

## **ATTACHMENT B**

## **ALL BORE LOGS**

- UPDATED SE1 TO SE9
- PIT BORES

# BORE CONSTRUCTION


			Coords: 449807.2 East 6495636 North			
			Drill Rig: Mick Lewis Drilling DHH		Date Drilled: 27 June 2011	Logged By: A. Stass
			Boring Dia: Auger 150 mm		Boring Number: Bore SE 1	
Sample	Casing Type	Completion	SWL Metres	Depth Meters	Lithology	Description
	Surface					
	Blank Casing			5		Sandy, medium grained brown colour. Contains organic material, humus. Well sorted.
						Grey to beige fine grained clay. Some muscovite present 30% silts.
						Static water level at 7.41 m below the surface ( measured 4 days after drilling) .
				10		Lithology as above
	Gravel packed			15		
				20		Creamy to white fine grained clay. Some muscovite present
						Some zoning of quartz grains - approx 2 to 5 mm in diameter, intermixed with muscovite flakes. Up to 50% quartz/muscovite at defined zones, up to 2 m thick.
	Slotted Casing			25		Creamy/ beigeto white fine grained clay. Some muscovite present.
						Water strike at 28 m below the surface.
				30		Medium grained sand, leight beige/yellow coloured clay up to 80% content.
	Cap at base			35		
				40		
				45		
Completion Notes: <b>Piezometer SE1</b> Class 12, 55 mm blank PVC casing from 0 to 26m bgs; Class 12, 55 mm, slotted, PVC casing from 26 to 32 mbgs; <b>Colar is set at 0.55 m above gs</b>  Water field quality: pH = 4.28, EC = 4060 uS/cm, TDS 2340 mg/l REDOX = 145 mV  Piezometer was capped at base.					Site: Opalvale Clay Quarry 11 Chitty Road Toodyay	
					Project No.: Ovale 001	Page 1

Figure 8 - Geological and construction log of Bore SE 1

## BORE CONSTRUCTION

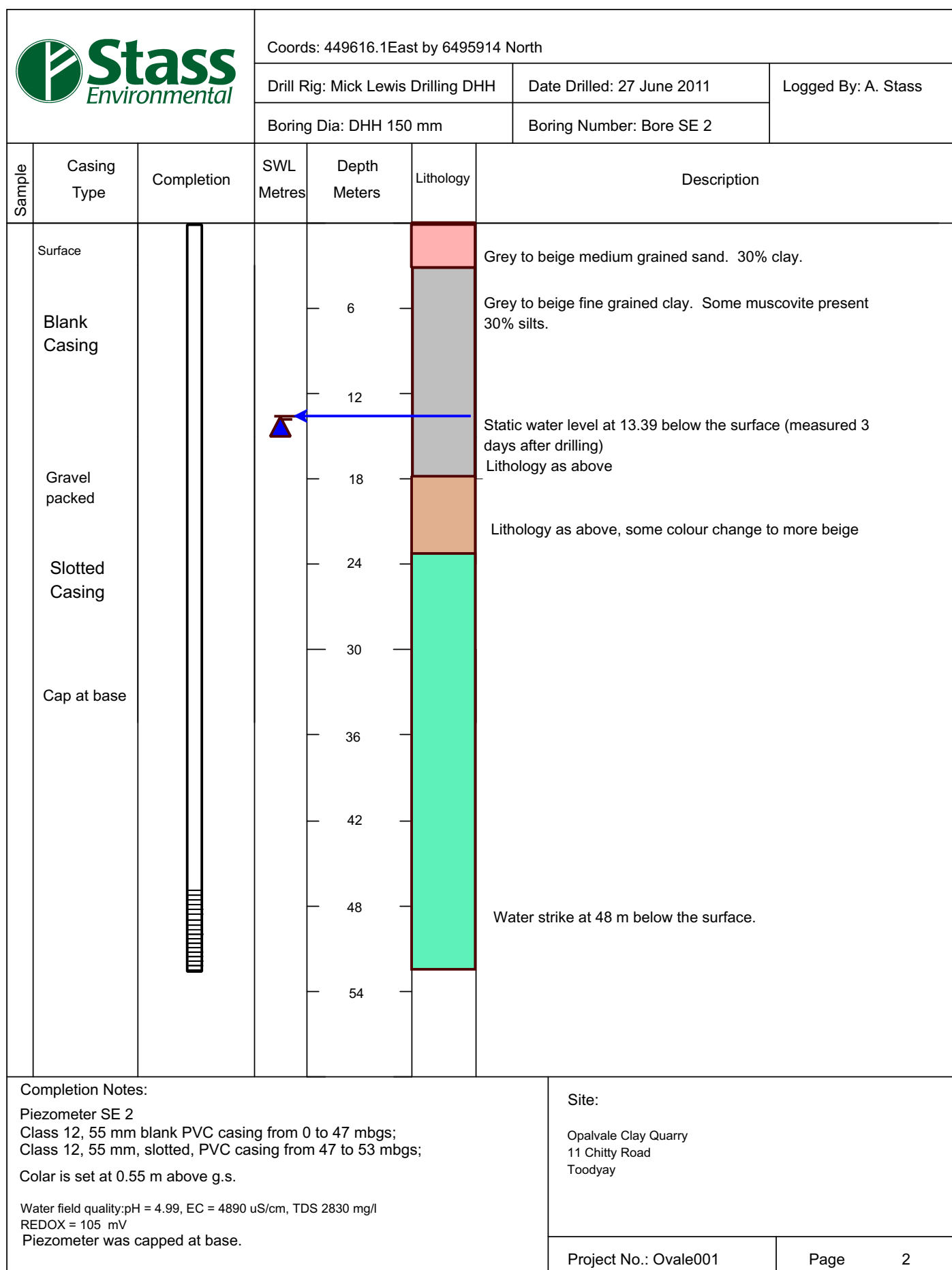


Figure 9 - Geological and construction log of Bore SE 2

## BORE CONSTRUCTION


			Coords: 449382.96 East by 6496193 North, RL 291.64 mAHD			
			Drill Rig: Mick Lewis Drilling DHH		Date Drilled: 30 June 2011	Logged By: A. Stass
			Boring Dia: DHH 150 mm		Boring Number: Bore SE 3	
Sample	Casing Type	Completion	SWL Metres	Depth Meters	Lithology	Description
	Surface					Grey to beige medium grained sand. 30% clay.
	<b>Blank Casing</b>			6		Creamy white clay. Some muscovite present 30% silts.
				12		Static water level at 14.52 below the surface ( measured 1 day after drilling)
	Gravel packed			18		Grey clay, some visible mica, then some colour change to more beige/cream
	<b>Slotted Casing</b>			24		Yellow to beige clay
				30		light grey to beige clay - visible mica
				36		some muscovite mica 1mm to 15 mm across
				42		Creamy to grey clay, gritty with quartz grains, also some plagioclase feldspar.
				47		Clay becoming moist at 47 m depth
	Cap at base			48		Water strike at 48 m below the surface.
				54		Wet grey clay very gritty with quartz grains - grit up to 40% of content. Grit at approx 1 mm diameter
				58		
Completion Notes: <b>Piezometer SE 2</b> Class 12, 55 mm blank PVC casing from 0 to 46 mbgs; Class 12, 55 mm, slotted, PVC casing from 46 to 58mbgs; <b>Color is set at 0.55 m above g.s.</b>  Water field quality: pH = 4.41, EC = 8090 uS/cm, TDS 4790 mg/l REDOX = 135 mV  Piezometer was capped at base.					Site: Opalvale Clay Quarry 11 Chitty Road Toodyay	
					Project No.: Ovale001	Page 3

Figure 10 - Geological and construction log of Bore SE 3

## BORE CONSTRUCTION

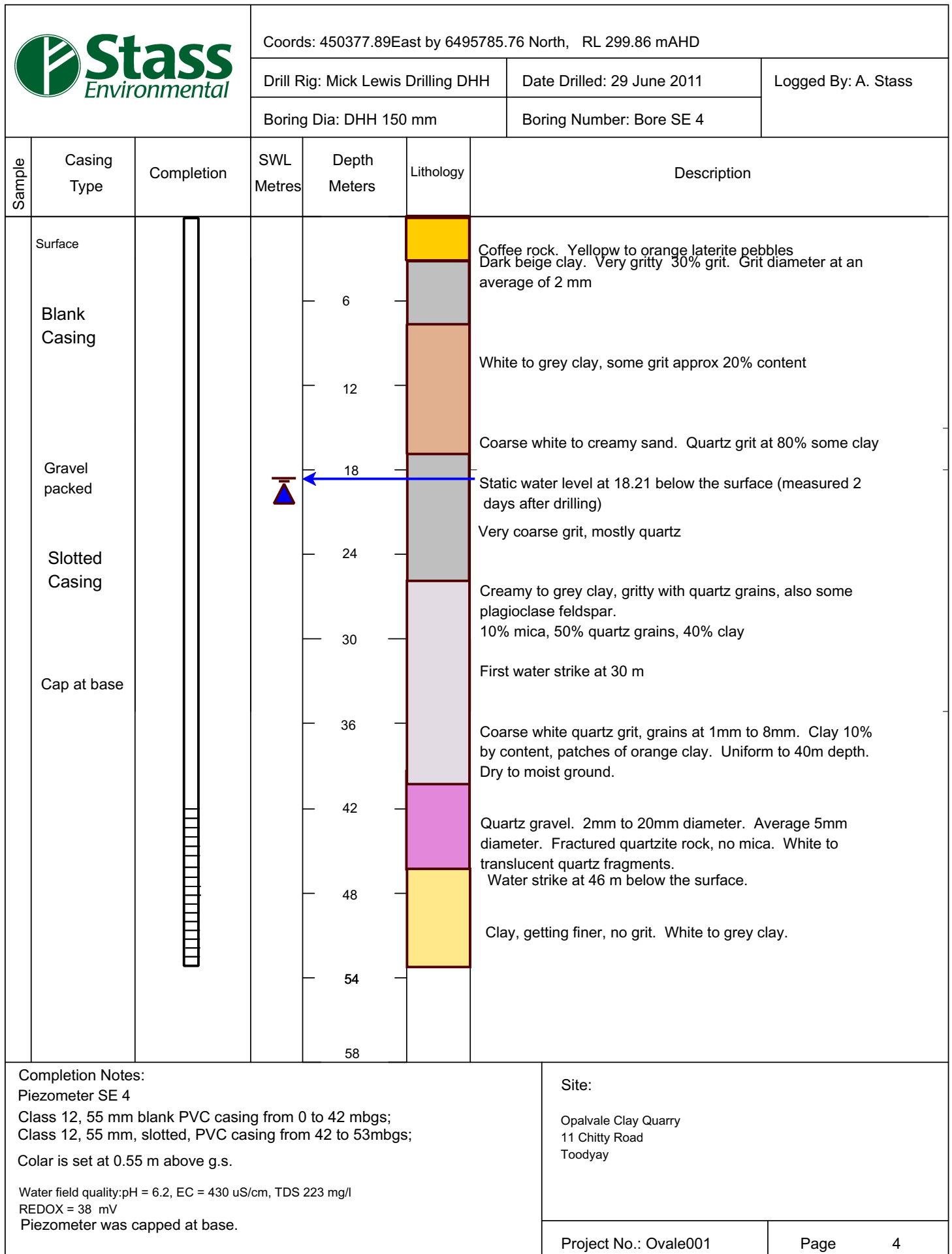



Figure 11 - Geological and construction log of Bore SE 4

Sample	Casing Type	Completion	SWL Metres	Depth Meters	Lithology	Description
	Surface					Coffee rock. Brown to orange laterite pebbles
	Blank Casing			6		Dark beige clay. Very gritty 30% grit. Grit diameter at an average of 2 mm
				12		White to grey clay, some red grit
				15.44		Static water level at 15.44m below the surface (measured 2 days after drilling)
	Gravel packed			18		Coarse white to creamy sand. Quartz grit at 80% clay
	Slotted Casing			24		
				30		Creamy to grey clay, gritty with quartz grains, also some plagioclase feldspar. 10% mica, 50% quartz grains, 40% clay
	Cap at base			36		Coarse white quartz grit, grains at 1mm to 8mm. Clay 10% by content, patches of orange clay. Uniform to 40m depth. Dry to moist ground.
				42		Medium grey clayey Cream clayey material - getting moist
				47		Large clayey balls cream in colour wet Water strike at 47 m below the surface.
				48		
				54		
				58		

**Completion Notes:**

Piezometer SE 5

Class 12, 55 mm blank PVC casing from 0 to 36 mbgs;

Class 12, 55 mm, slotted, PVC casing from 38 to 47mbgs;

Colar is set at 0.65 m above g.s.

Water field quality: pH = 5.7, EC = 4260 uS/cm, TDS 2130 mg/l

REDOX = 157 mV

Piezometer was capped at base.

**Site:**

Opalvale Clay Quarry

11 Chitty Road

Toodyay

Figure 12 - Geological and construction log of Bore SE 5

Sample	Casing Type	Completion	SWL Metres	Depth Meters	Lithology	Description
	Surface					Brown sand and mica
	Blank Casing			6		Red medium clay. Very gritty 80% grit. Grit diameter at an average of 2 mm. Quartz cuttings.
				12		White to cream clay cuttings, some red grit
	Gravel and cement grout packed 1 m bentonite seal above slotted casing			18		Static water level at 16.700 m below the surface (measured 2 days after drilling)
	Slotted Casing			24		Purple sandy cuttings, quartz pieces evident.
				30		Coarse white quartz grit, grains at 1mm to 8mm. Clay 10% by content, patches of red clay. Dry to moist ground. Medium grey clayey, a lot of mica
				36		Water strike at 31 m below the surface.
				42		Brown mud at 35 m
				48		
				54		
				58		

**Completion Notes:**

Piezometer SE 6

Class 12, 55 mm blank PVC casing from 0 to 25 mbgs;

Class 12, 55 mm, slotted, PVC casing from 26 to 35 mbgs;

Colar is set at 0.65 m above g.s.

Water field quality: pH = 4.8, EC = 6050 uS/cm, TDS 3020 mg/l

REDOX = 210 mV

Piezometer was capped at base.

**Site:**

Opalvale Clay Quarry

11 Chitty Road

Toodyay

Figure 13 - Geological and construction log of Bore SE 6



Sample	Casing Type	Completion	SWL Metres	Depth Meters	Lithology	Description
	Surface					Brown clay and mica
	Blank Casing			6		White to cream clay cuttings, some red grit
	Gravel and cement grout packed			12		Brown to cream clay cuttings, some red grit fine creamy clay cuttings
	1 m bentonite seal above slotted casing			18		
	Slotted Casing			24		Static water level at 21.700 m below the surface (measured 2 days after drilling)
	Cap at base			30		Fine yellow to grey cuttings, 60% clay. Very dusty. Coarse white quartz grit, grains at 1mm to 10mm. Clay 80% creamy clay by content, patches of red clay. moist ground.
				36		Water strike at 29.5 m below the surface.
				42		
				48		
				54		
				58		

**Completion Notes:**

Piezometer SE 7

Class 12, 55 mm blank PVC casing from 0 to 22 mbgs;

Class 12, 55 mm, slotted, PVC casing from 23.5 to 29.5mbgs;

Colar is set at 0.65 m above g.s.

Water field quality:pH = 4.4, EC =5260 uS/cm, TDS 2620 mg/l

REDOX = 230 mV

Piezometer was capped at base.




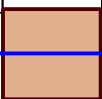

**Site:**

Opalvale Clay Quarry

11 Chitty Road

Toodyay

Figure 14 - Geological and construction log of Bore SE 7

Sample	Casing Type	Completion	SWL Metres	Depth Meters	Lithology	Description
	Surface Blank Casing Gravel and cement grout packed 1 m bentonite seal above slotted casing  Slotted Casing	 Cap at base		6		Surface detritus
						Fine white clayey cuttings, very little mica Static water level at 7.700 m below the surface (measured 2 days after drilling)
				12		Brown to creamy clay cuttings, 20% mica.
						Creamy coloured sand with mica cuttings.
				18		Pink medium grained sand, mica and clay cuttings moist ground. Water strike at 17.00 m below the surface.
				24		
				30		
				36		
				42		
				48		
				54		
				58		

**Completion Notes:**

Piezometer SE 8

Class 12, 55 mm blank PVC casing from 0 to 12 mbgs;

Class 12, 55 mm, slotted, PVC casing from 12 to 18mbgs;

Colar is set at 0.65 m above g.s.

Water field quality: pH = 6.59, EC =1583 uS/cm, TDS 792 mg/l

REDOX = 76.3 mV






Piezometer was capped at base.

**Site:**

Opalvale Clay Quarry

11 Chitty Road

Toodyay

Sample	Casing Type	Completion	SWL Metres	Depth Meters	Lithology	Description
	Surface Blank Casing Gravel and cement grout packed 1 m bentonite seal above slotted casing  Slotted Casing	 Cap at base				
				6		Medium grained brown sand, clay and some mica
						Static water level at 5.200 m below the surface (measured 2 days after drilling)
				12		Dark brown cuttings, clay and a lot of mica.
				18		Water strike at 14.00 m below the surface. Creamy clay, wet
				24		
				30		
				36		
				42		
				48		
				54		
				58		

**Completion Notes:**

Piezometer SE 9

Class 12, 55 mm blank PVC casing from 0 to 12 mbgs;

Class 12, 55 mm, slotted, PVC casing from 12 to 18mbgs;

Colar is set at 0.65 m above g.s.

Water field quality: pH = 6.23, EC = 630 uS/cm, TDS 315 mg/l

REDOX = 21.2 mV

Piezometer was capped at base.


**Site:**


Opalvale Clay Quarry

11 Chitty Road

Toodyay

Figure 16 - Geological and construction log of Bore SE9

Sample	Casing Type	Completion	SWL Metres	Depth Meters	Lithology	Description
	Surface			3		Cream to white clay cuttings, a lot of mica.
	Slotted Casing			6		
				9		Hard quartzite at base, auger refusal at 8.5 m
				12		Bore dry to bottom
				18		
				24		
				30		
				36		
				42		
				48		
		Cap at base		54		
				58		
<p>Completion Notes:</p> <p>Piezometer Pit 5</p> <p>Class 9, 55 mm, slotted, PVC casing from 0 to 8.5mbgs;</p> <p>Colar is set at 0.55 m above g.s.</p> <p>Piezometer was capped at base.</p>						<p>Site:</p> <p>Opalvale Clay Quarry 11 Chitty Road Toodyay</p>
						<p>Project No.: Ovale001</p>
						Page

Sample	Casing Type	Completion	SWL Metres	Depth Meters	Lithology	Description
	Surface	 Cap at base		3		Cream to white clay cuttings, a lot of mica.
	Slotted Casing			6		Bore dry to bottom
				9		
				12		
				18		
				24		
				30		
				36		
				42		
				48		
				54		
				58		
Completion Notes: Piezometer Pit 4  Class 9, 55 mm, slotted, PVC casing from 0 to 10mbgs; Colar is set at 0.55 m above g.s.  Piezometer was capped at base.						Site:  Opalvale Clay Quarry 11 Chitty Road Toodyay
						Project No.: Ovale001
						Page





Sample	Casing Type	Completion	SWL Metres	Depth Meters	Lithology	Description
	Surface	 Cap at base				
	Slotted Casing			3		Static water level at 2.54 m below the surface (measured 1 days after drilling)
				6		Cream to white clay cuttings, a lot of mica.
				9		Hard quartzite intercepted 4 m depth
				12		
				18		
				24		
				30		
				36		
				42		
				48		
				54		
				58		
Completion Notes: Piezometer Pit 3  Class 9, 55 mm, slotted, PVC casing from 0 to 10mbgs; Colar is set at 0.35 m above g.s.  Piezometer was capped at base.						Site:  Opalvale Clay Quarry 11 Chitty Road Toodyay
						Project No.: Ovale001
						Page

Figure Pit bores - Geological and construction log of Bore Pit 3

Sample	Casing Type	Completion	SWL Metres	Depth Meters	Lithology	Description
	Surface	 Cap at base		3		Static water level at 1.69 m below the surface (measured 1 days after drilling)
	Slotted Casing			6		Cream to white clay cuttings, a lot of mica.
				9		Hard quartzite intercepted 2 m depth
				12		Wet from 3 m below ground
				18		
				24		
				30		
				36		
				42		
				48		
				54		
				58		

Completion Notes:

Piezometer Pit 2

Class 9, 55 mm, slotted, PVC casing from 0 to 10mbgs;

Colar is set at 0.35 m above g.s.



Piezometer was capped at base.

Site:

Opalvale Clay Quarry  
11 Chitty Road  
Toodyay

Project No.: Ovale001

Page

Sample	Casing Type	Completion	SWL Metres	Depth Meters	Lithology	Description
	Surface			3		
	Slotted Casing			6		Static water level at 5.06 m below the surface (measured 1 days after drilling) Cream to white clay cuttings, a lot of mica.
		Cap at base		9		Dry during drilling Some moisture at 10 m depth
				12		
				18		
				24		
				30		
				36		
				42		
				48		
				54		
				58		

Completion Notes:

Piezometer Pit 1

Class 9, 55 mm, slotted, PVC casing from 0 to 10mbgs;

Colar is set at 0.35 m above g.s.

Piezometer was capped at base.

Site:

Opalvale Clay Quarry

11 Chitty Road

Toodyay

Project No.: Ovale001

Page



**SURVEYORS LICENCE**



Western



Australia

LICENSED SURVEYORS ACT, 1909-1958

# Certificate of Registration

The Land Surveyors Licensing Board constituted  
under the Licensed Surveyors Act,  
1909-1958.

This is to Certify that

*Colin John Smith*

having satisfactorily proved his qualifications,  
has been registered as a

**Licensed Surveyor**

under the provisions of the Licensed Surveyors Act,  
1909-1958.

Dated the *Tenth* day of *October* 1973

*John Morgan* Chairman

*S. Stokes* Secretary

*W. J. Henderson*  
*W. J. Henderson*  
*Harold Green* } Members  
of the  
Board



**PUMPED OUT PONDS AND INUNDATED QUARRY**

**PHOTOGRAPHS**









## INUNDATED QUARRY AFTER HEAVY RAINS



## **HIGHEST WATER LEVELS DURING MONITORING EVENTS IN 2011, 2013 AND 2014**



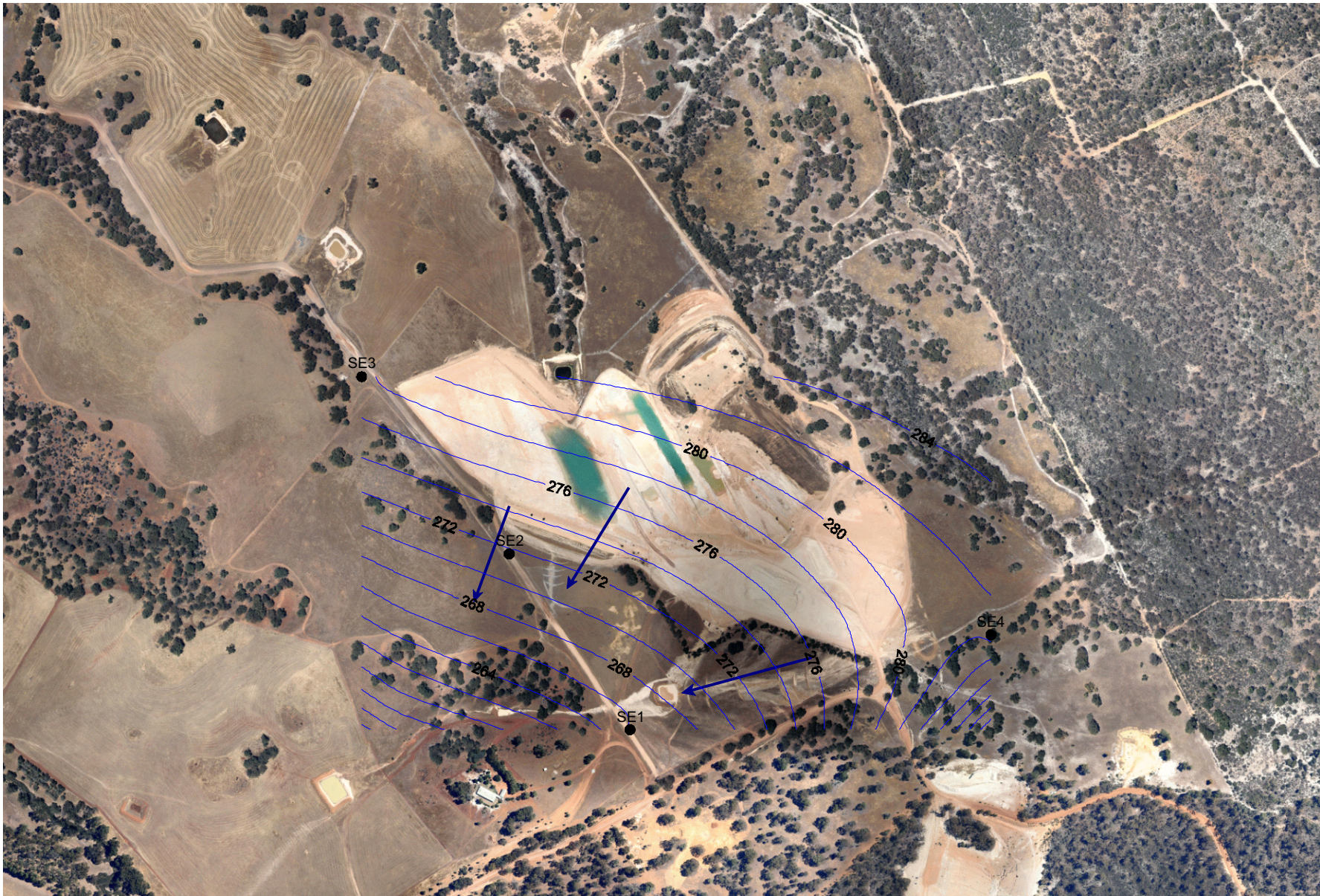


Figure 4a :Static Water Level and Ground Water Flow Direction - June 2011





Figure 4b : Highest recorded ground water levels, September 2013 and flow directions

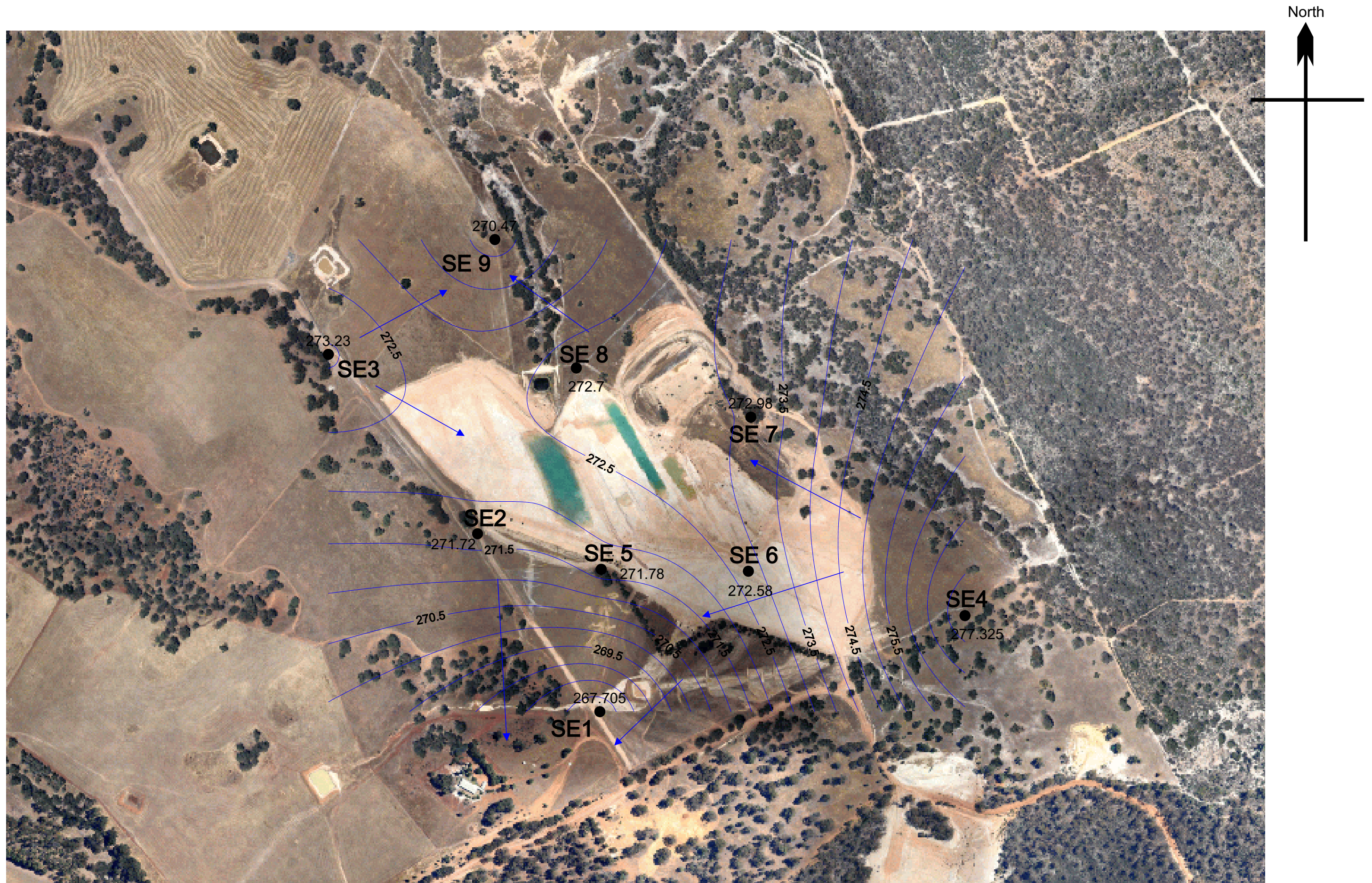


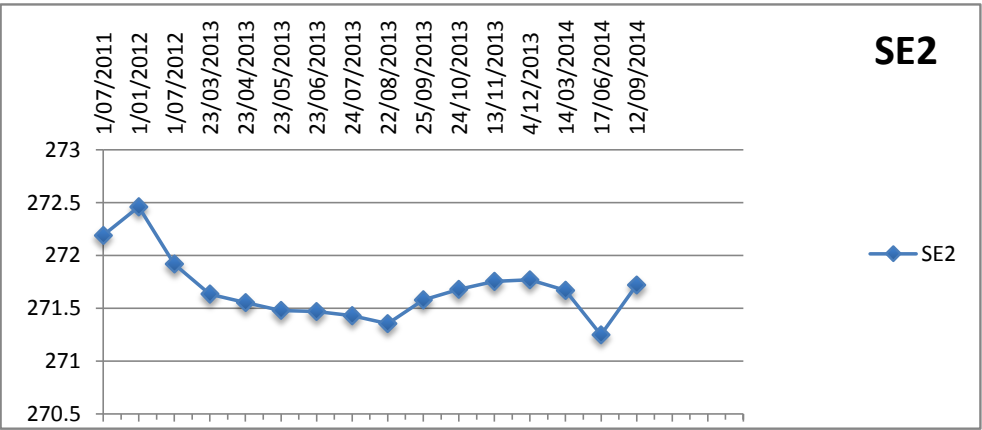
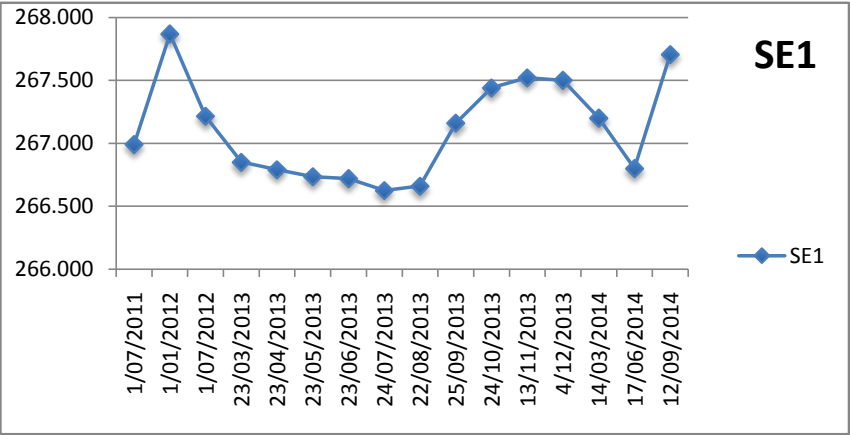
Figure 4c : Highest recorded ground water levels, November 2014 and flow directions

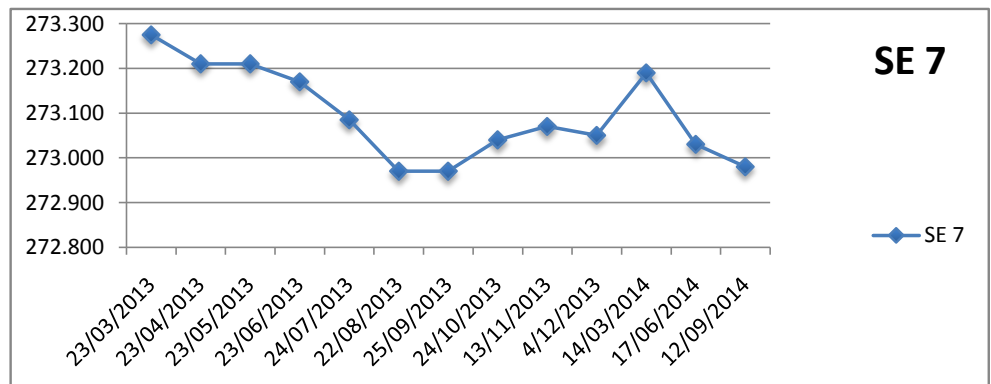
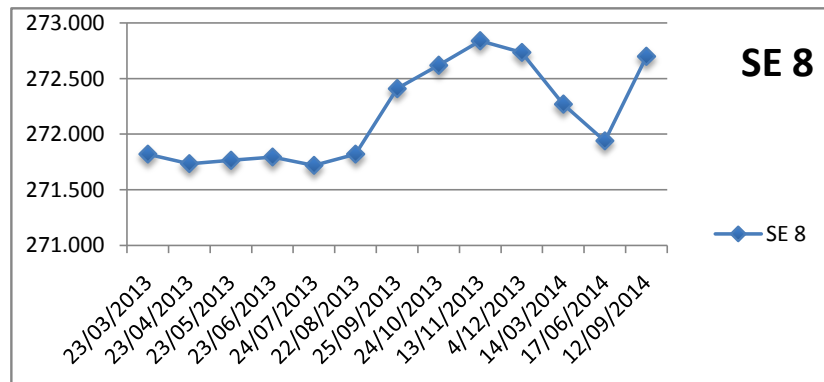
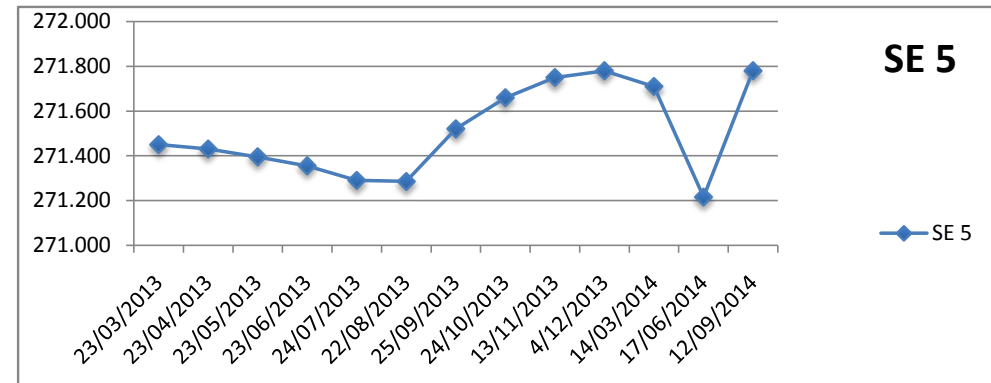
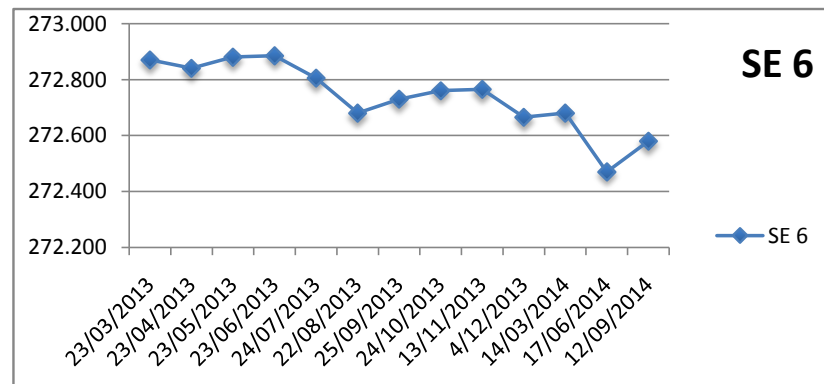
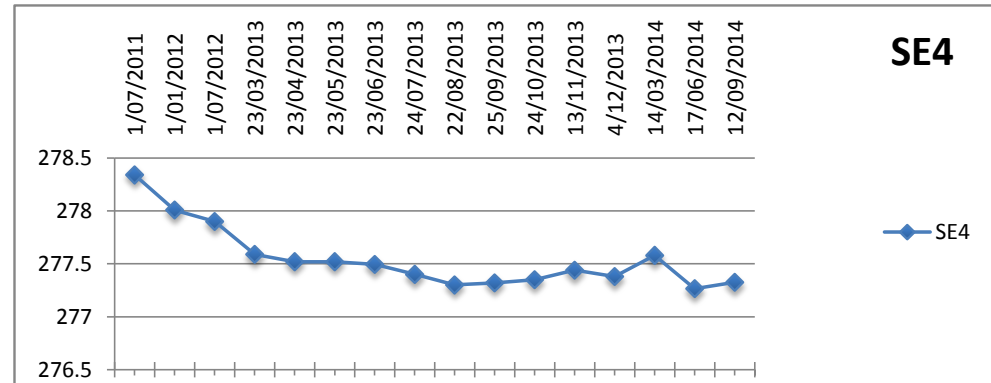
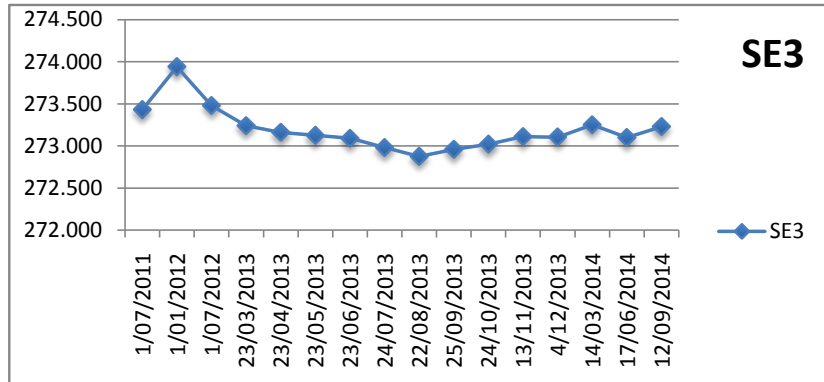
## SWL DATABASE AND PLOTS

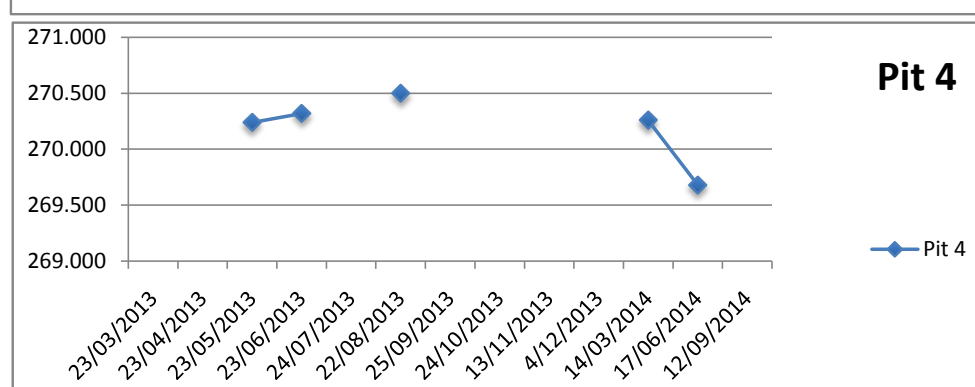
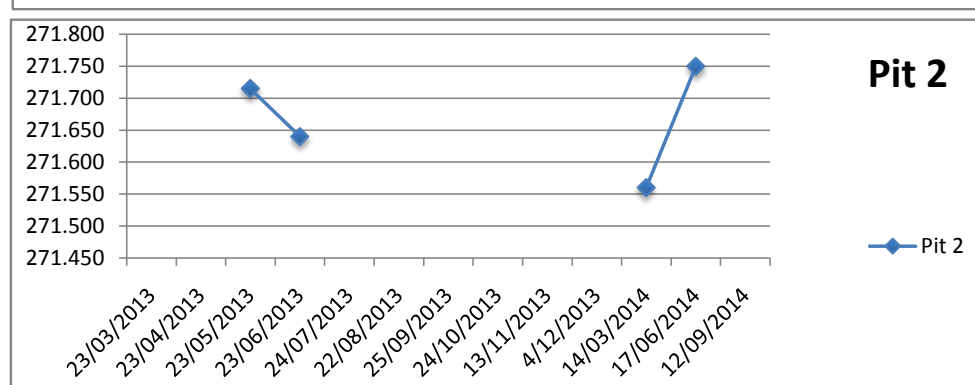
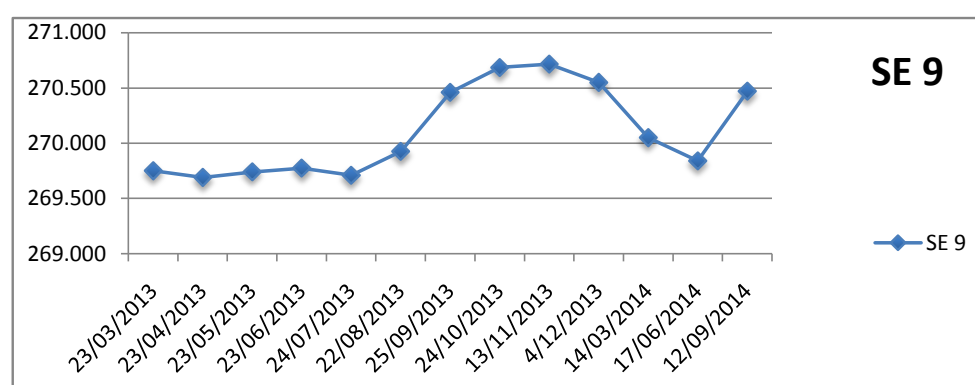
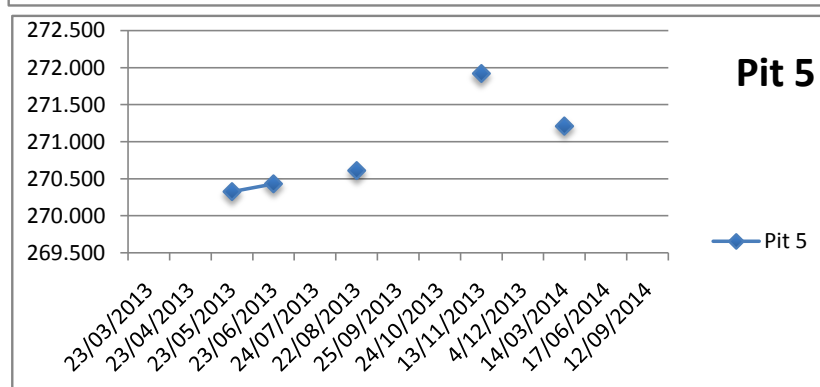
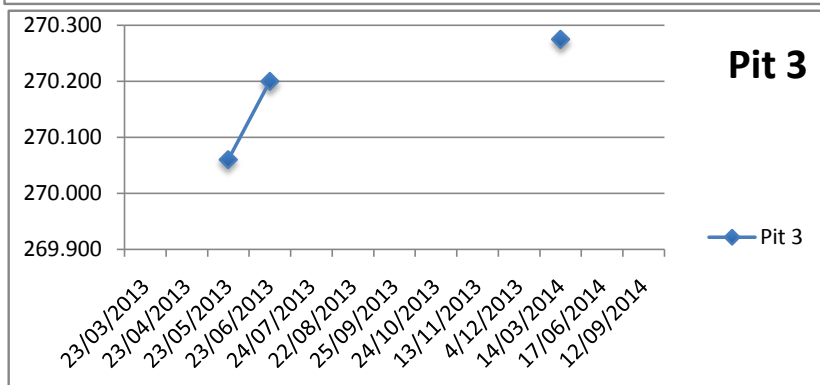
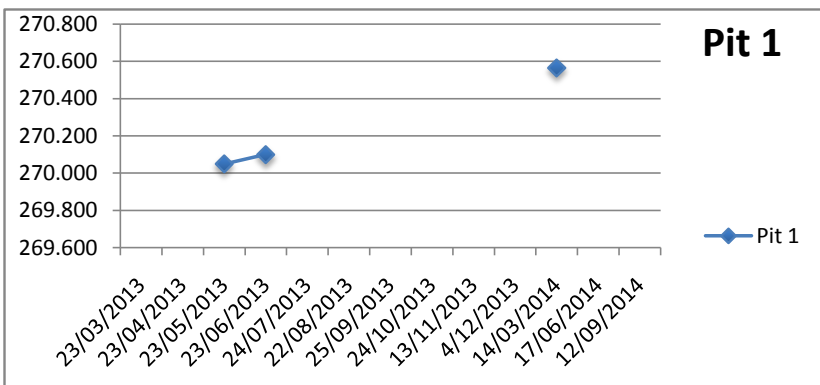


Opal Vale Class II Landfill - Groundwater Levels (m AHD)

Bore ID	SE1	SE2	SE3	SE4	SE 5	SE 6	SE 7	SE 8	SE 9	Pit 1	Pit 2	Pit 3	Pit 4	Pit 5
Northings	6495635.667	6495913.67	6496193.886	6495785.76	6495858.19	6495855.090	6496095.83	6496172.63	6496373.32	6496055	6496123	6496068	6496038	6495948
Eastings	449807.222	449616.098	449382.966	450377.899	449809.33	450039.370	450043.12	449770.44	449643.15	449813.3	449804.3	449783.5	449911.2	449707.9
1/07/2011	266.990	272.19	273.430	278.34										
1/01/2012	267.868	272.46	273.940	278.008										
1/07/2012	267.215	271.92	273.480	277.9										
23/03/2013	266.850	271.635	273.240	277.590	271.450	272.870	273.275	271.820	269.750					
23/04/2013	266.790	271.555	273.160	277.520	271.430	272.840	273.210	271.735	269.690					
23/05/2013	266.735	271.480	273.125	277.520	271.395	272.880	273.210	271.765	269.740	270.050	271.715	270.060	270.240	270.325
23/06/2013	266.720	271.470	273.090	277.495	271.355	272.885	273.170	271.795	269.775	270.100	271.640	270.200	270.320	270.430
24/07/2013	266.625	271.430	272.980	277.400	271.290	272.805	273.085	271.72	269.71					
22/08/2013	266.660	271.355	272.875	277.300	271.285	272.680	272.970	271.82	269.925				270.5	270.61
25/09/2013	267.160	271.580	272.960	277.320	271.520	272.730	272.970	272.410	270.460					
24/10/2013	267.440	271.680	273.020	277.350	271.660	272.760	273.040	272.620	270.685					
13/11/2013	267.520	271.755	273.110	277.440	271.750	272.765	273.070	272.840	270.715					271.920
4/12/2013	267.500	271.770	273.105	277.380	271.780	272.665	273.050	272.735	270.550					
14/03/2014	267.200	271.670	273.250	277.580	271.710	272.680	273.190	272.270	270.050	270.565	271.560	270.275	270.260	271.210
17/06/2014	266.800	271.250	273.100	277.265	271.215	272.470	273.030	271.940	269.840		271.750		269.680	
12/09/2014	267.705	271.720	273.230	277.325	271.780	272.580	272.980	272.700	270.470					







## INPUTS TO SOLUTE TRANSPORT CALCULATIONS/MODELLING:

### Geology

As per Stass Environmental Report - assumption of a preferential flow path through a fractured quartz zone.

### Source

Assumed liner leak causing a 50 m wide and 2 m deep saturated zone below the liner

Width of potential source: 50 m (saturated zone under the liner)

Groundwater flow direction to the south (Stass Report 2014)

Hypothetical Liner Leakage rate:

Leakage rate: *10 L/Ha/day*

*Contaminant: conservative at 600 mg/l in saturated zone*

Groundwater Hydraulic Gradient (i)

- Maximum groundwater elevation 272 mAHD
- Minimum groundwater elevation 245 mAHD
- Distance to nearest sensitive receptor 912 m

Hydraulic Gradient *0.03 m/m*

Hydraulic Conductivity (K)

- Hydraulic conductivity through a fractured quartzite with a silt matrix - 0.08m/d (Freeze & Cherry, 1979).
- Porosity 10% (conservative estimate)

### Seepage Velocity

Seepage Velocity *9.5m/year (calculated by manual computation)*

### Sensitive Receptor:

**Distance to nearest sensitive receptor** 912 m Jimperding Brook south of the site



# BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence

Version 1.4

Keesler AFB

SWMU 66

Run Name

## 1. HYDROGEOLOGY

Seepage Velocity*	Vs	30.0	(ft/yr)
or		<input type="text" value="↑"/>	
Hydraulic Conductivity	K	1.0E-04	(cm/sec)
Hydraulic Gradient	i	0.029	(ft/ft)
Porosity	n	0.1	(-)

## 2. DISPERSION

Longitudinal Dispersivity*	alpha x	23.6	(ft)
Transverse Dispersivity*	alpha y	2.4	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		<input type="text" value="↑"/>	
Estimated Plume Length	Lp	920	(ft)

## 3. ADSORPTION

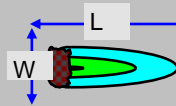
Retardation Factor*	R	1.0	(-)
or		<input type="text" value="↑"/>	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
Fraction Organic Carbon	foc	5.7E-5	(-)

## 4. BIODEGRADATION

1st Order Decay Coeff*	lambda	0.0E+0	(per yr)
or		<input type="text" value="↑"/>	
Solute Half-Life	t-half	0.00	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO	1.5	(mg/L)
Delta Nitrate*	NO3	45	(mg/L)
Observed Ferrous Iron*	Fe2+	25	(mg/L)
Delta Sulfate*	SO4	25	(mg/L)
Observed Methane*	CH4	6.6	(mg/L)

## 5. GENERAL

Modeled Area Length*	2992	(ft)
Modeled Area Width*	164	(ft)
Simulation Time*	100	(yr)



## 6. SOURCE DATA

Source Thickness in Sat.Zone\* 6.6 (ft)

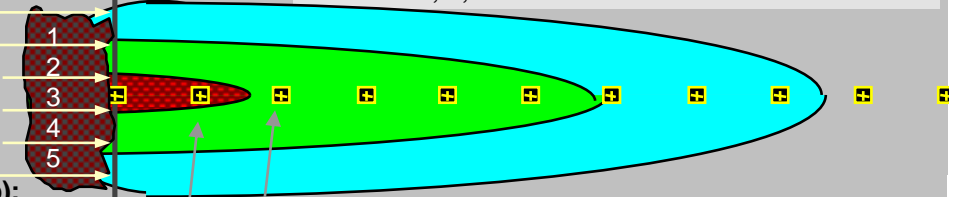
Source Zones:

Width* (ft)	Conc. (mg/L)*
28	10
30	300
14	600
30	300
28	10

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells  
If No Data Leave Blank or Enter "0"

## 7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	600.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dist. from Source (ft)	0	299	598	898	1197	1496	1795	2094	2394	2693	2992

## 8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN  
CENTERLINE

View Output

RUN ARRAY

View Output

Help

Recalculate This  
Sheet

Paste Example Dataset

Restore Formulas for Vs,  
Dispersivities, R, lambda, other

## Data Input Instructions:

115

↑ or

0.02

1. Enter value directly....or
2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable\* → Data used directly in model.

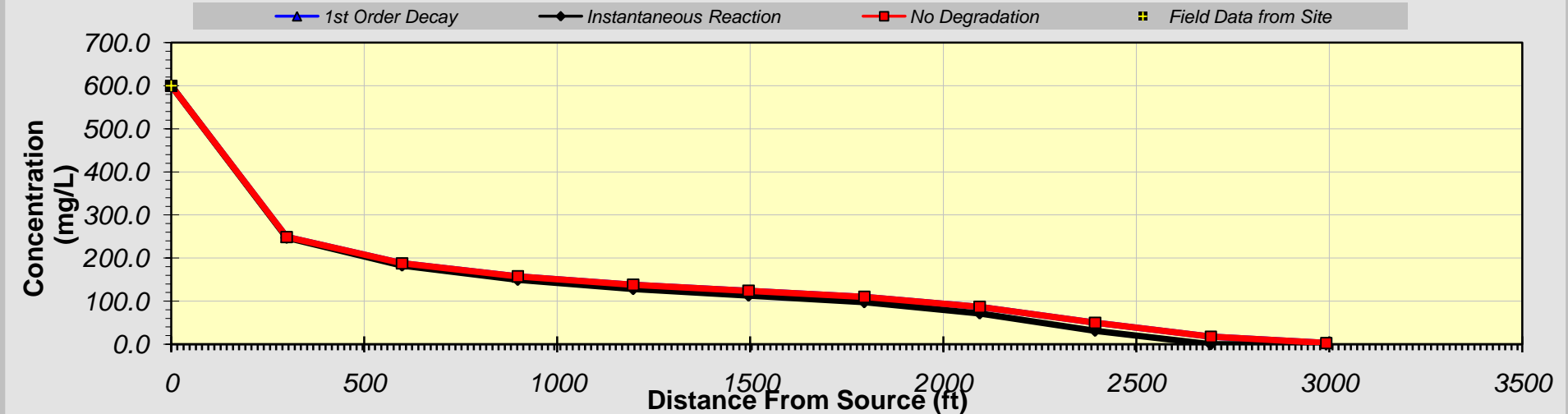
20

→ Value calculated by model.  
(Don't enter any data).

## DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

*Distance from Source (ft)*

TYPE OF MODEL	0	299	598	898	1197	1496	1795	2094	2394	2693	2992
No Degradation	600.000	249.292	188.196	157.290	137.837	123.761	109.833	86.634	50.444	18.057	3.513
1st Order Decay	600.000	249.292	188.196	157.290	137.837	123.761	109.833	86.634	50.444	18.057	3.513
Inst. Reaction	600.000	247.234	182.754	149.471	128.315	112.912	97.566	71.839	31.591	0.000	0.000
Field Data from Site	600.000										



Replay  
Animation

Next Timestep

Prev Timestep

Time:

80 Years

Return to  
Input

Recalculate This  
Sheet

# Transverse

Distance (ft)

## DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Distance from Source (ft)

Model to Display:

Distance (ft)	0	299	598	898	1197	1496	1795	2094	2394	2693	2992
82	0.000	40.758	67.283	76.670	79.371	79.336	78.084	75.827	70.576	57.619	36.016
41	10.000	159.184	145.580	131.438	120.090	111.040	103.620	96.805	87.493	69.800	42.827
0	600.000	249.292	188.196	157.291	137.860	124.206	113.868	105.016	93.989	74.408	45.372
-41	10.000	159.184	145.580	131.438	120.090	111.040	103.620	96.805	87.493	69.800	42.827
-82	0.000	40.758	67.283	76.670	79.371	79.336	78.084	75.827	70.576	57.619	36.016
MASS FLUX (mg/day)	4.1E+4	4.1E+4	3.9E+4	3.6E+4	3.4E+4	3.2E+4	3.0E+4	2.8E+4	2.6E+4	2.1E+4	1.3E+4

No Degradation Model

1st Order Decay Model

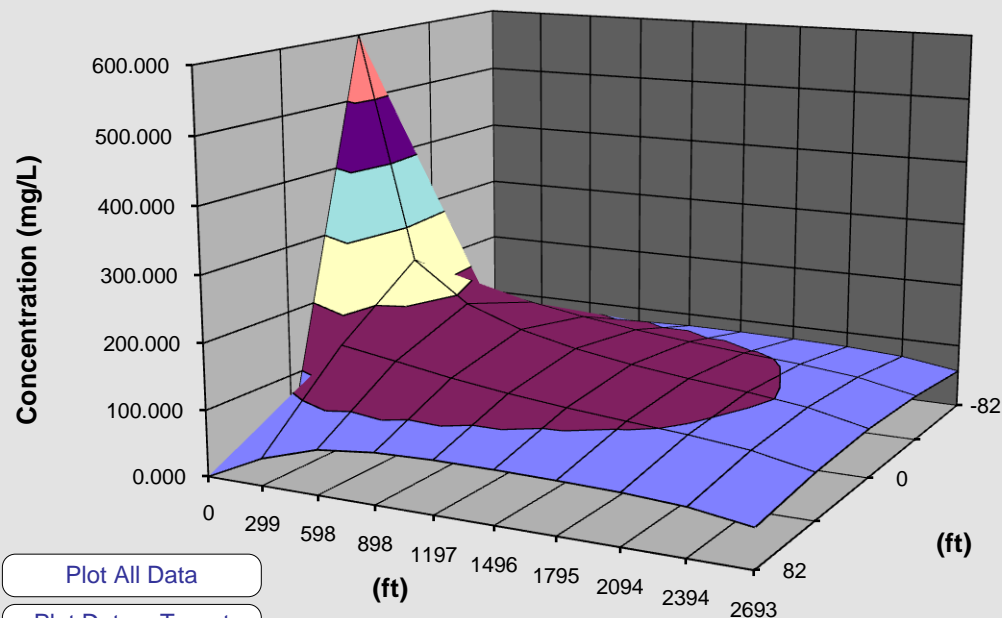
Instantaneous Reaction Model

MASS FLUX (mg/day)

Time: 100 Years

Target Level: 10.000 mg/L

Displayed Model: No Degradation



Plot All Data

Plot Data > Target

### Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation 1510.9 (Kg)

- Actual Plume Mass 1510.9 (Kg)

= Plume Mass Removed by Biodeg 0.0 (Kg)

Change in Electron Acceptor/Byproduct Masses:

Oxygen	Nitrate	Iron II	Sulfate	Methane
na	na	na	na	na

(Kg)

Contam. Mass in Source (t=0 Years) infinite (Kg)

Contam. Mass in Source Now (t=100Years) Infinite (Kg)

Current Volume of Groundwater in Plume 9.9 (ac-ft)

Flowrate of Water Through Source Zone 0.059 (ac-ft/yr)

Mass HELP

Recalculate