Environmental
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RGS

PHASE 2

ENVIRONMENTAL REPORT

job number	C3224/25/E/8845
date	15.01.2026
site address	Barnsley Road, Grange Moor, Wakefield, West Yorkshire, WF4 4DS
written by	S. Hale
checked by	R. Palmer
issued by	S. Hale

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Appendices

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/8845 Report date: January 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 Summary[1]

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	Variable thickness of made ground overlying cohesive soils (residual fraction of the underlying rock).	6.1
Groundwater	Seepage encountered beneath the concrete within TPC.	6.2
Contamination	Determinands were found to be below the screening levels for 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 conditions, 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. This work was required in order to further determine the nature of the underlying soils and to take into consideration the risk of any contamination present. This report describes the work undertaken, presents the data obtained and discusses the ground conditions in relation to the proposed works.

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 borehole 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. Previous Reporting

A number of previous reports have been issued by Rogers Geotechnical Services (RGS) for the client. A selection of these reports have been used during this further investigation and are listed below:

1. Phase 1 Desk Study, January 2022 (Ref: C3224/22/E/4913).
2. Phase 2 Geo-environmental Report, February 2024 (Ref: C3224/22/E/4914).
3. Further Phase Environmental Report, June 2025 (Ref: C3224/25/E/8007).
4. Proposal Letter (Phase Investigation Approach), November 2025 (Ref: C3224/25/E/8777)

3.1 Summary of Previous Work

It should be appreciated that within report 2. above, the following was stated within the environmental discussion:

Despite the hydrocarbon odours recorded at WS01 to WS09, the results of the soils tested during this investigation indicate that the soils are suitable for the proposed end use. At the time of the investigation, there were quite a lot of areas that were not accessible due to the vast quantity of plant stored on the site. Once the site is cleared, it is strongly recommended that a watching brief takes place during the groundwork phase to ensure no significant spills have occurred. Should olfactory evidence be observed, then further contamination testing is recommended.

Subsequent to the above, a consultation was issued by KC Environmental Health in May 2024 (ref WK/202412147). Said consultation acknowledged the presence of plant on site:
We accept the report provided. It remains that there were the limitations to the intrusive investigation conducted so far due to on-site obstructions. Given the nature of the stored machinery/plant, we believe there is an increased likelihood of contamination, including potential risks from vapours. For these reasons, it is considered necessary to secure a postdemolition and post-clearance intrusive investigation and a supplementary Phase 2 report.

At the time of writing this report (January 2026), it is understood that no further consultation has been issued by KC Environmental Health. It is assumed that they are yet to review documents 3. and 4. above.

Indeed, it should be appreciated that another phase of ground investigation works (Phase 2) was completed in June 2025, whereby permission was sought to drill in and around the existing buildings on site, as well as additional external areas that weren't accessible previously. Once again, no distinct hydrocarbon contamination was identified. However, asbestos contamination (<0.001%) was identified within the near surface made ground at one location within the immediate vicinity of the existing building. It should be appreciated that at the time of this investigation, the majority of plant and machinery was still on site.

Subsequent to the June investigation, a written proposal was issued in November 2025 to ascertain what further investigation should be undertaken once site clearance was complete. This was created to ensure that investigation be undertaken once plant and machinery had been moved. An indicative plan was created that referred to proposed borehole locations, albeit a walkover would be undertaken as part of any investigation to identify any obvious signs of contamination.

4. Fieldworks

The latest fieldworks were undertaken on the 10th December 2025 and included the machine-excavation of 10no. trial pits. It should be noted that trial pits were adopted as an investigatory method, rather than boreholes as per the Proposal Letter. Indeed, it should be appreciated that while a nominal number of plant and machinery were still present on site, with the exception of the buildings, all areas investigated were fully accessible during the works, thus trial pits were undertaken as opposed to boreholes. The investigatory locations are shown on the site plan which is presented in Appendix 1 to this report.

4.1 Machine-dug Trial Pits

A total of ten trialpits were excavated in order to reveal the nature of the near surface soils using a 2.6T 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 trialpits 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.

5. 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.

6. 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
0.10	MADE GROUND (Grey CONCRETE)	TPA & TPC	TPC - 0.10m
0.30 – +1.70	MADE GROUND (Granular)	All	None
+1.30	MADE GROUND (Cohesive)	TPF	None
+0.90	Brown, sandy GRAVEL [RESIDUAL BIRSTALL ROCK]	TPA	None
+1.25	Soft, greenish grey mottled light brown, sandy, silty CLAY [RESIDUAL BIRSTALL ROCK]	TPB	None
+0.65 – +1.15	Soft, brown mottled grey, sandy, silty CLAY [RESIDUAL BIRSTALL ROCK]	TPC. TPD & TPE	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

6.1 Groundwater

Significant seepage was recorded within TPC that appeared to be entering the trial pit beneath the hardstanding surface at approximately 0.10m depth. No groundwater strikes were observed in any other of the trial pits during the site investigation.

[2] Sources: British Geological Survey (NERC) Map Sheet 77; Huddersfield; Solid and Drift Edition, and GeoIndex Onshore 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*]

7. Discussion of Ground Conditions - Environmental

7.1 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 0.70% and 8.20%. 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 website[4] 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)
TPA	0.50	PAHs: Benzo(g,h,i)perylene.
TPB	0.50	PAHs: Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benxo(k)fluoranthene, Indeno(1,2,3-c,d)Pyrene, Dibenz(a,h)Anthracene & Benzo(g,h,i)perylene.
TPB	0.90	None.
TPC	0.40	PAHs: Indeno(1,2,3-c,d)Pyrene & Benzo(g,h,i)perylene. Aliphatic TPH (>C12-C16).
TPC	0.60	None.
TPD	0.50	PAHs: Benzo(b)fluoranthene, Indeno(1,2,3-c,d)Pyrene, Dibenz(a,h)Anthracene & Benzo(g,h,i)perylene.
TPE	0.50	PAHs: Benzo(b)fluoranthene, Indeno(1,2,3-c,d)Pyrene, Dibenz(a,h)Anthracene & Benzo(g,h,i)perylene.
TPE	1.00	PAHs: Indeno(1,2,3-c,d)Pyrene & Benzo(g,h,i)perylene.
TPF	0.70	None.
TPG	0.50	PAHs: Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benxo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-c,d)Pyrene, Dibenz(a,h)Anthracene & Benzo(g,h,i)perylene. Aliphatic TPH (>C12-C16).
TPH	0.50	PAHs: Chrysene, Benzo(b)fluoranthene, Benxo(k)fluoranthene, Indeno(1,2,3-c,d)Pyrene, Dibenz(a,h)Anthracene & Benzo(g,h,i)perylene.
TPI	0.70	PAHs: Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benxo(k)fluoranthene, Indeno(1,2,3-c,d)Pyrene, Dibenz(a,h)Anthracene & Benzo(g,h,i)perylene.
TPJ	0.50	PAHs: Indeno(1,2,3-c,d)Pyrene & Benzo(g,h,i)perylene.

[4] http://www.atrisksoil.co.uk/pages/general/subscribers.asp

Concentrations of chromium(VI), mercury, free cyanide, phenols (total) and total petroleum hydrocarbons (aliphatic C5 to C8; aromatic C5 to C10) 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 criterion[5]. 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:

Table 4: Summary of Areas Contaminated by PAHs and TPHs

Location	Depth (m)	Contaminants found to be exceeding SSVs (Commercial)
TPA	0.50	None.
TPB	0.50	None.
TPB	0.90	None.
TPC	0.40	None.
TPC	0.60	None.
TPD	0.50	None.
TPE	0.50	None.
TPE	1.00	None.
TPF	0.70	None.
TPG	0.50	None.
TPH	0.50	None.
TPI	0.70	None.
TPJ	0.50	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 made ground samples was undertaken. During this, no vapours were detected during the monitoring.

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

7.2 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 latest Phase 2 report (Ref: C3224/25/E/8007). A copious amount of environmental testing has now been undertaken at the site and the surface soils have been observed site wide, particularly where plant and machinery was previously stored. In addition, contamination testing has been undertaken below the current building as part of a previous investigation. The 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 ultimately present with soils at the near surface on a local scale. In any event, the contamination levels are considered appropriate for the intended commercial end use. 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 if 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.

It is considered that the site is fully characterised. The Phase 3 Remediation Statement should be reviewed and updated where necessary.

8. 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.
- Review of current Phase 3 report.

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

9. 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


WS102
WS101
WS01
WSK
WSB
WSA
WS106
WS02
WS103
WSE
WS03
WS105
WSD
WSC
WS04
WSF
WS05
WS06
WS07
Barnsley Rd
WS08
WSH
WSI
WSJ
WSG
WS104
WS09
WS10
WS11
WS12

Appendix 2

Trial Pit Records

Trial Pit Log

Trialpit No **TPA**

Sheet 1 of 1

Project Name:	Barnsley Road	Project No. C3224/25/E/8845	Co-ords: - Level:	Date 10/12/2025
Location:	Grange Moor, Wakefield, West Yorkshire, WF4 4DS	Dimensions (m): Depth 0.90	1.5 × 0.3	Scale 1:25
Client:	PCS Property Specialist Limited			Logged SH

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10			MADE GROUND (Grey CONCRETE).
				0.35			MADE GROUND (Grey, silty, sandy, angular to sub-angular and fine to coarse GRAVEL of limestone. Sand is fine to coarse).
	0.50	B					Brown, sandy, angular to sub-angular, tabular and fine to coarse GRAVEL of sandstone. [RESIDUAL BIRSTALL ROCK]
				0.90			End of pit at 0.90 m

Remarks: 1. Position scanned for services using CAT and Genny.

Stability: Stable

Trial Pit Log

Trialpit No **TPB** Sheet 1 of 1

Project Name: Barnsley Road	Project No. C3224/25/E/8845	Co-ords: - Level:	Date 10/12/2025
Location: Grange Moor, Wakefield, West Yorkshire, WF4 4DS		Dimensions (m): Depth 1.25 — 1.8 × 0.3	Scale 1:25
Client: PCS Property Specialist Limited			Logged SH

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			MADE GROUND (Dark grey, silty, sandy, angular to sub-angular and fine to coarse GRAVEL of bituminous material, concrete, sandstone and various other lithologies).
	0.50	B					MADE GROUND (Brown, clayey, silty, sandy, angular to sub-angular and fine to coarse GRAVEL of brick, concrete, sandstone and various other lithologies).
	0.90	B		0.80			Soft, greenish grey mottled light brown, sandy, silty CLAY. Sand is fine to coarse. [RESIDUAL BIRSTALL ROCK]
				1.25			End of pit at 1.25 m

Remarks: 1. Position scanned for services using CAT and Genny.

Stability: Stable

Trial Pit Log

Trialpit No **TPC**

Sheet 1 of 1

Project Name:	Barnsley Road	Project No. C3224/25/E/8845	Co-ords: - Level:	Date 10/12/2025
Location:	Grange Moor, Wakefield, West Yorkshire, WF4 4DS	Dimensions (m): Depth 0.65	1.8 / 0.3	Scale 1:25
Client:	PCS Property Specialist Limited			Logged SH

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
▼				0.10			MADE GROUND (Grey CONCRETE).
				0.25			MADE GROUND (Grey, silty, sandy, angular to sub-angular and fine to coarse GRAVEL of limestone. Sand is fine to coarse).
	0.40	B		0.50			MADE GROUND (Dark grey, silty, sandy, angular to sub-angular and fine to coarse GRAVEL of various lithologies).
	0.60	B		0.65			Soft, brown mottled grey, sandy, silty CLAY. Sand is fine to coarse. [RESIDUAL BIRSTALL ROCK]
							End of pit at 0.65 m

1 2 3 4 5

Remarks: 1. Position scanned for services using CAT and Genny. 2. Significant water strike pouring into trial pit from beneath the hardstanding.

Stability: Stable

Trial Pit Log

Trialpit No **TPD** Sheet 1 of 1

Project Name: Barnsley Road	Project No. C3224/25/E/8845	Co-ords: - Level:	Date 10/12/2025
Location: Grange Moor, Wakefield, West Yorkshire, WF4 4DS		Dimensions (m): Depth 1.15 — 1.15 × 0.3	Scale 1:25
Client: PCS Property Specialist Limited			Logged SH

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			MADE GROUND (Dark grey, silty, sandy, angular to sub-angular and fine to coarse GRAVEL of bituminous material, concrete, sandstone and various other lithologies).
	0.50	B					MADE GROUND (Reddish brown, sandy, angular to sub-angular and fine to coarse GRAVEL of brick, concrete and various other lithologies. Sand is fine to coarse).
				1.05			Soft, brown mottled grey, sandy, silty CLAY. Sand is fine to coarse. [RESIDUAL BIRSTALL ROCK]
				1.15			End of pit at 1.15 m

Remarks: 1. Position scanned for services using CAT and Genny.

Stability: Stable

Trial Pit Log

Trialpit No **TPE**

Sheet 1 of 1

Project Name: Barnsley Road	Project No. C3224/25/E/8845	Co-ords: - Level:	Date 10/12/2025
Location: Grange Moor, Wakefield, West Yorkshire, WF4 4DS		Dimensions (m): Depth 1.05 — 1.4 × 0.3	Scale 1:25
Client: PCS Property Specialist Limited			Logged SH

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			MADE GROUND (Dark grey, silty, sandy, angular to sub-angular and fine to coarse GRAVEL of bituminous material, concrete, sandstone and various other lithologies).
	0.50	B					MADE GROUND (Reddish brown, sandy, angular to sub-angular and fine to coarse GRAVEL of brick, concrete and various other lithologies. Sand is fine to coarse).
				0.75			Soft, brown mottled grey, sandy, silty CLAY. Sand is fine to coarse. [RESIDUAL BIRTALL ROCK]
	1.00	B		1.05			End of pit at 1.05 m

1 2 3 4 5

Remarks: 1. Position scanned for services using CAT and Genny.

Stability: Stable

Trial Pit Log

Trialpit No **TPF** Sheet 1 of 1

Project Name: Barnsley Road	Project No. C3224/25/E/8845	Co-ords: - Level:	Date 10/12/2025
Location: Grange Moor, Wakefield, West Yorkshire, WF4 4DS		Dimensions (m): Depth 1.30 — 2 × 0.3	Scale 1:25
Client: PCS Property Specialist Limited			Logged SH

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							MADE GROUND (Brown, clayey, silty, sandy, angular to sub-angular and fine to coarse GRAVEL of brick, concrete and sandstone. Sand is fine to coarse).
				0.30			MADE GROUND (Reddish brown, sandy, angular to sub-angular and fine to coarse GRAVEL of brick, concrete and various other lithologies. Sand is fine to coarse).
	0.70	B		0.60			MADE GROUND (Soft, dark grey, sandy, slightly gravely, silty CLAY. Sand is fine to coarse. Gravel is angular to sub-angular an fine to medium of brick, concrete, sandstone and mudstone).
				1.30			End of pit at 1.30 m

Remarks: 1. Position scanned for services using CAT and Genny.

Stability: Stable

Trial Pit Log

Trialpit No **TPG** Sheet 1 of 1

Project Name: Barnsley Road	Project No. C3224/25/E/8845	Co-ords: - Level:	Date 10/12/2025
Location: Grange Moor, Wakefield, West Yorkshire, WF4 4DS		Dimensions (m): Depth 1.20 — 1.2 × 0.3	Scale 1:25
Client: PCS Property Specialist Limited			Logged SH

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.50	B		0.65			MADE GROUND (Dark grey, silty, sandy, angular to sub-angular and fine to coarse GRAVEL of bituminous material, concrete, sandstone and various other lithologies).
				1.20			MADE GROUND (Reddish brown, sandy, angular to sub-angular and fine to coarse GRAVEL of brick, concrete and various other lithologies. Sand is fine to coarse).
							End of pit at 1.20 m

1 2 3 4 5

Remarks: 1. Position scanned for services using CAT and Genny.

Stability: Stable

Trial Pit Log

Trialpit No
TPH
Sheet 1 of 1

Project Name: Barnsley Road	Project No. C3224/25/E/8845	Co-ords: - Level:	Date 10/12/2025
Location: Grange Moor, Wakefield, West Yorkshire, WF4 4DS		Dimensions (m): 2.1 × 0.3, Depth 1.70	Scale 1:25
Client: PCS Property Specialist Limited			Logged SH

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.50	B		1.70			MADE GROUND (Dark grey, clayey, silty, sandy, angular to sub-angular and fine to coarse GRAVEL of brick, bituminous material, concrete, sandstone and various other lithologies. Sand is fine to coarse). End of pit at 1.70 m

Remarks: 1. Position scanned for services using CAT and Genny.

Stability: Stable

Trial Pit Log

Trialpit No
TPI
Sheet 1 of 1

Project Name: Barnsley Road	Project No. C3224/25/E/8845	Co-ords: - Level:	Date 10/12/2025
Location: Grange Moor, Wakefield, West Yorkshire, WF4 4DS		Dimensions (m): Depth 1.00 — 1.9 × 0.3	Scale 1:25
Client: PCS Property Specialist Limited			Logged SH

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10			MADE GROUND (Dark grey, silty, sandy, angular to sub-angular and fine to coarse GRAVEL of bituminous material, concrete, sandstone and various other lithologies).
				0.50			MADE GROUND (Yellowish brown, silty, sandy, angular to sub-angular and fine to coarse GRAVEL of sandstone with moderate cobble content. Sand is fine to coarse. Cobbles are sub-angular of sandstone).
	0.70	B					MADE GROUND (Dark grey, clayey, silty, sandy, angular to sub-angular and fine to coarse GRAVEL of brick, bituminous material, concrete, sandstone and various other lithologies).
				1.00			End of pit at 1.00 m

Remarks: 1. Position scanned for services using CAT and Genny. 2. Concrete obstruction encountered, trial pit terminated.

Stability: Stable

Trial Pit Log

Trialpit No **TPJ** Sheet 1 of 1

Project Name: Barnsley Road	Project No. C3224/25/E/8845	Co-ords: - Level:	Date 10/12/2025
Location: Grange Moor, Wakefield, West Yorkshire, WF4 4DS		Dimensions (m): Depth 0.60 — 1.5 × 0.3	Scale 1:25
Client: PCS Property Specialist Limited			Logged SH

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.35			MADE GROUND (Brown, silty, sandy, angular to sub-angular and fine to coarse GRAVEL of brick, concrete, sandstone and various other lithologies. Sand is fine to coarse).
	0.50	B		0.60			MADE GROUND (Dark grey, silty, gravelly, fine to coarse SAND. Gravel is angular to sub-angular and fine to coarse of ash, brick, concrete and various other lithologies). End of pit at 0.60 m

Remarks: 1. Position scanned for services using CAT and Genny.

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 : 25-067037

Project / Site name:	Grange Moor	**Samples received on:**	11/12/2025
Your job number:	C3224 25 E 8845	**Samples instructed on/ Analysis started on:**	11/12/2025
Your order number:	PO 3653	**Analysis completed by:**	22/12/2025
Report Issue Number:	1	**Report issued on:**	22/12/2025
Samples Analysed:	13 soil samples		

Signed:

Rafał Szczepańczyk
Technical Reviewer
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: 25-067037
Project / Site name: Grange Moor
Your Order No: PO 3653

Lab Sample Number				779055	779056	779057	779058	779059
Sample Reference				TPA	TPB	TPB	TPC	TPC
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.50	0.50	0.90	0.40	0.60
Date Sampled				10/12/2025	10/12/2025	10/12/2025	10/12/2025	10/12/2025
Time Taken				None Supplied	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	17.8	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	6.9	8.9	22	15	21
Total mass of sample received	kg	0.1	NONE	1.1	1.1	1.1	1.1	1.2
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	PDO	PDO	PDO	PDO	PDO
Analysis completed	N/A	N/A	N/A	18/12/2025	18/12/2025	18/12/2025	18/12/2025	18/12/2025
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	8.7	9	6.8	9	7.3
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO_4	%	0.005	MCERTS	0.035	0.278	0.024	0.19	0.035
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	160	1200	63	730	120
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	78.1	591	31.4	366	59.7
Organic Matter (automated)	%	0.1	MCERTS	0.7	4.7	0.7	1.7	0.8
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.18	< 0.05	0.27	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.13	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.33	< 0.05	0.1	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.27	< 0.05	0.17	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.05	2.9	< 0.05	0.42	0.1
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.9	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.09	7.9	< 0.05	0.44	0.12
Pyrene	mg/kg	0.05	MCERTS	0.09	7.7	< 0.05	0.47	0.11
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.07	4.1	< 0.05	0.19	0.06
Chrysene	mg/kg	0.05	MCERTS	0.08	5	< 0.05	0.24	0.06
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.11	7.4	< 0.05	0.23	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	2.6	< 0.05	0.1	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	6.1	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	3.3	< 0.05	0.09	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.92	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.06	4.2	< 0.05	0.11	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	53.9	< 0.80	2.84	< 0.80

Analytical Report Number: 25-067037
Project / Site name: Grange Moor
Your Order No: PO 3653

Lab Sample Number				779055	779056	779057	779058	779059
Sample Reference				TPA	TPB	TPB	TPC	TPC
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.50	0.50	0.90	0.40	0.60
Date Sampled				10/12/2025	10/12/2025	10/12/2025	10/12/2025	10/12/2025
Time Taken				None Supplied	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	8.5	19	4.9	6.8	4.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.8	< 0.2	0.3	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (hexavalent) by IC	mg/kg	1.8	NONE	-	-	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	87	20	21	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	26	38	17	30	17
Lead (aqua regia extractable)	mg/kg	1	MCERTS	34	80	12	27	15
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	37	13	16	16
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	1.1	< 1.0	1.2	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	26	48	23	26	26
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	74	110	46	76	64
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 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	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	0.017	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	5.5	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	3	18	< 2.0	120	4.1
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	51	< 8.0	200	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	32	330	< 8.0	160	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	35	390	< 10	480	< 10
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 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	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020	< 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	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
VOCs								
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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

Analytical Report Number: 25-067037
Project / Site name: Grange Moor
Your Order No: PO 3653

Lab Sample Number				779060	779061	779062	779063	779064
Sample Reference				TPD	TPE	TPE	TPF	TPG
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.50	0.50	1.00	0.70	0.50
Date Sampled				10/12/2025	10/12/2025	10/12/2025	10/12/2025	10/12/2025
Time Taken				None Supplied	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	38.4	30.7	11.7	< 0.1	33.9
Moisture Content	%	0.01	NONE	7.8	9	23	25	12
Total mass of sample received	kg	0.1	NONE	1	1	1.2	0.9	1.1
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KJK	KJK	KJK	KJK	KJK
Analysis completed	N/A	N/A	N/A	18/12/2025	18/12/2025	18/12/2025	18/12/2025	18/12/2025
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	7.2	7.5	7.2	7.1	10.6
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO_4	%	0.005	MCERTS	1.49	0.803	0.083	0.071	0.223
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	5900	2000	590	140	310
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	2970	996	293	71	157
Organic Matter (automated)	%	0.1	MCERTS	1.3	1.8	0.7	4.7	8.2
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.07	1.3
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	1.5
Acenaphthene	mg/kg	0.05	MCERTS	0.06	< 0.05	< 0.05	< 0.05	3.1
Fluorene	mg/kg	0.05	MCERTS	0.05	< 0.05	< 0.05	< 0.05	2.6
Phenanthrene	mg/kg	0.05	MCERTS	0.37	0.31	0.08	0.21	20
Anthracene	mg/kg	0.05	MCERTS	0.16	0.1	< 0.05	0.05	7
Fluoranthene	mg/kg	0.05	MCERTS	1.1	0.87	0.17	0.27	49
Pyrene	mg/kg	0.05	MCERTS	1.1	0.96	0.19	0.24	47
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.6	0.69	0.12	0.13	25
Chrysene	mg/kg	0.05	MCERTS	0.64	0.81	0.11	0.19	21
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.77	1.2	0.18	0.17	37
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.35	0.48	0.08	< 0.05	11
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.69	0.91	0.14	0.07	29
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.38	0.57	0.08	< 0.05	16
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.11	0.15	< 0.05	< 0.05	3.4
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.46	0.7	0.1	< 0.05	17
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	6.84	7.69	1.25	1.39	293

Analytical Report Number: 25-067037
Project / Site name: Grange Moor
Your Order No: PO 3653

Lab Sample Number				779060	779061	779062	779063	779064
Sample Reference				TPD	TPE	TPE	TPF	TPG
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.50	0.50	1.00	0.70	0.50
Date Sampled				10/12/2025	10/12/2025	10/12/2025	10/12/2025	10/12/2025
Time Taken				None Supplied	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	33	34	6.5	14	8.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	0.4	< 0.2	0.3	0.8
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	U/S *U/S g	< 1.8
Chromium (hexavalent) by IC	mg/kg	1.8	NONE	-	-	-	< 1.80	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	28	40	24	21	440
Copper (aqua regia extractable)	mg/kg	1	MCERTS	23	37	16	23	47
Lead (aqua regia extractable)	mg/kg	1	MCERTS	34	34	14	53	52
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	32	33	16	15	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	1.7	4.4
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	34	42	27	35	120
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	66	59	63	92	200
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 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	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 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	1.8
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	6.4	5.9	< 2.0	< 2.0	29
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	53	25	< 8.0	< 8.0	120
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	500	140	15	< 8.0	1100
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	560	170	15	< 10	1300
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 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	0.014	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020	< 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	2.6
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	23
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	160
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	770
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	950
VOCs								
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	14	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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

Analytical Report Number: 25-067037
Project / Site name: Grange Moor
Your Order No: PO 3653

Lab Sample Number				779065	779066	779067
Sample Reference				TPH	TPI	TPJ
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A
Depth (m)				0.50	0.70	0.50
Date Sampled				10/12/2025	10/12/2025	10/12/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			
Stone Content	%	0.1	NONE	8.6	54.6	23.3
Moisture Content	%	0.01	NONE	11	8.4	10
Total mass of sample received	kg	0.1	NONE	1.1	1	0.7
Asbestos						
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	JWU	JWU	JWU
Analysis completed	N/A	N/A	N/A	18/12/2025	18/12/2025	18/12/2025
General Inorganics						
pH (L099)	pH Units	N/A	MCERTS	7.9	11.4	8.4
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO_4	%	0.005	MCERTS	0.088	0.286	1.44
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	160	860	4600
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	80.5	428	2290
Organic Matter (automated)	%	0.1	MCERTS	2.5	1.8	2.8
Total Phenols						
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	0.33	0.24	0.13
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.06	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.2	0.67	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.23	0.61	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1.4	4.2	0.46
Anthracene	mg/kg	0.05	MCERTS	0.36	1.3	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	2.2	7.4	0.31
Pyrene	mg/kg	0.05	MCERTS	2.2	7	0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.1	3.4	< 0.05
Chrysene	mg/kg	0.05	MCERTS	1.4	3.4	0.26
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.8	4.1	0.21
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.82	2.1	0.09
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.6	3.9	0.18
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.89	2	0.11
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.21	0.43	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.1	2.2	0.18
Total PAH						
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	15.8	43	2.23

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Lab Sample Number				779065	779066	779067
Sample Reference				TPH	TPI	TPJ
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A
Depth (m)				0.50	0.70	0.50
Date Sampled				10/12/2025	10/12/2025	10/12/2025
Time Taken				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	11	5.7	36
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	0.7	0.7
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (hexavalent) by IC	mg/kg	1.8	NONE	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	29	34	34
Copper (aqua regia extractable)	mg/kg	1	MCERTS	22	27	74
Lead (aqua regia extractable)	mg/kg	1	MCERTS	61	73	46
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	17	43
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	20	37	59
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	97	130	63
Petroleum Hydrocarbons						
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	4.3	11	6
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	17	63	26
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	42	200	29
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	64	270	61
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	7.2	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	11	44	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	31	94	< 10
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	42	150	< 10
VOCs						
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0

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

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* 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 *
779055	TPA	None Supplied	0.5	Brown clay and sand with gravel
779056	TPB	None Supplied	0.5	Brown clay and sand with vegetation and stones
779057	TPB	None Supplied	0.9	Brown clay and sand with gravel
779058	TPC	None Supplied	0.4	Brown clay and sand with gravel and vegetation
779059	TPC	None Supplied	0.6	Brown clay and sand
779060	TPD	None Supplied	0.5	Brown clay and sand with gravel and stones
779061	TPE	None Supplied	0.5	Brown gravelly sand with stones
779062	TPE	None Supplied	1	Brown clay and sand with gravel and stones
779063	TPF	None Supplied	0.7	Brown clay and sand with gravel and vegetation
779064	TPG	None Supplied	0.5	Brown loam and sand with gravel and stones
779065	TPH	None Supplied	0.5	Brown loam and sand with gravel and stones
779066	TPI	None Supplied	0.7	Brown sand with gravel and stones
779067	TPJ	None Supplied	0.5	Brown loam and sand with gravel and stones

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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	Moisture content, determined gravimetrically (up to 30°C)	In-house method	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 SO4 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

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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
Hexavalent chromium in soil by Ion Chromatography	Determination of hexavalent chromium in alkaline soil extract by use of ion chromatography with spectrophotometric detection	In-house method	L130B	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

*U/S g- Unsuitable for analysis due to high colour intensity.