

Bowmer & Kirkland North West

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Manchester
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United Kingdom

David Baker
Project Manager

27 November 2024

Subject: Ancoats Mobility Hub - Clean Cover Validation
Our ref: L-20376-2.4.2-24-668-SOJ

Mr Baker,

IDOM Merebrook Ltd (IDOM) has been commissioned by Bowmer & Kirkland to complete verification of ground contamination remedial works on the site known as Ancoats Mobility Hub, Poland Street, Ancoats.

Validation report VR-20376-24-270 dated August 2024 was previously submitted, which documented remedial works to remove potential made ground sources of gas below main building, selection of suitable potable water pipe materials and measures to address hydrocarbons (possible gas works type contamination) discovered in the south-east of the site. This letter report documents completion of the outstanding remedial works, specifically placement of clean cover soils as recommended in external landscaped areas as required by the Remediation Method Statement (Ancoats Mobility Hub, Poland Street, Ancoats, *Ref: RMS-20376-22-276, Dated May 2023*).

This specified a minimum of 300 mm placement of chemically validated soil separated from underlying made ground by a geotextile layer. It is understood increases in the depth of cover would be applied by the landscape designer, for example for creation of tree pits.

INVESTIGATION

IDOM engineers attended the site on 13th September, 21st October, 3rd November, and 8th November 2024 to inspect and photograph the placed soil, conduct depth checks, and collect samples. The site visits identified the soil to be dark brown, very soft, slightly gravelly clay, free from deleterious materials, with environmental samples collected for chemical testing to meet clean cover criteria. A plan showing the investigation locations and photographs of the clean cover emplacement from the inspection pits are appended to this letter (Appendix 1 and Appendix 2, respectively).

The following sampling was undertaken:

- 14 no. topsoil sample collected for geochemical testing;
- 6 no. subsoil sample collected for geochemical testing;

All cover soil was imported to the site, with topsoil sourced from Freeland Horticulture, Nook Lane Farm, Astley, Manchester M29 7LW, and subsoil from SED Services Ltd, Landgate Farm, Landgate Lane, Bryn, Wigan WN4 0EL. Representative samples were collected by the IDOM engineer and submitted to a UKAS/MCERTS-accredited laboratory for testing. The samples were analysed for a broad range of potential contaminants, as specified in the Remediation Method Statement (RMS). The full test results are attached to this letter (Appendix 3).

SOIL ANALYSIS

A total of 14 no. topsoil samples were submitted to the laboratory for analysis, with full testing results being appended to this letter. Samples were compared to screening levels specified by the RMS. A summary of the testing results can be seen in table 1 below, with full test results appended to this letter (Appendix 3).

Table 1: Summary of topsoil testing against adopted screening levels.

CONTAMINANT	No of Tests	MAX (mg.kg ⁻¹)	MEAN (mg.kg ⁻¹)	SCREENING LEVEL (SL) (mg.kg ⁻¹)	No > SL*
HUMAN HEALTH RISK ASSESSMENT					
Asbestos in soil	14	Not Detected	Not Detected	Detected	0
pH	14	8.6	8.4	5 – 9	0
Arsenic	14	6.2	4.5	37	0
Barium	14	110.0	74.1	1300	0
Cadmium	14	0.6	0.3	11	0
Chromium (III)	14	22.0	13.9	910	0
Hexavalent Chromium	14	1.8	1.8	6	0
Lead	14	64.0	35.4	200	0
Mercury	14	0.3	0.3	40	0
Nickel	14	20.0	12.3	130	0
Selenium	14	1.0	1.0	250	0
Vanadium	14	23.0	15.1	410	0
TPH Aliphatic >EC ₅ - EC ₆	14	0.010	0.010	42	0
TPH Aliphatic >EC ₆ - EC ₈	14	0.010	0.010	100	0
TPH Aliphatic >EC ₈ - EC ₁₀	14	1.000	0.364	27	0
TPH Aliphatic >EC ₁₀ - EC ₁₂	14	2.00	1.36	130	0
TPH Aliphatic >EC ₁₂ - EC ₁₆	14	8.00	4.14	1100	0
TPH Aliphatic >EC ₁₆ - EC ₂₁	14	27.00	12.14	65000	0
TPH Aliphatic >EC ₂₁ - EC ₃₅	14	25.00	16.50	1100	0
TPH Aromatic >EC ₅ - EC ₇	14	0.010	0.010	70	0
TPH Aromatic >EC ₇ - EC ₈	14	0.010	0.010	130	0
TPH Aromatic >EC ₈ - EC ₁₀	14	0.020	0.020	34	0
TPH Aromatic >EC ₁₀ - EC ₁₂	14	1.00	1.00	74	0
TPH Aromatic >EC ₁₂ - EC ₁₆	14	3.90	2.14	140	0
TPH Aromatic >EC ₁₆ - EC ₂₁	14	19.00	10.64	260	0

TPH Aromatic >EC ₂₁ - EC ₃₅	14	50.00	27.57	1100	0
Benzene	14	0.005	0.005	0.087	0
Toluene	14	0.007	0.005	130	0
Ethylbenzene	14	0.005	0.005	47	0
Xylene	14	0.013	0.012	56	0
Naphthalene	14	0.16	0.06	2.3	0
Acenaphthylene	14	0.05	0.05	170	0
Acenaphthene	14	0.40	0.11	210	0
Fluorene	14	0.34	0.10	170	0
Phenanthrene	14	3.40	0.72	95	0
Anthracene	14	0.79	0.19	2400	0
Fluoranthene	14	3.00	0.98	280	0
Pyrene	14	2.70	0.94	620	0
Benzo(a)anthracene	14	1.10	0.44	7.2	0
Chrysene	14	1.20	0.48	15	0
Benzo(b)fluoranthene	14	1.40	0.55	2.6	0
Benzo(k)fluoranthene	14	0.44	0.22	320	0
Benzo(a)pyrene	14	1.10	0.45	2.2	0
Indeno(1,2,3-c,d)pyrene	14	0.84	0.26	27	0
Dibenzo(a,h)anthracene	14	0.14	0.07	0.24	0
Benzo(g,h,i)perylene	14	1.30	0.34	77	0
Phenol	14	1.0	1.0	120	0
PHYTOTOXICITY RISK ASSESSMENT					
Copper	14	53.0	27.4	200	0
Nickel	14	20.0	12.3	110	0
Zinc	14	140.0	75.9	300	0

A total of 6 no. subsoil samples were submitted to the laboratory for analysis, with full testing results being appended to this letter. Samples were compared to screening levels specified by the RMS. A summary of the testing results can be seen in Table 2 below, with full test results appended to this letter.

Table 2: Summary of subsoil testing against adopted screening levels

CONTAMINANT	No of Tests	MAX (mg.kg ⁻¹)	MEAN (mg.kg ⁻¹)	SCREENING LEVEL (SL) (mg.kg ⁻¹)	No > SL*
HUMAN HEALTH RISK ASSESSMENT					
Asbestos in soil	6	Not Detected	Not Detected	Detected	0
pH	6	9.0	8.5	5 – 9	0
Arsenic	6	5.7	4.7	37	0
Barium	6	91.0	63.8	1300	0

Cadmium	6	0.7	0.3	11	0
Chromium (III)	6	12.0	10.4	910	0
Hexavalent Chromium	6	1.8	1.8	6	0
Lead	6	47.0	37.7	200	0
Mercury	6	0.3	0.3	40	0
Nickel	6	12.0	10.4	130	0
Selenium	6	1.1	1.0	250	0
Vanadium	6	16.0	13.3	410	0
TPH Aliphatic >EC ₅ - EC ₆	6	0.010	0.010	42	0
TPH Aliphatic >EC ₆ - EC ₈	6	0.010	0.010	100	0
TPH Aliphatic >EC ₈ - EC ₁₀	6	1.000	0.175	27	0
TPH Aliphatic >EC ₁₀ - EC ₁₂	6	2.00	1.17	130	0
TPH Aliphatic >EC ₁₂ - EC ₁₆	6	8.00	3.08	1100	0
TPH Aliphatic >EC ₁₆ - EC ₂₁	6	12.00	9.17	65000	0
TPH Aliphatic >EC ₂₁ - EC ₃₅	6	30.00	13.17	1100	0
TPH Aromatic >EC ₅ - EC ₇	6	0.010	0.010	70	0
TPH Aromatic >EC ₇ - EC ₈	6	0.010	0.010	130	0
TPH Aromatic >EC ₈ - EC ₁₀	6	0.020	0.020	34	0
TPH Aromatic >EC ₁₀ - EC ₁₂	6	1.00	1.00	74	0
TPH Aromatic >EC ₁₂ - EC ₁₆	6	2.40	2.07	140	0
TPH Aromatic >EC ₁₆ - EC ₂₁	6	17.00	11.67	260	0
TPH Aromatic >EC ₂₁ - EC ₃₅	6	47.00	27.17	1100	0
Benzene	6	0.005	0.005	0.087	0
Toluene	6	0.005	0.005	130	0
Ethylbenzene	6	0.005	0.005	47	0
Xylene	6	0.013	0.013	56	0
Naphthalene	6	0.35	0.13	2.3	0
Acenaphthylene	6	0.09	0.06	170	0
Acenaphthene	6	0.43	0.24	210	0
Fluorene	6	0.48	0.23	170	0
Phenanthrene	6	4.40	1.80	95	0
Anthracene	6	0.86	0.41	2400	0
Fluoranthene	6	5.40	2.30	280	0
Pyrene	6	4.90	2.15	620	0
Benzo(a)anthracene	6	1.80	0.92	7.2	0
Chrysene	6	1.90	0.95	15	0
Benzo(b)fluoranthene	6	1.80	1.01	2.6	0
Benzo(k)fluoranthene	6	0.79	0.39	320	0
Benzo(a)pyrene	6	1.80	0.92	2.2	0
Indeno(1,2,3-c,d)pyrene	6	0.70	0.39	27	0

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Dibenzo(a,h)anthracene	6	0.18	0.09	0.24	0
Benzo(g,h,i)perylene	6	0.79	0.46	77	0
Phenol	6	1.0	0.4	120	0
PHYTOTOXICITY RISK ASSESSMENT					
Copper	6	29.0	21.0	200	0
Nickel	6	12.0	10.4	110	0
Zinc	6	110.0	58.0	300	0

Conclusions

The cover inspections identified the presence of either topsoil or combination of topsoil and subsoil in excess of the minimum depth requirements of the remediation method statement and presence of a basal geotextile liner within the planted beds.

No exceedances above the adopted screening levels were identified within the samples.

It is concluded that the final elements of the contamination remedial works have been satisfactorily completed.

Should you have any further queries regarding the information presented above please do not hesitate to contact me.

On behalf of IDOM Merebrook,

Yours Sincerely,



Sam James

APPENDIX 1

- Soft landscaping Plan
- Site Location Plan



REFER TO HIGHWAY



REFER TO HIGHWAY
ENGINEER'S DRAWINGS
FOR S278 DESIGN

PERCOLATION TEST
To be performed on tree pits and planting areas where insufficient permeability might be an issue.
Perform the test in every tree pit or agree with the landscape architect on selected representative locations.
Instructions for performing a percolation test:
1. With a spade or soil auger, dig a hole 45-60 cm deep at the bottom of the proposed tree pit. The hole diameter should be a minimum of 10 cm. The diameter of the hole should be uniform from top to bottom with the bottom being flat.
2. Pre-wetting: Fill hole with water to the top and allow to stand for at least an hour to pre-wet the soil.
3. Refill hole to within a 5 cm of the top. Don't overflow the hole.
4. To aid in measurement, place a stick across the top of the hole and use a ruler or measuring tape to mark periodic drops in water level.
5. Allow the hole to drain for at least one hour. A longer period of time (2 to 3 hours) will give a more accurate reading of average percolation rates.
6. Determine the average drop in water level per hour and refer to the table below to interpret results.
If water level in hole drops
• Less than 1.25 cm per hour: Poorly drained and suited to wet-site species
• 1.25-2.50 cm per hour: Moderately well drained and acceptable for many species including wet site species
• More than 2.5 cm per hour: Well drained and suitable for all species including sensitivespecies.
The site manager of the main contractor/client must be informed of the tests and must be involved in the decision of the timing prior to undertaking the tests.
Please report the results to the landscape architect and the site manager prior to filling the tree pit.

THIS DRAWING IS COPYRIGHT PROTECTED AND MAY NOT BE REPRODUCED IN WHOLE OR PART WITHOUT WRITTEN AUTHORITY FROM THE OWNER.

NOTES:
1. Do not scale from this drawing.
2. Always work to noted dimensions.
3. All dimensions are in millimetres unless otherwise stated.
4. All setting out, levels and dimensions to be agreed on site.
5. The dimensions of all materials must be checked on site before being laid out.
6. This drawing must be read with the relevant specification clauses and detail drawings.
7. Order of construction and setting out to be agreed on site.

REFER TO NBS SECTION Q28 / Q31.

KEY

Planning Boundary

S278 Boundary

SOILS PLAN

Tree Pits
Semi-mature - min. 3 sq m in plan
Multi-stem - min. 2 sq m in plan
15mm bark mulch
300mm Top Soil
700mm Sub Soil
Gravel layer to base - engineer to confirm depth if required.

Hedge Planting
15mm bark mulch
300mm Top Soil
300mm Sub Soil
Gravel layer to base - engineer to confirm depth if required.

Herbaceous Planting
75mm bark mulch
300mm Top Soil
300mm Sub Soil
Gravel layer to base - engineer to confirm depth if required.

Rain Garden Planting
75mm clean sandstone gravel to top.
Sandy-loam based soil with organic matter.
Depth varies between 650mm and 1050mm due to varying gradients across top of rain gardens. Base of soil layer to be at a continuous level set at 900mm below trees.
200mm gravel layer to base.
Refer to drawings 45306-PLA-XX-EX-DR-L-6001 to 6005 for details of rain garden soil depths.

Root Barrier
Product: ReRoot 1000 Linear Root Barrier
Supplier: GreenBlue Urban.
Installed around the upper 1000mm of the tree pit trench, to supplier's specification.
Where adjacent to services a deeper product might be required.
Engineer to confirm if required in rain gardens where waterproof membrane is also specified.

NOTES
Top Soil
To be in accordance with BS3882:2015.
To be lime-free and free of deleterious materials.
Sub Soil
To be in accordance with BS8601:2013.
To be lime-free and free of deleterious materials.

S4-P08	25-07-24	Planning conditions discharge	TF	AM
S4-C01	10-04-24	Construction	TF	AM
D2-P07	24-03-23	Tender	TF	AM
S4-P06	08-02-23	Planning update	TF	AM
S4-P05	07-12-22	Stage 3 update	TF	AM
S4-P04	28-11-22	Stage 3 update	YH	AM
S4-P03	24-11-22	Stage 3	TF	AM
S4-P02	16/03/21	Updated Public realm after change to building location	CS	KR
S4-P01	26/02/21	First Issue	CS	KR

Revision	Date	Description	Drawn	Apprvd.
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Plant I.E. Limited
E: info@plantit-ie.com W: plantit-ie.com
MANCHESTER
2 Back Grafton St., Altrincham, WA14 1DY
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LONDON
Unit 6 Waterside, 44-48 Wharf Road, London, N1 7UX
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LIVERPOOL
Tempest S.3, 12 Tithelbarn Street, Liverpool, L2 2DT
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Client Manchester Life

Project Ancoats Mobility Hub

Drq Title Soils General Arrangement

Created on 15/12/2020 Created by CS Approved by KR

Scale 1:200 Size A1 Workstage Stage 5

Drq No. 45306-PLA-00-00-DR-L-2001 Suitability S4 Revision P08

APPENDIX 2 ▪ Photograph Appendix



Plate 1: Depth of MTH101 – 830mm.



Plate 2: Contextual view of MTH101.



Plate 3: Contextual view of MTH101.



Plate 4: The soils within MTH101.



Plate 5: The bottom of MTH101. Estimated topsoil: 400mm, estimated subsoil: 430mm.



Plate 6: Depth of MTH102 – 1180mm.



Plate 7: Contextual view of MTH102.



Plate 8: Contextual view of MTH102.



Plate 9: Membrane within raingarden.



Plate 10: Membrane within raingarden.



Plate 11: The bottom of MTH102. IDOM verified membrane was indeed present.



Plate 12: Membrane within raingarden.



Plate 13: Depth of MTH103 – 910mm.



Plate 14: Contextual view of MTH103.



Plate 15: Contextual view of MTH103.



Plate 16: The bottom of MTH103.



Plate 17: Contextual overview of MTH106.



Plate 18: Contextual overview of MTH106.



Plate 19: Depth check at MTH106, showing a hole depth of 750 mm.



Plate 20: Look downhole at MTH106, showing membrane as the base of the hole.



Plate 21: Contextual overview of MTH107.



Plate 22: Contextual overview of MTH107.



Plate 23: Depth check at MTH107, showing a hole depth of 600 mm.



Plate 24: Look downhole at MTH107, showing membrane as the base of the hole.



Plate 25: Contextual overview of MTH109.



Plate 26: Depth check at MTH109, showing a hole depth of 850 mm.



Plate 27: Look downhole at MTH109, showing membrane as the base of the hole.



Plate 28: Contextual overview of MTH110, an area of tree pit soft landscaping.



Plate 29: Depth check at MTH110 tree pit, showing a hole depth of 600 mm.



Plate 30: Look downhole at the tree pit at MTH110, showing concrete as the base of the hole.

APPENDIX 3 ▪ Laboratory Certificates

Merebrook
First Floor
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Westerham Road
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BR2 6HQ

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e: coliveira@idom.com
nmcnulty@idom.com

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

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-051723

Project / Site name:	Poland Street	Samples received on:	04/11/2024
Your job number:	20376F	Samples instructed on/ Analysis started on:	05/11/2024
Your order number:	24-2-FDO-LABS	Analysis completed by:	12/11/2024
Report Issue Number:	1	Report issued on:	12/11/2024
Samples Analysed:	5 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

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

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.



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Environmental Science

Analytical Report Number: 24-051723

Project / Site name: Poland Street

Your Order No: 24-2-FDO-LABS

Lab Sample Number				368435	368436	368437	368438	368439
Sample Reference				MTS104	MSS105	MSS106	MSS107	MSS108
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				01/11/2024	01/11/2024	01/11/2024	01/11/2024	01/11/2024
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	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	19	16	12	12	11
Total mass of sample received	kg	0.1	NONE	0.5	0.5	0.6	0.5	0.5

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	SCA	SCA	SCA	SCA	SCA

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.6	8.4	9	8.4	8.4
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	330	370	360	300	350
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.166	0.184	0.182	0.148	0.173
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	166	184	182	148	173
Organic Matter (automated)	%	0.1	MCERTS	5.8	4.5	0.9	0.7	0.7
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	3.4	2.6	0.5	0.4	0.4

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.11	0.09	0.35
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.07	0.05	0.09
Acenaphthene	mg/kg	0.05	MCERTS	0.12	0.09	0.33	0.43	0.43
Fluorene	mg/kg	0.05	MCERTS	0.08	0.09	0.29	0.48	0.38
Phenanthrene	mg/kg	0.05	MCERTS	0.65	0.7	2	4.4	2.5
Anthracene	mg/kg	0.05	MCERTS	0.13	0.17	0.53	0.86	0.6
Fluoranthene	mg/kg	0.05	MCERTS	0.99	1.1	2.5	5.4	3
Pyrene	mg/kg	0.05	MCERTS	0.88	1	2.3	4.9	2.9
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.42	0.51	1.1	1.8	1.3
Chrysene	mg/kg	0.05	MCERTS	0.43	0.55	1.1	1.9	1.3
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.46	0.68	1	1.8	1.5
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.18	0.21	0.48	0.79	0.47
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.38	0.55	0.98	1.8	1.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.18	0.26	0.4	0.7	0.52
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.18	0.11
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.22	0.32	0.47	0.79	0.62

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	5.12	6.25	13.7	26.5	17.3
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4041



Environmental Science

Analytical Report Number: 24-051723

Project / Site name: Poland Street

Your Order No: 24-2-FDO-LABS

Lab Sample Number				368435	368436	368437	368438	368439
Sample Reference				MTS104	MSS105	MSS106	MSS107	MSS108
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				01/11/2024	01/11/2024	01/11/2024	01/11/2024	01/11/2024
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	3.8	4.8	4.6	4.2	4.6
Barium (aqua regia extractable)	mg/kg	1	MCERTS	87	67	58	43	91
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	0.2	0.4	< 0.2	0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	22	9.5	10	9.8	9.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	11	11	10	10
Copper (aqua regia extractable)	mg/kg	1	MCERTS	24	22	26	13	20
Lead (aqua regia extractable)	mg/kg	1	MCERTS	31	38	45	28	47
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	10	10	12	8.9	9.6
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	23	14	12	12	12
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	65	58	56	34	44

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	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 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	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	25	15	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_1D_AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	25	15	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	25	15	< 10	< 10	< 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	12	11	17
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	50	38	16	14	47
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	11	10	< 10	< 10	11
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	60	38	28	25	63
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	71	49	28	25	75

TPH Total >EC5 - EC40 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	96	64	28	25	75
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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 : 24-051723****Project / Site name: Poland Street**

* 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 *
368435	MTS104	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation
368436	MSS105	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation
368437	MSS106	None Supplied	None Supplied	Brown loam and clay with gravel
368438	MSS107	None Supplied	None Supplied	Brown loam and clay with gravel
368439	MSS108	None Supplied	None Supplied	Brown loam and clay with gravel

Analytical Report Number : 24-051723

Project / Site name: Poland Street

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (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
Total organic carbon (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
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/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazine followed by colorimetry	In-house method	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

Analytical Report Number : 24-051723

Project / Site name: Poland Street

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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

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 30°C.

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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_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

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

The result for sum should be interpreted with caution

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Analytical Report Number : 24-048994

Project / Site name:	Poland Street, Ancoats	Samples received on:	21/10/2024
Your job number:	20376F	Samples instructed on/ Analysis started on:	22/10/2024
Your order number:	24-2-FDO-LABS	Analysis completed by:	29/10/2024
Report Issue Number:	1	Report issued on:	30/10/2024
Samples Analysed:	4 soil samples		


Signed:

Rachel Chappell
Key Account Manager
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

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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: 24-048994
Project / Site name: Poland Street, Ancoats
Your Order No: 24-2-FDO-LABS

Lab Sample Number	354679	354680	354681	354682
Sample Reference	MSS101	MTS101	MTS102	MTS103
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	18/10/2024	18/10/2024	18/10/2024	18/10/2024
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	13	22	15	17
Total mass of sample received	kg	0.1	NONE	0.5	0.6	0.5	0.8

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	SPU	SPU	SPU	SPU

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.5	8.5	8.5	8.3
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	340	290	210	440
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.172	0.145	0.106	0.22
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	172	145	106	220
Organic Matter (automated)	%	0.1	MCERTS	1.5	5	4.9	4
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.9	2.9	2.8	2.3

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.1	< 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	0.1	< 0.05	< 0.05	0.08
Fluorene	mg/kg	0.05	MCERTS	0.11	< 0.05	< 0.05	0.1
Phenanthrene	mg/kg	0.05	MCERTS	0.93	0.27	0.34	0.9
Anthracene	mg/kg	0.05	MCERTS	0.22	< 0.05	0.07	0.28
Fluoranthene	mg/kg	0.05	MCERTS	1.4	0.63	0.69	1.2
Pyrene	mg/kg	0.05	MCERTS	1.4	0.64	0.66	1.6
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.6	0.28	0.3	1.1
Chrysene	mg/kg	0.05	MCERTS	0.65	0.34	0.32	1.1
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.82	0.44	0.42	0.99
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.27	0.14	0.18	0.44
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.66	0.31	0.33	1.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.32	0.16	0.17	0.34
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.08	< 0.05	< 0.05	0.12
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.37	0.19	0.19	0.4

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	8.06	3.42	3.66	9.8
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Analytical Report Number: 24-048994
 Project / Site name: Poland Street, Ancoats
 Your Order No: 24-2-FDO-LABS

Lab Sample Number	354679	354680	354681	354682
Sample Reference	MSS101	MTS101	MTS102	MTS103
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	18/10/2024	18/10/2024	18/10/2024	18/10/2024
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	5.7	4.7	4.8	4.5
Barium (aqua regia extractable)	mg/kg	1	MCERTS	60	67	69	89
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.2	0.3	0.6
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	11	12	13	19
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	12	13	13	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	16	21	27	53
Lead (aqua regia extractable)	mg/kg	1	MCERTS	38	40	39	40
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	11	12	12	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	16	14	15	15
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	46	62	80	140

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	2.5	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	11	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	30	23	22	23
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_1D_AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	43	23	22	23
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	43	23	22	23

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	2.4	< 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	25	17	27	24
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	< 10	< 10	< 10	20
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	38	17	27	24
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	38	17	27	44

TPH Total >EC5 - EC40 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	81	40	49	67
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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 : 24-048994

Project / Site name: Poland Street, Ancoats

* 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 *
354679	MSS101	None Supplied	None Supplied	Brown sandy loam with gravel and vegetation
354680	MTS101	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation
354681	MTS102	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation
354682	MTS103	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation

Analytical Report Number : 24-048994

Project / Site name: Poland Street, Ancoats

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (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
Total organic carbon (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
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/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	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
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

Analytical Report Number : 24-048994
Project / Site name: Poland Street, Ancoats

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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

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 30°C.

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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_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

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

The result for sum should be interpreted with caution

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Analytical Report Number : 24-042053

Project / Site name:	Poland Street	Samples received on:	16/09/2024
Your job number:	20376F	Samples instructed on/ Analysis started on:	16/09/2024
Your order number:	24 2 FDO LABS	Analysis completed by:	23/09/2024
Report Issue Number:	1	Report issued on:	24/09/2024
Samples Analysed:	5 soil samples		


Signed:

Rachel Chappell
Key Account Manager
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

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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: 24-042053
Project / Site name: Poland Street
Your Order No: 24 2 FDO LABS

Lab Sample Number	316331	316332	316333	316334	316335
Sample Reference	TS1	TS2	TS3	TS4	TS5
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	13/09/2024	13/09/2024	13/09/2024	13/09/2024	13/09/2024
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	3	< 0.1	< 0.1	13.8	3.4
Moisture Content	%	0.01	NONE	19	18	17	18	18
Total mass of sample received	kg	0.1	NONE	0.9	0.7	0.7	0.8	0.9

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	WEM	WEM	WEM	WEM	PDO

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.4	8.5	8.5	8.5	8.5
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	190	260	180	250	300
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0928	0.131	0.0905	0.126	0.15
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	92.8	131	90.5	126	150
Organic Matter (automated)	%	0.1	MCERTS	5	5.6	3.9	4.1	4.1
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	2.9	3.2	2.2	2.4	2.3

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.06	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.09	0.11	< 0.05	0.08	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.08	0.09	< 0.05	0.09	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.46	0.76	0.24	0.44	0.23
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.2	< 0.05	0.1	0.07
Fluoranthene	mg/kg	0.05	MCERTS	0.76	1.2	0.42	0.6	0.52
Pyrene	mg/kg	0.05	MCERTS	0.71	1.1	0.4	0.57	0.51
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.37	0.54	0.17	0.27	0.23
Chrysene	mg/kg	0.05	MCERTS	0.35	0.5	0.21	0.28	0.26
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.43	0.57	0.28	0.35	0.34
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.24	0.34	0.09	0.15	0.17
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.34	0.52	0.18	0.31	0.28
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.2	0.28	0.15	0.17	0.18
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.23	0.36	0.15	0.2	0.19

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	4.34	6.62	2.29	3.6	2.99
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Analytical Report Number: 24-042053
Project / Site name: Poland Street
Your Order No: 24 2 FDO LABS

Lab Sample Number				316331	316332	316333	316334	316335
Sample Reference				TS1	TS2	TS3	TS4	TS5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				13/09/2024	13/09/2024	13/09/2024	13/09/2024	13/09/2024
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	4.1	4.8	3.6	3.8	4.1
Barium (aqua regia extractable)	mg/kg	1	MCERTS	64	72	53	57	71
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.3	< 0.2	0.2	0.4
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	12	12	11	11	13
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	12	12	11	11	13
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17	22	15	18	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	25	30	40	22	24
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	11	11	9.9	11	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	14	15	13	14	13
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	50	68	43	54	71

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	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 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	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	17	20	13	19	19
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_1D_AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	17	20	13	19	19
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	17	20	13	19	19

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	32	32	22	29	26
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	32	32	22	29	26
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	32	32	22	29	26

TPH Total >EC5 - EC40 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	49	52	35	48	45
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VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 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	7.4
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
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 : 24-042053

Project / Site name: Poland Street

* 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 *
316331	TS1	None Supplied	None Supplied	Brown clay and sand with stones
316332	TS2	None Supplied	None Supplied	Brown loam
316333	TS3	None Supplied	None Supplied	Brown clay and sand
316334	TS4	None Supplied	None Supplied	Brown loam with stones
316335	TS5	None Supplied	None Supplied	Brown loam with stones

Analytical Report Number : 24-042053

Project / Site name: Poland Street

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (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
Total organic carbon (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
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/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL	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
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
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

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 30°C.

Analytical Report Number : 24-042053
Project / Site name: Poland Street

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
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MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_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

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

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Analytical Report Number : 24-052771

Project / Site name:	Poland Street, Ancoats Mobility Hub	Samples received on:	11/11/2024
Your job number:	20376F	Samples instructed on/ Analysis started on:	11/11/2024
Your order number:	24-2-FDO-LABS	Analysis completed by:	15/11/2024
Report Issue Number:	1	Report issued on:	15/11/2024
Samples Analysed:	6 soil samples		


Signed:

Rachel Chappell
Key Account Manager
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

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

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: 24-052771
Project / Site name: Poland Street, Ancoats Mobility Hub
Your Order No: 24-2-FDO-LABS

Lab Sample Number	373794	373795	373796	373797	373798
Sample Reference	MTS105	MTS109	MTS107	MTS110	MSS110
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	08/11/2024	08/11/2024	08/11/2024	08/11/2024	08/11/2024
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	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	19	17	24	23
Total mass of sample received	kg	0.1	NONE	0.9	0.7	0.7	0.8	0.7

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

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.2	8.4	8	7.7	8.3
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	380	320	810	360	300
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.192	0.158	0.404	0.18	0.152
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	192	158	404	180	152
Organic Matter (automated)	%	0.1	MCERTS	7	5.7	4.8	6.1	7.4
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	4.1	3.3	2.8	3.5	4.3

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.07	< 0.05	0.09	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.15	< 0.05	0.22	0.06	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.09	< 0.05	0.17	0.06	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.82	0.23	1.1	0.28	0.24
Anthracene	mg/kg	0.05	MCERTS	0.21	< 0.05	0.41	0.14	0.06
Fluoranthene	mg/kg	0.05	MCERTS	1.3	0.39	1.5	0.53	0.41
Pyrene	mg/kg	0.05	MCERTS	1.1	0.36	1.4	0.48	0.4
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.52	0.17	0.59	< 0.05	0.23
Chrysene	mg/kg	0.05	MCERTS	0.55	0.21	0.66	0.24	0.22
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.72	0.23	0.77	0.31	0.26
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.26	0.11	0.22	0.12	0.13
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.54	< 0.05	0.64	0.26	0.25
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.25	0.09	0.84	0.17	0.14
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.05	< 0.05	0.14	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.27	0.11	1.3	0.31	0.17

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	6.91	1.91	10	2.95	2.51
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Analytical Report Number: 24-052771
Project / Site name: Poland Street, Ancoats Mobility Hub
Your Order No: 24-2-FDO-LABS

Lab Sample Number	373794	373795	373796	373797	373798
Sample Reference	MTS105	MTS109	MTS107	MTS110	MSS110
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	08/11/2024	08/11/2024	08/11/2024	08/11/2024	08/11/2024
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	4.9	4	5.4	4.5	4.2
Barium (aqua regia extractable)	mg/kg	1	MCERTS	77	57	110	79	64
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	0.2	0.5	0.3	0.7
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	12	15	13	17	12
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	13	16	14	17	12
Copper (aqua regia extractable)	mg/kg	1	MCERTS	45	16	40	27	29
Lead (aqua regia extractable)	mg/kg	1	MCERTS	43	28	64	33	30
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	11	13	13	13	11
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	1.1
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	14	16	16	15	14
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	54	100	86	110

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	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 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	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	11	19	27	27	12
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_1D_AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	11	19	27	27	12
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	11	19	27	27	12

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	23	34	25	23
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	< 10	13	< 10	13	12
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	23	34	25	23
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	36	34	38	36

TPH Total >EC5 - EC40 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	11	55	61	65	48
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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: 24-052771

Project / Site name: Poland Street, Ancoats Mobility Hub

Your Order No: 24-2-FDO-LABS

Lab Sample Number	373799			
Sample Reference	MTS106			
Sample Number	None Supplied			
Depth (m)	None Supplied			
Date Sampled	08/11/2024			
Time Taken	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	18
Total mass of sample received	kg	0.1	NONE	0.7

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	PDO

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.3
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	610
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.307
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	307
Organic Matter (automated)	%	0.1	MCERTS	5.6
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	3.3

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.16
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.4
Fluorene	mg/kg	0.05	MCERTS	0.34
Phenanthrene	mg/kg	0.05	MCERTS	3.4
Anthracene	mg/kg	0.05	MCERTS	0.79
Fluoranthene	mg/kg	0.05	MCERTS	3
Pyrene	mg/kg	0.05	MCERTS	2.7
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.1
Chrysene	mg/kg	0.05	MCERTS	1.2
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.4
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.39
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.49
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.1
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.59

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	17.2
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Analytical Report Number: 24-052771
Project / Site name: Poland Street, Ancoats Mobility Hub
Your Order No: 24-2-FDO-LABS

Lab Sample Number	373799			
Sample Reference	MTS106			
Sample Number	None Supplied			
Depth (m)	None Supplied			
Date Sampled	08/11/2024			
Time Taken	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	6.2
Barium (aqua regia extractable)	mg/kg	1	MCERTS	86
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (III)	mg/kg	1	NONE	12
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	13
Copper (aqua regia extractable)	mg/kg	1	MCERTS	33
Lead (aqua regia extractable)	mg/kg	1	MCERTS	37
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	15
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	89

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	14
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_1D_AL}	mg/kg	10	NONE	< 10
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	14
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	14

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	3.9
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	19
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	35
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	58
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	68

TPH Total >EC5 - EC40 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	82
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VOCs

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

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

Analytical Report Number : 24-052771

Project / Site name: Poland Street, Ancoats Mobility Hub

* 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 *
373794	MTS105	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation
373795	MTS109	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation
373796	MTS107	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation
373797	MTS110	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation
373798	MSS110	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation
373799	MTS106	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation

Analytical Report Number : 24-052771

Project / Site name: Poland Street, Ancoats Mobility Hub

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (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
Total organic carbon (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
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/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	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

Analytical Report Number : 24-052771

Project / Site name: Poland Street, Ancoats Mobility Hub

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
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

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 30°C.

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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_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

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

The result for sum should be interpreted with caution