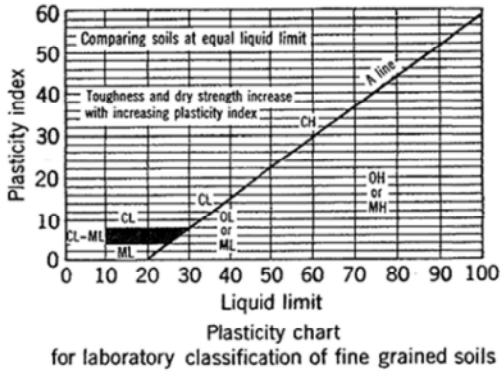
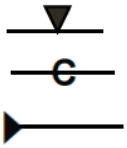
Field Identification Procedures (Excluding particles larger than 75 μm and basing fractions on estimated weights)						Group Symbols [a]	Typical Names	Information Required for Describing Soils	Laboratory Classification Criteria
Coarse-grained soils More than half of material is *larger* than 75 μm sieve size[b] (The 75 μm sieve size is about the smallest particle visible to naked eye)	Gravels More than half of coarse fraction is larger than 4 mm sieve size	Clean gravels (little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes			*GW*	Well graded gravels, gravel-sand mixtures, little or no fines	Give typical name; indicate approximate percentages of sand and gravel; maximum size; angularity, surface condition, and hardness of the coarse grains; local or geologic name and other pertinent descriptive information; and symbols in parentheses For undisturbed soils add information on stratification, degree of compactness, cementation, moisture conditions and drainage characteristics Example: *Silty sand*, gravelly; about 20% hard, angular gravel particles 12 mm maximum size; rounded and subangular sand grains coarse to fine, about 15% non-plastic fines with low dry strength; well compacted and moist in place; alluvial sand; (*SM*)	Use grain size curve in identifying the fractions as given under field identification Determine percentages of gravel and sand from grain size curve Depending on percentage of fines (fraction smaller than 75 μm sieve size) coarse grained soils are classified as follows: Less than 5% *GW, GP, SW, SP* More than 12% *GM, GC, SM, SC* 5% to 12% *Borderline* cases requiring use of dual symbols $C_U = \frac{D_{60}}{D_{10}}$ Greater than 4 $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3 Not meeting all gradation requirements for *GW* Atterberg limits below "A" line, or *PI* less than 4 — Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols Atterberg limits above "A" line, with *PI* greater than 7
			Predominantly one size or a range of sizes with some intermediate sizes missing			*GP*	Poorly graded gravels, gravel-sand mixtures, little or no fines		
		Gravels with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures see *ML* below)			*GM*	Silty gravels, poorly graded gravel-sand-silt mixtures		
			Plastic fines (for identification procedures, see *CL* below)			*GC*	Clayey gravels, poorly graded gravel-sand-clay mixtures		
	Sands More than half of coarse fraction is smaller than 4 mm sieve size	Clean sands (little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate particle sizes			*SW*	Well graded sands, gravelly sands, little or no fines		$C_U = \frac{D_{60}}{D_{10}}$ Greater than 6 $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3 Not meeting all gradation requirements for *SW* Atterberg limits below "A" line or *PI* less than 5 — Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols Atterberg limits below "A" line with *PI* greater than 7
			Predominantly one size or a range of sizes with some intermediate sizes missing			*SP*	Poorly graded sands, gravelly sands, little or no fines		
		Sands with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures, see *ML* below)			*SM*	Silty sands, poorly graded sand-silt mixtures		
			Plastic fines (for identification procedures, see *CL* below)			*SC*	Clayey sands, poorly graded sand-clay mixtures		
Fine-grained soils More than half of material is *smaller* than 75 μm sieve size	Identification Procedures on Fraction Smaller than 380 μm Sieve Size		Dry Strength (crushing characteristics)	Dilatancy (reaction to shaking)	Toughness (consistency near plastic limit)				
	Silts and clays liquid limit less than 50		None to slight	Quick to slow	None	*ML*	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity	Give typical name; indicate degree and character of plasticity, amount and maximum size of coarse grains; colour in wet condition, odour if any, local or geologic name, and other pertinent descriptive information, and symbol in parentheses For undisturbed soils add information on structure, stratification, consistency in undisturbed and remoulded states, moisture and drainage conditions Example: *Clayey silt*, brown; slightly plastic; small percentage of fine sand; numerous vertical root holes; firm and dry in place; loess; (*ML*)	
			Medium to high	None to very slow	Medium	*CL*	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays		
			Slight to medium	Slow	Slight	*OL*	Organic silts and organic silt-clays of low plasticity		
	Silts and clays liquid limit greater than 50		Slight to medium	Slow to none	Slight to medium	*MH*	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts		
			High to very high	None	High	*CH*	Inorganic clays of high plasticity, fat clays		
			Medium to high	None to very slow	Slight to medium	*OH*	Organic clays of medium to high plasticity		
Highly Organic Soils			Readily identified by colour, odour, spongy feel and frequently by fibrous texture			*Pt*	Peat and other highly organic soils		



Plasticity chart
for laboratory classification of fine grained soils

Note: 1 Soils possessing characteristics of two groups are designated by combinations of group symbols (eg. GW-GC, well graded gravel-sand mixture with clay fines).
2 Soils with liquid limits of the order of 35 to 50 may be visually classified as being of medium plasticity.

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 U50 DB DS ASB ASS SAL	Soil sample taken over depth indicated, for environmental analysis. Undisturbed 50mm diameter tube sample taken over depth indicated. Bulk disturbed sample taken over depth indicated. Small disturbed bag sample taken over depth indicated. Soil sample taken over depth indicated, for asbestos screening. Soil sample taken over depth indicated, for acid sulfate soil analysis. 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 show blows per 150mm penetration. 'R' as noted below.
	N_c = 5 7 3 R	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 PID = 100	Vane shear reading in kPa of Undrained Shear Strength. Photoionisation detector reading in ppm (Soil sample heads pace test).
Moisture (Cohesive Soils) (Cohesionless)	MC > PL MC ≈ PL MC < PL D M W	Moisture content estimated to be greater than plastic limit. Moisture content estimated to be approximately equal to plastic limit. Moisture content estimated to be less than plastic limit. DRY – Runs freely through fingers. MOIST – Does not run freely but no free water visible on soil surface. WET – Free water visible on soil surface.
Strength (Consistency) Cohesive Soils	VS S F St VSt H ( )	VERY SOFT – Unconfined compressive strength less than 25kPa SOFT – Unconfined compressive strength 25-5 0kPa FIRM – Unconfined compressive strength 50-1 00kPa STIFF – Unconfined compressive strength 100- 200kPa VERY STIFF – Unconfined compressive strength 200- 400kPa HARD – Unconfined compressive strength greater than 400kPa Bracketed symbol indicates estimated consistency based o n tactile examination or other tests.
Density Index/ Relative Density (Cohesionless Soils)	VL L MD D VD ( )	**Density Index (ID) Range (%)** / **SPT ' N' Value Range (Blows/300mm)** Very Loose <15 / 0-4 Loose 15-35 / 4-10 Medium Dense 35-65 / 10-30 Dense 65-85 / 30-50 Very Dense >85 / >50 Bracketed symbol indicates estimated density based on ease of drilling or other tests.
Hand Penetrometer Readings	300 250	Numbers indicate individual test results in kPa on representative undisturbed material unless noted otherwise
Remarks	'V' bit 'TC' bit T_{60}	Hardened steel 'V' shaped bit. Tungsten carbide wing bit. Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.

LOG SYMBOLS CONTINUED

ROCK STRENGTH

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

TERM	SYMBOL	Is (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 150 mm 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 150 mm long x 50mm dia. can be broken by hand with difficulty. Readily scored with knife.
High:	H	3	A piece of core 150 mm 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 150 mm 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 150 mm long x 50mm dia. is very difficult to break with h and-held hammer . Rings when struck with a hammer.

ROCK STRENGTH

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

Appendix C: Laboratory Reports and Chain of Custody Documentation

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

CERTIFICATE OF ANALYSIS 177103

Client Details

Client	Environmental Investigation Services
Attention	Adrian Kingswell, Harry Leonard
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E30907K, Alexandria**
Number of Samples	16 Sand, 2 Clay
Date samples received	05/10/2017
Date completed instructions received	05/10/2017

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.

Report Details

Date results requested by	12/10/2017
Date of Issue	12/10/2017

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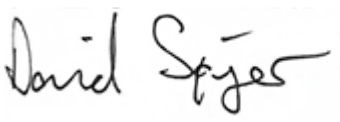
Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Nick Sarlamis, Inorganics Supervisor

Authorised By



David Springer, General Manager

sPOCAS + %S w/w						
Our Reference		177103-1	177103-3	177103-4	177103-8	177103-9
Your Reference	UNITS	BH1	BH1	BH1	BH1	BH7
Depth		2.0-2.5	4.0-4.5	5.5-6.0	10.5-11.0	1.5-1.95
Date Sampled		03/10/2017	03/10/2017	03/10/2017	03/10/2017	04/10/2017
Type of sample		Sand	Sand	Sand	Clay	Sand
Date prepared	-	12/10/2017	12/10/2017	12/10/2017	12/10/2017	12/10/2017
Date analysed	-	12/10/2017	12/10/2017	12/10/2017	12/10/2017	12/10/2017
pH $_{kcl}$	pH units	6.5	5.9	6.2	4.2	9.3
TAA pH 6.5	moles H^+ /t	<5	<5	<5	38	<5
s-TAA pH 6.5	%w/w S	<0.01	<0.01	<0.01	0.06	<0.01
pH $_{Ox}$	pH units	4.9	4.2	6.8	4.0	7.6
TPA pH 6.5	moles H^+ /t	<5	44	<5	65	<5
s-TPA pH 6.5	%w/w S	<0.01	0.07	<0.01	0.10	<0.01
TSA pH 6.5	moles H^+ /t	<5	42	<5	28	<5
s-TSA pH 6.5	%w/w S	<0.01	0.07	<0.01	0.04	<0.01
ANC_E	% $CaCO_3$	<0.05	<0.05	0.20	<0.05	0.38
a-ANC_E	moles H^+ /t	<5	<5	50	<5	75
s-ANC_E	%w/w S	<0.05	<0.05	0.08	<0.05	0.12
S_{KCl}	%w/w S	<0.005	<0.005	<0.005	<0.005	<0.005
S_P	%w/w	0.01	0.01	0.005	0.04	<0.005
S_{POS}	%w/w	0.009	0.007	<0.005	0.04	<0.005
a-S_{POS}	moles H^+ /t	6	<5	<5	23	<5
Ca_{KCl}	%w/w	0.09	0.04	0.04	0.03	0.13
Ca_P	%w/w	0.10	0.04	0.05	0.03	0.16
Ca_A	%w/w	0.010	<0.005	0.005	<0.005	0.026
Mg_{KCl}	%w/w	<0.005	<0.005	<0.005	0.074	<0.005
Mg_P	%w/w	<0.005	<0.005	<0.005	0.077	<0.005
Mg_A	%w/w	<0.005	<0.005	<0.005	<0.005	<0.005
S_{HCl}	%w/w S	<0.005	<0.005	<0.005	0.010	<0.005
S_{NAS}	%w/w S	<0.005	<0.005	<0.005	0.006	<0.005
a-S_{NAS}	moles H^+ /t	<5	<5	<5	<5	<5
s-S_{NAS}	%w/w S	<0.01	<0.01	<0.01	<0.01	<0.01
Fineness Factor	-	1.5	1.5	1.5	1.5	1.5
a-Net Acidity	moles H^+ /t	6	6	<5	63	<5
s-Net Acidity	%w/w S	<0.01	<0.01	<0.01	0.10	<0.01
Liming rate	kg $CaCO_3$ /t	<0.75	<0.75	<0.75	4.8	<0.75
s-Net Acidity without -ANCE	%w/w S	<0.01	<0.01	<0.01	0.10	<0.01
a-Net Acidity without ANCE	moles H^+ /t	5.8	5.9	<5	63	<5
Liming rate without ANCE	kg $CaCO_3$ /t	<0.75	<0.75	<0.75	4.8	<0.75

sPOCAS + %S w/w					
Our Reference		177103-12	177103-13	177103-16	177103-17
Your Reference	UNITS	BH7	BH7	BH7	BH7
Depth		3.5-4.0	4.2-4.65	7.2-7.65	8.7-9.15
Date Sampled		04/10/2017	04/10/2017	04/10/2017	04/10/2017
Type of sample		Sand	Sand	Sand	Sand
Date prepared	-	12/10/2017	12/10/2017	12/10/2017	12/10/2017
Date analysed	-	12/10/2017	12/10/2017	12/10/2017	12/10/2017
pH $_{kcl}$	pH units	6.8	6.7	5.9	4.6
TAA pH 6.5	moles H^+ /t	<5	<5	<5	18
s-TAA pH 6.5	%w/w S	<0.01	<0.01	<0.01	0.03
pH $_{Ox}$	pH units	5.2	5.5	5.2	2.2
TPA pH 6.5	moles H^+ /t	<5	<5	<5	440
s-TPA pH 6.5	%w/w S	<0.01	<0.01	<0.01	0.70
TSA pH 6.5	moles H^+ /t	<5	<5	<5	420
s-TSA pH 6.5	%w/w S	<0.01	<0.01	<0.01	0.67
ANC_E	% $CaCO_3$	<0.05	<0.05	<0.05	<0.05
a-ANC_E	moles H^+ /t	<5	<5	<5	<5
s-ANC_E	%w/w S	<0.05	<0.05	<0.05	<0.05
S_{KCl}	%w/w S	<0.005	<0.005	<0.005	0.009
S_P	%w/w	<0.005	<0.005	<0.005	0.21
S_{POS}	%w/w	<0.005	<0.005	<0.005	0.20
a-S_{POS}	moles H^+ /t	<5	<5	<5	120
Ca_{KCl}	%w/w	0.02	0.01	<0.005	0.04
Ca_P	%w/w	0.02	0.01	<0.005	0.04
Ca_A	%w/w	<0.005	<0.005	<0.005	<0.005
Mg_{KCl}	%w/w	<0.005	<0.005	<0.005	0.010
Mg_P	%w/w	<0.005	<0.005	<0.005	0.012
Mg_A	%w/w	<0.005	<0.005	<0.005	<0.005
S_{HCl}	%w/w S	<0.005	<0.005	<0.005	<0.005
S_{NAS}	%w/w S	<0.005	<0.005	<0.005	<0.005
a-S_{NAS}	moles H^+ /t	<5	<5	<5	<5
s-S_{NAS}	%w/w S	<0.01	<0.01	<0.01	<0.01
Fineness Factor	-	1.5	1.5	1.5	1.5
a-Net Acidity	moles H^+ /t	<5	<5	<5	140
s-Net Acidity	%w/w S	<0.01	<0.01	<0.01	0.23
Liming rate	kg $CaCO_3$ /t	<0.75	<0.75	<0.75	11
s-Net Acidity without -ANCE	%w/w S	<0.01	<0.01	<0.01	0.23
a-Net Acidity without ANCE	moles H^+ /t	<5	<5	<5	140
Liming rate without ANCE	kg $CaCO_3$ /t	<0.75	<0.75	<0.75	11

Method ID	Methodology Summary
Inorg-064	sPOCAS determined using titrimetric and ICP-AES techniques. Based on Acid Sulfate Soils Laboratory Methods Guidelines, Version 2.1 - June 2004.

QUALITY CONTROL: sPOCAS + %S w/w						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			12/10/2017	1	12/10/2017	12/10/2017		12/10/2017	[NT]
Date analysed	-			12/10/2017	1	12/10/2017	12/10/2017		12/10/2017	[NT]
pH $_{kcl}$	pH units		Inorg-064	[NT]	1	6.5	6.6	2	98	[NT]
TAA pH 6.5	moles H^+ /t	5	Inorg-064	<5	1	<5	<5	0	110	[NT]
s-TAA pH 6.5	%w/w S	0.01	Inorg-064	<0.01	1	<0.01	<0.01	0	[NT]	[NT]
pH $_{Ox}$	pH units		Inorg-064	[NT]	1	4.9	5.1	4	94	[NT]
TPA pH 6.5	moles H^+ /t	5	Inorg-064	<5	1	<5	<5	0	86	[NT]
s-TPA pH 6.5	%w/w S	0.01	Inorg-064	<0.01	1	<0.01	<0.01	0	[NT]	[NT]
TSA pH 6.5	moles H^+ /t	5	Inorg-064	<5	1	<5	<5	0	[NT]	[NT]
s-TSA pH 6.5	%w/w S	0.01	Inorg-064	<0.01	1	<0.01	<0.01	0	[NT]	[NT]
ANC_E	% $CaCO_3$	0.05	Inorg-064	<0.05	1	<0.05	<0.05	0	[NT]	[NT]
a-ANC_E	moles H^+ /t	5	Inorg-064	<5	1	<5	<5	0	[NT]	[NT]
s-ANC_E	%w/w S	0.05	Inorg-064	<0.05	1	<0.05	<0.05	0	[NT]	[NT]
S_{KCl}	%w/w S	0.005	Inorg-064	<0.005	1	<0.005	<0.005	0	[NT]	[NT]
S_P	%w/w	0.005	Inorg-064	<0.005	1	0.01	0.01	0	[NT]	[NT]
S_{POS}	%w/w	0.005	Inorg-064	<0.005	1	0.009	0.009	0	[NT]	[NT]
a-S_{POS}	moles H^+ /t	5	Inorg-064	<5	1	6	5	18	[NT]	[NT]
Ca_{KCl}	%w/w	0.005	Inorg-064	<0.005	1	0.09	0.09	0	[NT]	[NT]
Ca_P	%w/w	0.005	Inorg-064	<0.005	1	0.10	0.10	0	[NT]	[NT]
Ca_A	%w/w	0.005	Inorg-064	<0.005	1	0.010	0.009	11	[NT]	[NT]
Mg_{KCl}	%w/w	0.005	Inorg-064	<0.005	1	<0.005	<0.005	0	[NT]	[NT]
Mg_P	%w/w	0.005	Inorg-064	<0.005	1	<0.005	<0.005	0	[NT]	[NT]
Mg_A	%w/w	0.005	Inorg-064	<0.005	1	<0.005	<0.005	0	[NT]	[NT]
S_{HCl}	%w/w S	0.005	Inorg-064	<0.005	1	<0.005	<0.005	0	[NT]	[NT]
S_{NAS}	%w/w S	0.005	Inorg-064	<0.005	1	<0.005	<0.005	0	[NT]	[NT]
a-S_{NAS}	moles H^+ /t	5	Inorg-064	<5	1	<5	<5	0	[NT]	[NT]
s-S_{NAS}	%w/w S	0.01	Inorg-064	<0.01	1	<0.01	<0.01	0	[NT]	[NT]
Fineness Factor	-	1.5	Inorg-064	<1.5	1	1.5	1.5	0	[NT]	[NT]
a-Net Acidity	moles H^+ /t	5	Inorg-064	<5	1	6	5	18	[NT]	[NT]
s-Net Acidity	%w/w S	0.01	Inorg-064	<0.01	1	<0.01	<0.01	0	[NT]	[NT]
Liming rate	kg $CaCO_3$ /t	0.75	Inorg-064	<0.75	1	<0.75	<0.75	0	[NT]	[NT]
s-Net Acidity without -ANCE	%w/w S	0.01	Inorg-064	<0.01	1	<0.01	<0.01	0	[NT]	[NT]
a-Net Acidity without ANCE	moles H^+ /t	5	Inorg-064	<5	1	5.8	5.3	9	[NT]	[NT]

QUALITY CONTROL: sPOCAS + %S w/w						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Liming rate without ANCE	kg $CaCO_3$/t	0.75	Inorg-064	<0.75	1	<0.75	<0.75	0	[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

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.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

SAMPLE AND CHAIN OF CUSTODY FORM

TO:
ENVIROLAB SERVICES PTY LTD
12 ASHLEY STREET
CHATSWOOD NSW 2067
P: (02) 99106200
F: (02) 99106201

Attention: Aileen

EIS Job Number: E30907K

Date Results Required: STANDARD

Page: 1 of 1

FROM:
ENVIRONMENTAL INVESTIGATION SERVICES
REAR OF 115 WICKS ROAD
MACQUARIE PARK, NSW 2113
P: 02-9888 5000 F: 02-9888 5001
Attention: Adrian Kingswell
Harry Leonard

Location: Alexandria
Sampler: AF/HL

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	Sample Description	sPOCAS	pH (1:5 water)										
3/10/17	1	BH1	2.0–2.5	P	sand	X											
	2	BH1	3.0–3.5	P	sand												
	3	BH1	4.0–4.5	P	sand	X											
	4	BH1	5.5–6.0	P	sand	X											
	5	BH1	7.5–8.0	P	sand												
	6	BH1	8.5–9.0	P	sand												
	7	BH1	9.5–10.0	P	clay												
	8	BH1	10.5–11.0	P	clay	X											
4/10/17	9	BH7	1.5–1.95	P	sand	X											
	10	BH7	2.0–2.5	P	sand												
	11	BH7	2.7–3.15	P	sand												
	12	BH7	3.5–4.0	P	sand	X											
	13	BH7	4.2–4.65	P	sand	X											
	14	BH7	5.0–5.5	P	sand												
	15	BH7	5.7–6.15	P	sand												
	16	BH7	7.2–7.65	P	sand	X											
	17	BH7	8.7–9.15	P	sand	X											
Extra JE-	18	BH1	7.0-7.5														

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

ENVIROLAB GROUP

Job No: 177103
Date Received: 5.10.17
Time Received: 18:50
Received by: JE
Temp: Cool/Ambient 4.8°C
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By:	Date:	Time:	Received By:	Date:
[signature]	5/10/2017	18:50	JE EIS	5/10/17

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

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Adrian Kingswell, Harry Leonard

Sample Login Details

Your reference	E30907K, Alexandria
Envirolab Reference	177103
Date Sample Received	05/10/2017
Date Instructions Received	05/10/2017
Date Results Expected to be Reported	12/10/2017

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	16 Sand, 2 Clay
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	4.8
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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

Sample ID	sPOCAS + %S w/w	On Hold
BH1-2.0-2.5	✓	
BH1-3.0-3.5		✓
BH1-4.0-4.5	✓	
BH1-5.5-6.0	✓	
BH1-7.5-8.0		✓
BH1-8.5-9..0		✓
BH1-9.5-10.0		✓
BH1-10.5-11.0	✓	
BH7-1.5-1.95	✓	
BH7-2.0-2.5		✓
BH7-2.7-3.15		✓
BH7-3.5-4.0	✓	
BH7-4.2-4.65	✓	
BH7-5.0-5.5		✓
BH7-5.7-6.15		✓
BH7-7.2-7.65	✓	
BH7-8.7-9.15	✓	
BH1-7.0-7.5		✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.