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RGS

GEOTECHNICAL
ENVIRONMENTAL

PHASE 4 VALIDATION REPORT

job number J3408/16/E/V	date 16/07/21

site address
29 Berry Brow,
Clayton Bridge,
Manchester.

written by I. Sakoor	checked by C. E. Mason

issued by I. Sakoor

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Phase 4: Validation Report Of Remediation

Location:	29 Berry Brow, Clayton Bridge, Manchester.		
For:	GS Construction (NW) Ltd		
Report No.	J3408/16/E/V	Report date:	July 2021

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

Imran Sakoor BEng FGS Geo-environmental Engineer	**Charlotte Mason** BSc FGS Geo-environmental Engineer

1. Introduction

It is understood that the land associated with 29 Berry Brow, Clayton Bridge, Manchester has now been developed by the construction of a residential dwelling with car parking and garden area.

In order to fully discharge a planning condition relating to land contamination, a verification report has been produced to demonstrate that the required depth of cover has been achieved and that contamination levels of the soils used in the formation of the cover system are acceptable.

In accordance with your instructions we have undertaken testing of the imported material to validate that this is now suitable, and confirm that the pathway for contamination is broken. The following describes the work undertaken, presents the data obtained and discusses the findings in association with the proposed development.

2. Review of the proposed Remediation Strategy

2.1 Summary of Contamination risks

A Phase 2 Geo-environmental investigation was undertaken by Rogers Geotechnical Services in March 2016 (ref: J3408/16/E). This report concludes that the site can be classified as generally contaminated by lead, mercury, PAHs and TPHs. As such, it was considered remediation would be required.

2.2 Proposed Remediation Strategy

On the basis of the contamination identified within the geo-environmental report, it was considered that the garden areas would require some remediation. It was recommended that this be undertaken by the provision of a clean cover system, comprising of 500mm of inert soil over a granular capillary break 100mm thick.

However, upon subsequent testing, it was found that the fill material imported on to the site (for the purpose of providing the clean cover system) was contaminated by lead and PAHs. These determinands were found to be present in concentrations above the limits for a residential with plant uptake development.

Therefore, it was deemed necessary that further works were undertaken in order to ensure that the garden areas at the site are suitably remediated.

2.3 Revised Remediation Strategy

Subsequent to the above and following discussions with the client, a revised remediation strategy was devised. This would include uplifting the site levels by providing a 200mm thick layer of compacted hardcore gravel of a minimum of 100mm thickness. This layer will act as a capillary break as well as forming a physical barrier between end users and the contamination affected soils. It is intended to cap the hard-core with bedding sand overlain by artificial turf within the garden areas. No new trees or shrubs are to be planted as part of the revised remediation strategy. The limited remainder of garden area is to be capped with hardstanding (block paving).

The general layout of the site showing the garden areas which have been subject to the remediation can be found within Appendix 1.

2.4 Source of Material

For cover and containment systems, verification will normally depend upon the provision of defensible measurements, observations and records. The following table provides information in regards to the source and characteristics of the material used within the remediation process.

Table 1: Validation sampling and testing

Type of Material	Source of Material	Volume of imported Material	No. Samples Required.
Capillary Break	Crushed hardcore, stone – MOT Type 2. JGW Ltd, Raglan Street, Hyde, Cheshire, SK14 2DX.	18m^3	Minimum 1 per 1000m^3

It should be appreciated that any fill should be subjected to validation testing to assess its suitability. Depending on the origin and nature of the material, not all fill will require the sampling frequency and testing indicated, although this should be in agreement with any regulatory bodies (such as the Local Authority).

3. Limitations

The recommendations made and opinions expressed in this report are based on the ground conditions revealed by the site works, together with an assessment of the site and of the laboratory test results. Whilst opinions may be expressed relating to sub-soil conditions in parts of the site not investigated, for example between investigatory positions, these are for guidance only and no liability can be accepted for their accuracy.

This report has been prepared in accordance with our understanding of current best practice. However, new information or legislation, or changes to best practice may necessitate revision of the report after the date of issue.

4. Fieldworks

The fieldworks were undertaken on the 7th June 2021 and included the investigation of the four positions shown on the site plan which is presented in Appendix 1 to this report, to confirm that a suitable capping layer has been placed. Appendix 2 of this report contains the photographs taken at the time of the fieldworks.

The positions were excavated employing hand digging techniques in order to reveal the nature of the near surface soils. The soils were logged on site in general accordance with BS5930: 2015 +A1:2020. Samples were taken from the trialpits for chemical testing. The chemical test specimens were retained in the appropriate air tight containers within cool boxes for onward transition to the laboratory. The trial pit records are presented within Appendix 3.

5. Strata Conditions

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

Table 2: Generalised Strata Profile

Depth m below ground level to underside of layer	Strata Type	Positions Layer Revealed	Groundwater Strikes m below ground level
0.12 – 0.2	Capillary Break comprising type 1 crushed hardcore.	All	None

'+' denotes that the strata extended below the termination depth of the investigated positions, thus the extent of the deposit is only proven to the depths indicated.

5.1 General Strata

Subsequent to the up-filing operation within the garden areas at the site, these areas were found to be capped by a capillary break comprising light grey silty sandy gravel of dolomitic limestone. It is considered that the capillary break is between 120mm and 200mm thick and is underlain by made ground.

6. Laboratory Testing - Environmental

A suite of testing was conducted on samples from across the site and the following regime was undertaken.

Hardcore Suite

- Standard metals/metalloids As, Cd, Cr, CrVI, Cu, Hg, Ni, Pb, Se, V, Zn.
- Free CN-, PAH (16 USEPA)
- Asbestos Screen.
- pH, total/soluble SO_4^{2-}, Organic content (Soil Organic Matter).

This testing was undertaken by Eurofins Chemtest Ltd and the results of all of the chemical testing are presented in Appendix 4 of this report.

7. Discussion of Ground Conditions - Environmental

7.1 Discussion of Test Results

The site has been developed by the erection of a residential dwelling with a driveway and garden area. Consequently, the site may be classified as residential with plant uptake.

The results of the chemical testing undertaken on soil samples obtained during this investigation have been compared to the ATRISK soil screening values (SSVs) as compiled by WS Atkins plc. These values have been derived in such a way as to adhere to the principles within the revised CLEA model and include the most current release of the SGVs. A list of subscribers is provided within the website[1] and these include many local authorities.

A comparison of the results of the testing, together with the data given above, can be found within Appendix 4. These results indicate the following:

Table 3: Summary of contaminated areas.

Location	Depth (m)	Contaminants found to be exceeding SSVs (Residential with plant uptake)
TP1	0 – 0.2	None.
TP2	0 – 0.16	None.
TP3	0 – 0.2	None

Concentrations of chromium (VI), mercury, vanadium, selenium, free cyanide and polyaromatic hydrocarbons (PAH US EPA-16) were below the detection limits for the tests. Detectable levels of all other contaminants were recorded, but these fell below the associated Atrisk Soil Screening Values. In addition, the asbestos screen found no asbestos detected.

On the basis of the above the material tested may be considered as uncontaminated and suitable for the site end-use.

8. Discussion of Ground Conditions – Validation Requirements

8.1 Validation of Capillary Break

It is concluded that the imported material placed as a capillary break at the site has been obtained from a single supplier and comprises silty sandy gravel of limestone. This material has been well compacted and provides a physical barrier to the underlying contaminated soil as well as serving as a capillary break. This material has was observed to be between 0.12m and 0.2m in thickness, as can be seen from the photographs taken on site.

On the basis of the information provided above it is concluded that capillary break is of sufficient thickness in order to break the pathway for contamination to reach the end users. Therefore, it is considered that the end users will be protected from ingestion or dermal contact with contaminated soil. No further action is required.

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

9. Conclusion.

Further to the photographic records, the excavations at the validation positions and the chemical testing, it is considered that the garden areas of the site has been suitably remediated in order to protect end users from lead and PAH contamination at the site. No further action is required.

10. References

- Department for Environment, Food and Rural Affairs and the Environment Agency (2009) DEFRA Science Report – Final SC050021/SR2, *Human Health toxicological assessment of contaminants in soil*. Environment Agency, Bristol.

- Department for Environment, Food and Rural Affairs and the Environment Agency (2009) DEFRA Science Report – SC050021/SR3, *Updated technical background to the CLEA model*. Environment Agency, Bristol.

- WS Atkins plc, 2011, Soil Screening Values, Derived using CLEA v1.04 and January 2009 Guidance: SSVs derived using CLEA v1.04 for 1% SOM, Residential with home grown produce land use.

- *YALPAG Technical Guidance for Developers, Landowners and Consultants – Verification Requirements for Cover Systems V3.4* Appendix 1a, November 2017.

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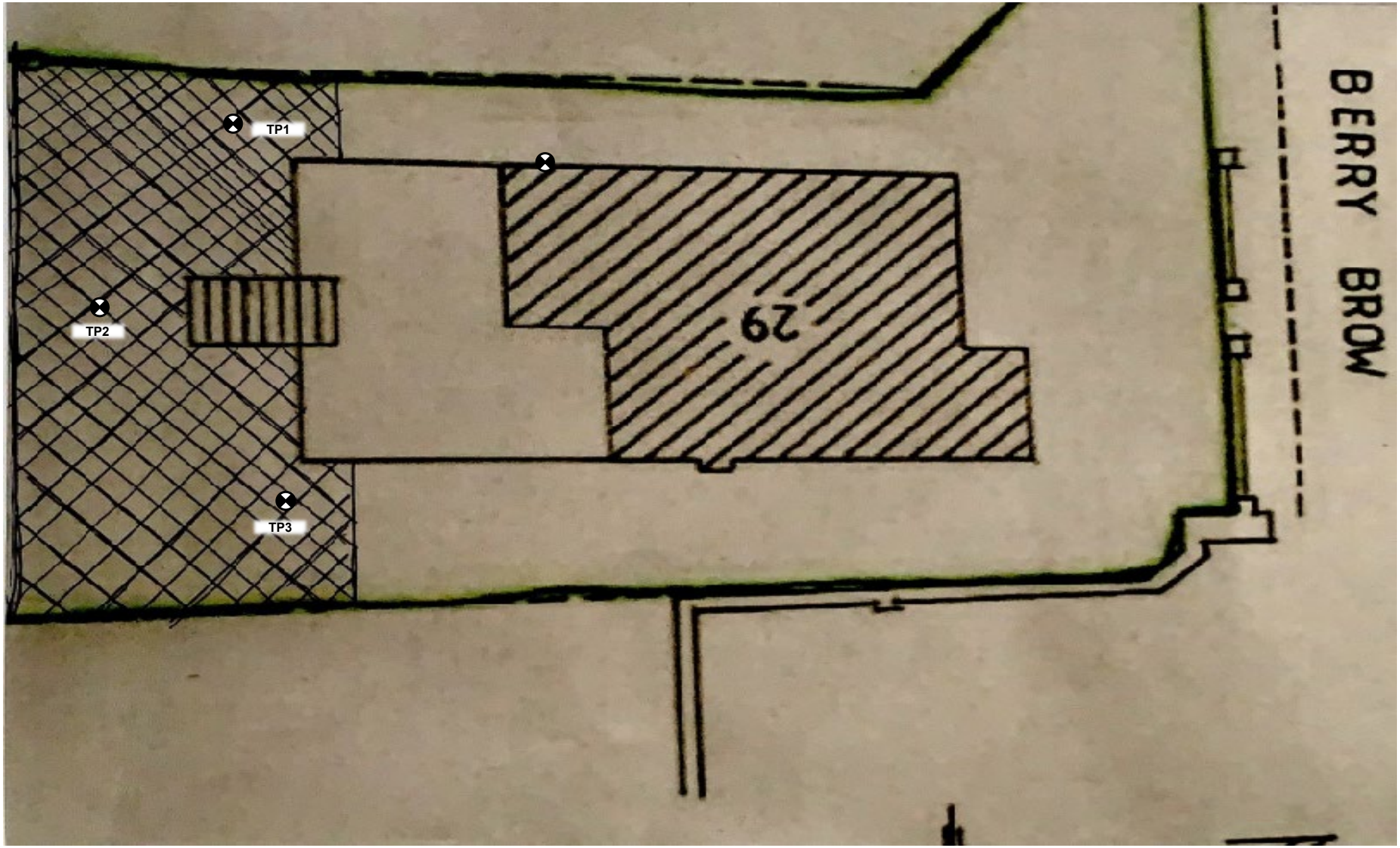
Appendix 1

Site Plan



Notes:

Investigation positions approximated from site operative's notes.

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Client:

GS Construction Ltd

Job Number:

J3408/16/E/V

Project Details:

29 Berry Brow, Clayton Bridge

Scale: Not to scale - reference only

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Appendix 2

Site Photographs

Photo 1: TP1

Photo 2: TP2

Photo 3: TP3

Photo 4: General site photo

Photo 5: General site photo

Photo 6: General site photo

Photo 7: General site photo

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Appendix 3

Trial Pit Results

Trial Pit Log

Trialpit No **TP1**

Sheet 1 of 1

Project Name: 29 Berry Brow	Project No. J3408/16/E/V	Co-ords: - Level:	Date 09/06/2021
Location: Manchester		Dimensions (m): Depth 0.20	Scale 1:50
Client: GS Construction Ltd			Logged IMY

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.00 - 0.20	D		0.20			MADE GROUND (Light grey silty sandy, sub-angular to sub-rounded, fine to medium GRAVEL of dolomitic limestone). [Capillary break]. End of pit at 0.20 m

Remarks:

Stability:

Trial Pit Log

Trialpit No **TP2**

Sheet 1 of 1

Project Name: 29 Berry Brow	Project No. J3408/16/E/V	Co-ords: - Level:	Date 09/06/2021
Location: Manchester		Dimensions (m): Depth 0.16	Scale 1:50
Client: GS Construction Ltd			Logged IMY

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.00 - 0.16	D		0.16			MADE GROUND (Light grey silty sandy sub-angular to sub-rounded, fine to medium GRAVEL of dolomitic limestone). [Capillary break]. End of pit at 0.16 m

Remarks:

Stability:

Trial Pit Log

Trialpit No **TP3**

Sheet 1 of 1

Project Name: 29 Berry Brow	Project No. J3408/16/E/V	Co-ords: - Level:	Date 09/06/2021
Location: Manchester		Dimensions (m): Depth 0.12	Scale 1:50
Client: GS Construction Ltd			Logged IMY

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.12			MADE GROUND (Light grey silty sandy, sub-angular to sub-rounded, fine to medium GRAVEL of dolomitic limestone). [Capillary break]. End of pit at 0.12 m

Remarks:

Stability:

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Appendix 4

Chemical Test Results

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	21-21759-1		
Initial Date of Issue:	06-Jul-2021		
Client	Rogers Geotechnical Services Ltd		
Client Address:	Unit 4, Barncliffe Business Park Near Bank Shelley Huddersfield West Yorkshire HD8 8LU		
Contact(s):	Harry Letch		
Project	J3408/16/E Berry Brow, Manchester		
Quotation No.:		**Date Received:**	25-Jun-2021
Order No.:	PO-1632	**Date Instructed:**	25-Jun-2021
No. of Samples:	3		
Turnaround (Wkdays):	5	**Results Due:**	01-Jul-2021
Date Approved:	06-Jul-2021		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: J3408/16/E Berry Brow, Manchester

Client: Rogers Geotechnical Services Ltd				**Chemtest Job No.:**	21-21759	21-21759	21-21759
Quotation No.:				**Chemtest Sample ID.:**	1228459	1228460	1228461
Order No.: PO-1632				Client Sample Ref.:	D1	D1	D1
				Sample Location:	TP1	TP2	TP3
				Sample Type:	SOIL	SOIL	SOIL
				Top Depth (m):	0	0	0
				Bottom Depth (m):	0.2	0.16	0.2
				Date Sampled:	17-Jun-2021	17-Jun-2021	17-Jun-2021
				Asbestos Lab:	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Cadmium	M	2450	mg/kg	0.10	0.80	0.64	0.36
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Copper	M	2450	mg/kg	0.50	1.7	1.1	0.74
Mercury	M	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Nickel	M	2450	mg/kg	0.50	3.0	2.7	1.7
Lead	M	2450	mg/kg	0.50	8.2	6.8	3.0
Zinc	M	2450	mg/kg	0.50	24	19	11
Vanadium	U	2450	mg/kg	5.0	< 5.0	< 5.0	< 5.0
Arsenic	M	2450	mg/kg	1.0	18	22	21
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Chrysene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0
pH	M	2010		4.0	8.8	8.8	9.1
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	< 0.010	< 0.010
ACM Type	U	2192		N/A	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	1.2	0.85	0.56
Soil Colour	N	2040		N/A	Grey	Grey	Grey
Other Material	N	2040		N/A	Stones	Stones	Stones

Results - Soil

Project: J3408/16/E Berry Brow, Manchester

Client: Rogers Geotechnical Services Ltd				**Chemtest Job No.:**	21-21759	21-21759	21-21759
Quotation No.:				**Chemtest Sample ID.:**	1228459	1228460	1228461
Order No.: PO-1632				Client Sample Ref.:	D1	D1	D1
				Sample Location:	TP1	TP2	TP3
				Sample Type:	SOIL	SOIL	SOIL
				Top Depth (m):	0	0	0
				Bottom Depth (m):	0.2	0.16	0.2
				Date Sampled:	17-Jun-2021	17-Jun-2021	17-Jun-2021
				Asbestos Lab:	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Soil Texture	N	2040		N/A	Gravel	Gravel	Gravel
Sulphate (Total)	M	2430	%	0.010	0.044	0.056	0.037
Chromium	M	2450	mg/kg	1.0	5.5	4.4	4.8
Organic Matter	M	2625	%	0.40	7.8	7.4	7.9

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Rogers Geotechnical Services: Soil Screening Values Comparison Sheet

The Ground Investigation Specialists

Rogers Geotechnical Services Ltd		Soil Screening Value (SSV) Comparison Sheet
Job Number	J3408/16/E/V	A = WS Atkins PLC, Atrisk Soil Screening Values. A+ = Values updated June 2017. A* = Atrisk's SSV is lower than Chemtest's detectable limit for this compound. B = health criterion values, which are available from toxicological reviews published in the C4SL project methodology report. C = Category 4 Screening Levels (C4SLs) based on 6% soil organic matter. D = Value provided is based on Methyl Mercury. Should elemental mercury be observed or a source be known then a
Job Name	Berry Brow, Manchester	
Date	09/07/21	
Client	GS Construction Ltd	

KEY

- Exceeds SSV
- Exceeds 2017, Below 2015
- Below limit of detection (LOD)

Sample Location						TP1	TP2	TP3			
Depth Top						0	0	0			
Depth Base						0.2	0.16	0.2			
Determinand	**Units**	**Ref**	**LOD**	**Residential With Plant Uptake 1%**							
				Atrisk 2015 (No Free Product	Atrisk 2017						
Cadmium	mg/kg	C	0.10		22.1	0.80	0.64	0.36			
Chromium (Hexavalent)	mg/kg	B/C	0.5	20.5	3.62	< 0.50	< 0.50	< 0.50			
Copper	mg/kg	A+	0.50		4730	1.7	1.1	0.74			
Mercury	mg/kg	A/D	0.10		8.81	< 0.10	< 0.10	< 0.10			
Nickel	mg/kg	A+	0.50		136	3.0	2.7	1.7			
Lead	mg/kg	C	0.50		200	8.2	6.8	3.0			
Zinc	mg/kg	A+	0.50		20000	24	19	11			
Vanadium	mg/kg	A+	5.0		136	< 5.0	< 5.0	< 5.0			
Arsenic	mg/kg	C	1.0		37	18	22	21			
Selenium	mg/kg	A	0.20		375	< 0.20	< 0.20	< 0.20			
Cyanide (Free)	mg/kg	A	0.50		34	< 0.50	< 0.50	< 0.50			
Naphthalene	mg/kg	A+	0.10		0.829	< 0.10	< 0.10	< 0.10			
Acenaphthylene	mg/kg		0.10			< 0.10	< 0.10	< 0.10			
Acenaphthene	mg/kg	A+	0.10	608	157	< 0.10	< 0.10	< 0.10			
Fluorene	mg/kg	A+	0.10		735	< 0.10	< 0.10	< 0.10			
Phenanthrene	mg/kg		0.10			< 0.10	< 0.10	< 0.10			
Anthracene	mg/kg	A+	0.10		10200	< 0.10	< 0.10	< 0.10			
Fluoranthene	mg/kg	A+	0.10		983	< 0.10	< 0.10	< 0.10			
Pyrene	mg/kg	A+	0.10		668	< 0.10	< 0.10	< 0.10			
Benzo[a]anthracene	mg/kg	A	0.10	4.52	1.71	< 0.10	< 0.10	< 0.10			
Chrysene	mg/kg	A	0.10	585	0.44	< 0.10	< 0.10	< 0.10			
Benzo[b]fluoranthene	mg/kg	A	0.10	7.72	1.22	< 0.10	< 0.10	< 0.10			
Benzo[k]fluoranthene	mg/kg	A	0.10	84.4	0.686	< 0.10	< 0.10	< 0.10			
Benzo[a]pyrene	mg/kg	B/C	0.10	4.95	1.51	< 0.10	< 0.10	< 0.10			
Indeno(1,2,3-c,d)Pyrene	mg/kg	A*	0.10	7.31	0.0614	< 0.10	< 0.10	< 0.10			
Dibenz(a,h)Anthracene	mg/kg	A	0.10	0.838	0.00393	< 0.10	< 0.10	< 0.10			
Benzo[g,h,i]perylene	mg/kg	A	0.10	96.2	0.0187	< 0.10	< 0.10	< 0.10			
Total Of 16 PAH's	mg/kg		2.0			< 2.0	< 2.0	< 2.0			
pH			N/A			**8.8**	**8.8**	**9.1**			
Sulphate (2:1 Water Soluble) as SO4	g/l		0.010			< 0.010	< 0.010	< 0.010			
ACM Type			N/A			-	-	-			
Asbestos Identification	%		0.001			No Asbestos Detected	No Asbestos Detected	No Asbestos Detected			
Moisture	%		0.020			1.2	0.85	0.56			
Soil Colour			N/A			Grey	Grey	Grey			
Other Material			N/A			Stones	Stones	Stones			
Soil Texture			N/A			Gravel	Gravel	Gravel			
Sulphate (Total)	%		0.010			0.044	0.056	0.037			
Organic Matter	%		0.40			7.8	**7.4**	**7.9**			

Rogers Geotechnical Services Ltd Telephone 0843 50 666 87
Email enquiries@rogersgeotech.co.uk www.rogersgeotech.co.uk

Appendix 5

Material Documents

JGW

John G Winterbottom (Charlesworth) Ltd
Raglan Street
Hyde
Cheshire
SK14 2DX
Tel: 0161 368 9090
Fax: 0161 638 0005

G S CONS JOINERY CONTR LTD
29 BERRY BROW
CLAYTON BRIDGE
MANCHESTER

S A L E S I N V O I C E

INVOICE 24545

DATE 28/05/2021

Date	Our Ref.			Ticket Description	Delivery / Site Address	Weight	Rate	Price
24/5/21	68620							
		03926	MOT 2	20.00	29 BERRY BROW CLAYTON	20.000	14.75	295.00
26/5/21	68628							
		03934	MOT 2	20.28	BARDSLEY VALE MILL A-U-L	80.000	14.75	1,180.00
		03933	MOT 2	20.08				
		04700	MOT 2	20.16				
		04701	MOT 2	20.22				

Goods	Rate	Tax
1,475.00	20	295.00

Goods	1,475.00
V.A.T.	295.00
Total Due	1,770.00

Bank Details:
NATWEST
Sort Code:010338
Account No. 05024005

Registered In England 1203051

VAT Reg. No. 285 9744 14