



1. Introduction

A2 Site Investigation Limited were appointed by BG&E to undertake a geotechnical ground investigation 6 Deansgate, Manchester M3 1RH. This report describes the work undertaken and presents the findings to date.

2. Site Location

The site is located within the Central Retail District of Manchester City Centre, Manchester, M3 1RH. The site is roughly triangular with Deansgate to the east, River Irwell to the west, Victoria Bridge Street to the north and Blackfriars Street to the south. The site forms part of a wider development associated with the existing hotel. The River Irwell is situated within a man-made channel understood to be supported by concrete and masonry walls.

The site is currently occupied by a 13-storey hotel, four-storey office building and multi-storey car park. There is an approximately 9.5 m difference in level across the site between Deansgate and the River Irwell, with an existing retaining wall along the Deansgate side.

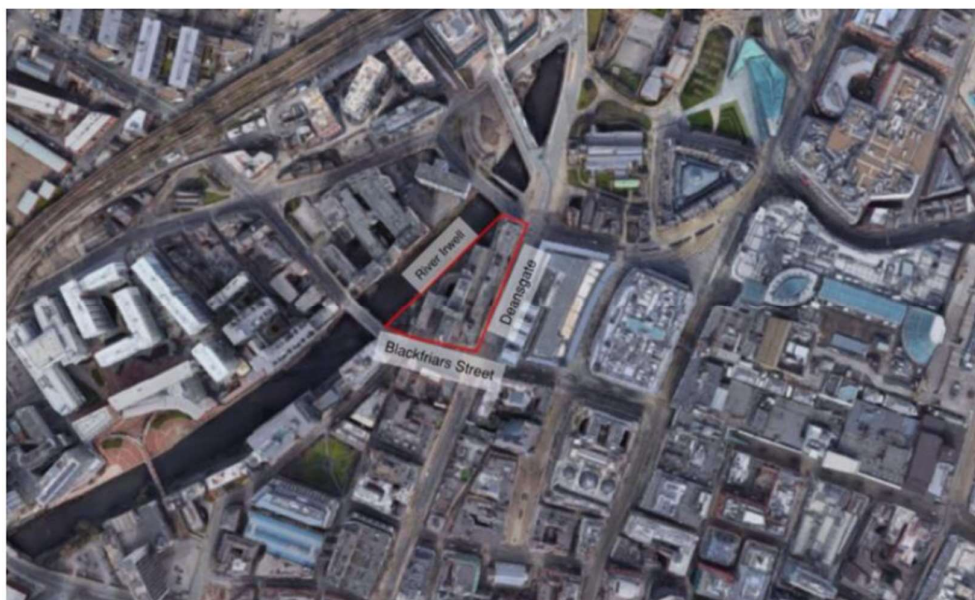


Figure 2.1 Site location and extent shown in red

3. Anticipated Ground Conditions

From a review of available geological maps and memoirs, including the online British Geological Survey “Geology of Britain Viewer”, and previous site investigations, the following geological sequence was anticipated:

Table 3.1 Anticipated geological sequence

Unit	Depth (mbgl) ^[1]	Thickness (m)	Description
Made Ground	0.0	10.0	Asphalt, roadstone, brick and concrete fill with gravels.
Chester Formation	10.0	>100	Weak, very thinly bedded, reddish brown, medium to coarse grained sandstone.

1. Depth refers to top of stratum.



4. Purpose and Scope of the Investigation

The purpose of the investigation was to recover data on the ground and groundwater conditions at the site relating to geotechnical risks that may affect the proposed development.

This investigation comprised of the excavation of inspection pits using vacuum excavation, drilling of rotary cored borehole and dynamic sampling boreholes. In addition, in-situ testing, geo-environmental and geotechnical sampling was undertaken along with installation of combined gas and groundwater monitoring wells.

A2 Site Investigation Limited have been commissioned to undertake a ground investigation at the site comprising three phases of work;

The Phase 1 fieldwork was undertaken between 20th – 22nd December 2021. The Phase 2 fieldwork was undertaken between 22nd – 23rd February 2022. The Phase 3 fieldwork was undertaken between 28th – 30th March 2022. Monitoring visit was undertaken on 15th March 2022.

This detailed scope of works was as follows:

Phase 1:

- 6 no. Vacuum excavated inspection pits.
- 1 no. Rotary drilled borehole to a depth of 10.5m (BH01).
- 5 no. Dynamic Sampler boreholes to a maximum depth of 6m (WS01-05).
- Walkover of the site to identify and take water levels in historical monitoring wells.

Phase 2:

- 8no. window sample boreholes to a maximum depth of 3mbgl (WS06-WS13).
- 1no. return monitoring visit was undertaken to determine ground gas and groundwater levels and groundwater sampling the historical and newly installed monitoring wells.

Phase 3:

- 2no. Rotary drilled boreholes to a depth of 12m (BH02-03).

5. Limitations of Report

This report has been prepared in accordance with the specification provided by the client. The data reported relates to the specific locations where each exploratory hole was formed and may not represent the ground and groundwater conditions of the site as a whole. Furthermore, it should be considered that groundwater levels may vary throughout the year due to seasonal conditions and other influences such as flooding and leaking mains, storm drainage and foul water systems.

6. Standards

The site investigation, soil descriptions and laboratory testing were undertaken in accordance with following standards

- UK Specification for Ground Investigation 2nd Edition, published by ICE Publishing (2012)
- BGS Geology of Britain Viewer: 2018. www.bgs.ac.uk. British Geological Survey
- British Standards Institution BS 5930:2015+A1:2020, Code of practice for site investigations.
- British Standards Institution BS 10175:2011+A2:2017, Investigation of potentially contaminated sites – code of practice.
- British Standards Institution BS EN ISO 14688-1:2018, Geotechnical investigation and testing, classification of soil. Identification and description.



- British Standards Institution BS EN ISO 14688-2:2018, Geotechnical investigation and testing. Identification and classification of soil. Principle for a classification.
- British Standards Institution BS EN ISO 22475-1: 2006 : Geotechnical investigation and testing – Sampling methods and groundwater measurements - Part 1 Technical principles for execution.

7. Ground Investigation Summary

7.1. Fieldwork Overview

A walkover was conducted on the first day of the ground investigation and confirmed the anticipated layout of the site.

Following a review of all available service information and site reconnaissance, all locations were scanned using Electromagnetic (CAT & Genny) techniques to check for services within proximity to exploratory hole locations. All positions were surveyed to determine the National Grid coordinates. Due to the density of underground services around the site, all locations have been Vacuum Excavated to 1.50mbegl for a safer excavation of starter pits.

A preliminary UXO desk study was undertaken by Zetica (2014). The preliminary UXO risk assessment recommended that further action was warranted to address the level of UXO risk at this site. Based on the results; it was necessary to have UXO supervision onsite to conduct a watching brief and undertake downhole magnetometer testing during the drilling.

All works were supervised by a senior ground engineer.

An exploratory hole location plan is shown in Appendix A.

7.2. Rotary Rig Borehole

The rotary borehole (BH01) was progressed using a Comacchio GEO 305 rotary rig with sampling to a maximum depth of 10.50 mbegl. Standard Penetration Tests (SPTs) were carried out in the borehole.

BH02 and BH03 was not undertaken due to heavy density of underground services on proposed location. A series of vacuum excavated trial pits were undertaken at alternative locations but it was not possible to locate a safe area to drill the boreholes and work was abandoned after three days.

All soils encountered were logged on site and sub-sampled accordingly for geotechnical laboratory analysis. Core runs were photographed, and are presented in Appendix B.

7.3. Window Sample Boreholes

The window sampler boreholes (WS01-WS05) were progressed with a track mounted rig using dynamic sampling techniques to a maximum depth of 6.0 mbegl. SPT's were undertaken in all exploratory holes at 1m spacing.

During site works, WS01 was cancelled due to a sperate excavation within proximity to the starter pit. It was not possible to ascertain an alternative drilling location due to the density of underground services within the immediate area.

WS02 was drilled to a depth of 4mbgl and backfilled with bentonite to surface.

WS03, WS04 and WS05 had refusals between 1.5-1.6 mbegl, all encountering concrete slab at termination depth. It was not possible to ascertain an alternative drilling location due to the density of underground services within the immediate area of the exploratory hole locations.

WS06 was not drilled due to no access to the location. WS07 was not drilled for health and safety reasons due to demolition works happening above hole location.



WS08 had refusal at 0.95m, encountering brickwork at termination depth. Two other locations were attempted (WS08A and WS08B), but hole was terminated for the same reason. WS09 also had refusal, being terminated at 0.8m due to thick layer of concrete extending from 0.4m to termination depth. A location nearby was attempted with success (WS09A) to 4m.

All soils encountered were logged on site and samples recovered for geotechnical and geo-environmental laboratory analysis.

A standpipe piezometer was installed in two of the window sample boreholes (WS09A and WS13) for subsequent sampling and monitoring of groundwater levels.

7.4. Gas and Groundwater Monitoring Installations

7.4.1. Previous Groundwater Monitoring Installations

Groundwater monitoring pipes were installed during Phase II Geoenvironmental Site Assessment conducted by E3P (E3P, Phase II Geoenvironmental Site Assessment, Renaissance, Manchester, Reference:14-261-R2-1, dated 21) 1st May 2021. The monitoring wells are each comprised of one 50mm internal diameter PVC casing and well screen. Details of all installations are shown in Table 7.4.1 below.

Table 7.4.1 Identified Monitoring Installation details

Location Ref	Base of Borehole (mbegl)	Installation Diameter (mbegl)	Type of Installation	Bottom of Response Zone (mbegl)	Top of Response Zone (mbegl)	Strata
RBH101	10.0	50mm	SP/G	10.0	2.0	Chester Formation
RBH102*	10.0	50mm	SP/G	1.5	0.5	Made Ground
RBH103	10.0	50mm	SP/G	10.0	2.0	Chester Formation
RBH104	10.0	50mm	SP/G	10.0	2.0	Chester Formation
RBH105	10.0	50mm	SP/G	10.0	2.0	Chester Formation
RBH106	10.0	50mm	SP/G	10.0	2.0	Chester Formation

Key

SP/G – Standpipe with Gas Monitoring Valve

*** - Monitoring well not found**

During the site walkover, all previous installed wells at the basement car park level were identified with the exception of RBH102, which at the time of the walkover had heavy pallets, possibly obstructing the headworks as shown in the photo 7.4.1.



Figure 7.4.1 Possible RBH102 location with obstruction.

7.4.2. Gas and Groundwater Monitoring Installations

Combined gas and groundwater monitoring pipes were installed in WS09A and WS13. The monitoring installation comprises of a 50mm internal diameter PVC casing and wellscreen. Details are shown in Table 7.4.2 below:

Table 7.4.2 Gas and Groundwater Monitoring Installations

Location Ref	Base of Borehole (mbegl)	Installation Diameter (mbegl)	Type of Installation	Bottom of Response Zone (mbegl)	Top of Response Zone (mbegl)	Strata
WS09A	4.0	50mm	SP/G	3.5	2.0	Made Ground/Possible Glaciofluvial Deposits
WS13	6.0	50mm	SP/G	4.0	2.0	Made Ground

Key

SP/G – Standpipe with Gas Monitoring Valve

8. Ground Conditions

8.1. Encountered Geology

The following ground conditions were encountered at the site. The measurements were taken from the top of the existing exploratory holes (mbegl). Details are shown in Table 8.1 below:

**Table 8.1 Ground Conditions Encountered**

Unit	Depth (mbegl)	Thickness (m)	Description
Made Ground	0.00	1.70	Medium dense greyish brown slightly clayey silty SAND and GRAVEL. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of concrete and brick.
Weathered Chester Formation	1.70	4.1	Dense reddish brown poorly cemented fine to medium SAND.
Chester Formation	5.8	Not Proven	Weak thinly to medium laminated reddish brown medium to coarse grained cemented SANDSTONE.

Detailed exploratory hole logs can be found in Appendix B.

8.2. Groundwater

Groundwater inflows were encountered in at all borehole locations as detailed in Table 8.2 below.

Location Ref	Depth of inflow (mbgl)	Rising to (Mins)				Strata / Remarks
		5	10	15	20	
WS09A	2.90	-	-	-	-	Made Ground
WS13	3.50	-	-	-	-	Made Ground

9. Laboratory Testing

9.1. Geotechnical Testing

Geotechnical laboratory testing was undertaken by GSTL Limited and Geolabs, both United Kingdom Accreditation Service (UKAS) accredited laboratory, in accordance with relevant standards.

The following type and number of tests scheduled is shown in Table 9.1 below and the results are presented in Appendix D.

Table 9.1 Geotechnical Testing

Test Description	Number of Tests
Natural moisture content	1
4 Point Liquid and Plastic Limit BS 1377:1990 - Part 2: 4.3 and 5.3	1
Particle Size Distribution Wet Sieve Method BS 1377:1990 - Part 2	2
Pipette Analysis BS 1377:1990 - Part 2: 9.4	2
Triaxial - 100mm single stage	1



Test Description	Number of Tests
Determination of Point Load Value	3
Natural water content of rock	3
BRE Suite D	3
BRE Reduced Suite	2

9.2. Geo-environmental Testing

Selected soil and groundwater samples were sent for geo-environmental laboratory testing which was undertaken by The Environmental Laboratory (ELAB) and i2 analytical Environmental Science, both United Kingdom Accreditation Service (UKAS) accredited laboratory. ISO17025 and MCERTS accredited methods were specified where applicable and can be seen on the laboratory testing certificates presented in Appendix E.

Tables 9.2.1 and 9.2.2 presents a summary of the scheduled Geo-environmental tests and the results are presented in Appendix D

Table 9.2.1 Geo-Environmental Testing – Laboratory Analyses – Soils

Test Description	Number of Tests
Risk Assessment Suite	7
Speciated Phenols by HPLC	3
Free Cyanide	7
Total Cyanide	7
Speciated VOCs	5
A2SI Metals Leachate Suite – BS12457-1 (single stage 2:1 liquids / solids ratio).	7
A2SI PAH Leachate Suite – BS12457-1 (single stage 2:1 liquids / solids ratio).	7
Leachable Free Cyanide – BS12457-1 (single stage 2:1 liquids / solids ratio).	7
Leachable Total Cyanide – BS12457-1 (single stage 2:1 liquids / solids ratio).	7
TPH CWG	6
Asbestos ID (followed by quantification if required)	9
Speciated PAH (EPA16)	6



Table 9.2.2 Geo-Environmental Testing – Laboratory Analyses – Groundwater

Test Description	Number of Tests
Risk Assessment Suite (Water)	6
Speciated Phenols by HPLC	6
Free Cyanide	6
Total Cyanide	6
Speciated VOCs	6
Speciated SVOCs	6
Dissolved Chromium (III + IV); LOD = 0.5 ug/L.	6

10. Gas, Vapour and Groundwater Monitoring

One round of gas and groundwater monitoring have been undertaken. A summary is provided in Table 10.1 & Table 10.2. The results are presented in Appendix C

10.1. Ground Gas/Vapour

Gas monitoring was undertaken using a calibrated Gas Data GFM436 hand-held gas analyser and a calibrated MiniRae Lite ATEX Photo Ionisation Detector (PID) and a summary is shown in Table 10.1 below;

Table 10.1 Ground Gas/Vapour Monitoring Results

Exploratory Hole Reference	Monitoring Round Date	Minimum O ₂ (%)	Maximum CO ₂ (%)	Maximum CH ₄ (%)	H ₂ S (ppm)	CO (ppm)	Maximum PID (ppm)	Barometric Pressure (mb)
RB101	14/03/2022	NR – No access to the locations due to demolition works						
RB102	14/03/2022	NR – No access to the locations due to demolition works						
RB103	14/03/2022	19.3	0.7	<0.1	<0.1	<0.1	-	1016
RB104	14/03/2022	18.1	1.7	<0.1	<0.1	<0.1	-	1016
RB105	14/03/2022	19.7	<0.1	<0.1	<0.1	<0.1	-	1016
RB106	14/03/2022	20.3	<0.1	<0.1	<0.1	<0.1	-	1016
WS09A	14/03/2022	20.2	0.5	<0.1	<0.1	<0.1	-	1016
WS13	14/03/2022	19.7	0.6	<0.1	<0.1	<0.1	-	1016

NR – no reading taken during visit.



10.2. Groundwater

The groundwater levels and any free phase liquids were measured using a calibrated Geotech Oil/Water Interface meter. All Groundwater levels were recorded in the monitoring wells during the monitoring visits and the results are presented in Table 10.2 below; All monitoring wells which groundwater was recorded, a groundwater sample was taken for laboratory analyses.

Table 10.2 Groundwater Monitoring Results (mbegl)

Exploratory Hole Reference	Depth of Monitoring Well (mbegl)	Visit	Notes
		11/11/2021 (mbegl)	
RB101		NR – No access to the locations due to demolition works	
RB102		NR – No access to the locations due to demolition works	
RB103	7.44	3.33	No Free Phase Product Detected
RB104	5.63	2.13	No Free Phase Product Detected
RB105	5.54	2.21	No Free Phase Product Detected
RB106	4.89	2.10	No Free Phase Product Detected
WS09A	3.70	3.41	No Free Phase Product Detected
WS13	4.10	3.41	No Free Phase Product Detected

NR – no reading taken during visit.

Full results of groundwater monitoring can be found in Appendix C.



Appendix A: Exploratory Hole Location Plan



Appendix B: Exploratory Hole Logs and Photographic Record



Borehole Log

Project Renaissance Manchester				Borehole No BH01	
Job No 17321	Start 20-12-21 Finish 21-12-21	Ground Level (mOD) 33.38	Co-Ordinates E 383,783.0 N 398,660.0		Depth (m) 10.5m
Client BG&E			SPT Energy Ratio 62%		Sheet 1 of 2

SAMPLES & TESTS			STRATA				Instrument/ Backfill
Depth (m)	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	
0.40	ES1	VOC-0.0ppm		33.31		0.07	
				33.23		0.15	
				32.98		0.40	
				32.68		(0.30) 0.70	
1.20	ES2	VOC-0.0ppm				(1.00)	
1.50	SPT (s)	(1, 1, 1, 0, 1, 1) N = 3		31.68		1.70	
1.70	ES3	VOC-0.0ppm					
2.50	D4 SPT (s)	(2, 3, 4, 6, 6, 7) N = 23				(1.30)	
4.00	D5 SPT (s)	(5, 5, 8, 7, 8, 7) N = 30		30.38		3.00	
						(1.00)	
				29.38		4.00	
						(0.80)	
5.00	D6 ES7 SPT (s)	VOC-0.0ppm (2, 9, 19, 31, 0, 0) N = 50/85 mm		28.58		4.80	
				28.38		5.00	
						(0.80)	
				27.58		5.80	

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Casing		Water Depth (m)	Remarks	From	To	Hours	From	To	
		Depth	Dia. mm								
											1.Borehole scanned with GPR, CAT & Genny 2.Vaccum excavated starter pit dug to 1.2m
All dimensions in metres Scale 1:37.5			Contractor A2 Site Investigation			Method/ Plant Used Comacchio 305			Logged By FA		Status FINAL

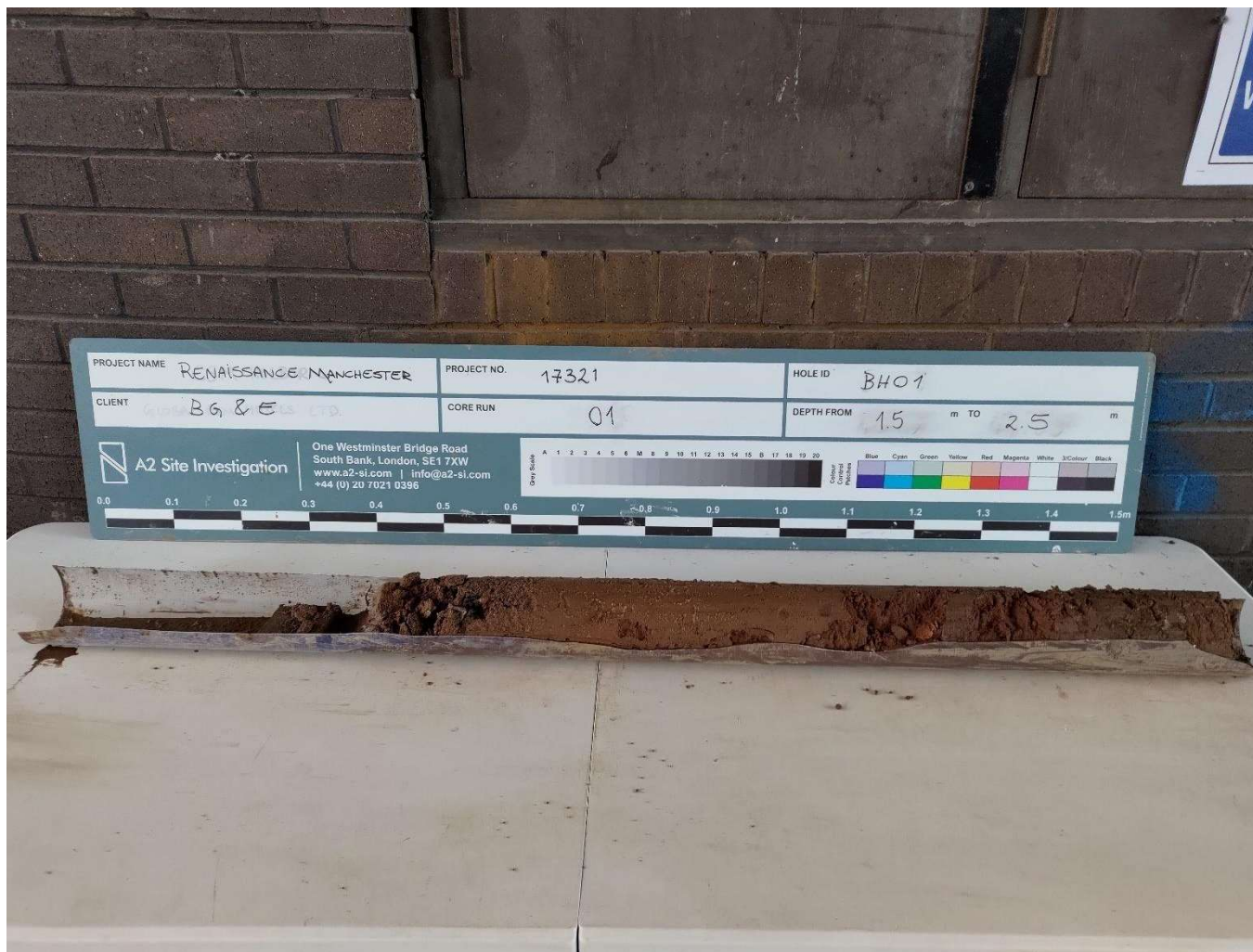


Borehole Log

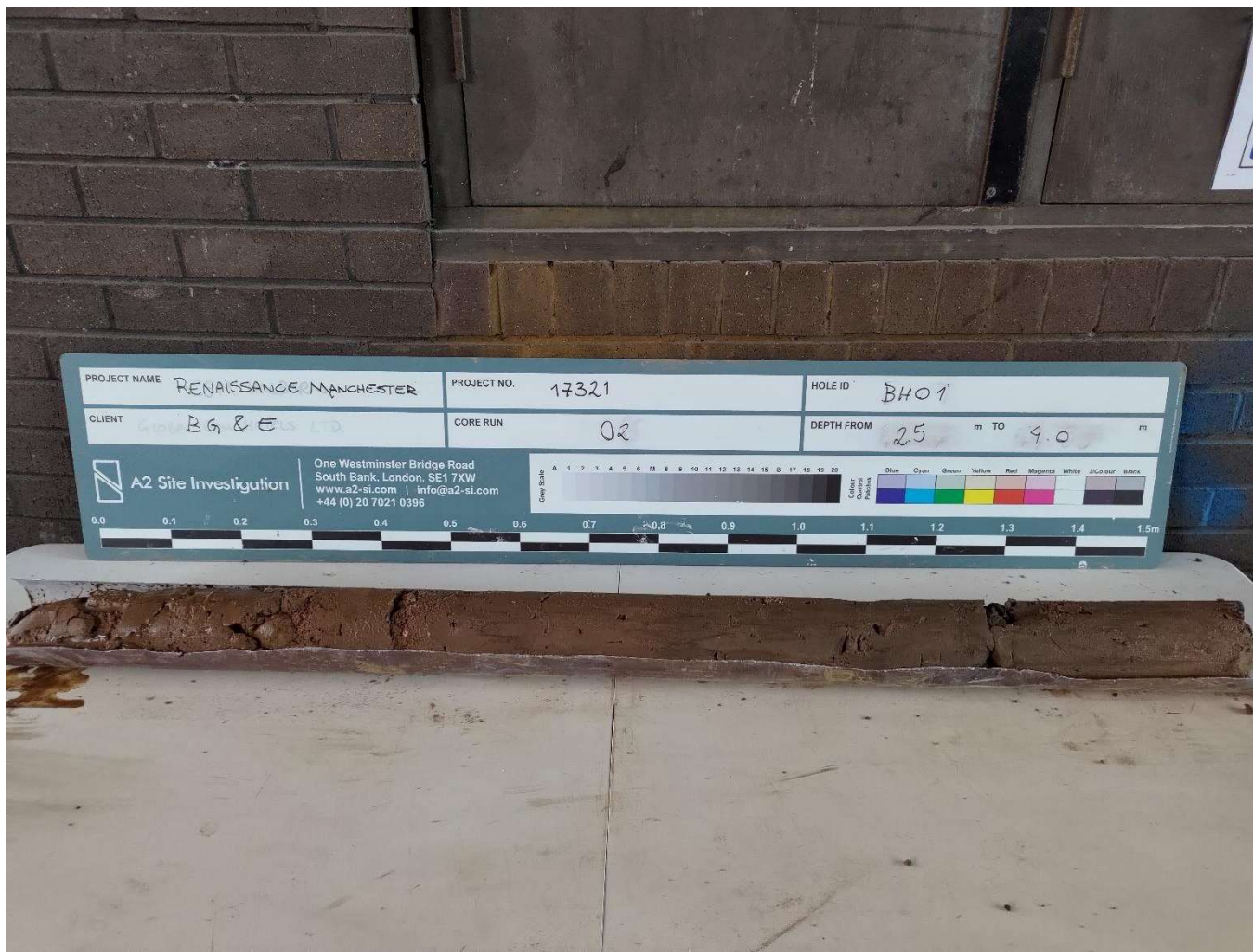
Project Renaissance Manchester				Borehole No BH01	
Job No 17321	Start 20-12-21 Finish 21-12-21	Ground Level (mOD) 33.38		Co-Ordinates E 383,783.0 N 398,660.0	Depth (m) 10.5m
Client BG&E			SPT Energy Ratio 62%		Sheet 2 of 2

SAMPLES & TESTS							STRATA	Instrument/ Backfill
Depth (m)	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	Description	
9.00	SPT (c)	(25, 0, 50, 0, 0, 0) N = 50/30 mm					Weak thinly to medium laminated reddish brown medium to coarse grained cemented SANDSTONE. Partially weathered (CHESTER FORMATION). Discontinuities: 1. 0-10° bedding fractures, closely spaced (60/180/450), planar, rough. (continued) ...layer of medium to coarse SAND from 7.8m to 8.0m... ...becomes medium strong and unweathered from 8.0m...	
10.50	SPT (c)	(25, 0, 50, 0, 0, 0) N = 50/30 mm		22.88		10.50	----- Borehole Terminated at 10.5m -----	

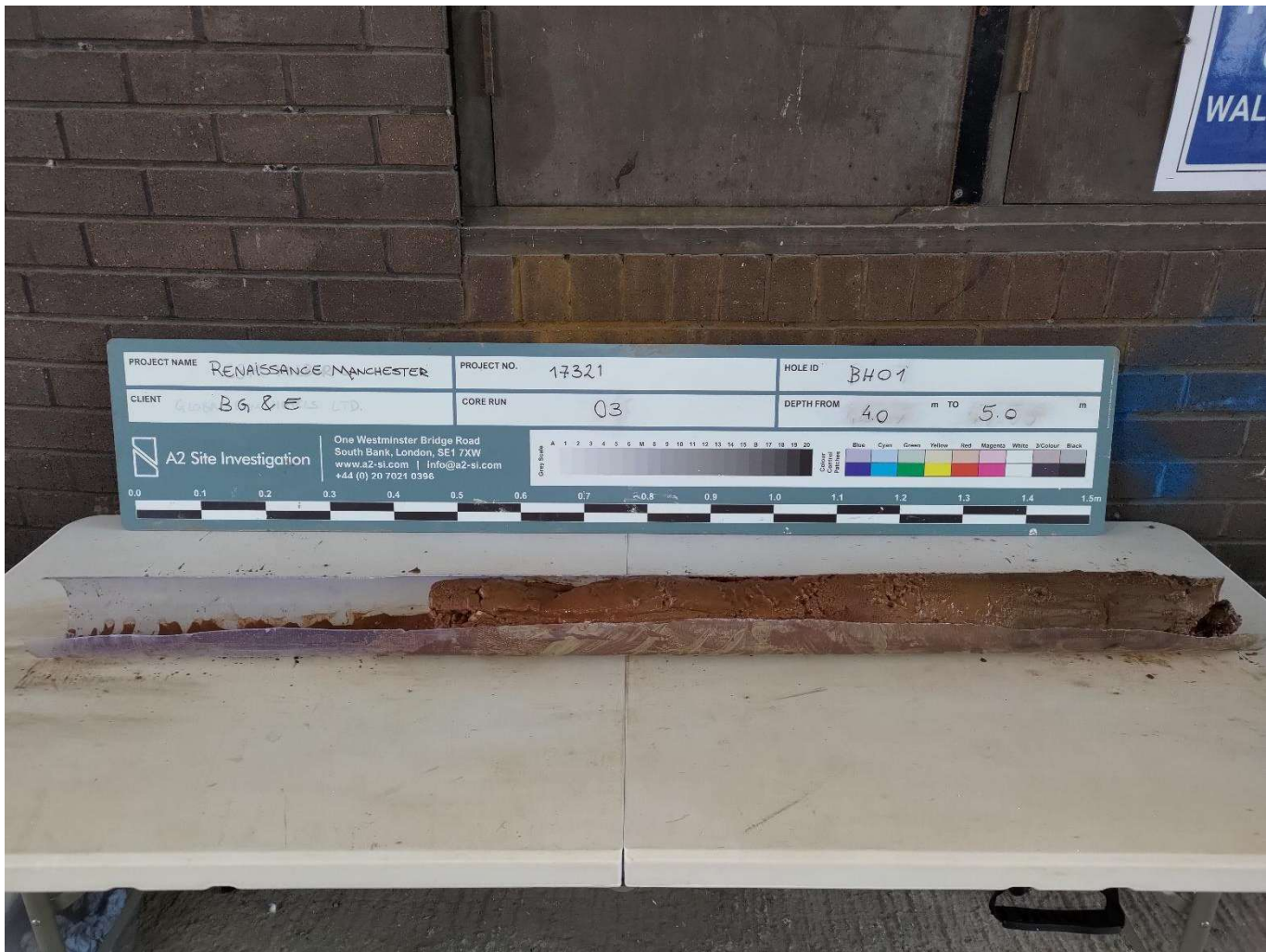
Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Depth	Casing Dia. mm	Water Depth (m)	Remarks	From	To	Hours	From	To	
21-12-21	10.50	5.00	200								1.Borehole scanned with GPR, CAT & Genny 2.Vaccum excavated starter pit dug to 1.2m
All dimensions in metres Scale 1:37.5		Contractor A2 Site Investigation				Method/ Plant Used		Comacchio 305		Logged By FA	Status FINAL



Client BG & E	Title BH01 Photographic Record		Site Renaissance Manchester		
	Core Run 01		Created JS	Checked	Authorised
	Depth From (m) 1.50	Depth To (m) 2.50	Status FINAL	Rev 0	Project No 17321



Client BG & E	Title BH01 Photographic Record		Site Renaissance Manchester		
	Core Run 02		Created JS	Checked	Authorised
	Depth From (m) 2.50	Depth To (m) 4.00	Status FINAL	Rev 0	Project No 17321



A2 Site Investigation
One Westminster Bridge Road London SE1 7XW

Client
BG & E

Title
BH01 Photographic Record

Core Run
03

Depth From (m)
4.00

Depth To (m)
5.00

Site
Renaissance Manchester

Created
JS

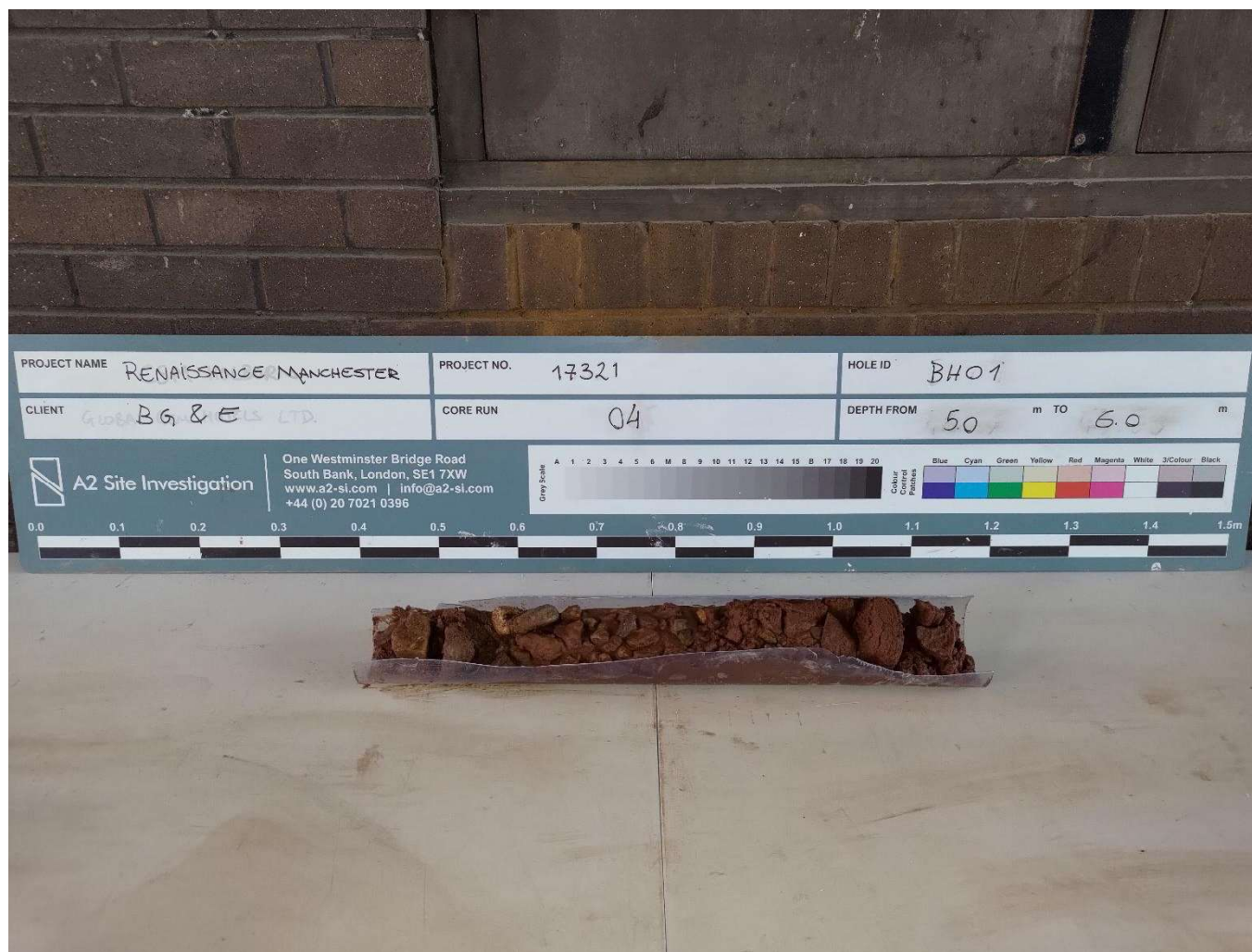
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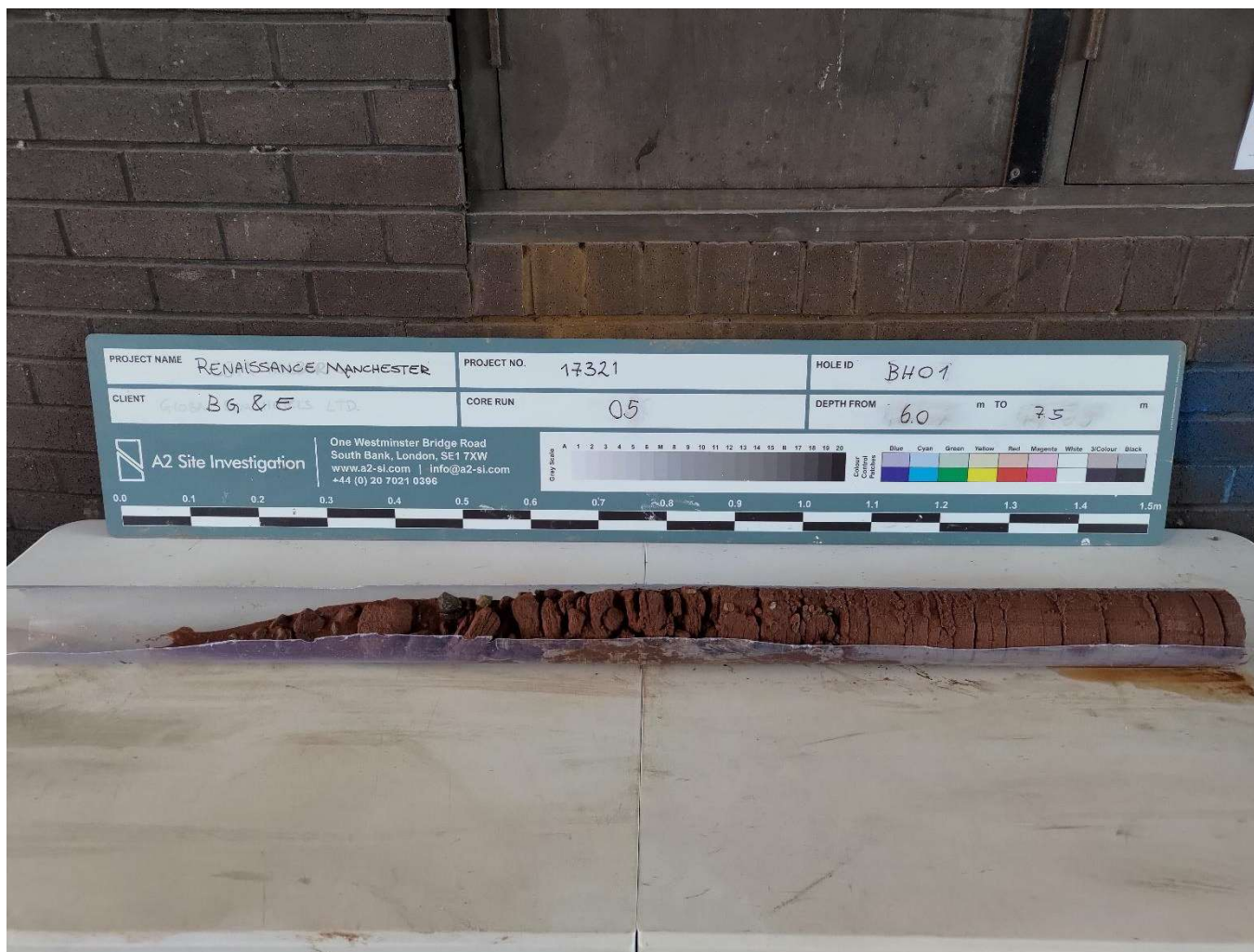
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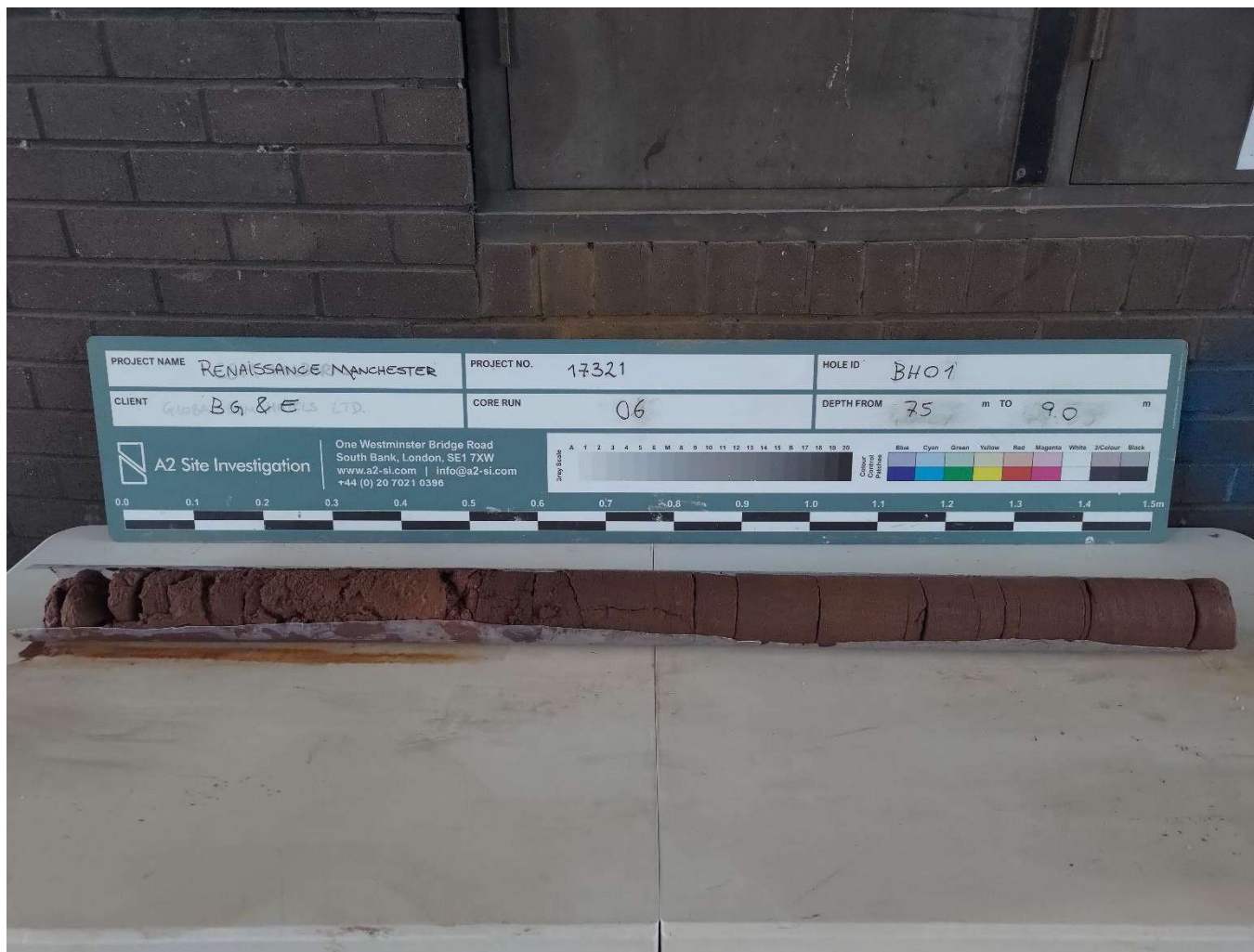
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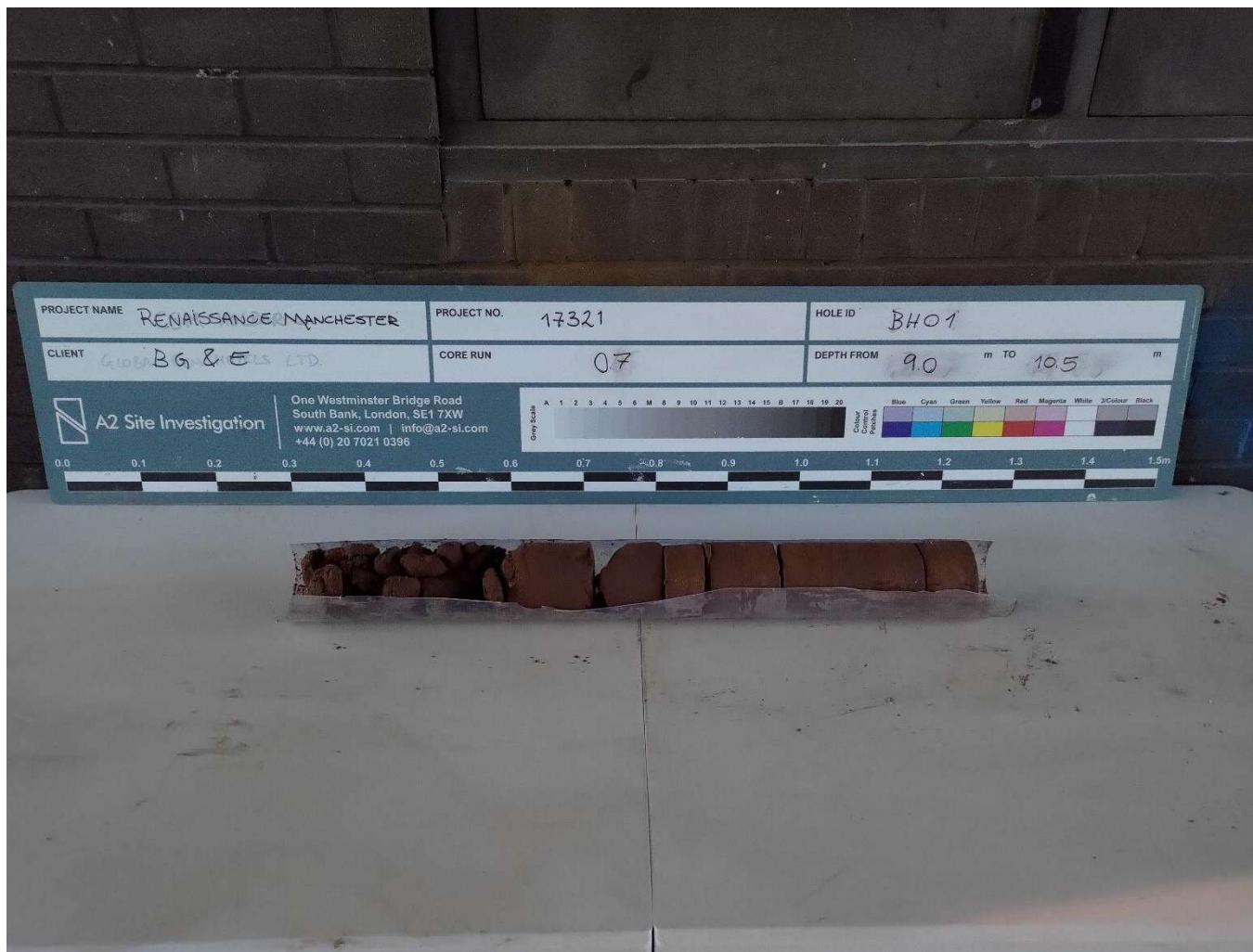




Client BG & E	Title BH01 Photographic Record		Site Renaissance Manchester		
	Core Run 05		Created JS	Checked	Authorised
	Depth From (m) 6.00	Depth To (m) 7.50	Status FINAL	Rev 0	Project No 17321



Client BG & E	Title BH01 Photographic Record		Site Renaissance Manchester		
	Core Run 06		Created JS	Checked	Authorised
	Depth From (m) 7.50	Depth To (m) 9.00	Status FINAL	Rev 0	Project No 17321





Borehole Log

Project Renaissance Manchester				Borehole No WS01	
Job No 17321	Start 20-12-21 Finish 21-12-21	Ground Level (mOD) 32.93	Co-Ordinates E 383,791.0 N 398,676.0		Depth (m) 1.2m
Client BG&E			SPT Energy Ratio %		Sheet 1 of 1

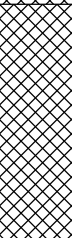
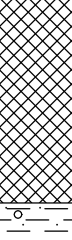
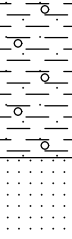
SAMPLES & TESTS							STRATA	Instrument/ Backfill
Depth (m)	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	Description	
0.40	ES1	VOC 0.0ppm				(1.20)	Soft to firm brown mottled greyish brown sandy very gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of brick, flint, concrete, plastic. (MADE GROUND)	
1.20	ES2	VOC 0.0ppm		31.73		1.20	----- Borehole Terminated at 1.2m -----	

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Casing Depth	Dia. mm	Water Depth (m)	Remarks	From	To	Hours	From	To	
											1.Borehole scanned with GPR, CAT & Genny 2.Vaccum excavated starter pit dug to 1.2m 3.Borehole cancelled due to excavation nearby after starter pit was dug. No alternative location was possible due to underground services density in the area.
All dimensions in metres Scale 1:31.25		Contractor A2 Site Investigation				Method/ Plant Used WS Rig		Logged By FA		Status FINAL	



Borehole Log

Project Renaissance Manchester				Borehole No WS02	
Job No 17321	Start 20-12-21 Finish 21-12-21	Ground Level (mOD) 33.29	Co-Ordinates E 383,786.0 N 398,668.0		Depth (m) 4m
Client BG&E			SPT Energy Ratio 67%		Sheet 1 of 1

SAMPLES & TESTS							STRATA		Instrument/ Backfill
Depth (m)	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	Description		
0.50	ES1	VOC 0.0ppm		33.22		0.07	Pavement Slab (MADE GROUND)		
				32.99		0.30	Loose red fine SAND (MADE GROUND)		
						(0.70)	Dense greyish brown clayey very sandy angular to subrounded, fine to coarse GRAVEL of flint, concrete and brick (MADE GROUND)		
				32.29		1.00			
1.30	ES2	VOC 0.0ppm				(1.80)	Dense light yellowish grey clayey sandy angular to subangular medium to coarse GRAVEL of concrete and quartzite with medium cobble content. Sand is fine to coarse. Cobbles are angular of quartzite. (MADE GROUND)		
2.00	SPT (s)	(2, 2, 1, 1, 0, 1) N = 3							
2.30	ES3	VOC 0.0ppm							
				30.49		2.80			
3.00	ES4	VOC 0.0ppm				(0.80)	Firm to stiff reddish brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular of flint and quartzite. (GLACIOFLUVIAL SHEETS DEPOSITS)		
3.00	SPT (s)	(2, 4, 6, 6, 8, 10) N = 30							
				29.69		3.60			
3.80	ES5	VOC 0.0ppm					(0.40)	Very weak thinly laminated reddish brown poorly cemented medium to coarse SANDSTONE with occasional gravel. Distinctly weathered. (WEATHERED CHESTER FORMATION)	
4.00	SPT (s)	(11, 14, 24, 26, 0, 0) N = 50/145 mm		29.29	4.00				
							----- Borehole Terminated at 4m -----		

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Casing Depth	Casing Dia. mm	Water Depth (m)	Remarks	From	To	Hours	From	To	
											1. Borehole scanned with GPR, CAT & Genny 2. Vacuum excavated starter pit dug to 1.2m
All dimensions in metres Scale 1:31.25		Contractor A2 Site Investigation				Method/ Plant Used		WS Rig	Logged By FA		Status FINAL





Borehole Log

Project Renaissance Manchester					Borehole No WS03
Job No 17321	Start 20-12-21 Finish 21-12-21	Ground Level (mOD) 33.75	Co-Ordinates E 383,781.0 N 398,654.0	Depth (m) 1.6m	
Client BG&E			SPT Energy Ratio 67%	Sheet 1 of 1	

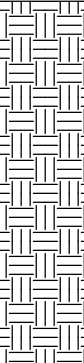
SAMPLES & TESTS			STRATA				Instrument/ Backfill
Depth (m)	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	
0.40	ES1	VOC 0.0ppm		33.68		0.07	
				33.45		0.30	
						(1.30)	
1.30	ES2	VOC 0.0ppm					
1.30	SPT (c)	(12, 13, 12, 14, 14, 10)		32.15		1.60	
1.60	ES3	VOC 0.0ppm					
----- Borehole Terminated at 1.6m -----							

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Casing Depth	Casing Dia. mm	Water Depth (m)	Remarks	From	To	Hours	From	To	
											1.Borehole scanned with GPR, CAT & Genny 2.Vaccum excavated starter pit dug to 1.2m 3.Borehole refused at 1.6m on a concrete slab. No alternative location was possible due to underground services density in the area.
All dimensions in metres Scale 1:31.25		Contractor A2 Site Investigation				Method/ Plant Used		WS Rig		Logged By FA	Status FINAL



Borehole Log

Project Renaissance Manchester				Borehole No WS04	
Job No 17321	Start 20-12-21 Finish 21-12-21	Ground Level (mOD) 33.75	Co-Ordinates E 383,780.0 N 398,652.0		Depth (m) 1.5m
Client BG&E			SPT Energy Ratio 67%		Sheet 1 of 1

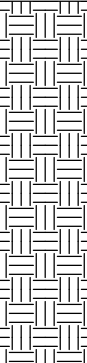
SAMPLES & TESTS							STRATA		Instrument/ Backfill
Depth (m)	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	Description		
0.50	ES1	VOC 0.0ppm				(1.50)	Medium dense greyish brown very clayey sandy angular to subrounded, fine to coarse GRAVEL of brick, concrete, quartzite and flint with low cobble content. Sand is fine to coarse. Cobbles are angular to subangular of brick and quartzite. (MADE GROUND)		
1.30	ES2	VOC 0.0ppm							
1.30	SPT (c)	(19, 6, 24, 26, 0, 0) N = 50/85 mm		32.25		1.50			----- Borehole Terminated at 1.5m -----

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Casing Depth	Casing Dia. mm	Water Depth (m)	Remarks	From	To	Hours	From	To	
											1.Borehole scanned with GPR, CAT & Genny 2.Vaccum excavated starter pit dug to 1.2m 3.Borehole refused at 1.5m on a concrete slab. No alternative location was possible due to underground services density in the area.
All dimensions in metres Scale 1:31.25		Contractor A2 Site Investigation				Method/ Plant Used		WS Rig		Logged By FA	Status FINAL



Borehole Log

Project Renaissance Manchester				Borehole No WS05	
Job No 17321	Start 20-12-21 Finish 21-12-21	Ground Level (mOD) 33.75	Co-Ordinates E 383,778.0 N 398,650.0		Depth (m) 1.5m
Client BG&E			SPT Energy Ratio 67%		Sheet 1 of 1

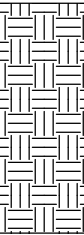
SAMPLES & TESTS							STRATA		Instrument/ Backfill
Depth (m)	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	Description		
0.50	ES1	VOC 0.0ppm				(1.50)	Medium dense greyish brown very clayey sandy angular to subrounded, fine to coarse GRAVEL of brick, concrete, quartzite and flint with low cobble content. Sand is fine to coarse. Cobbles are angular to subangular of brick and quartzite. (MADE GROUND)		
1.30	ES2	VOC 0.0ppm		32.25		1.50			
1.30	SPT (c)	(15, 10, 24, 26, 0, 0) N = 50/105 mm							----- Borehole Terminated at 1.5m -----

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Casing Depth	Casing Dia. mm	Water Depth (m)	Remarks	From	To	Hours	From	To	
											1.Borehole scanned with GPR, CAT & Genny 2.Vaccum excavated starter pit dug to 1.2m 3.Borehole refused at 1.5m on a concrete slab. No alternative location was possible due to underground services density in the area.
All dimensions in metres Scale 1:31.25		Contractor A2 Site Investigation				Method/ Plant Used		WS Rig		Logged By FA	Status FINAL



Borehole Log

Project Renaissance Manchester					Borehole No WS08
Job No 17321	Start 22-03-22 Finish 22-03-22	Ground Level (mOD) 25.16	Co-Ordinates E 383,736.8 N 398,645.1		Depth (m) 0.95m
Client BG&E			SPT Energy Ratio %		Sheet 1 of 1

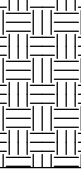
SAMPLES & TESTS							STRATA		Instrument/ Backfill
Depth (m)	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	Description		
0.50 0.50	ES1	VOC 0.0 ppm		25.09		0.07	CONCRETE Slab		
				25.01		0.15	Compact light red fine to medium SAND with occasional roots (MADE GROUND)		
				24.76		(0.25) 0.40	Loose light grey angular to subangular coarse GRAVEL of type 1 material (MADE GROUND)		
				24.51		(0.25) 0.65	Medium dense red slightly silty gravelly fine to coarse SAND with medium cobble content. Gravel is angular to subangular fine to coarse of granite, brick and sandstone. Cobbles are angular of brick and sandstone. (MADE GROUND)		
				24.21		(0.30) 0.95	0.50 ...with high cobble content from 0.5m...		
							Brickwork (MADE GROUND)		
							----- Borehole Terminated at 0.95m -----		

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Casing Depth	Dia. mm	Water Depth (m)	Remarks	From	To	Hours	From	To	
											1.Borehole scanned with GPR, CAT & Genny 2.Borehole terminated due to refusal
All dimensions in metres Scale 1:31.25			Contractor A2 Site Investigation			Method/ Plant Used Digging tools			Logged By FA		Status FINAL



Borehole Log

Project Renaissance Manchester				Borehole No WS08A	
Job No 17321	Start 23-03-22 Finish 23-03-22	Ground Level (mOD) 25.16	Co-Ordinates E 383,739.5 N 398,641.7		Depth (m) 0.7m
Client BG&E			SPT Energy Ratio %		Sheet 1 of 1

SAMPLES & TESTS							STRATA	Instrument/ Backfill
Depth (m)	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	Description	
0.50 0.50	ES1	VOC 0.0 ppm		25.09		0.07	CONCRETE Slab	
				25.01		0.15	Compact light red fine to medium SAND with occasional roots (MADE GROUND)	
				24.76		(0.25) 0.40	Loose light grey angular to subangular coarse GRAVEL of type 1 material (MADE GROUND)	
				24.51		(0.25) 0.65	Medium dense red slightly silty gravelly fine to coarse SAND with medium cobble content. Gravel is angular to subangular fine to coarse of granite, brick and sandstone. Cobbles are angular of brick and sandstone. (MADE GROUND)	
				24.46		0.70	0.50 ... with high cobble content from 0.5m... Brickwork (MADE GROUND)	
							----- Borehole Terminated at 0.7m -----	

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Casing Depth	Dia. mm	Water Depth (m)	Remarks	From	To	Hours	From	To	
											1.Borehole scanned with GPR, CAT & Genny 2.Borehole terminated due to refusal
All dimensions in metres Scale 1:31.25		Contractor A2 Site Investigation				Method/ Plant Used		Digging tools		Logged By FA	Status FINAL



Borehole Log

Project Renaissance Manchester				Borehole No WS08B	
Job No 17321	Start 23-03-22 Finish 23-03-22	Ground Level (mOD) 25.16	Co-Ordinates E 383,735.5 N 398,640.3		Depth (m) 1.2m
Client BG&E			SPT Energy Ratio 67%		Sheet 1 of 1

SAMPLES & TESTS							STRATA		Instrument/ Backfill
Depth (m)	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	Description		
0.60 0.60	ES1	VOC 0.0 ppm		25.09		0.07	CONCRETE Slab		
				25.01		0.15	Loose grey mottled dark grey silty sandy angular to subangular fine to coarse GRAVEL of type 1 material (MADE GROUND)		
				(0.25)					
				24.76		0.40	Loose light grey mottled white angular to subangular coarse GRAVEL of type 1 material (MADE GROUND)		
1.10	SPT (s)	(25, 50, 0, 0, 0, 0) N = 0/0 mm				(0.80)	Medium dense orangish brown silty very sandy angular to subangular fine to coarse GRAVEL of brick, concrete and sandstone with low cobble content. Sand is fine to coarse. Cobbles are angular of concrete and brick. (MADE GROUND) 0.70 - 0.80 ...layer of brick between 0.7m to 0.8m...		
						23.96	1.20	----- Borehole Terminated at 1.2m -----	

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Casing Depth	Dia. mm	Water Depth (m)	Remarks	From	To	Hours	From	To	
											1.Borehole scanned with GPR, CAT & Genny 2.Borehole terminated due to refusal
All dimensions in metres Scale 1:31.25		Contractor A2 Site Investigation				Method/ Plant Used		WS Rig	Logged By FA		Status FINAL



Borehole Log

Project Renaissance Manchester					Borehole No WS09	
Job No 17321	Start 22-03-22 Finish 22-03-22	Ground Level (mOD) 25.06	Co-Ordinates E 383,713.1 N 398,623.8		Depth (m) 0.8m	
Client BG&E			SPT Energy Ratio %		Sheet 1 of 1	

SAMPLES & TESTS			STRATA				Instrument/ Backfill
Depth (m)	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	
				24.99		0.07	
						(0.33)	
				24.66		0.40	
						(0.40)	
				24.26		0.80	
						----- Borehole Terminated at 0.8m -----	

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Casing Depth	Dia. mm	Water Depth (m)	Remarks	From	To	Hours	From	To	
											1.Borehole scanned with GPR, CAT & Genny 2.Borehole terminated due to refusal

All dimensions in metres Scale 1:31.25		Contractor A2 Site Investigation		Method/ Plant Used	Digging tools	Logged By	FA	Status	FINAL
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Project Renaissance Manchester				Borehole No WS09A
Job No 17321	Start 22-03-22	Ground Level (mOD) 25.16	Co-Ordinates E 383,716.1 N 398,621.1	Depth (m) 4m
Client BG&E			SPT Energy Ratio 67%	Sheet 1 of 1

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Casing Depth	Dia. mm	Water Depth (m)	Remarks	From	To	Hours	From	To	
											1.Borehole scanned with GPR, CAT & Genny 2.Groundwater strike at 2.9m

All dimensions in metres Scale 1:31.25	Contractor A2 Site Investigation	Method/ Plant Used	WS Rig	Logged By FA	Status FINAL
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Report ID: A2SIAGS BH LOG FINAL || Project: 17321 RENAISSANCE MANCHESTER.GPJ || Library: A2SI AGS 4_0_GLB || Date: 8 April 2022
A2 Site Investigation, 1 Westminster Bridge Road, SE1 7XW, Telephone: 020 7021 0396



Client BG & E		Title WS09A Photographic Record		Site Renaissance Manchester	
		Core Run -		Created RB	Checked RB
		Depth From (m) 1.20	Depth To (m) 4.00	Status FINAL	Authorised DS Project No 17321



Borehole Log

Project Renaissance Manchester				Borehole No WS10	
Job No 17321	Start 23-03-22 Finish 23-03-22	Ground Level (mOD) 25.11	Co-Ordinates E 383,703.7 N 398,616.7		Depth (m) 6m
Client BG&E			SPT Energy Ratio 67%		Sheet 1 of 2

SAMPLES & TESTS			STRATA				Instrument/ Backfill
Depth (m)	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	
0.50	ES1	VOC 0.0 ppm		25.04		0.07	
0.50				24.86		0.25	
				24.66		0.45	
1.20	SPT (s)	(1, 0, 1, 1, 2, 2) N = 6					
1.50	ES2	VOC 0.0 ppm					
1.50							
2.00	SPT (s)	(2, 2, 1, 1, 2, 1) N = 5				(3.55)	
2.50	ES3	VOC 0.0 ppm					
2.50							
3.00	SPT (s)	(1, 1, 1, 0, 0, 1) N = 2					
3.50	ES4	VOC 0.0 ppm					
3.50							
4.00	SPT (s)	(4, 4, 3, 2, 2, 2) N = 9		21.11		4.00	
4.50	ES5	VOC 0.0 ppm					
4.50							

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Casing Depth	Dia. mm	Water Depth (m)	Remarks	From	To	Hours	From	To	
											1.Borehole scanned with GPR, CAT & Genny
All dimensions in metres Scale 1:31.25		Contractor A2 Site Investigation				Method/ Plant Used		WS Rig	Logged By FA		Status FINAL



Borehole Log

Project Renaissance Manchester				Borehole No WS10	
Job No 17321	Start 23-03-22 Finish 23-03-22	Ground Level (mOD) 25.11	Co-Ordinates E 383,703.7 N 398,616.7		Depth (m) 6m
Client BG&E			SPT Energy Ratio 67%		Sheet 2 of 2

SAMPLES & TESTS			STRATA				Instrument/ Backfill
Depth (m)	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	
5.00	SPT (s)	(3, 2, 2, 2, 3, 2) N = 9				(2.00)	
5.50	ES6	VOC 0.0 ppm					
5.50							
				19.11		6.00	
----- Borehole Terminated at 6m -----							

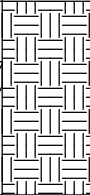
Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Casing Depth	Dia. mm	Water Depth (m)	Remarks	From	To	Hours	From	To	
											1.Borehole scanned with GPR, CAT & Genny
All dimensions in metres Scale 1:31.25		Contractor A2 Site Investigation				Method/ Plant Used		WS Rig		Logged By FA	Status FINAL





Borehole Log

Project Renaissance Manchester				Borehole No WS11	
Job No 17321	Start 22-03-22 Finish 22-03-22	Ground Level (mOD) 25.26		Co-Ordinates E 383,746.3 N 398,608.6	Depth (m) 0.8m
Client BG&E			SPT Energy Ratio 67%		Sheet 1 of 1

SAMPLES & TESTS							STRATA		Instrument/ Backfill
Depth (m)	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	Description		
0.50 0.50 0.60	ES1 SPT (s)	VOC 0.0 ppm (25, 19, 50, 0, 0, 0) N = 50/70 mm		25.01		(0.25) 0.25	Car park CONCRETE slab		
				25.00		0.26	Rubber membrane		
				24.91		0.35	CONCRETE slab		
				24.46		(0.45)	Weak thinly to medium laminated reddish brown medium to coarse grained cemented SANDSTONE. Partially weathered (CHESTER FORMATION).		
						0.80			
----- Borehole Terminated at 0.8m -----									

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Casing Depth	Casing Dia. mm	Water Depth (m)	Remarks	From	To	Hours	From	To	
											1.Borehole scanned with GPR, CAT & Genny 2.Borehole terminated due to refusal

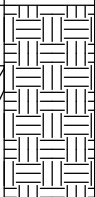
All dimensions in metres Scale 1:31.25		Contractor A2 Site Investigation		Method/ Plant Used	WS Rig	Logged By	FA	Status	FINAL
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Borehole Log

Project Renaissance Manchester					Borehole No WS12	
Job No 17321	Start 22-03-22 Finish 22-03-22	Ground Level (mOD) 25.26	Co-Ordinates E 383,715.9 N 398,596.2		Depth (m) 0.8m	
Client BG&E			SPT Energy Ratio 67%		Sheet 1 of 1	

SAMPLES & TESTS							STRATA		Instrument/ Backfill
Depth (m)	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	Description		
0.50 0.50 0.60	ES1 SPT (s)	VOC 0.0 ppm (25, 19, 50, 0, 0, 0) N = 50/70 mm				(0.25) 0.25	Car park CONCRETE slab		
				25.01		0.26		Rubber membrane	
				25.00		0.35		CONCRETE slab	
				24.91				Weak thinly to medium laminated reddish brown medium to coarse grained cemented SANDSTONE. Partially weathered (CHESTER FORMATION).	
						(0.45) 0.80			
			24.46				----- Borehole Terminated at 0.8m -----		

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Casing Depth	Casing Dia. mm	Water Depth (m)	Remarks	From	To	Hours	From	To	
											1.Borehole scanned with GPR, CAT & Genny 2.Borehole terminated due to refusal

All dimensions in metres Scale 1:31.25		Contractor A2 Site Investigation		Method/ Plant Used	WS Rig	Logged By	FA	Status	FINAL
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Borehole Log

Project Renaissance Manchester				Borehole No WS13	
Job No 17321	Start 22-03-22 Finish 22-03-22	Ground Level (mOD) 25.08	Co-Ordinates E 383,688.0 N 398,598.0		Depth (m) 6m
Client BG&E			SPT Energy Ratio 67%		Sheet 1 of 2

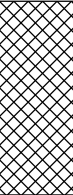
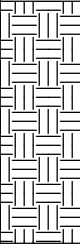
SAMPLES & TESTS			STRATA				Instrument/ Backfill
Depth (m)	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	
0.50	ES1	VOC 0.0 ppm		25.01		0.07	
0.50						(0.43)	
1.00				24.58		0.50	
1.50	ES2	VOC 0.0 ppm				(2.50)	
1.50							
2.00							
2.50	ES3	VOC 0.0 ppm				(2.50)	
2.50							
3.00							
3.50	ES4	VOC 0.0 ppm		22.08		3.00	
3.50							
4.00							
4.00	ES5	VOC 0.0 ppm				(2.80)	
4.00							
4.00							

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Casing Depth	Dia. mm	Water Depth (m)	Remarks	From	To	Hours	From	To	
											1. Borehole scanned with GPR, CAT & Genny 2. Groundwater strike at 3.5m 3. Hole collapsed to 4.0m before installation
All dimensions in metres Scale 1:31.25		Contractor A2 Site Investigation				Method/ Plant Used		WS Rig		Logged By FA	Status FINAL



Borehole Log

Project Renaissance Manchester				Borehole No WS13
Job No 17321	Start 22-03-22 Finish 22-03-22	Ground Level (mOD) 25.08	Co-Ordinates E 383,688.0 N 398,598.0	Depth (m) 6m
Client BG&E			SPT Energy Ratio 67%	Sheet 2 of 2

SAMPLES & TESTS							STRATA	Instrument/ Backfill	
Depth (m)	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	Description		
5.00 5.00 5.00	ES6 SPT (s)	(2, 0, 1, 0, 1, 0) N = 2 VOC 0.0 ppm					Loose to medium dense brownish grey clayey slightly gravelly fine to medium SAND. Gravel is angular to subangular fine to medium of brick and sandstone. (MADE GROUND) (continued)		
							19.28		5.80
							19.08		6.00
							----- Borehole Terminated at 6m -----		

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Hole Depth (m)	Casing		Water Depth (m)	Remarks	From	To	Hours	From	To	
		Depth	Dia. mm								
All dimensions in metres Scale 1:31.25		Contractor A2 Site Investigation				Method/ Plant Used WS Rig			Logged By FA		Status FINAL

Report ID: A2SIAGS BH LOG FINAL | Project: 17321 RENAISSANCE MANCHESTER.GPJ | Library: A2SI AGS 4_0.GLB | Date: 8 April 2022
A2 Site Investigation, 1 Westminster Bridge Road SE1 7XW, Telephone: 020 7021 0396





Appendix C: Gas and Groundwater Monitoring Results

Environmental Monitoring & Sampling Services Limited

Report Number: C0997/4894
 Customer: A2 Site Investigation Limited
 Site Name: Renaissance, Deansgate, Manchester.
 Visit Date: 14/03/2022
 Monitoring Technician: Paul Brennan

Installation	Time	Water Level*	Installation Base*	Cover/pipe height above ground level*	Approx. gas sampling period	Methane (Peak)	Methane (Steady)	Methane (Peak)	Methane (Steady)	Carbon Dioxide (Peak)	Carbon Dioxide (Steady)	Oxygen (Low)	Oxygen (Steady)	Carbon Monoxide	Hydrogen Sulphide	Differential Pressure (Peak)	Differential Pressure (Steady)	Flow Rate (Peak)	Flow Rate (Steady)	Approx. flow rate sampling period	VOC (by PID 10.6ev lamp) (Peak)	VOC (by PID 10.6ev lamp) (Steady)	Atmospheric Pressure	Comments
	(hrs:min)	(m)	(m)	(m)	(sec)	(% Vol)	(% Vol)	(% LEL)	(% LEL)	(% Vol)	(% Vol)	(% Vol)	(% Vol)	(ppm)	(ppm)	(Pa)	(Pa)	(l/hr)	(l/hr)	(sec)	(ppm)	(ppm)	(mb)	
Start	09:57	-	-	-	-	-	<0.1	-	<0.1	-	<0.1	-	20.3	<1	<1	-	0	-	0.0	-	-	<1	1016	
Finish	11:47	-	-	-	-	-	<0.1	-	<0.1	-	<0.1	-	20.4	<1	<1	-	0	-	0.0	-	-	<1	1016	
RB101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No access active demolition taking place where installation located.
RB102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No access. Demolition in progress on floor above and pile of rubble over approx location of installation. No visible evidence on surface slab.
RB103	10:17	3.33	7.44	GL	300	-	<0.1	-	<0.1	-	0.7	-	19.3	<1	<1	-	0	-	0.0	60	-	<1	1016	
RB104	10:40	2.13	5.63	GL	300	-	<0.1	-	<0.1	-	1.7	-	18.1	<1	<1	-	0	-	0.0	60	-	<1	1016	
RB105	11:11	2.21	5.54	GL	300	-	<0.1	-	<0.1	-	<0.1	-	19.7	<1	<1	-	0	-	0.0	60	-	<1	1016	Bung slightly loose on arrival.
RB106	10:55	2.10	4.89	GL	300	-	<0.1	-	<0.1	-	<0.1	-	20.3	<1	<1	-	0	-	0.0	60	-	<1	1016	Backfill around installation collapsed and able to dip to 3.8m bgl outside pipe.
WS09A	11:28	3.41	3.70	GL	300	-	<0.1	-	<0.1	-	0.5	-	20.2	<1	<1	-	0	-	0.0	60	-	<1	1016	
WS13	11:43	3.41	4.10	GL	300	-	<0.1	-	<0.1	-	0.6	-	19.7	<1	<1	-	0	-	0.0	60	-	<1	1016	

Instrument	Manufacturer	Model	S/N	Calibration Date	These works have been undertaken in accordance with the following monitoring & sampling methodologies:
Infra Red Gas Analyser	Gas Data	GFM430	10167	23/02/2022	Method Statement for Ground Gas Determinations IRGA & PID v2. Peak ground gas or low oxygen concentrations are reported only when different to steady readings.
Dipmeter	Geotechnical Instruments	DM2.1-60	79964		Method Statement for Groundwater and Product Level Measurement v2.
Interface Meter	Not utilised	N/A	N/A		* = Water and base level measurements dipped to top of cover or pipe if no cover.
Photoionisation Detector.	RAE Systems	PGM6208	M01C009161	24/01/2022	PID concentrations determined over 180 seconds.

Weather Conditions:					Site Conditions:	
Temperature (°C)	10-12	Precipitation:	Dry	Ground Conditions:	Dry	
Wind Conditions	Light breeze becoming gentle breeze	Cloud Cover:	Clear becoming cloudy			

Results and factual data included in this report are representative of the conditions encountered during the event.
 EMSS Ltd cannot be responsible for the suitability of installations installed.

