

**Environmental
Geotechnical
Specialists**



PHASE 4 VALIDATION
REPORT

job number J4080/17/E/V	date 31.05.2022
site address Land at Liley Lane – Plot 4 Grange Moor, Huddersfield, WF4 4EN	
written by C. Mason	checked by C. Kirby
issued by C. Mason	

Rogers Geotechnical Services Ltd

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Offices 1 & 2, Barncliffe Business Park, Near Bank, Shelley,
Huddersfield, West Yorkshire HD8 8LU.



GEOTECHNICAL
ENVIRONMENTAL



Phase 4: Validation Report Of Remediation

Location: Land at Liley Lane – Plot 4
Grange Moor, Huddersfield, WF4 4EN

For: Britannia Construction Yorkshire Ltd

Consultants: -

Report No. J4080/17/E/V

Report date: May 2022

For and on behalf of **Rogers Geotechnical Services Ltd**

Charlotte Mason BSc FGS
Geo-environmental Engineer

Clive Kirby CGeol FGS MSc BSc
Technical Lead

1. Introduction

It is understood that plot 4 at Liley Lane Grange Moor is now complete and comprises a residential dwelling with a garden area to the rear.

In order to fully discharge a planning condition relating to land contamination, a verification report has been produced to demonstrate that the required depth of cover has been achieved and that contamination levels of the soils used in the formation of the cover system are acceptable.

In accordance with your instructions we have undertaken testing of the imported material to validate that this is now suitable, and confirm that the pathway for contamination is broken. The following describes the work undertaken, presents the data obtained and discusses the findings in association with the proposed development.

The remediation of Plot 4 has been carried out in accordance with the Remediation Statement (reference J4080/17/E, dated 8th January 2018)



2. Review of the proposed Remediation Strategy

2.1 Summary of Contamination risks

A Phase 2 Geo-environmental investigation was undertaken by Rogers Geotechnical Services in November 2017 (J4080/17/E) This report concludes that the site can be classified as generally contaminated by elevated levels of arsenic.

2.2 Proposed Remediation Strategy.

As part of the part of a planning consent the below remediation strategy/scheme has been produced and agreed with Kirklees Council¹. The following should be noted.

- In view of the presence of contamination and residential end use of the site, it is considered that the garden areas will require some remediation. This will be undertaken by the provision of a clean cover system including a capping layer of 500mm of inert material, which will put the contaminated ground out of the end users' dig range. At the base of this layer, a granular capillary break of 100mm of free draining granular soil shall be placed in order to prevent mobile contamination rising upward. This expedient will also provide a suitable root barrier to isolate the plants from the underlying contaminated ground.

3. Limitations

The recommendations made and opinions expressed in this report are based on the ground conditions revealed by the site works, together with an assessment of the site and of the laboratory test results. Whilst opinions may be expressed relating to sub-soil conditions in parts of the site not investigated, for example between investigatory positions, these are for guidance only and no liability can be accepted for their accuracy.

This report has been prepared in accordance with our understanding of current best practice. However, new information or legislation, or changes to best practice may necessitate revision of the report after the date of issue.

¹ RGS Remediation Letter Report, dated 8th January 2018 (Reference J4080/17/E)



4. Laboratory Testing - Environmental

Prior to the placement of the capping layer, contamination testing was undertaken to confirm suitability. The following suite was undertaken on representative samples of the soils to be placed.

Brownfield soil Suite

- Standard metals/metalloids As, Cd, Cr, CrVI, Cu, Hg, Ni, Pb, Se, V, Zn
- Free CN-, PAH (16 USEPA), TPH (CWG banded), Phenols
- Asbestos
- pH, total/soluble SO_4^{2-} , Organic content (Soil Organic Matter)

This testing was undertaken by Chemtest Ltd and the results of all of the chemical testing are presented in Appendix 5 of this report.

5. Discussion of Ground Conditions - Environmental

5.1 Discussion of Test Results

On the basis that the site comprises a new dwelling and the fill imported to Plot 4 has been used to provide clean cover in the garden and soft landscaping areas of the properties, soil screening values (SSVs) for a residential with plant uptake end use have been employed in the below assessment.

The results of the chemical testing undertaken on soil samples obtained during this investigation have been compared to the ATRISK soil screening values (SSVs) as compiled by WS Atkins plc. These values have been derived in such a way as to adhere to the principles within the revised CLEA model and include the most current release of the SGVs. A list of subscribers is provided within the website² and these include many local authorities.

A comparison of the results of the testing, together with the data given above, can be found within Appendix 3. These results indicate the following:

Table 1: Summary of contaminated areas.

Sample Reference	Contaminants found to be exceeding SSVs (Residential without plant uptake)
Sub sample 1	None.
Sub sample 2	None.

² <http://www.atrisksoil.co.uk/pages/general/subscribers.asp>



Concentrations of selenium, phenols, PAHs (all EPA-16) and petroleum hydrocarbons (aromatic C5 to C35 and aromatic C5 to C35) were below the detection limits for the tests. Detectable levels of all other contaminants were recorded, but these fell below the associated At Risk Soil Screening Values. In addition, the asbestos screen found no asbestos.

On the basis of the above the material tested may be considered as uncontaminated and suitable for the site end-use.

6. Validation of Clean Cover

The capping layer was imported from a single source, and placed on the 25th May 2022.

Photographic logs were taken during the placement of the fill. Furthermore, once the soils were placed, validation pits were excavated to confirm that a 600mm capping layer had been placed. Photographic evidence of the thickness of fill is presented in Appendix 3. A synopsis of the soils placed are summarised below.

Table 2: Plot 4 Capping			
Depth m below ground level to underside of layer	Strata Type	Positions Layer Revealed	Groundwater Strikes m below ground level
0.5	TOPSOIL (Dark brown organic slightly silty SAND)	All	None
+0.6	CAPPILLARY BREAK Light grey slightly silty slightly sandy GRAVEL of dolostone and sandstone.	All	None

'+' denotes that the strata extended below the termination depth of the investigated positions, thus the extent of the deposit is only proven to the depths indicated.

It should be appreciated that the developer intends to place a further layer of ready-lay turf upon completion of the development

6.1 Validation of Clean cover

It is concluded that the imported material being placed as a capping at Plot 4 has been obtained from a single supplier and comprises topsoil (brown organic silty sand). This material will prove suitable as a growing medium and is free from obvious contamination (i.e. visual or olfactory evidence) and unsuitable material (i.e. whole bricks, brick ties, timber or glass).

Further to the photographic records, the excavations at the validation positions and the chemical testing, it is considered that garden and soft landscaping areas at Plot 4 have been filled with in excess of 0.5m of topsoil suitable for the site use. Moreover, it is understood, and observed from the upper surface, that 0.1m of granular material forming a capillary break underlays the topsoil.



As a consequence, it is apparent that 0.6m of clean cover has been placed above the made ground within the garden and soft landscaped areas around Plot 4. Therefore, the made ground and the contamination within it have been enclosed, put beyond end-users dig range and capped by a capillary break which will inhibit the down migration of root growth. As a consequence, it is considered that the risk to garden plants, end-users from dermal contact with the soil and end-users and neighbours from the inhalation of dust, ingestion of soil or dust and the ingestion of contaminated fruit and vegetables is mitigated and may be considered as low.

On the basis of the information provided above it is concluded that a sufficient thickness of clean cover has been placed within the soft landscaped areas. It is considered that the end users will be protected from ingestion or dermal contact with contaminated soil. No further action is required.

7. Conclusion.

Further to the photographic records, the excavations at the validation positions and the chemical testing, it is considered that all areas of the site have been suitably capped in order to protect end users from lead contamination at the site and no further action is required.



8. References

- Department for Environment, Food and Rural Affairs and the Environment Agency (2009) DEFRA Science Report – Final SC050021/SR2, *Human Health toxicological assessment of contaminants in soil*. Environment Agency, Bristol.
- Department for Environment, Food and Rural Affairs and the Environment Agency (2009) DEFRA Science Report – SC050021/SR3, *Updated technical background to the CLEA model*. Environment Agency, Bristol.
- WS Atkins plc, 2011, Soil Screening Values, Derived using CLEA v1.04 and January 2009 Guidance: SSVs derived using CLEA v1.04 for 6% SOM, Residential with home grown produce land use.
- YALPAG *Technical Guidance for Developers, Landowners and Consultants – Verification Requirements for Cover Systems V3.3 Appendix 1a*, October 2016.



Appendix 1

Site Plan



Plan not to scale and investigation positions approximated from site operative's notes.

Title: **Investigation Location Plan**



Rogers Geotechnical Services Ltd

Site Name:
Plot 4 Liley Lane, Grange Moor

Job No:
J4080/17/E/V



Appendix 2

Photographic Logs



Validation of Clean cover System: Plot 4 Liley Lane Grange Moor



Validation of Clean cover System: Plot 4 Liley Lane Grange Moor



Validation of Clean cover System: Plot 4 Liley Lane Grange Moor



Validation of Clean cover System: Plot 4 Liley Lane Grange Moor



Rogers Geotechnical Services Ltd

Offices 1 & 2, Barncliffe Business Park,
Near Bank, Shelley,
Huddersfield,

Job No:

J4080/17/E/V

Site:

Plot 4
Liley Lane
Grange Moor

Client:

Britannica Construction Ltd





Validation of Clean cover System: Plot 4 Liley Lane Grange Moor



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Validation of Clean cover System: Plot 4 Liley Lane Grange Moor



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Validation of Clean cover System: Plot 4 Liley Lane Grange Moor



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Validation of Clean cover System: Plot 4 Liley Lane Grange Moor



The Ground Investigation Specialists

Validation of Clean cover System: Plot 4 Liley Lane Grange Moor



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Near Bank, Shelley,
Huddersfield,

Job No:

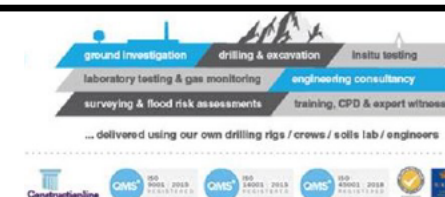
J4080/17/E/V

Site:

Plot 4
Liley Lane
Grange Moor

Client:

Britannica Construction Ltd





Appendix 3

Chemical Results

Rogers Geotechnical Services: Soil Screening Values Comparison Sheet

Rogers Geotechnical Services Ltd				Soil Screening Value (SSV) Comparison Sheet										KEY Exceeds SSV Exceeds 2017, Below 2015 Below limit of detection (LOD)															
Job Number	J4080/17/E/V			A = WS Atkins PLC, Atrisk Soil Screening Values. A+ = Values updated June 2017. A* = Atrisk's SSV is lower than Chemtest's detectable limit for this compound. B = health criterion values, which are available from toxicological reviews published in the C4SL project methodology report. C = Category 4 Screening Levels (C4SLs) based on 6% soil organic matter. D = Value provided is based on Methyl Mercury. Should elemental mercury be observed or a source be known then a Exceeds SSV Exceeds 2017, Below 2015 Below limit of detection (LOD)																									
Job Name	Plot 4 Liley Lane Grange Moor																												
Date	12.05.2022			Sample Location		Sample 1		Sample 2																					
Client	Brittanica Construction			Depth Top																									
				Depth Base																									
Determinand	Units	Ref	LOD	Residential With Plant Uptake 6%																									
				Atrisk 2015 (No Free Product)	Atrisk 2017																								
Cadmium	mg/kg	C	0.10		22.1	0.13	0.32																						
Chromium (Hexavalent)	mg/kg	B/C	0.5	20.5	3.62	< 0.50	< 0.50																						
Copper	mg/kg	A+	0.50		4790	12	17																						
Mercury	mg/kg	A/D	0.10		15.8	0.05	0.05																						
Nickel	mg/kg	A+	0.50		136	7.1	9.8																						
Lead	mg/kg	C	0.50		200	25	35																						
Zinc	mg/kg	A+	0.50		20300	32	53																						
Vanadium	mg/kg	A+	5.0		138	12	17																						
Arsenic	mg/kg	C	1.0		37	6.9	9.8																						
Selenium	mg/kg	A	0.20		375	0.56	0.82																						
Cyanide (Free)	mg/kg	A	0.50		34	< 0.50	< 0.50																						
Total Phenols	mg/kg	A	0.1		1200	< 0.10	< 0.10																						
Naphthalene	mg/kg	A+	0.10	0	12.2	< 0.10	< 0.10																						
Acenaphthylene	mg/kg		0.10			< 0.10	< 0.10																						
Acenaphthene	mg/kg	A+	0.10	0	2760	< 0.10	< 0.10																						
Fluorene	mg/kg	A+	0.10	0	2610	< 0.10	< 0.10																						
Phenanthrene	mg/kg		0.10			< 0.10	< 0.10																						
Anthracene	mg/kg	A+	0.10	0	26200	< 0.10	< 0.10																						
Fluoranthene	mg/kg	A+	0.10		2980	0.76	0.74																						
Pyrene	mg/kg	A+	0.10		2120	0.74	0.77																						
Benzo[a]anthracene	mg/kg	A	0.10	0	8.54	< 0.10	0.60																						
Chrysene	mg/kg	A	0.10	927	2.64	< 0.10	0.90																						
Benzo[b]fluoranthene	mg/kg	A	0.10	9.86	7.29	< 0.10	< 0.10																						
Benzo[k]fluoranthene	mg/kg	A	0.10	100	4.12	< 0.10	< 0.10																						
Benzo[a]pyrene	mg/kg	B/C	0.10	5	0.998	< 0.10	< 0.10																						
Indeno(1,2,3-c,d)Pyrene	mg/kg	A*	0.10	9.75	0.368	< 0.10	< 0.10																						
Dibenz(a,h)Anthracene	mg/kg	A	0.10	4.95	2.05	< 0.10	< 0.10																						
Benzo[g,h,i]perylene	mg/kg	A	0.10	103	0.112	< 0.10	< 0.10																						
Total Of 16 PAH's	mg/kg		2.0			< 2.0	3.0																						
Aliphatic TPH >C5-C6	mg/kg	A+	1.0	0	369	< 1.0	< 1.0																						
Aliphatic TPH >C6-C8	mg/kg	A+	1.0	1240	768	< 1.0	< 1.0																						
Aliphatic TPH >C8-C10	mg/kg	A+	1.0	0	204	< 1.0	< 1.0																						
Aliphatic TPH >C10-C12	mg/kg	A+	1.0	1180	297	< 1.0	< 1.0																						
Aliphatic TPH >C12-C16	mg/kg	A+	1.0	4130	125	< 1.0	< 1.0																						
Aliphatic TPH >C16-C21	mg/kg	A+	1.0		210100	< 1.0	< 1.0																						
Aliphatic TPH >C21-C35	mg/kg	A+	1.0		210100	< 1.0	< 1.0																						
Aliphatic TPH >C35-C44	mg/kg		1.0			< 1.0	< 1.0																						
Total Aliphatic Hydrocarbons	mg/kg		5.0			< 5.0	< 5.0																						
Aromatic TPH >C5-C7	mg/kg	A+	1.0		0.871	< 1.0	< 1.0																						
Aromatic TPH >C7-C8	mg/kg	A+	1.0	0	780	< 1.0	< 1.0																						
Aromatic TPH >C8-C10	mg/kg	A+	1.0	0	232	< 1.0	< 1.0																						
Aromatic TPH >C10-C12	mg/kg	A+	1.0	0	468	< 1.0	< 1.0																						
Aromatic TPH >C12-C16	mg/kg	A+	1.0	830	830	< 1.0	< 1.0																						
Aromatic TPH >C16-C21	mg/kg	A+	1.0		1040	< 1.0	< 1.0																						
Aromatic TPH >C21-C35	mg/kg	A+	1.0		1710	< 1.0	< 1.0																						
Aromatic TPH >C35-C44	mg/kg		1.0			< 1.0	< 1.0																						
Total Aromatic Hydrocarbons	mg/kg		5.0			< 5.0	< 5.0																						
Total Petroleum Hydrocarbons	mg/kg		10.0			< 10	< 10																						
pH			N/A			7.0	7.1																						
Sulphate (2:1 Water Soluble) as SO4	g/l		0.010			0.043	0.018																						
ACM Type			N/A			-	-																						
Asbestos Identification	%		0.001			No Asbestos Detected	No Asbestos Detected																						
ACM Detection Stage			N/A																										
Moisture	%		0.020			14	17																						

Rogers Geotechnical Services: Soil Screening Values Comparison Sheet

Rogers Geotechnical Services Ltd				Soil Screening Value (SSV) Comparison Sheet											
Job Number	J4080/17/E/V			A = WS Atkins PLC, Atrisk Soil Screening Values. A+ = Values updated June 2017. A* = Atrisk's SSV is lower than Chemtest's detectable limit for this compound. B = health criterion values, which are available from toxicological reviews published in the C4SL project methodology report. C = Category 4 Screening Levels (C4SLs) based on 6% soil organic matter. D = Value provided is based on Methyl Mercury. Should elemental mercury be observed or a source be known then a KEY Exceeds SSV Exceeds 2017, Below 2015 Below limit of detection (LOD)								KEY Exceeds SSV Exceeds 2017, Below 2015 Below limit of detection (LOD)			
Job Name	Plot 4 Liley Lane Grange Moor														
Date	12.05.2022			Sample Location	Sample 1	Sample 2									
Client	Brittanica Construction			Depth Top											
				Depth Base											
Determinand	Units	Ref	LOD	Residential With Plant Uptake 6%											
Soil Colour			N/A		Black	Brown									
Other Material			N/A		None	Roots									
Soil Texture			N/A		Loam	Loam									
Sulphate (Total)	%		0.010		0.31	0.140									
Organic Matter	%		0.40		17.0	4.8									



Final Report

Report No.: 22-16731-1
Initial Date of Issue: 12-May-2022
Client Rogers Geotechnical Services Ltd
Client Address: Offices 1&2, Barncliffe Business Park
Near Bank
Shelley
Huddersfield
West Yorkshire
HD8 8LU

Contact(s): Harry Letch

Project J4080/E/V Plot 4 Liley Lane Grange
Moor

Quotation No.: **Date Received:** 06-May-2022

Order No.: **Date Instructed:** 06-May-2022

No. of Samples: 2

Turnaround (Wkdays): 5 **Results Due:** 12-May-2022

Date Approved: 12-May-2022

Approved By:

Details: Stuart Henderson, Technical
Manager

Results - Soil

Project: J4080/E/V Plot 4 Liley Lane Grange Moor

Client: Rogers Geotechnical Services Ltd	Chemtest Job No.:				22-16731	22-16731
Quotation No.:	Chemtest Sample ID.:				1423337	1423338
	Sample Location:				Sample 1	Sample 2
	Sample Type:				SOIL	SOIL
	Date Sampled:				05-May-2022	05-May-2022
	Asbestos Lab:				COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD		
Cadmium	M	2455	mg/kg	0.10	0.13	0.32
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50
Copper	M	2455	mg/kg	0.50	12	17
Mercury	M	2455	mg/kg	0.05	< 0.05	0.05
Nickel	M	2455	mg/kg	0.50	7.1	9.8
Lead	M	2455	mg/kg	0.50	25	35
Zinc	M	2455	mg/kg	0.50	32	53
Vanadium	U	2455	mg/kg	0.5	12	17
Arsenic	M	2455	mg/kg	0.5	6.9	9.8
Selenium	M	2455	mg/kg	0.25	0.56	0.82
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	0.76	0.74
Pyrene	M	2700	mg/kg	0.10	0.74	0.77
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10	0.60
Chrysene	M	2700	mg/kg	0.10	< 0.10	0.90
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0	3.0
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0

Results - Soil

Project: J4080/E/V Plot 4 Liley Lane Grange Moor

Client: Rogers Geotechnical Services Ltd	Chemtest Job No.:				22-16731	22-16731
Quotation No.:	Chemtest Sample ID.:				1423337	1423338
	Sample Location:				Sample 1	Sample 2
	Sample Type:				SOIL	SOIL
	Date Sampled:				05-May-2022	05-May-2022
	Asbestos Lab:				COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD		
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10
pH	M	2010		4.0	7.0	7.1
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.043	0.018
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	26	28
Soil Colour	N	2040		N/A	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand
Sulphate (Total)	U	2430	%	0.010	0.037	0.045
Organic Matter	M	2625	%	0.40	3.6	5.2

Test Methods

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	Al kaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
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; Dibenz[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)
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"
SOP	Standard operating procedure
LOD	Limit of detection

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 30 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.com