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Metbuilt Pty Ltd
15 Cowper Street
Parramatta NSW 2150

Attention: Steve

Report Number: E10132-1
Report Date: 24th October 2019
Project Name: Material Classification
Site Location: 28 Lockwood Ave, Belrose NSW 2085
Material Classification: **Excavated Natural Material (ENM) – Refer Section 6 (Page 3)**

1. Introduction

Atlas Geotechnical Services (AGS) was engaged by Metbuilt Pty Ltd (client) to provide a material classification certification of the onsite material located at 28 Lockwood Ave, Belrose NSW 2085. The specific site area is highlighted within the attached drawing (Figure 1). AGS was advised that the in-situ site material may be subjected to excavation up to 1.0m for offsite disposal.

The intended objective of this indicative material classification report is to determine the contaminants of potential concern (COPCs) of the existing site material in general accordance with the following guidelines:

- EPA Excavated Natural Material Order (ENM 2014).
- NSW EPA Waste Classification Guidelines (2014).

An AGS consultant undertook a site visit on the 17th October 2019 and carried out in-situ sampling via manual excavation (hand auger). In accordance with the sampling procedures outlined within the above-mentioned EPA Excavated Natural Material Order, fifteen (15) in-situ sample sets were collected at 15 select locations, each comprising of environmental, asbestos ID and foreign material samples. Site area details are outlined within Table 1 below.

Table 1 – Site Area Details

Site Area	Estimated Volume	Estimated Soil Bulk Unit Weight (γ)	Estimated Tonnage	Required Sample Points
5,418 m^2	5,418m^3	18 kN/m^3	9,752 T	15

All onsite samples were delivered to a NATA accredited laboratory for analysis for contaminants of potential concern (COPCs) and soil analytical data were assessed in general accordance with the above guidelines. A summary of the in-situ test pits is outlined in Table 2 below.

Table 2 – Systemic Sampling Points

Sample No.	1	2	3	4	5	6	7	8
Sampling Depth (m)	0 – 0.4	0.4 – 1.0	0 – 0.4	0.4 – 1.0	0 – 0.4	0.4 – 1.0	0 – 0.4	0.4 – 1.0
Sample No.	9	10	11	12	13	14	15	
Sampling Depth (m)	0 – 0.4	0.4 – 1.0	0 – 0.4	0.4 – 1.0	0 – 0.4	0.4 – 1.0	0 – 0.4	

2. Background Information

2.1 Geological Survey

The NSW Department of Mineral Resources Geological Map of Sydney (Scale 1:100 000) indicated the general site area to be underlain by Hawkesbury Sandstone of the Triassic Period (Rh) described as *'medium to coarse-grain quartz sandstone, very minor shale and laminate lenses'*.

2.2 Acid Sulfate Soil Risk Mapping

A review of the Hornsby/Mona Vale (9130S1) Acid Sulphate Soil Risk Map (1:25,000 scale) indicates that the site lies on an area classed as "No Known Occurrence" for which acid sulphate soils are not known or expected to occur in these environments. Land management activities are not likely to be affected by acid sulphate soil materials. The typical landform types include bedrock slopes, elevated Pleistocene and Holocene dunes, and elevated alluvial plains.

3. Site Visit Summary

AGS undertook site visit on the aforementioned site location and the following notes were recorded:

- The subject site area was advised to be 5,418 m^2 by the client;
- 15 systematic sample points were appointed by the supervising AGS consultant and their respective sampling locations were selected in general fashion within the subject site area;
- Each laboratory test sample was denoted with 1 to 15;
- The soil composition of the onsite material was assessed to be Silty SAND (0 m – 1.0 m), grey and brown, dry to moist, loose to medium dense;
- During sample collection, no visible signs of contamination such as asbestos-containing material (ACM). Slight hydrocarbon odours or and staining were observed within the natural material.

4. Soil Sampling & Soil Testing Laboratory details:

4.1 Sampling & Transportation

The samples were recovered using disposable nitrile gloves and transferred into sealed glass jars, zip-lock sealed 500mL bags (laboratory & asbestos samples) and 30L laboratory bags (foreign material samples). Onsite samples were collected in accordance with AS 1289.1.2.1 section 6.5.4 via manual auger (Figure 2). The sealed samples were placed into a chilled esky and transported to SGS Australia under Chain of Custody (COC) procedures. A new pair of nitrile gloves were used at each sample location to prevent cross-contamination.

4.2 Laboratory Analysis

The samples were analysed for the following parameters:

- arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc (8 Heavy metals);
- Total Recoverable Hydrocarbons (TRHs);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Benzene, Toluene, Ethylbenzene, total Xylene (BTEX);
- foreign material;
- pH/EC; and
- asbestos ID.

5. Comparison of Test Results

The analytical results for the samples analysed indicated:

- analytical results for arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc (Heavy metals) were reported by the laboratory to be less than the laboratory limit of reporting or less than the absolute maximum criteria outlined in the NSW EPA Excavated Natural Material Order 2014;
- TRH, BTEX, pH, FM and EC levels were reported by the laboratory to be less than the laboratory limit of reporting or less than the absolute maximum criteria outlined in the NSW EPA Excavated Natural Material Order 2014; and
- No respirable fibers detected in all soil samples using trace analysis technique.

6. Conclusion

Analytical results for all samples collected from the site was reported by the laboratory to be less than the Excavated Natural Material (ENM) absolute maximum and maximum average criteria outlined in the NSW EPA Excavated Natural Material Order 2014 and NSW EPA Waste Classification Guidelines CT1 specific contaminant concentration (SCC) criteria. Field observations and laboratory test results indicated the residual material underlying the existing fill layers can be classified as **Excavated Natural Material (ENM)**, in accordance with the NSW EPA Excavated Natural Material Order 2014 and the NSW EPA Waste Classification Guidelines (2014).

7. Limitations

The findings presented in this report are based on chemical analysis, physical observations made during a site inspection, and anecdotal information that was made available during this investigation. Further, the classification of the onsite material was provided on the proviso that all surficial, organic and deleterious materials will be separately disposed in a suitable facility. To the best of our knowledge, these observations represent a reasonable interpretation of the general condition of the site at the time of report completion. This report has been prepared solely for the use of the customer to whom it is addressed, and no other party is entitled to rely on its findings.

No warranties are made as to the information provided in this report. All conclusions and recommendations made in this report are of the professional opinions of personnel involved with the project and while normal checking of the accuracy of data has been conducted, any circumstances outside the scope of this report or which are not made known to personnel and which may impact on those opinions is not the responsibility of Atlas Geotechnical Services Pty Ltd.

Regards,

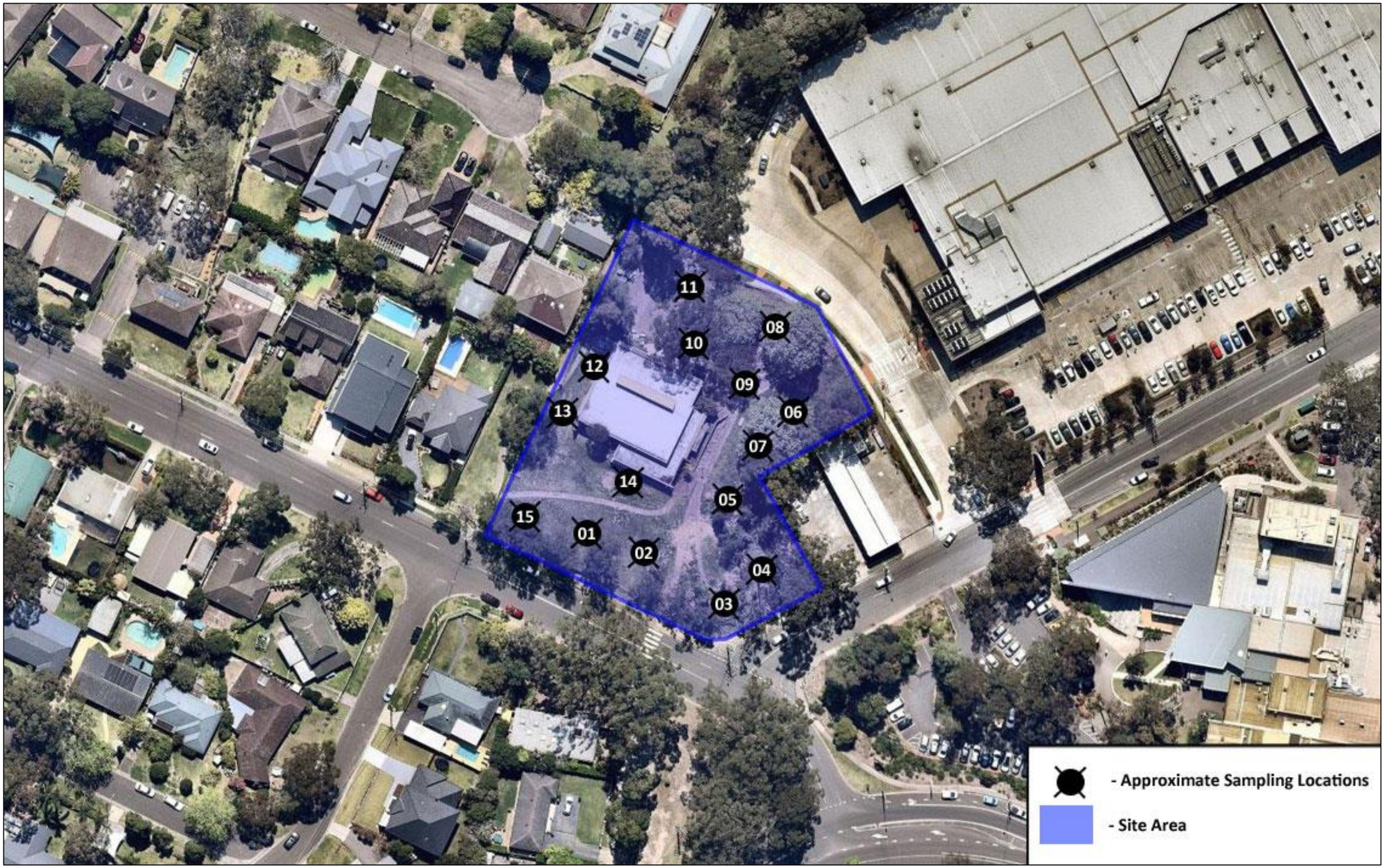
Peter Chen (Xiao Dong Chen)
Director | Geotechnical Engineer
Adv. Dip. Structural Eng, B. Eng (Civil), MIEAust
Atlas Geotechnical Services Pty Ltd

Attachments:

1) Figures
2) Results Summary Table
3) NATA Laboratory Reports and Documentation

ATTACHMENT 1

FIGURES



Source: Nearmaps

ATLAS Geotechnical Services On Budget. On Time. Professional Service ABN: 67 626 182 349 W: www.atlasgeoservice.com.au E: info@atlasgeoservice.com.au P: PO BOX 39, Bonnyrigg NSW 2177	Client: Metbuilt Pty Ltd	Project Name: Material Classification Project Address: 28 Lockwood Ave, Belrose NSW 2085	Report No: E10132-1 Figure Date: 24/10/19	N	Figure No: Figure 1	Figure Title: Site Area/Sampling Locations

ATLAS Geotechnical Services On Budget. On Time. Professional Service ABN: 67 626 182 349 W: www.atlasgeoservice.com.au E: info@atlasgeoservice.com.au P: PO BOX 39, Bonnyrigg NSW 2177	Client: Metbuilt Pty Ltd	Project Name: Material Classification Project Address: 28 Lockwood Ave, Belrose NSW 2085	Report No: E10132-1 Figure Date: 24/10/19	N	Figure No: Figure 2	Figure Title: Onsite Photographs

ATTACHMENT 2

RESULTS SUMMARY TABLE

Geotechnical Services
On Budget. On Time. Professional Service

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Results Summary Table

Soil Results & Adopted Site Criteria - Heavy Metals, PAHs, TRH/BTEX, Foreign Materials & Asbestos

Site Address 28 Lockwood Ave, Belrose

Job Number E10132

										Reference	SE198910.001	SE198910.002	SE198910.003	SE198910.004	SE198910.005	SE198910.006	SE198910.007	SE198910.008	SE198910.009	SE198910.010	SE198910.011	SE198910.012	SE198910.013	SE198910.014	SE198910.015
										Sample ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
										Date Sampled	17/10/2019	17/10/2019	17/10/2019	17/10/2019	17/10/2019	17/10/2019	17/10/2019	17/10/2019	17/10/2019	17/10/2019	17/10/2019	17/10/2019	17/10/2019	17/10/2019	17/10/2019
										Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Group	**Analyte**	**Units**	**PQL**	**GSW Criteria CT1**	**ENM Maximum Average**	**ENM Absolute Maximum**	**DATASET AVERAGE**	**DATASET MINIMUM**	**DATASET MAXIMUM**																	
Metals	Arsenic	mg/kg	<3	**100**	**20**	**40**	**<1**	**<1**	**<1**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1
	Cadmium	mg/kg	<0.3	**20**	**0.5**	**1**	**<0.3**	**<0.3**	**<0.3**	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
	Chromium	mg/kg	<0.3	**100**	**75**	**150**	**2.3**	**2**	**2.6**	2.3	2.4	2.2	2.1	2.3	2.6	2.4	2.6	2.5	2.1	2	2.2	2.4	2.3	2.4
	Copper	mg/kg	<0.5	**NC**	**100**	**200**	**5.8**	**5**	**9.1**	5	5.6	5.5	5.7	5.6	5.7	9.1	5.4	5.4	5.6	5.2	5.2	6.1	5.5	6.4
	Lead	mg/kg	<1	**100**	**50**	**100**	**3.3**	**2**	**10**	2	6	2	2	3	3	10	2	2	2	2	2	8	2	2
	Mercury	mg/kg	<0.5	**4**	**0.5**	**1**	**<0.05**	**<0.05**	**<0.05**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Nickel	mg/kg	<0.5	**40**	**30**	**60**	**0.6**	**0.5**	**0.9**	0.6	0.6	0.5	0.6	0.9	<0.5	0.5	0.6	0.6	0.6	0.5	0.6	0.7	0.6	0.7
	Zinc	mg/kg	<0.05	**NC**	**150**	**300**	**20**	**18**	**22**	18	20	19	21	22	18	21	19	21	21	21	20	20	22	22
PAHS	Acenaphthene	mg/kg	< 0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Acenaphthylene	mg/kg	< 0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Anthracene	mg/kg	< 0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Benzo(a)anthracene	mg/kg	< 0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Benzo(a)pyrene	mg/kg	< 0.5	**0.8**	**0.5**	**1**	**<0.1**	**<0.1**	**<0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene TEQ (lower bound) *	mg/kg	< 0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Benzo(a)pyrene TEQ (upper bound) *	mg/kg	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Benzo(b&j)fluoranthene	mg/kg	< 0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Benzo(g.h.i)perylene	mg/kg	< 0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Benzo(k)fluoranthene	mg/kg	< 0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Chrysene	mg/kg	< 0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Dibenz(a.h)anthracene	mg/kg	< 0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Fluoranthene	mg/kg	< 0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Fluorene	mg/kg	< 0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Naphthalene	mg/kg	< 0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Phenanthrene	mg/kg	< 0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Pyrene	mg/kg	< 0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-	-
	Total PAH*	mg/kg	< 0.5	**200**	**20**	**40**	**<0.8**	**<0.8**	**<0.8**	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
TPH/BTEX	TPH >C6-C9	mg/kg	20	**650**	-	-	**< 20**	**<20**	**<20**	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	TPH >C10-C36	mg/kg	50	**10,000**	**Total 250**	**Total 500**	**<110**	**<110**	**<110**	<110	<110	<110	<110	<110	<110	<110	<110	<110	<110	<110	<110	<110	<110	<110
	Benzene	mg/kg	0.1	**10**	-	**0.5**	**< 0.1**	**<0.1**	**<0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Ethylbenzene	mg/kg	0.1	**600**	-	**25**	**< 0.1**	**<0.1**	**< 0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Toluene	mg/kg	0.1	**288**	-	**65**	**< 0.1**	**<0.1**	**< 0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Xylenes - Total	mg/kg	0.3	**1000**	-	**15**	**<0.1**	**<0.1**	**<0.1**	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Physical Parameters	pH	pH units	-	-	**5 - 9**	**4.5 - 10**	**6.7**	**6.2**	**7**	6.7	6.7	6.6	6.4	6.2	6.5	6.4	6.5	6.7	7	7	7	7	6.8	6.8
	EC	dS/m)	-	-	**1.5**	**3**	**0.18**	**0.15**	**0.20**	0.18	0.19	0.19	0.18	0.19	0.17	0.15	0.17	0.18	0.19	0.19	0.18	0.19	0.2	0.19
Asbestos	Asbestos ID	-	-	**Detection**	**Detection**	**Detection**	-	-	-	No Detected	No Detected	No Detected	No Detected	No Detected	No Detected	No Detected	No Detected	No Detected	No Detected	No Detected	No Detected	No Detected	No Detected	No Detected
Foreign Material	Rubber, plastic, bitumen, paper, cloth, paint and wood	%			0.05	0.1	0	0	0	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04

Concentration exceeding General Solid Waste (GSW) Criteria CT1 (NSW EPA Waste Classification Guidelines)

Concentration exceeding Excavated Natural Material (ENM) Absolute Maximum Criteria (Excavated Natural Material Order 2014)

Concentration exceeding Excavated Natural Material (ENM) Maximum Average Criteria (Excavated Natural Material Order 2014)

– = **No currently available criterion**

N/A = **No TCLP analysis required**

ND = **Not calculated as all individual analytes less than the limit of reporting**

ATTACHMENT 3

NATA LABORATORY REPORTS AND DOCUMENTATION

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Peter Chen	Manager	Huong Crawford
Client	ATLAS GEOTECHNICAL SERVICES PTY LTD	Laboratory	SGS Alexandria Environmental
Address	12 CHARTER STREET SADLEIR NSW 2168	Address	Unit 16, 33 Maddox St Alexandria NSW 2015
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Email	peter@atlasgeoservice.com.au	Email	au.environmental.sydney@sgs.com
Project	**E10132-1**	SGS Reference	**SE198910 R0**
Order Number	**E10132-1**	Date Received	17 Oct 2019
Samples	15	Date Reported	23 Oct 2019

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

Foreign Material Content of sample supplied analysed by Bennel Jiri.

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Ravee Sivasubramaniam .

SIGNATORIES

Dong LIANG
Metals/Inorganics Team Leader

Ly Kim HA
Organic Section Head

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

Parameter	Units	LOR	Sample Number: SE198910.001 Sample Matrix: Soil Sample Date: 17 Oct 2019 Sample Name: 1	SE198910.002 Soil 17 Oct 2019 2	SE198910.003 Soil 17 Oct 2019 3	SE198910.004 Soil 17 Oct 2019 4
VOC's in Soil Method: AN433 Tested: 18/10/2019						
Monocyclic Aromatic Hydrocarbons						
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Polycyclic VOCs						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	**85**	**87**	**86**	**86**
d8-toluene (Surrogate)	%	-	**82**	**84**	**83**	**81**
Bromofluorobenzene (Surrogate)	%	-	**79**	**78**	**77**	**77**
Totals						
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6
Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 18/10/2019						
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	**85**	**87**	**86**	**86**
d8-toluene (Surrogate)	%	-	**82**	**84**	**83**	**81**
Bromofluorobenzene (Surrogate)	%	-	**79**	**78**	**77**	**77**
VPH F Bands						
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

Parameter	Units	LOR	Sample Number: SE198910.001 Sample Matrix: Soil Sample Date: 17 Oct 2019 Sample Name: 1	SE198910.002 Soil 17 Oct 2019 2	SE198910.003 Soil 17 Oct 2019 3	SE198910.004 Soil 17 Oct 2019 4
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 18/10/2019						
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210
TRH F Bands						
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 18/10/2019						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Surrogates						
d5-nitrobenzene (Surrogate)	%	-	**110**	**105**	**103**	**102**
2-fluorobiphenyl (Surrogate)	%	-	**106**	**103**	**99**	**98**
d14-p-terphenyl (Surrogate)	%	-	**106**	**105**	**102**	**103**
pH in soil (1:5) Method: AN101 Tested: 23/10/2019						
pH	pH Units	0.1	**6.7**	**6.7**	**6.6**	**6.4**
Conductivity and TDS by Calculation - Soil Method: AN106 Tested: 23/10/2019						
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	**180**	**190**	**190**	**180**

Parameter	Units	LOR	Sample Number: SE198910.001 Sample Matrix: Soil Sample Date: 17 Oct 2019 Sample Name: 1	SE198910.002 Soil 17 Oct 2019 2	SE198910.003 Soil 17 Oct 2019 3	SE198910.004 Soil 17 Oct 2019 4
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 21/10/2019						
Arsenic, As	mg/kg	1	<1	<1	<1	<1
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	**2.3**	**2.4**	**2.2**	**2.1**
Copper, Cu	mg/kg	0.5	**5.0**	**5.6**	**5.5**	**5.7**
Nickel, Ni	mg/kg	0.5	**0.6**	**0.6**	**0.5**	**0.6**
Lead, Pb	mg/kg	1	**2**	**6**	**2**	**2**
Zinc, Zn	mg/kg	0.5	**18**	**20**	**19**	**21**
Mercury in Soil Method: AN312 Tested: 21/10/2019						
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05
Foreign Materials Content of Soils Method: AN030 Tested: 21/10/2019						
Type III						
Rubber Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Plastic Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Bitumen Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Paper Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Cloth Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Paint Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Wood Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Total Type 3*	%w/w	0.04	<0.04	<0.04	<0.04	<0.04
Moisture Content Method: AN002 Tested: 18/10/2019						
% Moisture	%w/w	1	**9.2**	**9.9**	**9.8**	**10.8**
Fibre Identification in soil Method: AN602 Tested: 22/10/2019						
FibreID						
Asbestos Detected	No unit	-	No	No	No	No
SemiQuant						
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01

Parameter	Units	LOR	Sample Number: SE198910.005 Sample Matrix: Soil Sample Date: 17 Oct 2019 Sample Name: 5	SE198910.006 Soil 17 Oct 2019 6	SE198910.007 Soil 17 Oct 2019 7	SE198910.008 Soil 17 Oct 2019 8
VOC's in Soil Method: AN433 Tested: 18/10/2019						
Monocyclic Aromatic Hydrocarbons						
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Polycyclic VOCs						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	**102**	**87**	**85**	**89**
d8-toluene (Surrogate)	%	-	**98**	**83**	**81**	**84**
Bromofluorobenzene (Surrogate)	%	-	**85**	**77**	**75**	**76**
Totals						
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6
Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 18/10/2019						
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	**102**	**87**	**85**	**89**
d8-toluene (Surrogate)	%	-	**98**	**83**	**81**	**84**
Bromofluorobenzene (Surrogate)	%	-	**85**	**77**	**75**	**76**
VPH F Bands						
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

Parameter	Units	LOR	Sample Number: SE198910.005	SE198910.006	SE198910.007	SE198910.008
Sample Matrix			Soil	Soil	Soil	Soil
Sample Date			17 Oct 2019	17 Oct 2019	17 Oct 2019	17 Oct 2019
Sample Name			5	6	7	8
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 18/10/2019						
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210
TRH F Bands						
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 18/10/2019						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Surrogates						
d5-nitrobenzene (Surrogate)	%	-	**101**	**102**	**101**	**101**
2-fluorobiphenyl (Surrogate)	%	-	**97**	**97**	**97**	**99**
d14-p-terphenyl (Surrogate)	%	-	**98**	**105**	**102**	**104**
pH in soil (1:5) Method: AN101 Tested: 23/10/2019						
pH	pH Units	0.1	**6.2**	**6.5**	**6.4**	**6.5**
Conductivity and TDS by Calculation - Soil Method: AN106 Tested: 23/10/2019						
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	**190**	**170**	**150**	**170**

Parameter	Units	LOR	Sample Number: SE198910.005 Sample Matrix: Soil Sample Date: 17 Oct 2019 Sample Name: 5	SE198910.006 Soil 17 Oct 2019 6	SE198910.007 Soil 17 Oct 2019 7	SE198910.008 Soil 17 Oct 2019 8
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 21/10/2019						
Arsenic, As	mg/kg	1	<1	<1	<1	<1
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	**2.3**	**2.6**	**2.4**	**2.6**
Copper, Cu	mg/kg	0.5	**5.6**	**5.7**	**9.1**	**5.4**
Nickel, Ni	mg/kg	0.5	**0.9**	<0.5	**0.5**	**0.6**
Lead, Pb	mg/kg	1	**3**	**3**	**10**	**2**
Zinc, Zn	mg/kg	0.5	**22**	**18**	**21**	**19**
Mercury in Soil Method: AN312 Tested: 21/10/2019						
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05
Foreign Materials Content of Soils Method: AN030 Tested: 21/10/2019						
Type III						
Rubber Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Plastic Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Bitumen Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Paper Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Cloth Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Paint Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Wood Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Total Type 3*	%w/w	0.04	<0.04	<0.04	<0.04	<0.04
Moisture Content Method: AN002 Tested: 18/10/2019						
% Moisture	%w/w	1	**10.4**	**9.5**	**10.1**	**10.4**
Fibre Identification in soil Method: AN602 Tested: 22/10/2019						
FibreID						
Asbestos Detected	No unit	-	No	No	No	No
SemiQuant						
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01

Parameter	Units	LOR	Sample Number: SE198910.009 Sample Matrix: Soil Sample Date: 17 Oct 2019 Sample Name: 9	SE198910.010 Soil 17 Oct 2019 10	SE198910.011 Soil 17 Oct 2019 11	SE198910.012 Soil 17 Oct 2019 12
VOC's in Soil Method: AN433 Tested: 18/10/2019						
Monocyclic Aromatic Hydrocarbons						
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Polycyclic VOCs						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	**84**	**87**	**85**	**77**
d8-toluene (Surrogate)	%	-	**81**	**84**	**81**	**85**
Bromofluorobenzene (Surrogate)	%	-	**75**	**76**	**74**	**78**
Totals						
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6
Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 18/10/2019						
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	**84**	**87**	**85**	**77**
d8-toluene (Surrogate)	%	-	**81**	**84**	**81**	**85**
Bromofluorobenzene (Surrogate)	%	-	**75**	**76**	**74**	**78**
VPH F Bands						
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

Parameter	Units	LOR	Sample Number: SE198910.009	SE198910.010	SE198910.011	SE198910.012
Sample Matrix			Soil	Soil	Soil	Soil
Sample Date			17 Oct 2019	17 Oct 2019	17 Oct 2019	17 Oct 2019
Sample Name			9	10	11	12
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 18/10/2019						
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210
TRH F Bands						
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 18/10/2019						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Surrogates						
d5-nitrobenzene (Surrogate)	%	-	**100**	**99**	**99**	**98**
2-fluorobiphenyl (Surrogate)	%	-	**99**	**99**	**97**	**98**
d14-p-terphenyl (Surrogate)	%	-	**103**	**102**	**101**	**97**
pH in soil (1:5) Method: AN101 Tested: 23/10/2019						
pH	pH Units	0.1	**6.7**	**7.0**	**7.0**	**7.0**
Conductivity and TDS by Calculation - Soil Method: AN106 Tested: 23/10/2019						
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	**180**	**190**	**190**	**180**

Parameter	Units	LOR	Sample Number: SE198910.009 Sample Matrix: Soil Sample Date: 17 Oct 2019 Sample Name: 9	SE198910.010 Soil 17 Oct 2019 10	SE198910.011 Soil 17 Oct 2019 11	SE198910.012 Soil 17 Oct 2019 12
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 21/10/2019						
Arsenic, As	mg/kg	1	<1	<1	<1	<1
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	**2.5**	**2.1**	**2.0**	**2.2**
Copper, Cu	mg/kg	0.5	**5.4**	**5.6**	**5.2**	**5.2**
Nickel, Ni	mg/kg	0.5	**0.6**	**0.6**	**0.5**	**0.6**
Lead, Pb	mg/kg	1	**2**	**2**	**2**	**2**
Zinc, Zn	mg/kg	0.5	**21**	**21**	**21**	**20**
Mercury in Soil Method: AN312 Tested: 21/10/2019						
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05
Foreign Materials Content of Soils Method: AN030 Tested: 21/10/2019						
Type III						
Rubber Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Plastic Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Bitumen Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Paper Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Cloth Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Paint Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Wood Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Total Type 3*	%w/w	0.04	<0.04	<0.04	<0.04	<0.04
Moisture Content Method: AN002 Tested: 18/10/2019						
% Moisture	%w/w	1	**10.2**	**10.6**	**10.8**	**11.2**
Fibre Identification in soil Method: AN602 Tested: 22/10/2019						
FibreID						
Asbestos Detected	No unit	-	No	No	No	No
SemiQuant						
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01

Parameter	Units	LOR	Sample Number: SE198910.013 Sample Matrix: Soil Sample Date: 17 Oct 2019 Sample Name: 13	SE198910.014 Soil 17 Oct 2019 14	SE198910.015 Soil 17 Oct 2019 15
VOC's in Soil Method: AN433 Tested: 18/10/2019					
Monocyclic Aromatic Hydrocarbons					
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1
Polycyclic VOCs					
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
Surrogates					
d4-1,2-dichloroethane (Surrogate)	%	-	**86**	**85**	**85**
d8-toluene (Surrogate)	%	-	**83**	**82**	**81**
Bromofluorobenzene (Surrogate)	%	-	**75**	**74**	**73**
Totals					
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6
Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 18/10/2019					
TRH C6-C10	mg/kg	25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20
Surrogates					
d4-1,2-dichloroethane (Surrogate)	%	-	**86**	**85**	**85**
d8-toluene (Surrogate)	%	-	**83**	**82**	**81**
Bromofluorobenzene (Surrogate)	%	-	**75**	**74**	**73**
VPH F Bands					
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25

Parameter	Units	LOR	Sample Number: SE198910.013 Sample Matrix: Soil Sample Date: 17 Oct 2019 Sample Name: 13	Sample Number: SE198910.014 Sample Matrix: Soil Sample Date: 17 Oct 2019 Sample Name: 14	Sample Number: SE198910.015 Sample Matrix: Soil Sample Date: 17 Oct 2019 Sample Name: 15
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 18/10/2019					
TRH C10-C14	mg/kg	20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210
TRH F Bands					
TRH >C10-C16	mg/kg	25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 18/10/2019					
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8
Surrogates					
d5-nitrobenzene (Surrogate)	%	-	**102**	**96**	**97**
2-fluorobiphenyl (Surrogate)	%	-	**100**	**95**	**96**
d14-p-terphenyl (Surrogate)	%	-	**105**	**98**	**97**
pH in soil (1:5) Method: AN101 Tested: 23/10/2019					
pH	pH Units	0.1	**7.0**	**6.8**	**6.8**

Parameter	Units	LOR	Sample Number: SE198910.013 Sample Matrix: Soil Sample Date: 17 Oct 2019 Sample Name: 13	Sample Number: SE198910.014 Sample Matrix: Soil Sample Date: 17 Oct 2019 Sample Name: 14	Sample Number: SE198910.015 Sample Matrix: Soil Sample Date: 17 Oct 2019 Sample Name: 15
Conductivity and TDS by Calculation - Soil Method: AN106 Tested: 23/10/2019					
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	**190**	**200**	**190**
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 21/10/2019					
Arsenic, As	mg/kg	1	**1**	<1	<1
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	**2.4**	**2.3**	**2.4**
Copper, Cu	mg/kg	0.5	**6.1**	**5.5**	**6.4**
Nickel, Ni	mg/kg	0.5	**0.7**	**0.6**	**0.7**
Lead, Pb	mg/kg	1	**8**	**2**	**2**
Zinc, Zn	mg/kg	0.5	**20**	**22**	**22**
Mercury in Soil Method: AN312 Tested: 21/10/2019					
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05
Foreign Materials Content of Soils Method: AN030 Tested: 21/10/2019					
Type III					
Rubber Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01
Plastic Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01
Bitumen Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01
Paper Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01
Cloth Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01
Paint Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01
Wood Weight (%)*	%w/w	0.01	<0.01	<0.01	<0.01
Total Type 3*	%w/w	0.04	<0.04	<0.04	<0.04
Moisture Content Method: AN002 Tested: 18/10/2019					
% Moisture	%w/w	1	**9.8**	**9.8**	**10.5**
Fibre Identification in soil Method: AN602 Tested: 22/10/2019					
FibreID					
Asbestos Detected	No unit	-	No	No	No

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE198910.013 Soil 17 Oct 2019 13	SE198910.014 Soil 17 Oct 2019 14	SE198910.015 Soil 17 Oct 2019 15
Fibre Identification in soil Method: AN602 Tested: 22/10/2019 (continued)						
SemiQuant						
Estimated Fibres*	%w/w	0.01		<0.01	<0.01	<0.01

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Conductivity and TDS by Calculation - Soil **Method: ME-(AU)-[ENV]AN106**

Parameter	QC Reference	Units	LOR	DUP %RPD	LCS %Recovery
Conductivity of Extract (1:5 dry sample basis)	LB186022	µS/cm	1	0 - 1%	101%

Mercury in Soil **Method: ME-(AU)-[ENV]AN312**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB185792	mg/kg	0.05	<0.05	0%	90%	88%

Moisture Content **Method: ME-(AU)-[ENV]AN002**

Parameter	QC Reference	Units	LOR	DUP %RPD
% Moisture	LB185668	%w/w	1	1 - 8%

PAH (Polynuclear Aromatic Hydrocarbons) in Soil **Method: ME-(AU)-[ENV]AN420**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB185667	mg/kg	0.1	<0.1	NVL	115%	NVL
2-methylnaphthalene	LB185667	mg/kg	0.1	<0.1	NVL	NA	NVL
1-methylnaphthalene	LB185667	mg/kg	0.1	<0.1	NVL	NA	NVL
Acenaphthylene	LB185667	mg/kg	0.1	<0.1	NVL	125%	NVL
Acenaphthene	LB185667	mg/kg	0.1	<0.1	NVL	106%	NVL
Fluorene	LB185667	mg/kg	0.1	<0.1	NVL	NA	NVL
Phenanthrene	LB185667	mg/kg	0.1	<0.1	NVL	122%	NVL
Anthracene	LB185667	mg/kg	0.1	<0.1	NVL	115%	NVL
Fluoranthene	LB185667	mg/kg	0.1	<0.1	NVL	111%	NVL
Pyrene	LB185667	mg/kg	0.1	<0.1	NVL	117%	NVL
Benzo(a)anthracene	LB185667	mg/kg	0.1	<0.1	NVL	NA	NVL
Chrysene	LB185667	mg/kg	0.1	<0.1	NVL	NA	NVL
Benzo(b&j)fluoranthene	LB185667	mg/kg	0.1	<0.1	NVL	NA	NVL
Benzo(k)fluoranthene	LB185667	mg/kg	0.1	<0.1	NVL	NA	NVL
Benzo(a)pyrene	LB185667	mg/kg	0.1	<0.1	NVL	133%	132%
Indeno(1,2,3-cd)pyrene	LB185667	mg/kg	0.1	<0.1	NVL	NA	NVL
Dibenzo(ah)anthracene	LB185667	mg/kg	0.1	<0.1	NVL	NA	NVL
Benzo(ghi)perylene	LB185667	mg/kg	0.1	<0.1	NVL	NA	NVL
Carcinogenic PAHs, BaP TEQ <LOR=0	LB185667	TEQ (mg/kg)	0.2	<0.2	NVL	NA	NVL
Carcinogenic PAHs, BaP TEQ <LOR=LOR	LB185667	TEQ (mg/kg)	0.3	<0.3	NVL	NA	NVL
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	LB185667	TEQ (mg/kg)	0.2	<0.2	NVL	NA	NVL
Total PAH (18)	LB185667	mg/kg	0.8	<0.8	NVL	NA	NVL
Total PAH (NEPM/WHO 16)	LB185667	mg/kg	0.8	<0.8			

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d5-nitrobenzene (Surrogate)	LB185667	%	-	112%	NVL	103%	NVL
2-fluorobiphenyl (Surrogate)	LB185667	%	-	106%	NVL	99%	NVL
d14-p-terphenyl (Surrogate)	LB185667	%	-	102%	NVL	96%	NVL

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

pH in soil (1:5) **Method: ME-(AU)-[ENV]AN101**

Parameter	QC Reference	Units	LOR	DUP %RPD	LCS %Recovery
pH	LB186022	pH Units	0.1	0 - 1%	101%

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES **Method: ME-(AU)-[ENV]AN040/AN320**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB185788	mg/kg	1	<1	0%	103%	95%
Cadmium, Cd	LB185788	mg/kg	0.3	<0.3	0%	104%	86%
Chromium, Cr	LB185788	mg/kg	0.5	<0.5	7 - 19%	99%	97%
Copper, Cu	LB185788	mg/kg	0.5	<0.5	3 - 21%	104%	93%
Nickel, Ni	LB185788	mg/kg	0.5	<0.5	4 - 24%	97%	92%
Lead, Pb	LB185788	mg/kg	1	<1	3 - 23%	106%	94%
Zinc, Zn	LB185788	mg/kg	0.5	<0.5	8 - 13%	105%	95%

TRH (Total Recoverable Hydrocarbons) in Soil **Method: ME-(AU)-[ENV]AN403**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C10-C14	LB185667	mg/kg	20	<20	0 - 99%	110%	108%
TRH C15-C28	LB185667	mg/kg	45	<45	NVL	110%	103%
TRH C29-C36	LB185667	mg/kg	45	<45	0 - 31%	85%	83%
TRH C37-C40	LB185667	mg/kg	100	<100	NVL	NA	NA
TRH C10-C36 Total	LB185667	mg/kg	110	<110	NVL	NA	NA
TRH C10-C40 Total (F bands)	LB185667	mg/kg	210	<210	NVL	NA	NA

TRH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH >C10-C16	LB185667	mg/kg	25	<25	0 - 90%	110%	105%
TRH >C10-C16 - Naphthalene (F2)	LB185667	mg/kg	25	<25	0 - 90%	NA	NA
TRH >C16-C34 (F3)	LB185667	mg/kg	90	<90	NVL	103%	100%
TRH >C34-C40 (F4)	LB185667	mg/kg	120	<120	NVL	80%	NA

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

VOC's in Soil Method: ME-(AU)-[ENV]AN433

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene	LB185666	mg/kg	0.1	<0.1	0%	83%	88%
Toluene	LB185666	mg/kg	0.1	<0.1	0%	87%	91%
Ethylbenzene	LB185666	mg/kg	0.1	<0.1	0%	89%	83%
m/p-xylene	LB185666	mg/kg	0.2	<0.2	0%	89%	81%
o-xylene	LB185666	mg/kg	0.1	<0.1	0%	88%	83%

Polycyclic VOCs

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB185666	mg/kg	0.1	<0.1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d4-1,2-dichloroethane (Surrogate)	LB185666	%	-	99%	0 - 5%	78%	87%
d8-toluene (Surrogate)	LB185666	%	-	98%	1 - 5%	86%	95%
Bromofluorobenzene (Surrogate)	LB185666	%	-	87%	1 - 2%	81%	83%

Totals

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Total Xylenes	LB185666	mg/kg	0.3	<0.3	0%	NA	NA
Total BTEX	LB185666	mg/kg	0.6	<0.6	0%	NA	NA

Volatile Petroleum Hydrocarbons in Soil Method: ME-(AU)-[ENV]AN433

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C6-C10	LB185666	mg/kg	25	<25	0%	83%	87%
TRH C6-C9	LB185666	mg/kg	20	<20	0%	88%	92%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d4-1,2-dichloroethane (Surrogate)	LB185666	%	-	99%	0 - 5%	78%	87%
d8-toluene (Surrogate)	LB185666	%	-	98%	1 - 5%	86%	95%
Bromofluorobenzene (Surrogate)	LB185666	%	-	87%	1 - 2%	81%	83%

VPH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene (F0)	LB185666	mg/kg	0.1	<0.1	0%	NA	NA
TRH C6-C10 minus BTEX (F1)	LB185666	mg/kg	25	<25	0%	81%	89%

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN030	A sample is dried at 50 - 60°C, sieved and separated into lots. The three types of foreign material are determined. The weights of each type are calculated as a percentage of the entire dry sample weight (including material passing 4.75mm sieve). Based on RTA test method T276. Type I: Metal, Glass, Asphalt, Stone, Ceramics and Slag (other than blast furnace slag) Type II: Plaster, Clay lumps and other Friable Material Type III: Rubber, Plastic, Bitumen, Paper, Cloth, Paint, Wood
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl2) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos/cm or µS/cm @ 25°C. For soils, an extract with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Salinity can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. Reference APHA 2510 B.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	Carcinogenic PAHs may be expressed as Benzo(a)pyrene equivalents by applying the BaP toxicity equivalence factor (NEPM 1999, June 2013, B7). These can be reported as the individual PAHs and as a sum of carcinogenic PAHs. The sum is reported three ways, the first assuming all <LOR results are zero, the second assuming all < LOR results are half the LOR and the third assuming all <LOR results are the LOR.
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
		QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	-	The sample was not analysed for this analyte
		NVL	Not Validated

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au.pv.sgsvr/en-gb/environment.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Peter Chen
Client	ATLAS GEOTECHNICAL SERVICES PTY LTD
Address	12 CHARTER STREET SADLEIR NSW 2168
Telephone	(Not specified)
Facsimile	(Not specified)
Email	peter@atlasgeoservice.com.au
Project	**E10132-1**
Order Number	**E10132-1**
Samples	15

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE198910 R0**
Date Received	17 Oct 2019
Date Reported	23 Oct 2019

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

Foreign Material Content of sample supplied analysed by Bennel Jiri.

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Ravee Sivasubramaniam .

SIGNATORIES

Dong LIANG
Metals/Inorganics Team Leader

Ly Kim HA
Organic Section Head

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE198910.001	1	Soil	100g Sand, Soil, Plant matter, Plaster	17 Oct 2019	No Asbestos Found Organic Fibres Detected	<0.01
SE198910.002	2	Soil	107g Sand, Soil, Plant matter, Plaster	17 Oct 2019	No Asbestos Found Organic Fibres Detected	<0.01
SE198910.003	3	Soil	83g Sand, Soil, Plant matter, Plaster	17 Oct 2019	No Asbestos Found Organic Fibres Detected	<0.01
SE198910.004	4	Soil	83g Sand, Soil, Plant matter, Plaster	17 Oct 2019	No Asbestos Found Organic Fibres Detected	<0.01
SE198910.005	5	Soil	105g Sand, Soil, Plant matter, Plaster	17 Oct 2019	No Asbestos Found Organic Fibres Detected	<0.01
SE198910.006	6	Soil	104g Sand, Soil, Plant matter, Plaster	17 Oct 2019	No Asbestos Found Organic Fibres Detected	<0.01
SE198910.007	7	Soil	106g Sand, Soil, Plant matter, Plaster	17 Oct 2019	No Asbestos Found Organic Fibres Detected	<0.01
SE198910.008	8	Soil	109g Sand, Soil, Plant matter, Plaster	17 Oct 2019	No Asbestos Found Organic Fibres Detected	<0.01
SE198910.009	9	Soil	60g Sand, Soil, Plant matter, Plaster	17 Oct 2019	No Asbestos Found Organic Fibres Detected	<0.01
SE198910.010	10	Soil	81g Sand, Soil, Plant matter, Plaster	17 Oct 2019	No Asbestos Found Organic Fibres Detected	<0.01
SE198910.011	11	Soil	105g Sand, Soil, Plant matter, Plaster	17 Oct 2019	No Asbestos Found Organic Fibres Detected	<0.01
SE198910.012	12	Soil	98g Sand, Rocks, Plant matter, Plaster	17 Oct 2019	No Asbestos Found Organic Fibres Detected	<0.01
SE198910.013	13	Soil	64g Sand, Soil, Plant matter, Plaster	17 Oct 2019	No Asbestos Found Organic Fibres Detected	<0.01
SE198910.014	14	Soil	81g Sand, Soil, Plant matter, Plaster	17 Oct 2019	No Asbestos Found Organic Fibres Detected	<0.01
SE198910.015	15	Soil	74g Sand, Soil, Plant matter, Plaster	17 Oct 2019	No Asbestos Found Organic Fibres Detected	<0.01

METHOD SUMMARY

SE198910 R0

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au.pv.sgsvr/en-gb/environment.