



GROUNDTECH
CONSULTING

Job title: Dob Brook Close, Newton Heath

Report type: Cover System Verification Report – Plots 1 to 24

Prepared for: Adapt Civils

Date: February 2023

Document Control Form	
PROJECT	DOB BROOK CLOSE, NEWTON HEATH
REPORT NAME	COVER SYSTEM VALIDATION REPORT – PLOTS 1 to 24
REPORT REFERENCE	GRO-21052-4034
STATUS	FINAL
ISSUE DATE	16 DECEMBER 2022
REVISION	1.1
	13 FEBRUARY 2023
CLIENT	ADAPT CIVILS
CLIENT CONTACT	JOHN DUNNE
For and Behalf of Groundtech Consulting	
SIGNATURE	
AUTHOR	Jacob Roby BSc (Hons)
SIGNATURE	
CHECKED	Luke Harrison BSc (Hons) FGS
SIGNATURE	
REVIEWED	Richard Wyatt MEng (Hons) FGS

Introduction

Groundtech Consulting visited the housing development at Dob Brook Close in Newton Heath, Manchester to validate the depth of the cover system placed in the gardens of Plots 1 to 24 as outlined in the Groundtech Consulting Remediation Specification referenced GRO-21052-2396, dated 16th September 2021. An extract showing the validated plots is below.



Please find below the Cover System Validation Report in accordance with the agreed scope of works.

Site Works

Groundtech Consulting carried out the following site visits to undertake the validation works:

- *18th November 2022 - to validate the depth and placement of the cover system in the garden areas of Plots 3 to 5 and 22 to 24.*
- *30th November 2022 - to validate the depth and placement of the cover system in the garden areas of Plots 1 and 2.*
- *8th December 2022 - to validate the depth and placement of the cover system in the garden areas of Plots 6 to 21.*

Geo-Environmental Testing

The material used within the gardens of Plots 1 to 24 was clean imported material sourced from a greenfield site. The topsoil was imported from a Barratt Homes in Formby with a total of 193 tonnes being imported (circa 550m³). The subsoil was sourced from Marchington Stone Shire Quarry with a total of 100 tonnes being

imported to site (circa 290m³). The imported materials were tested at a frequency specified in the Remedial Specification, with a minimum of three samples being tested from both the topsoil and subsoil and compared to the remedial target values (RTVs).

Samples of the topsoil and subsoil were tested for a suite of heavy metals, speciated PAHs and asbestos as per the requirements of the Remedial Specification.

The Geo-Environmental testing results for Plots 1 to 24 are appended. No elevated Contaminants of Concern were recorded when screened against the RTVs.

The waste transfer notes for all material removed offsite are appended in this report.

Cover System Depth Validation

The depth of cover required across the site is presented within the Groundtech Consulting Remedial Specification. If Made Ground is present at garden formation level, the cover system should comprise 600mm of topsoil and subsoil (minimum of 150mm of topsoil). The remedial specification does not specify a requirement for a remediation break layer and has not been installed.

Inspection pits were excavated by hand to confirm the placement of the cover system in the garden areas of Plots 1 to 24. The position of the hand dug verification pits are presented on Groundtech Plan *GRO-21052-P03*. In addition, validation photographs are appended to this report which verify the presence of at least 600mm of clean cover comprising a minimum of 150mm of topsoil and 450mm of subsoil.

The cover system comprised dark brown sandy silty Topsoil to depths of between 0.15m and 0.2m bgl and the subsoil consisted of dark brown silty gravelly Sand to depths in excess of 600mm. No anthropogenic materials were present in the topsoil or subsoil.

Conclusions

The material used for the cover system of Plots 1 to 24 was all imported and suitable for residential with plant uptake end use based on the results of laboratory testing adhering to the Remedial Specification produced by Groundtech Consulting.

The depth validation excavations in the garden areas confirm the presence of at least 600mm cover in accordance with the remedial requirements.

Based on the recent site visits and laboratory testing, the cover system installed in Plots 1 to 24 is suitable for the proposed residential end use.



Plans



GROUNDTECH
CONSULTING



CLIENT

ADAPT CIVILS

PROJECT TITLE

DOB BROOK CLOSE, NEWTON HEATH

PLAN TITLE

COVER SYSTEM VALIDATION PLAN

DATE

DECEMBER 2022

SCALE

NTS

PLAN NUMBER

GRO-21052-P03

Rev.	Details	Date

Status

Preliminary

Draft

Issued

For Comment

Approved

Notes

VALIDATED PLOT LOCATIONS

✕ HAND DUG VERIFICATION PIT LOCATION



Imported Soil Analysis



TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Mr Mark Bennett
MB Soils & Groundworks Limited
46-52 Richmond Hill
Wigan
WN5 8AA

27th July 2021
Our Ref: TOHA/21/7082/SS
Your Ref: see below

Dear Sirs

Topsoil Analysis Report: Barratt Homes, Fornby

We have completed the analysis of the soil sample recently submitted, referenced *Barratt Homes, Fornby Topsoil*, and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the sample for general landscape purposes (trees, shrubs, amenity grass). In addition, the sample has been assessed to determine its compliance with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil - Table 1, Multipurpose Topsoil*).

This report presents the results of analysis for the sample submitted to our office, and it should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by third parties as a means of verification testing, validation testing or waste designation purposes.

SAMPLE EXAMINATION

The sample was described as a very dark greyish brown (Munsell Colour 10YR 3/2), slightly moist, friable, non-calcareous LOAMY SAND with a weakly developed, very fine to fine, and occasionally medium, granular structure*. The sample was slightly stony and no unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

*This appraisal of soil structure was made from examination of a disturbed sample(s). Structure is a key soil characteristic that may only be accurately assessed by examination in an in-situ state.

ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- particle size analysis (sand, silt, clay);
- stone content (2-20mm, 20-50mm, >50mm);
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- heavy metals (As, B, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn);
- total cyanide and total (mono) phenols;
- speciated PAHs (US EPA16 suite);
- aromatic and aliphatic TPH (C5-C35 banding);
- benzene, toluene, ethylbenzene, xylene (BTEX);
- asbestos screen.

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

RESULTS OF ANALYSIS

Particle Size Analysis and Stone Content

The sample fell into the *loamy sand* texture class, which is usually considered suitable for general landscape applications provided the soil's physical condition is satisfactory.

The stone content of the sample was low and, as such, stones should not restrict the use of the soil for general landscape purposes.

pH and Electrical Conductivity Values

The sample was slightly acid in reaction (pH 6.9), with a pH value that would be considered ideal for general landscape purposes.

The electrical conductivity (salinity) value (water extract) was low, which indicates that soluble salts should not be present at levels that would be harmful to plants.

The electrical conductivity value by CaSO₄ extract (*BS3882* requirement) fell below the maximum specified value (3300 µS/cm) given in *BS3882:2015 – Table 1*.

Organic Matter and Fertility Status

The sample was adequately supplied with organic matter, extractable phosphorus, and extractable magnesium, but was deficient in total nitrogen and extractable potassium. These deficiencies can be remedied by an appropriate fertiliser application.

The C:N ratio of the sample was acceptable for general landscape purposes.

Potential Contaminants

With reference to *BS3882:2015 - Table 1*: Notes 3 and 4, there is a recommendation to confirm levels of potential contaminants in relation to the topsoil's proposed end use. This includes human health, environmental protection and metals considered toxic to plants. In the absence of site-specific assessment criteria, the concentrations that affect human health have been compared with the *residential with home-grown produce* land use in the Suitable For Use Levels (S4ULs) presented in *The LQM/CIEH S4ULs for Human Health Risk Assessment* (2015) and the DEFRA SP1010: *Development of Category 4 Screening Levels (C4SLs) for Assessment of Land Affected by Contamination – Policy Companion Document* (2014).

Of the potential contaminants determined, none was found at levels that exceeded their guideline values.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded the maximum permissible levels specified in *BS3882:2015 – Table 1*.

CONCLUSION

The purpose of the analysis was to determine the suitability of the topsoil sample for general landscape purposes. The analysis has also been undertaken to determine the sample's compliance with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil - Table 1, Multipurpose Topsoil*).

From the soil examination and subsequent laboratory analysis, the sample was described as a slightly acid, non-saline, non-calcareous loamy sand with a weakly developed structure and low stone content. The sample was adequately supplied with organic matter, extractable phosphorus, and extractable magnesium, but was deficient in total nitrogen and extractable potassium. Of the potential contaminants determined, none exceeded their respective guideline values.

Based on our findings, the topsoil represented by this sample would be considered suitable for general landscape purposes, provided the deficiencies in total nitrogen and extractable potassium are remedied by an appropriate application of fertiliser and provided the soil's physical condition is satisfactory.

The sample was largely compliant with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*) with the exception of the low total nitrogen and extractable potassium contents. On this occasion, these non-compliances are considered minor provided they are remedied by a suitable fertiliser application prior to planting / seeding / turfing.

RECOMMENDATIONS

Fertiliser for Planting

To address the nutrient deficiencies and to help promote effective plant establishment, we recommend applying and incorporating the compound, controlled release fertiliser *ICL Osmocote PrePlant* (17%N:9%P₂O₅:10%K₂O:2%MgO+TE) at a rate of 70 g/m² for planting beds and/or 180 g/tree pit, and to a depth of 200mm.

Fertiliser for Amenity Grass Establishment

To address the nutrient deficiencies and to help promote effective grass establishment, we recommend applying and incorporating the pre-seeding grass fertiliser *ICL Sportsmaster Pre-seeder* (8%N:12%P₂O₅:8%K₂O+3%MgO) prior to seeding or turfing at a rate of 35 g/m² and to a depth of 100mm.

Soil Handling Recommendations

It is important to maintain the physical condition of the soil and avoid structural damage during all phases of soil handling (e.g. stockpiling, resspreading, cultivating, planting, seeding or turfing). As a consequence, soil handling operations should be carried out when soil is reasonably dry and non-plastic (friable) in consistency.

It is important to ensure that the soil is not unnecessarily compacted by trampling or trafficking by site machinery, and soil handling should be stopped during and after heavy rainfall and not continued until the soil is friable in consistency. If the soil is structurally damaged and compacted at any stage during the course of soiling or landscaping works, it should be cultivated appropriately to relieve the compaction and to restore the soil's structure prior to any planting, turfing or seeding.

Further details on soil handling are provided in Annex A of *BS3882:2015*.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully



Aaron Cross
BSc MSc
Soil Scientist



Tim White
BSc MSc MScilSci CSci
Senior Associate

For & on behalf of Tim O'Hare Associates LLP



TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Client:	MB Soils & Groundworks Ltd
Project:	Barratt Homes, Fornby
Job:	Topsoil Analysis - BS3882:2015
Date:	27/07/2021
Job Ref No:	TOHA/21/7082/SS

Sample Reference		Accreditation
Clay (<0.002mm)	%	UKAS
Silt (0.002-0.063mm)	%	UKAS
Sand (0.063-2.0mm)	%	UKAS
Texture Class (UK Classification)	--	UKAS
Stones (2-20mm)	% DW	GLP
Stones (20-50mm)	% DW	GLP
Stones (>50mm)	% DW	GLP

pH Value (1:2.5 water extract)	units	UKAS
Electrical Conductivity (1:2.5 water extract)	uS/cm	UKAS
Electrical Conductivity (1:2 CaSO ₄ extract)	uS/cm	UKAS
Exchangeable Sodium Percentage	%	UKAS
Organic Matter (LOI)	%	UKAS
Total Nitrogen (Dumas)	%	UKAS
C : N Ratio	ratio	UKAS
Extractable Phosphorus	mg/l	UKAS
Extractable Potassium	mg/l	UKAS
Extractable Magnesium	mg/l	UKAS

Total Arsenic (As)	mg/kg	MCERTS
Total Cadmium (Cd)	mg/kg	MCERTS
Total Chromium (Cr)	mg/kg	MCERTS
Hexavalent Chromium (Cr VI)	mg/kg	MCERTS
Total Copper (Cu)	mg/kg	MCERTS
Total Lead (Pb)	mg/kg	MCERTS
Total Mercury (Hg)	mg/kg	MCERTS
Total Nickel (Ni)	mg/kg	MCERTS
Total Selenium (Se)	mg/kg	MCERTS
Total Zinc (Zn)	mg/kg	MCERTS
Water Soluble Boron (B)	mg/kg	MCERTS
Total Cyanide (CN)	mg/kg	MCERTS
Total (mono) Phenols	mg/kg	MCERTS

Naphthalene	mg/kg	MCERTS
Acenaphthylene	mg/kg	MCERTS
Acenaphthene	mg/kg	MCERTS
Fluorene	mg/kg	MCERTS
Phenanthrene	mg/kg	MCERTS
Anthracene	mg/kg	MCERTS
Fluoranthene	mg/kg	MCERTS
Pyrene	mg/kg	MCERTS
Benz(a)anthracene	mg/kg	MCERTS
Chrysene	mg/kg	MCERTS
Benzo(b)fluoranthene	mg/kg	MCERTS
Benzo(k)fluoranthene	mg/kg	MCERTS
Benzo(a)pyrene	mg/kg	MCERTS
Indeno(1,2,3-cd)pyrene	mg/kg	MCERTS
Dibenzo(a,h)anthracene	mg/kg	MCERTS
Benzo(g,h,i)perylene	mg/kg	MCERTS
Total PAHs (sum USEPA16)	mg/kg	MCERTS

Aliphatic TPH >C5 - C6	mg/kg	MCERTS
Aliphatic TPH >C6 - C8	mg/kg	MCERTS
Aliphatic TPH >C8 - C10	mg/kg	MCERTS
Aliphatic TPH >C10 - C12	mg/kg	MCERTS
Aliphatic TPH >C12 - C16	mg/kg	MCERTS
Aliphatic TPH >C16 - C21	mg/kg	MCERTS
Aliphatic TPH >C21 - C35	mg/kg	MCERTS
Aliphatic TPH (C5 - C35)	mg/kg	MCERTS
Aromatic TPH >C5 - C7	mg/kg	MCERTS
Aromatic TPH >C7 - C8	mg/kg	MCERTS
Aromatic TPH >C8 - C10	mg/kg	MCERTS
Aromatic TPH >C10 - C12	mg/kg	MCERTS
Aromatic TPH >C12 - C16	mg/kg	MCERTS
Aromatic TPH >C16 - C21	mg/kg	MCERTS
Aromatic TPH >C21 - C35	mg/kg	MCERTS
Aromatic TPH (C5 - C35)	mg/kg	MCERTS

Benzene	mg/kg	MCERTS
Toluene	mg/kg	MCERTS
Ethylbenzene	mg/kg	MCERTS
p & m-xylene	mg/kg	MCERTS
o-xylene	mg/kg	MCERTS
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	MCERTS

Asbestos Screen	ND/D	ISO 17025
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LS = LOAMY SAND

Visual Examination

The sample was described as a very dark greyish brown (Munsell Colour 10YR 3/2), slightly moist, friable, non-calcareous LOAMY SAND with a weakly developed, very fine to fine, and occasionally medium, granular structure. The sample was slightly stony and no unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

Results of analysis should be read in conjunction with the report they were issued with

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Barratt Homes, Fornby Topsoil

10
10
80
LS
3
0
0

6.9
181
2118
0.7
3.1
0.12
15
24
45
71

13
< 0.2
25
< 4.0
31
72
< 0.3
20
< 1.0
53
0.6
< 1.0
< 1.0

< 0.05
< 0.05
< 0.05
< 0.05
0.50
< 0.05
0.64
0.59
0.34
0.36
0.33
0.23
0.33
< 0.05
< 0.05
< 0.05
3.3

< 0.001
< 0.001
< 0.001
< 1.0
< 2.0
< 8.0
< 8.0
< 10
< 0.001
< 0.001
< 0.001
< 1.0
< 2.0
< 10
13
20

< 0.001
< 0.001
< 0.001
< 0.001
< 0.001
< 0.001

Not-detected

Aaron Cross

Aaron Cross
BSc MSc
Soil Scientist



Certificate of Analysis

Client: STUART BALDWIN
(T283) SED SERVICES LTD
LANDGATE FARM
LANDGATE LANE
BRYN
WIGAN WN4 0EJ

Originator: BRYN HALL SHEDS
TOPSOIL

Lab ID: 81160 - 64062
Sample ID: TOPSOIL
Sample Weight: 870g

Date Received: 20/12/2021
Date Reported: 03/02/2022

BS 3882 : 2015 SPECIFICATION FOR TOPSOIL Multipurpose Grade

				Compliant with range (Y/N)					
				Multi-P	Acid	Calc	Low-F	Low-F Acid	Low-F Calc
Texture:	Clay	% w/w	9						
	Silt	% w/w	9						
	Sand	% w/w	82						
	Textural Class	Organic Loamy Sand		Y	Y	Y	Y	Y	Y
Organic Matter:		% w/w	11.0	Y	Y	Y	Y	Y	Y
Coarse	>2 mm	% w/w	4.2	Y	Y	Y	Y	Y	Y
Fragment	>20 mm	% w/w	0.0	Y	Y	Y	Y	Y	Y
Content:	>50 mm	% w/w	0.0	Y	Y	Y	Y	Y	Y
Soil pH:			8.2	Y	N	Y	Y	N	Y
Carbonate:		% w/w	2.5			Y			Y
Available	Nitrogen	% w/w	0.575	Y	Y	Y			
Plant	Phosphorus	mg/l	82.0 (5)*	Y	Y	Y	N	N	N
Nutrients:	Potassium	mg/l	1315.1 (6)*	Y	N	N			
	Magnesium	mg/l	203.2 (4)*	Y	Y	Y			
Carbon:Nitrogen Ratio:		:1	11.1	Y	Y	Y	Y	Y	Y
Exchangeable Sodium Percentage:		%	8.1						
Phytotoxic	Total Zinc	mg/kg	90.4	Y	Y	Y	Y	Y	Y
Contaminants:	Total Copper	mg/kg	28.7	Y	Y	Y	Y	Y	Y
	Total Nickel	mg/kg	13.9	Y	Y	Y	Y	Y	Y
Visible	> 2mm	% w/w	0.00	Y	Y	Y	Y	Y	Y
Contaminants:	Plastics	% w/w	0.00	Y	Y	Y	Y	Y	Y
	Number of Sharps		0	Y	Y	Y	Y	Y	Y
Additional	Available Sodium	mg/l	249.0						
Analysis:	Available Calcium	mg/l	1145.0						
	Conductivity	uS/cm	1610	Y					
Compliance:				Y	N	N	N	N	N

Results are expressed on a dry matter basis.

* Soil indices from RB209

Released by:

Joe Cherrie

Date: 03/02/2022

DECLARATION:

I certify that this sample has been analysed by NRM in accordance with BS 3882 Specification for Topsoil (2015).

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www:** nrm.uk.com



Analytical Report

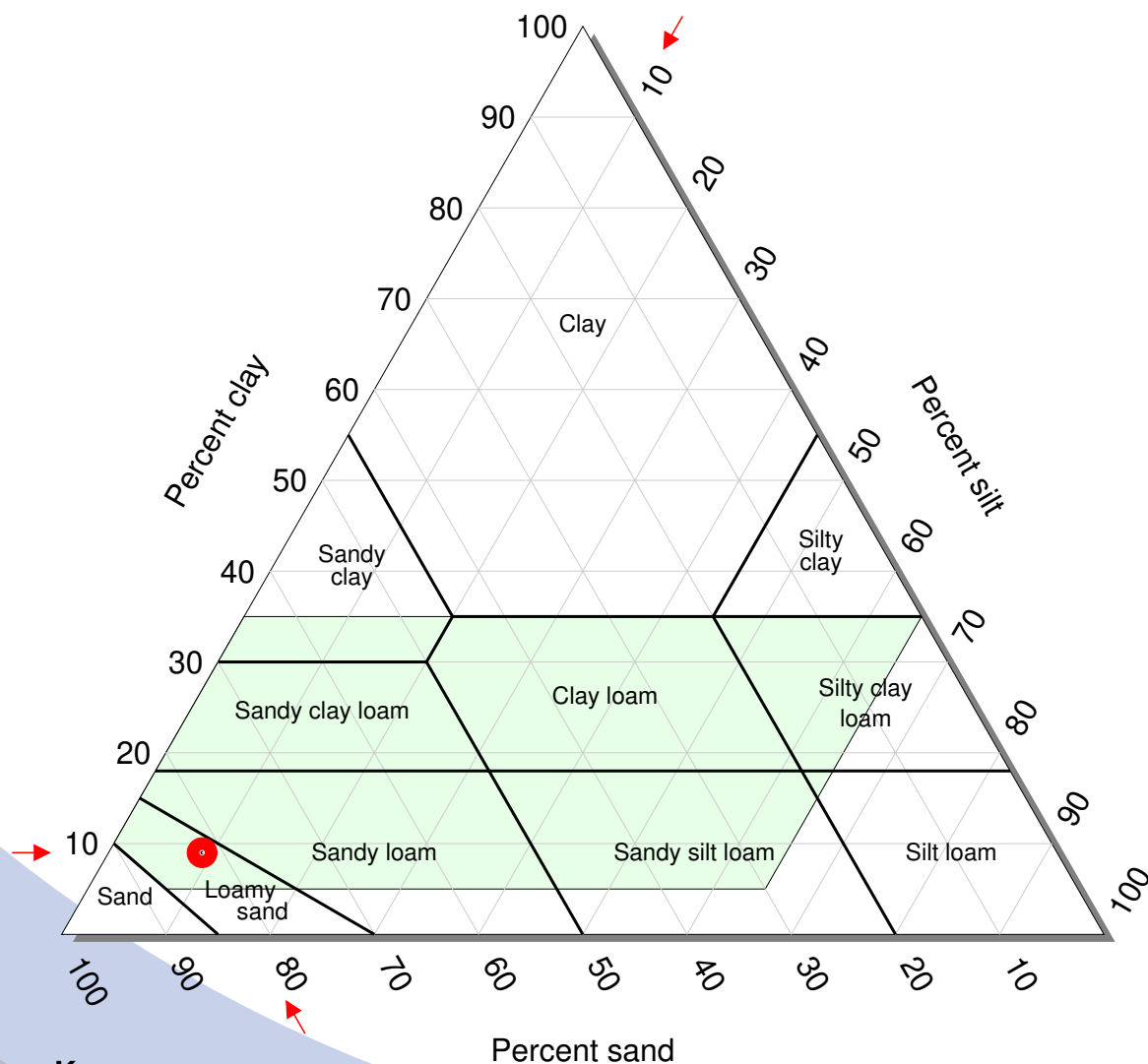
Client: STUART BALDWIN
(T283) SED SERVICES LTD
LANDGATE FARM
LANDGATE LANE
BRYN
WIGAN WN4 0EJ

Originator: BRYN HALL SHEDS
TOPSOIL

Lab ID: 81160 - 64062
Sample ID: TOPSOIL
Sample Weight: 870g

Date Received: 20/12/2021
Date Reported: 03/02/2022

Fig. 1. Textural Class: Organic Loamy Sand (compliant)



Key



Area within which texture of topsoil is required to fall.



Jeff Dean Barcal
Marchington Stone Ltd
105 Buxton Road
High Lane
Stockport
Cheshire
SK6 8DX

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

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

e:

Analytical Report Number : 21-12967

Replaces Analytical Report Number: 21-12967, issue no. 1
Result correction by laboratory.

Project / Site name:	MSSH	Samples received on:	28/09/2021
Your job number:	MSSH	Samples instructed on/ Analysis started on:	28/09/2021
Your order number:	MS SHQ SS	Analysis completed by:	18/10/2021
Report Issue Number:	2	Report issued on:	18/10/2021
Samples Analysed:	1 soil sample		

Signed: *Karolina Marek*

Karolina Marek
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.

i2 Analytical
7 Woodshots Meadow
Croxtley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Certificate of Analysis						
BS 8601:2013 Specification For Subsoil						
Report No:	21-12967			Marchington Stone Ltd 105 Buxton Road High Lane Stockport Cheshire SK6 8DX		
Location	MSSH					
Lab Reference (Sample Number)	2027866					
Sampling Date	27/09/2021					
Sample ID	MSSH Subsoil					
Depth (m)						
Texture		unit	Result	Compliant with range (Y/N)		
	Clay	%w/w	10.80	Multipurpose subsoil	Specific purpose subsoil	
	Silt	%w/w	14.80		Acidic	Calcareous
	Sand	%w/w	74.4			
	Texture Class		SANDY LOAM	Y	Y	Y
Mass Loss on Ignition		%	1.74	Y	Y	Y
Coarse fragment content	>2mm	%w/w	36.00	Y	Y	Y
	>20mm	%w/w	0.00	Y	Y	Y
	>75mm	%w/w	0.00	Y	Y	Y
Soil pH		pH	8.10	Y	N	Y
Carbonate		%	0.20	-	-	N
Exchangable Sodium Percentage		%	1.00	Y	Y	Y
Phytotoxic contaminants	Total Zinc	mg/kg	52.00	Y	Y	Y
	Total Copper	mg/kg	7.40	Y	Y	Y
	Total Nickel	mg/kg	18.00	Y	Y	Y
Visible contaminants	>2mm	%w/w	0.00	Y	Y	Y
	Plastics	%w/w	0.00	Y	Y	Y
	Sharps	%w/w	0.00	Y	Y	Y
Available plant nutrients	Phosphorus	mg/l	4.90			
	Potassium	mg/l	59.80			
	Magnesium	mg/l	460.00			
Additional analysis	Available Sodium	mg/l	26.00			
	Available Calcium	mg/l	1400.00			
	Conductivity	uS/cm	1900.00			
	Conductivity CaSO4 Adj.	uS/cm	< 10			
Compliance				Pass	Fail	Fail
Pass BS 8601						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation

* = UKAS accredited

** = MCERTS accredited



Analytical Report Number : 21-12967
Project / Site name: MSSH

* 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 *
2027866	MSSH Subsoil	None Supplied	None Supplied	Brown loam with gravel.

Analytical Report Number : 21-12967

Project / Site name: MSSH

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Geotechnical Testing in Soil	See attached geotechnical report	See attached geotechnical report		W	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.	L038-PL	D	MCERTS
75 mm Coarse Fraction - BS8601 Subsoil	Determination of > 75 mm fraction by gravimetry.	BS8601:2013		D	NONE
Carbonate - BS8601 Subsoil	Determination of soil carbonate content	BS8601:2013	L034-PL	D	NONE
Loss on Ignition - BS8601	Determination of Loss on Ignition as defined in BS8601	BS8601:2013		D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	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.	L019-UK/PL	D	NONE
Subsoil	See attached report.	BS 8601: 2013	PL	W	NONE
Textural Classification Diagram	-	BS8601:2013		D	NONE
Conductivity (BS3882/BS8601)	Determination of the conductivity of soil in accordance with BS 3882:2007 methodology	BS3882:2007 & BS8601:2013	L099-PL	D	NONE
pH (BS3882/BS8601)	Determination of the pH of soil in accordance with BS 3882:2007 methodology	BS3882:2007 & BS8601:2013	L099-PL	D	NONE
Phosphorus (BS3882/BS8601)	Determination of the extractable phosphorus in soil, in accordance with BS3882:2007 methodology.	BS3882:2007 & BS8601:2013	L038-PL	D	NONE
Extractable/Available Metals (BS3882/BS8601)	Determination of the extractable metals in soil, in accordance with BS3882:2007 methodology.	BS3882:2007 & BS8601:2013	L038-PL	D	NONE
Sodium (exchangeable %)	Determination of exchangeable sodium (%) by calculation, in accordance with BS3882:2007 methodology.	BS3882:2007	L028-PL	D	NONE
Textural Classification (BS3882/BS8601)	Determination of the textural classification of soil following BS3882:2007 methodology.	BS3882:2007 & BS8601:2013	L01TS	D	NONE
Coarse Fragment and Contaminant Analysis	Determination of >2mm contaminants	BS3882:2007 & BS8601:2013 & PAS 100:2005	L01TS	D	NONE



Analytical Report Number : 21-12967
Project / Site name: MSSH

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

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

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' 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.

Jeff Dean Barcal
 Marchington Stone Ltd
 105 Buxton Road
 High Lane
 Stockport
 Cheshire
 SK6 8DX

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

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

e:

Analytical Report Number : 21-12965

Project / Site name:	MSSH	Samples received on:	28/09/2021
Your job number:	MSSH	Samples instructed on/ Analysis started on:	28/09/2021
Your order number:	MS SHQ SS	Analysis completed by:	08/10/2021
Report Issue Number:	1	Report issued on:	08/10/2021
Samples Analysed:	1 soil sample		

Signed: *A. Czerwińska*

Agnieszka Czerwińska
 Technical Reviewer (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.

Analytical Report Number: 21-12965
Project / Site name: MSSH
Your Order No: MS SHQ SS

Lab Sample Number				2027864
Sample Reference				MSSH Subsoil
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				27/09/2021
Time Taken				0830
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	5.5
Total mass of sample received	kg	0.001	NONE	0.70

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
------------------	------	-----	-----------	--------------

General Inorganics

Organic Matter (automated)	%	0.1	MCERTS	0.6
----------------------------	---	-----	--------	-----

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80
-----------------------------	-------	-----	--------	--------

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	3.1
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2
Chromium (III)	mg/kg	1	NONE	19
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	11
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	58

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0

Analytical Report Number: 21-12965
Project / Site name: MSSH
Your Order No: MS SHQ SS

Lab Sample Number				2027864
Sample Reference				MSSH Subsoil
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				27/09/2021
Time Taken				0830
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	< 10
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 21-12965

Project / Site name: MSSH

* 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 *
2027864	MSSH Subsoil	None Supplied	None Supplied	Brown loam and clay with gravel.

Analytical Report Number : 21-12965
Project / Site name: MSSH

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
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.	L019-UK/PL	D	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS

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

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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.

Sample Deviation Report



Analytical Report Number : 21-12965
Project / Site name: MSSH

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
MSHH Subsoil	None Supplied	S	2027864	b	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	b
MSHH Subsoil	None Supplied	S	2027864	b	Speciated EPA-16 PAHs in soil	L064-PL	b
MSHH Subsoil	None Supplied	S	2027864	b	TPH in (Soil)	L076-PL	b
MSHH Subsoil	None Supplied	S	2027864	b	TPHCWG (Soil)	L088/76-PL	b

TEST CERTIFICATE

Specification for Subsoil

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



Tested in Accordance with: BS 8601: 2013

Client: Marchington Stone Ltd
Client Address: 105 Buxton Road, High Lane, □
Stockport, Cheshire, □
SK6 8DX

Contact: Jeff Dean Barcal
Site Address: MSSH

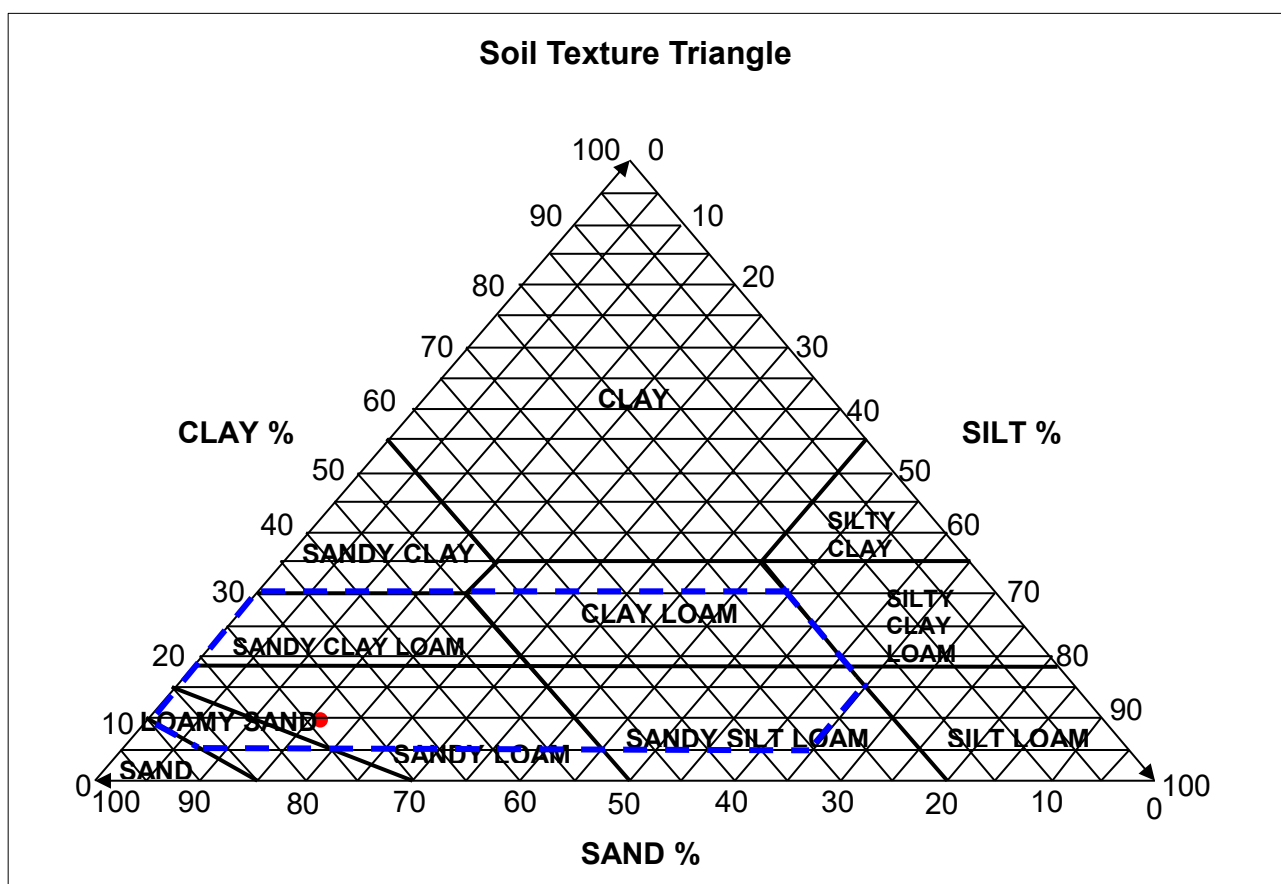
Client Reference: MSSH
Job Number: 21-12967
Date Sampled: 27/09/2021
Date Received: 28/09/2021
Date Tested: 14/10/2021
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2027866
Hole No.: MSSH Subsoil
Sample Reference: Not Given
Sample Description: SANDY LOAM

Depth Top [m]: Not Given
Depth Base [m]: Not Given
Sample Type: D



Sample Proportion	% dry mass
Sand	74.4
Silt	14.8
Clay	10.8

Remarks:

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

Signed:

Monika Janoszek
PL Deputy Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Waste Transfer Notes

Maher

W. Maher & Sons Ltd.
Civil Engineering Contractors

W. MAHER & SONS LTD.

Rixton Old Hall, Manchester Road, Rixton, Warrington WA3 6EW

T : 0161 776 2200 F: 0161 848 7357

E : enquiries@wmaherandsons.com

W : www.wmaherandsons.com

Waste Transfer Note

SECTION A - DESCRIPTION OF WASTE (To be completed by Holder/Producer of the waste)

EWG Code (Tick one box only)

☐	17:01:01	Concrete	☒	17:05:04	Naturally occurring sub-soil and crushed stone
☐	17:01:02	Bricks	☐	17:09:04	Mixed construction and demolition waste
☐	17:01:07	Concrete, brick and tile	☐		Other: Insert EWC and describe below

How is the waste Contained

8 Wheel Tipper ☒

SECTION B - HOLDER / PRODUCER OF THE WASTE

SIC 4 3 9 9 9

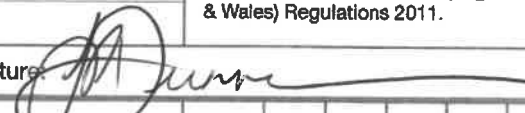
Holder / Producer: ADAPT CIVILS

Location/address of the Collection Point: DOB BROOK CLOSE
NEWTON HEATH MANCHESTER

Declaration (by Holder)

I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England & Wales) Regulations 2011.

Name: JOHN DUNNE

Signature: 

SECTION C - PERSON COLLECTING THE WASTE (CARRIER)

SIC 4 9 4 1 0

Carrier: W Maher & Sons Ltd

Carrier Address: Rixton Old Hall, Manchester Road, Rixton, Warrington WA3 6EW

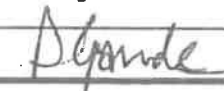
Carrier Registration No.: CBDU90617

Expiry Date: 25/03/2022

Issued by: Environment Agency

Date of Transfer: 19/5/22 - 31 JAN 2023 (for multiple consignments state duration, max 12 months)

Name: P. CLARKE

Signature: 

SECTION D - DISPOSAL / RECOVERY FACILITY (Indicate facility used)

Facility Operator: Churchill Enviro Ltd

Facility Address: ☒ Fletcher Bank, Ramsbottom, BL0 0HD

☐ Hutchbank, Haslingden, BB4 4PB

Facility Permit No.: EPR/GP3733 FE

EPR/BB 3702 HL

Date of Transfer: 19/5/22 - 31 JAN 2023 (for multiple consignments, state duration, max 12 months)

Name: T. ANNIS

Signature: 

IF WASTE IS SENT DIRECTLY TO LANDFILL SITE IN ENGLAND OR WALES THE FOLLOWING DECLARATION MUST BE SIGNED (BY CARRIER).

We confirm that the waste delivered by the above named company has been treated as highlighted below.

The material has gone through a physical, thermal, chemical or biological process including: sorting characteristics of the waste have been changed/volume has been reduced/ hazardous nature has been reduced/handling has been facilitated/recovery has been enhanced. (Delete as required)

Name:

Signature:

DISTRIBUTION:

WHITE-HOLDER

YELLOW-OFFICE

BLUE-FACILITY OPERATOR

THIS DOCUMENT MUST BE RETAINED UNTIL 2 YEARS AFTER LAST TRANSFER DATE SHOWN IN SECTION D

Maher

W. Maher & Sons Ltd.
Civil Engineering Contractors

W. MAHER & SONS LTD.

Rixton Old Hall, Manchester Road, Rixton, Warrington WA3 6EW

T : 0161 776 2200 F: 0161 848 7357

E : enquiries@wmaherandsons.com

W : www.wmaherandsons.com

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EWG Code (Tick one box only)

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☐	17:01:07	Concrete, brick and tile	☐		Other: Insert EWC and describe below

How is the waste Contained

8 Wheel Tipper ☒

SECTION B - HOLDER / PRODUCER OF THE WASTE

SIC 4 3 9 9 9

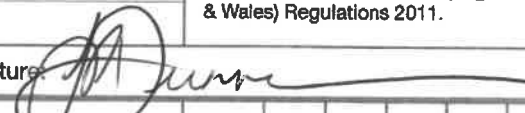
Holder / Producer: ADAPT CIVILS

Location/address of the Collection Point: DOR BROOK CLOSE
NEWTON HEATH MANCHESTER

Declaration (by Holder)

I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England & Wales) Regulations 2011.

Name: JOHN DUNNE

Signature: 

SECTION C - PERSON COLLECTING THE WASTE (CARRIER)

SIC 4 9 4 1 0

Carrier: W Maher & Sons Ltd

Carrier Address: Rixton Old Hall, Manchester Road, Rixton, Warrington WA3 6EW

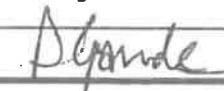
Carrier Registration No.: CBDU90617

Expiry Date: 25/03/2022

Issued by: Environment Agency

Date of Transfer: 19/5/22 - 31 JAN 2023 (for multiple consignments state duration, max 12 months)

Name: P. CLARKE

Signature: 

SECTION D - DISPOSAL / RECOVERY FACILITY (Indicate facility used)

Facility Operator: Churchill Enviro Ltd

Facility Address: ☒ Fletcher Bank, Ramsbottom, BL0 0HD

☐ Hutchbank, Haslingden, BB4 4PB

Facility Permit No.: EPR/GP3733 FE

EPR/BB 3702 HL

Date of Transfer: 19/5/22 - 31 JAN 2023 (for multiple consignments, state duration, max 12 months)

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Signature: 

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Name:

Signature:

DISTRIBUTION:

WHITE-HOLDER

YELLOW-OFFICE

BLUE-FACILITY OPERATOR

THIS DOCUMENT MUST BE RETAINED UNTIL 2 YEARS AFTER LAST TRANSFER DATE SHOWN IN SECTION D

Exploratory Hole Logs



Trialpit No

Plot 1

Sheet 1 of 1

Project Name:	DOB BROOK CLOSE
---------------	-----------------

Project No.	GRO-21052
-------------	-----------

Co-ords:	-
Level:	

Date
30/11/2023

Location: NEWTON HEATH

Dimensions
(m):

Scale
1:25

Client: GUINNESS PARTNERSHIP

Depth
0.60

Logged
JR

[illegible]

Remarks: 1. Hand excavated pit undertaken to 0.6m bgl. 2. Pit backfilled with arisings.

Stability:



				Trial Pit Log			Trialpit No Plot 3 Sheet 1 of 1		
Project Name: DOB BROOK CLOSE				Project No. GRO-21052		Co-ords: - Level:		Date 18/11/2023	
Location: NEWTON HEATH				Client: GUINNESS PARTNERSHIP		Dimensions (m): Depth 0.67		Scale 1:25	
		Logged JR							
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
				0.15			Dark brown sandy silty TOPSOIL. Sand is fine to medium.		
							Dark brown silty gravelly fine to medium SAND. Gravel is subangular to subrounded fine to medium of mixed lithologies.		
				0.67			End of pit at 0.67 m		
								1	
								2	
								3	
								4	
								5	
Remarks: 1. Hand excavated pit undertaken to 0.6m bgl. 2. Pit backfilled with arisings.									
Stability:									

Trial Pit Log

Trialpit No

Plot 5

Sheet 1 of 1

Project Name:	DOB BROOK CLOSE
---------------	-----------------

Project No.	GRO-21052
-------------	-----------

Co-ords:	-
Level:	

Date
18/11/2023

Location: NEWTON HEATH

Dimensions
(m):

Scale
1:25

Client: GUINNESS PARTNERSHIP

Depth
0.67

Logged
JR

[illegible]

Remarks: 1. Hand excavated pit undertaken to 0.6m bgl. 2. Pit backfilled with arisings.

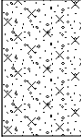
Stability:



Trial Pit Log

Trialpit No
Plot 6
Sheet 1 of 1

Project Name: DOB BROOK CLOSE	Project No. GRO-21052	Co-ords: - Level:	Date 08/12/2023
Location: NEWTON HEATH	Dimensions (m): Depth 0.60		Scale 1:25
Client: GUINNESS PARTNERSHIP			Logged RR

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES		0.15			Dark brown sandy silty TOPSOIL. Sand is fine to medium.	
	0.40	ES		0.60			Dark brown silty gravelly fine to medium SAND. Gravel is subangular to subrounded fine to medium of mixed lithologies.	
							End of pit at 0.60 m	
								1
								2
								3
								4
								5

Remarks: 1. Hand excavated pit undertaken to 0.6m bgl. 2. Pit backfilled with arisings.

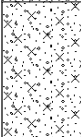
Stability:



Trial Pit Log

Trialpit No
Plot 10
Sheet 1 of 1

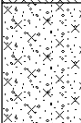
Project Name: DOB BROOK CLOSE	Project No. GRO-21052	Co-ords: - Level:	Date 08/12/2023
Location: NEWTON HEATH		Dimensions (m): Depth 0.60	Scale 1:25 Logged RR
Client: GUINNESS PARTNERSHIP			

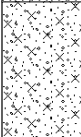
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES		0.15			Dark brown sandy silty TOPSOIL. Sand is fine to medium.	
	0.40	ES		0.60			Dark brown silty gravelly fine to medium SAND. Gravel is subangular to subrounded fine to medium of mixed lithologies.	
							End of pit at 0.60 m	
								1
								2
								3
								4
								5

Remarks: 1. Hand excavated pit undertaken to 0.6m bgl. 2. Pit backfilled with arisings.

Stability:



				Trial Pit Log			Trialpit No Plot 14 Sheet 1 of 1			
Project Name: DOB BROOK CLOSE				Project No. GRO-21052		Co-ords: - Level:		Date 08/12/2023		
Location: NEWTON HEATH				Dimensions (m): Depth 0.60				Scale 1:25		
Client: GUINNESS PARTNERSHIP								Logged RR		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
	Depth	Type	Results							
	0.10	ES		0.20			Dark brown sandy silty TOPSOIL. Sand is fine to medium.			
							Dark brown silty gravelly fine to medium SAND. Gravel is subangular to subrounded fine to medium of mixed lithologies.			
	0.60	ES		0.60			----- End of pit at 0.60 m			
									1	
									2	
									3	
									4	
									5	
Remarks: 1. Hand excavated pit undertaken to 0.6m bgl. 2. Pit backfilled with arisings.										
Stability:										

				Trial Pit Log			Trialpit No Plot 21 Sheet 1 of 1		
Project Name: DOB BROOK CLOSE				Project No. GRO-21052		Co-ords: - Level:		Date 08/12/2023	
Location: NEWTON HEATH				Client: GUINNESS PARTNERSHIP		Dimensions (m): Depth 0.60		Scale 1:25	
		Logged RR							
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
				0.15			Dark brown sandy silty TOPSOIL. Sand is fine to medium.		
							Dark brown silty gravelly fine to medium SAND. Gravel is subangular to subrounded fine to medium of mixed lithologies.		
				0.60			End of pit at 0.60 m		
							1		
							2		
							3		
							4		
							5		
Remarks: 1. Hand excavated pit undertaken to 0.6m bgl. 2. Pit backfilled with arisings.									
Stability:									

Laboratory Testing Results

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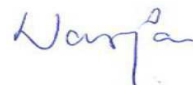
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Analytical Report Number : 22-90645

Project / Site name:	Dob Brook Close	Samples received on:	12/10/2022
Your job number:	GRO 21052	Samples instructed on/ Analysis started on:	17/10/2022
Your order number:	ORD 21052 2880	Analysis completed by:	31/10/2022
Report Issue Number:	1	Report issued on:	01/11/2022
Samples Analysed:	3 soil samples		

Signed:



Dominika Warjan
Junior Reporting Specialist
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: 22-90645
 Project / Site name: Dob Brook Close
 Your Order No: ORD 21052 2880

Lab Sample Number				2463987	2463988	2463989
Sample Reference				SP1	SP2	SP3
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				07/10/2022	07/10/2022	07/10/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	27	28	22
Total mass of sample received	kg	0.001	NONE	1	1	1

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.4	8.3	8.4
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	140	120	140
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.07	0.061	0.071
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	69.6	61.4	70.8
Organic Matter (automated)	%	0.1	MCERTS	9.3	5	0.7

Speciated PAHs

Naphthalene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	NONE	< 0.05	0.23	0.3
Anthracene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	NONE	0.48	0.55	0.66
Pyrene	mg/kg	0.05	NONE	0.39	0.56	0.61
Benzo(a)anthracene	mg/kg	0.05	NONE	0.29	0.17	0.41
Chrysene	mg/kg	0.05	NONE	0.28	0.39	0.33
Benzo(b)fluoranthene	mg/kg	0.05	NONE	< 0.05	0.35	0.37
Benzo(k)fluoranthene	mg/kg	0.05	NONE	< 0.05	0.15	0.29
Benzo(a)pyrene	mg/kg	0.05	NONE	< 0.05	0.29	0.39
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	< 0.05	0.18	0.22
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	NONE	< 0.05	0.21	0.26

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	NONE	1.44	3.08	3.84
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.9	6.9	5.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	12	12	12
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	27	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	35	48	40
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	10	11	9.7
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	60	77	67

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-90645

Project / Site name: Dob Brook Close

* 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 *
2463987	SP1	None Supplied	None Supplied	Brown clay and loam with gravel and vegetation.
2463988	SP2	None Supplied	None Supplied	Brown clay and loam with gravel and vegetation.
2463989	SP3	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 22-90645
Project / Site name: Dob Brook Close

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
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
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.	L038-PL	D	MCERTS
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	A001-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
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
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.	L019-UK/PL	D	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
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
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-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 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.



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Analytical Report Number : 22-12532 3A

Replaces Analytical Report Number: 22-12532, issue no. 2
Client references/information amended.

Project / Site name:	Dob Brook	Samples received on:	09/12/2022
Your job number:	GRO-21052	Samples instructed on/ Analysis started on:	09/12/2022
Your order number:	ORD-21052-3006	Analysis completed by:	31/01/2023
Report Issue Number:	3A	Report issued on:	10/02/2023
Samples Analysed:	7 soil samples		


Signed:

Adam Fenwick
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

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: 22-12532 - 3A

Project / Site name: Dob Brook

Your Order No: ORD-21052-3006

Lab Sample Number				2528607	2528608	2528609	2528610	2528611
Sample Reference				Plot 14	Plot 14	Plot 6	Plot 6	Plot 21
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.60	0.10	0.40	0.10
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	26	14	28	26	28
Total mass of sample received	kg	0.001	NONE	0.9	1	1	1	1

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.9	8	8.2	8	8.3
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	39	160	65	190	64
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.02	0.079	0.033	0.095	0.032
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	19.5	79.2	32.5	95.1	31.9
Organic Matter (automated)	%	0.1	MCERTS	8.1	4.5	8.3	7.6	7.8

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.17*	< 0.05	0.16*	0.11*	0.13*
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05*	< 0.05	< 0.05*	< 0.05*	< 0.05*
Acenaphthene	mg/kg	0.05	MCERTS	0.05*	0.06	0.25*	0.05*	0.06*
Fluorene	mg/kg	0.05	MCERTS	< 0.05*	< 0.05	0.15*	< 0.05*	0.05*
Phenanthrene	mg/kg	0.05	MCERTS	0.31*	0.42	0.98*	0.19*	0.35*
Anthracene	mg/kg	0.05	MCERTS	0.1*	0.11	0.27*	0.06*	0.12*
Fluoranthene	mg/kg	0.05	MCERTS	0.93*	0.71	1.3*	0.73*	0.71*
Pyrene	mg/kg	0.05	MCERTS	0.79*	0.75	1.1*	0.61*	0.65*
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.44*	0.46	0.57*	0.35*	0.33*
Chrysene	mg/kg	0.05	MCERTS	0.37*	0.33	0.55*	0.33*	0.35*
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.45*	0.5	0.6*	0.48*	0.46*
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.33*	0.22	0.34*	0.21*	0.19*
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.41*	0.37	0.51*	0.38*	0.35*
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.21*	0.21	0.24*	0.18*	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	0.25*	0.33	0.29*	0.2*	0.23*

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	4.81*	4.47	7.33*	3.88*	4.16*
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.9	6.6	5.5	5	4.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.4	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	13	15	10	10	9.2
Copper (aqua regia extractable)	mg/kg	1	MCERTS	32	23	22	17	16
Lead (aqua regia extractable)	mg/kg	1	MCERTS	60	39	37	32	31
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	13	16	9.3	9.9	8.6
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	82	75	63	56	53

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

Analytical Report Number: 22-12532 - 3A

Project / Site name: Dob Brook

Your Order No: ORD-21052-3006

Lab Sample Number				2528607	2528608	2528609	2528610	2528611
Sample Reference				Plot 14	Plot 14	Plot 6	Plot 6	Plot 21
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.60	0.10	0.40	0.10
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

*Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted and the failure justified as having no significant impact on sample data reported.

Analytical Report Number: 22-12532 - 3A

Project / Site name: Dob Brook

Your Order No: ORD-21052-3006

Lab Sample Number				2528613	2528614
Sample Reference				Plot 10	Plot 10
Sample Number				None Supplied	None Supplied
Depth (m)				0.10	0.40
Date Sampled				Deviating	Deviating
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	27	15
Total mass of sample received	kg	0.001	NONE	1	1

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.2	7.6
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	110	66
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.055	0.033
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	54.8	33.1
Organic Matter (automated)	%	0.1	MCERTS	8.1	3.4

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.13*	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05*	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.05*	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05*	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.14*	0.15
Anthracene	mg/kg	0.05	MCERTS	< 0.05*	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.44*	0.27
Pyrene	mg/kg	0.05	MCERTS	0.4*	0.29
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.21*	0.15
Chrysene	mg/kg	0.05	MCERTS	0.17*	0.13
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.28*	0.19
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.15*	0.11
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.23*	0.14
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.13*	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05*	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.14*	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	2.47*	1.43
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.1	4.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.3
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	9.6	15
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	17
Lead (aqua regia extractable)	mg/kg	1	MCERTS	33	23
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.2	16
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	56	59

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



Analytical Report Number: 22-12532 - 3A
 Project / Site name: Dob Brook
 Your Order No: ORD-21052-3006

Lab Sample Number				2528613	2528614
Sample Reference				Plot 10	Plot 10
Sample Number				None Supplied	None Supplied
Depth (m)				0.10	0.40
Date Sampled				Deviating	Deviating
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

*Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted and the failure justified as having no significant impact on sample data reported.

Analytical Report Number : 22-12532 - 3A

Project / Site name: Dob Brook

* 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 *
2528607	Plot 14	None Supplied	0.1	Brown clay and loam with gravel and vegetation.
2528608	Plot 14	None Supplied	0.6	Brown loam and sand with gravel and vegetation.
2528609	Plot 6	None Supplied	0.1	Brown loam and clay with gravel and vegetation.
2528610	Plot 6	None Supplied	0.4	Brown loam and clay with gravel and vegetation.
2528611	Plot 21	None Supplied	0.1	Brown loam and clay with gravel and vegetation.
2528613	Plot 10	None Supplied	0.1	Brown clay and loam with gravel and vegetation.
2528614	Plot 10	None Supplied	0.4	Brown clay and loam with gravel and vegetation.

Analytical Report Number : 22-12532 - 3A

Project / Site name: Dob Brook

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
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
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.	L038-PL	D	MCERTS
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	A001-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	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
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.	L019-UK/PL	D	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
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
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

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

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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.



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Analytical Report Number : 22-98647 2A

Replaces Analytical Report Number: 22-98647, issue no. 1
Client references/information amended.

Project / Site name:	Dob Brook Close	Samples received on:	23/11/2022
Your job number:	GRO-21052	Samples instructed on/ Analysis started on:	23/11/2022
Your order number:	ORD-21052-2880	Analysis completed by:	08/12/2022
Report Issue Number:	2A	Report issued on:	10/02/2023
Samples Analysed:	1 soil samples		

Signed:

Adam Fenwick
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

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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: 22-98647 - 2A

Project / Site name: Dob Brook Close

Your Order No: ORD-21052-2880

Lab Sample Number				2510125
Sample Reference				Plot 24
Sample Number				None Supplied
Depth (m)				0.50
Date Sampled				18/11/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	14
Total mass of sample received	kg	0.001	NONE	0.8

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.7
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	28
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.014
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	14.2
Organic Matter (automated)	%	0.1	MCERTS	0.6

Speciated PAHs

Naphthalene	mg/kg	0.05	NONE	< 0.05
Acenaphthylene	mg/kg	0.05	NONE	< 0.05
Acenaphthene	mg/kg	0.05	NONE	< 0.05
Fluorene	mg/kg	0.05	NONE	< 0.05
Phenanthrene	mg/kg	0.05	NONE	< 0.05
Anthracene	mg/kg	0.05	NONE	< 0.05
Fluoranthene	mg/kg	0.05	NONE	< 0.05
Pyrene	mg/kg	0.05	NONE	< 0.05
Benzo(a)anthracene	mg/kg	0.05	NONE	< 0.05
Chrysene	mg/kg	0.05	NONE	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	NONE	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	NONE	< 0.05
Benzo(a)pyrene	mg/kg	0.05	NONE	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	NONE	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	NONE	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	2.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	9.3
Lead (aqua regia extractable)	mg/kg	1	MCERTS	8.9
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	43

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



Analytical Report Number : 22-98647 - 2A
Project / Site name: Dob Brook Close

* 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 *
2510125	Plot 24	None Supplied	0.5	Brown clay and sand with gravel.

Analytical Report Number : 22-98647 - 2A

Project / Site name: Dob Brook Close

Water matrix abbreviations:

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

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Remedial Target Values



Remedial Target Values

Proposed End Use	Unit	Residential with Plant Uptake			Source
SOM	%	1	2.5	6	
Arsenic	mg/kg	37	37	37	SGVs
Beryllium	mg/kg	1.7	1.7	1.7	LQM S4ULs
Boron (water soluble)	mg/kg	290	290	290	LQM S4ULs
Cadmium	mg/kg	10	10	10	SGVs
Chromium (Total)	mg/kg	910	910	910	LQM S4ULs
Chromium (VI)	mg/kg	21	21	21	DEFRA C4SLs
Copper	mg/kg	2400	2400	2400	LQM S4ULs
Lead	mg/kg	200	200	200	DEFRA C4SLs
Organic Mercury	mg/kg	1.2	1.2	1.2	LQM S4ULs
Nickel	mg/kg	130	130	130	SGVs
Selenium	mg/kg	350	350	350	SGVs
Vanadium	mg/kg	410	410	410	LQM S4ULs
Zinc	mg/kg	3700	3700	3700	LQM S4ULs
Aliphatic EC 5 - 6	mg/kg	42	78	160	LQM S4ULs
Aliphatic EC 6 - 8	mg/kg	100	230	530	LQM S4ULs
Aliphatic EC 8 - 10	mg/kg	27	65	150	LQM S4ULs
Aliphatic EC 10 - 12	mg/kg	130 (48) ^{vap}	330 (118) ^{vap}	760 (283) ^{vap}	LQM S4ULs
Aliphatic EC 12 - 16	mg/kg	1100 (24) ^{sol}	2400 (59) ^{sol}	4300 (142) ^{sol}	LQM S4ULs
Aliphatic EC 16 - 35	mg/kg	65000 (8.48) ^{f,sol}	92000 (21) ^{f,sol}	110000 ^f	LQM S4ULs
Aliphatic EC 35 - 44	mg/kg	65000 (8.48) ^{f,sol}	92000 (21) ^{f,sol}	110000 ^f	LQM S4ULs
Aromatic EC 5 - 7	mg/kg	70	140	300	LQM S4ULs
Aromatic EC 7 - 8	mg/kg	130	290	660	LQM S4ULs
Aromatic EC 8 - 10	mg/kg	34	83	190	LQM S4ULs
Aromatic EC 10 - 12	mg/kg	74	180	380	LQM S4ULs
Aromatic EC 12 -16	mg/kg	140	330	660	LQM S4ULs
Aromatic EC 16 - 21	mg/kg	260 ^f	540 ^f	930 ^f	LQM S4ULs
Aromatic EC 21 - 35	mg/kg	1100 ^f	1500 ^f	1700 ^f	LQM S4ULs
Aromatic EC 35 - 44	mg/kg	1100 ^f	1500 ^f	1700 ^f	LQM S4ULs
Benzene	mg/kg	0.33	0.33	0.33	SGVs
Toluene	mg/kg	610	610	610	SGVs
Ethyl Benzene	mg/kg	350	350	350	SGVs
Xylene - o	mg/kg	250	250	250	SGVs
Xylene - m	mg/kg	240	240	240	SGVs
Xylene - p	mg/kg	230	230	230	SGVs
MTBE (methyl tert-butyl	mg/kg	49	84	160	CL:AIRE 2010
Acenaphthene	mg/kg	210	510	1100	LQM SAULs
Acenaphthylene	mg/kg	170	420	920	LQM S4ULs
Anthracene	mg/kg	2400	5400	11000	LQM S4ULs
Benz(a)anthracene	mg/kg	7.2	11	13	LQM S4ULs
Benzo(a)pyrene	mg/kg	2.2	2.7	5*	DEFRA C4SL*/LQM S4ULs
Benzo(b)fluoranthene	mg/kg	2.6	3.3	3.7	LQM S4ULs
Benzo(ghi)perylene	mg/kg	320	340	350	LQM S4ULs
Benzo(k)fluoranthene	mg/kg	77	93	100	LQM S4ULs
Chrysene	mg/kg	15	22	27	LQM S4ULs
Dibenz(ah)anthracene	mg/kg	0.24	0.28	0.3	LQM S4ULs
Fluoranthene	mg/kg	280	560	890	LQM S4ULs
Fluorene	mg/kg	170	400	860	LQM S4ULs
Indeno(123-cd)pyrene	mg/kg	27	36	41	LQM S4ULs
Naphthalene	mg/kg	2.3 f	5.6 f	13 f	LQM S4ULs
Phenanthrene	mg/kg	95	220	440	LQM S4ULs
Pyrene	mg/kg	620	1200	2000	LQM S4ULs
Phenol	mg/kg	420	420	420	SGVs
Asbestos	No fibres detected				

Depth Validation Photographs



Photograph 1 – Plot 1



Photograph 2 – Plot 1



Photograph 3 – Plot 3



Photograph 4 – Plot 3



Photograph 5 – Plot 5



Photograph 6 – Plot 5



Photograph 7 – Plot 6



Photograph 8 – Plot 6



Photograph 9 – Plot 10



Photograph 10 – Plot 10



Photograph 11 – Plot 14



Photograph 12 – Plot 14



Photograph 13 – Plot 21



Photograph 14 – Plot 21



Photograph 15 – Plot 22



Photograph 16 – Plot 22



Photograph 17 – Plot 24



Photograph 18 – Plot 24

Limitations

Limitations

This report (Report) forms part of the Services and if applicable Additional Services undertaken by Groundtech Consulting Ltd pursuant to a written contract (Agreement) which contains detailed provisions including express limitations of the liability of Groundtech Consulting Ltd.

This Report was prepared using reasonable skill and care as stated in the Agreement for the purpose including intended end use stated by the Client (Purpose) and the liability of Groundtech Consulting Ltd in respect of the form and content of this Report is no greater than its liability under the Agreement. All records, measurements notes, or any other data (Data) obtained by or for the benefit of the Consultant were obtained at a specific point in time and it may not be assumed by the Client or any person relying on this Report that the Data will remain unaffected by the passage of time, the seasons, weather conditions, changes in the water table or the carrying out and completion of works at the Site.

Unless otherwise agreed this Report has been prepared exclusively for the use and reliance of the Client and may not be relied upon, by any other party except as provided for in the Agreement. A third party who relies on this Report, does so at their own and sole risk and Groundtech Consulting Ltd has no liability to such parties.

Groundtech Consulting Ltd that this Report is to be used for the Purpose. The Purpose was instrumental in determining the scope and of the Services provided. If the Purpose should change, the Client may not be able to rely on the Report without the separate agreement of Groundtech Consulting Ltd.

Since the Report was written, later changes in legislation, statutory requirements and industry best practices have not been considered and this should be allowed for. Ground conditions can also change (see below) and should be investigated if there is any significant delay in acting on the findings of this Report. The period of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the Report inaccurate or unreliable. The information and conclusions in this Report should not be relied upon in the future without written confirmation from Groundtech Consulting Ltd that it is safe to do so.

The observations and conclusions outlined in this Report are based exclusively on the services that were provided as set out in the agreement between the client and Groundtech Consulting Ltd.

Groundtech Consulting Ltd is not liable for the existence of any condition, the discovery of which would require additional investigation outside the agreed scope of works or core competency. The Report is based upon Groundtech Consulting Ltd's observations of existing physical conditions at the Site gained from site reconnaissance together with interpretation of information including documentation, obtained from third parties and from the Client on the history and usage of the Site. The findings and recommendations contained in this Report are based in part upon information provided by third parties, and Groundtech Consulting Ltd have relied upon such information assuming it to be correct.

Groundtech Consulting Ltd accepts no responsibility for errors or inaccuracies in third party information presented in this Report. Groundtech Consulting Ltd was not authorised to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services or Additional Services. Groundtech Consulting Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, which may inform the scope of investigation undertaken by Groundtech Consulting Ltd and forms the contract with the client.

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions may also vary due to the ground's heterogeneous properties and because investigation exploratory locations only allow examination of the ground at discrete

locations. The potential exists for ground conditions to be encountered which are different to those considered in this Report, particularly between exploratory holes. The extent of the limited area depends on the soil and groundwater conditions, together with other constraints such as the position of any existing structures and underground utilities. If so stipulated in the Agreement, geo-environmental testing was carried out for a limited number of parameters based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

Any groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The groundwater level often has not had time to reach equilibrium and a monitoring period is required. Furthermore, groundwater levels are subject to seasonal variation or changes in local drainage conditions and groundwater levels may occur at other times of the year which are higher than were recorded during this investigation.

Any site drawings provided in this Report are preliminary and used to present the general relative locations of features on, and surrounding, the Site.

