SITE INVESTIGATION REPORT

Torridon House Car Park, Westminster

ISSUE 01

SITE INVESTIGATION REPORT

Torridon House Car Park, Westminster

Prepared for: City of Westminster

Concept: 19/3312 - FR 01 21/01/2020

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1. PROJECT PARTICULARS

Site Location:	Torridon House Car Park, Westminster
Client:	City of Westminster
Investigation Supervisor:	Peter Brett Associates LLP
Fieldwork:	07/10/2019 – 18/10/2019
Laboratory Work:	09/10/2019 – 15/11/2019
Postfield Works:	25/10/2019 – 20/01/2020

2. PURPOSE AND SCOPE OF WORKS

The purpose of the investigation was to determine:

- The geotechnical characteristics of the ground for the assessment of the stability of the existing and proposed slopes, and the design of foundations and other engineering works;
- The presence and depth of any shallow groundwater in the near surface soils;
- The nature of any existing contamination of the ground and groundwater;
- The nature of any ground gases present on the site.

The site was occupied by the Torridon House car park, comprised an at-grade car park with provision for off-street parking of 35 cars. A series of lockup stores were located along the northeast and northwest boundaries of the site.

The scope of the works comprised the following:

- 2 No. Cable Percussion Boreholes to a depth of 35.00m;
- 4 No. Dynamic Sampler Boreholes to a depth of 6.00m;
- 4 No. Observation Pits to a maximum depth of 1.30m;
- Logging and Photographing;
- Instrumentation Monitoring and Sampling;
- Geotechnical & Chemical Testing.

Table 1 – Exploratory Hole List

Hole ID	Hole Type	Depth (m)	Easting	Northing	Level (mOD)
BH101	CP	35.00	525629.09	183228.92	32.08
BH102	CP	35.00	525657.60	183230.12	32.58
OP101	OP	0.55	525630.75	183238.77	32.46
OP102	OP	1.30	525639.74	183246.00	32.60

Hole ID	Hole Type	Depth (m)	Easting	Northing	Level (mOD)
OP103	OP	0.55	525596.93	183264.59	32.01
OP104	OP	0.50	525619.96	183235.78	32.08
WS101	DS	6.00	525645.39	183245.66	32.54
WS102	DS	6.00	525644.53	183236.28	32.41
WS103	DS	6.00	525651.33	183219.76	32.47
WS104	IP	0.40	525644.23	183212.61	32.39
WS104A	DS	6.00	525645.36	183213.60	32.39

Key

CP – Cable Percussion Borehole
DS – Dynamic Sampler Borehole
OP – Observation Pit
IP – Inspection Pit / Aborted Borehole Location

3. DESCRIPTION OF WORKS

The works were carried out in accordance with the Peter Brett Associates LLP "Proposed Residential Development Torridon House Car Park, Westminster" Tender for Ground Investigation document with reference SP02/rev0 | July 2019, rev 1, dated July 2019 and Concept's Method Statement with reference no: 19/3312, Rev 00, dated 10/09/2019.

The site was bounded by Andover Place to the northeast, un-named access roads to the southeast and southwest and a synagogue and primary school to the northwest. Torridon House was located to the southwest of the site. The approximate centre of the site was located at Nation Grid Reference: TQ 256 832.

The locations of all exploratory holes are shown in the Exploratory Hole Location Plan presented in Section 7 of this report.

4. INVESTIGATION METHODS

4.1 Utilities Survey and Inspection Pits

Prior to boring commencing all exploratory hole locations were checked for utilities / buried services using a CAT and genny, existing utility information and hand dug inspection pits to an appropriate depth as identified by the services plans. The depth of the starter pits depended on the depth of anticipated services as shown on the utilities plans was at a maximum depth of 1.20m. Where surface concrete and asphalt encountered were broken out by hand held electric breaker.

4.2 Cable Percussion Drilling

2 No. Cable Percussion Boreholes (BH101 and BH102) were drilled to a maximum depth of 35.00m using a standard cable percussion rig (Dando 175) with 150mm diameter casing.

4.2.1 Sampling and Testing during Cable Percussion Drilling

Bulk samples were taken at regular intervals in the Made Ground. Undisturbed Thin Walled samples (UT) were taken in accordance with EC7 using a down-hole sliding hammer in cohesive material at regular intervals or as instructed by the Investigation Supervisor.

Standard Penetration Tests (SPT) were carried out at specified intervals or as otherwise instructed by the Investigation Supervisor. The resulting SPT "N" blowcount values are presented in the relevant borehole records. Where an SPT using a split spoon sampler was not possible, due to the granular nature of the material, a solid cone was used. The SPT hammer calibration sheets are included in Section 8 of this report.

Small, disturbed samples were retrieved from the cutting shoe of the UT100 sampler, the SPT split spoon sampler and at intervals specified by the Investigation Supervisor.

Environmental samples (tubs, jars and vials) were taken for chemical analysis in the Made Ground or at each change of strata and where visual or olfactory evidence of contamination was noted or as instructed by the Investigation Supervisor. Headspace readings for volatile organic compound (VOC) content were taken in all the samples using a Phocheck Tiger photoionization detector.

The borehole logs are presented in Section 8 of this report.

4.3 Dynamic Sampling Boreholes

4 No. Dynamic Sampling Boreholes (WS101 – WS104A) were carried out to a maximum depth of 6.00m. The boreholes were drilled using a tracked Geo drive-tube sampling rig. WS104 was aborted at 0.40m depth due to concrete obstruction.

Semi-rigid plastic core liners were recovered from each borehole location. The excavated soil was logged in accordance with BS 5930:2015 and photographed.

Environmental samples (tubs, jars and vials) were taken for chemical analysis from the liners at approximately 1.00m intervals for the full depth of the borehole. Headspace readings for volatile organic compound (VOC) content were taken using a Phocheck Tiger photoionization detector. Representative bulk and disturbed samples were taken for soil analysis.

SPTs were carried out at the base of the inspection pit and thereafter at 1.00m intervals. Pocket penetrometer tests were also carried out in cohesive materials.

The borehole logs are presented in Section 9 and the core photographs are presented in Section 14 of this report.

4.4 Hand Excavated Observation Pits

4 No. Hand Excavated Observation Pits (OP101-OP104) were carried out to a maximum depth of 1.30m to obtain information on the foundations to existing buildings and structures and services on site.

The pits were logged, sketched and photographed. The logs and sketches are presented in Section 10 of this report and the photographs are presented in Section 14.

4.5 Standpipe Installations and Backfill

Monitoring wells were installed in the boreholes as follows:

Table 2 – Monitoring Installation Details

Hole ID	Base of Borehole (m bgl)	Diameter of Installation (mm)	Type of Installation	Base of Installation (m bgl)	Response Zone	
					Top (m bgl)	Bottom (m bgl)
BH101	35.00	50	SPG/GW	4.00	0.50	4.00
BH102	35.00	50	SPG/GW	4.00	1.00	4.00
WS101	6.00	50	SPG/GW	3.50	0.50	3.50
WS102	6.00	50	SPG/GW	4.00	0.50	4.00
WS103	6.00	50	SPG/GW	4.00	0.50	4.00
WS104A	6.00	50	SPG/GW	4.00	1.00	4.00

KEY
SPG/GW – Gas and groundwater Standpipe

The boreholes were backfilled with bentonite pellets with gas/groundwater response zones backfilled with a 10mm pea shingle filter with a geosock surround. All installations were finished with bentonite pellets to the surface with concrete and a lockable stopcock cover flush with the ground.

4.6 Instrumentation Monitoring and Sampling

Gas and groundwater monitoring and sampling was carried out by Concept subsequent to completion of the boreholes in six scheduled visits between 25/10/2019 and 20/01/2020. All boreholes were developed using a Wasp pump to remove x6 well volume (where possible). Development was completed at least one week prior to sampling.

Water samples were collected from the borehole installations (BH101, WS101, WS102, WS103 and WS104A) on the 05/11/2019. Water sample was not collected from BH102 due to insufficient volume of water present in the installation.

Prior to sampling, purging was carried out from the upper part of the water column. During purging, pH, conductivity, dissolved oxygen, temperature and Redox levels were monitored and recorded. The water samples were collected using a low flow pump in containers. They were then transferred to Concept laboratory inside cool boxes protected by bubble wrap and kept in the fridge until collection from the chemical laboratory was arranged.

Neither LNAPL nor DNAPL were detected throughout the water column in the boreholes therefore a Geosense dipmeter was used for the subsequent visits. The gas concentrations were recorded using a Gas data GFM436 gas monitors. Where 0.00 is

shown on the results indicates value lower than the detection limit of the machine. The accuracy of the instruments is summarised in Section 11 where the gas monitoring reports and groundwater results are presented.

4.7 Logging / Laboratory Testing

Logging of all soil samples was carried out in accordance with BS 5930:2015.

Geotechnical testing was performed at Concept Site Investigations laboratory in accordance with BS1377:1990 unless otherwise stated in the report. Concept is accredited by UKAS for tests where the UKAS logo is appended to the individual test report or summary. Approved signatories for laboratory testing are as follows:

- LG – Lynn Griffin (Quality Manager)
- KM – Kasia Mazerant (Laboratory Manager)

Where subcontracted analysis has been carried out, the details of the laboratory (and accreditation where applicable) are shown in the individual test report or summary.

The results are presented in tabular format in Section 12 of this report.

All chemical testing was specified and scheduled by Peter Brett Associates LLP and carried out by DETS and I2 Analytical in accordance with the requirements of UKAS ISO17025 and MCERTS. The results are presented in tabular format in Section 13 of this report.

4.8 Setting Out

The locations of all exploratory holes were agreed with the Investigation Supervisor and set out prior to commencement of the site works.

Following completion of the ground works the locations and elevations of the boreholes and pits were established by Concept using GPS equipment with accuracy between +/- 10mm.

The co-ordinates and levels of the as-built locations of the boreholes and pits are shown in the Exploratory Hole Location Plan presented in Section 7 of this report.

5. GEOLOGICAL GROUND PROFILE

The geological strata encountered during the investigation are summarised in the table below. The Top and Bottom of the strata noted in the table indicates the highest and lowest boundaries encountered in all exploratory holes.

Table 3 - Geological Ground Profile

STRATUM	TOP (mOD)	BASE (mOD)	DESCRIPTION
MADE GROUND	32.60	30.58	Asphalt and concrete over Firm, dark brown mottled grey slightly sandy slightly gravelly CLAY with occasional roots and rootlets. Gravel comprises angular to rounded fine to coarse flint, brick and asphalt fragments. Sand is fine to coarse. Light brown slightly clayey gravelly fine to coarse SAND. Gravel comprises angular to rounded fine to medium flint, brick and concrete fragments. Dark brown slightly clayey sandy GRAVEL with medium brick and concrete cobble content. Gravel comprises angular to rounded fine to coarse flint, brick and concrete fragments. Sand is fine to coarse.
WEATHERED LONDON CLAY	31.99	21.08	Firm to stiff, orangish brown occasionally mottled light bluish grey slightly micaceous silty CLAY with occasional pockets of orange silty fine sand (<10mm) and pockets of selenite crystals (<7mm).
LONDON CLAY	22.58	-2.92	Stiff to very stiff, greyish brown slightly sandy slightly micaceous CLAY with rare pockets of dark grey fine sand (<6mm), shell fragments (<2mm) and bioturbation.

REFERENCES

British Standards Institution, (2015) Code of practice for ground investigations, British Standard BS5930: 2015, BSI, London

British Standards Institution, (2011) Investigation of potentially contaminated sites, British Standard BS10175: 2011+A2:2017, BSI, London.

UK Specification for Ground Investigation, (2011) Site Investigation Steering Group, Thomas Telford, London

British Geological Survey (1996) London and the Thames Valley 4th Edition, London HMSO.

British Standards Institution BS EN ISO 22475-1, (2006) Geotechnical Investigation and Testing – Sampling Methods and Groundwater Measurements – Part 1: Technical Principles for Execution

British Standards Institution BS EN 1997:1 (2004) EuroCode 7 - Geotechnical Design. Part 1 – General Rules.

British Standards Institution BS EN 1997:2 (2007) EuroCode 7 - Geotechnical Design. Part 2 - Ground Investigation and Testing.

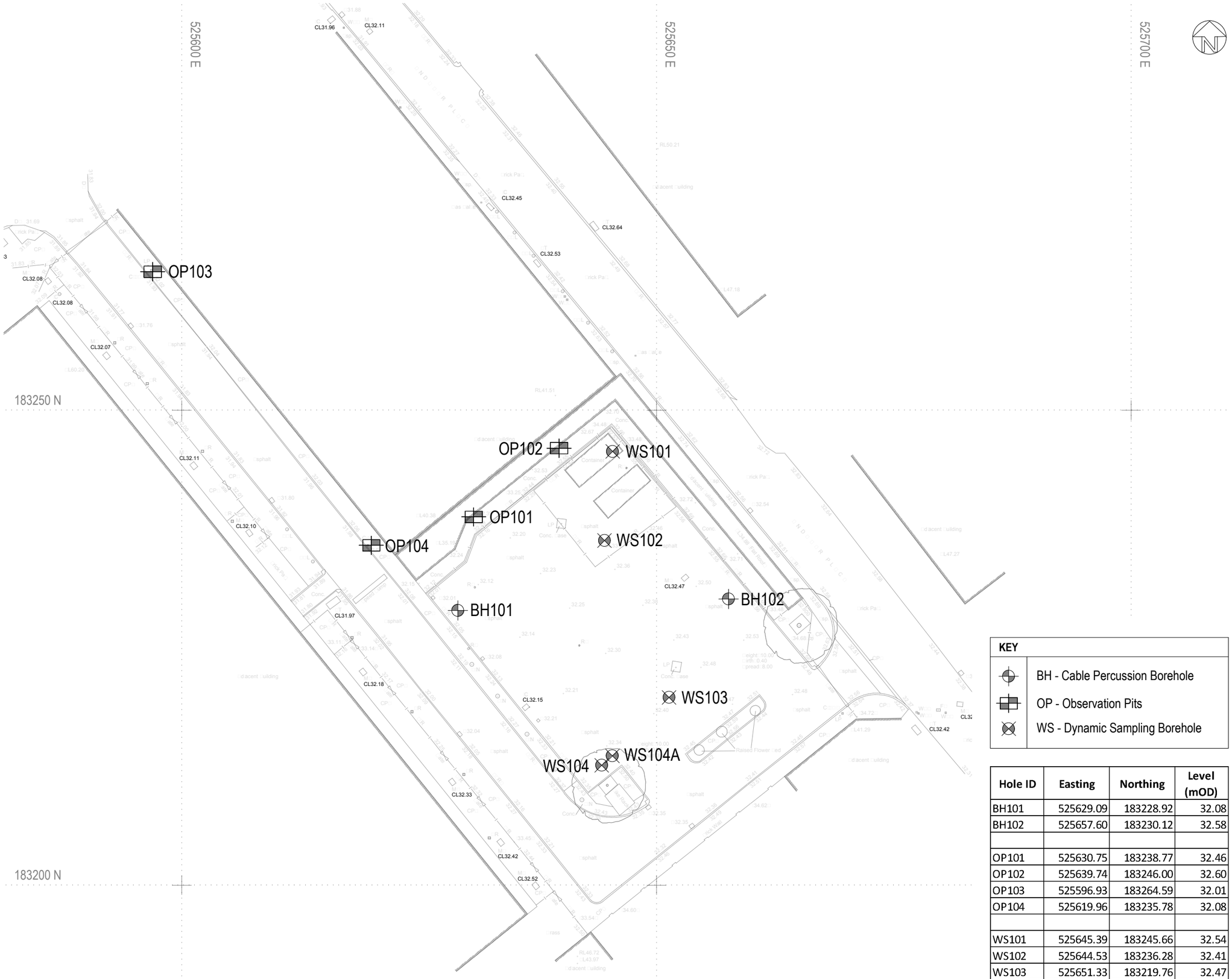
King C. (1981) The stratigraphy of the London Basin and associated deposits. Tertiary Research Special Paper, Vol. 6, Backhuys, Rotterdam, p158.

Aldiss, D. T. (2012) The stratigraphical framework for the Palaeogene successions of the London Basin, UK. British Geological Survey Open Report. British Geological Survey.

6. SITE LOCATION PLAN

Not to Scale / Map data ©2019 Google

7. EXPLORATORY HOLE LOCATION PLAN



NOTES

1. This drawing should not be scaled, only use annotated dimensions.

KEY

- BH - Cable Percussion Borehole
- OP - Observation Pits
- WS - Dynamic Sampling Borehole

Hole ID	Easting	Northing	Level (mOD)
BH101	525629.09	183228.92	32.08
BH102	525657.60	183230.12	32.58
OP101	525630.75	183238.77	32.46
OP102	525639.74	183246.00	32.60
OP103	525596.93	183264.59	32.01
OP104	525619.96	183235.78	32.08
WS101	525645.39	183245.66	32.54
WS102	525644.53	183236.28	32.41
WS103	525651.33	183219.76	32.47
WS104	525644.23	183212.61	32.39
WS104A	525645.36	183213.60	32.39

No	Revision	Drawn	Checked	Passed	Date

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Client:	City of Westminster
Project:	Torridon House Car Park, Westminster
Title:	Exploratory Hole Location Plan
Dwg. No:	193312/01
Status:	Issue
Scale:	NTS

Drawn	Checked	Passed	Date
AC	AD	OS	October 2019

8. CABLE PERCUSSION BOREHOLE LOGS

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Borehole No

BH101

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	10/10/19	32.08	E 525629.1 N 183228.9	35.00m
	Date Completed 11/10/19			

Client

City of Westminster

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	1.20	IP	10/10/2019	10/10/2019	DP	IK			Hand Excavated	
1.20	35.00	CP	10/10/2019	11/10/2019	DP	SL/ CS			Dando 175	AR1607

WATER STRIKES

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)

WATER ADDED

From (m)	To (m)

CHISELLING / SLOW DRILLING

From (m)	To (m)	Duration (hr)	Remarks

HOLE

Depth (m)	Diameter (mm)
0.00	150
35.00	150

CASING

Depth (m)	Diameter (mm)
0.00	150
3.00	150

ROTARY RECOVERY

From (m)	To (m)	Blows	Recovery (%)

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation
SPG/GW	50	4.00	0.50	4.00	11/10/2019

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
0.00	0.20	Concrete/ Flush Cover	11/10/2019
0.20	0.50	Bentonite Pellets	
0.50	4.00	Pea Shingle	
4.00	35.00	Bentonite Pellets	

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Borehole No

BH101

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	10/10/19	32.08	E 525629.1 N 183228.9	35.00m
	Date Completed 11/10/19			

Client

City of Westminster

PROGRESS

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks
10/10/19	0.00		Dry	
10/10/19	1.20		Dry	
10/10/19	30.00	3.00	Dry	
11/10/19	30.00	3.00	Dry	
11/10/19	35.00	3.00	Dry	

SPT DETAILS

Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
S	1.50	N9	1, 2 / 2, 2, 2, 3	1.50	Dry
S	3.50	N12	2, 2 / 3, 3, 3, 3	3.00	Dry
S	6.00	N18	2, 3 / 4, 4, 5, 5	3.00	Dry
S	9.00	N20	2, 3 / 4, 5, 5, 6	3.00	Dry
S	12.00	N23	2, 3 / 5, 5, 6, 7	3.00	Dry
S	15.00	N27	4, 4 / 4, 6, 8, 9	3.00	Dry
S	18.00	N31	4, 5 / 6, 7, 8, 10	3.00	Dry
S	21.00	N39	4, 6 / 8, 10, 10, 11	3.00	Dry
S	24.00	N41	5, 6 / 8, 10, 11, 12	3.00	Dry
S	27.00	N43	4, 6 / 9, 11, 11, 12	3.00	Dry
S	30.00	N46	5, 7 / 10, 11, 12, 13	3.00	Dry
S	33.00	N39	6, 8 / 11, 12, 12, 4	3.00	Dry

GENERAL REMARKS

KEY

SAMPLES

ES - Environmental Sample (Tub, Vial, Jar)
U - 100mm Diameter Undisturbed Sample
UT - 100mm Diameter Thin Wall Undisturbed Sample
U38 - 38mm Diameter Undisturbed Sample
D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

SPIE - Standpipe Piezometer
SPGW - Groundwater Monitor Standpipe
SPG/GW - Gas / Groundwater Monitor Standpipe
VWP - Vibrating Wire Piezometer
ICM - Inclinometer

HOLE TYPES

IP -Inspection Pit, TP-Trial Pit TT - Trial Trench
CP -Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
DS -Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
DC -Diamond Coring, CP/R-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

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Borehole No

BH101

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	10/10/19	32.08	E 525629.1 N 183228.9	35.00m
	Date Completed 11/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Cable Percussion	1 of 4

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
10/10/19		Dry	31.98		0.10	Asphalt.	0.10	D1			
			31.68		0.40	(MADE GROUND)	0.40	D2			
						Light brown slightly clayey gravelly fine to coarse SAND. Gravel comprises angular to rounded fine to coarse flint and brick fragments.	0.40-0.90	B3		VOC 0.1ppm	
							0.50	ES4			
					(1.10)		0.90	D5			
							0.90-1.20	B6		VOC 0.2ppm	
						(MADE GROUND)	1.00	ES7			
10/10/19		Dry				Firm, dark brown mottled grey slightly sandy slightly gravelly CLAY with occasional roots and rootlets. Gravel comprises angular to rounded fine to coarse flint, brick and asphalt fragments. Sand is fine to coarse.					
			30.58		1.50	(MADE GROUND)	1.50		N9	1, 2 / 2, 2, 2, 3	
						0.90 ... becoming mottled dark grey with angular to subangular fine to medium gravel size clinker fragments	1.50-1.95	D8			
							2.20	D9			
							2.50-2.95	UT10	30 blows	67% Recovery	
						Firm to stiff, orangish brown locally mottled bluish grey slightly micaceous silty CLAY and rare pockets of selenite crystals (<5mm). (THAMES GROUP: WEATHERED LONDON CLAY FORMATION)	3.00	D11			
						2.20 ... with occasional pockets of orange silty fine sand (<10mm)	3.50		N12	2, 2 / 3, 3, 3, 3	
						3.00 ... becoming occasionally mottled bluish grey with occasional pockets of selenite crystals (<15mm) and rare rootlets	3.50-3.95	D12			
						3.50 ... with 1No pyrite nodule (<6mm)	4.10	D13			
						4.20 ... with a pocket of red silt (<10mm)	4.50-4.95	UT14	35 blows	91% Recovery	
							5.00	D15			
						5.00 ... with orange staining					
							5.50	D16			
						5.50 ... becoming orangish brown with occasional pockets of orange silty fine sand, rare pockets of light brown fine sand (<8mm), white silt lenses, white and dark grey flecks and 1No shell fragment (<3mm)	6.00		N18	2, 3 / 4, 4, 5, 5	
					(9.50)		6.00-6.45	D17			
							7.00	D18			
							7.50-7.95	UT19	40 blows	100% Recovery	
							8.00	D20			
						8.00 .... with frequent pockets of orange silty fine sand (<15mm)	8.50	D21			
						8.50 ... with frequent pockets of selenite crystals (<20mm)	9.00		N20	2, 3 / 4, 5, 5, 6	
							9.00-9.45	D22			
							10.00	D23			
						10.00 ... with rare pockets of dark grey silt (<4mm) and a pocket of fine sand (<30mm)	10.50-10.95	UT24	50 blows	89% Recovery	
			21.08		11.00		11.00	D25			

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Borehole No

BH101

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	10/10/19	32.08	E 525629.1 N 183228.9	35.00m
	Date Completed 11/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Cable Percussion	2 of 4

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
						Very stiff, greyish brown slightly sandy slightly micaceous CLAY with rare pockets of dark grey fine sand (<6mm), shell fragments (<2mm) and bioturbation. (THAMES GROUP: LONDON CLAY FORMATION - B)	11.50	D26			
						11.50 ... with frequent white flecks, occasional white lenses of silt and bioturbation	12.00		N23	2, 3 / 5, 5, 6, 7	
						12.00 ... with rare pockets of dark grey silt (<10mm)	12.00-12.45	D27			
							13.00	D28			
							13.50-13.95	UT29	60 blows	89% Recovery	
							14.00	D30			
						14.00 ... with rare pockets of light brown fine sand (<3mm)	14.50	D31			
						14.50 ... with a pocket of light grey silt (<4mm)	15.00		N27	4, 4 / 4, 6, 8, 9	
						15.00 ... with 1No off-white shell fragment (<4mm)	15.00-15.45	D32			
							16.00	D33			
						16.00 ... with occasional pockets of dark grey silt (<20mm)	16.50-16.95	UT34	65 blows	89% Recovery	
							17.00	D35			
						17.00 ... with 1No shell fragment (<14mm)	17.50	D36			
						17.50 ... with frequent pockets of light brown fine sand (<5mm) and dark grey silt (<50mm)	18.00		N31	4, 5 / 6, 7, 8, 10	
							18.00-18.45	D37			
							19.00	D38			
						19.00 ... with occasional bioturbation, rare white flecks and 1No shell fragment (<5mm)	19.50-19.95	UT39	65 blows	89% Recovery	
							20.00	D40			
						20.00 ... with 2No shell fragments (<8mm)	20.50	D41			
						20.50 .. with rare shell fragments (<5mm)	21.00		N39	4, 6 / 8, 10, 10, 11	
						21.00 ... with a parting of dark grey and light grey silt	21.00-21.45	D42			
							22.00	D43			

Issue No: 00	Checked By: AN	Approved By: OS	Log Print Date & Time: 06/11/2019 17:15

CONCEPT
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Borehole No

BH101

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	10/10/19	32.08	E 525629.1 N 183228.9	35.00m
	Date Completed 11/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Cable Percussion	3 of 4

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
						22.00 ... with rare pockets of light brown fine sand (<3mm)	22.50-22.95	UT44	65 blows	93% Recovery	
					(24.00)		23.00	D45			
							23.50	D46			
						23.50 ... with occasional white flecks and rare white lenses of silt	24.00		N41	5, 6 / 8, 10, 11, 12	
						24.00 ... with occasional pockets of dark grey silt (<10mm)	24.00-24.45	D47			
							25.00	D48			
							25.50-25.95	UT49	70 blows	93% Recovery	
							26.00	D50			
							26.50	D51			
						26.50 ... with rare pockets of dark grey silt (<8mm) and bioturbation	27.00		N43	4, 6 / 9, 11, 11, 12	
						27.00 ... with frequent bioturbation	27.00-27.45	D52			
							28.00	D53			
						28.00 ... with occasional pockets of dark grey silt (<30mm)	28.50-28.95	UT54	65 blows	89% Recovery	
							29.00	D55			
						29.00 ... with occasional pockets of light brown fine sand (<28mm) and bioturbation	29.50	D56			
10/10/19	3.00	Dry					30.00		N46	5, 7 / 10, 11, 12, 13	
11/10/19	3.00	Dry				30.00 ... with a parting of dark grey silt	30.00-30.45	D57			
							31.00	D58			
						31.00 ... with 2No shell fragments (<6mm)	31.50-31.95	UT59	75 blows	84% Recovery	
							32.00	D60			
							32.50	D61			
							33.00		N39	6, 8 / 11, 12, 12, 4	

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Borehole No

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Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	10/10/19	32.08	E 525629.1 N 183228.9	35.00m
	Date Completed 11/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Cable Percussion	4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
						33.00 ... with rare pockets of dark grey silt (<3mm) and frequent bioturbation	33.00-33.45	D62			
							34.00	D63			
						34.00 ... with occasional bioturbation					
							34.50-34.95	UT64	80 blows	78% Recovery	
11/10/19	3.00	Dry	-2.92		35.00		35.00	D65			
						End of Borehole					

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Borehole No

BH102

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	08/10/19	32.58	E 525657.6 N 183230.1	35.00m
	Date Completed 09/10/19			

Client

City of Westminster

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	1.20	IP	08/10/2019	08/10/2019	DP	IK			Hand Excavated	
1.20	35.00	CP	08/10/2019	09/10/2019	DP	SL			Dando 175	AR1607

WATER STRIKES

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)

WATER ADDED

From (m)	To (m)

CHISELLING / SLOW DRILLING

From (m)	To (m)	Duration (hr)	Remarks

HOLE

Depth (m)	Diameter (mm)
0.00	150
35.00	150

CASING

Depth (m)	Diameter (mm)
0.00	150
1.50	150

ROTARY RECOVERY

From (m)	To (m)	Blows	Recovery (%)

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation
SPG/GW	50	4.00	1.00	4.00	09/10/2019

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
0.00	0.20	Concrete/ Flush Cover	09/10/2019
0.20	1.00	Bentonite Pellets	
1.00	4.00	Pea Shingle	
4.00	5.00	Bentonite Pellets	
5.00	35.00	Cement/ Bentonite Grout	

Issue No: 00	Checked By: AN	Approved By: OS	Log Print Date & Time: 29/10/2019 16:29

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Borehole No

BH102

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	08/10/19	32.58	E 525657.6 N 183230.1	35.00m
	Date Completed 09/10/19			

Client

City of Westminster

PROGRESS

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks
08/10/19	0.00		Dry	
08/10/19	1.20		Dry	
08/10/19	1.20		Dry	
08/10/19	21.00	1.50	Dry	
09/10/19	21.00	1.50	Dry	
09/10/19	35.00	1.50	Dry	

SPT DETAILS

Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
S	1.50	N8	1, 2 / 2, 2, 2, 2	1.50	Dry
S	3.50	N16	2, 3 / 3, 4, 4, 5	1.50	Dry
S	6.00	N17	3, 3 / 4, 4, 5, 4	1.50	Dry
S	9.00	N22	3, 4 / 5, 5, 6, 6	1.50	Dry
S	12.00	N23	3, 4 / 5, 6, 6, 6	1.50	Dry
S	15.00	N24	4, 4 / 5, 6, 6, 7	1.50	Dry
S	18.00	N28	4, 5 / 6, 7, 7, 8	1.50	Dry
S	21.00	N32	4, 6 / 7, 7, 8, 10	1.50	Dry
S	24.00	N35	4, 6 / 8, 8, 9, 10	1.50	Dry
S	27.00	N43	5, 7 / 9, 10, 12, 12	1.50	Dry
S	30.00	N47	5, 8 / 10, 11, 13, 13	1.50	Dry
S	33.00	N49	6, 8 / 11, 12, 12, 14	1.50	Dry

GENERAL REMARKS

KEY

SAMPLES

ES - Environmental Sample (Tub, Vial, Jar)
U - 100mm Diameter Undisturbed Sample
UT - 100mm Diameter Thin Wall Undisturbed Sample
U38 - 38mm Diameter Undisturbed Sample
D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

SPIE - Standpipe Piezometer
SPGW - Groundwater Monitor Standpipe
SPG/GW - Gas / Groundwater Monitor Standpipe
VWP - Vibrating Wire Piezometer
ICM - Inclinometer

HOLE TYPES

IP -Inspection Pit, TP-Trial Pit TT - Trial Trench
CP -Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
DS -Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
DC -Diamond Coring, CP/R-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Issue No: 00	Checked By: AN	Approved By: OS	Log Print Date & Time: 29/10/2019 16:29

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Borehole No

BH102

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	08/10/19	32.58	E 525657.6 N 183230.1	35.00m
	Date Completed 09/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Cable Percussion	1 of 4

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
08/10/19		Dry	32.46		0.12	Asphalt.	0.20	D1			
						(MADE GROUND)					
					(0.58)	Brown clayey sandy GRAVEL with medium concrete cobble content. Gravel comprises angular to subrounded flint, concrete and brick fragments. Sand is fine to coarse.	0.50	ES2		VOC 0.3ppm	
							0.50	D3		VOC 4.9ppm	
			31.88		0.70		0.50-1.00	B4			
							0.70	ES5			
						(MADE GROUND)					
08/10/19		Dry				0.50 ... becoming clayey and very sandy with low brick and concrete cobble content	1.20	D6			
08/10/19		Dry					1.50		N8	1, 2 / 2, 2, 2, 2	
						Firm, orangish brown slightly sandy slightly micaceous silty CLAY with frequent pockets of orangish brown silt (<40mm), occasional dark grey flecks and rare rootlets.	1.50-1.95	D7			
						(THAMES GROUP: WEATHERED LONDON CLAY FORMATION)	2.20	D8			
						1.50 ... becoming orangish brown mottled bluish grey with rare pockets of orange silty fine sand (<10mm) and occasional pockets of selenite crystals (<20mm)	2.50-2.95	UT9	20 blows	93% Recovery	
							3.00	D10			
						3.00 ... with occasional rootlets					
							3.50		N16	2, 3 / 3, 4, 4, 5	
						3.50 ... becoming occasionally mottled bluish grey with pockets of orangish brown and yellow silty fine sand (>15mm)	3.50-3.95	D11			
							4.20	D12			
							4.50-4.95	UT13	35 blows	89% Recovery	
							5.00	D14			
						5.00 ... becoming mottled bluish grey with rare rootlets					
					(9.30)		5.50	D15			
						5.50 - 6.00 ... becoming extremely closely to very closely fissured. Fissures are subhorizontal, subvertical, planar, smooth, unpolished with orange discolouration	6.00		N17	3, 3 / 4, 4, 5, 4	
						6.00 ... with rare pockets of orange silty fine sand (<4mm) and 1No pyrite nodule (5mm)	6.00-6.45	D16			
							7.00	D17			
						7.00 ... becoming orangish brown with occasional pockets of orange silty fine sand (<12mm)	7.50-7.95	UT18	45 blows	84% Recovery	
							8.00	D19			
						8.00 ... becoming extremely closely to very closely fissured. Fissures are subhorizontal, subvertical, planar, smooth, unpolished with orange discolouration	8.50	D20			
						8.50 ... with occasional white flecks					
							9.00		N22	3, 4 / 5, 5, 6, 6	
						9.00 .... with rare bioturbation	9.00-9.45	D21			
			22.58		10.00		10.00	D22			
						Stiff, greyish brown slightly sandy slightly micaceous CLAY with occasional white flecks, bioturbation and rare dark grey flecks. (THAMES GROUP: LONDON CLAY FORMATION - B)	10.50-10.95	UT23	50 blows	89% Recovery	
							11.00	D24			

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Borehole No

BH102

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	08/10/19	32.58	E 525657.6 N 183230.1	35.00m
	Date Completed 09/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Cable Percussion	2 of 4

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
							11.50	D25			
						11.50 ... becoming extremely closely to very closely fissured with rare pockets of dark grey silt (<15mm). Fissures are subhorizontal, subvertical, planar, smooth, unpolished 12.00 - 13.00 .... with frequent white flecks	12.00 12.00-12.45	D26	N23	3, 4 / 5, 6, 6, 6	
							13.00	D27			
							13.50-13.95	UT28	60 blows	82% Recovery	
							14.00	D29			
						15.00 .... with rare bioturbation	15.00 15.00-15.45	D30	N24	4, 4 / 5, 6, 6, 7	
							16.00	D31			
						16.00 ... with rare pockets of light brown silt (<4mm) and occasional dark grey flecks	16.50-16.95	UT32	60 blows	100% Recovery	
							17.00	D33			
						17.00 ... with a parting of dark grey and brown fine sand, occasional pockets of dark grey and brown silty fine sand (<40mm) and rare lenses of white silt (<10mm) 17.50 .... with frequent bioturbation	17.50	D34			
							18.00 18.00-18.45	D35	N28	4, 5 / 6, 7, 7, 8	
						18.45 .... with rare white flecks and bioturbation	19.00	D36			
							19.50-19.95	UT37	60 blows	89% Recovery	
							20.00	D38			
							20.50	D39			
08/10/19 09/10/19	1.50 1.50	Dry Dry					21.00 21.00-21.45	D40	N32	4, 6 / 7, 7, 8, 10	
							22.00	D41			

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Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	08/10/19	32.58	E 525657.6 N 183230.1	35.00m
	Date Completed 09/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Cable Percussion	3 of 4

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
					(25.00)	22.00 .... with occasional bioturbation and rare dark grey flecks	22.50-22.95	UT42	80 blows	50% Recovery	
							23.00	D43			
							23.50	D44			
						23.50 ... with rare lenses of white silt (<5mm)	24.00		N35	4, 6 / 8, 8, 9, 10	
						24.00 - 24.45 ... with rare partings of dark grey silty fine sand and pyrite nodules (<8mm)	24.00-24.45	D45			
							25.00	D46			
						25.00 ... with rare off-white and light brown shell fragments (<3mm)	25.50-25.95	UT47	50 blows	100% Recovery	
							26.00	D48			
						26.00 ... with rare pockets of dark grey and brown silty fine sand (<6mm)	26.50	D49			
						26.50 ... locally with frequent lenses of white silt (<6mm) and white flecks	27.00		N43	5, 7 / 9, 10, 12, 12	
							27.00-27.45	D50			
							28.00	D51			
						28.00 ... with frequent bioturbation	28.50-28.95	UT52	75 blows	87% Recovery	
							29.00	D53			
							29.50	D54			
						29.50 ... with occasional dark grey flecks and 1No pyrite nodule (<14mm)	30.00		N47	5, 8 / 10, 11, 13, 13	
							30.00-30.45	D55			
							31.00	D56			
						31.00 - 32.00 ... with frequent pockets of brown and dark grey silty fine sand (<55mm)	31.50-31.95	UT57	75 blows	100% Recovery	
							32.00	D58			
						32.00 .... with occasional lenses of light brown and white silt	32.50	D59			
						32.50 ... becoming very closely fissured. Fissures are 30º vertical, planar, smooth, unpolished	33.00		N49	6, 8 / 11, 12, 12, 14	

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Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	08/10/19	32.58	E 525657.6 N 183230.1	35.00m
	Date Completed 09/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Cable Percussion	4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
						33.00 ... with rare bioturbation	33.00-33.45	D60			
							34.00	D61			
						34.00 .... with 1No pyrite nodule (<70mm)					
							34.50-34.95	UT62	80 blows	62% Recovery	
09/10/19	1.50	Dry	-2.42		35.00		35.00	D63			
						End of Borehole					

Issue No: 00	Checked By: AN	Approved By: OS	Log Print Date & Time: 29/10/2019 16:29

Southern Testing
Environmental & Geotechnical

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Neil Burrows
Southern Testing Laboratories
Unit 11
Charlwoods Road
East Grinstead
RH19 2HU

SPT Hammer Ref:	AR1607
Test Date:	10/08/2018
Report Date:	10/08/2018
File Name:	AR1607.spt
Test Operator:	N P BURROWS

Instrumented Rod Data

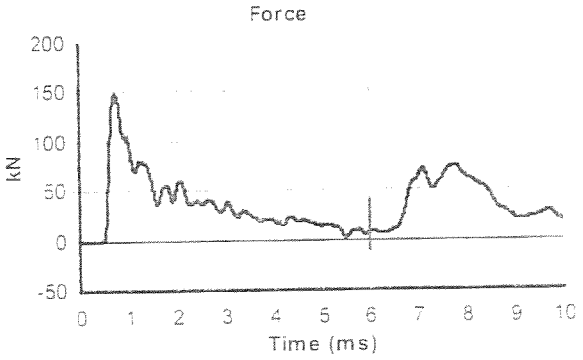
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.0
Assumed Modulus E_a (GPa):	200
Accelerometer No.1:	6458
Accelerometer No.2:	9607

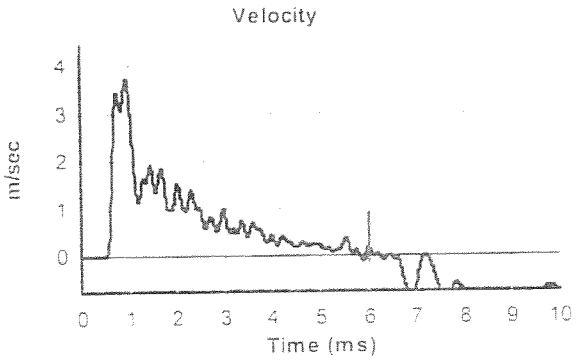
SPT Hammer Information

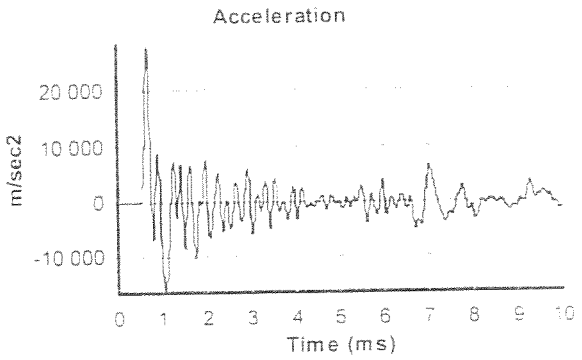
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	14.5

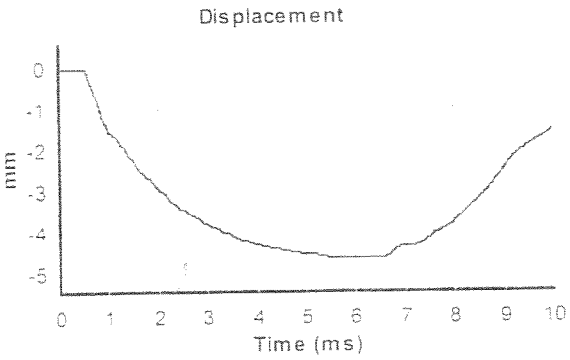
Comments / Location

CHARLWOODS









Calculations

Area of Rod A (mm2):	905
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	326

Energy Ratio E_r (%): **69**

Signed: N P Burrows

Title: Field Operations Manager

The recommended calibration interval is 12 months

9. DYNAMIC SAMPLING BOREHOLE LOGS

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Borehole No

WS101

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	10/10/19	32.54	E 525645.4 N 183245.7	6.00m
	Date Completed 10/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Dynamic Sampling	1 of 2

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
10/10/19		Dry	32.44		0.10	Asphalt.					
			32.34		0.20	(MADE GROUND)					
					(0.35)	Light brown slightly clayey gravelly fine to coarse SAND. Gravel comprises angular to rounded fine to medium flint, brick and concrete fragments. (MADE GROUND)	0.30 0.30	ES1 B2		VOC 0.3ppm	
			31.99		0.55						
						Dark brown slightly clayey sandy GRAVEL with medium brick and concrete cobble content. Gravel comprises angular to rounded fine to coarse flint, brick and concrete fragments. Sand is fine to coarse. (MADE GROUND)	0.70 0.70	ES3 B4		VOC 1ppm	
10/10/19		Dry				Firm, brown CLAY. (THAMES GROUP: WEATHERED LONDON CLAY FORMATION)					
10/10/19		Dry				1.20 ... becoming orangish brown mottled light bluish grey and silty with frequent pockets of selenite crystals (<45mm), rare pockets of orange fine sand (<35mm) and rare rootlets	1.30		PP67kPa		
							1.50-1.60	D5			
							1.80		PP188kPa		
						1.78 ... becoming occasionally mottled light bluish grey					
							2.00		N10	1, 1 / 2, 2, 3, 3	
						2.00 ... with occasional pockets of selenite crystals (<10mm) and rare dark grey flecks	2.00-2.45	D6			
							2.30		PP92kPa		
						2.29 ... becoming mottled bluish grey with frequent rootlets					
							2.60-2.70	D7			
						2.55 ... with a pocket of orange silt (<50mm) and 1No claystone cobble					
							2.80		PP92kPa		
							3.00		N9	1, 1 / 2, 2, 2, 3	
							3.00-3.45	D8			
					(5.45)		3.30		PP92kPa		
							3.60-3.70	D9			
						3.60 ... with a pocket of orange silty fine sand and selenite crystals (<8mm)					
							3.80		PP79kPa		
						3.70 ... becoming rare mottled bluish grey					
							4.00		N10	1, 1 / 2, 2, 3, 3	

DYNAMIC SAMPLING RECOVERY

From	To	Diameter (mm)	Recovery (%)
1.20	2.00	87	100
2.00	3.00	87	100
3.00	4.00	77	100
4.00	5.00	67	100

GENERAL REMARKS

1. An inspection pit was hand excavated to 1.20m depth prior to boring commencing.
2. Ø110mm casing used from ground level to 2.00m depth.
3. Ø50mm gas and groundwater monitoring pipe installed at 3.50m, slotted between 0.50m and 3.50m depth.
4. Borehole backfilled with bentonite pellets between 6.00m and 3.50m, pea shingle between 3.50m and 0.50m and bentonite pellets between 0.50m and 0.20m depth. Concrete with a stopcock cover installed from 0.20m to ground level.
5. SPT Hammer: Geo1

Issue No: 00	Drilled By: DN	Logged By: SL	Checked By: AN	Approved By: OS	Log Print Date & Time: 29/10/2019 16:10

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 8811 2880_Fax: 020 8811 2881
E-mail: si@conceptconsultants.co.uk

Borehole No

WS101

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	10/10/19	32.54	E 525645.4 N 183245.7	6.00m
	Date Completed 10/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Dynamic Sampling	2 of 2

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
						4.00 ... becoming orangish brown	4.00-4.45	D10			
							4.30		PP67kPa		
							4.60-4.70	D11			
						4.55 ... becoming very stiff slightly micaceous with rare light orange staining					
						4.70 ... with occasional light orange staining	4.80		PP92kPa		
						4.92 ... with 1No rootlet	5.00		N14	2, 2 / 3, 3, 4, 4	
						5.00 ... becoming slighty sandy with occasional pockets of orange fine sand (<12mm)	5.00-5.45	D12			
							5.40		PP71kPa		
							5.60-5.70	D13			
						5.65 - 5.90 ... with orange staining	5.80		PP113kPa		
10/10/19	2.00	Dry	26.54		6.00	End of Borehole					

DYNAMIC SAMPLING RECOVERY

From	To	Diameter (mm)	Recovery (%)
5.00	6.00	57	100

GENERAL REMARKS

Issue No: 00	Drilled By: DN	Logged By: SL	Checked By: AN	Approved By: OS	Log Print Date & Time: 29/10/2019 16:10

CONCEPT
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Borehole No

WS102

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	09/10/19	32.41	E 525644.5 N 183236.3	6.00m
	Date Completed 10/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Dynamic Sampling	1 of 2

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
09/10/19		Dry	32.31		0.10	Asphalt. (MADE GROUND)					
					(0.20)	Brown slightly clayey sandy GRAVEL with high concrete cobble content. Gravel comprises angular to rounded fine to medium flint, brick and concrete fragments. Sand is fine to coarse. (MADE GROUND)	0.20	ES1		VOC 0.1ppm	
			32.11		0.30		0.20	B2			
			32.01		0.40	CONCRETE.					
09/10/19		Wet	31.96		0.45	Asphalt. (MADE GROUND)	0.60	ES3		VOC 1ppm	
					(0.75)	Firm, brown CLAY. (MADE GROUND)	0.60	B4			
09/10/19			31.21		1.20						
10/10/19		Dry			(0.26)	Soft, brown slightly sandy gravelly CLAY. Gravel comprises angular to subangular fine to coarse flint, brick, concrete and asphalt fragments. Sand is fine to coarse. (MADE GROUND)					
			30.95		1.46						
						Firm, orangish brown occasionally mottled light bluish grey CLAY with frequent pockets of selenite crystals (<40mm), rare pockets of orange fine sand (<6mm) and occasional rootlets. (THAMES GROUP: WEATHERED LONDON CLAY FORMATION)	1.80		PP67kPa		
							1.80-1.90	D5			
							1.90		PP15kPa		
							2.00		N7	1, 1 / 1, 2, 2, 2	
							2.00-2.45	D6			
						1.50 ... becoming slightly micaceous					
						1.60 ... with rare dark grey flecks	2.30		PP83kPa		
						2.18 ... with occasional pockets of yellow and orange silty fine sand (<25mm), pockest of selenite crystals (<20mm) and no rootlets					
							2.60-2.70	D7			
						2.50 ... becoming mottled light bluish grey					
						2.75 ... with occasional rootlets	2.80		PP67kPa		
							3.00		N8	1, 1 / 2, 2, 2, 2	
							3.00-3.45	D8			
						3.05 ... becoming occasionally mottled light bluish grey with rare pockets of orange silty fine sand (<10mm)	3.30		PP50kPa		
						3.40 - 3.70 ... becoming mottled light bluish grey					
							3.60-3.70	D9			
					(4.54)		3.80		PP75kPa		
							4.00		N11	1, 2 / 2, 3, 3, 3	

DYNAMIC SAMPLING RECOVERY

From	To	Diameter (mm)	Recovery (%)
1.20	2.00	87	100
2.00	3.00	87	90
3.00	4.00	77	95
4.00	5.00	67	70

GENERAL REMARKS

1. An inspection pit was hand excavated to 1.20m depth prior to boring commencing.
2. Water seepage encountered at 0.45m depth within the inspection pit.
3. Ø110mm casing used from ground level to 2.00m depth.
4. Ø50mm gas and groundwater monitoring pipe installed at 4.00m, slotted between 0.50m and 4.00m depth.
5. Borehole backfilled with bentonite pellets between 6.00m and 4.00m, pea shingle between 4.00m and 0.50m and bentonite pellets between 0.50m and 0.20m depth. Concrete with a stopcock cover installed from 0.20m to ground level.
6. SPT Hammer: Geol

Issue No: 00	Drilled By: DN	Logged By: SL	Checked By: AN	Approved By: OS	Log Print Date & Time: 29/10/2019 16:10

CONCEPT
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Borehole No

WS102

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	09/10/19	32.41	E 525644.5 N 183236.3	6.00m
	Date Completed 10/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Dynamic Sampling	2 of 2

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
						4.00 ... becoming orangish brown with rare pockets of selenite crystals (<5mm)	4.00-4.45	D10			
							4.30		PP38kPa		
						4.50 ... becoming slightly sandy	4.60		PP63kPa		
						4.54 ... with 1No pyrite nodule (<30mm)	4.60-4.70	D11			
							5.00		N15	1, 2 / 3, 4, 4, 4	
							5.00-5.45	D12			
							5.90-6.00	D13			
10/10/19	2.00	Dry	26.41		6.00	End of Borehole					

DYNAMIC SAMPLING RECOVERY

From	To	Diameter (mm)	Recovery (%)
5.00	6.00	57	10

GENERAL REMARKS

Issue No: 00	Drilled By: DN	Logged By: SL	Checked By: AN	Approved By: OS	Log Print Date & Time: 29/10/2019 16:10

CONCEPT
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Borehole No

WS103

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	08/10/19	32.47	E 525651.3 N 183219.8	6.00m
	Date Completed 09/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Dynamic Sampling	1 of 2

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
08/10/19		Dry	32.37		0.10	Asphalt. (MADE GROUND)					
					(0.20)	Brownish grey clayey sandy GRAVEL. Gravel comprises angular to subrounded fine to coarse flint, concrete and brick fragments. Sand is fine to coarse. (MADE GROUND)	0.25	ES1		VOC 1ppm	
			32.17		0.30		0.25	B2			
			32.12		0.35	CONCRETE.					
						Firm, brown locally grey CLAY. (MADE GROUND)	0.50	ES3		VOC 0ppm	
							0.50	B4			
08/10/19		We			(0.85)						
08/10/19			31.27		1.20						
09/10/19		Dry			(0.22)	Soft, brown slightly gravelly slightly sandy slightly micaceous CLAY with 2No plastic fragments. Gravel comprises angular to subrounded fine to coarse flint, brick and concrete fragments. (MADE GROUND)					
			31.05		1.42	Firm to stiff, orangish brown occasionally mottled light bluish grey slightly micaceous silty CLAY with occasional pockets of orange silty fine sand (<10mm) and pockets of selenite crystals (<7mm). (THAMES GROUP: WEATHERED LONDON CLAY FORMATION)	1.80-1.90	D5			
						1.54 ... with a pocket of organic matter (<60mm)	2.00		N8	1, 1 / 1, 2, 2, 3	
						1.66 ... with a pocket of orange silty fine sand (<55mm)	2.00-2.45	D6			
						1.80 ... becoming mottled bluish grey with frequent pockets of selenite crystals (<25mm), rootlets and occasional dark grey flecks	2.82-2.92	D7			
						1.95 ... with a pocket of yellow and orange silty fine sand (<50mm)					
						2.20 ... becoming slightly sandy with no pockets of selenite crystals	3.00		N14	2, 3 / 3, 3, 4, 4	
						2.52 ... with frequent pockets of selenite crystals (<9mm)	3.00-3.45	D8			
						2.52 - 2.58 ... locally with frequent pockets of orange silty fine sand (<6mm)					
						3.42 ... with rare rootlets	3.60-3.70	D9			
						3.60 ... with 1No pyrite nodule (<5mm)					
					(4.58)						
							4.00		N10	1, 2 / 2, 2, 3, 3	

DYNAMIC SAMPLING RECOVERY

From	To	Diameter (mm)	Recovery (%)
1.20	2.00	87	100
2.00	3.00	87	80
3.00	4.00	77	95
4.00	5.00	67	100

GENERAL REMARKS

1. An inspection pit was hand excavated to 1.20m depth prior to boring commencing.
2. Ø110mm casing used from ground level to 2.00m depth.
3. Water seepage encountered at 0.90m depth within the inspection pit.
4. Ø50mm gas and groundwater monitoring pipe installed at 4.00m, slotted between 4.00m and 0.50m depth.
5. Borehole backfilled with bentonite pellets between 6.00m and 4.00m, pea shingle between 4.00m and 0.50m and bentonite pellets between 0.50m and 0.20m depth. Concrete with a stopcock cover installed from 0.20m to ground level.
6. SPT Hammer: Geol

Issue No: 00	Drilled By: DN	Logged By: IK/ SL	Checked By: AN	Approved By: OS	Log Print Date & Time: 29/10/2019 16:10

CONCEPT
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Borehole No

WS103

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	08/10/19	32.47	E 525651.3 N 183219.8	6.00m
	Date Completed 09/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Dynamic Sampling	2 of 2

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
						4.02 ... with rare pockets of orange silty fine sand (<15mm)	4.00-4.45	D10			
						4.42 ... becoming orangish brown 4.46 - 4.80 ... with orange staining	4.60-4.70	D11			
						4.80 - 5.00 ... becoming extremely closely fissured with orange discoloration. Fissures are subhorizontal, subvertical, smooth, unpolished	5.00 5.00-5.45	D12	N17	3, 3 / 3, 4, 5, 5	
							5.50-5.60	D13			
09/10/19	2.00	Dry	26.47		6.00	End of Borehole					

DYNAMIC SAMPLING RECOVERY

From	To	Diameter (mm)	Recovery (%)
5.00	6.00	57	85

GENERAL REMARKS

Issue No: 00	Drilled By: DN	Logged By: IK/ SL	Checked By: AN	Approved By: OS	Log Print Date & Time: 29/10/2019 16:10

AGS

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
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Trial Pit No

WS104

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	09/10/19	32.39	E 525644.2 N 183212.6	0.40m
	Date Completed 09/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Hand Excavated	1 of 1

Water	Level (mOD)	Legend	Depth (Thickness)	Stata Description	Depth	Type No	Test Result	Field Records
	32.27		0.12	Asphalt. (MADE GROUND)				
			(0.28)	Brown slightly clayey sandy GRAVEL with medium concrete cobble content. Gravel comprises angular to rounded fine to coarse flint, brick, concrete and clinker fragments. Sand is fine to coarse. (MADE GROUND)				
	31.99		0.40	End of Trial Pit	0.40			... Borehole aborted at 0.40m depth (see Remarks)

GENERAL REMARKS

1. Borehole location was aborted at 0.40m depth due to concrete obstruction. Location moved to position WS104A.

Issue No: 00	Drilled By: DN	Logged By: IK	Checked By: AN	Approved By: OS	Log Print Date & Time: 29/10/2019 16:10

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 8811 2880_Fax: 020 8811 2881
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Borehole No

WS104A

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	09/10/19	32.39	E 525645.4 N 183213.6	6.00m
	Date Completed 09/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Dynamic Sampling	1 of 2

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
09/10/19		Dry	32.27		0.12	Asphalt. (MADE GROUND)					
			32.08		(0.19) 0.31	Brown clayey sandy GRAVEL with low concrete cobble content. Gravel comprises angular to rounded fine to coarse flint, brick and concrete fragments. Sand is fine to coarse. (MADE GROUND)	0.25 0.25	ES1 B2		VOC 0ppm	
			32.04		0.35						
			31.79		(0.25) 0.60	CONCRETE.	0.70 0.70	ES3 B4		VOC 0ppm	
					(0.62)	Firm, brown mottled dark grey gravelly sandy CLAY with low brick cobble content. Gravel is angular to subangular fine to coarse brick fragments. Sand is fine to coarse. (MADE GROUND)	1.00		N7	1, 1 / 1, 2, 2, 2	
09/10/19		Dry	31.17		1.22	Firm, brown CLAY. (MADE GROUND)					
			31.05		1.34	Firm, brown and dark grey slightly gravelly slightly sandy CLAY with rare rootlets. Gravel is angular to subangular fine asphalt fragments. Sand is fine to medium. (MADE GROUND)	1.40		PP9kPa		
							1.60-1.70	D5			
						Firm, orangish brown occasionally mottled light bluish grey silty CLAY with occasional pockets of brown and orangish brown silty fine sand (<15mm) and rare rootlets. (THAMES GROUP: WEATHERED LONDON CLAY FORMATION)	1.80		PP38kPa		
							2.00 2.00-2.45	D6	N12	1, 2 / 2, 3, 3, 4	
							2.20		PP71kPa		
						1.74 ... with dark grey flecks 1.76 ... with a pocket of orange and light grey silty fine sand (<40mm) 2.04 ... becoming mottled light bluish grey with occasional rootlets 2.26 ... with rare pockets of selenite crystals (<20mm) and occasional dark grey flecks 2.30 ... with rare pockets of orangish brown fine sand (<8mm) and rare rootlets 3.00 ... with occasional pockets of selenite crystals (<10mm)	2.50 2.56-2.66	D7	PP54kPa		
							3.00 3.00-3.45	D8	N12	1, 2 / 2, 3, 3, 4	
							3.30		PP50kPa		
					(4.66)	3.62 - 3.74 ... with a band of medium strong light grey fine to coarse gravel size claystone fragments	3.80 3.80-3.90	D9	PP46kPa		
							4.00		N12	1, 2 / 2, 3, 3, 4	

DYNAMIC SAMPLING RECOVERY

From	To	Diameter (mm)	Recovery (%)
1.20	2.00	87	70
2.00	3.00	87	65
3.00	4.00	77	100
4.00	5.00	67	90

GENERAL REMARKS

1. An inspection pit was hand excavated to 1.20m depth prior to boring commencing.
2. Ø110mm casing used from ground level to 2.00m depth.
3. Ø50mm gas and groundwater monitoring pipe installed at 4.00m, slotted between 4.00m and 1.00m depth.
4. Borehole backfilled with bentonite pellets between 6.00m and 4.00m, pea shingle between 4.00m and 1.00m and bentonite pellets between 0.50m and 0.20m depth. Concrete with a stopcock cover installed from 0.20m to ground level.
5. SPT Hammer: Geo1

Issue No: 00	Drilled By: DN	Logged By: IK/ SL	Checked By: AN	Approved By: OS	Log Print Date & Time: 29/10/2019 16:10

CONCEPT
Unit 8, Warple Mews, Warple Way
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Borehole No

WS104A

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	09/10/19	32.39	E 525645.4 N 183213.6	6.00m
	Date Completed 09/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Dynamic Sampling	2 of 2

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
							4.00-4.45	D10			
							5.00-5.45	D11			
						5.10 ... becoming orangish brown and no rootlets	5.30		PP71kPa		
						5.34 ... with orange staining	5.50-5.60	D12			
							5.60		PP88kPa		
09/10/19	2.00	Dry	26.39		6.00	End of Borehole					

DYNAMIC SAMPLING RECOVERY

From	To	Diameter (mm)	Recovery (%)
5.00	6.00	57	60

GENERAL REMARKS

Issue No: 00	Drilled By: DN	Logged By: IK/ SL	Checked By: AN	Approved By: OS	Log Print Date & Time: 29/10/2019 16:10

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Neil Burrows
Southern Testing Laboratories
Unit 11
Charlwoods Road
East Grinstead
RH19 2HU

SPT Hammer Ref:	GEO1
Test Date:	27/09/2018
Report Date:	27/09/2018
File Name:	GEO1.spt
Test Operator:	N P BURROWS

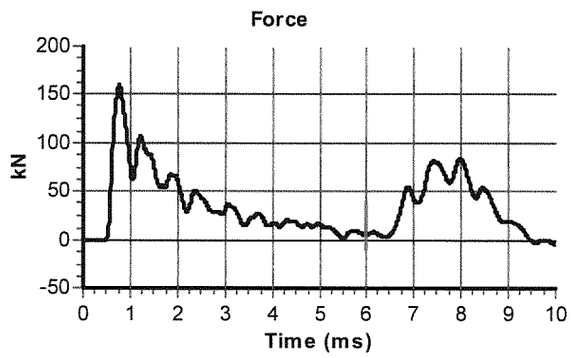
Instrumented Rod Data

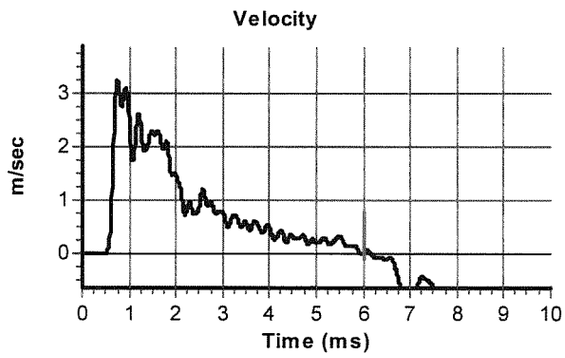
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.0
Assumed Modulus E_a (GPa):	200
Accelerometer No.1:	6458
Accelerometer No.2:	9607

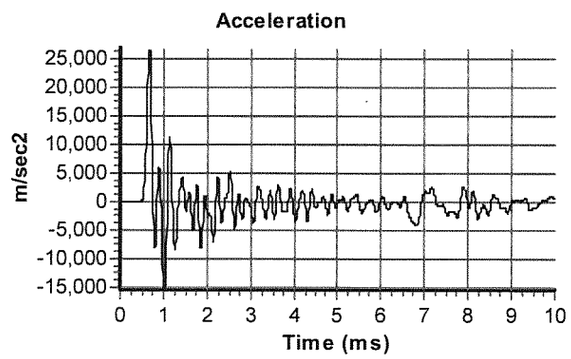
SPT Hammer Information

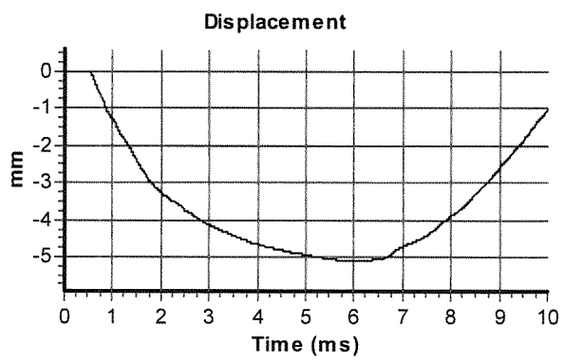
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	14.5

Comments / Location
CHARLWOODS









Calculations

Area of Rod A (mm2):	905
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	359

Energy Ratio E_r (%): **76**

Signed: N P Burrows
Title: Field Operations Manager

The recommended calibration interval is 12 months

10. OBSERVATION PIT LOGS & SKETCHES

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 8811 2880_Fax: 020 8811 2881
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Trial Pit No

OP101

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	10/10/19	32.46	E 525630.8 N 183238.8	0.55m
	Date Completed 11/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Hand Excavated	1 of 1

Water	Level (mOD)	Legend	Depth (Thickness)	Stata Description	Depth	Type No	Test Result	Field Records
			(0.26)	Reinforced CONCRETE.				
	32.20		0.26	0.22 ... with Ø7mm rebar 0.25 ... with blue damp proof material				
			(0.29)	Dark brown slightly clayey sandy GRAVEL with medium brick cobble content. Gravel comprises angular fine to coarse flint, brick and concrete fragments. Sand is fine to coarse. (MADE GROUND)				
	31.91		0.55	End of Trial Pit				

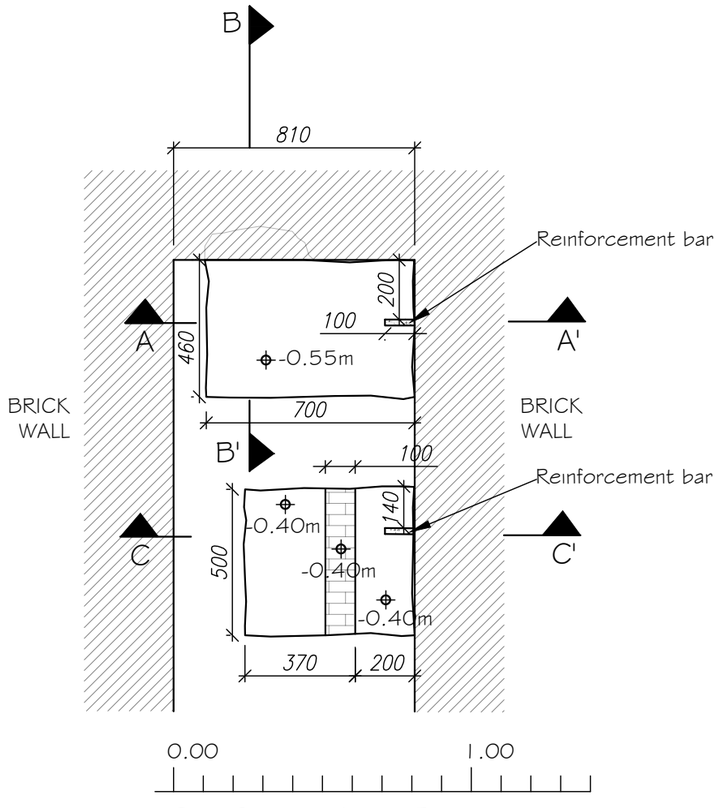
GENERAL REMARKS

1. Weather was cloudy.
2. Trial pit was dry and stable.
3. Trial pit dimensions: 0.57m x 0.50m x 0.55m deep.
4. Trial pit backfilled with soil arisings and made good upon completion.
5. Also refer to OP101 sketch.

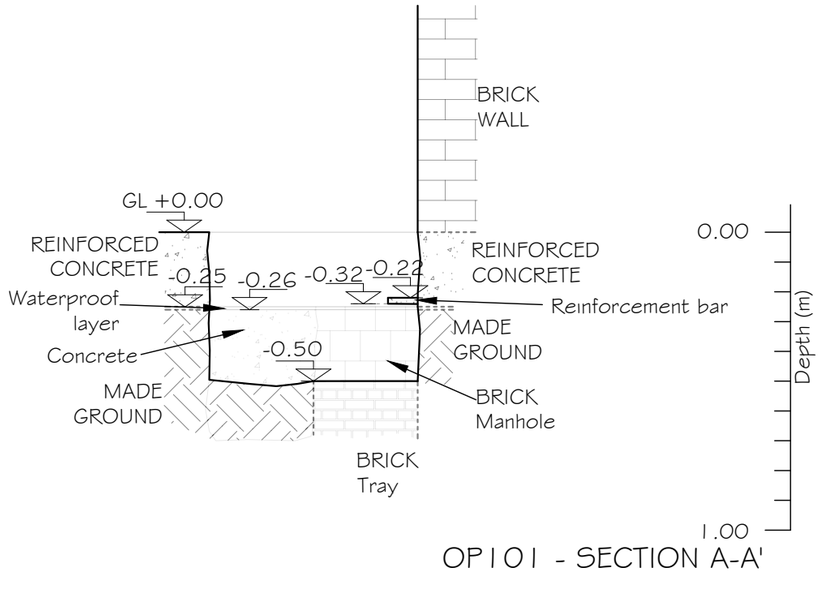
Issue No: 00	Drilled By: DN	Logged By: IK	Checked By: AN	Approved By: OS	Log Print Date & Time: 12/11/2019 16:07

NOTES

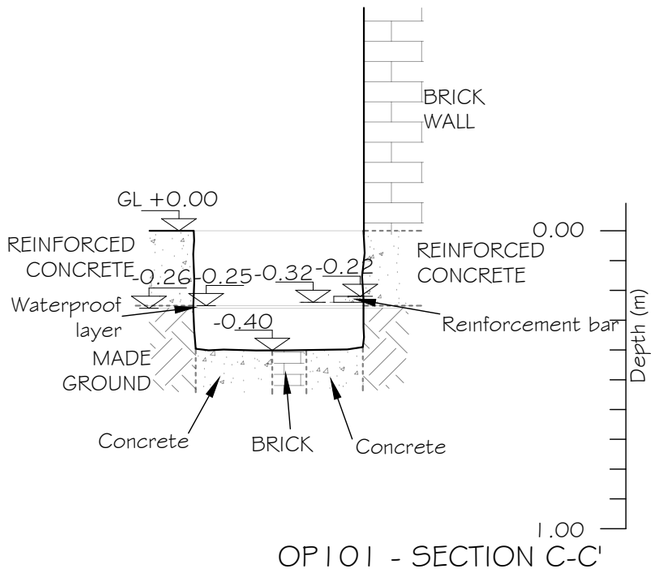
1. This drawing should not be scaled, only use annotated dimensions.



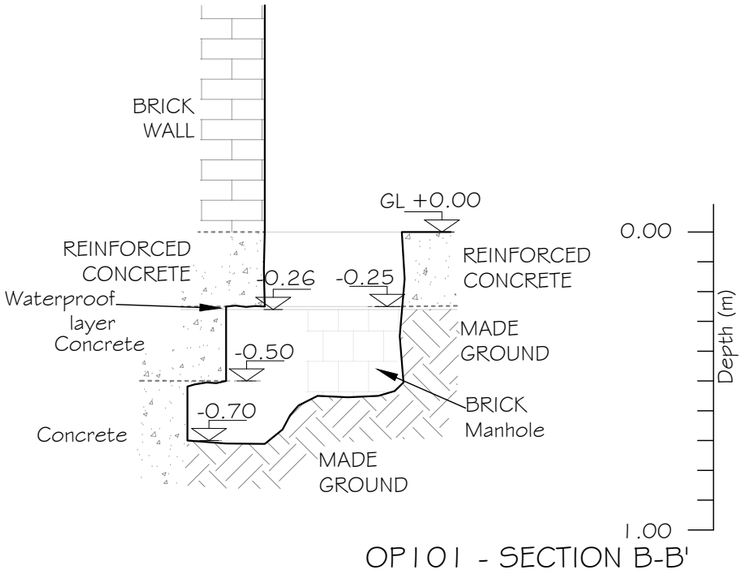
OP101 - PLAN VIEW



OP101 - SECTION A-A'



OP101 - SECTION C-C'



OP101 - SECTION B-B'

No	Revision	Drawn	Checked	Passed	Date

CONCEPT SITE INVESTIGATIONS

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Client:	City of Westminster
Project:	Torridon House Car Park Westminster
Title:	OP101 Plan & Section
Dwg. No:	193312/02
Status:	Issue
Scale:	1:20 @ A3

Drawn	Checked	Passed	Date
MJ	AD	OS	November '19

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Trial Pit No

OP102

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	18/10/19	32.60	E 525639.7 N 183246.0	1.30m
	Date Completed 18/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Hand Excavated	1 of 1

Water	Level (mOD)	Legend	Depth (Thickness)	Stata Description	Depth	Type No	Test Result	Field Records
			(0.29)	Reinforced CONCRETE.				
	32.31		0.29	0.25 ... with Ø7mm rebar 0.28 ... with a layer of damp proof material				
			(0.61)	Dark brown slightly clayey sandy GRAVEL. Gravel comprises angular to subrounded fine to coarse flint and brick fragments. Sand is fine to coarse. (MADE GROUND)				
▼	31.70		0.90					
			(0.40)	Firm, brown mottled orangish brown slightly gravelly CLAY. Gravel comprises subrounded to well rounded fine to coarse flint, brick and clinker fragments. (MADE GROUND)				
	31.30		1.30	End of Trial Pit				

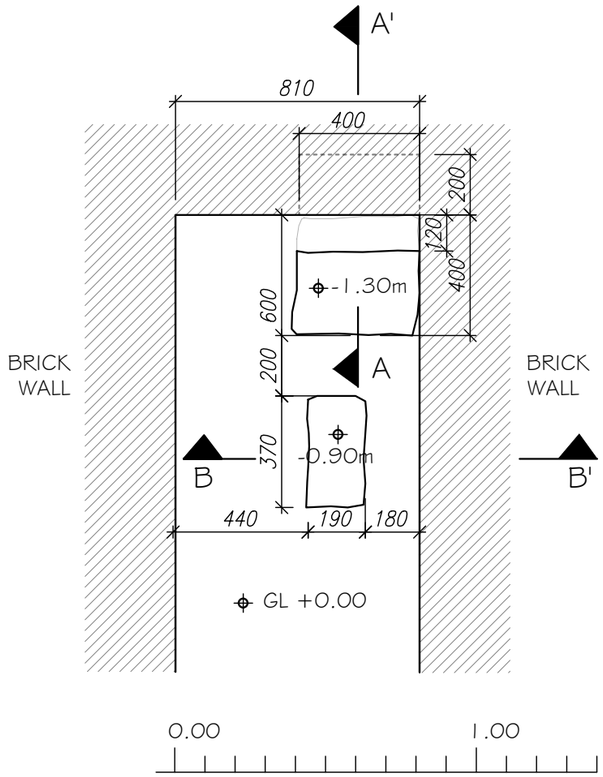
GENERAL REMARKS

1. Weather was cloudy.
2. Water encountered in the pit at 0.95m depth.
3. Trial pit was stable.
4. Trial pit dimensions: 0.40m x 0.40m x 1.30m deep.
5. Trial pit backfilled with soil arisings and made good upon completion.
6. Also refer to OP102 sketch.

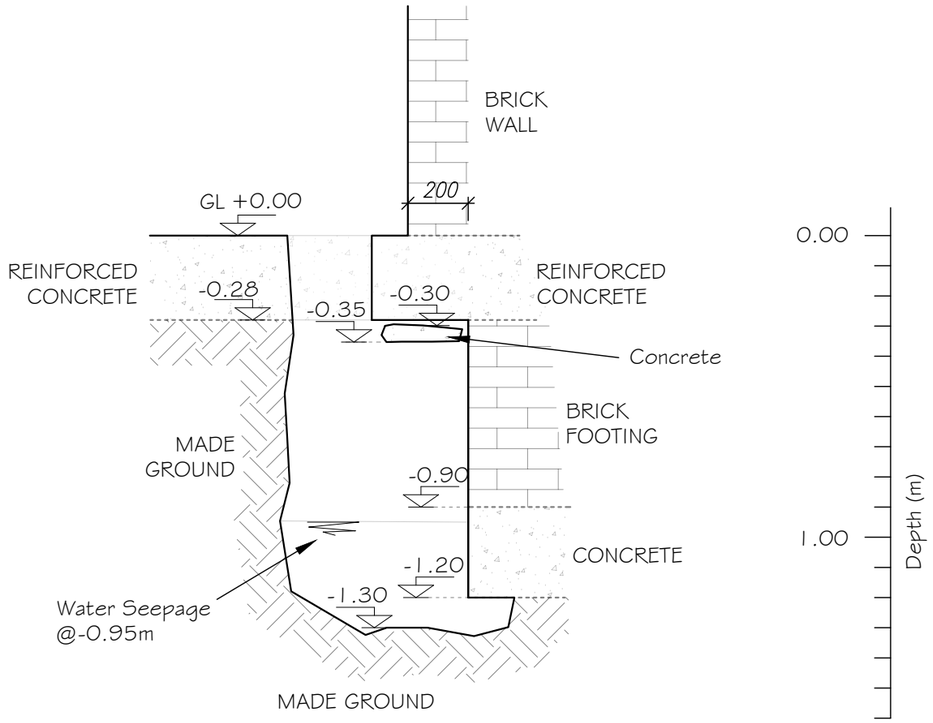
Issue No: 00	Drilled By: DN	Logged By: IK	Checked By: AN	Approved By: OS	Log Print Date & Time: 12/11/2019 16:07

NOTES

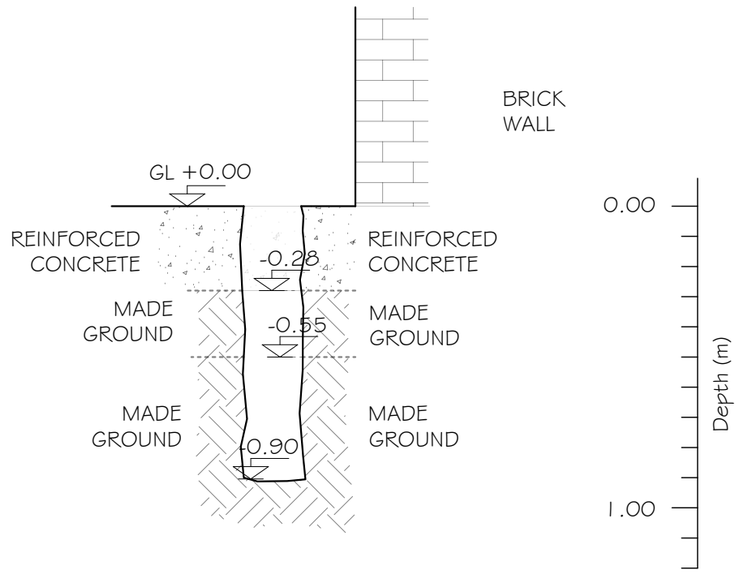
1. This drawing should not be scaled, only use annotated dimensions.



OP102 - PLAN VIEW



OP102 - SECTION A-A'



OP102 - SECTION B-B'

No	Revision	Drawn	Checked	Passed	Date

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Client:	City of Westminster
Project:	Torridon House Car Park Westminster
Title:	OP102 Plan & Section
Dwg. No:	193312/03
Status:	Issue
Scale:	1:20 @ A3

Drawn	Checked	Passed	Date
MJ	AD	OS	November '19

CONCEPT
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Trial Pit No

OP103

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	11/10/19	32.01	E 525596.9 N 183264.6	0.55m
	Date Completed 11/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Hand Excavated	1 of 1

Water	Level (mOD)	Legend	Depth (Thickness)	Stata Description	Depth	Type No	Test Result	Field Records
	31.86		0.15	Pavement slab (0.06m) over light brown clayey sandy medium sand. (MADE GROUND)				
			(0.40)	Dark brown GRAVEL with medium concrete cobble content. Gravel comprises angular to subrounded fine to coarse brick and concrete fragments. Sand is fine to coarse. (MADE GROUND)	0.26 0.37			... a black cable encountered at 0.26m depth ... a metal plate encountered at 0.37m depth
	31.46		0.55	End of Trial Pit				

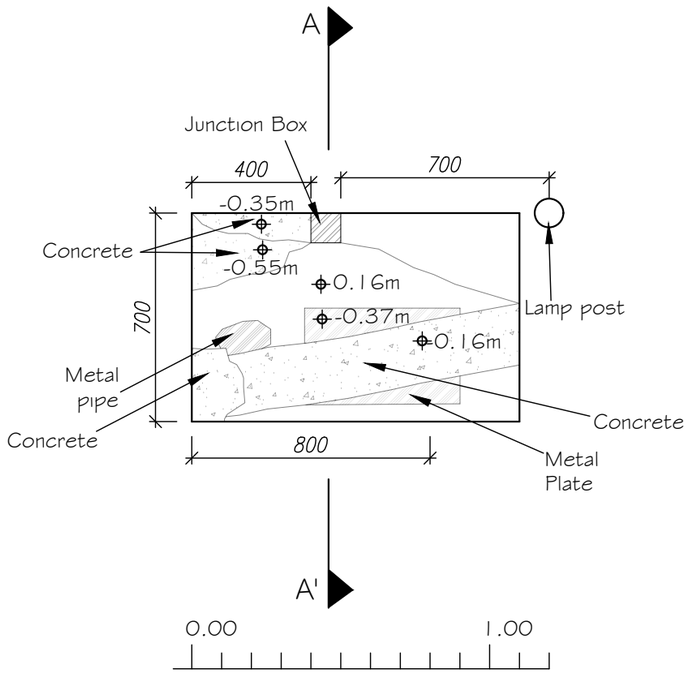
GENERAL REMARKS

1. Weather was cloudy.
2. Trial pit was dry and stable.
3. Trial pit dimensions: 0.80m x 0.70m x 0.55m deep.
4. Trial pit backfilled with soil arisings and made good upon completion.
5. Also refer to OP103 sketch.

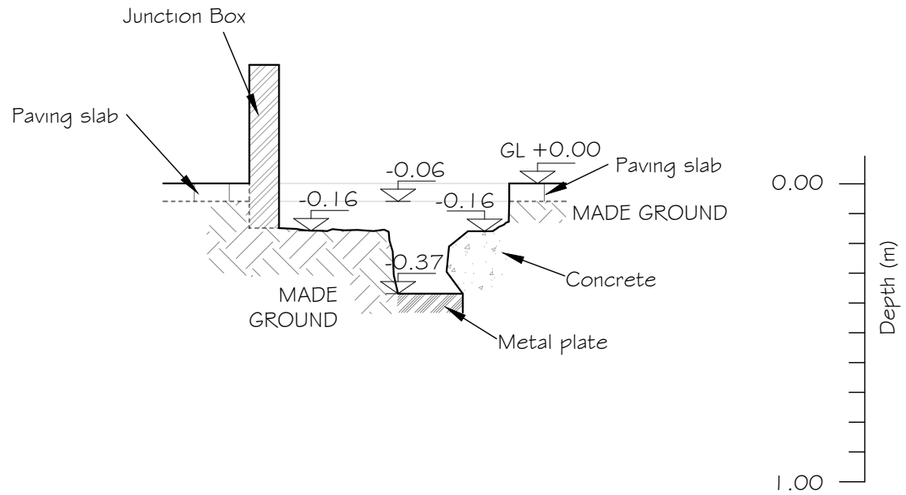
Issue No: 00	Drilled By: DN	Logged By: IK	Checked By: AN	Approved By: OS	Log Print Date & Time: 12/11/2019 16:07

NOTES

1. This drawing should not be scaled, only use annotated dimensions.



OP103 - PLAN VIEW



OP103 - SECTION A-A'

No	Revision	Drawn	Checked	Passed	Date

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Client:	City of Westminster
Project:	Torridon House Car Park Westminster
Title:	OP103 Plan & Section
Dwg. No:	193312/04
Status:	Issue
Scale:	1:20 @ A3

Drawn	Checked	Passed	Date
MJ	AD	OS	November '19

CONCEPT
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Trial Pit No

OP104

Project

Torridon House Car Park, Westminster

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
19/3312	10/10/19	32.08	E 525620.0 N 183235.8	0.50m
	Date Completed 10/10/19			

Client	Method/ Plant Used	Sheet
City of Westminster	Hand Excavated	1 of 1

Water	Level (mOD)	Legend	Depth (Thickness)	Stata Description	Depth	Type No	Test Result	Field Records
	31.93		0.15	Pavement slab (0.05m) over light brown medium sand. (MADE GROUND)				
			(0.35)	Dark brown clayey very sandy GRAVEL with medium brick and concrete cobble content. Gravel comprises angular to rounded fine to coarse flint, concrete and plastic fragments. Sand is fine to coarse. (MADE GROUND)				
	31.58		0.50	End of Trial Pit				

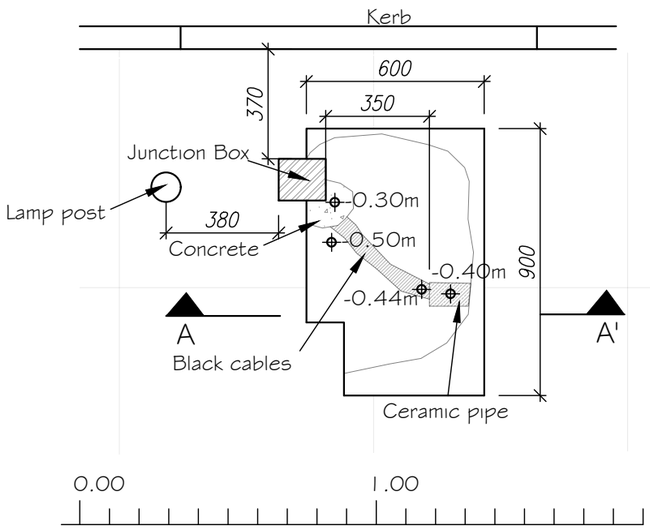
GENERAL REMARKS

1. Weather was cloudy.
2. Trial pit was dry and stable.
3. Trial pit dimensions: 0.90m x 0.60m x 0.50m deep.
4. Trial pit backfilled with soil arisings and made good upon completion.
5. Also refer to OP104 sketch.

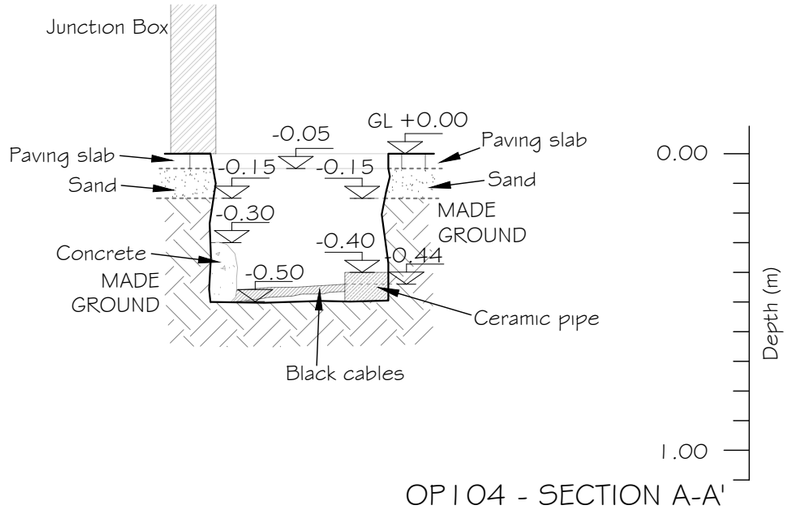
Issue No: 00	Drilled By: DN	Logged By: IK	Checked By: AN	Approved By: OS	Log Print Date & Time: 21/11/2019 16:47

NOTES

1. This drawing should not be scaled, only use annotated dimensions.



OP104 - PLAN VIEW



OP104 - SECTION A-A'

No	Revision	Drawn	Checked	Passed	Date

CONCEPT SITE INVESTIGATIONS

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Client:	City of Westminster
Project:	Torridon House Car Park Westminster
Title:	OP104 Plan & Section
Dwg. No:	193312/05
Status:	Issue
Scale:	1:20 @ A3

Drawn	Checked	Passed	Date
MJ	AD	OS	November '19

11. INSTRUMENTATION MONITORING RESULTS

Borehole ID	Depth of Installation (mbgl)	Date of Installation	Type	Top (mbgl)	Bottom (mbgl)	Date & Time	Reading Level (mbgl)	Reading Level (mOD)	Type of Reading	Remarks
BH101	4.00	11/10/2019	SPG/GW	0.50	4.00	25/10/2019 10:15:00	0.80	31.28		
	4.00	11/10/2019	SPG/GW	0.50	4.00	05/11/2019 09:20:00	0.77	31.31		
	4.00	11/10/2019	SPG/GW	0.50	4.00	21/11/2019 12:00:00	No Access			Car on top
	4.00	11/10/2019	SPG/GW	0.50	4.00	12/12/2019 12:00:00	No Access			Car on top
	4.00	11/10/2019	SPG/GW	0.50	4.00	06/01/2020 14:00:00	No Access			Car on top
	4.00	11/10/2019	SPG/GW	0.50	4.00	20/01/2020 09:40:00	No Access			Car on top
BH102	4.00	09/10/2019	SPG/GW	1.00	4.00	25/10/2019 11:45:00	3.81	28.77		
	4.00	09/10/2019	SPG/GW	1.00	4.00	05/11/2019 10:20:00	3.54	29.04		
	4.00	09/10/2019	SPG/GW	1.00	4.00	21/11/2019 13:35:00	3.15	29.43		
	4.00	09/10/2019	SPG/GW	1.00	4.00	12/12/2019 12:10:00	2.79	29.79		
	4.00	09/10/2019	SPG/GW	1.00	4.00	06/01/2020 14:00:00	2.15	30.43		
	4.00	09/10/2019	SPG/GW	1.00	4.00	20/01/2020 09:40:00	1.97	30.61		
WS101	3.50	10/10/2019	SPG/GW	0.50	3.50	25/10/2019 12:15:00	1.06	31.48		
	3.50	10/10/2019	SPG/GW	0.50	3.50	05/11/2019 11:10:00	1.14	31.40		
	3.50	10/10/2019	SPG/GW	0.50	3.50	21/11/2019 13:55:00	1.10	31.44		
	3.50	10/10/2019	SPG/GW	0.50	3.50	12/12/2019 11:35:00	0.84	31.70		
	3.50	10/10/2019	SPG/GW	0.50	3.50	06/01/2020 14:10:00	0.70	31.84		
	3.50	10/10/2019	SPG/GW	0.50	3.50	20/01/2020 10:10:00	0.71	31.83		
WS102	4.00	10/10/2019	SPG/GW	0.50	4.00	25/10/2019 12:45:00	0.56	31.85		
	4.00	10/10/2019	SPG/GW	0.50	4.00	05/11/2019 10:45:00	0.51	31.90		
	4.00	10/10/2019	SPG/GW	0.50	4.00	21/11/2019 13:10:00	0.64	31.77		
	4.00	10/10/2019	SPG/GW	0.50	4.00	12/12/2019 11:55:00	0.47	31.94		
	4.00	10/10/2019	SPG/GW	0.50	4.00	06/01/2020 14:20:00	0.62	31.79		
	4.00	10/10/2019	SPG/GW	0.50	4.00	20/01/2020 10:40:00	0.54	31.87		
WS103	4.00	09/10/2019	SPG/GW	0.50	4.00	25/10/2019 11:15:00	0.37	32.10		
	4.00	09/10/2019	SPG/GW	0.50	4.00	05/11/2019 10:30:00	0.31	32.16		
	4.00	09/10/2019	SPG/GW	0.50	4.00	21/11/2019 12:45:00	0.37	32.10		
	4.00	09/10/2019	SPG/GW	0.50	4.00	12/12/2019 12:20:00	0.24	32.23		
	4.00	09/10/2019	SPG/GW	0.50	4.00	06/01/2020 12:50:00	0.45	32.02		
	4.00	09/10/2019	SPG/GW	0.50	4.00	20/01/2020 11:10:00	0.34	32.13		
WS104A	4.00	09/10/2019	SPG/GW	1.00	4.00	25/10/2019 10:45:00	0.29	32.10		
	4.00	09/10/2019	SPG/GW	1.00	4.00	05/11/2019 09:45:00	0.29	32.10		
	4.00	09/10/2019	SPG/GW	1.00	4.00	21/11/2019 12:30:00	0.33	32.06		
	4.00	09/10/2019	SPG/GW	1.00	4.00	12/12/2019 11:20:00	0.30	32.09		
	4.00	09/10/2019	SPG/GW	1.00	4.00	06/01/2020 12:35:00	0.36	32.03		
	4.00	09/10/2019	SPG/GW	1.00	4.00	20/01/2020 11:40:00	0.28	32.11		

KEY

Type of Installation

SPIE - Standpipe Piezometer
SPGW - Groundwater Monitor Standpipe
SPG/GW - Gas / Groundwater Monitor Standpipe
VWP - Vibrating Wire Piezometer

Type of Reading

WDEP - Depth to Water
DDEP - Depth to DNAPL
LDEP - Depth to LNAPL

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 122 880_Fax: 020 88 122 881
E-mail: si@conceptconsultants.co.uk

GROUNDWATER MONITORING

Job No: 19/3312

Project: Torridon House Car Park, Westminster

Client: City of Westminster

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	25/10/2019		**Job Number:**	19/3312	**Time:**	10:00	

METEOROLOGICAL AND SITE INFORMATION										
State of ground:	X	Dry		Moist		Wet				**Delete As Required**
Wind:	X	Calm		Light		Moderate		Strong		Ground Level	
Cloud cover:		None	X	Slight		Cloudy		Overcast			
Precipitation	X	None		Slight		Moderate		Heavy			
Barometric pressure (mb) Before:	1009				Temperature (°)	12					

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	BH101 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
BH101	0	0.80	1009	514.0	38.8							
	30			0	0	0.0	0.0	1.2	15.9	0.0	0.0	
	60					0.0	0.0	1.3	15.2	0.0	0.0	
	90					0.0	0.0	1.3	15.1	0.0	0.0	
	120					0.0	0.0	1.2	15.1	0.0	0.0	
	150					0.0	0.0	1.2	15.1	0.0	0.0	
	180					0.0	0.0	1.2	15.1	0.0	0.0	Constant readings
	210											
	240											
	270											
	300											

	PID (ppm)
5	1.2
15	1.3
30	1.2
45	1.2
60	1.2
75	1.2
90	1.1
105	1.1
120	1.1

KEY

aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House		**Engineer:**	KO+JM		
Date:	25/10/2019	**Job Number:**	19/3312	**Time:**	11:30	

METEOROLOGICAL AND SITE INFORMATION												
State of ground:	X	Dry		Moist		Wet				**Delete As Required**	
Wind:	X	Calm		Light		Moderate		Strong		Ground Level	
Cloud cover:		None	X	Slight		Cloudy		Overcast			
Precipitation	X	None		Slight		Moderate		Heavy			
Barometric pressure (mb) Before:	1009					Temperature (°)	12				

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	BH102 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	1.00	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
BH102	0	3.81	1008	189.0	18.4							
	30			0	0	0.0	0.0	0.0	19.2	0.0	0.0	
	60					0.0	0.0	0.0	19.3	0.0	0.0	
	90					0.0	0.0	0.0	19.3	0.0	0.0	
	120					0.0	0.0	0.0	19.4	0.0	0.0	
	150					0.0	0.0	0.0	19.4	0.0	0.0	
	180					0.0	0.0	0.0	19.4	0.0	0.0	
	210					0.0	0.0	0.0	19.4	0.0	0.0	Constant readings
	240											
	270											
	300											

	PID (ppm)
5	1.5
15	1.4
30	1.3
45	1.2
60	1.2
75	1.2
90	1.2
105	1.1
120	1.1

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House			**Engineer:**	KO+JM	
Date:	25/10/2019		**Job Number:**	19/3312	**Time:**	12:00

METEOROLOGICAL AND SITE INFORMATION											
State of ground:	X	Dry		Moist		Wet				**Delete As Required**	
Wind:	X	Calm		Light		Moderate		Strong		Ground Level	
Cloud cover:		None	X	Slight		Cloudy		Overcast			
Precipitation	X	None		Slight		Moderate		Heavy			
Barometric pressure (mb) Before:	1008					Temperature (°)	13				

INSTRUMENTATION USED			
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%	Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X

Pipe Reference:	WS101 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	3.50	**RZ Top:**	0.50	**RZ Base:**	3.50

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS101	0	1.06	1008	0.0	0.0							
	30					0.0	0.0	0.0	19.8	0.0	0.0	
	60					0.0	0.0	0.0	19.7	0.0	0.0	
	90					0.0	0.0	0.0	19.7	0.0	0.0	
	120					0.0	0.0	0.0	19.7	0.0	0.0	
	150					0.0	0.0	0.0	19.7	0.0	0.0	
	180					0.0	0.0	0.0	19.7	0.0	0.0	Constant readings
	210											
	240											
	270											
	300											

		PID (ppm)
	5	1.3
	15	1.4
	30	1.5
	45	1.5
	60	1.4
	75	1.4
	90	1.4
	105	1.4
	120	1.4

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	25/10/2019		**Job Number:**	19/3312	**Time:**	12:30	

METEOROLOGICAL AND SITE INFORMATION										
State of ground:	X	Dry		Moist		Wet			**Delete As Required**	
Wind:		Calm	X	Light		Moderate		Strong	Ground Level	
Cloud cover:		None	X	Slight		Cloudy		Overcast		
Precipitation	X	None		Slight		Moderate		Heavy		
Barometric pressure (mb) Before:	1008				Temperature (°)	13				

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	WS102 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS102	0	0.56	1008	0.0	0.0							
	30					0.0	0.0	0.0	20.1	0.0	0.0	
	60					0.0	0.0	0.0	20.0	0.0	0.0	
	90					0.0	0.0	0.0	20.0	0.0	0.0	
	120					0.0	0.0	0.0	19.9	0.0	0.0	
	150					0.0	0.0	0.0	19.9	0.0	0.0	
	180					0.0	0.0	0.0	19.9	0.0	0.0	
	210					0.0	0.0	0.0	19.9	0.0	0.0	Constant readings
	240											
	270											
	300											

	PID (ppm)
5	1.2
15	1.0
30	1.0
45	0.9
60	0.9
75	0.9
90	0.9
105	0.9
120	0.9

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House			**Engineer:**	KO+JM	
Date:	25/10/2019		**Job Number:**	19/3312	**Time:**	11:00

METEOROLOGICAL AND SITE INFORMATION												
State of ground:	X	Dry		Moist		Wet				**Delete As Required**	
Wind:		Calm	X	Light		Moderate		Strong		Ground Level	
Cloud cover:		None	X	Slight		Cloudy		Overcast			
Precipitation	X	None		Slight		Moderate		Heavy			
Barometric pressure (mb) Before:	1009					Temperature (°)	12				

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	WS103 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS103	0	0.37	1009	11.0	2.2							
	30			0	0	0.0	0.0	0.1	18.6	0.0	0.0	
	60					0.0	0.0	0.1	18.6	0.0	0.0	
	90					0.0	0.0	0.1	18.6	0.0	0.0	
	120					0.0	0.0	0.1	18.6	0.0	0.0	
	150					0.0	0.0	0.1	18.7	0.0	0.0	
	180					0.0	0.0	0.1	18.7	0.0	0.0	
	210					0.0	0.0	0.1	18.7	0.0	0.0	
	240					0.0	0.0	0.1	18.7	0.0	0.0	Constant readings
	270											
	300											

	PID (ppm)
5	1.9
15	2.0
30	2.1
45	2.2
60	2.2
75	2.1
90	2.1
105	2.1
120	2.1

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House			**Engineer:**	KO+JM	
Date:	25/10/2019		**Job Number:**	19/3312	**Time:**	10:30

METEOROLOGICAL AND SITE INFORMATION											
State of ground:	X	Dry		Moist		Wet				**Delete As Required**	
Wind:	X	Calm		Light		Moderate		Strong		Ground Level	
Cloud cover:		None	X	Slight		Cloudy		Overcast			
Precipitation	X	None		Slight		Moderate		Heavy			
Barometric pressure (mb) Before:	1009					Temperature (°)	12				

INSTRUMENTATION USED			
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%	Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X

Pipe Reference:	WS104A - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	1.00	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS104A	0	0.29	1009	8.0	1.6							
	30			0	0	0.0	0.0	0.2	16.7	0.0	0.0	
	60					0.0	0.0	0.1	17.0	0.0	0.0	
	90					0.0	0.0	0.1	17.9	0.0	0.0	
	120					0.0	0.0	0.1	18.0	0.0	0.0	
	150					0.0	0.0	0.1	18.0	0.0	0.0	
	180					0.0	0.0	0.1	18.0	0.0	0.0	
	210					0.0	0.0	0.1	18.1	0.0	0.0	
	240					0.0	0.0	0.1	18.1	0.0	0.0	
	270					0.0	0.0	0.1	18.1	0.0	0.0	Constant readings
	300											

	PID (ppm)
5	1.4
15	1.5
30	1.6
45	1.7
60	1.7
75	1.7
90	1.7
105	1.8
120	1.8

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	05/11/2019		**Job Number:**	19/3312	**Time:**	09:10	

METEOROLOGICAL AND SITE INFORMATION										
State of ground:	X	Dry		Moist		Wet				**Delete As Required**
Wind:	X	Calm		Light		Moderate		Strong		Ground Level
Cloud cover:		None		Slight	X	Cloudy		Overcast		
Precipitation	X	None		Slight		Moderate		Heavy		
Barometric pressure (mb) Before:	990					Temperature (°)	9			

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	BH101 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
BH101	0	0.77	990	156.0	34.7							
	30			25	0	0.0	0.0	0.0	20.0	0.0	0.0	
	60			0	0	0.0	0.0	0.0	20.1	0.0	0.0	
	90					0.0	0.0	0.0	20.1	0.0	0.0	
	120					0.0	0.0	0.0	20.1	0.0	0.0	
	150					0.0	0.0	0.0	20.1	0.0	0.0	Constant readings
	180											
	210											
	240											
	270											
	300											

		PID (ppm)
	5	0.4
	15	3.0
	30	0.3
	45	0.2
	60	0.2
	75	0.2
	90	0.2
	105	0.2
	120	0.2

KEY

aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House			**Engineer:**	KO+JM	
Date:	05/11/2019		**Job Number:**	19/3312	**Time:**	10:10

METEOROLOGICAL AND SITE INFORMATION										
State of ground:	X	Dry		Moist		Wet			**Delete As Required**	
Wind:	X	Calm		Light		Moderate		Strong	Ground Level	
Cloud cover:		None		Slight		Cloudy	X	Overcast		
Precipitation	X	None		Slight		Moderate		Heavy		
Barometric pressure (mb) Before:	990					Temperature (°)	9			

INSTRUMENTATION USED			
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%	
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X

Tick Instrument Used

Pipe Reference:	BH102 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	1.00	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
BH102	0	3.54	990	169.5	102.8							
	30			337	34.6	0.0	0.0	0.0	19.9	0.0	0.0	
	60			0	0	0.0	0.0	0.0	20.1	0.0	0.0	
	90					0.0	0.0	0.0	20.2	0.0	0.0	
	120					0.0	0.0	0.0	20.2	0.0	0.0	
	150					0.0	0.0	0.0	20.2	0.0	0.0	
	180					0.0	0.0	0.0	20.2	0.0	0.0	Constant readings
	210											
	240											
	270											
	300											

		PID (ppm)
	5	0.1
	15	0.1
	30	0.0
	45	0.0
	60	0.0
	75	0.0
	90	0.0
	105	0.0
	120	0.0

KEY

aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	05/11/2019		**Job Number:**	19/3312	**Time:**	11:00	

METEOROLOGICAL AND SITE INFORMATION										
State of ground:	X	Dry		Moist		Wet			**Delete As Required**	
Wind:	X	Calm		Light		Moderate		Strong	Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast		
Precipitation	X	None		Slight		Moderate		Heavy		
Barometric pressure (mb) Before:	991				Temperature (°)	9				

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	WS101 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	3.50	**RZ Top:**	0.50	**RZ Base:**	3.50

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS101	0	1.14	991	0.0	0.0							
	30					0.0	0.0	0.0	20.4	0.0	0.0	
	60					0.0	0.0	0.0	20.4	0.0	0.0	
	90					0.0	0.0	0.0	20.4	0.0	0.0	
	120					0.0	0.0	0.0	20.4	0.0	0.0	Constant readings
	150											
	180											
	210											
	240											
	270											
	300											

		PID (ppm)
	5	0.5
	15	0.7
	30	0.8
	45	0.8
	60	0.8
	75	0.8
	90	0.8
	105	0.8
	120	0.8

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	05/11/2019		**Job Number:**	19/3312	**Time:**	10:30	

METEOROLOGICAL AND SITE INFORMATION										
State of ground:	X	Dry		Moist		Wet			**Delete As Required**	
Wind:	X	Calm		Light		Moderate		Strong	Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast		
Precipitation	X	None		Slight		Moderate		Heavy		
Barometric pressure (mb) Before:	991					Temperature (°)	9			

INSTRUMENTATION USED			
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%	
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X

Tick Instrument used

Pipe Reference:	WS102 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS102	0	0.51	991	0.0	0.0							
	30					0.0	0.0	0.0	20.1	0.0	0.0	
	60					0.0	0.0	0.0	20.0	0.0	0.0	
	90					0.0	0.0	0.0	19.9	0.0	0.0	
	120					0.0	0.0	0.0	19.8	0.0	0.0	
	150					0.0	0.0	0.0	19.8	0.0	0.0	
	180					0.0	0.0	0.0	20.3	0.0	0.0	
	210					0.0	0.0	0.0	20.3	0.0	0.0	
	240					0.0	0.0	0.0	20.3	0.0	0.0	
	270					0.0	0.0	0.0	20.3	0.0	0.0	Constant readings
	300											

	PID (ppm)
5	0.6
15	0.6
30	0.6
45	0.6
60	0.6
75	0.6
90	0.6
105	0.6
120	0.6

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House			**Engineer:**	KO+JM	
Date:	05/11/2019		**Job Number:**	19/3312	**Time:**	09:50

METEOROLOGICAL AND SITE INFORMATION											
State of ground:	X	Dry		Moist		Wet				**Delete As Required**	
Wind:	X	Calm		Light		Moderate		Strong		Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast			
Precipitation	X	None		Slight		Moderate		Heavy			
Barometric pressure (mb) Before:	990				Temperature (°)	9					

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	WS103 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS103	0	0.31	991	0.0	0.0							
	30					0.0	0.0	0.0	17.2	0.0	0.0	
	60					0.0	0.0	0.0	17.3	0.0	0.0	
	90					0.0	0.0	0.0	18.2	0.0	0.0	
	120					0.0	0.0	0.0	19.2	0.0	0.0	
	150					0.0	0.0	0.0	19.8	0.0	0.0	
	180					0.0	0.0	0.0	20.1	0.0	0.0	
	210					0.0	0.0	0.0	20.2	0.0	0.0	
	240					0.0	0.0	0.0	20.2	0.0	0.0	
	270					0.0	0.0	0.0	20.2	0.0	0.0	Constant readings
	300											

	PID (ppm)
5	0.0
15	0.0
30	0.0
45	0.0
60	0.0
75	0.0
90	0.0
105	0.0
120	0.0

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	05/11/2019		**Job Number:**	19/3312	**Time:**	09:40	

METEOROLOGICAL AND SITE INFORMATION										
State of ground:	X	Dry		Moist		Wet			**Delete As Required**	
Wind:	X	Calm		Light		Moderate		Strong	Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast		
Precipitation	X	None		Slight		Moderate		Heavy		
Barometric pressure (mb) Before:	990				Temperature (°)	9				

INSTRUMENTATION USED			
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%	Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X

Pipe Reference:	WS104A - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	1.00	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS104A	0	0.29	990	0.0	0.0							
	30					0.0	0.0	0.0	20.2	0.0	0.0	
	60					0.0	0.0	0.0	20.2	0.0	0.0	
	90					0.0	0.0	0.0	20.2	0.0	0.0	
	120					0.0	0.0	0.0	20.2	0.0	0.0	Constant readings
	150											
	180											
	210											
	240											
	270											
	300											

		PID (ppm)
	5	2.4
	15	2.2
	30	2.2
	45	2.1
	60	2.1
	75	2.0
	90	1.9
	105	1.9
	120	1.8

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	21/11/2019		**Job Number:**	19/3312	**Time:**		

METEOROLOGICAL AND SITE INFORMATION										
State of ground:		Dry		Moist		Wet			**Delete As Required**	
Wind:		Calm		Light		Moderate		Strong	Ground Level	
Cloud cover:		None		Slight		Cloudy		Overcast		
Precipitation		None		Slight		Moderate		Heavy		
Barometric pressure (mb) Before:					Temperature (°)					

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	BH101 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
BH101	0											
	30											No Access. Car on top.
	60											
	90											
	120											
	150											
	180											
	210											
	240											
	270											
	300											

							PID (ppm)						
						5							
						15							
						30							
						45							
						60							
						75							
						90							
						105							
						120							

KEY

aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House			**Engineer:**	KO+JM	
Date:	21/11/2019		**Job Number:**	19/3312	**Time:**	13:20

METEOROLOGICAL AND SITE INFORMATION												
State of ground:	X	Dry		Moist		Wet				**Delete As Required**	
Wind:		Calm	X	Light		Moderate		Strong		Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast			
Precipitation	X	None		Slight		Moderate		Heavy			
Barometric pressure (mb) Before:	998					Temperature (°)	4				

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	BH102 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	1.00	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
BH102	0	3.15	998	0.0	0.0							
	30					0.0	0.0	0.2	4.4	0.0	0.0	
	60					0.0	0.0	0.2	3.8	0.0	0.0	
	90					0.0	0.0	0.2	3.6	0.0	0.0	
	120					0.0	0.0	0.2	3.6	0.0	0.0	
	150					0.0	0.0	0.2	3.5	0.0	0.0	
	180					0.0	0.0	0.2	3.5	0.0	0.0	
	210					0.0	0.0	0.2	3.5	0.0	0.0	Constant readings
	240											
	270											
	300											

	PID (ppm)
5	0.7
15	0.8
30	0.8
45	0.8
60	0.8
75	0.8
90	0.8
105	0.8
120	0.8

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	21/11/2019		**Job Number:**	19/3312	**Time:**	13:40	

METEOROLOGICAL AND SITE INFORMATION										
State of ground:	X	Dry		Moist		Wet			**Delete As Required**	
Wind:		Calm	X	Light		Moderate		Strong	Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast		
Precipitation	X	None		Slight		Moderate		Heavy		
Barometric pressure (mb) Before:	997				Temperature (°)	4				

INSTRUMENTATION USED			
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%	Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X

Pipe Reference:	WS101 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	3.50	**RZ Top:**	0.50	**RZ Base:**	3.50

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS101	0	1.10	998	0.0	0.0							
	30					0.0	0.0	0.0	15.8	0.0	0.0	
	60					0.0	0.0	0.0	16.3	0.0	0.0	
	90					0.0	0.0	0.0	16.3	0.0	0.0	
	120					0.0	0.0	0.0	16.3	0.0	0.0	
	150					0.0	0.0	0.0	16.3	0.0	0.0	Constant readings
	180											
	210											
	240											
	270											
	300											

	PID (ppm)
5	0.9
15	1.0
30	1.0
45	1.0
60	1.0
75	1.0
90	1.0
105	1.0
120	1.0

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	21/11/2019		**Job Number:**	19/3312	**Time:**	13:00	

METEOROLOGICAL AND SITE INFORMATION											
State of ground:	X	Dry		Moist		Wet				**Delete As Required**	
Wind:		Calm	X	Light		Moderate		Strong		Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast			
Precipitation	X	None		Slight		Moderate		Heavy			
Barometric pressure (mb) Before:	998					Temperature (°)	4				

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	WS102 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS102	0	0.64	998	0.0	0.0							
	30					0.0	0.0	0.0	19.2	0.0	0.0	
	60					0.0	0.0	0.0	19.0	0.0	0.0	
	90					0.0	0.0	0.0	19.1	0.0	0.0	
	120					0.0	0.0	0.0	19.1	0.0	0.0	
	150					0.0	0.0	0.0	19.1	0.0	0.0	Constant readings
	180											
	210											
	240											
	270											
	300											

	PID (ppm)
5	0.8
15	0.8
30	0.8
45	0.7
60	0.7
75	0.7
90	0.7
105	0.6
120	0.6

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House			**Engineer:**	KO+JM	
Date:	21/11/2019		**Job Number:**	19/3312	**Time:**	12:49

METEOROLOGICAL AND SITE INFORMATION

State of ground:	X	Dry		Moist		Wet				**Delete As Required**	
Wind:		Calm	X	Light		Moderate		Strong		Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast			
Precipitation	X	None		Slight		Moderate		Heavy			
Barometric pressure (mb) Before:	999				Temperature (°)	4					

INSTRUMENTATION USED

Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%	Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X

Pipe Reference:	WS103 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS103	0	0.37	999	0.0	0.0							
	30					0.0	0.0	0.0	18.5	0.0	0.0	
	60					0.0	0.0	0.0	18.1	0.0	0.0	
	90					0.0	0.0	0.0	18.1	0.0	0.0	
	120					0.0	0.0	0.0	18.1	0.0	0.0	Constant readings
	150											
	180											
	210											
	240											
	270											
	300											

		PID (ppm)
	5	0.9
	15	0.9
	30	0.9
	45	0.9
	60	0.9
	75	0.9
	90	0.9
	105	0.9
	120	0.9

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	21/11/2019		**Job Number:**	19/3312	**Time:**	12:20	

METEOROLOGICAL AND SITE INFORMATION										
State of ground:	X	Dry		Moist		Wet			**Delete As Required**	
Wind:		Calm	X	Light		Moderate		Strong	Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast		
Precipitation	X	None		Slight		Moderate		Heavy		
Barometric pressure (mb) Before:	998					Temperature (°)	4			

INSTRUMENTATION USED			
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%	Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X

Pipe Reference:	WS104A - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	1.00	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS104A	0	0.33	998	0.0	0.0							
	30					0.0	0.0	0.0	15.1	0.0	0.0	Water sucked into pipe.
	60					0.0	0.0	0.0	14.7	0.0	0.0	Not able to continue test.
	90											
	120											
	150											
	180											
	210											
	240											
	270											
	300											

	PID (ppm)
5	
15	
30	
45	
60	
75	
90	
105	
120	

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	12/12/2019		**Job Number:**	19/3312	**Time:**	12:00	

METEOROLOGICAL AND SITE INFORMATION										
State of ground:		Dry		Moist		Wet			**Delete As Required**	
Wind:		Calm		Light		Moderate		Strong	Ground Level	
Cloud cover:		None		Slight		Cloudy		Overcast		
Precipitation		None		Slight		Moderate		Heavy		
Barometric pressure (mb) Before:					Temperature (°)					

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	BH101 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
BH101	0											No access. Car on top.
	30											
	60											
	90											
	120											
	150											
	180											
	210											
	240											
	270											
	300											

		PID (ppm)
	5	
	15	
	30	
	45	
	60	
	75	
	90	
	105	
	120	

KEY

aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House			**Engineer:**	KO+JM	
Date:	12/12/2019		**Job Number:**	19/3312	**Time:**	12:00

METEOROLOGICAL AND SITE INFORMATION											
State of ground:	X	Dry		Moist		Wet				**Delete As Required**	
Wind:		Calm	X	Light		Moderate		Strong		Ground Level	
Cloud cover:		None		Slight		Cloudy	X	Overcast			
Precipitation		None	X	Slight		Moderate		Heavy			
Barometric pressure (mb) Before:	984					Temperature (°)	4				

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	BH102 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	1.00	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
BH102	0	2.79	984	1752.0	120.0							
	30			358	39.5	0.0	0.0	0.3	0.5	0.0	0.0	
	60			238	22.7	0.0	0.0	0.3	0.0	0.0	0.0	
	90			225	21.4	0.0	0.0	0.3	0.8	0.0	0.0	
	120			211	20.1	0.0	0.0	0.3	0.5	0.0	0.0	
	150			201	19	0.0	0.0	0.3	0.4	0.0	0.0	
	180			190	18.2	0.0	0.0	0.3	0.3	0.0	0.0	
	210			182	17.6	0.0	0.0	0.3	0.2	0.0	0.0	
	240			176	16.8	0.0	0.0	0.3	0.2	0.0	0.0	
	270			165	16	0.0	0.0	0.3	0.1	0.0	0.0	
	300			151	14.8	0.0	0.0	0.3	0.0	0.0	0.0	

	PID (ppm)
5	0.8
15	0.9
30	0.9
45	0.9
60	0.9
75	1.0
90	1.0
105	1.0
120	1.0

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	12/12/2019		**Job Number:**	19/3312	**Time:**	11:25	

METEOROLOGICAL AND SITE INFORMATION										
State of ground:	X	Dry		Moist		Wet			**Delete As Required**	
Wind:		Calm	X	Light		Moderate		Strong	Ground Level	
Cloud cover:		None		Slight		Cloudy	X	Overcast		
Precipitation		None	X	Slight		Moderate		Heavy		
Barometric pressure (mb) Before:	984				Temperature (°)	5				

INSTRUMENTATION USED			
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%	Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X

Pipe Reference:	WS101 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	3.50	**RZ Top:**	0.50	**RZ Base:**	3.50

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS101	0	0.84	984	0.0	0.0							
	30					0.0	0.0	0.0	14.5	0.0	0.0	
	60					0.0	0.0	0.0	14.2	0.0	0.0	
	90					0.0	0.0	0.0	14.3	0.0	0.0	
	120					0.0	0.0	0.0	14.3	0.0	0.0	
	150					0.0	0.0	0.0	14.3	0.0	0.0	
	180					0.0	0.0	0.0	14.3	0.0	0.0	Constant readings
	210											
	240											
	270											
	300											

							PID (ppm)						
						5	0.7						
						15	0.7						
						30	0.8						
						45	0.8						
						60	0.8						
						75	0.8						
						90	0.8						
						105	0.8						
						120	0.8						

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	12/12/2019		**Job Number:**	19/3312	**Time:**	11:40	

METEOROLOGICAL AND SITE INFORMATION										
State of ground:	X	Dry		Moist		Wet			**Delete As Required**	
Wind:		Calm	X	Light		Moderate		Strong	Ground Level	
Cloud cover:		None		Slight		Cloudy	X	Overcast		
Precipitation		None	X	Slight		Moderate		Heavy		
Barometric pressure (mb) Before:	984				Temperature (°)	4				

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	WS102 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS102	0	0.47	984	-42.0	-10.0							
	30			0	0	0.0	0.0	0.0	17.0	0.0	0.0	
	60					0.0	0.0	0.0	17.1	0.0	0.0	Water sucked up the pipe.
	90											Not able to continue test.
	120											
	150											
	180											
	210											
	240											
	270											
	300											

							PID (ppm)						
						5							
						15							
						30							
						45							
						60							
						75							
						90							
						105							
						120							

KEY

aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House			**Engineer:**	KO+JM	
Date:	12/12/2019		**Job Number:**	19/3312	**Time:**	12:15

METEOROLOGICAL AND SITE INFORMATION										
State of ground:	X	Dry		Moist		Wet			**Delete As Required**	
Wind:		Calm	X	Light		Moderate		Strong	Ground Level	
Cloud cover:		None		Slight		Cloudy	X	Overcast		
Precipitation		None	X	Slight		Moderate		Heavy		
Barometric pressure (mb) Before:	981				Temperature (°)	4				

INSTRUMENTATION USED			
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%	Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X

Pipe Reference:	WS103 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS103	0	0.24	981	0.0	0.0							
	30					0.0	0.0	0.0	19.8	0.0	0.0	
	60					0.0	0.0	0.0	19.1	0.0	0.0	
	90					0.0	0.0	0.0	20.2	0.0	0.0	
	120					0.0	0.0	0.0	20.2	0.0	0.0	
	150					0.0	0.0	0.0	20.3	0.0	0.0	
	180					0.0	0.0	0.0	20.3	0.0	0.0	
	210					0.0	0.0	0.0	20.3	0.0	0.0	
	240					0.0	0.0	0.0	20.3	0.0	0.0	Constant readings
	270											
	300											

	PID (ppm)
5	0.5
15	0.4
30	0.4
45	0.4
60	0.4
75	0.4
90	0.4
105	0.4
120	0.4

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	12/12/2019		**Job Number:**	19/3312	**Time:**	11:10	

METEOROLOGICAL AND SITE INFORMATION										
State of ground:	X	Dry		Moist		Wet			**Delete As Required**	
Wind:		Calm	X	Light		Moderate		Strong	Ground Level	
Cloud cover:		None		Slight		Cloudy	X	Overcast		
Precipitation		None	X	Slight		Moderate		Heavy		
Barometric pressure (mb) Before:	985				Temperature (°)	5				

INSTRUMENTATION USED			
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%	Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X

Pipe Reference:	WS104A - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	1.00	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS104A	0	0.30	985	0.0	0.0							
	30					0.0	0.0	0.0	19.4	0.0	0.0	Water sucked up the pipe.
	60											Not able to continue test.
	90											
	120											
	150											
	180											
	210											
	240											
	270											
	300											

	PID (ppm)
5	
15	
30	
45	
60	
75	
90	
105	
120	

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	06/01/2020		**Job Number:**	19/3312	**Time:**	14:00	

METEOROLOGICAL AND SITE INFORMATION										
State of ground:		Dry		Moist		Wet			**Delete As Required**	
Wind:		Calm		Light		Moderate		Strong	Ground Level	
Cloud cover:		None		Slight		Cloudy		Overcast		
Precipitation		None		Slight		Moderate		Heavy		
Barometric pressure (mb) Before:					Temperature (°)					

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	BH101 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
BH101	0											
	30											No Access. Car on top.
	60											
	90											
	120											
	150											
	180											
	210											
	240											
	270											
	300											

							PID (ppm)						
						5							
						15							
						30							
						45							
						60							
						75							
						90							
						105							
						120							

KEY

aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House			**Engineer:**	KO+JM	
Date:	06/01/2020		**Job Number:**	19/3312	**Time:**	13:55

METEOROLOGICAL AND SITE INFORMATION												
State of ground:	X	Dry		Moist		Wet				**Delete As Required**	
Wind:		Calm	X	Light		Moderate		Strong		Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast			
Precipitation	X	None		Slight		Moderate		Heavy			
Barometric pressure (mb) Before:	1014					Temperature (°)	8				

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	BH102 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	1.00	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
BH102	0	2.15	1014	0.0	0.0							
	30					0.0	0.0	0.2	2.0	0.0	0.0	
	60					0.0	0.0	0.2	1.2	0.0	0.0	
	90					0.0	0.0	0.2	0.9	0.0	0.0	
	120					0.0	0.0	0.2	0.8	0.0	0.0	
	150					0.0	0.0	0.2	0.6	0.0	0.0	
	180					0.0	0.0	0.2	0.6	0.0	0.0	
	210					0.0	0.0	0.2	0.6	0.0	0.0	
	240					0.0	0.0	0.2	0.6	0.0	0.0	
	270					0.0	0.0	0.2	0.6	0.0	0.0	Constant readings
	300											

	PID (ppm)
5	0.5
15	0.4
30	0.3
45	0.2
60	0.1
75	0.1
90	0.0
105	0.0
120	0.0

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House			**Engineer:**	KO+JM	
Date:	06/01/2020		**Job Number:**	19/3312	**Time:**	14:05

METEOROLOGICAL AND SITE INFORMATION												
State of ground:	X	Dry		Moist		Wet				**Delete As Required**	
Wind:		Calm	X	Light		Moderate		Strong		Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast			
Precipitation	X	None		Slight		Moderate		Heavy			
Barometric pressure (mb) Before:	1014					Temperature (°)	8				

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	WS101 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	3.50	**RZ Top:**	0.50	**RZ Base:**	3.50

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS101	0	0.70	1014	0.0	0.0							
	30					0.0	0.0	0.0	13.6	0.0	0.0	
	60					0.0	0.0	0.0	13.9	0.0	0.0	
	90					0.0	0.0	0.0	13.9	0.0	0.0	
	120					0.0	0.0	0.0	13.9	0.0	0.0	
	150					0.0	0.0	0.0	13.9	0.0	0.0	Constant readings
	180											
	210											
	240											
	270											
	300											

		PID (ppm)
	5	0.3
	15	0.5
	30	0.5
	45	0.5
	60	0.4
	75	0.4
	90	0.3
	105	0.2
	120	0.1

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	06/01/2020		**Job Number:**	19/3312	**Time:**	12:55	

METEOROLOGICAL AND SITE INFORMATION											
State of ground:	X	Dry		Moist		Wet				**Delete As Required**	
Wind:		Calm	X	Light		Moderate		Strong		Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast			
Precipitation	X	None		Slight		Moderate		Heavy			
Barometric pressure (mb) Before:	1014					Temperature (°)	8				

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	WS102 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS102	0	0.62	1014	-431.0	-46.0							
	30			-5	-1.5	0.0	0.0	0.0	17.8	0.0	0.0	
	60			0	0	0.0	0.0	0.0	17.9	0.0	0.0	
	90					0.0	0.0	0.0	17.7	0.0	0.0	
	120					0.0	0.0	0.0	17.3	0.0	0.0	
	150					0.0	0.0	0.0	17.2	0.0	0.0	
	180					0.0	0.0	0.0	17.7	0.0	0.0	
	210					0.0	0.0	0.0	18.4	0.0	0.0	
	240					0.0	0.0	0.0	19.0	0.0	0.0	
	270					0.0	0.0	0.0	19.4	0.0	0.0	
	300					0.0	0.0	0.0	19.4	0.0	0.0	

							PID (ppm)						
						5	0.2						
						15	0.3						
						30	0.2						
						45	0.2						
						60	0.2						
						75	0.1						
						90	0.1						
						105	0.0						
						120	0.0						

KEY

aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	06/01/2020		**Job Number:**	19/3312	**Time:**	12:40	

METEOROLOGICAL AND SITE INFORMATION										
State of ground:	X	Dry		Moist		Wet			**Delete As Required**	
Wind:		Calm	X	Light		Moderate		Strong	Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast		
Precipitation	X	None		Slight		Moderate		Heavy		
Barometric pressure (mb) Before:	1014					Temperature (°)	8			

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	WS103 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS103	0	0.45	1014	0.0	0.0							
	30					0.0	0.0	0.0	20.1	0.0	0.0	
	60					0.0	0.0	0.0	20.0	0.0	0.0	
	90					0.0	0.0	0.0	20.0	0.0	0.0	
	120					0.0	0.0	0.0	20.0	0.0	0.0	
	150					0.0	0.0	0.0	20.0	0.0	0.0	Constant readings
	180											
	210											
	240											
	270											
	300											

	PID (ppm)
5	0.1
15	0.0
30	0.0
45	0.0
60	0.0
75	0.0
90	0.0
105	0.0
120	0.0

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House		**Engineer:**	KO+JM		
Date:	06/01/2020	**Job Number:**	19/3312	**Time:**	12:30	

METEOROLOGICAL AND SITE INFORMATION											
State of ground:	X	Dry		Moist		Wet				**Delete As Required**	
Wind:	X	Calm		Light		Moderate		Strong		Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast			
Precipitation	X	None		Slight		Moderate		Heavy			
Barometric pressure (mb) Before:	1015					Temperature (°)	8				

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	WS104A - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	1.00	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS104A	0	0.36	1015	0.0	0.0							
	30					0.0	0.0	0.0	17.2	0.0	0.0	
	60					0.0	0.0	0.0	17.0	0.0	0.0	Water sucked up the pipe.
	90											Not able to continue test.
	120											
	150											
	180											
	210											
	240											
	270											
	300											

	PID (ppm)
5	
15	
30	
45	
60	
75	
90	
105	
120	

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS							
Location:	Torridon House			**Engineer:**	KO+JM		
Date:	20/01/2020		**Job Number:**	19/3312	**Time:**	09:30	

METEOROLOGICAL AND SITE INFORMATION										
State of ground:		Dry		Moist		Wet			**Delete As Required**	
Wind:		Calm		Light		Moderate		Strong	Ground Level	
Cloud cover:		None		Slight		Cloudy		Overcast		
Precipitation		None		Slight		Moderate		Heavy		
Barometric pressure (mb) Before:					Temperature (°)					

INSTRUMENTATION USED			
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%	
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	Tick Instrument used

Pipe Reference:	BH101 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
BH101	0											
	30											No Access. Car on top.
	60											
	90											
	120											
	150											
	180											
	210											
	240											
	270											
	300											

		PID (ppm)
	5	
	15	
	30	
	45	
	60	
	75	
	90	
	105	
	120	

KEY

aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House			**Engineer:**	KO+JM	
Date:	20/01/2020		**Job Number:**	19/3312	**Time:**	09:30

METEOROLOGICAL AND SITE INFORMATION												
State of ground:		Dry		Moist	X	Wet					**Delete As Required**	
Wind:	X	Calm		Light		Moderate		Strong			Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast				
Precipitation	X	None		Slight		Moderate		Heavy				
Barometric pressure (mb) Before:	1043					Temperature (°)	4					

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	BH102 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	1.00	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
BH102	0	1.97	1043	532.0	94.7							
	30			0	0	0.0	0.0	0.2	1.6	0.0	0.0	
	60					0.0	0.0	0.2	0.4	0.0	0.0	
	90					0.0	0.0	0.2	0.3	0.0	0.0	
	120					0.0	0.0	0.2	0.2	0.0	0.0	
	150					0.0	0.0	0.2	0.2	0.0	0.0	
	180					0.0	0.0	0.2	0.2	0.0	0.0	Constant readings
	210											
	240											
	270											
	300											

	PID (ppm)
5	0.3
15	0.4
30	0.4
45	0.3
60	0.3
75	0.3
90	0.3
105	0.3
120	0.3

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House		**Engineer:**	KO+JM		
Date:	20/01/2020	**Job Number:**	19/3312	**Time:**	10:00	

METEOROLOGICAL AND SITE INFORMATION										
State of ground:		Dry		Moist	X	Wet			**Delete As Required**	
Wind:	X	Calm		Light		Moderate		Strong	Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast		
Precipitation	X	None		Slight		Moderate		Heavy		
Barometric pressure (mb) Before:	1043					Temperature (°)	4			

INSTRUMENTATION USED			
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%	Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X

Pipe Reference:	WS101 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	3.50	**RZ Top:**	0.50	**RZ Base:**	3.50

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS101	0	0.71	1043	0.0	0.0							
	30					0.0	0.0	0.0	13.0	0.0	0.0	
	60					0.0	0.0	0.0	13.3	0.0	0.0	
	90					0.0	0.0	0.0	13.4	0.0	0.0	
	120					0.0	0.0	0.0	13.4	0.0	0.0	
	150					0.0	0.0	0.0	13.4	0.0	0.0	
	180					0.0	0.0	0.0	13.4	0.0	0.0	Constant readings
	210											
	240											
	270											
	300											

		PID (ppm)
	5	0.2
	15	0.3
	30	0.3
	45	0.2
	60	0.2
	75	0.2
	90	0.2
	105	0.2
	120	0.2

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House		**Engineer:**	KO+JM		
Date:	20/01/2020	**Job Number:**	19/3312	**Time:**	10:30	

METEOROLOGICAL AND SITE INFORMATION												
State of ground:		Dry		Moist	X	Wet					**Delete As Required**	
Wind:	X	Calm		Light		Moderate		Strong			Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast				
Precipitation	X	None		Slight		Moderate		Heavy				
Barometric pressure (mb) Before:	1043					Temperature (°)	4					

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	WS102 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS102	0	0.54	1043									
	30					0.0	0.0	0.0	17.5	0.0	0.0	
	60					0.0	0.0	0.0	17.5	0.0	0.0	
	90					0.0	0.0	0.0	17.6	0.0	0.0	
	120					0.0	0.0	0.0	17.6	0.0	0.0	Water sucked up the pipe.
	150											Not able to continue test.
	180											
	210											
	240											
	270											
	300											

	PID (ppm)
5	
15	
30	
45	
60	
75	
90	
105	
120	

KEY

aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House		**Engineer:**	KO+JM		
Date:	20/01/2020	**Job Number:**	19/3312	**Time:**	11:00	

METEOROLOGICAL AND SITE INFORMATION												
State of ground:		Dry	X	Moist		Wet				**Delete As Required**	
Wind:	X	Calm		Light		Moderate		Strong		Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast			
Precipitation	X	None		Slight		Moderate		Heavy			
Barometric pressure (mb) Before:	1043					Temperature (°)	4				

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	WS103 - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	0.50	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS103	0	0.34	1043	0.0	0.0							
	30					0.0	0.0	0.0	20.1	0.0	0.0	
	60					0.0	0.0	0.0	20.0	0.0	0.0	
	90					0.0	0.0	0.0	20.2	0.0	0.0	
	120					0.0	0.0	0.0	20.2	0.0	0.0	
	150					0.0	0.0	0.0	20.2	0.0	0.0	
	180					0.0	0.0	0.0	20.2	0.0	0.0	Constant readings
	210											
	240											
	270											
	300											

							PID (ppm)						
						5	0.2						
						15	0.1						
						30	0.0						
						45	0.0						
						60	0.0						
						75	0.0						
						90	0.0						
						105	0.0						
						120	0.0						

KEY

aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded

Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

Gas Monitoring Results

JOB DETAILS						
Location:	Torridon House			**Engineer:**	KO+JM	
Date:	20/01/2020		**Job Number:**	19/3312	**Time:**	11:30

METEOROLOGICAL AND SITE INFORMATION											
State of ground:		Dry	X	Moist		Wet				**Delete As Required**	
Wind:	X	Calm		Light		Moderate		Strong		Ground Level	
Cloud cover:		None		Slight	X	Cloudy		Overcast			
Precipitation	X	None		Slight		Moderate		Heavy			
Barometric pressure (mb) Before:	1042					Temperature (°)	4				

INSTRUMENTATION USED				
Gas concentration:	Gas Data LMSxi G3.18	Accuracy: CH4 ±0.2% (0 to 5%), ±1.0% (at 30%), ±3.0% (at 100%); CO2 ±0.1% (0 to 10%), ±3.0% (at 40%); O2 ±0.5%		Tick Instrument Used
	Gas Data GFM 436	Accuracy: CH4 ±0.3% (0 to 5%), ±3.0% (at 30%), ±3.0% (at 100%); CO2 ±0.3% (0 to 5%), ±3.0% (at 40%); O2 ±0.2%;	X	

Pipe Reference:	WS104A - 1	**Installation Type:**	SPG/GW	**Pipe Ø (mm):**	50	**Pipe Depth (m):**	4.00	**RZ Top:**	1.00	**RZ Base:**	4.00

BH (No.)	Time (secs)	Depth to GW (m)	aP (mb) After	dP (Pa)	Flow rate	CH_4 (%)	LEL (%)	CO_2 (%)	O_2 (%)	H_2S(ppm)	CO (ppm)	Comments
WS104A	0	0.28	1042	0.0	0.0							
	30					0.0	0.0	0.0	18.9	0.0	0.0	
	60					0.0	0.0	0.0	18.1	0.0	0.0	
	90											Water sucked up the pipe.
	120											Not able to continue test.
	150											
	180											
	210											
	240											
	270											
	300											

	PID (ppm)
5	
15	
30	
45	
60	
75	
90	
105	
120	

KEY
aP: Atmospheric Pressure
dP: Differential Pressure
RZ: Response Zone

NR: Not Recorded
Note: Where 0.0 is shown on the results indicates value lower than the detection limit of the instrument.

CONCEPT

GROUNDWATER - IN SITU ANALYSIS & SAMPLING

Site:	**Torridon House**
Job No.:	**19/3312**
Date:	**05/11/2019**
Technician:	**KO+JM**
Sampling method:	*low flow (peristaltic)*

BH No.	Base of well (mbgl)	Top of slotted (mbgl)	Depth to GW (mbgl)
BH101	4.00	0.50	0.77

Purge Volume (L)	Time	Temp (°C)	DO (mg/L)	SPC (mS/cm)	pH	pH (mV)	Redox Potential (mV)	Sample Detail (Colour/Odour/ Turbidity)
2.0	11:57	15.5	1.48	5.82	7.11	-16.2	-148.0	Clear
4.0	12:00	15.4	1.28	5.31	7.11	-16.3	-139.5	Clear
6.0	12:03	15.4	1.64	4.87	7.11	-16.3	-127.4	Clear
8.0	12:06	15.4	1.82	4.67	7.12	-16.6	-123.1	Clear

CONCEPT

GROUNDWATER - IN SITU ANALYSIS & SAMPLING

Site:	**Torridon House**
Job No.:	**19/3312**
Date:	**05/11/2019**
Technician:	**KO+JM**
Sampling method:	*low flow (peristaltic)*

	BH No.	Base of well (mbgl)	Top of slotted (mbgl)	Depth to GW (mbgl)	Not enough water to carry out test.
	BH102	4.00	1.00	3.54	

Purge Volume (L)	Time	Temp (°C)	DO (mg/L)	SPC (mS/cm)	pH	pH (mV)	Redox Potential (mV)	Sample Detail (Colour/Odour/ Turbidity)

CONCEPT

GROUNDWATER - IN SITU ANALYSIS & SAMPLING

Site:	**Torridon House**
Job No.:	**19/3312**
Date:	**05/11/2019**
Technician:	**KO+JM**
Sampling method:	*low flow (peristaltic)*

BH No.	Base of well (mbgl)	Top of slotted (mbgl)	Depth to GW (mbgl)
WS101	3.50	0.50	1.14

Purge Volume (L)	Time	Temp (°C)	DO (mg/L)	SPC (mS/cm)	pH	pH (mV)	Redox Potential (mV)	Sample Detail (Colour/Odour/ Turbidity)
2.0	12:48	16.5	1.16	7.25	7.09	-15	51.4	Clear
4.0	12:51	16.3	1.75	5.87	7.16	-19.3	53.2	Clear
6.0	12:54	16.1	3.62	5.19	7.20	-20.7	64.4	Clear
8.0	12:57	16.1	4.75	4.99	7.20	-21.3	69.5	Clear

CONCEPT

GROUNDWATER - IN SITU ANALYSIS & SAMPLING

Site:	**Torridon House**
Job No.:	**19/3312**
Date:	**05/11/2019**
Technician:	**KO+JM**
Sampling method:	*low flow (peristaltic)*

	BH No.	Base of well (mbgl)	Top of slotted (mbgl)	Depth to GW (mbgl)
	WS102	4.00	0.50	0.51

Purge Volume (L)	Time	Temp (°C)	DO (mg/L)	SPC (mS/cm)	pH	pH (mV)	Redox Potential (mV)	Sample Detail (Colour/Odour/ Turbidity)
2.0	12:20	15.8	1.39	5.76	7.20	-20.9	-2.8	Clear
4.0	12:23	15.4	1	3.62	7.40	-32.9	-6.3	Clear
6.0	12:26	14.7	1.96	2.23	7.69	-48.9	-14.9	Clear
8.0	12:29	14.3	2.64	1.96	7.82	-50.7	-11.4	Clear

CONCEPT

GROUNDWATER - IN SITU ANALYSIS & SAMPLING

Site:	**Torridon House**
Job No.:	**19/3312**
Date:	**05/11/2019**
Technician:	**KO+JM**
Sampling method:	*low flow (peristaltic)*

	BH No.	Base of well (mbgl)	Top of slotted (mbgl)	Depth to GW (mbgl)
	WS103	4.00	0.50	0.31

Purge Volume (L)	Time	Temp (°C)	DO (mg/L)	SPC (mS/cm)	pH	pH (mV)	Redox Potential (mV)	Sample Detail (Colour/Odour/ Turbidity)
2.0	13:21	15.4	1.11	6.67	7.31	-27.4	73.9	Clear
4.0	13:24	15.2	2.62	5.92	7.35	-29.5	71.7	Clear
6.0	13:27	14.5	2.28	3.30	7.59	-43.5	67.2	Clear
8.0	13:30	13.8	2.11	2.89	7.80	-48.2	69.1	Clear

CONCEPT

GROUNDWATER - IN SITU ANALYSIS & SAMPLING

Site:	**Torridon House**
Job No.:	**19/3312**
Date:	**05/11/2019**
Technician:	**KO+JM**
Sampling method:	*low flow (peristaltic)*

BH No.	Base of well (mbgl)	Top of slotted (mbgl)	Depth to GW (mbgl)
WS104A	4.00	1.00	0.29

Purge Volume (L)	Time	Temp (°C)	DO (mg/L)	SPC (mS/cm)	pH	pH (mV)	Redox Potential (mV)	Sample Detail (Colour/Odour/ Turbidity)
2.0	11:33	15.0	2.79	5.87	7.11	-16.2	-27.0	Clear
4.0	11:36	15.0	3.12	4.58	7.21	-21.9	-15.6	Clear
6.0	11:39	14.8	3.45	3.24	7.33	-28.4	1.0	Clear
8.0	11:42	14.4	3.82	2.78	7.42	-31.5	8.2	Clear

TEST DATE AND CONDITIONS	
Date	7.1.2020
Atmospheric Pressure	999 mB
Ambient Temp	21.4 °C
Environics Serial No.	5089

GAS DATA LTD
Unit 4, Fairfield Court
Seven Stars Estate
Wheler Rd
Coventry
CV3 4LJ
Tel 02476303311 Fax 02476307711

GFM436-1 OUTWARD INSPECTION & QUALITY CHECK SHEET

INSTRUMENT DETAILS			
SO Number	Instrument Type	Instrument Serial Number + SW Version	Job Number(s)
324754	GFM436	12224 G436-27/11	121482

Calibration Technician ..... **Date** 7.1.2020

Inspection Technician ..... **Date** 8.1.20

INSTRUMENT CHECKS		Pass (P), Fail (F) or not applicable (NA)	INSTRUMENT PACKING LIST		Tick if included
Function Tests	Dust Caps Fitted	P	Instrument		✓
	Keyboard Test (All Keys)	P	Leather Case		X
	Backlight	P	Instrument Strap		✓
	Clock Set / Running	P	AC Battery Charger (UK)		X
	Comms Test	P	AC Battery Charger (EURO)		X
	Pump Flow Test (In & Out)	P	AC Battery Charger (US)		X
	Overall Leak Test (30mB)	n/a	AC Battery Charger (AUS)		X
	Battery Charge Test	P	Gas Sample Pipe - *(new issue)*		✓
	Service Date set to?	7.1.21	Flow Sample Pipe - *(new issue)*		✓
Channel Tests	Data Logging Enabled?	P	Hard Carry Case		X
	Verify CH4/LEL/Hexane/PID	P	Allen Key		X
	Verify CO2	P	Spares Pot		X
	Verify O2	P	Temperature Probe		X
	Verify H2S	P	Vane Anemometer		X
	Verify CO	P	USB Cable		X
	Verify LEL	P	USB Memory stick		X
	Verify 1st Option Gas	N/A	SM V5 Software	Ver 6.03	X
	Verify Atmospheric pressure	P	Internal Filter Pack	Qty	X
	Verify differential pressure	P	External Filter Pack	Qty	X
	Verify flow	P	Field Guide		X
	Verify temperature probe input	P	**Extra Items:**		
	Verify vane anemometer input	P			
DataBase Checks	Jobcard(s) completed and signed	P			
	Jobcard(s) booked off database	P			
	Calibration certificate completed	P			
	Complete & print QI record	n/a			
Label Checks	No. of Calibration label fitted	GDC 08779	**Comments:**		
	MCERTS label displayed	P			
	Warranty label fitted	P			
H2S Range	H2S Range from Sales Order	5.000 ppm			
	H2S Range from Cal Cert	5000 ppm			
	Over-range value correct?	P			

Date	07/01/2020	
Atmospheric Pressure	999	mB
Ambient Temperature	21.4	°C
Environics Serial No.	5089	

GFM436 Final Inspection & Calibration Check Certificate

GAS DATA LTD

Unit 4, Fairfield Court

Seven Stars Estate

Wheler Rd

Coventry

CV3 4LJ

Tel 02476303311 Fax 02476307711

Customer	Concept Site Investigations
Certificate Number	121482
Order Number	324754

Serial Number	12224
Software Version	G436-00.0027/0011

07/01/21

Instrument Checks					
Keyboard	✓		Display Contrast	✓	
Pump Flow In	450	*Accept > 200 cc/min*	Pump Flow @ -200mB	250	*Accept > 200 cc/min*
Clock Set / Running	✓		Labels Fitted	✓	

Gas Checks						
	CH_4		CO_2		O_2	
	Instrument Gas Readings %	True Gas Value %	Instrument Gas Readings %	True Gas Value %	Instrument Gas Readings %	True Gas Value %
Sensor	60	*60*	40	*40*	20.9	*20.9*
	Accept ±3.0		*Accept ±3.0*		*Accept ±0.5*	
	5	*5*	5	*5*	6	*6*
	Accept ±0.3		*Accept ±0.3*		*Accept ±0.3*	
Zero Reading 100% N2	0	*0*	0	*0*	0	*0*
	Accept ±0.0		*Accept ±0.0*		*Accept ±0.1*	

Optional Gas Checks						
Applied Gas & Range		Concentration Tested @ (ppm)	Instrument Readings *(ppm)*			
Gas Type	Range *(ppm)*		Zero Reading		Instrument Gas Reading	
H2S	5000	*1500*	0	*Accept ±0.0*	1500	*Accept ±5.0*
CO	2000	*1000*	0	*Accept ±0.0*	1000	*Accept ±5.0*
Hexane	*2.0%*	2.0%	0	*Accept ±0.0*	1.99	*Accept ±10.0*

Cross Gas Effects

Applied Gas *(ppm)*		Instrument Readings *(ppm)*							
Gas Type	**Concentration**	**Toxic 1:**	**H2S**	**Toxic 2:**	**CO**	**Toxic 3:**	**HEX**		
H2S	*1500*	**1500**		**0**		**0**			
CO	*1000*	**40**		**1000**		**0**			
Hexane	*2.0%*	**0**		**0**		**1.99**			

Pressure Checks

Atmospheric Pressure [AP] *(mB)*			
Current Atmospheric Pressure (mB)		**Instrument Atmospheric Pressure Reading (mB)**	
AP Open Ports		**998**	*Accept ±2.0*
AP Port (Internal)	*+800 mB*	**800**	*Accept ±5.0*
	+1200mb	**1200**	*Accept ±5.0*

Flow Checks

Borehole Flow			Differential Pressure		
Applied Reading *(l/h)*	**Instrument Reading *(l/h)***		**Applied Pressure *(Pa)***	**Instrument Reading *(Pa)***	
-30	**-30**	*Accept ±3.0*	-489	**-489**	*Accept ±50*
-3	**-3**	*Accept ±1.0*	-20	**-20**	*Accept ±6.0*
0	**0**	*Accept ±0.0*	0	**0**	*Accept ±0.5*
3	**3**	*Accept ±0.5*	15	**15**	*Accept ±3.0*
30	**30.1**	*Accept ±3.0*	308	**310**	*Accept ±50*
60	**60**	*Accept ±6.0*	923	**924**	*Accept ±130*
90	**90**	*Accept ±9.0*	1810	**1836**	*Accept ±250*

Temperature Checks

Calibration Temperature Applied Temperature °C	Instrument Temperature Reading °C	
-10	**-10**	*Accept ±2.0*
0	**0**	*Accept ±1.0*
30	**30**	*Accept ±1.0*
60	**60**	*Accept ±1.0*
100	**100**	*Accept ±1.0*

Technician: *Jack Rutland*

Date Tested: *08/01/2020*

The instrument identified by the serial number stated above has been tested by Gas Data personnel for calibration accuracy on the date and under the ambient conditions stated. Gas Data Ltd internal BS EN ISO9001:2015 compliant workshop procedures were followed to apply known calibration test gases, gas flow rates, pressures and temperatures of the values stated. The results displayed on the instrument at each stage are recorded above.

shawcity
LIFE-SAVING SOLUTIONS

CERTIFICATE OF CALIBRATION
Phocheck Tiger

CALIBRATION CERTIFICATE NO: 66979

ISSUED BY: SHAWCITY LIMITED
DATE: 29-Oct-19

APPROVED SIGNATORY:

NAME: Renny Talbot

CUSTOMER: Concept Engineering Consultants
INSTRUMENT: Tiger
SERIAL NUMBER: T-114313

CALIBRATION METHOD: CM03
AMBIENT CONDITIONS: 20°C ± 2°C and 50% (± 20%) RH

Prior to calibration the instrument was allowed to stabilise in the laboratory for at least 30 minutes.
The instrument was calibrated by exposing the sensor to known values of gas concentrations.
All gases were sampled through the complete probe and in line filter, where applicable.
The reference value is that generated by the certified source and the indicated value is that measured by the instrument.

CALIBRATION RESULTS

GAS	LOT No	REF. VALUE	INDICATED VALUE
Isobutylene	WO209856-2	100 ppm	100 ppm
Isobutylene	WO163878-1	5000 ppm	5000 ppm

COMMENTS:
The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor of $k=2$.
This provides a level of confidence of uncertainty of approximately 95%.
The uncertainty of measurement is ±2 %
The results indicate that the instrument conforms to the applicable parts of the published specification.

Tel: 01793 780622
www.shawcity.co.uk
Instrument House, 91-92 Shrivenham Hundred Business Park
Watchfield, Oxfordshire, SN6 8TY
Fax: 01793 784466
service@shawcity.co.uk

shawcity
LIFE-SAVING SOLUTIONS

SERVICE / INSPECTION SHEET

JOB NUMBER: 66979
INSTRUMENT: Phocheck Tiger

SERIAL NUMBER: T-114313
DATE RECEIVED: 15/10/2019

FIRMWARE: 5.12

Instrument House
91-92 Shrivenham Hundred Business Park
Watchfield
Oxfordshire
SN6 8TY
Fax: 01793 784466
service@shawcity.co.uk

CUSTOMER: Concept Engineering Consultants

ITEMS RECEIVED	Received	RTN?
Instrument	yes	
Rubber Boot	yes	
Battery Charger		
Charging Cradle		
Operation Manual		
Quick Start Guide		
Spares Kit		
Comms Cable		
Probe FLEXI		
Peli Case	yes	
Tubing		
Regulator		
Software (Memory Stick)		
PLASTIC CASE		
	SIGNED:	

TESTS	Pre Service	Post Service
Charger Test		N/A
Battery charge Test		OK
Lamp Test		OK
Air Flow Test ≥ 200ml/min		260
Block Flow Test ≤ 15ml/min		5
Moisture Sensitivity = 0.0ppm		0.0
Switch Test		OK
Sensor Test		OK
Alarm Test		OK
PC Comms Test		OK
Datalog Test		OK
Display Test		OK
Physical Inspection	See notes	OK
PAT Test		N/A
Firmware Upgrade		OK
Software Upgrade (usb)		OK
Function Test	See notes	OK

Instrument is in for repair.
The unit was purchased on the 22/1/19.
Found F1 fuse to have come away from the board because of weak locating pins.
A new fuse has been fitted and instrument works well.
Phoned customer in regards to service and it was accepted.
Service replacements are the lamp stack and PTFE filter only as seals are good.
Lamp has been cleaned and fitted.
Runtime:68hrs 20mins
Calibration passed
Bump test passed

Instrument has been cleaned serviced and calibrated.

TECHNICIAN: Renny Talbot

DATE: 29/10/2019

PRO2 II

VAN WALT
Monitoring your needs

OUTWARDS CHECKLIST

YSIPRO Sales Checklist and Calibration

YSI & Cable Serial Numbers: 19D102749 / 19E100402

	Reading	Target	Acceptable	Pass
Temp	20·3	Ref:20·2	± 1°C	✓
pH7mv	0·7	0.0	0 ± 50	✓
pH4mv	172·3	177	177 ± 50	✓
pH Slope	171·6	177	162 - 180	✓
Cond. Cell Constant	4·9	5	4.6 - 5.4	✓
Redox Offset	-0·3	0.0	±50.0	✓
DO Gain	Pass or fail determined by the meter			✓

*Calibrated to manufacturers standards

All parameters were within acceptable range on the day of despatch; however we do recommend that the instrument is calibrated daily to ensure accurate readings.

Checklist	Comments
☑ YSI PRO meter & Hand strap	
☑ Quatro Cable Assy	
☑ Probe Guard / Sleeve	
☑ Calibration Cup	
☑ Manual/Data Manager CD	
☑ Quick Start Guide	
☑ Hard Case	
☑ Flow Cell (including 2 o-rings)	
☑ 2 x Small & Large Flow Cell Nipples	
☑ DO Membrane and Electrolyte kit	
☑ Warranty Sticker Intact	
☑ Maintenance Cleaning Kit	
☑ Cable Management Kit	

Signed: [signature] Date: 11/06/19

Name: Reece Munn Cross checked contents initials: TR

Date of Calibration: 06/12/19 Technician: JM

Instrument Serial Number: 19D102749 Software Revision: _____ Cable Model Number: _____

Temperature Reading 20.5 Temperature Accurate: (Y) N

DO Sensor in use: (Polarographic) Galvanic Sensor notated in Sensor menu? (Y) N

DO membrane changed? Y (N) Color of Membrane BLUE Color notated in Sensor menu? (Y) N

Record the following calibration values:

	Pre Cal	After Cal
Conductivity	10035	10000
ORP	244.8	250
DO	97.4 %	98 %

True Barometric Pressure at time of calibration 740.7

	Pre Cal			
pH 7	7.16	pH mV value	7.00	Range 0 mV ± 50 mV
pH 4	4.14	pH mV value	4.02	Range +165 to +180 from 7 buffer mV value
pH 10	~~10.00~~ 9.97	pH mV value	9.98	Range -165 to -180 from 7 buffer mV value

NOTE: See pH Cal tips section for additional information. Span between pH 4 and 7 and 7 and 10 mV values should be ≈ 165 to 180 mV. 177 is the ideal distance or 59 mV per pH unit.

Ammonium			
1st point (1 mg/L)	_____	NH4 mV value	_____ Range: 0 mV +/- 20 mV (new sensor only)
2nd point (100 mg/L)	_____	NH4 mV value	_____ Range: 90 to 130 mV > 1 mg/L mV value
Nitrate			
1st point (1 mg/L)	_____	NO3 mV value	_____ Range: 200 mV +/- 20 mV (new sensor only)
2nd point (100 mg/L)	_____	NO3 mV value	_____ Range: 90 to 130 mV < 1 mg/L mV value
Chloride			
1st point (10 mg/L)	_____	Cl mV value	_____ Range: 225 mV +/- 20 mV (new sensor only)
2nd point (1000mg/L)	_____	Cl mV value	_____ Range: 80 to 130 < 10 mg/L mV value

Record the following diagnostic numbers **after** calibration, by viewing the .glp file and reading the values for the day's calibration

Conductivity Cal Cell Constant 4.937 Range 5.0 +/- 1.0 acceptable

DO Sensor Value (uA) 2.458 (Membrane dependent, see DO Cal Tips)

pH Slope 57.19323 (≈ 55 to 60 mV/pH, 59 ideal)

pH Slope % of ideal 96.7609

12. GEOTECHNICAL LABORATORY TEST RESULTS

CONCEPT SITE INVESTIGATIONS

Site Name:	Torridon House Car Park, Westminster	**Job No.:**	19/3312
Client:	City of Westminster	**Date Reported:**	15/11/2019

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH101	UT	10	2.50	Firm, extremely closely fissured brown mottled bluish grey CLAY with occasional pockets of yellowish brown silty fine sand (<10mm) and rare pockets of selenite crystals (<10mm)	29	99	76	28	48	
BH101	UT	14	4.50	Stiff, brown mottled bluish grey CLAY with rare pockets of yellowish brown silty fine sand (<5mm) and rare pockets of selenite crystals (<10mm)	31	99	77	29	48	
BH101	UT	19	7.50	Very stiff, brown mottled yellowish brown CLAY with 1No parting of yellowish brown silty fine sand, occasional pockets of yellowish brown silty fine sand (<15mm) and rare pockets od selenite crystals (<5mm)	27	99	72	27	45	
BH101	UT	24	10.50	Stiff, extremely closely to very closely fissured greyish brown slightly micaceous CLAY with occasional pockets of dark grey silt (<20mm), rare pockets od yellowish brown silt (<25mm), rare shell fragments (<5mm) and occasional bioturbation	27	100	79	27	52	
BH101	UT	29	13.50	Very stiff, greyish brown slightly micaceous silty CLAY with rare pockets of light brown silty fine sand (<5mm), rare pockets of dark grey silt (<15mm), locally with frequent foraminifera and bioturbation	26	100	79	28	51	
BH101	UT	34	16.50	Very stiff, greyish brown slightly sandy silty CLAY with frequent pockets of light brown, dark grey silty fine sand (<20mm) and occasional bioturbation	25	100	76	27	49	
BH101	UT	39	19.50	Very stiff, greyish brown slightly micaceous silty CLAY with occasional pockets of dark grey silty fine sand (<40mm) and frequent bioturbation	25	100	74	27	47	

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS

UKAS TESTING
4503

Date - samples received:	15/10/2019		
Date - sample testing commenced :	11/11/2019	Checked / Approved by:	KM
Date - sample testing completed :	14/11/2019	Date Approved:	15/11/2019

Approved Signatories: L Griffin LG (QA Technical & Lab Mngr) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

Site Name:	Torridon House Car Park, Westminster	**Job No.:**	19/3312
Client:	City of Westminster	**Date Reported:**	15/11/2019

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH101	UT	44	22.50	Very stiff, greyish brown slightly sandy slightly micaceous silty CLAY with frequent pockets of light brown and dark grey silty fine sand (<25mm), rare white flecks, foraminifera and occasional bioturbation	23	100	70	26	44	
BH101	UT	49	25.50	Very stiff, extremely closely fissured brownish grey CLAY with occasional pockets of light grey silty fine sand (<5mm) and occasional bioturbation	27	100	74	28	46	
BH101	UT	54	28.50	Very stiff, brownish grey slightly sandy slightly micaceous silty CLAY with occasional pockets of dark grey and light brown silty fine sand (<15mm), rare foraminifera and occasional bioturbation	26	100	76	28	48	
BH101	UT	59	31.50	Very stiff, brownish grey slightly micaceous silty CLAY with rare pockets of dark grey silty fine sand (<20mm), rare pyrite nodules (<10mm), frequent bioturbation and rare foraminifera	25	99	71	27	44	
BH101	UT	64	34.50	Very stiff, brownish grey slightly micaceous silty CLAY with rare pockets of dark grey silty fine sand (<10mm), rare pyrite nodules (<10mm) and frequent bioturbation	24	99	73	28	45	

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS

UKAS TESTING
4503

Date - samples received:	15/10/2019		
Date - sample testing commenced :	11/11/2019	Checked / Approved by:	KM
Date - sample testing completed :	14/11/2019	Date Approved:	15/11/2019

Approved Signatories: L Griffin LG (QA Technical & Lab Mngr) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

Site Name:	Torridon House Car Park, Westminster	**Job No.:**	19/3312
Client:	City of Westminster	**Date Reported:**	13/11/2019

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH102	UT	9	2.50	Firm, extremely closely fissured brown mottled grey CLAY locally with frequent pockets of selenite crystals (<5mm)	32	98	76	28	48	
BH102	UT	13	4.50	Firm to stiff, extremely closely fissured brown mottled orangish brown CLAY with rare pockets of selenite crystals (<3mm)	30	99	80	30	50	
BH102	UT	18	7.50	Stiff, extremely closely fissured brown mottled orangish brown CLAY with rare pockets of yellowish brown silty fine sand (<15mm), pockets of selenite crystals (<5mm) and 2No pyrite nodules (<40mm)	27	99	73	26	47	
BH102	UT	23	10.50	Stiff, extremely closely fissured greyish brown slightly micaceous CLAY with occasional pockets of dark grey silty fine sand (<25mm), 1No pyrite nodule (50x15mm) and frequent bioturbation	28	99	80	28	52	
BH102	UT	28	13.50	Stiff, greyish brown slightly micaceous slightly sandy CLAY with rare pockets of light brown and dark grey silty fine sand (<20mm), locally with frequent foraminifera and occasional bioturbation	27	100	80	28	52	
BH102	UT	32	16.50	Very stiff, greyish brown slightly sandy slightly micaceous silty CLAY with occasional pockets of dark grey and light brown silty fine sand (<10mm) and rare bioturbation	24	100	79	28	51	
BH102	UT	37	19.50	Very stiff, greyish brown slightly micaceous silty CLAY with frequent pockets of dark grey silty fine sand (<30mm), frequent bioturbation and 1No claystone fragment (10x10mm) at 19.57m	27	99	74	26	48	
BH102	UT	42	22.50	Very stiff, extremely closely fissured greyish brown slightly sandy slightly micaceous silty CLAY with occasional pockets of dark grey and light brown silty fine sand (<20mm), frequent bioturbation and rare foraminifera	25	100	71	26	45	

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS

UKAS TESTING
4503

Date - samples received:	11/10/2019		
Date - sample testing commenced :	01/11/2019	Checked / Approved by:	KM
Date - sample testing completed :	12/11/2019	Date Approved:	13/11/2019

Approved Signatories: L Griffin LG (QA Technical & Lab Mngr) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

Site Name:	Torridon House Car Park, Westminster	**Job No.:**	19/3312
Client:	City of Westminster	**Date Reported:**	13/11/2019

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH102	UT	47	25.50	Very stiff, extremely closely fissured greyish brown slightly micaceous CLAY with rare pockets of dark grey silty fine sand (<20mm), white flecks and frequent bioturbation	28	100	75	28	47	
BH102	UT	52	28.50	Very stiff, extremely closely to very closely fissured greyish brown slightly micaceous silty CLAY with rare pockets of dark grey silt (<20mm) and frequent bioturbation	27	100	78	29	49	
BH102	UT	57	31.50	Very stiff, greyish brown slightly sandy slightly micaceous silty CLAY with occasional pockets of dark grey and light brown silty fine sand (<15mm), rare pyrite nodules (<10mm), foraminifera and frequent bioturbation	25	98	72	27	45	
BH102	UT	62	34.50	Very stiff, greyish brown slightly micaceous sandy silty CLAY with rare pockets of light brown silty fine sand (<10mm), white flecks and frequent bioturbation	25	100	71	27	44	

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS

UKAS TESTING
4503

Date - samples received:	11/10/2019		
Date - sample testing commenced :	04/11/2019	Checked / Approved by:	KM
Date - sample testing completed :	12/11/2019	Date Approved:	13/11/2019

Approved Signatories: L Griffin LG (QA Technical & Lab Mngr) – K Mazerant KM (Lab Mngr)

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Analytical Report Number : 19-70829

Project / Site name:	Torridon House Car Park, Westminster	**Samples received on:**	07/11/2019
Your job number:	19-3312	**Samples instructed on:**	07/11/2019
Your order number:	L2172	**Analysis completed by:**	14/11/2019
Report Issue Number:	1	**Report issued on:**	14/11/2019
Samples Analysed:	4 soil samples		

Signed:

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

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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: 19-70829

Project / Site name: Torridon House Car Park, Westminster
Your Order No: L2172

Lab Sample Number				1356532	1356533	1356534	1356535	
Sample Reference				BH101	BH101	BH101	BH101	
Sample Number				15	25	40	55	
Depth (m)				5.00	11.00	20.00	29.00	
Date Sampled				07/11/2019	07/11/2019	07/11/2019	07/11/2019	
Time Taken				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	
Moisture Content	%	N/A	NONE	18	16	17	16	
Total mass of sample received	kg	0.001	NONE	0.96	0.56	0.68	0.69	
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.7	8.2	8.5	8.6	
Total Sulphate as SO_4	mg/kg	50	MCERTS	7200	2100	1000	890	
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	2.9	0.91	0.52	0.51	
Total Sulphur	mg/kg	50	MCERTS	2600	7000	3100	3900	

The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 19-70829

Project / Site name: Torridon House Car Park, Westminster

* 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 *
1356532	BH101	15	5.00	Brown clay and sand.
1356533	BH101	25	11.00	Brown clay.
1356534	BH101	40	20.00	Brown clay.
1356535	BH101	55	29.00	Brown clay.

The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 19-70829

Project / Site name: Torridon House Car Park, Westminster

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In-house method based on BS1377 Part 2, 1990, Classification tests	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	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
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 based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS

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.

The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 19-69658

Project / Site name:	Torridon House Car Park, Westminster	**Samples received on:**	01/11/2019
Your job number:	19-3312	**Samples instructed on:**	01/11/2019
Your order number:	L2167	**Analysis completed by:**	08/11/2019
Report Issue Number:	1	**Report issued on:**	08/11/2019
Samples Analysed:	4 soil samples		

Signed:

Zina Abdul Razzak
Senior Quality 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

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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: 19-69658

Project / Site name: Torridon House Car Park, Westminster
Your Order No: L2167

Lab Sample Number				1350063	1350064	1350065	1350066	
Sample Reference				BH102	BH102	BH102	BH102	
Sample Number				10	19	33	48	
Depth (m)				3.00	8.00	17.00	26.00	
Date Sampled				01/11/2019	01/11/2019	01/11/2019	01/11/2019	
Time Taken				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	
Moisture Content	%	N/A	NONE	19	14	13	15	
Total mass of sample received	kg	0.001	NONE	1.2	0.70	0.60	0.70	
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.7	7.7	8.7	9.0	
Total Sulphate as SO_4	mg/kg	50	MCERTS	19000	8600	1200	1200	
Total Sulphate as SO_4	%	0.005	MCERTS	1.93	0.864	0.122	0.116	
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	4.5	4.3	0.67	0.64	
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	4550	4310	667	638	
Total Sulphur	mg/kg	50	MCERTS	10000	3800	3700	3400	
Total Sulphur	%	0.005	MCERTS	1.04	0.376	0.366	0.337	

The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 19-69658

Project / Site name: Torridon House Car Park, Westminster

* 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 *
1350063	BH102	10	3.00	Brown clay.
1350064	BH102	19	8.00	Brown clay.
1350065	BH102	33	17.00	Grey clay.
1350066	BH102	48	26.00	Grey clay.

The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 19-69658

Project / Site name: Torridon House Car Park, Westminster

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In-house method based on BS1377 Part 2, 1990, Classification tests	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	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
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 based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L038-PL	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS

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.

The results included within the report are representative of the samples submitted for analysis.

CONCEPT SITE INVESTIGATIONS

Summary Test Report - Undrained Triaxial Compression (Single-Stage)

BS 1377 : Part 7: 1990 Clause 8

Date Reported: 15/11/2019

Job No.: 19/3312

Site Location: Torridon House Car Park, Westminster

Client: City of Westminster

BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m2	Strain at failure %	Bulk Density Mg/m3	Dry Density Mg/m3	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments
BH101	UT	10	2.50	Firm, extremely closely fissured brown mottled bluish grey CLAY with occasional pockets of yellowish brown silty fine sand (<10mm) and rare pockets of selenite crystals (<10mm)	50	9.5	1.962	1.520	29	160	80	Britte
BH101	UT	14	4.50	Stiff, brown mottled bluish grey CLAY with rare pockets of yellowish brown silty fine sand (<5mm) and rare pockets of selenite crystals (<10mm)	80	4.8	1.914	1.464	31	161	81	Britte
BH101	UT	19	7.50	Very stiff, brown mottled yellowish brown CLAY with 1No parting of yellowish brown silty fine sand, occasional pockets of yellowish brown silty fine sand (<15mm) and rare pockets od selenite crystals (<5mm)	150	5.0	1.970	1.550	27	257	129	Britte
BH101	UT	24	10.50	Stiff, extremely closely to very closely fissured greyish brown slightly micaceous CLAY with occasional pockets of dark grey silt (<20mm), rare pockets od yellowish brown silt (<25mm), rare shell fragments (<5mm) and occasional bioturbation	210	3.9	1.989	1.565	27	257	129	Britte
BH101	UT	29	13.50	Very stiff, greyish brown slightly micaceous silty CLAY with rare pockets of light brown silty fine sand (<5mm), rare pockets of dark grey silt (<15mm), locally with frequent foraminifera and bioturbation	270	1.9	1.989	1.579	26	226	113	Britte

Date - samples received: 15/10/2019

Date - sample testing commenced: 12/11/2019 | Checked/Approved by: KM

Date - sample testing completed: 14/11/2019 | Date Approved: 15/11/2019

Approved Signatories: L Griffin LG (QA Technical & Lab Mngr) – K Mazerant KM (Lab Mngr)

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UKAS TESTING
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CONCEPT SITE INVESTIGATIONS

Summary Test Report - Undrained Triaxial Compression (Single-Stage)

BS 1377 : Part 7: 1990 Clause 8

Date Reported: 15/11/2019

Job No.: 19/3312

Site Location: Torridon House Car Park, Westminster

Client: City of Westminster

BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m2	Strain at failure %	Bulk Density Mg/m3	Dry Density Mg/m3	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments
BH101	UT	34	16.50	Very stiff, greyish brown slightly sandy silty CLAY with frequent pockets of light brown, dark grey silty fine sand (<20mm) and occasional bioturbation	330	2.4	2.012	1.612	25	304	152	Brittle
BH101	UT	39	19.50	Very stiff, greyish brown slightly micaceous silty CLAY with occasional pockets of dark grey silty fine sand (<40mm) and frequent bioturbation	390	3.9	2.003	1.607	25	353	177	Brittle
BH101	UT	44	22.50	Very stiff, greyish brown slightly sandy slightly micaceous silty CLAY with frequent pockets of light brown and dark grey silty fine sand (<25mm), rare white flecks, foraminifera and occasional bioturbation	450	2.2	2.041	1.663	23	418	209	Brittle
BH101	UT	49	25.50	Very stiff, extremely closely fissured brownish grey CLAY with occasional pockets of light grey silty fine sand (<5mm) and occasional bioturbation	510	2.9	1.986	1.569	27	389	195	Brittle
BH101	UT	54	28.50	Very stiff, brownish grey slightly sandy slightly micaceous silty CLAY with occasional pockets of dark grey and light brown silty fine sand (<15mm), rare foraminifera and occasional bioturbation	570	3.6	2.012	1.602	26	421	211	Brittle

Date - samples received: 15/10/2019

Date - sample testing commenced: 12/11/2019

Checked/Approved by: KM

Date - sample testing completed: 14/11/2019

Date Approved: 15/11/2019

Approved Signatories: L Griffin LG (QA Technical & Lab Mngr) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

Summary Test Report - Undrained Triaxial Compression (Single-Stage)

BS 1377 : Part 7: 1990 Clause 8

Date Reported: 15/11/2019

Job No.: 19/3312

Site Location: Torridon House Car Park, Westminster

Client: City of Westminster

BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m2	Strain at failure %	Bulk Density Mg/m3	Dry Density Mg/m3	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments
BH101	UT	59	31.50	Very stiff, brownish grey slightly micaceous silty CLAY with rare pockets of dark grey silty fine sand (<20mm), rare pyrite nodules (<10mm), frequent bioturbation and rare foraminifera	630	3.6	2.035	1.627	25	416	208	Brittle
BH101	UT	64	34.50	Very stiff, brownish grey slightly micaceous silty CLAY with rare pockets of dark grey silty fine sand (<10mm), rare pyrite nodules (<10mm) and frequent bioturbation								Insufficient testable sample

Date - samples received: 15/10/2019

Date - sample testing commenced: 13/11/2019

Checked/Approved by: KM

Date - sample testing completed: 14/11/2019

Date Approved: 15/11/2019

Approved Signatories: L Griffin LG (QA Technical & Lab Mngr) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

Summary Test Report - Undrained Triaxial Compression (Single-Stage)

BS 1377 : Part 7: 1990 Clause 8

Date Reported: 15/11/2019

Job No.: 19/3312

Site Location: Torridon House Car Park, Westminster

Client: City of Westminster

BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m2	Strain at failure %	Bulk Density Mg/m3	Dry Density Mg/m3	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments
BH102	UT	9	2.50	Firm, extremely closely fissured brown mottled grey CLAY locally with frequent pockets of selenite crystals (<5mm)	50	9.8	1.918	1.452	32	89	45	Brittle
BH102	UT	13	4.50	Firm to stiff, extremely closely fissured brown mottled orangish brown CLAY with rare pockets of selenite crystals (<3mm)	90	4.3	1.926	1.478	30	176	88	Brittle
BH102	UT	18	7.50	Stiff, extremely closely fissured brown mottled orangish brown CLAY with rare pockets of yellowish brown silty fine sand (<15mm), pockets of selenite crystals (<5mm) and 2No pyrite nodules (<40mm)	150	6.1	1.998	1.576	27	235	118	Brittle
BH102	UT	23	10.50	Stiff, extremely closely fissured greyish brown slightly micaceous CLAY with occasional pockets of dark grey silty fine sand (<25mm), 1No pyrite nodule (50x15mm) and frequent bioturbation	210	4.6	1.976	1.547	28	232	116	Brittle
BH102	UT	28	13.50	Stiff, greyish brown slightly micaceous slightly sandy CLAY with rare pockets of light brown and dark grey silty fine sand (<20mm), locally with frequent foraminifera and occasional bioturbation	270	5.0	1.967	1.547	27	294	147	Brittle

Date - samples received: 11/10/2019

Date - sample testing commenced: 01/11/2019 Checked/Approved by: KM

Date - sample testing completed: 05/11/2019 Date Approved: 13/11/2019

Approved Signatories: L Griffin LG (QA Technical & Lab Mngr) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

Summary Test Report - Undrained Triaxial Compression (Single-Stage)

BS 1377 : Part 7: 1990 Clause 8

Date Reported: 15/11/2019

Job No.: 19/3312

Site Location: Torridon House Car Park, Westminster

Client: City of Westminster

BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m2	Strain at failure %	Bulk Density Mg/m3	Dry Density Mg/m3	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments
BH102	UT	32	16.50	Very stiff, greyish brown slightly sandy slightly micaceous silty CLAY with occasional pockets of dark grey and light brown silty fine sand (<10mm) and rare bioturbation	330	2.1	2.030	1.634	24	333	167	Brittle
BH102	UT	37	19.50	Very stiff, greyish brown slightly micaceous silty CLAY with frequent pockets of dark grey silty fine sand (<30mm), frequent bioturbation and 1No claystone fragment (10x10mm) at 19.57m	390	6.3	2.010	1.586	27	327	164	Brittle (Sample tested between 19.55 ad 19.75m)
BH102	UT	42	22.50	Very stiff, extremely closely fissured greyish brown slightly sandy slightly micaceous silty CLAY with occasional pockets of dark grey and light brown silty fine sand (<20mm), frequent bioturbation and rare foraminifera	450	4.8	2.009	1.611	25	501	251	Brittle
BH102	UT	47	25.50	Very stiff, extremely closely fissured greyish brown slightly micaceous CLAY with rare pockets of dark grey silty fine sand (<20mm), white flecks and frequent bioturbation	510	5.2	2.008	1.571	28	299	150	Brittle
BH102	UT	52	28.50	Very stiff, extremely closely to very closely fissured greyish brown slightly micaceous silty CLAY with rare pockets of dark grey silt (<20mm) and frequent bioturbation	570	4.8	2.002	1.571	27	404	202	Brittle

Date - samples received: 11/10/2019

Date - sample testing commenced: 04/11/2019

Checked/Approved by: KM

Date - sample testing completed: 06/11/2019

Date Approved: 13/11/2019

Approved Signatories: L Griffin LG (QA Technical & Lab Mngr) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

Summary Test Report - Undrained Triaxial Compression (Single-Stage)

BS 1377 : Part 7: 1990 Clause 8

Date Reported: 15/11/2019

Job No.: 19/3312

Site Location: Torridon House Car Park, Westminster

Client: City of Westminster

BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m2	Strain at failure %	Bulk Density Mg/m3	Dry Density Mg/m3	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments
BH102	UT	57	31.50	Very stiff, greyish brown slightly sandy slightly micaceous silty CLAY with occasional pockets of dark grey and light brown silty fine sand (<15mm), rare pyrite nodules (<10mm), foraminifera and frequent bioturbation	630	8.0	2.028	1.625	25	260	130	Brittle
BH102	UT	62	34.50	Very stiff, greyish brown slightly micaceous sandy silty CLAY with rare pockets of light brown silty fine sand (<10mm), white flecks and frequent bioturbation	690	4.9	1.966	1.577	25	408	204	Brittle

Date - samples received: 11/10/2019

Date - sample testing commenced: 01/11/2019

Checked/Approved by: KM

Date - sample testing completed: 05/11/2019

Date Approved: 13/11/2019

Approved Signatories: L Griffin LG (QA Technical & Lab Mngr) – K Mazerant KM (Lab Mngr)

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13. CHEMICAL LABORATORY TEST RESULTS

Certificate of Analysis

Certificate Number	19-20616-1
	31-Oct-19
Client	Concept Engineering Consultants Ltd Concept Coventry Office Unit D Herald Way Binley Industrial Estate Coventry CV3 2RQ
Our Reference	19-20616-1
Client Reference	19/3312
Order No	CL2130
Contract Title	Torridon House
Description	4 Soil samples.
Date Received	11-Oct-19
Date Started	15-Oct-19
Date Completed	31-Oct-19
Test Procedures	Identified by prefix DETSn (details on request).
Notes	This test supersedes 19-20616, extra testing. Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Adam Fenwick
Contracts Manager

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Summary of Chemical Analysis
Soil Samples

Our Ref 19-20616-1
Client Ref 19/3312
Contract Title Torridon House

			Lab No	1581285	1581286	1581287	1581288
			Sample ID	BH102	BH102	WS103	WS103
			Depth	0.50	0.70	0.25	0.50
			Other ID	1	2	1	2
			Sample Type	ES	ES	ES	ES
			Sampling Date	n/s	n/s	n/s	n/s
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg	3.9	19	6.0	13
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	0.2	0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	6.5	66	14	48
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	7.2	41	11	26
Lead	DETSC 2301#	0.3	mg/kg	21	23	25	15
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	6.2	54	10	41
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.6
Zinc	DETSC 2301#	1	mg/kg	30	100	28	69
Inorganics							
pH	DETSC 2008#		pH	11.4	8.6	11.3	8.3
Organic matter	DETSC 2002#	0.1	%	0.4	0.4	0.8	0.6
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	120	380	220	230
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.33	0.08	0.27	0.10
Petroleum Hydrocarbons							
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10
PAHs							
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.3	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	0.4	< 0.1

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 19-20616-1
Client Ref 19/3312
Contract Title Torridon House

			Lab No	1581285	1581286	1581287	1581288
			Sample ID	BH102	BH102	WS103	WS103
			Depth	0.50	0.70	0.25	0.50
			Other ID	1	2	1	2
			Sample Type	ES	ES	ES	ES
			Sampling Date	n/s	n/s	n/s	n/s
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Pyrene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	0.4	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	2.2	< 1.6
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Asbestos Analysis
Soil Samples

Our Ref 19-20616-1
Client Ref 19/3312
Contract Title Torridon House

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1581285	BH102 1 0.50	SOIL	NAD	none	Luke Donaghy
1581286	BH102 2 0.70	SOIL	NAD	none	Luke Donaghy
1581287	WS103 1 0.25	SOIL	NAD	none	Luke Donaghy
1581288	WS103 2 0.50	SOIL	NAD	none	Luke Donaghy

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 19-20616-1
Client Ref 19/3312
Contract Torridon House

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1581285	BH102 0.50 SOIL		GJ 250ml, GJ 60ml, PT 1L	Sample date not supplied, Anions 2:1 (365 days), Aliphatics/Aromatics (14 days), BTEX (14 days), Chromium, Hexavalent (365 days), Mercury (365 days), Total Sulphate ICP (730 days), Metals ICP (365 days), Metals ICP Prep (365 days), Kone Cr6 (1095 days), Naphthalene (14 days), Organic Matter (Manual) (28 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	
1581286	BH102 0.70 SOIL		GJ 250ml, GJ 60ml, PT 1L	Sample date not supplied, Anions 2:1 (365 days), Aliphatics/Aromatics (14 days), BTEX (14 days), Chromium, Hexavalent (365 days), Mercury (365 days), Total Sulphate ICP (730 days), Metals ICP (365 days), Metals ICP Prep (365 days), Kone Cr6 (1095 days), Naphthalene (14 days), Organic Matter (Manual) (28 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	
1581287	WS103 0.25 SOIL		GJ 250ml, GJ 60ml, PT 1L	Sample date not supplied, Anions 2:1 (365 days), Aliphatics/Aromatics (14 days), BTEX (14 days), Chromium, Hexavalent (365 days), Mercury (365 days), Total Sulphate ICP (730 days), Metals ICP (365 days), Metals ICP Prep (365 days), Kone Cr6 (1095 days), Naphthalene (14 days), Organic Matter (Manual) (28 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	
1581288	WS103 0.50 SOIL		GJ 250ml, GJ 60ml, PT 1L	Sample date not supplied, Anions 2:1 (365 days), Aliphatics/Aromatics (14 days), BTEX (14 days), Chromium, Hexavalent (365 days), Mercury (365 days), Total Sulphate ICP (730 days), Metals ICP (365 days), Metals ICP Prep (365 days), Kone Cr6 (1095 days), Naphthalene (14 days), Organic Matter (Manual) (28 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Information in Support of the Analytical Results

Our Ref 19-20616-1
Client Ref 19/3312
Contract Torridon House

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.
Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Certificate of Analysis

Certificate Number	19-20641-1
	05-Nov-19
Client	Concept Engineering Consultants Ltd Concept Coventry Office Unit D Herald Way Binley Industrial Estate Coventry CV3 2RQ
Our Reference	19-20641-1
Client Reference	19/3312
Order No	(not supplied)
Contract Title	Torridon House
Description	8 Soil samples.
Date Received	14-Oct-19
Date Started	15-Oct-19
Date Completed	05-Nov-19
Test Procedures	Identified by prefix DETSn (details on request).
Notes	**This report supersedes 19-20641, extra testing.**

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Adam Fenwick
Contracts Manager

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Summary of Chemical Analysis
Soil Samples

Our Ref 19-20641-1
Client Ref 19/3312
Contract Title Torridon House

	Lab No	1581448	1581449	1581450	1581451	1581452	1581453
	Sample ID	BH101	BH101	WS104A	WS104A	WS102	WS102
	Depth	0.50	1.00	0.25	0.70	0.20	0.60
	Other ID						
	Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampling Date	10/10/19	10/10/19	09/10/19	09/10/19	09/10/19	09/10/19
	Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Asbestos Quantification	DETSC 1102	0		Y					
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	13	13	7.2	8.6	8.0	11
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	0.1	< 0.1	< 0.1	0.6	0.3
Chromium	DETSC 2301#	0.15	mg/kg	54	53	21	37	12	36
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	22	26	13	18	11	24
Lead	DETSC 2301#	0.3	mg/kg	110	270	41	34	76	150
Mercury	DETSC 2325#	0.05	mg/kg	0.07	0.05	0.06	< 0.05	0.07	0.09
Nickel	DETSC 2301#	1	mg/kg	29	44	14	30	8.9	29
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	89	90	53	75	75	88
Inorganics									
pH	DETSC 2008#		pH	8.2	8.5	8.9	8.6	10.4	9.0
Organic matter	DETSC 2002#	0.1	%	0.6	0.5	0.4	0.5	3.0	1.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	78	95	68	54	120	150
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.03	0.03	0.04	0.02	0.08	0.04
Petroleum Hydrocarbons									
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	4.4	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2	24	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	39	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4	44	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	110	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	1.4	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	29	6.9
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6	110	23
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4	190	73
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	330	100
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	440	100
PAHs									
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	0.4	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	0.7	0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	0.5	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.3	< 0.1	3.2	0.9
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.1	< 0.1	1.3	0.3
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.4	< 0.1	4.5	1.7

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 19-20641-1
Client Ref 19/3312
Contract Title Torridon House

			Lab No	1581448	1581449	1581450	1581451	1581452	1581453
			Sample ID	BH101	BH101	WS104A	WS104A	WS102	WS102
			Depth	0.50	1.00	0.25	0.70	0.20	0.60
			Other ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	10/10/19	10/10/19	09/10/19	09/10/19	09/10/19	09/10/19
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.3	< 0.1	5.2	1.6
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.3	< 0.1	2.0	0.8
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1	1.5	0.8
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1	2.5	0.9
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1	1.1	0.5
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1	2.7	0.7
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	1.6	0.5
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	0.7	0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	1.7	0.5
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	2.5	< 1.6	30	9.7
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.9	0.4	0.4	0.4	0.7	0.6

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Summary of Chemical Analysis
Soil Samples

Our Ref 19-20641-1
Client Ref 19/3312
Contract Title Torridon House

			Lab No	1581454	1581455
			Sample ID	WS101	WS101
			Depth	0.30	0.70
			Other ID		
			Sample Type	SOIL	SOIL
			Sampling Date	10/10/19	10/10/19
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Asbestos Quantification	DETSC 1102	0			
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	4.6	14
Cadmium	DETSC 2301#	0.1	mg/kg	0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	8.6	63
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	10	29
Lead	DETSC 2301#	0.3	mg/kg	100	28
Mercury	DETSC 2325#	0.05	mg/kg	0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	8.8	45
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	57	91
Inorganics					
pH	DETSC 2008#		pH	9.6	8.2
Organic matter	DETSC 2002#	0.1	%	1.3	0.2
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	67	350
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.09	0.09
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg	< 10	< 10
PAHs					
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	0.3	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	0.2	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	1.8	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	0.6	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	3.6	< 0.1

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 19-20641-1
Client Ref 19/3312
Contract Title Torridon House

			Lab No	1581454	1581455
			Sample ID	WS101	WS101
			Depth	0.30	0.70
			Other ID		
			Sample Type	SOIL	SOIL
			Sampling Date	10/10/19	10/10/19
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Pyrene	DETSC 3301	0.1	mg/kg	3.7	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	2.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	2.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	2.0	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	1.2	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	2.5	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	1.8	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	0.3	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	1.5	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	24	< 1.6
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.9	0.4

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Asbestos Analysis
Soil Samples

Our Ref 19-20641-1
Client Ref 19/3312
Contract Title Torridon House

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1581448	BH101 0.50	SOIL	Chrysotile	Bundles of Chrysotile present	Jordan Eadington
1581449	BH101 1.00	SOIL	NAD	none	Jordan Eadington
1581450	WS104A 0.25	SOIL	NAD	none	Jordan Eadington
1581451	WS104A 0.70	SOIL	NAD	none	Jordan Eadington
1581452	WS102 0.20	SOIL	NAD	none	Jordan Eadington
1581453	WS102 0.60	SOIL	NAD	none	Jordan Eadington
1581454	WS101 0.30	SOIL	NAD	none	Jordan Eadington
1581455	WS101 0.70	SOIL	NAD	none	Jordan Eadington

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Summary of Asbestos Quantification Analysis
Soil Samples

Our Ref 19-20641-1
Client Ref 19/3312
Contract Title Torridon House

		Lab No	1581448
		Sample ID	BH101
		Depth	0.50
		Other ID	
		Sample Type	SOIL
		Sampling Date	10/10/19
		Sampling Time	
Test	**Method**	**Units**	
Total Mass% Asbestos (a+b+c)	DETSC 1102	Mass %	**0.006**
Gravimetric Quantification (a)	DETSC 1102	Mass %	na
Detailed Gravimetric Quantification (b)	DETSC 1102	Mass %	0.006
Quantification by PCOM (c)	DETSC 1102	Mass %	na
Potentially Respirable Fibres (d)	DETSC 1102	Fibres/g	na
Breakdown of Gravimetric Analysis (a)			
Mass of Sample		g	155.94
ACMs present*		type	
Mass of ACM in sample		g	
% ACM by mass		%	
% asbestos in ACM		%	
% asbestos in sample		%	
Breakdown of Detailed Gravimetric Analysis (b)			
% Amphibole bundles in sample		Mass %	na
% Chrysotile bundles in sample		Mass %	0.006
Breakdown of PCOM Analysis (c)			
% Amphibole fibres in sample		Mass %	na
% Chrysotile fibres in sample		Mass %	na
Breakdown of Potentially Respirable Fibre Analysis (d)			
Amphibole fibres		Fibres/g	na
Chrysotile fibres		Fibres/g	na

* Denotes test or material description outside of UKAS accreditation.
% asbestos in Asbestos Containing Materials (ACMs) is determined by
by reference to HSG 264.
Recommended sample size for quantification is approximately 1kg
# denotes deviating sample

Information in Support of the Analytical Results

Our Ref 19-20641-1
Client Ref 19/3312
Contract Torridon House

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1581448	BH101 0.50 SOIL	10/10/19	GJ 250ml, GJ 60ml, PT 1L		
1581449	BH101 1.00 SOIL	10/10/19	GJ 250ml, GJ 60ml, PT 1L		
1581450	WS104A 0.25 SOIL	09/10/19	GJ 250ml, GJ 60ml, PT 1L		
1581451	WS104A 0.70 SOIL	09/10/19	GJ 250ml, GJ 60ml, PT 1L		
1581452	WS102 0.20 SOIL	09/10/19	GJ 250ml, GJ 60ml, PT 1L		
1581453	WS102 0.60 SOIL	09/10/19	GJ 250ml, GJ 60ml, PT 1L		
1581454	WS101 0.30 SOIL	10/10/19	GJ 250ml, GJ 60ml, PT 1L		
1581455	WS101 0.70 SOIL	10/10/19	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Ana Gonzalez
Concept Site Investigations
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Analytical Report Number : 19-70421

Project / Site name:	Torridon House	**Samples received on:**	06/11/2019
Your job number:	19-3312	**Samples instructed on:**	06/11/2019
Your order number:	CL2149	**Analysis completed by:**	14/11/2019
Report Issue Number:	1	**Report issued on:**	15/11/2019
Samples Analysed:	5 water samples		

Signed:

Zina Abdul Razzak
Senior Quality 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

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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: 19-70421

Project / Site name: Torridon House

Your Order No: CL2149

Lab Sample Number				1354445	1354446	1354447	1354448	1354449
Sample Reference				BH101	WS101	WS102	WS103	WS104
Sample Number				01A	01A	01A	01A	01A
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				05/11/2019	05/11/2019	05/11/2019	05/11/2019	05/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	7.3	7.4	8.0	8.2	7.7
Electrical Conductivity at 20 °C	µS/cm	10	ISO 17025	4300	4800	1100	1900	1900
Sulphate as SO_4	µg/l	45	ISO 17025	2350000	3020000	461000	735000	924000
Sulphate as SO_4	mg/l	0.045	ISO 17025	2350	3020	461	735	924
Chloride	mg/l	0.15	ISO 17025	250	200	37	180	120
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	620	< 15	65	120	78
Alkalinity	mgCaCO3/l	3	ISO 17025	720	370	69	91	150
Total Phenols								
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.96	0.33	2.56	1.96	0.29
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.02	0.04	< 0.02	0.03	< 0.02
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	6.6	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.2	ISO 17025	3.8	0.6	4.7	0.6	0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	6.2	2.3	6.5	3.5	3.3
Lead (dissolved)	µg/l	0.2	ISO 17025	0.4	< 0.2	< 0.2	< 0.2	0.9
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	15	2.1	1.9	2.4	3.5
Selenium (dissolved)	µg/l	0.6	ISO 17025	4.9	12	1.9	34	2.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	3.1	3.4	8.3	1.9	7.1

Analytical Report Number: 19-70421

Project / Site name: Torridon House

Your Order No: CL2149

Lab Sample Number				1354445	1354446	1354447	1354448	1354449
Sample Reference				BH101	WS101	WS102	WS103	WS104
Sample Number				01A	01A	01A	01A	01A
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				05/11/2019	05/11/2019	05/11/2019	05/11/2019	05/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

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

Analytical Report Number : 19-70421

Project / Site name: Torridon House

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Alkalinity in Water (by discreet analyser)	Determination of Alkalinity by discreet analyser (colorimetry). Accredited matrices: SW, PW, GW.	In house method based on MEWAM & USEPA Method 310.2.	L082-PL	W	ISO 17025
Ammoniacal Nitrogen as N in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Electrical conductivity at 20oC of water	Determination of electrical conductivity in water by electrometric measurement. Accredited Matrices SW, GW, PW	In-house method	L031-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE

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.

14. PHOTOGRAPHS

Unit 8, Warple Mews
Warple Way
London W3 0RF

CONCEPT SITE INVESTIGATIONS

Tel: 020 8811 2880
Fax: 020 8811 2881
email: si@conceptconsultants.co.uk

Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	OP101
Carried out for	City of Westminster	Date		Photograph	01 & 02

Photograph No 01

Photograph No 02

Unit 8, Warple Mews
Warple Way
London W3 0RF

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Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	OP101
Carried out for	City of Westminster	Date		Photograph	03 & 04

Photograph No 03

Photograph No 04

Unit 8, Warple Mews
Warple Way
London W3 0RF

CONCEPT SITE INVESTIGATIONS

Tel: 020 8811 2880
Fax: 020 8811 2881
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Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	OP102
Carried out for	City of Westminster	Date		Photograph	05 & 06

Photograph No 05

Photograph No 06

Unit 8, Warple Mews
Warple Way
London W3 0RF

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Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	OP102
Carried out for	City of Westminster	Date		Photograph	07 & 08

Photograph No 07

Photograph No 08

Unit 8, Warple Mews
Warple Way
London W3 0RF

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Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	OP103
Carried out for	City of Westminster	Date		Photograph	09 & 10

Photograph No 09

Photograph No 10

Unit 8, Warple Mews
Warple Way
London W3 0RF

CONCEPT SITE INVESTIGATIONS

Tel: 020 8811 2880
Fax: 020 8811 2881
email: si@conceptconsultants.co.uk

Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	OP104
Carried out for	City of Westminster	Date		Photograph	11 & 12

Photograph No 11

Photograph No 12

Unit 8, Warple Mews
Warple Way
London W3 0RF

CONCEPT SITE INVESTIGATIONS

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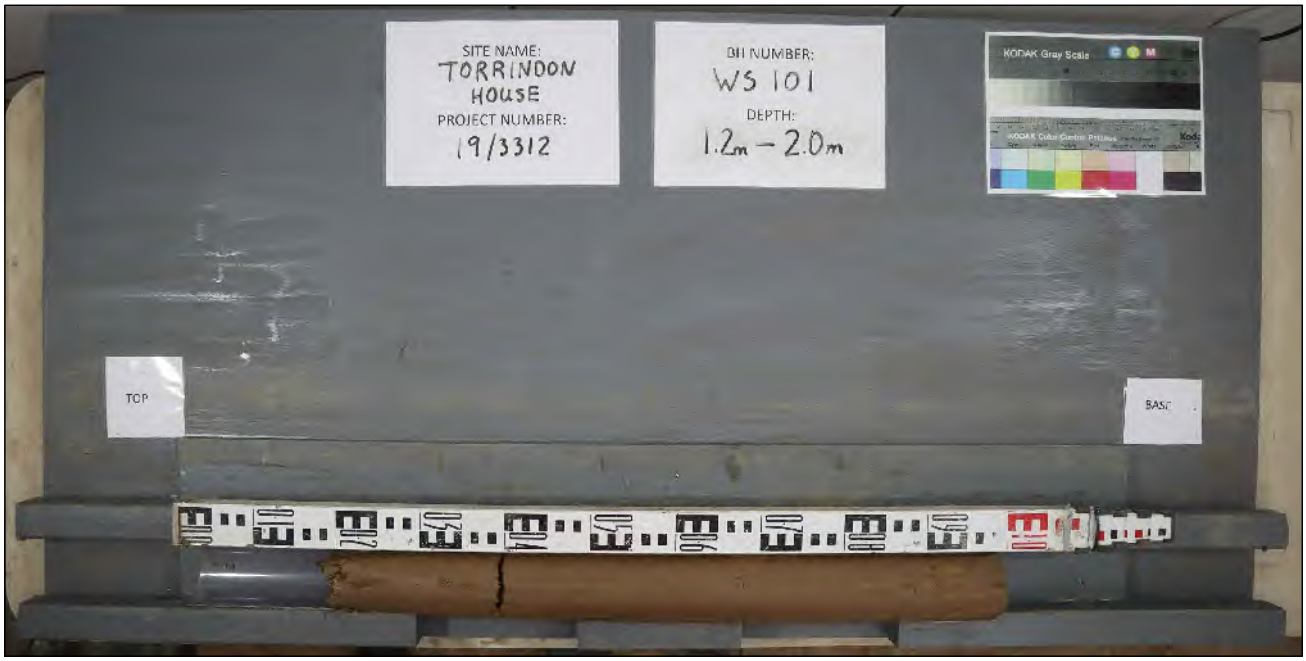
Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS101
Carried out for	City of Westminster	Date		Photograph	01 & 02



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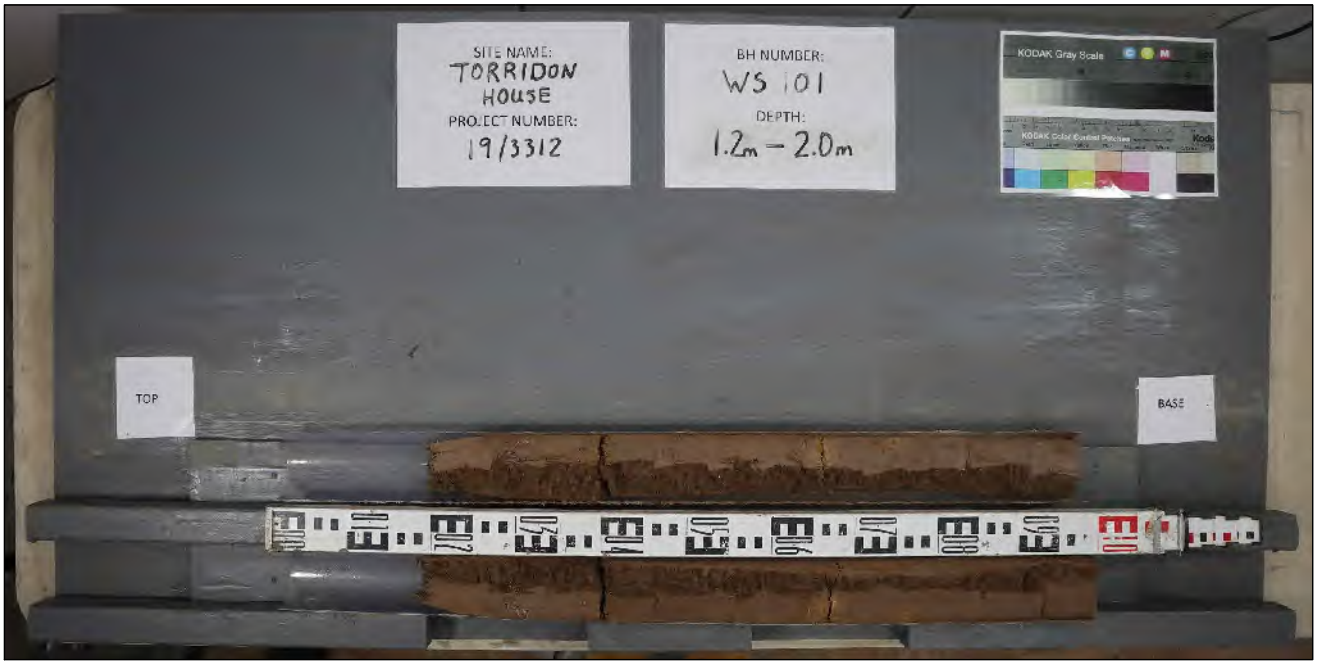

Photograph No 02

Unit 8, Warple Mews
Warple Way
London W3 0RF

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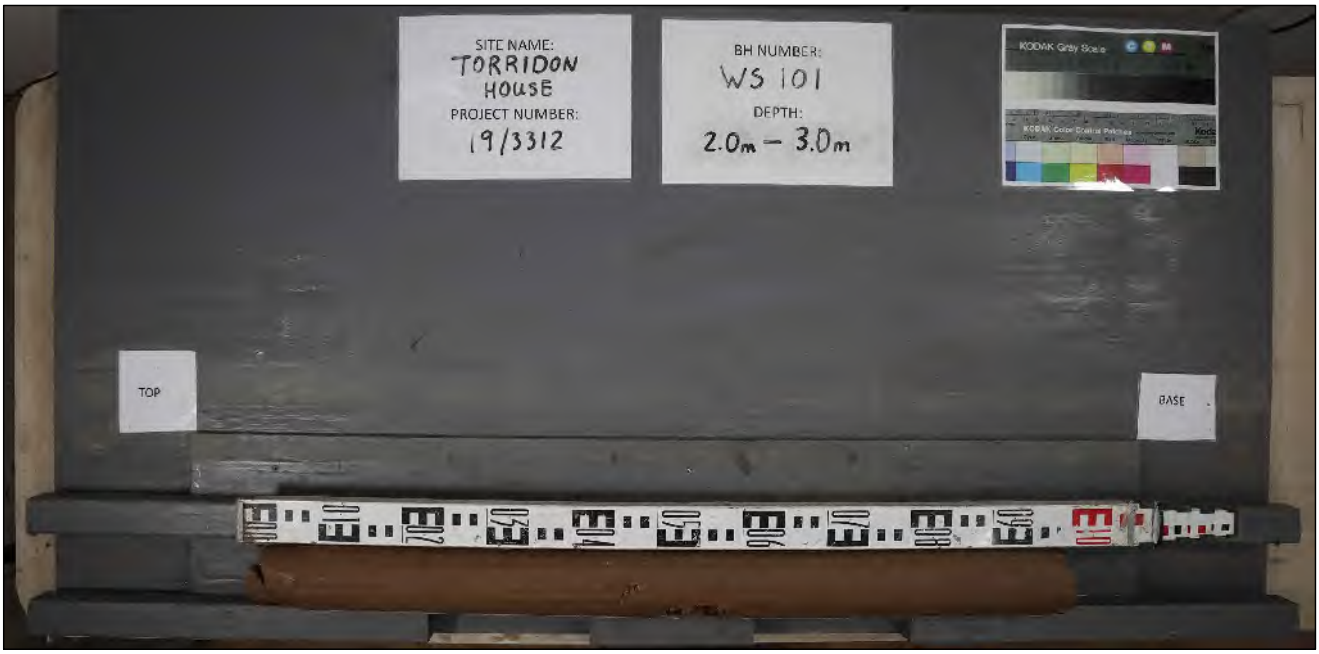
Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS101
Carried out for	City of Westminster	Date		Photograph	03 & 04



Photograph No 03

Photograph No 04

Unit 8, Warple Mews
Warple Way
London W3 0RF

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Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS101
Carried out for	City of Westminster	Date		Photograph	05 & 06

Photograph No 05

Photograph No 06

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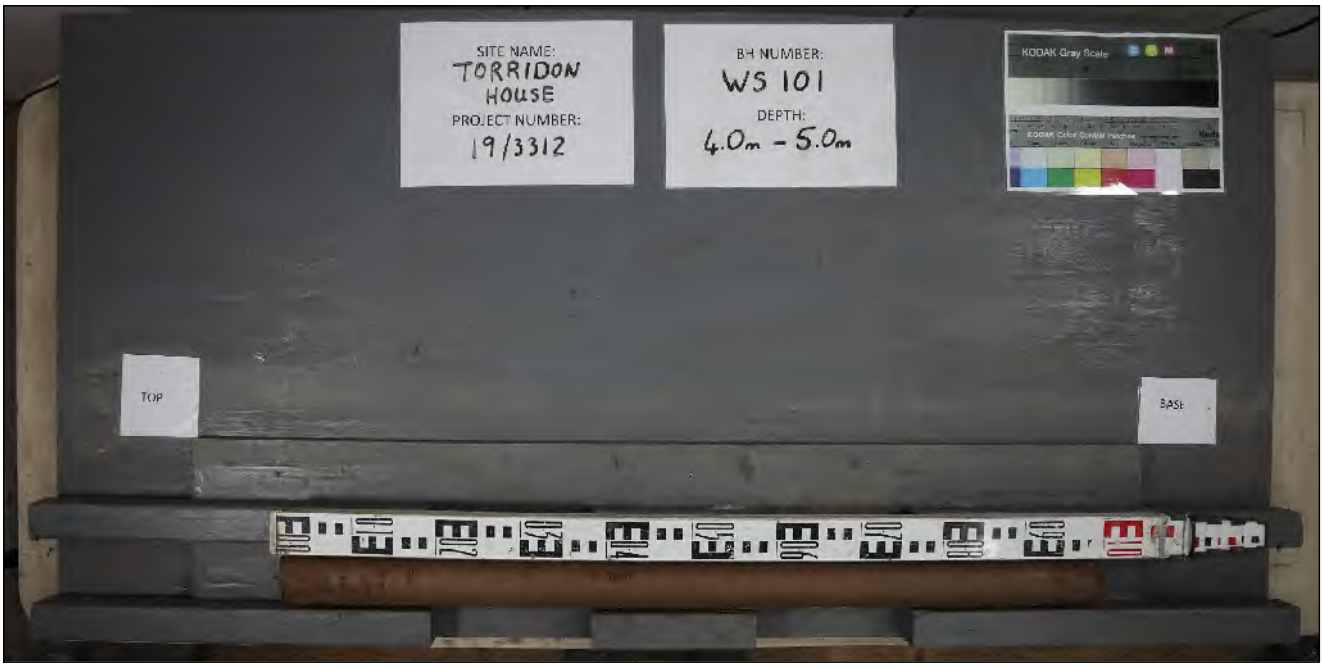
Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS101
Carried out for	City of Westminster	Date		Photograph	07 & 08



Photograph No 07

Photograph No 08

Unit 8, Warple Mews
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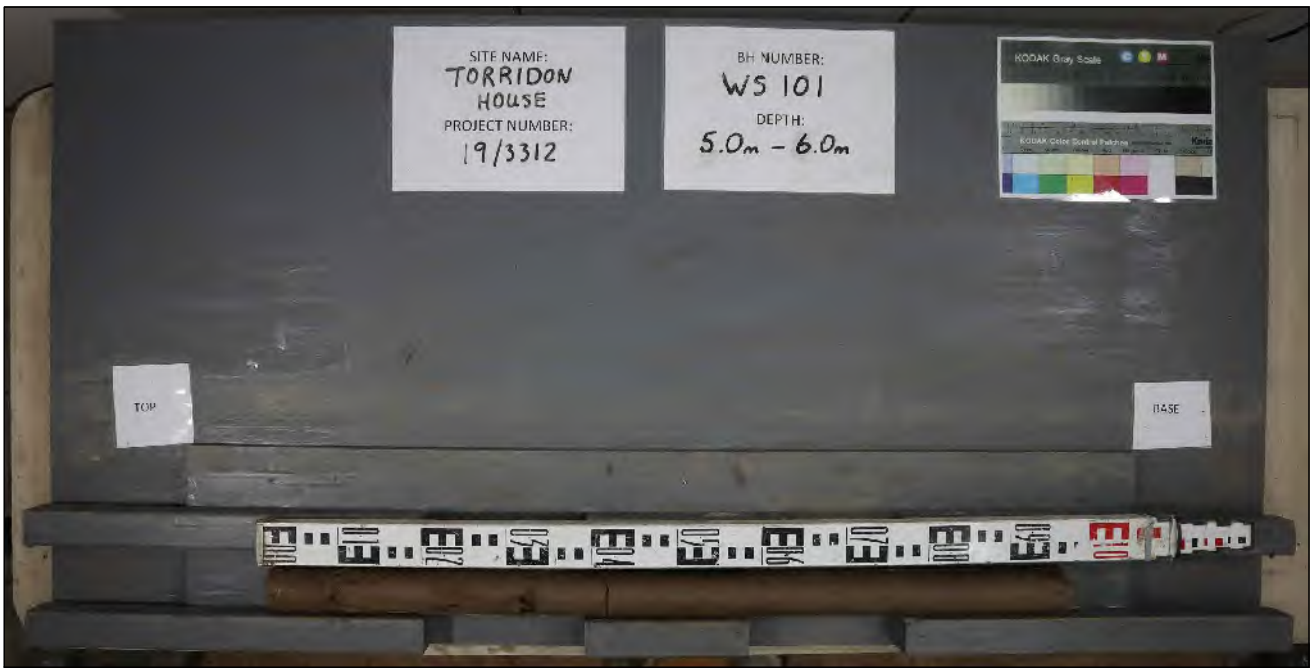
Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS101
Carried out for	City of Westminster	Date		Photograph	09 & 10



Photograph No 09

Photograph No 10

Unit 8, Warple Mews
Warple Way
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Tel: 020 8811 2880
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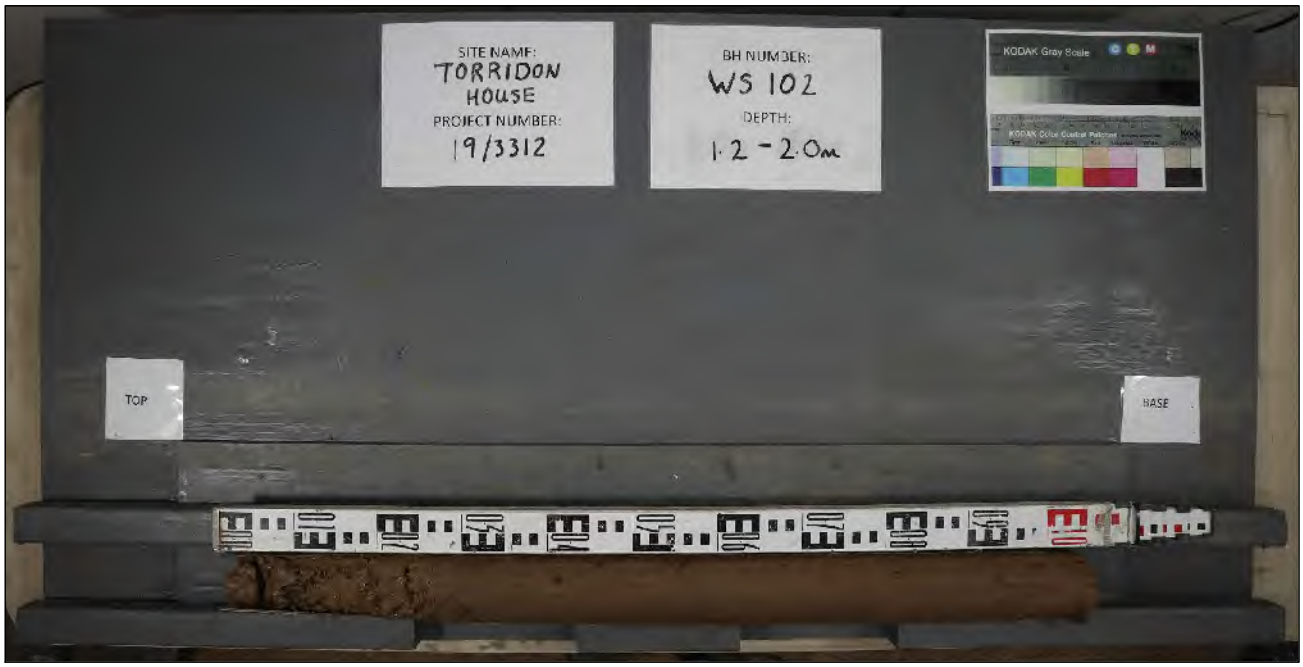
Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS102
Carried out for	City of Westminster	Date		Photograph	11 & 12



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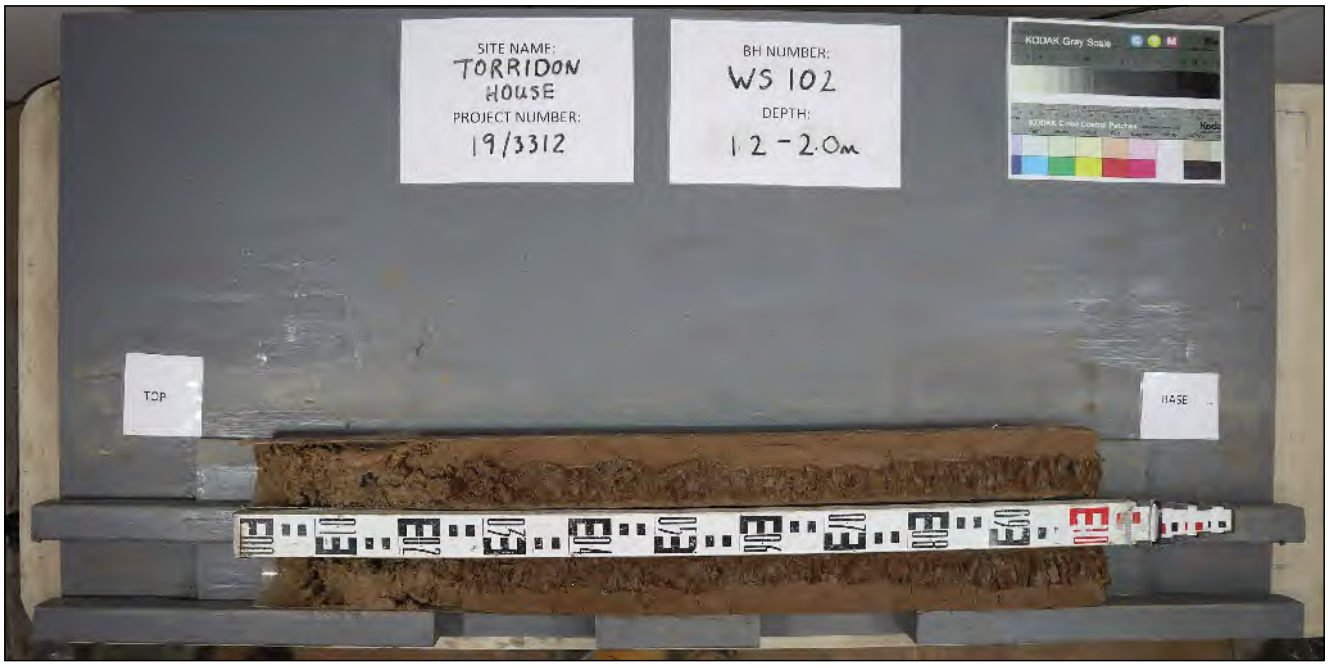

Photograph No 12

Unit 8, Warple Mews
Warple Way
London W3 0RF

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Tel: 020 8811 2880
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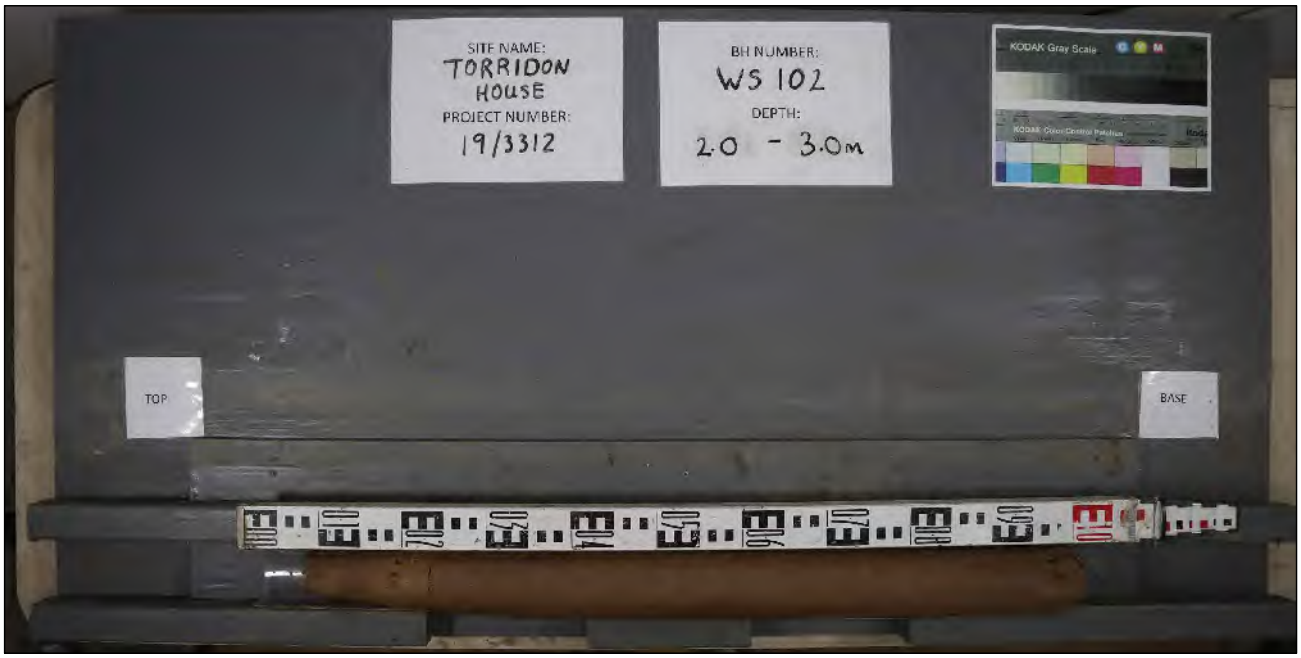
Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS102
Carried out for	City of Westminster	Date		Photograph	13 & 14



Photograph No 13

Photograph No 14

Unit 8, Warple Mews
Warple Way
London W3 0RF

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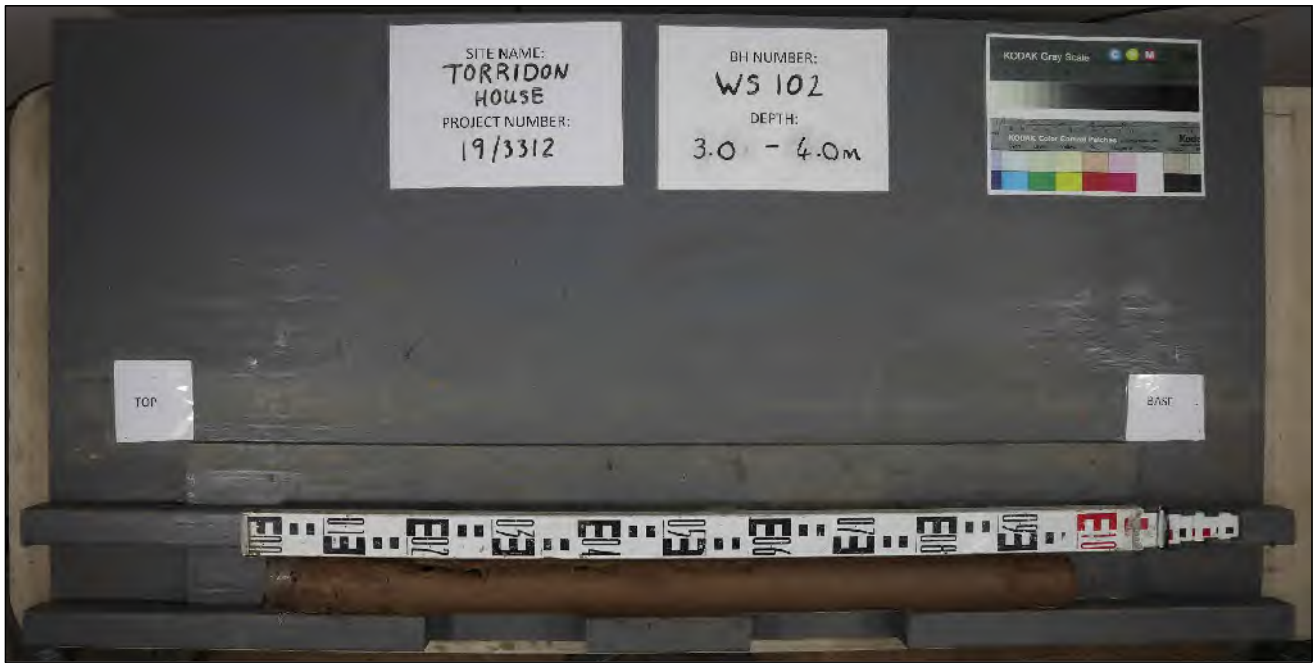
Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS102
Carried out for	City of Westminster	Date		Photograph	15 & 16



Photograph No 15

Photograph No 16

Unit 8, Warple Mews
Warple Way
London W3 0RF

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Tel: 020 8811 2880
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Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS102
Carried out for	City of Westminster	Date		Photograph	17 & 18

Photograph No 17

Photograph No 18

Unit 8, Warple Mews
Warple Way
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Tel: 020 8811 2880
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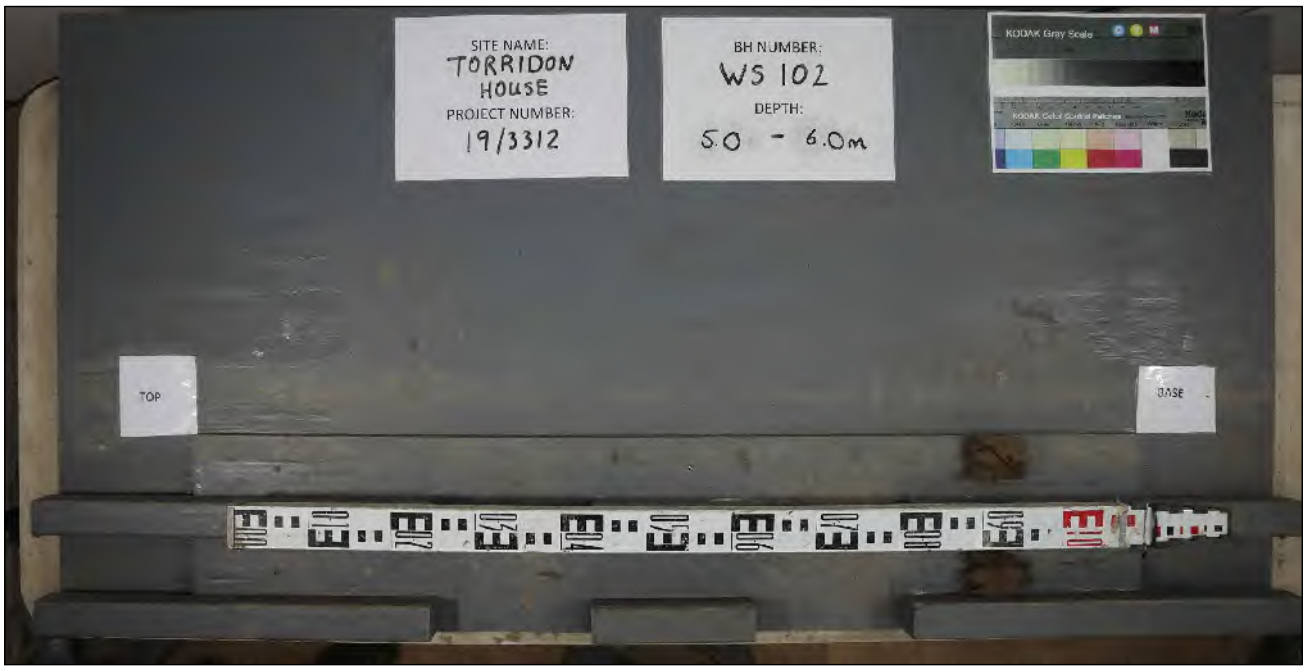
Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS102
Carried out for	City of Westminster	Date		Photograph	19 & 20

Photograph No 19



Photograph No 20

Unit 8, Warple Mews
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Tel: 020 8811 2880
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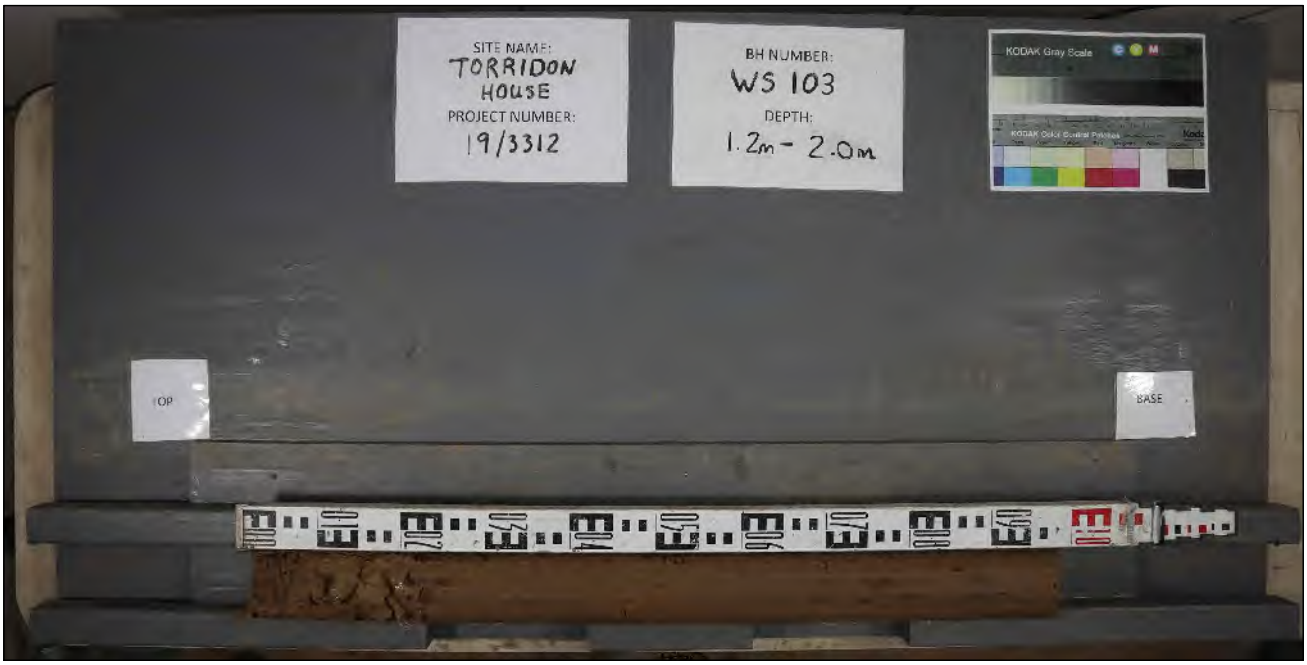
Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS103
Carried out for	City of Westminster	Date		Photograph	21 & 22



Photograph No 21

Photograph No 22

Unit 8, Warple Mews
Warple Way
London W3 0RF

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Tel: 020 8811 2880
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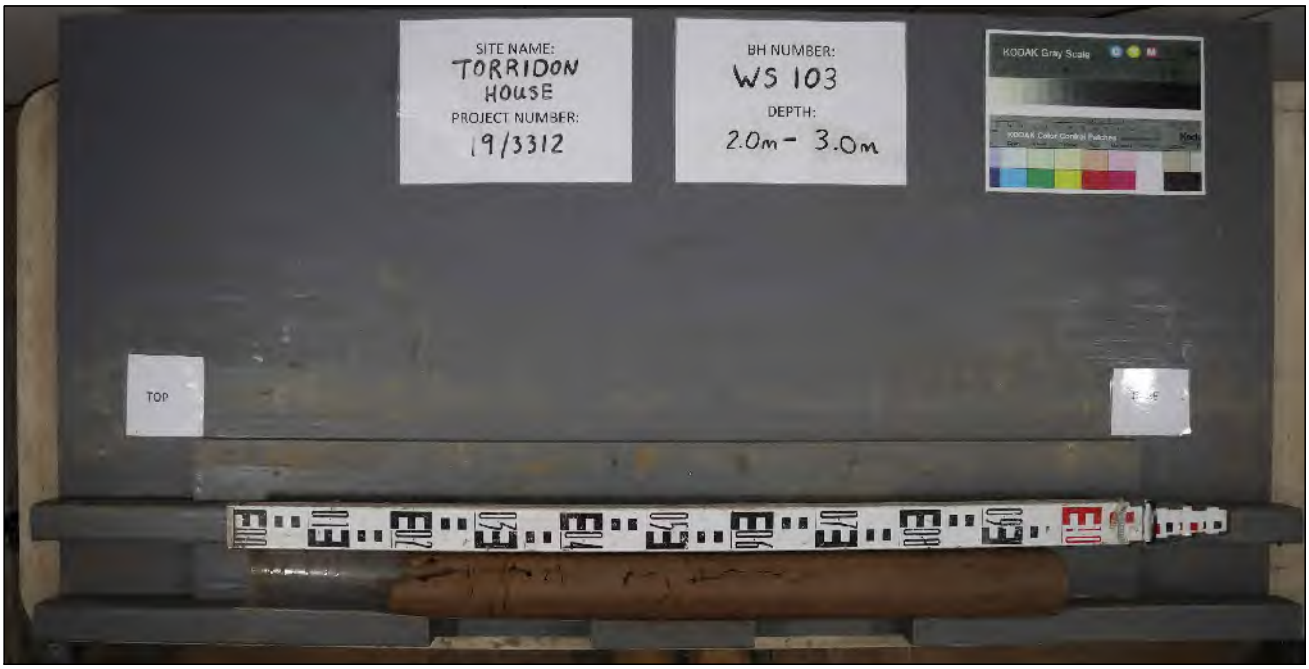
Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS103
Carried out for	City of Westminster	Date		Photograph	23 & 24



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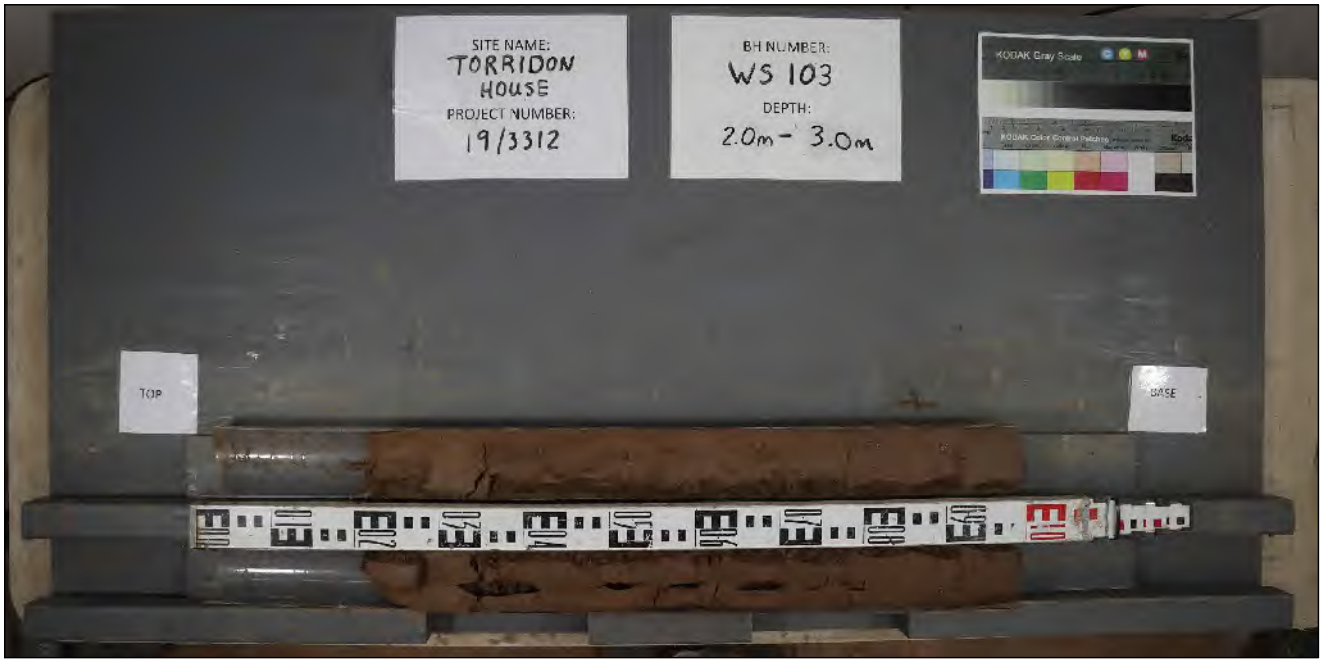

Photograph No 24

Unit 8, Warple Mews
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Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS103
Carried out for	City of Westminster	Date		Photograph	25 & 26

Photograph No 25

Photograph No 26

Unit 8, Warple Mews
Warple Way
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Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS103
Carried out for	City of Westminster	Date		Photograph	27 & 28

Photograph No 27

Photograph No 28

Unit 8, Warple Mews
Warple Way
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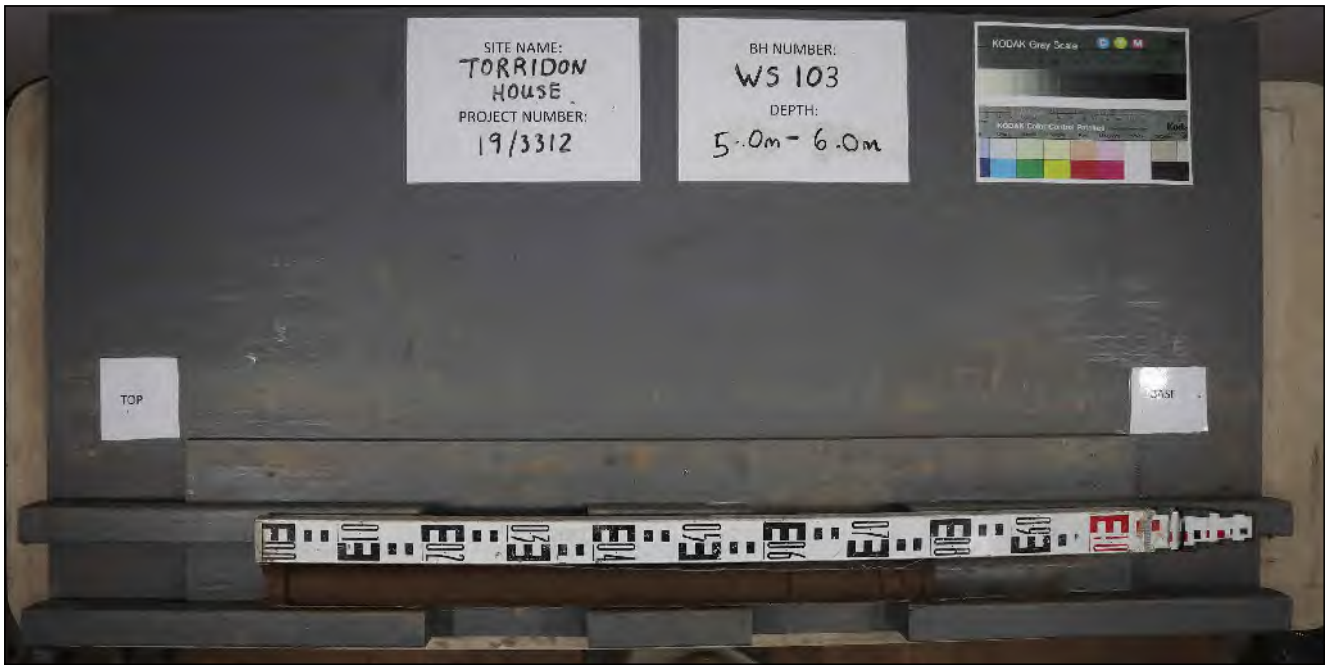
email: si@conceptconsultants.co.uk

Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS103
Carried out for	City of Westminster	Date		Photograph	29 & 30



Photograph No 29

Photograph No 30

Unit 8, Warple Mews
Warple Way
London W3 0RF

CONCEPT SITE INVESTIGATIONS

Tel: 020 8811 2880
Fax: 020 8811 2881
email: si@conceptconsultants.co.uk

Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS104A
Carried out for	City of Westminster	Date		Photograph	31 & 32

Photograph No 31

Photograph No 32

Unit 8, Warple Mews
Warple Way
London W3 0RF

CONCEPT SITE INVESTIGATIONS

Tel: 020 8811 2880
Fax: 020 8811 2881
email: si@conceptconsultants.co.uk

Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS104A
Carried out for	City of Westminster	Date		Photograph	33 & 34

Photograph No 33

Photograph No 34

Unit 8, Warple Mews
Warple Way
London W3 0RF

CONCEPT SITE INVESTIGATIONS

Tel: 020 8811 2880
Fax: 020 8811 2881
email: si@conceptconsultants.co.uk

Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS104A
Carried out for	City of Westminster	Date		Photograph	35 & 36

Photograph No 35

Photograph No 36

Unit 8, Warple Mews
Warple Way
London W3 0RF

CONCEPT SITE INVESTIGATIONS

Tel: 020 8811 2880
Fax: 020 8811 2881
email: si@conceptconsultants.co.uk

Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS104A
Carried out for	City of Westminster	Date		Photograph	37 & 38

Photograph No 37

Photograph No 38

Unit 8, Warple Mews
Warple Way
London W3 0RF

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email: si@conceptconsultants.co.uk

Site Name	Torridon House Car Park, Westminster	Job No.	19/3312	HOLE	WS104A
Carried out for	City of Westminster	Date		Photograph	39 & 40

Photograph No 39

Photograph No 40