

Environmental
Geotechnical
Specialists



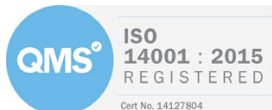
PHASE 2

ENVIRONMENTAL REPORT

job number	date
site address	
written by	checked by
issued by	



Please consider the environment before printing this report.



<ENVIRONMENTAL> <GEOTECHNICAL>



Environmental
Geotechnical
Specialists

Rogers Geotechnical Services Ltd
Offices 1 & 2 Barncliffe Business Park, Near Bank, Shelley, Huddersfield, HD8 8LU
☎ 01484 604354 Company No. 5130864

Contents

		Page
1.	Introduction	2
2.	Limitations	2
3.	Fieldworks	2
3.1	Machine-dug Trial Pits	2
4.	Geology	3
5.	Strata Conditions	3
5.1	Groundwater	3
6.	Discussion of Ground Conditions - Environmental	4
6.1	Discussion of Test Results	4
6.2	Conclusion	5
7.	Recommendations for Further Work	5
8.	References	6

Appendices

1.	Site Plan
2.	Trial Pit Records
3.	Laboratory Testing



Report on a Phase 2 Environmental Investigation

Location:	Barnsley Road Grange Moor, Wakefield, West Yorkshire, WF4 4DS		
For:	PCS Property Solutions Limited		
Report No.	C3224/25/E/8965	Report date:	February 2026

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

	
Steven Hale BSc FGS Geo-environmental Engineer	Rob Palmer MSc FGS ACIEH Engineering Director

Report Summary¹

Item	Comments	Section
Development	Construction of a new warehouse, parking and associated service yards.	1.
Geology	Superficial geology – None. Solid geology – Birstall Rock.	5.
Strata Conditions	Nominal thickness of made ground overlying cohesive mainly soils with some granular material (residual fraction of the underlying rock).	6.1
Groundwater	None identified.	6.2
Contamination	Determinands were found to be below the screening levels for the intended end use of the site.	9.1.1

¹ This summary should not be relied upon to provide a comprehensive review. All of the information contained in this document should be considered.

1. Introduction

This report has been commissioned by the client in order to support a planning application that, due to the site configuration, is taking a phased approach to environmental investigation (Phase 2 Contaminated Land Assessment). Indeed, the previous use of the site was for the storage of a large number of machines and plant in various conditions. As such, it was determined that further investigation would be required to fully characterise the site once the plant was moved to allow access. At the time of this investigation, demolition had commenced and full access of the site was achieved. This report describes the work undertaken, presents the data obtained and discusses the ground conditions in relation to the proposed works.

It should be appreciated that this report is a continuation of the works undertaken in the report submitted on the 15th January 2026 reference C3224/25/E/8845 now that the existing buildings have been demolished and the ground beneath them is now accessible.

2. 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.

3. Fieldworks

The latest fieldworks were undertaken on the 20th February 2026 and included the machine-excavation of 4no. trial pits beneath the base of the now demolished buildings. It should be noted that trial pits were adopted as an investigatory method, rather than boreholes as per the Proposal Letter issued on 28th November 2025 reference C3224/25/E/8777. The investigatory locations are shown on the site plan which is presented in Appendix 1 to this report.

3.1 Machine-dug Trial Pits

A total of four trial pits were excavated in order to reveal the nature of the near surface soils using a client provided tracked excavator. The soils were logged on site, and full descriptions are given on the trial pit records which are presented in Appendix 2.

Once excavations were completed, the trial pits were carefully re-instated with the arisings. Whilst every care was taken during the infilling process, including compacting of the infill at regular intervals with the arm of the excavator, it should be appreciated that some mounding of the surface may have resulted. Moreover, the infilled soils may be subjected to settlement over time, such that a depression in the surface may also occur. Therefore, the locations of any pits undertaken in this

investigation should be conveyed to the current site user, as the mounds or depressions associated with the pits may present a risk to current site operations.

4. Geology

The available published geological data for the site has been examined and the following table presents the anticipated geology.

Table 1: Geological Data for the Site

Strata Type	Strata Name ²	Parent Unit ³	Description ³
Superficial Geology	N/A	N/A	Not indicated to underlie the site.
Solid Geology	Birstall Rock	Pennine Lower Coal Measures Formation	The Birstall Rock is a fine-grained, thickly bedded, cross bedded sandstone with common pebbles of ironstone, coal sandstone and mudstone, and common streaks of shaly coal.

5. Strata Conditions

In accordance with the geology of the area, the succession has been shown to include the following:

Table 2: Generalised Strata Profile

Depth m below ground level to underside of layer	Strata Type	Positions Encountered	Groundwater Strikes m below ground level
0.20 – 0.40	MADE GROUND (Greyish brown, silty, sandy GRAVEL)	All	None
+0.60	Firm, greyish brown, slightly sandy, gravelly silty CLAY	TPW	None
+0.70 – +0.80	Firm, orangish brown, slightly sandy, gravelly silty CLAY	TPX & TPZ	None
+0.60	Grey, clayey, silty, slightly sandy GRAVEL	TPY	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

5.1 Groundwater

No groundwater strikes were observed in any of the trial pits during the site investigation.

² Sources: British Geological Survey (NERC) Map Sheet 77; Huddersfield; Solid and Drift Edition, and Geology of Britain Viewer [online resource from www.bgs.ac.uk]

³ Sources: British Geological Survey (NERC) Lexicon of Named Rock Units [online resource from www.bgs.ac.uk]

6. Discussion of Ground Conditions - Environmental

6.1 Discussion of Test Results

It is understood that the site is to be developed by the construction of a new warehouse, parking and associated service yards. Consequently, the site may be classified as a commercial end use.

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. With respect to the results it should be appreciated that the soil organic matter (SOM) content for the samples tested was found to range between 0.40% and 0.50%. On this basis, it is considered that the screening values associated with 1% SOM should be adopted. 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 website⁴ 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 3: Summary of Contaminated Areas

Location	Depth (m)	Contaminants found to be exceeding SSVs (Commercial)
TPW	0.60	PAHs: Ideno(1,2,3-c,d)Pyrene & Benzo(g,h,i)perylene.
TPX	0.50	None.
TPY	0.60	None.
TPZ	0.60	None.

Concentrations of cadmium, chromium(VI), mercury, free cyanide, phenols (total) and total petroleum hydrocarbons (aliphatic C5 to C21; 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 Atrisk Soil Screening Values. In addition, no asbestos was detected within the soil samples tested.

It should be appreciated that the soil screening values for PAHs and TPHs (where appropriate) represents vapour saturation limits. The inhalation of vapour pathway contributes less than 10% of total exposure, which is unlikely to significantly affect the combined assessment criterion⁵. In view of this, the ATRISK soil SSVs notes that the users may wish to consider using a combined assessment criterion if free product is not observed, the values for which are also provided on the summary of contamination analysis. It is therefore considered that the criteria for no free product should be adopted for the PAHs and TPHs at this site. The results of the contaminants found to exceed these screening values are tabulated below:

⁴ <http://www.atrisksoil.co.uk/pages/general/subscribers.asp>

⁵ Ref: ATRISK soil, SSVs derived using CLEA v1.071 for 1% SOM, Commercial land use, 23.06.17.

Table 4: Summary of Areas Contaminated by PAHs and TPHs

Location	Depth (m)	Contaminants found to be exceeding SSVs (Commercial)
TPW	0.60	None.
TPX	0.50	None.
TPY	0.60	None.
TPZ	0.60	None.

It should be appreciated that no free product was noted during this investigation. On the basis of the above information, the results of the investigation have concluded that the site is generally uncontaminated with respect to the intended end use.

In addition to this testing, on-site PID testing of the samples was undertaken. During this, no vapours were detected during the monitoring.

6.2 Conclusion

Following on from this additional site investigation work, it is considered that no changes are required to the conceptual site model present within the Phase 2 report (Ref: C3224/25/E/8007) or the Phase 3 Remediation Strategy (Ref: C3224/25/E/8244_Rev1). Further to this, it is considered that the site is now fully characterised with the ground beneath the now demolished structures having been thoroughly tested. Previously identified contamination appears to be attributable to local spillages from vehicle and plant movements. Indeed, the previous site uses do not appear to have actively and continually contaminated the site, with any contamination from isolated events/incidents. Any spillages appear to have dispersed and are ultimately present within soils at the near surface on a local scale. In any event, the contamination levels are considered appropriate for the intended commercial end use. Moreover, significant groundworks are to be completed as part of the development, with the majority of near surface soil to be removed from site. It should be appreciated that no spills have been identified within the southern area of the site, where no significant development is to be undertaken and where the majority of the area is to remain as is.

Given the ample testing and identified source of contamination (spillages), it is not considered necessary for any additional testing to be undertaken unless unexpected contamination is observed. This remains true also for the ground beneath the existing structures.

7. Recommendations for Further Work

- This report should be forwarded to the relevant authorities as soon as practicable to ensure they have sufficient time to review and discuss any issues.

Clearly Rogers Geotechnical Services Ltd would be happy to offer advice with respect to the above and assist where necessary.

8. References

- British Geological Survey (NERC) (2026), BGS, Keyworth.
 - Geology of Britain Viewer:
(http://maps.bgs.ac.uk/geologyviewer_google/googleviewer.html)
 - Lexicon of Named Rock Units:
(<http://www.bgs.ac.uk/lexicon/>)
- British Standards Institution (1990) BS1377: *British standard methods of test for soils for civil engineering purposes*, B.S.I., London.
- British Standards Institution (2015) BS5930: *Code of practice for site investigations*, B.S.I., London.
- British Standards Institution (2011), BS 10175: *Investigation of potentially contaminated sites – Code of Practice*, British Standards Institute.
- British Standards Institution (2015) BS8485: *Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings*, B.S.I., London.
- British Standards Institution (2013), BS 8576 *Guidance on Investigations for Ground Gas – Permanent Gases and Volatile Organic Compounds*.
- British Standards Institution (2004) BS EN ISO 14688: *Geotechnical investigation and testing – Identification and classification of soil, incorporating corrigendum no.1 (2007)*, B.S.I., London.
- Building Research Establishment (BRE) Special Digest 1 (2005), Third Edition: *Concrete in aggressive ground*, BRE Press, Garston.
 - Part C: *Assessing the aggressive chemical environment*.
 - Part D: *Specifying concrete for general cast-in-situ use*.
- 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.
- Department for Environment, Food and Rural Affairs (2014) SP1010: *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document*.
- Wilson S, Oliver S, Mallet H, Hutchings H, Card G, *Assessing risks posed by ground gasses to buildings*, CIRIA Report C665.

Appendix 1

Site Plan

Notes:
Investigation positions approximated from site operative's notes.



Rogers Geotechnical Services Ltd

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

Telephone: 0843 50 66 87
www.rogersgeotech.co.uk

Client:
PCS Property Solutions Limited

Job Number:
C3086/25/E/8965

Project Details:
Barnsley Road, Grange Moor

Scale:	Not to scale - reference only
---------------	-------------------------------



Appendix 2

Trial Pit Records



Trial Pit Log

Trialpit No

TPZ

Sheet 1 of 1

Project Name: Barnsley Road

Project No.
C3224/26/E/8965Co-ords: -
Level:Date
20/01/2026

Location: Grange Moor, Wakefield, West Yorkshire, WF4 4DS

Dimensions
(m):

0.9

Depth
0.80

2.5

Scale
1:25Logged
SH

Client: PCS Property Solutions Limited

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.60	B		0.40			MADE GROUND (Greyish brown, silty, sandy, angular to sub-angular and fine to coarse GRAVEL of brick, concrete, mudstone and sandstone with moderate cobble content. Sand is fine to coarse. Cobbles are angular of brick, concrete and sandstone).
				0.80			Firm, orangish brown mottled grey, slightly sandy, gravelly, silty CLAY. Sand is fine to coarse. Gravel is angular to sub-angular and fine to coarse of mudstone and sandstone.
							End of pit at 0.80 m

1

2

3

4

5

Remarks:

Stability: Stable



Appendix 3

Laboratory Testing

Rogers Geotechnical Services Ltd
Offices 1&2 Barncliffe Business Pk
Near Bank, Shelley
Huddersfield
West Yorkshire
HD8 8LU

t: 01484 604354

e: harry.letch@rogersgeotech.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: info-i2analytical@normecgroup.com

Analytical Report Number : 26-003510

Project / Site name:	Grange Moor	Samples received on:	23/01/2026
Your job number:	C3224 25 E 8965	Samples instructed on/ Analysis started on:	23/01/2026
Your order number:	PO-3686	Analysis completed by:	03/02/2026
Report Issue Number:	1	Report issued on:	03/02/2026
Samples Analysed:	4 soil samples		



Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 26-003510

Project / Site name: Grange Moor

Your Order No: PO-3686

Lab Sample Number	810157	810158	810159	810160
Sample Reference	TP-W	TP-X	TP-Y	TP-Z
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A
Depth (m)	0.60	0.50	0.60	0.60
Date Sampled	23/01/2026	23/01/2026	23/01/2026	23/01/2026
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	7.6	15	13	21
Total mass of sample received	kg	0.1	NONE	1	0.9	0.9	1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	WEM	WEM	WEM	WEM
Analysis completed	N/A	N/A	N/A	29/01/2026	29/01/2026	29/01/2026	29/01/2026

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.3	6.8	6.1	5.6
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	%	0.005	MCERTS	0.013	0.061	0.054	0.109
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	32	410	160	410
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	16	203	77.9	203
Organic Matter (automated)	%	0.1	MCERTS	0.5	0.4	0.5	0.5

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
----------------------------	-------	---	--------	-------	-------	-------	-------

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.47	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.1	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.4	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.32	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.17	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.13	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.15	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.07	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.13	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.07	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.07	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	2.08	< 0.80	< 0.80	< 0.80
-----------------------------	-------	-----	-----------	------	--------	--------	--------

Analytical Report Number: 26-003510

Project / Site name: Grange Moor

Your Order No: PO-3686

Lab Sample Number	810157	810158	810159	810160
Sample Reference	TP-W	TP-X	TP-Y	TP-Z
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A
Depth (m)	0.60	0.50	0.60	0.60
Date Sampled	23/01/2026	23/01/2026	23/01/2026	23/01/2026
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4.2	4.3	6.3	3.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	23	22	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	26	32	31	17
Lead (aqua regia extractable)	mg/kg	1	MCERTS	30	18	17	14
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	38	34	37	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.5	< 1.0	1.2	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	27	27	27	28
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	130	90	84	48

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	8.7	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 26-003510

Project / Site name: Grange Moor

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
810157	TP-W	None Supplied	0.6	Brown clay and loam
810158	TP-X	None Supplied	0.5	Brown clay and loam
810159	TP-Y	None Supplied	0.6	Brown clay and loam
810160	TP-Z	None Supplied	0.6	Brown clay and sand

Analytical Report Number : 26-003510

Project / Site name: Grange Moor

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content (Wet Weight)	Moisture content (% wet weight), determined gravimetrically (up to 30°C)	In-house-procedure based on BS EN 12880:2000	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID in soil	Determination of total petroleum hydrocarbons in soil by GC-FID with carbon banding aliphatic and aromatic	In-house method	L076B	D	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil (Summed Bands)	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic (Summed Bands).	Calculation	L076B/L088-PL	D/W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Total petroleum hydrocarbons with carbon banding by HS-GC/MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC/MS with carbon banding aliphatic and aromatic	In-house method	L088-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS

Analytical Report Number : 26-003510

Project / Site name: Grange Moor

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution