Appendix A – Figures

Appendix B – Photographic Record

Appendix C – Desk Study Information

Appendix D – Field Forms & Calibration Certificates

Appendix E – Borehole Logs

Appendix F – QA/QC Report

Appendix G – Results Tables

Appendix H – Laboratory Certificates

Appendix A – Figures

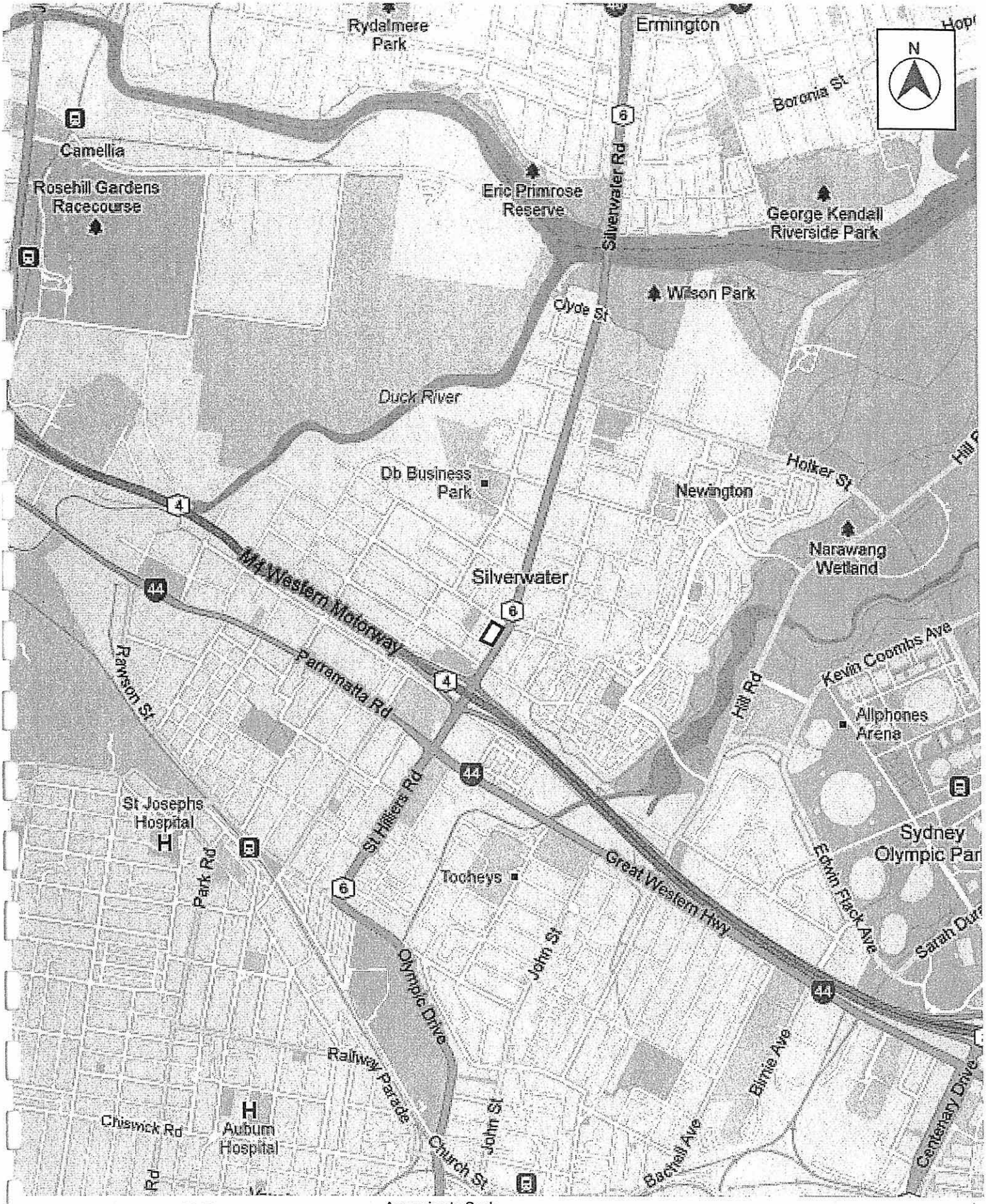


Image Courtesy of Google Maps (2012)

Approximate Scale

0 500

Metres

KEY

Approximate Site Boundary

Site Location

Phase 1&2 ESA, 32-46 Silverwater Road, Silverwater, NSW

00034924

FIGURE 1

WSP

nage Courtesy of NearMap (2012)

Approximate Scale

0 20

Metres

Site Boundary

AST

Chemical Storage Bund Area

Site Layout

Phase 1&2 ESA, 32-46 Silverwater Road, Silverwater, NSW

00034924

FIGURE 2

WSP

Image Courtesy of NearMap (2012)

Approximate Scale

0 20

Metres

Site Boundary

BH01 Soil Bore

BH01/ MW01 Soil Bore Coverted to Monitoring Well

Investigation Locations

Phase 1&2 ESA, 32-46 Silverwater Road, Silverwater, NSW

00034924

FIGURE 3

WSP

Image Courtesy of NearMap (2012)

KEY

- Site Boundary
- BH01 — Soil Bore
- BH01/MW01 — Soil Bore Coverted to Monitoring Well

Approximate Scale

0 20

Metres

Monitoring Well location

Analyte — MW / C6-C9 / C10-C36 / B / T / E / X (Total) / Pb / Total PAH — Sample Results (ug/kg)

ANZECC (2000) FW 95%

EPA 1994

Criteria Exceedances

Phase 1&2 ESA, 32-46 Silverwater Road, Silverwater, NSW

00034924

FIGURE 4

WSP

Image Courtesy of NearMap (2012)

Approximate Scale

0 20

Metres

Site Boundary

Groundwater Contour

Inferred Groundwater Flow Direction

Groundwater Contours

Phase 1&2 ESA, 32-46 Silverwater Road, Silverwater, NSW

00034924

FIGURE 5

WSP

Appendix B – Photographic Record

WSP	PHOTOGRAPHIC LOG	
Client Name **Price Waterhouse Coopers**	**Site Location** 1-13 Grey St & 32-46 Silverwater Rd, Silverwater, NSW	**Project No.** 00034924

Photo No.	**Date**
1	15 October 2012

Description

View towards the Bligh St access gate to 32 Silverwater Rd.

Immediately west of the access gat there is a bund area, formerly used for chemical storage. Some containers remain.

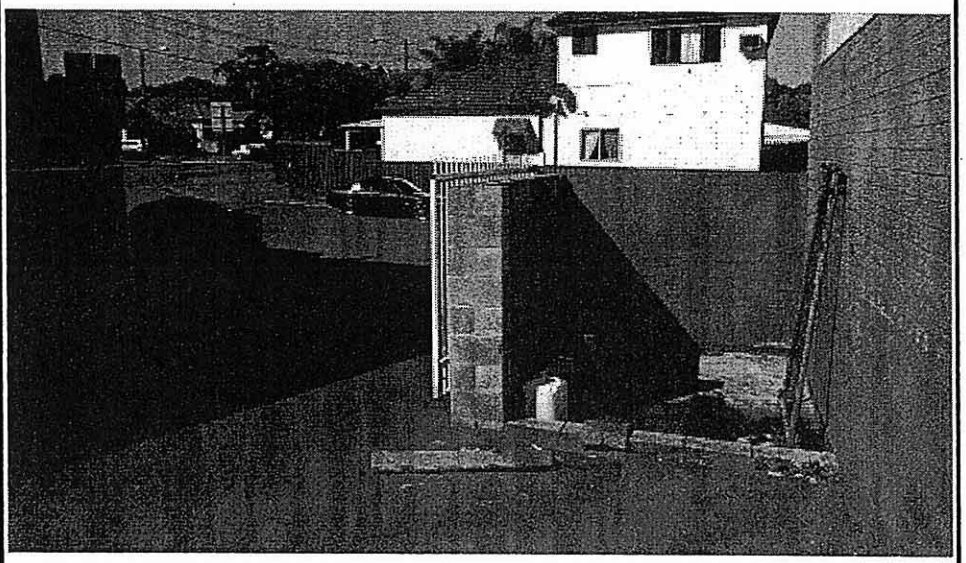
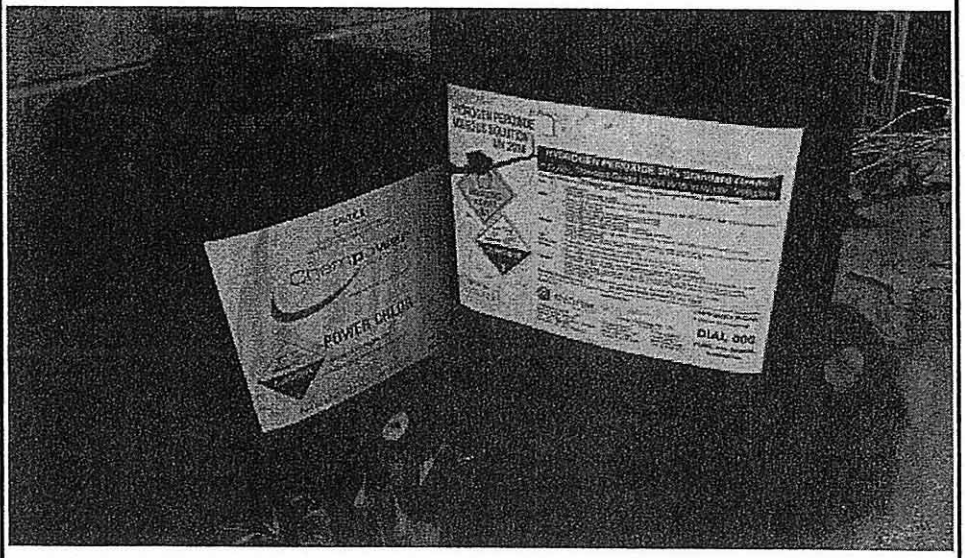


Photo No.	**Date**
2	15 October 2012

Description

Sodium hypochlorite and hydrogen peroxide were observed to be stored in the bund area.



WSP	PHOTOGRAPHIC LOG	
Client Name **Price Waterhouse Coopers**	**Site Location** 1-13 Grey St & 32-46 Silverwater Rd, Silverwater, NSW	**Project No.** 00034924

Photo No.	**Date**
3	15 October 2012

Description

On the western wall of the eastern building located at 32 Silverwater Rd, a suspected former AST was observed.

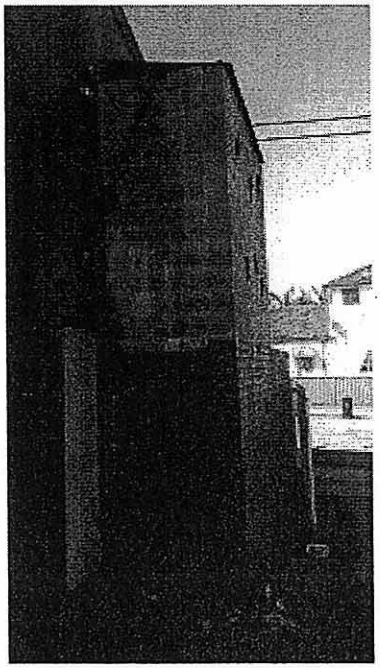


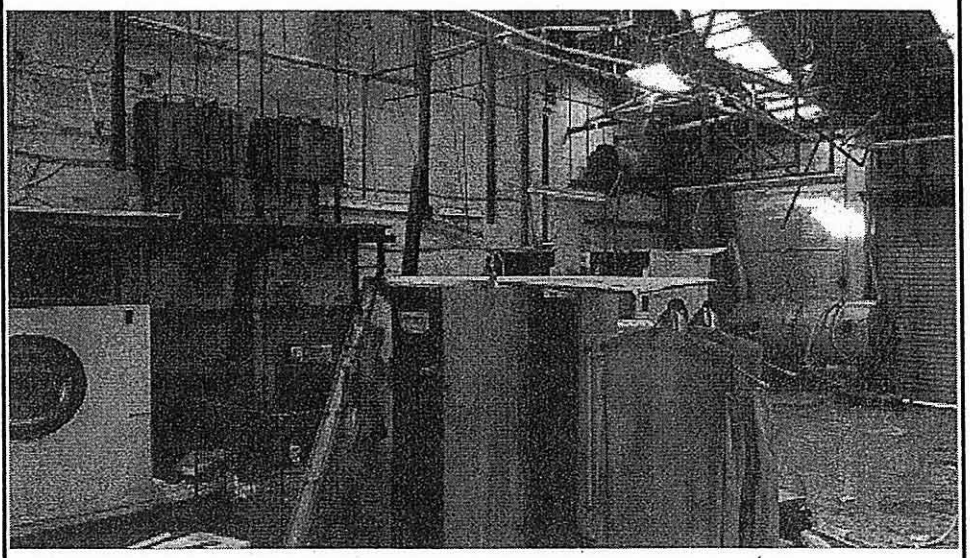
Photo No.	**Date**
4	15 October 2012

Description

View from the eastern access door to the southeast.

Two ASTs and an elevated drum storage area were identified.

Some non-operational machinery remains at the property.



WSP	PHOTOGRAPHIC LOG	
Client Name **Price Waterhouse Coopers**	**Site Location** 1-13 Grey St & 32-46 Silverwater Rd, Silverwater, NSW	**Project No.** 00034924

Photo No.	**Date**
5	15 October 2012

Description

View to the central portion of the western building at 32 Silverwater Rd.

Some liquid chemicals remain at the property – including Perclean which uses Tetrachloroethylene (PCE) as the active ingredient.

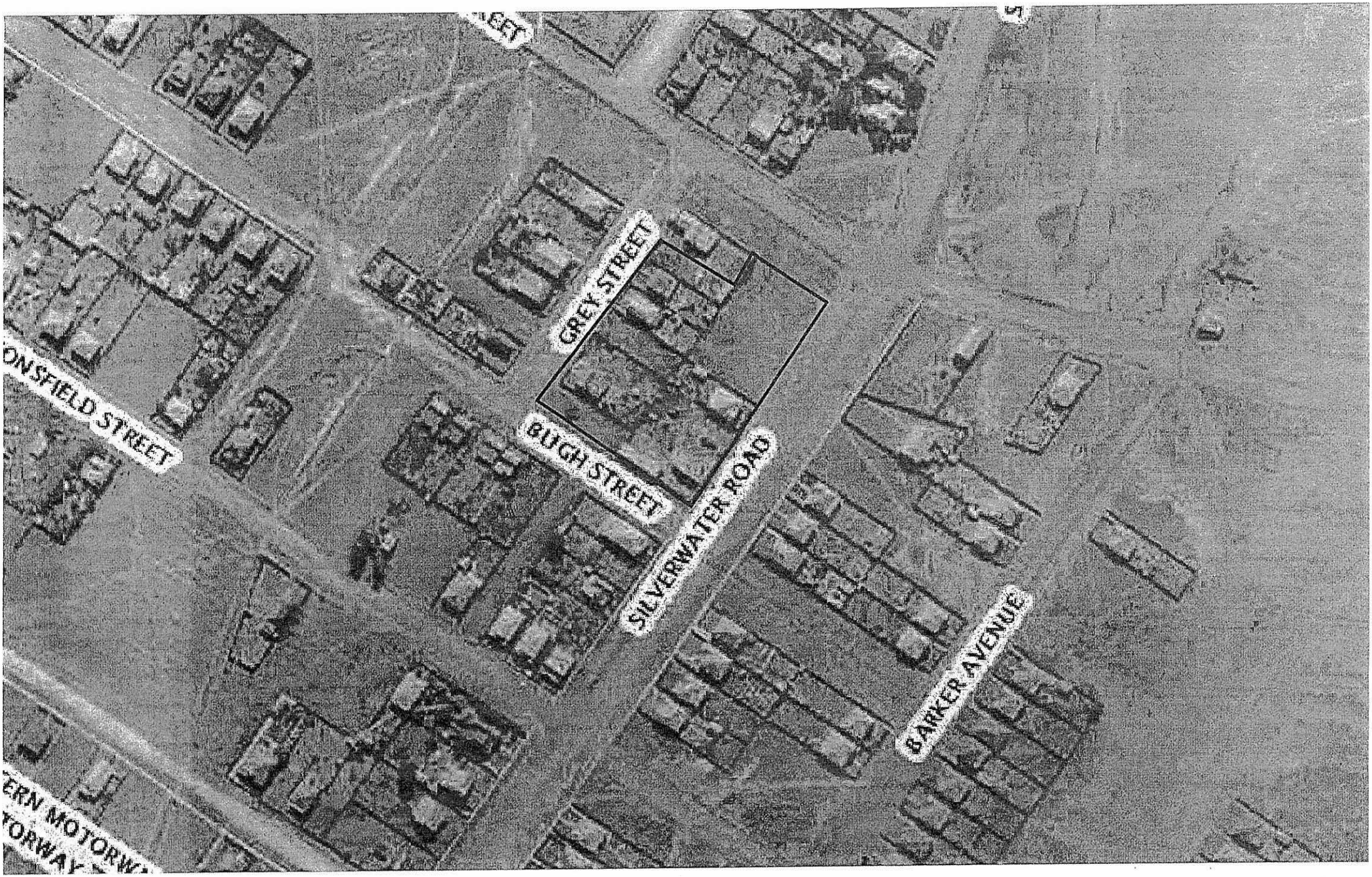
Photo No.	**Date**
6	15 October 2012

Description

Similarly to Photo 5 above, Photo 6 shows the view to the central portion of the western building at 32 Silverwater Rd.

Some liquid chemicals remain at the property – including Perclean which uses Tetrachloroethylene (PCE) as the active ingredient.

Appendix C – Desk Study Information


GREY STREET
BUGH STREET
SILVERWATER ROAD
BARKER AVENUE

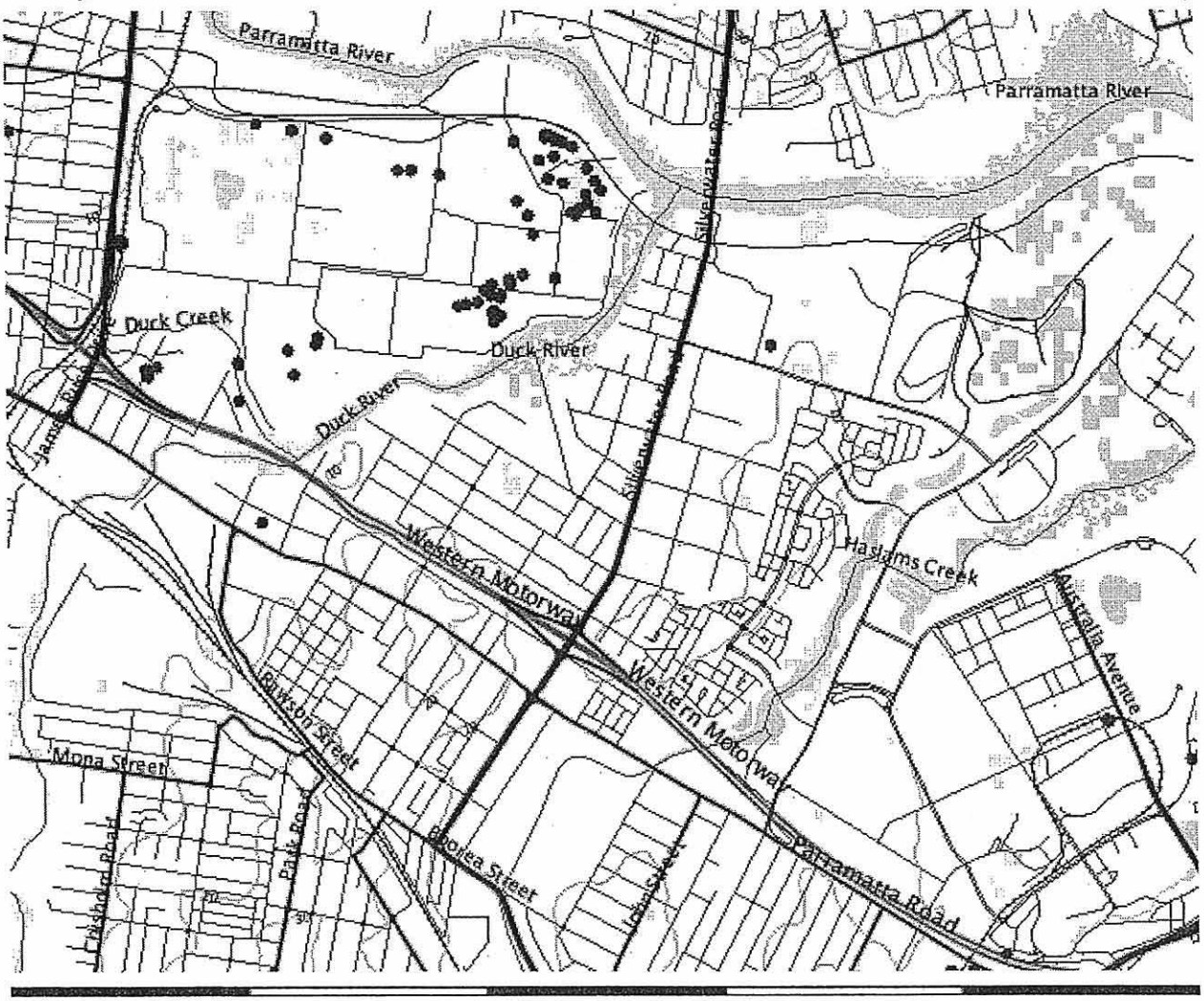
e Site Boundary

Carnarvon St
Barker Ave
Grey St
South St
Beaconsfield St

Map from the NSW Natural Resource Atlas

Map created with NSW Natural Resource Atlas - http://www.nratlas.nsw.gov.au

Thursday, November 01, 2012



Legend

Symbol	Layer	Custodian
	Cities and large towns renderImage: Cannot build image from features	
Cowra	Populated places renderImage: Cannot build image from features	
	Towns	
	Groundwater Bores	
	Catchment Management Authority boundaries	
	Major rivers	
	Topographic base map	

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Thursday, November 1, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW100682

Works Details (top)

GROUNDWATER NUMBER	GW100682
LIC-NUM	10BL156675
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Bore
WORK-STATUS	(Unknown)
CONSTRUCTION-METHOD	
OWNER-TYPE	
COMMENCE-DATE	
COMPLETION-DATE	1995-03-30
FINAL-DEPTH (metres)	8.90
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	N/A
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	6.77
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6254064.00
EASTING	317571.00
LATITUDE	33 50' 17"
LONGITUDE	151 1' 42"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	ST JOHN
PORTION-LOT-DP	1//851145

Licensed (top)

COUNTY	CUMBERLAND
PARISH	LIBERTY PLAINS
PORTION-LOT-DP	1 851145

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter; ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	8.90	50			(Unknown)
1	1	Casing	Concrete	0.00	8.90	50			
1	1	Opening	Screen	0.00	5.90	50			(Unknown); PVC Class 18; A: 1mm

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Thursday, November 1, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW102250

Works Details (top)

GROUNDWATER NUMBER	GW102250
LIC-NUM	10BL158457
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Bore
WORK-STATUS	Equipped - bore used for obs
CONSTRUCTION-METHOD	Rotary
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	1998-02-28
FINAL-DEPTH (metres)	11.00
DRILLED-DEPTH (metres)	11.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	N/A
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	0.25
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6255085.00
EASTING	319933.00
LATITUDE	33 49' 45"
LONGITUDE	151 3' 15"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	ST JOHN
PORTION-LOT-DP	1//120240

Licensed (top)

COUNTY	CUMBERLAND
PARISH	LIBERTY PLAINS
PORTION-LOT-DP	1 120240

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter; ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	11.00	125			Rotary
1	1	Casing	PVC Class 18	0.00	8.00	65	55		C: 0-6.8m; Screwed; Seated on Bottom; Casing Shoe
1		Annulus	Waterworn/Rounded	7.80	11.00				Graded

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
9.10	11.00	1.90		0.25					

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	0.80	0.80	FILL, GRAVELLY CLAY		
0.80	1.80	1.00	FILL, SANDY CLAY		
1.80	6.50	4.70	CLAY		
6.50	11.00	4.50	SHALE BEDROCK		

(DIPNR) by drillers, licensees and other sources. The DIPNR does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW GOVERNMENT Environment & Heritage

NSW EPA

Search results

Your search for: LGA: Auburn Council

Matched 58 notices relating to 12 sites.

Search Again
Refine Search

Suburb	Address	Site Name	Notices related to this site
Auburn	Short and Junction Streets	Ajax Chemical Factory	2 former
Homebush Bay	Olympic Boulevard	Aquatic Centre Car Park	1 current and 8 former
Homebush Bay	Bennelong Road	Bicentennial Park	1 current and 2 former
Homebush Bay	Hill Road	Haslams Creek South Area 3	1 current and 3 former
Homebush Bay	Kevin Coombs Avenue	Haslams Creek South Areas 1 and 2	1 current and 13 former
Homebush Bay	No specific Street	Homebush Bay General Area	2 former
Homebush Bay	Australia Avenue	State Sports Centre	1 current and 6 former
Homebush Bay	25 Bennelong Road	Timber Treatment Plant	4 former
Newington	Bennelong Road	Landfill - North Newington	2 current and 3 former
Silverwater	Jamieson Street	Auburn Landfill	2 current and 2 former
Silverwater	Jamieson Street	Silverwater Transport Unit	1 former
Silverwater	Silverwater Road	Wilson Park	4 current and 6 former

12 October 2012

Search results

Your search for: **General Search** with the following criteria

Suburb - SILVERWATER

returned 65 results

Export to excel 1 of 4 Pages Search Again

Number	Name	Location	Type	Status	Issued date
12103	BLUE STAR PRINT GROUP AUSTRALIA PTY LIMITED	81 Derby Street, SILVERWATER, NSW 2128	POEO licence	No longer in force	27 May 2004
12616	BLUE STAR PRINT GROUP AUSTRALIA PTY LIMITED	1/83 Derby Street, SILVERWATER, NSW 2128	POEO licence	No longer in force	23 Feb 2007
1069885	BLUE STAR PRINT GROUP AUSTRALIA PTY LIMITED	81 Derby Street, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	02 Mar 2007
7481	CARDINAL GROUP PTY LTD	CNR NEWTON STREET NORTH AND CARNARVON STREET, SILVERWATER, NSW 2128	POEO licence	Revoked	25 May 2000
1009092	CARDINAL GROUP PTY LTD	CNR NEWTON STREET NORTH AND CARNARVON STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	12 Oct 2001
1044028	CARDINAL GROUP PTY LTD	CNR NEWTON STREET NORTH AND CARNARVON STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	16 May 2005
1091572	CARDINAL GROUP PTY LTD	CNR NEWTON STREET NORTH AND CARNARVON STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	22 Oct 2008
1097208	CARDINAL GROUP PTY LTD	CNR NEWTON STREET NORTH AND CARNARVON STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	17 Feb 2009
1112487	CARDINAL GROUP PTY LTD	CNR NEWTON STREET NORTH AND CARNARVON STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	25 Mar 2010
1114039	CARDINAL GROUP PTY LTD	CNR NEWTON STREET NORTH AND CARNARVON STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	02 Jul 2010
1117259	CARDINAL GROUP PTY LTD	CNR NEWTON STREET NORTH AND CARNARVON STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	18 Aug 2010
1124415	CARDINAL GROUP PTY LTD	CNR NEWTON STREET NORTH AND CARNARVON STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	01 Feb 2011
1500036	CARDINAL GROUP PTY LTD	CNR NEWTON STREET NORTH AND CARNARVON STREET,	S 58 Licence Variation	Issued	22 Sep 2011

Search results

Your search for: **General Search** with the following criteria

Suburb - SILVERWATER

returned 65 results

Export to excel 2 of 4 Pages Search Again

Number	Name	Location	Type	Status	Issued date
1506389	FINHAVEN PTY. LIMITED	32-36 Silverwater Road, SILVERWATER, NSW 2128	s.91 Clean Up Notice	Issued	01 Jun 2012
11590	ITT FLYGT LIMITED	Unit 31, Slough Estate, Holker Street, SILVERWATER, NSW 2128	POEO licence	Surrendered	27 Dec 2001
1038000	ITT FLYGT LIMITED	Unit 31, Slough Estate, Holker Street, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	16 Jun 2004
134	LUBRIZOL INTERNATIONAL INC	28 RIVER STREET, SILVERWATER, NSW 2128	POEO licence	Issued	13 Jun 2000
1003502	LUBRIZOL INTERNATIONAL INC	28 RIVER STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	12 Mar 2002
1032243	LUBRIZOL INTERNATIONAL INC	28 RIVER STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	02 Dec 2003
1056325	LUBRIZOL INTERNATIONAL INC	28 RIVER STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	13 Apr 2006
1072198	LUBRIZOL INTERNATIONAL INC	28 RIVER STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	04 Jul 2007
1103976	LUBRIZOL INTERNATIONAL INC	28 RIVER STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	27 Nov 2009
1109837	LUBRIZOL INTERNATIONAL INC	28 RIVER STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	19 Jan 2010
1504074	LUBRIZOL INTERNATIONAL INC	28 RIVER STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	06 Feb 2012
109	METROMIX PTY LIMITED	24 STANLEY ST, SILVERWATER, NSW 2141	POEO licence	No longer in force	27 Jun 2000
4892	STERIHEALTH NSW PTY LTD	14-16 STANLEY STREET, SILVERWATER, NSW 2128	POEO licence	Surrendered	09 Nov 2000
3245	STERIHEALTH NSW PTY LTD	2-16 WIBLEN STREET, SILVERWATER, NSW 2128	POEO licence	Issued	12 Apr 2001
1010203	STERIHEALTH NSW PTY LTD	2-16 WIBLEN STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	07 Aug 2001
1011756	STERIHEALTH NSW PTY LTD	2-16 WIBLEN STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	10 Oct 2001
1012699	STERIHEALTH NSW PTY LTD	2-16 WIBLEN STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	19 Nov 2001
1015092	STERIHEALTH NSW PTY LTD	2-16 WIBLEN STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	27 May 2002

1019655	STERIHEALTH NSW PTY LTD	2-16 WIBLEN STREET, SILVERWATER, NSW 2128	S 58 Licence Variation Issued	19 Apr 2004
1053432	STERIHEALTH NSW PTY LTD	2-16 WIBLEN STREET, SILVERWATER, NSW 2128	S 58 Licence Variation Issued	16 Jan 2006

Search results

Your search for: **General Search** with the following criteria

Suburb - SILVERWATER

returned 65 results

Export to excel 3 of 4 Pages Search Again

Number	Name	Location	Type	Status	Issued date
1059150	STERIHEALTH NSW PTY LTD	14-16 STANLEY STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	03 May 2006
1093323	STERIHEALTH NSW PTY LTD	2-16 WIBLEN STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	01 Dec 2008
1111390	STERIHEALTH NSW PTY LTD	2-16 WIBLEN STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	09 Feb 2010
6741	SWIFT ELECTROPLATERS N.S.W. PTY. LIMITED	53 VORE STREET, SILVERWATER, NSW 2141	POEO licence	Issued	01 Sep 2000
1093179	SWIFT ELECTROPLATERS N.S.W. PTY. LIMITED	53 VORE STREET, SILVERWATER, NSW 2141	S 58 Licence Variation	Issued	09 Jun 2009
1969	SYDNEY METROPOLITAN PIPELINE PTY LTD	CNR HOLKER & NEWINGTON RD, SILVERWATER, NSW 2128	POEO licence	Issued	17 Dec 1999
1015649	SYDNEY METROPOLITAN PIPELINE PTY LTD	CNR HOLKER & NEWINGTON RD, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	17 Jun 2002
1057334	SYDNEY METROPOLITAN PIPELINE PTY LTD	CNR HOLKER & NEWINGTON RD, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	07 Apr 2006
1072477	SYDNEY METROPOLITAN PIPELINE PTY LTD	CNR HOLKER & NEWINGTON RD, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	22 Jun 2007
1106382	SYDNEY METROPOLITAN PIPELINE PTY LTD	CNR HOLKER & NEWINGTON RD, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	11 Nov 2009
10243	SYDNEY OLYMPIC PARK AUTHORITY	near Silverwater Road fronting the Parramatta River, SILVERWATER, NSW 2128	POEO licence	Issued	02 Feb 2000
1000995	SYDNEY OLYMPIC PARK AUTHORITY	near Silverwater Road fronting the Parramatta River, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	21 May 2001
1042541	SYDNEY OLYMPIC PARK AUTHORITY	near Silverwater Road fronting the Parramatta River, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	18 Jan 2005
1125343	SYDNEY OLYMPIC PARK AUTHORITY	near Silverwater Road fronting the Parramatta River, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	29 Jun 2011

11478	THE HANNA GROUP PTY LTD	14 Churchill Street, SILVERWATER, NSW 2128	POEO licence	Surrendered	06 Aug 2001
7025	WESTWOOD WINTER PLATING PTY LTD	128 CARNARVON STREET, SILVERWATER, NSW 2128	POEO licence	Issued	10 Aug 2000
1044287	WESTWOOD WINTER PLATING PTY LTD	128 CARNARVON STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	08 Feb 2005
1090096	WESTWOOD WINTER PLATING PTY LTD	128 CARNARVON STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	06 Aug 2008
1091915	WESTWOOD WINTER PLATING PTY LTD	128 CARNARVON STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	11 Sep 2008
1094619	WESTWOOD WINTER PLATING PTY LTD	128 CARNARVON STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	17 Mar 2009

Search results

Your search for: **General Search** with the following criteria

Suburb - SILVERWATER

returned 65 results

Export to excel 4 of 4 Pages Search Again

Number	Name	Location	Type	Status	Issued date
1098910	WESTWOOD WINTER PLATING PTY LTD	128 CARNARVON STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	28 Apr 2009
1111765	WESTWOOD WINTER PLATING PTY LTD	128 CARNARVON STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	12 Apr 2010
1113172	WESTWOOD WINTER PLATING PTY LTD	128 CARNARVON STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	18 May 2010
1503190	WESTWOOD WINTER PLATING PTY LTD	128 CARNARVON STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	06 Feb 2012
1509321	WESTWOOD WINTER PLATING PTY LTD	128 CARNARVON STREET, SILVERWATER, NSW 2128	S 58 Licence Variation	Issued	10 Oct 2012

Environment & Heritage

Search for NSW heritage

Return to search page where you can refine/broaden your search. ItemName 0

Statutory listed items

Information and items listed in the State Heritage Inventory come from a number of sources. This means that there may be several entries for the same heritage item in the database. For clarity, the search results have been divided into two sections.

- **Section 1.** contains items listed by the **heritage council** under the NSW Heritage Act. This includes listing on the state heritage register, an interim heritage order or protected under section 136 of the NSW Heritage Act. This information is provided by the Heritage Branch.
- **Section 2.** contains items listed by **local councils & shires and state government agencies.** This section may also contain additional information on some of the items listed in the first section.

Section 1. Items listed under the NSW Heritage Act.

Your search returned 1 record.

Item name	Address	Suburb	LGA	Listed under Heritage Act
Silverwater Prison Complex Conservation Area	Holker Street	Silverwater	Auburn	Yes

ItemName 0

Section 2. Items listed by Local Government and State Agencies.

Your search returned 4 records.

Item name	Address	Suburb	LGA	Information source
Dwelling	24 Silverwater Road	Silverwater	Auburn	LGOV
Earnest Fleming Pty Ltd Machinery Merchants	75-77 Derby Street	Silverwater	Auburn	LGOV
Haslams Creek Culvert	Parramatta Road	Silverwater	Auburn	SGOV
Lower Duck River Wetlands	Silverwater Road	Silverwater	Auburn	LGOV

There was a total of 5 records matching your search criteria.

Key:
LGA = Local Government Area
GAZ= NSW Government Gazette (statutory listings prior to 1997), HGA = Heritage Grant Application, HS = Heritage Study, LGOV = Local Government, SGOV = State Government Agency.
Note: The Heritage Branch seeks to keep the State Heritage Inventory (SHI) up to date, however the latest listings in Local and Regional Evironmental Plans (LEPs and REPs) may not yet be included. Always check with the relevant local council or shire for the most recent listings.

Appendix D – Field Forms & Calibration Certificates

PID Calibration Certificate

Instrument PhoCheck Tiger
Serial No. T-106368

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments			
Battery	Charge Condition	✓				
	Fuses	✓				
	Capacity	✓				
	Recharge OK?	✓				
Switch/keypad	Operation	✓				
Display	Intensity	✓				
	Operation (segments)	✓				
Grill Filter	Condition	✓				
	Seal	✓				
Pump	Operation	✓				
	Filter	✓				
	Flow	✓				
	Valves, Diaphragm	✓				
PCB	Condition	✓				
Connectors	Condition	✓				
Sensor	PID	✓	10.6 ev			
Alarms	Beeper	✓	Low	High	TWA	STEL
	Settings	✓	50ppm	100ppm		
Software	Version	✓				
Data logger	Operation	✓				
Download	Operation	✓				
Other tests:						

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No		Instrument Reading
PID Lamp		97ppm Isobutylene	NATA	936SY		96.2ppm

Calibrated by: Jacob Arnott

Calibration date: 12/10/2012

Next calibration due: 11/11/2012

CALIBRATION RECORD: TPS FL 90 - Water Quality Meter

Date: 22
Job Number: 34924
Personnel:
Signature:
Comments:

	pH		Conductivity µs/cm	ORP mg/L	Temp °C	DO
Standard Used	7.00	4.00	2760	—	—	—
Calibrated Result	6.93	4.04	2763			

Date:
Job Number:
Personnel:
Signature:
Comments:

	pH		Conductivity µs/cm	ORP mg/L	Temp °C	DO

Appendix E – Borehole Records

Borehole Log

Hole ID. BH1

WSP Environment & Energy

Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com

Project Name:	PWC Phase 2 Environmental Site Assessment	Date Started:	15/10/2012
Project Number:	34924	Date Completed:	15/12/2012
Location / Site:	33-36 Silverwater Road, Silverwater NSW	Hole Depth:	3.00 m
Client:	PWC	Ground Level:	----------
Drilling Company:	Terratest Pty Ltd	Easting:	319102
Drill Method:	Push Tube	Northing:	6253811
Logged By:	Aaron Young	Sheet:	1 of 1

Method	Water Level	Depth (m)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Observations / Comments
							Surface: Pavers				
Push Tube		0.05				Fill	**PAVERS.**				
							FILL - Gravelly Sandy Clay, heterogenous, clay mottled.		0.3	BH1_0.2	No visual or olfactory signs of contamination were observed.
		0.50			CL		**CLAY** - red & orange, some ironstone gravel content.	dry	0.1	BH1_0.6	No visual or olfactory signs of contamination were observed.
		1.0							1.0	BH1_1.0	
		1.50				Natural	**CLAY** - red & grey.	moist			No visual or olfactory signs of contamination were observed.
		2.0			CL				0.1	BH1_2.0	
		2.5									
		2.60			CL		**CLAY** - red & orange.	moist			No visual or olfactory signs of contamination were observed.
		3.00							0.0	BH1_3.0	
							End of Hole at 3.00 m				

Observations		Notes
Asbestos	No visual evidence of asbestos noted during drilling.	
Staining	No visual evidence of contamination (e.g. staining / precipitate) noted during drilling.	
Odour	No olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.	
Groundwater	No groundwater encountered during drilling.	

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: Aaron Young Date: 17/10/2012

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:07 AM

Borehole Log

Hole ID. BH2

WSP Environment & Energy

Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com

Project Name:	PWC Phase 2 Environmental Site Assessment	Date Started:	15/10/2012
Project Number:	34924	Date Completed:	15/12/2012
Location / Site:	33-36 Silverwater Road, Silverwater NSW	Hole Depth:	3.00 m
Client:	PWC	Ground Level:	----------
Drilling Company:	Terratest Pty Ltd	Easting:	319084
Drill Method:	Push Tube	Northing:	6253827
Logged By:	Aaron Young	Sheet:	1 of 1

Method	Water Level	Depth (m)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Observations / Comments
							Surface: Grass				
Push Tube		0.30				Fill	**FILL** - Sandy Soil, dark brown, with root content.		0.1	BH2_0.2	No visual or olfactory signs of contamination were observed.
		0.5			CL		**CLAY** - light brown, cohesive.	moist	0.1	BH2_0.5	No visual or olfactory signs of contamination were observed.
		0.70									
		1.0			CL	Natural	**CLAY** - red & grey, cohesive.	moist	0.1	BH2_1.0	No visual or olfactory signs of contamination were observed.
		1.5									
		2.0									
		2.20									
		2.5			CL		**CLAY** - white, cohesive.	moist	0.0	BH2_2.3	No visual or olfactory signs of contamination were observed.
		2.60									
		3.00			CL		**CLAY** - white & orange, cohesive.	moist	0.1	BH2_3.0	No visual or olfactory signs of contamination were observed.
							End of Hole at 3.00 m				

Observations		Notes
Asbestos	No visual evidence of asbestos noted during drilling.	
Staining	No visual evidence of contamination (e.g. staining / precipitate) noted during drilling.	
Odour	No olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.	
Groundwater	No groundwater encountered during drilling.	

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: **Aaron Young** Date: **17/10/2012**

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:17 AM

Monitoring Well Log

Hole ID. BH3/MW01

WSP Environment & Energy

Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com

Project Name:	PWC Phase 2 Environmental Site Assessment	Date Started:	15/10/2012
Project Number:	34924	Date Completed:	15/12/2012
Location / Site:	33-36 Silverwater Road, Silverwater NSW	Hole Depth:	10.00 m
Client:	PWC	Ground Level:	———
Drilling Company:	Terratest Pty Ltd	Easting:	319098
Drill Method:	Push Tube / Solid Stem Auger	Northing:	6253840
Logged By:	Aaron Young	Sheet:	1 of 1

Depth (m)	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Observations / Comments
0.30	**FILL** - Gravelly SAND, light brown, fine to coarse grained.	moist	0.2	BH3_0.2	No visual or olfactory signs of contamination were observed.
0.80	**CLAY** - orange & red, cohesive.	moist	0.1	BH3_0.5	
1.0	**CLAY** - red, orange & white, cohesive.	moist	0.1	BH3_1.2	No visual or olfactory signs of contamination were observed.
3.0			0.1	BH3_3.0	
4.50	**Weathered SHALE** - dark brown.	dry			No visual or olfactory signs of contamination were observed.
10.00		wet	—	BH3_9.9	
	End of Hole at 10.00 m				

Method: Push Tube; Solid Stem Auger

Water Level: 5m after augers out 15/10/2012; 8.5m 15/10/2012

RL (mAHD)

Graphic Log

USCS Symbol: CL; CL

Material Type: Fill; Natural; Bedrock

Well Details: 6.00; 6.50; 7.00

Well Construction: Gatic; Backfill; Bentonite; Gravel Pack; Screen

Observations		Notes
Asbestos	No visual evidence of asbestos noted during drilling.	
Staining	No visual evidence of contamination (e.g. staining / precipitate) noted during drilling.	
Odour	No olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.	
Groundwater	Groundwater encountered during drilling.	

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: Aaron Young Date: 17/10/2012

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:18 AM

Borehole Log

Hole ID. BH4

WSP Environment & Energy

Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com

Project Name:	PWC Phase 2 Environmental Site Assessment	Date Started:	15/10/2012
Project Number:	34924	Date Completed:	15/12/2012
Location / Site:	33-36 Silverwater Road, Silverwater NSW	Hole Depth:	3.00 m
Client:	PWC	Ground Level:	----------
Drilling Company:	Terratest Pty Ltd	Easting:	319117
Drill Method:	Push Tube	Northing:	6253839
Logged By:	Aaron Young	Sheet:	1 of 1

Method	Water Level	Depth (m)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Observations / Comments
							Surface: Concrete				
CC		0.15				Fill	**CONCRETE SLAB.**				
Push Tube		0.45				Fill	**FILL** - CLAY, light to dark brown.	moist	0.1	BH4_0.3	No visual or olfactory signs of contamination were observed.
Push Tube		0.5			CL	Natural	**CLAY** - light brown & red, cohesive.	moist	0.0	BH4_0.8	No visual or olfactory signs of contamination were observed.
Push Tube		1.10			CL	Natural	**CLAY** - light brown, cohesive.	moist	0.0	BH4_1.5	No visual or olfactory signs of contamination were observed.
Push Tube		2.80			CL	Natural	**CLAY** - white, cohesive.	moist	0.1	BH4_2.6	No visual or olfactory signs of contamination were observed.
		3.00					**End of Hole at 3.00 m**				

Observations	
Asbestos	No visual evidence of asbestos noted during drilling.
Staining	No visual evidence of contamination (e.g. staining / precipitate) noted during drilling.
Odour	No olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.
Groundwater	No groundwater encountered during drilling.

Notes

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: **Aaron Young** Date: **17/10/2012**

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:19 AM

Borehole Log

Hole ID. BH5

WSP Environment & Energy
Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com

Project Name:	PWC Phase 2 Environmental Site Assessment	Date Started:	15/10/2012
Project Number:	34924	Date Completed:	15/12/2012
Location / Site:	33-36 Silverwater Road, Silverwater NSW	Hole Depth:	3.00 m
Client:	PWC	Ground Level:	----------
Drilling Company:	Terratest Pty Ltd	Easting:	319118
Drill Method:	Push Tube	Northing:	6253869
Logged By:	Aaron Young	Sheet:	1 of 1

Method	Water Level	Depth (m)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Observations / Comments
Push Tube		0.40				Fill	**FILL** - Sandy Soil, dark brown, fine to coarse.		0.0	BH5_0.2	No visual or olfactory signs of contamination were observed.
		0.5			CL		**CLAY** - light brown, cohesive.	moist	0.1	BH5_0.5	No visual or olfactory signs of contamination were observed.
		1.0							0.0	BH5_1.0	
		1.10				Natural	**CLAY** - red, brown & grey, cohesive, some ironstone gravel content.	moist			No visual or olfactory signs of contamination were observed.
		1.5			CL				0.0	BH5_1.5	
		2.00					**CLAY** - white & red, cohesive.	moist			No visual or olfactory signs of contamination were observed.
		2.5			CL				0.0	BH5_2.5	
		3.00					**End of Hole at 3.00 m**				

Observations	
Asbestos	No visual evidence of asbestos noted during drilling.
Staining	No visual evidence of contamination (e.g. staining / precipitate) noted during drilling.
Odour	No olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.
Groundwater	No groundwater encountered during drilling.

Notes

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: **Aaron Young** Date: **17/10/2012**

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:20 AM

Monitoring Well Log

Hole ID. BH6/MW02

WSP

WSP Environment & Energy

Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com

Project Name:	PWC Phase 2 Environmental Site Assessment	Date Started:	15/10/2012
Project Number:	34924	Date Completed:	15/12/2012
Location / Site:	33-36 Silverwater Road, Silverwater NSW	Hole Depth:	10.00 m
Client:	PWC	Ground Level:	———
Drilling Company:	Terratest Pty Ltd	Easting:	319138
Drill Method:	Push Tube / Solid Stem Auger	Northing:	6253870
Logged By:	Aaron Young	Sheet:	1 of 1

Method	Water Level	Depth (m)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Observations / Comments	Well Details	Well Construction
							Surface: Grass						
Push Tube		0.30				Fill	**FILL** - Sandy SOIL, dark brown, fine to coarse grained.	damp	0.3	BH6_0.2	No visual or olfactory signs of contamination were observed.		Gatic
		0.60			CL		**CLAY** - light brown, cohesive.	moist	0.0	BH6_0.5			
		1.0					**CLAY** - red, white & orange, cohesive.	moist	0.0	BH6_1.0	No visual or olfactory signs of contamination were observed.		
		2.0											
		3.0			CL	Natural			0.1	BH6_3.0			Backfill
		4.0											
		5.0											
		6.00										6.00	
Solid Stem Auger						Bedrock	**Weathered SHALE / CLAY** - dark brown.	dry			No visual or olfactory signs of contamination were observed.	6.50	Bentonite
	8.5m 15/10/2012	7.0										7.00	Gravel Pack
		8.0											
		9.0						wet					Screen
		10.00											
							End of Hole at 10.00 m						

Observations		Notes
Asbestos	No visual evidence of asbestos noted during drilling.	
Staining	No visual evidence of contamination (e.g. staining / precipitate) noted during drilling.	
Odour	No olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.	
Groundwater	Groundwater encountered during drilling.	

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: Aaron Young

Date: 17/10/2012

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:21 AM

Borehole Log

Hole ID. BH7

WSP Environment & Energy
Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com

Project Name:	PWC Phase 2 Environmental Site Assessment	Date Started:	15/10/2012
Project Number:	34924	Date Completed:	15/12/2012
Location / Site:	33-36 Silverwater Road, Silverwater NSW	Hole Depth:	3.00 m
Client:	PWC	Ground Level:	----------
Drilling Company:	Terratest Pty Ltd	Easting:	319137
Drill Method:	Push Tube	Northing:	6253803
Logged By:	Aaron Young	Sheet:	1 of 1

Method	Water Level	Depth (m)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Samples / Tests: DUP TRIP QC	Observations / Comments
							Surface: Concrete					
CC		0.14					**CONCRETE SLAB.**					
Push Tube		0.5				Fill	**FILL** - Gravelly SAND, black, fine to coarse grained, some asphalt content.	moist	0.2	BH7_0.2	Intra1 Inter2	Hydrocarbon odour. Some staining.
		0.70			CL		**CLAY** - light brown, cohesive, mottled.	moist	0.8	BH7_0.8		Slight hydrocarbon odour.
		1.00			CL		**CLAY** - red, white & brown, cohesive.	moist	0.0	BH7_1.1		No visual or olfactory signs of contamination were observed.
		1.5										
		1.60			CL	Natural	**CLAY** - red & white, cohesive.	moist	0.0	BH7_2.0		No visual or olfactory signs of contamination were observed.
		2.0										
		2.5										
		3.00							0.0	BH7_2.9		
							End of Hole at 3.00 m					

Observations		Notes
Asbestos	No visual evidence of asbestos noted during drilling.	
Staining	Visual evidence of contamination (e.g. staining / precipitate) noted during drilling.	
Odour	Olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.	
Groundwater	No groundwater encountered during drilling.	

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: **Aaron Young** Date: **17/10/2012**

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:22 AM

Borehole Log

Hole ID. BH8

WSP Environment & Energy
Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com

Project Name:	PWC Phase 2 Environmental Site Assessment	Date Started:	15/10/2012
Project Number:	34924	Date Completed:	15/12/2012
Location / Site:	33-36 Silverwater Road, Silverwater NSW	Hole Depth:	3.00 m
Client:	PWC	Ground Level:	-------
Drilling Company:	Terratest Pty Ltd	Easting:	319134
Drill Method:	Push Tube	Northing:	6253799
Logged By:	Aaron Young	Sheet:	1 of 1

Method	Water Level	Depth (m)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Observations / Comments
							Surface: Asphalt				
CC		0.15					**ASPHALT.**				
Push Tube		0.5				Fill	**FILL** - SAND, dark brown & light brown, fine to coarse grained, some gravel & asphalt content.	moist	0.9	BH8_0.2	No visual or olfactory signs of contamination were observed.
		0.70			CL		**CLAY** - dark brown & light brown, cohesive.	moist	0.1	BH8_0.8	No visual or olfactory signs of contamination were observed.
		1.00			CL		**CLAY** - light brown, cohesive.	moist	0.1	BH8_1.1	No visual or olfactory signs of contamination were observed.
		1.50			CL	Natural	**CLAY** - red, white & orange, cohesive.	moist	0.1	BH8_1.6	No visual or olfactory signs of contamination were observed.
		2.0									
		2.5									
		3.00					**End of Hole at 3.00 m**				

Observations		Notes
Asbestos	No visual evidence of asbestos noted during drilling.	
Staining	No visual evidence of contamination (e.g. staining / precipitate) noted during drilling.	
Odour	No olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.	
Groundwater	No groundwater encountered during drilling.	

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: Aaron Young

Date: 17/10/2012

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:23 AM

Monitoring Well Log

Hole ID. BH9/MW03

WSP

WSP Environment & Energy

Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com

Project Name:	PWC Phase 2 Environmental Site Assessment	Date Started:	15/10/2012
Project Number:	34924	Date Completed:	15/12/2012
Location / Site:	33-36 Silverwater Road, Silverwater NSW	Hole Depth:	10.00 m
Client:	PWC	Ground Level:	-------
Drilling Company:	Terratest Pty Ltd	Easting:	319127
Drill Method:	Push Tube / Solid Stem Auger	Northing:	6253787
Logged By:	Aaron Young	Sheet:	1 of 1

Method	Depth (m)	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Observations / Comments
		Surface: Asphalt				
CC / Push Tube	0.15	**ASPHALT.**				
	0.50	**FILL** - SAND, orange & black, fine to coarse grained.	moist	0.2	BH9_0.2	No visual or olfactory signs of contamination were observed.
	1.0 / 1.10	**CLAY** - red & brown, cohesive.	moist	0.3	BH9_0.5	
	1.90	**CLAY** - red & white, cohesive.	moist	0.0	BH9_1.2	No visual or olfactory signs of contamination were observed.
Solid Stem Auger	2.0 / 3.0 / 4.0 / 4.50	**CLAY** - white, cohesive.	moist	0.0	BH9_2.0	No visual or olfactory signs of contamination were observed.
	5.0 / 6.0 / 7.0 / 8.0 / 9.0 / 10.00	**Weathered SHALE** - dark brown.	dry			No visual or olfactory signs of contamination were observed.
		End of Hole at 10.00 m				

Material Type: Fill; Natural; Bedrock

USCS Symbol: CL; CL; CL

Well Details: 0.20; 6.00; 6.50; 7.00

Well Construction: Gatic; Backfill; Bentonite; Gravel Pack; Screen

Observations	
Asbestos	No visual evidence of asbestos noted during drilling.
Staining	No visual evidence of contamination (e.g. staining / precipitate) noted during drilling.
Odour	No olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.
Groundwater	No groundwater encountered during drilling.

Notes

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: Aaron Young

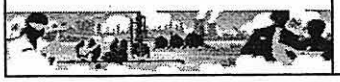
Date: 17/10/2012

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:24 AM

Borehole Log

Hole ID. **BH10**

WSP Environment & Energy
Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com



Project Name:	PWC Phase 2 Environmental Site Assessment	Date Started:	16/10/2012
Project Number:	34924	Date Completed:	16/10/2012
Location / Site:	33-36 Silverwater Road, Silverwater NSW	Hole Depth:	3.00 m
Client:	PWC	Ground Level:	----------
Drilling Company:	Terratest Pty Ltd	Easting:	319134
Drill Method:	Push Tube	Northing:	6253819
Logged By:	Aaron Young	Sheet:	1 of 1

Method	Water Level	Depth (m)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Observations / Comments
							Surface: Asphalt				
CC		0.16					**ASPHALT.**				
Push Tube		0.5				Fill	**FILL** - CLAY, red & white, mottled.	moist	0.3	BH10_0.3	No visual or olfactory signs of contamination were observed.
		0.70							0.8	BH10_0.5	
		1.0					**FILL** - CLAY, light brown, cohesive.	moist			No odour. Some black staining.
		1.30									
		1.5			CL	Natural	**CLAY** - red & brown, cohesive.	moist	0.2	BH10_1.4	No visual or olfactory signs of contamination were observed.
		2.0							0.0	BH10_2.0	
		2.50			CL		**CLAY** - white, cohesive.	moist			No visual or olfactory signs of contamination were observed.
		3.00					**End of Hole at 3.00 m**				

Observations		Notes
Asbestos	No visual evidence of asbestos noted during drilling.	
Staining	Visual evidence of contamination (e.g. staining / precipitate) noted during drilling.	
Odour	No olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.	
Groundwater	No groundwater encountered during drilling.	

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: Aaron Young Date: 17/10/2012

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:08 AM

Borehole Log

Hole ID. BH11

WSP Environment & Energy

Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com

Project Name:	**PWC Phase 2 Environmental Site Assessment**	Date Started:	**16/10/2012**
Project Number:	**34924**	Date Completed:	**16/10/2012**
Location / Site:	**33-36 Silverwater Road, Silverwater NSW**	Hole Depth:	**0.80 m**
Client:	**PWC**	Ground Level:	**--------**
Drilling Company:	**Terratest Pty Ltd**	Easting:	**319148**
Drill Method:	**Push Tube**	Northing:	**6253811**
Logged By:	**Aaron Young**	Sheet:	**1 of 1**

Method	Water Level	Depth (m)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Observations / Comments
							Surface: Asphalt				
CC		0.20					**ASPHALT.**				
Push Tube		0.5				Fill	**FILL** - SAND, light brown, fine to coarse grained, likely backfill sand.	damp	0.0	BH11_0.5	No visual or olfactory signs of contamination were observed.
		0.80					**Refusal at 0.80 m** on suspected service insulation.				
		1.0									
		1.5									
		2.0									
		2.5									
		3.0									

Observations		Notes
Asbestos	No visual evidence of asbestos noted during drilling.	
Staining	No visual evidence of contamination (e.g. staining / precipitate) noted during drilling.	
Odour	No olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.	
Groundwater	No groundwater encountered during drilling.	

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: **Aaron Young** Date: **17/10/2012**

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:09 AM

Monitoring Well Log

Hole ID. BH12/MW04

WSP Environment & Energy

Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com

Project Name:	PWC Phase 2 Environmental Site Assessment	Date Started:	16/10/2012
Project Number:	34924	Date Completed:	16/10/2012
Location / Site:	33-36 Silverwater Road, Silverwater NSW	Hole Depth:	9.30 m
Client:	PWC	Ground Level:	———
Drilling Company:	Terratest Pty Ltd	Easting:	319136
Drill Method:	Push Tube / Solid Stem Auger	Northing:	6253832
Logged By:	Aaron Young	Sheet:	1 of 1

Method	Water Level	Depth (m)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Observations / Comments
							Surface: Asphalt				
Push Tube		0.30				Fill	**FILL** - Gravelly SAND, dark brown, fine to coarse grained, some ash content (discrete piece).	damp	0.1	BH12_0.2	
		0.70			CL		**CLAY** - brown, cohesive.	moist	0.0	BH12_0.5	No visual or olfactory signs of contamination were observed.
		1.0			CL	Natural	**CLAY** - brown, white & red, cohesive, with some ironstone content.	moist	0.6	BH12_0.8	
		2.0									No visual or olfactory signs of contamination were observed.
		3.0							0.0	BH12_1.5	
		4.0									
Solid Stem Auger		4.50				Bedrock	**Weathered SHALE** - dark brown.	dry			
		5.0									
		6.0									
		7.0									
		8.0									
		9.0									
		9.30					**End of Hole at 9.30 m**				
		10.0									

Well Details / Well Construction: 0.20 Gatic; Backfill; 5.30 / 5.50 Bentonite; 6.30 Gravel Pack; Screen

Observations	
Asbestos	No visual evidence of asbestos noted during drilling.
Staining	No visual evidence of contamination (e.g. staining / precipitate) noted during drilling.
Odour	No olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.
Groundwater	No groundwater encountered during drilling.

Notes

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: Aaron Young Date: 17/10/2012

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:10 AM

Borehole Log

Hole ID. BH13

WSP Environment & Energy

Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com

Project Name:	PWC Phase 2 Environmental Site Assessment	Date Started:	16/10/2012
Project Number:	34924	Date Completed:	16/10/2012
Location / Site:	33-36 Silverwater Road, Silverwater NSW	Hole Depth:	3.00 m
Client:	PWC	Ground Level:	———
Drilling Company:	Terratest Pty Ltd	Easting:	319148
Drill Method:	Push Tube	Northing:	6253828
Logged By:	Aaron Young	Sheet:	1 of 1

Method	Water Level	Depth (m)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Observations / Comments
							Surface: Grass				
Push Tube		0.5				Fill	**FILL** - CLAY, light brown, some red, cohesive.	moist	0.1	BH13_0.2	No visual or olfactory signs of contamination were observed.
		0.60			CL		**CLAY** - red, brown & grey, cohesive.	moist	0.1	BH13_0.7	No visual or olfactory signs of contamination were observed.
		1.0									
		1.20									
		1.5			CL	Natural	**CLAY** - red & white, cohesive.	moist	0.0	BH13_1.3	No visual or olfactory signs of contamination were observed.
		2.0									
		2.5									
		2.60			CL		**CLAY** - white, cohesive.	moist	0.1	BH13_2.7	No visual or olfactory signs of contamination were observed.
		3.00					**End of Hole at 3.00 m**				

Observations		Notes
Asbestos	No visual evidence of asbestos noted during drilling.	
Staining	No visual evidence of contamination (e.g. staining / precipitate) noted during drilling.	
Odour	No olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.	
Groundwater	No groundwater encountered during drilling.	

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: **Aaron Young** Date: **17/10/2012**

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:11 AM

Borehole Log

Hole ID. BH14

WSP Environment & Energy
Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com

Project Name:	PWC Phase 2 Environmental Site Assessment	Date Started:	16/10/2012
Project Number:	34924	Date Completed:	16/10/2012
Location / Site:	33-36 Silverwater Road, Silverwater NSW	Hole Depth:	3.00 m
Client:	PWC	Ground Level:	----------
Drilling Company:	Terratest Pty Ltd	Easting:	319166
Drill Method:	Push Tube	Northing:	6253835
Logged By:	Aaron Young	Sheet:	1 of 1

Method	Water Level	Depth (m)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Observations / Comments
							Surface: Pavers				
Push Tube		0.10				Fill	**PAVERS.**				
		0.30					**FILL** - CLAY, dark grey, cohesive.	moist	0.0	BH14_0.2	No visual or olfactory signs of contamination were observed.
		0.5			CL		**Gravelly CLAY** - light brown, cohesive.	moist	0.0	BH14_0.5	No visual or olfactory signs of contamination were observed.
		1.0									
		1.10			CL	Natural	**CLAY** - red & white, cohesive.	moist	0.0	BH14_1.2	No visual or olfactory signs of contamination were observed.
		1.5									
		2.0							0.0	BH14_2.0	
		2.40			CL		**CLAY** - white, cohesive.	moist			No visual or olfactory signs of contamination were observed.
		2.5									
		3.00					**End of Hole at 3.00 m**				

Observations		Notes
Asbestos	No visual evidence of asbestos noted during drilling.	
Staining	No visual evidence of contamination (e.g. staining / precipitate) noted during drilling.	
Odour	No olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.	
Groundwater	No groundwater encountered during drilling.	

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: **Aaron Young** Date: **17/10/2012**

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:12 AM

Borehole Log

Hole ID. BH15

WSP Environment & Energy
Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com

Project Name:	PWC Phase 2 Environmental Site Assessment	Date Started:	16/10/2012
Project Number:	34924	Date Completed:	16/10/2012
Location / Site:	33-36 Silverwater Road, Silverwater NSW	Hole Depth:	3.00 m
Client:	PWC	Ground Level:	———
Drilling Company:	Terratest Pty Ltd	Easting:	319157
Drill Method:	Push Tube	Northing:	6253855
Logged By:	Aaron Young	Sheet:	1 of 1

Method	Water Level	Depth (m)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Observations / Comments
							Surface: Concrete				
CC		0.15				Fill	**CONCRETE SLAB.**				
Push Tube		0.30				Fill	**FILL** - Gravelly SAND, dark brown, fine to coarse grained.	moist	0.2	BH15_0.2	No visual or olfactory signs of contamination were observed.
		0.5			CL	Natural	**CLAY** - light brown, cohesive.	moist	0.2	BH15_0.5	No visual or olfactory signs of contamination were observed.
		0.90									
		1.0			CL	Natural	**CLAY** - brown, red & white, cohesive.	moist	0.1	BH15_1.0	No visual or olfactory signs of contamination were observed.
		1.5									
		1.80									
		2.0			CL	Natural	**CLAY** - red & white, cohesive.	moist	0.1	BH15_2.0	No visual or olfactory signs of contamination were observed.
		2.30									
		2.5			CL	Natural	**CLAY** - white, cohesive.	moist			No visual or olfactory signs of contamination were observed.
		3.00					**End of Hole at 3.00 m**				

Observations		Notes
Asbestos	No visual evidence of asbestos noted during drilling.	
Staining	No visual evidence of contamination (e.g. staining / precipitate) noted during drilling.	
Odour	No olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.	
Groundwater	No groundwater encountered during drilling.	

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: Aaron Young Date: 17/10/2012

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:13 AM

Borehole Log

Hole ID. BH16

WSP Environment & Energy
Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com

Project Name:	**PWC Phase 2 Environmental Site Assessment**	Date Started:	**16/10/2012**
Project Number:	**34924**	Date Completed:	**16/10/2012**
Location / Site:	**33-36 Silverwater Road, Silverwater NSW**	Hole Depth:	**3.00 m**
Client:	**PWC**	Ground Level:	**--------**
Drilling Company:	**Terratest Pty Ltd**	Easting:	**319167**
Drill Method:	**Push Tube**	Northing:	**6253866**
Logged By:	**Aaron Young**	Sheet:	**1 of 1**

Method	Water Level	Depth (m)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Observations / Comments
							Surface: Grass				
Push Tube		0.30				Fill	**FILL** - Gravelly Sandy CLAY, dark brown.	moist	0.4	BH16_0.2	No visual or olfactory signs of contamination were observed.
		0.5			CL		**CLAY** - light brown / orange, cohesive, some ironstone content.	moist	0.3	BH16_0.5	No visual or olfactory signs of contamination were observed.
		0.80									
		1.0			CL		**CLAY** - red, white & orange, cohesive.	moist	0.1	BH16_1.0	No visual or olfactory signs of contamination were observed.
		1.20									
		1.5			CL	Natural	**CLAY** - red & white, cohesive.	moist	0.1	BH16_1.5	No visual or olfactory signs of contamination were observed.
		2.0									
		2.5									
		2.60			CL		**CLAY** - white, cohesive.	moist			No visual or olfactory signs of contamination were observed.
		3.00					**End of Hole at 3.00 m**				

Observations		Notes
Asbestos	No visual evidence of asbestos noted during drilling.	
Staining	No visual evidence of contamination (e.g. staining / precipitate) noted during drilling.	
Odour	No olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.	
Groundwater	No groundwater encountered during drilling.	

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: **Aaron Young** Date: **17/10/2012**

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:14 AM

Borehole Log

Hole ID. BH17

WSP Environment & Energy
Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com

Project Name:	**PWC Phase 2 Environmental Site Assessment**	Date Started:	**16/10/2012**
Project Number:	**34924**	Date Completed:	**16/10/2012**
Location / Site:	**33-36 Silverwater Road, Silverwater NSW**	Hole Depth:	**3.00 m**
Client:	**PWC**	Ground Level:	**--------**
Drilling Company:	**Terratest Pty Ltd**	Easting:	**319173**
Drill Method:	**Push Tube**	Northing:	**6253872**
Logged By:	**Aaron Young**	Sheet:	**1 of 1**

Method	Water Level	Depth (m)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Observations / Comments
							Surface: Grass				
Push Tube		0.25				Fill	**FILL** - Sandy CLAY, dark brown, fine to coarse grained sand.	moist	0.0	BH17_0.1	No visual or olfactory signs of contamination were observed.
		0.5			CL		**CLAY** - light brown & red, cohesive.	moist	0.1	BH17_0.5	No visual or olfactory signs of contamination were observed.
		1.00				Natural					
		1.5			CL		**CLAY** - red & white, cohesive.	moist	0.0	BH17_1.1	No visual or olfactory signs of contamination were observed.
		2.0							0.0	BH17_1.8	
		2.30					**CLAY** - white, cohesive.	moist			No visual or olfactory signs of contamination were observed.
		2.5			CL						
		3.00					**End of Hole at 3.00 m**				

Observations	
Asbestos	No visual evidence of asbestos noted during drilling.
Staining	No visual evidence of contamination (e.g. staining / precipitate) noted during drilling.
Odour	No olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.
Groundwater	No groundwater encountered during drilling.

Notes

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: **Aaron Young** Date: **17/10/2012**

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:15 AM

Borehole Log

Hole ID. BH18

WSP Environment & Energy
Level 1, 41 McLaren Street
North Sydney NSW 2060
Office: +61 (0)2 8925 6700
www.wspenvironmental.com

Project Name:	PWC Phase 2 Environmental Site Assessment	Date Started:	16/10/2012
Project Number:	34924	Date Completed:	16/10/2012
Location / Site:	33-36 Silverwater Road, Silverwater NSW	Hole Depth:	3.00 m
Client:	PWC	Ground Level:	----------
Drilling Company:	Terratest Pty Ltd	Easting:	319119
Drill Method:	Push Tube	Northing:	6253851
Logged By:	Aaron Young	Sheet:	1 of 1

Method	Water Level	Depth (m)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests: PID ppm	Samples / Tests: ID No.	Observations / Comments
							Surface: Grass				
Push Tube	1m perched 16/10/2012	0.40				Fill	**FILL** - Sandy CLAY, dark brown, fine to coarse grained sand.	moist	0.4	BH18_0.2	No visual or olfactory signs of contamination were observed.
		0.5			CL		**CLAY** - light brown & red, cohesive, some ironstone content.	moist	0.2	BH18_0.5	No visual or olfactory signs of contamination were observed.
		0.80									
		1.0			CL		**CLAY** - red, white & brown, cohesive.	moist / wet	0.0	BH18_1.0	No visual or olfactory signs of contamination were observed.
		1.20									
		1.5			CL	Natural	**CLAY** - red & white, cohesive.	moist	0.1	BH18_1.5	No visual or olfactory signs of contamination were observed.
		2.0									
		2.40									
		2.5			CL		**CLAY** - white, cohesive.	moist			No visual or olfactory signs of contamination were observed.
		3.00					**End of Hole at 3.00 m**				

Observations		Notes
Asbestos	No visual evidence of asbestos noted during drilling.	
Staining	No visual evidence of contamination (e.g. staining / precipitate) noted during drilling.	
Odour	No olfactory (e.g. hydrocarbon odour) evidence of contamination noted during drilling.	
Groundwater	Groundwater encountered during drilling.	

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: Aaron Young Date: 17/10/2012

WSP LOG LT SILVERWATER 34924.GPJ WSP.GDT 24/10/12 11:19:16 AM

Appendix F – QA/QC Report

Appendix F: QA/QC Assessment Report
Site: 1-13 Grey St & 32-46 Silverwater Rd, Silverwater, NSW
Project: 00034924 Phase 1&2 Environmental Assessment

F.1 Background

Data assessment involves identification and evaluation of field and laboratory data quality, as required by WSP Environmental Pty Ltd (WSP) due diligence processes, and to ensure that sample data is of the highest calibre.

Data assessment consists of comparing laboratory QA/QC results to documented USEPA SW-846 guidelines, USEPA CLP National Functional Guidelines for Inorganic and Organic Data Review, and other internationally recognised publications. Reference to Australian "in-house" laboratory methods may be applied which are revisable through laboratory NATA assessments. All laboratory sample and QA/QC data packages have been issued as finalised and checked laboratory reports by the following NATA Registered Laboratories for this project, unless otherwise stated:

- Laboratory: Envirolab Pty Ltd NATA Registration No: 2901
- Laboratory: ALS Environmental laboratory NATA Registration No: 825

F.2 Definitions

This section outlines various definitions that have been adopted throughout this assessment report. The following definitions are in accordance with current USEPA SW-846 methods (1994) and those that are described by Keith, *Environmental Sampling and Analysis, A Practical Guide* (1991).

The Practical Quantitation Limit 'PQL', Limit of Reporting 'LOR', and Estimated Quantitation Limit 'EQL' all refer to the concentration above which reported results can be expressed with a minimum 95% confidence level. For the purposes of this report, all references to PQLs, LORs, and EQLs shall be referred to as the laboratory reporting limit and shall all be considered to be equivalent. The laboratory reporting limits are generally set at 10 times the SD (standard deviation) for the Method Detection Limit 'MDL' for specific analytes.

Users of laboratory data should be aware that values measured at or near the LOR may have two inherent limitations. Firstly, *"the uncertainty of the measurement value can approach, and even equal, the reported value. Secondly, confirmation of the analytes reported is virtually impossible unless identification uses highly selective methods. These issues diminish when reliably measurable amounts of analytes are present. Accordingly, legal and regulatory actions should be limited to data at or above the reliable detection limit,"* Keith (1991).

F.2.1 Accuracy

Definition: The nearness of an averaged result to the true value, where all random errors have been statistically removed.

Unless the true value is known, accuracy may take on a meaning equivalent to the term bias due to the existence of systematic errors. Accuracy is measured by percent recovery '%R'. Accuracy data is expected to vary within the range of 70-130 %R for inorganics/metals and 60-140% for organics unless otherwise stated.

F.2.2 Precision

Definition: The degree to which data generated from replicate or repetitive measurements differ from one another due to random errors.

Precision is measured using the standard deviation 'SD' or Relative Percent Difference '%RPD'. Based on the Keith (1991) text, replicate data is presented in below, unless otherwise stated.

Organics
Concentrations > or = 10 times EQL, RPD criteria of 50%
10 times EQL > Concentrations > or = 5 times EQL, RPD criteria of 75%
Concentrations < 5 times EQL, RPD criteria of 100%
Inorganics
Concentrations > or = 10 times EQL, RPD criteria of 30%
10 times EQL > Concentrations > or = 5 times EQL, RPD criteria of 75%
Concentrations < 5 times EQL, RPD criteria of 100%

F.2.3 Blanks

Laboratory method and field trip blanks are designed to check for artefacts and interferences during the sampling and analysis stages, which may lead to the reporting of false positive results. For this project one trip blank water sample was collected to assess if correct sampling procedures were adopted and if cross contamination is likely to have occurred during storage and transport. Additionally, rinsate blanks were not required due to the utilisation of pushtube drilling techniques and the replacement of all tubing and sampling consumables during groundwater sampling.

Refer to **Table 1, Appendix F** for results of the trip blank sample. There were no detected compounds reported in the trip blank sample indicating that cross contamination during transport and storage was unlikely to have occurred.

F.2.4 Matrix Spikes

Environmental samples are spiked with laboratory grade standards to determine the interactive effects between the sample matrix and the analytes being measured. Matrix Spikes 'MS' are reported as a percent recovery %R, 1 in every 20 samples for this project. Sample batches submitted of less than 20 samples may be reported with a MS spike from another batch.

- Percent Recovery is expressed as:

$$\%R = \frac{(SSR-SR)}{SA} \times 100$$

where: SSR=spiked sample result
SR =sample result (blank)
SA =spike added

F.2.5 Duplicates

Laboratory duplicate samples measure precision, which is calculated as standard deviation SD or Relative Percent Difference %RPD. Duplicates are collected in a single sample container in the field and are analysed as two separate extractions, 1 in every 20 samples in the laboratory for this project.

- Relative Percent Difference is expressed as:

$$\% \text{ RPD} = \frac{(D1-D2)}{(D1+D2)/2} \times 100$$

where: D1=sample concentration
D2=duplicate sample concentration

F.2.6 Field Duplicates & Triplicates

Field generated check samples, which measure repeatability over a short time period. At least 20% of samples were submitted from a larger quantity of sample which are collected from the same sampling point, removed by a single action, where possible, and divided into two duplicate samples.

Refer to **Tables 2 and 3, Appendix F** for results of field duplicates. For this project one (1) intra laboratory (duplicate) and one (1) inter laboratory (triplicate) soil samples were collected. Furthermore, one (1) intra laboratory (duplicate) and one (1) inter laboratory (triplicate) water sample was collected.

A total of nineteen (19) primary soil samples and four (4) primary groundwater samples were analysed for this project.

F.2.7 Surrogates

Surrogates are QC monitoring spikes, which are added at the beginning of the sample extraction process in the laboratory where applicable. Surrogates are measured as Percent Recovery %R.

- Percent Recovery is expressed as:

$$\%R=\frac{(SSR)}{SA} \times 100$$

Where: SSR=spiked sample result
SA =spike added

In the event that a surrogate recovery fails to comply with acceptable control limits, the following remedies shall proceed:

1. Laboratory to review data,
2. No further action necessary if all surrogate recoveries greater than the minimum specified %R and all sample concentration results reported are less than the laboratory reporting limit,
3. Professional expertise is required where surrogate recoveries are reported below the acceptable control limits and may require additional analysis or re-testing.

F.3 Analytical Procedures

The laboratories selected to provide analytical services for this project were:

Soil

- Primary laboratory — Envirolab Pty Ltd; and
- Secondary laboratory — ALS Environmental Laboratory.

Water

- Primary laboratory — Envirolab Pty Ltd; and
- Secondary laboratory — ALS Environmental Laboratory.

WSP selected these laboratories based on the following criteria:

1. NATA registration for routine test methods and commonly encountered sample matrices;
2. Qualifications and experience of laboratory staff; and
3. Satisfactory compliance to WSP quality objectives for this project.

F.3.1 Laboratory Methodologies

All samples submitted for analysis for this project were analysed by one or more of the following laboratory methods by the primary laboratory Envirolab for soil and groundwater samples. All laboratory test methods were NATA registered at the time of analysis.

Soil:

- Volatile Total Petroleum Hydrocarbons (vTPH): Soil samples are extracted with methanol and spiked in water prior to analysing by purge and trap GC-MS.
- Semi Volatile Total Petroleum Hydrocarbons (TPH): Soil samples are extracted with Dichloromethane/Acetone and analysed by GC-FID.
- PAH: Soil samples are extracted with Dichloromethane/Acetone and analysed byGC-MS.
- Metals (As, Cd, Cr, Cu, Ni, Pb, Zn): Determination of various metals by ICP-AES. (Hg): Determination of Mercury by Cold Vapour AAS.
- VOCs: Soil samples are extracted with methanol and spiked intowaterprior to analysing by purge and trap GC-MS.
- OCPs: Soil samples are extracted with Dichloromethane/Acetone and analysed by GC with dual ECD's.

Water:

- Volatile Total Petroleum Hydrocarbons (vTPH): Water samples are analysed directly by purge and trap GC-MS.
- Semi Volatile Total Petroleum Hydrocarbons (TPH): Water samples are extracted with Dichloromethane and analysed by GC-FID.
- VOCs: Water samples are analysed directly by purge and trap GC-MS.
- PAH: Water samples are extracted with Dichloromethane and analysed by GC-MS.
- Metals (As, Cd, Cr, Cu, Ni, Pb, Zn): Determination of various metals by ICP-MS. (Hg): Determination of Mercury by Cold Vapour AAS.

F.3.2 Data Validation

One field soil intra-laboratory duplicate sample, one field soil triplicate sample (inter-laboratory), one field water duplicate sample and one field water triplicate were analysed. Refer to Tables 1 & 2 of **Appendix F** for RPD calculations attached, which identifies blind sample replicate %RPD values.

The duplicate and triplicate samples both exceeded the RPD acceptance criteria for metals copper, lead and zinc.

The guideline acceptance targets for field duplicates are 30% –50% of mean concentration of analyte determined by both laboratories. This variation can be expected to be higher for organic analysis than for inorganics, and for low concentration of analytes (refer to section F.2.2).

WSP's acceptance targets, as detailed in the attached tables, are used only to flag results warranting further examination.

Variation in original samples and field duplicate results is attributed to a combination of a number of possible factors relating to the sample composition, analyte behaviour and inherent uncertainties in the analytical methods as detailed in the spike recovery discussion above.

Particularly where sample results are close to the EQL, a higher RPD value can be tolerated as low absolute differences will result in high RPD values.

Where both the original sample and duplicate results are outside the most sensitive criteria, the RPD value calculated takes on secondary importance. It merely demonstrates that field conditions are variable due to the nature of the subsurface material, and that analyte concentrations in that are highly likely to be above/below the criteria.

Where only one of the original or duplicate sample results is outside the most sensitive criteria, the conservative approach is taken and actual concentrations in the field are assumed to exceed the criteria. Where the RPD value is low, field concentrations are likely to vary around the guideline in a narrow range; where the RPD value is high, the likely field concentrations are considered too variable to be accurately predicted, but should be assumed to exceed the guideline for the sake of conservatism.

WSP consider that the data set does not include any false negative results for the following reasons:

- Internal laboratory QA/QC procedures did not reveal any issues; and
- Where inter-laboratory analysis was undertaken, equal or less exceedances were reported by the secondary laboratory.

F.3.3 Sample Integrity and Containers

Chain of custody documentation was signed and dated by the laboratories stating that all samples:

- were received cool and in good order;
- were presented in adequate sample containers;
- that all samples submitted for volatiles were correctly contained with no headspace; and
- that all samples were labelled appropriately according to current quality field sampling protocols.

F.3.4 Holding Times

All samples were received by the relevant laboratory within holding times. Analysis of the second batch of samples was undertaken marginally outside of holding times.

F.3.5 Matrix Spikes

The laboratory spike %recovery results were found to be within acceptable control limits, unless otherwise identified in the laboratory reports. If laboratory spike %recovery results did exceed the adopted control limits, the samples were re-analysed or internal laboratory triplicate results were re-issued.

F.3.6 Laboratory Control Samples

The laboratory control sample %recovery results were generally found to be within acceptable control limits. If laboratory control %recovery results did exceed the adopted control limits, the samples were re-analysed or internal laboratory triplicate results were re-issued. Low spike recoverys were noted to be due to matrix interferences.

F.3.7 Laboratory Duplicates

The laboratory sample duplicate result was found to provide acceptable RPD values compared to control limits set by the relevant laboratories.

F.3.8 Surrogates (%R)

The reported surrogate recoveries were found to be acceptable for the purposes of this project unless otherwise stated in the analytical certificates.

F.4 Conclusions

Analytical data reported by Envirolab and ALS Environmental laboratories was judged to have met the essential criteria for data quality commissioned by WSP for the assessment of reference project 34924.01 –Phase 1&2 Environmental Assessment.

In summary, data assessment examined laboratory results, COC documentation, and field QA/QC. The following comments can be viewed as an overall summary of the quality of the analytical component for this project.

1. Sample integrity and container requirements were documented as acceptable.
2. Holding time compliances were documented as acceptable. All samples were received by the laboratory within the relevant holding times.
3. Matrix spike and laboratory control sample recovery values indicated that sample accuracy was acceptable.
4. Laboratory surrogate recovery values indicated that laboratory accuracy was acceptable.
5. Sample duplicate and laboratory batch results indicated that sample precision was acceptable.
6. All laboratory QA/QC method blanks and field blanks were found to be acceptable.
7. A qualitative review of blind sample duplicate and triplicate RPD values indicated that field precision was acceptable. The reported concentrations in field duplicate and triplicate samples did exceed some RPD acceptance criteria but the different reported values did not indicate false negatives. Differences can generally be attributed to the non-homogeneous composition of the fill samples.
8. Laboratory audits have documented the laboratory systems and results as being acceptable which supports the quality of data produced for this project.

In summary, the QA/QC data reported by Envirolab and ALS Environmental laboratories for the documented soil and groundwater samples were determined to be of sufficient quality to be considered acceptable to comply with WSP data quality objectives (DQO) for the environmental assessment at 1-13 Grey St and 32-46 Silverwater Rd, Silverwater, NSW.

This report therefore concludes that the QA/QC data is of an acceptable standard to ensure validity of the conclusions reached for the investigation.

TB1: Trip Blank Analytical results

	Metals								PAHs	sTRH				vTRH
	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)	Total PAHs	TPH C10 - C14	TPH C15 - C28	TPH C29-C36	TPH C10-C36 (sum of detects)	TPH C6 - C9
	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
EQL	1	0.1	1	1	1	0.05	1	1	1	50	100	100	100	10
ANZECC 2000 FW 95%	13	0.2	1	1.4	3.4	0.6	11	8						
EPA 1994 Freshwater Ecosystems														
NEPM Fresh														
Dutch (2000) Intervention Guidelines (Screening Only)													600	

* Low Reliability Trigger Values

Field_ID	LocCode	Sampled_Date	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)	Total PAHs	TPH C10 - C14	TPH C15 - C28	TPH C29-C36	TPH C10-C36 (sum of detects)	TPH C6 - C9
TB1	TB1	22/10/2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-

VOCs

	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichlorobenzene	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane
	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
EQL	1	1	1	1	1	1	1	1	1	1	1	1	1	10	1	1	1	10	1	10
ANZECC 2000 FW 95%				6500				10												
EPA 1994 Freshwater Ecosystems									300											
NEPM Fresh																15				
Dutch (2000) Intervention Guidelines (Screening Only)																				

	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Cyclohexane	Dibromomethane	Dichlorodifluoromethane	Ethylbenzene	Hexachlorobutadiene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	Trichloroethene	tert-butylbenzene	Tetrachloroethene	Toluene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride	Xylene (m & p)	Xylene (o)	Total Xylene
	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
EQL	1	1	0	1	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10	2	1	1
ANZECC 2000 FW 95%																70*								
EPA 1994 Freshwater Ecosystems						140											300							350
NEPM Fresh							0.1																	
Dutch (2000) Intervention Guidelines (Screening Only)																								

* Low Reliability Trigger Values

Field_ID	LocCode	Sampled_Date	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichlorobenzene	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane
TB1	TB1	22/10/2012	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<10	<1	<10

Field_ID	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Cyclohexane	Dibromomethane	Dichlorodifluoromethane	Ethylbenzene	Hexachlorobutadiene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	Trichloroethene	tert-butylbenzene	Tetrachloroethene	Toluene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride	Xylene (m & p)	Xylene (o)	Total Xylene
TB1	<1	<1	<0.00[illegible]	<1	<10	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<10	<2	<1	<2

Table 2: Soil RPD Calculations

			SDG	80350	80350		80350	Interlab_D	
			Field_ID	BH7	Intra1	RPD	BH7	INTER 1	RPD
			Sampled_Date-Time	15/10/2012	15/10/2012		15/10/2012	15/10/2012	
Method_Type	ChemName	Units	EQL						
8 metals in soil	Arsenic	mg/kg	4 (Primary): 5 (Interlab)	<4.0	<4.0	0	<4.0	<5.0	0
	Cadmium	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<1.0	0
	Chromium (III+VI)	mg/kg	1 (Primary): 2 (Interlab)	11.0	13.0	17	11.0	11.0	0
	Copper	mg/kg	1 (Primary): 5 (Interlab)	11.0	16.0	37	11.0	7.0	44
	Lead	mg/kg	1 (Primary): 5 (Interlab)	10.0	28.0	95	10.0	25.0	86
	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0
	Nickel	mg/kg	1 (Primary): 2 (Interlab)	6.0	7.0	15	6.0	4.0	40
	Zinc	mg/kg	1 (Primary): 5 (Interlab)	28.0	60.0	73	28.0	45.0	47
Moisture	Moisture	%	0.1 (Primary): 1 (Interlab)	8.3	14.0	51	8.3	15.8	62
Organochlorine Pesticides	4,4-DDE	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	a-BHC	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	Aldrin	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	b-BHC	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	Chlordane (cis)	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	Chlordane (trans)	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	d-BHC	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	DDD	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	DDT	mg/kg	0.1 (Primary): 0.2 (Interlab)	<0.1	<0.1	0	<0.1	<0.2	0
	Dieldrin	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	Endosulfan I	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	Endosulfan II	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	Endosulfan sulphate	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	Endrin	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	Endrin aldehyde	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	g-BHC (Lindane)	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	Heptachlor	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	Heptachlor epoxide	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	Hexachlorobenzene	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
	Methoxychlor	mg/kg	0.1 (Primary): 0.2 (Interlab)	<0.1	<0.1	0	<0.1	<0.2	0
PAHs in Soil	Acenaphthene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
	Acenaphthylene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
	Anthracene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
	Benz(a)anthracene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
	Benzo(a) pyrene	mg/kg	0.05 (Primary): 0.5 (Interlab)	<0.05	<0.05	0	<0.05	<0.5	0
	Benzo(b)&(k)fluoranthe	mg/kg	0.2	<0.2	<0.2	0	<0.2		
	Benzo(g,h,i)perylene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
	Chrysene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
	Dibenz(a,h)anthracene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
	Fluoranthene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
	Fluorene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
	indeno(1,2,3-c,d)pyrene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
	Naphthalene	mg/kg	0.1 (Primary): 1 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
	Phenanthrene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
	Pyrene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
sTRH in Soil (C10-C36)	TPH C10 - C14	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0
	TPH C15 - C28	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0
	TPH C29-C36	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0
TRH in Soil (C6-C9)	TPH C6 - C9	mg/kg	25 (Primary): 10 (Interlab)	<25.0	<25.0	0	<25.0	<10.0	0
VOCs in soil	1,1,1,2-tetrachloroethar	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,1,1-trichloroethane	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,1,2,2-tetrachloroethar	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,1,2-trichloroethane	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,1-dichloroethane	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,1-dichloroethene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,1-dichloropropene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,2,3-trichlorobenzene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,2,3-trichloropropane	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,2,4-trichlorobenzene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,2,4-trimethylbenzene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,2-dibromo-3-chloropr	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,2-dibromoethane	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,2-dichlorobenzene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,2-dichloroethane	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,2-dichloropropane	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,3,5-trimethylbenzene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,3-dichlorobenzene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,3-dichloropropane	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	1,4-dichlorobenzene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	2,2-dichloropropane	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	2-chlorotoluene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	4-chlorotoluene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Benzene	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0
	Bromobenzene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Bromochloromethane	mg/kg	1	<1.0	<1.0	0	<1.0		
	Bromodichloromethane	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Bromoform	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Bromomethane	mg/kg	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Carbon tetrachloride	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Chlorobenzene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Chlorodibromomethane	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Chloroethane	mg/kg	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Chloroform	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Chloromethane	mg/kg	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	cis-1,2-dichloroethene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	cis-1,3-dichloropropene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Cyclohexane	mg/kg	1	<1.0	<1.0	0	<1.0		
	Dibromomethane	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Dichlorodifluoromethan	mg/kg	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Ethylbenzene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Hexachlorobutadiene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Isopropylbenzene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	n-butylbenzene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	n-propylbenzene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	p-isopropyltoluene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	sec-butylbenzene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Styrene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Trichloroethene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	tert-butylbenzene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Tetrachloroethene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Toluene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	trans-1,2-dichloroethen	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	trans-1,3-dichloroprope	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Trichlorofluoromethane	mg/kg	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Vinyl chloride	mg/kg	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Xylene (m & p)	mg/kg	2 (Primary): 0.5 (Interlab)	<2.0	<2.0	0	<2.0	<0.5	0
	Xylene (o)	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0

*RPDs have only been considered where a concentration is greater than 0 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 100 (0-5 x EQL); 75 (5-10 x EQL); 30 (> 10 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table 3: Groundwater RPD Calculations

SDG	80564	80564		80564	ES1224843	
Field_ID	MW01	Intra 1	RPD	MW01	INTER 1	RPD
Sampled_Date-Time	22/10/2012	22/10/2012		22/10/2012	22/10/2012	

Method_Type	ChemName	Units	EQL						
8 HM in water - dissolved	Arsenic (Filtered)	mg/l	0.001	<0.001	0.002	67	<0.001	<0.001	0
	Cadmium (Filtered)	mg/l	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
	Chromium (III+VI) (Filtered)	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Copper (Filtered)	mg/l	0.001	0.001	<0.001	0	0.001	<0.001	0
	Lead (Filtered)	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Mercury (Filtered)	mg/l	0.00005 (Primary): 0.0001 (Interlab)	<0.0001	<0.0001	0	<0.0001	<0.0001	0
	Nickel (Filtered)	mg/l	0.001	0.01	0.01	0	0.01	0.012	18
	Zinc (Filtered)	mg/l	0.001 (Primary): 0.005 (Interlab)	**0.054**	**0.039**	**32**	0.054	0.058	7
PAHs in Water	Acenaphthene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0
	Acenaphthylene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0
	Anthracene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0
	Benz(a)anthracene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0
	Benzo(a) pyrene	µg/L	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Benzo(b)&(k)fluoranthene	µg/L	2	<2.0	<2.0	0	<2.0		
	Benzo(g,h,i)perylene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0
	Chrysene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0
	Dibenz(a,h)anthracene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0
	Fluoranthene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0
	Fluorene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0
	Indeno(1,2,3-c,d)pyrene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0
	Naphthalene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<1.0	0
	Phenanthrene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0
	Pyrene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0
sTRH in Water (C10-C36)	TPH C10 - C14	µg/L	50	<50.0	<50.0	0	<50.0	<50.0	0
	TPH C15 - C28	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0
	TPH C29-C36	µg/L	100 (Primary): 50 (Interlab)	<100.0	<100.0	0	<100.0	<50.0	0
VOCs in water	1,1,1,2-tetrachloroethane	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,1,1-trichloroethane	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,1,2,2-tetrachloroethane	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,1,2-trichloroethane	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,1-dichloroethane	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,1-dichloroethene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,1-dichloropropene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,2,3-trichlorobenzene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,2,3-trichloropropane	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,2,4-trichlorobenzene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,2,4-trimethylbenzene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,2-dibromo-3-chloropropane	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,2-dibromoethane	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,2-dichlorobenzene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,2-dichloroethane	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,2-dichloropropane	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,3,5-trimethylbenzene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,3-dichlorobenzene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,3-dichloropropane	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	1,4-dichlorobenzene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	2,2-dichloropropane	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	2-chlorotoluene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	4-chlorotoluene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Benzene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0
	Bromobenzene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Bromochloromethane	µg/L	1	<1.0	<1.0	0	<1.0		
	Bromodichloromethane	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Bromoform	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Bromomethane	µg/L	10 (Primary): 50 (Interlab)	<10.0	<10.0	0	<10.0	<50.0	0
	Carbon tetrachloride	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Chlorobenzene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Chlorodibromomethane	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Chloroethane	µg/L	10 (Primary): 50 (Interlab)	<10.0	<10.0	0	<10.0	<50.0	0
	Chloroform	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Chloromethane	µg/L	10 (Primary): 50 (Interlab)	<10.0	<10.0	0	<10.0	<50.0	0
	cis-1,2-dichloroethene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	cis-1,3-dichloropropene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Cyclohexane	mg/l	0.001	<0.001	<0.001	0	<0.001		
	Dibromomethane	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Dichlorodifluoromethane	µg/L	10 (Primary): 50 (Interlab)	<10.0	<10.0	0	<10.0	<50.0	0
	Ethylbenzene	µg/L	1 (Primary): 2 (Interlab)	<1.0	<1.0	0	<1.0	<2.0	0
	Hexachlorobutadiene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Isopropylbenzene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	n-butylbenzene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	n-propylbenzene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	p-isopropyltoluene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	sec-butylbenzene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Styrene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Trichloroethene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	tert-butylbenzene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Tetrachloroethene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Toluene	µg/L	1 (Primary): 2 (Interlab)	<1.0	<1.0	0	<1.0	<2.0	0
	trans-1,2-dichloroethene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	trans-1,3-dichloropropene	µg/L	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<5.0	0
	Trichlorofluoromethane	µg/L	10 (Primary): 50 (Interlab)	<10.0	<10.0	0	<10.0	<50.0	0
	Vinyl chloride	µg/L	10 (Primary): 50 (Interlab)	<10.0	<10.0	0	<10.0	<50.0	0
	Xylene (m & p)	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0
	Xylene (o)	µg/L	1 (Primary): 2 (Interlab)	<1.0	<1.0	0	<1.0	<2.0	0
vTRH in Water (C6-C9)	TPH C6 - C9	µg/L	10 (Primary): 20 (Interlab)	<10.0	11.0	10	<10.0	<20.0	0

*RPDs have only been considered where a concentration is greater than 0 times the EQL

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 100 (0-5 x EQL); 75 (5-10 x EQL); 30 (> 10 x EQL)

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laborator

Appendix G – Results Tables

Table 1: Soil Analytical Results

				Asbestos	Metals								TPH					PAHs																	VOCs	OCPs	Moisture
				Asbestos	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	TPH C6 - C9	TPH C10 - C14	TPH C15 - C28	TPH C29-C36	TPH C10-C36 (sum of detects)	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)&(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Total PAHs (sum of detects)	Total VOCs (sum of detects)	Total OCPs (sum of detects)	Moisture
					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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg	mg/kg	%
EQL					4	0.5	1	1	1	0.1	1	1	25	50	100	100	100	0.1	0.1	0.1	0.1	0.05	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100		0.5-1	1	0.1
NEPM 1999 HIL F					500	100	500	5000	1500	75	3000	35000																									
NSW EPA 1994 Service Station Guidelines													65				1000																				
NEPM 1999 HIL A					100	20	100	1000	300	15	600	7000																									
Field_ID	LocCode	Sample_Depth	Sampled_Date																																		
BH1	BH1	0.2	15/10/2012	Not Detected	9	<0.5	30	7	14	<0.1	2	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<LOR	<0.1	7.8
BH2	BH2	0.2	15/10/2012	Not Detected	14	<0.5	27	19	190	0.1	4	460	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<LOR	<0.1	6.3
BH3	BH3	0.2	15/10/2012	Not Detected	10	<0.5	22	17	100	0.1	4	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<LOR	<0.1	17
BH4	BH4	0.3	15/10/2012	Not Detected	9	<0.5	17	26	100	0.2	4	160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<LOR	<0.1	7.1
BH5	BH5	0.2	15/10/2012	Not Detected	11	<0.5	24	19	270	<0.1	4	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<LOR	<0.1	17
BH6	BH6	0.2	15/10/2012	Not Detected	31	1.1	28	260	410	6	11	860	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<LOR	<0.1	8.3
BH7	BH7	0.2	15/10/2012	Not Detected	<4	<0.5	11	11	10	<0.1	6	28	<25	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<LOR	-	26
BH7	BH7	0.8	15/10/2012	-	-	-	-	-	-	-	-	-	<25	300	<100	<100	300	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<LOR	-	-
BH7 Triplicate	BH7 Triplicate	0.2	15/10/2012	-	<4	<0.5	11	13	38	<0.1	5	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<LOR	-	15.8
INTER 1	INTER 1		15/10/2012	-	<5	<1	11	7	25	<0.1	4	45	-	<50	<100	<100	<100	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<LOR	<0.1	14
Intra1	BH7	0.2	16/10/2012	-	<4	<0.5	13	16	28	<0.1	7	60	<25	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<LOR	<0.1	12
BH8	BH8	0.2	15/10/2012	Not Detected	5	<0.5	16	21	15	<0.1	160	40	<25	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.1	0.06	<0.2	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1	0.26	<LOR	<0.1	15
BH9	BH9	0.2	15/10/2012	Not Detected	8	<0.5	17	7	81	0.1	2	46	<25	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	<LOR	<0.1	16
BH10	BH10	0.3	16/10/2012	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<LOR	-	16
BH10	BH10	0.8	16/10/2012	-	6	<0.5	16	3	14	<0.1	<1	11	<25	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.2	1.32	<LOR	<0.1	9.2
BH12	BH12	0.2	16/10/2012	Not Detected	24	<0.5	55	47	160	0.2	12	280	<25	<50	<100	<100	<100	<0.1	<0.1	<0.1	0.1	0.12	0.2	<0.1	0.2	<0.1	0.3	<0.1	<0.1	<0.1	0.2	0.2	1.32	<LOR	<0.1	17
BH13	BH13	0.2	16/10/2012	Not Detected	7	<0.5	26	5	12	<0.1	3	460	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<LOR	<0.1	12
BH14	BH14	0.2	16/10/2012	Not Detected	11	<0.5	30	13	110	0.1	4	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<LOR	<0.1	10
BH15	BH15	0.2	16/10/2012	Not Detected	12	<0.5	27	5	29	<0.1	2	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<LOR	<0.1	15
BH16	BH16	0.2	16/10/2012	Not Detected	13	0.6	33	99	290	0.1	7	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<LOR	<0.1	5.3
BH17	BH17	0.1	16/10/2012	Not Detected	11	<0.5	25	21	69	<0.1	7	110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<LOR	<0.1	15
BH18	BH18	0.2	16/10/2012	Not Detected	36	0.8	32	36	250	0.4	8	410	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<LOR	<0.1	15
Statistical Summary																																				
Number of Results				17	20	20	20	20	20	20	20	20	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	21	22	22	21
Number of Detects				0	16	3	20	20	20	9	19	20	0	1	0	0	1	0	0	0	1	2	1	0	1	0	2	0	0	0	1	2	15	0	4	21
Minimum Concentration				0	<4	<0.5	11	3	10	<0.1	<1	10	<25	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.26	ND	ND	5.3
Minimum Detect				ND	5	0.5	11	3	10	0.1	2	10	ND	300	ND	ND	300	ND	ND	ND	0.1	0.06	0.2	ND	0.2	ND	0.1	ND	ND	ND	0.2	0.1	0.26	ND	ND	5.3
Maximum Concentration				ND	36	1.1	55	260	410	6	160	860	<25	300	<100	<100	300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.32	NA	<0.1	26
Maximum Detect				ND	36	1.1	55	260	410	6	160	860	ND	300	ND	ND	300	ND	ND	ND	0.1	0.12	0.2	ND	0.2	ND	0.3	ND	ND	ND	0.2	0.2	1.32	ND	ND	26
Average Concentration				ND	11	0.34	23	33	110	0.39	13	180	13	59	50	50	81	0.075	0.075	0.075	0.081	0.069	0.13	0.075	0.094	0.075	0.11	0.075	0.075	0.075	0.094	0.1	0.24	NA	0.05	13
Median Concentration				ND	9.5	0.25	24.5	16.5	75	0.05	4	87.5	12.5	25	50	50	50	0.05	0.05	0.05	0.05	0.025	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	NA	0.05	15
Standard Deviation				0	9.3	0.21	11	58	115	1.3	35	218	0	97	0	0	88	0.071	0.071	0.071	0.07	0.08	0.059	0.071	0.082	0.071	0.1	0.071	0.071	0.071	0.082	0.08	0.44	NA	0	4.9
Number of Guideline Exceedances				0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)				0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 2: Groundwater Analytical Results

			Metals								PAHs	sTRH				vTRH
			Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III + VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)	Total PAHs	TPH C10 - C14	TPH C15 - C28	TPH C29-C36	TPH C10-C36 (sum of detects)	TPH C6 - C9
			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
EQL			1	0.1	1	1	1	0.05	1	1	1	50	100	100	100	10
ANZECC 2000 MW 95%			13	5.5	4.4	1.3	4.4	0.1	70	15						
EPA 1994 Freshwater Ecosystems																
* Low Reliability Trigger Values																
Field ID	LocCode	Sampled Date														
MW01	MW01	22/10/2012	<1	<0.1	<1	1	<1	<0.05	10	54	<1	<50	<100	<100	<100	<10
Intra 1	MW01	22/10/2012	2	<0.1	<1	<1	<1	<0.05	10	39	<1	<50	<100	<100	<100	11
Inter 1	MW01	22/10/2012	<1	<0.1	<1	<1	<1	<0.05	12	68	<1	<50	<100	<100	<100	-
MW02	MW02	22/10/2012	<1	<0.1	<1	<1	<1	<0.05	6	23	<1	<50	<100	<100	<100	<10
MW03	MW03	22/10/2012	<1	<0.1	<1	2	4	<0.05	12	41	<1	<50	<100	<100	<100	2,200
MW04	MW04	22/10/2012	5	0.2	<1	4	1	<0.05	11	150	<1	<50	<100	<100	<100	14

Statistical Summary

	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III + VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)	Total PAHs	TPH C10 - C14	TPH C15 - C28	TPH C29-C36	TPH C10-C36 (sum of detects)	TPH C6 - C9
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Number of Detects	2	1	0	3	2	0	6	6	0	0	0	0	0	4
Minimum Concentration	<1	<0.1	<1	<1	<1	<0.05	6	23	<1	<50	<100	<100	<100	<10
Minimum Detect	2	0.2	ND	1	1	ND	6	23	ND	ND	ND	ND	ND	11
Maximum Concentration	5	0.2	<1	4	4	<0.05	12	150	<1	<50	<100	<100	<100	2200
Maximum Detect	5	0.2	ND	4	4	ND	12	150	ND	ND	ND	ND	ND	2200
Average Concentration	1.5	0.075	0.5	1.4	1.2	0.025	10	61	0.5	25	50	50	50	447
Median Concentration	0.5	0.05	0.5	0.75	0.5	0.025	10.5	47.5	0.5	25	50	50	50	11
Standard Deviation	1.8	0.061	0	1.4	1.4	0	2.2	45	0	0	0	0	0	980
Number of Guideline Exceedances	0	0	0	2	0	0	0	6	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	2	0	0	0	6	0	0	0	0	0	0

VOCs

			1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichlorobenzene	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon tetrachloride
			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
EQL			1	1	1	1	1	1	1	1	1	1	1	1	1	10	1
ANZECC 2000 FW 95%						6500				10	700						
EPA 1994 Freshwater Ecosystems																	
* Low Reliability Trigger Values																	
Field ID	LocCode	Sampled Date															
MW01	MW01	22/10/2012	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1
Intra 1	MW01	22/10/2012	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1
Inter 1	MW01	22/10/2012	<5	<5	<5	<5	<5	<5	<5	<5	<1	<5	<5	<5	<5	<50	<5
MW02	MW02	22/10/2012	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1
MW03	MW03	22/10/2012	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1
MW04	MW04	22/10/2012	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1

	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Cyclohexane	Dibromomethane	Dichlorodifluoromethane	Ethylbenzene	Hexachlorobutadiene	Isopropylbenzene	n-butylbenzene	n-propylbenzene
	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
EQL	1	1	10	1	10	1	1	0	1	10	1	1	1	1	1
ANZECC 2000 FW 95%															
EPA 1994 Freshwater Ecosystems											140				
MW01	<1	<1	<10	<1	<10	<1	<1	<0.001	<1	<10	<1	[illegible]	<1	<1	<1
Intra 1	<1	<1	<10	<1	<10	<1	<1	<0.001	<1	<10	<1	[illegible]	<1	<1	<1
Inter 1	<5	<5	<50	<5	<50	<5	<5	<5	<5	<50	<2	[illegible]	<5	<5	<5
MW02	<1	<1	<10	<1	<10	<1	<1	<0.001	<1	<10	<1	[illegible]	<1	<1	<1
MW03	<1	<1	<10	<1	<10	1	<1	<0.001	<1	<10	<1	[illegible]	<1	<1	<1
MW04	<1	<1	<10	<1	<10	<1	<1	1	<1	<10	<1	[illegible]	<1	<1	<1

	p-isopropyltoluene	sec-butylbenzene	Styrene	Trichloroethene	tert-butylbenzene	Tetrachloroethene	Toluene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride	Xylene (m & p)	Xylene (o)	Total Xylene
	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
EQL	1	1	1	1	1	1	1	1	1	10	10	2	1	1
ANZECC 2000 FW 95%						70*								
EPA 1994 Freshwater Ecosystems							300							550
MW01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<10	<2	<1	<2
Intra 1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<10	<2	<1	<2
Inter 1	<5	<5	<5	<50	<5	<5	<2	<5	<5	<5	<50	<2	<2	<2
MW02	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<10	<2	<1	<2
MW03	<1	<1	<1	4	<1	1900	<1	<1	<1	<10	<10	2	1	3
MW04	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<10	<2	<1	<2

Statistical Summary

	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichlorobenzene	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon tetrachloride
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<1	<5	<5	<5	<5	<50	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.5	0.83	0.83	0.83	0.83	8.3	0.83
Median Concentration	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5
Standard Deviation	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0	0.82	0.82	0.82	0.82	8.2	0.82
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Cyclohexane	Dibromomethane	Dichlorodifluoromethane	Ethylbenzene	Hexachlorobutadiene	Isopropylbenzene	n-butylbenzene	n-propylbenzene
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Number of Detects	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<10	<1	<10	<1	<1	<0.001	<1	<10	<1	<1	<1	<1	<1
Minimum Detect	ND	ND	ND	ND	ND	1	ND	1	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<50	<5	<50	<5	<5	<5	<5	<50	<2	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	1	ND	1	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.83	0.83	8.3	0.83	8.3	0.92	0.83	0.58	0.83	8.3	0.58	0.83	0.83	0.83	0.83
Median Concentration	0.5	0.5	5	0.5	5	0.5	0.5	0	0.5	5	0.5	0.5	0.5	0.5	0.5
Standard Deviation	0.82	0.82	8.2	0.82	8.2	0.8	0.82	1	0.82	8.2	0.2	0.82	0.82	0.82	0.82
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	p-isopropyltoluene	sec-butylbenzene	Styrene	Trichloroethene	tert-butylbenzene	Tetrachloroethene	Toluene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride	Xylene (m & p)	Xylene (o)	Total Xylene
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Number of Detects	0	0	0	1	0	1	0	0	0	0	0	1	1	1
Minimum Concentration	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<10	<2	<1	<2
Minimum Detect	ND	ND	ND	4	ND	1900	ND	ND	ND	ND	ND	2	1	3
Maximum Concentration	<5	<5	<5	<50	<5	1900	<2	<5	<5	<10	<50	2	<2	3
Maximum Detect	ND	ND	ND	4	ND	1900	ND	ND	ND	ND	ND	2	1	3
Average Concentration	0.83	0.83	0.83	5.2	0.83	317	0.58	0.83	0.83	4.6	8.3	1.2	0.67	1.3
Median Concentration	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	1	0.5	1
Standard Deviation	0.82	0.82	0.82	9.8	0.82	775	0.2	0.82	0.82	1	8.2	0.41	0.26	0.82
Number of Guideline Exceedances	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	1	0	0	0	0	0	0	0	0

Appendix H – Laboratory Certificates

WSP Environment & Energy
Level 1, 41 McLaren Street
North Sydney
NSW 2060
Australia
Tel: 02 8925 6700
Fax: 02 8925 6799
www.wspenvironmental.com