
Volume 7

Appendix E

Summary of Laboratory Results

Table E1: Summary of Laboratory Results for Salinity Investigation

Test Location ID	Test Location			Sample ID	Sample Depth Relative to current level (m bgl)	pH (pH units)	Chloride Concentration (mg/kg)	Sulphate Concentration (mg/kg)	Resistivity By inversion of EC1:5 Ω.cm	Soil Condition [AS2159-2009]	Sample Aggressivity Class			Bulk pH		Zone Aggressivity Class			
	East (m MGA56)	North (m MGA56)	RL (m AHD)								Aggr. to Concrete - from sample pH	Aggr. to Concrete - from Sulphate conc.	Aggr. to Steel - from sample pH	In Depth Zones (m) 0-1.5/1.5-3	In Depth Zone (m) 0 - 3	Aggr. to Concrete - from Bulk pH in Zones:	Aggr. to Concrete - from Bulk pH in Zone:	Aggr. to Steel - from Bulk pH in Zones:	Aggr. to Steel - from Bulk pH in Zone:
														(pH units)	(pH units)	0-1.5/1.5-3	0 - 3	0-1.5/1.5-3	0 - 3
5	302933.3	6273992.2	20.1	5/0.0	0.0	5.8			15873	B	Non-Aggressive		Non-Aggressive	5.6		Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive
				5/0.5	0.5	5.9			13333	B	Non-Aggressive		Non-Aggressive						
				5/1.0	1.0	4.9	660	<10	2083	B	Mild	Non-Aggressive	Non-Aggressive						
				5/1.5	1.5	5.8	710	76	1754	B	Non-Aggressive	Non-Aggressive	Non-Aggressive						
				5/2.0	2.0	5.7			1724	B	Non-Aggressive		Non-Aggressive						
				5/2.5	2.5	6.5			1639	B	Non-Aggressive		Non-Aggressive						
				5/3.0	3.0	6.1			1724	B	Non-Aggressive		Non-Aggressive						
13	301028.7	6275577.7	13.5	13/0.1	0.1	7.7			18519	B	Non-Aggressive		Non-Aggressive	5.8	5.8	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive
				13/0.5	0.5	6.8			8333	B	Non-Aggressive		Non-Aggressive						
				13/1.0	1.0	5.0	1300	410	1205	B	Mild	Non-Aggressive	Non-Aggressive						
				13/1.5	1.5	4.7			1143	B	Mild	Non-Aggressive	Non-Aggressive						
				13/2.0	2.0	5.6			1087	B	Non-Aggressive		Non-Aggressive						
				13/2.5	2.5	5.3			1124	B	Mild	Non-Aggressive	Non-Aggressive						
				13/3.0	3.0	5.3			1087	B	Mild	Non-Aggressive	Non-Aggressive						
19	302445.9	6274946.9	16.3	19/0.1	0.1	5.4			50000	B	Mild		Non-Aggressive	6.0		Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive
				19/0.5	0.5	6.0			19608	B	Non-Aggressive		Non-Aggressive						
				19/1.0	1.0	5.5	330	350	2299	B	Mild	Non-Aggressive	Non-Aggressive						
				19/1.5	1.5	6.9	980	230	1099	B	Non-Aggressive	Non-Aggressive	Non-Aggressive						
				19/2.0	2.0	6.4			909	B	Non-Aggressive		Non-Aggressive						
				19/2.5	2.5	8.0			1000	B	Non-Aggressive		Non-Aggressive						
				19/3.0	3.0	8.3			1000	B	Non-Aggressive		Non-Aggressive						
23	303134.7	6275191.7	37.1	23/0.1	0.1	6.5			17544	B	Non-Aggressive		Non-Aggressive	7.4	6.6	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive
				23/0.5	0.5	6.5			37037	B	Non-Aggressive		Non-Aggressive						
				23/0.7	0.7	5.0			8333	B	Mild		Non-Aggressive						
				23/1.0	1.0	5.1	220	62	3448	B	Mild	Non-Aggressive	Non-Aggressive						
				23/1.5	1.5	5.1			3448	B	Mild		Non-Aggressive						
				23/2.0	2.0	7.9			7692	B	Non-Aggressive		Non-Aggressive						
				23/2.5	2.5	7.2			23810	B	Non-Aggressive		Non-Aggressive						
29	300165.3	6276206.0	18.7	29/0.1	0.1	7.9			12500	B	Mild		Non-Aggressive	6.4	5.4*	Non-Aggressive	Mild	Non-Aggressive	Non-Aggressive
				29/0.5	0.5	7.2			18182	B	Non-Aggressive		Non-Aggressive						
				29/1.0	1.0	5.5	20	54	10526	B	Mild	Non-Aggressive	Non-Aggressive						
				29/1.5	1.5	5.7			6897	B	Non-Aggressive		Non-Aggressive						
				29/2.0	2.0	5.4			2222	B	Mild	Non-Aggressive	Non-Aggressive						
				29/2.5	2.5	8.4			1389	B	Mild	Non-Aggressive	Non-Aggressive						
				29/3.0	3.0	5.3	830	250	1961	B	Mild	Non-Aggressive	Non-Aggressive						
32	299989.9	6275535.3	21.6	32/0.1	0.1	8.4			1852	B	Non-Aggressive		Non-Aggressive	5.6	5.0*	Non-Aggressive	Mild	Non-Aggressive	Non-Aggressive
				32/0.5	0.5	5.3			1818	B	Mild		Non-Aggressive						
				32/1.0	1.0	4.7	830	170	1389	B	Mild	Non-Aggressive	Non-Aggressive						
				32/1.5	1.5	5.0	600		1961	B	Mild	Non-Aggressive	Non-Aggressive						
				32/2.0	2.0	5.0			1852	B	Mild		Non-Aggressive						
				32/2.8	2.8	4.9			1818	B	Mild		Non-Aggressive						
				32/3.0	3.0	5.9			38462	B	Non-Aggressive		Non-Aggressive						
37	300511.6	6274879.3	28.6	37/0.1	0.1	5.9			24390	B	Non-Aggressive		Non-Aggressive	5.6	5.6*	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive
				37/0.4	0.4	5.7			17241	B	Mild	Non-Aggressive	Non-Aggressive						
				37/0.8	0.8	5.5	34	41	9091	B	Mild	Non-Aggressive	Non-Aggressive						
				37/1.2	1.2	5.2			13699	B	Mild		Non-Aggressive						
				37/1.6	1.6	4.75			18868	B	Mild		Non-Aggressive						
				37/2.0	2.0	5			25000	B	Non-Aggressive		Non-Aggressive						
				37/2.4	2.4	6.2			35714	B	Non-Aggressive		Non-Aggressive						
7	300903.0	6276359.3	19.3	7/0.4	0.4	4.75			8333	B	Mild		Non-Aggressive	4.8	4.8*	Mild	Mild	Non-Aggressive	Non-Aggressive
				7/0.8	0.8	5			3125	B	Mild		Non-Aggressive						
				7/1.2	1.2	5.2			1818	B	Mild		Non-Aggressive						
10	301149.8	6275982.2	13.0	10/0.5	0.5	6.2			25000	B	Non-Aggressive		Non-Aggressive	6.1	6.1*	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive
				10/1.5	1.5	5.9			35714	B	Non-Aggressive		Non-Aggressive						
				10/2.5	2.5	5.5			8333	B	Mild		Non-Aggressive						
25	303146.2	6274537.6	26.1	25/1.0	1.0	5.5			3125	B	Mild		Non-Aggressive	5.4	5.4*	Mild	Mild	Non-Aggressive	Non-Aggressive
				25/1.5	1.5	5			3846	B	Mild		Non-Aggressive						
				25/2.0	2.0	5.1			4762	B	Mild		Non-Aggressive						
28	299603.0	6276174.6	20.6	28/2.0	2.0	5.1			3846	B	Mild		Non-Aggressive	5.1	5.1*	Mild	Mild	Non-Aggressive	Non-Aggressive
				28/1.5	1.5	5.1			4762	B	Mild		Non-Aggressive						
				28/1.0	1.0	5.5			35714	B	Non-Aggressive		Non-Aggressive						
36	300681.0	6275389.8	25.0	36/0.5	0.5	4.9			3571	B	Mild		Non-Aggressive	5.1	5.1*	Mild	Mild	Non-Aggressive	Non-Aggressive
				36/1.0	1.0	4.7			2326	B	Mild		Non-Aggressive						
				36/1.5	1.5	14.7			1639	B	Non-Aggressive		Non-Aggressive						
38	301259.2	6275147.3	15.1	38/0.3	0.3	5.9			14085	B	Non-Aggressive		Non-Aggressive	6.5	6.5*	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive
				38/0.8	0.8	5.3			1786	B	Mild		Non-Aggressive						
				38/1.5	1.5	5			1695	B	Mild		Non-Aggressive						
39	300334.2	6274616.9	19.5	39/0.5	0.5	4.7			1754	B	Mild		Non-Aggressive	5.5	5.5*	Mild	Mild	Non-Aggressive	Non-Aggressive
				39/1.0	1.0	4.5			1205	B	Moderate		Non-Aggressive						
				39/1.5	1.5	4.3			1111	B	Moderate		Non-Aggressive						

Table E1: Summary of Laboratory Results for Salinity Investigation

Test Location ID	Test Location			Sample ID	Sample Depth Relative to current level (m bgl)	Exchangeable Sodium (Na) Concentration (meq/100g)	Cation Exchange Capacity (meq/100g)	Sodicity [Na/CEC] (%)	Sodicity Class [after DLWC]	Soil Texture Group (for detailed soil logs see Report Appendix) [after DLWC]	Textural Factor (M) [after DLWC]	EC _{1:5} [Lab.] (microS/cm)	EC _e [M x EC _{1:5}] (dS/m)	Sample Salinity Class (Based on sample ECe) [Richards 1954]	Bulk ECe		Zone Salinity Class	
	East (m MGA56)	North (m MGA56)	RL (m AHD)												In Zones (m) 0-1.5/1.5-3	In Zone (m) 0 - 3	From Bulk ECe in Zones (m): 0-1.5/1.5- 3	From Bulk ECe in Zone (m): 0 - 3
															(dS/m)	(dS/m)	[Richards 1954]	[Richards 1954]
5	302933.3	6273992.2	20.1	5/0.0	0.0					Loam	10	63	0.6	Non-Saline	2.8	3.6	Slightly Saline	Slightly Saline
				5/0.5	0.5				Clay loam	9	75	0.7	Non-Saline					
				5/1.0	1.0	1.3	10	12	Sodic	Light clay	8.5	480	4.1	Moderately Saline				
				5/1.5	1.5	2.6	11	23	Highly Sodic	Light medium clay	8	570	4.6	Moderately Saline				
				5/2.0	2.0					Light medium clay	8	580	4.6	Moderately Saline				
				5/2.5	2.5					Light medium clay	8	610	4.9	Moderately Saline				
13	301028.7	6275577.7	13.5	5/3.0	3.0					Light medium clay	8	580	4.6	Moderately Saline	3.8	5.8*	Moderately Saline	Moderately Saline
				13/0.1	0.1	0.16	23.5	0.01	Non-Sodic	Clay loam	9	54	0.5	Non-Saline				
				13/0.5	0.5					Clay loam	9	120	1.1	Non-Saline				
				13/1.0	1.0	2.6	9.4	28	Highly Sodic	Medium clay	7	830	5.8	Moderately Saline				
				13/1.5	1.5					Medium clay	7	875	6.1	Moderately Saline				
				13/2.0	2.0					Heavy clay	6	920	5.5	Moderately Saline				
19	302445.9	6274946.9	16.3	13/2.5	2.5					Medium clay	7	890	6.2	Moderately Saline	2.5	4.9	Slightly Saline	Moderately Saline
				19/0.1	0.1					Loam	10	20	0.2	Non-Saline				
				19/0.5	0.5	0.35	6.7	5	Sodic	Clay loam	9	51	0.5	Non-Saline				
				19/1.0	1.0	3	13	24	Highly Sodic	Heavy clay	6	435	2.6	Slightly Saline				
				19/1.5	1.5	4.75	13	37	Highly Sodic	Heavy clay	6	910	5.5	Moderately Saline				
				19/2.0	2.0					Light medium clay	8	1100	8.8	Very Saline				
23	303134.7	6275191.7	37.1	19/2.5	2.5					Light medium clay	8	1000	8.0	Moderately Saline	8.3	4.9	Very Saline	Moderately Saline
				19/3.0	3.0					Light medium clay	8	1000	8.0	Moderately Saline				
				23/0.1	0.1					Loam	10	57	0.6	Non-Saline				
				23/0.5	0.5					Loam	10	27	0.3	Non-Saline				
				23/0.7	0.7					Medium clay	7	120	0.8	Non-Saline				
				23/1.0	1.0	1	8.7	12	Sodic	Medium clay	7	290	2.0	Slightly Saline				
29	300165.3	6276206.0	18.7	23/1.5	1.5					Clay loam	9	290	2.6	Slightly Saline	1.3	1.3*	Non-Saline	Non-Saline
				29/0.1	0.1					Clay loam	9	130	1.2	Non-Saline				
				29/0.5	0.5					Medium clay	7	42	0.3	Non-Saline				
				29/1.0	1.0					Light clay	8.5	80	0.7	Non-Saline				
				29/1.5	1.5					Light clay	8.5	55	0.5	Non-Saline				
				29/2.0	2.0	2	10	20	Highly Sodic	Light clay	8.5	95	0.8	Non-Saline				
32	299989.9	6275535.3	21.6	29/2.0	2.0					Light clay	8.5	145	1.2	Non-Saline	0.8	0.8*	Non-Saline	Non-Saline
				32/0.1	0.1					Light clay	8.5	145	1.2	Non-Saline				
				32/0.5	0.5					Medium clay	7	450	3.2	Slightly Saline				
				32/1.0	1.0	2.9	14	21	Highly Sodic	Medium clay	7	720	5.0	Moderately Saline				
				32/1.5	1.5	3.4	12	29	Highly Sodic	Light clay	8.5	510	4.3	Moderately Saline				
				32/2.0	2.0					Medium clay	7	540	3.8	Slightly Saline				
37	300511.6	6274879.3	28.6	32/2.8	2.8					Medium clay	7	550	3.9	Slightly Saline	3.8	3.8	Slightly Saline	Slightly Saline
				37/0.1	0.1	0.11	4.4	3	Non-Sodic	Clay loam	9	26	0.2	Non-Saline				
				37/0.4	0.4					Light clay	8.5	41	0.3	Non-Saline				
				37/0.8	0.8	2.2	9.7	23	Highly Sodic	Light clay	8.5	58	0.5	Non-Saline				
				37/1.2	1.2					Light medium clay	8	110	0.9	Non-Saline				
				7/0.4	0.4					Medium clay	7	73	0.5	Non-Saline				
7	300903.0	6276359.3	19.3	7/0.8	0.8					Light medium clay	8	53	0.4	Non-Saline	0.5	0.5*	Non-Saline	Non-Saline
				10/0.5	0.5					Light clay	8.5	40	0.3	Non-Saline				
10	301149.8	6275982.2	13.0	10/1.5	1.5					Light medium clay	8	28	0.2	Non-Saline	0.3	0.3*	Non-Saline	Non-Saline
				25/1.0	1.0					Medium clay	7	120	0.8	Non-Saline				
25	303146.2	6274537.6	26.1	25/1.5	1.5					Light medium clay	8	320	2.6	Slightly Saline	1.1	1.1*	Non-Saline	Non-Saline
				28/2.0	2.0					Light medium clay	8	260	2.1	Slightly Saline				
28	299603.0	6276174.6	20.6	28/1.5	1.5					Light medium clay	8	210	1.7	Non-Saline	2.1	2.1*	Non-Saline	Slightly Saline
				36/0.5	0.5					Medium clay	7	280	2.0	Non-Saline				
36	300681.0	6275389.8	25.0	36/1.0	1.0					Medium clay	7	430	3.0	Slightly Saline	2.8	2.8*	Slightly Saline	Slightly Saline
				36/1.5	1.5					Light medium clay	8	610	4.9	Moderately Saline				
				38/0.3	0.3					Clay loam	9	71	0.6	Non-Saline				
38	301259.2	6275147.3	15.1	38/0.8	0.8					Medium clay	7	560	3.9	Slightly Saline	2.8	2.8*	Slightly Saline	Slightly Saline
				38/1.5	1.5					Medium clay	7	590	4.1	Moderately Saline				
				39/0.5	0.5					Medium clay	7	570	4.0	Slightly Saline				
39	300334.2	6274616.9	19.5	39/1.0	1.0					Heavy clay	6	830	5.0	Moderately Saline	4.7	4.7*	Moderately Saline	Moderately Saline
				39/1.5	1.5					Medium clay	7	900	6.3	Moderately Saline				

Aggressivity Flags

- Very Severe
- Severe
- Moderate
- Mild
- Non-Aggressive

Sodicity Flags

- Highly Sodic
- Sodic
- Non-Sodic

Dispersion Flags

- Complete
- Some
- Dispersive
- No

Salinity Flags

- Highly Saline
- Very Saline
- Moderately Saline
- Slightly Saline
- Non-Saline

Note: * indicates bulk value assumed to continue to depth at the "worst case" value of all shallow zones.

Table E2: Summary of Laboratory Results for Preliminary Contamination Investigation: Soils

Sample	Depth	pH	Electrical Conductivity	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Iron*	Manganese	Boron	Barium	Beryllium	Cobalt	Molybdenum	Selenium	Tin	Exchangeable Ca	Exchangeable K	Exchangeable Mg	Exchangeable Na	Cation Exchange Capacit	ESP	Chloride, Cl	Sulphate, SO4	Clay Content
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	%	mg/kg
5	0	5.8	64																										
5	0.5	5.9	75																										
5	1	4.9	480	6	<0.4	17	8	14	<0.1	3	9	29,000	51	<3	29	<1	3	<1	<2	<1	0.6	0.1	8.5	1.3	10	12	660	<10	
5	1.5	5.8	570																		0.4	0.2	8.2	2.6	11	23	710	76	
5	2	5.7	580																										
5	2.5	6.5	610																										
5	3	6.1	580																										
7	0.4	4.8	73																										
7	0.8	5	53																										
10	0.5	6.2	40																										
10	1.5	5.9	28																										
13	0.1	7.7	54	9	<0.4	24	31	18	<0.1	27	51	51,000	700	<3	190	1	13	<1	<2	<1	15	0.2	8	0.16	24	<1			
13	0.5	6.8	120																										
13	1	5	830	<4	<0.4	17	9	15	<0.1	3	8	21,000	8	<3	180	<1	2	<1	<2	1	0.3	0.1	6.5	2.6	9.4	28	1300	410	
13	1.5	4.6	900																										
13	2	5.6	920																										
13	2.5	5.3	890																										
14	1	5.3	430																										
14	2	5	1,100																										
19	0.1	5.4	20																										
19	0.5	6	51	6	<0.4	13	13	12	<0.1	5	12	24,000	93	<3	27	<1	4	<1	<2	<1	1.9	0.1	4.3	0.35	6.7	5			
19	1	5.6	440	7	<0.4	12	22	14	<0.1	11	23	22,000	390	<3	380	<1	51	<1	<2	<1	0.5	0.1	9	3	13	24	330	350	
19	1.5	6.9	910																		0.7	0.1	7.4	4.8	13	37	980	230	
19	2	7.8	1,100																										
19	2.5	8	1,000																										
19	3	8.3	1,000																										
23	0.1	6.5	58																										
23	0.5	6.5	27																										
23	0.7	5	120																										
23	1	5.1	290	10	<0.4	5	19	8	<0.1	4	41	23,000	12	<3	420	<1	4	<1	<2	<1	2	0.2	5.4	1	8.7	12	220	62	
23	1.5	5.1	290																										
25	1	5.5	120																										
25	1.5	5	320																										
28	1	5.1	260																										
28	1.5	5.1	210																										
29	0.1	7.9	130																										
29	0.5	7.2	42																										
29	1	5.5	80	<4	<0.4	9	8	7	<0.1	3	5	4,700	23	<3	140	<1	1	<1	<2	<1	0.8	0.2	7.1	2	10	20	20	54	
29	1.5	5.7	55																										
29	2	5.4	95																										
32	0.1	8.3	150																										
32	0.5	5.3	450																										
32	1	4.7	720	7	<0.4	17	7	10	<0.1	1	4	41,000	2	<3	7	<1	1	<1	<2	<1	0.2	<0.1	10	2.9	14	21	830	250	
32	1.5	5	510																		<0.1	0.1	8.1	3.4	12	29	600	170	
32	2	5	540																										
32	2.8	4.9	550																										
36	0.5	4.9	280																										
36	1	4.7	430																										
36	1.5	4.7	630																										
37	0.1	5.9	26	10	<0.4	26	4	14	<0.1	5	9	55,000	45	<3	28	<1	1	<1	<2	<1	2.5	0.2	1.6	0.11	4.4	3			
37	0.4	5.7	41																										
37	0.8	5.5	58	10	<0.4	29	6	12	<0.1	5	6	70,000	19	<3	10	<1	1	<1	<2	<1	0.4	0.1	6.9	2.2	9.7	23	34	41	
37	1.2	5.2	110																										
38	0.3	5.9	71																										
38	0.8	5.3	560																										
38	1.5	5	590																										
39	0.5	4.7	570																										
39	1	4.5	830																										
39	1.5	4.3	900																										

Table E3: Summary of Laboratory Results for Preliminary Contamination Investigation: Groundwater

Sample ID	Depth ^a m bgl	Date Sampled	Hardness (mgCaCO3/L)	Applicable Soil Type ^f	Priority Heavy Metals (total dissolved)											Other Metals (total dissolved)											TRH					BTEX					PAH			OCP		OPP	PCB	VOC		
					As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	B	Ba	Be	Ca	Co	Fe	Mg	Mn	Mo	Se	Sn	TRH C ₆ - C ₁₀	TRH >C ₁₀ - C ₁₆	C ₆ -C ₁₀ less BTEX (F1)	>C ₁₀ -C ₁₆ less Naphthalene (F2)	>C ₁₆ -C ₃₄	>C ₃₄ -40	Benzene	Toluene	Ethylbenzene	m-p-xylene	o-xylene	Naphthalene	B(a)P	B(a)P TEQ	PAH	Dieldrin	Other						
					(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)						
BH1	0.8	10/04/14	4,000	Clay	<1	0.3	<1	3	<1	<0.05	15	53	18	62	<0.5	160	27	1,200	860	2,000	<1	<1	<1	<10	<50	<10	<50	<100	<100	<1	<1	<1	<2	<1	<1	<1	<1	<5	<1	<0.001	<0.001	<0.010	<0.01	<10/<1		
BH2	1.3	10/04/14	3,800	Clay	<1	0.6	<1	2	<1	<0.05	39	36	20	96	<0.5	170	120	16	820	6,900	<1	1	<1	<10	<50	<10	<50	<100	<100	<1	<1	<1	<2	<1	<1	<1	<5	<1	<0.001	<0.001	<0.010	-	-			
BH3	.8	10/04/14	2,600	Clay	<1	0.3	<1	3	2	<0.05	67	110	24	110	<0.5	69	150	10	600	9,400	<1	2	<1	<10	<50	<10	<50	<100	<100	<1	<1	<1	<2	<1	<1	<1	<5	<1	<0.001	<0.001	<0.010	-	-			
BH4	2.2	10/04/14	600	Clay	<1	<0.1	<1	2	<1	<0.05	2	35	27	66	<0.5	42	<1	14	120	200	3	<1	<1	<10	<50	<10	<50	<100	<100	<1	<1	<1	<2	<1	<1	<1	<5	<1	0.002	<0.001	<0.010	-	-			
BH5	1.8	10/04/14	2,200	Clay	<1	0.3	<1	1	<1	<0.05	15	45	26	44	<0.5	84	66	<10	490	4,500	<1	<1	<1	<10	<50	<10	<50	<100	<100	<1	<1	<1	<2	<1	<1	<5	<1	0.005	<0.001	<0.010	-	-				
BD1A/10414	1.8	10/04/14	-	Clay	<1	0.3	<1	<1	<1	<0.05	14	32	25	46	<0.5	-	65	<10	-	4,400	<1	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<5	<1	-	-	-	-	-	
Groundwater Assessment Criteria																																														
GIL (freshwater)	-	-	-	-	24/13 ^g	0.2	1 ^d	1.4	3.4	0.06	11	8	370	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
GIL (freshwater, hardness adjusted) ^b	-	-	3,150	-	-	12.6	150 ^m	73	1254	-	575	418	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
GIL (freshwater, hardness adjusted) ^b	-	-	600	-	-	2.9	39 ^m	18	153	-	140	102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
HSLs (Residential)																																														
HSL-A&B	2-<4m	-	-	Clay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
HSL-A&B	4-<8m	-	-	Clay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
HSL-A&B	8+m	-	-	Clay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ADWG	(health-based)	-	-	-	10	2	50 ^d	2,000	10	1	20	-	4,000	2,000	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ADWG	(aesthetic-based)	-	-	-	-	-	-	1,000	-	-	-	3,000	-	-	-	-	-	-	300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reference Level	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Notes:

- a Replicate sample of sample listed directly above
 - b Adjusted in accordance with ANZECC (2000) for a hardness of 895.5mg/L , average of hardness in primary samples
 - c Dutch Soil Remediation Circular 2009 (ENGELSE versie circulaire Bodemsanering 2009): Indicative level for serious contamination
 - d Threshold value for Cr (VI)
 - e Depth to groundwater as measured immediately prior to sampling on 3 Jul 2013
 - f Overlying material applying for HSL. Soil type adopted on conservative basis
 - g 24µg/L as As(III) 13µg/L as As(V)
 - h As p-xylene
 - i As m-xylene
 - j Airport (Environment Protection) Regulations (1997), Schedule 2 Water Pollution Accepted Limits: Table 1.03 – Accepted limits of contamination
 - k ANZECC Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000), Low reliability values
 - m Threshold value for Cr (III)
 - Not defined/ not analysed/ not applicable
- BOLD** Concentration detected at or above the PQL
- Shaded** Concentration above investigation level

Acronyms

- As Arsenic
- B Boron
- Ba Barium
- BaP benzo(a)pyrene
- Be Beryllium
- BTEX benzene, toluene, ethyl benzene, total xylenes
- Ca Calcium
- Cd Cadmium
- Co Cobalt
- Cr Chromium
- Cu Copper
- Fe Iron
- Hg Mercury
- Mg Magnesium
- Mn Manganese
- Mo Molybdenum
- Ni Nickel
- NL "Not limiting" to human health for the proposed land use for vapour intrusion from petroleum hydrocarbons
- PAH polycyclic aromatic hydrocarbons
- Pb Lead
- PQL practical quantitation limit
- Se Selenium
- Sn Tin
- TRH total recoverable hydrocarbons, including total petroleum hydrocarbons (TPH)
- Zn Zinc

Appendix F

Laboratory Reports

Results of Moisture Content, Plasticity and Linear Shrinkage Tests

Client:	Mott MacDonald Australia Pty Ltd	Project No:	73895
Project:	Land Capability Investigation	Report No:	4
Location:	North West Growth Centre	Report Date:	08/05/2014
		Date Sampled:	1-4/04/2014
		Date of Test:	10/04/2014
		Page:	1 of 1

Test Location	Depth (m)	Description	Code	W _F %	W _L %	W _P %	PI %	*LS %
TP11	0.1	Brown clayey silt	2,5	15.2	30	17	13	8.5
TP11	0.5-1.0	Yellow brown silty clay	2,5	14.3	44	15	28	14
TP11	2.0	Dark grey mottled red silty clay	2,5	26.9	72	21	51	21 CU
TP17	0.5-1.0	Red brown silty clay	2,5	19.8	34	16	18	9.5
TP31	0.5-1.0	Red brown grey silty clay	2,5	23.1	46	19	27	14.5
TP40	0.3	Grey orange brown silty clay	2,5	24.0	53	18	35	17.5 CU

Legend:

W_F Field Moisture Content
 W_L Liquid limit
 W_P Plastic limit
 PI Plasticity index
 LS Linear shrinkage from liquid limit condition (Mould length 125mm)

Code:

Sample history for plasticity tests

1. Air dried
2. Low temperature (<50°C) oven dried
3. Oven (105°C) dried
4. Unknown

Test Methods:

Moisture Content: AS 1289 2.1.1
 Liquid Limit: AS 1289 3.1.2
 Plastic Limit: AS 1289 3.2.1
 Plasticity Index: AS 1289 3.3.1
 Linear Shrinkage: AS 1289 3.4.1

Method of preparation for plasticity tests

5. Dry sieved
6. Wet sieved
7. Natural

*Specify if sample crumbled CR or curled CU

Sampling Methods: Sampled by Engineering Department

Remarks: Location of TP11, TP17, TP31, TP40: Vineyard Precinct



NATA Accredited Laboratory Number: 828

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025

Tested: LW
 Checked: BH


 Brett Hughes
 Laboratory Manager

Results of Moisture Content, Plasticity and Linear Shrinkage Tests

Client:	Mott MacDonald Australia Pty Ltd	Project No:	73895
Project:	Land Capability Investigation	Report No:	14
Location:	North West Growth Centre	Report Date:	08/05/2014
		Date Sampled:	1-4/04/2014
		Date of Test:	30/04/2014
		Page:	1 of 1

Test Location	Depth (m)	Description	Code	W _F %	W _L %	W _P %	PI %	*LS %
Vineyard Precinct TP22	0.3-0.45	Red brown silty clay	2,5	-	70	22	48	14.5 CU

Legend:

W_F Field Moisture Content
 W_L Liquid limit
 W_P Plastic limit
 PI Plasticity index
 LS Linear shrinkage from liquid limit condition (Mould length 125mm)

Code:

Sample history for plasticity tests

1. Air dried
2. Low temperature (<50°C) oven dried
3. Oven (105°C) dried
4. Unknown

Method of preparation for plasticity tests

5. Dry sieved
6. Wet sieved
7. Natural

*Specify if sample crumbled CR or curled CU

Test Methods:

Moisture Content: AS 1289 2.1.1
 Liquid Limit: AS 1289 3.1.2
 Plastic Limit: AS 1289 3.2.1
 Plasticity Index: AS 1289 3.3.1
 Linear Shrinkage: AS 1289 3.4.1

Sampling Methods: Sampled by Engineering Department

Remarks:

Determination of Emerson Class Number of Soil

Client :	Mott MacDonald Australia Pty Ltd	Project No. :	73895
Project :	Land Capability Investigation	Report No. :	5
Location :	North West Growth Centre	Report Date :	8/05/2014
		Date of Test:	15/04/2014
		Page:	1 of 1

Sample No.	Depth (m)	Description	Water Type	Water Temp	Class No.
Vineyard Precinct TP11	0.1	Brown Clayey Silt	Distilled	22	3
Vineyard Precinct TP11	0.5	Yellow brown silty clay	Distilled	22	2
Vineyard Precinct TP11	2.0	Dark grey mott red silty clay	Distilled	22	6
Vineyard Precinct TP17	0.5	Red brown silty clay	Distilled	22	2
Vineyard Precinct TP31	0.5	Red brown grey silty clay	Distilled	22	3
Vineyard Precinct TP40	0.3	Grey orange brown silty clay	Distilled	22	3

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Test Methods: AS 1289 3.8.1
Sampling Methods: Sampled by Engineering Department

Remarks:

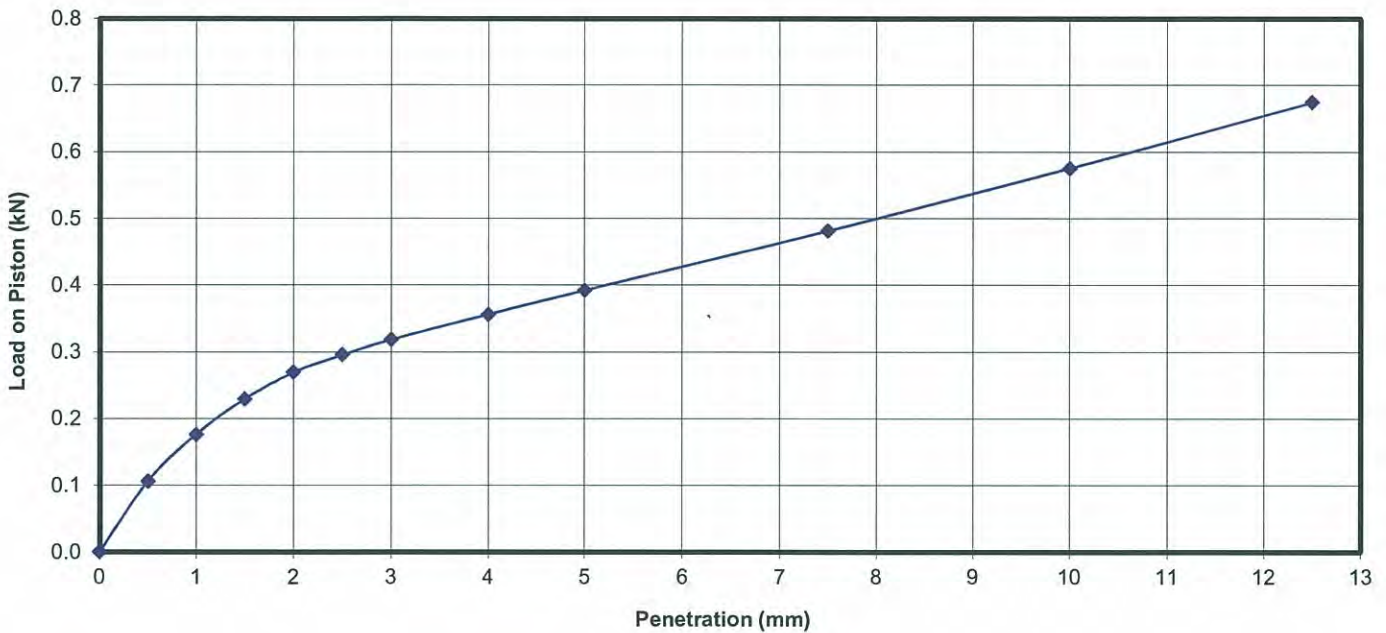


NATA Accredited Laboratory Number: 828
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.
Accredited for compliance with ISO/IEC 17025

Brett Hughes
Laboratory Manager

Results of California Bearing Ratio Test

Client :	Mott MacDonald Australia Pty Ltd	Project No. :	73895.00
Project :	Land Capability Investigation	Report No. :	1
Location :	North West Growth Centre	Report Date :	8/05/2014
Test Location :	Vineyard Precinct TP11	Date Sampled :	1/04/2014
Depth / Layer :	0.5 - 1.0m	Date of Test:	12/04/2014
		Page:	1 of 1



Description: Yellow brown silty clay
Test Method(s): AS1289 6.1.1, AS1289 5.1.1, AS1289 2.1.1
Sampling Method(s): Sampled by Engineering Department

Percentage > 19mm: 0% Excluded

LEVEL OF COMPACTION: 98% of STD MDD
MOISTURE RATIO: 98% of STD OMC

SURCHARGE: 4.5 kg
SOAKING PERIOD: 4 days

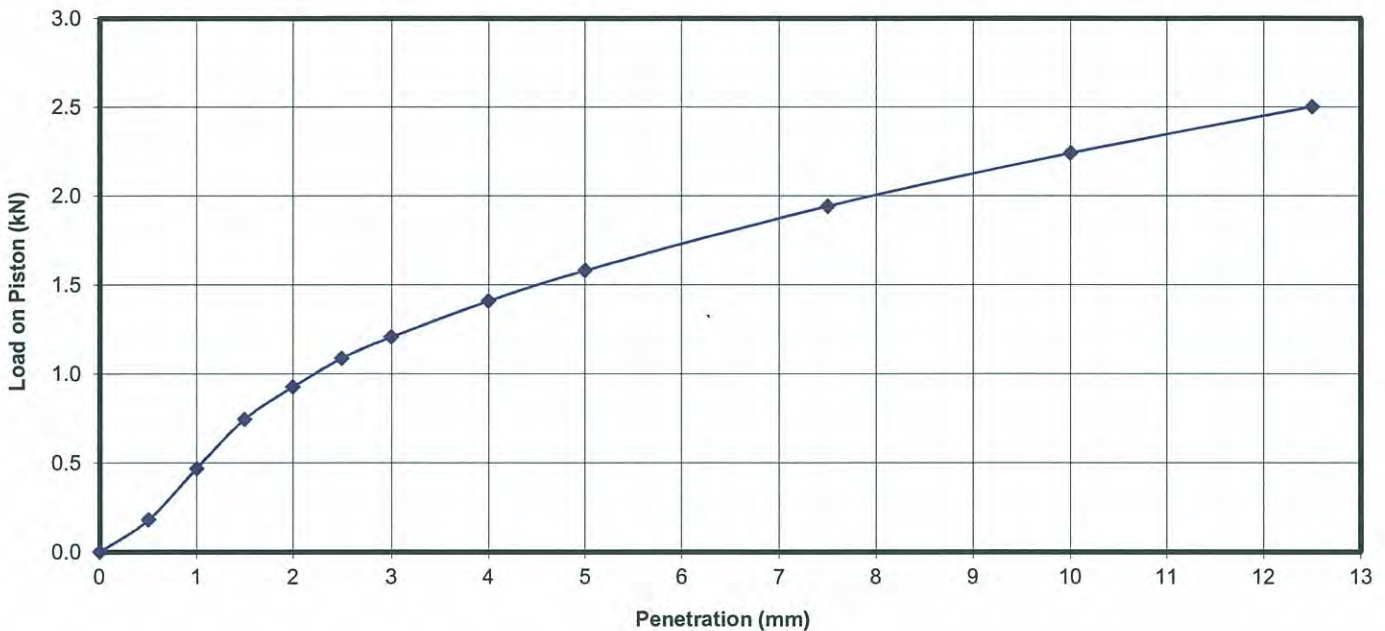
SWELL: 1.9%

CONDITION	MOISTURE CONTENT %	DRY DENSITY t/m ³
At compaction	16.1	1.78
After soaking	19.6	1.78
After test	Top 30mm of sample	-
	Remainder of sample	-
Field values	14.2	-
Standard Compaction	16.4	1.82

RESULTS		
TYPE	PENETRATION	CBR (%)
TOP	5.0 mm	2

Results of California Bearing Ratio Test

Client :	Mott MacDonald Australia Pty Ltd	Project No. :	73895.00
Project :	Land Capability Investigation	Report No. :	2
Location :	North West Growth Centre	Report Date :	8/05/2014
Test Location :	Vineyard Precinct TP17	Date Sampled :	1/04/2014
Depth / Layer :	0.5 - 1.0m	Date of Test:	16/04/2014
		Page:	1 of 1



Description: Red brown silty clay

Test Method(s): AS1289 6.1.1, AS1289 5.1.1, AS1289 2.1.1

Sampling Method(s): Sampled by Engineering Department

Percentage > 19mm: 0%

LEVEL OF COMPACTION: 100% of STD MDD

SURCHARGE: 4.5 kg

SWELL: 0.3%

MOISTURE RATIO: 101% of STD OMC

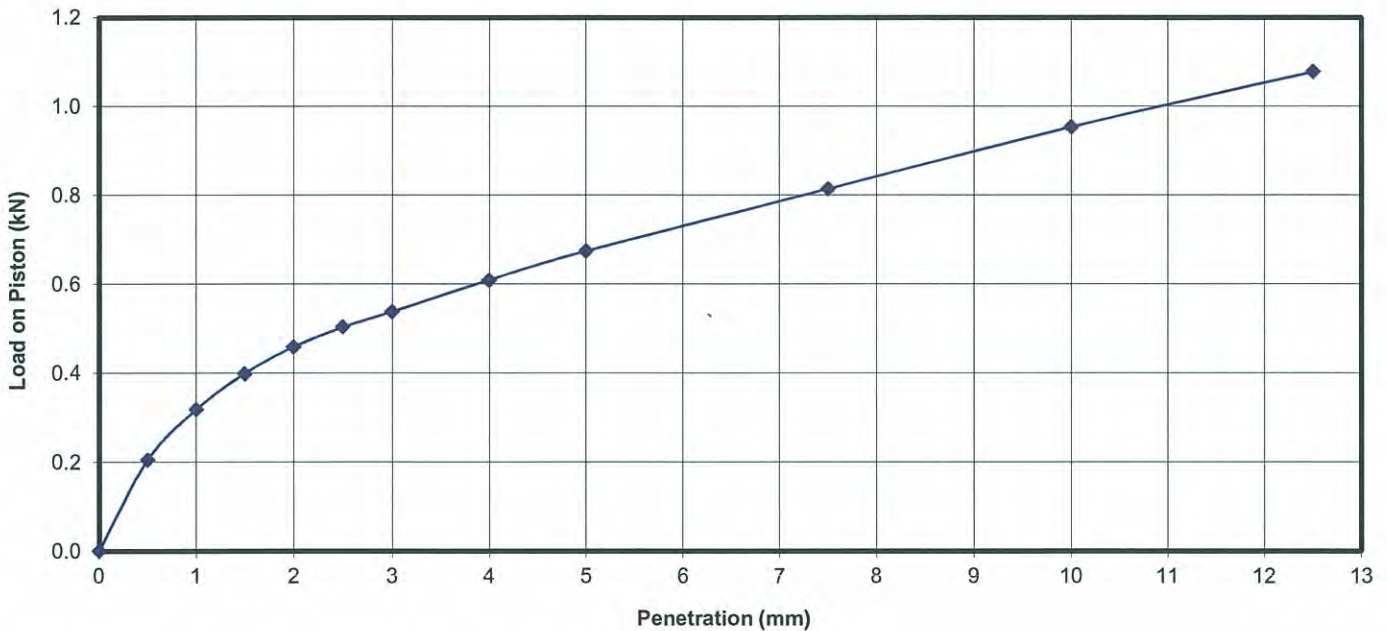
SOAKING PERIOD: 4 days

CONDITION	MOISTURE CONTENT %	DRY DENSITY t/m ³
At compaction	15.5	1.81
After soaking	18.0	1.81
After test	Top 30mm of sample	-
	Remainder of sample	-
Field values	19.5	-
Standard Compaction	15.4	1.81

RESULTS		
TYPE	PENETRATION	CBR (%)
TOP	2.5 mm	9

Results of California Bearing Ratio Test

Client :	Mott MacDonald Australia Pty Ltd	Project No. :	73895.00
Project :	Land Capability Investigation	Report No. :	3
Location :	North West Growth Centre	Report Date :	8/05/2014
Test Location :	Vineyard Precinct TP31	Date Sampled :	1/04/2014
Depth / Layer :	0.5 - 1.0m	Date of Test:	16/04/2014
		Page:	1 of 1



Description: Red brown grey silty clay

Test Method(s): AS1289 6.1.1, AS1289 5.1.1, AS1289 2.1.1

Sampling Method(s): Sampled by Engineering Department

Percentage > 19mm: 0%

LEVEL OF COMPACTION: 101% of STD MDD

SURCHARGE: 4.5 kg

SWELL: 1.5%

MOISTURE RATIO: 97% of STD OMC

SOAKING PERIOD: 4 days

CONDITION	MOISTURE CONTENT %	DRY DENSITY t/m ³
At compaction	21.0	1.70
After soaking	23.6	1.70
After test	Top 30mm of sample	-
	Remainder of sample	-
Field values	23.9	-
Standard Compaction	21.7	1.68

RESULTS		
TYPE	PENETRATION	CBR (%)
TOP	2.5 mm	4

Result of Shrink-Swell Index Determination

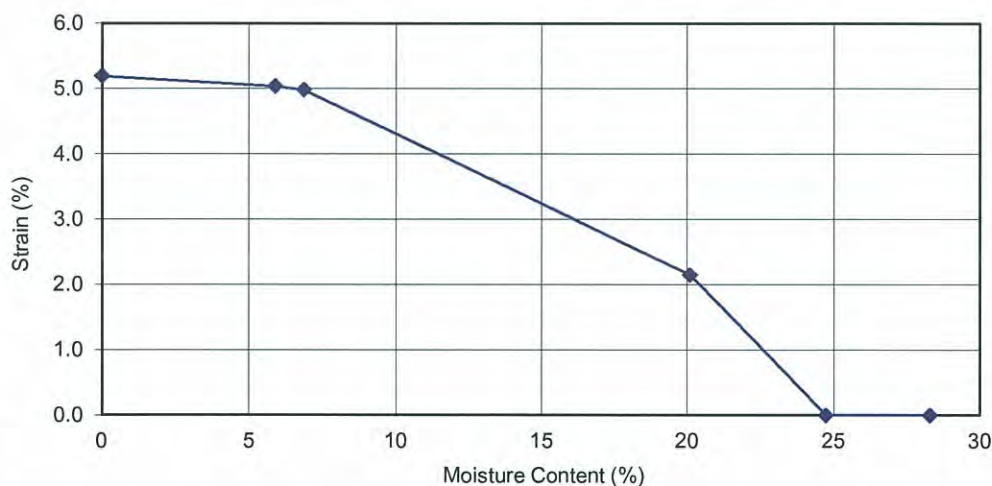
Client :	Mott MacDonald Australia Pty Ltd	Project No. :	73895.00
Project :	Land Capability Investigation	Report No. :	11
Location :	North West Growth Centre	Report Date :	8/05/2014
Test Location :	Vineyard Precinct TP31	Date Sampled :	4/04/2014
Depth / Layer :	0.4m	Date of Test:	23/04/2014
		Page:	1 of 1

CORE SHRINKAGE TEST

Shrinkage - air dried	5.0 %
Shrinkage - oven dried	5.2 %
Significant inert inclusions	3.0 %
Extent of cracking	SC
Extent of soil crumbling	0.0 %
Moisture content of core	24.7 %

SWELL TEST

Pocket penetrometer reading at initial moisture content	250 kPa
Pocket penetrometer reading at final moisture content	200 kPa
Initial Moisture Content	23.1 %
Final Moisture Content	28.3 %
Swell under 25kPa	0.0 %



SHRINK-SWELL INDEX Iss 2.9% per Δ pF

Description:	Red brown grey silty clay	
Test Method(s):	AS 1289.7.1.1, AS 1289.2.1.1	
Sampling Method(s):	Sampled by Sydney Engineering Department	
Extent of Cracking:	UC - Uncracked	HC - Highly cracked
	SC - Slightly cracked	FR - Fractured
	MC - Moderately cracked	

Remarks: -

Note that NATA accreditation does not cover the performance of pocket penetrometer readings



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Tested:	LW
Checked:	BH

Norman Weimann
 Senior Soil Technician

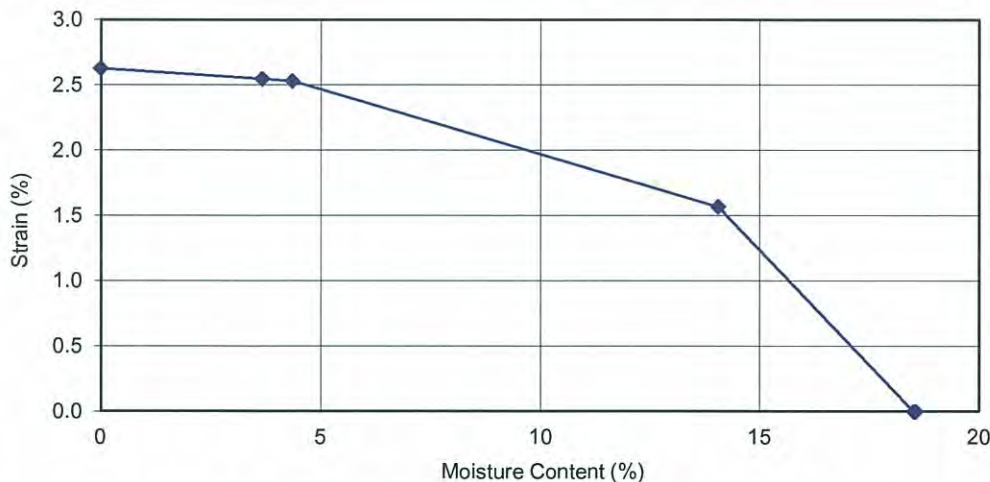
Result of Shrink-Swell Index Determination

Client :	Mott MacDonald Australia Pty Ltd	Project No. :	73895.00
Project :	Land Capability Investigation	Report No. :	12
Location :	North West Growth Centre	Report Date :	8/05/2014
Test Location :	Vineyard Precinct TP10	Date Sampled :	4/04/2014
Depth / Layer :	0.4m	Date of Test:	23/04/2014
		Page:	1 of 1

CORE SHRINKAGE TEST

SWELL TEST

Shrinkage - air dried	2.5 %	Pocket penetrometer reading at initial moisture content	300 kPa
Shrinkage - oven dried	2.6 %	Pocket penetrometer reading at final moisture content	240 kPa
Significant inert inclusions	3.0 %	Initial Moisture Content	15.6 %
Extent of cracking	SC	Final Moisture Content	18.6 %
Extent of soil crumbling	0.0 %	Swell under 25kPa	0.0 %
Moisture content of core	18.5 %		



SHRINK-SWELL INDEX Iss 1.5% per Δ pF

Description:	Orange Red brown clay						
Test Method(s):	AS 1289.7.1.1, AS 1289.2.1.1						
Sampling Method(s):	Sampled by Sydney Engineering Department						
Extent of Cracking:	<table> <tr> <td>UC - Uncracked</td> <td>HC - Highly cracked</td> </tr> <tr> <td>SC - Slightly cracked</td> <td>FR - Fractured</td> </tr> <tr> <td>MC - Moderately cracked</td> <td></td> </tr> </table>	UC - Uncracked	HC - Highly cracked	SC - Slightly cracked	FR - Fractured	MC - Moderately cracked	
UC - Uncracked	HC - Highly cracked						
SC - Slightly cracked	FR - Fractured						
MC - Moderately cracked							

Remarks:

-
 Note that NATA accreditation does not cover the performance of pocket penetrometer readings



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Tested:	LW
Checked:	BH

Norman Weimann
 Senior Soil Technician

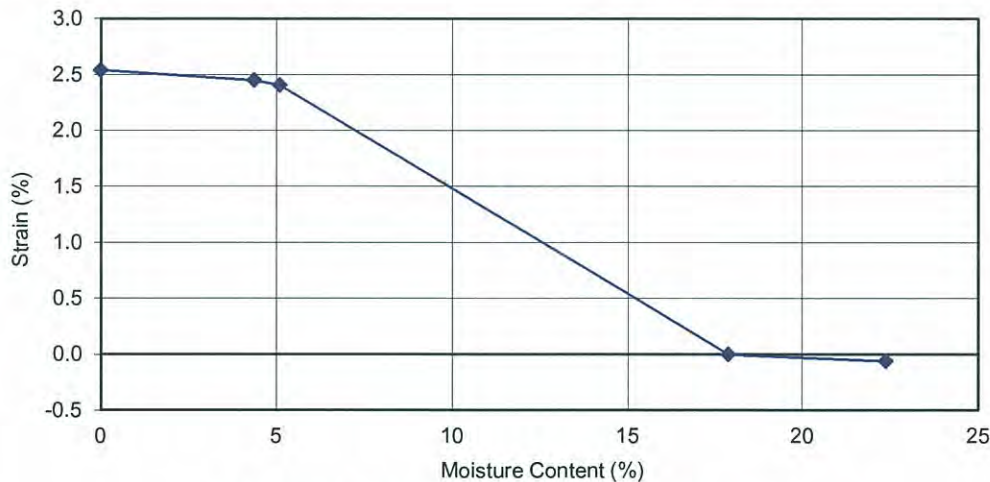
Result of Shrink-Swell Index Determination

Client :	Mott MacDonald Australia Pty Ltd	Project No. :	73895.00
Project :	Land Capability Investigation	Report No. :	13
Location :	North West Growth Centre	Report Date :	8/05/2014
Test Location :	Vineyard Precinct TP17	Date Sampled :	4/04/2014
Depth / Layer :	0.4m	Date of Test :	23/04/2014
		Page:	1 of 1

CORE SHRINKAGE TEST

SWELL TEST

Shrinkage - air dried	2.4 %	Pocket penetrometer reading at initial moisture content	>400 kPa
Shrinkage - oven dried	2.5 %	Pocket penetrometer reading at final moisture content	320 kPa
Significant inert inclusions	2.0 %	Initial Moisture Content	17.2 %
Extent of cracking	SC	Final Moisture Content	22.4 %
Extent of soil crumbling	0.0 %	Swell under 25kPa	0.1 %
Moisture content of core	17.9 %		



SHRINK-SWELL INDEX Iss 1.4% per Δ pF

Description:	Red brown grey silty clay	
Test Method(s):	AS 1289.7.1.1, AS 1289.2.1.1	
Sampling Method(s):	Sampled by Sydney Engineering Department	
Extent of Cracking:	UC - Uncracked	HC - Highly cracked
	SC - Slightly cracked	FR - Fractured
	MC - Moderately cracked	

Remarks: -

Note that NATA accreditation does not cover the performance of pocket penetrometer readings



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Tested:	LW
Checked:	BH

Norman Weimann
 Senior Soil Technician

Project Name: Riverstone Vineyard To: EnviroLab Services
 Project No: 73895 Sampler: NLE 12 Ashley St Chatswood 2067
 Project Mgr: NLE Mob. Phone: 0414 769 011 Attn: Tania Notaras
 Email: nerilee.edwards@douglaspartners.com.au Phone: (02) 9910 6200 Fax: (02) 9910 6201
 Date Required: STD; ESdat Format: Lab Quote No. Email: tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Sampling Date	Sample Type	Container type	Analytes										Notes/preservation						
					pH	EC 1:5	ESP (incl. CEC)	Cl & SO ₄	HM8	As Cd Cr	Pb Hg Ni	TRH/ BTEX	MTBE/ PAH	OCP/PP (Trace level)		PCB (Trace level)	VOC	Hardness	Clay content		
5/0.0	1			G - glass	✓																
5/0.5	2			P - plastic																	
5/1.0	3																				
5/1.5	4																				
5/2.0	5																				
5/2.5	6																				
5/3.0	7																				
13/0.1	8																				
13/0.5	9																				
13/1.0	10																				
13/1.5	11																				
13/2.0	12																				
13/2.5	13																				

Lab Report No. Phone: (02) 4271 1836
 Send Results to: Douglas Partners Address: 96 Hermitage Road West Ryde NSW 2114 Fax: (02) 4271 1897

Relinquished by: WRY Signed: gn Date & Time: 03.04.14 Transported to laboratory by: Hunter Express
 Received By: D. POLOD Date & Time: 4.4.14

Project Name: Riverstone Vineyard To: Envirolab Services
 Project No: 73895.17 Sampler: NLE 12 Ashley St Chatswood 2067
 Project Mgr: NLE Mob. Phone: 0414 769 011 Attn: Tania Notaras
 Email: nerilee.edwards@douglaspartners.com.au Phone: (02) 9910 6200 Fax: (02) 9910 6201
 Date Required: STD; ESdat Format: Lab Quote No. Email: tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Sampling Date	Sample Type	Container type	Analytes										Notes/preservation											
					pH	EC 1:5	ESP (incl. CEC)	Cl & SO ₄	HM8	As Cd Cr	Pb Hg Ni	TRH/ BTEX	MTBE/ PAH	OCP/OPP (Trace level)		PCB (Trace level)	VOC	Hardness	Clay content							
19/0.1	14		S - soil	G - glass	✓																					
19/0.5	15		W - water	P - plastic																						
19/1.0	16																									
19/1.5	17																									
19/2.0	18																									
19/2.5	19																									
19/3.0	20																									
23/0.1	21																									
23/0.5	22																									
23/0.7	23																									
23/1.0	24																									
23/1.5	25																									
29/0.1	26																									

Lab Report No. Address: 96 Hermitage Road West Ryde NSW 2114 Phone: (02) 4271 1836
 Send Results to: Douglas Partners Address: 96 Hermitage Road West Ryde NSW 2114 Fax: (02) 4271 1897
 Relinquished by: WFM Signed: [Signature] Date & Time: 03.04.14 Transported to laboratory by: Hunter Express
 Received By: D. Foran Date & Time: 03.04.14

Project Name: Riverstone Vineyard To: Envirolab Services
 Project No: 73895/17 Sampler: NLE 12 Ashley St Chatswood 2067
 Project Mgr: NLE Mob. Phone: 0414 769 011 Attn: Tania Notaras
 Email: nerilee.edwards@douglaspartners.com.au Phone: (02) 9910 6200 Fax: (02) 9910 6201
 Date Required: ESdat Format Lab Quote No. Email: tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Sampling Date	Sample Type	Container type	Analytes										Notes/preservation										
					pH	EC 1:5	ESP (incl. CEC)	Cl & SO ₄	HMB	As Cd Cr	Pb Hg Ni	TRH/ BTEX	MTBE/ PAH	OCP/PP (Trace level)		PCB (Trace level)	VOC	Hardness	Clay content						
<u>29/0.5</u>	<u>27</u>																								
<u>29/1.0</u>	<u>28</u>																								
<u>29/1.5</u>	<u>29</u>																								
<u>29/2.0</u>	<u>30</u>																								
<u>32/0.1</u>	<u>31</u>																								
<u>32/0.5</u>	<u>32</u>																								
<u>32/1.0</u>	<u>33</u>																								
<u>32/1.5</u>	<u>34</u>																								
<u>32/2.0</u>	<u>35</u>																								
<u>32/2.5</u>	<u>36</u>																								
<u>37/0.1</u>	<u>37</u>																								
<u>37/0.4</u>	<u>38</u>																								
<u>37/0.8</u>	<u>39</u>																								
<u>37/1.2</u>	<u>40</u>																								

Lab Report No. 37/12 Phone: (02) 4271 1836
 Send Results to: Douglas Partners Address: 96 Hermitage Road West Ryde NSW 2114 Fax: (02) 4271 1897
 Relinquished by: WFM Date & Time: 03-04-14 Transported to laboratory by: Hunter Express
 Received By: D. FOUSS EUS Signed: WFM Date & Time: 03-04-14 4.4.14

CERTIFICATE OF ANALYSIS

107696

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Nerilee Edwards

Sample log in details:

Your Reference: **73895-1, Vineyard**
No. of samples: 40 Soils
Date samples received / completed instructions received 4/4/2014 / 4/4/2014

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date: 11/04/14 / 11/04/14
Date of Preliminary Report: Not Issued
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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:



Jacinta Hurst
Laboratory Manager

Miscellaneous Inorg - soil						
Our Reference:	UNITS	107696-1	107696-2	107696-3	107696-4	107696-5
Your Reference	-----	5	5	5	5	5
Depth	-----	0.0	0.5	1.0	1.5	2.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/04/2014	09/04/2014	09/04/2014	09/04/2014	09/04/2014
Date analysed	-	09/04/2014	09/04/2014	09/04/2014	09/04/2014	09/04/2014
pH 1:5 soil:water	pHUnits	5.8	5.9	4.9	5.8	5.7
Electrical Conductivity 1:5 soil:water	µS/cm	64	75	480	570	580

Miscellaneous Inorg - soil						
Our Reference:	UNITS	107696-6	107696-7	107696-8	107696-9	107696-10
Your Reference	-----	5	5	13	13	13
Depth	-----	2.5	3.0	0.1	0.5	1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/04/2014	09/04/2014	09/04/2014	09/04/2014	09/04/2014
Date analysed	-	09/04/2014	09/04/2014	09/04/2014	09/04/2014	09/04/2014
pH 1:5 soil:water	pHUnits	6.5	6.1	7.7	6.8	5.0
Electrical Conductivity 1:5 soil:water	µS/cm	610	580	54	120	830

Miscellaneous Inorg - soil						
Our Reference:	UNITS	107696-11	107696-12	107696-13	107696-14	107696-15
Your Reference	-----	13	13	13	19	19
Depth	-----	1.5	2.0	2.5	0.1	0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/04/2014	09/04/2014	09/04/2014	09/04/2014	09/04/2014
Date analysed	-	09/04/2014	09/04/2014	09/04/2014	09/04/2014	09/04/2014
pH 1:5 soil:water	pHUnits	4.6	5.6	5.3	5.4	6.0
Electrical Conductivity 1:5 soil:water	µS/cm	900	920	890	20	51

Miscellaneous Inorg - soil						
Our Reference:	UNITS	107696-16	107696-17	107696-18	107696-19	107696-20
Your Reference	-----	19	19	19	19	19
Depth	-----	1.0	1.5	2.0	2.5	3.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/04/2014	09/04/2014	09/04/2014	09/04/2014	09/04/2014
Date analysed	-	09/04/2014	09/04/2014	09/04/2014	09/04/2014	09/04/2014
pH 1:5 soil:water	pHUnits	5.6	6.9	7.8	8.0	8.3
Electrical Conductivity 1:5 soil:water	µS/cm	440	910	1,100	1,000	1,000

Miscellaneous Inorg - soil						
Our Reference:	UNITS	107696-21	107696-22	107696-23	107696-24	107696-25
Your Reference	-----	23	23	23	23	23
Depth	-----	0.1	0.5	0.7	1.0	1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/04/2014	09/04/2014	09/04/2014	09/04/2014	09/04/2014
Date analysed	-	09/04/2014	09/04/2014	09/04/2014	09/04/2014	09/04/2014
pH 1:5 soil:water	pHUnits	6.5	6.5	5.0	5.1	5.1
Electrical Conductivity 1:5 soil:water	µS/cm	58	27	120	290	290

Miscellaneous Inorg - soil						
Our Reference:	UNITS	107696-26	107696-27	107696-28	107696-29	107696-30
Your Reference	-----	29	29	29	29	29
Depth	-----	0.1	0.5	1.0	1.5	2.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/04/2014	09/04/2014	09/04/2014	09/04/2014	09/04/2014
Date analysed	-	09/04/2014	09/04/2014	09/04/2014	09/04/2014	09/04/2014
pH 1:5 soil:water	pH Units	7.9	7.2	5.5	5.7	5.4
Electrical Conductivity 1:5 soil:water	µS/cm	130	42	80	55	95

Miscellaneous Inorg - soil						
Our Reference:	UNITS	107696-31	107696-32	107696-33	107696-34	107696-35
Your Reference	-----	32	32	32	32	32
Depth	-----	0.1	0.5	1.0	1.5	2.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/04/2014	09/04/2014	09/04/2014	09/04/2014	09/04/2014
Date analysed	-	09/04/2014	09/04/2014	09/04/2014	09/04/2014	09/04/2014
pH 1:5 soil:water	pH Units	8.3	5.3	4.7	5.0	5.0
Electrical Conductivity 1:5 soil:water	µS/cm	150	450	720	510	540

Miscellaneous Inorg - soil						
Our Reference:	UNITS	107696-36	107696-37	107696-38	107696-39	107696-40
Your Reference	-----	32	37	37	37	37
Depth	-----	2.8	0.1	0.4	0.8	1.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/04/2014	09/04/2014	09/04/2014	09/04/2014	09/04/2014
Date analysed	-	09/04/2014	09/04/2014	09/04/2014	09/04/2014	09/04/2014
pH 1:5 soil:water	pH Units	4.9	5.9	5.7	5.5	5.2
Electrical Conductivity 1:5 soil:water	µS/cm	550	26	41	58	110

Client Reference: 73895-1, Vineyard

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA 22nd ED, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25oC in accordance with APHA 22nd ED 2510 and Rayment & Lyons.

Client Reference: 73895-1, Vineyard

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Miscellaneous Inorg - soil						Base Duplicate %RPD		
Date prepared	-			09/04/2014	107696-1	09/04/2014 09/04/2014	LCS-1	09/04/2014
Date analysed	-			09/04/2014	107696-1	09/04/2014 09/04/2014	LCS-1	09/04/2014
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	107696-1	5.8 5.8 RPD: 0	LCS-1	101%
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	107696-1	64 62 RPD: 3	LCS-1	102%
QUALITYCONTROL	UNITS		Dup. Sm#		Duplicate	Spike Sm#	Spike % Recovery	
Miscellaneous Inorg - soil					Base + Duplicate + %RPD			
Date prepared	-		107696-11		09/04/2014 09/04/2014	LCS-2	09/04/2014	
Date analysed	-		107696-11		09/04/2014 09/04/2014	LCS-2	09/04/2014	
pH 1:5 soil:water	pH Units		107696-11		4.6 4.7 RPD: 2	LCS-2	101%	
Electrical Conductivity 1:5 soil:water	µS/cm		107696-11		900 850 RPD: 6	LCS-2	103%	
QUALITYCONTROL	UNITS		Dup. Sm#		Duplicate			
Miscellaneous Inorg - soil					Base + Duplicate + %RPD			
Date prepared	-		107696-21		09/04/2014 09/04/2014			
Date analysed	-		107696-21		09/04/2014 09/04/2014			
pH 1:5 soil:water	pH Units		107696-21		6.5 6.5 RPD: 0			
Electrical Conductivity 1:5 soil:water	µS/cm		107696-21		58 56 RPD: 4			
QUALITYCONTROL	UNITS		Dup. Sm#		Duplicate			
Miscellaneous Inorg - soil					Base + Duplicate + %RPD			
Date prepared	-		107696-31		09/04/2014 09/04/2014			
Date analysed	-		107696-31		09/04/2014 09/04/2014			
pH 1:5 soil:water	pH Units		107696-31		8.3 8.4 RPD: 1			
Electrical Conductivity 1:5 soil:water	µS/cm		107696-31		150 140 RPD: 7			

Report Comments:

Asbestos ID was analysed by Approved Identifier: Not applicable for this job
Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test PQL: Practical Quantitation Limit NT: Not tested
NA: Test not required RPD: Relative Percent Difference NA: Test not required
<: Less than >: Greater than LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde NSW 2114

ph: 02 9809 0666

Fax: 02 9809 4095

Attention: Nerilee Edwards

Sample log in details:

Your reference:

73895-1, Vineyard

Envirolab Reference:

107696

Date received:

4/4/2014

Date results expected to be reported:

11/04/14

Samples received in appropriate condition for analysis:	YES
No. of samples provided	40 Soils
Turnaround time requested:	Standard
Temperature on receipt (°C)	21.6
Cooling Method:	None
Sampling Date Provided:	YES

Comments:

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst

ph: 02 9910 6200 fax: 02 9910 6201

email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

Project Name: Riverstone/Vineyard To: Envirolab Services
 Project No: 73895 Sampler: NLE MW/TDM/AWH 12 Ashley St Chatswood 2067
 Project Mgr: NLE Mob. Phone: 0414 769 011 Attn: Tania Notaras
 Email: nerilee.edwards@douglaspartners.com.au Phone: (02) 9910 6200 Fax: (02) 9910 6201
 Date Required: STD ESdat Format: Lab Quote No. Email: notaras@envirolabservices.com.au

Sample ID	Lab ID	Sampling Date	Sample Type	Container type	Analytes										Notes/preservation						
					PH	EC 15	ESP (incl GEC)	Cl & SO ₄	HMB	As Cd Cr	Pb Hg Ni	TRH/ BTEX	MTBE/ PAH	OCP/OPP (Trace level)		PCB (Trace level)	VOC	Hardness	Clay content		
5/09	1		S - soil	G - glass																	
5/09	2		S - soil	G - glass																	
5/10	3		S - soil	G - glass																	
5/10	4		S - soil	G - glass																	
5/10	5		S - soil	G - glass																	
5/10	6		S - soil	G - glass																	
5/10	7		S - soil	G - glass																	
14/11	8		S - soil	G - glass																	
3/10	9		S - soil	G - glass																	
17/10	10		S - soil	G - glass																	
17/10	11		S - soil	G - glass																	
13/10	12		S - soil	G - glass																	
13/10	13		S - soil	G - glass																	

Lab Report No. Phone: (02) 4271 1836
 Send Results to: Douglas Partners Address: 96 Hermitage Road West Ryde NSW 2114 Fax: (02) 4271 1897
 Relinquished by: NLE Signed: you Date & Time: 03/04/14 Transported to laboratory by: Hunter Express
 Received By: D. FORD Date & Time: 4.4.14



CHAIN OF CUSTODY

Project Name: Riverstone Vineyard
 Project No: 73895 Sampler: NEE
 Project Mgr: NLE Mob. Phone: 0414 769 011
 Email: nerilee.edwards@douglaspartners.com.au
 Date Required: STD; ESdat Format Lab Quote No.

To: Envirolab Services
12 Ashley St Chatswood 2067
 Attn: Tania Notaras
 Phone: (02) 9910 6200 Fax: (02) 9910 6201
 Email: tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Sampling Date	Sample Type S - soil W - water	Container type G - glass P - plastic	Analytes										Notes/preservation			
					PH	EC 1:5	ESP (incl. OEC)	Cl & SO ₄	HMB	As Cd Cr	Pb Hg Ni	TRH/ BTEX	MTBE/ PAH	OCP/OPP (Trace level)		PCB (Trace level)	VOC	Hardness
19/01	14																	
19/05	15																	
19/10	16																	
19/15	17																	
19/17	18																	
19/25	19																	
19/30	20																	
20/11	21																	
23/10	22																	
23/07	23																	
23/10	24																	
23/15	25																	
24/01	26																	

Lab Report No. Phone: (02) 4271 1836
 Send Results to: Douglas Partners Address: 96 Hermitage Road West Ryde NSW 2114 Fax: (02) 4271 1897
 Relinquished by: WTL Signed: Date & Time: 01/01/19 Transported to laboratory by: Hunter Express
 Received By: D. Foran Date & Time: 05/11/19

Project Name: ...Riverstone/Mineyard...
 Project No: ...73895...
 Project Mgr: NLE...
 Email: nerilee.edwards@douglaspartners.com.au
 Date Required: STD; ESdat Format...
 To: EnviroLab Services
 12 Ashley St Chatswood 2067
 Attn: Tania Notaras
 Phone: (02) 9910 6200 Fax: (02) 9910 6201
 Email: tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Sampling Date	Sample Type S - soil W - water	Container type G - glass P - plastic	Analytes										Notes/preservation			
					PH	EC 15	ESP (incl. CEC)	Cl & SO ₄	HM8	As Cd Cr Pb Hg Ni	TRH/ BTEX MTBE/ PAH	OCP/PP (Trace level)	PCB (Trace level)	VOC		Hardness	Clay content	
20/10	27			G - glass	✓													
20/10	28			G - glass	✓													
20/10	29			G - glass														
20/10	30			G - glass														
20/10	31			G - glass														
20/10	32			G - glass														
20/10	33			G - glass														
20/10	34			G - glass														
20/10	35			G - glass														
20/10	36			G - glass														
20/10	37			G - glass														
20/10	38			G - glass														
20/10	39			G - glass														

Lab Report No: 20/10
 Send Results to: Douglas Partners Address: 96 Hermitage Road West Ryde NSW 2114
 Phone: (02) 4271 1836 Fax: (02) 4271 1897

Relinquished by: [Signature] Date & Time: [Signature]
 Received By: [Signature] Date & Time: [Signature]
 Transported to laboratory by: Hunter Express

CERTIFICATE OF ANALYSIS

107696-A

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Nerilee Edwards

Sample log in details:

Your Reference:	73895-1, Vineyard
No. of samples:	Additional testing on soils
Date samples received / completed instructions received	4/4/2014 / 14/04/14

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	24/04/14 / 24/04/14
Date of Preliminary Report:	Not Issued

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Results Approved By:



Jacinta Hurst
Laboratory Manager

ESP/CEC						
Our Reference:	UNITS	107696-A-3	107696-A-4	107696-A-8	107696-A-10	107696-A-15
Your Reference	-----	5	5	13	13	19
Depth	-----	1.0	1.5	0.1	1.0	0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Exchangeable Ca	meq/100g	0.6	0.4	15	0.3	1.9
Exchangeable K	meq/100g	0.1	0.2	0.2	0.1	0.1
Exchangeable Mg	meq/100g	8.5	8.2	8.0	6.5	4.3
Exchangeable Na	meq/100g	1.3	2.6	0.16	2.6	0.35
Cation Exchange Capacity	meq/100g	10	11	24	9.4	6.7
ESP	%	12	23	<1	28	5

ESP/CEC						
Our Reference:	UNITS	107696-A-16	107696-A-17	107696-A-24	107696-A-28	107696-A-33
Your Reference	-----	19	19	23	29	32
Depth	-----	1.0	1.5	1.0	1.0	1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Exchangeable Ca	meq/100g	0.5	0.7	2.0	0.8	0.2
Exchangeable K	meq/100g	0.1	0.1	0.2	0.2	<0.1
Exchangeable Mg	meq/100g	9.0	7.4	5.4	7.1	10
Exchangeable Na	meq/100g	3.0	4.8	1.0	2.0	2.9
Cation Exchange Capacity	meq/100g	13	13	8.7	10	14
ESP	%	24	37	12	20	21

ESP/CEC				
Our Reference:	UNITS	107696-A-34	107696-A-37	107696-A-39
Your Reference	-----	32	37	37
Depth	-----	1.5	0.1	0.8
Type of sample		Soil	Soil	Soil
Exchangeable Ca	meq/100g	<0.1	2.5	0.4
Exchangeable K	meq/100g	0.1	0.2	0.1
Exchangeable Mg	meq/100g	8.1	1.6	6.9
Exchangeable Na	meq/100g	3.4	0.11	2.2
Cation Exchange Capacity	meq/100g	12	4.4	9.7
ESP	%	29	3	23

Client Reference: 73895-1, Vineyard

Miscellaneous Inorg - soil						
Our Reference:	UNITS	107696-A-3	107696-A-4	107696-A-10	107696-A-16	107696-A-17
Your Reference	-----	5	5	13	19	19
Depth	-----	1.0	1.5	1.0	1.0	1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/02/2014	23/02/2014	23/02/2014	23/02/2014	23/02/2014
Date analysed	-	23/02/2014	23/02/2014	23/02/2014	23/02/2014	23/02/2014
Chloride, Cl 1:5 soil:water	mg/kg	660	710	1,300	330	980
Sulphate, SO4 1:5 soil:water	mg/kg	<10	76	410	350	230

Miscellaneous Inorg - soil						
Our Reference:	UNITS	107696-A-24	107696-A-28	107696-A-33	107696-A-34	107696-A-39
Your Reference	-----	23	29	32	32	37
Depth	-----	1.0	1.0	1.0	1.5	0.8
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/02/2014	23/02/2014	23/02/2014	23/02/2014	23/02/2014
Date analysed	-	23/02/2014	23/02/2014	23/02/2014	23/02/2014	23/02/2014
Chloride, Cl 1:5 soil:water	mg/kg	220	20	830	600	34
Sulphate, SO4 1:5 soil:water	mg/kg	62	54	250	170	41

Client Reference: 73895-1, Vineyard

Acid Extractable metals in soil						
Our Reference:	UNITS	107696-A-3	107696-A-8	107696-A-10	107696-A-15	107696-A-16
Your Reference	-----	5	13	13	19	19
Depth	-----	1.0	0.1	1.0	0.5	1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/04/2014	23/04/2014	23/04/2014	23/04/2014	23/04/2014
Date analysed	-	23/04/2014	23/04/2014	23/04/2014	23/04/2014	23/04/2014
Arsenic	mg/kg	6	9	<4	6	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	17	24	17	13	12
Copper	mg/kg	8	31	9	13	22
Lead	mg/kg	14	18	15	12	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	27	3	5	11
Zinc	mg/kg	9	51	8	12	23

Acid Extractable metals in soil						
Our Reference:	UNITS	107696-A-24	107696-A-28	107696-A-33	107696-A-37	107696-A-39
Your Reference	-----	23	29	32	37	37
Depth	-----	1.0	1.0	1.0	0.1	0.8
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/04/2014	23/04/2014	23/04/2014	23/04/2014	23/04/2014
Date analysed	-	23/04/2014	23/04/2014	23/04/2014	23/04/2014	23/04/2014
Arsenic	mg/kg	10	<4	7	10	10
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	5	9	17	26	29
Copper	mg/kg	19	8	7	4	6
Lead	mg/kg	8	7	10	14	12
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	3	1	5	5
Zinc	mg/kg	41	5	4	9	6

Client Reference: 73895-1, Vineyard

Moisture						
Our Reference:	UNITS	107696-A-3	107696-A-8	107696-A-10	107696-A-15	107696-A-16
Your Reference	-----	5	13	13	19	19
Depth	-----	1.0	0.1	1.0	0.5	1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	[NT]	22/04/2014	[NT]	22/04/2014	[NT]
Date analysed	-	[NT]	23/04/2014	[NT]	23/04/2014	[NT]
Moisture	%	INS	18	INS	13	INS

Moisture						
Our Reference:	UNITS	107696-A-24	107696-A-28	107696-A-33	107696-A-37	107696-A-39
Your Reference	-----	23	29	32	37	37
Depth	-----	1.0	1.0	1.0	0.1	0.8
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/04/2014	[NT]	22/04/2014	22/04/2014	22/04/2014
Date analysed	-	23/04/2014	[NT]	23/04/2014	23/04/2014	23/04/2014
Moisture	%	14	INS	16	12	12

MethodID	Methodology Summary
Metals-009	Determination of exchangeable cations and cation exchange capacity in soil based on Rayment and Lyons 2011.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA 22nd ED, 4110 -B.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

Client Reference: 73895-1, Vineyard

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
ESP/CEC						Base II Duplicate II %RPD		
Exchangeable Ca	meq/100 g	0.1	Metals-009	<0.1	107696-A-8	15 15 RPD: 0	LCS-1	112%
Exchangeable K	meq/100 g	0.1	Metals-009	<0.1	107696-A-8	0.2 0.2 RPD: 0	LCS-1	113%
Exchangeable Mg	meq/100 g	0.1	Metals-009	<0.1	107696-A-8	8.0 7.7 RPD: 4	LCS-1	112%
Exchangeable Na	meq/100 g	0.1	Metals-009	<0.1	107696-A-8	0.16 0.16 RPD: 0	LCS-1	105%
Cation Exchange Capacity	meq/100 g	1	Metals-009	<1.0	107696-A-8	24 23 RPD: 4	[NR]	[NR]
ESP	%	1	Metals-009	<1	107696-A-8	<1 <1	[NR]	[NR]
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Miscellaneous Inorg - soil						Base II Duplicate II %RPD		
Date prepared	-			23/04/2014	107696-A-3	23/02/2014 23/02/2014	LCS-1	23/04/2014
Date analysed	-			23/04/2014	107696-A-3	23/02/2014 23/02/2014	LCS-1	23/04/2014
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	107696-A-3	660 660 RPD: 0	LCS-1	98%
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	107696-A-3	<10 <10	LCS-1	109%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			23/04/2014	107696-A-39	23/04/2014 23/04/2014	LCS-1	23/04/2014
Date analysed	-			23/04/2014	107696-A-39	23/04/2014 23/04/2014	LCS-1	23/04/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	107696-A-39	10 10 RPD: 0	LCS-1	102%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	107696-A-39	<0.4 <0.4	LCS-1	108%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	107696-A-39	29 32 RPD: 10	LCS-1	107%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	107696-A-39	6 7 RPD: 15	LCS-1	106%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	107696-A-39	12 13 RPD: 8	LCS-1	103%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	107696-A-39	<0.1 <0.1	LCS-1	88%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	107696-A-39	5 7 RPD: 33	LCS-1	109%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	107696-A-39	6 8 RPD: 29	LCS-1	107%

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	
Moisture					
Date prepared	-			[NT]	
Date analysed	-			[NT]	
Moisture	%	0.1	Inorg-008	[NT]	
QUALITYCONTROL ESP/CEC	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Exchangeable Ca	meq/100 g	107696-A-17	0.7 0.6 RPD: 15		
Exchangeable K	meq/100 g	107696-A-17	0.1 0.1 RPD: 0		
Exchangeable Mg	meq/100 g	107696-A-17	7.4 7.5 RPD: 1		
Exchangeable Na	meq/100 g	107696-A-17	4.8 4.7 RPD: 2		
Cation Exchange Capacity	meq/100 g	107696-A-17	13 13 RPD: 0		
ESP	%	107696-A-17	37 37 RPD: 0		
QUALITYCONTROL Miscellaneous Inorg - soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	107696-A-4	23/04/2014
Date analysed	-	[NT]	[NT]	107696-A-4	23/04/2014
Chloride, Cl 1:5 soil:water	mg/kg	[NT]	[NT]	107696-A-4	76%
Sulphate, SO4 1:5 soil:water	mg/kg	[NT]	[NT]	107696-A-4	72%
QUALITYCONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	107696-A-8	23/04/2014
Date analysed	-	[NT]	[NT]	107696-A-8	23/04/2014
Arsenic	mg/kg	[NT]	[NT]	107696-A-8	83%
Cadmium	mg/kg	[NT]	[NT]	107696-A-8	80%
Chromium	mg/kg	[NT]	[NT]	107696-A-8	82%
Copper	mg/kg	[NT]	[NT]	107696-A-8	90%
Lead	mg/kg	[NT]	[NT]	107696-A-8	87%
Mercury	mg/kg	[NT]	[NT]	107696-A-8	80%
Nickel	mg/kg	[NT]	[NT]	107696-A-8	78%
Zinc	mg/kg	[NT]	[NT]	107696-A-8	87%

Report Comments:

107696-A-3,10,16,28:

Insufficient sample for moisture determination.
Dried samples used for Acid Extactable Metals.

Asbestos ID was analysed by Approved Identifier: Not applicable for this job
Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Simon Song

Subject: FW: Additional metals

From: Nerilee Edwards [<mailto:Nerilee.Edwards@douglaspartners.com.au>]

Sent: Friday, 9 May 2014 3:04 PM

To: Aileen Hie

Subject: Additional metals

Hi Aileen,

I forgot to order all the metals I needed. Could you give me reports for the following for the below samples, ta

Fe, Mn, B, Ba, Be, Co, Mo, Se, Sn

Reference	Sample	Sample	Depth
107696	3	5	1
107696	8	13	0.1
107696	10	13	1
107696	15	19	0.5
107696	16	19	1
107696	24	23	1
107696	28	29	1
107696	33	32	1
107696	37	37	0.1
107696	39	37	0.8
108267	22	46	0.1
108267	32	54	0.1
108267	39	72	0.1
108267	46	74	0.05
109018	1	41	0.5
109018	6	49	0.8
109018	8	54A	0.5
109018	11	60	0.5
109018	15	73	0.1
109018	17	49	0.25

107696 B
sed T/A

Nerilee Edwards | Associate / Environmental Scientist

Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au

96 Hermitage Road West Ryde NSW 2114 | PO Box 472 West Ryde NSW 1685

P: 02 9809 0666 | F: 02 9809 4095 | M: 0414 769 011 | E: Nerilee.Edwards@douglaspartners.com.au

CERTIFICATE OF ANALYSIS

107696-B

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Nerilee Edwards

Sample log in details:

Your Reference:	73895-1, Vineyard
No. of samples:	Additional testing on soils
Date samples received / completed instructions received	4/4/2014 / 09/05/14

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	13/05/14 / 13/05/14
Date of Preliminary Report:	Not Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:



Jacinta Hurst
Laboratory Manager

Acid Extractable metals in soil						
Our Reference:	UNITS	107696-B-3	107696-B-8	107696-B-10	107696-B-15	107696-B-16
Your Reference	-----	5	13	13	19	19
Depth	-----	1.0	0.1	1.0	0.5	1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/04/2014	23/04/2014	23/04/2014	23/04/2014	23/04/2014
Date analysed	-	23/04/2014	23/04/2014	23/04/2014	23/04/2014	23/04/2014
Iron*	mg/kg	29,000	51,000	21,000	24,000	22,000
Manganese	mg/kg	51	700	8	93	390
Boron	mg/kg	<3	<3	<3	<3	<3
Barium	mg/kg	29	190	180	27	380
Beryllium	mg/kg	<1	1	<1	<1	<1
Cobalt	mg/kg	3	13	2	4	51
Molybdenum	mg/kg	<1	<1	<1	<1	<1
Selenium	mg/kg	<2	<2	<2	<2	<2
Tin	mg/kg	<1	<1	1	<1	<1

Acid Extractable metals in soil						
Our Reference:	UNITS	107696-B-24	107696-B-28	107696-B-33	107696-B-37	107696-B-39
Your Reference	-----	23	29	32	37	37
Depth	-----	1.0	1.0	1.0	0.1	0.8
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/04/2014	23/04/2014	23/04/2014	23/04/2014	23/04/2014
Date analysed	-	23/04/2014	23/04/2014	23/04/2014	23/04/2014	23/04/2014
Iron*	mg/kg	23,000	4,700	41,000	55,000	70,000
Manganese	mg/kg	12	23	2	45	19
Boron	mg/kg	<3	<3	<3	<3	<3
Barium	mg/kg	420	140	7	28	10
Beryllium	mg/kg	<1	<1	<1	<1	<1
Cobalt	mg/kg	4	1	1	1	1
Molybdenum	mg/kg	<1	<1	<1	<1	<1
Selenium	mg/kg	<2	<2	<2	<2	<2
Tin	mg/kg	<1	<1	<1	<1	<1

Acid Extractable metals in soil		
Our Reference:	UNITS	107696-B-41
Your Reference	-----	37 - Triplicate
Depth	-----	0.8
Type of sample		Soil
Date digested	-	23/04/2014
Date analysed	-	23/04/2014
Iron*	mg/kg	65,000
Manganese	mg/kg	21
Boron	mg/kg	<3
Barium	mg/kg	9
Beryllium	mg/kg	<1
Cobalt	mg/kg	2
Molybdenum	mg/kg	<1
Selenium	mg/kg	<2
Tin	mg/kg	<1

Method ID	Methodology Summary
Metals-020 ICP-AES	Determination of various metals by ICP-AES.

Client Reference: 73895-1, Vineyard

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base Duplicate %RPD		
Date digested	-			23/04/2014	107696-B-39	23/04/2014 23/04/2014	LCS-9	23/04/2014
Date analysed	-			23/04/2014	107696-B-39	23/04/2014 23/04/2014	LCS-9	23/04/2014
Iron*	mg/kg	1	Metals-020 ICP-AES	<1	107696-B-39	70000 68000 RPD: 3	LCS-9	108%
Manganese	mg/kg	1	Metals-020 ICP-AES	<1	107696-B-39	19 37 RPD: 64	LCS-9	102%
Boron	mg/kg	3	Metals-020 ICP-AES	<3	107696-B-39	<3 <3	LCS-9	96%
Barium	mg/kg	1	Metals-020 ICP-AES	<1	107696-B-39	10 11 RPD: 10	LCS-9	105%
Beryllium	mg/kg	1	Metals-020 ICP-AES	<1	107696-B-39	<1 <1	LCS-9	90%
Cobalt	mg/kg	1	Metals-020 ICP-AES	<1	107696-B-39	1 2 RPD: 67	LCS-9	105%
Molybdenum	mg/kg	1	Metals-020 ICP-AES	<1	107696-B-39	<1 <1	LCS-9	99%
Selenium	mg/kg	2	Metals-020 ICP-AES	<2	107696-B-39	<2 <2	LCS-9	96%
Tin	mg/kg	1	Metals-020 ICP-AES	<1	107696-B-39	<1 <1	LCS-9	103%

QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil			Base + Duplicate + %RPD		
Date digested	-	[NT]	[NT]	107696-B-8	23/04/2014
Date analysed	-	[NT]	[NT]	107696-B-8	23/04/2014
Iron*	mg/kg	[NT]	[NT]	107696-B-8	#
Manganese	mg/kg	[NT]	[NT]	107696-B-8	#
Boron	mg/kg	[NT]	[NT]	107696-B-8	##
Barium	mg/kg	[NT]	[NT]	107696-B-8	#
Beryllium	mg/kg	[NT]	[NT]	107696-B-8	80%
Cobalt	mg/kg	[NT]	[NT]	107696-B-8	86%
Molybdenum	mg/kg	[NT]	[NT]	[NR]	[NR]
Selenium	mg/kg	[NT]	[NT]	107696-B-8	72%
Tin	mg/kg	[NT]	[NT]	[NR]	[NR]

Report Comments:

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteriae has been exceeded for 107696-B-39 for Mn. Therefore a triplicate result has been issued as laboratory sample number 107696-B-41.

Acid Extractable Metals in Soil: # Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Acid Extractable Metals in Soil: ## Percent recovery not available due to matrix interference, however an acceptable recovery was achieved for the LCS.

Acid Extractable Metals in Soil: Iron results may be underestimated as they are above the linear range of the instrument.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test
NA: Test not required
<: Less than

PQL: Practical Quantitation Limit
RPD: Relative Percent Difference
>: Greater than

NT: Not tested
NA: Test not required
LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde NSW 2114

ph: 02 9809 0666
Fax: 02 9809 4095

Attention: Nerilee Edwards

Sample log in details:

Your reference:	73895-1, Vineyard
Envirolab Reference:	107696-B
Date received:	4/4/2014
Date results expected to be reported:	13/05/14

Samples received in appropriate condition for analysis:	YES
No. of samples provided	Additional testing on soils
Turnaround time requested:	Standard
Temperature on receipt (°C)	21.6
Cooling Method:	None
Sampling Date Provided:	YES

Comments:

If there is sufficient sample after testing, samples will be held for the following time frames from date of receipt of samples:
Water samples - 1 month
Soil and other solid samples - 2 months
Samples collected in canisters - 1 week. Canisters will then be cleaned.
All other samples are not retained after analysis
If you require samples to be retained for longer periods then retention fees will apply as per our pricelist.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au



CHAIN OF CUSTODY

Project Name: RIVERSTONE/MINEYARD
 Project No: 73895.00
 Project Mgr: NLE
 Email: Nerilee.Edwards@douglaspartners.com.au
 Date Required: STD
 To: Envirolab Services
 12 Ashley St Chatswood 2067
 Attn: Tania Notaras
 Phone: (02) 9910 6200
 Fax: (02) 9910 6201
 Email: tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Sampling Date	Sample Type	Container type	Metals (17 total metals including priority heavy metals As, Cd, Cr, Cu, Pb, Hg, Ni, Zn and Fe, Mn, B, Ba, Be, Co, Mo, Se, Sn);	Analytes						Notes/preservation
						TRH, BTEX	PAH	Hardness	OCP/OPP (trace level)	VOC	PCB (trace level)	
BH1		10/4/14	W	G,P	X	X	X	X	X	X		
BH2		10/4/14	W	G,P	X	X	X	X	X	X		
BH3		10/4/14	W	G,P	X	X	X	X	X	X		
BH4		10/4/14	W	G,P	X	X	X	X	X	X		
BH5		10/4/14	W	G,P	X	X	X	X	X	X		
BH42		10/4/14	W	G,P	X	X	X	X	X	X		
BH43		10/4/14	W	G,P	X	X	X	X	X	X		
BH44		10/4/14	W	G,P	X	X	X	X	X	X		
BH45		10/4/14	W	G,P	X	X	X	X	X	X		
BD1A/10414		10/4/14	W	G,P	X	X	X	X	X	X		
BD1B/10414		10/4/14	W	G,P	X	X	X	X	X	X		
T.S	Notin	10/4/14	W	G								
T.B	esky	10/4/14	W	G								

ENVIROLAB
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 108075
 Date Received: 11/4/14
 Time Received: 1PM
 Received by: USB
 Temp: Cool/Ambient
 Cooling: Ice/No pack
 Security: Intact/Broken/None

Lab Report No.
 Send Results to: Douglas Partners Address: 96 Hermitage Road West Ryde NSW 2114
 Relinquished by: M.West Signed: *M.West* Date & Time: 11/4/14
 Received By: *USB* Date & Time: 11/4/14 1PM
 Form COC
 Transported to laboratory by: Hunter Express
 Phone: (02) 4271 1836
 Fax: (02) 4271 1897

CERTIFICATE OF ANALYSIS

108075

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Nerilee Edwards

Sample log in details:

Your Reference:	<u>73895.00, Riverstone/Vineyard</u>
No. of samples:	13 Waters
Date samples received / completed instructions received	11/04/2014 / 11/04/2014

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data. Samples were analysed as received from the client. Results relate specifically to the samples as received. Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date: 22/04/14 / 28/04/14
Date of Preliminary Report: Not Issued
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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:



Jacinta Hurst
Laboratory Manager

VOCs in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ----- -----	108075-1 BH1 10/04/2014 Water	108075-6 BH42 10/04/2014 Water	108075-7 BH43 10/04/2014 Water
Date extracted	-	11/04/2014	11/04/2014	11/04/2014
Date analysed	-	12/04/2014	12/04/2014	12/04/2014
Dichlorodifluoromethane	µg/L	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1
Chloroform	µg/L	<1	<1	<1
2,2-dichloropropane	µg/L	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1
Benzene	µg/L	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1
Toluene	µg/L	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1
Bromoform	µg/L	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2
Styrene	µg/L	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1
o-xylene	µg/L	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1

VOCs in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ----- -----	108075-1 BH1 10/04/2014 Water	108075-6 BH42 10/04/2014 Water	108075-7 BH43 10/04/2014 Water
Isopropylbenzene	µg/L	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1
Surrogate Dibromofluoromethane	%	119	120	120
Surrogate toluene-d8	%	98	99	98
Surrogate 4-BFB	%	102	103	103

vTRH(C6-C10)/BTEXN in Water	UNITS	108075-1	108075-2	108075-3	108075-4	108075-5
Our Reference:	-----	BH1	BH2	BH3	BH4	BH5
Your Reference	-----	10/04/2014	10/04/2014	10/04/2014	10/04/2014	10/04/2014
Date Sampled	-----	Water	Water	Water	Water	Water
Type of sample						
Date extracted	-	11/04/2014	11/04/2014	11/04/2014	11/04/2014	11/04/2014
Date analysed	-	12/04/2014	12/04/2014	12/04/2014	12/04/2014	12/04/2014
TRHC ₆ - C ₉	µg/L	<10	<10	<10	<10	<10
TRHC ₆ - C ₁₀	µg/L	<10	<10	<10	<10	<10
TRHC ₆ - C ₁₀ less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	119	118	119	119	116
Surrogate toluene-d8	%	98	98	97	97	99
Surrogate 4-BFB	%	102	102	103	103	101

vTRH(C6-C10)/BTEXN in Water	UNITS	108075-6	108075-7	108075-8	108075-9	108075-12
Our Reference:	-----	BH42	BH43	BH44	BH45	T.S
Your Reference	-----	10/04/2014	10/04/2014	10/04/2014	10/04/2014	10/04/2014
Date Sampled	-----	Water	Water	Water	Water	Water
Type of sample						
Date extracted	-	11/04/2014	11/04/2014	11/04/2014	11/04/2014	11/04/2014
Date analysed	-	12/04/2014	12/04/2014	12/04/2014	12/04/2014	12/04/2014
TRHC ₆ - C ₉	µg/L	<10	<10	<10	<10	[NA]
TRHC ₆ - C ₁₀	µg/L	<10	<10	<10	<10	[NA]
TRHC ₆ - C ₁₀ less BTEX (F1)	µg/L	<10	<10	<10	<10	[NA]
Benzene	µg/L	<1	<1	<1	<1	90%
Toluene	µg/L	<1	<1	<1	<1	99%
Ethylbenzene	µg/L	<1	<1	<1	<1	100%
m+p-xylene	µg/L	<2	<2	<2	<2	97%
o-xylene	µg/L	<1	<1	<1	<1	99%
Naphthalene	µg/L	<1	<1	<1	<1	[NA]
Surrogate Dibromofluoromethane	%	120	120	118	119	118
Surrogate toluene-d8	%	99	98	98	98	102
Surrogate 4-BFB	%	103	103	99	100	105

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	108075-13
Your Reference	-----	T.B
Date Sampled	-----	10/04/2014
Type of sample		Water
Date extracted	-	11/04/2014
Date analysed	-	12/04/2014
TRHC ₆ - C ₉	µg/L	<10
TRHC ₆ - C ₁₀	µg/L	<10
TRHC ₆ - C ₁₀ less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	117
Surrogate toluene-d8	%	97
Surrogate 4-BFB	%	106

svTRH (C10-C40) in Water Our Reference: Your Reference Date Sampled Type of sample	UNITS ----- -----	108075-1 BH1 10/04/2014 Water	108075-2 BH2 10/04/2014 Water	108075-3 BH3 10/04/2014 Water	108075-4 BH4 10/04/2014 Water	108075-5 BH5 10/04/2014 Water
Date extracted	-	14/04/2014	14/04/2014	14/04/2014	14/04/2014	14/04/2014
Date analysed	-	14/04/2014	14/04/2014	14/04/2014	14/04/2014	14/04/2014
TRHC ₁₀ - C ₁₄	µg/L	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	µg/L	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	µg/L	<100	<100	<100	<100	<100
TRH>C ₁₀ - C ₁₆	µg/L	<50	<50	<50	<50	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50	<50	<50	<50	<50
TRH>C ₁₆ - C ₃₄	µg/L	<100	<100	<100	<100	<100
TRH>C ₃₄ - C ₄₀	µg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	88	85	113	95	103

svTRH (C10-C40) in Water Our Reference: Your Reference Date Sampled Type of sample	UNITS ----- -----	108075-6 BH42 10/04/2014 Water	108075-7 BH43 10/04/2014 Water	108075-8 BH44 10/04/2014 Water	108075-9 BH45 10/04/2014 Water
Date extracted	-	14/04/2014	14/04/2014	14/04/2014	14/04/2014
Date analysed	-	14/04/2014	14/04/2014	14/04/2014	14/04/2014
TRHC ₁₀ - C ₁₄	µg/L	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	µg/L	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	µg/L	<100	<100	<100	<100
TRH>C ₁₀ - C ₁₆	µg/L	<50	<50	<50	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50	<50	<50	<50
TRH>C ₁₆ - C ₃₄	µg/L	<100	<100	<100	<100
TRH>C ₃₄ - C ₄₀	µg/L	<100	<100	<100	<100
Surrogate o-Terphenyl	%	95	112	97	103

PAHs in Water Our Reference: Your Reference Date Sampled Type of sample	UNITS ----- -----	108075-1 BH1 10/04/2014 Water	108075-2 BH2 10/04/2014 Water	108075-3 BH3 10/04/2014 Water	108075-4 BH4 10/04/2014 Water	108075-5 BH5 10/04/2014 Water
Date extracted	-	14/04/2014	14/04/2014	14/04/2014	14/04/2014	14/04/2014
Date analysed	-	14/04/2014	14/04/2014	14/04/2014	14/04/2014	14/04/2014
Naphthalene	µg/L	<1	<1	<1	<1	<1
Acenaphthylene	µg/L	<1	<1	<1	<1	<1
Acenaphthene	µg/L	<1	<1	<1	<1	<1
Fluorene	µg/L	<1	<1	<1	<1	<1
Phenanthrene	µg/L	<1	<1	<1	<1	<1
Anthracene	µg/L	<1	<1	<1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1	<1
Benzo(b+k)fluoranthene	µg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1	<1
Benzo(a)pyrene TEQ	µg/L	<5	<5	<5	<5	<5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	79	82	97	89	92

PAHs in Water Our Reference: Your Reference Date Sampled Type of sample	UNITS ----- -----	108075-6 BH42 10/04/2014 Water	108075-7 BH43 10/04/2014 Water	108075-8 BH44 10/04/2014 Water	108075-9 BH45 10/04/2014 Water	108075-10 BD1A/10414 10/04/2014 Water
Date extracted	-	14/04/2014	14/04/2014	14/04/2014	14/04/2014	14/04/2014
Date analysed	-	14/04/2014	14/04/2014	14/04/2014	14/04/2014	14/04/2014
Naphthalene	µg/L	<1	<1	<1	<1	<1
Acenaphthylene	µg/L	<1	<1	<1	<1	<1
Acenaphthene	µg/L	<1	<1	<1	<1	<1
Fluorene	µg/L	<1	<1	<1	<1	<1
Phenanthrene	µg/L	<1	<1	<1	<1	<1
Anthracene	µg/L	<1	<1	<1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1	<1
Benzo(b+k)fluoranthene	µg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1	<1
Benzo(a)pyrene TEQ	µg/L	<5	<5	<5	<5	<5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	92	100	94	95	91

OCP in water - trace level						
Our Reference:	UNITS	108075-1	108075-2	108075-3	108075-4	108075-5
Your Reference	-----	BH1	BH2	BH3	BH4	BH5
Date Sampled	-----	10/04/2014	10/04/2014	10/04/2014	10/04/2014	10/04/2014
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	17/04/2014	17/04/2014	17/04/2014	17/04/2014	17/04/2014
Date analysed	-	17/04/2014	17/04/2014	17/04/2014	17/04/2014	17/04/2014
HCB	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Heptachlor	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Heptachlor Epoxide	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Aldrin	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
gamma-BHC (Lindane)	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
alpha-BHC	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
beta-BHC	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
delta-BHC	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
trans-Chlordane	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
cis-Chlordane	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Oxychlordane	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Dieldrin	µg/L	<0.001	<0.001	0.003	0.002	0.005
p,p-DDE	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
p,p-DDD	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
p,p-DDT	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endrin	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endrin Aldehyde	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endrin Ketone	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
alpha-Endosulfan	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
beta-Endosulfan	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endosulfan Sulfate	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Methoxychlor	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Surrogate OC Recovery	%	91	67	79	84	126

OCP in water - trace level					
Our Reference:	UNITS	108075-6	108075-7	108075-8	108075-9
Your Reference	-----	BH42	BH43	BH44	BH45
Date Sampled	-----	10/04/2014	10/04/2014	10/04/2014	10/04/2014
Type of sample		Water	Water	Water	Water
Date extracted	-	17/04/2014	17/04/2014	17/04/2014	17/04/2014
Date analysed	-	17/04/2014	17/04/2014	17/04/2014	17/04/2014
HCB	µg/L	<0.001	<0.001	<0.001	<0.001
Heptachlor	µg/L	<0.001	<0.001	<0.001	<0.001
Heptachlor Epoxide	µg/L	<0.001	<0.001	<0.001	<0.001
Aldrin	µg/L	<0.001	<0.001	<0.001	<0.001
gamma-BHC (Lindane)	µg/L	<0.001	<0.001	<0.001	<0.001
alpha-BHC	µg/L	<0.001	<0.001	<0.001	<0.001
beta-BHC	µg/L	<0.001	<0.001	<0.001	<0.001
delta-BHC	µg/L	<0.001	<0.001	<0.001	<0.001
trans-Chlordane	µg/L	<0.001	<0.001	<0.001	<0.001
cis-Chlordane	µg/L	<0.001	<0.001	<0.001	<0.001
Oxychlordane	µg/L	<0.001	<0.001	<0.001	<0.001
Dieldrin	µg/L	<0.001	0.001	<0.001	<0.001
p,p-DDE	µg/L	<0.001	<0.001	<0.001	<0.001
p,p-DDD	µg/L	<0.001	<0.001	<0.001	<0.001
p,p-DDT	µg/L	<0.001	<0.001	<0.001	<0.001
Endrin	µg/L	<0.001	<0.001	<0.001	<0.001
Endrin Aldehyde	µg/L	<0.001	<0.001	<0.001	<0.001
Endrin Ketone	µg/L	<0.001	<0.001	<0.001	<0.001
alpha-Endosulfan	µg/L	<0.001	<0.001	<0.001	<0.001
beta-Endosulfan	µg/L	<0.001	<0.001	<0.001	<0.001
Endosulfan Sulfate	µg/L	<0.001	<0.001	<0.001	<0.001
Methoxychlor	µg/L	<0.001	<0.001	<0.001	<0.001
Surrogate OC Recovery	%	91	85	69	91

OP Pesticides -Trace Level		108075-1	108075-2	108075-3	108075-4	108075-5
Our Reference:	UNITS	BH1	BH2	BH3	BH4	BH5
Your Reference	-----					
Date Sampled	-----	10/04/2014	10/04/2014	10/04/2014	10/04/2014	10/04/2014
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	17/04/2014	17/04/2014	17/04/2014	17/04/2014	17/04/2014
Date analysed	-	17/04/2014	17/04/2014	17/04/2014	17/04/2014	17/04/2014
Demeton-S-methyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Dichlorvos	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Diazinon	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Dimethoate	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorpyrifos	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorpyrifos methyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Malathion	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Fenthion	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Azinphos Ethyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Azinphos Methyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorfenvinphos (E)	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorfenvinphos (Z)	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Ethion	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Fenitrothion	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Parathion (Ethyl)	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Parathion (Methyl)	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Primiphos Ethyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Primiphos Methyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Surrogate OP Recovery - TPP	%	113	64	110	94	134

OP Pesticides -Trace Level		108075-6	108075-7	108075-8	108075-9
Our Reference:	UNITS	BH42	BH43	BH44	BH45
Your Reference	-----				
Date Sampled	-----	10/04/2014	10/04/2014	10/04/2014	10/04/2014
Type of sample		Water	Water	Water	Water
Date extracted	-	17/04/2014	17/04/2014	17/04/2014	17/04/2014
Date analysed	-	17/04/2014	17/04/2014	17/04/2014	17/04/2014
Demeton-S-methyl	µg/L	<0.01	<0.01	<0.01	<0.01
Dichlorvos	µg/L	<0.01	<0.01	<0.01	<0.01
Diazinon	µg/L	<0.01	<0.01	<0.01	<0.01
Dimethoate	µg/L	<0.01	<0.01	<0.01	<0.01
Chlorpyrifos	µg/L	<0.01	<0.01	<0.01	<0.01
Chlorpyrifos methyl	µg/L	<0.01	<0.01	<0.01	<0.01
Malathion	µg/L	<0.01	<0.01	<0.01	<0.01
Fenthion	µg/L	<0.01	<0.01	<0.01	<0.01
Azinphos Ethyl	µg/L	<0.01	<0.01	<0.01	<0.01
Azinphos Methyl	µg/L	<0.01	<0.01	<0.01	<0.01
Chlorfenvinphos (E)	µg/L	<0.01	<0.01	<0.01	<0.01
Chlorfenvinphos (Z)	µg/L	<0.01	<0.01	<0.01	<0.01
Ethion	µg/L	<0.01	<0.01	<0.01	<0.01
Fenitrothion	µg/L	<0.01	<0.01	<0.01	<0.01
Parathion (Ethyl)	µg/L	<0.01	<0.01	<0.01	<0.01
Parathion (Methyl)	µg/L	<0.01	<0.01	<0.01	<0.01
Primiphos Ethyl	µg/L	<0.01	<0.01	<0.01	<0.01
Primiphos Methyl	µg/L	<0.01	<0.01	<0.01	<0.01
Surrogate OP Recovery - TPP	%	89	111	104	111

PCB in water - trace level	UNITS	108075-1	108075-6	108075-7
Our Reference:	-----	BH1	BH42	BH43
Your Reference	-----	10/04/2014	10/04/2014	10/04/2014
Date Sampled		Water	Water	Water
Type of sample				
Date extracted	-	17/04/2014	17/04/2014	17/04/2014
Date analysed	-	17/04/2014	17/04/2014	17/04/2014
Aroclor 1016	µg/L	<0.01	<0.01	<0.01
Aroclor 1221	µg/L	<0.01	<0.01	<0.01
Aroclor 1232	µg/L	<0.01	<0.01	<0.01
Aroclor 1242	µg/L	<0.01	<0.01	<0.01
Aroclor 1248	µg/L	<0.01	<0.01	<0.01
Aroclor 1254	µg/L	<0.01	<0.01	<0.01
Aroclor 1260	µg/L	<0.01	<0.01	<0.01
Total PCB's (as above)	µg/L	<0.01	<0.01	<0.01

All metals in water-dissolved						
Our Reference:	UNITS	108075-1	108075-2	108075-3	108075-4	108075-5
Your Reference	-----	BH1	BH2	BH3	BH4	BH5
Date Sampled	-----	10/04/2014	10/04/2014	10/04/2014	10/04/2014	10/04/2014
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	16/04/2014	16/04/2014	16/04/2014	16/04/2014	16/04/2014
Date analysed	-	16/04/2014	16/04/2014	16/04/2014	16/04/2014	16/04/2014
Arsenic-Dissolved	µg/L	<1	<1	<1	<1	<1
Cadmium-Dissolved	µg/L	0.3	0.6	0.3	<0.1	0.3
Chromium-Dissolved	µg/L	<1	<1	<1	<1	<1
Copper-Dissolved	µg/L	3	2	3	2	1
Lead-Dissolved	µg/L	<1	<1	2	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	15	39	67	2	15
Zinc-Dissolved	µg/L	53	36	110	35	45
Iron-Dissolved	µg/L	1,200	16	10	14	<10
Manganese-Dissolved	µg/L	2,000	6,900	9,400	200	4,500
Boron-Dissolved	µg/L	18	20	24	27	26
Barium-Dissolved	µg/L	62	96	110	66	44
Beryllium-Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt-Dissolved	µg/L	27	120	150	<1	66
Molybdenum-Dissolved	µg/L	<1	<1	<1	3	<1
Selenium-Dissolved	µg/L	<1	1	2	<1	<1
Tin-Dissolved	µg/L	<1	<1	<1	<1	<1

All metals in water-dissolved						
Our Reference:	UNITS	108075-6	108075-7	108075-8	108075-9	108075-10
Your Reference	-----	BH42	BH43	BH44	BH45	BD1A/10414
Date Sampled	-----	10/04/2014	10/04/2014	10/04/2014	10/04/2014	10/04/2014
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	16/04/2014	16/04/2014	16/04/2014	16/04/2014	16/04/2014
Date analysed	-	16/04/2014	16/04/2014	16/04/2014	16/04/2014	16/04/2014
Arsenic-Dissolved	µg/L	<1	<1	3	<1	<1
Cadmium-Dissolved	µg/L	0.2	<0.1	0.2	<0.1	0.3
Chromium-Dissolved	µg/L	<1	1	15	<1	<1
Copper-Dissolved	µg/L	1	<1	4	<1	<1
Lead-Dissolved	µg/L	<1	<1	5	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	10	1	5	2	14
Zinc-Dissolved	µg/L	15	9	33	13	32
Iron-Dissolved	µg/L	<10	160	160	<10	<10
Manganese-Dissolved	µg/L	3,200	110	65	590	4,400
Boron-Dissolved	µg/L	33	19	52	18	25
Barium-Dissolved	µg/L	64	34	34	120	46
Beryllium-Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt-Dissolved	µg/L	11	<1	1	3	65
Molybdenum-Dissolved	µg/L	2	1	18	2	<1
Selenium-Dissolved	µg/L	1	2	1	<1	<1
Tin-Dissolved	µg/L	<1	<1	<1	<1	<1

All metals in water-dissolved		
Our Reference:	UNITS	108075-11
Your Reference:	-----	BD1B/10414
Date Sampled	-----	10/04/2014
Type of sample		Water
Mercury-Dissolved	µg/L	<0.05

Cations in water Dissolved	UNITS	108075-1	108075-2	108075-3	108075-4	108075-5
Our Reference:	-----	BH1	BH2	BH3	BH4	BH5
Your Reference	-----	10/04/2014	10/04/2014	10/04/2014	10/04/2014	10/04/2014
Date Sampled	-----	Water	Water	Water	Water	Water
Type of sample						
Date digested	-	14/04/2014	14/04/2014	14/04/2014	14/04/2014	14/04/2014
Date analysed	-	14/04/2014	14/04/2014	14/04/2014	14/04/2014	14/04/2014
Calcium - Dissolved	mg/L	160	170	69	42	84
Magnesium - Dissolved	mg/L	860	820	600	120	490
Hardness	mgCaCO3 /L	4,000	3,800	2,600	600	2,200

Cations in water Dissolved	UNITS	108075-6	108075-7	108075-8	108075-9
Our Reference:	-----	BH42	BH43	BH44	BH45
Your Reference	-----	10/04/2014	10/04/2014	10/04/2014	10/04/2014
Date Sampled	-----	Water	Water	Water	Water
Type of sample					
Date digested	-	14/04/2014	14/04/2014	14/04/2014	14/04/2014
Date analysed	-	14/04/2014	14/04/2014	14/04/2014	14/04/2014
Calcium - Dissolved	mg/L	120	63	27	47
Magnesium - Dissolved	mg/L	640	200	46	72
Hardness	mgCaCO3 /L	2,900	1,000	250	410

MethodID	Methodology Summary
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.

Client Reference: 73895.00, Riverstone/Vineyard

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in water						Base II Duplicate II %RPD		
Date extracted	-			11/04/2014	[NT]	[NT]	LCS-W1	11/04/2014
Date analysed	-			12/04/2014	[NT]	[NT]	LCS-W1	12/04/2014
Dichlorodifluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Bromomethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloroethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	105%
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chloroform	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	105%
2,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	111%
1,1,1-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	107%
1,1-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Cyclohexane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Carbon tetrachloride	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromomethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	113%
Bromodichloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	106%
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	101%
1,2-dibromoethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Tetrachloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	101%
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromoform	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
m+p-xylene	µg/L	2	Org-013	<2	[NT]	[NT]	[NR]	[NR]
Styrene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
o-xylene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]

Client Reference: 73895.00, Riverstone/Vineyard

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in water						Base II Duplicate II %RPD		
1,2,3-trichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Isopropylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Tert-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Sec-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Hexachlorobutadiene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate	%		Org-013	112	[NT]	[NT]	LCS-W1	103%
Dibromofluoromethane								
Surrogate toluene-d8	%		Org-013	98	[NT]	[NT]	LCS-W1	100%
Surrogate 4-BFB	%		Org-013	101	[NT]	[NT]	LCS-W1	99%

Client Reference: 73895.00, Riverstone/Vineyard

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Water						Base II Duplicate II %RPD		
Date extracted	-			11/04/2014	[NT]	[NT]	LCS-W1	11/04/2014
Date analysed	-			12/04/2014	[NT]	[NT]	LCS-W1	12/04/2014
TRHC ₆ - C ₉	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	107%
TRHC ₆ - C ₁₀	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	107%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	104%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	106%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	110%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	107%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	105%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	112	[NT]	[NT]	LCS-W1	112%
Surrogate toluene-d8	%		Org-016	98	[NT]	[NT]	LCS-W1	101%
Surrogate 4-BFB	%		Org-016	101	[NT]	[NT]	LCS-W1	98%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Water						Base II Duplicate II %RPD		
Date extracted	-			14/04/2014	108075-1	14/04/2014 14/04/2014	LCS-W1	14/04/2014
Date analysed	-			14/04/2014	108075-1	14/04/2014 14/04/2014	LCS-W1	14/04/2014
TRHC ₁₀ - C ₁₄	µg/L	50	Org-003	<50	108075-1	<50 <50	LCS-W1	62%
TRHC ₁₅ - C ₂₈	µg/L	100	Org-003	<100	108075-1	<100 <100	LCS-W1	76%
TRHC ₂₉ - C ₃₆	µg/L	100	Org-003	<100	108075-1	<100 <100	LCS-W1	91%
TRH>C ₁₀ - C ₁₆	µg/L	50	Org-003	<50	108075-1	<50 <50	LCS-W1	62%
TRH>C ₁₆ - C ₃₄	µg/L	100	Org-003	<100	108075-1	<100 <100	LCS-W1	76%
TRH>C ₃₄ - C ₄₀	µg/L	100	Org-003	<100	108075-1	<100 <100	LCS-W1	91%
Surrogate o-Terphenyl	%		Org-003	79	108075-1	88 88 RPD:0	LCS-W1	66%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Date extracted	-			14/04/2014	108075-1	14/04/2014 14/04/2014	LCS-W1	14/04/2014
Date analysed	-			14/04/2014	108075-1	14/04/2014 14/04/2014	LCS-W1	14/04/2014
Naphthalene	µg/L	1	Org-012 subset	<1	108075-1	<1 <1	LCS-W1	86%
Acenaphthylene	µg/L	1	Org-012 subset	<1	108075-1	<1 <1	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	108075-1	<1 <1	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	108075-1	<1 <1	LCS-W1	100%
Phenanthrene	µg/L	1	Org-012 subset	<1	108075-1	<1 <1	LCS-W1	94%

Client Reference: 73895.00, Riverstone/Vineyard

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Anthracene	µg/L	1	Org-012 subset	<1	108075-1	<1 <1	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	108075-1	<1 <1	LCS-W1	92%
Pyrene	µg/L	1	Org-012 subset	<1	108075-1	<1 <1	LCS-W1	95%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	108075-1	<1 <1	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	108075-1	<1 <1	LCS-W1	89%
Benzo(b+k)fluoranthene	µg/L	2	Org-012 subset	<2	108075-1	<2 <2	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	108075-1	<1 <1	LCS-W1	99%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	108075-1	<1 <1	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	108075-1	<1 <1	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	108075-1	<1 <1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	95	108075-1	79 75 RPD: 5	LCS-W1	94%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
OCP in water - trace level						Base II Duplicate II %RPD		
Date extracted	-			17/04/2014	[NT]	[NT]	LCS-W1	17/04/2014
Date analysed	-			17/04/2014	[NT]	[NT]	LCS-W1	17/04/2014
HCB	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
Heptachlor	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	LCS-W1	90%
Heptachlor Epoxide	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
Aldrin	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	LCS-W1	80%
gamma-BHC (Lindane)	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	LCS-W1	78%
alpha-BHC	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
beta-BHC	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
delta-BHC	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
trans-Chlordane	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
cis-Chlordane	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
Oxychlordane	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
Dieldrin	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	LCS-W1	75%
p,p-DDE	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
p,p-DDD	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
p,p-DDT	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	LCS-W1	78%
Endrin	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	LCS-W1	79%
Endrin Aldehyde	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
Endrin Ketone	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
alpha-Endosulfan	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]

Client Reference: 73895.00, Riverstone/Vineyard

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
OCP in water - trace level						Base II Duplicate II %RPD		
beta-Endosulfan	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulfate	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
Methoxychlor	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
Surrogate OC Recovery	%		Ext-020	[NT]	[NT]	[NT]	LCS-W1	74%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
OP Pesticides - Trace Level						Base II Duplicate II %RPD		
Date extracted	-			17/04/2014	[NT]	[NT]	LCS-W1	17/04/2014
Date analysed	-			17/04/2014	[NT]	[NT]	LCS-W1	17/04/2014
Demeton-S-methyl	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Dichlorvos	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Diazinon	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	LCS-W1	79%
Dimethoate	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Chlorpyrifos	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	LCS-W1	76%
Chlorpyrifos methyl	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Malathion	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Fenthion	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Azinphos Ethyl	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Azinphos Methyl	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Chlorfenvinphos (E)	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Chlorfenvinphos (Z)	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Ethion	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	LCS-W1	84%
Fenitrothion	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Parathion (Ethyl)	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	LCS-W1	91%
Parathion (Methyl)	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Primiphos Ethyl	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Primiphos Methyl	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Surrogate OP Recovery - TPP	%		Ext-020	[NT]	[NT]	[NT]	LCS-W1	79%

Client Reference: 73895.00, Riverstone/Vineyard

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCB in water - trace level						Base II Duplicate II %RPD		
Date extracted	-			17/04/2014	[NT]	[NT]	LCS-W1	17/04/2014
Date analysed	-			17/04/2014	[NT]	[NT]	LCS-W1	17/04/2014
Aroclor 1016	µg/L	0.01	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	µg/L	0.01	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	µg/L	0.01	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	µg/L	0.01	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	µg/L	0.01	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	µg/L	0.01	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Aroclor 1260	µg/L	0.01	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Total PCB's (as above)	µg/L	0.010	Ext-020	[NT]	[NT]	[NT]	LCS-W1	91%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
All metals in water-dissolved						Base II Duplicate II %RPD		
Date prepared	-			16/04/2014	108075-9	16/04/2014 16/04/2014	LCS-W1	16/04/2014
Date analysed	-			16/04/2014	108075-9	16/04/2014 16/04/2014	LCS-W1	16/04/2014
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	108075-9	<1 <1	LCS-W1	101%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	108075-9	<0.1 <0.1	LCS-W1	96%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	108075-9	<1 <1	LCS-W1	102%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	108075-9	<1 <1	LCS-W1	102%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	108075-9	<1 <1	LCS-W1	99%
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	108075-9	<0.05 <0.05	LCS-W1	104%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	108075-9	2 2 RPD: 0	LCS-W1	99%
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	108075-9	13 13 RPD: 0	LCS-W1	100%
Iron-Dissolved	µg/L	10	Metals-022 ICP-MS	<10	108075-9	<10 <10	LCS-W1	102%
Manganese-Dissolved	µg/L	5	Metals-022 ICP-MS	<5	108075-9	590 570 RPD: 3	LCS-W1	96%
Boron-Dissolved	µg/L	5	Metals-022 ICP-MS	<5	108075-9	18 17 RPD: 6	LCS-W1	96%
Barium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	108075-9	120 120 RPD: 0	LCS-W1	96%
Beryllium-Dissolved	µg/L	0.5	Metals-022 ICP-MS	<0.5	108075-9	<0.5 <0.5	LCS-W1	86%
Cobalt-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	108075-9	3 3 RPD: 0	LCS-W1	104%
Molybdenum-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	108075-9	2 2 RPD: 0	LCS-W1	93%

Client Reference: 73895.00, Riverstone/Vineyard

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
All metals in water-dissolved						Base II Duplicate II %RPD		
Selenium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	108075-9	<1 <1	LCS-W1	97%
Tin-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	108075-9	<1 <1	LCS-W1	93%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Cations in water Dissolved						Base II Duplicate II %RPD		
Date digested	-			14/04/2014	108075-8	14/04/2014 14/04/2014	LCS-W3	14/04/2014
Date analysed	-			14/04/2014	108075-8	14/04/2014 14/04/2014	LCS-W3	14/04/2014
Calcium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	108075-8	27 27 RPD: 0	LCS-W3	103%
Magnesium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	108075-8	46 45 RPD: 2	LCS-W3	103%
Hardness	mgCaCO ₃ /L	3		3.0	108075-8	250 250 RPD: 0	[NR]	[NR]
QUALITYCONTROL	UNITS	Dup. Sm#		Duplicate		Spike Sm#	Spike % Recovery	
svTRH (C10-C40) in Water				Base + Duplicate + %RPD				
Date extracted	-	[NT]		[NT]		108075-2	14/04/2014	
Date analysed	-	[NT]		[NT]		108075-2	14/04/2014	
TRHC ₁₀ - C ₁₄	µg/L	[NT]		[NT]		108075-2	83%	
TRHC ₁₅ - C ₂₈	µg/L	[NT]		[NT]		108075-2	82%	
TRHC ₂₉ - C ₃₆	µg/L	[NT]		[NT]		108075-2	94%	
TRH>C ₁₀ - C ₁₆	µg/L	[NT]		[NT]		108075-2	83%	
TRH>C ₁₆ - C ₃₄	µg/L	[NT]		[NT]		108075-2	82%	
TRH>C ₃₄ - C ₄₀	µg/L	[NT]		[NT]		108075-2	94%	
Surrogate o-Terphenyl	%	[NT]		[NT]		108075-2	73%	
QUALITYCONTROL	UNITS	Dup. Sm#		Duplicate		Spike Sm#	Spike % Recovery	
PAHs in Water				Base + Duplicate + %RPD				
Date extracted	-	[NT]		[NT]		108075-2	14/04/2014	
Date analysed	-	[NT]		[NT]		108075-2	14/04/2014	
Naphthalene	µg/L	[NT]		[NT]		108075-2	91%	
Acenaphthylene	µg/L	[NT]		[NT]		[NR]	[NR]	
Acenaphthene	µg/L	[NT]		[NT]		[NR]	[NR]	
Fluorene	µg/L	[NT]		[NT]		108075-2	97%	
Phenanthrene	µg/L	[NT]		[NT]		108075-2	94%	
Anthracene	µg/L	[NT]		[NT]		[NR]	[NR]	
Fluoranthene	µg/L	[NT]		[NT]		108075-2	92%	
Pyrene	µg/L	[NT]		[NT]		108075-2	96%	
Benzo(a)anthracene	µg/L	[NT]		[NT]		[NR]	[NR]	
Chrysene	µg/L	[NT]		[NT]		108075-2	90%	
Benzo(b+k)fluoranthene	µg/L	[NT]		[NT]		[NR]	[NR]	

Client Reference: 73895.00, Riverstone/Vineyard

QUALITYCONTROL PAHs in Water	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzo(a)pyrene	µg/L	[NT]	[NT]	108075-2	103%
Indeno(1,2,3-c,d)pyrene	µg/L	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	[NT]	[NT]	[NR]	[NR]
Surrogate <i>p</i> -Terphenyl-d14	%	[NT]	[NT]	108075-2	89%
QUALITYCONTROL Cations in water Dissolved	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	108075-9	14/04/2014
Date analysed	-	[NT]	[NT]	108075-9	14/04/2014
Calcium - Dissolved	mg/L	[NT]	[NT]	108075-9	#
Magnesium - Dissolved	mg/L	[NT]	[NT]	108075-9	#
Hardness	mgCaCO 3/L	[NT]	[NT]	[NR]	[NR]

Report Comments:

CATIONS_W: # Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

OC/OP/PCB's in water analysed by NMI. Report No.RN1018131.

Asbestos ID was analysed by Approved Identifier: Not applicable for this job
Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde NSW 2114

ph: 02 9809 0666
Fax: 02 9809 4095

Attention: Nerilee Edwards

Sample log in details:

Your reference:	73895.00, Riverstone/Vineyard
Envirolab Reference:	108075
Date received:	11/04/2014
Date results expected to be reported:	22/04/14

Samples received in appropriate condition for analysis:	YES
No. of samples provided	11 Waters
Turnaround time requested:	Standard
Temperature on receipt (°C)	15.4
Cooling Method:	Ice Pack
Sampling Date Provided:	YES

Comments:

If there is sufficient sample after testing, samples will be held for the following time frames from date of receipt of samples:
Water samples - 1 month
Soil and other solid samples - 2 months
Samples collected in canisters - 1 week. Canisters will then be cleaned.
All other samples are not retained after analysis
If you require samples to be retained for longer periods then retention fees will apply as per our pricelist.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

Batch 2 1/2

COPY

Project Name: ... Vineyard Precinct
 Project No: 73895-1 Sampler: ... NLE
 Project Mgr: NLE Mob. Phone: 0414 769 011
 Email: nerilee.edwards@douglaspartners.com.au
 Date Required: STD; ESdat Format Lab Quote No.

To: EnviroLab Services
 12 Ashley St Chatswood 2067
 Attn: Tania Notaras
 Phone: (02) 9910 6200 Fax: (02) 9910 6201
 Email: tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Sampling Date	Sample Type S - soil W - water	Container type G - glass P - plastic	Analytes							Notes/preservation							
					pH	EC 1:5	ESP (incl. CEC)	Cl & SO ₄	HM8	As Cd Cr	Pb Hg Ni		TRH/ BTEX	MTBE/ PAH	OCP/OPP (Trace level)	PCB (Trace level)	VOC	Hardness	Clay content
1	7/0.4																		
2	7/0.8																		
3	10/0.5																		
4	10/1.5																		
5	14/1.0																		
6	14/2.0																		
5	25/1.0																		
6	25/1.5																		
7	28/1.0																		
8	28/1.5																		
9	36/0.5																		
10	36/1.0																		
11	36/1.5																		

EnviroLAB
 12 Ashley St
 Chatswood NSW 2067
 Ph: (02) 9910 6200

Job No: 108170

Date Received: 14/4/14
 Time Received: 4pm
 Received by: LSE
 Temp: Cool/dry
 Cooling: Ice/Repack
 Security: Initialed/None

Lab Report No.
 Send Results to: Douglas Partners Address: 96 Hermitage Road West Ryde NSW 2114
 Phone: (02) 4271 1836 Fax: (02) 4271 1897

Relinquished by: CSB of ELS
 Received By: CSB of ELS Date & Time: 14/4/14 4pm
 Signed: Date & Time:
 Transported to laboratory by: Hunter Express

CHAIN OF CUSTODY

Project Name: ... Vineyard Precinct
 Project No: 73895-1 Sampler: ... NLE
 Project Mgr: NLE Mob. Phone: 0414 769 011
 Email: nerilee.edwards@douglaspartners.com.au
 Date Required: STD; ESdat Format Lab Quote No.
 To: Envirolab Services
 12 Ashley St Chatswood 2067
 Attn: Tania Notaras
 Phone: (02) 9910 6200 Fax: (02) 9910 6201
 Email: tnotaras@envirolabservices.com.au

Batch 2 2/2

COPY

Sample ID	Lab ID	Sampling Date	Sample Type S - soil W - water	Container type G - glass P - plastic	Analytes										Notes/preservation												
					pH	EC 1:5	ESP (incl. CEC)	Cl & SO ₄	HM8	As Cd Cr	Pb Hg Ni	TRH/ BTEX	MTBE/ PAH	OCP/OPP (Trace level)		PCB (Trace level)	VOC	Hardness	Clay content								
12 38 / 0.3																											
13 38 / 0.8																											
14 38 / 1.5																											
15 39 / 0.5																											
16 39 / 1.0																											
17 39 / 1.5																											

upstairs see NLE

Lab Report No.
 Send Results to: Douglas Partners Address: 96 Hermitage Road West Ryde NSW 2114
 Relinquished by: _____ Signed: _____
 Received By: *[Signature]* Date & Time: 14/04/14 16:00
 Date & Time: _____
 Transported to laboratory by: Hunter Express
 Phone: (02) 4271 1836 Fax: (02) 4271 1897

CERTIFICATE OF ANALYSIS

108170

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Nerilee Edwards

Sample log in details:

Your Reference:	<u>73895-1, Vineyard</u>
No. of samples:	17 Soils
Date samples received / completed instructions received	14/04/14 / 14/04/14

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data. Samples were analysed as received from the client. Results relate specifically to the samples as received. Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date: 23/04/14 / 22/04/14
Date of Preliminary Report: Not Issued
NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:



Jacinta Hurst
Laboratory Manager

Miscellaneous Inorg - soil						
Our Reference:	UNITS	108170-1	108170-2	108170-3	108170-4	108170-5
Your Reference	-----	7	7	10	10	25
Depth	-----	0.4	0.8	0.5	1.5	1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	16/04/2014	16/04/2014	16/04/2014	16/04/2014	16/04/2014
Date analysed	-	16/04/2014	16/04/2014	16/04/2014	16/04/2014	16/04/2014
pH 1:5 soil:water	pHUnits	4.8	5.0	6.2	5.9	5.5
Electrical Conductivity 1:5 soil:water	µS/cm	73	53	40	28	120

Miscellaneous Inorg - soil						
Our Reference:	UNITS	108170-6	108170-7	108170-8	108170-9	108170-10
Your Reference	-----	25	28	28	36	36
Depth	-----	1.5	1.0	1.5	0.5	1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	16/04/2014	16/04/2014	16/04/2014	16/04/2014	16/04/2014
Date analysed	-	16/04/2014	16/04/2014	16/04/2014	16/04/2014	16/04/2014
pH 1:5 soil:water	pHUnits	5.0	5.1	5.1	4.9	4.7
Electrical Conductivity 1:5 soil:water	µS/cm	320	260	210	280	430

Miscellaneous Inorg - soil						
Our Reference:	UNITS	108170-11	108170-12	108170-13	108170-14	108170-15
Your Reference	-----	36	38	38	38	39
Depth	-----	1.5	0.3	0.8	1.5	0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	16/04/2014	16/04/2014	16/04/2014	16/04/2014	16/04/2014
Date analysed	-	16/04/2014	16/04/2014	16/04/2014	16/04/2014	16/04/2014
pH 1:5 soil:water	pHUnits	4.7	5.9	5.3	5.0	4.7
Electrical Conductivity 1:5 soil:water	µS/cm	630	71	560	590	570

Miscellaneous Inorg - soil			
Our Reference:	UNITS	108170-16	108170-17
Your Reference	-----	39	39
Depth	-----	1.0	1.5
Type of sample		Soil	Soil
Date prepared	-	16/04/2014	16/04/2014
Date analysed	-	16/04/2014	16/04/2014
pH 1:5 soil:water	pHUnits	4.5	4.3
Electrical Conductivity 1:5 soil:water	µS/cm	830	900

Client Reference: 73895-1, Vineyard

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA 22nd ED, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25oC in accordance with APHA 22nd ED 2510 and Rayment & Lyons.

Client Reference: 73895-1, Vineyard

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Miscellaneous Inorg - soil						Base Duplicate %RPD		
Date prepared	-			16/04/2014	108170-1	16/04/2014 16/04/2014	LCS-1	16/04/2014
Date analysed	-			16/04/2014	108170-1	16/04/2014 16/04/2014	LCS-1	16/04/2014
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	108170-1	4.8 4.7 RPD: 2	LCS-1	101%
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	108170-1	73 73 RPD: 0	LCS-1	102%
QUALITYCONTROL	UNITS	Dup. Sm#		Duplicate				
Miscellaneous Inorg - soil				Base + Duplicate + %RPD				
Date prepared	-	108170-11		16/04/2014 16/04/2014				
Date analysed	-	108170-11		16/04/2014 16/04/2014				
pH 1:5 soil:water	pH Units	108170-11		4.7 4.7 RPD: 0				
Electrical Conductivity 1:5 soil:water	µS/cm	108170-11		630 590 RPD: 7				

Report Comments:

Asbestos ID was analysed by Approved Identifier: Not applicable for this job
Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test PQL: Practical Quantitation Limit NT: Not tested
NA: Test not required RPD: Relative Percent Difference NA: Test not required
<: Less than >: Greater than LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde NSW 2114

ph: 02 9809 0666
Fax: 02 9809 4095

Attention: Nerilee Edwards

Sample log in details:

Your reference:	73895-1, Vineyard
Envirolab Reference:	108170
Date received:	14/04/14
Date results expected to be reported:	23/04/14

Samples received in appropriate condition for analysis:	YES
No. of samples provided	17 Soils
Turnaround time requested:	Standard
Temperature on receipt (°C)	21
Cooling Method:	None
Sampling Date Provided:	YES

Comments:

If there is sufficient sample after testing, samples will be held for the following time frames from date of receipt of samples:
Water samples - 1 month
Soil and other solid samples - 2 months
Samples collected in canisters - 1 week. Canisters will then be cleaned.
All other samples are not retained after analysis
If you require samples to be retained for longer periods then retention fees will apply as per our pricelist.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

CHAIN OF CUSTODY

Project Name: ... Vineyard Precinct
 Project No: 73895-1 Sampler: NEE M.W./T.D.M./M.W.H
 Project Mgr: NLE Mob. Phone: 0414 769 011
 Email: nerilee.edwards@douglaspartners.com.au
 Date Required: STD; ESdat Format Lab Quote No.

To: Envirolab Services
 12 Ashley St Chatswood 2067
 Attn: Tania Notaras
 Phone: (02) 9910 6200 Fax: (02) 9910 6201
 Email: tnotaras@envirolabservices.com.au

Batch 2 1/2

Sample ID	Lab ID	Sampling Date	Sample Type S - soil W - water	Container type G - glass P - plastic	Analytes										Notes/preservation											
					PH	EC 1:5	ESP (incl. CEC)	Cl & SO ₄	HM8	As Cd Cr	Pb Hg Ni	TRH/ BTEX	MTBE/ PAH	OCP/OPP (Trace level)		PCB (Trace level)	VOC	Hardness	Clay content							
7/0.4						✓																				
7/0.8																										
10/0.5																										
10/1.5																										
14/1.0																										
14/2.0																										
25/1.0																										
25/1.5																										
28/1.0																										
28/1.5																										
36/0.5																										
36/1.0																										
36/1.5																										

ENVIROLAB
 EnviroLab Services
 12 Ashley St
 Chatswood NSW 2067
 Ph: (02) 9910 6200
 Job No: 108 336
 Date Received: 16.4.14
 Time Received: 10:30
 Received by: D.F.
 Temp: Cool/Ambient
 Cooling: ~~locked~~
 Security: ~~Intact~~ Broken/None

Lab Report No.
 Send Results to: Douglas Partners Address: 96 Hermitage Road West Ryde NSW 2114 Phone: (02) 4271 1836
 Relinquished by: Signed: Date & Time: 16.4.14 10:30 Fax: (02) 4271 1897
 Received By: D. POPE Date & Time: 16.4.14 10:30
 Transported to laboratory by: Hunter Express

CERTIFICATE OF ANALYSIS

108336

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Nerilee Edwards

Sample log in details:

Your Reference:	<u>73895-1, Vineyard Precinct</u>
No. of samples:	2 Soils
Date samples received / completed instructions received	16/04/14 / 16/04/14

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	28/04/14 / 23/04/14
Date of Preliminary Report:	Not Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:



Jacinta Hurst
Laboratory Manager

Miscellaneous Inorg - soil			
Our Reference:	UNITS	108336-1	108336-2
Your Reference	-----	14	14
Depth	-----	1.0	2.0
Type of sample		Soil	Soil
Date prepared	-	17/04/2014	17/04/2014
Date analysed	-	17/04/2014	17/04/2014
pH 1:5 soil:water	pHUnits	5.3	5.0
Electrical Conductivity 1:5 soil:water	µS/cm	430	1,100

Client Reference: 73895-1, Vineyard Precinct

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA 22nd ED, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25oC in accordance with APHA 22nd ED 2510 and Rayment & Lyons.

Client Reference: 73895-1, Vineyard Precinct

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Miscellaneous Inorg - soil						Base II Duplicate II %RPD		
Date prepared	-			17/04/2014	[NT]	[NT]	LCS-1	17/04/2014
Date analysed	-			17/04/2014	[NT]	[NT]	LCS-1	17/04/2014
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	LCS-1	102%
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	[NT]	[NT]	LCS-1	103%

Report Comments:

Asbestos ID was analysed by Approved Identifier: Not applicable for this job
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

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SAMPLE RECEIPT ADVICE

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde NSW 2114

ph: 02 9809 0666
Fax: 02 9809 4095

Attention: Nerilee Edwards

Sample log in details:

Your reference:	73895-1, Vineyard Precinct
Envirolab Reference:	108336
Date received:	16/04/14
Date results expected to be reported:	28/04/14

Samples received in appropriate condition for analysis:	YES
No. of samples provided	2 Soils
Turnaround time requested:	Standard
Temperature on receipt (°C)	16.3
Cooling Method:	Ice Pack
Sampling Date Provided:	YES

Comments:

If there is sufficient sample after testing, samples will be held for the following time frames from date of receipt of samples:
Water samples - 1 month
Soil and other solid samples - 2 months
Samples collected in canisters - 1 week. Canisters will then be cleaned.
All other samples are not retained after analysis
If you require samples to be retained for longer periods then retention fees will apply as per our pricelist.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au