	300009
Pliocene Sand	703000561	CHW150	494128.3	6245752.1	53	11/04/2005	3.84	17.01	18/02/1992	35802	622121
Monoman Formation	703000577	CHW151	497686.0	6247105.0	14.34	11/04/2005	1.47	17.62	5/04/2005	66240	682512
Monoman Formation	703000578	CHW152	497689.0	6247109.0	29.3	16/03/2005	1.33	17.75	18/12/2002	41580	613107
Pliocene Sand	703000581	CHW153	497693.5	6247117.2	41	11/04/2005	0.21	18.86	-	-	-
Monoman Formation	703000598	CHW154	489271.3	6249351.3	6.25	11/04/2005	2.61	17.5	-	-	-
Monoman Formation	703000600	CHW155	483121.5	6240635.3	4.64	11/04/2005	Dry	NA	-	-	-
Monoman Formation	703000601	CHW156	483412.8	6238682.7	6.14	11/04/2005	5.3	16	-	-	-
Monoman Formation	703000602	CHW157	491975.6	6246043.6	4.25	11/04/2005	Dry	NA	-	-	-
Monoman Formation	703000603	CHW158	491673.9	6245772.8	4.79	11/04/2005	Dry	NA	-	-	-
Monoman Formation	703000604	CHW159	492805.9	6246474.5	5.02	11/04/2005	4.69	16.48	-	-	-
Coonambidgal	703000605	CHW160	492878.0	6246332.9	1.03	11/04/2005	Dry	NA	-	-	-
Coonambidgal	703000606	CHW161	492893.2	6246112.8	2.71	11/04/2005	Dry	NA	-	-	-
Monoman Formation	703000607	CHW162	495337.1	6248021.9	5	11/04/2005	Dry	NA	-	-	-
Monoman Formation	703000608	CHW163	494033.9	6246045.2	3.84	11/04/2005	Dry	NA	-	-	-
Coonambidgal	703000609	CHW164	499028.4	6245109.2	2.93	11/04/2005	Dry	NA	-	-	-
Coonambidgal	703000619	CHW165	488563.2	6241135.0	3.55	11/04/2005	3.19	17.09	-	-	-
Coonambidgal	703000638	CHW166	487221.0	6239938.0	4.19	11/04/2005	2.76	15.92	15/11/2002	18980	624035
Monoman Formation	703000642	CHW167	489921.5	6238639.3	2.65	11/04/2005	Dry	NA	-	-	-
Coonambidgal	703000644	CHW168	490124.7	6243582.1	4	11/04/2005	Dry	NA	12/11/2002	6418	624030
Monoman Formation	703000651	CHW169	498219.4	6242791.0	5.22	21/02/2005	Dry	NA	6/11/2002	52220	624032
Monoman Formation	703000652	CHW170	497145.7	6244591.0	4.3	21/02/2005	3.5	17.12	6/11/2002	34653	624027
Monoman Formation	703000653	CHW171	483320.9	6238780.8	5.63	11/04/2005	5.16	16.03	13/11/2002	38430	624036

Aquifer Monitored	Unit Number	Obs Well Number	Easting (GDA94)	Northing (GDA94)	Latest Depth (m)	Latest SWL Date	Latest SWL (m)	Latest RSWL (mAHD)	Latest TDS Date	Latest TDS (mg/L)	Sample Number
Coonambidgal	703000654	CHW172	485262.2	6240223.0	5.23	21/02/2005	4.5	15.17	13/11/2002	30273	624034
Monoman Formation	703000657	CHW71	491299.0	6243674.0	7.78	11/04/2005	3.4	16.43	24/03/2004	17509	641548
Monoman Formation	703000658	CHW66	490026.0	6247527.0	10.08	11/04/2005	8.62	16.91	18/03/2004	17357	642582
Monoman Formation	703000659	CHW67	490022.0	6247530.0	19.02	11/04/2005	8.71	16.82	18/03/2004	44310	642583
Monoman Formation	703000660	CHW80	494289.0	6244661.0	7.77	11/04/2005	1.52	16.68	19/03/2004	40810	641553
Monoman Formation	703000661	CHW79	494277.0	6244644.0	7.58	11/04/2005	0.57	16.68	24/03/2004	43960	641552
Monoman Formation	703000662	CHW77	494060.0	6249380.0	5.53	11/04/2005	1.1	17.67	19/03/2004	32888	641550
Monoman Formation	703000663	CHW78	494066.0	6249383.0	19.14	11/04/2005	1.16	17.6	19/03/2004	46550	641551
Monoman Formation	703000664	CHW82	494248.0	6244558.0	9.06	21/02/2005	3.26	16.64	16/03/2004	43820	641555
Monoman Formation	703000665	CHW81	494256.0	6244658.0	8.74	21/02/2005	3.17	16.66	19/03/2004	46340	641554
Monoman Formation	703000666	CHW83	496880.0	6244760.0	6.07	21/02/2005	3.32	17.09	17/03/2004	38780	642602
Monoman Formation	703000667	CHW84	496886.0	6244761.0	17.71	21/02/2005	3.42	17.01	19/03/2004	70560	642603
Monoman Formation	703000668	CHW90	498334.0	6240725.0	7.73	21/02/2005	1.99	17.48	19/03/2004	48720	641561
Monoman Formation	703000669	CHW89	498321.0	6240708.0	7.4	21/02/2005	1.88	17.49	19/03/2004	48650	641560
Monoman Formation	703000670	CHW87	499251.0	6241545.0	10.29	21/02/2005	3.6	17.48	19/03/2004	51030	641558
Monoman Formation	703000671	CHW88	499251.0	6241550.0	18.09	21/02/2005	3.54	17.46	19/03/2004	52080	641559
Monoman Formation	703000695	CHW49	483756.0	6239123.0	8.76	11/04/2005	3.56	16.06	25/03/2004	34089	641542
Monoman Formation	703000696	CHW50	483755.0	6239118.0	20.62	11/04/2005	3.57	16.05	25/03/2004	42280	641543
Monoman Formation	703000698	CHW51	486748.0	6238891.0	7.75	11/04/2005	3.94	15.91	24/03/2004	34536	641544
Monoman Formation	703000699	CHW52	486746.0	6238887.0	18.2	11/04/2005	3.93	15.92	24/03/2004	44590	641545
Monoman Formation	703000700	CHW53	487327.0	6238931.0	10.61	11/04/2005	3.89	15.95	23/03/2004	28561	641546
Monoman Formation	703000701	CHW54	487306.0	6238931.0	9.36	11/04/2005	2.77	15.91	23/03/2004	42210	641547
Monoman Formation	703000702	CHW55	487453.0	6238973.0	10.15	11/04/2005	2.91	15.97	22/03/2004	33135	642565
Monoman Formation	703000703	CHW56	487479.0	6238973.0	6.8	11/04/2005	1.27	16	22/03/2004	25055	642566
Monoman Formation	703000704	CHW57	488156.0	6238926.0	6.79	11/04/2005	3.82	16.07	21/03/2004	38990	642567
Monoman Formation	703000705	CHW58	488161.0	6238927.0	15.59	11/04/2005	3.85	16.04	21/03/2004	39830	642568
Monoman Formation	703000711	CHW59	487258.0	6242552.0	7.7	11/04/2005	3.53	16.52	5/07/2004	30337	662020

Aquifer Monitored	Unit Number	Obs Well Number	Easting (GDA94)	Northing (GDA94)	Latest Depth (m)	Latest SWL Date	Latest SWL (m)	Latest RSWL (mAHD)	Latest TDS Date	Latest TDS (mg/L)	Sample Number
Monoman Formation	703000712	CHW60	487260.0	6242555.0	17.07	11/04/2005	3.55	16.51	5/07/2004	35036	662021
Pliocene Sand	703000718	CHW61	487263.0	6242557.0	40	11/04/2005	3.79	16.29	5/07/2004	50260	662027
Monoman Formation	703000719	CHW62	488295.0	6242035.0	7.99	11/04/2005	3.15	16.43	14/04/2004	29534	652578
Monoman Formation	703000720	CHW63	488280.0	6242050.0	6.85	11/04/2005	3.4	16.11	14/04/2004	26978	652579
Monoman Formation	703000721	CHW64	488383.0	6241991.0	10.04	11/04/2005	3.44	16.22	20/03/2004	41510	652580
Monoman Formation	703000722	CHW65	488401.0	6241980.0	9.84	11/04/2005	3.7	15.24	20/03/2004	39620	652581
Monoman Formation	703000728	CHW68	490949.0	6244537.0	7.4	11/04/2005	3.98	16.36	2/06/2004	49770	661912
Monoman Formation	703000729	CHW69	490948.0	6244539.0	24	11/04/2005	3.99	16.35	2/07/2004	64720	661913
Pliocene Sand	703000734	CHW70	490949.0	6244535.0	35	11/04/2005	3.81	16.54	2/07/2004	64240	662016
Monoman Formation	703000735	CHW72	491280.0	6243678.0	7.6	11/04/2005	3.89	16.39	24/03/2004	16177	641549
Monoman Formation	703000736	CHW73	491405.0	6243646.0	8.5	11/04/2005	3.97	16.42	11/06/2004	28734	644374
Monoman Formation	703000737	CHW74	491425.0	6243640.0	10	6/09/2004	3.56	16.49	11/06/2004	33266	644375
Monoman Formation	703000739	CHW75	491876.0	6241961.0	9.8	11/04/2005	3.1	17.09	20/03/2004	25118	642599
Monoman Formation	703000740	CHW76	491881.0	6241963.0	19.7	11/04/2005	3.12	17.07	20/03/2004	14151	642601
Monoman Formation	703000742	CHW85	496447.0	6243233.0	10.1	21/02/2005	3.25	17.06	19/03/2004	52570	641556
Pliocene Sand	703000743	CHW92	483894.0	6247420.0	50	11/04/2005	34.33	17.47	-	-	-
Murray Group Limestone	703000744	CHW91	483884.0	6247440.0	145	11/04/2005	26.97	24.7	30/11/2004	19779	683742
Pliocene Sand	703000762	CHW94	487961.0	6245577.0	25	11/04/2005	23.1	17.05	1/10/2004	4665	662754
Pliocene Sand	703000773	CHW95	499685.0	6244390.0	15	11/04/2005	5.01	17.75	1/10/2004	72880	662756
Monoman Formation	703000775	CHW86	496442.0	6243234.0	17.9	21/02/2005	3.26	17.05	19/03/2004	50400	641557
Murray Group Limestone	703000776	CHW93	497790.0	6247291.0	182	12/04/2005	-7.11	26.19	17/09/2004	23120	657571
Pliocene Sand	713000003	ANB7	504877.5	6242490.7	13.71	11/04/2005	12.36	19.46	1/09/1984	49000	586105
Pliocene Sand	713000004	ANB8	504166.7	6240059.6	8.85	11/04/2005	4.07	19.07	1/04/1997	18364	612631
Pliocene Sand	713000005	ANB6	500597.0	6245671.6	14.7	11/04/2005	11.22	18.33	1/09/1984	10565	586107
Pliocene Sand	713000012	ANB5	502468.0	6247597.5	43.2	11/04/2005	39.28	19.61	1/04/1997	76080	612630
Monoman Formation	713000013	CHW173	500649.9	6242390.8	11.59	11/04/2005	2.91	18.1	4/04/1992	49000	586110
Monoman Formation	713000016	CHW174	500556.2	6242426.7	5.27	11/04/2005	3.28	17.77	1/04/1997	50400	612633

Aquifer Monitored	Unit Number	Obs Well Number	Easting (GDA94)	Northing (GDA94)	Latest Depth (m)	Latest SWL Date	Latest SWL (m)	Latest RSWL (mAHD)	Latest TDS Date	Latest TDS (mg/L)	Sample Number
Monoman Formation	713000017	CHW175	500556.6	6242424.4	19.33	11/04/2005	2.86	18.21	1/04/1997	70320	612635
Pliocene Sand	713000018	CHW176	500556.5	6242421.6	31.52	11/04/2005	3.04	18.01	1/04/1997	67440	612636
Pliocene Sand	713000025		500637.9	6242453.3	58.93	11/04/2005	2.52	18.53	-	-	-
Monoman Formation	713000032	CHW177	503054.2	6239421.5	24	11/04/2005	2.04	19.15	-	-	-
Monoman Formation	713000033	CHW178	503045.6	6239412.7	18	11/04/2005	2.66	18.59	6/06/2003	56700	630018
Pliocene Sand	713000040	CHW179	504127.3	6241644.5	4.05	11/04/2005	2.99	19	-	-	-
Monoman Formation	713000052	CHW96	502692.0	6239443.0	7.6	11/04/2005	2.93	18.38	16/06/2004	41580	663087
Monoman Formation	713000053	CHW97	502646.0	6239439.0	7.5	21/02/2005	2.86	18.37	16/06/2004	42630	663088
Monoman Formation	713000054	CHW98	501560.0	6238719.0	7.3	11/04/2005	2.91	18.03	16/06/2004	23472	663089
Monoman Formation	713000055	CHW99	501556.0	6238716.0	19.6	11/04/2005	2.84	18.02	16/06/2004	48790	663090
Monoman Formation	713000056	CHW100	503043.0	6239424.0	6.1	11/04/2005	2.73	18.51	16/06/2004	42350	663091

4. MONITORING RESULTS

4.1 Watertable and Potentiometric Surfaces

Reduced groundwater level data has been used from subsets of the existing locatable wells and recently drilled wells to construct elevation plans of the watertable within the upper Monoman Formation and potentiometric surfaces of the Pliocene Sands and Murray Group Limestone Aquifers.

4.1.1 MONOMAN FORMATION ELEVATION OF WATERTABLE

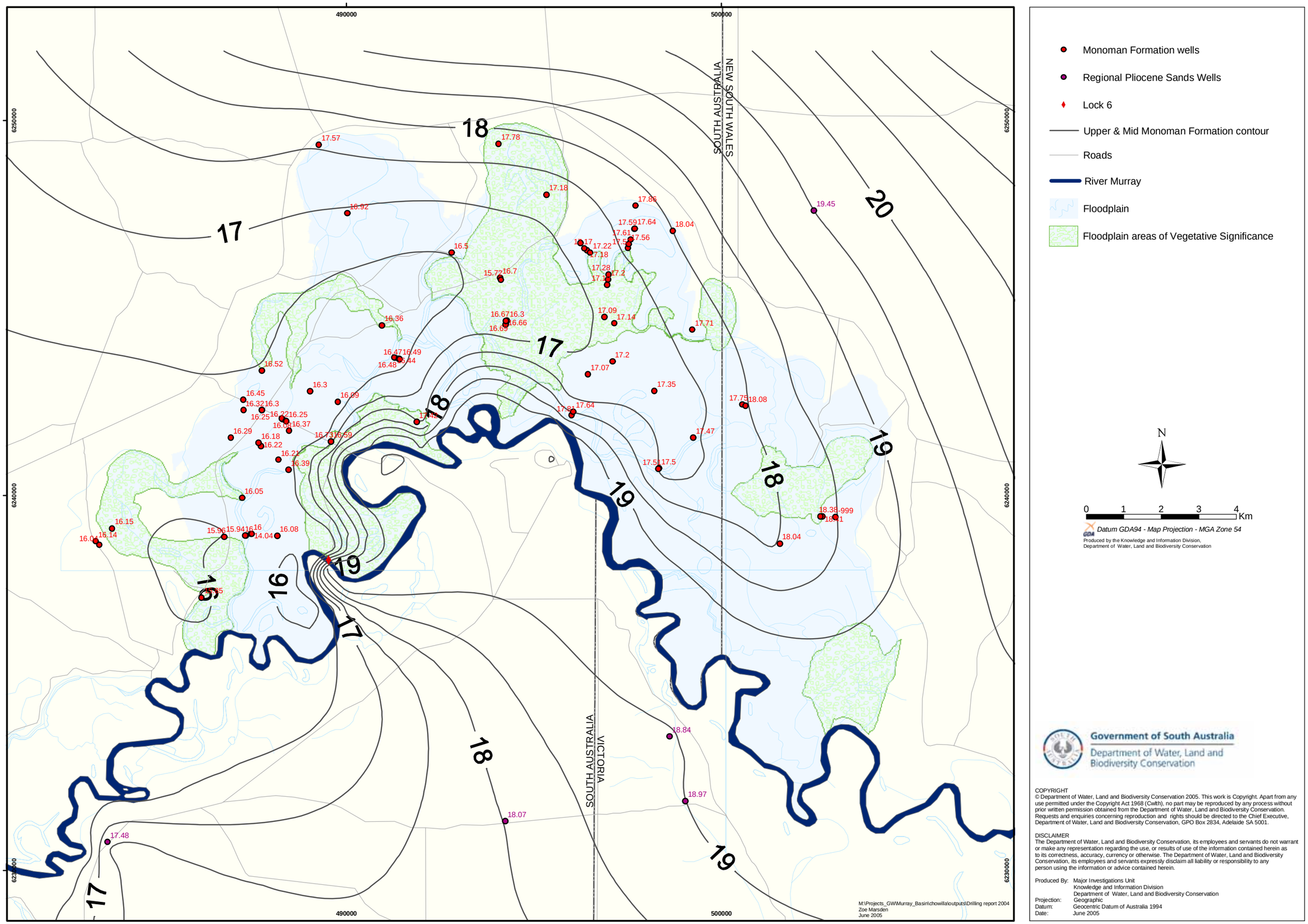
It is likely the true watertable (or parts there of) occurs in overlying Coonambidgal Formation within silts and limited sand lenses. The Monoman Formation forms a continuous semi-confined aquifer, and it is this aquifer that will be important from the perspective of a groundwater management scheme.

A watertable contour plan (Fig. 6) has been constructed for the Monoman Formation using September 2004 data from selected wells completed in the upper Monoman Formation. The use of these wells minimises differences in groundwater levels that may result from the use of wells completed at a greater depth. The watertable occurs within the Pliocene Sands aquifer outside of the floodplain. Therefore, data from Pliocene Sands wells to the north, east and south of the floodplain have been used to construct the Monoman Formation watertable contour plan.

The watertable contours indicate a general groundwater flow direction from east to west. The pool level above Lock-6 is elevated above the watertable of the surrounding Monoman Formation, which would cause discharge from the River Murray into the aquifer. A trough in the watertable occurs in the west of the floodplain through which groundwater discharges from the Monoman Formation (watertable elevation of 16.5 m AHD) into the anabranch creek system (watertable elevation of 16.3 m AHD) and consequently, the River Murray (west of Lock-6). Areas with a watertable lower than that of the River Murray have also been identified in the southwestern region of Chowilla. These areas only occur at a local scale and are attributed to higher evapotranspiration rates associated with lower ground elevations.

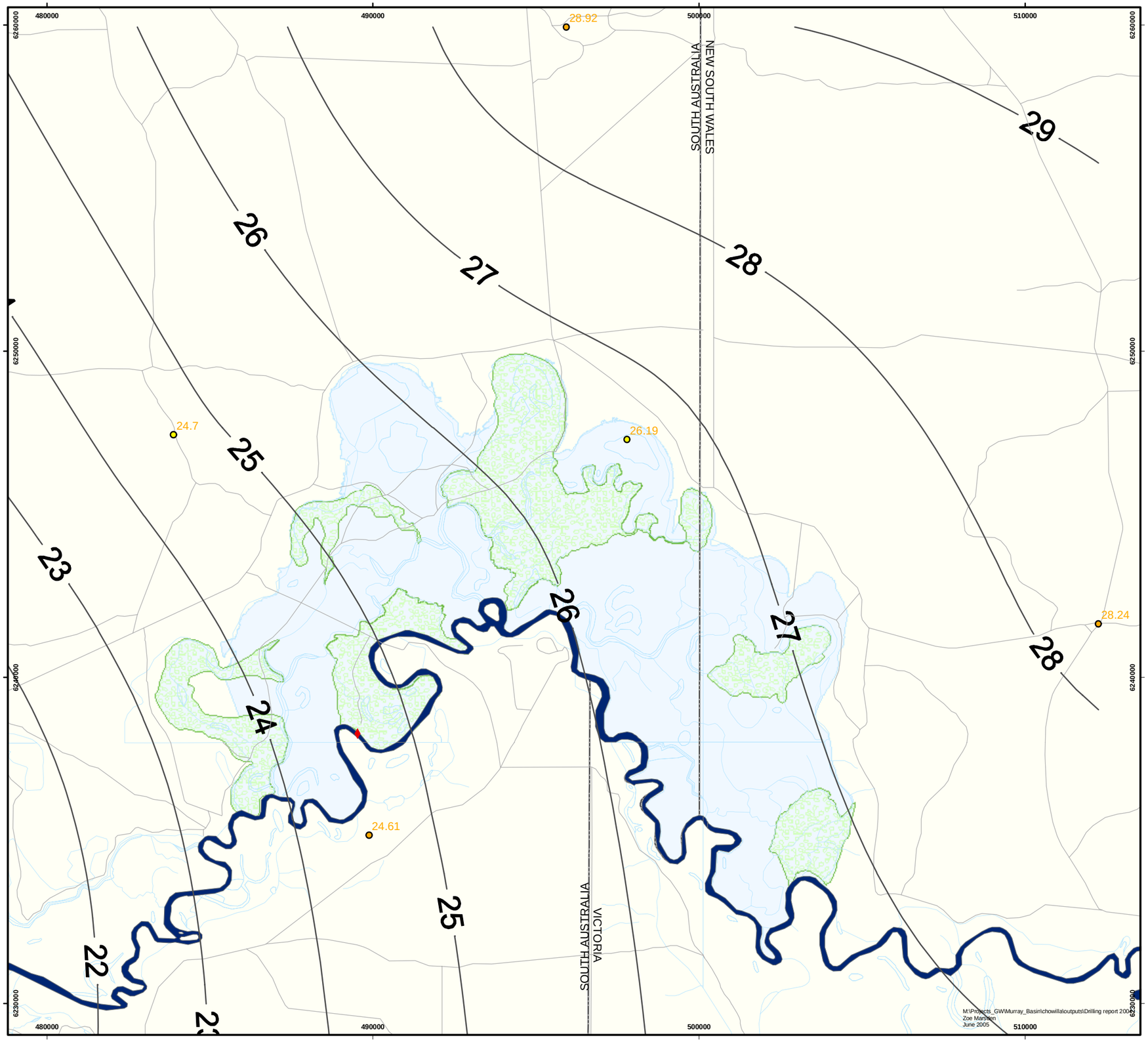
4.1.2 MURRAY GROUP LIMESTONE POTENTIOMETRIC SURFACE PLAN

A regional potentiometric surface contour plan (Fig. 7) has been constructed for the Murray Group Limestone Aquifer using recent data. The plan indicates a general groundwater flow direction from the east to the west. Groundwater levels are several metres higher than the floodplain surface, which creates artesian conditions in wells completed on the floodplain.



Produced By: Major Investigations Unit
Knowledge and Information Division
Department of Water, Land and Biodiversity Conservation
Projection: Geographic
Datum: Geocentric Datum of Australia 1994
Date: June 2005

Figure 6: Upper Monoman Sands Formation and Pliocene Sands aquifer elevation of watertable contour plan (September 2004)



Produced By: Major Investigations Unit
Knowledge and Information Division
Department of Water, Land and Biodiversity Conservation
Projection: Geographic
Datum: Geocentric Datum of Australia 1994
Date: June 2005

Figure 7: Murray Group Limestone potentiometric surface plan (April 2005)

4.2 Head differences Between Aquifers and Groundwater/ Surface Water Interaction

Groundwater levels for individual wells are given in Table 3.

Groundwater levels measured in the Monoman Formation in September 2004 indicate small head differences of 0.02–0.72 m between the lower and the upper Monoman Formation (density corrected). The higher groundwater elevations in the lower Monoman Formation provides the potential for upward vertical flow from the base of this aquifer.

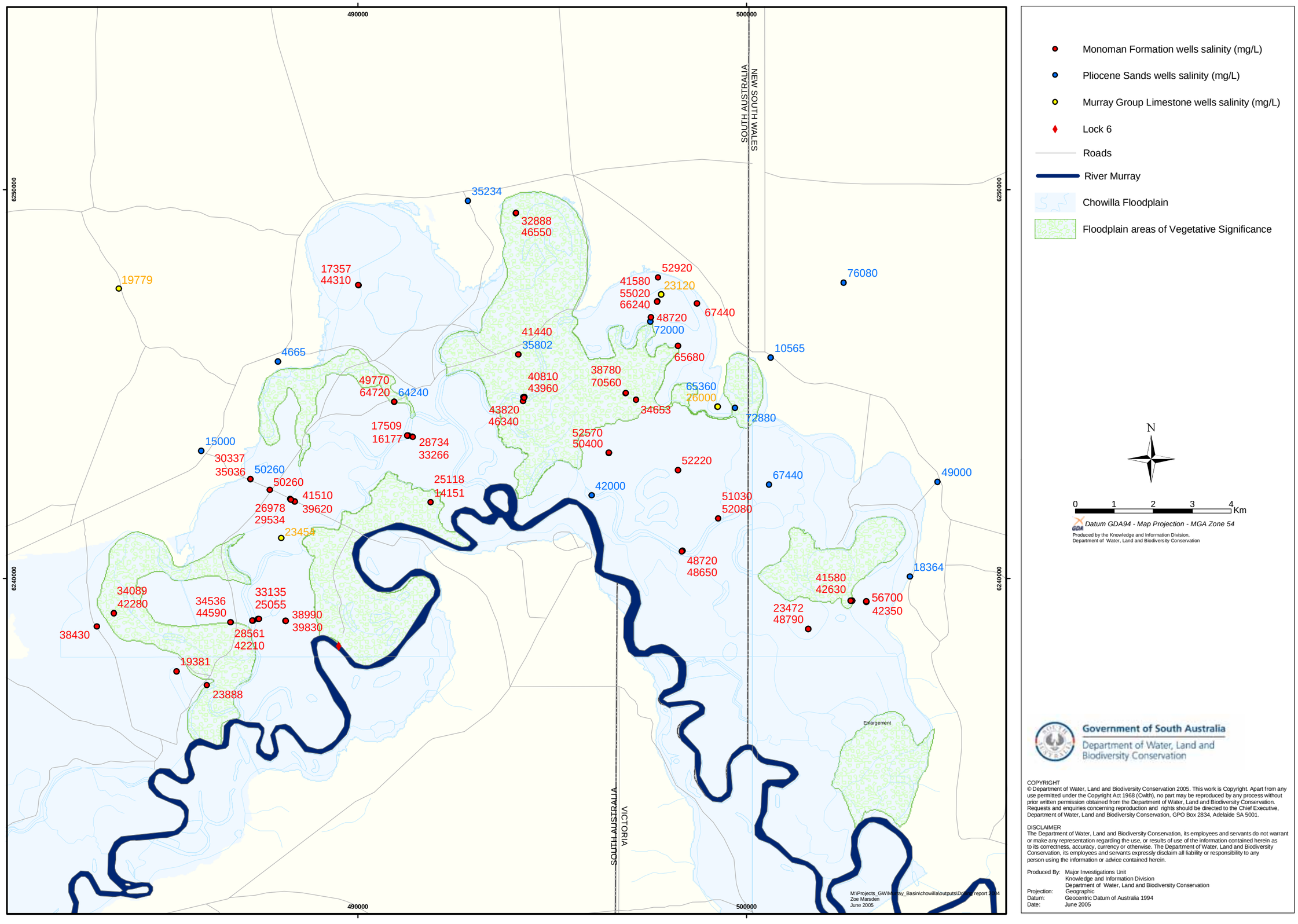
Groundwater and surface water interaction along creek lines is spatially and temporally variable. Recent groundwater levels from creek sites indicate little difference between adjacent wells and therefore, it cannot be deduced whether groundwater is flowing towards the creek or away from it. These wells may be of more value if they had data loggers installed to obtain continuous level readings. Furthermore, water levels in adjacent creeks (at the closest monitoring stations) should be monitored in conjunction with groundwater levels. This will enable determination of losing and gaining reaches of various creeks.

The potentiometric head of the Murray Group Limestone aquifer is elevated several metres above that of the overlying aquifers, providing the potential for upward leakage. However, the confining effects of the Bookpurnong restrict such vertical fluxes.

4.3 Salinity

Table 4 gives salinities for wells drilled in 2004. Figure 8 gives a salinity distribution map of the Chowilla region (where data is available). Groundwater salinities vary across the floodplain from 4000–70 000 mg/L, generally being higher on the eastern side of the floodplain.

The deeper wells (completed in the lower Monoman Formation sub-aquifer) at the Monoman Formation sites are typically higher in salinity than those wells completed in the upper part of the aquifer. This salinity difference varies from 1000–32 000 mg/L. Salinity in the wells screened in the Pliocene Sands aquifer also have a variable salinity range from 4000–76 000 mg/L. Such a large variation in both aquifers highlights the complexity of groundwater systems and groundwater-surface water interactions.



Produced By: Major Investigations Unit
Knowledge and Information Division
Department of Water, Land and Biodiversity Conservation
Projection: Geographic
Datum: Geocentric Datum of Australia 1994
Date: June 2005

Figure 8: Salinity distribution across the Chowilla floodplain

5. CONCLUSIONS AND RECOMMENDATIONS

This report provides a detailed assessment of the monitoring network upgrade and expansion across the Chowilla floodplain in South Australia and New South Wales.

5.1 Outcomes Against Objectives

The objectives and outcomes of the investigation are discussed below.

- **Objective: Upgrade and expand current monitoring network.**

  Outcome: Thirty-seven new wells have been drilled on the Chowilla floodplain in the Monoman Formation. Two wells were also completed in the highland region, one screened in the Pliocene Sands Aquifer and the other in the Murray Group Limestone Aquifer. Fourteen pre-existing wells were also rehabilitated to remove silts and fine sands that had entered the wells and blocked the screens.

- **Objective: Provide accurate potentiometric surface plans of the upper Monoman Formation, Pliocene Sands Aquifer and the Murray Group Limestone Aquifer.**

  Outcome: Groundwater head data was collected from new wells to create a more extensive potentiometric surface plan of the floodplain in the Monoman, Pliocene Sands and Murray Group Limestone aquifers. A number of these wells were completed in areas once lacking in data. The data collected from these wells has enabled a more accurate generation of potentiometric surface plans.

- **Objective: Improve the current understanding of the hydrogeologic regime operating across the floodplain.**

  Outcome: New wells have been completed at strategic locations to address groundwater responses to flood events. Several wells have also been completed in areas where hydrogeological information was lacking. Groundwater head and salinity data collected from these new sites have already contributed to a more detailed hydrogeological assessment of the Chowilla floodplain.

- **Objective: Provide enhanced salinity data.**

  Outcome: Groundwater samples collected from all completed sites were tested for salinity. This helped in highlighting the areas of higher salinity and hence, possible spots that may be targeted for further SIS investigations. Salinity data was also used in density corrections to provide a more accurate understanding of the groundwater head differences between aquifers.

- **Objective: Gain greater knowledge of the spatial distribution and thickness of aquifers and aquitards on the floodplain.**

  Outcome: Lithological logs were prepared during the drilling of new wells. This data has been incorporated with logs from pre-existing wells to provide a greater understanding of the thickness of semi-confining layers, aquifers and the geological distribution of any aquitards.

- **Objective: Determine the hydraulic relationship between creeks and adjacent aquifers.**

  Outcome: Several wells have been installed along creeks to ascertain groundwater/surface water interactions. However, at present there is insufficient data from these new sites to conclusively understand groundwater/surface water interactions. However, it is hoped that regular monitoring of these sites will provide insight into the hydraulic relationship between the two.

- **Objective: Provide greater confidence in understanding temporal variations to levels and hydraulic response of aquifers to recharge and major flood events.**

  Outcome: A new comprehensive and well-ordered monitoring network has been constructed in strategic locations to monitor groundwater levels in the floodplain. The monitoring of these wells will initially be conducted on a monthly basis to allow study of hydraulic response of the aquifers to seasonal fluctuations. It is recommended that selected wells be monitored using data loggers during flood events will which provide valuable information crucial to the design of any groundwater management schemes.

5.2 Recommendations

1. Further attempts should be made to access the southeastern side of the Chowilla floodplain to install more monitoring wells as originally planned. There is an evident lack of both water level and salinity data from that area which would aid in the generation of more accurate potentiometric surface plans.
2. Highland wells that monitor the Murray Group Limestone Aquifer within 1.5 km of the Chowilla floodplain should be located and incorporated into the Chowilla monitoring network. Current data shows that some of these wells have not had groundwater levels measured for ten years. Therefore, there is a need to gain more up-to-date data for the Murray Group Limestone aquifer potentiometric surface plan. Such wells would only need annual monitoring.
3. Install four wells south of the River Murray in the Murtho highland region to enable preparation of a more accurate potentiometric surface plan of the Monoman Formation/Pliocene Sands aquifer. Wells should be placed in strategic locations and be evenly spaced along the river.
4. Install data loggers in selected creek wells to gain continuous groundwater level readings to improve the understanding of surface water and groundwater interaction. Manual groundwater readings should be maintained on a monthly basis to validate the logger data. Creek water levels should also be monitored in conjunction with manual groundwater level measurements at specified gauging stations to determine the extent of groundwater/surface water interactions.
5. Resurvey all wells (both ground elevation and top of casing) in the monitoring network to eliminate any anomalies in elevation data.

APPENDIXES

A. Drilling Reports

Unit No: 7030 657 **Obs Well No:** CHW 71 **DH No:** 199058

SCHEDULE EIGHT --- FORM FOUR
GOVERNMENT OF SOUTH AUSTRALIA
Water Resources Act, 1997

DRILLERS WELL CONSTRUCTION REPORT

As the person responsible for the work carried out on this well
I advise that it has been completed as described below:

1. PERMIT NO: 64252
2. WELL UNIT NO:
3 WELL NAME:

4. LOCATION OF WELL
Hundred or Pastoral Lease No:
Section..... Lot No..... Site No .....
Name of Property.....

Name of Driller Craig Shiel Licence No: 342S
Name of plant operator if under supervision .....

Permit holder or land occupier.....
Postal Address .....
..... Post Code .....

5. SUMMARY
Date work Commenced 19-3-04 Date work Completed 19-3-04
Work carried out: New Well ☑ Existing Well ☐ , deepen ☐ , enlarge ☐ , rehabilitate ☐, backfill ☐ (tick appropriate boxes)
Replacement Well: Yes ☐ / No ☐ Replaced Well No:.....
Maximum Depth Drilled.....(m) Final Depth..... (m) Final Standing Water Level ..... (m) Final Yield.....(L/sec)
Was Well Abandoned Yes ☐ / No ☑ If Yes, state method.....

6. DRILLING DETAILS If not a drilled well please complete sections 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc	Fluid Used (Air, Water, Mud Type)
0	8		Rot Blade	Mud

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/Sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions From (m)	To (m)	Internal Diam. (mm)	7.2 Type Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	7.3 Casing Cemented Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	8	80	PVC	☑	☐	0	5					
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details: .....

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam. (mm)	Material	Trade Name	Completion of Base
PVC	6	8		90	80			Natural

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Bucket		5	8

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air Lift		

11. PUMPING TEST (measurements from natural surface to nearest 0.1 m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES
The provision of the Water Resources Act and Regulations thereto require that strata and water samples must be obtained If any samples have not been obtained state reasons

.....

.....

Signature of Licensed Driller *Date* 19.3.04

13. FORMATION LOG

From (m)	To (m)	Description of Material
		491300
		6243676

ENTERED
DATE BY

Driller to forward this Copy within 14 days of completion to:
Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

7030 657

Unit No: 7030 658 **Obs Well No:** CHW 66 **DH No:** 199059

SCHEDULE EIGHT --- FORM FOUR
GOVERNMENT OF SOUTH AUSTRALIA
Water Resources Act, 1997

DRILLERS WELL CONSTRUCTION REPORT

1. PERMIT NO: 64237
2. WELL UNIT NO:
3 WELL NAME:

4. LOCATION OF WELL
Hundred or Pastoral Lease No:
Section: Lot No: Site No:
Name of Property:

As the person responsible for the work carried out on this well
I advise that it has been completed as described below:

Name of Driller: Craig Steil Licence No: 342 S
Name of plant operator if under supervision:

Permit holder or land occupier:
Postal Address:
Post Code:

5. SUMMARY
Date work Commenced: 18-3-04 Date work Completed: 18-3-04
Work carried out: New Well ☑, Existing Well ☐, deepen ☐, enlarge ☐, rehabilitate ☐, backfill ☐ (tick appropriate boxes)
Replacement Well: Yes ☐ / No ☐ Replaced Well No:
Maximum Depth Drilled: 10 (m) Final Depth: 10 (m) Final Standing Water Level: (m) Final Yield: (L/sec)
Was Well Abandoned Yes ☐ / No ☑ If Yes, state method:

6. DRILLING DETAILS If not a drilled well please complete sections 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	10		Rot Blade	Mud

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/Sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	10	80	PVC	☑	☐	0	8				Tremie	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam. (mm)	Material	Trade Name	Completion of Base
PVC	7	10		80	90			Natural

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam. (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Bucket		6	10

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air Lift		

11. PUMPING TEST (measurements from natural surface to nearest 0.1 m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES
The provision of the Water Resources Act and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

Signature of Licensed Driller [signature] *Date* 18/3/04

13. FORMATION LOG

From (m)	To (m)	Description of Material
		489887
		6247330

Driller to forward this Copy within 14 days of completion to: Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

ENTERED
DATE BY

7030 658

Unit No: 7030 659 **Obs Well No:** CHW 67 **DH No:** 199060

SCHEDULE EIGHT --- FORM FOUR

GOVERNMENT OF SOUTH AUSTRALIA

Water Resources Act, 1997

DRILLERS WELL CONSTRUCTION REPORT

1. PERMIT NO: 64238
2. WELL UNIT NO:
3. WELL NAME:

4. LOCATION OF WELL
Hundred or Pastoral Lease No:
Section.......... Lot No.......... Site No ....
Name of Property

As the person responsible for the work carried out on this well I advise that it has been completed as described below:

Name of Driller Craig Steil Licence No: 3425
Name of plant operator if under supervision

Permit holder or land occupier
Postal Address
Post Code

5. SUMMARY

Date work Commenced 18-3-04 Date work Completed 18-3-04

Work carried out: New Well ☑, Existing Well ☐, deepen ☐, enlarge ☐, rehabilitate ☐, backfill ☐ (tick appropriate boxes)

Replacement Well: Yes ☐ / No ☐ Replaced Well No:

Maximum Depth Drilled 20 (m) Final Depth 20 (m) Final Standing Water Level.......(m) Final Yield.......(L/sec)

Was Well Abandoned Yes ☐ / No ☑ If Yes, state method

6. DRILLING DETAILS If not a drilled well please complete sections 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc	Fluid Used (Air, Water, Mud Type)
0	18		Rot Blade	Mud

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/Sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	18	80	PVC	☑ ☐	0	15					
				☐ ☐							
				☐ ☐							
				☐ ☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
- ☐ Open Hole
- ☑ Slotted Casing
- ☐ Screen(s)
- ☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam. (mm)	Material	Trade Name	Completion of Base
PVC	17	20		80	90			Natural

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam. (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Bucket		16	20

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air lift		

11. PUMPING TEST (measurements from natural surface to nearest 0.1 m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

13. FORMATION LOG

From (m)	To (m)	Description of Material
		489887
		6247330

12. SAMPLES

The provision of the Water Resources Act and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

Signature of Licensed Driller [signature] *Date* 18/3/04

Driller to forward this Copy within 14 days of completion to: **Primary Industries and Resources SA**
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

ENTERED
DATE BY

7030 659

Unit No: 7030 661 **Obs Well No:** CHW 79 **DH No:** 199062

SCHEDULE EIGHT --- FORM FOUR
GOVERNMENT OF SOUTH AUSTRALIA
Water Resources Act, 1997

DRILLERS WELL CONSTRUCTION REPORT

1. PERMIT NO: 64261
2. WELL UNIT NO:
3 WELL NAME:

4. LOCATION OF WELL
Hundred or Pastoral Lease No:
Section: Lot No: Site No:
Name of Property:

As the person responsible for the work carried out on this well I advise that it has been completed as described below:

Name of Driller: Craig Sheil Licence No: 3425
Name of plant operator if under supervision:

Permit holder or land occupier:
Postal Address:
Post Code:

5. SUMMARY

Date work Commenced: 17-3-04 Date work Completed: 17-3-04
Work carried out: New Well ☑, Existing Well ☐, deepen ☐, enlarge ☐, rehabilitate ☐, backfill ☐ (tick appropriate boxes)
Replacement Well: Yes ☐ / No ☐ Replaced Well No:
Maximum Depth Drilled: 8 (m) Final Depth: 8 (m) Final Standing Water Level: (m) Final Yield: (L/sec)
Was Well Abandoned Yes ☐ / No ☑ If Yes, state method:

6. DRILLING DETAILS

If not a drilled well please complete sections 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	8		Rot Blade	Bio Vis

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/Sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	8	80	PVC	☑	☐	0	4½				Tremie	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam. (mm)	Material	Trade Name	Completion of Base
PVC	6	8		80	90			Natural

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Bucket		5	8

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air Lift		

11. PUMPING TEST (measurements from natural surface to nearest 0.1 m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

Signature of Licensed Driller [signature] *Date* 23/04

13. FORMATION LOG

From (m)	To (m)	Description of Material
		494300
		6244646

Driller to forward this Copy within 14 days of completion to: **Primary Industries and Resources SA**
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

7030 661

Unit No: 7030 662 **Obs Well No:** CHW 77 **DH No:** 199063

SCHEDULE EIGHT --- FORM FOUR

GOVERNMENT OF SOUTH AUSTRALIA

Water Resources Act, 1997

DRILLERS WELL CONSTRUCTION REPORT

1. PERMIT NO: 64259
2. WELL UNIT NO:
3. WELL NAME:

4. LOCATION OF WELL

Hundred or Pastoral Lease No:

Section.......... Lot No.......... Site No ....

Name of Property

As the person responsible for the work carried out on this well I advise that it has been completed as described below:

Name of Driller Craig Sheil Licence No: 3425

Name of plant operator if under supervision

Permit holder or land occupier

Postal Address

Post Code

5. SUMMARY

Date work Commenced 17-3-04 Date work Completed 17-3-04

Work carried out: New Well ☑, Existing Well ☐, deepen ☐, enlarge ☐, rehabilitate ☐, backfill ☐ (tick appropriate boxes)

Replacement Well: Yes ☐ / No ☐ Replaced Well No:

Maximum Depth Drilled 5 (m) Final Depth 5 (m) Final Standing Water Level (m) Final Yield (L/sec)

Was Well Abandoned Yes ☐ / No ☑ If Yes, state method

6. DRILLING DETAILS If not a drilled well please complete sections 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer etc.	Fluid Used (Air, Water, Mud Type)
0	5		RotBlade	Biovis

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/Sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	5	80	PVC	☑ ☐	0	1					
				☐ ☐							
				☐ ☐							
				☐ ☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole

☑ Slotted Casing

☐ Screen(s)

☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam. (mm)	Material	Trade Name	Completion of Base
PVC	2	5		80	90	PVC		Natural

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Bucket		1	5

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air lift		

11. PUMPING TEST (measurements from natural surface to nearest 0.1 m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

13. FORMATION LOG

From (m)	To (m)	Description of Material
		494227
		6249303

Signature of Licensed Driller [signature] *Date* 17 3 04

Driller to forward this Copy, within 14 days of completion to: **Primary Industries and Resources SA**
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

7030 662

Unit No: 7030 663 **Obs Well No:** CHW 78 **DH No:** 199064

SCHEDULE EIGHT --- FORM FOUR

GOVERNMENT OF SOUTH AUSTRALIA

Water Resources Act, 1997

DRILLERS WELL CONSTRUCTION REPORT

1. PERMIT NO: 64260
2. WELL UNIT NO:
3. WELL NAME:

4. LOCATION OF WELL
Hundred or Pastoral Lease No:
Section. Lot No. Site No
Name of Property

As the person responsible for the work carried out on this well I advise that it has been completed as described below:

Name of Driller: Craig Sheil Licence No: 3425
Name of plant operator if under supervision
Permit holder or land occupier
Postal Address
Post Code

5. SUMMARY

Date work Commenced 17-3-04 Date work Completed 17-3

Work carried out: New Well ☑, Existing Well ☐, deepen ☐, enlarge ☐, rehabilitate ☐, backfill ☐ (tick appropriate boxes)

Replacement Well: Yes ☐ / No ☐ Replaced Well No:

Maximum Depth Drilled 20 (m) Final Depth 20 (m) Final Standing Water Level (m) Final Yield (L/sec)

Was Well Abandoned Yes ☐ / No ☑ If Yes, state method

6. DRILLING DETAILS If not a drilled well please complete sections 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details / 6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)	Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/Sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste
0	20		Rot Blade	Bio-650	17-3	17	20						

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	20	80	PVC	☑ ☐	0	15					
				☐ ☐							
				☐ ☐							
				☐ ☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam. (mm)	Material	Trade Name	Completion of Base
PVC	17	20		80	90			Natural

8.3 Liner Seal (Packer) / 8.4 Gravel Packing

Material	Depth (m)	Internal Diam. (mm)	Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
			Bucket		16	20

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air lift		

11. PUMPING TEST (measurements from natural surface to nearest 0.1 m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

13. FORMATION LOG

From (m)	To (m)	Description of Material
		494227
		6249303

12. SAMPLES

The provision of the Water Resources Act and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

Signature of Licensed Driller [signature] *Date* 17/3/04

Driller to forward this Copy within 14 days of completion to: **Primary Industries and Resources SA**
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

7030 663

Unit No: 7030 664 **Obs Well No:** CHW 82 **DH No:** 199065

SCHEDULE EIGHT --- FORM FOUR
GOVERNMENT OF SOUTH AUSTRALIA
Water Resources Act, 1997

DRILLERS WELL CONSTRUCTION REPORT

As the person responsible for the work carried out on this well
I advise that it has been completed as described below:

1. PERMIT NO: 64264
2. WELL UNIT NO:
3 WELL NAME:

4. LOCATION OF WELL
Hundred or Pastoral Lease No:
Section..... Lot No..... Site No .....
Name of Property.....

Name of Driller ..... Licence No: 342S
Name of plant operator if under supervision .....

Permit holder or land occupier .....
Postal Address .....
..... Post Code .....

5. SUMMARY
Date work Commenced 16-3-04 Date work Completed 16-3-04
Work carried out: New Well ☑, Existing Well ☐, deepen ☐, enlarge ☐, rehabilitate ☐, backfill ☐ (tick appropriate boxes)
Replacement Well: Yes ☐ / No ☐ Replaced Well No:
Maximum Depth Drilled 9m (m) Final Depth 9 (m) Final Standing Water Level .....(m) Final Yield.....(L/sec)
Was Well Abandoned Yes ☐ / No ☑ If Yes, state method.....

6. DRILLING DETAILS If not a drilled well please complete sections 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details / 6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc	Fluid Used (Air, Water, Mud Type)	Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/Sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste
0	9		Rot Blade	Bio/650	16.3	7	9						

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	9	80	PVC	☑	☐	0	5					
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details: .....

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam. (mm)	Material	Trade Name	Completion of Base
PVC	7	9		80	90			Natural

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam. (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Bucket		6	9

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air Lift		

11. PUMPING TEST (measurements from natural surface to nearest 0.1 m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES
The provision of the Water Resources Act and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

.....

Signature of Licensed Driller ..... *Date* 16/3/04

13. FORMATION LOG

From (m)	To (m)	Description of Material
		4942247
		6244603

Driller to forward this Copy within 14 days of completion to:
Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

ENTERED
DATE BY

7030 664

Unit No: 7030 665 **Obs Well No:** CHW 81 **DH No:** 199066

SCHEDULE EIGHT --- FORM FOUR
GOVERNMENT OF SOUTH AUSTRALIA
Water Resources Act, 1997

DRILLERS WELL CONSTRUCTION REPORT

1. PERMIT NO: 64263
2. WELL UNIT NO:
3 WELL NAME:

4. LOCATION OF WELL
Hundred or Pastoral Lease No:
Section........ Lot No........ Site No ....
Name of Property

As the person responsible for the work carried out on this well I advise that it has been completed as described below:

Name of Driller: Craig Steil Licence No: 3425
Name of plant operator if under supervision
Permit holder or land occupier
Postal Address
Post Code

5. SUMMARY
Date work Commenced: 12-3-04 Date work Completed: 12-3-04
Work carried out: New Well ☑, Existing Well ☐, deepen ☐, enlarge ☐, rehabilitate ☐, backfill ☐ (tick appropriate boxes)
Replacement Well: Yes ☐ / No ☐ Replaced Well No:
Maximum Depth Drilled: 9 (m) Final Depth: 9 (m) Final Standing Water Level........(m) Final Yield........(L/sec)
Was Well Abandoned Yes ☐ / No ☑ If Yes, state method

6. DRILLING DETAILS If not a drilled well please complete sections 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details / 6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)	Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/Sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste
0	9		Rot Blade	Biovis/650	12-3-04	7	9						

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc	Yes / No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	9	80	PVC	☑ Yes	0	8					
				☐ ☐							
				☐ ☐							
				☐ ☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam. (mm)	Material	Trade Name	Completion of Base
PVC	7	9		80	90			Natural

8.3 Liner Seal (Packer) / 8.4 Gravel Packing

Material	Depth (m)	Internal Diam. (mm)	Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
			Bucket		6	9

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air lift		

11. PUMPING TEST (measurements from natural surface to nearest 0.1 m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

13. FORMATION LOG

From (m)	To (m)	Description of Material
		494224
		6244603

12. SAMPLES
The provision of the Water Resources Act and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

Signature of Licensed Driller [signature] *Date* 12/3/04

Driller to forward this Copy within 14 days of completion to: **Primary Industries and Resources SA**
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

ENTERED
DATE BY

7030 665

SCHEDULE EIGHT --- FORM FOUR

GOVERNMENT OF SOUTH AUSTRALIA

Water Resources Act, 1997

DRILLERS WELL CONSTRUCTION REPORT

1. PERMIT NO: 64270
2. WELL UNIT NO:
3 WELL NAME:

4. LOCATION OF WELL
Hundred or Pastoral Lease No:
Section........ Lot No........ Site No ....
Name of Property

As the person responsible for the work carried out on this well I advise that it has been completed as described below:

Name of Driller Craig Sheil Licence No: 3425

Name of plant operator if under supervision

Permit holder or land occupier

Postal Address

Post Code

5. SUMMARY

Date work Commenced 12-3-04 Date work Completed 12-3-04

Work carried out: New Well ☑, Existing Well ☐, deepen ☐, enlarge ☐, rehabilitate ☐, backfill ☐ (tick appropriate boxes)

Replacement Well: Yes ☐ / No ☐ Replaced Well No:

Maximum Depth Drilled 6 (m) Final Depth 6 (m) Final Standing Water Level ....(m) Final Yield ....(L/sec)

Was Well Abandoned Yes ☐ / No ☑ If Yes, state method

6. DRILLING DETAILS If not a drilled well please complete sections 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	6		Rot Blade	Bio Vis

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/Sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste
12-3	4	6						

7. CASING LEFT IN WELL

7.1 Dimensions From (m)	To (m)	Internal Diam. (mm)	7.2 Type Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	7.3 Casing Cemented Yes / No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	6	80	PVC	☑ Yes ☐ No	0	2					
				☐ ☐							
				☐ ☐							
				☐ ☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
- ☐ Open Hole
- ☑ Slotted Casing
- ☐ Screen(s)
- ☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam. (mm)	Material	Trade Name	Completion of Base
PVC	4	6		80	90	PVC		Natural

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam. (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Bucket		0	3

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air Lift		

11. PUMPING TEST (measurements from natural surface to nearest 0.1 m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

13. FORMATION LOG

From (m)	To (m)	Description of Material
		496881
		6244755

12. SAMPLES

The provision of the Water Resources Act and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

Signature of Licensed Driller [signature] *Date* 12/3/04

Driller to forward this Copy within 14 days of completion to: **Primary Industries and Resources SA**
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

ENTERED
DATE BY

7030 666

Unit No: 7030 667 **Obs Well No:** CHW 84 **DH No:** 199068

SCHEDULE EIGHT --- FORM FOUR

GOVERNMENT OF SOUTH AUSTRALIA

Water Resources Act, 1997

DRILLERS WELL CONSTRUCTION REPORT

1. PERMIT NO: 64271

2. WELL UNIT NO:

3 WELL NAME:

4. LOCATION OF WELL

Hundred or Pastoral Lease No:

Section..... Lot No..... Site No .....

Name of Property.....

As the person responsible for the work carried out on this well
I advise that it has been completed as described below:

Name of Driller ..... Craig Steil Licence No: 342S

Name of plant operator if under supervision .....

Permit holder or land occupier.....

Postal Address .....

..... Post Code .....

5. SUMMARY

Date work Commenced ..... 11-3-04 Date work Completed 11-3-04

Work carried out: New Well ☑, Existing Well ☐, deepen ☐, enlarge ☐, rehabilitate ☐, backfill ☐ (tick appropriate boxes)

Replacement Well: Yes ☐ / No ☐ Replaced Well No:.....

Maximum Depth Drilled 18 (m) Final Depth 18 (m) Final Standing Water Level .....(m) Final Yield.....(L/sec)

Was Well Abandoned Yes ☐ / No ☑ If Yes, state method.....

6. DRILLING DETAILS If not a drilled well please complete sections 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	18		RotBack	Air/Foam

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/Sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste
11-3-04	15	18						

7. CASING LEFT IN WELL

7.1 Dimensions From (m)	To (m)	Internal Diam. (mm)	7.2 Type Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	7.3 Casing Cemented Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	18	80	PVC	☑	☐	0	13					
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:.....

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam. (mm)	Material	Trade Name	Completion of Base
PVC	15	18		80	90	PVC		Natural

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam. (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Bucket		14	18

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air lift		

11. PUMPING TEST (measurements from natural surface to nearest 0.1 m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

.....

.....

Signature of Licensed Driller ..... *Date* 1.3.04

13. FORMATION LOG

From (m)	To (m)	Description of Material
		496881
		6244755

Driller to forward this Copy within 14 days of completion to: **Primary Industries and Resources SA**
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

ENTERED
DATE BY

7030 667

Unit No: 7030 668 **Obs Well No:** CHW 90 **DH No:** 199069

SCHEDULE EIGHT --- FORM FOUR
GOVERNMENT OF SOUTH AUSTRALIA
Water Resources Act, 1997

DRILLERS WELL CONSTRUCTION REPORT

1. PERMIT NO: 64278
2. WELL UNIT NO:
3 WELL NAME:

4. LOCATION OF WELL
Hundred or Pastoral Lease No:
Section.......... Lot No.......... Site No ....
Name of Property

As the person responsible for the work carried out on this well I advise that it has been completed as described below:

Name of Driller Craig Sheil Licence No: 3425
Name of plant operator if under supervision

Permit holder or land occupier
Postal Address
Post Code

5. SUMMARY
Date work Commenced 11-3-04 Date work Completed 11-3-04
Work carried out: New Well ☑, Existing Well ☐, deepen ☐, enlarge ☐, rehabilitate ☐, backfill ☐ (tick appropriate boxes)
Replacement Well: Yes ☐ / No ☐ Replaced Well No:
Maximum Depth Drilled 8 (m) Final Depth 8 (m) Final Standing Water Level (m) Final Yield (L/sec)
Was Well Abandoned Yes ☐ / No ☑ If Yes, state method

6. DRILLING DETAILS If not a drilled well please complete sections 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details / 6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)	Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/Sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste
0	8		Rot Blade	Bio Vis	11.3.04	6	8						

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	8	80	PVC	☑ ☐	0	4				Tremie	
				☐ ☐							
				☐ ☐							
				☐ ☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam. (mm)	Material	Trade Name	Completion of Base
PVC	6	8		80	90			Natural

8.3 Liner Seal (Packer) / 8.4 Gravel Packing

Material	Depth (m)	Internal Diam. (mm)	Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
			Bucket		5	8

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air lift		

11. PUMPING TEST (measurements from natural surface to nearest 0.1 m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

13. FORMATION LOG

From (m)	To (m)	Description of Material
		498312
		6240715

12. SAMPLES
The provision of the Water Resources Act and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

Signature of Licensed Driller [signature] *Date* 11 3 04

Driller to forward this Copy within 14 days of completion to: **Primary Industries and Resources SA**
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

ENTERED
DATE BY

7030 668

Unit No: 7030 669 **Obs Well No:** CHW 89 **DH No:** 199070

SCHEDULE EIGHT --- FORM FOUR
GOVERNMENT OF SOUTH AUSTRALIA
Water Resources Act, 1997

DRILLERS WELL CONSTRUCTION REPORT

1. PERMIT NO: 64277
2. WELL UNIT NO:
3. WELL NAME:

4. LOCATION OF WELL
Hundred or Pastoral Lease No:
Section: Lot No: Site No:
Name of Property:

As the person responsible for the work carried out on this well I advise that it has been completed as described below:

Name of Driller: Craig Sheil Licence No: 3425
Name of plant operator if under supervision:

Permit holder or land occupier:
Postal Address:
Post Code:

5. SUMMARY

Date work Commenced: 11.3.04 Date work Completed: 11.3.04

Work carried out: New Well ☑, Existing Well ☐, deepen ☐, enlarge ☐, rehabilitate ☐, backfill ☐ (tick appropriate boxes)

Replacement Well: Yes ☐ / No ☐ Replaced Well No:

Maximum Depth Drilled: 8 (m) Final Depth: 8 (m) Final Standing Water Level: (m) Final Yield: (L/sec)

Was Well Abandoned Yes ☐ / No ☑ If Yes, state method:

6. DRILLING DETAILS If not a drilled well please complete sections 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	8		Rot Blade	BioVis

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/Sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste
11.3.04								

7. CASING LEFT IN WELL

7.1 Dimensions From (m)	To (m)	Internal Diam. (mm)	7.2 Type Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	7.3 Casing Cemented Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	8		PVC	☐	☐	0	4				Tremie	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam. (mm)	Material	Trade Name	Completion of Base
PVC	6	8		80	90			Natural

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam. (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Bucket		5	8

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air Lift		

11. PUMPING TEST (measurements from natural surface to nearest 0.1 m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES
The provision of the Water Resources Act and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

13. FORMATION LOG

From (m)	To (m)	Description of Material
		498312
		6240715

Signature of Licensed Driller [signature] *Date* 11.3.04

Driller to forward this Copy, within 14 days of completion to: **Primary Industries and Resources SA**
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

7030 669

Unit No: 7030 670 **Obs Well No:** CHW 87 **DH No:** 199071

SCHEDULE EIGHT --- FORM FOUR

GOVERNMENT OF SOUTH AUSTRALIA

Water Resources Act, 1997

DRILLERS WELL CONSTRUCTION REPORT

1. PERMIT NO: 64275
2. WELL UNIT NO:
3 WELL NAME:

4. LOCATION OF WELL

Hundred or Pastoral Lease No:

Section Lot No Site No

Name of Property

As the person responsible for the work carried out on this well
I advise that it has been completed as described below:

Name of Driller Craig Sheil Licence No: 3425

Name of plant operator if under supervision

Permit holder or land occupier

Postal Address

Post Code

5. SUMMARY

Date work Commenced 10-3-04 Date work Completed 10-3-04

Work carried out: New Well ☑, Existing Well ☐, deepen ☐, enlarge ☐, rehabilitate ☐, backfill ☐ (tick appropriate boxes)

Replacement Well: Yes ☐ / No ☐ Replaced Well No

Maximum Depth Drilled 10 (m) Final Depth 10 (m) Final Standing Water Level (m) Final Yield (L/sec)

Was Well Abandoned Yes ☐ / No ☑ If Yes, state method

6. DRILLING DETAILS If not a drilled well please complete sections 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc	Fluid Used (Air, Water, Mud Type)
0	10		Rot Blade	BioVis

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/Sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste
10.3	7	10						

7. CASING LEFT IN WELL

7.1 Dimensions From (m)	To (m)	Internal Diam (mm)	7.2 Type Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	7.3 Casing Cemented Yes No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	10		PVC	☑ ☐	0	6			Bentonite	Tremie	
				☐ ☐							
				☐ ☐							
				☐ ☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam. (mm)	Material	Trade Name	Completion of Base
PVC	7	10				PVC		Natural.

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam. (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Bucket		6	10

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air lift		

11. PUMPING TEST (measurements from natural surface to nearest 0.1 m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

Signature of Licensed Driller [signature] *Date* 03/04

13. FORMATION LOG

From (m)	To (m)	Description of Material
		499124
		6241364

Driller to forward this Copy within 14 days of completion to: **Primary Industries and Resources SA**
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

7030 670

Unit No: 7030 671 **Obs Well No:** CHW 88 **DH No:** 199072

SCHEDULE EIGHT --- FORM FOUR
GOVERNMENT OF SOUTH AUSTRALIA
Water Resources Act, 1997

DRILLERS WELL CONSTRUCTION REPORT

1. PERMIT NO: 64276
2. WELL UNIT NO:
3 WELL NAME:

4. LOCATION OF WELL
Hundred or Pastoral Lease No:
Section..... Lot No..... Site No .....
Name of Property.....

As the person responsible for the work carried out on this well
I advise that it has been completed as described below:

Name of Driller ..... Licence No: 342S
Name of plant operator if under supervision .....

Permit holder or land occupier.....
Postal Address .....
..... Post Code .....

5. SUMMARY
Date work Commenced 10.3.04 Date work Completed 10.3.04
Work carried out: New Well ☑, Existing Well ☐, deepen ☐, enlarge ☐, rehabilitate ☐, backfill ☐ (tick appropriate boxes)
Replacement Well: Yes ☐ / No ☐ Replaced Well No:.....
Maximum Depth Drilled 18 (m) Final Depth 18 (m) Final Standing Water Level.....(m) Final Yield.....(L/sec)
Was Well Abandoned Yes ☐ / No ☑ If Yes, state method.....

6. DRILLING DETAILS If not a drilled well please complete sections 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer etc.	Fluid Used (Air, Water, Mud Type)
0	18		Blade	Bio-Vis

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/Sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste
10.3.04	15	18						

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	18		PVC	☑	☐	0	14			Bentonite	Tremie	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:.. .....

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam. (mm)	Material	Trade Name	Completion of Base
PVC	15	18				PVC		Natural

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam. (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Bucket	8/16	14	18

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air Lift		

11. PUMPING TEST (measurements from natural surface to nearest 0.1 m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES
The provision of the Water Resources Act and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

Signature of Licensed Driller ..... *Date* / /

Driller to forward this Copy within 14 days of completion to: **Primary Industries and Resources SA**
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

ENTERED
DATE BY

13. FORMATION LOG

From (m)	To (m)	Description of Material
		499124
		6241364

7030 671

Unit No: 7030 695 **Obs Well No:** CHW 49 **DH No:** 201118

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 0 9 Site

NAME OF DRILLER C. Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES

☑ GDA 94/WGS84
☐ AGD 66/84

483756
6239123

☑ ZONE 54
☐ ZONE 53
☐ ZONE 52

3. WELL NAME 64209

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: –

File/Section /Parcel ID

Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 25/3/04 Date work Completed 25/3/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 8.76 (m) Final Depth 8.76 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	8.76	135	Rotary Auger	Mud (Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.
0	5.76	80	PVC

7.3 Casing Cemented

Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
☑	☐	0	4					
☐	☐							
☐	☐							
☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
	5.76	8.76	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	4.76	8.76

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		20

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller ..... *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

ENTERED DATA BY

Driller to deliver this copy together with well completion log and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 695

Unit No: 7030 696 **Obs Well No:** CHW 50 **DH No:** 201119

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 1 0 Site

NAME OF DRILLER C. Sheil Licence No: 342S

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPS SL

GPS COORDINATES

☑ GDA 94/WGS84 ☐ AGD 66/84

483755

6239118

☑ ZONE 54 ☐ ZONE 53 ☐ ZONE 52

3. WELL NAME 6421O

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: –

File/Section /Parcel ID

Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 24/3/04 Date work Completed 24/3/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 20.62 (m) Final Depth 20.62 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	20.62	135	Rotary Auger	Mud (Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	17.62	80	PVC	☑	☐	0	16					
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	17.62	20.62	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	16.5	20.62

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		20

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

ENTERED DATA

Driller to deliver this copy together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 696

Unit No: 7030 698 **Obs Well No:** CHW 51 **DH No:** 201121

GOVERNMENT OF SOUTH AUSTRALIA
DRILLERS WELL CONSTRUCTION REPORT
Water Resources Act, 1997

1. PERMIT NO: 6 4 2 1 2 [ ] Site [ ] [ ]

NAME OF DRILLER C. Sheil Licence No: 3425
Contact Phone/Mobile No.:
Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC
Postal Address GPO Box 2834, Adelaide
Post Code 5001

2. LOCATION OF WELL
Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES
☑ GDA 94/WGS84
☐ AGD 66/84

486748
6238891

☑ ZONE 54
☐ ZONE 53
☐ ZONE 52

3. WELL NAME 64212

4. LAND IDENTIFICATION
Hundred or Pastoral Lease No: —
File/Section /Parcel ID
Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*
Date work Commenced 23/3/04 Date work Completed 23/3/04
Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐
Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number
Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**
Was well Abandoned? ~~YES~~/NO if yes please state method
Maximum Depth Drilled 7.75 (m) Final Depth 7.75 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	7.75	135	Rotary Auger	Mud (Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	4.75	80	PVC	☑	☐	0	3					
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	4.75	7.75	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	3.75	7.75

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES
The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Driller to deliver this Log together with water samples collected and a site location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

[ ] [ ] [ ] [ ] **UNIT NUMBER** 7030 698

Unit No: 7030 699 **Obs Well No:** CHW 52 **DH No:** 201122

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 1 3 Site

NAME OF DRILLER C.Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES

☑ GDA 94/WGS84 ☐ AGD 66/84

486746

6238887

☑ ZONE 54 ☐ ZONE 53 ☐ ZONE 52

3. WELL NAME

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: -

File/Section /Parcel ID

Name of Property Chawilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 23/3/04 Date work Completed 23/3/04

Work carried out: New Well ☑ Deepen. ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 18.2 (m) Final Depth 18.2 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	18.2	135	Rotary Auger	Mud (Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	15.2	80	PVC	☑	☐	0	13.7					
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	15.2	18.2	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	14.2	15.2

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Details of Well Construction together with water samples collected and well location plan within 14 days of completion to:

RECEIVED
DATE 15

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 699

Unit No: 7030 700 **Obs Well No:** CHW 53 **DH No:** 201123

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 1 4 Site

NAME OF DRILLER C. Sheil Licence No: 13425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES

☑ GDA 94/WGS84

☐ AGD 66/84

487327

6238931

☑ ZONE 54
☐ ZONE 53
☐ ZONE 52

3. WELL NAME 64214

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No:

File/Section /Parcel ID

Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 23/3/04 Date work Completed 23/3/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 10.61 (m) Final Depth 10.61 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details / 6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)	Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste
0	10.61	135	Rotary Auger	Mud (Bio-Vis)									

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	8.61	80	PVC	☑	☐	0	7					
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	8.61	10.61	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer) / 8.4 Gravel Packing

Material	Depth (m)	Internal Diam (mm)	Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
			Gravity	8:16	7.61	8.61

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Driller to deliver this copy together with water samples collected and well location plan within 14 days of completion to:

DATE BY

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 700

Unit No: 7030 701 **Obs Well No:** CHW 54 **DH No:** 201124

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 64215 Site

NAME OF DRILLER C.Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834 Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by Stwater Method GPSL

GPS COORDINATES
- ☑ GDA 94/WGS84
- ☐ AGD 66/84

487306
6238931

- ☑ ZONE 54
- ☐ ZONE 53
- ☐ ZONE 52

3. WELL NAME 64215

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: -

File/Section /Parcel ID

Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced Date work Completed

Work carried out: New Well ☐ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? YES/NO if yes please quote replaced well number

Is this an Existing well? YES/NO **if yes please quote well number or mark location on map**

Was well Abandoned? YES/NO if yes please state method

Maximum Depth Drilled 9.36 (m) Final Depth 9.36 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	9.36	135	Rotary Auger	Mud (Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type

From (m)	To (m)	Internal Diam (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.
0	7.36	80	PVC

7.3 Casing Cemented

Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
☑	☐	0	6					
☐	☐							
☐	☐							
☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
- ☐ Open Hole
- ☑ Slotted Casing
- ☐ Screen(s)
- ☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	7.36	9.36	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	6.36	9.36

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air lifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above.

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Driller to forward this copy together with water samples collected and well location plan DATE BY within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 701

Unit No: 7030 702 **Obs Well No:** CHW 55 **DH No:** 201125

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 1 6 Site

NAME OF DRILLER C. Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SA Water Method GPSSL

GPS COORDINATES

- ☑ GDA 94/WGS84
- ☐ AGD 66/84

487453

6238973

- ☑ ZONE 54
- ☐ ZONE 53
- ☐ ZONE 52

3. WELL NAME 64216

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: –

File/Section /Parcel ID

Name of Property Chanilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 22/3/04 Date work Completed 22/3/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 10.15 (m) Final Depth 10.15 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details / 6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)	Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste
0	10.15	135	Rotary Auger	Mud (Bio-Vis)									

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.,	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	8.15	80	PVC	☑	☐	0	6.5				Gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

- ☐ Open Hole
- ☑ Slotted Casing
- ☐ Screen(s)
- ☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	8.15	10.15	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	7.15	10.15

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

RECEIVED DATE BY

Drillers Report to be sent together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 702

Unit No: 7030 703 **Obs Well No:** CHW 56 **DH No:** 201126

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 1 7 Site

NAME OF DRILLER C. Shell Licence No. 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SA Water Method GPS SL

GPS COORDINATES
- ☑ GDA 94/WGS84
- ☐ AGD 66/84

487479
6238973

- ☑ ZONE 54
- ☐ ZONE 53
- ☐ ZONE 52

3. WELL NAME 6F217

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: –

File/Section /Parcel ID

Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 22/3/04 Date work Completed 22/3/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 6.8 (m) Final Depth 6.8 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	6.8	135	Rotary Auger	Mud (Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	4.8	80	PVC	☑	☐	0	3				Gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
- ☐ Open Hole
- ☑ Slotted Casing
- ☐ Screen(s)
- ☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	4.8	6.8	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	3.8	6.8

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Driller to forward this form together with [illegible] samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 703

Unit No: 7030 704 **Obs Well No:** CHW 57 **DH No:** 201127

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 1 8 Site

NAME OF DRILLER C. Shell Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES
- ☑ GDA 94/WGS84
- ☐ AGD 66/84

488156
6238926

- ☑ ZONE 54
- ☐ ZONE 53
- ☐ ZONE 52

3. WELL NAME 64218

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No:

File/Section /Parcel ID

Name of Property Chawilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 2/3/04 Date work Completed 2/3/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 6.79 (m) Final Depth 6.79 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	6.79	135	Rotary Auger	Mud (Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	3.79	80	PVC	☑	☐	0	2.5				Gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
- ☐ Open Hole
- ☑ Slotted Casing
- ☐ Screen(s)
- ☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	3.79	6.79	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	2.79	6.79

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

ENTERED
DATE BY

Drillers to forward this copy together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

13. FORMATION LOG

From (m)	To (m)	Description of Material

UNIT NUMBER 7030 704

Unit No: 7030 705 **Obs Well No:** CHW 58 **DH No:** 201128

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 1 9 Site

NAME OF DRILLER C. Shell Licence No: 63425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SA Water Method GPSSL

GPS COORDINATES

☑ GDA 94/WGS84 ☐ AGD 66/84

488161

6238927

☑ ZONE 54 ☐ ZONE 53 ☐ ZONE 52

3. WELL NAME 64219

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: –

File/Section /Parcel ID

Name of Property Chawilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 21/3/04 Date work Completed 21/3/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 15.59 (m) Final Depth 15.59 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	15.59	135	Rotary Auger	Mud (Bio-vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.
0	12.59	80	PVC

7.3 Casing Cemented

Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
☑	☐	0	11				Gravity	
☐	☐							
☐	☐							
☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	12.59	15.59	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	11.59	15.59

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Drillers Report must be sent together with water samples collected and well location plan within 14 days of completion to:

ENTERED DATE BY

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 705

Unit No: 7030 711 **Obs Well No:** CHW 59 **DH No:** 201134

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act. 1997

1. PERMIT NO: 6 4 2 2 5 Site

NAME OF DRILLER C.Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES

☑ GDA 94/WGS84
☐ AGD 66/84

48 7258
6242552

☑ ZONE 54
☐ ZONE 53
☐ ZONE 52

3. WELL NAME 64225

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: -

File/Section /Parcel ID

Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 30/3/04 Date work Completed 30/3/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO if yes please quote well number or mark location on map

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 7.7 (m) Final Depth 7.7 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS - If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	7.7	135	Rotary Auger	Mud (Rio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	5.7	80	PVC	☑	☐	0	4				Gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	5.7	7.7	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	4.7	7.7

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above.

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Driller to forward this form together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 711

Unit No: 7030 712 **Obs Well No:** CHW 60 **DH No:** 201135

GOVERNMENT OF SOUTH AUSTRALIA
DRILLERS WELL CONSTRUCTION REPORT
Water Resources Act, 1997

1. PERMIT NO: 6 4 2 2 6 Site

NAME OF DRILLER C. Sheil Licence No: 3425
Contact Phone/Mobile No.:
Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC
Postal Address GPO Box 2834, Adelaide
Post Code 5001

2. LOCATION OF WELL
Date of Survey 1/9/04 Surveyed by SA Water Method GPSSL

GPS COORDINATES
☑ GDA 94/WGS84
☐ AGD 66/84

487260
6242555

☑ ZONE 54
☐ ZONE 53
☐ ZONE 52

3. WELL NAME 64226

4. LAND IDENTIFICATION
Hundred or Pastoral Lease No: –
File/Section /Parcel ID
Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*
Date work Commenced 30/3/04 Date work Completed 30/3/04
Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐
Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number
Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**
Was well Abandoned? ~~YES~~/NO if yes please state method
Maximum Depth Drilled 17·07 (m) Final Depth 17·07 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	17·07	135	Rotary	Mud
			Auger	(Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 From (m)	To (m)	Internal Diam. (mm)	7.2 Type: Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	7.3 Casing Cemented Yes / No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	15·07	80	PVC	☑ Yes ☐ No	0	5				Gravity	
				☐ ☐							
				☐ ☐							
				☐ ☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	15·07	17·07	0·5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8/16	14·07	17·07

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

13. FORMATION LOG

From (m)	To (m)	Description of Material

12. SAMPLES
The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller Date / /

Driller to deliver this form together with water samples collected and well location plan within 14 days of completion to:

FAXED Date By

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 712

Unit No: 7030 718 **Obs Well No:** CHW 61 **DH No:** 201141

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 3 2 Site

NAME OF DRILLER C. Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAwater Method GPSSL

GPS COORDINATES

- ☑ GDA 94/WGS84
- ☐ AGD 66/84

487263

6242557

- ☑ ZONE 54
- ☐ ZONE 53
- ☐ ZONE 52

3. WELL NAME 64232

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: —

File/Section /Parcel ID

Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 30/3/04 Date work Completed 30/3/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 40 (m), Final Depth 40 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	40	135	Rotary Auger	Mud (Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions

From (m)	To (m)	Internal Diam. (mm)
0	38	80

7.2 Type

Swell Joint, Welded Collar, Steel, FRP, PVC, etc.
PVC

7.3 Casing Cemented

Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
☑	☐	0	5				Gravity/ Premadic	
☐	☐							
☐	☐							
☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

- ☐ Open Hole
- ☑ Slotted Casing
- ☐ Screen(s)
- ☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	38	40	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16		

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		20

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Driller to deliver this form together with strata samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 718

Unit No: 7030 719 **Obs Well No:** CHW 62 **DH No:** 201142

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 3 3 Site

NAME OF DRILLER C-Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES
☑ GDA 94/WGS84
☐ AGD 66/84

488295
6242035

☑ ZONE 54
☐ ZONE 53
☐ ZONE 52

3. WELL NAME 64233

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: –

File/Section /Parcel ID

Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 1/4/04 Date work Completed 1/4/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO if yes please quote well number or mark location on map

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 7.99 (m) Final Depth 7.99 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	7.99	135	Rotary	Mud
			Auger	(Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	5.99	80	PVC	☑	☐	0	4					
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	5.99	7.99	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	4.99	7.99

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

ENTERED DATE BY

Driller to deliver this copy together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 719

Unit No: 7030 720 **Obs Well No:** CHW 63 **DH No:** 201143

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 3 4 Site

NAME OF DRILLER C. Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES

☑ GDA 94/WGS84
☐ AGD 66/84

488280
6242048 6242050

☑ ZONE 54
☐ ZONE 53
☐ ZONE 52

3. WELL NAME 64234

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: –

File/Section /Parcel ID

Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 1/4/04 Date work Completed 1/4/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO if yes please quote well number or mark location on map

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 6.85 (m) Final Depth 6.85 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	6.85	135	Rotary Auger	Mud (Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	4.85	80	PVC	☑	☐	0	3				Gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	4.85	6.85	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	3.85	6.85

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Driller to deliver this Copy together with water samples collected and well location plan within 14 days of completion to

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 720

Unit No: 7030 721 **Obs Well No:** CHW 64 **DH No:** 201144

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 3 5 Site

NAME OF DRILLER C.Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES

☑ GDA 94/WGS84

☐ AGD 66/84

488383

6241991

☑ ZONE 54

☐ ZONE 53

☐ ZONE 52

3. WELL NAME 64235

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: –

File/Section /Parcel ID

Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 20/3/04 Date work Completed 20/3/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 10.04 (m) Final Depth 10.04 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	10.04	135	Rotary Auger	Mud (Bio-vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions From (m)	To (m)	Internal Diam. (mm)	7.2 Type Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	7.3 Casing Cemented Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	8.04	80	PVC	☑	☐	0	5				Gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole

☑ Slotted Casing

☐ Screen(s)

☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	8.04	10.04	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	7.04	10.04

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Driller to deliver this Copy together with water samples collected and well location plan within 14 days of completion to

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 721

Unit No: 7030 722 **Obs Well No:** CHW 65 **DH No:** 201145

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 3 6 Site

NAME OF DRILLER C. Shiel Licence No 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES
- ☑ GDA 94/WGS84
- ☐ AGD 66/84

488401
6241980

- ☑ ZONE 54
- ☐ ZONE 53
- ☐ ZONE 52

3. WELL NAME 64236

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: -

File/Section /Parcel ID

Name of Property Chanilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 20/3/04 Date work Completed 20/3/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? YES/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 9.84 (m) Final Depth 9.84 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	9.84	135	Rotary Auger	Mud (Bio-vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	7.84	80	PVC	☑	☐	0	5				Gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
- ☐ Open Hole
- ☑ Slotted Casing
- ☐ Screen(s)
- ☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	*Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	7.84	9.84	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	6.84	9.84

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air lifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Drillers Copy of this form together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065.

UNIT NUMBER 7030 722

Unit No: 7030 728 **Obs Well No:** CHW 68 **DH No:** 201156

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 4 4 Site

NAME OF DRILLER C.Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES

- ☑ GDA 94/WGS84
- ☐ AGD 66/84

490949

6214537

- ☑ ZONE 54
- ☐ ZONE 53
- ☐ ZONE 52

3. WELL NAME 64244

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: -

File/Section /Parcel ID

Name of Property Chawilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 5/4/04 Date work Completed 5/4/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 7.4 (m) Final Depth (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	7.4	135	Rotary Auger	Mud (Bio-vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	5.4	80	PVC	☑	☐	0	4				Gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

- ☐ Open Hole
- ☑ Slotted Casing
- ☐ Screen(s)
- ☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	5.4	7.4	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	4.4	7.4

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Drillers to deliver this form together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 728

Unit No: 7030 729 **Obs Well No:** CHW 69 **DH No:** 201157

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 4 5 Site

NAME OF DRILLER C.Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES
- ☑ GDA 94/WGS84
- ☐ AGD 66/84

490948

6249539

- ☑ ZONE 54
- ☐ ZONE 53
- ☐ ZONE 52

3. WELL NAME 64245

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: -

File/Section /Parcel ID

Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 6/4/04 Date work Completed 6/4/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 24 (m) Final Depth 24 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	24	135	Rotary Auger	Mud (RIO-VIS)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	22	80	PVC	☑	☐	0	5				Gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
- ☐ Open Hole
- ☑ Slotted Casing
- ☐ Screen(s)
- ☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	22	24	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	21	24

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Driller to deliver this Copy together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 729

Unit No: 7030 734 **Obs Well No:** CHW 70 **DH No:** 201180

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 5 1 Site

NAME OF DRILLER C. Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES

☑ GDA 94/WGS84 ☐ AGD 66/84

490949

6249535

☑ ZONE 54 ☐ ZONE 53 ☐ ZONE 52

3. WELL NAME 64251

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No:

File/Section /Parcel ID

Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 5/4/04 Date work Completed 5/4/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **If yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 35 (m) Final Depth 35 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	35	135	Rotary	Mud
			Auger	(Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions From (m)	To (m)	Internal Diam. (mm)	7.2 Type Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	7.3 Casing Cemented Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	~~34~~ 33	80	PVC	☑	☐	0	5				Gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC.	33	35	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	32	35

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Driller to deliver white copy together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 734

Unit No: 7030 735 **Obs Well No:** CHW 72 **DH No:** 201183

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 5 3 Site

NAME OF DRILLER C.Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES

☑ GDA 94/WGS84 ☐ AGD 66/84

491280

6243678

☑ ZONE 54 ☐ ZONE 53 ☐ ZONE 52

3. WELL NAME 64253

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: -

File/Section /Parcel ID

Name of Property Chanilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 19/3/04 Date work Completed 19/3/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? YES/NO if yes please quote replaced well number

Is this an Existing well? YES/NO if yes please quote well number or mark location on map

Was well Abandoned? YES/NO if yes please state method

Maximum Depth Drilled 7.6 (m) Final Depth 7.6 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	7.6	135	Rotary Auger	Mud (Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type

From (m)	To (m)	Internal Diam. (mm)	Swelt Joint, Welded Collar, Steel, FRP, PVC, etc.
0	5.6	80	PVC

7.3 Casing Cemented

Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
☑	☐	0	4				Gravity	
☐	☐							
☐	☐							
☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	5.6	7.6	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	4.6	7.6

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Driller to deliver (as early together with water samples collected and well location plan within 14 days of completion to:

DATE BY

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 735

Unit No: 7030 736 **Obs Well No:** CHW 73 **DH No:** 201184

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 5 4 Site

NAME OF DRILLER C.Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES
- ☑ GDA 94/WGS84
- ☐ AGD 66/84

491405
6243646

- ☑ ZONE 54
- ☐ ZONE 53
- ☐ ZONE 52

3. WELL NAME 64254

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: -

File/Section /Parcel ID

Name of Property Chanilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 19/5/04 Date work Completed 19/5/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **If yes please quote well number or mark location on map**

Was well Abandoned? YES/NO if yes please state method

Maximum Depth Drilled 8.5 (m) Final Depth 8.5 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	8.5	135	Rotary Auger	Mud (Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	6.5	80	PVC	☑	☐	0	4				Gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
- ☐ Open Hole
- ☑ Slotted Casing
- ☐ Screen(s)
- ☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	6.5	8.5	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	5.5	8.5

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air lifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller ..... *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Driller to deliver this Copy together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 736

Unit No: 7030 737 **Obs Well No:** CHW 74 **DH No:** 201185

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 5 5 Site

NAME OF DRILLER C. Sheil Licence No 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SA Water Method GPSSL

GPS COORDINATES

☑ GDA 94/WGS84 491425

☐ AGD 66/84 6243640

☑ ZONE 54
☐ ZONE 53
☐ ZONE 52

3. WELL NAME 64255

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: -

File/Section /Parcel ID

Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 20/5/04 Date work Completed 20/5/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **If yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 10 (m) Final Depth 10 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	10	135	Rotary Auger	Mud (Bio-VIS)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	8	80	PVC	☑	☐	0	4				Gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	8	10	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	7	10

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

13. FORMATION LOG

From (m)	To (m)	Description of Material

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller .... *Date* / /

Driller to deliver this copy together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 737

Unit No: 7030 739 **Obs Well No:** CHW 75 **DH No:** 201187

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 5 7 Site

NAME OF DRILLER C.Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide Post Code 5001

2. LOCATION OF WELL

Date of Survey 11/9/04 Surveyed by Sawater Method GPSSL

GPS COORDINATES
- ☑ GDA 94/WGS84
- ☐ AGD 66/84

491876
6241961

- ☑ ZONE 54
- ☐ ZONE 53
- ☐ ZONE 52

3. WELL NAME 64257

4. LAND IDENTIFICATION –

Hundred or Pastoral Lease No:

File/Section /Parcel ID

Name of Property Chaulilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 20/3/04 Date work Completed 20/3/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 9.80 (m) Final Depth 9.80 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	9.8	135	Rotary Auger	Mud (Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.
0	6.8	80	PVC

7.3 Casing Cemented

Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
☑	☐	0	5				Gravity	
☐	☐							
☐	☐							
☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
- ☐ Open Hole
- ☑ Slotted Casing
- ☐ Screen(s)
- ☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	6.8	9.8	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	5.8	9.8

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Driller to deliver this form together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 739

Unit No: 7030 740 **Obs Well No:** CHW 76 **DH No:** 201188

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 9 2 5 8 . Site

NAME OF DRILLER C. Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DNLRC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES

☑ GDA 94/WGS84
☐ AGD 66/84

491881
6241963

☑ ZONE 54
☐ ZONE 53
☐ ZONE 52

3. WELL NAME 69258

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: –

File/Section /Parcel ID

Name of Property Chanilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 21/3/04 Date work Completed 21/3/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO if yes please quote well number or mark location on map

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 19.7 (m) Final Depth 19.7 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	19.7	135	Rotary Auger	Mud (Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	16.7	80	PVC	☑	☐	0	5				Gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	16.7	19.7	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	15.7	19.7

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

ENTERED
DATE

Drillers report to be completed together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 740

Unit No: 7030 742 **Obs Well No:** CHW 85 **DH No:** 201190

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 7 3 Site

NAME OF DRILLER C.Sheil Licence No:

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES

- ☑ GDA 94/WGS84
- ☐ AGD 66/84

496447

6243233

- ☑ ZONE 54
- ☐ ZONE 53
- ☐ ZONE 52

3. WELL NAME 64273

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: –

File/Section /Parcel ID

Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 9/3/04 Date work Completed 9/3/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 10.1 (m) Final Depth 10.1 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	10.1	135	Rotary Auger	Mud (Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	7.1	80	PVC	☑	☐	0	5				Gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

- ☐ Open Hole
- ☑ Slotted Casing
- ☐ Screen(s)
- ☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	7.1	10.1	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	6.1	10.1

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

ENTERED

Date

Details to drillers log together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 742

Unit No: 7030 743 **Obs Well No:** CHW 92 **DH No:** 201191

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 8 5 Site

NAME OF DRILLER C.Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 29/9/04 Surveyed by DWLBC Method GPS Unit

GPS COORDINATES

- ☑ GDA 94/WGS84
- ☐ AGD 66/84

483894

6247420

- ☑ ZONE 54
- ☐ ZONE 53
- ☐ ZONE 52

3. WELL NAME 64285

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: -

File/Section /Parcel ID

Name of Property Chanilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 29/9/04 Date work Completed 6/10/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 50 (m) Final Depth 50 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	50	165	Rotary	Aus-gel

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.
0	50	80	PVC

7.3 Casing Cemented

Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
☑	☐	0	43			Aus-gel	Gravity	
☐	☐							
☐	☐							
☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

- ☐ Open Hole
- ☑ Slotted Casing
- ☐ Screen(s)
- ☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
Casing	47	50	0.50	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	16/30	44	50

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air lift		20

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material
0	2	Dark orange/brown sand & limestone banding
2	22	Light grey/Brown clay, yellow banding
22	25	Light grey sandy clay
25	28	Mustard yellow clayey sand
28	30	Yellow brown med/coarse sand
30	34	Light grey med/coarse sand
34	40	Light fawn/brown med/coarse sand
40	48	Light brown med/coarse sand
48	50	Med brown med/coarse sand.

Drillers Report to be completed together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

DATE RECEIVED
DATE BY

UNIT NUMBER 7030 743

Unit No: 7030 744 **Obs Well No:** CHW 91 **DH No:** 201192

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 8 4 Site

NAME OF DRILLER C. Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision:

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 7/10/04 Surveyed by Method GPSSN

GPS COORDINATES
- ☑ GDA 94/WGS84
- ☐ AGD 66/84

483884
6247440

- ☑ ZONE 54
- ☐ ZONE 53
- ☐ ZONE 52

3. WELL NAME 64284

4. LAND IDENTIFICATION –

Hundred or Pastoral Lease No:

File/Section /Parcel ID

Name of Property: Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 7/10/04 Date work Completed 12/10/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 145 (m) Final Depth 145 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	125	285	Rotary	Aus-gel
125	145	152	Rotary	water

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	125	157	PVC	☑	☐	0	125	52		Aus-gel	Pressure	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
- ☑ Open Hole
- ☐ Slotted Casing
- ☐ Screen(s)
- ☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Jetting	2	30

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller ..... *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material
0	2	Dark orange/brown sand & limestone banding
2	23	Light brown/grey clay.
23	32	Light grey med sand
32	40	Light brown/brown med/coarse sand
40	54	Light brown med/coarse sand
54	78	Med grey med/coarse sand.
78	114	Med grey clayey med/coarse sand
114	124	Med grey marly/clayey coarse sand
124	145	Light grey limestone & marl interbeds. sandy in first 5m.

Drillers to deliver this form together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 744

Unit No: 7030 762 **Obs Well No:** CHW 94 **DH No:** 201226

GOVERNMENT OF SOUTH AUSTRALIA
DRILLERS WELL CONSTRUCTION REPORT
Water Resources Act, 1997

1. PERMIT NO: 100277 Site

NAME OF DRILLER Daniel Pearce Licence No: 3456
Contact Phone/Mobile No.:
Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC
Postal Address GPO Box 2834, Adelaide
Post Code 5001

2. LOCATION OF WELL
Date of Survey 17/8/04 Surveyed by Method GPSSN
GPS COORDINATES
☑ GDA 94/WGS84
☐ AGD 66/84
487964
6245578
☑ ZONE 54
☐ ZONE 53
☐ ZONE 52

3. WELL NAME WHObS7
4. LAND IDENTIFICATION
Hundred or Pastoral Lease No: —
File/Section /Parcel ID
Name of Property Chantilly

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*
Date work Commenced 17/8/04 Date work Completed 17/8/04
Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐
Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number
Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**
Was well Abandoned? ~~YES~~/NO if yes please state method
Maximum Depth Drilled 25 (m) Final Depth 25 (m) Final Standing Water Level (m) Final Yield — (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	25	133	Rotary Auger	Mud (Bio-vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	25	80	PVC	☑	☐	0	20.5	3	150	Nusgel	Pressure	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
	22	25	0.50	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	21	25

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air lifted		

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES
The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller ..... *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material
0	1	Dark orange/brown sandy clay
1	5	Light orange/brown & fawn clay
5	7	Yellow/brown sandy clay
7	9	Multicolored clays, red, grey, fawn & brown
9	11	Medium brown sandy clay
11	25	Yellow/brown sands; medium & coarse.

RECEIVED
DATE BY

Drawings required only together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 762

Unit No: 7030 773 **Obs Well No:** CHW 95 **DH No:** 201247

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 100290 Site

NAME OF DRILLER Daniel Pearce Licence No: R13456

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DevLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPS54

GPS COORDINATES AND DATUM USED

☑ GDA 94/WGS84 ☐ AGD 66/84

499685

6244390

☐ ZONE 52 ☐ ZONE 53 ☑ ZONE 54

3. WELL NAME LL0652

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: —

File/Section /Parcel ID

Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 21/8/04 Date work Completed 21/8/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 15 (m) Final Depth 15 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	15	133	Rotary Auger	Mud (Rio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	12	80	PVC	☑	☐	0	10.5				tremmie/ gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
	12	15	0.50	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	11	15

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		40

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material
0	1	Orange/ brown clayey fine/ med sand
1	2	Med orange/ brown sandy clay
2	3	Light brown clayey med sand
3	4	Light grey/ brown clayey sand (med)
4	5	Orange/ brown med/coarse sand
5	6	Multicoloured clay interlayers brown, grey, black, tan, red
6	7	Yellow/ brown clayey sand
7	12	Light brown med sand
12	15	Light grey med/coarse sand

Drilling Report (DR1) to be lodged together with water samples collected and well location plan within 14 days of completion to:

ENTERED DATE BY

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 773

Unit No: 7030 775 **Obs Well No:** CHW 86 **DH No:** 201255

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 4 2 7 4 Site

NAME OF DRILLER C. Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES

☑ GDA 94/WGS84 ☐ AGD 66/84

496442

6243234

☑ ZONE 54 ☐ ZONE 53 ☐ ZONE 52

3. WELL NAME 64274

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: -

File/Section /Parcel ID

Name of Property Chanilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 9/3/04 Date work Completed 9/3/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO if yes please quote well number or mark location on map

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 17.9 (m) Final Depth 17.9 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	17.9	135	Rotary Auger	Bio-Vis

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.
0	14.9	80	PVC

7.3 Casing Cemented

Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
☑	☐	0	4				Gravity	
☐	☐							
☐	☐							
☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	14.9	17.9	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	13.9	17.9

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air lifted		20

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Drillers Report (this page) together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 775

Unit No: 7030 776 **Obs Well No:** CHW 93 **DH No:** 201281

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: 6 5 6 5 4 Site

NAME OF DRILLER C. Sheil Licence No: 3425

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 15/9/04 Surveyed by Method GPSSN

GPS COORDINATES

☑ GDA 94/WGS84 ☐ AGD 66/84

497789

6247792

☑ ZONE 54 ☐ ZONE 53 ☐ ZONE 52

3. WELL NAME 65654

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: —

File/Section /Parcel ID

Name of Property Chanilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 15/9/04 Date work Completed 18/9/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 182 (m) Final Depth 182 (m) Final Standing Water Level (m) Final Yield — (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	85	235	Rotary	Bio-vis
85	182	152	Rotary	Water

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	85	157	PVC	☑	☐	0	85	40		Aus-gel	Pressure	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☑ Open Hole ☐ Slotted Casing ☐ Screen(s) ☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Jetting	2	20

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material
0	3	Brown & grey clay
3	16	Orange/brown & grey sands
16	40	Dark grey/brown silty clay
40	58	Dark grey clay. Pyritic layers
58	64	Greenish grey glauconitic clays. Carbonaceous. Shelly
64	85	Brown/grey marl. Carbonaceous shelly.
85	125	Med grey clay/marl & limestone layers. Shelly
125	182	Light grey fine-grained consolidated limestone.

RECEIVED DATE 21/9/04

Duplicate Driller's Copy together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7030 776

Unit No: 7130 52 **Obs Well No:** CHW 96 **DH No:** 201256

GOVERNMENT OF SOUTH AUSTRALIA
DRILLERS WELL CONSTRUCTION REPORT
Water Resources Act, 1997

PN60BL216329
1. PERMIT NO: Site

NAME OF DRILLER D. Pearce Licence No: 3456
Contact Phone/Mobile No.:
Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC
Postal Address GPO Box 2834, Adelaide
Post Code 5001

2. LOCATION OF WELL
Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES
☑ GDA 94/WGS84
☐ AGD 66/84

502692
6239443

☑ ZONE 54
☐ ZONE 53
☐ ZONE 52

3. WELL NAME Bore 1
4. LAND IDENTIFICATION
Hundred or Pastoral Lease No: -
File/Section /Parcel ID
Name of Property Chantilly

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*
Date work Commenced 20/5/04 Date work Completed 20/5/04
Work carried out: New Well ☐ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐
Is this a Replacement well? YES/NO if yes please quote replaced well number
Is this an Existing well? YES/NO **if yes please quote well number or mark location on map**
Was well Abandoned? YES/NO if yes please state method
Maximum Depth Drilled 7.6 (m) Final Depth 7.6 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	7.6		Rotary Auger	Mud (Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	5.6	80	PVC	☑	☐	0	2				Gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	5.6	7.6	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8=16	4.6	7.8

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES
The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

ENTERED
DATE BY

Drillers Report to be sent together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

7130 52
UNIT NUMBER

PN60BL216329

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: [ ] Site [ ]

NAME OF DRILLER D. Pearce Licence No: 3456

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SA Water Method GPSSL

GPS COORDINATES
☑ GDA 94/WGS84
☐ AGD 66/84

502646
6239439

☑ ZONE 54
☐ ZONE 53
☐ ZONE 52

3. WELL NAME Bore 2

4. LAND IDENTIFICATION

Hundred or Pastoral Lease No: –

File/Section /Parcel ID

Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 21/5/04 Date work Completed 21/5/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 7.5 (m) Final Depth 7.5 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	7.5		Rotary Auger	Mud (BIO-VIS)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	5.5	80	PVC	☑	☐	0	2				Gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	5.5	7.5	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	4.5	7.5

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above.

Signature of Licensed Driller .... *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

Driller to forward this copy together with water samples collected and well location plan within 14 days of completion to

DATE BY

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7130 53

Unit No: 7130 54 **Obs Well No:** CHW 98 **DH No:** 201258

GOVERNMENT OF SOUTH AUSTRALIA
DRILLERS WELL CONSTRUCTION REPORT
Water Resources Act, 1997

PN60B216331
1. PERMIT NO: Site

NAME OF DRILLER D. Pearce Licence No: 3456
Contact Phone/Mobile No.:
Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC
Postal Address GPO Box 2834, Adelaide
Post Code 5001

2. LOCATION OF WELL
Date of Survey 11/9/04 Surveyed by SAWater Method GPSSL
GPS COORDINATES
☑ GDA 94/WGS84 ☐ AGD 66/84
501560
6238719
☑ ZONE 54 ☐ ZONE 53 ☐ ZONE 52

3. WELL NAME Bore 1
4. LAND IDENTIFICATION
Hundred or Pastoral Lease No: -
File/Section /Parcel ID
Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*
Date work Commenced 22/5/04 Date work Completed 22/5/04
Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐
Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number
Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**
Was well Abandoned? ~~YES~~/NO if yes please state method
Maximum Depth Drilled 7.3 (m) Final Depth 7.3 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	7.3		Rotary Auger	Mud (KBB-VIS)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	4.3	80	PVC	☑	☐	0	2				Gravity	
				☐	☐							
				☐	☐							
				☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	4.3	7.3	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	3.3	7.3

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Air lifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES
The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller ..... *Date* / /

13. FORMATION LOG

From (m)	To (m)	Description of Material

ENTERED
DATE BY

Drillers to forward this form together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7130 54

Unit No: 7130 55 **Obs Well No:** CHW 99 **DH No:** 201259

GOVERNMENT OF SOUTH AUSTRALIA
DRILLERS WELL CONSTRUCTION REPORT
Water Resources Act, 1997

1. PERMIT NO: PN60BL216331 Site

NAME OF DRILLER D. Pearce Licence No: 3456
Contact Phone/Mobile No.:
Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC
Postal Address GPO Box 2834, Adelaide
Post Code 5001

2. LOCATION OF WELL
Date of Survey 1/9/04 Surveyed by SAWater Method GPSSL

GPS COORDINATES
☑ GDA 94/WGS84
☐ AGD 66/84

501556
6238716

☑ ZONE 54
☐ ZONE 53
☐ ZONE 52

3. WELL NAME Borc 2

4. LAND IDENTIFICATION
Hundred or Pastoral Lease No: -
File/Section /Parcel ID
Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*
Date work Commenced 22/5/04 Date work Completed 22/5/04
Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐
Is this a Replacement well? YES/NO if yes please quote replaced well number
Is this an Existing well? YES/NO **if yes please quote well number or mark location on map**
Was well Abandoned? YES/NO if yes please state method
Maximum Depth Drilled 19.6 (m) Final Depth 19.6 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	19.6		Rotary Auger	Mud (Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.
0	16.6	80	PVC

7.3 Casing Cemented

Yes	No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
☑	☐	0	2				Gravity	
☐	☐							
☐	☐							
☐	☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method
☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	16.6	19.6	0.5	80		PVC	Alpemass	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	15.6	19.6

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

12. SAMPLES
The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller *Date* / /

ENTERED
Drillers to deliver this form together with water samples collected and well location plan within 14 days of completion to:

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

13. FORMATION LOG

From (m)	To (m)	Description of Material

UNIT NUMBER 7130 55

Unit No: 7130 56 **Obs Well No:** CHW 100 **DH No:** 201260

GOVERNMENT OF SOUTH AUSTRALIA

DRILLERS WELL CONSTRUCTION REPORT

Water Resources Act, 1997

1. PERMIT NO: PN60BL216364 Site

NAME OF DRILLER D. Pearce Licence No: 3456

Contact Phone/Mobile No.:

Name of plant operator if under supervision

PERMIT HOLDER or land occupier DWLBC,

Postal Address GPO Box 2834, Adelaide

Post Code 5001

2. LOCATION OF WELL

Date of Survey 1/9/04 Surveyed by SA Water Method GPSSL

GPS COORDINATES

☑ GDA 94/WGS84 503043

☐ AGD 66/84 6239424

☑ ZONE 54 ☐ ZONE 53 ☐ ZONE 52

3. WELL NAME TAR 12

4. LAND IDENTIFICATION —

Hundred or Pastoral Lease No:

File/Section /Parcel ID

Name of Property Chowilla

5. SUMMARY *(Please tick appropriate boxes and complete all relevant details)*

Date work Commenced 2/5/04 Date work Completed 21/5/04

Work carried out: New Well ☑ Deepen ☐ Enlarge ☐ Rehabilitate ☐ Backfill ☐

Is this a Replacement well? ~~YES~~/NO if yes please quote replaced well number

Is this an Existing well? ~~YES~~/NO **if yes please quote well number or mark location on map**

Was well Abandoned? ~~YES~~/NO if yes please state method

Maximum Depth Drilled 6.1 (m) Final Depth 6.1 (m) Final Standing Water Level (m) Final Yield (L/sec)

6. DRILLING DETAILS If not a drilled well, please complete Sections: 6.2, 9, 10, 11, 12 and 13 as necessary

6.1 Construction Details

From (m)	To (m)	Diam (mm)	Drilling Method Cable Tool, Rotary Auger, Down Hole Hammer, etc.	Fluid Used (Air, Water, Mud Type)
0	6.1		Rotary Auger	Mud (Bio-Vis)

6.2 Water Cut Details (measurements from natural surface to nearest 0.1 m)

Date	Water Cut From (m)	Water Cut To (m)	Standing Water Level (m)	Estimated Yield (L/sec)	Hole Depth at Test (m)	Casing at Test (m)	Test Method	Salinity (mg/L) or Taste

7. CASING LEFT IN WELL

7.1 Dimensions / 7.2 Type / 7.3 Casing Cemented

From (m)	To (m)	Internal Diam. (mm)	Swell Joint, Welded Collar, Steel, FRP, PVC, etc.	Yes / No	From (m)	To (m)	Cement (bags)	Water (litres)	Other Additives	Cementing Method Used	Comments
0	3.1	80	PVC	☑ Yes ☐ No	0	1				Gravity	
				☐ ☐							
				☐ ☐							
				☐ ☐							

8. CONSTRUCTION AT PRODUCTION LEVEL

8.1 Method

☐ Open Hole
☑ Slotted Casing
☐ Screen(s)
☐ Other, give details:

8.2 Screen or Casing (*If variable aperture screen used give limits)

Type	From (m)	To (m)	Aperture* (mm)	Inner Diam (mm)	Outer Diam (mm)	Material	Trade Name	Completion of Base
SC	3.1	6.1	0.5	80		PVC	Pipemaster	End Cap

8.3 Liner Seal (Packer)

Material	Depth (m)	Internal Diam (mm)

8.4 Gravel Packing

Method of Placement	Gravel Passing Mesh Size	From (m)	To (m)
Gravity	8:16	2.1	6.1

9. IF NOT A DRILLED WELL

Method	Depth (m)	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

10. DEVELOPMENT (State methods and time taken)

Method	Hours	Minutes
Airlifted		15

11. PUMPING TEST (measurements from natural surface to nearest 0.1m)

Interval Tested From (m)	Interval Tested To (m)	Water Level (m)	Test Method	Pump Depth (m)	Discharge Rate (L/sec)	Method of Measuring Discharge	Hours Pumped	Draw Down (m)

13. FORMATION LOG

From (m)	To (m)	Description of Material

12. SAMPLES

The provision of the Water Resources Act 1997 and Regulations thereto require that strata and water samples must be obtained. If any samples have not been obtained state reasons:

As the person responsible for the work carried out on this well I advise that it has been completed as described above:

Signature of Licensed Driller .... *Date* / /

Driller to deliver this copy together with water samples collected and well location plan within 14 days of completion to:

ENTERED DATE BY

Primary Industries and Resources SA
Core Library Complex
23 Conyngham Street
GLENSIDE SA 5065

UNIT NUMBER 7130 56

B. Lithological Logs

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 100252

UNIT No. 7030-762

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Sandy Clay	Dark orange/brown sandy clay. Low density, high plasticity, rollable, slightly sticky. White calcareous chips. Micaceous.			80	0	22
1	3		Clay	Light orange/brown and fawn clay. Low density, high plasticity, rollable, slightly sticky. Hard bar coming through at end. Micaceous.					
3	5		Sand	Yellow/brown solidified sand hard bar. Sandy clay layers coming through at end.					
5	6		Sandy Clay	Yellow/brown sandy clay. Low density, high plasticity, rollable, slightly sticky.					
6	7		Sandy Clay	Yellow/brown highly sandy clay. Low density, high plasticity, rollable, slightly sticky. Sand grains up to 3mm. Light brown banding.					
7	9		Sandy Clay	Multicoloured sandy clay layers. Yellow/brown, orange/red, light grey/fawn, medium brown. Moderate/low density, moderate/high plasticity, rollable, sticky.					
9	11		Sandy Clay	Medium brown sandy clay. Low density, high plasticity slightly rollable, slightly sticky. Sand grains up to 0.6mm.					

REMARKS: Screened 22-25m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 17/8/2004

COMPLETED: 17/8/2004

LOGGED BY: Z. Marsden

SHEET 1 OF 2

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 100252

UNIT No. 7030-762

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
11	14		Sand	Light brown medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1mm.					
14	25		Sand	Light yellow/brown medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.5-1mm. Light grey banding in parts.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 100253

UNIT No. 7030-773

Coordinates: E N | El. Surface(m) | El. Ref. Point(m) | Datum: | **Hundred:** **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1.5		Sandy Clay	Orange Brown Sandy Clay. Low density, high plasticity, rollable, slightly sticky. Sand medium/coarse grained, 0.3-0.8mm. Micaceous.			80	0	12
1.5	2		Clay	Light brown clay. Low density, high plasticity, rollable, sticky. Micaceous.					
2	3		Clayey Sand	Light brown clayey medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.4mm. Micaceous.					
3	4		Clayey Sand	Light grey/brown clayey medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.4mm. Orange/brown seams. Micaceous.					
4	5		Sand	Orange/brown medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.8mm. Micaceous.					
5	6		Clayey Sand	Multicoloured clayey medium quartz sand layers. Light grey, light brown, dark brown/black, orange/brown. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.4mm. Micaceous.					

REMARKS: Screened 12-15m

DRILL TYPE: Auger | COMPLETED: 2/8/2004

DRILL FLUID: Mud | LOGGED BY: Z. Marsden

DATE: 2/8/2004 | SHEET 1 OF 2

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 100253

UNIT No. 7030-773

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
6	7		Clayey Sand	Yellow/brown clayey medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.5mm. Grey clay interlayer, moderate/low density, moderate/high plasticity, rollable, sticky. Micaceous.					
7	8		Sand	Light brown medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.5mm. Micaceous.					
8	11		Sand	Light brown medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.5mm, traces up to 1mm. Dark grey seams in upper sample. Highly micaceous.					
11	12		Sand	Light brown/grey medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.3-1mm. Micaceous.					
12	14		Gravelly Sand	Light grey medium/coarse quartz sand. Poorly sorted, clear and cloudy, sub angular to sub rounded, 0.4-8mm. Grey clay blebs. Lignite towards end of sample. Micaceous.					
14	15		Sand	Light grey/brown medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.4-1.5mm. Micaceous.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 60BL16329

UNIT No. 7130-52

Coordinates: E N | El. Surface(m) | El. Ref. Point(m) | Datum: | **Hundred:** **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Dark brown clay. Low density, high plasticity, slightly rollable, sticky. Micaceous, gritty.			80	0	5.5
1	2		Clay	Light grey and dark black/brown clay banding. Light grey clay moderate/high density, moderate/low plasticity, slightly rollable, sticky. Micaceous. Dark grey/black clay low density, high plasticity, non-rollable, sticky. No definite structure. Micaceous, gritty.					
2	3		Clay	Light grey/brown clay. Moderate density, moderate plasticity, rollable, sticky, slightly greasy. Mottled yellow/brown seams. Micaceous.					
3	4		Clay	Light brown/grey clay. Moderate/high density, moderate/low plasticity, slightly rollable, sticky. Mottled yellow/brown seams. Micaceous.					
4	5.5		Sandy Clay	Medium grey sandy clay. Moderate density, moderate plasticity, rollable, sticky. Dark green sandy seams. Micaceous.					
5.5	7		Sand	Medium grey coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.6mm, approx 20% medium sand. Micaceous, traces of lignite.					

REMARKS: Screened 5.5-7.5m

DRILL TYPE: Auger | COMPLETED: 20/5/04

DRILL FLUID: Mud | LOGGED BY: Z. Marsden

DATE: 20/5/04 | SHEET 1 OF 2

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 60BL16329

UNIT No. 7130-52

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
7	8		Sand	Medium grey medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, approx 10% coarse sand up to 1.5mm. Micaceous, traces of lignite.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 60BL16329

UNIT No. 7130-53

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Dark brown clay. Low density, high plasticity, slightly rollable, sticky. Micaceous, gritty.			80	0	5.5
1	2		Clay	Light grey/brown clay. High density, low plasticity, non-rollable, slightly sticky. Mottled yellow/brown seams. Micaceous.					
2	3.5		Clayey Sand	Orange/brown clayey medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.8mm. Micaceous.					
3.5	4.5		Sandy Clay	Medium grey sandy clay. Moderate density, moderate plasticity, rollable, sticky. Dark green sandy seams. Micaceous.					
4.5	5		Sand	Medium grey medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, approx 30% coarse sand up to 0.8mm. Micaceous.					
5	7		Sand	Medium grey medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, approx 20% coarse sand up to 0.8mm. Micaceous.					

REMARKS: Screened 5.5-7.5m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 21/5/04

COMPLETED: 21/5/04

LOGGED BY: Z. Marsden

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 60BL16329

UNIT No. 7130-53

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
7	8		Sand	Medium grey medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, approx 40% coarse sand up to 1.5mm. Micaceous, traces of lignite.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 60BL216331

UNIT No. 7130-54

Coordinates: E N | El. Surface(m) | El. Ref. Point(m) | Datum: | **Hundred:** | **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Dark brown clay. High density, low plasticity, non-rollable, non-sticky. Micaceous.			80	0	16.5
1	3.5		Clay	Light brown/fawn clay and sandy clay interlayers. Clay moderate/high density, moderate/low plasticity, slightly rollable, sticky. Micaceous. Sandy clay moderate density, moderate plasticity, rollable, sticky. Micaceous. Orange/brown sandy seams in both layers.					
3	3.5		Sandy Clay	Highly sandy orange/brown clay. Low density, high plasticity, rollable, non-sticky. Micaceous.					
3.5	4		Sand	Light brown/fawn medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1mm. Micaceous.					
4	6		Sand	Light brown/orange medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.0mm. Micaceous.					
6	7		Sand	Light grey/brown medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.5mm. Micaceous, lignite.					

REMARKS: Screened 16.5-19.5

DRILL TYPE: Auger | COMPLETED: 22/5/04

DRILL FLUID: Mud | LOGGED BY: Z. Marsden

DATE: 22/5/04 | SHEET 1 OF 2

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 60BL216331

UNIT No. 7130-54

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
7	8		Sand	Light grey/brown medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.3mm. Micaceous.					
8	10		Sand	Light brown/grey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.4mm, traces of coarse sand up to 1mm. Micaceous. Medium grey coarse, lignitic clayey sand band at end of sample.					
10	11		Sand	Medium grey coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.6mm. Orange/brown silty fine/medium sand band at end of sample. Micaceous.					
11	12		Sand	Light grey medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, approx 20% coarse sand up to 1.3mm. Micaceous.					
12	14		Sand	Medium grey medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.8mm. Micaceous.					
14	15		Sand	Light grey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.6mm, approx 20% coarse sand up to 1.5mm. Micaceous.					
15	17		Sand	Light brown/grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, approx 30% medium sand. Micaceous.					
17	18		Sand	Light grey coarse and fine/medium quartz sand banding. Coarse sand moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm. Fine/medium sand well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.4mm. Slightly silty. Micaceous.					
18	20		Sand	Light brown/grey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.4mm, approx 10% coarse sand. Micaceous.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 60BL216331

UNIT No. 7130-55

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m)		SUPPLY			TOTAL DISSOLVED SOLIDS	
			From	To	L/sec	Test length	Method	mg/L	Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Dark brown clay. High density, low plasticity, non-rollable, non-sticky. Micaceous.			80	0	4
1	4		Clay	Light brown/fawn clay and sandy clay interlayers. Clay moderate density, moderate plasticity, rollable, sticky. Micaceous. Sandy clay low density, high plasticity, rollable, sticky. Micaceous. Orange/brown sandy seams throughout both layers. Dark orange medium/coarse quartz sand band at end of sample.					
4	5		Sand	Medium orange medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, approx 20% coarse sand up to 1.2mm. Micaceous.					
5	6		Sand	Orange/brown medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.5mm. Micaceous.					
6	7		Sand	Light brown/grey medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.5mm. Micaceous.					

REMARKS: Screened 4-7m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 22/5/04

COMPLETED: 22/5/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 60BL216364

UNIT No. 7130-56

Coordinates: E 503043 N 6239424 | El. Surface(m) | El. Ref. Point(m) | Datum:

Hundred: N/A **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.
		2.68						42400	

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Dark brown clay. Moderate density, moderate plasticity, rollable, sticky. Harder layer at top. Micaceous.			80	0	6
1	2.5		Sandy Clay	Light brown/grey sandy clay. Low density, high plasticity, rollable, slightly sticky. Orange/brown and dark brown seams. Micaceous.					
2.5	3		Clayey Sand	Orange/brown clayey sand. Fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.5mm. Micaceous.					
3	6		Sand	Brown/orange medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, approx 30% coarse sand up to 1.2mm. Micaceous.					

REMARKS: Screened 3-6m

DRILL TYPE: Auger | COMPLETED: 21/5/04

DRILL FLUID: Mud | LOGGED BY: Z. Marsden

DATE: 21/5/04 | SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64209

UNIT No. 7030-695

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Clay	Light brown/fawn sandy clay. High density, low plasticity, non-rollable, slightly sticky. Micaceous.			80	0	5
2	4		Sandy Clay	Light brown and light grey sandy clay interlayers. Low density, high plasticity, rollable, slightly sticky. Micaceous.					
4	5		Sandy Clay	Dark orange sandy clay. Low density, high plasticity, rollable, sticky. Micaceous.					
5	8		Sand	Light grey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.3mm. Micaceous.					

REMARKS: Screened 5-8m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 25/3/04

COMPLETED: 25/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64210

UNIT No. 7030-696

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Clay	Medium brown/grey clay. High density, low plasticity, non-rollable, sticky when wet. Micaceous.			80	0	17
2	3		Clay	Light brown clay. Moderate density, moderate plasticity, rollable, slightly sticky. Micaceous.					
3	4		Sandy Clay	Light brown sandy clay. Low density, high plasticity, rollable, slightly sticky. Orange/brown sandy seams. Micaceous, gritty.					
4	5		Sandy Clay	Brown/orange sandy clay. Low density, high plasticity, rollable, slightly sticky. Sandy interlayers. Micaceous.					
5	6		Clay	Dark grey clay. Low density, high plasticity, rollable, sticky, slightly greasy. Slightly sandy. Micaceous.					
6	7		Sandy Clay	Dark orange/brown and light brown/fawn sandy clay interlayers. Low density, high plasticity, rollable, slightly sticky. Micaceous.					

REMARKS: Screened 17-20m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 24/3/04

COMPLETED: 24/3/04

LOGGED BY: Z. Marsden

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64210

UNIT No. 7030-696

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
7	9		Sandy Clay	Dark grey sandy clay. Low density, high plasticity, rollable, sticky, slightly greasy. Micaceous.					
9	12		Gravelly Sand	Grey/brown coarse quartz sand/fine gravel. Poorly sorted, clear and cloudy, sub angular to sub rounded, 0.6-3mm, approx 20% medium sand. Micaceous, lignite coming through at end.					
12	14		Sand	Medium grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, approx 40% medium sand, minor traces of fine gravel up to 2.2mm. Micaceous, solidified lignite.					
14	16		Sand	Medium grey coarse quartz sand. Poorly sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, approx 20% fine gravel up to 3.5mm. Micaceous, solidified lignite.					
16	20		Sand	Medium grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.5mm, approx 30% medium sand, traces of fine gravel. Micaceous, solidified lignite, carbonaceous clay blebs.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64212

UNIT No. 7030-698

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Medium brown clay. High density, low plasticity, non-rollable, slightly sticky. Micaceous.			80	0	6
1	2		Clay	Light brown/fawn clay. High density, low plasticity, non-rollable, slightly sticky. Micaceous.					
2	4		Sandy Clay	Light brown/fawn sandy clay. Moderate density, moderate plasticity, rollable, slightly sticky. Orange/brown sandy clay interlayers. Micaceous.					
4	5		Clayey Sand	Orange/brown, dark brown and light grey clayey sandy interlayers. Moderate density, moderate plasticity, rollable, non-sticky. Micaceous.					
5	6		Sand	Dark orange slightly silty coarse quartz sand/fine gravel. Poorly sorted, clear and cloudy, sub angular to sub rounded, 0.6-3mm, approx 20% medium sand. Micaceous.					
6	7		Sand	Orange/brown medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-2mm. Micaceous.					

REMARKS: Screened 6-8m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 23/3/04

COMPLETED: 23/3/04

LOGGED BY: Z. Marsden

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64212

UNIT No. 7030-698

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
7	8		Sand	Light brown medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-2mm. Micaceous.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64213

UNIT No. 7030-699

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Dark brown clay. High density, low plasticity, non-rollable, non-sticky. Micaceous.			80	0	17
1	2		Clay	Light brown clay. Moderate/high density, moderate/low plasticity, slightly rollable, sticky. Orange sandy seams. Sandy interlayers, rollable. Micaceous.					
2	4		Sandy Clay	Light brown sandy clay. Low density, high plasticity, rollable, sticky. Orange/brown fine/medium clayey sand coming through at end. Micaceous.					
4	5.5		Clayey Sand	Orange/brown slightly clayey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.5mm, traces of coarse sand up to 1.3mm. Micaceous.					
5.5	6.5		Sand	Dark orange coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.5mm, approx 20% medium sand. Micaceous, grey clay layer.					

REMARKS: Screened 17-19m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 23/3/04

COMPLETED: 23/3/04

LOGGED BY: Z. Marsden

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64213

UNIT No. 7030-699

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
6.5	8		Sand	Light brown/orange medium quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, approx 30% coarse sand up to 1.8mm. Micaceous.					
8	10		Sand	Light brown coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.7mm, approx 20% medium sand. Micaceous.					
10	11		Sand	Medium grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, traces of fine gravel up to 2.2mm. Micaceous.					
11	12		Sand	Light brown medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.3-1.3mm. Micaceous, lignite.					
12	16		Sand	Light grey medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.3-1.8mm. Micaceous, lignite.					
16	18		Sand	Medium grey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.5mm, approx 25% coarse sand up to 1.2mm. Micaceous.					
18	19		Sand	Medium brown/grey slightly silty fine/medium quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.4mm, approx 30% coarse sand up to 1.5mm. Micaceous, becoming silty with depth.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64214

UNIT No. 7030-700

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Dark brown sandy clay. Low density, high plasticity, rollable, sticky. Micaceous.			80	0	9
1	2		Silty Clay	Light brown/fawn silty clay. Low density, high plasticity, rollable, slightly sticky, slightly sandy. Micaceous.					
2	3		Sandy Clay	Light brown/fawn sandy clay. Low density, high plasticity, rollable, slightly sticky. Micaceous.					
3	4		Clay	Light brown/fawn clay. High density, low plasticity, non-rollable, non-sticky. Micaceous.					
4	6		Sandy Clay	Light brown and light grey sandy clay interlayers. Friable, rollable, slightly sticky. Orange sandy seams. Micaceous. Dark black sandy clay blebs.					
6	7		Sandy Clay	Light brown/grey sandy clay. Friable, rollable, slightly sticky. Micaceous.					
7	8		Clay	Medium grey clay. Low density, high plasticity, rollable, sticky, greasy. Micaceous.					

REMARKS: Screened 9-11m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 23/3/04

COMPLETED: 23/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 2

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64214

UNIT No. 7030-700

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
8	9		Clayey Sand	Medium grey clayey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.6mm, approx 20% coarse sand up to 1.2mm. Clay rollable, slightly sticky. Micaceous.					
9	10		Sand	Grey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.6mm, approx 20% coarse sand up to 1.2mm. Micaceous.					
10	11		Clayey Sand	Medium grey clayey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.6mm. Micaceous.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64215

UNIT No. 7030-701

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Silty Clay	Medium brown silty clay. No structure. Micaceous.			80	0	8
1	2		Clay	Medium grey clay. High density, low plasticity, non-rollable, slightly sticky. Micaceous.					
2	3		Silty Clay	Fawn/light brown silty clay. Low density, high plasticity, rollable, sticky. Orange sandy seams. Micaceous.					
3	5		Sandy Clay	Light grey sandy clay. Low density, high plasticity, rollable, slightly sticky. Micaceous.					
5	8		Sand	Medium grey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.5mm, traces of coarse sand up to 1mm. Micaceous.					
8	10		Sand	Light brown medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.3-1.2mm. Micaceous.					

REMARKS: Screened 8-10m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 23/3/04

COMPLETED: 23/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64216

UNIT No. 7030-702

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Sandy Clay	Dark brown sandy clay. Low density, high plasticity, rollable, slightly sticky. Orange/brown sandy seams. Micaceous.			80	0	8
2	3		Clay	Medium grey/brown clay. Moderate density, moderate plasticity, rollable, slightly sticky. Micaceous.					
3	7		Clay	Medium grey clay. Moderate/high density, moderate/low plasticity, rollable, sticky. Micaceous.					
7	8		Sand	Grey medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.3-1mm. Micaceous.					
8	10		Sand	Grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.5mm, approx 40% medium sand. Micaceous.					

REMARKS: Screened 8-10m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 22/3/04

COMPLETED: 22/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64217

UNIT No. 7030-703

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Dark brown clay. High density, low plasticity, non-rollable, non-sticky. Slightly sandy. Micaceous.			80	0	5
1	2.5		Clay	Grey/brown clay. High density, low plasticity, slightly rollable, slightly sticky. Brown sandy seams. Micaceous.					
2.5	4		Clay	Medium grey clay. Moderate/high density, moderate/low plasticity, slightly rollable, sticky. Micaceous.					
4	6		Sand	Grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 1-2mm, traces of fine gravel up to 2.2mm, 10% medium sand. Micaceous, lignite.					
6	7		Sand	Grey medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, traces of coarse sand up to 1.5mm. Micaceous. Fawn clay blebs, moderate/low density, moderate/high plasticity, rollable, sticky. Micaceous.					

REMARKS: Screened 5-7m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 22/3/04

COMPLETED: 22/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64218

UNIT No. 7030-704

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Dark brown clay. High density, low plasticity, non-rollable, non-sticky. Micaceous.			80	0	5
1	2		Clay	Light brown clay. Moderate/low density, moderate/high plasticity, rollable, sticky, greasy. Orange/brown sandy seams. Micaceous.					
2	4		Clay	Grey/brown clay. Moderate/low density, moderate/high plasticity, rollable, sticky. Orange/brown clay seams. Micaceous.					
4	5		Clayey Sand	Orange/brown clayey fine sand. Low density, high plasticity, rollable, sticky. Micaceous.					
5	6		Sand	Dark orange/brown medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, approx 20% coarse sand up to 1.3mm. Grey sandy seam. Micaceous.					
6	8		Sand	Grey/brown medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.2mm. Micaceous, grey clay blebs.					

REMARKS: Screened 5-8m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 21/3/04

COMPLETED: 21/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64219

UNIT No. 7030-705

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Dark brown clay. High density, low plasticity, non-rollable, non-sticky. Micaceous.			80	0	13
1	2		Clay	Light brown clay. Moderate/low density, moderate/high plasticity, rollable, sticky. Orange/brown sandy interlayers. Micaceous.					
2	4		Clay	Grey/brown clay. Low density, high plasticity, rollable, sticky, greasy. Orange/brown seams. Micaceous.					
4	6		Sand	Dark orange fine/medium sand seam at top of sample. Orange/brown medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, approx 30% coarse sand up to 1.2mm. Micaceous.					
6	7		Sand	Grey/brown medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.3mm. Micaceous.					
7	8		Clay	Grey clay. Low density, high plasticity, rollable, sticky. Micaceous.					

REMARKS: Screened 13-16m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 21/3/04

COMPLETED: 21/3/04

LOGGED BY: Z. Marsden

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64219

UNIT No. 7030-705

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
8	11		Sand	Grey/brown coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.8-1.4mm, approx 15% medium sand. Micaceous.					
11	12.5		Sand	Dark brown coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, 25% medium sand. Micaceous, abundant lignite.					
12.5	16		Sand	Dark brown coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.8-1.2mm. Micaceous, becoming silty towards end of sample.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64225

UNIT No. 7030-711

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m)		SUPPLY			TOTAL DISSOLVED SOLIDS	
			From	To	L/sec	Test length	Method	mg/L	Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	0.5		Clay	Dark brown cay. High density, low plasticity, non-rollable, slightly sticky. Micaceous.			80	0	6
0.5	2		Clay	Light brown slightly silty clay. Low density, high plasticity, rollable, slightly sticky. Micaceous, gritty.					
2	4		Clay	Light brown clay. Moderate/low density, moderate/high plasticity, rollable, sticky, greasy. Sandy layers, orange/brown seams. Micaceous.					
4	5		Clay	Light grey and brown clay interlayers. Moderate density, moderate plasticity, rollable, sticky, greasy. Orange banding and dark brown seams. Micaceous.					
5	6		Clay	Dark grey clay. Low density, high plasticity, rollable, sticky, greasy. Micaceous.					
6	8		Sand	Light brown medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.5mm. Micaceous.					

REMARKS: Screened 6-8m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 30/3/04

COMPLETED: 30/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64226

UNIT No. 7030-712

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	0.5		Clay	Dark brown clay. High density, low plasticity, non-rollable, slightly sticky. Micaceous.			80	0	15.5
0.5	2		Clay	Light brown slightly silty clay. Moderate/low density, moderate/high plasticity, rollable, sticky. Micaceous.					
2	4		Clay	Light brown and grey clay interlayers. Moderate density, moderate plasticity, rollable, sticky. Orange and dark brown seams. Micaceous.					
4	5		Clay	Light/medium grey clay. Moderate/low density, moderate/high plasticity, rollable, sticky, greasy. Orange interlayers. Micaceous.					
5	6.5		Clay	Dark grey clay. Low density, high plasticity, rollable, sticky, greasy. Micaceous.					
6.5	7.5		Clay	Fawn and orange/brown clay interlayers. Moderate density, moderate plasticity, rollable, sticky. Micaceous.					
7.5	8		Sand	Brown medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.8mm. Micaceous.					

REMARKS: Screened 15.5-17.5m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 30/3/04

COMPLETED: 30/3/04

LOGGED BY: Z. Marsden

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64226

UNIT No. 7030-712

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
8	10		Sand	Light brown coarse quartz sand. Poorly sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, approx 25% medium sand, 10% fine gravel up to 3.5mm. Micaceous.					
10	14		Sand	Light brown medium quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.3-0.6mm, approx 30% coarse sand up to 1.5mm. Micaceous.					
14	16		Sand	Light/medium grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.5mm, approx 10% medium sand, traces of fine gravel up to 3mm. Micaceous.					
16	17.5		Sand	Light/medium grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.5mm, approx 30% medium sand, traces of fine gravel up to 3mm. Micaceous.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64232

UNIT No. 7030-718

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	0.5		Clay	Dark brown clay. High density, low plasticity, non-rollable, slightly sticky. Micaceous.			80	0	38
0.5	4		Clay	Light brown slightly silty clay. Low density, high plasticity, rollable, slightly sticky. Micaceous, gritty. Non-silty light brown clay bands. Moderate density, moderate plasticity, rollable, sticky, slightly greasy. Micaceous.					
4	5		Clay	Light grey clay. Moderate/low density, moderate/high plasticity, rollable, sticky, greasy. Orange/brown banding. Micaceous.					
5	6		Clay	Dark grey clay. Low density, high plasticity, rollable, sticky, greasy. Micaceous.					
6	8		Sand	Light brown medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.3mm. Micaceous.					
8	10		Sand	Light brown coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.8mm, approx 30% medium sand. Micaceous.					

REMARKS: Screened 38-40m

DRILL TYPE: Auger

COMPLETED: 30/3/04

DRILL FLUID: Mud

LOGGED BY: Z. Marsden

DATE: 30/3/04

SHEET 1 OF 3

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64232

UNIT No. 7030-718

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
10	12		Sand	Light grey medium quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, approx 40% coarse sand up to 1.5mm. Micaceous.					
12	14		Sand	Light grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.5mm, approx 20% medium sand. Micaceous.					
14	16		Sand	Medium grey medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.5mm. Micaceous, lignite.					
16	18		Sand	Medium grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.8mm, approx 30% medium sand. Micaceous.					
18	20		Sand	Light grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.8mm, traces up to 2mm, approx 30% medium sand. Micaceous, grey clay blebs.					
20	22		Clayey Sand	Light grey clayey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.8mm, approx 30% medium sand. Micaceous.					
22	24		Sand	Light grey fine/medium quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.6mm, approx 30% coarse sand up to 1.5mm. Micaceous.					
24	28		Sand	Medium grey fine/medium quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.6mm, approx 25% coarse sand up to 2mm. Micaceous.					
28	30		Sand	Medium grey medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1mm. Micaceous.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64232

UNIT No. 7030-718

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
30	31		Sand	Dark brown medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.8mm. Slightly silty. Micaceous.					
31	33		Sand	Medium grey medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1mm. Micaceous.					
33	34		Sand	Dark brown medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1mm. Slightly silty. Micaceous.					
34	35		Silty Sand	Dark brown silty medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-2mm. Micaceous.					
35	36		Clay	Dark brown clay. Low density, high plasticity, rollable, sticky, slightly greasy. Slightly sandy. Micaceous.					
36	40		Silty Sand	Dark brown silty fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.6mm. Micaceous. Sandy clay interlayers. Low density, high plasticity, rollable, sticky, slightly greasy. Micaceous.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64233

UNIT No. 7030-719

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Clay	Medium grey/brown clay. High density, low plasticity, non-rollable, slightly sticky. Micaceous.			80	0	6
2	4.5		Clay	Light grey/brown clay. High density, low plasticity, non-rollable, slightly sticky. Orange/brown seams. Micaceous.					
4.5	5.5		Sandy Clay	Medium grey sandy clay. Moderate density, moderate plasticity, rollable, sticky, greasy. Micaceous.					
5.5	6.5		Silty Sand	Medium grey silty fine quartz sand. Slightly clayey. Micaceous.					
6.5	7.5		Sand	Medium grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.5mm, approx 30% medium sand. Micaceous, lignite.					
7.5	8		Sand	Light brown coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.8mm, approx 20% medium sand. Micaceous, traces of lignite.					

REMARKS: Screened 6-8m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 1/4/04

COMPLETED: 1/4/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64234

UNIT No. 7030-720

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m)		SUPPLY			TOTAL DISSOLVED SOLIDS	
			From	To	L/sec	Test length	Method	mg/L	Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	3		Clay	Light grey/brown clay. High density, low plasticity, non-rollable, slightly sticky. Micaceous.			80	0	5
3	4		Clay	Light brown clay. High density, low plasticity, non-rollable, slightly sticky. Orange/brown seams. Micaceous.					
4	5		Sandy Clay	Light grey sandy clay. Moderate density, moderate plasticity, rollable, sticky, greasy. Orange/brown seams. Micaceous.					
5	7		Sand	Medium grey medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.8mm. Micaceous.					

REMARKS: Screened 5-7m

DRILL TYPE: Auger	COMPLETED: 1/4/04
DRILL FLUID: Mud	LOGGED BY: N. Rammers
DATE: 1/4/04	SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64235

UNIT No. 7030-721

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Clay	Grey clay. High density, low plasticity, non-rollable, non-sticky. Micaceous.			80	0	8
2	4		Clay	Light brown/grey. High density, low plasticity, non-rollable, non-sticky. Micaceous.					
4	5		Clay	Fawn/light brown sandy clay. Low density, high plasticity, rollable, slightly sticky. Micaceous.					
5	6		Clay	Dark grey clay. Low density, high plasticity, rollable, sticky, greasy. Micaceous.					
6	8		Sandy Clay	Dark grey sandy clay. Low density, high plasticity, rollable, slightly sticky. Sand content increasing with depth. Micaceous.					
8	10		Sand	Light brown coarse quartz sand/fine gravel. Poorly sorted, clear and cloudy, sub angular to sub rounded, 0.6-2.8mm. Micaceous, lignite.					

REMARKS: Screened 8-10m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 20/3/04

COMPLETED: 20/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64236

UNIT No. 7030-722

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m)		SUPPLY			TOTAL DISSOLVED SOLIDS	
			From	To	L/sec	Test length	Method	mg/L	Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Clay	Light grey slightly silty clay. Moderate density, moderate plasticity, rollable, slightly sticky. Micaceous.			80	0	8
2	4		Sandy Clay	Light grey sandy clay. Low density, high plasticity, rollable, slightly sticky. Sand content increasing with depth. Micaceous.					
4	6		Sand	Light brown/orange fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.6mm. Micaceous.					
6	8		Sand	Light orange medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm. Micaceous.					
8	10		Sand	Light orange coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm. Micaceous.					

REMARKS: Screened 8-10m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 20/3/04

COMPLETED: 20/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64237

UNIT No. 7030-658

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Silty Clay	Medium brown silty clay. No structure, low density, high plasticity, slightly rollable, slightly sticky. Micaceous, gritty.			80	0	7
2	5		Silty Clay	Light/medium brown silty clay. No structure, rollable, sticky. Micaceous, gritty.					
5	6		Clay	Light/medium brown clay. High density, low plasticity, non-rollable, slightly sticky. Micaceous, gritty.					
6	7		Clay	Light brown clay and silty clay interlayers. High density, low plasticity, non-rollable, slightly sticky. Orange/brown sandy seams. Micaceous, gritty.					
7	8		Sand	Light grey and light orange/brown fine/medium quartz sand interlayers. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.4mm, traces of coarse sand up to 1mm. Micaceous.					
8	9		Sand	Orange/brown fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.6mm, approx 10% coarse sand up to 1mm. Micaceous.					

REMARKS: Screened 7-10m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 18/3/04

COMPLETED: 18/3/04

LOGGED BY: Z. Marsden

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64237

UNIT No. 7030-658

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
9	10		Sand	Orange/brown fine/medium quartz sand. Well sorted, clear & cloudy, sub angular to sub rounded, 0.1-0.6mm, approx 25% coarse sand up to 1mm. Micaceous.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64238

UNIT No. 7030-659

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Silty Clay	Dark orange/brown silty clay. Low density, high plasticity, rollable, non-sticky. Micaceous.			80	0	17
2	4		Clay	Light/medium brown slightly silty clay. Low density, high plasticity, rollable, sticky. Micaceous, gritty.					
4	6		Clay	Light brown clay. Moderate/low density, moderate/high plasticity, rollable, sticky. Orange/brown sandy seams. Micaceous, gritty.					
6	8		Sandy Clay	Light grey sandy clay. Low density, high plasticity, slightly rollable, slightly sticky. Orange/brown sandy seams. Micaceous.					
8	10		Sand	Orange fine/medium quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.6mm, approx 30% coarse sand up to 1.8mm. Micaceous, clay blebs.					
10	15		Sand	Orange medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.2mm. Micaceous.					

REMARKS: Screened 17-20m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 18/3/04

COMPLETED: 18/3/04

LOGGED BY: Z. Marsden

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64238

UNIT No. 7030-659

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
15	16		Sand	Grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, approx 25% medium sand. Micaceous, lignite.					
16	18		Sand	Grey medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.2mm. Micaceous, lignite.					
18	20		Sand	Grey coarse quartz sand. Moderately sorted, clear & cloudy, sub angular to sub rounded, 0.6-1.5mm, approx 20% medium sand. Micaceous, traces of lignite.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64244

UNIT No. 7030-728

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Medium/dark brown clay. High density, low plasticity, non-rollable, slightly sticky. Micaceous.			80	0	6
1	2		Sandy Clay	Fawn/light brown sandy clay. Moderate density, moderate plasticity, slightly rollable, slightly sticky. Micaceous.					
2	5		Sandy Clay	Fawn/light brown sandy clay and clay interlayers. Moderate/high density, moderate/low plasticity, slightly rollable, slightly sticky. Orange/brown seams. Micaceous.					
5	6		Sand	Light brown/fawn fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.4mm. Micaceous.					
6	8		Sand	Light grey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.4mm. Micaceous.					

REMARKS: Screened 6-8m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 5/4/04

COMPLETED: 5/4/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64245

UNIT No. 7030-729

Coordinates: E N | El. Surface(m) | El. Ref. Point(m) | Datum: | **Hundred:** **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Dark brown clay. High density, low plasticity, non-rollable, slightly sticky. Micaceous.			80	0	23
1	2		Sandy Clay	Light brown/fawn sandy clay. Moderate density, moderate plasticity, rollable, slightly sticky. Micaceous.					
2	5		Sandy Clay	Light brown/fawn sandy clay. Moderate/high density, moderate/low plasticity, slightly rollable, slightly sticky. Orange/brown seams. Micaceous.					
5	7		Sand	Light brown/fawn fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.4mm. Micaceous.					
7	10		Sand	Light grey medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm. Micaceous.					
10	12		Gravelly Sand	Medium grey gravelly quartz sand. Poorly sorted, clear and cloudy, sub angular to sub rounded, 0.2-3mm. Micaceous, lignite, grey clay blebs.					

REMARKS: Screened 23-25m

DRILL TYPE: Auger | COMPLETED: 6/4/04

DRILL FLUID: Mud | LOGGED BY: Z. Marsden

DATE: 6/4/04 | SHEET 1 OF 2

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64245

UNIT No. 7030-729

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
12	14		Gravelly Sand	Medium grey gravelly and clayey sand. Poorly sorted, clear and cloudy, sub angular to sub rounded, 0.2-4mm. Micaceous, lignite.					
14	16		Sand	Light grey medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.2mm. Micaceous, traces of lignite.					
16	18		Gravelly Sand	Light grey coarse quartz sand/fine gravel. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2.2mm, approx 10% medium sand. Micaceous.					
18	20		Sand	Light grey medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1mm. Micaceous.					
20	24		Sand	Light brown coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.8mm, approx 10% medium sand. Micaceous, lignite.					
24	25		Sand	Light brown coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.6mm, approx 30% medium sand. Micaceous.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64251

UNIT No. 7030-734

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Medium/dark brown clay. High density, low plasticity, non-rollable, slightly sticky. Micaceous.			80	0	33
1	3		Sandy Clay	Fawn/light brown sandy clay. Low density, high plasticity, rollable, slightly sticky. Orange sandy seams. Micaceous.					
3	4		Clay	Fawn/light grey clay. High density, low plasticity, non-rollable, slightly sticky. Micaceous.					
4	6		Sandy Clay	Fawn/light grey sandy clay. Moderate density, moderate plasticity, rollable, slightly sticky. Micaceous.					
6	8		Sand	Light grey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.4mm. Micaceous.					
8	10		Sand	Light grey medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm. Micaceous.					

REMARKS: Screened 33-35m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 5/4/04

COMPLETED: 5/4/04

LOGGED BY: Z. Marsden

SHEET 1 OF 2

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64251

UNIT No. 7030-734

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
10	12		Gravelly Sand	Medium grey gravelly quartz sand. Poorly sorted, clear and cloudy, sub angular to sub rounded, 0.2-3mm. Micaceous, lignite, grey clay blebs.					
12	14		Gravelly Sand	Medium grey gravelly and clayey sand. Poorly sorted, clear and cloudy, sub angular to sub rounded, 0.2-4mm. Micaceous, lignite.					
14	16		Sand	Light grey medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.2mm. Micaceous.					
16	18		Gravelly Sand	Light grey coarse quartz sand/fine gravel. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2.2mm, approx 10% medium sand. Micaceous.					
18	20		Sand	Light grey medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1mm. Micaceous.					
20	22		Sand	Light brown coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.6-1mm, approx 10% medium sand. Micaceous, lignite.					
22	28		Sand	Light brown coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.5mm, approx 30% medium sand. Micaceous.					
28	31		Sand	Light brown coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.8-1.8mm. Micaceous.					
31	32		Silty Gravel	Medium grey silty quartz gravel. Moderately sorted, clear and cloudy, sub angular to sub rounded, 2-3mm. Micaceous.					
32	35		Silty Sand	Dark grey silty sand, approx 25% gravels up to 3mm. Micaceous.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64252

UNIT No. 7030-657

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Silty Clay	Light grey silty clay. Low density, high plasticity, rollable, sticky. Micaceous, gritty.			80	0	6
2	4		Silty Sand	Light grey/brown silty fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.5mm. Orange/brown sandy seams. Micaceous.					
4	5.5		Clay	Medium grey clay. Moderate/low density, moderate/high plasticity, rollable, sticky. Dark brown sandy seams. Micaceous.					
5.5	7		Sand	Medium grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, approx 10% fine gravel up top 2.3mm, approx 30% medium sand. Micaceous, lignite coming through at end.					
7	8		Sand	Light grey/brown coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, traces of fine gravel, approx 30% medium sand. Micaceous, lignite.					

REMARKS: Screened 6-8m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 19/3/04

COMPLETED: 19/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64253

UNIT No. 7030-735

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Clay	Light brown/grey clay. Low density, high plasticity, rollable, slightly sticky. Micaceous, gritty, slightly silty.			80	0	6
2	4		Clay	Light grey/brown clay. Low density, high plasticity, rollable, slightly sticky. Micaceous, gritty.					
4	6		Clay	Medium grey clay. Moderate/low density, moderate/high plasticity, rollable, sticky. Micaceous.					
6	8		Sand	Light grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, traces of fine gravel up to 3mm, approx 30% medium sand. Micaceous, lignite, clay blebs.					

REMARKS: Screened 6-8m.

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 19/3/2004

COMPLETED: 19/3/2004

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64254

UNIT No. 7030-736

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Medium brown/grey clay. High density, low plasticity, non-rollable, non-sticky. Dark brown seams. Micaceous.			80	0	6
1	2		Clay	Medium brown/grey clay. Moderate/high density, moderate/low plasticity, slightly rollable, slightly sticky. Dark brown seams. Micaceous.					
2	3		Clay	Medium brown/grey clay. Moderate/high density, moderate/low plasticity, slightly rollable, slightly sticky, greasy. Micaceous, slightly gritty.					
3	4		Clay	Medium grey clay. High density, low plasticity, non-rollable, slightly sticky, slightly greasy. Mottled yellow seams. Micaceous.					
4	5		Clay	Medium grey clay. Moderate density, moderate plasticity, rollable, sticky, greasy. Micaceous. Grey/brown slightly sandy clay bands. Moderate/low density, moderate/high plasticity, rollable, sticky, slightly greasy. Brown sandy seams. Micaceous.					

REMARKS: Screened 6-8m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 19/5/04

COMPLETED: 19/5/04

LOGGED BY: Z. Marsden

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64254

UNIT No. 7030-736

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
5	6		Clay	Medium grey clay. Moderate density, moderate plasticity, rollable, slightly sticky, slightly greasy. Sandy brown seams. Micaceous. Grey sands coming through at end.					
6	7		Sand	Light grey medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, approx 30% coarse sand up to 1mm. Micaceous.					
7	8		Sand	Medium grey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.6mm, approx 20% coarse sand up to 0.9mm. Micaceous, traces of lignite.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64255

UNIT No. 7030-737

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Dark brown/grey clay. High density, low plasticity, non-rollable, non-sticky. Micaceous.			80	0	6
1	3		Clay	Medium brown/grey clay. Moderate/high density, moderate/low plasticity, slightly rollable, slightly sticky, greasy. Micaceous.					
3	4		Clay	Medium brown/grey clay. High density, low plasticity, non-rollable, sticky, greasy. Mottled yellow/brown sandy seams. Micaceous, slightly gritty.					
4	4.5		Clay	Light grey clay. Moderate density, moderate plasticity, rollable, sticky, slightly greasy. Sandy yellow/brown seams. Micaceous.					
4.5	5		Clay	Light grey/brown sandy clay. Low density, high plasticity, rollable, slightly sticky. Mottled yellow/brown seams. Micaceous.					
5	6		Sandy Clay	Medium grey sandy clay. Low density, high plasticity, rollable, sticky, slightly greasy. Micaceous. Medium grey silty fine sand bands. Micaceous.					

REMARKS: Screened 6-8m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 20/5/04

COMPLETED: 20/5/04

LOGGED BY: Z. Marsden

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64255

UNIT No. 7030-737

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
6	8		Sand	Medium grey medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, approx 20% coarse sand up to 1mm. Micaceous, traces of lignite.					
8	9		Sand	Medium brown grey medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.3-0.6mm, approx 40% coarse sand up to 1.2mm. Micaceous.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64257

UNIT No. 7030-739

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Clay	Light grey/brown slightly silty clay. Moderate density, moderate plasticity, rollable, slightly sticky. Micaceous.			80	0	8
2	4		Sandy Clay	Light yellow/brown sandy clay. Low density, high plasticity, rollable, slightly sticky. Micaceous.					
4	6		Silty Clay	Light brown/grey silty clay. Low density, high plasticity, slightly rollable, slightly sticky. Micaceous.					
6	8		Silty Clay	Light grey silty clay. Low density, high plasticity, slightly rollable, slightly sticky. Micaceous.					
8	10		Sand	Light brown/grey medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.8mm. Micaceous, lignite.					

REMARKS: Screened 8-10m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 20/3/04

COMPLETED: 20/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64258

UNIT No. 7030-740

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Clay	Grey clay, slightly silty. Moderate/high density, moderate/low plasticity, rollable, sticky. Micaceous.			80	0	18
2	6		Clay	Fawn/light brown clay. Moderate/high density, moderate/low plasticity, rollable, sticky. Dark orange sandy seams. Light grey clay band. Micaceous.					
6	8		Sandy Clay	Dark grey highly sandy clay. Low density, high plasticity, rollable, sticky. Micaceous.					
8	10		Sand	Light brown coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.6mm. Micaceous, lignite.					
10	12		Gravelly Sand	Light grey corse quartz sand/fine gravel. Poorly sorted, clear and cloudy, sub angular to sub rounded, 1-3mm, up to 4.5mm in diameter. Micaceous, lignite, clay blebs.					
12	14		Sand	Light brown/grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.8mm. Micaceous, lignite.					

REMARKS: Screened 18-20m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 21/3/04

COMPLETED: 21/3/04

LOGGED BY: Z. Marsden

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64258

UNIT No. 7030-740

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
14	16		Sand	Light grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.8mm. Micaceous, lignite.					
16	20		Sand	Light grey medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.8mm. Micaceous, lignite.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64259

UNIT No. 7030-662

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Medium grey clay. High density, low plasticity, non-rollable, non-sticky. Micaceous, gritty.			80	0	2
1	2		Clay	Medium grey clay. Moderate density, moderate plasticity, rollable, sticky. Micaceous, gritty.					
2	4		Sand	Light brown fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.5mm, traces of coarse sand. Micaceous.					
4	5		Sand	Light grey fine/medium quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.6mm, 30% coarse sand up to 1.5mm, minor traces of gravel up to 2.5mm. Micaceous.					

REMARKS: Screened 2-5m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 17/3/04

COMPLETED: 17/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64260

UNIT No. 7030-663

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Light grey clay. Moderate density, moderate plasticity, rollable, sticky. Micaceous.			80	0	17
1	2		Sand	Light grey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.3mm. Micaceous.					
2	4		Sand	Light brown fine/medium sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.4mm. Micaceous.					
4	6		Sand	Light brown medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm. Micaceous.					
6	8		Sand	Light brown coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, approx 25% medium sand, minor fine gravel up to 2.5mm. Micaceous.					
8	10		Sand	Light grey medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-2mm, 10% fine gravel up to 5mm. Micaceous, lignite, light grey clay blebs.					

REMARKS: Screened 17-20m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 17/3/04

COMPLETED: 17/3/04

LOGGED BY: Z. Marsden

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64260

UNIT No. 7030-663

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
10	12		Gravelly Sand	Grey coarse quartz sand/fine gravel. Poorly sorted, clear and cloudy, sub angular to sub rounded, 0.2-3mm, approx 10% medium sand. Micaceous, lignite.					
12	14		Gravelly Sand	Grey medium/coarse quartz sand/fine gravel. Poorly sorted, clear and cloudy, sub angular to sub rounded, 0.2-5mm. Micaceous.					
14	16		Sand	Dark grey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.4mm, approx 10% coarse sand up to 2mm. Slightly silty. Micaceous, minor lignite.					
16	18		Sand	Dark grey medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.8mm. Slightly silty. Micaceous, minor lignite.					
18	20		Sand	Dark grey fine/medium quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.6mm, 40% coarse sand up to 1.8mm. Micaceous.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64261

UNIT No. 7030-661

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Clay	Dark brown clay. High density, low plasticity, non-rollable, slightly sticky. Orange/brown sandy seams. Micaceous.			80	0	6
2	5		Clay	Light and dark grey clay interlayers. Light grey clay moderate/high density, moderate/low plasticity, slightly rollable, sticky. Micaceous. Grey sandy seams. Dark grey clay low density, high plasticity, rollable, sticky, greasy. Micaceous.					
5	6		Sand	Dark grey medium quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, approx 25% coarse sand up to 1.8mm. Micaceous, traces of lignite.					
6	7		Sand	Medium brown medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.3-1.3mm. Micaceous.					
7	8		Sand	Medium grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 20% medium sand. Micaceous, abundant lignite up to 2cm.					

REMARKS: Screened 6-8m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 17/3/04

COMPLETED: 17/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64262

UNIT No. 7030-660

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Clay	Light grey clay. Moderate/high density, moderate/low plasticity, rollable, sticky. Brown sandy seams. Micaceous.			80	0	6
2	3		Clay	Light grey/fawn clay. Moderate density, moderate plasticity, rollable, sticky. Brown sandy seams. Micaceous.					
3	5		Clay	Dark grey clay. Low density, high plasticity, rollable, sticky, greasy. Micaceous.					
5	6		Sand	Medium/dark grey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.5mm, traces of coarse sand up to 1mm. Micaceous, lignite.					
6	7		Sand	Medium/dark grey medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, 30% coarse sand up to 1.2mm. Micaceous, abundant lignite up to 3cm, shell fragments.					
7	8		Sand	Light brown coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.5mm, approx 20% medium sand. Micaceous, lignite.					

REMARKS: Screened 6-8m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 17/3/04

COMPLETED: 17/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64263

UNIT No. 7030-665

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	0.5		Clay	Medium brown clay. High density, low plasticity, non-rollable, slightly sticky. Micaceous.			80	0	7
0.5	2		Clay	Medium brown silty clay. Low density, high plasticity, rollable, slightly sticky, greasy. Micaceous.					
2	4		Clay	Light grey/fawn clay. High density, low plasticity, non-rollable, slightly sticky. Light brown sandy seams. Micaceous.					
4	5		Clay	Light grey clay. Moderate/high density, moderate/low plasticity, rollable, sticky. Orange/brown sandy seams. Micaceous.					
5	6		Clay	Medium grey clay. Moderate density, moderate plasticity, rollable, sticky. Slightly sandy. Micaceous.					
6	7		Clay	Light brown/fawn clay. Moderate/high density, moderate/low plasticity, slightly rollable, sticky. Orange/brown sandy seam. Micaceous.					

REMARKS: Screened 7-9mm

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 12/3/04

COMPLETED: 12/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 2

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64263

UNIT No. 7030-665

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
7	8		Sand	Grey brown medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.3mm. Micaceous.					
8	9		Sand	Light brown medium/coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.3mm. Micaceous.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64264

UNIT No. 7030-664

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Medium brown clay. Moderate/high density, moderate/low plasticity, non-rollable, non-sticky. Micaceous.			80	0	7
1	2		Clay	Light grey clay. Moderate/high density, moderate/low plasticity, non-rollable, non-sticky. Micaceous.					
2	4		Clay	Light/medium brown clay. Moderate/low density, moderate/high plasticity, rollable, sticky, slightly silty. Orange/brown sandy seams. Micaceous.					
4	5		Sandy Clay	Light brown sandy clay. Low density, high plasticity, rollable, sticky. Orange/brown sandy seams. Micaceous.					
5	6		Sandy Clay	Medium grey sandy clay. Low density, high plasticity, rollable, sticky. Micaceous.					
6	8		Clay	Light brown clay. Moderate density, moderate plasticity, rollable, slightly sticky. Orange/brown sandy seams. Micaceous.					

REMARKS: Screened 7-9m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE:

COMPLETED:

LOGGED BY: Z. Marsden

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64264

UNIT No. 7030-664

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
8	9		Sand	Light grey/brown medium quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, approx 30% coarse sand up to 2mm. Micaceous.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64270

UNIT No. 7030-666

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Red/brown clay. Moderate density, moderate plasticity, rollable, sticky. Micaceous.			80	0	3
1	2		Silty Clay	Light brown silty clay. Low density, high plasticity, slightly rollable, sticky. Micaceous.					
2	4		Sand	Orange medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.8mm. Micaceous.					
4	6		Sand	Light brown/orange medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.8mm. Micaceous.					

REMARKS: Screened 3-6m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 12/3/04

COMPLETED: 12/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64271

UNIT No. 7030-667

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Medium brown clay. High density, low plasticity, non-rollable, slightly sticky. Micaceous.			80	0	15
1	2		Silty Clay	Light orange/brown silty clay. Low density, high plasticity, rollable, slightly sticky. Micaceous.					
2	4		Sand	Orange/brown slightly silty coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.2mm, approx 50% medium sand. Micaceous.					
4	6		Sand	Orange/brown coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, traces of fine gravel up to 4mm, 30% medium sand. Micaceous.					
6	8		Sand	Orange/brown medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-2mm, 10% fine gravel up to 3mm. Micaceous, clay blebs.					
8	10		Sand	Brown medium/coarse quartz sand. Poorly sorted, clear and cloudy, sub angular to sub rounded, 0.2-2mm, 20% fine gravel up to 2.5mm. Micaceous.					

REMARKS: Screened 15-18m.

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 11/3/04

COMPLETED: 11/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 2

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64271

UNIT No. 7030-667

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
10	12		Gravelly Sand	Grey coarse quartz sand/fine gravel. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.8-3mm., approx 10% medium sand. Micaceous, abundant lignite up to 4cm, grey clay blebs.					
12	14.5		Sandy Clay	Dark brown/black sandy clay. Low density, high plasticity, rollable, non-sticky. Sands moderately sorted, 0.2-2mm. Micaceous.					
14.5	18		Sand	Grey coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.5mm. Micaceous.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64273

UNIT No. 7030-742

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Clay	Light brown/fawn clay. Moderate/high density, moderate/low plasticity, non-rollable, non-sticky. Medium brown sandy interlayers. Micaceous.			80	0	8
2	4		Clay	Light grey/fawn clay. Moderate/high density, moderate/low plasticity, non-rollable, non-sticky. Orange/brown sandy seams. Light grey sandy clay interlayers. Moderate density, moderate plasticity rollable, slightly sticky. Micaceous.					
4	5		Clayey Sand	Dark orange clayey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.6mm. Micaceous.					
5	7		Clay	Light grey and dark grey clay interlayers. Low density, high plasticity, rollable, sticky, greasy. Micaceous.					
7	8		Sand	Light grey medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.5mm. Micaceous, abundant lignite.					
8	9		Sand	Light brown/orange medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.5mm. Micaceous.					

REMARKS: Screened 8-10m

DRILL TYPE: Auger

COMPLETED: 9/3/04

DRILL FLUID: Mud

LOGGED BY: Z. Marsden

DATE: 9/3/04

SHEET 1 OF 2

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64273

UNIT No. 7030-742

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
9	10		Gravelly Sand	Medium grey coarse sand/fine gravel. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2.5mm, approx 10% medium sand. Micaceous, abundant lignite up to 4cm long.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 62474

UNIT No. 7030-775

Coordinates: E N | El. Surface(m) | El. Ref. Point(m) | Datum: | **Hundred:** **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	3		Clay	Fawn/grey clay. High density, low plasticity, non-rollable, non-sticky. Brown sandy seams. Micaceous.			80	0	16
3	4		Sandy Clay	Light grey sandy clay. Low density, high plasticity, rollable, sticky. Orange/brown sandy seams. Micaceous.					
4	5		Clayey Sand	Light brown/grey clayey fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.6mm. Slightly rollable, slightly sticky. Orange sandy seams. Micaceous.					
5	6		Clay	Light grey and dark grey clay interlayers. Low density, high plasticity, rollable, sticky, greasy. Micaceous.					
6	9		Sand	Light brown/orange medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.5mm. Micaceous.					
9	10		Sand	Medium grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, approx 10% medium sand, traces of fine gravel. Micaceous, lignite up to 4cm.					

REMARKS: Screened 16-18m

DRILL TYPE: Auger | COMPLETED: 9/3/04

DRILL FLUID: Mud | LOGGED BY: Z. Marsden

DATE: 9/3/04 | SHEET 1 OF 2

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 62474

UNIT No. 7030-775

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
10	12		Gravelly Sand	Medium grey coarse quartz sand/fine gravel. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2.5mm, approx 10% medium sand. Micaceous, lignite up to 4cm long.					
12	14		Sand	Medium grey medium/coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-2mm. Micaceous, lignite up to 4cm, clay blebs.					
14	16		Sand	Light brown/grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, traces of medium sand and fine gravel. Micaceous, lignite up to 6cm.					
16	18		Sand	Light brown/grey medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6mm, 20% coarse sand up to 1.2mm. Micaceous. Sticky sand coming through at end, medium/coarse quartz sand up to 2mm, 20% fine gravels up to 3mm. Micaceous, lignite.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64275

UNIT No. 7030-670

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Clay	Dark brown clay. Moderate/high density, moderate/low plasticity. First 0.5m high density, low plasticity, non-rollable, non-sticky. Remainder of sample low density, high plasticity, rollable, sticky. Micaceous.			80	0	7
2	3		Clay	Light grey clay. Low density, high plasticity, rollable, sticky, greasy. Orange sandy seams. Micaceous.					
3	4		Sand	Orange medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.6. Micaceous.					
4	6		Sand	Orange coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, approx 30% medium sand. Micaceous.					
6	8		Sand	Light grey/orange coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, approx 20% medium sand. Micaceous.					
8	10		Sand	Medium grey/brown coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, 10% medium sand. Micaceous, hard bar few centimetres thick.					

REMARKS: Screened 7-10m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 10/3/04

COMPLETED: 10/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64276

UNIT No. 7030-671

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1.5		Clay	Medium grey/brown clay. High density, low plasticity, non-rollable, non-sticky. Micaceous.			80	0	15
1.5	4		Clay	Light grey clay. Low density, high plasticity, rollable, slightly sticky, slightly greasy. Orange/brown sandy seams. Micaceous.					
4	4.5		Sand	Light brown coarse quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.6mm. Slightly sticky. Micaceous.					
4.5	8		Sand	Orange coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, approx 5-10% medium sand. Micaceous.					
8	10		Sand	Orange/brown coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, approx 10% medium sand. Micaceous.					
10	12		Clayey Sand	Grey slightly clayey coarse quartz sand/fine gravel. Poorly sorted, clear and cloudy, sub angular to sub rounded, 0.2-3mm, 10% medium sand. Micaceous, lignite up to 3cm. Yellow medium/coarse sand layer. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-1mm. Micaceous, lignite.					

REMARKS: Screened 15-18m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 10/3/04

COMPLETED: 10/3/04

LOGGED BY: Z. Marsden

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64276

UNIT No. 7030-671

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
12	13.5		Sand	Yellow/grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, 30% medium sand. Micaceous.					
13.5	16		Sand	Grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.5mm, approx 30% medium sand. Micaceous.					
16	18		Sand	Grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, approx 20% medium sand. Micaceous.					

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GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64277

UNIT No. 7030-669

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1		Clay	Light/medium grey clay. Moderate/high density, moderate/low plasticity, slightly rollable, slightly sticky. Micaceous.			80	0	6
1	2		Clay	Medium brown clay. Low density, high plasticity, rollable, sticky, slightly greasy. Micaceous.					
2	3		Clay	Light brown/fawn clay. Moderate/high density, moderate/low plasticity, slightly rollable, sticky. Sandy orange/brown seams. Micaceous.					
3	4		Clay	Medium grey clay. Moderate density, moderate plasticity, rollable, sticky. Micaceous.					
4	6		Sand	Grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.8mm, approx 30% medium sand. Micaceous.					
6	8		Sand	Grey coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-2mm, approx 30% medium sand, traces of fine gravel. Micaceous.					

REMARKS: Screened 6-8m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 11/3/04

COMPLETED: 11/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64278

UNIT No. 7030-668

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1.5		Clay	Medium grey clay. High density, low plasticity, non-rollable, slightly sticky. Micaceous.			80	0	6
1.5	2		Clay	Dark brown clay. Low density, high plasticity, rollable, sticky, slightly silty. Micaceous.					
2	4		Sand	Orange coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.5mm, approx 30% medium sand. Micaceous.					
4	5.5		Sand	Grey/brown coarse quartz sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.5mm, approx 30% medium sand. Micaceous.					
5.5	6		Clay	Medium grey clay. Low density, high plasticity, rollable, sticky, greasy. Micaceous.					
6	8		Sand	Grey medium/coarse quartz sand. Moderately sorted, 0.2-2mm, traces of gravel up to 3.5mm. Micaceous, lignite.					

REMARKS: Screened 6-8m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 11/3/04

COMPLETED: 11/3/04

LOGGED BY: Z. Marsden

SHEET 1 OF 1

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64284

UNIT No. 7030-744

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Sand & Limestone	Orange/brown sand and off-white limestone layers. Sand fine, well sorted, clear and cloudy, sub angular to sub rounded. Limestone fine-grained, cemented.			157	0	125
2	4		Clay	Light grey/brown clay slurry. No structure. Off-white cemented limestone chips.					
4	6		Clay	Light grey clay. High density, low plasticity, non-rollable, sticky. Crimson/orange seams throughout. Limestone interlayers.					
6	8		Clay	Light grey clay. Moderate/low density. Moderate/high plasticity, rollable, sticky. Crimson/orange seams throughout.					
8	10		Clay	Light fawn/grey clay. Moderate/low density, moderate/high plasticity, rollable, sticky.					
10	12		Clay	Light fawn/grey clay. Moderate/low density, moderate/high plasticity, non-rollable, slightly sticky. Yellow/brown, red/brown and red/pink seams.					
12	16		Clay	Light fawn/grey clay. Moderate/high density, moderate/low plasticity, non-rollable, slightly sticky. Minor yellow brown seams.					

REMARKS: Open hole from 125-145m

DRILL TYPE: Auger

DRILL FLUID: Mud

DATE: 7/10/2004

COMPLETED: 12/10/2004

LOGGED BY: Z. Marsden

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The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64284

UNIT No. 7030-744

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
16	23		Clay	Light grey clay. Moderate/high density, moderate/low plasticity, non-rollable, slightly sticky. Moderate density interlayers throughout.					
23	24		Sand	Light grey medium sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.3-0.6mm.					
24	30		Sand	Light grey medium sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.3-0.6mm. Yellow/brown seams throughout. Grey clay interlayers.					
30	40		Sand	Light fawn/brown medium/coarse sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.4-0.8mm.					
40	42		Sand	Light yellow/brown medium/coarse sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.4-1mm. Traces of limestone, spherical shape.					
42	48		Sand	Light brown coarse sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.6mm. Traces of medium sand.					
48	54		Sand	Medium brown medium/coarse sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.5-1.5mm.					
54	66		Sand	Medium grey medium/coarse sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.6mm. Micaceous.					
66	68		Sand	Medium grey medium sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.4mm. Micaceous.					
68	78		Sand	Medium grey medium/coarse sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.5mm. Micaceous.					

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GROUNDWATER PROGRAM
WATER WELL LOG
CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64284

UNIT No. 7030-744

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
78	82		Clayey Sand	Medium grey clayey medium/coarse sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.5mm, becoming finer towards end of sample.					
82	88		Clayey Sand	Medium grey clayey medium sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.5mm. Minor shell fragments.					
88	96		Clayey Sand	Medium grey, medium/coarse clayey sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.2-1.5mm. Black specs throughout. Minor shell fragments. Micaceous.					
96	114		Clayey sand	Medium grey clayey medium/coarse sand. Moderately sorted, clear and cloudy, sub angular to sub rounded, 0.5-2.2mm. Abundant shell fragments.					
114	122		Marly Sand	Medium grey marly coarse sand. Well sorted, clear and cloudy, sub angular to sub rounded, 1.5-2.2mm. Shell fragments. Becoming more clayey with depth.					
122	124		Marly Sand	Medium grey marly coarse sand. Well sorted, clear and cloudy, sub angular to sub rounded, 1.5-2.2mm. Shell fragments. Thin chips of dark grey marly, high density. Limestone chips, soft.					
124	128		Sand, Marl & Limestone	Light grey limestone, sand and marl interlayers. Limestone in chips, cemented, fine-grained. Sand coarse, well sorted, clear and cloudy, sub angular to sub rounded, 1.5-2mm, content decreasing with depth. Marl both light grey, soft blebs and dark grey, hard chips. Shell fragments.					
128	134		Marl and Limestone	Light grey marl and limestone. Limestone in chips, cemented, fine-grained. Marl both light grey, soft blebs and dark grey, hard chips. Shell fragments.					
134	138		Marl	Light grey marl. Low density. Minor dark grey hard marl chips. Minor limestone chips, minor shell fragments.					

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WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64284

UNIT No. 7030-744

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
138	145		Marl and Limestone	Medium grey marl and limestone interlayers. Limestone in chips, fine-grained, cemented. Marl medium and light grey, soft. Minor shell fragments.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64285

UNIT No. 7030-743

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

Hundred: **Sec:**

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m) From	INTERVAL (m) To	SUPPLY L/sec	SUPPLY Test length	SUPPLY Method	TOTAL DISSOLVED SOLIDS mg/L	TOTAL DISSOLVED SOLIDS Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	2		Sand & Limestone	Orange/brown sand and off-white limestone layers. Sand fine, well sorted, clear and cloudy, sub angular to sub rounded. Limestone fine-grained, cemented.			80	0	47
2	4		Clay	Light grey/brown clay slurry. No structure. Off-white cemented limestone chips.					
4	6		Clay	Light grey clay. High density, low plasticity, non-rollable, sticky. Crimson/orange seams throughout. Limestone interlayers.					
6	8		Clay	Light grey clay. Moderate/low density. Moderate/high plasticity, rollable, sticky. Crimson/orange seams throughout.					
8	10		Clay	Light fawn/grey clay. Moderate/low density, moderate/high plasticity, rollable, sticky.					
10	12		Clay	Light fawn/grey clay. Moderate/low density, moderate/high plasticity, non-rollable, slightly sticky. Yellow/brown, red/brown and red/pink seams.					
12	16		Clay	Light fawn/grey clay. Moderate/high density, moderate/low plasticity, non-rollable, slightly sticky. Minor yellow brown seams.					

REMARKS: Screened 47-50m

DRILL TYPE: Auger	COMPLETED: 1/10/2004
DRILL FLUID: Mud	LOGGED BY: Z. Marsden
DATE: 29/9/2004	SHEET 1 OF 2

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 64285

UNIT No. 7030-743

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
16	23		Clay	Light grey clay. Moderate/high density, moderate/low plasticity, non-rollable, slightly sticky. Moderate density interlayers throughout.					
23	24		Sand	Light grey medium sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.3-0.6mm.					
24	30		Sand	Light grey medium sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.3-0.6mm. Yellow/brown seams throughout. Grey clay interlayers.					
30	40		Sand	Light fawn/brown medium/coarse sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.4-0.8mm.					
40	42		Sand	Light yellow/brown medium/coarse sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.4-1mm. Traces of limestone, spherical shape.					
42	48		Sand	Light brown coarse sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.6-1.6mm. Traces of medium sand.					
48	50		Sand	Medium brown medium/coarse sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.5-1.5mm.					

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GROUNDWATER PROGRAM

WATER WELL LOG

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 65654

UNIT No. 7030-776

Hundred:

Coordinates: E N El. Surface(m) El. Ref. Point(m) Datum:

AQUIFER SUMMARY	DEPTH TO WATER CUT (m)	DEPTH TO STANDING WATER (m)	INTERVAL (m)		SUPPLY			TOTAL DISSOLVED SOLIDS	
			From	To	L/sec	Test length	Method	mg/L	Analysis No.

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
0	1.5		Clay	Medium grey clay. Moderate/high density, moderate/low plasticity, slightly rollable, slightly sticky, friable. Traces of coarse quartz sand, sub angular to sub rounded, up to 3mm. Micaceous, vegetation matter.			157	0	85
1.5	3		Sandy Clay	Light grey sandy clay, Low density, high plasticity, rollable, sticky. Medium/coarse sand, up to 1mm. Micaceous.					
3	4		Sand	Orange/brown medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.2-0.5mm. Micaceous.					
4	6		Sand	Orange/brown medium/coarse quartz sand. Well sorted, clear and cloudy, sub-angular to sub-rounded, 0.2-1.2mm. Micaceous.					
6	8.5		Sand	Orange/brown coarse quartz sand. Poorly sorted, clear and cloudy, sub-angular to sub-rounded, 0.6-2.5mm. Approx 30% medium sand, approx 20% fines possibly silt or clay. Micaceous.					

REMARKS: Open hole 85-180m

DRILL TYPE: Auger

COMPLETED: 18/9/2004

DRILL FLUID: Mud

LOGGED BY:Z. Marsden

DATE 15/9/2004

SHEET 1 OF 5

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 65654

UNIT No. 7030-776

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
8.5	10		Sand	Medium grey coarse quartz sand. Moderately sorted, clear and cloudy, sub-angular to sub-rounded, 0.6-2mm some grains up to 5mm. 10% fine gravel, 10% medium sand. Micaceous, grey clay blebs. Hard bar and lignite at end of interval.					
10	13		Clayey Sand	Dark orange brown clayey coarse quartz sand. Moderately sorted, clear and cloudy, sub-angular to sub-rounded, 0.6-2.5mm. Approx 10% medium sands. Micaceous, small amount of grey clay blebs-possibly contamination from above. Hard bar at beginning of interval.					
13	16		Clayey Sand	Medium grey clayey quartz sand. Moderately sorted, clear and cloudy, sub-angular to sub-rounded, 0.7-2mm. 10% medium sand. Micaceous.					
16	18		Silty Sand	Dark grey/brown silty fine/medium quartz sand. Well sorted, clear and cloudy, sub angular to sub rounded, 0.1-0.3mm. 30% coarse sand, clear and cloudy, sub-angular to sub-rounded, 0.8-2mm. Slightly clayey. Micaceous.					
18	22		Silty Sand	Dark grey/brown silty fine/medium quartz sand. Traces of coarse sand up to 2mm. Slightly clayey. Micaceous.					
22	24		Silty Sand	Dark grey/brown silty fine/medium quartz sand. Traces of coarse sand up to 1.5mm. Micaceous.					
24	40		Silty Sand	Dark grey/brown silty fine/medium quartz sand. Clay content increasing with depth. Micaceous.					
40	44		Clayey & Silty Sand	Dark grey clayey and silty fine sand. Micaceous.					
44	46		Sandy Clay	Medium/dark grey sandy clay. Low density, non-rollable, slightly silty. Micaceous. Traces of pyrite.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM
WATER WELL LOG
CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 65654

UNIT No. 7030-776

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
46	50		Clay	Dark grey clay. Low density, high plasticity, slightly rollable, sticky. Slightly sandy (fine sand), pyritic. Micaceous.					
50	51		Sandy Clay	Dark grey very soft sandy clay. No structure. Micaceous					
51	52		Sandy Clay	Dark grey sandy clay. Low density, high plasticity, rollable, sticky, moderate sheen. Micaceous.					
52	56		Clay	Dark grey clay. Low density, high plasticity, rollable, sticky, moderate sheen. Slightly sandy, abundant pyrite. Clay becoming slightly denser with depth. Micaceous.					
56	58		Clay	Dark grey clay. Moderate/low density, moderate/high plasticity, rollable, sticky, moderate sheen. Traces of pyrite, slightly calcareous. Micaceous.					
58	61		Clay	Dark greenish grey clay. Moderate/low density, moderate/high plasticity, rollable, sticky. Glauconitic, shell fragments, calcareous. Micaceous.					
61	62		Sandy Clay	Greenish grey sandy clay. Soft, no structure, sticky. Shell fragments, calcareous. Micaceous.					
62	63		Clay	Greenish grey clay. Soft, no structure, sticky. Shell fragments, calcareous. Micaceous.					
63	64		Sandy Clay	Greenish grey clay. Soft, no structure, sticky. Slight brown tinge in parts. Shell fragments, calcareous. Micaceous.					
64	65		Marl	Medium brown marl. Soft, sticky. Light grey seams throughout. Shell fragments, highly calcareous. Micaceous.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM
WATER WELL LOG
CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 65654

UNIT No. 7030-776

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
65	68		Marl	Medium brown/grey marl. Very soft, sticky. Abundant shell fragments, highly calcareous					
68	72		Marl	Medium grey marl. Very soft, sticky. Shell fragments, calcareous. Becoming more clayey.					
72	73		Marl	Medium grey marl. Soft, sticky. Brown and grey clay banding. Traces of shell fragments, highly calcareous.					
73	81		Marl	Medium grey marl. Moderate/low density, moderate/high plasticity, sticky, rollable. Becoming more clayey.					
81	82		Marl	Medium grey marl. Moderate/low density, moderate/high plasticity, sticky, slightly rollable. Medium brown clay banding.					
82	84		Marl	Medium brown/grey marl. Moderate/low density, moderate/high plasticity, sticky, slightly greasy. Traces of shell fragments. Glauconitic.					
84	86		Marl	Greenish grey marl. Moderate/low density, moderate/high plasticity, sticky, slightly greasy. Medium brown clay interlayers. Glauconitic. Shell fragments, white limestone flecks coming through at end.					
86	92		Marl & Limestone	Light grey/off-white limestone and light grey marl interlayers. Consolidated, with dark grey hard clay blebs. Shell fragments.					
92	102		Marl & Limestone	Light grey/off-white limestone and light grey marl interlayers. Marl moderate density, moderate plasticity, rollable, sticky. Glauconitic seams. Shell fragments.					
102	104		Marl	Medium brown marl. Low density, high plasticity, rollable, sticky. Shell fragments. Carbonaceous.					

The Department of Water, Land and Biodiversity Conservation

GROUNDWATER PROGRAM

WATER WELL LOG

CONTINUATION SHEET

PROJECT: Chowilla Monitoring Network Expansion

PERMIT No. 65654

UNIT No. 7030-776

Hundred: **Sec:**

DEPTH (m) From	DEPTH (m) To	GRAPHIC LOG	ROCK/SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION/AGE	Depth Core Sample	CASING Dia (mm)	CASING From (m)	CASING To (m)
104	132		Marl & Limestone	Light/medium grey limestone and medium grey marl interlayers. Limestone fine-grained, consolidated, chip size becoming smaller with depth. Marl moderate density, moderate plasticity, sticky, rollable. Shell fragments, calcareous.					
132	180		Marl & Limestone	Light/medium grey limestone and medium grey marl interlayers. Limestone fine-grained, consolidated. Marl moderate density, moderate plasticity, sticky, rollable. Shell fragments, some long and cylindrical in shape. Calcareous. Hard bars throughout.					

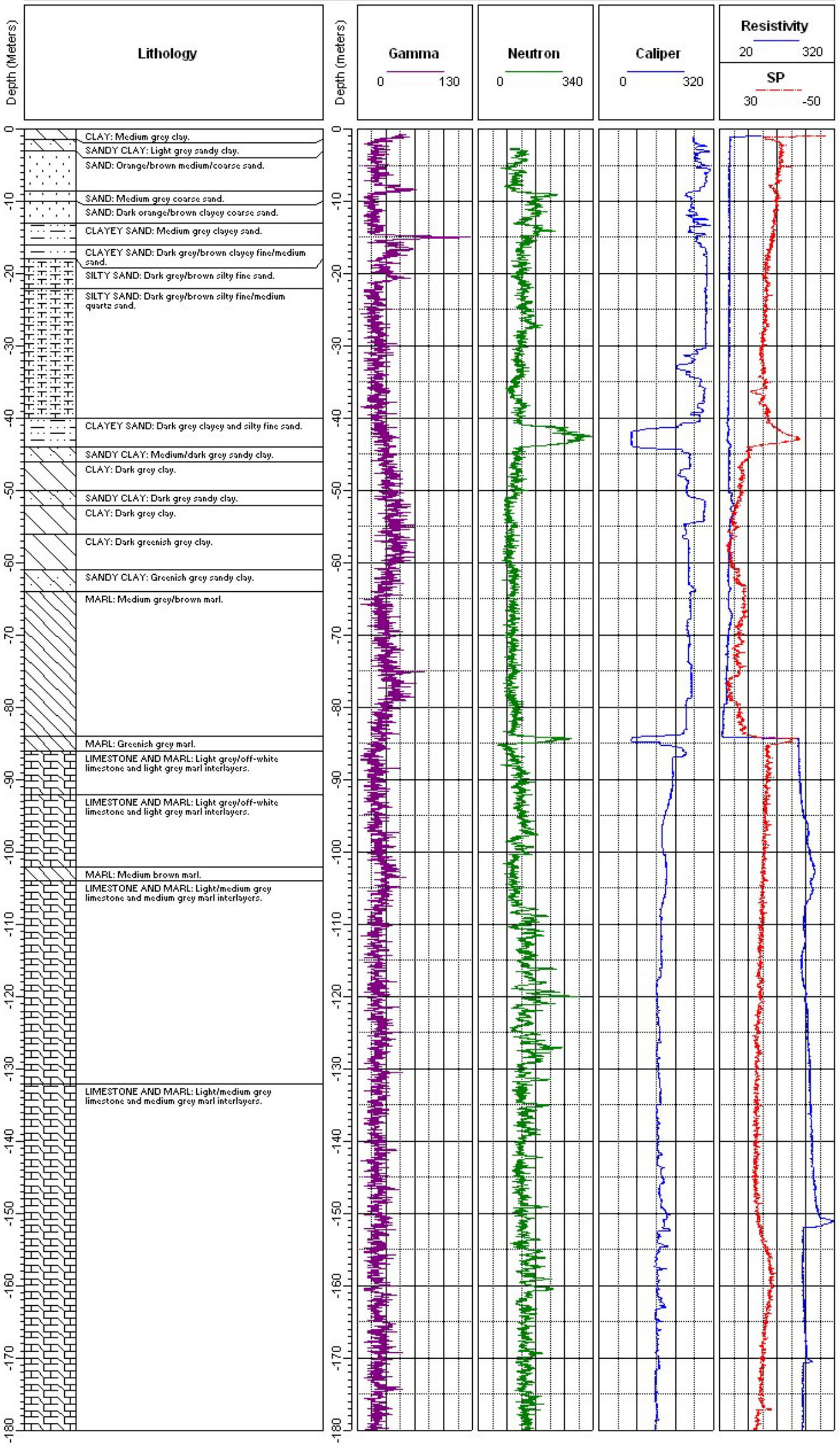
C. Geophysical Logs

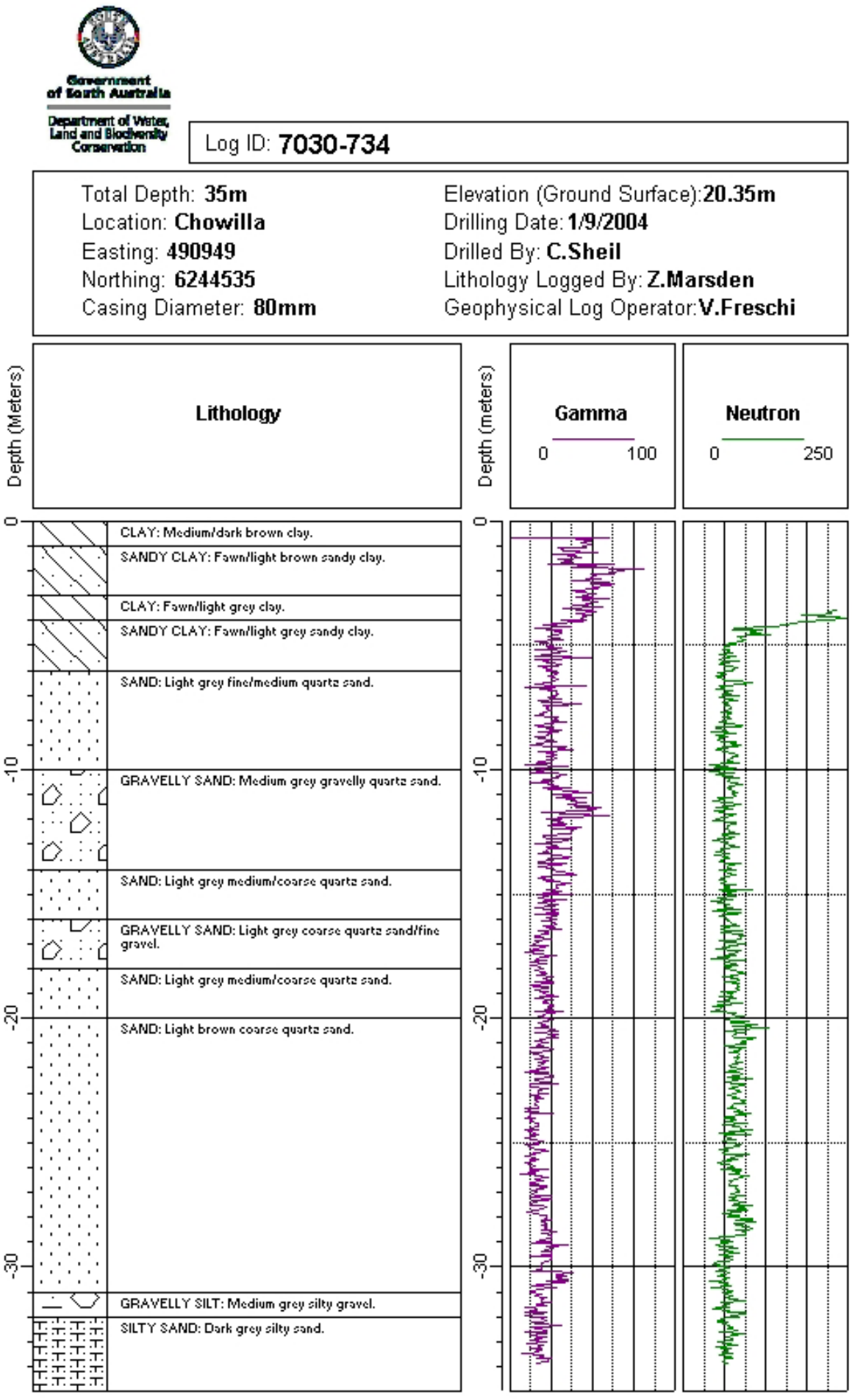
Government of South Australia
Department of Water, Land and Biodiversity Conservation

Log ID: **7030-776**

Total Depth: **180m**
Location: **Chowilla - Gum Flat**
Easting: **497790**
Northing: **497790**
Casing Diameter: **157mm**

Elevation (Ground Surface): **19.1m**
Drilling Date: **18/9/2004**
Drilled By: **C.Sheil**
Lithology Logged By: **Z.Marsden**
Geophysical Log Operator: **V.Freschi**



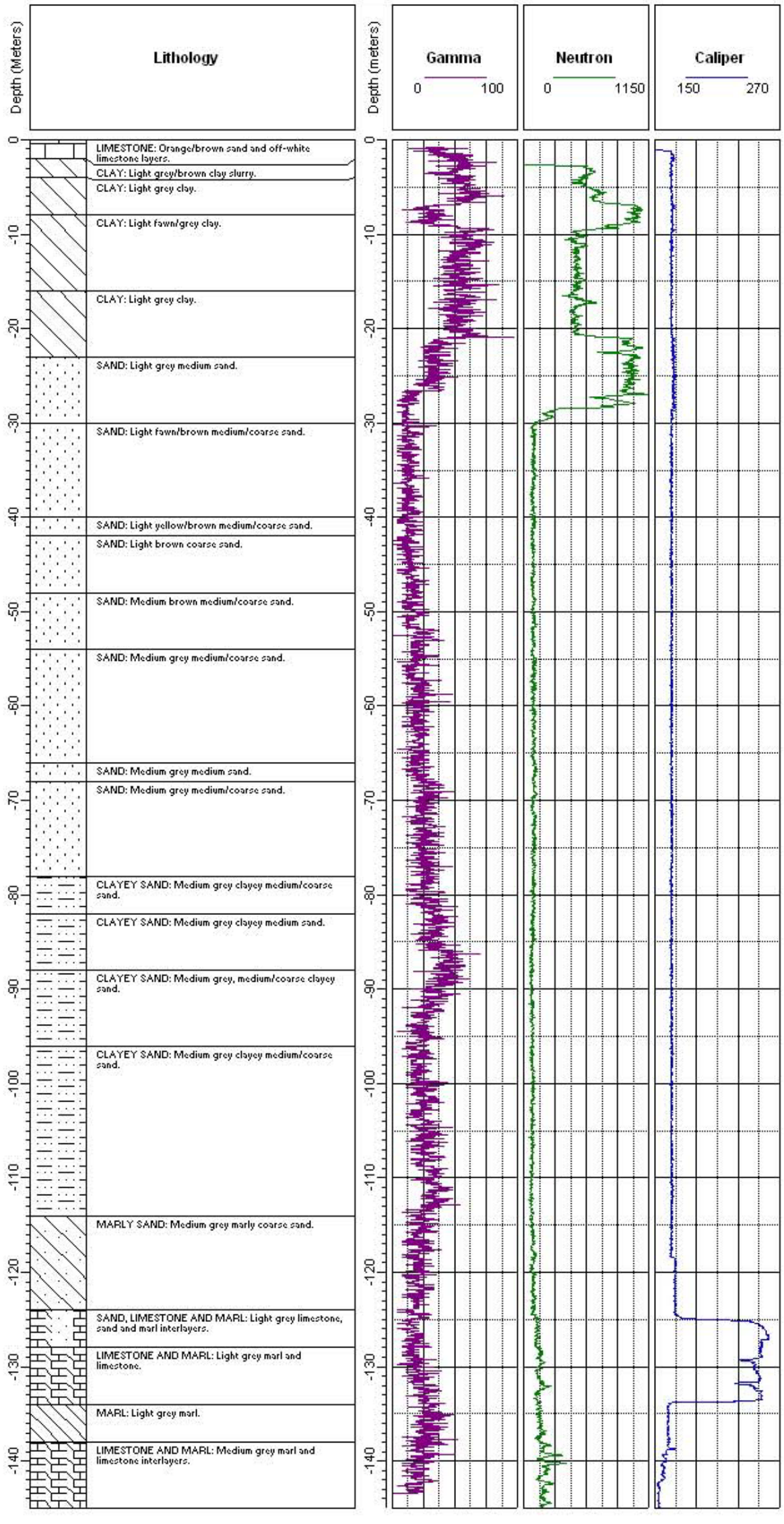

Government of South Australia
Department of Water, Land and Biodiversity Conservation
Log ID: 7030-734
Total Depth: 35m
Location: Chowilla
Easting: 490949
Northing: 6244535
Casing Diameter: 80mm
Elevation (Ground Surface):20.35m
Drilling Date:1/9/2004
Drilled By: C.Sheil
Lithology Logged By: Z.Marsden
Geophysical Log Operator:V.Freschi
Depth (Meters)
Lithology
Depth (meters)
Gamma
0
100
Neutron
0
250
0
-10
-20
-30
CLAY: Medium/dark brown clay.
SANDY CLAY: Fawn/light brown sandy clay.
CLAY: Fawn/light grey clay.
SANDY CLAY: Fawn/light grey sandy clay.
SAND: Light grey fine/medium quartz sand.
GRAVELLY SAND: Medium grey gravelly quartz sand.
SAND: Light grey medium/coarse quartz sand.
GRAVELLY SAND: Light grey coarse quartz sand/fine gravel.
SAND: Light grey medium/coarse quartz sand.
SAND: Light brown coarse quartz sand.
GRAVELLY SILT: Medium grey silty gravel.
SILTY SAND: Dark grey silty sand.

Government of South Australia
Department of Water, Land and Biodiversity Conservation

Log ID: **7030-744**

Total Depth: **145m**
Location: **Chowilla**
Easting: **483884**
Northing: **6247440**
Casing Diameter: **157mm**

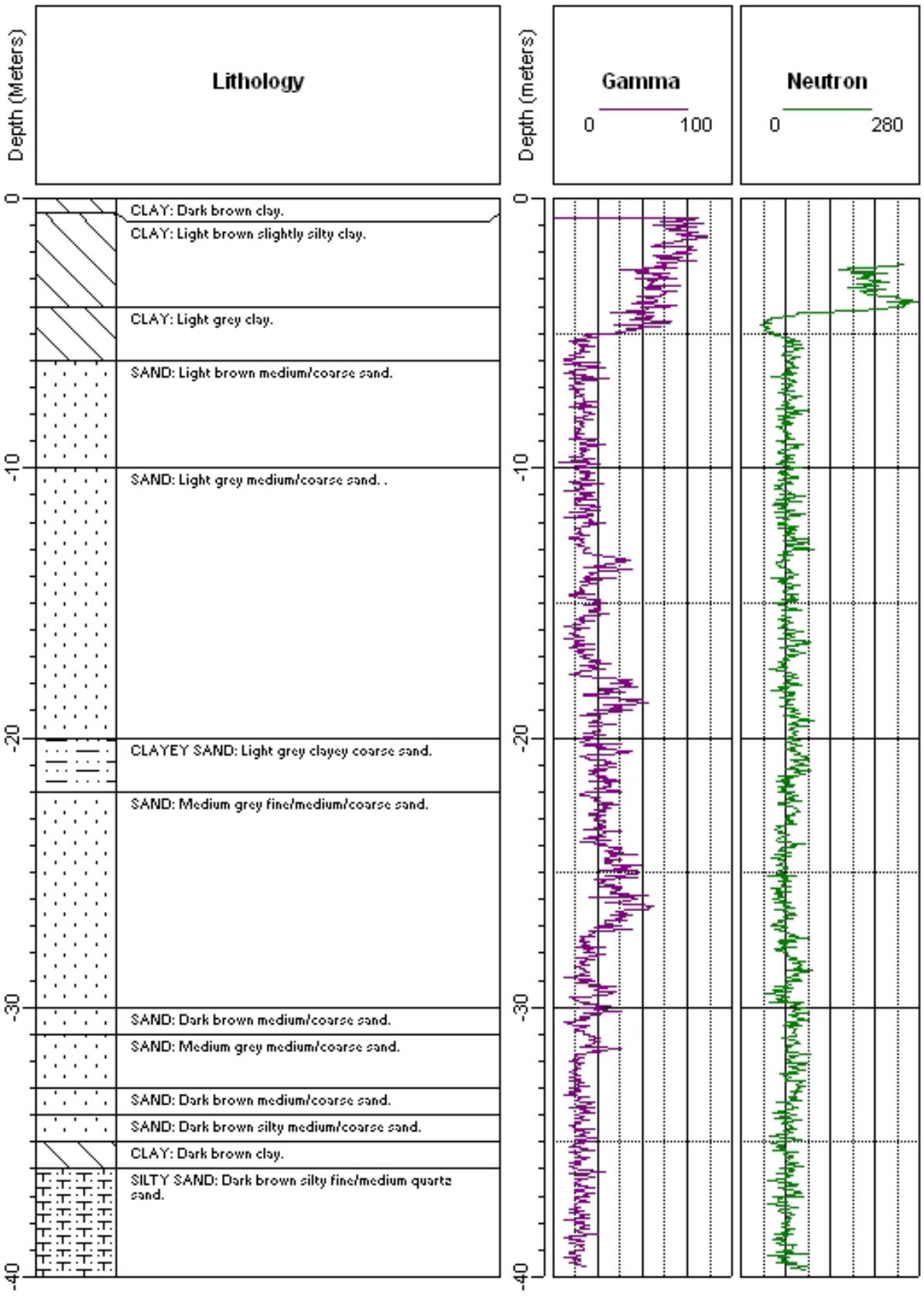
Elevation (Ground Surface): **51.67m**
Drilling Date: **12/10/2004**
Drilled By: **C.Sheil**
Lithology Logged By: **Z.Marsden**
Geophysical Log Operator: **V.Freschi**



Government of South Australia
Department of Water, Land and Biodiversity Conservation

Log ID: **7030-718**

Total Depth: **40m**	Elevation (Ground Surface): **20.08m**
Location: **Chowilla**	Drilling Date: **1/9/2004**
Easting: **487263**	Drilled By: **C.Sheil**
Northing: **6242557**	Lithology Logged By: **Z.Marsden**
Casing Diameter: **80mm**	Geophysical Log Operator: **V.Freschi**



SHORTENED FORMS

Units of measurement commonly used (SI and non-SI Australian legal)

Name of unit	Symbol	Definition in terms of other metric units	Quantity
day	d	24 h	time interval
gigalitre	GL	10^6 m^3	volume
gram	g	10^{-3} kg	mass
hectare	ha	10^4 m^2	area
hour	h	60 min	time interval
kilogram	kg	base unit	mass
kilolitre	kL	1 m^3	volume
kilometre	km	10^3 m	length
litre	L	10^{-3} m^3	volume
megalitre	ML	10^3 m^3	volume
metre	m	base unit	length
microgram	μg	10^{-6} g	mass
microlitre	μL	10^{-9} m^3	volume
milligram	mg	10^{-3} g	mass
millilitre	mL	10^{-6} m^3	volume
millimetre	mm	10^{-3} m	length
minute	min	60 s	time interval
second	s	base unit	time interval
tonne	t	1000 kg	mass
year	y	356 or 366 days	time interval

δD	hydrogen isotope composition
$\delta^{18}O$	oxygen isotope composition
^{14}C	carbon-14 isotope (percent modern carbon)
CFC	chlorofluorocarbon (parts per trillion volume)
DWLBC	Department of Water, Land and Biodiversity Conservation
EC	electrical conductivity (μS/cm)
pH	acidity
ppm	parts per million
ppb	parts per billion
TDS	total dissolved solids (mg/L)

GLOSSARY

Act. The *Water Resources Act 1997* (South Australia).

Adaptive management. A management approach, often used in natural resource management, where there is little information and/or a lot of complexity and there is a need to implement some management changes sooner rather than later. The approach is to use the best available information for the first actions, implement the changes, monitor the outcomes, investigate the assumptions and regularly evaluate and review the actions required. Consideration must be given to the temporal and spatial scale of monitoring and the evaluation processes appropriate to the ecosystem being managed.

Algal bloom. A rapid accumulation of algal biomass (living organic matter) which can result in deterioration in water quality when the algae die and break down consuming the dissolved oxygen and releasing toxins.

Ambient. The background level of an environmental parameter (e.g. a background water quality like salinity).

Anabranch. A branch of a river that leaves the main stream.

Annual adjusted catchment yield. Annual catchment yield with the impact of dams removed.

Aquifer. An underground layer of rock or sediment which holds water and allows water to percolate through.

Aquifer, confined. Aquifer in which the upper surface is impervious and the water is held at greater than atmospheric pressure. Water in a penetrating well will rise above the surface of the aquifer.

Aquifer, storage and recovery (ASR). The process of recharging water into an aquifer for the purpose of storage and subsequent withdrawal.

Aquifer test. A hydrological test performed on a well, aimed to increase the understanding of the aquifer properties, including any interference between wells, and to more accurately estimate the sustainable use of the water resource available for development from the well.

Aquifer, unconfined. Aquifer in which the upper surface has free connection to the ground surface and the water surface is at atmospheric pressure.

Aquitard. A layer in the geological profile that separates two aquifers and restricts the flow between them.

Arid lands. In South Australia arid lands are usually considered to be areas with an average rainfall of less than 250 mm and support pastoral activities instead of broad acre cropping.

Artesian. Under pressure such that when wells penetrate the aquifer water will rise to the ground surface without the need for pumping.

Artificial recharge. The process of artificially diverting water from the surface to an aquifer. Artificial recharge can reduce evaporation losses and increase aquifer yield. *(See recharge, natural recharge, aquifer.)*

Barrage. Specifically any of the five low weirs at the mouth of the River Murray constructed to exclude seawater from the Lower Lakes.

Baseflow. The water in a stream that results from groundwater discharge to the stream. (This discharge often maintains flows during seasonal dry periods and has important ecological functions.)

Basin. The area drained by a major river and its tributaries.

Benchmark condition. Points of reference from which change can be measured.

Biological diversity (biodiversity). The variety of life forms: the different life forms including plants, animals and micro-organisms, the genes they contain and the *ecosystems (see below)* they form. It is usually considered at three levels — genetic diversity, species diversity and ecosystem diversity.

Biota. All of the organisms at a particular locality.

Bore. *See well.*

Buffer zone. A neutral area that separates and minimises interactions between zones whose management objectives are significantly different or in conflict (e.g. a vegetated riparian zone can act as a buffer to protect the water quality and streams from adjacent land uses).

Catchment. A catchment is that area of land determined by topographic features within which rainfall will contribute to runoff at a particular point.

Catchment water management board. A statutory body established under Part 6, Division 3, s. 53 of the Act whose prime function under Division 2, s. 61 is to implement a catchment water management plan for its area.

Catchment water management plan. The plan prepared by a CWMB and adopted by the Minister in accordance with Part 7, Division 2 of the Water Resources Act 1997.

Codes of practice. Standards of management developed by industry and government, promoting techniques or methods of environmental management by which environmental objectives may be achieved.

Cone of depression. An inverted cone-shaped space within an aquifer caused by a rate of groundwater extraction which exceeds the rate of recharge. Continuing extraction of water can extend the area and may affect the viability of adjacent wells, due to declining water levels or water quality.

Conjunctive use. The utilisation of more than one source of water to satisfy a single demand.

Council of Australian Governments (COAG). A council of the Prime Minister, State Premiers, Territory Chief Ministers and the President of the Australian Local Government Association which exists to set national policy directions for Australia.

CWMB. Catchment Water Management Board.

Dams, off-stream dam. A dam, wall or other structure that is not constructed across a watercourse or drainage path and is designed to hold water diverted, or pumped, from a watercourse, a drainage path, an aquifer or from another source. Off-stream dams may capture a limited volume of surface water from the catchment above the dam.

Dams, on-stream dam. A dam, wall or other structure placed or constructed on, in or across a watercourse or drainage path for the purpose of holding and storing the natural flow of that watercourse or the surface water.

Dams, turkey nest dam. An off-stream dam that does not capture any surface water from the catchment above the dam.

Diffuse source pollution. Pollution from sources such as an eroding paddock, urban or suburban lands and forests; spread out, and often not easily identified or managed.

Domestic purpose. The taking of water for ordinary household purposes and includes the watering of land in conjunction with a dwelling not exceeding 0.4 hectares.

Domestic wastewater. Water used in the disposal of human waste, for personal washing, washing clothes or dishes, and swimming pools.

DSS (decision support system). A system of logic or a set of rules derived from experts, to assist decision making. Typically they are constructed as computer programs.

EC. Abbreviation for electrical conductivity. 1 EC unit = 1 micro-Siemen per centimetre (µS/cm) measured at 25 degrees Celsius. Commonly used to indicate the salinity of water.

Ecological processes. All biological, physical or chemical processes that maintain an ecosystem.

Ecological values. The habitats, the natural ecological processes and the biodiversity of ecosystems.

Ecologically sustainable development (ESD). Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.

Ecology. The study of the relationships between living organisms and their environment.

Ecosystem. Any system in which there is an interdependence upon and interaction between living organisms and their immediate physical, chemical and biological environment.

Effluent. Domestic wastewater and industrial wastewater.

EIP. Environment improvement program.

Entitlement flows. Minimum monthly River Murray flows to South Australia agreed in the Murray-Darling Basin Agreement 1992.

Environmental values. The uses of the environment that are recognised as of value to the community. This concept is used in setting water quality objectives under the Environment Protection (Water Quality) Policy, which recognises five environmental values — protection of aquatic ecosystems, recreational water use and aesthetics, potable (drinking water) use, agricultural and aquaculture use, and industrial use. It is not the same as ecological values, which are about the elements and functions of ecosystems.

Environmental water provisions. Those parts of environmental water requirements that can be met, at any given time. This is what can be provided at that time with consideration of existing users' rights, social and economic impacts.

Environmental water requirements. The water regimes needed to sustain the ecological values of aquatic ecosystems, including their processes and biological diversity, at a low level of risk.

EPA. Environment Protection Agency.

Ephemeral streams / wetlands. Those streams or wetlands that usually contain water only on an occasional basis after rainfall events. Many arid zone streams and wetlands are ephemeral.

Erosion. Natural breakdown and movement of soil and rock by water, wind or ice. The process may be accelerated by human activities.

ESD. Ecologically sustainable development *(see above for definition)*.

Estuaries. Semi-enclosed waterbodies at the lower end of a freshwater stream that are subject to marine, freshwater and terrestrial influences and experience periodic fluctuations and gradients in salinity.

Eutrophication. Degradation of water quality due to enrichment by nutrients (primarily nitrogen and phosphorus), causing excessive plant growth and decay. *(See algal bloom).*

Evapotranspiration. The total loss of water as a result of transpiration from plants and evaporation from land, and surface waterbodies.

Fishway. A generic term describing all mechanisms that allow the passage of fish along a waterway. Specific structures include fish ladders (gentle sloping channels with baffles that reduce the velocity of water and provide resting places for fish as they 'climb' over a weir) and fishlifts (chambers, rather like lift-wells, that are flooded and emptied to enable fish to move across a barrier).

Floodplain. Of a watercourse means: (a) the floodplain (if any) of the watercourse identified in a catchment water management plan or a local water management plan; adopted under Part 7 of the Water Resources Act 1997; or (b) where paragraph (a) does not apply — the floodplain (if any) of the watercourse identified in a development plan under the Development Act 1993, or (c) where neither paragraph (a) nor paragraph (b) applies — the land adjoining the watercourse that is periodically subject to flooding from the watercourse.

Flow bands. Flows of different frequency, volume and duration.

GAB. Great Artesian Basin.

Gigalitre (GL). One thousand million litres (1 000 000 000).

GIS (geographic information system). Computer software allows for the linking of geographic data (for example land parcels) to textual data (soil type, land value, ownership). It allows for a range of features, from simple map production to complex data analysis.

GL. *See gigalitre.*

Greenhouse effect. The balance of incoming and outgoing solar radiation which regulates our climate. Changes to the composition of the atmosphere such as the addition of carbon dioxide through human activities, have the potential to alter the radiation balance and to effect changes to the climate. Scientists suggest that changes would include global warming, a rise in sea level and shifts in rainfall patterns.

Greywater. Household wastewater excluding sewage effluent. Wastewater from kitchen, laundry and bathroom.

Groundwater. *See underground water.*

Habitat. The natural place or type of site in which an animal or plant, or communities of plants and animals, lives.

Heavy metal. Any metal with a high atomic weight (usually, although not exclusively, greater than 100), for example mercury, lead and chromium. Heavy metals have a widespread industrial use, and many are released into the biosphere via air, water and solids pollution. Usually these metals are toxic at low concentrations to most plant and animal life.

Hydrogeology. The study of groundwater, which includes its occurrence, recharge and discharge processes and the properties of aquifers. *(See hydrology.)*

Hydrography. The discipline related to the measurement and recording of parameters associated with the hydrological cycle, both historic and real time.

Hydrology. The study of the characteristics, occurrence, movement and utilisation of water on and below the earth's surface and within its atmosphere. *(See hydrogeology.)*

Hyporheic zone. The wetted zone among sediments below and alongside rivers. It is a refuge for some aquatic fauna.

Indigenous species. A species that occurs naturally in a region.

Industrial wastewater. Water (not being domestic wastewater) that has been used in the course of carrying on a business (including water used in the watering of irrigation of plants) that has been allowed to run to waste or has been disposed of or has been collected for disposal.

Infrastructure. Artificial lakes; or dams or reservoirs; or embankments, walls, channels or other works; or buildings or structures; or pipes, machinery or other equipment.

Integrated catchment management. Natural resources management that considers in an integrated manner the total long-term effect of land and water management practices on a catchment basis, from production and environmental viewpoints.

Intensive farming. A method of keeping animals in the course of carrying on the business of primary production in which the animals are confined to a small space or area and are usually fed by hand or by mechanical means.

Irrigation. Watering land by any means for the purpose of growing plants.

Irrigation season. The period in which major irrigation diversions occur, usually starting in August–September and ending in April–May.

Lake. A natural lake, pond, lagoon, wetland or spring (whether modified or not) and includes: part of a lake; and a body of water declared by regulation to be a lake; a reference to a lake is a reference to either the bed, banks and shores of the lake or the water for the time being held by the bed, banks and shores of the lake, or both, depending on the context.

Land. Whether under water or not and includes an interest in land and any building or structure fixed to the land.

Land capability. The ability of the land to accept a type and intensity of use without sustaining long-term damage.

Leaching. Removal of material in solution such as minerals, nutrients and salts through soil.

Licence. A licence to take water in accordance with the Water Resources Act 1997. *(See water licence.)*

Licensee. A person who holds a water licence.

Local water management plan. A plan prepared by a council and adopted by the Minister in accordance with Part 7, Division 4 of the Act.

Macro-invertebrates. Animals without backbones that are typically of a size that is visible to the naked eye. They are a major component of aquatic ecosystem biodiversity and fundamental in food webs.

MDBC. Murray-Darling Basin Commission.

Megalitre (ML). One million litres (1 000 000).

ML. *See megalitre.*

Model. A conceptual or mathematical means of understanding elements of the real world which allows for predictions of outcomes given certain conditions. Examples include estimating storm runoff, assessing the impacts of dams or predicting ecological response to environmental change.

Mount Lofty Ranges Watershed. The area prescribed by Schedule 1 of the regulations.

Natural recharge. The infiltration of water into an aquifer from the surface (rainfall, streamflow, irrigation etc.) *(See recharge area, artificial recharge.)*

NHMRC. National Health and Medical Research Council.

NHT. Natural Heritage Trust.

Occupier of land. A person who has, or is entitled to, possession or control of the land.

Owner of land. In relation to land alienated from the Crown by grant in fee simple — the holder of the fee simple; in relation to dedicated land within the meaning of the *Crown Lands Act 1929* that has not been granted in fee simple but which is under the care, control and management of a Minister, body or other person — the Minister, body or other person; in relation to land held under Crown lease or licence — the lessee or licensee; in relation to land held under an agreement to purchase from the Crown — the person entitled to the benefit of the agreement; in relation to any other land — the Minister who is responsible for the care, control and management of the land or, if no Minister is responsible for the land, the Minister for Environment and Heritage.

Palaeochannels. Ancient buried river channels in arid areas of the state. Aquifers in palaeochannels can yield useful quantities of groundwater or be suitable for ASR.

Pasture. Grassland used for the production of grazing animals such as sheep and cattle.

Percentile. A way of describing sets of data by ranking the data set and establishing the value for each percentage of the total number of data records. The 90th percentile of the distribution is the value such that 90% of the observations fall at or below it.

Permeability. A measure of the ease with which water flows through an aquifer or aquitard.

Personal property. All forms of property other than real property. For example, shares or a water licence.

Phreaphytic vegetation. Vegetation that exists in a climate more arid than its normal range by virtue of its access to groundwater.

Phytoplankton. The plant constituent of organisms inhabiting the surface layer of a lake; mainly single-cell algae.

PIRSA. (Department of) Primary Industries and Resources South Australia.

Pollution, diffuse source. Pollution from sources that are spread out and not easily identified or managed (e.g. an eroding paddock, urban or suburban lands and forests).

Pollution, point source. A localised source of pollution.

Potable water. Water suitable for human consumption.

Potentiometric head. The potentiometric head or surface is the level to which water rises in a well due to water pressure in the aquifer.

Precautionary principle. Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

Prescribed area, surface water. Part of the State declared to be a surface water prescribed area under the Water Resources Act 1997.

Prescribed lake. A lake declared to be a prescribed lake under the Water Resources Act 1997.

Prescribed water resource. A water resource declared by the Governor to be prescribed under the Act, and includes underground water to which access is obtained by prescribed wells. Prescription of a water resource requires that future management of the resource be regulated via a licensing system.

Prescribed watercourse. A watercourse declared to be a prescribed watercourse under the Water Resources Act 1997.

Prescribed well. A well declared to be a prescribed well under the Water Resources Act 1997.

Property right. A right of ownership or some other right to property, whether real property or personal property.

Proponent. The person or persons (who may be a body corporate) seeking approval to take water from prescribed water.

PWA. Prescribed wells area.

PWCA. Prescribed watercourse area.

PWRA. Prescribed water resource area.

Ramsar Convention. This is an international treaty on wetlands titled The Convention on Wetlands of International Importance Especially as Waterfowl Habitat. It is administered by the International Union for Conservation of Nature and Natural Resources. It was signed in the town of Ramsar, Iran in 1971, hence its common name. The Convention includes a list of wetlands of international importance and protocols regarding the management of these wetlands. Australia became a signatory in 1974.

Recharge area. The area of land from which water from the surface (rainfall, streamflow, irrigation, etc.) infiltrates into an aquifer. *(See artificial recharge, natural recharge.)*

Reclaimed water. Treated effluent of a quality suitable for the designated purpose.

Rehabilitation (of waterbodies). Actions that improve the ecological health of a waterbody by reinstating important elements of the environment that existed prior to European settlement.

Remediation (of waterbodies). Actions that improve the ecological condition of a waterbody without necessarily reinstating elements of the environment that existed prior to European settlement.

Restoration (of waterbodies). Actions that reinstate the pre-European condition of a waterbody.

Reticulated water. Water supplied through a piped distribution system.

Riffles. Shallow stream section with fast and turbulent flow.

Riparian landholder. A person whose property abuts a watercourse or through whose property a watercourse runs.

Riparian rights. These were old common law rights of access to, and use of water. These common law rights were abolished with the enactment of the Water Resources Act 1997, which now includes similar rights under s. 7. Riparian rights are therefore now statutory rights under the Act. Where the resource is not prescribed (Water Resources Act 1997, s. 8) or subject to restrictions (Water Resources Act 1997, s. 16), riparian landholders may take any amount of water from watercourses, lakes or wells without consideration to downstream landholders, if it is to be used for stock or domestic purposes. If the capture of water from watercourses and groundwater is to be used for any other purpose then the right of downstream landholders must be protected. Landholders may take any amount of surface water for any purpose without regard to other landholders, unless the surface water is prescribed or subject to restrictions.

Riparian zone. That part of the landscape adjacent to a water body, that influences and is influenced by watercourse processes. This can include landform, hydrological or vegetation definitions. It is commonly used to include the in-stream habitats, bed, banks and sometimes floodplains of watercourses.

Seasonal watercourses or wetlands. Those watercourses and wetlands that contain water on a seasonal basis, usually over the winter/spring period, although there may be some flow or standing water at other times.

State water plan. The plan prepared by the Minister under Part 7, Division 1, s. 90 of the Act.

Stock Use. The taking of water to provide drinking water for stock other than stock subject to intensive farming (as defined by the Act).

Stormwater. Runoff in an urban area.

Surface water. (a) water flowing over land (except in a watercourse), (i) after having fallen as rain or hail or having precipitated in any another manner, (ii) or after rising to the surface naturally from underground; (b) water of the kind referred to in paragraph (a) that has been collected in a dam or reservoir.

Taxa. General term for a group identified by taxonomy — which is the science of describing, naming and classifying organisms.

To take water. From a water resource includes (a) to take water by pumping or syphoning the water; (b) to stop, impede or divert the flow of water over land (whether in a watercourse or not) for the purpose of collecting the water; (c) to divert the flow of water in a watercourse from the watercourse; (d) to release water from a lake; (e) to permit water to flow under natural pressure from a well; (f) to permit stock to drink from a watercourse, a natural or artificial lake, a dam or reservoir.

Total kjeldhal nitrogen (TKN). The sum of aqueous ammonia and organic nitrogen. Used as a measure of probable sewage pollution.

Transfer. A transfer of a licence (including its water allocation) to another person, or the whole or part of the water allocation of a licence to another licensee or the Minister under Part 5, Division 3, s. 38 of the Act. The transfer may be absolute or for a limited period.

Underground water (groundwater). Water occurring naturally below ground level or water pumped, diverted or released into a well for storage underground.

Volumetric allocation. An allocation of water expressed on a water licence as a volume (e.g. kilolitres) to be used over a specified period of time, usually per water use year (as distinct from any other sort of allocation).

Wastewater. *See domestic wastewater, industrial wastewater.*

Water affecting activities. Activities referred to in Part 4, Division 1, s. 9 of the Act.

Water allocation. (a) in respect of a water licence means the quantity of water that the licensee is entitled to take and use pursuant to the licence; (b) in respect of water taken pursuant to an authorisation under s. 11 means the maximum quantity of water that can be taken and used pursuant to the authorisation.

Water allocation, area based. An allocation of water that entitles the licensee to irrigate a specified area of land for a specified period of time usually per water use year.

Water allocation plan. A plan prepared by a CWMB or water resources planning committee and adopted by the Minister in accordance with Division 3 of Part 7 of the Act.

Water licence. A licence granted under the Act entitling the holder to take water from a prescribed watercourse, lake or well or to take surface water from a surface water prescribed area. This grants the licensee a right to take an allocation of water specified on the licence, which may also include conditions on the taking and use of that water. A water licence confers a property right on the holder of the licence and this right is separate from land title.

Water plans. The State Water Plan, catchment water management plans, water allocation plans and local water management plans prepared under Part 7 of the Act.

Water service provider. A person or corporate body that supplies water for domestic, industrial or irrigation purposes or manages wastewater.

Waterbody. Waterbodies include watercourses, riparian zones, floodplains, wetlands, estuaries, lakes and groundwater aquifers.

Watercourse. A river, creek or other natural watercourse (whether modified or not) and includes: a dam or reservoir that collects water flowing in a watercourse; and a lake through which water flows; and a channel (but not a channel declared by regulation to be excluded from the this definition) into which the water of a watercourse has been diverted; and part of a watercourse.

Water-dependent ecosystems. Those parts of the environment, the species composition and natural ecological processes, which are determined by the permanent or temporary presence of flowing or standing water, above or below ground. The in-stream areas of rivers, riparian vegetation, springs, wetlands, floodplains, estuaries and lakes are all water-dependent ecosystems.

Water-use year. The period between 1 July in any given calendar year and 30 June the following calendar year. This is also called a licensing year.

Well. (a) an opening in the ground excavated for the purpose of obtaining access to underground water; (b) an opening in the ground excavated for some other purpose but that gives access to underground water; (c) a natural opening in the ground that gives access to underground water.

Wetlands. Defined by the Act as a swamp or marsh and includes any land that is seasonally inundated with water. This definition encompasses a number of concepts that are more specifically described in the definition used in the Ramsar Convention on Wetlands of International Importance. This describes wetlands as areas of permanent or periodic/intermittent inundation, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tides does not exceed six metres.

REFERENCES

Marsden, Z.E. and Howles, S.R. (2003). Chowilla floodplain groundwater monitoring and investigation program Stage 1. Department of Water, Land and Biodiversity Conservation Report Book 2003/13.