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Mrs S Brown
Soil Investigation (Eastern) Ltd
Office F, The Dutch Barn,
Old Park Farm
Ford End
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CM3 1LN

By email only

11th June 2020

Our ref: 20-005

Dear Sandra,

RE: 47 HARLINGTON ROAD, HILLINGDON, UB8 3HY

Introduction

Ground and Environmental Investigation Ltd (GEI) was commissioned by Soil Investigation Eastern Ltd to undertake a review of the results obtained from soil sampling works carried out at 47 Harlington Road, Hillingdon, UB8 3HY.

The purpose of this review is to provide an interpretation of the results to determine whether remediation of the soil on site would be required in the proposed redevelopment scheme.

INTRUSIVE INVESTIGATION

The site works were carried out on the 15th May 2020 and comprised 6 no hand dug trial pits to depths of between 300mm and 1000mm below ground level.

The locations of the trial pits are indicated on the attached Exploratory Hole Location Plan.

ANALYTICAL TESTING

Six soil samples were selected and scheduled for chemical analysis which was undertaken by The Environmental Laboratory Ltd (ELAB). All soil samples were analysed for a general screening suite of contaminants considered appropriate to the current usage and history of the site and surrounding area.

Toxic Metals	Phytotoxic Metals	Inorganic Compounds	Organic Compounds
Arsenic Cadmium Chromium Lead Mercury Nickel Selenium	Water Soluble Boron Copper Nickel Zinc	Water Soluble Sulphate pH Asbestos	Total Polyaromatic Hydrocarbons (PAH) Soil Organic Matter Total Petroleum Hydrocarbons (TPH) Mineral Oils

Soil samples were stored in appropriate containers as specified within BS10175. The containers comprised of 1 kg capacity plastic containers with fitted lids.

Where organic compounds were to be determined, inert containers, which prevent loss by absorption, or volatilization, i.e. wide-mouthed amber glass containers, were used.

Samples were stored in appropriately cooled cool boxes and were transported to the laboratory as quickly as possible in order to minimize any potential for chemical and biological changes to take place.

The results of the analytical testing are appended.

GROUND CONDITIONS

The soils encountered during this investigation are described in the trial pit logs. The ground profile encountered at the site comprised Made Ground to the full depth of the trial pits.

The Made Ground comprised tarmac, concrete and grass surface coverings over soils comprising mid to dark grey and mid to dark brown gravelly sandy silt, gravelly clayey sandy silt and very silty sand with frequent brick and tarmac rubble.

SOIL QUALITY

The contaminant concentrations encountered as part of this investigation have been compared against either Land Quality Management Generic Assessment Criteria (LQM GAC) for a residential development, the Chartered Institute of Environmental Health's (CIEH) Suitable for Use Levels (S4USL), or where available against newly published Category 4 Screening Levels (C4SLs) for a Residential (without home-grown produce) end use. Where neither guidelines have limit values, Contaminated Land Exposure Assessment (CLEA) framework guideline limit values have been assessed.

In terms of any proposed redevelopment of the site, the results of the analysis of the selected soil samples recovered during the site investigation indicated that the concentrations of *metals and metalloids* considered to be potentially toxic to humans were below the respective guideline values in all samples tested with the exception of a significantly elevated lead concentration in location S6 at a concentration of 4410mg/kg against a guideline limit of 310mg/kg.

Organic contamination across the site was generally low and concentrations which may be considered to pose an unacceptable risk to human health should any viable pathway exist were generally not encountered with the exception of certain PAH compounds.

Asbestos contamination was not encountered.

Speciated PAH Compounds

A number of exceedances of the relevant guideline values for certain PAH compounds from location TP1, TP2, TP3 and TP6 were noted as per the table below.

Determinand	Guideline value (mg/kg) (SOM 2.5%)	Location	Result (mg/kg)
Benzo(a)anthracene	14	S1 (0.2m) S5 (0.4m)	131 44.4
Chrysene	31	S1 (0.2m) S5 (0.4m)	129 50.1
Benzo(b)fluoranthene	4	S1 (0.2m) S2 (1.0m) S5 (0.4m)	147 7.3 91.7
Benzo(a)pyrene	5.3	S1 (0.2m) S2 (1.0m)	129 7.4
Indeno(1,2,3-cd)pyrene	46	S1 (0.2m) S5 (0.4m)	106 76.3
Dibenzo(g,h,i)perylene	0.32	S1 (0.2m) S2 (1.0m) S3 (0.3m) S5 (0.4m) S6 (0.45m)	21.3 1.4 0.4 18 0.5

It is considered likely that the PAH levels have been caused by the presence of tarmac within the Made Ground.

On the balance of the toxicological risks posed by the ground contamination encountered, it is considered that the potential risks to site workers and future occupants could be adequately controlled as follows:

Site Workers

- Provision of appropriate personal protective equipment and hygiene facilities.
- Good working practice in line with current legislation when safely handling and disposing of asbestos material.
- Provision of appropriate dust suppression, to minimise the generation of potentially contaminated suspended particulates during site works.

Future Occupants

- Elevated levels of contaminants have been found at the site which could pose a risk to future occupants if exposed to the material for instance in an area of soft landscaping. Current development proposals include areas of communal soft landscaping.
- With regard to the areas which may be set to soft landscaping in the proposed development it is noted that given the absence of such on site, suitable growth media would need to be imported into these areas of the site. Any such imported growth media would require analytical testing to confirm its suitability as growth media and its compliance with their relevant SGVs.

- A simple cover system of approximately 600 mm soils would be required to sever the linkage of pollutants in the soil below in the proposed soft landscaped areas based on the worst-case contamination recorded on site. It should be noted that this would be considered a conservative approach since most of the contaminated Made Ground indicated in this area will be removed as part of the site enabling works. Typically, 150 mm topsoil over clean free draining subsoils would generally be considered sufficient. Where deep rooting shrubs / trees are proposed in any landscaping it may be necessary to locally deepen the clean cover to accommodate a healthy root bowl. No such clean cover has been laid on site yet and will not be brought to site and placed until the construction phase is completed to avoid over compaction by site plant.
- Any soil imported to the site will require pre-import testing to ensure that it is suitable for use and in-situ testing to verify the quality and depth of the in place cover system. These results will be presented in a remediation verification report.
- In areas which are to be covered by either buildings or hard standing, no such clean cover layer is required to sever the contain source to receptor pathway.
- Following implementation of the aforementioned remedial measures the site would not be considered to pose a potential risk of significant harm to human health in the context of Part 2A.

WATCHING BRIEF AND DISCOVERY STRATEGY

Should discreet hotspots be encountered which were not previously detected during the site clearance or groundworks, these should be dealt with accordingly, by informing all parties involved with the site and drafting new contamination proposals if necessary. A number of options are available for handling any such material, which include:

- The removal from site and disposal to a suitably licensed landfill of all material suspected of being contaminated.
- Short-term storage of the suspected material while undertaking verification testing for suspected contamination. The storage area should be a contained area to ensure that contamination does not migrate and affect other areas of the site. Depending upon the amounts of material under consideration, this could be either a skip or a lined area.
- Treatment of the identified contamination as discussed above.
- Having a suitably experienced Environmental Engineer either on-call or with a watching brief for the visual and olfactory assessment of the material, and sampling for verification purposes.

Should a new source of contamination be suspected or identified then the relevant local authorities would be informed. A report indicating the nature of contamination and how this is to be dealt with would be submitted to their planning department and for their agreement. Any necessary remediation would then be detailed and verified in a supplementary remediation statement.

We trust we have interpreted your requirements correctly however should you have any queries, please do not hesitate to contact the undersigned.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'M. Pearson'.

Marc Pearson
Ground and Environmental Investigation Limited

Enc:
Trial Hole Location Plan
Trial Pit Logs
Analytical Test Results

Site Location Plan

Sheet: 1 of 1

Job No AR3513

Scale: Not to scale

Date: 15/05/2020

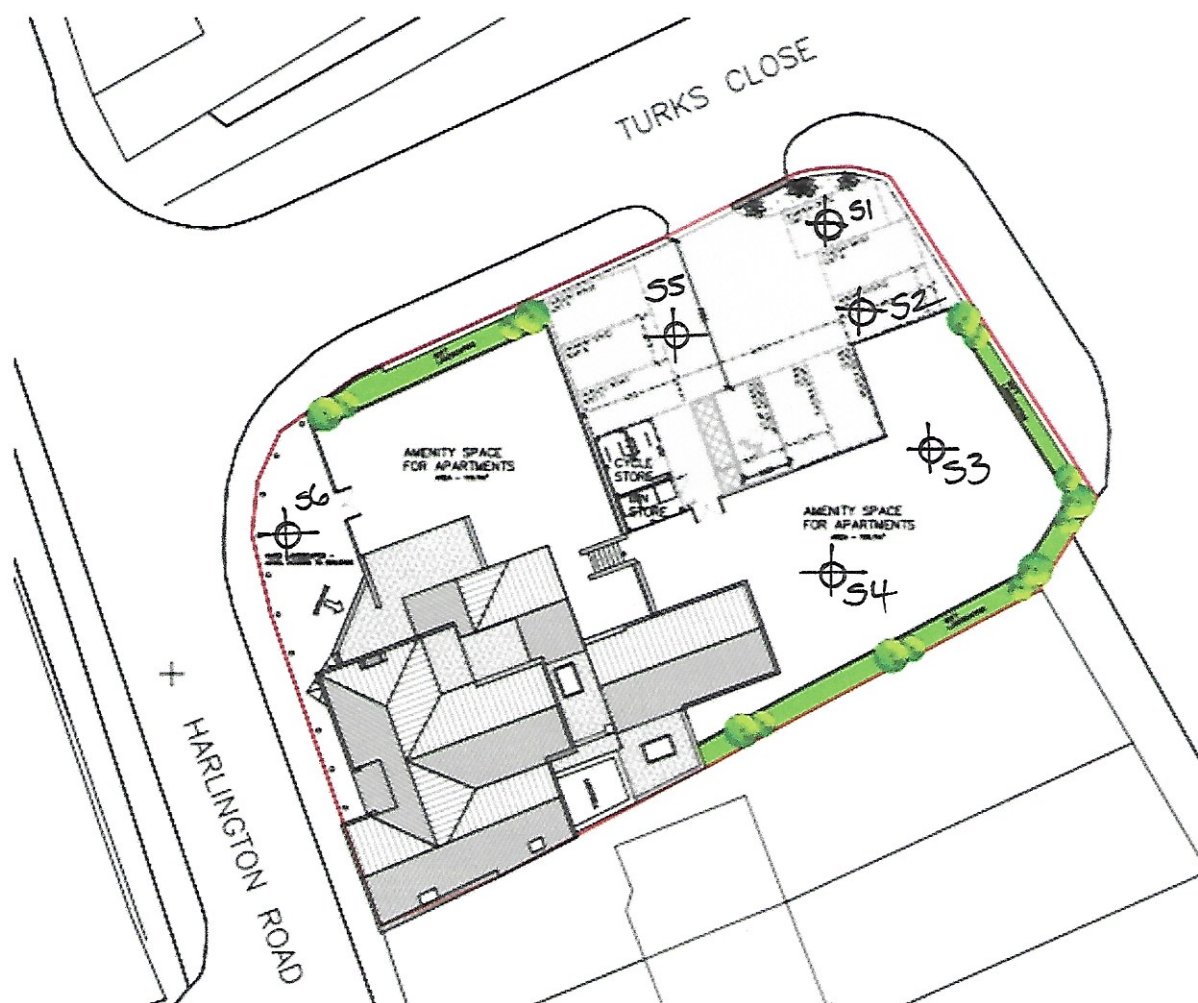
Client: Architect UK Ltd

SOIL
INVESTIGATION

EASTERN LIMITED

Tel/Fax 01245 237555 Mobile 07810 820620

Site: 47 Harlington Rd, Hillingdon UB8 3HY



Remarks ON SITE TREE IDENTIFICATION FOR GUIDANCE ONLY.
NOT AUTHENTICATED.

Key:

	Trial Pit		Borehole
	Man Hole		Gully
	Soil Vent Pipe		Tree / Bush
	Rain Water Pipe		(approx. ht. in m)

Trial Pit No: 1		Sheet: 1 of 1		 Tel/Fax 01245 237555 Mobile 07810 820620																								
		Job No: AR3513																										
Boring Method: Hand Tools		Date: 15/05/2020																										
Client: Architect Ltd				Site: 47 Harlington Road, Hillingdon																								
Depth (mm/m)	Description of Strata	Thick- Ness (mm/m)	Legend	Sample	Test Type Result	Depth (mm/m)	Field Records/ Comments	Depth to water (mm/m)																				
80	G.L. TARMAC.	80		•	Tub & Jar	200																						
	MADE GROUND: Medium compact, mid grey, gravelly, sandy, SILT, with numerous pieces of brick & tarmac rubble.	220																										
300	Trial Pit ends at 300mm.																											
Remarks:				Key: <table border="0"> <tr> <td>•</td><td>Small disturbed sample</td> <td>V</td><td>Pilcon Vane (kPa)</td> </tr> <tr> <td>B</td><td>Bulk disturbed sample</td> <td>I</td><td>Mackintosh Probe</td> </tr> <tr> <td>U</td><td>Undisturbed sample(U100)</td> <td>S</td><td>Standard</td> </tr> <tr> <td>W</td><td>Water sample</td> <td></td><td>penetration test</td> </tr> <tr> <td>J</td><td>Jar sample</td> <td>N</td><td>SPT blow count</td> </tr> </table>					•	Small disturbed sample	V	Pilcon Vane (kPa)	B	Bulk disturbed sample	I	Mackintosh Probe	U	Undisturbed sample(U100)	S	Standard	W	Water sample		penetration test	J	Jar sample	N	SPT blow count
•	Small disturbed sample	V	Pilcon Vane (kPa)																									
B	Bulk disturbed sample	I	Mackintosh Probe																									
U	Undisturbed sample(U100)	S	Standard																									
W	Water sample		penetration test																									
J	Jar sample	N	SPT blow count																									

Trial Pit No: 2		Sheet: 1 of 1			 Tel/Fax 01245 237555 Mobile 07810 820620				
		Job No: AR3513							
Boring Method: Hand Tools		Date: 15/05/2020							
Client: Architect Ltd					Site: 47 Harlington Road, Hillingdon				
Depth (mm/m)	Description of Strata	Thick- Ness (mm/m)	Legend	Sample	Test Type Result	Depth (mm/m)	Field Records/ Comments	Depth to water (mm/m)	
G.L.	TARMAC.	50							
50	MADE GROUND: Medium compact, dark brown, gravelly, sandy, SILT, with numerous large pieces of brick & tarmac rubble.	600							
650	MADE GROUND: Loose, mid brown, gravelly, sandy, SILT, with brick & tarmac rubble.	150							
800	MADE GROUND: Loose, pungent (suspected hydrocarbons), dark grey, gravelly, clayey, sandy, SILT, with brick rubble.	200							
1.0	— Trial Pit ends at 1.0m. —			•	Tub & Jar	1.0			
Remarks:					Key: • Small disturbed sample V Pilcon Vane (kPa) B Bulk disturbed sample I Mackintosh Probe U Undisturbed sample(U100) S Standard W Water sample penetration test J Jar sample N SPT blow count				

Trial Pit No: 3		Sheet: 1 of 1			 Tel/Fax 01245 237555 Mobile 07810 820620			
		Job No: AR3513						
Boring Method: Hand Tools		Date: 15/05/2020						
Client: Architect Ltd					Site: 47 Harlington Road, Hillingdon			
Depth (mm/m)	Description of Strata	Thick- Ness (mm/m)	Legend	Sample	Test Type Result	Depth (mm/m)	Field Records/ Comments	Depth to water (mm/m)
G.L.	Rough GRASS, over MADE GROUND: Firm, dark brown, gravelly, clayey, sandy, SILT, with brick fragments.	300		•	Tub & Jar	300	100 Numerous roots of live appearance to 20mmø	
300	Trial Pit ends at 300mm.							
Remarks:					Key: • Small disturbed sample B Bulk disturbed sample U Undisturbed sample(U100) W Water sample J Jar sample V Pilcon Vane (kPa) I Mackintosh Probe S Standard penetration test N SPT blow count			

Trial Pit No: 4		Sheet: 1 of 1		 Tel/Fax 01245 237555 Mobile 07810 820620														
		Job No: AR3513																
Boring Method: Hand Tools		Date: 15/05/2020																
Client: Architect Ltd				Site: 47 Harlington Road, Hillingdon														
Depth (mm/m)	Description of Strata	Thick- Ness (mm/m)	Legend	Sample	Test Type Result	Depth (mm/m)	Field Records/ Comments	Depth to water (mm/m)										
G.L.	TARMAC.	40																
40	MADE GROUND: Medium compact, mid brown, gravelly, sandy, SILT, with numerous large pieces of brick & tarmac rubble.	560																
600	MADE GROUND: Firm, mid to dark grey, gravelly, sandy, clayey, SILT/very silty, CLAY, with brick & tarmac rubble.	200																
800	— Trial Pit ends at 800mm. —			•	Tub & Jar	800												
Remarks:				Key: <table border="0"> <tr> <td>• Small disturbed sample</td> <td>V Pilcon Vane (kPa)</td> </tr> <tr> <td>B Bulk disturbed sample</td> <td>I Mackintosh Probe</td> </tr> <tr> <td>U Undisturbed sample(U100)</td> <td>Standard</td> </tr> <tr> <td>W Water sample</td> <td>penetration test</td> </tr> <tr> <td>J Jar sample</td> <td>N SPT blow count</td> </tr> </table>					• Small disturbed sample	V Pilcon Vane (kPa)	B Bulk disturbed sample	I Mackintosh Probe	U Undisturbed sample(U100)	Standard	W Water sample	penetration test	J Jar sample	N SPT blow count
• Small disturbed sample	V Pilcon Vane (kPa)																	
B Bulk disturbed sample	I Mackintosh Probe																	
U Undisturbed sample(U100)	Standard																	
W Water sample	penetration test																	
J Jar sample	N SPT blow count																	

Trial Pit No: 5		Sheet: 1 of 1		 Tel/Fax 01245 237555 Mobile 07810 820620														
		Job No: AR3513																
Boring Method: Hand Tools		Date: 15/05/2020																
Client: Architect Ltd				Site: 47 Harlington Road, Hillingdon														
Depth (mm/m)	Description of Strata	Thick- Ness (mm/m)	Legend	Sample	Test Type Result	Depth (mm/m)	Field Records/ Comments	Depth to water (mm/m)										
G.L.	TARMAC.	80																
80	MADE GROUND: Medium compact, mid grey, gravelly, sandy, SILT, with numerous pieces of brick & tarmac rubble.	320																
400	Trial Pit ends at 400mm.			•	Tub & Jar	400												
Remarks:				Key: <table border="0"> <tr> <td>• Small disturbed sample</td> <td>V Pilcon Vane (kPa)</td> </tr> <tr> <td>B Bulk disturbed sample</td> <td>I Mackintosh Probe</td> </tr> <tr> <td>U Undisturbed sample(U100)</td> <td>Standard</td> </tr> <tr> <td>W Water sample</td> <td>penetration test</td> </tr> <tr> <td>J Jar sample</td> <td>N SPT blow count</td> </tr> </table>					• Small disturbed sample	V Pilcon Vane (kPa)	B Bulk disturbed sample	I Mackintosh Probe	U Undisturbed sample(U100)	Standard	W Water sample	penetration test	J Jar sample	N SPT blow count
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B Bulk disturbed sample	I Mackintosh Probe																	
U Undisturbed sample(U100)	Standard																	
W Water sample	penetration test																	
J Jar sample	N SPT blow count																	

Trial Pit No: 6		Sheet: 1 of 1		 Tel/Fax 01245 237555 Mobile 07810 820620														
		Job No: AR3513																
Boring Method: Hand Tools		Date: 15/05/2020																
Client: Architect Ltd				Site: 47 Harlington Road, Hillingdon														
Depth (mm/m)	Description of Strata	Thick- Ness (mm/m)	Legend	Sample	Test Type Result	Depth (mm/m)	Field Records/ Comments	Depth to water (mm/m)										
80	G.L. CONCRETE, underlined with polythene damp proof membrane.	80																
	MADE GROUND: Medium compact, mid brown, gravelly, very silty, fine & medium SAND, with brick fragments.	370																
450	— Trial Pit ends at 450mm. —			•	Tub & Jar	450												
Remarks:				Key: <table border="0"> <tr> <td>• Small disturbed sample</td> <td>V Pilcon Vane (kPa)</td> </tr> <tr> <td>B Bulk disturbed sample</td> <td>I Mackintosh Probe</td> </tr> <tr> <td>U Undisturbed sample(U100)</td> <td>S Standard</td> </tr> <tr> <td>W Water sample</td> <td>penetration test</td> </tr> <tr> <td>J Jar sample</td> <td>N SPT blow count</td> </tr> </table>					• Small disturbed sample	V Pilcon Vane (kPa)	B Bulk disturbed sample	I Mackintosh Probe	U Undisturbed sample(U100)	S Standard	W Water sample	penetration test	J Jar sample	N SPT blow count
• Small disturbed sample	V Pilcon Vane (kPa)																	
B Bulk disturbed sample	I Mackintosh Probe																	
U Undisturbed sample(U100)	S Standard																	
W Water sample	penetration test																	
J Jar sample	N SPT blow count																	



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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 20-28242

Issue: 1

Date of Issue: 01/06/2020

Contact: Sandra Brown

Customer Details: Soil Investigation (Eastern) Ltd
Office F, The Dutch Barn
Old Park Farm
Chelmsford
Essex CM3 1LN

Quotation No: Q19-01650

Order No: AR3513

Customer Reference: Not Supplied

Date Received: 20/05/2020

Date Approved: 01/06/2020

Details: 47 Harlington Road, Hillingdon

Approved by: 

Mike Varley, Technical Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)

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Sample Summary

Report No.: 20-28242, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
204656	S1 0.20	15/05/2020	26/05/2020	Sandy loam	
204657	S2 1.00	15/05/2020	26/05/2020	Sandy loam	
204658	S3 0.30	15/05/2020	26/05/2020	Silty loam	
204659	S4 0.80	15/05/2020	26/05/2020	Sandy loam	
204660	S5 0.40	15/05/2020	26/05/2020	Sandy loam	
204661	S6 0.45	15/05/2020	26/05/2020	Sandy loam	



Results Summary

2683

Report No.: 20-28242, issue number 1

ELAB Reference	204656	204657	204658	204659
Customer Reference				
Sample ID				
Sample Type	SOIL	SOIL	SOIL	SOIL
Sample Location	S1	S2	S3	S4
Sample Depth (m)	0.20	1.00	0.30	0.80
Sampling Date	15/05/2020	15/05/2020	15/05/2020	15/05/2020

Determinand	Codes	Units	LOD				
Soil sample preparation parameters							
Material removed	N	%	0.1	63.6	31.2	44.0	30.3
Description of Inert material removed	N		0	Stones,brick,clinker	Stones	Stones	Stones
Metals							
Arsenic	M	mg/kg	1	19.3	25.3	12.4	25.0
Cadmium	M	mg/kg	0.5	1.5	0.6	0.8	< 0.5
Chromium	M	mg/kg	5	26.3	32.0	25.7	33.4
Copper	M	mg/kg	5	151	59.0	47.2	51.5
Lead	M	mg/kg	5	135	260	141	212
Mercury	M	mg/kg	0.5	1.1	1.1	< 0.5	1.9
Nickel	M	mg/kg	5	34.3	31.7	18.4	28.5
Selenium	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
Zinc	M	mg/kg	5	299	229	159	161
Inorganics							
Elemental Sulphur	M	mg/kg	20	< 20	81	< 20	549
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8
Thiocyanate	N	mg/kg	4	< 4.0	< 4.0	< 4.0	< 4.0
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
Acid Soluble Sulphate (SO4)	U	%	0.02	0.11	0.05	0.03	0.06
Water Soluble Boron	N	mg/kg	0.5	1.0	1.9	1.6	2.5
Miscellaneous							
pH	M	pH units	0.1	8.7	7.8	7.2	7.7
Soil Organic Matter	U	%	0.1	5.5	1.8	4.7	2.4
Phenols							
Phenol	M	mg/kg	1	< 1	< 1	< 1	< 1
M,P-Cresol	N	mg/kg	1	< 1	< 1	< 1	< 1
O-Cresol	N	mg/kg	1	2	< 1	< 1	< 1
3,4-Dimethylphenol	N	mg/kg	1	< 1	< 1	< 1	< 1
2,3-Dimethylphenol	M	mg/kg	1	< 1	< 1	< 1	< 1
1-Naphthol	N	mg/kg	1	2	< 1	< 1	< 1
2,3,5-trimethylphenol	M	mg/kg	1	< 1	< 1	< 1	< 1
Total Phenols	N	mg/kg	6	< 6	< 6	< 6	< 6



Results Summary

2683

Report No.: 20-28242, issue number 1

ELAB Reference	204656	204657	204658	204659
Customer Reference				
Sample ID				
Sample Type	SOIL	SOIL	SOIL	SOIL
Sample Location	S1	S2	S3	S4
Sample Depth (m)	0.20	1.00	0.30	0.80
Sampling Date	15/05/2020	15/05/2020	15/05/2020	15/05/2020

Determinand	Codes	Units	LOD				
Polyaromatic hydrocarbons							
Naphthalene	M	mg/kg	0.1	0.2	< 0.1	< 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	3.0	0.2	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	7.5	0.2	< 0.1	< 0.1
Fluorene	M	mg/kg	0.1	6.8	0.2	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	115	3.9	0.3	0.3
Anthracene	M	mg/kg	0.1	43.1	1.5	0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	268	11.0	1.7	1.6
Pyrene	M	mg/kg	0.1	205	8.9	1.6	1.4
Benzo(a)anthracene	M	mg/kg	0.1	131	6.2	1.3	1.1
Chrysene	M	mg/kg	0.1	129	6.7	1.5	1.2
Benzo(b)fluoranthene	M	mg/kg	0.1	147	7.3	1.9	1.2
Benzo(k)fluoranthene	M	mg/kg	0.1	101	6.3	1.9	1.1
Benzo(a)pyrene	M	mg/kg	0.1	129	7.4	1.7	1.1
Indeno(1,2,3-cd)pyrene	M	mg/kg	0.1	106	6.1	1.7	1.0
Dibenzo(a,h)anthracene	M	mg/kg	0.1	21.3	1.4	0.4	0.3
Benzo[g,h,i]perylene	M	mg/kg	0.1	87.9	4.8	1.6	0.8
Total PAH(16)	M	mg/kg	0.4	1500	72.1	15.9	11.2
BTEX							
Benzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Xylenes	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
MTBE	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
TPH CWG							
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	M	mg/kg	1	2.8	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic	M	mg/kg	1	15.2	< 1.0	1.8	< 1.0
>C21-C35 Aliphatic	M	mg/kg	1	56.2	1.8	6.7	< 1.0
>C35-C40 Aliphatic	M	mg/kg	1	33.3	< 1.0	2.2	< 1.0
Total aliphatic hydrocarbons (>C5 - C40)	N	mg/kg	1	108	2.7	11.1	1.4
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	1.7	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	M	mg/kg	1	17.8	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic	M	mg/kg	1	279	1.4	5.3	< 1.0
>C21-C35 Aromatic	M	mg/kg	1	1390	19.8	50.2	3.7
>C35-C40 Aromatic	M	mg/kg	1	101	1.7	5.8	< 1.0
Total aromatic hydrocarbons (>C5 - C40)	N	mg/kg	1	1790	23.5	62.2	4.5
Total petroleum hydrocarbons (>C5 - C40)	N	mg/kg	1	1900	26.2	73.3	5.9

Results Summary

2683

Report No.: 20-28242, issue number 1

ELAB Reference	204660	204661
Customer Reference		
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	S5	S6
Sample Depth (m)	0.40	0.45
Sampling Date	15/05/2020	15/05/2020

Determinand	Codes	Units	LOD		
Soil sample preparation parameters					
Material removed	N	%	0.1	53.0	28.6
Description of Inert material removed	N		0	Stones,brick,clinker	Stones
Metals					
Arsenic	M	mg/kg	1	29.5	37.8
Cadmium	M	mg/kg	0.5	0.9	< 0.5
Chromium	M	mg/kg	5	29.7	33.9
Copper	M	mg/kg	5	91.9	51.7
Lead	M	mg/kg	5	224	4410
Mercury	M	mg/kg	0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	39.8	20.8
Selenium	M	mg/kg	1	< 1.0	< 1.0
Zinc	M	mg/kg	5	175	73.4
Inorganics					
Elemental Sulphur	M	mg/kg	20	< 20	< 20
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8
Thiocyanate	N	mg/kg	4	< 4.0	< 4.0
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0
Acid Soluble Sulphate (SO4)	U	%	0.02	0.07	0.02
Water Soluble Boron	N	mg/kg	0.5	0.8	1.4
Miscellaneous					
pH	M	pH units	0.1	8.5	8.1
Soil Organic Matter	U	%	0.1	5.7	0.9
Phenols					
Phenol	M	mg/kg	1	< 1	< 1
M,P-Cresol	N	mg/kg	1	< 1	< 1
O-Cresol	N	mg/kg	1	2	< 1
3,4-Dimethylphenol	N	mg/kg	1	< 1	< 1
2,3-Dimethylphenol	M	mg/kg	1	1	< 1
1-Naphthol	N	mg/kg	1	4	< 1
2,3,5-trimethylphenol	M	mg/kg	1	< 1	< 1
Total Phenols	N	mg/kg	6	8	< 6

Results Summary

2683

Report No.: 20-28242, issue number 1

ELAB Reference	204660	204661
Customer Reference		
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	S5	S6
Sample Depth (m)	0.40	0.45
Sampling Date	15/05/2020	15/05/2020

Determinand	Codes	Units	LOD		
Polyaromatic hydrocarbons					
Naphthalene	M	mg/kg	0.1	0.2	< 0.1
Acenaphthylene	M	mg/kg	0.1	1.9	0.2
Acenaphthene	M	mg/kg	0.1	0.9	< 0.1
Fluorene	M	mg/kg	0.1	0.8	< 0.1
Phenanthrene	M	mg/kg	0.1	14.5	0.9
Anthracene	M	mg/kg	0.1	6.2	0.3
Fluoranthene	M	mg/kg	0.1	52.8	2.9
Pyrene	M	mg/kg	0.1	48.6	2.7
Benzo(a)anthracene	M	mg/kg	0.1	44.4	1.7
Chrysene	M	mg/kg	0.1	50.1	2.0
Benzo(b)fluoranthene	M	mg/kg	0.1	91.7	2.4
Benzo(k)fluoranthene	M	mg/kg	0.1	53.2	2.2
Benzo(a)pyrene	M	mg/kg	0.1	2.2	2.5
Indeno(1,2,3-cd)pyrene	M	mg/kg	0.1	76.3	2.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	18.0	0.5
Benzo[g,h,i]perylene	M	mg/kg	0.1	61.6	2.1
Total PAH(16)	M	mg/kg	0.4	523	22.6
BTEX					
Benzene	M	ug/kg	10	< 10.0	< 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0
Xylenes	M	ug/kg	10	< 10.0	< 10.0
MTBE	N	ug/kg	10	< 10.0	< 10.0
TPH CWG					
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0
>C10-C12 Aliphatic	M	mg/kg	1	< 1.0	< 1.0
>C12-C16 Aliphatic	M	mg/kg	1	2.4	< 1.0
>C16-C21 Aliphatic	M	mg/kg	1	11.4	< 1.0
>C21-C35 Aliphatic	M	mg/kg	1	33.6	< 1.0
>C35-C40 Aliphatic	M	mg/kg	1	21.9	< 1.0
Total aliphatic hydrocarbons (>C5 - C40)	N	mg/kg	1	69.5	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	1.1	< 1.0
>C10-C12 Aromatic	M	mg/kg	1	< 1.0	< 1.0
>C12-C16 Aromatic	M	mg/kg	1	5.7	< 1.0
>C16-C21 Aromatic	M	mg/kg	1	75.0	< 1.0
>C21-C35 Aromatic	M	mg/kg	1	733	5.0
>C35-C40 Aromatic	M	mg/kg	1	66.4	< 1.0
Total aromatic hydrocarbons (>C5 - C40)	N	mg/kg	1	882	5.7
Total petroleum hydrocarbons (>C5 - C40)	N	mg/kg	1	951	6.7



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Results Summary

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Asbestos Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #)
in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Asbestos	Gravimetric Analysis Total	Gravimetric Analysis by ACM Type	Free Fibre Analysis	Total Asbestos
204656	0.20	S1	Brown Soil, Stones, Brick, Clinker	No asbestos detected	n/t	n/t	n/t	n/t
204657	1.00	S2	Brown Soil, Stones, Clinker	No asbestos detected	n/t	n/t	n/t	n/t
204658	0.30	S3	Brown Soil, Stones, Glass, Clinker, Plant Material	No asbestos detected	n/t	n/t	n/t	n/t
204659	0.80	S4	Brown Soil, Stones, Clinker	No asbestos detected	n/t	n/t	n/t	n/t
204660	0.40	S5	Brown Soil, Stones, Clinker, Brick	No asbestos detected	n/t	n/t	n/t	n/t
204661	0.45	S6	Brown Soil, Stones, Clinker	No asbestos detected	n/t	n/t	n/t	n/t

Method Summary

Report No.: 20-28242, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Hexavalent chromium	N	As submitted sample	27/05/2020	110	Colorimetry
pH	M	Air dried sample	28/05/2020	113	Electromeric
Acid Soluble Sulphate	U	Air dried sample	28/05/2020	115	Ion Chromatography
Aqua regia extractable metals	M	Air dried sample	27/05/2020	118	ICPMS
Phenols in solids	M	As submitted sample	27/05/2020	121	HPLC
Elemental Sulphur	M	Air dried sample	28/05/2020	122	HPLC
PAH (GC-FID)	M	As submitted sample	27/05/2020	133	GC-FID
Thiocyanate	N	As submitted sample	28/05/2020	146	Colorimetry
Low range Aliphatic hydrocarbons soil	N	As submitted sample	29/05/2020	181	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	29/05/2020	181	GC-MS
BTEX in solids	M	As submitted sample	29/05/2020	181A	GC-MS
Water soluble boron	N	Air dried sample	28/05/2020	202	Colorimetry
Total cyanide	M	As submitted sample	27/05/2020	204	Colorimetry
TPH CWG soil by gc-gc	M	As submitted sample	27/05/2020	214	
Soil organic matter	U	Air dried sample	29/05/2020	BS1377:P3	Titrimetry
Asbestos identification	U	Air dried sample	29/05/2020	PMAN	Microscopy

Tests marked N are not UKAS accredited

Report Information

Report No.: 20-28242, issue number 1

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed.

ELAB are unable to provide an interpretation or opinion on the content of this report.

The results relate only to the sample received.

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Deviation Codes

-
- | | |
|---|--|
| a | No date of sampling supplied |
| b | No time of sampling supplied (Waters Only) |
| c | Sample not received in appropriate containers |
| d | Sample not received in cooled condition |
| e | The container has been incorrectly filled |
| f | Sample age exceeds stability time (sampling to receipt) |
| g | Sample age exceeds stability time (sampling to analysis) |

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage