

LEGEND:

● BH101 (0.2) Borehole Location, Number & Depth of fill in meters (Undertaken by EIS in April 2009)

▭ Part 3A Concept Plan Area

Sample (0.2 - 0.4)
Total PAHs = 40
B(a)P = 2
Lead = 600

Sample Depth in metres
Soil contamination data are only those contaminants above the Health Investigation Levels (HIL) - Column E, Parks, recreational open spaces, NEPC Guidelines 1999, shown in mg/kg.

SOIL CONTAMINATION DATA

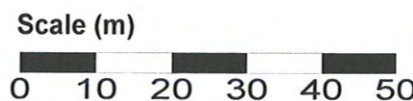
Part 3A Concept Plan
Moore Theological College Masterplan
Crn King St & Carilon Av, Newtown



ENVIRONMENTAL INVESTIGATION SERVICES

Job No: E21871K
Figure: 4

NOTE: This plan has been prepared from EIS site measurements and should not be construed as a site survey plan. Borehole locations are considered to be approximate. Reference should be made to the text for a full understanding of this plan.



APPENDIX A



ENVIRONMENTAL LOG

Borehole No.

101

1/1

Environmental logs are not to be used for geotechnical purposes

Client: MOORE THEOLOGICAL COLLEGE
Project: PROPOSED ADDITIONS AND UPGRADES TO THE EXISTING COLLEGE
Location: CNR. KING STREET & CARILLON AVENUE, NEWTOWN, NSW

Job No. E21871K **Method:** EZI-PROBE **R.L. Surface:** ≈ 42.10m
Date: 22-4-09 **Datum:** AHD
Logged/Checked by: C.H./J.B.

Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/Weathering	Strength/Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	SAL									
DRY ON COMPLETION					0			CONCRETE: 140mm.t				
							CH	FILL: Silty sand, fine to medium grained, yellow brown, with a trace of ash. SILTY CLAY: high plasticity, orange mottled brown, with a trace of ironstone gravel.	M MC > PL	- -	- -	
					1			as above, but grey, with ironstone bands. END OF BOREHOLE AT 1.0m				AUGER REFUSAL
					2							
					3							
					4							
					5							
					6							
					7							



ENVIRONMENTAL LOG

Borehole No.
102
1/1

Environmental logs are not to be used for geotechnical purposes

Client: MOORE THEOLOGICAL COLLEGE
Project: PROPOSED ADDITIONS AND UPGRADES TO THE EXISTING COLLEGE
Location: CNR. KING STREET & CARILLON AVENUE, NEWTOWN, NSW

Job No. E21871K **Method:** EZI-PROBE **R.L. Surface:** ≈ 42.18m
Date: 22-4-09 **Datum:** AHD
Logged/Checked by: C.H./*NB*

Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty sand, fine to medium grained, brown, with a trace of ash and root fibres.	M			GRASS COVER
						1		CH	FILL: Silty sandy clay, medium plasticity, brown, with ash, igneous and ironstone gravel. SILTY CLAY: high plasticity, orange brown mottled red brown, with ironstone bands. as above, but with weathered shale bands. END OF BOREHOLE AT 1.3m	MC > PL			
						2							
						3							
						4							
						5							
						6							
						7							AUGER REFUSAL ON INFERRED SHALE BEDROCK



Borehole No.

103

1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: MOORE THEOLOGICAL COLLEGE
Project: PROPOSED ADDITIONS AND UPGRADES TO THE EXISTING COLLEGE
Location: CNR. KING STREET & CARILLON AVENUE, NEWTOWN, NSW

Job No. E21871K **Method:** EZI-PROBE **R.L. Surface:** ≈ 41.96m
Date: 22-4-09 **Datum:** AHD

Logged/Checked by: C.H./*NB*

Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/Weathering	Strength/Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB/SAL									
DRY ON COMPLETION					0			FILL: Silty sand, fine to medium grained, brown, with a trace of root fibres.	M			GRASS COVER
					1			FILL: Silty sandy clay, medium plasticity, brown, with a trace of root fibres, ash and slag.				
					2		CH	SILTY CLAY: high plasticity, yellow brown, with ironstone gravel. as above, but yellow brown mottled grey, with ironstone gravel bands and weathered shale bands.	MC > PL			
					3			END OF BOREHOLE AT 3.0m				
					4							
					5							
					6							
					7							



ENVIRONMENTAL LOG

Borehole No.

105

1/1

Environmental logs are not to be used for geotechnical purposes

Client: MOORE THEOLOGICAL COLLEGE
Project: PROPOSED ADDITIONS AND UPGRADES TO THE EXISTING COLLEGE
Location: CNR. KING STREET & CARILLON AVENUE, NEWTOWN, NSW

Job No. E21871K **Method:** EZI-PROBE **R.L. Surface:** ≈ 37.56m
Date: 22-4-09 **Datum:** AHD
Logged/Checked by: C.H./*JE*

Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/Weathering	Strength/Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	SAL									
DRY ON COMPLETION					0		-	CONCRETE: 150mm.t	M	-	-	
					0.5		CH	FILL: Silty sand, fine to coarse grained, brown, with clay, brick fragments and igneous gravel.	MC > PL	-	-	APPEARS POORLY COMPACTED
					1			SILTY CLAY: high plasticity, light grey, with ironstone gravel. SILTY CLAY: high plasticity, light grey and brown mottled, with weathered shale and ironstone bands.				
					1.15			END OF BOREHOLE AT 1.15m				AUGER REFUSAL ON INFERRED SHALE BEDROCK
					2							
					3							
					4							
					5							
					6							
					7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS



ENVIRONMENTAL LOG

Borehole No.

106

1/1

Environmental logs are not to be used for geotechnical purposes

Client: MOORE THEOLOGICAL COLLEGE
Project: PROPOSED ADDITIONS AND UPGRADES TO THE EXISTING COLLEGE
Location: CNR. KING STREET & CARILLON AVENUE, NEWTOWN, NSW

Job No. E21871K **Method:** EZI-PROBE **R.L. Surface:** ≈ 34.02m
Date: 22-4-09 **Datum:** AHD

Logged/Checked by: C.H./*JB*

Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/Weathering	Strength/Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB/SAL									
DRY ON COMPLETION					0			FILL: Silty sandy gravel, fine to coarse grained, with clay nodules, concrete and brick fragments and a trace of ash and slag.	M			APPEARS POORLY COMPACTED
					1							
					2		CH	SILTY CLAY: high plasticity, brown mottled grey, with a trace of ironstone gravel.	MC > PL	-	-	
					2.5			as above, but grey, with ironstone gravel bands. END OF BOREHOLE AT 2.5m				
					3							
					4							
					5							
					6							
					7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS



ENVIRONMENTAL LOG

Borehole No.

107

1/1

Environmental logs are not to be used for geotechnical purposes

Client: MOORE THEOLOGICAL COLLEGE
Project: PROPOSED ADDITIONS AND UPGRADES TO THE EXISTING COLLEGE
Location: CNR. KING STREET & CARILLON AVENUE, NEWTOWN, NSW

Job No. E21871K **Method:** EZI-PROBE **R.L. Surface:** ≈ 35.0m
Date: 22-4-09 **Datum:** AHD
Logged/Checked by: C.H./*VB*

Groundwater Record	ESS SAMPLES ES ASB SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			FILL: Silty sand, fine to medium grained, with silty clay nodules, and a trace of ash, brick and concrete fragments.	M			GRASS COVER APPEARS POORLY COMPACTED
			1		CH	SILTY CLAY: high plasticity, brown, with a trace of ironstone gravel. as above, but brown mottled grey, with ironstone gravel bands. END OF BOREHOLE AT 1.5m	MC≈PL	-	-	
			2							
			3							
			4							
			5							
			6							
			7							

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ENVIRONMENTAL LOG

Borehole No.

108

1/1

Environmental logs are not to be used for geotechnical purposes

Client: MOORE THEOLOGICAL COLLEGE
Project: PROPOSED ADDITIONS AND UPGRADES TO THE EXISTING COLLEGE
Location: CNR. KING STREET & CARILLON AVENUE, NEWTOWN, NSW

Job No. E21871K **Method:** EZI-PROBE **R.L. Surface:** ≈ 34.0m
Date: 22-4-09 **Datum:** AHD
Logged/Checked by: C.H./*VB*

Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETE-ION						0			FILL: Sandy clayey silt, medium plasticity, brown, with a trace of ash, ironstone and sandstone gravel and terracotta fragments.	MC > PL			APPEARS POORLY COMPACTED
						1		CH	SILTY CLAY: high plasticity, red brown mottled grey, with ironstone and shale gravel bands. END OF BOREHOLE AT 1.5m	MC > PL			
						2							
						3							
						4							
						5							
						6							
						7							



ENVIRONMENTAL LOG

Borehole No.

111

1/1

Environmental logs are not to be used for geotechnical purposes

Client: MOORE THEOLOGICAL COLLEGE
Project: PROPOSED ADDITIONS AND UPGRADES TO THE EXISTING COLLEGE
Location: CNR. KING STREET & CARILLON AVENUE, NEWTOWN, NSW

Job No. E21871K **Method:** EZI-PROBE **R.L. Surface:** ≈ 43.14m
Date: 22-4-09 **Datum:** AHD

Logged/Checked by: C.H./*VB*

Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	SAL									
DRY ON COMPLETION					0			CONCRETE: 110mm.t				
								FILL: Silty sand, fine to medium grained, yellow brown, with a trace of igneous gravel.	M	-	-	
					1			CONCRETE: 120mm.t	M	-	-	
					1			FILL: Silty sand, fine to medium grained, dark brown, with clay and ironstone gravel and a trace of metal fragments, ash and slag.				APPEARS POORLY COMPACTED
					2		CL	SILTY CLAY: low to medium plasticity, light grey, with ironstone and shale gravel.	MC > PL	-	-	
					2.25			END OF BOREHOLE AT 2.25m				AUGER REFUSAL ON INFERRED SHALE BEDROCK
					3							
					4							
					5							
					6							
					7							



REPORT EXPLANATION NOTES

INTRODUCTION

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

The ground is a product of continuing natural and man-made processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Geotechnical engineering involves gathering and assimilating limited facts about these characteristics and properties in order to understand or predict the behaviour of the ground on a particular site under certain conditions. This report may contain such facts obtained by inspection, excavation, probing, sampling, testing or other means of investigation. If so, they are directly relevant only to the ground at the place where and time when the investigation was carried out.

DESCRIPTION AND CLASSIFICATION METHODS

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726, the SAA Site Investigation Code. In general, descriptions cover the following properties – soil or rock type, colour, structure, strength or density, and inclusions. Identification and classification of soil and rock involves judgement and the Company infers accuracy only to the extent that is common in current geotechnical practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached Unified Soil Classification Table qualified by the grading of other particles present (eg sandy clay) as set out below:

Soil Classification	Particle Size
Clay	less than 0.002mm
Silt	0.002 to 0.06mm
Sand	0.06 to 2mm
Gravel	2 to 60mm

Non-cohesive soils are classified on the basis of relative density, generally from the results of Standard Penetration Test (SPT) as below:

Relative Density	SPT 'N' Value (blows/300mm)
Very loose	less than 4
Loose	4 – 10
Medium dense	10 – 30
Dense	30 – 50
Very Dense	greater than 50

Cohesive soils are classified on the basis of strength (consistency) either by use of hand penetrometer, laboratory testing or engineering examination. The strength terms are defined as follows.

Classification	Unconfined Compressive Strength kPa
Very Soft	less than 25
Soft	25 – 50
Firm	50 – 100
Stiff	100 – 200
Very Stiff	200 – 400
Hard	Greater than 400
Friable	Strength not attainable – soil crumbles

Rock types are classified by their geological names, together with descriptive terms regarding weathering, strength, defects, etc. Where relevant, further information regarding rock classification is given in the text of the report. In the Sydney Basin, 'Shale' is used to describe thinly bedded to laminated siltstone.

SAMPLING

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

Disturbed samples taken during drilling provide information on plasticity, grain size, colour, moisture content, minor constituents and, depending upon the degree of disturbance, some information on strength and structure. Bulk samples are similar but of greater volume required for some test procedures.

Undisturbed samples are taken by pushing a thin-walled sample tube, usually 50mm diameter (known as a U50), into the soil and withdrawing it with a sample of the soil contained 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 used are given on the attached logs.

INVESTIGATION METHODS

The following is a brief summary of investigation methods currently adopted by the Company and some comments on their use and application. All except test pits, hand auger drilling and portable dynamic cone penetrometers require the use of a mechanical drilling rig which is commonly mounted on a truck chassis.



Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the insitu soils if it is safe to descend into the pit. The depth of penetration is limited to about 3m for a backhoe and up to 6m for an excavator. Limitations of test pits are the problems associated with disturbance and difficulty of reinstatement and the consequent effects on close-by structures. Care must be taken if construction is to be carried out near test pit locations to either properly recompact the backfill during construction or to design and construct the structure so as not to be adversely affected by poorly compacted backfill at the test pit location.

Hand Auger Drilling: A borehole of 50mm to 100mm diameter is advanced by manually operated equipment. Premature refusal of the hand augers can occur on a variety of materials such as hard clay, gravel or ironstone, and does not necessarily indicate rock level.

Continuous Spiral Flight Augers: The borehole is advanced using 75mm to 115mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling and insitu testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface by the flights or may be collected after withdrawal of the auger flights, but they can be very disturbed and layers may become mixed. Information from the auger sampling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively lower reliability due to mixing or softening of samples by groundwater, or uncertainties as to the original depth of the samples. Augering below the groundwater table is of even lesser reliability than augering above the water table.

Rock Augering: Use can be made of a Tungsten Carbide (TC) bit for auger drilling into rock to indicate rock quality and continuity by variation in drilling resistance and from examination of recovered rock fragments. This method of investigation is quick and relatively inexpensive but provides only an indication of the likely rock strength and predicted values may be in error by a strength order. Where rock strengths may have a significant impact on construction feasibility or costs, then further investigation by means of cored boreholes may be warranted.

Wash Boring: The borehole is usually 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.

Mud Stabilised Drilling: Either Wash Boring or Continuous Core Drilling can use drilling mud as a circulating fluid to stabilise the borehole. The term 'mud' encompasses a range of products ranging from bentonite to polymers such as Revert or Biogel. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (eg from SPT and U50 samples) or from rock coring, etc.

Continuous Core Drilling: A continuous core sample is obtained using a diamond tipped core barrel. Provided full core recovery is achieved (which is not always possible in very low strength rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation. In rocks, an NMLC triple tube core barrel, which gives a core of about 50mm diameter, is usually used with water flush. The length of core recovered is compared to the length drilled and any length not recovered is shown as CORE LOSS. The location of losses are determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the top end of the drill run.

Standard Penetration Tests: Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils as a means of indicating 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 F3.1.

The test is carried out in a borehole by driving a 50mm diameter split sample tube with a tapered shoe, under the impact of a 63kg hammer with a free fall of 760mm. It is normal for the tube to be driven in three successive 150mm increments and the 'N' value is taken as the number of blows for the last 300mm. In dense sands, very hard clays or weak rock, the full 450mm 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 150mm of, say, 4, 6 and 7 blows, as
$$N = 13$$
$$4, 6, 7$$
- In a case where the test is discontinued short of full penetration, say after 15 blows for the first 150mm and 30 blows for the next 40mm, as
$$N > 30$$
$$15, 30/40\text{mm}$$

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

Occasionally, the drop hammer is used to drive 50mm diameter thin walled sample tubes (U50) in clays. In such circumstances, the test results are shown on the borehole logs in brackets.

A modification to the SPT test is where the same driving system is used with a solid 60° tipped steel cone of the same diameter as the SPT hollow sampler. The solid cone can be continuously driven for some distance in soft clays or loose sands, or may be used where damage would otherwise occur to the SPT. The results of this Solid Cone Penetration Test (SCPT) are shown as "N_c" on the borehole logs, together with the number of blows per 150mm penetration.



Static Cone Penetrometer Testing and Interpretation: Cone penetrometer testing (sometimes referred to as a Dutch Cone) described in this report has been carried out using an Electronic Friction Cone Penetrometer (EFCP). The test is described in Australian Standard 1289, Test F5.1.

In the tests, a 35mm diameter rod with a conical tip 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 frictional resistance on a separate 134mm long sleeve, immediately behind the cone. Transducers in the tip of the assembly are electrically connected by 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 20mm per second) the information is output as incremental digital records every 10mm. The results given in this report have been plotted from the digital data.

The information provided on the charts comprise:

- 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 as a percentage.

The ratios of the sleeve resistance to cone resistance will vary with the type of soil encountered, with higher relative friction in clays than in sands. Friction ratios of 1% to 2% are commonly encountered in sands and occasionally very soft clays, rising to 4% to 10% in stiff clays and peats. Soil descriptions based on cone resistance and friction ratios are only inferred and must not be considered as exact.

Correlations between EFCP and SPT values can be developed for both sands and clays but may be site specific.

Interpretation of EFCP values can be made to empirically derive modulus or compressibility values to allow calculation of foundation settlements.

Stratification can be inferred from the cone and friction traces and from experience and information from nearby boreholes etc. Where shown, this information is presented for general guidance, but must be regarded as interpretive. The test method provides a continuous profile of engineering properties but, where precise information on soil classification is required, direct drilling and sampling may be preferable.

Portable Dynamic Cone Penetrometers: Portable Dynamic Cone Penetrometer (DCP) tests are carried out by driving a rod into the ground with a sliding hammer and counting the blows for successive 100mm increments of penetration.

Two relatively similar tests are used:

- Cone penetrometer (commonly known as the Scala Penetrometer) – a 16mm rod with a 20mm diameter cone end is driven with a 9kg hammer dropping 510mm (AS1289, Test F3.2). The test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various Road Authorities.
- Perth sand penetrometer – a 16mm diameter flat ended rod is driven with a 9kg hammer, dropping 600mm (AS1289, Test F3.3). This test was developed for testing the density of sands (originating in Perth) and is mainly used in granular soils and filling.

LOGS

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

The attached explanatory notes define the terms and symbols used in preparation of the logs.

Interpretation of the information shown on the logs, and its application to design and construction, should therefore take into account the spacing of boreholes or test pits, the method of drilling or excavation, the frequency of sampling and testing and the possibility of other than "straight line" variations between the boreholes or test pits. Subsurface conditions between boreholes or test pits may vary significantly from conditions encountered at the borehole or test pit locations.

GROUNDWATER

Where groundwater levels are measured in boreholes, there are several potential problems:

- Although groundwater may be present, in low permeability soils it 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 and may not be the same at the time of construction.
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must be washed out of the hole or 'reverted' chemically if water observations are to be made.



More reliable measurements can be made by installing standpipes which are read after stabilising at intervals ranging from several days to 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 perched water tables or surface water.

FILL

The presence of fill materials can often be determined only by the inclusion of foreign objects (eg bricks, steel etc) or by distinctly unusual colour, texture or fabric. Identification of the extent of fill materials will also depend on investigation methods and frequency. Where natural soils similar to those at the site are used for fill, it may be difficult with limited testing and sampling to reliably determine the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density, strength and material type is much greater than with natural soil deposits. Consequently, there is an increased risk of adverse engineering characteristics or behaviour. If the volume and quality of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes.

LABORATORY TESTING

Laboratory testing is normally 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.

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 conditions, 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 be partially dependent on borehole spacing and sampling frequency as well as investigation technique.
- Changes in policy or interpretation of policy by statutory authorities.
- The actions of persons or contractors responding to commercial pressures.

If these occur, the company will be pleased to assist with investigation or advice to resolve any problems occurring.

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 that 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.

Copyright in all documents (such as drawings, borehole or test pit logs, reports and specifications) provided by the Company shall remain the property of Jeffery and Katauskas Pty Ltd. Subject to the payment of all fees due, the Client alone shall have a licence to use the documents provided for the sole purpose of completing the project to which they relate. License to use the documents may be revoked without notice if the Client is in breach of any objection to make a payment to us.

REVIEW OF DESIGN

Where major civil or structural developments are proposed or where only a limited investigation has been completed or where the geotechnical conditions/ constraints are quite complex, it is prudent to have a joint design review which involves a senior geotechnical engineer.


































SITE INSPECTION

The company will always be pleased to provide engineering inspection services for geotechnical aspects of work to which this report is related.

Requirements could range from:

- i) a site visit to confirm that conditions exposed are no worse than those interpreted, to
- ii) a visit to assist the contractor or other site personnel in identifying various soil/rock types such as appropriate footing or pier founding depths, or
- iii) full time engineering presence on site.

GRAPHIC LOG SYMBOLS FOR SOILS AND ROCKS

SOIL		ROCK		DEFECTS AND INCLUSIONS	
	FILL		CONGLOMERATE		CLAY SEAM
	TOPSOIL		SANDSTONE		SHEARED OR CRUSHED SEAM
	CLAY (CL, CH)		SHALE		BRECCIATED OR SHATTERED SEAM/ZONE
	SILT (ML, MH)		SILTSTONE, MUDSTONE, CLAYSTONE		IRONSTONE GRAVEL
	SAND (SP, SW)		LIMESTONE		ORGANIC MATERIAL
	GRAVEL (GP, GW)		PHYLLITE, SCHIST	OTHER MATERIALS	
	SANDY CLAY (CL, CH)		TUFF		CONCRETE
	SILTY CLAY (CL, CH)		GRANITE, GABBRO		BITUMINOUS CONCRETE, COAL
	CLAYEY SAND (SC)		DOLERITE, DIORITE		COLLUVIUM
	SILTY SAND (SM)		BASALT, ANDESITE		
	GRAVELLY CLAY (CL, CH)		QUARTZITE		
	CLAYEY GRAVEL (GC)				
	SANDY SILT (ML)				
	PEAT AND ORGANIC SOILS				



LOG SYMBOLS

LOG COLUMN	SYMBOL	DEFINITION	
Groundwater Record		Standing water level. Time delay following completion of drilling may be shown.	
		Extent of borehole collapse shortly after drilling.	
		Groundwater seepage into borehole or excavation noted during drilling or excavation.	
Samples	ES	Soil sample taken over depth indicated, for environmental analysis.	
	U50	Undisturbed 50mm diameter tube sample taken over depth indicated.	
	DB	Bulk disturbed sample taken over depth indicated.	
	DS	Small disturbed bag sample taken over depth indicated.	
	ASB	Soil sample taken over depth indicated, for asbestos screening.	
	ASS	Soil sample taken over depth indicated, for acid sulfate soil analysis.	
	SAL	Soil sample taken over depth indicated, for salinity analysis.	
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. 'R' as noted below.	
	N _c =	5 7 3R	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60 degree solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	VNS = 25		Vane shear reading in kPa of Undrained Shear Strength.
	PID = 100		Photoionisation detector reading in ppm (Soil sample headspace test).
Moisture Condition (Cohesive Soils) (Cohesionless Soils)	MC > PL	Moisture content estimated to be greater than plastic limit.	
	MC ≈ PL	Moisture content estimated to be approximately equal to plastic limit.	
	MC < PL	Moisture content estimated to be less than plastic limit.	
	D	DRY - runs freely through fingers.	
	M	MOIST - does not run freely but no free water visible on soil surface.	
	W	WET - free water visible on soil surface.	
Strength (Consistency) Cohesive Soils	VS	VERY SOFT - Unconfined compressive strength less than 25kPa	
	S	SOFT - Unconfined compressive strength 25-50kPa	
	F	FIRM - Unconfined compressive strength 50-100kPa	
	St	STIFF - Unconfined compressive strength 100-200kPa	
	VSt	VERY STIFF - Unconfined compressive strength 200-400kPa	
	H	HARD - Unconfined compressive strength greater than 400kPa	
	()	Bracketed symbol indicates estimated consistency based on tactile examination or other tests.	
Density Index/ Relative Density (Cohesionless Soils)	VL	Very Loose < 15	
	L	Loose 15-35	
	MD	Medium Dense 35-65	
	D	Dense 65-85	
	VD	Very Dense > 85	
	()	Bracketed symbol indicates estimated density based on ease of drilling or other tests.	
Hand Penetrometer Readings	300	Numbers indicate individual test results in kPa on representative undisturbed material unless noted otherwise.	
	250		
Remarks	'V' bit	Hardened steel 'V' shaped bit.	
	'TC' bit	Tungsten carbide wing bit.	
	T 60	Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.	



LOG SYMBOLS

ROCK MATERIAL WEATHERING CLASSIFICATION

TERM	SYMBOL	DEFINITION
Residual Soil	RS	Soil developed on extremely weathered rock; the mass structure and substance fabric are no longer evident; there is a large change in volume but the soil has not been significantly transported.
Extremely weathered rock	XW	Rock is weathered to such an extent that it has "soil" properties, ie it either disintegrates or can be remoulded, in water.
Distinctly weathered rock	DW	Rock strength usually changed by weathering. The rock may be highly discoloured, usually by ironstaining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Slightly weathered rock	SW	Rock is slightly discoloured but shows little or no change of strength from fresh rock.
Fresh rock	FR	Rock shows no sign of decomposition or staining.

ROCK STRENGTH

Rock strength is defined by the Point Load Strength Index (I_s 50) and refers to the strength of the rock substance in the direction normal to the bedding. The test procedure is described by the International Journal of Rock Mechanics, Mining, Science and Geomechanics, Abstract Volume 22, No 2, 1985.

TERM	SYMBOL	I_s (50) MPa	FIELD GUIDE
Extremely Low: -----	EL -----	0.03	Easily remoulded by hand to a material with soil properties.
Very Low: -----	VL -----	0.1	May be crumbled in the hand. Sandstone is "sugary" and friable.
Low: -----	L -----	0.3	A piece of core 150mm long x 50mm dia. may be broken by hand and easily scored with a knife. Sharp edges of core may be friable and break during handling.
Medium Strength: -----	M -----	1	A piece of core 150mm long x 50mm dia. can be broken by hand with difficulty. Readily scored with knife.
High: -----	H -----	3	A piece of core 150mm long x 50mm dia. core cannot be broken by hand, can be slightly scratched or scored with knife; rock rings under hammer.
Very High: -----	VH -----	10	A piece of core 150mm long x 50mm dia. may be broken with hand-held pick after more than one blow. Cannot be scratched with pen knife; rock rings under hammer.
Extremely High:	EH		A piece of core 150mm long x 50mm dia. is very difficult to break with hand-held hammer. Rings when struck with a hammer.

ABBREVIATIONS USED IN DEFECT DESCRIPTION

ABBREVIATION	DESCRIPTION	NOTES
Be	Bedding Plane Parting	Defect orientations measured relative to the normal to the long core axis (ie relative to horizontal for vertical holes)
CS	Clay Seam	
J	Joint	
P	Planar	
Un	Undulating	
S	Smooth	
R	Rough	
IS	Ironstained	
XWS	Extremely Weathered Seam	
Cr	Crushed Seam	
60t	Thickness of defect in millimetres	

APPENDIX B



EnviroLab Services Pty Ltd
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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 28383

Client:

Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Vittal Boggaram

Sample log in details:

Your Reference:	<u>E21871K, Newtown</u>
No. of samples:	32 Soils
Date samples received:	23/04/09
Date completed instructions received:	23/04/09

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:	30/04/09
Date of Preliminary Report:	Not Issued
Issue Date:	28/04/09

NATA accreditation number 2901. This document shall not be reproduced except in full.
This document is issued in accordance with NATA's accreditation requirements.
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

EnviroLab Reference: 28383
Revision No: R 00



vTPH & BTEX in Soil	UNITS	28383-1	28383-4	28383-6	28383-7	28383-9
Our Reference:	-----	BH101	BH102	BH103	BH103	BH104
Your Reference	-----					
Depth	-----	0.1-0.2	0.2-0.4	0.5-0.7	1.2-1.4	0.145-0.3
Date Sampled		22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	25/04/2009	25/04/2009	25/04/2009	25/04/2009	25/04/2009
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	%	102	96	103	105	102

vTPH & BTEX in Soil	UNITS	28383-11	28383-13	28383-15	28383-17	28383-19
Our Reference:	-----	BH105	BH106	BH107	BH108	BH109
Your Reference	-----					
Depth	-----	0.15-0.3	0.4-0.8	0.2-0.4	0.2-0.4	0.3-0.5
Date Sampled		22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	25/04/2009	25/04/2009	25/04/2009	25/04/2009	25/04/2009
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	107	100	101	103

vTPH & BTEX in Soil	UNITS	28383-21	28383-23	28383-26	28383-27	28383-28
Our Reference:	-----	BH110	BH110	BH111	BH111	BH111
Your Reference	-----					
Depth	-----	0.2-0.5	1.5-1.7	0.11-0.22	0.5-0.7	1.5-2.0
Date Sampled		22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	25/04/2009	25/04/2009	25/04/2009	25/04/2009	25/04/2009
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	%	108	101	99	96	105

Client Reference: E21871K, Newtown

vTPH & BTEX in Soil		
Our Reference:	UNITS	28383-29
Your Reference	-----	BH111
Depth	-----	2.05-2.25
Date Sampled		22/04/2009
Type of sample		Soil
Date extracted	-	24/04/2009
Date analysed	-	25/04/2009
vTPH C ₆ - C ₉	mg/kg	<25
Benzene	mg/kg	<0.5
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1.0
m+p-xylene	mg/kg	<2.0
o-Xylene	mg/kg	<1.0
Surrogate aaa-Trifluorotoluene	%	104

Envirolab Reference: 28383
Revision No: R 00



Client Reference: E21871K, Newtown

sTPH in Soil (C10-C36)		UNITS	28383-1	28383-4	28383-6	28383-7	28383-9
Our Reference:	-----		BH101	BH102	BH103	BH103	BH104
Your Reference	-----		0.1-0.2	0.2-0.4	0.5-0.7	1.2-1.4	0.145-0.3
Depth			22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Date Sampled			Soil	Soil	Soil	Soil	Soil
Type of sample							
Date extracted	-		24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-		24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
TPH C10 - C14	mg/kg		<50	<50	<50	<50	<50
TPH C15 - C28	mg/kg		<100	370	120	<100	<100
TPH C29 - C36	mg/kg		<100	360	<100	<100	<100
Surrogate o-Terphenyl	%		85	102	90	88	91

sTPH in Soil (C10-C36)		UNITS	28383-11	28383-13	28383-15	28383-17	28383-19
Our Reference:	-----		BH105	BH106	BH107	BH108	BH109
Your Reference	-----		0.15-0.3	0.4-0.8	0.2-0.4	0.2-0.4	0.3-0.5
Depth			22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Date Sampled			Soil	Soil	Soil	Soil	Soil
Type of sample							
Date extracted	-		24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-		24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
TPH C10 - C14	mg/kg		<50	<50	<50	<50	<50
TPH C15 - C28	mg/kg		<100	<100	<100	170	<100
TPH C29 - C36	mg/kg		<100	<100	<100	360	<100
Surrogate o-Terphenyl	%		81	90	87	92	82

sTPH in Soil (C10-C36)		UNITS	28383-21	28383-23	28383-26	28383-27	28383-28
Our Reference:	-----		BH110	BH110	BH111	BH111	BH111
Your Reference	-----		0.2-0.5	1.5-1.7	0.11-0.22	0.5-0.7	1.5-2.0
Depth			22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Date Sampled			Soil	Soil	Soil	Soil	Soil
Type of sample							
Date extracted	-		24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-		24/04/2009	27/04/2009	27/04/2009	24/04/2009	24/04/2009
TPH C10 - C14	mg/kg		110	53	<50	<50	<50
TPH C15 - C28	mg/kg		2,000	930	<100	<100	<100
TPH C29 - C36	mg/kg		4,300	2,100	<100	<100	<100
Surrogate o-Terphenyl	%		128	108	84	82	85

sTPH in Soil (C10-C36)		
Our Reference:	UNITS	28383-29
Your Reference	-----	BH111
Depth	-----	2.05-2.25
Date Sampled		22/04/2009
Type of sample		Soil
Date extracted	-	24/04/2009
Date analysed	-	24/04/2009
TPH C10 - C14	mg/kg	<50
TPH C15 - C28	mg/kg	<100
TPH C29 - C36	mg/kg	<100
Surrogate o-Terphenyl	%	79

Client Reference: E21871K, Newtown

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	28383-1 BH101 0.1-0.2 22/04/2009 Soil	28383-4 BH102 0.2-0.4 22/04/2009 Soil	28383-6 BH103 0.5-0.7 22/04/2009 Soil	28383-7 BH103 1.2-1.4 22/04/2009 Soil	28383-9 BH104 0.145-0.3 22/04/2009 Soil
Date extracted	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	25/04/2009	25/04/2009	25/04/2009	25/04/2009	25/04/2009
Naphthalene	mg/kg	<0.1	0.3	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	1.7	0.4	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	0.5	0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	11	2.2	<0.1	<0.1
Anthracene	mg/kg	<0.1	2.6	0.4	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	24	4.9	<0.1	0.2
Pyrene	mg/kg	<0.1	22	5.1	<0.1	0.2
Benzo(a)anthracene	mg/kg	<0.1	11	2.5	<0.1	0.1
Chrysene	mg/kg	<0.1	11	2.7	<0.1	0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	20	4.8	<0.2	0.2
Benzo(a)pyrene	mg/kg	<0.05	13	3.3	<0.05	0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	7.2	1.9	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.9	0.2	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	6.8	1.8	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	99	96	95	97	97

Client Reference: E21871K, Newtown

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	28383-11 BH105 0.15-0.3 22/04/2009 Soil	28383-13 BH106 0.4-0.8 22/04/2009 Soil	28383-15 BH107 0.2-0.4 22/04/2009 Soil	28383-17 BH108 0.2-0.4 22/04/2009 Soil	28383-19 BH109 0.3-0.5 22/04/2009 Soil
Date extracted	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	25/04/2009	25/04/2009	25/04/2009	25/04/2009	25/04/2009
Naphthalene	mg/kg	<0.1	<0.1	0.1	0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	0.3	0.4	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	0.2	0.3	<0.1
Phenanthrene	mg/kg	0.5	0.3	1.9	4.5	<0.1
Anthracene	mg/kg	<0.1	<0.1	0.3	0.7	<0.1
Fluoranthene	mg/kg	1	0.7	2.3	5.9	0.1
Pyrene	mg/kg	1	0.6	2.3	5.2	0.1
Benzo(a)anthracene	mg/kg	0.5	0.3	1.1	2.5	0.1
Chrysene	mg/kg	0.5	0.4	1.1	2.6	0.1
Benzo(b+k)fluoranthene	mg/kg	0.8	0.7	1.9	4.4	0.2
Benzo(a)pyrene	mg/kg	0.5	0.4	1.4	2.9	0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	0.3	0.2	0.7	1.6	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	0.1	0.2	<0.1
Benzo(g,h,i)perylene	mg/kg	0.3	0.2	0.8	1.4	<0.1
Surrogate p-Terphenyl-d14	%	97	97	93	96	94

Client Reference: E21871K, Newtown

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	28383-21 BH110 0.2-0.5 22/04/2009 Soil	28383-23 BH110 1.5-1.7 22/04/2009 Soil	28383-26 BH111 0.11-0.22 22/04/2009 Soil	28383-27 BH111 0.5-0.7 22/04/2009 Soil	28383-28 BH111 1.5-2.0 22/04/2009 Soil
Date extracted	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	25/04/2009	25/04/2009	25/04/2009	25/04/2009	25/04/2009
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	0.2	0.2	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.5	0.5	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.5	0.5	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.3	0.3	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.3	0.3	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	0.5	0.5	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.3	0.3	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.2	0.2	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.2	0.2	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	93	93	96	95	98

Client Reference: E21871K, Newtown

Organochlorine Pesticides in soil	UNITS	28383-1	28383-4	28383-6	28383-9	28383-11
Our Reference:	-----	BH101	BH102	BH103	BH104	BH105
Your Reference	-----	0.1-0.2	0.2-0.4	0.5-0.7	0.145-0.3	0.15-0.3
Depth		22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
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	<0.1	<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	%	110	92	90	109	105

Client Reference: E21871K, Newtown

Organochlorine Pesticides in soil	UNITS	28383-13	28383-15	28383-17	28383-19	28383-21
Our Reference:	-----	BH106	BH107	BH108	BH109	BH110
Your Reference	-----					
Depth	-----	0.4-0.8	0.2-0.4	0.2-0.4	0.3-0.5	0.2-0.5
Date Sampled		22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
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	<0.1	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	0.2
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	%	104	92	102	105	#

Organochlorine Pesticides in soil	UNITS	28383-27
Our Reference:	-----	BH111
Your Reference	-----	0.5-0.7
Depth		22/04/2009
Date Sampled		Soil
Type of sample		
Date extracted	-	24/04/2009
Date analysed	-	24/04/2009
HCB	mg/kg	<0.1
alpha-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Surrogate TCLMX	%	104

Client Reference: E21871K, Newtown

Organophosphorus Pesticides	UNITS	28383-1	28383-4	28383-6	28383-9	28383-11
Our Reference:	-----	BH101	BH102	BH103	BH104	BH105
Your Reference	-----					
Depth	-----	0.1-0.2	0.2-0.4	0.5-0.7	0.145-0.3	0.15-0.3
Date Sampled		22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
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	%	110	92	90	109	105

Organophosphorus Pesticides	UNITS	28383-13	28383-15	28383-17	28383-19	28383-21
Our Reference:	-----	BH106	BH107	BH108	BH109	BH110
Your Reference	-----					
Depth	-----	0.4-0.8	0.2-0.4	0.2-0.4	0.3-0.5	0.2-0.5
Date Sampled		22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
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	%	104	92	102	105	#

Client Reference: E21871K, Newtown

Organophosphorus Pesticides		
Our Reference:	UNITS	28383-27
Your Reference	-----	BH111
Depth	-----	0.5-0.7
Date Sampled		22/04/2009
Type of sample		Soil
Date extracted	-	24/04/2009
Date analysed	-	24/04/2009
Diazinon	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Chlorpyrifos	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Ethion	mg/kg	<0.1
Surrogate TCLMX	%	104

Envirolab Reference: 28383
Revision No: R 00



Client Reference: E21871K, Newtown

PCBs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	28383-1 BH101 0.1-0.2 22/04/2009 Soil	28383-4 BH102 0.2-0.4 22/04/2009 Soil	28383-6 BH103 0.5-0.7 22/04/2009 Soil	28383-9 BH104 0.145-0.3 22/04/2009 Soil	28383-11 BH105 0.15-0.3 22/04/2009 Soil
Date extracted	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Arochlor 1016	mg/kg	<0.1	<1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	110	92	90	109	105

PCBs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	28383-13 BH106 0.4-0.8 22/04/2009 Soil	28383-15 BH107 0.2-0.4 22/04/2009 Soil	28383-17 BH108 0.2-0.4 22/04/2009 Soil	28383-19 BH109 0.3-0.5 22/04/2009 Soil	28383-21 BH110 0.2-0.5 22/04/2009 Soil
Date extracted	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
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	%	104	92	102	105	#

PCBs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	28383-27 BH111 0.5-0.7 22/04/2009 Soil
Date extracted	-	24/04/2009
Date analysed	-	24/04/2009
Arochlor 1016	mg/kg	<0.1
Arochlor 1232	mg/kg	<0.1
Arochlor 1242	mg/kg	<0.1
Arochlor 1248	mg/kg	<0.1
Arochlor 1254	mg/kg	<0.1
Arochlor 1260	mg/kg	<0.1
Surrogate TCLMX	%	104

Client Reference: E21871K, Newtown

Acid Extractable metals in soil	UNITS	28383-1	28383-4	28383-6	28383-7	28383-9
Our Reference:	-----	BH101	BH102	BH103	BH103	BH104
Your Reference	-----	0.1-0.2	0.2-0.4	0.5-0.7	1.2-1.4	0.145-0.3
Depth	-----	22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date digested	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	27/04/2009	27/04/2009	27/04/2009	27/04/2009	27/04/2009
Arsenic	mg/kg	<4	6	10	7	7
Cadmium	mg/kg	<0.5	0.6	2.5	<0.5	<0.5
Chromium	mg/kg	9	17	16	14	21
Copper	mg/kg	3	46	130	8	<1
Lead	mg/kg	24	240	730	22	18
Mercury	mg/kg	<0.1	0.2	1.5	<0.1	<0.1
Nickel	mg/kg	1	20	30	<1	<1
Zinc	mg/kg	10	260	820	3	97

Acid Extractable metals in soil	UNITS	28383-11	28383-12	28383-13	28383-15	28383-17
Our Reference:	-----	BH105	BH105	BH106	BH107	BH108
Your Reference	-----	0.15-0.3	0.8-1.0	0.4-0.8	0.2-0.4	0.2-0.4
Depth	-----	22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date digested	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	27/04/2009	27/04/2009	27/04/2009	27/04/2009	27/04/2009
Arsenic	mg/kg	<4	<4	<4	6	5
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	0.7
Chromium	mg/kg	20	3	6	18	25
Copper	mg/kg	14	9	29	23	53
Lead	mg/kg	26	11	170	260	1000
Mercury	mg/kg	<0.1	<0.1	0.3	0.2	0.6
Nickel	mg/kg	19	<1	3	7	19
Zinc	mg/kg	41	<1	140	220	470

Client Reference: E21871K, Newtown

Acid Extractable metals in soil	UNITS	28383-19	28383-21	28383-23	28383-26	28383-27
Our Reference:	-----	BH109	BH110	BH110	BH111	BH111
Your Reference	-----					
Depth	-----	0.3-0.5	0.2-0.5	1.5-1.7	0.11-0.22	0.5-0.7
Date Sampled		22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	27/04/2009	27/04/2009	27/04/2009	27/04/2009	27/04/2009
Arsenic	mg/kg	9	<4	7	<4	<4
Cadmium	mg/kg	<0.5	0.9	0.6	3.0	1
Chromium	mg/kg	31	16	31	2	6
Copper	mg/kg	17	71	56	1	5
Lead	mg/kg	110	440	200	2	13
Mercury	mg/kg	0.4	0.2	<0.1	<0.1	<0.1
Nickel	mg/kg	9	35	13	49	23
Zinc	mg/kg	170	390	340	6	23

Acid Extractable metals in soil	UNITS	28383-28	28383-29	28383-30	28383-31
Our Reference:	-----	BH111	BH111	Dup 1	Dup 2
Your Reference	-----				
Depth	-----	1.5-2.0	2.05-2.25	-	-
Date Sampled		22/04/2009	22/04/2009	22/04/2009	22/04/2009
Type of sample		Soil	Soil	Soil	Soil
Date digested	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	27/04/2009	27/04/2009	27/04/2009	27/04/2009
Arsenic	mg/kg	<4	<4	<4	<4
Cadmium	mg/kg	1.2	<0.5	1.4	<0.5
Chromium	mg/kg	7	3	7	3
Copper	mg/kg	140	36	22	9
Lead	mg/kg	180	14	16	10
Mercury	mg/kg	<0.1	<0.1	0.1	<0.1
Nickel	mg/kg	81	210	89	<1
Zinc	mg/kg	52	3	48	<1

Client Reference: E21871K, Newtown

Moisture						
Our Reference:	UNITS	28383-1	28383-4	28383-6	28383-7	28383-9
Your Reference	-----	BH101	BH102	BH103	BH103	BH104
Depth	-----	0.1-0.2	0.2-0.4	0.5-0.7	1.2-1.4	0.145-0.3
Date Sampled		22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Moisture	%	29	22	23	21	22

Moisture						
Our Reference:	UNITS	28383-11	28383-12	28383-13	28383-15	28383-17
Your Reference	-----	BH105	BH105	BH106	BH107	BH108
Depth	-----	0.15-0.3	0.8-1.0	0.4-0.8	0.2-0.4	0.2-0.4
Date Sampled		22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Moisture	%	16	15	8.9	16	16

Moisture						
Our Reference:	UNITS	28383-19	28383-21	28383-23	28383-26	28383-27
Your Reference	-----	BH109	BH110	BH110	BH111	BH111
Depth	-----	0.3-0.5	0.2-0.5	1.5-1.7	0.11-0.22	0.5-0.7
Date Sampled		22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Moisture	%	9.4	9.1	14	18	18

Moisture					
Our Reference:	UNITS	28383-28	28383-29	28383-30	28383-31
Your Reference	-----	BH111	BH111	Dup 1	Dup 2
Depth	-----	1.5-2.0	2.05-2.25	-	-
Date Sampled		22/04/2009	22/04/2009	22/04/2009	22/04/2009
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Date analysed	-	24/04/2009	24/04/2009	24/04/2009	24/04/2009
Moisture	%	13	19	17	15

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Asbestos ID - soils Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	28383-1 BH101 0.1-0.2 22/04/2009 Soil	28383-4 BH102 0.2-0.4 22/04/2009 Soil	28383-6 BH103 0.5-0.7 22/04/2009 Soil	28383-9 BH104 0.145-0.3 22/04/2009 Soil	28383-11 BH105 0.15-0.3 22/04/2009 Soil
Date analysed	-	28/04/2009	28/04/2009	28/04/2009	28/04/2009	28/04/2009
Sample Description	-	2g Soil	5g soil	5g Soil	2g Soil	25g Soil
Asbestos ID in soil	-	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Asbestos ID - soils Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	28383-13 BH106 0.4-0.8 22/04/2009 Soil	28383-15 BH107 0.2-0.4 22/04/2009 Soil	28383-17 BH108 0.2-0.4 22/04/2009 Soil	28383-19 BH109 0.3-0.5 22/04/2009 Soil	28383-27 BH111 0.5-0.7 22/04/2009 Soil
Date analysed	-	28/04/2009	28/04/2009	28/04/2009	28/04/2009	28/04/2009
Sample Description	-	15g Soil	8g Soil	3g Soil	3g Soil	2g Sand
Asbestos ID in soil	-	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Asbestos ID - materials		
Our Reference:	UNITS	28383-21
Your Reference	-----	BH110
Depth	-----	0.2-0.5
Date Sampled		22/04/2009
Type of sample		Soil
Date analysed	-	28/04/2009
Sample Description	-	20x10x5mm Fibre cement sheet
Asbestos ID in materials	-	Chrysotile asbestos detected
Asbestos Fibres	-	Bonded

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.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 dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
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.

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QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTPH & BTEX in Soil						Base II Duplicate II %RPD		
Date extracted	-			24/04/2009	28383-1	24/04/2009 24/04/2009	LCS-2	24/04/2009
Date analysed	-			25/04/09	28383-1	25/04/2009 25/04/2009	LCS-2	25/04/09
vTPH C6 - C9	mg/kg	25	GC.16	<25	28383-1	<25 <25	LCS-2	107%
Benzene	mg/kg	0.5	GC.16	<0.5	28383-1	<0.5 <0.5	LCS-2	102%
Toluene	mg/kg	0.5	GC.16	<0.5	28383-1	<0.5 <0.5	LCS-2	102%
Ethylbenzene	mg/kg	1	GC.16	<1.0	28383-1	<1.0 <1.0	LCS-2	108%
m+p-xylene	mg/kg	2	GC.16	<2.0	28383-1	<2.0 <2.0	LCS-2	111%
o-Xylene	mg/kg	1	GC.16	<1.0	28383-1	<1.0 <1.0	LCS-2	114%
Surrogate aaa-Trifluorotoluene	%		GC.16	108	28383-1	102 96 RPD: 6	LCS-2	106%

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
sTPH in Soil (C10-C36)						Base II Duplicate II %RPD		
Date extracted	-			24/4/09	28383-1	24/04/2009 24/04/2009	LCS-2	24/4/09
Date analysed	-			24/4/09	28383-1	24/04/2009 24/04/2009	LCS-2	24/4/09
TPH C10 - C14	mg/kg	50	GC.3	<50	28383-1	<50 <50	LCS-2	88%
TPH C15 - C28	mg/kg	100	GC.3	<100	28383-1	<100 <100	LCS-2	93%
TPH C29 - C36	mg/kg	100	GC.3	<100	28383-1	<100 <100	LCS-2	81%
Surrogate o-Terphenyl	%		GC.3	75	28383-1	85 85 RPD: 0	LCS-2	83%

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			24/4/09	28383-1	24/04/2009 24/04/2009	LCS-2	24/4/09
Date analysed	-			25/4/09	28383-1	25/04/2009 25/04/2009	LCS-2	25/4/09
Naphthalene	mg/kg	0.1	GC.12 subset	<0.1	28383-1	<0.1 <0.1	LCS-2	95%
Acenaphthylene	mg/kg	0.1	GC.12 subset	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	GC.12 subset	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	GC.12 subset	<0.1	28383-1	<0.1 <0.1	LCS-2	92%
Phenanthrene	mg/kg	0.1	GC.12 subset	<0.1	28383-1	<0.1 <0.1	LCS-2	99%
Anthracene	mg/kg	0.1	GC.12 subset	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	GC.12 subset	<0.1	28383-1	<0.1 <0.1	LCS-2	94%
Pyrene	mg/kg	0.1	GC.12 subset	<0.1	28383-1	<0.1 <0.1	LCS-2	99%
Benzo(a)anthracene	mg/kg	0.1	GC.12 subset	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]

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QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Chrysene	mg/kg	0.1	GC.12 subset	<0.1	28383-1	<0.1 <0.1	LCS-2	108%
Benzo(b+k)fluoranthene	mg/kg	0.2	GC.12 subset	<0.2	28383-1	<0.2 <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	GC.12 subset	<0.05	28383-1	<0.05 <0.05	LCS-2	95%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	GC.12 subset	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	GC.12 subset	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	GC.12 subset	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		GC.12 subset	83	28383-1	99 95 RPD: 4	LCS-2	92%

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Organochlorine Pesticides in soil						Base II Duplicate II %RPD		
Date extracted	-			24/4/09	28383-1	24/04/2009 24/04/2009	LCS-2	24/4/09
Date analysed	-			24/4/09	28383-1	24/04/2009 24/04/2009	LCS-2	24/4/09
HCB	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	LCS-2	103%
gamma-BHC	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	LCS-2	123%
Heptachlor	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	LCS-2	105%
delta-BHC	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	LCS-2	117%
Heptachlor Epoxide	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	LCS-2	107%
gamma-Chlordane	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	LCS-2	106%
Dieldrin	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	LCS-2	108%
Endrin	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	LCS-2	111%
pp-DDD	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	LCS-2	111%
Endosulfan II	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	LCS-2	102%
Methoxychlor	mg/kg	0.1	GC-5	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-5	85	28383-1	110 98 RPD: 12	LCS-2	92%

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QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Organophosphorus Pesticides						Base II Duplicate II %RPD		
Date extracted	-			24/4/09	28383-1	24/04/2009 24/04/2009	LCS-2	24/4/09
Date analysed	-			24/4/09	28383-1	24/04/2009 24/04/2009	LCS-2	24/4/09
Diazinon	mg/kg	0.1	GC.8	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	GC.8	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Chlorpyrifos-methyl	mg/kg	0.1	GC.8	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	GC.8	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Chlorpyrifos	mg/kg	0.1	GC.8	<0.1	28383-1	<0.1 <0.1	LCS-2	109%
Fenitrothion	mg/kg	0.1	GC.8	<0.1	28383-1	<0.1 <0.1	LCS-2	140%
Bromophos-ethyl	mg/kg	0.1	GC.8	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	GC.8	<0.1	28383-1	<0.1 <0.1	LCS-2	135%
Surrogate TCLMX	%		GC.8	85	28383-1	110 98 RPD: 12	LCS-2	94%

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Soil						Base II Duplicate II %RPD		
Date extracted	-			24/4/09	28383-1	24/04/2009 24/04/2009	LCS-2	24/4/09
Date analysed	-			24/4/09	28383-1	24/04/2009 24/04/2009	LCS-2	24/4/09
Arochlor 1016	mg/kg	0.1	GC-6	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	GC-6	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	GC-6	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	GC-6	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	GC-6	<0.1	28383-1	<0.1 <0.1	LCS-2	120%
Arochlor 1260	mg/kg	0.1	GC-6	<0.1	28383-1	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-6	85	28383-1	110 98 RPD: 12	LCS-2	109%

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			24/04/09	28383-1	24/04/2009 24/04/2009	LCS-1	24/04/09
Date analysed	-			27/04/09	28383-1	27/04/2009 27/04/2009	LCS-1	27/04/09
Arsenic	mg/kg	4	Metals.20 ICP-AES	<4	28383-1	<4 <4	LCS-1	109%
Cadmium	mg/kg	0.5	Metals.20 ICP-AES	<0.5	28383-1	<0.5 <0.5	LCS-1	114%
Chromium	mg/kg	1	Metals.20 ICP-AES	<1	28383-1	9 9 RPD: 0	LCS-1	112%
Copper	mg/kg	1	Metals.20 ICP-AES	<1	28383-1	3 3 RPD: 0	LCS-1	116%
Lead	mg/kg	1	Metals.20 ICP-AES	<1	28383-1	24 23 RPD: 4	LCS-1	112%
Mercury	mg/kg	0.1	Metals.21 CV-AAS	<0.1	28383-1	<0.1 <0.1	LCS-1	102%

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QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base Duplicate %RPD		
Nickel	mg/kg	1	Metals.20 ICP-AES	<1	28383-1	1 1 RPD: 0	LCS-1	113%
Zinc	mg/kg	1	Metals.20 ICP-AES	<1	28383-1	10 12 RPD: 18	LCS-1	113%

QUALITY CONTROL	UNITS	PQL	METHOD	Blank
Moisture				
Date prepared	-			24/04/2009
Date analysed	-			24/04/2009
Moisture	%	0.1	LAB.8	<0.10

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

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

QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Spike % Recovery
vTPH & BTEX in Soil			Base + Duplicate + %RPD		
Date extracted	-	28383-21	24/04/2009 24/04/2009	28383-4	24/04/2009
Date analysed	-	28383-21	25/04/2009 25/04/2009	28383-4	25/04/09
vTPH C6 - C9	mg/kg	28383-21	<25 <25	28383-4	98%
Benzene	mg/kg	28383-21	<0.5 <0.5	28383-4	94%
Toluene	mg/kg	28383-21	<0.5 <0.5	28383-4	97%
Ethylbenzene	mg/kg	28383-21	<1.0 <1.0	28383-4	98%
m+p-xylene	mg/kg	28383-21	<2.0 <2.0	28383-4	100%
o-Xylene	mg/kg	28383-21	<1.0 <1.0	28383-4	104%
Surrogate aaa-Trifluorotoluene	%	28383-21	108 99 RPD: 9	28383-4	110%

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QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	28383-21	24/04/2009 24/04/2009	28383-4	24/4/09
Date analysed	-	28383-21	24/04/2009 24/04/2009	28383-4	24/4/09
TPH C10 - C14	mg/kg	28383-21	110 <50	28383-4	94%
TPH C15 - C28	mg/kg	28383-21	2000 780 RPD: 88	28383-4	#
TPH C29 - C36	mg/kg	28383-21	4300 1900 RPD: 77	28383-4	109%
Surrogate o-Terphenyl	%	28383-21	128 93 RPD: 32	28383-4	102%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	28383-21	24/04/2009 24/04/2009	28383-4	24/4/09
Date analysed	-	28383-21	25/04/2009 25/04/2009	28383-4	25/4/09
Naphthalene	mg/kg	28383-21	<0.1 <0.1	28383-4	91%
Acenaphthylene	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	28383-21	<0.1 <0.1	28383-4	97%
Phenanthrene	mg/kg	28383-21	0.2 0.3 RPD: 40	28383-4	74%
Anthracene	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	28383-21	0.5 0.5 RPD: 0	28383-4	#
Pyrene	mg/kg	28383-21	0.5 0.5 RPD: 0	28383-4	#
Benzo(a)anthracene	mg/kg	28383-21	0.3 0.3 RPD: 0	[NR]	[NR]
Chrysene	mg/kg	28383-21	0.3 0.3 RPD: 0	28383-4	#
Benzo(b+k)fluoranthene	mg/kg	28383-21	0.5 0.5 RPD: 0	[NR]	[NR]
Benzo(a)pyrene	mg/kg	28383-21	0.3 0.3 RPD: 0	28383-4	#
Indeno(1,2,3-c,d)pyrene	mg/kg	28383-21	0.2 0.1 RPD: 67	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	28383-21	0.2 0.1 RPD: 67	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	28383-21	93 90 RPD: 3	28383-4	94%

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QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	28383-21	24/04/2009 24/04/2009	28383-4	24/4/09
Date analysed	-	28383-21	24/04/2009 24/04/2009	28383-4	24/4/09
HCB	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	28383-21	<0.1 <0.1	28383-4	110%
gamma-BHC	mg/kg	28383-21	<0.1 <0.1	28383-4	131%
beta-BHC	mg/kg	28383-21	<0.1 <0.1	28383-4	117%
Heptachlor	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
delta-BHC	mg/kg	28383-21	<0.1 <0.1	28383-4	127%
Aldrin	mg/kg	28383-21	<0.1 <0.1	28383-4	117%
Heptachlor Epoxide	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
gamma-Chlordane	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	28383-21	<0.1 <0.1	28383-4	116%
pp-DDE	mg/kg	28383-21	0.1 <0.1	28383-4	119%
Dieldrin	mg/kg	28383-21	<0.1 <0.1	28383-4	127%
Endrin	mg/kg	28383-21	<0.1 <0.1	28383-4	113%
pp-DDD	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
Endosulfan II	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	28383-21	0.2 0.2 RPD: 0	[NR]	[NR]
Endrin Aldehyde	mg/kg	28383-21	<0.1 <0.1	28383-4	111%
Endosulfan Sulphate	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
Methoxychlor	mg/kg	28383-21	<0.1 <0.1	28383-4	104%
Surrogate TCLMX	%	28383-21	# #	28383-4	24/4/09

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QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	28383-21	24/04/2009 24/04/2009	28383-4	24/4/09
Date analysed	-	28383-21	24/04/2009 24/04/2009	[NR]	[NR]
Diazinon	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
Dimethoate	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
Ronnel	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	28383-21	<0.1 <0.1	28383-4	112%
Fenitrothion	mg/kg	28383-21	<0.1 <0.1	28383-4	#
Bromophos-ethyl	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
Ethion	mg/kg	28383-21	<0.1 <0.1	28383-4	#
Surrogate TCLMX	%	28383-21	# #	28383-4	91%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	28383-21	24/04/2009 24/04/2009	28383-4	24/4/09
Date analysed	-	28383-21	24/04/2009 24/04/2009	28383-4	24/4/09
Arochlor 1016	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	28383-21	<0.1 <0.1	28383-4	131%
Arochlor 1260	mg/kg	28383-21	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%	28383-21	# #	28383-4	128%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	28383-21	24/04/2009 24/04/2009	LCS-2	24/04/09
Date analysed	-	28383-21	27/04/2009 27/04/2009	LCS-2	27/04/09
Arsenic	mg/kg	28383-21	<4 <4	LCS-2	106%
Cadmium	mg/kg	28383-21	0.9 0.9 RPD: 0	LCS-2	110%
Chromium	mg/kg	28383-21	16 20 RPD: 22	LCS-2	110%
Copper	mg/kg	28383-21	71 93 RPD: 27	LCS-2	110%
Lead	mg/kg	28383-21	440 460 RPD: 4	LCS-2	110%
Mercury	mg/kg	28383-21	0.2 0.2 RPD: 0	LCS-2	106%
Nickel	mg/kg	28383-21	35 31 RPD: 12	LCS-2	111%
Zinc	mg/kg	28383-21	390 420 RPD: 7	LCS-2	111%

Client Reference: E21871K, Newtown

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	28383-4	24/04/09
Date analysed	-	[NT]	[NT]	28383-4	27/04/09
Arsenic	mg/kg	[NT]	[NT]	28383-4	108%
Cadmium	mg/kg	[NT]	[NT]	28383-4	106%
Chromium	mg/kg	[NT]	[NT]	28383-4	114%
Copper	mg/kg	[NT]	[NT]	28383-4	114%
Lead	mg/kg	[NT]	[NT]	28383-4	106%
Mercury	mg/kg	[NT]	[NT]	28383-4	105%
Nickel	mg/kg	[NT]	[NT]	28383-4	103%
Zinc	mg/kg	[NT]	[NT]	28383-4	112%

Envirolab Reference: 28383
Revision No: R 00



Report Comments:

OC/OP/PCB's in Soil: Sample #21 and #21 duplicate # Percent recovery not reported due to interference from analytes in the sample.

PCB's in Soil: Sample #4 PQL raised due to interference from analytes in the sample.

Total Petroleum Hydrocarbons in soil: # Percent recovery not reported due to high concentration of analytes in the sample.

PAH's in Soil: # Percent recovery not reported due to interference from analytes in the sample.

Asbestos was analysed by Approved Identifier: Matt Mansfield

INS: Insufficient sample for this test NT: Not tested PQL: Practical Quantitation Limit <: Less than >: Greater than

RPD: Relative Percent Difference NA: Test not required LCS: Laboratory Control Sample NR: Not requested

Quality Control Definitions

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

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

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

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

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

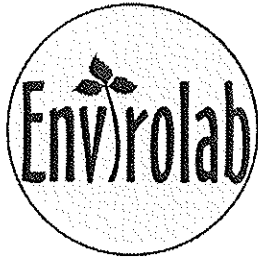
Laboratory Acceptance Criteria:

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



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

SAMPLE RECEIPT ADVICE

Client:

Environmental Investigation Services
PO Box 976
North Ryde BC NSW 1670

ph: 02 9888 5000
Fax: 02 9888 5001

Attention: Vittal Boggaram

Sample log in details:

Your reference:	E21871K, Newtown
EnviroLab Reference:	28383
Date received:	23/04/09
Date results expected to be reported:	30/04/09

Samples received in appropriate condition for analysis:	YES
No. of samples provided	32 Soils
Turnaround time requested:	Standard
Temperature on receipt	Cool
Cooling Method:	Ice

Comments:

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

Contact details:

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


SAMPLE AND CHAIN OF CUSTODY FORM

TO: Envirolab Services Pty Ltd 12 Ashley Street Chatswood NSW 2067 Phone: (02) 99106200 Fax: (02) 99106201 Attention: Aileen	EIS Job Number: E21871K Date Results Required: STANDARD	FROM: Environmental Investigation Services Rear 115 Wicks Road Macquarie Park NSW 2113 Phone: (02) 9888 5000 Fax: (02) 9888 5004 Contact: Vittal Boggaram
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Sheet 112

Project: Proposed Development Location: Newtown Sampler: Cameron Hollands	Sample Preservation: In esky on ice
--	---

Date Sampled	Lab Ref:	Borehole/ Sample Number	Depth (m)	Sample Container	PID	Sample Description	Tests Required														
							Heavy Metals (8)	TPH/BTEX	PAH	OC/OP/PCB	Asbestos	TCLP Prep + M6, PAH	Phenols	VOC	sVOC	sPOCAS					
22/4/09	1	BH 101	0.1/0.2	Glass jar + Asb Bag	0	Fill	X	X	X	X	X										
	2	↓	0.3/0.4	Glass jar + Asb Bag	0	Silty clay															
	3	↓	0.6/1.0	Glass jar + Asb Bag	0	↓															
	4	BH 102	0.2/0.4	Glass jar + Asb Bag	0	Fill	X	X	X	X	X										
	5	↓	0.8/1.0	Glass jar + Asb Bag	0	Clay															
	6	BH 103	0.5/0.7	Glass jar + Asb Bag	0	Fill	X	X	X	X	X										
	7	↓	1.2/1.4	Glass jar + Asb Bag	0	Silty clay	X	X	X												
	8	↓	2.0/2.0	Glass jar + Asb Bag	0	↓															
	9	BH 104	0.1/0.5	Glass jar + Asb Bag	0	Fill	X	X	X	X	X										
	10	↓	1.3/1.5	Glass jar + Asb Bag	0	Silty clay															
	11	BH 105	0.15/0.3	Glass jar + Asb Bag	0	Fill	X	X	X	X	X										
	12	↓	0.8/1.0	Glass jar + Asb Bag	0	Silty clay	X														
	13	BH 106	0.4/0.8	Glass jar + Asb Bag	0	Fill	X	X	X	X	X										
	14	↓	1.6/1.8	Glass jar + Asb Bag	0	Silty clay															
	15	BH 107	0.2/0.4	Glass jar + Asb Bag	0	Fill	X	X	X	X	X										
	16	↓	1.0/1.2	Glass jar + Asb Bag	0	Silty clay															
	17	BH 108	0.2/0.6	Glass jar + Asb Bag	0	Fill	X	X	X	X	X										
	18	↓	1.3/1.5	Glass jar + Asb Bag	0	Silty clay															
	19	BH 109	0.3/0.5	Glass jar + Asb Bag	0	Fill	X	X	X	X	X										
	20	↓	0.8/1.0	Glass jar + Asb Bag	0	Silty clay															
	21	BH 110	0.2/0.5	Glass jar + Asb Bag	1.6	Fill	X	X	X	X	X										
	22	↓	0.8/1.0	Glass jar + Asb Bag	0.5	↓															
	23	↓	1.5/1.7	Glass jar + Asb Bag	0	↓	X	X	X												
	24	↓	1.0/2.0	Glass jar + Asb Bag	0	Silty clay															
	25	↓	2.8/3.0	Glass jar + Asb Bag	0	↓															


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

 Job No: 28383
 Date received: 23/4/09
 Time received: 11:00am
 Received by: SS
 Temp: Cool/Ambient
 Cooling: Yes/No
 Security: Intact/Broken (None)

Remarks (comments/detection limits required):

Relinquished By: Vittal B.S	Date: 23/4/09 Time: 11:00am.	Received By: Simon Song	Received By:
---------------------------------------	---------------------------------	-----------------------------------	--------------

Aileen Hie

From: Vittal Boggaram [vboggaram@jkgroup.net.au]
Sent: Thursday, 30 April 2009 01:49 PM
To: Aileen Hie
Cc: Jacinta Hurst
Subject: Additional TCLP Analysis - EIS job number E21871K
Importance: High

Envirolab Ref: 28383A
Due: 7/5/09
std T/A.

EIS

ENVIRONMENTAL INVESTIGATION SERVICES

A division of Jeffery & Katauskas Pty Ltd
ABN 17 003 550 801

Aileen,

Could you please schedule TCLP analysis on the following samples (Envirolab Report Number is 28383):

1. Sample BH102 (0.2-0.4) – TCLP lead and PAHs; -4
2. Sample BH103 (0.5-0.7) – TCLP lead and PAHs; -6
3. Sample BH106 (0.4-0.8) – TCLP lead; -13
4. Sample BH107 (0.2-0.4) – TCLP lead and PAHs; -15
5. Sample BH108 (0.2-0.4) – TCLP lead and PAHs; -17
6. Sample BH109 (0.3-0.5) – TCLP lead; -19
7. Sample BH110 (0.2-0.5) – TCLP lead; -21
8. Sample BH110 (1.5-1.7) – TCLP lead; -23
9. Sample BH111 (1.5-2.0) – TCLP lead and nickel; -28
10. Sample BH111 (2.05-2.25) – TCLP nickel. -29

Please schedule the analysis on a standard turnaround. Thank you.

Regards,

For and on behalf of

ENVIRONMENTAL INVESTIGATION SERVICES

Vittal Boggaram
Senior Environmental Scientist

115 Wicks Road, Macquarie Park, NSW, 2113

PO Box 976, North Ryde BC, NSW, 1670

Tel: 02 9888 5000

Fax: 02 9888 5004

email: vboggaram@jkgroup.net.au

Web: www.jkgroup.net.au

*** IMPORTANT ***

This email and any attachments are confidential and may be privileged in which case neither is intended to be waived. If you have received this message in error, please notify us and remove it from your system. It is your responsibility to check any attachments for viruses and defects before opening or sending them on. At the Company's discretion we may send a paper copy for confirmation. In the event of any discrepancy between paper and electronic versions the paper version is to take precedence.

30/04/2009



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 28383-A

Client:

Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Vittal Boggaram

Sample log in details:

Your Reference:	E21871K, Newtown
No. of samples:	Additional Testing on 10 Soils
Date samples received:	23/04/09
Date completed instructions received:	30/04/09

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:	7/05/09
Date of Preliminary Report:	Not Issued
Issue Date:	5/05/09

NATA accreditation number 2901. This document shall not be reproduced except in full.
This document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025.

Tests not covered by NATA are denoted with *.

Results Approved By:


Jacinta Hurst
Operations Manager

Envirolab Reference: 28383-A
Revision No: R 00



Metals in TCLP USEPA1311		UNITS	28383-A-4	28383-A-6	28383-A-13	28383-A-15	28383-A-17
Our Reference:			BH102	BH103	BH106	BH107	BH108
Your Reference	-----						
Depth	-----		0.2-0.4	0.5-0.7	0.4-0.8	0.2-0.4	0.2-0.4
Date Sampled			22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Type of sample			Soil	Soil	Soil	Soil	Soil
Date extracted	-		4/05/2009	4/05/2009	4/05/2009	4/05/2009	4/05/2009
Date analysed	-		4/05/2009	4/05/2009	4/05/2009	4/05/2009	4/05/2009
pH of soil for fluid# determ.	pH units		7.80	7.70	7.50	7.70	8.80
pH of soil for fluid # determ. (acid)	pH units		1.30	1.40	1.30	1.50	1.40
Extraction fluid used	-		1	1	1	1	1
pH of final Leachate	pH units		5.00	5.00	4.90	5.30	6.20
Lead in TCLP	mg/L		0.080	0.16	0.14	0.070	0.36

Metals in TCLP USEPA1311		UNITS	28383-A-19	28383-A-21	28383-A-23	28383-A-28	28383-A-29
Our Reference:			BH109	BH110	BH110	BH111	BH111
Your Reference	-----						
Depth	-----		0.3-0.5	0.2-0.5	1.5-1.7	1.5-2.0	2.05-2.25
Date Sampled			22/04/2009	22/04/2009	22/04/2009	22/04/2009	22/04/2009
Type of sample			Soil	Soil	Soil	Soil	Soil
Date extracted	-		4/05/2009	4/05/2009	4/05/2009	4/05/2009	4/05/2009
Date analysed	-		4/05/2009	4/05/2009	4/05/2009	4/05/2009	4/05/2009
pH of soil for fluid# determ.	pH units		8.50	8.60	8.80	8.20	8.30
pH of soil for fluid # determ. (acid)	pH units		1.40	1.40	1.50	1.30	1.40
Extraction fluid used	-		1	1	1	1	1
pH of final Leachate	pH units		4.90	5.50	5.00	4.90	4.80
Lead in TCLP	mg/L		<0.030	0.42	0.040	0.080	[NA]
Nickel in TCLP	mg/L		[NA]	[NA]	[NA]	0.19	4.6

Client Reference: E21871K, Newtown

PAHs in TCLP (USEPA 1311)		28383-A-4	28383-A-6	28383-A-15	28383-A-17
Our Reference:	UNITS	BH102	BH103	BH107	BH108
Your Reference	-----				
Depth	-----	0.2-0.4	0.5-0.7	0.2-0.4	0.2-0.4
Date Sampled		22/04/2009	22/04/2009	22/04/2009	22/04/2009
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	4/05/2009	4/05/2009	4/05/2009	4/05/2009
Date analysed	-	4/05/2009	4/05/2009	4/05/2009	4/05/2009
Naphthalene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Acenaphthylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Acenaphthene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Fluorene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Phenanthrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Fluoranthene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Pyrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Benzo(a)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Chrysene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Benzo(b+k)fluoranthene in TCLP	mg/L	<0.002	<0.002	<0.002	<0.002
Benzo(a)pyrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Dibenzo(a,h)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Benzo(g,h,i)perylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Surrogate p-Terphenyl-d14	%	117	130	128	127

EnviroLab Reference: 28383-A
Revision No: R 00



Method ID	Methodology Summary
LAB.4	Toxicity Characteristic Leaching Procedure (TCLP).
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP).
LAB.1	pH - Measured using pH meter and electrode in accordance with APHA 20th ED, 4500-H+.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
GC.12 subset	Leachates are extracted with Dichloromethane and analysed by GC-MS.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC.12	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.

Client Reference: E21871K, Newtown

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Metals in TCLP USEPA1311						Base II Duplicate II %RPD		
Date extracted	-			4/05/2009	28383-A-23	4/05/2009 4/05/2009	LCS-W1	4/5/09
Date analysed	-			4/05/2009	28383-A-23	4/05/2009 4/05/2009	LCS-W1	4/5/09
Lead in TCLP	mg/L	0.03	Metals.20 ICP-AES	<0.030	28383-A-23	0.040 0.040 RPD: 0	LCS-W1	103%
Nickel in TCLP	mg/L	0.02	Metals.20 ICP-AES	<0.020	[NT]	[NT]	LCS-W1	105%

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in TCLP (USEPA 1311)						Base II Duplicate II %RPD		
Date extracted	-			4/05/09	[NT]	[NT]	LCS-W1	4/05/09
Date analysed	-			4/05/09	[NT]	[NT]	LCS-W1	4/05/09
Naphthalene in TCLP	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	LCS-W1	77%
Acenaphthylene in TCLP	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Acenaphthene in TCLP	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Fluorene in TCLP	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	LCS-W1	83%
Phenanthrene in TCLP	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	LCS-W1	81%
Anthracene in TCLP	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Fluoranthene in TCLP	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	LCS-W1	78%
Pyrene in TCLP	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	LCS-W1	81%
Benzo(a)anthracene in TCLP	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Chrysene in TCLP	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	LCS-W1	84%
Benzo(b+k)fluoranthene in TCLP	mg/L	0.002	GC.12 subset	<0.002	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene in TCLP	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	LCS-W1	65%
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene in TCLP	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene in TCLP	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		GC.12	96	[NT]	[NT]	LCS-W1	111%

Envirolab Reference: 28383-A
Revision No: R 00



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 <: Less than >: Greater than
RPD: Relative Percent Difference NA: Test not required LCS: Laboratory Control Sample NR: Not requested

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.

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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.

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Laboratory Acceptance Criteria:

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the sample batch were within 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: Vittal Boggaram [vboggaram@jkgroup.net.au]
Sent: Thursday, 30 April 2009 01:49 PM
To: Aileen Hie
Cc: Jacinta Hurst
Subject: Additional TCLP Analysis - EIS job number E21871K
Importance: High

Envirolab Ref: 28383A
Due: 7/5/09
std + 1A.

EIS

ENVIRONMENTAL INVESTIGATION SERVICES

A division of Jeffery & Katauskas Pty Ltd
ABN 17 003 550 801

Aileen,

Could you please schedule TCLP analysis on the following samples (Envirolab Report Number is 28383):

1. Sample BH102 (0.2-0.4) – TCLP lead and PAHs; -4
2. Sample BH103 (0.5-0.7) – TCLP lead and PAHs; -6
3. Sample BH106 (0.4-0.8) – TCLP lead; -13
4. Sample BH107 (0.2-0.4) – TCLP lead and PAHs; -15
5. Sample BH108 (0.2-0.4) – TCLP lead and PAHs; -17
6. Sample BH109 (0.3-0.5) – TCLP lead; -19
7. Sample BH110 (0.2-0.5) – TCLP lead; -21
8. Sample BH110 (1.5-1.7) – TCLP lead; -23
9. Sample BH111 (1.5-2.0) – TCLP lead and nickel; -28
10. Sample BH111 (2.05-2.25) – TCLP nickel. -29

Please schedule the analysis on a standard turnaround. Thank you.

Regards,

For and on behalf of
ENVIRONMENTAL INVESTIGATION SERVICES

Vittal Boggaram
Senior Environmental Scientist

115 Wicks Road, Macquarie Park, NSW, 2113
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30/04/2009

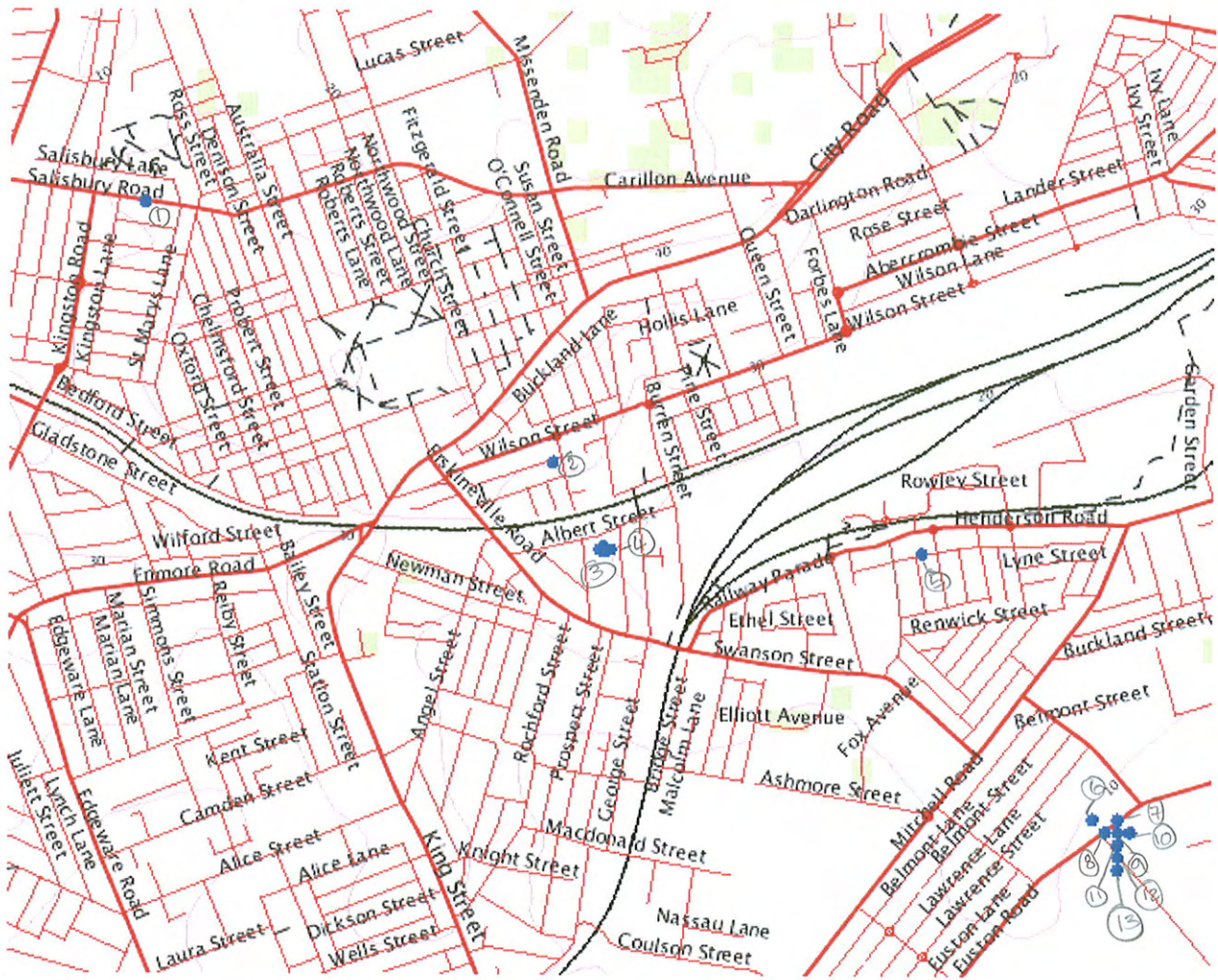
APPENDIX C

APPENDIX C
DEPARTMENT OF WATER AND ENERGY (DWE)
GROUNDWATER BORE RECORDS

Map from the NSW Natural Resource Atlas

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

Thursday, April 30, 2009



0 2 Km

Legend

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

Topographic base map

-  Primary/arterial road
-  Motorway/freeway
-  Railway
-  Runway
- Contour
- Background

Copyright © 2009 New South Wales Government. Map has been compiled from various sources and may contain errors or omissions. No representation is made as to its accuracy or suitability.



Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Thursday, April 30, 2009

[Print Report](#)

[Works Details](#) [Site Details](#) [Form A Licensed Construction Water Bearing Zones](#) [Drillers Log](#)

Work Requested -- GW103258

Works Details (top)

GROUNDWATER NUMBER GW103258
LIC-NUM 10BL159644
AUTHORISED-PURPOSES MONITORING BORE
INTENDED-PURPOSES MONITORING BORE
WORK-TYPE Bore
WORK-STATUS (Unknown)
CONSTRUCTION-METHOD Auger
OWNER-TYPE
COMMENCE-DATE
COMPLETION-DATE 2000-01-18
FINAL-DEPTH (metres) 7.00
DRILLED-DEPTH (metres) 7.00
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY O DEA RESERVE
GWMA -
GW-ZONE -
STANDING-WATER-LEVEL
SALINITY 795.00
YIELD

Site Details (top)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN
AREA-DISTRICT
CMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6248466.00
EASTING 331116.00
LATITUDE 33 53' 26"
LONGITUDE 151 10' 25"
GS-MAP

AMG-ZONE 56
 COORD-SOURCE
 REMARK

Form-A (top)

COUNTY CUMBERLAND
 PARISH PETERSHAM
 PORTION-LOT-DP 1//600644

Licensed (top)

COUNTY CUMBERLAND
 PARISH PETERSHAM
 PORTION-LOT-DP 1 600644

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	7.00	125			Auger
1	1	Casing	P.V.C.	0.00	3.00	50			C: 0-3m; Screwed; Cap
1	1	Opening	Slots - Horizontal	3.00	7.00	50			PVC; SL: 4mm; A: 1mm

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
5.50	6.20	0.70		5.50					

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	6.20	6.20	FILL		
6.20	7.00	0.80	SHALE		

Warning To Clients: This raw data has been supplied to the Department of Infrastructure, Planning and Natural Resources (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.

Groundwater Works Summary



For information on the meaning of fields please see Glossary
Document Generated on Thursday, April 30, 2009

[Print Report](#)

[Works Details](#) [Site Details](#) [Form A Licensed Construction](#) [Water Bearing Zones](#) [Drillers Log](#)

Work Requested -- GW105317

Works Details (top)

GROUNDWATER NUMBER GW105317
 LIC-NUM 10BL161846
 AUTHORISED-PURPOSES MONITORING BORE
 INTENDED-PURPOSES MONITORING BORE
 WORK-TYPE Bore
 WORK-STATUS
 CONSTRUCTION-METHOD Auger
 OWNER-TYPE
 COMMENCE-DATE
 COMPLETION-DATE 2003-03-21
 FINAL-DEPTH (metres) 6.50
 DRILLED-DEPTH (metres) 6.50
 CONTRACTOR-NAME
 DRILLER-NAME
 PROPERTY JONES
 GWMA -
 GW-ZONE -
 STANDING-WATER-LEVEL 1.70
 SALINITY
 YIELD

Site Details (top)

REGION 10 - SYDNEY SOUTH COAST
 RIVER-BASIN
 AREA-DISTRICT
 CMA-MAP
 GRID-ZONE
 SCALE
 ELEVATION
 ELEVATION-SOURCE
 NORTHING 6247846.00
 EASTING 331965.00
 LATITUDE 33 53' 47"
 LONGITUDE 151 10' 58"
 GS-MAP