Douglas Partners
Geotechnics · Environment · Groundwater

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VK:jlb
Project 45575
23 June 2008

Kordan Pty Ltd
C/- Brown Consulting (NSW) Pty Ltd
PO Box 8300
BAULKHAM HILLS NSW 2153

Attention: Dr Henry Ah Cann

By email: henry.ahcann@brownconsulting.com.au

Dear Sirs

WASTE CLASSIFICATION ASSESSMENT
PROPOSED NEW MEDICAL CENTRE
26 BIGGE STREET, LIVERPOOL

1. INTRODUCTION

This letter report presents the results of an *in situ* Waste Classification Assessment of sub-soils for the proposed new medical centre at 26 Bigge Street, Liverpool. This report has been prepared in conjunction with a geotechnical investigation at the site also conducted by Douglas Partners Pty Ltd (DP). Both assessments were commissioned by Brown Consulting (NSW) Pty Ltd, on behalf of the owner, Kordan Pty Ltd.

The proposed development will comprise eight levels above ground and two basement levels, requiring soil and rock to be excavated to an approximate depth of 7 m. The estimated site area is 1500 m^2. It is understood that the proposed development will require the removal and disposal of excavated spoil to the approximate order of 8,000 m^3. This Waste Classification Assessment has been requested for the off-site disposal of the excavated materials during construction.

2. SITE SAMPLING AND OBSERVATIONS

For the purpose of an *in-situ* waste classification, seven sample locations are generally sufficient to characterise a site of 1500 m^2. Sample locations are indicated in Drawing 1, attached.

The site was covered with a shallow filling layer comprising silty sand, and some clay, ironstone gravel, trace charcoal and rootlets and anthropogenic material at some locations (refer to bore logs attached). The filling layer was typically underlain by natural clay comprising grey/brown mottled red or red with some grey clay or silty sand with clay at BH1 with ironstone inclusions in some bores. Site conditions generally agreed with available information from previous DP projects in the area.

The thickness of the filling layer ranged from 0.2 m in BH3, BH5, BH6 and BH7 to 0.6 m – 0.7 m in BH1, BH2 and BH4. It is possible that there are thicker layers of filling in other parts of the site.

3. ANALYTICAL REGIME

Soil samples were collected from the near-surface and at different strata layers or signs of contamination to a depth of 1 m into the natural soils. Ten soil samples (plus one sample for quality assurance/quality control (QA/QC)) were analysed for a suite of common contaminants. This included heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn), Polycyclic Aromatic Hydrocarbons (PAH), Total Petroleum Hydrocarbons (TPH), Monocyclic aromatic hydrocarbons (benzene, toluene, ethylbenzene and xylene – BTEX), Organochlorine pesticides (OCP), Polychlorinated biphenyls (PCB), Phenols and Asbestos.

Samples were also leached using the Toxicity Characteristic Leaching Procedure (TCLP) and the leachate analysed for selected parameters to complete the waste classification process.

4. ASSESSMENT CRITERIA

With regard to the filling material, the waste classification assessment was conducted with reference to the NSW Department of Environment and Climate Change (DECC) *Waste Classification Guidelines* (April 2008). The new guidelines were only released in late April 2008. According to the new guidelines, waste material is to be assessed by the following six step process, viz.

Steps	Description
1	Is the waste Special Waste
2	Is the waste Liquid Waste
3	Has the waste been pre-classified
4	Is the waste Hazardous Waste
5	Chemical Assessment in accordance with the specified total and leachable contaminant concentration thresholds
6	Is the waste putrescible

In particular, with regard to Step 6, the guideline states that a final test may be needed to determine whether the waste is putrescible, and a number of evaluation methods have been outlined. Nevertheless, DECC clarified, through telephone discussions, that a determination of whether the putrescible waste test has to be conducted can be made based on the observed characteristics of the material.

In regard to the assessment of natural soils, there is no clear DECC endorsed assessment criteria for virgin excavated natural material (VENM). The assessment for VENM has therefore been based on site observations and comparisons of contaminant concentrations against published Australian background ranges, as follows:

1. Environmental Soil Quality Guideline 'Background Ranges', as given in the *Schedule B(1) NEPC Guideline on the Investigation Levels for Soil and Groundwater (1999).*

2. Environmental Soil Quality 'Background Ranges', as given in Table 2 of the *ANZECC Guideline for the Assessment and Management of Contaminated Sites (1992).*

In addition, the following were referenced as screening levels:

1. The lower of the Health-based [soil] investigation levels (Column 1) for residential sites with accessible soils as specified in NSW EPA *Guidelines for the NSW Site Auditors Scheme (1998).*
2. With respect to TPH and BTEX, threshold concentrations [in soil] for sensitive land use were adopted, from NSW EPA's *Guidelines for Assessing Service Station Sites,* 1994 (no comprehensive TRH or BTEX health-based criteria are available in *Guidelines for the NSW Site Auditors Scheme*).

5. SUMMARY OF RESULTS

Analytical results along with respective guideline/screening values are presented in Table 1. Full laboratory test reports are attached.

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Table 1 - Results of Soil Analysis for Waste Classification (All results in mg/kg unless otherwise stated)

Sample ID	Heavy Metals: Arsenic SCC[1] (mg/kg)	Arsenic TCLP[2] (mg/L)	Cadmium SCC (mg/kg)	Cadmium TCLP (mg/L)	Chromium+ SCC (mg/kg)	Chromium+ TCLP (mg/L)	Copper SCC (mg/kg)	Lead SCC (mg/kg)	Lead TCLP (mg/L)	Mercury SCC (mg/kg)	Mercury TCLP (mg/L)	Nickel SCC (mg/kg)	Nickel TCLP (mg/L)	Zinc SCC (mg/kg)	PAH: Benzo(a)pyrene SCC (mg/kg)	Benzo(a)pyrene TCLP (mg/L)	PAH SCC (mg/kg)	PAH TCLP (mg/L)	Total Petroleum Hydrocarbons (TPH): C6-C9 SCC (mg/kg)	C10-C36 SCC (mg/kg)	Benzene SCC (mg/kg)	Benzene TCLP (mg/L)	Monocyclic Aromatic Hydrocarbons (BTEX): Toluene SCC (mg/kg)	Toluene TCLP (mg/L)	Ethylbenzene SCC (mg/kg)	Ethylbenzene TCLP (mg/L)	Total Xylene SCC (mg/kg)	Total Xylene TCLP (mg/L)	Asbestos	Total Polychlorinated Biphenyls (PCB) SCC (mg/kg)	Total Polychlorinated Biphenyls (PCB) TCLP (mg/L)	Organochlorine Pesticides (OCP) SCC (mg/kg)	Organo- phosphorus Pesticides (OPP) SCC (mg/kg)	Phenols SCC (mg/kg)	Phenols TCLP (mg/L)
Filling material																																					
BH1/0.0-0.2	10		<PQL		24		15	40		<PQL		6.4		24	0.1		0.6		<25	<PQL	<0.5		<0.5		<1		<PQL		-	<PQL		<PQL		<PQL		
BH2/0.0-0.2	5.5		<PQL		13		17	49		<PQL		3.4		61	0.3		2.7		<25	<PQL	<0.5		<0.5		<1		<PQL		ND	<PQL		<PQL		<PQL		
BH2/0.4-0.5	8.8		<PQL		13		28	46		<PQL		2.4		53	<PQL		<PQL		<25	<PQL	<0.5		<0.5		<1		<PQL		ND	<PQL		<PQL		<PQL		
BH3/0.0-0.1	7.3		<PQL		14		31	78		<PQL		5.5		120	0.1		0.6		<25	<PQL	<0.5		<0.5		<1		<PQL		-	<PQL		0.2		<PQL		
BH4/0.0-0.1	<PQL		<PQL		14		53	33		<PQL		[redacted]	0.07	67	<PQL		<PQL		<25	<PQL	<0.5		<0.5		<1		<PQL		-	<PQL		<PQL		<PQL		
BH5/0.0-0.2	-		-		-		-	-		-		-		-	-		-		-	-	-		-		-		-		ND	-		<PQL		-		-
BH6/0.1-0.2	8.1		<PQL		39		51	[redacted]	<0.03	<PQL		6.1		170	0.1		0.6		<25	<PQL	<0.5		<0.5		<1		<PQL		ND	<PQL		0.2		<PQL		
BH7/0.0-0.2	7.1		<PQL		16		18	[redacted]	0.09	<PQL		5.1		98	0.2		1.6		<25	<PQL	<0.5		<0.5		<1		<PQL		ND	-		<PQL		-		-
Natural soils																																					
BH2/0.8-1	<PQL		<PQL		8.6		22	17		<PQL		2.2		16	<PQL		<PQL		<25	<PQL	<0.5		<0.5		<1		<PQL		-	-		<PQL		-		-
BH5/0.4-0.5	5.2		<PQL		11		15	11		<PQL		2.2		11	<PQL		<PQL		<25	<PQL	<0.5		<0.5		<1		<PQL		-	-		<PQL		-		-
BH7/0.8-1.0	4.1		<PQL		9.1		26	14		<PQL		2.8		13	<PQL		<PQL		<25	<PQL	<0.5		<0.5		<1		<PQL		-	<PQL		<PQL		<PQL		
BD1/070508*	5.7		<PQL		9.7		25	15		<PQL		3		14	<PQL		<PQL		-	-	-		-		-		<PQL		-	-		<PQL		-		-
Site Assessment Criteria																																					
PQL	4		1		1		1	1		0.1		1		1	0.05		0.5		25	250	0.5		0.5		1		3		-	0.1		0.1		0.1		5
Maximum values of Specific Contaminant Concentration for classification without TCLP																																					
General Solid Waste (CT1) (mg/kg)	100	-	20	-	100	-	ND	100	-	4	-	40	-	ND	0.8	-	NA	-	NA	NA	10	-	288	-	600	-	1000	-	NAG	NA	-	NA		288	-		
Restricted Solid Waste (CT2) (mg/kg)	400	-	80	-	400	-	ND	400	-	16	-	160	-	ND	3.2	-	NA	-	NA	NA	40	-	1152	-	2400	-	4000	-	NAG	NA	-	NA		1152	-		
Maximum values for Specific Contaminant Concentration and Leachate concentration (with TCLP)																																					
General Solid Waste (mg/kg) SCC1 & TCLP1	500	5	100	1	1900	5	ND	1500	5	50	0.2	1050	2	ND	10	0.04	200	NA	650	10000	18	0.5	518	14.4	1080	30	1800	50	NAG	<50	NA	NA		518	14.4		
Restricted Solid Waste (mg/kg) SCC2 & TCLP2	2000	20	400	4	7600	20	ND	6000	20	200	0.8	4200	8	ND	23	0.16	800	NA	2600	40000	72	2	2073	57.6	4320	120	7200	200	NAG	<50	NA	NA		2073	57.6		
Background ranges as screening levels for VENM material																																					
NEPC[4]	1-50		1		5-1000		2-200	2-200		<0.1		5-500		10-300	-		0.95-5		-	-	0.05-1		0.1-1		-		-		-	10		20/50/200/10 [10]		-			
ANZECC[7]	0.2-30		0.304-2.0		0.5-110		1-190	<2-200		0.001-0.1		2-400		2-180	-		0.95-5		-	-	0.05-1		0.1-1		-		-		-	0.02-0.1		<0.001-0.05/0.005-<0.05/<0.001 - 0.07 [11]		-		0.03-0.5	
HIL 1[8]	20		3		400		100	300		1		60		200	1		20		-	-	-		-		-		-		-	-		-		-		
Service Station Sites[9]	-		-		-		-	-		-		-		-	-		-		65	1000	1		1.4		3.1		14		-	-		-		-		

Notes

PQL	Practical Quantitation Limit
-	Interlaboratory replicate of BH7/0.8-1.0
1	Specific Contaminant Concentration (Total Concentration)
2	Toxicity Characteristic Leaching Procedure (TCLP)
4	NSW DECC (2008) Waste Classification Guidelines Part 1: Classifying Waste, Table 1: Contaminant Threshold Values (CT1 & CT2) for classifying waste by chemical assessment without the leaching (TCLP) test
5	NSW DECC (2008) Waste Classification Guidelines Part 1: Classifying Waste, Table 2: Leachable concentration (TCLP) and specific contaminant concentration (SCC) values for classifying waste by chemical assessment
6	Schedule B(1) NEPC Guideline on the Investigation Levels for Soil and Groundwater (1999). Environmental Soil Quality Guideline 'Background Ranges
7	ANZECC Guideline for the Assessment and Management of Contaminated Sites (1992). Environmental Soil Quality 'Background Ranges
8	NSW EPA Guidelines for the NSW Site Auditors Scheme (1998). The lower of the Health-based (soil) investigation levels (Column 1)
9	NSW EPA's Guidelines for Assessing Service Station Sites, 1994.
10	Aldrin+dieldrin/Chlordane/DDT/heptachlor
11	Aldrin/Deldrin/DDT
[redacted]	Exceeds General Solid Waste threshold

6. DISCUSSION AND WASTE CLASSIFICATION

6.1 Filling Material

On the basis of analytical results (Table 1), and under the provisions of the NSW DECC *Waste Classification Guidelines Part 1: Classifying Waste*, April 2008, the filling material is classifiable as **General Solid Waste**. This is due to the fact that samples collected at the filling layer, recorded leachable concentrations occurring within General Solid Waste criteria with TCLP (Table 1).

Further, on the basis that the filling material mostly comprises silty sand (possibly topsoil) and some rubble/tile inclusions, it is considered that the filling material is not capable of significant biological transformation and therefore, should be classified as **GENERAL SOLID WASTE (NON-PUTRESCIBLE)**. The material should be disposed of to an appropriately licensed landfill as General Solid Waste (non-putrescible). The filling material may not be suitable for beneficial re-use due to aesthetic issues.

It is understood from DECC that, at the current stage, the operating licences of landfills may not have been revised/updated to reflect the new waste classification system. DECC, nevertheless, indicated that landfills with a current licence may continue to operate and receive waste types that are allowed under their current licences. In this regard, it is prudent to verify with the receiving landfill regarding the acceptability of the waste prior to its delivery.

The waste must be transported and disposed of in accordance with DECC requirements under the Protection of the Environment Operations (POEO) Act 1997. It is recommended that the receiving DECC landfill site should check the incoming materials and ensure that the waste received matches the material description provided in this letter.

6.2 Natural Soils

Based on analytical results and field observations, the natural clay layer exhibits no signs of contamination and can be classified as VENM, as defined by the new Waste Classification guidelines, provided that the material is not cross-contaminated/ mixed with other non-VENM material. From a technical standpoint, it is considered that, the natural soil is suitable for disposal as VENM, and is compatible for re-use subject to prior arrangements with the receiving site, as required.

As a general rule, if the material is to be used at another site, on delivery of the clean fill/VENM to the destination site, the receiving site should check and ensure that the VENM material matches the above description and contains no cross contamination. The VENM classification would not apply to any material cross-contaminated with other non-VENM inclusions, such as filling, building rubble, asphalt or asbestos-containing material. Any material exhibiting obvious signs of contamination or odours would not be classifiable as VENM and should be stockpiled and assessed separately.

Please note that the validity of this assessment/classification is one month from the date of this report.

Important Note:
DP's assessment is necessarily based on the result of limited site investigations and sample testing. Neither DP, nor any other reputable consultant, can provide unqualified warranties nor does DP assume any liability for site conditions not observed or accessible during the time of the investigations.

Despite all reasonable care and diligence, the materials encountered and concentrations of contaminants measured may not be representative of conditions between the locations sampled and investigated. In addition, site characteristics may change at any time in response to variations in natural conditions, chemical reactions and other events, e.g. groundwater movement and or spillages of contaminating substances. These changes may occur subsequent to DP's investigations and assessment.

This report and associated documentation and the information herein have been prepared solely for the use of Brown Consulting (NSW) Pty Ltd on behalf of Kordan Pty Ltd and interested parties at the time and is valid (for the purposes of transport of material) for a period of one month only from the date of issue. Any other reliance assumed by third parties on this report shall be at such parties' own risk. Any ensuing liability resulting from use of the report by third parties cannot be transferred to DP.

Please note that Part 5.6, Section 143 of the Protection of the Environment Operations (POEO) Act 1997 states that is an offence for waste to be transported to a place that cannot lawfully be used as a facility to accept that waste. It is the duty of the owner and transporter of the waste to ensure that the waste is disposed of appropriately. DP accepts no liability for the unlawful disposal of waste materials from any site. DP does not accept any responsibility for the material tracking, loading, management, transport or disposal of waste from the site. Before disposal of the material to a licensed landfill is undertaken, the waste producer will need to obtain prior consent from the landfill.

Should you have any queries, please do not hesitate to contact either of the undersigned on 9809 0666.

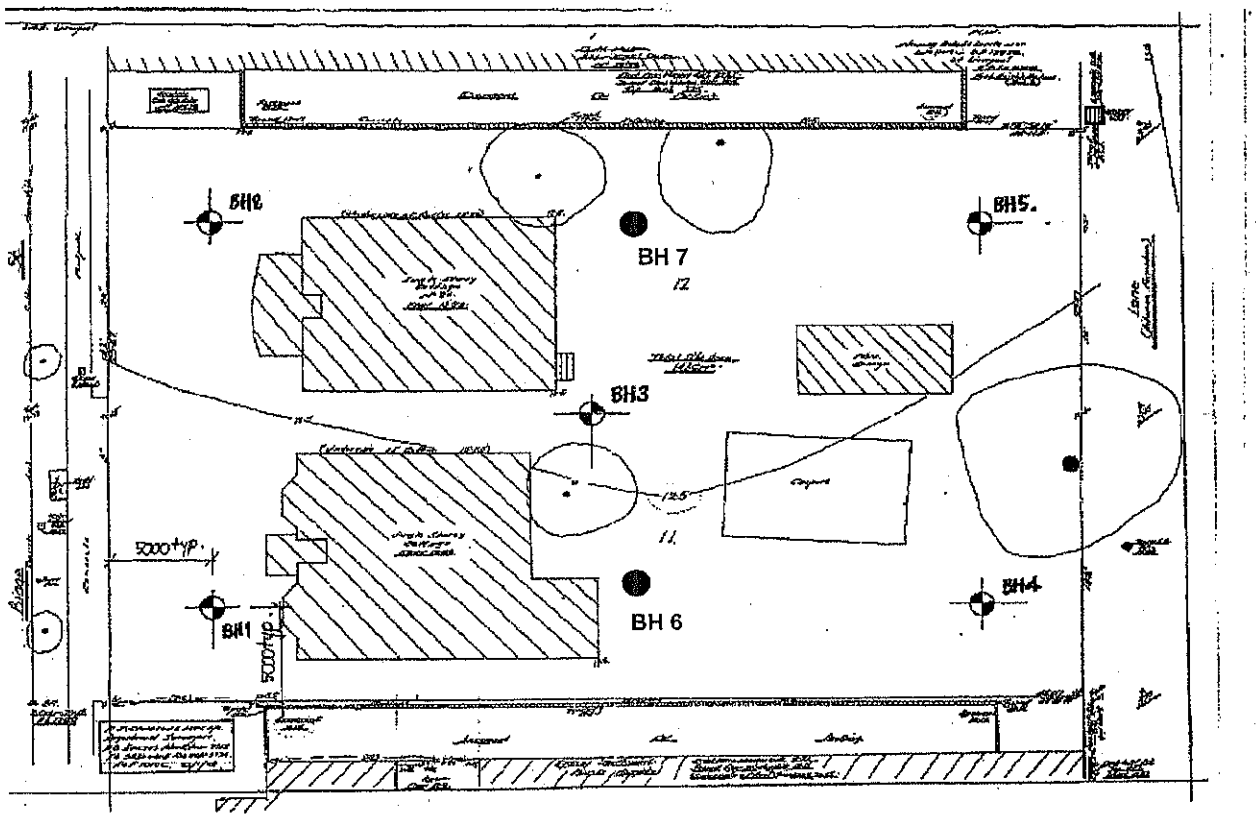
Yours faithfully
DOUGLAS PARTNERS PTY LTD

Reviewed by

Veronica Ku
Environmental Scientist

Ronnie Tong
Principal

Attachments: *Drawing 1*
Test Bore Reports and Notes Relating to this Report
Laboratory Test Report



Waste Classification Assessment- Sample locations Proposed New Medical Centre 26 Bigge Road, Liverpool	Project 45575	May 2008	Drawing 1

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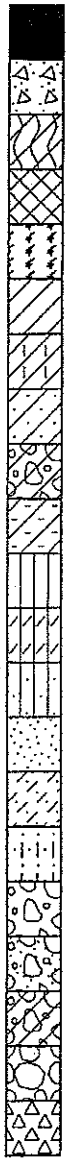
GRAPHIC SYMBOLS FOR SOIL & ROCK

SOIL



BITUMINOUS CONCRETE

CONCRETE

TOPSOIL

FILLING

PEAT

CLAY

SILTY CLAY

SANDY CLAY

GRAVELLY CLAY

SHALY CLAY

SILT

CLAYEY SILT

SANDY SILT

SAND

CLAYEY SAND

SILTY SAND

GRAVEL

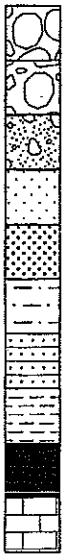
SANDY GRAVEL

CLAYEY GRAVEL

COBBLES/BOULDERS

TALUS

SEDIMENTARY ROCK



BOULDER CONGLOMERATE

CONGLOMERATE

CONGLOMERATIC SANDSTONE

SANDSTONE FINE GRAINED

SANDSTONE COARSE GRAINED

SILTSTONE

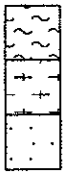
LAMINITE

MUDSTONE, CLAYSTONE, SHALE

COAL

LIMESTONE

METAMORPHIC ROCK

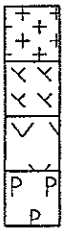


SLATE, PHYLITTE, SCHIST

GNEISS

QUARTZITE

IGNEOUS ROCK



GRANITE

DOLERITE, BASALT

TUFF

PORPHYRY

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BOREHOLE LOG

CLIENT: Brown Consulting (NSW) Pty Ltd
PROJECT: Waste Classification Assessment
LOCATION: 26 Bigge Street, Liverpool

SURFACE LEVEL: 12.3
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: BH1
PROJECT No: 45575
DATE: 07 May 08
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
12	0.0	FILLING - dark brown fine to medium, silty sand topsoil with some concrete fragments		A	0.0		PID=<1ppm		
	0.2	FILLING - red brown mottled grey, clay filling with some ironstone and some brick fragments			0.2				
				A	0.4		PID=1.3ppm		
					0.5				
	0.6	SILTY CLAY - grey silty clay with some sand and some ironstone gravel							
				A	0.8		PID=<1ppm		
11	1.0	Bore discontinued at 1.0m - target depth reached			1.0				1

RIG: DT 100 **DRILLER:** L Cooper **LOGGED:** VK **CASING:** Uncased

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo Ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▽ Water level

CHECKED
Initials:
Date: 06/08

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BOREHOLE LOG

CLIENT: Brown Consulting (NSW) Pty Ltd
PROJECT: Waste Classification Assessment
LOCATION: 26 Bigge Street, Liverpool

SURFACE LEVEL: 12.8
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: BH2
PROJECT No: 45575
DATE: 07 May 08
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILLING - dark brown silty sand, fine to medium grained with some clay and ironstone gravel. Trace charcoal and rootlets. Damp		A	0.0		PID=<1ppm		
	0.2	FILLING - light grey mottled red clay, with inclusions of terracotta pieces and trace ironstone			0.2				
				A	0.4		PID=<1ppm		
					0.5				
12	0.6	CLAY - light grey mottled red clay and slight ironstone gravel							
				A	0.8		PID=1ppm		
11	1.0	Bore discontinued at 1.0m - target depth reached			1.0				1

RIG: DT 100 **DRILLER:** L Cooper **LOGGED:** VK **CASING:** Uncased

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▽ Water level

CHECKED
Initials:
Date: 06/08

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BOREHOLE LOG

CLIENT: Brown Consulting (NSW) Pty Ltd
PROJECT: Waste Classification Assessment
LOCATION: 26 Bigge Street, Liverpool

SURFACE LEVEL: 12.6
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: BH3
PROJECT No: 45575
DATE: 07 May 08
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILLING - dark brown silty sand topsoil, with trace rubble inclusions		A	0.0		PID=<1ppm		
					0.1				
	0.2	CLAY - red brown clay, some ironstone gravel							
				A	0.4		PID=<1ppm		
					0.5				
12	0.8	CLAY - grey brown mottled red clay, with some ironstone							
		- trace ironstone and red clay		A	0.8		PID=<1ppm		
	1.0	Bore discontinued at 1.0m - target depth reached			1.0				1
11									

RIG: DT 100 **DRILLER:** L Cooper **LOGGED:** VK **CASING:** Uncased

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 06/08

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BOREHOLE LOG

CLIENT: Brown Consulting (NSW) Pty Ltd
PROJECT: Waste Classification Assessment
LOCATION: 26 Bigge Street, Liverpool

SURFACE LEVEL: 12.3
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/–

BORE No: BH4
PROJECT No: 45575
DATE: 07 May 08
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
12	0.0	FILLING - grey, light brown/green silty sand. Fine to medium grained sand, some gravel		A	0.0		PID=<1ppm		
					0.1				
	0.2	FILLING - grey silty clay filling, with some sand and gravel							
				A	0.3		PID=1ppm		
					0.5				
	0.7	CLAY - mottled brown red clay, with trace of ironstone and some silty sand							
				A	0.8		PID=<1ppm		
11	1.0	Bore discontinued at 1.0m - target depth reached			1.0				1

RIG: DT 100 **DRILLER:** L Cooper **LOGGED:** VK **CASING:** Uncased

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▽ Water level

CHECKED
Initials:
Date: 06/08

Douglas Partners
Geotechnics · Environment · Groundwater

BOREHOLE LOG

CLIENT: Brown Consulting (NSW) Pty Ltd
PROJECT: Waste Classification Assessment
LOCATION: 26 Bigge Street, Liverpool

SURFACE LEVEL: 12.7
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/–

BORE No: BH5
PROJECT No: 45575
DATE: 07 May 08
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		GRAVEL AND TOPSOIL			0.0				
	0.05	FILLING - dark brown fine to medium grained, silty sand with some gravel		A			PID=<1ppm		
	0.2	CLAY - red brown clay, with some grey clay, with trace ironstone			0.2				
				A	0.4		PID=<1ppm		
					0.5				
12	0.6	SILTY CLAY - silty grey clay, mottled red clay with some gravel (weathered siltstone)							
				A	0.8		PID=<1ppm		
11	1.0	Bore discontinued at 1.0m - target depth reached			1.0				

RIG: DT 100 **DRILLER:** L Cooper **LOGGED:** VK **CASING:** Uncased

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo Ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▽ Water level

CHECKED
Initials:
Date: 06/05

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BOREHOLE LOG

CLIENT: Brown Consulting (NSW) Pty Ltd
PROJECT: Waste Classification Assessment
LOCATION: 26 Bigge Street, Liverpool

SURFACE LEVEL: 12.3
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: BH6
PROJECT No: 45575
DATE: 07 May 08
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
12	0.2	FILLING - silty sand, dark brown topsoil, minor rootlets, plastic tile inclusions		A	0.1		PID=<1ppm		
		CLAY - red clay with trace ironstone		A	0.2 0.4 0.5		PID=<1ppm		
	0.6	SILTY CLAY - grey and red silty clay		A	0.8		PID=<1ppm		
11	1 1.0	Bore discontinued at 1.0m - target depth reached			1.0				1

RIG: DT 100 **DRILLER:** L Cooper **LOGGED:** VK **CASING:** Uncased

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 06/08

Douglas Partners
Geotechnics · Environment · Groundwater

BOREHOLE LOG

CLIENT: Brown Consulting (NSW) Pty Ltd
PROJECT: Waste Classification Assessment
LOCATION: 26 Bigge Street, Liverpool

SURFACE LEVEL: 12.7
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/–

BORE No: BH7
PROJECT No: 45575
DATE: 07 May 08
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILLING - dark brown topsoil, silty sand, brown fine to medium grained sand, with some clay, some rootlets. Humid		A	0.0		PID=<1ppm		
	0.2	CLAY - red clay (ironstone band?), trace light grey clay, trace charcoal			0.2				
				A	0.4		PID=<1ppm		
	0.5	CLAY - brown, light grey mottled red clay, trace ash and ironstone			0.5				
12									
				A*	0.8		PID=1ppm		
1	1.0	Bore discontinued at 1.0m			1.0				1
11									

RIG: DT 100 **DRILLER:** L Cooper **LOGGED:** VK **CASING:** Uncased

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS: *Denotes field replicate sample BD1/070508 collected

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ⊻ Water level

CHECKED
Initials:
Date: 06/08

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NOTES RELATING TO THIS REPORT

Introduction

These notes have been provided to amplify the geotechnical report in regard to classification methods, specialist field procedures and certain matters relating to the Discussion and Comments section. Not all, of course, are necessarily relevant to all reports.

Geotechnical reports are based on information gained from limited subsurface test boring and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726, Geotechnical Site Investigations Code. In general, descriptions cover the following properties - strength or density, colour, structure, soil or rock type and inclusions.

Soil types are described according to the predominating particle size, qualified by the grading of other particles present (eg. sandy clay) on the following bases:

Soil Classification	Particle Size
Clay	less than 0.002 mm
Silt	0.002 to 0.06 mm
Sand	0.06 to 2.00 mm
Gravel	2.00 to 60.00 mm

Cohesive soils are classified on the basis of strength either by laboratory testing or engineering examination. The strength terms are defined as follows.

Classification	Undrained Shear Strength kPa
Very soft	less than 12
Soft	12—25
Firm	25—50
Stiff	50—100
Very stiff	100—200
Hard	Greater than 200

Non-cohesive soils are classified on the basis of relative density, generally from the results of standard penetration tests (SPT) or Dutch cone penetrometer tests (CPT) as below:

Relative Density	SPT "N" Value (blows/300 mm)	CPT Cone Value (q_c — MPa)
Very loose	less than 5	less than 2
Loose	5—10	2—5
Medium dense	10—30	5—15
Dense	30—50	15—25
Very dense	greater than 50	greater than 25

Rock types are classified by their geological names. Where relevant, further information regarding rock classification is given on the following sheet.

Sampling

Sampling is carried out during drilling to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing with a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Details of the type and method of sampling are given in the report.

Drilling Methods.

The following is a brief summary of drilling methods currently adopted by the Company and some comments on their use and application.

Test Pits — these are excavated with a backhoe or a tracked excavator, allowing close examination of the in-situ soils if it is safe to descent into the pit. The depth of penetration is limited to about 3 m for a backhoe and up to 6 m for an excavator. A potential disadvantage is the disturbance caused by the excavation.

Large Diameter Auger (eg. Pengo) — the hole is advanced by a rotating plate or short spiral auger, generally 300 mm or larger in diameter. The cuttings are returned to the surface at intervals (generally of not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube sampling.

Continuous Sample Drilling — the hole is advanced by pushing a 100 mm diameter socket into the ground and withdrawing it at intervals to extrude the sample. This is the most reliable method of drilling in soils, since moisture content is unchanged and soil structure, strength, etc. is only marginally affected.

Continuous Spiral Flight Augers — the hole is advanced using 90—115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in clays and in sands above the water

table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are very disturbed and may be contaminated. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively lower reliability, due to remoulding, contamination or softening of samples by ground water.

Non-core Rotary Drilling — the hole is advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from 'feel' and rate of penetration.

Rotary Mud Drilling — similar to rotary drilling, but using drilling mud as a circulating fluid. The mud tends to mask the cuttings and reliable identification is again only possible from separate intact sampling (eg. from SPT).

Continuous Core Drilling — a continuous core sample is obtained using a diamond-tipped core barrel, usually 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in very weak rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation.

Standard Penetration Tests

Standard penetration tests (abbreviated as SPT) are used mainly in non-cohesive soils, but occasionally also in cohesive soils as a means of determining density or strength and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, "Methods of Testing Soils for Engineering Purposes" — Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

- In the case where full penetration is obtained with successive blow counts for each 150 mm of say 4, 6 and 7

  as 4, 6, 7
  N = 13

- In the case where the test is discontinued short of full penetration, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm

  as 15, 30/40 mm.

The results of the tests can be related empirically to the engineering properties of the soil.

Occasionally, the test method is used to obtain samples in 50 mm diameter thin walled sample tubes in clays. In such circumstances, the test results are shown on the borelogs in brackets.

Cone Penetrometer Testing and Interpretation

Cone penetrometer testing (sometimes referred to as Dutch cone — abbreviated as CPT) described in this report has been carried out using an electrical friction cone penetrometer. The test is described in Australian Standard 1289, Test 6.4.1.

In the tests, a 35 mm diameter rod with a cone-tipped end is pushed continuously into the soil, the reaction being provided by a specially designed truck or rig which is fitted with an hydraulic ram system. Measurements are made of the end bearing resistance on the cone and the friction resistance on a separate 130 mm long sleeve, immediately behind the cone. Transducers in the tip of the assembly are connected by electrical wires passing through the centre of the push rods to an amplifier and recorder unit mounted on the control truck.

As penetration occurs (at a rate of approximately 20 mm per second) the information is plotted on a computer screen and at the end of the test is stored on the computer for later plotting of the results.

The information provided on the plotted results comprises: —

- Cone resistance — the actual end bearing force divided by the cross sectional area of the cone — expressed in MPa.
- Sleeve friction — the frictional force on the sleeve divided by the surface area — expressed in kPa.
- Friction ratio — the ratio of sleeve friction to cone resistance, expressed in percent.

There are two scales available for measurement of cone resistance. The lower scale (0—5 MPa) is used in very soft soils where increased sensitivity is required and is shown in the graphs as a dotted line. The main scale (0—50 MPa) is less sensitive and is shown as a full line.

The ratios of the sleeve friction to cone resistance will vary with the type of soil encountered, with higher relative friction in clays than in sands. Friction ratios of 1%—2% are commonly encountered in sands and very soft clays rising to 4%—10% in stiff clays.

In sands, the relationship between cone resistance and SPT value is commonly in the range:—

q_c (MPa) = (0.4 to 0.6) N (blows per 300 mm)

In clays, the relationship between undrained shear strength and cone resistance is commonly in the range:—

q_c = (12 to 18) c_u

Interpretation of CPT values can also be made to allow estimation of modulus or compressibility values to allow calculation of foundation settlements.

Inferred stratification as shown on the attached reports is assessed from the cone and friction traces and from experience and information from nearby boreholes, etc. This information is presented for general guidance, but must be regarded as being to some extent interpretive. The test method provides a continuous profile of engineering properties, and where precise information on soil classification is required, direct drilling and sampling may be preferable.

Hand Penetrometers

Hand penetrometer tests are carried out by driving a rod into the ground with a falling weight hammer and measuring the blows for successive 150 mm increments of penetration. Normally, there is a depth limitation of 1.2 m but this may be extended in certain conditions by the use of extension rods.

Two relatively similar tests are used.

- Perth sand penetrometer — a 16 mm diameter flat-ended rod is driven with a 9 kg hammer, dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands (originating in Perth) and is mainly used in granular soils and filling.
- Cone penetrometer (sometimes known as the Scala Penetrometer) — a 16 mm rod with a 20 mm diameter cone end is driven with a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). The test was developed initially for pavement subgrade investigations, and published correlations of the test results with California bearing ratio have been published by various Road Authorities.

Laboratory Testing

Laboratory testing is carried out in accordance with Australian Standard 1289 "Methods of Testing Soil for Engineering Purposes". Details of the test procedure used are given on the individual report forms.

Bore Logs

The bore logs presented herein are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable, or possible to justify on economic grounds. In any case, the boreholes represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes, the frequency of sampling and the possibility of other than 'straight line' variations between the boreholes.

Ground Water

Where ground water levels are measured in boreholes, there are several potential problems;

- In low permeability soils, ground water although present, may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report.
- The use of water or mud as a drilling fluid will mask any ground water inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water observations are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Engineering Reports

Engineering reports are prepared by qualified personnel and are based on the information obtained and on current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal (eg. a three storey building), the information and interpretation may not be relevant if the design proposal is changed (eg. to a twenty storey building). If this happens, the Company will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface condition, discussion of geotechnical aspects and recommendations or suggestions for design and construction. However, the Company cannot always anticipate or assume responsibility for:

- unexpected variations in ground conditions — the potential for this will depend partly on bore spacing and sampling frequency
- changes in policy or interpretation of policy by statutory authorities
- the actions of contractors responding to commercial pressures.

If these occur, the Company will be pleased to assist with investigation or advice to resolve the matter.

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, the Company requests that it immediately be notified. Most problems are much more readily resolved when conditions are exposed than at some later stage, well after the event.

Reproduction of Information for Contractual Purposes

Attention is drawn to the document "Guidelines for the Provision of Geotechnical Information in Tender Documents", published by the Institution of Engineers, Australia. Where information obtained from this investigation is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section

is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. The Company would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The Company will always be pleased to provide engineering inspection services for geotechnical aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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

CERTIFICATE OF ANALYSIS 19157

Client:
Douglas Partners
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Veronica Ku

Sample log in details:

Your Reference:	**45575, Liverpool Waste Class**
No. of samples:	12 Soils
Date samples received:	07/05/08
Date completed instructions received:	07/05/08

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

Report Details:

Date results requested by:	14/05/08
Date of Preliminary Report:	Not Issued
Issue Date:	14/05/08

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Accredited for compliance with ISO/IEC 17025.
Tests not covered by NATA are denoted with *.

Results Approved By:

Jacinta Hurst
Operations Manager

Joshua Lim
Chemist

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

vTPH & BTEX in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	19157-1 BH1/0-0.2 7/05/2008 Soil	19157-2 BH2/0-0.2 7/05/2008 Soil	19157-3 BH2/0.4-0.5 7/05/2008 Soil	19157-4 BH2/0.8-1 7/05/2008 Soil	19157-5 BH3/0-0.1 7/05/2008 Soil
Date extracted	-	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Date analysed	-	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m + p-Xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	97	95	93	89	93

vTPH & BTEX in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	19157-6 BH4/0-0.1 7/05/2008 Soil	19157-7 BH5/0.4-0.5 7/05/2008 Soil	19157-8 BH6/0.1-0.2 7/05/2008 Soil	19157-9 BH7/0.8-1.0 7/05/2008 Soil	19157-10 BH7/0-0.2 7/05/2008 Soil
Date extracted	-	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Date analysed	-	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m + p-Xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	104	96	104	96	92

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19157-1	19157-2	19157-3	19157-4	19157-5
Your Reference	----------	BH1/0-0.2	BH2/0-0.2	BH2/0.4-0.5	BH2/0.8-1	BH3/0-0.1
Date Sampled	----------	7/05/2008	7/05/2008	7/05/2008	7/05/2008	7/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Date analysed	-	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	98	100	97	101	84

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19157-6	19157-7	19157-8	19157-9	19157-10
Your Reference	----------	BH4/0-0.1	BH5/0.4-0.5	BH6/0.1-0.2	BH7/0.8-1.0	BH7/0-0.2
Date Sampled	----------	7/05/2008	7/05/2008	7/05/2008	7/05/2008	7/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Date analysed	-	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	106	99	101	98	101

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	19157-1 BH1/0-0.2 7/05/2008 Soil	19157-2 BH2/0-0.2 7/05/2008 Soil	19157-3 BH2/0.4-0.5 7/05/2008 Soil	19157-4 BH2/0.8-1 7/05/2008 Soil	19157-5 BH3/0-0.1 7/05/2008 Soil
Date extracted	-	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Date analysed	-	10/05/2008	10/05/2008	10/05/2008	10/05/2008	10/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.2	0.5	<0.1	<0.1	0.2
Pyrene	mg/kg	0.2	0.5	<0.1	<0.1	0.2
Benzo(a)anthracene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	0.2	<0.1	<0.1	0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	0.4	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.1	0.3	<0.05	<0.05	0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	60	62	60	62	62

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	19157-6 BH4/0-0.1 7/05/2008 Soil	19157-7 BH5/0.4-0.5 7/05/2008 Soil	19157-8 BH6/0.1-0.2 7/05/2008 Soil	19157-9 BH7/0.8-1.0 7/05/2008 Soil	19157-10 BH7/0-0.2 7/05/2008 Soil
Date extracted	-	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Date analysed	-	10/05/2008	10/05/2008	10/05/2008	10/05/2008	10/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.2	<0.1	0.3
Pyrene	mg/kg	<0.1	<0.1	0.2	<0.1	0.3
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Chrysene	mg/kg	<0.1	<0.1	0.1	<0.1	0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	0.3
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.1	<0.05	0.2
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Surrogate p-Terphenyl-d14	%	61	62	62	62	62

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ---------- 	19157-12 BD1/070508 7/05/2008 Soil
Date extracted	-	9/05/2008
Date analysed	-	10/05/2008
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Surrogate p-Terphenyl-d_{14}	%	60

Organochlorine Pesticides in soil						
Our Reference:	UNITS	19157-1	19157-2	19157-3	19157-5	19157-6
Your Reference	----------	BH1/0-0.2	BH2/0-0.2	BH2/0.4-0.5	BH3/0-0.1	BH4/0-0.1
Date Sampled	----------	7/05/2008	7/05/2008	7/05/2008	7/05/2008	7/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	85	79	73	73	76

Organochlorine Pesticides in soil			
Our Reference:	UNITS	19157-8	19157-9
Your Reference	----------	BH6/0.1-0.2	BH7/0.8-1.0
Date Sampled	----------	7/05/2008	7/05/2008
Type of sample		Soil	Soil
Date extracted	-	9/05/2008	9/05/2008
Date analysed	-	12/05/2008	12/05/2008
HCB	mg/kg	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	0.2	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Surrogate TCLMX	%	75	75

Organophosphorus Pesticides Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	19157-1 BH1/0-0.2 7/05/2008 Soil	19157-2 BH2/0-0.2 7/05/2008 Soil	19157-3 BH2/0.4-0.5 7/05/2008 Soil	19157-5 BH3/0-0.1 7/05/2008 Soil	19157-6 BH4/0-0.1 7/05/2008 Soil
Date extracted	-	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	85	79	73	73	76

Organophosphorus Pesticides Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	19157-8 BH6/0.1-0.2 7/05/2008 Soil	19157-9 BH7/0.8-1.0 7/05/2008 Soil
Date extracted	-	9/05/2008	9/05/2008
Date analysed	-	12/05/2008	12/05/2008
Diazinon	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Surrogate TCLMX	%	75	75

PCBs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	19157-1 BH1/0-0.2 7/05/2008 Soil	19157-2 BH2/0-0.2 7/05/2008 Soil	19157-3 BH2/0.4-0.5 7/05/2008 Soil	19157-5 BH3/0-0.1 7/05/2008 Soil	19157-6 BH4/0-0.1 7/05/2008 Soil
Date extracted	-	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	85	79	73	73	76

PCBs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	19157-8 BH6/0.1-0.2 7/05/2008 Soil	19157-9 BH7/0.8-1.0 7/05/2008 Soil
Date extracted	-	9/05/2008	9/05/2008
Date analysed	-	12/05/2008	12/05/2008
Arochlor 1016	mg/kg	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1
Surrogate TCLMX	%	75	75

Total Phenolics in Soil						
Our Reference:	UNITS	19157-1	19157-2	19157-3	19157-5	19157-6
Your Reference	----------	BH1/0-0.2	BH2/0-0.2	BH2/0.4-0.5	BH3/0-0.1	BH4/0-0.1
Date Sampled	----------	7/05/2008	7/05/2008	7/05/2008	7/05/2008	7/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Date analysed	-	14/05/2008	14/05/2008	14/05/2008	14/05/2008	14/05/2008
Total Phenolics (as Phenol)	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0

Total Phenolics in Soil			
Our Reference:	UNITS	19157-8	19157-9
Your Reference	----------	BH6/0.1-0.2	BH7/0.8-1.0
Date Sampled	----------	7/05/2008	7/05/2008
Type of sample		Soil	Soil
Date extracted	-	13/05/2008	13/05/2008
Date analysed	-	14/05/2008	14/05/2008
Total Phenolics (as Phenol)	mg/kg	<5.0	<5.0

Acid Extractable metals in soil						
Our Reference:	UNITS	19157-1	19157-2	19157-3	19157-4	19157-5
Your Reference	----------	BH1/0-0.2	BH2/0-0.2	BH2/0.4-0.5	BH2/0.8-1	BH3/0-0.1
Date Sampled	----------	7/05/2008	7/05/2008	7/05/2008	7/05/2008	7/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Arsenic	mg/kg	10	5.5	8.8	<4.0	7.3
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	24	13	13	8.6	14
Copper	mg/kg	15	17	29	22	31
Lead	mg/kg	40	49	40	17	78
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	6.4	3.4	2.4	2.2	5.5
Zinc	mg/kg	24	61	53	16	120

Acid Extractable metals in soil						
Our Reference:	UNITS	19157-6	19157-7	19157-8	19157-9	19157-10
Your Reference	----------	BH4/0-0.1	BH5/0.4-0.5	BH6/0.1-0.2	BH7/0.8-1.0	BH7/0-0.2
Date Sampled	----------	7/05/2008	7/05/2008	7/05/2008	7/05/2008	7/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Arsenic	mg/kg	<4.0	5.2	8.1	4.1	7.1
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	14	11	39	9.1	16
Copper	mg/kg	53	15	51	26	16
Lead	mg/kg	33	11	130	14	110
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	72	2.2	8.1	2.8	5.1
Zinc	mg/kg	67	11	170	13	96

Acid Extractable metals in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	19157-12 BD1/070508 7/05/2008 Soil
Date digested	-	9/05/2008
Date analysed	-	13/05/2008
Arsenic	mg/kg	5.7
Cadmium	mg/kg	<1.0
Chromium	mg/kg	9.7
Copper	mg/kg	25
Lead	mg/kg	15
Mercury	mg/kg	<0.10
Nickel	mg/kg	3.0
Zinc	mg/kg	14

Moisture						
Our Reference:	UNITS	19157-1	19157-2	19157-3	19157-4	19157-5
Your Reference	----------	BH1/0-0.2	BH2/0-0.2	BH2/0.4-0.5	BH2/0.8-1	BH3/0-0.1
Date Sampled	----------	7/05/2008	7/05/2008	7/05/2008	7/05/2008	7/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	12	18	19	15	8.9

Moisture						
Our Reference:	UNITS	19157-6	19157-7	19157-8	19157-9	19157-10
Your Reference	----------	BH4/0-0.1	BH5/0.4-0.5	BH6/0.1-0.2	BH7/0.8-1.0	BH7/0-0.2
Date Sampled	----------	7/05/2008	7/05/2008	7/05/2008	7/05/2008	7/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	3.9	16	15	15	17

Moisture		
Our Reference:	UNITS	19157-12
Your Reference	----------	BD1/070508
Date Sampled	----------	7/05/2008
Type of sample		Soil
Date prepared	-	9/05/2008
Date analysed	-	12/05/2008
Moisture	%	17

Asbestos ID - soils						
Our Reference:	UNITS	19157-2	19157-3	19157-8	19157-10	19157-11
Your Reference	----------	BH2/0-0.2	BH2/0.4-0.5	BH6/0.1-0.2	BH7/0-0.2	BH5/0-0.2
Date Sampled	----------	7/05/2008	7/05/2008	7/05/2008	7/05/2008	7/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Sample Description	-	40g soil	40g soil	40g soil	40g soil	40g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Method ID	Methodology Summary
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.14	Soil samples extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
LAB.30	Total Phenolics - determined colorimetrically following disitillation.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
Metals.21 CV-AAS	Determination of Mercury by Cold Vapour AAS.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
AS4964-2004	Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.

Client Reference: 45575, Liverpool Waste Class

QUALITY CONTROL vTPH & BTEX in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			9/5/08	19157-1	9/05/2008 || 9/05/2008	LCS-2	9/5/08%
Date analysed	-			9/5/08	19157-1	9/05/2008 || 9/05/2008	LCS-2	9/5/08%
vTPH C_6 - C_9	mg/kg	25	GC.16	<25	19157-1	<25 || <25	LCS-2	114%
Benzene	mg/kg	0.5	GC.14	<0.5	19157-1	<0.5 || <0.5	LCS-2	66%
Toluene	mg/kg	0.5	GC.14	<0.5	19157-1	<0.5 || <0.5	LCS-2	114%
Ethylbenzene	mg/kg	1	GC.14	<1.0	19157-1	<1.0 || <1.0	LCS-2	120%
m + p-Xylene	mg/kg	2	GC.14	<2.0	19157-1	<2.0 || <2.0	LCS-2	134%
o-Xylene	mg/kg	1	GC.14	<1.0	19157-1	<1.0 || <1.0	LCS-2	135%
Surrogate aaa-Trifluorotoluene	%		GC.14	85	19157-1	97 || 81 || RPD: 18	LCS-2	88%
QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			9/5/08	19157-1	9/05/2008 || 9/05/2008	LCS-2	9/5/08%
Date analysed	-			9/5/08	19157-1	9/05/2008 || 9/05/2008	LCS-2	9/5/08%
TPH C_{10} - C_{14}	mg/kg	50	GC.3	<50	19157-1	<50 || <50	LCS-2	118%
TPH C_{15} - C_{28}	mg/kg	100	GC.3	<100	19157-1	<100 || <100	LCS-2	105%
TPH C_{29} - C_{36}	mg/kg	100	GC.3	<100	19157-1	<100 || <100	LCS-2	124%
Surrogate o-Terphenyl	%		GC.3	101	19157-1	98 || 102 || RPD: 4	LCS-2	102%
QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			9/5/08	19157-1	9/05/2008 || 9/05/2008	LCS-2	9/5/08%
Date analysed	-			10/5/08	19157-1	10/05/2008 || 10/05/2008	LCS-2	10/5/08%
Naphthalene	mg/kg	0.1	GC.12 subset	<0.1	19157-1	<0.1 || <0.1	LCS-2	114%
Acenaphthylene	mg/kg	0.1	GC.12 subset	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	GC.12 subset	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	GC.12 subset	<0.1	19157-1	<0.1 || <0.1	LCS-2	117%
Phenanthrene	mg/kg	0.1	GC.12 subset	<0.1	19157-1	<0.1 || <0.1	LCS-2	115%
Anthracene	mg/kg	0.1	GC.12 subset	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	GC.12 subset	<0.1	19157-1	0.2 || 0.2 || RPD: 0	LCS-2	112%
Pyrene	mg/kg	0.1	GC.12 subset	<0.1	19157-1	0.2 || 0.2 || RPD: 0	LCS-2	113%
Benzo(a)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	GC.12 subset	<0.1	19157-1	0.1 || <0.1	LCS-2	122%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(b+k)fluoranthene	mg/kg	0.2	GC.12 subset	<0.2	19157-1	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	GC.12 subset	<0.05	19157-1	0.1 || 0.1 || RPD: 0	LCS-2	112%
Dibenzo(a,h)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	GC.12 subset	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	GC.12 subset	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		GC.12 subset	61	19157-1	60 || 62 || RPD: 3	LCS-2	68%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			9/5/08	19157-1	9/05/2008 || 9/05/2008	LCS-2	9/5/08%
Date analysed	-			12/5/08	19157-1	12/05/2008 || 12/05/2008	LCS-2	12/5/08%
HCB	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	LCS-2	96%
gamma-BHC	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	LCS-2	90%
Heptachlor	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	LCS-2	61%
delta-BHC	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	LCS-2	99%
Heptachlor Epoxide	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	LCS-2	99%
gamma-Chlordane	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	LCS-2	97%
Dieldrin	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	LCS-2	100%
Endrin	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	LCS-2	78%
pp-DDD	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	LCS-2	90%
Endosulfan II	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	LCS-2	88%
Methoxychlor	mg/kg	0.1	GC-5	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-5	74	19157-1	85 || 85 || RPD: 0	LCS-2	76%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			9/5/08	19157-1	9/05/2008 || 9/05/2008	LCS-2	9/5/08%
Date analysed	-			12/5/08	19157-1	12/05/2008 || 12/05/2008	LCS-2	12/5/08%
Diazinon	mg/kg	0.1	GC.8	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	GC.8	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	GC.8	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	GC.8	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	GC.8	<0.1	19157-1	<0.1 || <0.1	LCS-2	135%
Fenitrothion	mg/kg	0.1	GC.8	<0.1	19157-1	<0.1 || <0.1	LCS-2	117%
Bromophos-ethyl	mg/kg	0.1	GC.8	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	GC.8	<0.1	19157-1	<0.1 || <0.1	LCS-2	86%
Surrogate TCLMX	%		GC.8	74	19157-1	85 || 85 || RPD: 0	LCS-2	77%
QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			9/5/08	19157-1	9/05/2008 || 9/05/2008	LCS-2	9/5/08%
Date analysed	-			12/5/08	19157-1	12/05/2008 || 12/05/2008	LCS-2	12/5/08%
Arochlor 1016	mg/kg	0.1	GC-6	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	GC-6	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	GC-6	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	GC-6	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	GC-6	<0.1	19157-1	<0.1 || <0.1	LCS-2	85%
Arochlor 1260	mg/kg	0.1	GC-6	<0.1	19157-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-6	74	19157-1	85 || 85 || RPD: 0	LCS-2	87%
QUALITY CONTROL Total Phenolics in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			13/5/08	[NT]	[NT]	LCS-1	13/5/08%
Date analysed	-			14/5/08	[NT]	[NT]	LCS-1	14/5/08%
Total Phenolics (as Phenol)	mg/kg	5	LAB.30	<5.0	[NT]	[NT]	LCS-1	97%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			09/05/08	19157-1	9/05/2008 || 9/05/2008	LCS-3	09/05/08%
Date analysed	-			13/05/08	19157-1	13/05/2008 || 13/05/2008	LCS-3	12/05/08%
Arsenic	mg/kg	4	Metals.20 ICP-AES	<4.0	19157-1	10 || 7.9 || RPD: 23	LCS-3	92%
Cadmium	mg/kg	1	Metals.20 ICP-AES	<1.0	19157-1	<1.0 || <1.0	LCS-3	95%
Chromium	mg/kg	1	Metals.20 ICP-AES	<1.0	19157-1	24 || 18 || RPD: 29	LCS-3	95%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Copper	mg/kg	1	Metals.20 ICP-AES	<1.0	19157-1	15 || 14 || RPD: 7	LCS-3	100%
Lead	mg/kg	1	Metals.20 ICP-AES	<1.0	19157-1	40 || 32 || RPD: 22	LCS-3	92%
Mercury	mg/kg	0.1	Metals.21 CV-AAS	<0.10	19157-1	<0.10 || <0.10	LCS-3	104%
Nickel	mg/kg	1	Metals.20 ICP-AES	<1.0	19157-1	6.4 || 6.8 || RPD: 6	LCS-3	94%
Zinc	mg/kg	1	Metals.20 ICP-AES	<1.0	19157-1	24 || 23 || RPD: 4	LCS-3	91%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	LAB.8	<0.10

QUALITY CONTROL Asbestos ID - soils	UNITS	PQL	METHOD	Blank
Date analysed	-			[NT]

QUALITY CONTROL vTPH & BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19157-2	9/5/08%
Date analysed	-	[NT]	[NT]	19157-2	9/5/08%
vTPH C_6 - C_9	mg/kg	[NT]	[NT]	19157-2	86%
Benzene	mg/kg	[NT]	[NT]	19157-2	68%
Toluene	mg/kg	[NT]	[NT]	19157-2	88%
Ethylbenzene	mg/kg	[NT]	[NT]	19157-2	86%
m + p-Xylene	mg/kg	[NT]	[NT]	19157-2	94%
o-Xylene	mg/kg	[NT]	[NT]	19157-2	94%
Surrogate aaa-Trifluorotoluene	%	[NT]	[NT]	19157-2	80%

QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19157-2	9/5/08%
Date analysed	-	[NT]	[NT]	19157-2	9/5/08%
TPH C_{10} - C_{14}	mg/kg	[NT]	[NT]	19157-2	114%
TPH C_{15} - C_{28}	mg/kg	[NT]	[NT]	19157-2	99%
TPH C_{29} - C_{36}	mg/kg	[NT]	[NT]	19157-2	105%
Surrogate o-Terphenyl	%	[NT]	[NT]	19157-2	101%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19157-2	9/5/08%
Date analysed	-	[NT]	[NT]	19157-2	10/5/08%
Naphthalene	mg/kg	[NT]	[NT]	19157-2	106%
Acenaphthylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	[NT]	[NT]	19157-2	110%
Phenanthrene	mg/kg	[NT]	[NT]	19157-2	106%
Anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	[NT]	[NT]	19157-2	108%
Pyrene	mg/kg	[NT]	[NT]	19157-2	110%
Benzo(a)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	[NT]	[NT]	19157-2	113%
Benzo(b+k)fluoranthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	[NT]	[NT]	19157-2	113%
Dibenzo(a,h)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%	[NT]	[NT]	19157-2	66%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19157-2	9/5/08%
Date analysed	-	[NT]	[NT]	19157-2	12/5/08%
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	19157-2	94%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	19157-2	98%
Heptachlor	mg/kg	[NT]	[NT]	19157-2	106%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	19157-2	96%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	19157-2	100%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	19157-2	99%
Dieldrin	mg/kg	[NT]	[NT]	19157-2	102%
Endrin	mg/kg	[NT]	[NT]	19157-2	93%
pp-DDD	mg/kg	[NT]	[NT]	19157-2	97%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	19157-2	96%
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	19157-2	86%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19157-2	9/5/08%
Date analysed	-	[NT]	[NT]	19157-2	12/5/08%
Diazinon	mg/kg	[NT]	[NT]	[NR]	[NR]
Dimethoate	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ronnel	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	[NT]	[NT]	19157-2	129%
Fenitrothion	mg/kg	[NT]	[NT]	19157-2	100%
Bromophos-ethyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	[NT]	[NT]	19157-2	78%
Surrogate TCLMX	%	[NT]	[NT]	19157-2	75%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19157-2	9/5/08%
Date analysed	-	[NT]	[NT]	19157-2	12/5/08%
Arochlor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	[NT]	[NT]	19157-2	92%
Arochlor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	19157-2	84%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19157-12	9/05/2008 || 9/05/2008	19157-2	09/05/08%
Date analysed	-	19157-12	13/05/2008 || 13/05/2008	19157-2	12/05/08%
Arsenic	mg/kg	19157-12	5.7 || 6.2 || RPD: 8	19157-2	94%
Cadmium	mg/kg	19157-12	<1.0 || <1.0	19157-2	91%
Chromium	mg/kg	19157-12	9.7 || 11 || RPD: 13	19157-2	98%
Copper	mg/kg	19157-12	25 || 23 || RPD: 8	19157-2	96%
Lead	mg/kg	19157-12	15 || 16 || RPD: 6	19157-2	103%
Mercury	mg/kg	19157-12	<0.10 || <0.10	19157-2	96%
Nickel	mg/kg	19157-12	3.0 || 2.9 || RPD: 3	19157-2	90%
Zinc	mg/kg	19157-12	14 || 14 || RPD: 0	19157-2	102%

Report Comments:

Asbestos was analysed by Approved Identifier: Joshua Lim

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

Quality Control Definitions

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

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

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

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

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

Laboratory Acceptance Criteria:

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

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

Douglas Partners
Geotechnics - Environment - Groundwater

CHAIN OF CUSTODY

Project Name: Liverpool Waste Class
Project No: ...45575..... Sampler: ..... Veronica Ku.....
Project Mgr: FM.....Mob. Phone: 0407 069 346 .....
Email: veronica.ku@douglaspartners.com.au .....
Date Required: 14 May 2008..... Lab Quote No. .....

To: Envirolab Services
12 Ashley Street, Chatswood NSW 2068
Attn: Tania Notaras
Phone: 02 9910 6200 Fax: 02 9910 6201
Email: tnotaras@envirolabservices.com.au

Sample ID	Sample Depth	Lab ID	Sampling Date	Sample Type S – soil W – water	Container type	Analytes: As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	BTEX/ TPH	OCPs/ OPPs	PCBs	PAH	Phenols	VOCs	Other Asbestos	Notes
BH1	0-0.2	1	7/5/08	S	g	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
BH2	0-0.2	2			g+p										✓	✓		✓		✓	
BH2	0.4-0.5	3			g+p										✓	✓		✓		✓	
BH2	0.8-1	4			g																
BH3	0-0.1	5			g										✓	✓		✓			
BH4	0-0.1	6			g										✓	✓		✓			
BH5	0.4-0.5	7			g																
BH6	0.1-0.2	8			g+p										✓	✓		✓		✓	
BH7	0.8-1	9			g										✓	✓		✓			
BH7	0-0.2	10			g+p	↓	↓	↓	↓	↓	↓	↓	↓	↓			↓			✓	
BH5	0-0.2	11			P															✓	
BD1/070508		12	↓	↓	g	✓	✓	✓	✓	✓	✓	✓	✓				✓				

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: 9910 6200

Job No: 19157
Date received: 7/5/08
Time received: 5:45pm
Received by: AM
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Lab Report No. .....
Send Results to: Douglas Partners Address: 96 Hermitage Road, West Ryde 2114
Phone: (02) 9809 0666
Fax: (02) 9809 4095

Relinquished by:	Veronica Ku	Signed:		Date & Time:	7/5/08	Received By:	Date & Time: 7/5/08
Relinquished by:		Signed:		Date & Time:		Received By:	Date & Time:

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

CERTIFICATE OF ANALYSIS 19157-A

Client:
Douglas Partners
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Veronica Ku

Sample log in details:

Your Reference:	**45575, Liverpool Waste Class**
No. of samples:	Additional Testing on 3 Soils
Date samples received:	07/05/08
Date completed instructions received:	14/05/08

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

Report Details:

Date results requested by:	21/05/08
Date of Preliminary Report:	Not Issued
Issue Date:	21/05/08

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Accredited for compliance with ISO/IEC 17025.
Tests not covered by NATA are denoted with *.

Results Approved By:

Giovanni Agosti
Technical Manager

Metals in TCLP Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	19157-A-6 BH4/0-0.1 7/05/2008 Soil	19157-A-8 BH6/0.1-0.2 7/05/2008 Soil	19157-A-10 BH7/0-0.2 7/05/2008 Soil
Date extracted	-	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008
pH of soil for fluid# determ.	pH units	9.50	8.90	8.70
pH of soil for fluid # determ. (acid)	pH units	1.40	1.50	1.40
Extraction fluid used	-	1	1	1
pH of final Leachate	pH units	5.10	5.00	4.90
Lead in TCLP	mg/L	[NA]	<0.03	0.09
Nickel in TCLP	mg/L	0.07	[NA]	[NA]

Method ID	Methodology Summary
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP).
Metals.20 ICP-AES	Determination of various metals by ICP-AES.

Client Reference: 45575, Liverpool Waste Class

QUALITY CONTROL Metals in TCLP	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	19157-A-6	16/05/2008 || 16/05/2008	LCS-W1	16/5/08%
Date analysed	-			20/5/08	19157-A-6	20/05/2008 || 20/05/2008	LCS-W1	20/5/08%
Lead in TCLP	mg/L	0.03	Metals.20 ICP-AES	<0.03	[NT]	[NT]	LCS-W1	90%
Nickel in TCLP	mg/L	0.02	Metals.20 ICP-AES	<0.02	19157-A-6	0.07 || 0.07 || RPD: 0	LCS-W1	91%

QUALITY CONTROL Metals in TCLP	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19157-A-8	16/5/08%
Date analysed	-	[NT]	[NT]	19157-A-8	20/5/08%
Lead in TCLP	mg/L	[NT]	[NT]	19157-A-8	96%
Nickel in TCLP	mg/L	[NT]	[NT]	[NR]	[NR]

Report Comments:

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

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

Quality Control Definitions

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

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

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

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

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

Laboratory Acceptance Criteria:

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

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

Aileen Hie

From: Jacinta Hurst
Sent: Wednesday, 14 May 2008 3:51 PM
To: Aileen Hie
Subject: FW: TCLP for Job 19157

Envirolab Ref: 19157A
Due: 21/5/08
Std T1A.

Regards,

Jacinta Hurst
Envirolab Services Pty Ltd
12 Ashley St Chatswood NSW 2067
T 02 9910 6200 F 02 9910 6201
D 02 9910 6220 M 0407 003 037
jhurst@envirolabservices.com.au | www.envirolabservices.com.au

From: Veronica Ku [mailto:Veronica.Ku@douglaspartners.com.au]
Sent: Wednesday, 14 May 2008 03:45
To: Jacinta Hurst
Subject: TCLP for Job 19157

Hi Jacinta,

Can I get TCLP tests done for job no. 19157 on:

6 BH4/0-0.1 : Ni
4 BH6/0.1-0.2: Pb
10 BH7/0-0.2: Pb

Regards,

Veronica Ku | Environmental Scientist
Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au
96 Hermitage Road West Ryde NSW 2114 | PO Box 472 West Ryde NSW 1685
P: 02 8878 0650 | F: 02 9809 4095 | M: 0407 069 346 | E: Veronica.Ku@douglaspartners.com.au