

PJ CAREY (CONTRACTORS) LTD

**Phase 1a Section 2
Graven Hill, Bicester**

**Land Contamination Verification Report for Earthworks Fill
(to assist with discharging original Planning Condition
No 58)**

Job No: 173044

Date of Report: 25th April 2019

Report Ref: 173044/VR/002



AA Environmental Limited

4-8 Cholswell Court
Shippon
Abingdon
OX136HX
T01235 536042
F01235 523849
info@aae-llp.com
www.aae-llp.com



Comment <u>Strata comprises:</u> 0.00-0.40m Dark greyish brown sandy gravelly CLAY. Gravel is subangular fine of brick, concrete and hardcore. (MADE GROUND) 0.40-0.45m: Reddish brown sandy GRAVEL. Gravel is subangular fine of brick, concrete and hardcore. (MADE GROUND)	Project 173044
	Reference 2 Plot 75
	Date 22/01/19
	Originator Richard Heath
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment	Project 173044
	Reference 2 Plot 75 Arisings
	Date 22/01/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment	Project 173044
<u>Strata comprises:</u>	Reference 2 Plot 76
0.00-0.40m	Date 22/01/19
Dark greyish brown sandy gravelly CLAY. Gravel is subangular fine of brick, concrete and hardcore. (MADE GROUND)	Originator Richard Heath
0.40-0.45m: Dark greyish brown silty CLAY. (PETERBOROUGH MEMBER)	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aee-llp.com www.aee-llp.com



Comment	Project 173044
	Reference 2 Plot 76 Arisings
	Date 22/01/19
	Originator Richard Heath
	  AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment <u>Strata comprises:</u> 0.00-0.45m Dark greyish brown sandy gravelly CLAY. Gravel is subangular fine of brick, concrete and hardcore. (MADE GROUND)	Project 173044
	Reference 2 Plot 77
	Date 22/01/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment	Project 173044
	Reference 2 Plot 77 Arisings
	Date 22/01/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment <u>Strata comprises:</u> 0.0-0.45m: Dark greyish brown silty CLAY. (PETERBOROUGH MEMBER)	Project 173044
	Reference 2 Plot 78
	Date 22/01/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment	Project 173044
	Reference 2 Plot 78 Arisings
	Date 22/01/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment	Project 173044
<u>Strata comprises:</u>	Reference 2 C
0.00-0.25m	Date 22/01/19
Dark greyish brown sandy gravelly CLAY. Gravel is subangular fine of brick, limestone concrete and hardcore. (MADE GROUND)	Originator Richard Heath
0.25-0.65m: Dark greyish brown silty CLAY. (PETERBOROUGH MEMBER)	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment	Project 173044
	Reference 2 C Arisings
	Date 22/01/19
	Originator Richard Heath
	  AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment <u>Strata comprises:</u> 0.00-0.25m Dark greyish brown sandy GRAVEL. Gravel is subangular fine of brick, concrete and hardcore. (MADE GROUND) 0.25-0.65m: Dark greyish brown silty CLAY. (PETERBOROUGH MEMBER)	Project 173044
	Reference 2 D
	Date 22/01/19
	Originator Richard Heath
	 Environmental Consultants AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment	Project 173044
	Reference 2 D Arisings
	Date 22/01/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment <u>Strata comprises:</u> 0.00-0.45m Dark greyish brown sandy gravelly CLAY. Gravel is subangular fine of brick, concrete and hardcore. (MADE GROUND)	Project 173044
	Reference 2 Plot 83
	Date 26/03/19
	Originator Richard Heath
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment	Project 173044
	Reference 2 Plot 83 arisings
	Date 26/03/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment <u>Strata comprises:</u> 0.00-0.45m Dark greyish brown sandy gravelly CLAY. Gravel is subangular fine of brick, concrete and hardcore. (MADE GROUND)	Project 173044
	Reference 2 Plot 96
	Date 26/03/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment	Project 173044
	Reference 2 Plot 96 arisings
	Date 26/03/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment <u>Strata comprises:</u> 0.00-0.30m Dark greyish brown sandy gravelly CLAY. Gravel is subangular fine of brick, concrete and hardcore. (MADE GROUND) 0.30-0.45m: Dark greyish brown silty CLAY. (PETERBOROUGH MEMBER)	Project 173044
	Reference 2 Plot 99
	Date 26/03/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment	Project 173044
	Reference 2 Plot 99 arisings
	Date 26/03/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment <u>Strata comprises:</u> 0.00-0.45m Dark greyish brown sandy GRAVEL. Gravel is subangular fine of brick, concrete and hardcore. (MADE GROUND)	Project 173044
	Reference 2 Plot 105 106
	Date 26/03/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment	Project 173044
	Reference 2 Plot 105 106 arisings
	Date 26/03/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment	Project 173044
<u>Strata comprises:</u>	Reference 2 Plot 110 111
0.00-0.30m Dark greyish brown sandy gravelly CLAY. Gravel is subangular fine of brick, concrete and hardcore. (MADE GROUND)	Date 26/03/19
0.30-0.45m: Dark blackish brown silty CLAY. (PETERBOROUGH MEMBER)	Originator Richard Heath  AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment	Project 173044
	Reference 2 Plot 110 111 arisings
	Date 26/03/19
	Originator Richard Heath
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Comment <u>Strata comprises:</u> 0.00-0.45m Dark greyish brown silty CLAY. (PETERBOROUGH MEMBER)	Project 173044
	Reference 2 Plot 116 east
	Date 26/03/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment	Project 173044
	Reference 2 Plot 116 east arisings
	Date 26/03/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment <u>Strata comprises:</u> 0.00-0.45m: Dark greyish brown silty CLAY. (PETERBOROUGH MEMBER)	Project 173044
	Reference 2 Plot 116 west
	Date 26/03/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment	Project 173044
	Reference 2 Plot 116 west arisings
	Date 26/03/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com

APPENDIX C

Certificates of Analysis – Verification Trial Pits

DRAFT



Amended Report

Report No.: 19-02478-4

Initial Date of Issue: 29-Jan-2019 **Date of Re-Issue:** 17-Apr-2019

Client AA Environmental Ltd

Client Address: Units 4 to 8
Cholswell Court
Shippon
Abingdon
Oxfordshire
OX136HX

Contact(s): Ed Brown
Henry Austin
Ioannis Markidis
Jack Taylor
John McCusker
Mark Anderson
Matthew Lawman
Richard Heath
Sam Muir
Tomos Eaves

Project 173044 - Graven Hill

Quotation No.: **Date Received:** 24-Jan-2019

Order No.: 173044 **Date Instructed:** 24-Jan-2019

No. of Samples: 9

Turnaround (Wkdays): 7 **Results Due:** 01-Feb-2019

Date Approved: 01-Feb-2019

Approved By:



Details: Robert Monk, Technical Manager

Results - Soil

Project: 173044 - Graven Hill

Client: AA Environmental Ltd	Chemtest Job No.:				19-02478	19-02478	19-02478	19-02478	19-02478	19-02478	19-02478	19-02478	19-02478
Quotation No.:	Chemtest Sample ID.:				759786	759787	759788	759789	759790	759791	759792	759797	759798
	Client Sample ID.:				P71 F	P71 B	P72 F	P72 B	P75	P76	P77	C	D
	Sample Location:				2	2	2	2	2	2	2	2	2
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.00	0.00	0.00	0.00	0.00	0.00	0.00		
	Bottom Depth (m):				0.45	0.45	0.45	0.45	0.45	0.45	0.45		
	Date Sampled:				22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019
	Asbestos Lab:				DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	Fibres/Clumps	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	Chrysotile	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	Stereo Microscopy	-	-	-	-	-	-	-	-
Asbestos by Gravimetry	U	2192	%	0.001	0.002								
Total Asbestos	N	2192	%	0.001	0.002								
Moisture	N	2030	%	0.020	22	25	24	25	20	23	21	21	27
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay
pH	M	2010		N/A	7.9	8.0	7.9	7.8	8.1	7.6	8.4	8.1	7.3
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	1.2	0.80	0.69	0.84	0.61	1.1	0.83	0.84	1.2
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.34	0.32	0.048	0.20	0.17	0.10	0.047	0.067	0.019
Cyanide (Total)	M	2300	mg/kg	0.50	0.50	20	< 0.50	< 0.50	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	7.6	24	2.5	9.3	4.8	7.4	9.6	3.4	3.4
Arsenic	M	2450	mg/kg	1.0	14	15	9.8	13	16	14	18	16	12
Beryllium	U	2450	mg/kg	1.0	1.1	1.1	1.1	1.1	1.0	1.2	1.2	1.1	1.0
Cadmium	M	2450	mg/kg	0.10	0.86	0.44	0.34	0.51	0.45	0.25	0.57	0.34	0.61
Chromium	M	2450	mg/kg	1.0	44	37	44	38	38	43	41	39	36
Copper	M	2450	mg/kg	0.50	67	170	28	190	41	28	39	19	19
Mercury	M	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	M	2450	mg/kg	0.50	45	37	33	37	39	44	42	34	30
Lead	M	2450	mg/kg	0.50	33	38	19	33	34	19	42	25	21
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	0.42	< 0.20	0.73	0.94
Vanadium	U	2450	mg/kg	5.0	40	41	41	40	41	39	50	34	32
Zinc	M	2450	mg/kg	0.50	190	180	110	140	130	100	170	73	110
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	M	2625	%	0.20	2.0	2.3	1.0	2.0	2.1	1.7	2.3	3.0	3.3
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	1.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	30	< 1.0	24	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Client: AA Environmental Ltd	Chemtest Job No.:		19-02478	19-02478	19-02478	19-02478	19-02478	19-02478	19-02478	19-02478	19-02478	19-02478
Quotation No.:	Chemtest Sample ID.:		759786	759787	759788	759789	759790	759791	759792	759797	759798	
	Client Sample ID.:		P71 F	P71 B	P72 F	P72 B	P75	P76	P77	C	D	
	Sample Location:		2	2	2	2	2	2	2	2	2	
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
	Top Depth (m):		0.00	0.00	0.00	0.00	0.00	0.00	0.00			
	Bottom Depth (m):		0.45	0.45	0.45	0.45	0.45	0.45	0.45			
	Date Sampled:		22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	
	Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD								
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	31	< 5.0	24	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	5.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	2.8	< 1.0	2.8	12	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	100	< 1.0	27	2.2	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	110	< 5.0	30	19	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	140	< 10	53	19	< 10	< 10	< 10	< 10
Naphthalene	M	2700	mg/kg	0.10	0.12	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	0.19	0.14	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	0.38	0.50	< 0.10	0.85	0.49	< 0.10	0.66	< 0.10
Anthracene	M	2700	mg/kg	0.10	0.13	0.15	< 0.10	0.25	0.16	< 0.10	0.18	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	0.76	1.0	0.17	2.0	1.1	< 0.10	1.3	< 0.10
Pyrene	M	2700	mg/kg	0.10	0.78	1.1	0.15	1.8	1.1	< 0.10	1.6	< 0.10
Benzo[a]anthracene	M	2700	mg/kg	0.10	0.61	0.64	< 0.10	0.95	0.62	< 0.10	0.90	< 0.10
Chrysene	M	2700	mg/kg	0.10	0.39	0.95	< 0.10	1.4	1.1	< 0.10	0.54	< 0.10
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	0.89	1.1	< 0.10	1.3	1.2	< 0.10	1.0	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	0.73	0.69	< 0.10	0.77	0.62	< 0.10	0.10	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	0.53	0.58	< 0.10	0.73	0.51	< 0.10	0.13	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	0.45	0.75	< 0.10	0.53	0.26	< 0.10	0.50	< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	0.21	0.64	< 0.10	0.39	0.13	< 0.10	0.18	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	0.84	0.60	< 0.10	0.73	0.26	< 0.10	0.29	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0	7.0	8.8	< 2.0	12	7.6	< 2.0	7.4	< 2.0
Benzene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

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- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

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Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

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Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

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Charges may apply to extended sample storage

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customerservices@chemtest.com



Amended Report

Report No.: 19-11460-3

Initial Date of Issue: 05-Apr-2019 **Date of Re-Issue:** 17-Apr-2019

Client AA Environmental Ltd

Client Address: Units 4 to 8
Cholswell Court
Shippon
Abingdon
Oxfordshire
OX136HX

Contact(s): Ed Brown
Henry Austin
Ioannis Markidis
Jack Taylor
John McCusker
Mark Anderson
Matthew Lawman
Richard Heath
Sam Muir
Tomos Eaves

Project 173044 - Graven Hill

Quotation No.: **Date Received:** 03-Apr-2019

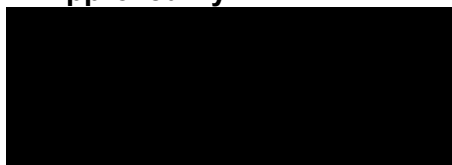
Order No.: 173044 **Date Instructed:** 03-Apr-2019

No. of Samples: 8

Turnaround (Wkdays): 5 **Results Due:** 09-Apr-2019

Date Approved: 09-Apr-2019

Approved By:



Details: Glynn Harvey, Laboratory Manager

Results - Soil

Client: AA Environmental Ltd	Chemtest Job No.:		19-11460	19-11460	19-11460	19-11460	19-11460	19-11460	19-11460	19-11460	19-11460	19-11460
Quotation No.:	Chemtest Sample ID.:		804240	804241	804242	804243	804244	804245	804246	806638		
	Client Sample ID.:		P105/106	P110/111	P116 E	P116 W	P96	P99	P83	P105/106		
	Sample Location:		S2	S2	S2	S2	S2	S2	S2	Retest - S2		
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		
	Top Depth (m):		0.00	0.00	0.00	0.00	0.35	0.40	0.40	0.00		
	Bottom Depth (m):		0.40	0.40	0.40	0.40				0.40		
	Date Sampled:		26-Mar-2019	26-Mar-2019	26-Mar-2019	26-Mar-2019	26-Mar-2019	26-Mar-2019	26-Mar-2019	26-Mar-2019		
	Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY		
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	
Moisture	N	2030	%	0.020	17	22	24	22	22	24	21	18
pH	U	2010		N/A	10.3	8.3	7.7	7.8	8.0	8.0	8.0	
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	3.2	1.4	1.4	1.0	1.1	1.3	1.2	
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	1.0	0.54	1.0	0.53	0.50	0.22	0.59	
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	31	11	4.6	3.3	6.3	2.7	8.7	
Arsenic	U	2450	mg/kg	1.0	17	20	13	19	19	15	21	
Beryllium	U	2450	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Cadmium	U	2450	mg/kg	0.10	0.58	0.34	0.12	< 0.10	0.31	0.19	0.47	
Chromium	U	2450	mg/kg	1.0	21	34	37	37	49	54	48	
Copper	U	2450	mg/kg	0.50	74	26	20	21	34	34	34	
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Nickel	U	2450	mg/kg	0.50	28	37	44	44	40	58	52	
Lead	U	2450	mg/kg	0.50	600	39	19	19	40	18	27	22
Selenium	U	2450	mg/kg	0.20	0.36	0.44	0.33	< 0.20	0.52	0.95	0.76	
Vanadium	U	2450	mg/kg	5.0	29	39	33	42	40	39	45	
Zinc	U	2450	mg/kg	0.50	72	87	60	57	100	92	110	
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
Total Organic Carbon	U	2625	%	0.20	4.1	1.8	0.55	0.84	1.0	0.67	1.4	
Florisil Cleanup	N		-	N/A	Done	Done	Done	Done	Done	Done	Done	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	14	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	14	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	

Results - Soil

Client: AA Environmental Ltd	Chemtest Job No.:		19-11460	19-11460	19-11460	19-11460	19-11460	19-11460	19-11460	19-11460
Quotation No.:	Chemtest Sample ID.:		804240	804241	804242	804243	804244	804245	804246	806638
	Client Sample ID.:		P105/106	P110/111	P116 E	P116 W	P96	P99	P83	P105/106
	Sample Location:		S2	S2	S2	S2	S2	S2	S2	Retest - S2
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):		0.00	0.00	0.00	0.00	0.35	0.40	0.40	0.00
	Bottom Depth (m):		0.40	0.40	0.40	0.40				0.40
	Date Sampled:		26-Mar-2019	26-Mar-2019	26-Mar-2019	26-Mar-2019	26-Mar-2019	26-Mar-2019	26-Mar-2019	26-Mar-2019
	Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	
Determinand	Accred.	SOP	Units	LOD						
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	1.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	19	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	20	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	34	< 10	< 10	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	0.43	< 0.10	< 0.10	0.35	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	0.33	0.78	< 0.10	0.12	0.67	0.25
Pyrene	U	2700	mg/kg	0.10	0.30	0.85	< 0.10	0.10	0.71	0.27
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	0.44	< 0.10	< 0.10	1.3	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	0.47	< 0.10	< 0.10	0.93	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	0.52	< 0.10	< 0.10	0.59	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	0.35	< 0.10	< 0.10	0.36	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	0.41	< 0.10	< 0.10	0.26	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.64	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.14	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.65	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	4.3	< 2.0	< 2.0	6.6	< 2.0
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

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2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
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2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

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APPENDIX D
Consolidated Results - Section 2 Fill

DRAFT

Determinand	Waterman Landscaping and Residential Gardens Criteria mg/kg	Tier 1 Residential with homegrown produce SGV mg/kg	Chemtest Job No.:				19-02478	19-02478	19-02478	19-02478	19-02478	19-02478	19-02478	19-02478	19-02478	19-11460	19-11460	19-11460	19-11460	19-11460	19-11460	
			Chemtest Sample ID.:				759786	759787	759788	759789	759790	759791	759792	759797	759798	804240	804241	804242	804243	804244	804245	
			Client Sample Ref.:				P71 F	P71 B	P72 F	P72 B	P75	P76	P77	C	D	P105/106	P110/111	P116 E	P116 W	P96	P99	
			Section				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
			Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Bottom Depth (m):				0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.65	0.65	0.40	0.40	0.40	0.40	0.40	0.35	0.40
			Date Sampled:				22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	26-Mar-2019	26-Mar-2019	26-Mar-2019	26-Mar-2019	26-Mar-2019	26-Mar-2019
			Strata																			
			Accred.				SOP	Units	LOD													
ACM Type			U	2192		N/A	Fibres/Clumps	-	-	-	-	-	-	-	-	-	-	-	-	-		
Asbestos Identification	No visible, <0.001%		U	2192	%	0.001	Chrysotile	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected		
Asbestos by Gravimetry			U	2192	%	0.001	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-		
Total Asbestos			N	2192	%	0.001	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-		
Moisture		NR	N	2030	%	0.020	22.00	25.00	24.00	25.00	20.00	23.00	21.00	21.00	27.00	17.00	22.00	24.00	22.00	24.00		
pH		NR	M	2010		N/A	7.90	8.00	7.90	7.80	8.10	7.60	8.40	8.10	7.30	10.30	8.30	7.70	7.80	8.00		
Boron (Hot Water Soluble)		290	M	2120	mg/kg	0.40	1.20	0.80	0.69	0.84	0.61	1.10	0.83	0.84	1.20	3.20	1.40	1.40	1.00	1.10		
Sulphate (2:1 Water Soluble) as SO4		NR	M	2120	g/l	0.010	0.34	0.32	0.05	0.20	0.17	0.10	0.05	0.07	0.02	1.00	0.54	1.00	0.53	0.50		
Cyanide (Total)	26		M	2300	mg/kg	0.50	0.50	20.00	< 0.50	< 0.50	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Sulphide (Easily Liberatable)		NR	N	2325	mg/kg	0.50	7.60	24.00	2.50	9.30	4.80	7.40	9.60	3.40	3.40	31.00	11.00	4.60	3.30	6.30		
Arsenic	37		M	2450	mg/kg	1.0	14.00	15.00	9.80	13.00	16.00	14.00	18.00	16.00	12.00	17.00	20.00	13.00	19.00	15.00		
Beryllium	1.7						1.10	1.10	1.10	1.10	1.00	1.20	1.20	1.10	1.00	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Cadmium	22		M	2450	mg/kg	0.10	0.86	0.44	0.34	0.51	0.45	0.25	0.57	0.34	0.61	0.58	0.34	0.12	< 0.10	0.31		
Chromium	910		M	2450	mg/kg	1.0	44.00	37.00	44.00	38.00	38.00	43.00	41.00	39.00	36.00	21.00	34.00	37.00	37.00	49.00		
Copper	2400		M	2450	mg/kg	0.50	67.00	170.00	28.00	190.00	41.00	28.00	39.00	19.00	19.00	74						

Page 1 of 1

APPENDIX E

Photo Plates - Remediation of Non-Conforming Areas

DRAFT



Comment View looking south of Plot 72 remedial excavation.	Project 173044
	Reference 1
	Date 09/04/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment View looking south of Plot 72 remedial excavation.	Project 173044
	Reference 2
	Date 09/04/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment View of Plot 72 excavation looking north.	Project 173044
	Reference 3
	Date 09/04/19
	Originator Richard Heath
	 Environmental Consultants AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment View of Plot 72 excavation looking west.	Project 173044
	Reference 4
	Date 10/04/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment View of Plot 71 backfill.	Project 173044
	Reference 5
	Date 10/04/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment View of Plot 72 backfill.	Project 173044
	Reference 6
	Date 09/04/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment View of Plot 71 backfill.	Project 173044
	Reference 7
	Date 12/04/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com



Comment View of Plot 72 backfill.	Project 173044
	Reference 8
	Date 16/04/19
	Originator Richard Heath
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com

APPENDIX F
Certificates of Analysis – Stockpile Testing

DRAFT



Final Report

Report No.: 18-18546-1

Initial Date of Issue: 30-Jun-2018

Client AA Environmental Ltd

Client Address: Units 4 to 8
Cholswell Court
Shippon
Abingdon
Oxfordshire
OX136HX

Contact(s): Carrie Lorton
Ed Brown
Henry Austin
Jack Taylor
John McCusker
Mark Anderson
Matthew Lawman
Richard Heath
Sam Muir

Project 173044 - Careys Graven Hill

Quotation No.:		Date Received:	27-Jun-2018
Order No.:	173044	Date Instructed:	27-Jun-2018
No. of Samples:	9		
Turnaround (Wkdays):	3	Results Due:	29-Jun-2018
Date Approved:	30-Jun-2018		

Details: Martin Dyer, Laboratory Manager

Results - Soil

Project: 173044 - Careys Graven Hill

Client: AA Environmental Ltd	Chemtest Job No.:				18-18546	18-18546	18-18546	18-18546	18-18546	18-18546	18-18546	18-18546	18-18546
Quotation No.:	Chemtest Sample ID.:				645213	645214	645215	645216	645217	645218	645219	645220	645221
	Client Sample ID.:				SPI01	SPI02	SPHTP311	SPHTP311	SPHTP311	SPHTP312	SPHTP312	SPHTP312	SPHTP312
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):						0.00	1.00	2.00	0.00	0.75	1.50	2.25
	Bottom Depth (m):						1.00	2.00	3.00	0.75	1.50	2.25	3.50
	Date Sampled:				25-Jun-2018	25-Jun-2018	25-Jun-2018	25-Jun-2018	25-Jun-2018	25-Jun-2018	25-Jun-2018	25-Jun-2018	25-Jun-2018
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	12	15	19	17	20	19	19	19	20
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown,
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Clay	Clay	Clay	Clay	Clay	Clay	Sand,
pH	M	2010		N/A	8.1	8.2	8.4	7.9	8.0	7.7	7.8	7.7	7.8
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	1.5	1.8	1.6	1.5	1.5	1.5	1.3	1.3	1.5
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.68	0.77	0.65	0.59	0.66	0.67	0.74	0.68	0.85
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	5.0	17	4.7	7.3	5.2	3.5	19	9.5	6.7
Arsenic	M	2450	mg/kg	1.0	25	36	27	24	26	23	19	21	23
Cadmium	M	2450	mg/kg	0.10	0.48	0.50	0.39	0.36	0.37	0.35	0.35	0.31	0.35
Chromium	M	2450	mg/kg	1.0	50	41	40	39	48	42	42	40	42
Copper	M	2450	mg/kg	0.50	68	29	28	25	30	25	28	24	27
Mercury	M	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	M	2450	mg/kg	0.50	42	34	37	35	41	35	34	33	35
Lead	M	2450	mg/kg	0.50	46	57	37	30	29	27	24	25	28
Selenium	M	2450	mg/kg	0.20	0.22	< 0.20	< 0.20	< 0.20	< 0.20	0.29	0.57	0.47	0.45
Vanadium	U	2450	mg/kg	5.0	56	64	54	50	64	48	44	44	47
Zinc	M	2450	mg/kg	0.50	120	110	96	110	94	85	78	80	85
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	M	2625	%	0.20	1.4	1.7	1.5	1.7	1.5	1.4	1.2	1.4	1.2
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0	13	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	13	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: 173044 - Careys Graven Hill

Client: AA Environmental Ltd	Chemtest Job No.:				18-18546	18-18546	18-18546	18-18546	18-18546	18-18546	18-18546	18-18546	18-18546
Quotation No.:	Chemtest Sample ID.:				645213	645214	645215	645216	645217	645218	645219	645220	645221
	Client Sample ID.:				SPI01	SPI02	SPHTP311	SPHTP311	SPHTP311	SPHTP312	SPHTP312	SPHTP312	SPHTP312
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):						0.00	1.00	2.00	0.00	0.75	1.50	2.25
	Bottom Depth (m):						1.00	2.00	3.00	0.75	1.50	2.25	3.50
	Date Sampled:				25-Jun-2018	25-Jun-2018	25-Jun-2018	25-Jun-2018	25-Jun-2018	25-Jun-2018	25-Jun-2018	25-Jun-2018	25-Jun-2018
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD									
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	2.0	5.9	6.5	3.4	< 1.0	< 1.0	< 1.0	< 1.0	2.9
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	11	12	20	9.2	< 1.0	< 1.0	< 1.0	< 1.0	11
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	13	18	28	13	< 5.0	< 5.0	< 5.0	< 5.0	14
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	13	18	40	13	< 10	< 10	< 10	< 10	14
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	1.5	3.6	1.6	1.1	< 0.10	1.4	1.0	1.6	1.9
Anthracene	M	2700	mg/kg	0.10	0.56	1.2	0.65	0.42	< 0.10	0.71	0.44	0.58	0.79
Fluoranthene	M	2700	mg/kg	0.10	3.1	6.3	4.0	2.7	1.9	2.4	1.3	2.6	4.1
Pyrene	M	2700	mg/kg	0.10	1.9	4.2	2.7	1.8	1.5	1.6	0.76	1.5	2.5
Benzo[a]anthracene	M	2700	mg/kg	0.10	1.2	2.7	1.7	1.2	< 0.10	< 0.10	< 0.10	0.84	2.0
Chrysene	M	2700	mg/kg	0.10	2.8	4.0	2.7	2.3	< 0.10	< 0.10	< 0.10	1.6	2.7
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	1.8	3.0	2.4	1.7	< 0.10	< 0.10	< 0.10	< 0.10	2.7
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	1.2	1.9	1.9	1.1	< 0.10	< 0.10	< 0.10	< 0.10	1.8
Benzo[a]pyrene	M	2700	mg/kg	0.10	1.2	2.5	1.9	1.2	< 0.10	< 0.10	< 0.10	< 0.10	2.2
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	1.5	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	0.89	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	1.4	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0	15	33	20	14	3.4	6.1	3.5	8.7	21
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.co.uk



Final Report

Report No.: 18-18674-1

Initial Date of Issue: 02-Jul-2018

Client AA Environmental Ltd

Client Address: Units 4 to 8
Cholswell Court
Shippon
Abingdon
Oxfordshire
OX136HX

Contact(s): Carrie Lorton
Ed Brown
Henry Austin
Jack Taylor
John McCusker
Mark Anderson
Matthew Lawman
Richard Heath
Sam Muir

Project 173044 - Careys Graven Hill

Quotation No.: **Date Received:** 28-Jun-2018

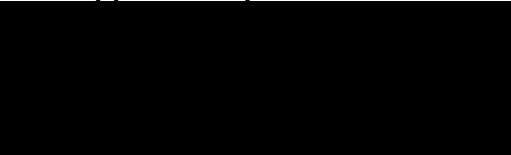
Order No.: 173044 **Date Instructed:** 28-Jun-2018

No. of Samples: 8

Turnaround (Wkdays): 3 **Results Due:** 02-Jul-2018

Date Approved: 02-Jul-2018

Approved By:



Details: Glynn Harvey, Laboratory Manager

Results - Soil

Project: 173044 - Careys Graven Hill

Client: AA Environmental Ltd	Chemtest Job No.:				18-18674	18-18674	18-18674	18-18674	18-18674	18-18674	18-18674	18-18674
Quotation No.:	Chemtest Sample ID.:				645720	645721	645722	645723	645724	645725	645726	645727
	Client Sample ID.:				SPGTP313	SPGTP313	SPGTP313	SPGTP313	SPGTP314	SPGTP314	SPGTP314	SPGTP314
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.00	0.50	1.00	1.50	0.00	0.50	1.00	1.50
	Bottom Depth (m):				0.50	1.00	1.50	2.00	0.50	1.00	1.50	2.00
	Date Sampled:				26-Jun-2018	26-Jun-2018	26-Jun-2018	26-Jun-2018	26-Jun-2018	26-Jun-2018	26-Jun-2018	26-Jun-2018
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	24	19	24	22	20	19	19	17
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones,	NONE	Stones	NONE	NONE	Stones	Stones	NONE
Soil Texture	N	2040		N/A	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay
pH	M	2010		N/A	8.3	8.7	8.1	8.5	8.3	7.7	8.5	10.3
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	1.7	1.1	1.5	1.7	1.5	1.2	1.7	1.2
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.73	0.68	0.50	0.71	0.74	0.47	0.79	0.73
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	43	4.1	12	8.6	4.7	3.1	7.0	5.5
Arsenic	M	2450	mg/kg	1.0	23	21	23	21	24	14	19	20
Beryllium	U	2450	mg/kg	1.0	1.3	1.1	1.1	1.1	1.0	1.1	1.1	1.2
Cadmium	M	2450	mg/kg	0.10	1.4	0.42	0.46	0.60	0.33	0.37	0.32	0.40
Chromium	M	2450	mg/kg	1.0	46	36	47	45	37	41	39	43
Copper	M	2450	mg/kg	0.50	51	72	52	58	28	26	34	38
Mercury	M	2450	mg/kg	0.10	0.12	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	M	2450	mg/kg	0.50	49	35	45	39	39	39	46	44
Lead	M	2450	mg/kg	0.50	85	41	46	40	30	24	22	32
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	0.26	0.44	< 0.20
Vanadium	U	2450	mg/kg	5.0	45	41	52	44	43	45	38	50
Zinc	M	2450	mg/kg	0.50	260	150	170	180	110	110	110	120
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	M	2625	%	0.20	1.5	1.1	1.6	1.2	0.98	0.73	0.97	0.94
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	4.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: 173044 - Careys Graven Hill

Client: AA Environmental Ltd	Chemtest Job No.:				18-18674	18-18674	18-18674	18-18674	18-18674	18-18674	18-18674	18-18674
Quotation No.:	Chemtest Sample ID.:				645720	645721	645722	645723	645724	645725	645726	645727
	Client Sample ID.:				SPGTP313	SPGTP313	SPGTP313	SPGTP313	SPGTP314	SPGTP314	SPGTP314	SPGTP314
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.00	0.50	1.00	1.50	0.00	0.50	1.00	1.50
	Bottom Depth (m):				0.50	1.00	1.50	2.00	0.50	1.00	1.50	2.00
	Date Sampled:				26-Jun-2018	26-Jun-2018	26-Jun-2018	26-Jun-2018	26-Jun-2018	26-Jun-2018	26-Jun-2018	26-Jun-2018
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD								
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	7.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	17	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	24	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	29	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.96	< 0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.22	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.28	< 0.10	< 0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.13	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	1.1	0.28	0.54	1.6	0.89	< 0.10	0.76	< 0.10
Anthracene	M	2700	mg/kg	0.10	0.44	< 0.10	< 0.10	0.59	0.31	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	1.7	0.72	0.96	2.3	1.1	< 0.10	1.2	0.44
Pyrene	M	2700	mg/kg	0.10	1.6	0.87	1.0	2.3	0.98	< 0.10	1.2	0.48
Benzo[a]anthracene	M	2700	mg/kg	0.10	0.82	0.35	0.31	0.86	0.43	< 0.10	0.78	< 0.10
Chrysene	M	2700	mg/kg	0.10	1.3	0.43	0.31	1.2	0.49	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	1.1	< 0.10	< 0.10	0.56	< 0.10	< 0.10	0.56	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	0.60	< 0.10	< 0.10	0.31	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	0.77	< 0.10	< 0.10	0.76	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	0.32	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	0.41	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0	10	2.7	3.1	11	5.8	< 2.0	4.5	< 2.0
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.co.uk

APPENDIX G
Soil Guidance Values

DRAFT

Table B1 : Import Criteria for Hardstanding and Landscaping / Private Garden Soils

Determinant	Hardstanding Criteria, mg/kg	Landscaping and Residential Garden Soils Criteria, mg/kg	Source of Value
Arsenic	640	37	DEFRA C4SLs
Beryllium	12	1.7	LQM S4ULs 2015
Cadmium	410	22	DEFRA C4SLs
Chromium (Total)	8,600	910	LQM S4ULs 2015
Copper	68,000	2,400	LQM S4ULs 2015
Lead	2,330	200	LQM S4ULs 2015
Mercury	58	1.2	LQM S4ULs 2015
Nickel	980	180	LQM S4ULs 2015
Selenium	12,000	250	LQM S4ULs 2015
Zinc	730,000	3,700	LQM S4ULs 2015
Free Cyanide	16,000	26	Waterman GAC-CLEA v1.06
Aliphatic EC ₅ -EC ₆	5,900	78	LQM S4ULs 2015
Aliphatic EC ₆ -EC ₈	17,000	230	LQM S4ULs 2015
Aliphatic EC ₈ -EC ₁₀	4,800	230	LQM S4ULs 2015
Aliphatic EC ₁₀ -EC ₁₂	23,000	330	LQM S4ULs 2015
Aliphatic EC ₁₂ -EC ₁₆	8,200	2,400	LQM S4ULs 2015
Aliphatic EC ₁₆ -EC ₃₅	1,000,000	92,000	LQM S4ULs 2015
Aromatic EC ₅ -EC ₇	46,000	140	LQM S4ULs 2015
Aromatic EC ₇ -EC ₈ (Toluene)	110,000	290	LQM S4ULs 2015
Aromatic EC ₈ -EC ₁₀	8,100	83	LQM S4ULs 2015
Aromatic EC ₁₀ -EC ₁₂	28,000	180	LQM S4ULs 2015
Aromatic EC ₁₂ -EC ₁₆	37,000	330	LQM S4ULs 2015
Aromatic EC ₁₆ -EC ₂₁	28,000	540	LQM S4ULs 2015
Aromatic EC ₂₁ -EC ₃₅	28,000	1500	LQM S4ULs 2015
Benzene	47	0.17	LQM S4ULs 2015
Benzo (a) pyrene	35	2.7	LQM S4ULs 2015
Benzo(b)fluoranthene	44	3.3	LQM S4ULs 2015
Benzo(a)anthracene	170	11	LQM S4ULs 2015
Di-benzo(a.h.)anthracene	0.28	3.6	LQM S4ULs 2015
Asbestos	No visible asbestos containing materials (ACMs) and <0.001% fibres	No visible ACM and <0.001% fibres	

Note: Assume a Soil Organic Matter content (SOM) of 2.5%

AA Environmental Limited – Tier 1 Soil Guidance Values

The following table presents the AA Environmental Tier 1 Soil Guidance Values (SGVs) Revision 003 based on LQM/CIEH Suitable 2 Use Levels (S4UL) for Human Health Assessment (unless stated otherwise).

Determinant	Land-Use Scenario					
	Residential with Homegrown Produce	Residential without Homegrown Produce	Public Open Space (POS) Residential	Public Open Space (POS) Park	Allotment	Commercial and Industrial
Metals and Metalloids						
Arsenic	37	40	79	170	43	640
Boron	290	11000	21000	46000	45	240000
Cadmium	11	85	120	532	1.9	190
Chromium (Hexavalent)	6	6	7.7	220	1.8	33
Chromium	910	910	1500	33000	18000	8600
Copper	2400	7100	12000	44000	520	68000
Lead (C4SL Criteria)	200	310	630	1300	80	2330
Elemental Mercury	1.2	1.2	16	30	21	58
Inorganic Mercury	40	56	120	240	19	1100
Nickel	180	180	230	3400	230	980
Selenium	250	430	1100	1800	88	12000
Vanadium	410	1200	2000	5000	91	9000
Zinc	3700	40000	81000	170000	620	730000
Other Inorganics						
pH	6-9 Units					
Asbestos	If Detected					
Cyanide (AtRisk)	34	34	34	34	34	34
Phenol (based on 1% SOM)						
Phenol (Total)	280	750	760	760	66	760
Total Petroleum Hydrocarbons (TPH) (based on 1% SOM)						
Aliphatic (5-6)	42	42	570000	95000	730	3200
Aliphatic (6-8)	100	100	600000	150000	2300	7800
Aliphatic (8-10)	27	27	13000	14000	320	2000
Aliphatic (10-12)	130	130	13000	21000	2200	9700
Aliphatic (12-16)	1100	1100	13000	25000	11000	59000
Aliphatic (16-35)	65000	65000	250000	450000	260000	1600000
Aliphatic (35-44)	65000	65000	250000	450000	260000	1600000
Aromatic (5-7 benzene)*	0.087(70)	0.38(370)	72(56000)	90(76000)	0.017(13)	27(26000)
Aromatic (7-8 toluene)	130	860	56000	87000	22	56000
Aromatic (8-10)	34	47	5000	7200	8.6	3500
Aromatic (10-12)	74	250	5000	9200	13	16000
Aromatic (12-16)	140	1800	5100	10000	23	36000
Aromatic (16-21)	260	1900	3800	7600	46	28000
Aromatic (21-35)	1100	1900	3800	7800	370	28000
Aromatic (35-44)	1100	1900	3800	7800	370	28000
BTEX (based on 1% SOM)						
Benzene	0.087	0.38	72	90	0.017	27
Toluene	130	880	56000	87000	22	56000
Ethylbenzene	47	83	24000	17000	16	5700
m-Xylene	59	82	41000	17000	31	6200
p-Xylene	56	79	41000	17000	29	5900
o-Xylene	60	88	41000	17000	28	6600

All values in mg/kg unless stated otherwise

* Benzene values to be used as a conservative screen for TPH Aromatic C5-C7 range hydrocarbons if Speciated BTEX results are not available. If Speciated BTEX are available then TPH Aromatic C5-C7 screening value in () can be adopted.

AA Environmental Limited – Tier 1 Soil Guidance Values (Cont.)

Determinant	Land-Use Scenario					
	Residential with Homegrown Produce	Residential without Homegrown Produce	Public Open Space (POS) Residential	Public Open Space (POS) Park	Allotment	Commercial and Industrial
Polycyclic Aromatic Hydrocarbons (PAH) (based on 1% SOM)						
Naphthalene	2.3	2.3	4900	1200	4.1	190
Acenaphthene	210	3000	15000	29000	34	84000
Acenaphthylene	170	2900	15000	29000	28	83000
Fluorene	170	2800	9900	20000	27	63000
Anthracene	2400	31000	74000	150000	380	520000
Fluoranthene	280	1500	3100	6300	52	23000
Phenanthrene	95	1300	3100	6200	15	22000
Pyrene	620	3700	7400	15000	110	54000
Benzo(a)anthracene	7.2	11	29	49	2.9	170
Chrysene	15	30	57	93	4.1	350
Benzo(b)fluoranthene	2.6	3.9	7.1	13	0.99	44
Benzo(k)fluoranthene	77	110	190	370	37	1200
Benzo(ghi)perylene	320	360	640	1400	290	3900
Benzo(a)pyrene	2.2	3.2	5.7	11	0.97	35
Dibenzo(ah)anthracene	0.24	0.31	0.57	1.1	0.14	3.5
Indeno(123-cd)pyrene	27	45	82	150	9.5	500

All values in mg/kg unless stated otherwise

References

LQM/CIEH Suitable 2 Use Levels (S4UL) for Human Health Assessment – Land Quality Management Limited (LQM) and Chartered Institute of Environmental Health (CIEH) Land Quality Press (2015)

SP1010: Development of Category 4 Screening Levels (C4SL) for Assessment of Land Affected by Contamination - Department for Environment, Food and Rural Affairs (2014)

Descriptions of Public Open Space (POS): Section 1.4.2 of The LQM S4UL for Human Health Assessment

POS Residential: Includes the predominantly grassed areas adjacent to high density housing, the central green area on many 1930s-1970s housing estates, and smaller areas commonly incorporated in newer developments as informal grassed areas or more formal landscaped areas with a mixture of open space and covered soil with planting. It is assumed that the close proximity to the place of residence will allow tracking back of soil to occur.

POS Park: An area of open space, usually owned and maintained by the Local Authority, provided for recreational uses including family visits and picnics, children's play area, informal sporting activities such as football (but not a dedicated sports pitch), and dog walking. It is assumed that tracking back of soils into the place of residence will be negligible.

SOM – Soil Organic Matter

Soil Guidance Values for Organics are presented as the most-conservative values based on 1.0% SOM. In the event of exceedance, the actual SOM content of the sample(s) should be reviewed to determine if a higher value based on 2.5% or 6.0% can be adopted.