



CLEAN COVER SYSTEM – VALIDATION REPORT AT FORMER CLARKEVILLE FARM, CRUMPSALL FOR

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TOPSOIL CLEAN COVER SYSTEM VALIDATION REPORT:

FORMER CLARKSVILLE FARM, CRUMPSALL

1 INTRODUCTION

This report provides the clean cover system validation report for the northern/eastern 22 units of this development on land which was formerly Clarkesville Farm. The address is Saddlecote Close, Crumpsall, Manchester, M8 5UR. This site is accessed from the southwest of the site via an earlier development forming the initial western plots on Saddlecote Close

A site visit was carried out on the 5th July 2022 to take samples for chemical testing and to validate the cover depth with Version 1 of this report issued on 27th July 2022. Manchester City Council provided comments on this report on 10th October 2022 requiring additional sampling and some clarifications adding to the report (see Appendix 4). A further sampling visit was carried out on 8th November 2022 with four additional trial pits carried out.

The development comprises a total of 44 residential plots with associated gardens plus an area of public open space in the northeast of the site. This report is for the 10 buildings forming 18 units in the northern/eastern part of the development comprising Plot 2 and Plots 19 to 35 and retests in Plots 36 and 37 plus the north easterly public open space. The report also provides a response to the council's queries of 10th October 2022.

Verification reports for other plots at this site are as follows:

- Report for Plot Locations 36, 37, 38, 39 & 40: TerraConsult Ref 4934-LR001-1/GB 19th March 2020
- Report for Plot Locations 1 to 18: TerraConsult Ref 5052-LR001-1/JD 24th August 2020

Note that in the TerraConsult report from March 2020, the council Environmental Health Officer was not happy with the cover system in Plots 36 and Plot 37 had not been validated and requested that appropriate remedial works should be carried out and these plots be re-validated hence they were included in this current report. The comment was sent by email on 12th May 2020 and was as follows:

Officers have noted that cover depth validation photographs and testing analysis has been provided for plots 36, 37, 38,39 and 40 and have the following comments:

- *The rear of plot 36 does not have any top soil in place. Further comment will be required to address this. There also looks to be less than 500mm of cover in this plot looking at the photo*
- *There is no assessment and validation for the front of Plot 37*

The council also require that:

The soil sampling should be undertaken with a density of 1:200m³ for soil to be used in gardens or soft landscaping imported from a greenfield site, or 1:50m³ site for garden use and 1:150m³ for soft landscaping if sourced from a

Clean Cover System Validation Report, Clarksville Farm, Crumpsall

brownfield site. The sampling frequency undertaken therefore does not comply with their requirements. Further comment is required here

The areas covered by the reports are indicated in Figure 1:

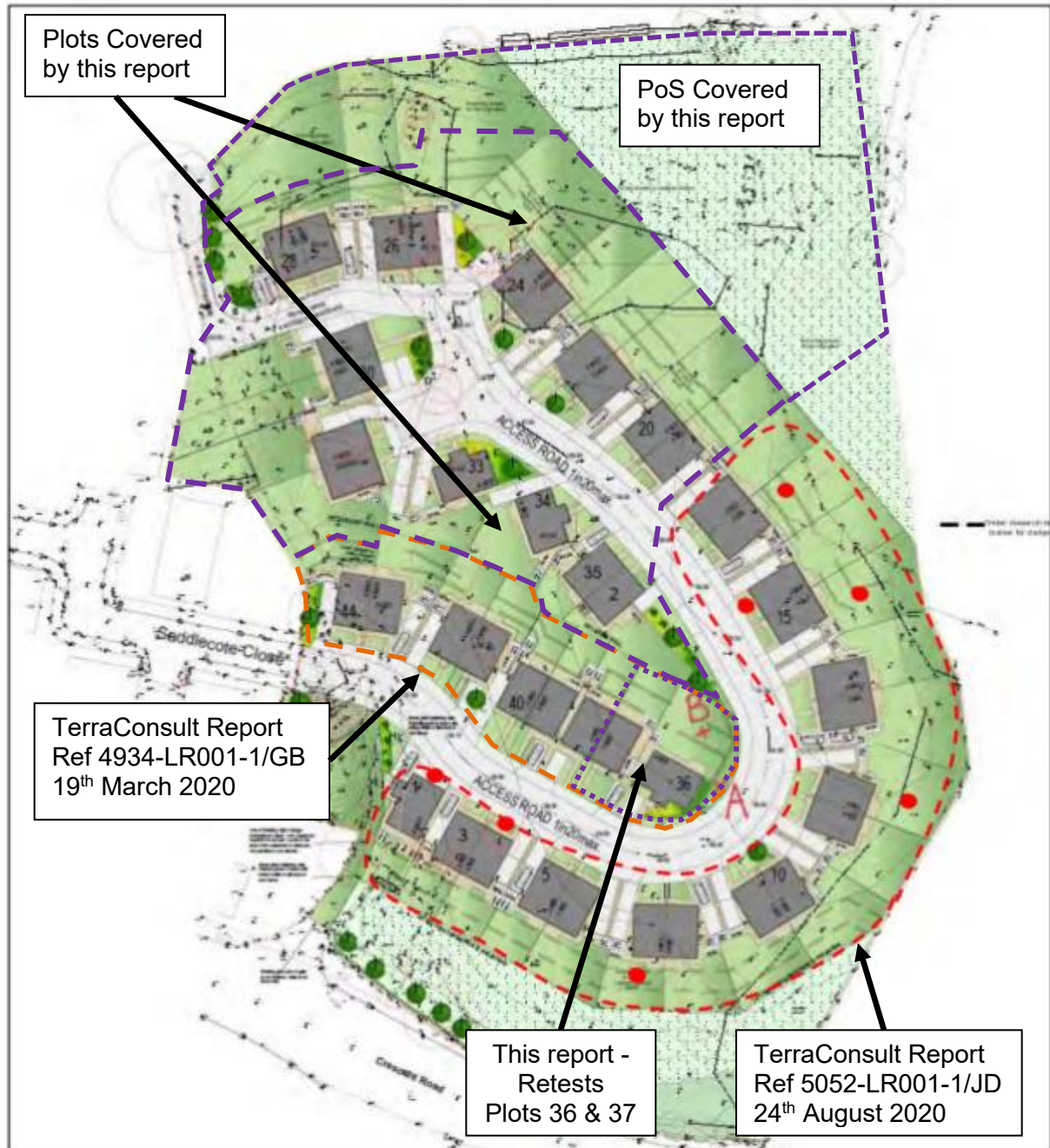


Figure 1: Extract of Proposed Development Landscape Works (Plan provided by the Client)

2 VERIFICATION OF TOPSOIL – SAMPLING AND TESTING

A minimum of 600 mm thickness of topsoil and subsoil is required to be placed within the soft landscaped areas of the new developments. To confirm the thickness of the cover material, a total of 11 no. hand dug trial pits were excavated within the rear soft landscaped areas of the 18 units (11 from 18 is 61% of gardens tested) and one location from the POS area to the northeast of the houses. Samples were taken from all twelve locations (12 samples in total) at various depths for chemical analysis. For the works in July 2022, Ensaf Consultants carried out the trial pitting and sampling for C S Eccles Brownfield Land Consultancy. The trial pits in November 2022 were carried out by C S Eccles Brownfield Land Consultancy.

The topsoil and subsoil is from a greenfield source provided by Freeland Horticulture Ltd from a site in Astley, Greater Manchester. The 11 samples from the 18 units is calculated as being a higher density than for the Council's requirement of one sample in 1:200 m³ for a greenfield source so it complies with their requirements.

In the Council email on the first issue of the report there were requests for:

- Deeper trial pit in the garden of Plot 2 where TP03 had been terminated at 0.40m depth on clean gravel (depth of pit actually 0.45m).
- A request for further work in relation to the PoS. were comments about the base plan being incorrect, that more sampling was required in the area of Public Open Space (PoS) and that there was access for the residents for this area.

Note that:

- TP13 carried out in Plot 2 as a replacement for TP03
- Three more trial pits (TP14 to TP16) have been carried out in the PoS.
- There is clarity in Figure 1 of the areas of gardens and PoS with the purple large dashes indicating limits of the gardens and short dashes.
- Note that the PoS is larger and the gardens smaller than the Council suggests. This is shown in Figure 1 and the photographs in Appendix 2.
- Also note that there is no access for the residents into the area of PoS which is an area to be left 'wild' and that access to this area for the trial pits was only over a fence from the cemetery from the north.

A summary of the hand dug pits are presented in Appendix 1. Together with photographs of the trial pits. The locations are in Figure 2.

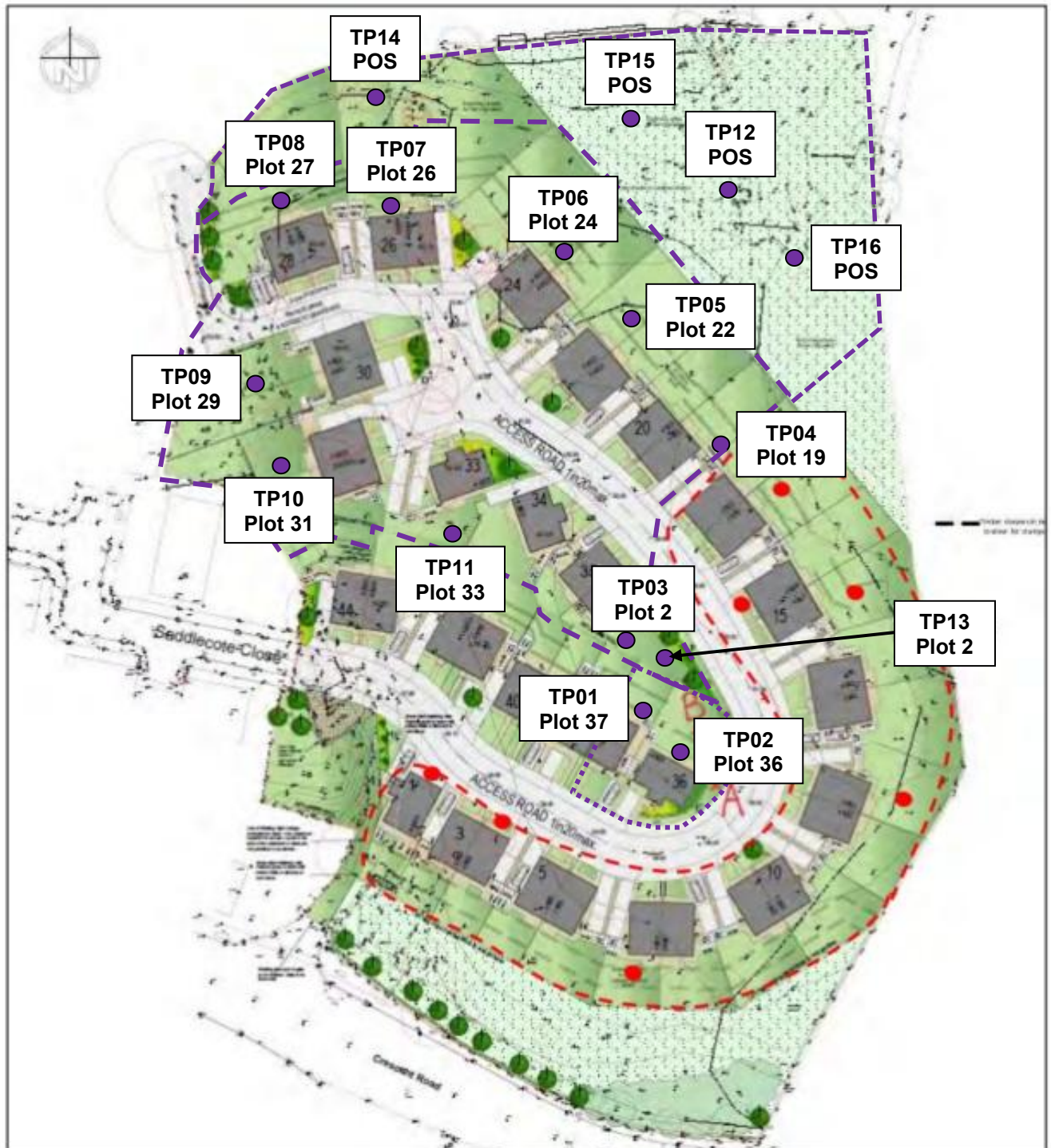


Figure 2: Location of Trial Pits (Plan provided by the Client)

During the fieldwork no suspected Asbestos Containing Materials (ACMs) were identified and no visual or organic indicators of contaminants of evidence of invasive weeds or other unsuitable materials (e.g. glass, wire, etc) were noted.

The soil samples were sent to The Environmental Laboratory Limited (ELAB) for testing. The laboratory is UKAS accredited in accordance with ISO17025 and is also MCERTS accredited for soil analysis in accordance with the Environment Agency's scheme. The laboratory test certificate is appended to this report in Appendix 2.

A summary of the chemical analysis can be found in Appendix 3 which includes a comparison with appropriate generic assessment criteria (GACs) for human health based on residential land use with vegetable uptake. The source of the criteria are indicated on the right hand side of this table. The sources are mainly Suitable For Use Levels (S4UL) together with a smaller number of Category 4 Screening Levels (C4SL) with an SGV (published by UK government) just being used for Cyanide. These S4ULs and C4SLs were recognised in the new Contaminated Land Statutory Guidance (DEFRA, 2012) and have been reproduced from the following documents:

- LQM/CIEH : 2009 Nathaniel CP, McCaffrey C, Ashmore MH, Cheng NPS GROUP, Gillett A, Ogden R & Scott D : 2009 . The LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment (2nd edition). Land Quality Press, Nottingham.
- CL:AIRE/EIC/AGS: 2009 : Soil Generic Assessment Criteria (GAC) for Human Health Risk Assessment. Contaminated Land: Applications in Real Environments, Environment Industries Commission & Association of Geotechnical and Environmental Specialists. December 2009.

3 DISCUSSION OF RESULTS

The combined thickness of the cover system (Topsoil and subsoil) in all locations was greater than 600 mm (other than TP2 which terminated at 450mm depth on clean gravel and additional TP13 carried out in this garden as a replacement which proved 600 mm of clean cover).

In the area of landscaping in the northeast of the site no topsoil over most of this area and there is no proposal to do so, and the area is naturally developing into a wild flower biodiversity site. Note that wildflowers do not like high fertile soils in order to flourish, hence large areas with no topsoil are present as part of the cover system in the landscaped area in the northeast of the site.

All sixteen samples underwent laboratory analysis and the results show very low concentrations, with no concentrations exceeding the relevant GAC for toxic metals, Polycyclic Aromatic Hydrocarbons (PAHs) and Total Petroleum Hydrocarbons (TPH) and no asbestos fibres were present.

4 CONCLUSIONS

On 5th July 2022 twelve trial pits were carried out and samples were taken in order confirm the appropriate thickness and suitability of the clean cover system of the following plots and areas:

Plot 2:

Plots 19 to 27 inclusive

The POS/landscaped area in the northeast of the site

On 8th November 2022 four trial pits were carried out and samples were taken in order confirm the appropriate thickness and suitability of the clean cover system of the following plots and areas:

Plot 2: TP13

TP14 to TP16 in PoS

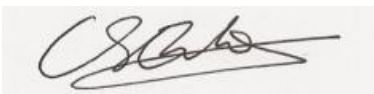
The combined thickness of the cover system (topsoil and subsoil) at all locations was greater than 600 mm (other than TP2 which terminated at 450mm depth on clean gravel and additional TP13 carried out in this garden as a replacement which proved 600 mm of clean cover).

In the area of landscaping in the northeast of the site no topsoil over most of this area and there is no proposal to do so, and the area is naturally developing into a wild flower biodiversity site. Note that wildflowers do not like high fertile soils in order to flourish, hence large areas with no topsoil are present as part of the cover system in the landscaped area in the northeast of the site.

The 12 samples from the 18 units and 4 samples from the POS area in the NE of the site is calculated as being a higher density than for the Council's requirement of one sample in 1:200 m³ for a greenfield source so it complies with their requirements.

The chemical test results show very low concentrations, with no concentrations exceeding the relevant assessment criteria for residential land use with vegetable uptake.

Therefore, the soils placed are suitable and the thickness of the clean cover meets the 0.60 m requirement.



C S Eccles

BEng, MSc, DIC, FGS, CGeol, CSci, SiLC, RoGEP Adviser

C S Eccles Brownfield Land Consultancy

6th February 2023

APPENDIX 1

HAND PIT SUMMARY

Clean Cover System Validation Report, Clarksville Farm, Crumpsall

Plot No.	Location	Top of Strata (m)	Base of Strata (m)	Stratum Description	Stratum
37	TP01	0.00	0.20	Turf over reddish brown slightly gravelly slightly silty fine to medium SAND. Gravel is subangular to subrounded fine to medium of sandstone.	Topsoil
		0.20	0.60	Firm brownish grey slightly silty slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of mudstone, sandstone and quartzite.	Subsoil
36	TP02	0.00	0.25	Turf over brown slightly gravelly clayey fine to medium SAND. Gravel is angular to subrounded fine to coarse of sandstone and quartzite.	Topsoil
		0.25	0.60	Firm brown slightly sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse of mudstone, sandstone and quartzite.	Subsoil
2	TP03	0.00	0.20	Turf over greyish brown gravelly very silty fine to coarse SAND. Gravel is angular to subrounded fine to coarse of sandstone and mudstone.	Topsoil
		0.20	0.35	Brown very gravelly fine to medium SAND. Gravel is angular to subangular fine to coarse of mudstone and sandstone. Occasional buried rootlets.	Subsoil
		0.35	0.45	Very dense light brown sandy angular to subangular fine to medium GRAVEL of sandstone and quartzite.	No Dig Layer
	TP13	0.00	0.20	Turf over firm greyish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, quartzite and mudstone. Occasional rootlets.	Topsoil
		0.20	0.60	Firm brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of mudstone, sandstone and quartzite.	Subsoil
19	TP04	0.00	0.20	Turf over dark brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of sandstone and mudstone.	Topsoil
		0.20	0.60	Firm orangish brown mottled light grey very sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of mudstone and sandstone.	Subsoil
22	TP05	0.00	0.10	Turf over firm light brown slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, quartzite and mudstone.	Topsoil
		0.10	0.60	Soft to firm brown slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, quartzite and mudstone.	Subsoil
24	TP06	0.00	0.15	Soft brown very gravelly CLAY. Gravel is angular to subangular fine to coarse of brick, sandstone, quartzite and plastic.	Topsoil
		0.15	0.60	Firm brown slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of mudstone and quartzite.	Subsoil
26	TP07	0.00	0.05	Firm light brown slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, quartzite and mudstone.	Topsoil
		0.05	0.60	Firm brown slightly sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse of sandstone, mudstone and quartzite. One fragment of clay drainage pipe.	Subsoil
27	TP08	0.00	0.25	Firm brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, mudstone, quartzite and rare concrete.	Topsoil
		0.25	0.60	Firm dark brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium angular to subrounded of sandstone and quartzite.	Subsoil

Clean Cover System Validation Report, Clarksville Farm, Crumpsall

Plot No.	Location	Top of Strata (m)	Base of Strata (m)	Stratum Description	Stratum
29	TP09	0.00	0.15	Soft brown sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of brick, mudstone, sandstone and quartzite.	Topsoil
		0.15	0.55	Firm brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of sandstone and quartzite.	Subsoil
		0.55	0.58	Very dense light brown sandy angular to subangular fine to medium GRAVEL of quartzite.	No Dig Layer
31	TP10	0.00	0.20	Turf over firm brown sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of sandstone, quartzite and mudstone.	Topsoil
		0.20	0.60	Firm brown and grey gravelly slightly sandy CLAY with occasional cobbles. Gravel is angular to subangular fine to coarse of quartzite and, sandstone. One cobble of brick and one of quartzite. One piece of plastic bag.	Subsoil
33	TP11	0.00	0.15	Turf over Firm dark brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone.	Topsoil
		0.15	0.60	Greyish brown gravelly slightly clayey fine to coarse SAND with occasional cobbles. Gravel is angular to subangular fine to coarse of quartzite and sandstone. Occasional cobbles of quartzite.	Subsoil
POS	TP12	0.00	0.30	Firm greyish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, quartzite, mudstone. Occasional rootlets.	Topsoil
		0.30	0.60	Firm brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded of sandstone, mudstone and quartzite.	Subsoil
	TP14	0.00	0.30	Firm brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, quartzite and mudstone. Occasional rootlets.	Topsoil
		0.30	0.55	Firm dark brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded of sandstone, mudstone, limestone and quartzite.	Subsoil
		0.55	0.60	Firm dark greyish brown slightly sandy gravelly CLAY. Gravel is subangular to subrounded of sandstone, mudstone, limestone and quartzite.	Subsoil
	TP15	0.00	0.22	Firm brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, quartzite and mudstone, rare brick. Occasional rootlets.	Topsoil
		0.22	0.60	Firm dark brown & brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded of sandstone, mudstone and quartzite. Occasional rootlets.	Subsoil
	TP16	0.00	0.60	Firm brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, quartzite, limestone and mudstone. Rare coal. Occasional rootlets to 0.15m depth.	Subsoil

Clean Cover System Validation Report - Former Clarksville Farm, Crumpsall

TP01 Back Garden of Plot No. 37

Depth of Topsoil



Excavated Spoil/Clean Cover



Clean Cover System Validation Report - Former Clarksville Farm, Crumpsall

TP02 Back Garden of Plot No. 36

Depth of Topsoil



Excavated Spoil/Clean Cover



Clean Cover System Validation Report - Former Clarksville Farm, Crumpsall

TP03 Back Garden of Plot No.2

Depth of Topsoil



Upper photograph indicates the trial pit to be about 0.45 m deep.

Lower photograph has 100 mm spaced bands on the marker and with the angle downwards it indicates an excavated depth of about 0.45 m.

Note that the photo board originally indicated a depth of 0.40 m for this trial pit but based on the actual photographic evidence the trial pit was 0.45m deep hence the amendment.

See TP13 records also excavated in Plot No 2

Excavated Soil/Clean Cover



Coarse gravel in the top of the spoil is from the no dig layer

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TP04 Back Garden of Plot No.19

Depth of Topsoil



Excavated Spoil/Clean Cover



Clean Cover System Validation Report - Former Clarksville Farm, Crumpsall

TP05 Back Garden of Plot No. 22

Depth of Topsoil



Excavated Spoil/Clean Cover - No Picture of Spoil

Clean Cover System Validation Report - Former Clarksville Farm, Crumpsall

TP06 Back Garden of Plot No. 24

Depth of Topsoil



Excavated Spoil/Clean Cover



Clean Cover System Validation Report - Former Clarksville Farm, Crumpsall

TP07 Back Garden of Plot No. 26

Depth of Topsoil



Excavated Spoil/Clean Cover



Clean Cover System Validation Report - Former Clarksville Farm, Crumpsall

TP08 Back Garden of Plot No. 27

Depth of Topsoil



Excavated Spoil/Clean Cover- No Picture of Spoil

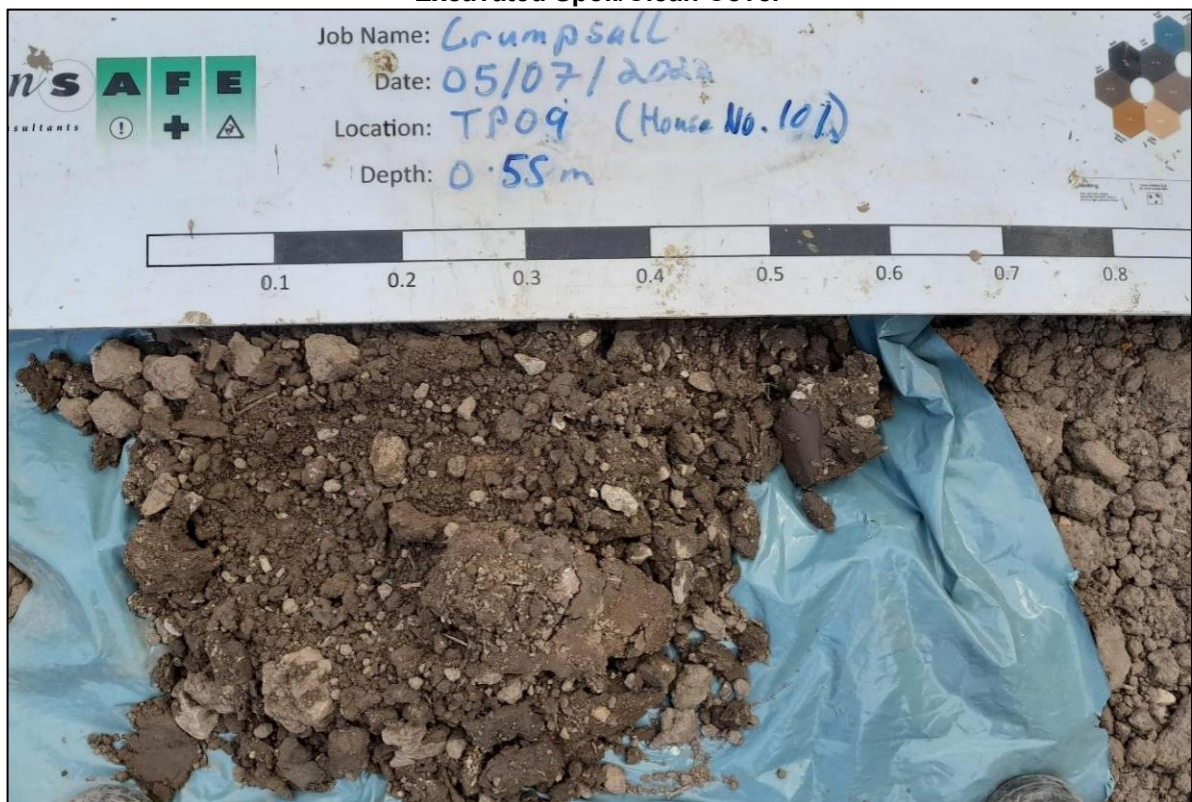
Clean Cover System Validation Report - Former Clarksville Farm, Crumpsall

TP09 Back Garden of Plot No. 29

Depth of Topsoil



Excavated Spoil/Clean Cover



Clean Cover System Validation Report - Former Clarksville Farm, Crumpsall

TP10 Back Garden of Plot No. 31

Depth of Topsoil



Excavated Spoil/Clean Cover



Clean Cover System Validation Report - Former Clarksville Farm, Crumpsall

TP11 Back Garden of Plot No. 33

Depth of Topsoil - No Picture

Excavated Spoil/Clean Cover



Clean Cover System Validation Report - Former Clarksville Farm, Crumpsall

TP12 Public Open Space in NE of Site

Depth of Topsoil



Excavated Spoil/Clean Cover



TRIAL PITS OF 08/11/22

TP13 – Re-Dig In Plot 2 as TP03 terminated on sub-base at 0.45m



Clean Cover System Validation Report - Former Clarksville Farm, Crumpsall

TP14 Public Open Space



TP15 Public Open Space



Clean Cover System Validation Report - Former Clarksville Farm, Crumpsall

TP16 Public Open Space



Photographs of Public Open Space 8th November 2022

Herringbone Drains

TP15

Crest drain



North westerly view of POS

Geotextile wrap around gravel forming the drain



Top of PoS Northerly View Looking From TP12

Clean Cover System Validation Report - Former Clarksville Farm, Crumpsall



South westerly view of PoS Towards Plots 21 to 24



Westerly View of PoS

APPENDIX 2

CHEMICAL TEST RESULTS



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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 22-41861

Issue: 1

Date of Issue: 15/07/2022

Contact: Chris Eccles

Customer Details: Mr C S Eccles
55 St Catherine Drive
Hartford
Cheshire CW8 2FE

Quotation No: Q22-03113

Order No: Not Supplied

Customer Reference: Not Supplied

Date Received: 08/07/2022

Date Approved: 15/07/2022

Details: Clarksville Farm, Crumpsall

Approved by:

Mike Varley, General Manager

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Sample Summary

Report No.: 22-41861, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
286241	TP01 ES1 0.00 - 0.20	05/07/2022	08/07/2022	Sandy loam	
286242	TP01 ES2 0.20 - 0.60	05/07/2022	08/07/2022	Clayey loam	
286243	TP02 ES1 0.00 - 0.25	05/07/2022	08/07/2022	Sandy silty loam	
286244	TP02 ES2 0.25 - 0.60	05/07/2022	08/07/2022	Sandy silty loam	
286245	TP03 ES1 0.00 - 0.20	05/07/2022	08/07/2022	Sandy silty loam	
286246	TP03 ES2 0.20 - 0.40	05/07/2022	08/07/2022	Silty loam	
286247	TP04 ES1 0.00 - 0.20	05/07/2022	08/07/2022	Sandy silty loam	
286248	TP04 ES2 0.20 - 0.60	05/07/2022	08/07/2022	Loamy sand	
286249	TP05 ES1 0.10 - 0.60	05/07/2022	08/07/2022	Sandy loam	
286250	TP06 ES1 0.10	05/07/2022	08/07/2022	Silty clayey loam	
286251	TP07 ES1 0.10 - 0.60	05/07/2022	08/07/2022	Silty clayey loam	
286252	TP08 ES1 0.00 - 0.20	05/07/2022	08/07/2022	Sandy silty loam	
286253	TP08 ES2 0.30 - 0.60	05/07/2022	08/07/2022	Silty clayey loam	
286254	TP09 ES1 0.10	05/07/2022	08/07/2022	Sandy silty loam	
286255	TP09 ES2 0.40	05/07/2022	08/07/2022	Sandy silty loam	
286256	TP10 ES1 0.00 - 0.20	05/07/2022	08/07/2022	Sandy silty loam	
286257	TP10 ES2 0.20 - 0.60	05/07/2022	08/07/2022	Silty loam	
286258	TP11 ES1 0.10	05/07/2022	08/07/2022	Sandy silty loam	
286259	TP11 ES2 0.40	05/07/2022	08/07/2022	Sandy silty loam	
286260	TP12 ES1 0.20	05/07/2022	08/07/2022	Sandy silty loam	



Results Summary

2683

Report No.: 22-41861, issue number 1

ELAB Reference	286241	286242	286243	286244	286245	286246	286247	286248	286249
Customer Reference	ES1	ES2	ES1	ES2	ES1	ES2	ES1	ES2	ES1
Sample ID									
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP01	TP01	TP02	TP02	TP03	TP03	TP04	TP04	TP05
Sample Depth (m)	0.00 - 0.20	0.20 - 0.60	0.00 - 0.25	0.25 - 0.60	0.00 - 0.20	0.20 - 0.40	0.00 - 0.20	0.20 - 0.60	0.10 - 0.60
Sampling Date	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022

Determinand	Codes	Units	LOD									
Soil sample preparation parameters												
Moisture Content	N	%	0.1	16.9	15.1	16.3	18.0	5.6	6.7	14.1	12.7	15.6
Material removed	N	%	0.1	6.5	18.9	< 0.1	10.7	9.0	8.0	17.6	< 0.1	< 0.1
Description of Inert material removed	N		0	Stones	Stones	None	Stones/Clinker	Stones	Stones/Wood	Stones	None	None
Metals												
Arsenic	M	mg/kg	0.5	4.4	6.6	6.5	6.9	8.0	7.3	12.2	6.4	7.4
Cadmium	M	mg/kg	0.2	0.3	< 0.2	3.5	4.2	0.6	0.4	0.2	< 0.2	0.6
Chromium	M	mg/kg	1	22.8	30.6	26.6	30.9	28.4	30.6	24.6	20.2	19.9
Copper	M	mg/kg	4	26.5	25.2	31.9	34.8	24.6	22.6	34.4	21.5	25.6
Lead	M	mg/kg	1	28.6	12.3	73.5	87.0	47.8	39.5	70.9	20.4	27.1
Mercury	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1
Nickel	M	mg/kg	1	15.1	31.9	22.5	37.2	26.8	30.5	21.2	20.8	21.4
Selenium	M	mg/kg	1	< 1.0	< 1.0	1.6	1.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc	M	mg/kg	4.5	80.5	59.7	73.0	101	79.7	92.5	67.6	46.6	54.8
Anions												
Water Soluble Chloride	M	mg/kg	40	< 40	< 40	200	1140	63	< 40	< 40	< 40	46
Water Soluble Sulphate	M	mg/kg	40	72	160	1460	1610	182	90	125	137	244
Inorganics												
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0



Results Summary

2683

Report No.: 22-41861, issue number 1

ELAB Reference	286241	286242	286243	286244	286245	286246	286247	286248	286249
Customer Reference	ES1	ES2	ES1	ES2	ES1	ES2	ES1	ES2	ES1
Sample ID									
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP01	TP01	TP02	TP02	TP03	TP03	TP04	TP04	TP05
Sample Depth (m)	0.00 - 0.20	0.20 - 0.60	0.00 - 0.25	0.25 - 0.60	0.00 - 0.20	0.20 - 0.40	0.00 - 0.20	0.20 - 0.60	0.10 - 0.60
Sampling Date	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022

Determinand	Codes	Units	LOD									
Miscellaneous												
pH	M	pH units	0.1	8.0	8.5	8.2	10.5	8.8	8.5	7.7	7.9	9.1
Phenols												
Phenol	M	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
M,P-Cresol	N	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
O-Cresol	N	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
3,4-Dimethylphenol	N	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2,3-Dimethylphenol	M	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2,3,5-trimethylphenol	M	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Polyaromatic hydrocarbons												
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	0.6	0.3	0.2	0.3	< 0.1	< 0.1
Anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1	0.3	0.9	0.5	0.4	0.5	0.2	0.2
Pyrene	M	mg/kg	0.1	< 0.1	< 0.1	0.4	0.8	0.5	0.4	0.4	0.2	0.2
Benzo(a)anthracene	M	mg/kg	0.1	< 0.1	< 0.1	0.1	0.3	0.2	0.2	0.2	< 0.1	< 0.1
Chrysene	M	mg/kg	0.1	< 0.1	< 0.1	0.1	0.3	0.2	0.2	0.2	< 0.1	< 0.1
Benzo(b)fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1	0.2	0.3	0.3	0.3	0.2	< 0.1	< 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1	0.2	0.4	0.3	0.3	0.2	< 0.1	< 0.1
Benzo(a)pyrene	M	mg/kg	0.1	< 0.1	< 0.1	0.2	0.4	0.3	0.3	0.2	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	M	mg/kg	0.1	< 0.1	< 0.1	0.1	0.2	0.2	0.2	0.2	< 0.1	< 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	< 0.1	< 0.1	1.6	0.2	0.2	0.2	0.2	< 0.1	< 0.1
Total PAH(16)	M	mg/kg	0.4	< 0.4	< 0.4	3.3	4.9	3.1	2.8	2.9	0.6	0.6



Results Summary

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Report No.: 22-41861, issue number 1

ELAB Reference	286241	286242	286243	286244	286245	286246	286247	286248	286249
Customer Reference	ES1	ES2	ES1	ES2	ES1	ES2	ES1	ES2	ES1
Sample ID									
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP01	TP01	TP02	TP02	TP03	TP03	TP04	TP04	TP05
Sample Depth (m)	0.00 - 0.20	0.20 - 0.60	0.00 - 0.25	0.25 - 0.60	0.00 - 0.20	0.20 - 0.40	0.00 - 0.20	0.20 - 0.60	0.10 - 0.60
Sampling Date	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022

Determinand	Codes	Units	LOD									
BTEX												
Benzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Xylenes	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
MTBE	U	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
TPH CWG												
>C5-C6 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic (HS_1D_MS+EH_2D_AL)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	1.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C21-C35 Aliphatic (EH_2D_AL)	M	mg/kg	1	11.5	1.9	6.6	14.3	21.3	18.3	2.7	1.1	< 1.0
>C35-C40 Aliphatic (EH_2D_AL)	M	mg/kg	1	2.1	< 1.0	< 1.0	7.5	5.3	1.9	< 1.0	< 1.0	< 1.0
Total aliphatic hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_AL)	N	mg/kg	1	14.1	2.0	7.7	24.1	28.2	21.6	3.0	1.2	< 1.0
>C5-C7 Aromatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic (HS_1D_MS+EH_2D_AR)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic (EH_2D_AR)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic (EH_2D_AR)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	1.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic (EH_2D_AR)	M	mg/kg	1	1.6	< 1.0	< 1.0	1.1	2.4	1.0	< 1.0	< 1.0	< 1.0
>C21-C35 Aromatic (EH_2D_AR)	M	mg/kg	1	20.9	< 1.0	22.1	17.3	24.1	16.1	3.0	< 1.0	< 1.0
>C35-C40 Aromatic (EH_2D_AR)	M	mg/kg	1	7.8	< 1.0	18.6	12.8	8.8	2.5	< 1.0	< 1.0	< 1.0
Total aromatic hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_AR)	N	mg/kg	1	31.7	< 1.0	42.4	33.1	36.7	20.6	4.3	< 1.0	< 1.0
Total petroleum hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_Total)	N	mg/kg	1	45.8	2.3	50.1	57.2	64.9	42.2	7.4	1.6	< 1.0



Results Summary

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Report No.: 22-41861, issue number 1

ELAB Reference	286250	286251	286252	286253	286254	286255	286256	286257	286258
Customer Reference	ES1	ES1	ES1	ES2	ES1	ES2	ES1	ES2	ES1
Sample ID									
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP06	TP07	TP08	TP08	TP09	TP09	TP10	TP10	TP11
Sample Depth (m)	0.10	0.10 - 0.60	0.00 - 0.20	0.30 - 0.60	0.10	0.40	0.00 - 0.20	0.20 - 0.60	0.10
Sampling Date	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022

Determinand	Codes	Units	LOD									
Soil sample preparation parameters												
Moisture Content	N	%	0.1	17.3	15.2	11.6	15.9	11.4	13.8	8.8	10.7	11.6
Material removed	N	%	0.1	< 0.1	< 0.1	11.1	< 0.1	4.0	5.5	10.5	< 0.1	< 0.1
Description of Inert material removed	N		0	None	None	Stones	None	Stones	Stones	Stones	None	None
Metals												
Arsenic	M	mg/kg	0.5	11.0	8.0	11.0	9.5	14.3	12.4	9.9	12.5	13.6
Cadmium	M	mg/kg	0.2	0.4	0.3	0.5	0.3	0.5	0.6	0.3	0.4	0.4
Chromium	M	mg/kg	1	34.2	29.3	32.6	23.1	38.1	35.2	35.6	32.8	29.1
Copper	M	mg/kg	4	39.1	32.9	37.0	28.4	49.3	45.5	27.8	37.8	41.8
Lead	M	mg/kg	1	47.8	34.8	50.6	49.2	68.5	60.5	50.5	64.7	73.0
Mercury	M	mg/kg	0.1	0.1	< 0.1	0.1	< 0.1	0.3	0.2	< 0.1	0.3	0.3
Nickel	M	mg/kg	1	30.0	29.0	28.7	22.3	32.1	28.1	25.8	26.8	24.7
Selenium	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc	M	mg/kg	4.5	91.0	70.9	86.3	62.3	103	96.4	80.2	90.5	89.9
Anions												
Water Soluble Chloride	M	mg/kg	40	< 40	< 40	42	< 40	< 40	< 40	< 40	< 40	< 40
Water Soluble Sulphate	M	mg/kg	40	153	130	345	223	265	355	85	195	216
Inorganics												
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0



Results Summary

2683

Report No.: 22-41861, issue number 1

ELAB Reference	286250	286251	286252	286253	286254	286255	286256	286257	286258
Customer Reference	ES1	ES1	ES1	ES2	ES1	ES2	ES1	ES2	ES1
Sample ID									
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP06	TP07	TP08	TP08	TP09	TP09	TP10	TP10	TP11
Sample Depth (m)	0.10	0.10 - 0.60	0.00 - 0.20	0.30 - 0.60	0.10	0.40	0.00 - 0.20	0.20 - 0.60	0.10
Sampling Date	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022

Determinand	Codes	Units	LOD									
Miscellaneous												
pH	M	pH units	0.1	8.1	7.7	8.0	7.9	7.8	7.8	7.4	7.5	7.6
Phenols												
Phenol	M	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
M,P-Cresol	N	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
O-Cresol	N	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
3,4-Dimethylphenol	N	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2,3-Dimethylphenol	M	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2,3,5-trimethylphenol	M	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Polyaromatic hydrocarbons												
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	< 0.1	0.2	0.2	0.2	0.2	0.2	< 0.1	< 0.1	1.1
Anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2
Fluoranthene	M	mg/kg	0.1	< 0.1	0.3	0.5	0.4	0.4	0.4	< 0.1	0.2	1.9
Pyrene	M	mg/kg	0.1	< 0.1	0.3	0.4	0.3	0.3	0.4	< 0.1	0.2	1.8
Benzo(a)anthracene	M	mg/kg	0.1	< 0.1	0.2	0.2	0.2	0.1	0.2	< 0.1	< 0.1	0.8
Chrysene	M	mg/kg	0.1	< 0.1	0.2	0.2	0.2	0.2	0.2	< 0.1	< 0.1	0.9
Benzo(b)fluoranthene	M	mg/kg	0.1	< 0.1	0.2	0.2	0.2	0.2	0.2	< 0.1	< 0.1	1.0
Benzo(k)fluoranthene	M	mg/kg	0.1	< 0.1	0.2	0.2	0.2	0.2	0.2	< 0.1	< 0.1	1.2
Benzo(a)pyrene	M	mg/kg	0.1	< 0.1	0.2	0.2	0.2	0.2	0.2	< 0.1	< 0.1	1.1
Indeno(1,2,3-cd)pyrene	M	mg/kg	0.1	< 0.1	0.1	0.1	0.1	0.1	0.1	< 0.1	< 0.1	0.7
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2
Benzo[g,h,i]perylene	M	mg/kg	0.1	< 0.1	0.1	0.1	0.1	0.1	0.2	< 0.1	< 0.1	0.6
Total PAH(16)	M	mg/kg	0.4	< 0.4	2.4	2.7	2.4	2.3	2.5	< 0.4	0.6	12.0



Results Summary

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Report No.: 22-41861, issue number 1

ELAB Reference	286250	286251	286252	286253	286254	286255	286256	286257	286258
Customer Reference	ES1	ES1	ES1	ES2	ES1	ES2	ES1	ES2	ES1
Sample ID									
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP06	TP07	TP08	TP08	TP09	TP09	TP10	TP10	TP11
Sample Depth (m)	0.10	0.10 - 0.60	0.00 - 0.20	0.30 - 0.60	0.10	0.40	0.00 - 0.20	0.20 - 0.60	0.10
Sampling Date	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022

Determinand	Codes	Units	LOD									
BTEX												
Benzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Xylenes	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
MTBE	U	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
TPH CWG												
>C5-C6 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic (HS_1D_MS+EH_2D_AL)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C21-C35 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	< 1.0	6.9	< 1.0	5.5	11.3	2.2	1.6	4.2
>C35-C40 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	2.0	9.1	< 1.0	< 1.0	< 1.0
Total aliphatic hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_AL)	N	mg/kg	1	< 1.0	< 1.0	7.3	1.2	7.9	21.0	2.8	1.7	4.9
>C5-C7 Aromatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic (HS_1D_MS+EH_2D_AR)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic (EH_2D_AR)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic (EH_2D_AR)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic (EH_2D_AR)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	1.3	< 1.0	< 1.0	< 1.0	2.8
>C21-C35 Aromatic (EH_2D_AR)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	2.4	7.3	20.5	5.8	1.6	12.2
>C35-C40 Aromatic (EH_2D_AR)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	4.3	25.4	1.6	< 1.0	1.5
Total aromatic hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_AR)	N	mg/kg	1	< 1.0	< 1.0	1.2	3.6	13.5	47.9	8.0	2.1	17.4
Total petroleum hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_Total)	N	mg/kg	1	< 1.0	< 1.0	8.5	4.9	21.4	68.8	10.8	3.8	22.3



Results Summary

2683

Report No.: 22-41861, issue number 1

ELAB Reference	286259	286260
Customer Reference	ES2	ES1
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	TP11	TP12
Sample Depth (m)	0.40	0.20
Sampling Date	05/07/2022	05/07/2022

Determinand	Codes	Units	LOD		
Soil sample preparation parameters					
Moisture Content	N	%	0.1	6.9	13.7
Material removed	N	%	0.1	< 0.1	10.2
Description of Inert material removed	N		0	None	Stones
Metals					
Arsenic	M	mg/kg	0.5	5.7	13.3
Cadmium	M	mg/kg	0.2	0.3	0.4
Chromium	M	mg/kg	1	21.1	21.5
Copper	M	mg/kg	4	17.3	38.4
Lead	M	mg/kg	1	28.5	77.2
Mercury	M	mg/kg	0.1	< 0.1	0.4
Nickel	M	mg/kg	1	24.0	23.4
Selenium	M	mg/kg	1	< 1.0	< 1.0
Zinc	M	mg/kg	4.5	63.4	73.6
Anions					
Water Soluble Chloride	M	mg/kg	40	< 40	< 40
Water Soluble Sulphate	M	mg/kg	40	215	286
Inorganics					
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0



Results Summary

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Report No.: 22-41861, issue number 1

ELAB Reference	286259	286260
Customer Reference	ES2	ES1
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	TP11	TP12
Sample Depth (m)	0.40	0.20
Sampling Date	05/07/2022	05/07/2022

Determinand	Codes	Units	LOD		
Miscellaneous					
pH	M	pH units	0.1	8.3	7.9
Phenols					
Phenol	M	mg/kg	1	< 1	< 1
M,P-Cresol	N	mg/kg	1	< 1	< 1
O-Cresol	N	mg/kg	1	< 1	< 1
3,4-Dimethylphenol	N	mg/kg	1	< 1	< 1
2,3-Dimethylphenol	M	mg/kg	1	< 1	< 1
2,3,5-trimethylphenol	M	mg/kg	1	< 1	< 1
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5
Polyaromatic hydrocarbons					
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	0.2
Fluorene	M	mg/kg	0.1	< 0.1	0.1
Phenanthrene	M	mg/kg	0.1	0.3	1.0
Anthracene	M	mg/kg	0.1	< 0.1	0.3
Fluoranthene	M	mg/kg	0.1	0.7	1.8
Pyrene	M	mg/kg	0.1	0.6	1.6
Benzo(a)anthracene	M	mg/kg	0.1	0.3	0.7
Chrysene	M	mg/kg	0.1	0.4	0.8
Benzo(b)fluoranthene	M	mg/kg	0.1	0.4	0.9
Benzo(k)fluoranthene	M	mg/kg	0.1	0.5	1.0
Benzo(a)pyrene	M	mg/kg	0.1	0.4	0.9
Indeno(1,2,3-cd)pyrene	M	mg/kg	0.1	0.2	0.8
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	0.2
Benzo[g,h,i]perylene	M	mg/kg	0.1	0.2	0.7
Total PAH(16)	M	mg/kg	0.4	4.3	11.0



2683



Results Summary

Report No.: 22-41861, issue number 1

ELAB Reference	286259	286260
Customer Reference	ES2	ES1
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	TP11	TP12
Sample Depth (m)	0.40	0.20
Sampling Date	05/07/2022	05/07/2022

Determinand	Codes	Units	LOD		
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	U	ug/kg	10	< 10.0	< 10.0
TPH CWG					
>C5-C6 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01
>C6-C8 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01
>C8-C10 Aliphatic (HS_1D_MS+EH_2D_AL)	N	mg/kg	1	< 1.0	< 1.0
>C10-C12 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	< 1.0
>C12-C16 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	< 1.0
>C16-C21 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	< 1.0
>C21-C35 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	7.4
>C35-C40 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	< 1.0
Total aliphatic hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_AL)	N	mg/kg	1	< 1.0	8.7
>C5-C7 Aromatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01
>C7-C8 Aromatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01
>C8-C10 Aromatic (HS_1D_MS+EH_2D_AR)	N	mg/kg	1	< 1.0	< 1.0
>C10-C12 Aromatic (EH_2D_AR)	M	mg/kg	1	< 1.0	< 1.0
>C12-C16 Aromatic (EH_2D_AR)	M	mg/kg	1	< 1.0	< 1.0
>C16-C21 Aromatic (EH_2D_AR)	M	mg/kg	1	< 1.0	1.6
>C21-C35 Aromatic (EH_2D_AR)	M	mg/kg	1	< 1.0	22.4
>C35-C40 Aromatic (EH_2D_AR)	M	mg/kg	1	< 1.0	5.9
Total aromatic hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_AR)	N	mg/kg	1	< 1.0	31.0
Total petroleum hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_Total)	N	mg/kg	1	< 1.0	39.7



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Results Summary

Report No.: 22-41861, issue number 1

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 Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)
286241	0.00 - 0.20	TP01 ES1	Brown sandy soil, stones	No asbestos detected	n/t	n/t	n/t	n/t
286242	0.20 - 0.60	TP01 ES2	Brown soil, stones	No asbestos detected	n/t	n/t	n/t	n/t
286243	0.00 - 0.25	TP02 ES1	Brown sandy soil, stones	No asbestos detected	n/t	n/t	n/t	n/t
286244	0.25 - 0.60	TP02 ES2	Brown sandy soil, stones	No asbestos detected	n/t	n/t	n/t	n/t
286245	0.00 - 0.20	TP03 ES1	Brown sandy soil, stones	No asbestos detected	n/t	n/t	n/t	n/t
286246	0.20 - 0.40	TP03 ES2	Brown sandy soil, stones, plant-material	No asbestos detected	n/t	n/t	n/t	n/t
286247	0.00 - 0.20	TP04 ES1	Brown sandy soil, stones, clinker	No asbestos detected	n/t	n/t	n/t	n/t
286248	0.20 - 0.60	TP04 ES2	Brown sandy soil, stones	No asbestos detected	n/t	n/t	n/t	n/t
286249	0.10 - 0.60	TP05 ES1	Brown soil, stones	No asbestos detected	n/t	n/t	n/t	n/t
286250	0.10	TP06 ES1	Brown soil, stones	No asbestos detected	n/t	n/t	n/t	n/t
286251	0.10 - 0.60	TP07 ES1	Brown soil, stones	No asbestos detected	n/t	n/t	n/t	n/t
286252	0.00 - 0.20	TP08 ES1	Brown sandy soil, stones	No asbestos detected	n/t	n/t	n/t	n/t
286253	0.30 - 0.60	TP08 ES2	Brown sandy soil, stones, clinker	No asbestos detected	n/t	n/t	n/t	n/t
286254	0.10	TP09 ES1	Brown sandy soil, stones, clinker	No asbestos detected	n/t	n/t	n/t	n/t
286255	0.40	TP09 ES2	Brown sandy soil, stones, clinker	No asbestos detected	n/t	n/t	n/t	n/t
286256	0.00 - 0.20	TP10 ES1	Brown soil, stones	No asbestos detected	n/t	n/t	n/t	n/t
286257	0.20 - 0.60	TP10 ES2	Brown soil, stones, clinker	No asbestos detected	n/t	n/t	n/t	n/t
286258	0.10	TP11 ES1	Brown sandy soil, stones	No asbestos detected	n/t	n/t	n/t	n/t
286259	0.40	TP11 ES2	Brown soil, stones	No asbestos detected	n/t	n/t	n/t	n/t
286260	0.20	TP12 ES1	Brown soil, stones, clinker	No asbestos detected	n/t	n/t	n/t	n/t

Method Summary

Report No.: 22-41861, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	15/07/2022	113	Electromeric
Phenols in solids	M	As submitted sample	11/07/2022	121	HPLC
PAH (GC-FID)	M	As submitted sample	11/07/2022	133	GC-FID
Water soluble anions	M	Air dried sample	11/07/2022	172	Ion Chromatography
Low range Aliphatic hydrocarbons soil	N	As submitted sample	12/07/2022	181	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	12/07/2022	181	GC-MS
BTEX in solids	M	As submitted sample	12/07/2022	181A	GC-MS
Total cyanide	M	As submitted sample	11/07/2022	204	Colorimetry
TPH CWG soil by gc-gc	M	As submitted sample	11/07/2022	271	
Asbestos identification	U	Air dried sample	14/07/2022	280	Microscopy
Aqua regia extractable metals	M	Air dried sample	11/07/2022	300	ICPMS

Tests marked N are not UKAS accredited

Report Information

Report No.: 22-41861, 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"
LOD	LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination. 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

TPH Classification - HWOL Acronym System

HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry



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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 22-44563

Issue: 1

Date of Issue: 16/11/2022

Contact: Chris Eccles

Customer Details: Mr C S Eccles
55 St Catherine Drive
Hartford
Cheshire CW8 2FE

Quotation No: Q22-03113

Order No: Not Supplied

Customer Reference: Not Supplied

Date Received: 10/11/2022

Date Approved: 16/11/2022

Details: Clarksville Farm, Crumpsall

Approved by:

Mike Varley, General 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.: 22-44563, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
301098	TP13 ES1 0.00 - 0.20	08/11/2022	10/11/2022	Clayey loam	
301099	TP14 ES1 0.20 - 0.60	08/11/2022	10/11/2022	Clayey loam	
301100	TP15 ES1 0.00 - 0.20	08/11/2022	10/11/2022	Clayey loam	
301101	TP16 ES1 0.20 - 0.60	08/11/2022	10/11/2022	Clayey loam	

Results Summary

Report No.: 22-44563, issue number 1

ELAB Reference	301098	301099	301100	301101
Customer Reference	ES1	ES1	ES1	ES1
Sample ID				
Sample Type	SOIL	SOIL	SOIL	SOIL
Sample Location	TP13	TP14	TP15	TP16
Sample Depth (m)	0.00 - 0.20	0.20 - 0.60	0.00 - 0.20	0.20 - 0.60
Sampling Date	08/11/2022	08/11/2022	08/11/2022	08/11/2022

Determinand	Codes	Units	LOD				
Soil sample preparation parameters							
Moisture Content	N	%	0.1	14.9	13.3	13.2	14.1
Material removed	N	%	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Description of Inert material removed	N		0	None	None	None	None
Metals							
Arsenic	M	mg/kg	0.5	10.3	9.0	9.3	7.1
Cadmium	M	mg/kg	0.2	< 0.2	0.4	0.4	0.4
Chromium	M	mg/kg	1	22.3	20.5	23.6	17.9
Copper	M	mg/kg	4	32.3	27.8	31.9	25.5
Lead	M	mg/kg	1	47.3	35.2	34.4	30.0
Mercury	M	mg/kg	0.1	0.1	0.1	0.1	0.1
Nickel	M	mg/kg	1	29.8	26.4	33.2	25.3
Selenium	M	mg/kg	1	< 1.0	< 1.0	1.2	< 1.0
Zinc	M	mg/kg	4.5	78.3	63.4	69.2	58.9
Anions							
Water Soluble Chloride	M	mg/kg	40	< 40	< 40	< 40	46
Water Soluble Sulphate	M	mg/kg	40	58	253	248	356
Inorganics							
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
Miscellaneous							
pH	M	pH units	0.1	7.9	8.1	8.2	8.3
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	< 1	< 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
2,3,5-trimethylphenol	M	mg/kg	1	< 1	< 1	< 1	< 1
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5	< 5	< 5
Polyaromatic hydrocarbons							
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	< 0.1	0.2	< 0.1	0.2
Anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	< 0.1	0.8	< 0.1	0.3
Pyrene	M	mg/kg	0.1	< 0.1	0.7	< 0.1	0.3
Benzo(a)anthracene	M	mg/kg	0.1	< 0.1	0.3	< 0.1	0.2
Chrysene	M	mg/kg	0.1	< 0.1	0.3	< 0.1	0.2
Benzo(b)fluoranthene	M	mg/kg	0.1	< 0.1	0.3	< 0.1	0.2
Benzo(k)fluoranthene	M	mg/kg	0.1	< 0.1	0.4	< 0.1	0.2
Benzo(a)pyrene	M	mg/kg	0.1	< 0.1	0.3	< 0.1	0.2
Indeno(1,2,3-cd)pyrene	M	mg/kg	0.1	< 0.1	0.2	< 0.1	0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	< 0.1	0.2	< 0.1	0.1
Total PAH(16)	M	mg/kg	0.4	< 0.4	3.9	< 0.4	2.4

Results Summary

Report No.: 22-44563, issue number 1

ELAB Reference	301098	301099	301100	301101
Customer Reference	ES1	ES1	ES1	ES1
Sample ID				
Sample Type	SOIL	SOIL	SOIL	SOIL
Sample Location	TP13	TP14	TP15	TP16
Sample Depth (m)	0.00 - 0.20	0.20 - 0.60	0.00 - 0.20	0.20 - 0.60
Sampling Date	08/11/2022	08/11/2022	08/11/2022	08/11/2022

Determinand	Codes	Units	LOD				
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	U	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
TPH CWG							
>C5-C6 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic (HS_1D_MS+EH_2D_AL)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C21-C35 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C35-C40 Aliphatic (EH_2D_AL)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
Total aliphatic hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_AL)	N	mg/kg	1	< 1.0	< 1.0	1.6	< 1.0
>C5-C7 Aromatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic (HS_1D_MS+EH_2D_AR)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic (EH_2D_AR)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic (EH_2D_AR)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic (EH_2D_AR)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C21-C35 Aromatic (EH_2D_AR)	M	mg/kg	1	< 1.0	< 1.0	1.5	< 1.0
>C35-C40 Aromatic (EH_2D_AR)	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
Total aromatic hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_AR)	N	mg/kg	1	< 1.0	< 1.0	2.6	< 1.0
Total petroleum hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_Total)	N	mg/kg	1	< 1.0	< 1.0	4.2	< 1.0



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Results Summary

Report No.: 22-44563, issue number 1

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 Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)
301098	0.00 - 0.20	TP13 ES1	Brown Sandy Soil, Stones	No asbestos detected	n/t	n/t	n/t	n/t
301099	0.20 - 0.60	TP14 ES1	Brown Sandy Soil, Stones	No asbestos detected	n/t	n/t	n/t	n/t
301100	0.00 - 0.20	TP15 ES1	Brown Sandy Soil	No asbestos detected	n/t	n/t	n/t	n/t
301101	0.20 - 0.60	TP16 ES1	Brown Sandy Soil, Stones	No asbestos detected	n/t	n/t	n/t	n/t



2683



Method Summary

Report No.: 22-44563, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	11/11/2022	113	Electromeric
Phenols in solids	M	As submitted sample	11/11/2022	121	HPLC
PAH (GC-FID)	M	As submitted sample	11/11/2022	133	GC-FID
Water soluble anions	M	Air dried sample	11/11/2022	172	Ion Chromatography
Low range Aliphatic hydrocarbons soil	N	As submitted sample	14/11/2022	181	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	14/11/2022	181	GC-MS
BTEX in solids	M	As submitted sample	14/11/2022	181A	GC-MS
Total cyanide	M	As submitted sample	11/11/2022	204	Colorimetry
TPH CWG soil by gc-gc	M	As submitted sample	11/11/2022	271	
Asbestos identification	U	Air dried sample	16/11/2022	280	Microscopy
Aqua regia extractable metals	M	Air dried sample	11/11/2022	300	ICPMS

Tests marked N are not UKAS accredited

Report Information

Report No.: 22-44563, 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"
LOD	LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination. 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

TPH Classification - HWOL Acronym System

HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

APPENDIX 3

SUMMARY OF CHEMICAL TEST RESULTS

C S Eccles Brownfield Consultancy

KEY	
0.1	Result less than detection limit indicated

ELAB Reference		286241	286242	286243	286244	286245	286246	286247	286248	286249	286250	286251	286252	286253	286254	286255	286256	286257	286258	286259	286260	301098	301099	301100	301101	Summary			Data Assessment																
Customer Reference		ES1	ES2	ES1	ES2	ES1	ES2	ES1	ES2	ES1	ES2	ES1	ES2	ES1	ES2	ES1	ES2	ES1	ES2	ES1	ES2	ES1	ES1	ES1	ES1																				
Sample Type		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL																					
Sample Location		TP01	TP01	TP02	TP02	TP03	TP03	TP04	TP04	TP05	TP06	TP07	TP08	TP08	TP09	TP09	TP10	TP10	TP11	TP11	TP12	SOIL	SOIL	SOIL	SOIL																				
Sample Depth (m)		0.00 - 0.20	0.20 - 0.60	0.00 - 0.25	0.25 - 0.60	0.00 - 0.20	0.20 - 0.40	0.00 - 0.20	0.20 - 0.60	0.10 - 0.60	0.10	0.10 - 0.60	0.00 - 0.20	0.30 - 0.60	0.10	0.40	0.00 - 0.20	0.20 - 0.60	0.10	0.40	0.20	TP13	TP14	TP15	TP16		Minimum	Average	Maximum	Criterion	Source of Criterion	Pass/ Fail													
Sampling Date		05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	05/07/2022	0.00 - 0.20	0.20 - 0.60	0.00 - 0.20	0.20 - 0.60															
Determinand		Codes	Units	LOD																																									
Soil sample preparation parameters																																													
Moisture Content		N	%	0.1	16.9	15.1		16.3	18	5.6	6.7	14.1	12.7	15.6	17.3		15.2	11.6	15.9	11.4	13.8	8.8	10.7	11.6	6.9	13.7	14.9	13.3	13.2	14.1	5.6	13.1	18.0	-	-	-									
Material removed		N	%	0.1	6.5	18.9		0.1	10.7	9.0	17.6	0.1	0.1	0.1	0.1	11.1	0.1	0.4	5.5	10.5	10.5	0.1	0.1	10.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	4.7	18.9	-	-	-									
Description of inert material removed		N		0	Stones	Stones		None	Stones/Clinker	Stones	Stones/Wood	Stones	None	None	None	None	None	Stones	None	Stones	Stones	Stones	None	None	None	None	Stones	None	None	None	None	-	-	-	-	-									
Metals																																													
Arsenic	M	mg/kg	0.5	4.4	6.6	6.5	6.9	8	7.3	12.2	6.4	7.4	11	8	11	9.5	14.3	12.4	9.9	12.5	13.6	5.7	13.3	10.3	9.0	9.3	7.1	4.4	9.3	14.3	37	CASL	Pass												
Cadmium	M	mg/kg	0.2	0.3	0.2	3.5	4.2	0.6	0.4	0.2	0.2	0.6	0.4	0.3	0.5	0.3	0.5	0.6	0.3	0.4	0.3	0.4	0.3	0.4	0.2	0.4	0.4	0.4	0.4	0.7	4.2	11	CASL	Pass											
Chromium total (III for SUVs)	M	mg/kg	0.1	22.8	30.6	26.6	30.9	28.4	30.6	24.6	20.2	19.9	34.2	29.3	32.6	23.1	38.1	35.2	35.6	32.8	29.1	21.1	21.5	22.3	20.5	23.6	17.9	17.9	27.1	38.1	910	SAIL	Pass												
Chromium VII (hexavalent)	M	mg/kg	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	6	SAIL	Pass												
Copper	M	mg/kg	4	25.2	25.2	31.9	34.8	24.6	22.6	34.4	21.5	25.8	39.1	32.9	37	28.4	49.3	45.5	27.8	37.8	41.8	17.3	21.5	32.3	27.8	31.9	25.5	4	31.0	49.3	2400	SAIL	Pass												
Lead	M	mg/kg	1	28.6	12.3	73.5	8.7	47.8	39.5	70.9	20.4	27.1	47.8	34.8	50.6	49.2	68.5	60.5	50.5	64.7	73	28.5	0.1	47.3	35.2	34.4	30	0.1	45.1	87.0	210	CASL	Pass												
Mercury	M	mg/kg	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.1	38.4	0.1	0.1	0.1	0.1	0.1	0.1	1.7	38.4	40	SAIL	Pass											
Nickel	M	mg/kg	1	15.1	31.9	22.5	37.2	26.8	30.5	21.2	20.8	21.4	30	29	28.7	22.3	32.1	28.1	25.8	26.8	24.7	24	77.2	29.8	26.4	33.2	25.3	15.1	28.8	77.2	180	SAIL	Pass												
Selenium	M	mg/kg	1	1.6	1.6	1.4	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.6	250	SAIL	Pass											
Zinc	M	mg/kg	4.5	80.5	59.7	73	101	79.7	92.5	67.6	46.6	54.8	91	70.9	86.3	62.3	103	96.4	80.2	90.5	89.9	63.4	23.4	78.3	63.4	69.2	58.9	23.4	74.3	103.0	3700	SAIL	Pass												
Anions																																													
Water Soluble Chloride	M	mg/kg	40	40	40	200	1140	63	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	93.5	1140	-	-	-										
Water Soluble Sulphate	M	mg/kg	40	72	160	1460	1610	182	90	125	137	244	153	130	345	223	265	355	85	195	216	215	286	58	253	248	356	58	31.0	1610	-	-	-												
Inorganics																																													
Total Cyanide	M	mg/kg	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	34	SGV	Pass											
Miscellaneous																																													
pH	M	pH units	0.1	8	8.5	8.2	10.5	8.8	8.5	7.7	7.9	9.1	8.1	7.7	8.0	7.9	7.8	7.4	7.5	7.6	8.3	7.9	7.9	8.1	8.2	8.3	7.4	8.2	10.5	-	-	-	-	-											
Phenols																																													
Phenol	M	mg/kg	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.0	260	SAIL	Pass										
M,P-Cresol	N	mg/kg	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.0	-	-	-									
O-Cresol	N	mg/kg	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.0	-	-	-									
3,4-Dimethylphenol	N	mg/kg	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.0	-	-	-									
2,3-Dimethylphenol	N	mg/kg	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.0	-	-	-									
2,3,5-trimethylphenol	N	mg/kg	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.0	-	-	-									
Total Monohydric Phenols	N	mg/kg	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5.0	5.0	-	-	-									
Polyaromatic hydrocarbons																																													
Naphthalene	M	mg/kg	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	23	SAIL	Pass								
Acenaphthylene	M	mg/kg	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	170	SAIL	Pass								
Acenaphthene	M	mg/kg	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	210	SAIL	Pass							
Fluorene	M	mg/kg	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	170	SAIL	Pass								
Phenanthrene	M	mg/kg	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	95	SAIL	Pass							
Anthracene	M	mg/kg	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2400	SAIL	Pass							
Fluoranthene	M	mg/kg	0.1	0.1	0.1	0.1	0.3	0.9	0.5	0.4	0.5	0.2	0.2	0.1	0.3	0.5	0.4	0.4	0.1	0.2	1.9	0.7	1.8	0.1	0.8	0.1	0.3	0.1	0.47	1.9	0.1	0.47	1.9	0.1	260	SAIL	Pass								
Pyrene	M	mg/kg	0.1	0.1	0.1	0.4	0.8	0.5	0.4	0.4	0.2	0.2	0.1	0.3	0.4	0.3	0.3	0.4	0.1	0.2	1.8	0.6	1.6	0.1	0.7	0.1	0.3	0.1	0.43	1.8	0.1	0.43	1.8	0.1	620	SAIL	Pass								
Benzo(a)anthracene	M	mg/kg	0.1	0.1	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.8	0.3	0.7	0.1	0.3	0.1	0.2	0.1	0.21	0.8	0.1	0.21	0.8	0.1	7.2	SAIL	Pass									
Chrysene	M	mg/kg	0.1	0.1	0.1	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.9	0.4	0.8	0.1	0.3	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	15	SAIL	Pass									
Benzo(b)fluoranthene	M	mg/kg	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.4	0.9	0.1	0.3	0.1	0.2	0.1	0.25	1.0	0.1	0.25	1.0	0.1	2.6	SAIL	Pass								
Benzo(k)fluoranthene	M	mg/kg	0.1	0.1	0.1	0.2	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	1.2	0.5	1.0	0.1	0.4	0.1	0.2	0.1	0.28	1.2	0.1	0.28	1.2	0.1	77	SAIL	Pass							
Benzo(a)pyrene	M	mg/kg	0.1	0.1	0.1	0.2	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	1.1	0.4	0.9	0.1	0.3	0.1	0.2	0.1	0.26	1.1	0.1	0.26	1.1	0.1	2.2	SAIL	Pass							
Indeno(1,2,3-cd)pyrene	M	mg/kg	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																										

APPENDIX 4

MANCHESTER CITY COUNCIL EMAIL OF 10/10/22

Clean Cover System Validation Report, Clarksville Farm, Crumpsall

From: Sue Wills <sue.wills@manchester.gov.uk>
Sent: 10 October 2022 12:47
To: Admin <Admin@howardandseddon.co.uk>
Subject: CDN/22/0678 Clarksville Farm condition no.15b Contaminated land

Dear All,

I have recently received comments from Contaminated Land officers advising that the level of information provided with a view to discharging condition no.15b is not sufficient for condition to enable no.15b to be discharged.

In regard to the report by C. S. Eccles - Brownfield Land Consultancy - the report should state what the chemical limits of the soil with the human health criteria for the risk assessment.

The pictures showing the depth of the soil using a blue stick with no actual measurements on, is not sufficient.

One of the pictures showing soil depth with measurements is only 400mm, and therefore doesn't meet the correct criteria.

More samples are needed in the rear garden areas in the vicinity of TP12 . Due to the size of the area, one sample is not sufficient as well as more information regarding the soil that is there, as this forms private usable amenity space (rear garden areas for the occupiers of the houses).

Furthermore, the plan in the submitted documentation does not accurately reflect the approved site layout in that the rear gardens do not finish at the annotated purple dotted line, but continue to the site boundary to the east

In view of the above observations condition no.15b cannot be discharged at this time . Further consideration will be given to the discharge of condition no.15b on receipt of the outstanding information.

Kind regards

Sue Wills
Principal Planner
Development Management North
Planning
Growth and Development Directorate.
Manchester City Council
Floor 6 Town Hall Extension
Albert Square
P.O.BOX 532
M60 2LA

END OF REPORT

C. S. Eccles - Brownfield Land Consultancy

Contaminated Land Assessments, Options Appraisals, Remediation Strategy & Verification,
Coal Mining Risk Assessments, Geotechnical Design, Earthworks & Materials Reuse, Waste Assessments & Classification