

SITE INVESTIGATION REPORT

55 Fitzroy Park, London N6 6JA

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SITE INVESTIGATION REPORT

55 Fitzroy Park, London N6 6JA

Prepared for: LBH Wembley Engineering

Concept: 17/3003 - FR 00

15/09/2017

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1. PROJECT PARTICULARS

Site Location:	55 Fitzroy Park, London, N6 6JA
Client:	LBH Wembley Engineering
Fieldwork:	24/07/2017 – 04/08/2017
Laboratory Work:	17/08/2017 – 13/09/2017

2. PURPOSE AND SCOPE OF WORKS

The site consists of two houses and a garden, the work was undertaken in the garden.

The site is to be redeveloped through the demolition of the existing houses and the construction of five new houses.

The scope of the works comprised the following:

- 2 No. Cable Percussion Boreholes to a maximum depth of 30.00m;
- 14 No. Dynamic Sampling Boreholes to a depth of 5.00m;
- Logging and Photographing;
- Geotechnical Testing.

Table 1 – Exploratory Hole List

Hole ID	Hole Type	Depth (m)
BH01	CP	30.00
BH02	CP	30.00
BH04	IP	1.20
BH06	DS	5.00
BH07	DS	5.00
BH08	DS	2.00
BH10	DS	4.00
BH11	DS	5.00
BH12	DS	3.00

Hole ID	Hole Type	Depth (m)
BH13	DS	5.00
BH14	DS	5.00
BH15	DS	4.00
BH17	DS	2.00
BH18	DS	3.60
BH19	DS	5.00
BH20	DS	2.00
BH21	DS	3.00

Key

CP	–Cable Percussion Borehole
DS	–Dynamic Sampling Borehole
IP	–Hand Excavated Inspection Pit

3. DESCRIPTION OF WORKS

The works were carried out in accordance with the LBH Wembley Engineering Specification “No. 55 Fitzroy Park - Specification for Ground Investigation E4269SI R1.0” dated 15th March 2017 and with the Concept Method Statement (17/3003 MS Rev 00, 11/07/2017).

The site is located to the east of Hampstead Heath. The centre of the site can be approximately located at National Grid reference TQ 27799 86944.

4. INVESTIGATION METHODS

4.1 Inspection Pits

Inspection pits were hand excavated to a maximum depth of 1.20m at all exploratory borehole locations. BH04 was aborted at 1.20m depth due to soft, uneven ground unsuitable for the drilling rig.

4.1 Cable Percussion Drilling

2 No. Cable Percussion Boreholes (BH01 & BH02) were drilled to a maximum depth of 30.00m using a standard cable percussion rig (Dando 2000) with 200mm and 150mm diameter casing as appropriate.

4.1.1 Sampling and Testing during Cable Percussion Drilling

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

Standard Penetration Tests (SPT) were carried out at specified intervals or as otherwise instructed by the Engineer. 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.

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

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

4.2 Dynamic Sampling Boreholes

14 No. Dynamic Sampling Boreholes (BH06-BH08 & BH10-BH21) were carried out to a maximum depth of 5.00m using a tracked Geo drive-tube sampling rig.

The liners retrieved from all the borehole locations were split, logged and photographed. Bulk and small disturbed samples were also taken for soils analysis.

Standard penetration tests (SPT) were carried out at 1.00m intervals. The resulting SPT 'N' blowcount values are presented in the relevant borehole records in Section 9 of this report.

4.3 Standpipe Installations

Monitoring wells with flush stopcock covers 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 (m bgl)	Top RZ (m bgl)	Bottom RZ (m bgl)
BH01	30.00	50	SPG/GW	5.00	3.50	5.00
BH02	30.00	50	SPG/GW	5.00	4.00	5.00
BH06	5.00	19	SPG/GW	5.00	4.00	5.00
BH07	5.00	19	SPG/GW	2.50	1.50	2.50
BH08	2.00	19	SPG/GW	2.00	1.00	2.00
BH11	5.00	19	SPG/GW	4.50	3.50	4.50
BH12	3.00	19	SPG/GW	3.00	2.00	3.00
BH13	5.00	19	SPG/GW	5.00	4.00	5.00
BH14	5.00	19	SPG/GW	2.50	1.50	2.50
BH15	4.00	19	SPG/GW	3.50	2.50	3.50
BH17	2.00	19	SPG/GW	2.00	1.00	2.00
BH18	3.60	19	SPG/GW	3.50	2.50	3.50
BH19	5.00	19	SPG/GW	2.00	1.00	2.00
BH20	2.00	19	SPG/GW	2.00	1.00	2.00
BH21	3.00	19	SPG/GW	3.00	2.00	3.00

KEY

SPG/GW – Gas & Groundwater Standpipe

RZ – Response Zone

The borehole was backfilled with bentonite pellets, with gas/groundwater response zones backfilled with a 10mm pea shingle filter. The installation was finished with concrete and a lockable stopcock cover flush with the ground.

4.4 Instrumentation Monitoring

Gas and groundwater monitoring was carried out by others.

4.5 Logging / Laboratory Testing

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

Geotechnical testing is 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 10 of this report.

4.6 Setting Out

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

The positions of the as-built locations of the boreholes 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 (m bgl)	BASE (m bgl)	DESCRIPTION
MADE GROUND	0.00	5.00	Very soft to soft, dark grey and dark brown slightly sandy gravelly silty CLAY with occasional rootlets and rare glass fragments. Gravel comprises angular to subrounded fine to coarse flint, brick and concrete fragments. Sand is fine to coarse. Very soft to soft, dark brown sandy gravelly SILT with low cobble content and frequent pockets of brown silty sandy gravelly clay. Cobbles are brick.
LANGLEY SILT	1.20	5.00	Soft, grey to dark bluish grey slightly sandy silty CLAY with occasional rootlets and occasional orangish brown staining. Sand is fine.
WEATHERED LONDON CLAY	0.40	8.30	Firm, brown to orangish brown mottled grey silty CLAY with rare pockets of orange silty fine sand and occasional rootlets.

STRATUM	TOP (m bgl)	BASE (m bgl)	DESCRIPTION
LONDON CLAY	7.00	EXTENT NOT PROVEN	Firm, dark brownish grey silty CLAY with rare pockets of dark grey clayey silt (<10mm) and rare 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, 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.

6. SITE LOCATION PLAN

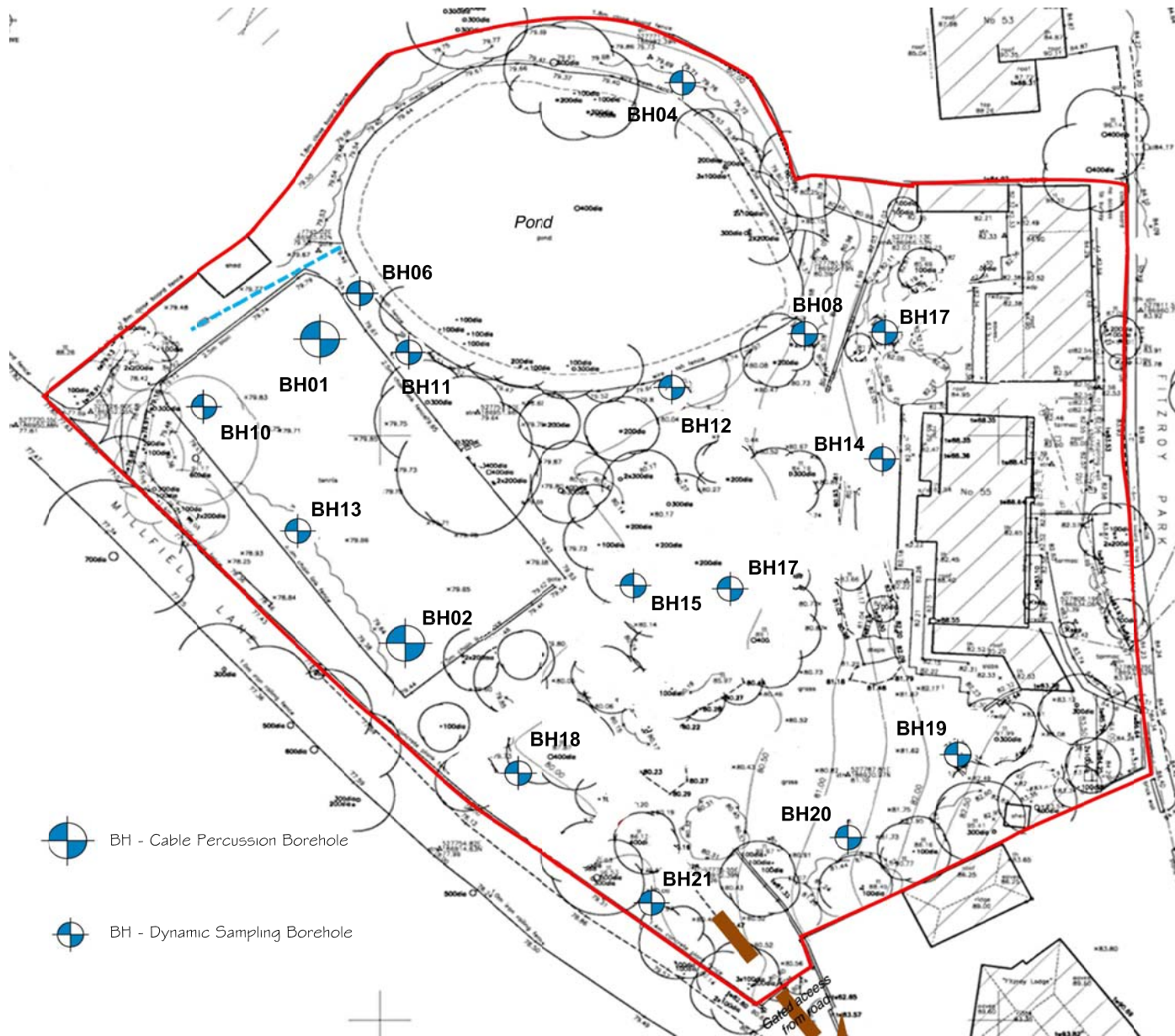


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7. EXPLORATORY HOLE LOCATION PLAN

NOTES

1. This drawing should not be scaled.



 BH - Cable Percussion Borehole

 BH - Dynamic Sampling Borehole

No	Revision	Drawn	Checked	Passed	Date

CONCEPT SITE INVESTIGATIONS

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Client:	LBH Wembley Engineering		
Project:	55 Fitzroy Park		
Title:	Exploratory Hole Location Plan		
Dwg. No:	17/3003		
Status:	Issue		
Scale:	NTS		
Drawn OS	Checked SW	Passed MD	Date September 17

8. CABLE PERCUSSION BOREHOLE LOGS

Project
55 Fitzroy Park

Job No 17/3003	Date Started 24/07/17 Date Completed 25/07/17	Ground Level (mOD)	Co-Ordinates	Final Depth 30.00m
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Client
LBH Wembley Engineering

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	24/07/2017	24/07/2017	JM	OB			Hand Excavated Dando 2000	SEDS6
1.20	30.00	CP	24/07/2017	25/07/2017	JM	OB				

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
30.00	200	5.00	200				

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	5.00	3.50	5.00	25/07/2017

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
0.00	0.30	Concrete / Flush Cover	25/07/2017
0.30	3.50	Bentonite Pellets	
3.50	5.00	Pea Shingle	
5.00	6.00	Bentonite Pellets	
6.00	30.00	Cement / Bentonite Grout	



Project
55 Fitzroy Park

Job No 17/3003	Date Started 24/07/17	Ground Level (mOD)	Co-Ordinates	Final Depth 30.00m
	Date Completed 25/07/17			

Client
LBH Wembley Engineering

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
24/07/17	0.00		Dry		C	1.20	N4	1, 0 / 1, 1, 1, 1		Dry
24/07/17	1.20		Dry		S	2.00	N3	1, 0 / 1, 0, 1, 1		Dry
24/07/17	4.50	2.50	Dry		S	3.00	N3	1, 0 / 1, 0, 1, 1	2.50	Dry
25/07/17	4.50	2.50	Dry		S	4.00	N11	1, 2 / 2, 3, 3, 3	2.50	Dry
25/07/17	5.00	5.00	Dry		S	7.00	N18	2, 3 / 3, 5, 5, 5	5.00	Dry
25/07/17	30.00	5.00	Dry		S	10.00	N26	3, 4 / 6, 6, 7, 7	5.00	Dry
					S	13.00	N32	5, 5 / 7, 7, 8, 10	5.00	Dry
					S	16.00	N31	4, 5 / 6, 8, 8, 9	5.00	Dry
					S	19.00	N33	5, 6 / 6, 8, 9, 10	5.00	Dry
					S	22.00	N41	6, 7 / 9, 9, 11, 12	5.00	Dry
					S	25.00	N42	5, 7 / 8, 10, 11, 13	5.00	Dry
					S	28.50	N49	4, 6 / 9, 13, 13, 14	5.00	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 - Inclinator

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, C/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





Project
55 Fitzroy Park

Job No 17/3003	Date Started 24/07/17	Ground Level (mOD)	Co-Ordinates	Final Depth 30.00m
Date Completed 25/07/17				

Client LBH Wembley Engineering	Method/ Plant Used Cable Percussion	Sheet 1 of 3
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PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
24/07/17		Dry			0.15	Asphalt. (MADE GROUND)	0.20	B01			
					(0.45)						
					0.60						
24/07/17		Dry			1.00	Soft, dark grey and dark brown sandy very gravelly CLAY with low cobble content, occasional glass (<30mm), ceramic (<50mm) and wood fragments (<100mm) with rare rootlets (<40mm). Gravel comprises angular to subrounded fine to coarse flint, brick, slate, clinker and concrete fragments. Cobbles are brick. Sand is fine to coarse. (MADE GROUND)	1.00	B03			
					(0.70)				N4	1, 0 / 1, 1, 1, 1	
					1.70						
					(2.30)						
					2.00	Soft to firm, dark grey and dark brown sandy gravelly CLAY with low cobble content, rare pockets of greenish grey sandy silty clay (<15mm), occasional rootlets (<60mm) and rare decomposing leaves. Gravel comprises angular to well rounded fine to coarse flint, brick, mortar and slag fragments. Cobbles are brick. Sand is fine to coarse. (MADE GROUND)	2.00-2.45	D05	N3	1, 0 / 1, 0, 1, 1	
					3.00						
					3.00-3.45				D06	N3	1, 0 / 1, 0, 1, 1
					3.50				D07		
24/07/17	2.50	Dry			4.00	Soft, dark brown mottled reddish brown sandy very gravelly CLAY with medium cobble content, frequent pockets of dark greenish grey sandy silty clay (50mm), rare rootlets (<50mm) and rare pockets of light brown silty fine sand (<10mm). Gravel comprises angular to subrounded fine to coarse flint and brick. Cobbles are brick. Sand is fine to coarse. (MADE GROUND)	4.00		N11	1, 2 / 2, 3, 3, 3	
25/07/17	2.50	Dry			4.00-4.45				D08		
					4.00-4.50				B09		
25/07/17	5.00	Dry			(3.00)	Soft, grey mottled brown slightly gravelly silty CLAY with occasional rootlets (<40mm). Gravel is angular to subrounded fine to medium flint and rare brick fragments (from above). (LANGLEY SILT)	5.50-5.95	UT10	25 blows	100% Recovery	
					2.00 ... becoming bluish grey with rare pockets of black silty clay (<5mm) and no gravel						
					3.00 - 3.45 ... becoming dark grey mottled brown with rare pockets of brown silty fine sand (<5mm) and occasional black flecks						
					3.50 ... with frequent black flecks						
					7.00	Firm, brown mottled grey and occasionally orangish brown silty CLAY with occasional rootlets (<15mm). (THAMES GROUP: WEATHERED LONDON CLAY FORMATION)	7.00				
					7.00-7.45				D12	N18	2, 3 / 3, 5, 5, 5
					8.50 ... becoming extremely closely fissured slightly micaceous slightly sandy with rare bioturbation and white flecks						
					9.00 ... becoming stiff						
					10.00						
					10.00-10.45				D15	N26	3, 4 / 6, 6, 7, 7

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Project
55 Fitzroy Park

Job No 17/3003	Date Started 24/07/17	Ground Level (mOD)	Co-Ordinates	Final Depth 30.00m
Date Completed 25/07/17				

Client LBH Wembley Engineering	Method/ Plant Used Cable Percussion	Sheet 2 of 3
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PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
						11.50 ... becoming extremely closely to very closely fissured. Fissures are multiple orientations, planar, smooth	11.50-11.95	UT16	70 blows	100% Recovery	
								12.00	D17		
							13.00 ... with occasional fine sand size selenite crystals	13.00-13.45	D18	N32	5, 5 / 7, 7, 8, 10
								14.50-14.95	UT19	75 blows	100% Recovery
								15.00	D20		
							16.00 ... with 1No bivalve shell	16.00-16.45	D21	N31	4, 5 / 6, 8, 8, 9
								17.50-17.95	UT22	85 blows	100% Recovery
								18.00	D23		
						(23.00)		19.00			
							20.50 ... with a pyritised wood fragment (20x20mm)	19.00-19.45	D24	N33	5, 6 / 6, 8, 9, 10
							21.00 ... becoming closely fissured. Fissures are subvertical, subhorizontal, planar, smooth	20.50-20.95	UT25		
								21.00	D26		
							22.00		N41	6, 7 / 9, 9, 11, 12	

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Project
55 Fitzroy Park

Job No 17/3003	Date Started 24/07/17	Ground Level (mOD)	Co-Ordinates	Final Depth 30.00m
Date Completed 25/07/17		Method/ Plant Used Cable Percussion		Sheet 3 of 3
Client LBH Wembley Engineering				

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
25/07/17	5.00	Dry			30.00	22.00 ... becoming very stiff with occasional bioturbation (<10mm)	22.00-22.45	D27			
							23.50-23.95	UT28	100 blows	100% Recovery	
							24.00	D29			
						24.00 ... with subvertical to 45° fissures					
						24.05 ... with a pyrite nodule (25x30mm)					
							25.00		N42	5, 7 / 8, 10, 11, 13	
						25.00 ... with frequent fine to medium sand size selenite crystals	25.00-25.45	D30			
							26.50-26.95	UT31	95 blows	100% Recovery	
							27.00	D32			
							28.50		N49	4, 6 / 9, 13, 13, 14	
	28.50-28.95	D33									
	29.50-29.95	UT34	100 blows	100% Recovery							
	30.00	D35									
End of Borehole											

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Project
55 Fitzroy Park

Job No 17/3003	Date Started 26/07/17 Date Completed 27/07/17	Ground Level (mOD)	Co-Ordinates	Final Depth 30.00m
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Client
LBH Wembley Engineering

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	26/07/2017	26/07/2017	JM	OB			Hand Excavated Dando 2000	SEDS6
1.20	30.00	CP	26/07/2017	27/07/2017	JM	OB				

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
3.00	3.00	20								

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	150	0.00	150				
30.00	150	5.00	150				

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	5.00	4.00	5.00	27/07/2017

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
0.00	0.30	Concrete / Flush Cover	27/07/2017
0.30	4.00	Bentonite Pellets	
4.00	5.00	Pea Shingle	
5.00	6.00	Bentonite Pellets	
6.00	30.00	Cement / Bentonite Grout	

Project

55 Fitzroy Park

Job No 17/3003	Date Started 26/07/17 Date Completed 27/07/17	Ground Level (mOD)	Co-Ordinates	Final Depth 30.00m
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Client

LBH Wembley Engineering

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
25/07/17	0.00		Dry		S	1.20	N1	1, 0 / 0, 1, 0, 0		Dry
25/07/17	1.20		Dry		S	2.00	N5	1, 1 / 2, 1, 1, 1		Dry
25/07/17	3.00		3.00	... Water Strike	S	3.00	N4	1, 1 / 1, 1, 1, 1		3.00
25/07/17	5.00	5.00	Dry		S	4.00	N10	1, 2 / 2, 2, 3, 3		3.00
25/07/17	22.50	5.00	Dry		S	5.00	N8	1, 1 / 2, 1, 2, 3	5.00	Dry
26/07/17	22.50	5.00	Dry		S	8.50	N16	2, 3 / 3, 4, 4, 5	5.00	Dry
26/07/17	30.00	5.00	Dry		S	11.50	N24	3, 4 / 5, 5, 7, 7	5.00	Dry
					S	14.50	N27	4, 5 / 5, 7, 7, 8	5.00	Dry
					S	17.50	N32	3, 5 / 5, 7, 9, 11	5.00	Dry
					S	20.50	N35	4, 6 / 7, 8, 10, 10	5.00	Dry
					S	23.50	N34	3, 7 / 7, 8, 9, 10	5.00	Dry
					S	26.50	N41	4, 7 / 8, 10, 11, 12	5.00	Dry
					S	29.50	N48	5, 8 / 10, 11, 13, 14	5.00	Dry

GENERAL REMARKS

1. Water seepage encountered at 3.00m depth and staying.

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 - Inclinator

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, CPR-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



Project
55 Fitzroy Park

Job No 17/3003	Date Started 26/07/17	Ground Level (mOD)	Co-Ordinates	Final Depth 30.00m
Date Completed 27/07/17				

Client LBH Wembley Engineering	Method/ Plant Used Cable Percussion	Sheet 1 of 3
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PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
25/07/17		Dry			1.00	Very soft, dark brown sandy very gravelly SILT with low cobble content, frequent pockets of brown silty sandy gravelly clay (<60mm), with occasional rootlets (<25mm), rare ceramic fragments (<40mm), 1No timber (<125mm) and 1No plastic fragments. Gravel comprises angular to rounded fine to coarse flint, brick and mortar fragments. Cobbles are brick and mortar. Sand is fine to coarse. (MADE GROUND) 0.80 ... with 1No flint cobble, 1No granite cobble and 2No oyster shell fragments Very soft, greyish brown mottled orangish brown gravelly very sandy CLAY with 1No weak dark red sandstone cobble and 1No off-white chalk fragment. Gravel comprises angular to rounded fine to coarse flint and rare brick fragments. Sand is fine to coarse. (MADE GROUND) Very soft, dark grey locally mottled orangish brown slightly gravelly sandy silty CLAY with 1No weak dark reddish brown sandstone fragment. Gravel comprises angular to subrounded fine to coarse flint and rare brick fragments. Sand is fine. (MADE GROUND) Soft, dark grey occasionally mottled orangish brown silty CLAY with rare rootlets, 1No tile fragment (<10mm), 1No coarse gravel size brick fragment and 1No well rounded medium flint gravel. (MADE GROUND) Soft, grey mottled orangish brown silty CLAY with occasional fine to medium gravel size brick fragments (from SPT). (LANGLEY SILT) Firm, orangish brown mottled grey slightly micaceous silty CLAY with rare pockets of light brown silty fine sand (<20mm) and rare rootlets (<10mm). (THAMES GROUP: WEATHERED LONDON CLAY FORMATION) 7.00 ... becoming extremely closely fissured with frequent selenite crystals (<15mm), occasional pockets of orangish brown fine sand with fine to medium size selenite crystals. Fissures are multiple orientations, planar, smooth, unpolished Firm, dark brownish grey silty CLAY with rare pockets of dark grey silt (<10mm) and rare bioturbation. (THAMES GROUP: LONDON CLAY FORMATION) 10.00 ... becoming extremely closely fissured slightly micaceous slightly sandy with white flecks 10.50 ... with no bioturbation	0.20	B01			
					1.00			0.60	B02		
25/07/17		Dry			1.20			1.00	B03		
					2.00			1.20	D04	N1	1, 0 / 0, 1, 0, 0
					2.00			1.20-1.65	D05		
					2.00			2.00-2.45	D06	N5	1, 1 / 2, 1, 1, 1
25/07/17		3.00 ↓			3.00			3.00	D07	N4	1, 1 / 1, 1, 1, 1
					4.00			3.00-3.45	D08	N10	1, 2 / 2, 2, 3, 3
					4.00			4.00-4.45	D08		
25/07/17	5.00	Dry			5.00			5.00		N8	1, 1 / 2, 1, 2, 3
					5.00		5.50-5.95	D09			
					4.30		7.00-7.45	UT10	35 blows	100% Recovery	
					8.30		7.50	D11			
					8.30		8.50	D12	N16	2, 3 / 3, 4, 4, 5	
					8.30		8.50-8.95				
					8.30		10.00-10.45	UT13	45 blows	100% Recovery	
					8.30		10.50	D14			

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Project
55 Fitzroy Park

Job No 17/3003	Date Started 26/07/17	Ground Level (mOD)	Co-Ordinates	Final Depth 30.00m
	Date Completed 27/07/17			

Client LBH Wembley Engineering	Method/ Plant Used Cable Percussion	Sheet 2 of 3
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PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill	
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result			
							11.50 11.50-11.95	D15	N24	3, 4 / 5, 5, 7, 7		
							13.00-13.45	UT16	90 blows	100% Recovery		
						13.50 ... becoming stiff	13.50	D17				
							14.50 14.50-14.95	D18	N27	4, 5 / 5, 7, 7, 8		
						14.50 - 14.95 ... with occasional to frequent bioturbation (<10mm) and 1No subvertical, planar, smooth, unpolished fissure (<40mm)						
							16.00-16.45	UT19	90 blows	100% Recovery		
						16.16 ... with a pyrite nodule (25x25mm)	16.50	D20				
						16.50 ... with 1No parting of greyish brown silty fine sand and 1No rounded pyrite nodule (<30mm)						
							17.50 17.50-17.95	D21	N32	3, 5 / 5, 7, 9, 11		
						17.50 ... with frequent black flecks						
							19.00-19.45	UT22	80 blows	100% Recovery		
					(21.70)	19.12 ... with a pyrite nodule (30x45mm)	19.50	D23				
						19.50 ... becoming very stiff with no black flecks						
							20.50 20.50-20.95	D24	N35	4, 6 / 7, 8, 10, 10		
							22.00-22.45	UT25	80 blows	100% Recovery		



Project
55 Fitzroy Park

Job No 17/3003	Date Started 26/07/17 Date Completed 27/07/17	Ground Level (mOD)	Co-Ordinates	Final Depth 30.00m
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Client LBH Wembley Engineering	Method/ Plant Used Cable Percussion	Sheet 3 of 3
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PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
25/07/17 26/07/17	5.00 5.00	Dry Dry				22.50 ... with 2No intersecting at 45°, planar to undulating, smooth, unpolished fissures	22.50	D26			
						23.50 ... with occasional black flecks	23.50 23.50-23.95	D27	N34	3, 7 / 7, 8, 9, 10	
						25.50 ... becoming very closely fissured with 1No vertical fissure and no black flecks. Fissures are subhorizontal, planar, smooth, unpolished	25.00-25.45 25.50	UT28 D29	100 blows	100% Recovery	
						28.50 ... with randomly orientated, planar to undulating fissures	26.50 26.50-26.95 28.00-28.45 28.50	D30 UT31 D32	N41	4, 7 / 8, 10, 11, 12 90 blows	100% Recovery
26/07/17	5.00	Dry			30.00	29.50 ... with frequent bioturbation and 1No shell fragment	29.50 29.50-29.95	D33	N48	5, 8 / 10, 11, 13, 14	
						End of Borehole					

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Southern Testing Laboratories Ltd
Unit 11
Charlwoods Road
East Grinstead
West Sussex
RH19 2HU

SPT Hammer Ref: SEDS6.
Test Date: 29/04/2017
Report Date: 29/04/2017
File Name: SEDS6..spt
Test Operator: NPB

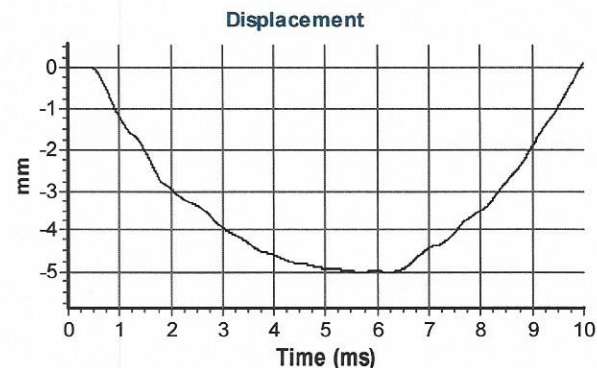
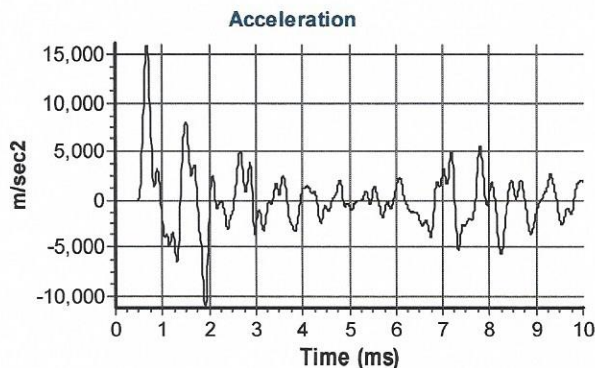
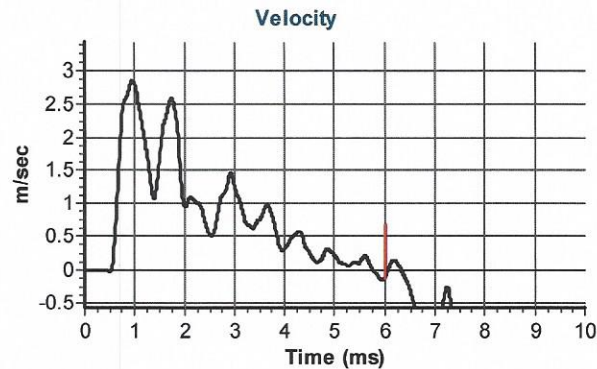
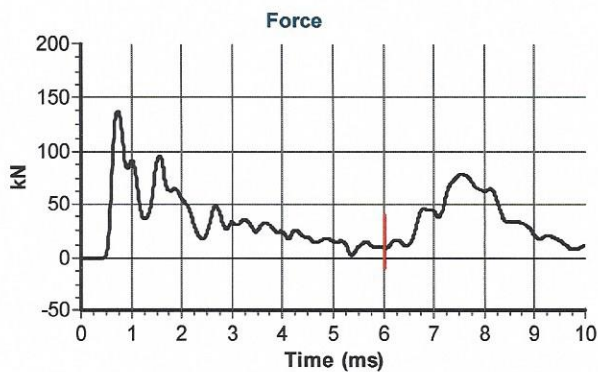
Instrumented Rod Data

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): 750
SPT String Length L (m): 14.5

Comments / Location



Calculations

Area of Rod A (mm²): 905
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 305

Energy Ratio E_r (%): **64**

NPB Burrows

Signed: N P Burrows
Title: Field Operations Manager

9. DYNAMIC SAMPLING BOREHOLE LOGS



Project
55 Fitzroy Park

Job No 17/3003	Date Started 03/08/17 Date Completed 03/08/17	Ground Level (mOD)	Co-Ordinates	Final Depth 1.20m
Client LBH Wembley Engineering			Method/ Plant Used Hand Excavated	Sheet 1 of 1

STRATA					SAMPLES & TESTS			Field Records
Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth	Type No	Test Result	
				Grass over very soft, dark grey to black silty gravelly CLAY with rare pockets of brown silty clay (<30mm), frequent rootlets (<60mm) and rare ceramic fragments (<30mm). Gravel comprises subangular to well-rounded fine to coarse flint and brick fragments. (MADE GROUND)	0.00-0.50	B01		... Pit aborted at 1.20m depth (see Remarks)
			(1.20)	0.50 ... becoming slightly sandy with 1No brick cobble and rare roots (<150mm). Pockets becoming <15mm	0.50-1.00	B02		
			1.20	End of Trial Pit				

GENERAL REMARKS

1. Pit aborted at 1.20m depth due to soft, uneven ground unsuitable for drilling rig.



Project
55 Fitzroy Park

Job No 17/3003	Date Started 31/07/17	Ground Level (mOD)	Co-Ordinates	Final Depth 5.00m
Date Completed 31/07/17		Method/ Plant Used Dynamic Sampling		Sheet 1 of 1
Client LBH Wembley Engineering				

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
31/07/17		Dry			1.00	Grass over very soft, dark brown slightly gravelly silty CLAY with frequent rootlets (<90mm). Gravel is angular to subrounded fine to coarse flint, brick and clinker fragments. (MADE GROUND) 0.70 ... becoming dark grey with occasional wood fragments (<80mm)	0.30	B01			
							0.70	B02			
							1.00-2.00	B03			
31/07/17	1.20	Dry			1.00	Very soft, brown mottled dark greenish grey, light grey and black slightly sandy gravelly silty CLAY with occasional rootlets (<30mm) and rare wood fragments (<30mm). Gravel comprises angular to subrounded fine to medium flint, brick and clinker fragments. Sand is fine to coarse. (MADE GROUND)	2.00-3.00	B04			
					2.00						
					1.00		Very soft, brown mottled orangish brown and grey slightly gravelly silty CLAY with occasional rootlets (<40mm) and 1No bone fragment (<90mm). Gravel comprises subangular to rounded fine to medium flint and brick fragments. (MADE GROUND)	3.00-4.00	B05		
				3.00							
					2.00	Very soft, brown mottled grey and dark grey silty CLAY with 1No pocket of light grey silt (<20mm) and rare pockets of orangish brown fine sand (<20mm). (MADE GROUND)	4.00-5.00	B06			
31/07/17	2.00	Dry			5.00	End of Borehole					

DYNAMIC SAMPLING RECOVERY				GENERAL REMARKS
From	To	Diameter (mm)	Recovery (%)	
				<ol style="list-style-type: none"> 1. An inspection pit was hand excavated to 1.20m depth prior to boring commencing. 2. Ø101mm casing used to 2.00m depth. 3. Liners were recovered into bulk bags. 4. Ø19mm gas and groundwater monitoring pipe installed at 5.00m, slotted between 4.00m and 5.00m depth. 5. Borehole was backfilled with pea shingle between 5.00m and 4.00m depth and bentonite pellets between 4.00m and 0.30m depth. Concrete with a stopcock cover installed between 0.30m and ground level.

Project
55 Fitzroy Park

Job No 17/3003	Date Started 31/07/17	Ground Level (mOD)	Co-Ordinates	Final Depth 5.00m
Date Completed 31/07/17		Client LBH Wembley Engineering		Method/ Plant Used Dynamic Sampling
Sheet 1 of 1				

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
31/07/17		Dry			(1.50)	Grass over soft, dark brownish grey sandy gravelly silty CLAY with occasional pockets of brown silty clay (<40mm), frequent rootlets (<60mm) and rare tile fragments (<30mm). Gravel comprises subangular to subrounded fine to coarse flint with rare brick and concrete fragments. Sand is fine to coarse.	0.00-0.50 0.50-1.00	B01 B02			
31/07/17	1.20	Dry			1.50	(MADE GROUND) 0.50 - 1.00 ... with frequent pockets of brown silty clay and 1No glass fragment (<20mm). 1.00 ... with no pockets of clay and no brick or concrete fragments	1.20-2.00	B03			
					(3.50)	Firm, orangish brown mottled grey and occasionally orange silty CLAY with rare rootlets (<40mm), rare dark grey flecks and 1No subangular coarse flint gravel. (THAMES GROUP: WEATHERED LONDON CLAY FORMATION)	2.00 2.00-3.00 2.00	B04 D05	N9	1, 1 / 2, 2, 2, 3	
					(3.50)		3.00 3.00-4.00 3.00	B06 D07	N11	2, 1 / 2, 3, 3, 3	
					(3.50)		4.00 4.00-5.00 4.00	B08 D09	N12	2, 2 / 2, 2, 3, 5	
31/07/17	2.00	Dry			5.00	End of Borehole	5.00 5.00	D10	N16	4, 2 / 4, 4, 4, 4	

DYNAMIC SAMPLING RECOVERY				GENERAL REMARKS
From	To	Diameter (mm)	Recovery (%)	
				<ol style="list-style-type: none"> An inspection pit was hand excavated to 1.20m depth prior to boring commencing. Ø101mm casing used to 2.00m depth. Liners were recovered into bulk bags. Ø19mm gas and groundwater monitoring pipe installed at 2.50m, slotted between 1.50m and 2.50m depth. Borehole was backfilled with bentonite pellets between 5.00 and 2.50m, pea shingle between 2.50m and 1.50m depth and bentonite pellets between 1.50m and 0.30m depth. Concrete with a stopcock cover installed between 0.30m and ground level.



Project
55 Fitzroy Park

Job No 17/3003	Date Started 03/08/17 Date Completed 03/08/17	Ground Level (mOD)	Co-Ordinates	Final Depth 2.00m
Client LBH Wembley Engineering			Method/ Plant Used Dynamic Sampling	Sheet 1 of 1

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
03/08/17		Dry			0.70	Grass over very soft, dark grey mottled brown slightly gravelly sandy silty CLAY with occasional rootlets (<80mm). Gravel comprises angular to well-rounded fine to coarse flint, brick and clinker fragments. Sand is fine to medium. (MADE GROUND)	0.00-0.50	B01			
					0.70			0.50-1.00	B02		
03/08/17	1.20	Dry			1.30	Very soft, brown mottled light grey and orangish brown slightly gravelly silty CLAY. Gravel is angular to well-rounded fine to medium flint. (THAMES GROUP: WEATHERED LONDON CLAY FORMATION) 1.35 ... becoming firm and brown mottled grey with occasional black flecks and no gravel 1.55 ... with occasional fine to medium sand size selenite crystals					
03/08/17	2.00	Dry			2.00		End of Borehole				

DYNAMIC SAMPLING RECOVERY				GENERAL REMARKS
From	To	Diameter (mm)	Recovery (%)	
1.20	2.00	84	100	

1. An inspection pit was hand excavated to 1.20m depth prior to boring commencing.
2. Ø101mm casing used to 2.00m depth.
3. Ø19mm gas and groundwater monitoring pipe installed at 2.00m, slotted between 1.00m and 2.00m depth.
4. Borehole was backfilled with pea shingle between 2.00m and 1.00m depth and bentonite pellets between 1.00m and 0.30m depth. Concrete with a stopcock cover installed between 0.30m and ground level.



Project
55 Fitzroy Park

Job No 17/3003	Date Started 28/07/17	Ground Level (mOD)	Co-Ordinates	Final Depth 4.00m
Client LBH Wembley Engineering			Method/ Plant Used Dynamic Sampling	Sheet 1 of 1

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
28/07/17		Dry			0.30	Asphalt (0.10m) over slightly sandy GRAVEL with medium cobble content. Gravel is angular to subangular fine to coarse brick and concrete fragments. Sand is fine to coarse. Cobbles are brick and concrete. (MADE GROUND)					
28/07/17	1.20	Dry			1.20	Soft, dark brown and black very gravelly silty CLAY. Gravel comprises angular to rounded fine to coarse flint and brick fragments. (MADE GROUND)	1.20-2.00	B01			
					1.30	Soft, grey mottled brown and light bluish grey slightly gravelly SILT with occasional rootlets (<40mm) and occasional reddish brown staining. Gravel comprises angular to rounded fine to coarse flint and rare brick fragments. (MADE GROUND)	2.00-3.00	B02			
					2.50						
					3.00	Soft, brown slightly gravelly silty CLAY with occasional pockets of light brown fine sand (<30mm). Gravel is subangular to rounded medium to coarse flint. (MADE GROUND)	3.00-4.00	B03			
					3.00						
28/07/17	2.00	Dry			4.00	Soft, dark grey mottled brown and bluish grey slightly gravelly silty CLAY with occasional pockets of bluish grey silt (<25mm) and occasional reddish brown staining. Gravel is subangular to rounded fine to coarse flint. (LANGLEY SILT)	4.00				
						End of Borehole					... Borehole aborted at 4.00m depth (see Remarks)

DYNAMIC SAMPLING RECOVERY				GENERAL REMARKS
From	To	Diameter (mm)	Recovery (%)	
				<ol style="list-style-type: none"> 1. An inspection pit was hand excavated to 1.20m depth prior to boring commencing. 2. Ø101mm casing used to 2.00m depth. 3. Liners were recovered into bulk bags. 4. Borehole aborted at 4.00m depth due to collapse. 5. Borehole backfilled with bentonite pellets.



Project
55 Fitzroy Park

Job No 17/3003	Date Started 02/08/17 Date Completed 02/08/17	Ground Level (mOD)	Co-Ordinates	Final Depth 5.00m
Client LBH Wembley Engineering			Method/ Plant Used Dynamic Sampling	Sheet 1 of 1

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
02/08/17		Dry			0.50	Very soft, dark grey to black slightly gravelly silty CLAY with frequent pockets of brown clay (<90mm), rare pockets of white silt (<5mm) and rare rootlets (<10mm). Gravel comprises subangular to subrounded fine to medium flint, brick and clinker fragments. Sand is fine to coarse. (MADE GROUND)	0.00-0.50	B01			
					0.70		0.50-1.00	B02			
02/08/17	1.20	Dry			1.20	Soft, brown and grey slightly gravelly silty CLAY with rare pockets of light brown fine to medium sand (<30mm), frequent rootlets (<50mm) and 1No ceramic fragment (10mm). Gravel comprises angular to subrounded fine to coarse flint, brick and mortar fragments. Sand is fine to coarse. (MADE GROUND)					
					0.95		2.15				
					3.10	Very soft, dark grey and black mottled grey and brown slightly gravelly silty CLAY with rare ceramic fragments (<15mm). Gravel is angular to subrounded fine to coarse flint and brick fragments. (MADE GROUND) 1.80 ... with 1No shell fragment (25mm)					
					0.95		2.60 ... with 1No wood fragment (100mm) 2.90 - 3.00 ... with no silt				
02/08/17	2.00	Dry			5.00	Firm, brown silty CLAY with occasional rootlets (<40mm). (THAMES GROUP: WEATHERED LONDON CLAY FORMATION) 3.30 ... becoming mottled grey 3.40 ... with occasional black flecks 3.70 ... with rare pockets of orangish brown clayey silt (<8mm) 4.85 ... with 1No parting of orangish brown clayey silt End of Borehole					

DYNAMIC SAMPLING RECOVERY				GENERAL REMARKS
From	To	Diameter (mm)	Recovery (%)	
1.20	2.00	100	90	
2.00	3.00	100	85	
3.00	4.00	74	100	
4.00	5.00	64	75	

- GENERAL REMARKS**
1. An inspection pit was hand excavated to 1.20m depth prior to boring commencing.
 2. Ø128mm casing used to 2.00m depth.
 3. Ø19mm gas and groundwater monitoring pipe installed at 4.50m, slotted between 3.50m and 4.50m depth.
 4. Borehole was backfilled with pea shingle between 5.00m and 3.50m depth and bentonite pellets between 3.50m and 0.30m depth. Concrete with a stopcock cover installed between 0.30m and ground level.



Project
55 Fitzroy Park

Job No 17/3003	Date Started 03/08/17 Date Completed 03/08/17	Ground Level (mOD)	Co-Ordinates	Final Depth 3.00m
Client LBH Wembley Engineering			Method/ Plant Used Dynamic Sampling	Sheet 1 of 1

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
03/08/17		Dry			(1.60)	Very soft, brown sandy gravelly silty CLAY with frequent rootlets (<40mm). Gravel comprises subangular to well-rounded fine to coarse flint and brick fragments. Sand is fine to coarse. (MADE GROUND) 0.00 - 0.50 ... with 1No concrete cobble and 1No marble fragment 0.50 - 1.00 ... with frequent fine to medium gravel size clinker fragments, rare tile fragments (<20mm) and 1No well-rounded flint cobble 1.20 ... becoming soft, dark greyish brown and slightly gravelly	0.00-0.50 0.50-1.00	B01 B02			
03/08/17	1.20	Dry			1.60	Soft, brown mottled orangish brown and grey silty CLAY with frequent rootlets (<40mm). (THAMES GROUP: WEATHERED LONDON CLAY FORMATION) 1.75 - 2.00 ... becoming mottled grey with rare rootlets 2.65 ... with 1No pocket of orangish brown sandy silt (25mm) 2.70 ... becoming firm and slightly micaceous					
03/08/17	2.00	Dry			3.00	End of Borehole					

DYNAMIC SAMPLING RECOVERY				GENERAL REMARKS
From	To	Diameter (mm)	Recovery (%)	
1.20	2.00	100	100	
2.00	3.00	100	70	

1. An inspection pit was hand excavated to 1.20m depth prior to boring commencing.
2. Ø128mm casing used to 2.00m depth.
3. Ø19mm gas and groundwater monitoring pipe installed at 3.00m, slotted between 2.00m and 3.00m depth.
4. Borehole was backfilled with pea shingle between 3.00m and 2.00m depth and bentonite pellets between 2.00m and 0.30m depth. Concrete with a stopcock cover installed between 0.30m and ground level.

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Project
55 Fitzroy Park

Job No 17/3003	Date Started 28/07/17	Ground Level (mOD)	Co-Ordinates	Final Depth 5.00m
Date Completed 28/07/17				

Client LBH Wembley Engineering	Method/ Plant Used Dynamic Sampling	Sheet 1 of 2
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PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
28/07/17		Dry			0.10	Asphalt. (MADE GROUND)	0.00-0.50	B01			
					(0.40)						
					0.50	Loose, dark greyish brown and black silty very gravelly fine to coarse SAND with occasional pockets of brown sandy clay (<40mm) and occasional rootlets (<40mm). Gravel comprises subangular to rounded fine to coarse flint, brick, mortar and clinker fragments. Sand is fine to coarse.	0.50-1.00	B02			
28/07/17	1.20	Dry			(1.55)	(MADE GROUND)					
					2.05	Very soft, dark grey and brown sandy gravelly CLAY with rare ceramic fragments (<10mm). Gravel is angular to subrounded fine to coarse flint, brick, mortar and clinker fragments. Sand is fine to coarse.	2.00	D03			
					(0.40)	(MADE GROUND)					
					2.45	0.50 - 1.00 ... with 1No flint cobble and 1No clay pipe fragment					
					(2.55)	1.20 ... becoming soft, dark brown mottled brown with occasional ceramic fragments (<30mm), rare glass fragments (<15mm) and rare wood fragments (<50mm)	3.00-4.00	B04			
						1.50 ... with 2No subangular medium gravel size chalk fragments					
						1.70 ... with 1No shell fragment (15mm)					
						1.80 ... with 1No subrounded flint cobble					
						Firm, brown mottled orangish brown silty CLAY with occasional rootlets (<30mm).					
						(MADE GROUND)					
						2.10 ... with 1No coarse gravel size brick fragment					
						2.40 ... becoming very gravelly. Gravel comprises subangular to rounded fine to coarse flint and brick fragments					
28/07/17	2.00	Dry			5.00	Firm, dark grey slightly sandy gravelly silty CLAY with rare rootlets (<50mm). Gravel is subangular to well-rounded fine to coarse flint. Sand is fine.	5.00	D05	N12	1, 2 / 3, 3, 3, 3	
						(LANGLEY SILT)	5.00				
						2.70 ... becoming brownish grey with fine to medium gravel and 1No wood fragment (90mm x 40mm)					
						2.95 ... with 1No subangular coarse flint gravel					
						3.00 ... becoming grey mottled brown and orangish brown with occasional black flecks and no gravel					
						4.00 ... becoming firm and brownish grey mottled grey and orangish brown					
						4.50 ... with 1No subangular medium flint gravel					

DYNAMIC SAMPLING RECOVERY				GENERAL REMARKS
From	To	Diameter (mm)	Recovery (%)	
1.20	2.00	74	88	
3.00	4.00	84	75	
4.00	5.00	74	100	

1. An inspection pit was hand excavated to 1.20m depth prior to boring commencing.
2. Ø101mm casing used to 2.00m depth.
3. Ø19mm gas and groundwater monitoring pipe installed at 5.00m, slotted between 4.00m and 5.00m depth.
4. Borehole was backfilled with pea shingle between 5.00m and 4.00m depth and bentonite pellets between 4.00m and 0.30m depth. Concrete with a stopcock cover installed between 0.30m and ground level.



Project
55 Fitzroy Park

Job No 17/3003	Date Started 28/07/17	Ground Level (mOD)	Co-Ordinates	Final Depth 5.00m
Date Completed 28/07/17				

Client LBH Wembley Engineering	Method/ Plant Used Dynamic Sampling	Sheet 2 of 2
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PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
						4.60 ... with a parting of orangish brown silt 4.65 ... with 2No rounded medium flint gravels 4.95 ... with a parting of orangish brown sandy silt End of Borehole					

DYNAMIC SAMPLING RECOVERY				GENERAL REMARKS
From	To	Diameter (mm)	Recovery (%)	



Project
55 Fitzroy Park

Job No 17/3003	Date Started 01/08/17	Ground Level (mOD)	Co-Ordinates	Final Depth 5.00m
Date Completed 01/08/17				

Client LBH Wembley Engineering	Method/ Plant Used Dynamic Sampling	Sheet 1 of 1
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PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
01/08/17		Dry			(1.45)	Firm, dark brown and brown slightly sandy gravelly silty CLAY with frequent rootlets (<40mm). Gravel comprises angular to rounded fine to medium flint, brick, mortar and clinker fragments. Sand is fine to coarse. (MADE GROUND)	0.00-0.50 0.50-1.00	B01 B02			
01/08/17	1.20	Dry			1.45	0.00 - 0.50 ... with 1No oyster shell 0.50 ... with 1No glass fragment (110mm) and 1No subrounded brick cobble. Gravel becoming fine to coarse 1.20 ... with rare rootlets and no concrete or clinker fragments					
					(3.55)	Firm, brown mottled orangish brown slightly gravelly silty CLAY with rare rootlets (<60mm) and occasional black flecks. Gravel is subangular to subrounded fine to medium flint. (THAMES GROUP: WEATHERED LONDON CLAY FORMATION)	1.80 2.00 2.00 2.00	D03 D04 D05	N9	1, 1 / 2, 2, 2, 3	
						2.30 ... with no orangish brown mottling 2.40 ... with 1No wood fragment (50mm) 2.60 ... with 1No subrounded medium gravel size reddish brown claystone fragment within a pocket of orangish brown silt (40mm)	2.30 2.40 2.60				
						2.85 ... with 1No pocket of orangish brown silty fine sand (10mm) 3.30 ... becoming mottled grey	2.85 3.30	D07 D08	N12	1, 2 / 3, 3, 2, 4	
						4.35 ... with a band of light brown angular medium gravel size claystone fragments	4.35				
						4.40 ... with 1No parting of orangish brown clayey silt	4.40				
						4.43 ... with 1No pocket of fine to medium sand size selenite crystals (<40mm)	4.43				
						4.45 - 4.65 ... with rare fine to coarse sand size selenite crystals	4.45 4.65				
						4.63 ... with 2No angular medium flint gravels	4.63				
						4.85 ... becoming extremely closely fissured and slightly micaceous. Fissures are horizontal, planar, smooth, unpolished	4.85				
						4.90 ... becoming very stiff with frequent selenite crystals	4.90				
						End of Borehole					
01/08/17	2.00	Dry			5.00		5.00 5.00	D10	N18	3, 3 / 4, 4, 5, 5	

DYNAMIC SAMPLING RECOVERY				GENERAL REMARKS
From	To	Diameter (mm)	Recovery (%)	
1.20	2.00	84	94	1. An inspection pit was hand excavated to 1.20m depth prior to boring commencing. 2. Ø101mm casing used to 2.00m depth. 3. Ø19mm gas and groundwater monitoring pipe installed at 2.50m, slotted between 1.50m and 2.50m depth. 4. Borehole was backfilled with bentonite pellets between 5.00m and 2.50m depth, pea shingle between 2.50m and 1.50m depth and bentonite pellets between 1.50m and 0.30m depth. Concrete with a stopcock cover installed between 0.30m and ground level.
2.00	3.00	74	68	
3.00	4.00	64	95	
4.00	5.00	54	70	



Project
55 Fitzroy Park

Job No 17/3003	Date Started 02/08/17 Date Completed 02/08/17	Ground Level (mOD)	Co-Ordinates	Final Depth 4.00m
Client LBH Wembley Engineering			Method/ Plant Used Dynamic Sampling	Sheet 1 of 1

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
02/08/17		Dry			0.50	Very soft, brown mottled orangish brown sandy gravelly CLAY with occasional ceramic fragments (<100mm) and occasional glass fragments (<30mm). Gravel comprises angular to subrounded fine to coarse flint, brick, clinker and slate fragments. Sand is fine to coarse. (MADE GROUND)	0.00-0.50	B01			
					0.70			0.50-1.00	B02		
02/08/17	1.20	Dry			1.20	Soft, brown sandy very gravelly CLAY with frequent pockets of grey silty fine sand (<80mm), rare ceramic fragments and 1No brick cobble. Gravel comprises angular to subrounded fine to coarse brick and clinker fragments. (MADE GROUND)					
					1.55						
					0.75	Soft to firm, brown mottled orangish brown slightly gravelly sandy CLAY with occasional pockets of grey silty fine sand and occasional rootlets (<50mm). Gravel comprises angular to rounded fine to coarse flint and brick fragments. (MADE GROUND)					
					2.30						
					1.70	Very soft, dark brownish grey slightly sandy silty CLAY with frequent black flecks. Sand is fine. (LANGLEY SILT) 1.60 ... with 1No rounded medium flint gravel 1.75 ... with 1No angular medium flint gravel					
					4.00						
02/08/17	2.00	Dry				Soft, brown CLAY with occasional rootlets (<20mm). (THAMES GROUP: WEATHERED LONDON CLAY FORMATION) 2.80 ... becoming firm, orangish brown mottled grey 3.00 ... becoming silty with rare pockets of orangish brown silty fine sand (<15mm) 3.70 ... with 1No parting of orangish brown sandy silt End of Borehole					

DYNAMIC SAMPLING RECOVERY				GENERAL REMARKS
From	To	Diameter (mm)	Recovery (%)	
1.20	2.00	84	100	
2.00	3.00	84	100	
3.00	4.00	74	80	

1. An inspection pit was hand excavated to 1.20m depth prior to boring commencing.
2. Ø101mm casing used to 2.00m depth.
3. Ø19mm gas and groundwater monitoring pipe installed at 3.50m, slotted between 2.50m and 3.50m depth.
4. Borehole was backfilled with bentonite pellets between 4.00m and 3.50m depth, pea shingle between 3.50m and 2.50m depth and bentonite pellets between 2.50m and 0.30m depth. Concrete with a stopcock cover installed between 0.30m and ground level.

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Project
55 Fitzroy Park

Job No 17/3003	Date Started 01/08/17	Ground Level (mOD)	Co-Ordinates	Final Depth 2.00m
Date Completed 01/08/17				
Client LBH Wembley Engineering			Method/ Plant Used Dynamic Sampling	Sheet 1 of 1

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
01/08/17		Dry			0.50	Grass over soft, brown sandy gravelly silty CLAY with frequent rootlets. Gravel comprises angular to rounded fine to coarse flint, brick and concrete fragments. Sand is fine to coarse. (MADE GROUND)	0.00-0.50	B01			
					0.50			B02			
01/08/17	1.20	Dry			1.00	Soft, dark brown sandy gravelly clayey SILT with frequent rootlets and occasional pockets of soft, dark brown sandy clay (<30mm). Gravel comprises subangular to rounded fine to coarse flint and brick fragments. Sand is fine to coarse. (MADE GROUND)					
					1.45						
01/08/17	2.00	Dry			2.00	Firm, brown mottled orangish brown slightly sandy silty CLAY with frequent rootlets (<60mm). Sand is fine to medium. (MADE GROUND) 1.40 ... with 1 No fine gravel size brick fragment Stiff, brown silty CLAY with frequent rootlets (<50mm). (THAMES GROUP: WEATHERED LONDON CLAY FORMATION) 1.55 ... with occasional black flecks End of Borehole					

DYNAMIC SAMPLING RECOVERY				GENERAL REMARKS
From	To	Diameter (mm)	Recovery (%)	
1.20	2.00	84	100	

1. An inspection pit was hand excavated to 1.20m depth prior to boring commencing.
2. Ø101mm casing used to 2.00m depth.
3. Ø19mm gas and groundwater monitoring pipe installed at 2.00m, slotted between 1.00m and 2.00m depth.
4. Borehole was backfilled with pea shingle between 2.00m and 1.00m depth and bentonite pellets between 1.00m and 0.30m depth. Concrete with a stopcock cover installed between 0.30m and ground level.



Project
55 Fitzroy Park

Job No 17/3003	Date Started 03/08/17 Date Completed 03/08/17	Ground Level (mOD)	Co-Ordinates	Final Depth 3.60m
Client LBH Wembley Engineering			Method/ Plant Used Dynamic Sampling	Sheet 1 of 1

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
03/08/17		Dry			(1.10)	Soft, dark brownish grey slightly sandy gravelly silty CLAY with occasional rootlets (<50mm). Gravel is angular to rounded fine to coarse flint and brick fragments. Sand if fine to coarse. (MADE GROUND)	0.00-0.50	B01			
					1.10	0.50 ... with frequent roots (<200mm) and rare glass fragments (<25mm). Gravel comprises flint, brick, mortar, concrete and clinker fragments		B02			
03/08/17	1.20	Dry			(1.10)	Firm, brown mottled orangish brown gravelly silty CLAY with occasional rootlets (<60mm). Gravel comprises angular to rounded fine to coarse flint, brick and rare chalk fragments. (MADE GROUND)					
					2.20	1.40 - 1.60 ... becoming dark grey with slate fragments					
					(1.40)	1.70 ... with mortar fragments	2.50	D03			
					3.60	Firm, brown mottled orangish brown and grey CLAY with occasional roots (<150mm). (THAMES GROUP: WEATHERED LONDON CLAY FORMATION)					
03/08/17	2.00	Dry			(1.40)	2.40 ... becoming stiff 2.70 ... becoming silty 3.00 ... with rare rootlets					
					3.60	3.45 ... with rare pockets of orangish brown silty fine sand	3.60	D04			
						End of Borehole					

DYNAMIC SAMPLING RECOVERY				GENERAL REMARKS
From	To	Diameter (mm)	Recovery (%)	
1.20	2.00	84	100	
2.00	3.00	84	100	
3.00	3.60	74	100	

1. An inspection pit was hand excavated to 1.20m depth prior to boring commencing.
2. Ø101mm casing used to 2.00m depth.
3. Ø19mm gas and groundwater monitoring pipe installed at 3.50m, slotted between 2.50m and 3.50m depth.
4. Borehole was backfilled with bentonite pellets between 5.00m and 3.50m depth, pea shingle between 3.50m and 2.50m depth and bentonite pellets between 2.50m and 0.30m depth. Concrete with a stopcock cover installed between 0.30m and ground level.

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Project
55 Fitzroy Park

Job No 17/3003	Date Started 01/08/17	Ground Level (mOD)	Co-Ordinates	Final Depth 5.00m
Date Completed 01/08/17				
Client LBH Wembley Engineering			Method/ Plant Used Dynamic Sampling	Sheet 1 of 1

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill	
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result			
01/08/17		Dry			0.40	Soft, dark brown mottled orangish brown sandy gravelly silty CLAY with frequent rootlets (<50mm). Gravel comprises angular to subrounded fine to coarse flint and brick fragments. Sand is fine to coarse. (MADE GROUND)	0.00-0.50	B01				
					0.80			0.50-1.00	B02			
01/08/17	1.20	Dry			1.20	Soft, brown mottled orangish brown slightly sandy gravelly silty CLAY with occasional rootlets (<20mm). Gravel is angular to subrounded fine to medium flint. Sand is fine. (THAMES GROUP: WEATHERED LONDON CLAY FORMATION)	1.50	D03				
						Firm, brown mottled orangish brown and grey silty CLAY. with occasional rootlets (<30mm) and occasional black flecks. (THAMES GROUP: WEATHERED LONDON CLAY FORMATION)	2.00	D04	N8			1, 2 / 2, 2, 2, 2
						2.00 ... becoming locally mottled orangish brown with no grey mottling	2.00	D04				
						2.75 ... becoming mottled grey with rare rootlets (<30mm)	2.50	D05				
						3.40 ... with 1No parting of orangish brown silt and fine sand size selenite crystals	3.00	D06	N11			2, 2 / 2, 3, 3, 3
						3.65 ... becoming locally mottled grey with rare pockets of fine sand size selenite crystals (<10mm)	3.00	D07				
						3.82 ... with 1No pocket of orange silty fine sand and fine sand size selenite crystals (<35mm)	3.00	D07				
01/08/17	2.00	Dry			5.00	4.60 ... becoming mottled orangish brown and grey with frequent fine sand size selenite crystals	4.00	D08	N15	3, 3 / 3, 4, 4, 4		
						4.85 ... with no selenite crystals	4.00	D08				
						End of Borehole	5.00	D09	N20	4, 4 / 5, 5, 5, 5		

DYNAMIC SAMPLING RECOVERY				GENERAL REMARKS
From	To	Diameter (mm)	Recovery (%)	
1.20	2.00	84	75	
2.00	3.00	74	100	
3.00	4.00	64	90	
4.00	5.00	54	75	

- GENERAL REMARKS**
1. An inspection pit was hand excavated to 1.20m depth prior to boring commencing.
 2. Ø101mm casing used to 2.00m depth.
 3. Ø19mm gas and groundwater monitoring pipe installed at 2.00m, slotted between 1.00m and 2.00m depth.
 4. Borehole was backfilled with bentonite pellets between 5.00m and 2.00m depth, pea shingle between 2.00m and 1.00m depth and bentonite pellets between 1.00m and 0.30m depth. Concrete with a stopcock cover installed between 0.30m and ground level.

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Project
55 Fitzroy Park

Job No 17/3003	Date Started 01/08/17	Ground Level (mOD)	Co-Ordinates	Final Depth 2.00m
Date Completed 01/08/17				
Client LBH Wembley Engineering			Method/ Plant Used Dynamic Sampling	Sheet 1 of 1

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill	
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result			
01/08/17		Dry			0.40	Very soft, dark brown sandy gravelly CLAY with frequent rootlets (<80mm) and 1No glass fragment (30mm). Gravel comprises subangular to rounded fine to coarse flint and brick fragments. Sand is fine to coarse. (MADE GROUND)	0.00-0.50	B01				
					0.40							
01/08/17	1.20	Dry			1.60	Firm, brown mottled orangish brown slightly sandy slightly gravelly silty CLAY with occasional rootlets (<40mm). Gravel is subangular to subrounded fine to medium flint. Sand is fine. (THAMES GROUP: WEATHERED LONDON CLAY FORMATION)	0.50-1.00	B02				
01/08/17	2.00	Dry			2.00	1.20 ... with rare rootlets, no mottling and no sand or gravel 1.65 ... with 1No pocket of orange sandy silt (35mm) 1.75 ... becoming mottled grey End of Borehole						

DYNAMIC SAMPLING RECOVERY				GENERAL REMARKS
From	To	Diameter (mm)	Recovery (%)	
1.20	2.00	74	100	

1. An inspection pit was hand excavated to 1.20m depth prior to boring commencing.
2. Ø101mm casing used to 2.00m depth.
3. Ø19mm gas and groundwater monitoring pipe installed at 2.00m, slotted between 1.00m and 2.00m depth.
4. Borehole was backfilled with pea shingle between 2.00m and 1.00m depth and bentonite pellets between 1.00m and 0.30m depth. Concrete with a stopcock cover installed between 0.30m and ground level.



Project
55 Fitzroy Park

Job No 17/3003	Date Started 04/08/17 Date Completed 04/08/17	Ground Level (mOD)	Co-Ordinates	Final Depth 3.00m
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Client LBH Wembley Engineering	Method/ Plant Used Dynamic Sampling	Sheet 1 of 1
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PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill	
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result			
04/08/17		Dry			(1.20)	Very soft, dark brown to black sandy gravelly silty CLAY with frequent roots, frequent rootlets, rare ceramic fragments (<100mm) and rare charcoal fragments (<30mm). Gravel comprises angular to well-rounded fine flint and brick fragments. Sand is fine to coarse. (MADE GROUND) 0.50 ... becoming brown mottled dark brown with occasional rootlets (<20mm) and no ceramic fragments Firm, brown CLAY with occasional pockets of orangish brown silty clay (<10mm) and rare rootlets (<30mm). (THAMES GROUP: WEATHERED LONDON CLAY FORMATION) 1.70 ... becoming silty 1.90 ... with 1No pocket of fine gravel size off-white silty nodules (30mm) 2.25 ... with 1No pocket of orange silt (50mm) 2.35 ... becoming mottled grey 2.70 ... becoming slightly micaceous with rare pockets of light brown silty fine sand End of Borehole	0.00-0.50	B01				
04/08/17	1.20	Dry			1.20			0.50-1.00	B02			
04/08/17	2.00	Dry			3.00							

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DYNAMIC SAMPLING RECOVERY				GENERAL REMARKS
From	To	Diameter (mm)	Recovery (%)	
1.20	2.00	74	100	
2.00	3.00	74	90	

1. An inspection pit was hand excavated to 1.20m depth prior to boring commencing.
2. Ø101mm casing used to 2.00m depth.
3. Ø19mm gas and groundwater monitoring pipe installed at 3.00m, slotted between 2.00m and 3.00m depth.
4. Borehole was backfilled with pea shingle between 3.00m and 2.00m depth and bentonite pellets between 2.00m and 0.30m depth. Concrete with a stopcock cover installed between 0.30m and ground level.

Southern Testing Laboratories
Keeble House
Stuart Way
East Grinstead
West Sussex
RH19 4QA

SPT Hammer Ref: TERRIER
Test Date: 01/06/2017
Report Date: 01/06/2017
File Name: TERRIER.spt
Test Operator: NPB

Instrumented Rod Data

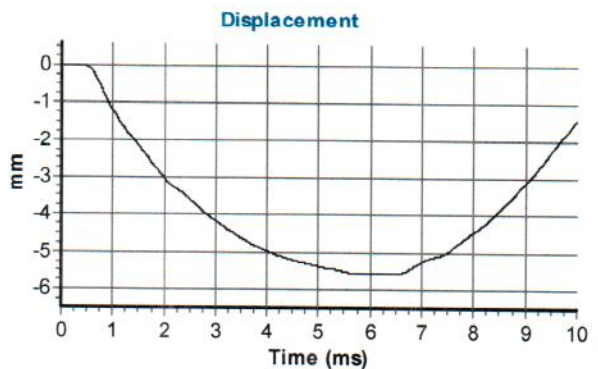
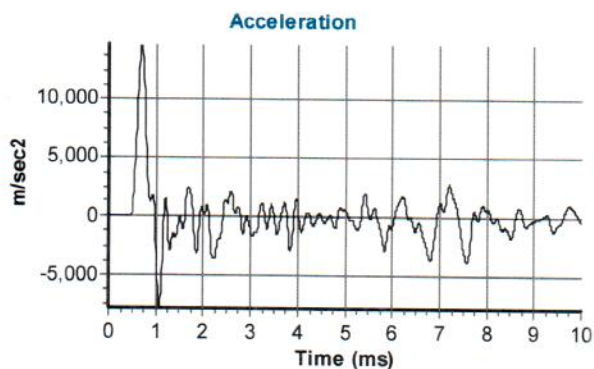
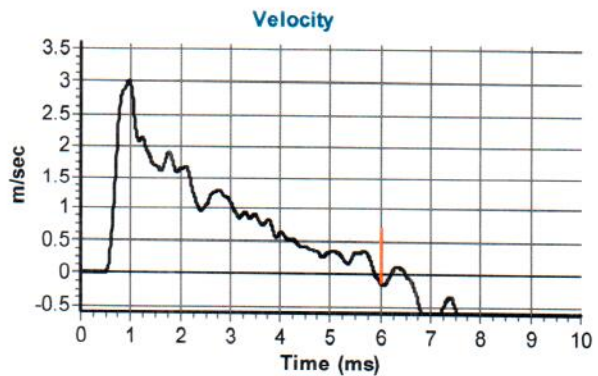
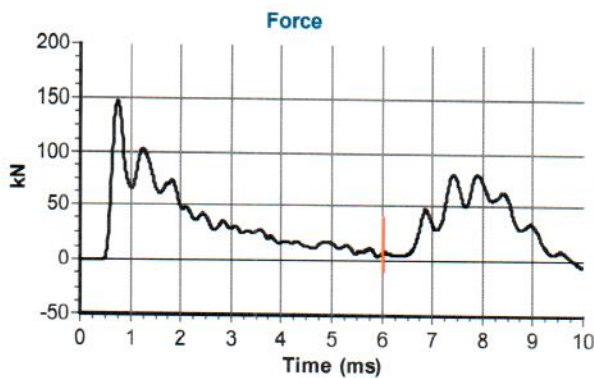
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.0
Assumed Modulus E_a (GPa): 200
Accelerometer No.1: 6458
Accelerometer No.2: 9607

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 750
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): 328

Energy Ratio E_r (%):

69

Signed: Neil Burrows
Title: Field Operations Manager

The recommended calibration interval is 12 months

10. GEOTECHNICAL LABORATORY TEST RESULTS

CONCEPT SITE INVESTIGATIONS

Site Name:	55 Fitzroy Park	Job No.:	17/3003
Client:	LBH Wembley Engineering	Date Reported:	13/09/2017

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
BH01	B	04	1.20	Brown mottled bluish grey slightly gravelly silty CLAY. Gravel comprises fine to medium flint and brick fragments	35	95	72	28	44	
BH01	B	09	4.00	Brown mottled bluish grey orangish brown slightly sandy silty CLAY with rare pockets of silt	24	100	54	19	35	

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



Date - samples received: 26/07/2017	Checked by: KM
Date - samples tested: 18/08/2017	Date: 04/09/2017
Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)	

CONCEPT
 47-49 Brunel Road, London W3 7XR
 Tel: 02087401553 Email:



CONCEPT SITE INVESTIGATIONS

Site Name:	55 Fitzroy Park	Job No.:	17/3003
Client:	LBH Wembley Engineering	Date Reported:	13/09/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	* Passing 425 μm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH02	B	05	1.20	Dark brown mottled grey slightly gravelly sandy CLAY. Gravel is fine flint	36	98	44	22	22	
BH02	D	07	3.00	Dark brown mottled orangish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to medium flint	41	97	72	26	46	

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				
Date - samples received:	27/07/2017	Checked by:	KM	CONCEPT 47-49 Brunel Road, London W3 7XR Tel: 02087401553 Email:
Date - samples tested:	30/08/2017	Date:	04/09/2017	
Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)				

CONCEPT SITE INVESTIGATIONS

Site Name:	55 Fitzroy Park	Job No.:	17/3003
Client:	LBH Wembley Engineering	Date Reported:	13/09/2017

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
BH07	B	03	1.00	Orangish brown mottled grey silty CLAY	23	100	72	25	47	Sample tested between 1.70 and 2.00m
BH07	B	04	2.00	Orangish brown mottled grey CLAY	33	100	80	24	56	
BH13	D	03	2.00	Orangish brown slightly gravelly silty CLAY. Gravel is fine to medium	29	80	71	25	46	
BH13	B	04	3.00	Grey mottled brown locally orangish brown slightly sandy silty CLAY	26	100	43	16	27	Sample tested at 3.50m
BH14	D	03	1.80	Brown CLAY with rare dark grey discolouration	33	100	84	24	60	
BH14	D	06	2.50	Brown locally mottled grey slightly micaceous CLAY with rare roots	30	100	77	25	52	
BH19	D	03	1.50	Brown locally mottled bluish grey CLAY with occasional pockets of orangish brown fine sand	24	100	71	23	48	
BH19	D	07	3.00	Orangish brown locally mottled bluish grey CLAY with rare pockets of orangish brown fine sand and occasional selenite crystals	29	100	77	25	52	

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



Date - samples received: 04/08/2017	Checked by: KM
Date - samples tested: 30/08/2017	Date: 13/09/2017
Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)	

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553 Email:



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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 17-13638

Issue: 1

Date of Issue: 24/08/2017

Contact: Richard Embery

Customer Details: Concept Engineering Consultants Ltd
Unit 8, Warple Mews
Warple Way
London
W3 0RF

Quotation No: Q15-00395

Order No: L1597

Customer Reference: 17/3003

Date Received: 18/08/2017

Date Approved: 24/08/2017

Details: 55 Fitzroy Park

Approved by: 

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)



Sample Summary

Report No.: 17-13638

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
109536	BH01 B04 1.20 - 1.70	17/08/2017	18/08/2017	Clayey loam	
109537	BH01 B09 4.00 - 4.50	17/08/2017	18/08/2017	Silty clayey loam	



Results Summary

Report No.: 17-13638

ELAB Reference	109536	109537
Customer Reference	B04	B09
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	BH01	BH01
Sample Depth (m)	1.20 - 1.70	4.00 - 4.50
Sampling Date	17/08/2017	17/08/2017

Determinand	Codes	Units	LOD		
Anions					
Water Soluble Sulphate	M	mg/l	20	183	92
Miscellaneous					
pH	M	pH units	0.1	7.8	7.6



Method Summary

Report No.: 17-13638

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	23/08/2017	113	Electromeric
Water soluble anions	M	Air dried sample	22/08/2017	172	Ion Chromatography



Report Information

Report No.: 17-13638

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

- | | |
|---|--|
| a | No date of sampling supplied |
| b | No time of sampling supplied (Waters Only) |
| c | Sample not received in appropriate containers |
| d | Sample not received in cooled condition |
| e | The container has been incorrectly filled |
| f | Sample age exceeds stability time (sampling to receipt) |
| g | Sample age exceeds stability time (sampling to analysis) |

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage



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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 17-13731

Issue: 1

Date of Issue: 31/08/2017

Contact: Richard Embery

Customer Details: Concept Engineering Consultants Ltd
Unit 8, Warple Mews
Warple Way
London
W3 0RF

Quotation No: Q15-00395

Order No: L1601

Customer Reference: 17/3003

Date Received: 25/08/2017

Date Approved: 31/08/2017

Details: 55 Fitzroy Park

Approved by: 

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)



Sample Summary

Report No.: 17-13731

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
110208	BH02 B05 1.20 - 1.70	25/08/2017	25/08/2017	Silty clayey loam	
110209	BH02 D07 3.00 - 3.45	25/08/2017	25/08/2017	Silty clayey loam	



Results Summary

Report No.: 17-13731

ELAB Reference	110208	110209
Customer Reference	B05	D07
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	BH02	BH02
Sample Depth (m)	1.20 - 1.70	3.00 - 3.45
Sampling Date	25/08/2017	25/08/2017

Determinand	Codes	Units	LOD		
Anions					
Water Soluble Sulphate	M	mg/l	20	170	136
Miscellaneous					
pH	M	pH units	0.1	7.2	8.3



Method Summary

Report No.: 17-13731

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	31/08/2017	113	Electromeric
Water soluble anions	M	Air dried sample	30/08/2017	172	Ion Chromatography



Report Information

Report No.: 17-13731

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

- | | |
|---|--|
| a | No date of sampling supplied |
| b | No time of sampling supplied (Waters Only) |
| c | Sample not received in appropriate containers |
| d | Sample not received in cooled condition |
| e | The container has been incorrectly filled |
| f | Sample age exceeds stability time (sampling to receipt) |
| g | Sample age exceeds stability time (sampling to analysis) |

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage



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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 17-13806

Issue: 1

Date of Issue: 04/09/2017

Contact: Richard Embery

Customer Details: Concept Engineering Consultants Ltd
Unit 8, Warple Mews
Warple Way
London
W3 0RF

Quotation No: Q15-00395

Order No: L1606

Customer Reference: 17/3003

Date Received: 30/08/2017

Date Approved: 04/09/2017

Details: 55 Fitzroy Park

Approved by: 

Mike Varley, Technical Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)



Sample Summary

Report No.: 17-13806

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
110552	BH07 1.70	29/08/2017	31/08/2017	Silty loam	
110553	BH13 2.00	29/08/2017	31/08/2017	Silty clayey loam	
110554	BH14 2.00	29/08/2017	31/08/2017	Silty clayey loam	
110555	BH14 3.50	29/08/2017	31/08/2017	Clayey loam	
110556	BH18 2.50	29/08/2017	31/08/2017	Clayey loam	
110557	BH18 4.00	29/08/2017	31/08/2017	Sandy clayey loam	
110558	BH19 1.50	29/08/2017	31/08/2017	Clayey loam	
110559	BH19 2.50	29/08/2017	31/08/2017	Clayey loam	



Results Summary

Report No.: 17-13806

ELAB Reference	110552	110553	110554	110555	110556	110557
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	BH07	BH13	BH14	BH14	BH18	BH18
Sample Depth (m)	1.70	2.00	2.00	3.50	2.50	4.00
Sampling Date	29/08/2017	29/08/2017	29/08/2017	29/08/2017	29/08/2017	29/08/2017

Determinand	Codes	Units	LOD						
Anions									
Water Soluble Sulphate	M	mg/l	20	111	127	258	1820	391	210
Miscellaneous									
pH	M	pH units	0.1	7.8	7.6	7.7	7.5	7.8	7.7



2683



Results Summary

Report No.: 17-13806

ELAB Reference	110558	110559
Customer Reference		
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	BH19	BH19
Sample Depth (m)	1.50	2.50
Sampling Date	29/08/2017	29/08/2017

Determinand	Codes	Units	LOD		
Anions					
Water Soluble Sulphate	M	mg/l	20	193	224
Miscellaneous					
pH	M	pH units	0.1	7.8	7.8



Method Summary

Report No.: 17-13806

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	04/09/2017	113	Electromeric
Water soluble anions	M	Air dried sample	01/09/2017	172	Ion Chromatography



Report Information

Report No.: 17-13806

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

-
- | | |
|---|--|
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| c | Sample not received in appropriate containers |
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| e | The container has been incorrectly filled |
| f | Sample age exceeds stability time (sampling to receipt) |
| g | Sample age exceeds stability time (sampling to analysis) |



Where a sample has a deviation code, the applicable test result may be invalid.



Sample Retention and Disposal



All soil samples will be retained for a period of one month



All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage

CONCEPT SITE INVESTIGATIONS				Summary Test Report - Undrained Triaxial Compression (Single-Stage) BS 1377 : Part 7: 1990 Clause 8					Date Reported:	13/09/2017						
Site Location: 55 Fitzroy Park								Client: LBH Wembley Engineering						Job No.:	17/3003	
BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m ²	Strain at failure %	Bulk Density Mg/m ³	Dry Density Mg/m ³	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments				
BH01	UT	10	5.50	Firm, extremely closely fissured brown silty CLAY with rare pockets of orangish brown silty fine sand (<20mm) and occasional bluish grey discolouration	110	15.8	1.870	1.379	36	88	44	Brittle with plastic deformation				
BH01	UT	13	8.50	Firm, extremely closely fissured brownish grey slightly micaceous slightly sandy CLAY with rare bioturbation and white flecks	170	7.5	1.970	1.526	29	178	89	Brittle				
BH01	UT	16	11.50	Firm to stiff, extremely closely to very closely fissured greyish brown slightly micaceous CLAY with rare bioturbation and white flecks	230	7.4	1.943	1.496	30	205	103	Brittle				
BH01	UT	19	14.50	Stiff, extremely closely to very closely fissured greyish brown slightly micaceous CLAY with rare bioturbation and white flecks	290	5.6	1.975	1.538	28	343	172	Brittle				
BH01	UT	22	17.50	Stiff, extremely closely to very closely fissured brownish grey slightly micaceous CLAY with rare bioturbation and white flecks								Insufficient testable sample (Pre-existing fissures, sample split on extrusion)				
BH01	UT	25	20.50	Stiff, extremely closely fissured greyish brown slightly micaceous CLAY with rare bioturbation and white flecks	410	7.6	2.000	1.579	27	375	188	Brittle				
Date - samples received: 26/07/2017					<p align="center">CONCEPT</p> 47-49 Brunel Road, London W3 7XR Tel: 02087401553 Email: Lab@conceptconsultants.co.uk											
Date - samples tested: 18/08/2017																
Checked by: KM		Date: 04/09/2017														
Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)																

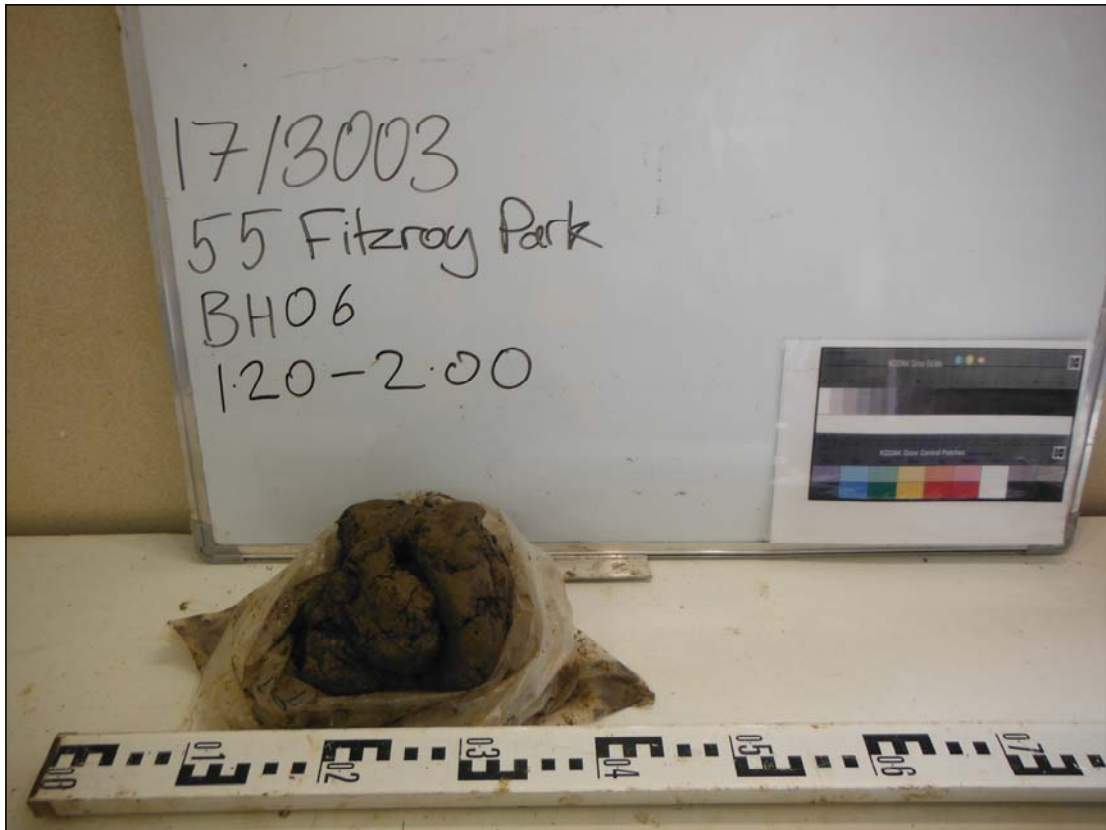
CONCEPT SITE INVESTIGATIONS				Summary Test Report - Undrained Triaxial Compression (Single-Stage) BS 1377 : Part 7: 1990 Clause 8						Date Reported: 13/09/2017		
Site Location: 55 Fitzroy Park				Client: LBH Wembley Engineering								
BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m ²	Strain at failure %	Bulk Density Mg/m ³	Dry Density Mg/m ³	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments
BH01	UT	28	23.50	Very stiff, extremely closely to very closely fissured greyish brown slightly micaceous CLAY with rare bioturbation, white flecks and a pyrite nodule (25x30mm) at 24.05m	470	4.2	2.029	1.616	26	652	326	Brittle (Sample tested between 23.55 and 23.75m)
BH01	UT	31	26.50	Very stiff, extremely closely fissured greyish brown slightly micaceous slightly sandy CLAY with rare partings of light brown fine sand, bioturbation and white flecks	530	4.7	1.986	1.607	24	348	174	Brittle
BH01	UT	34	29.50	Very stiff, extremely closely to very closely fissured greyish brown slightly micaceous CLAY with rare bioturbation, white flecks and a pyritised wood fragment (20x20mm)	590	5.6	2.006	1.594	26	376	188	Brittle
Date - samples received: 26/07/2017					<p align="center">CONCEPT</p> 47-49 Brunel Road, London W3 7XR Tel: 02087401553 Email: Lab@conceptconsultants.co.uk					 		
Date - samples tested: 18/08/2017												
Checked by: KM		Date: 04/09/2017										
Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)												

CONCEPT SITE INVESTIGATIONS				Summary Test Report - Undrained Triaxial Compression (Single-Stage)						Date Reported:		13/09/2017			
				BS 1377 : Part 7: 1990 Clause 8						Job No.:		17/3003			
Site Location: 55 Fitzroy Park				Client: LBH Wembley Engineering											
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			
BH02	UT	10	7.00	Firm, extremely closely fissured brown mottled bluish grey silty CLAY with rare selenite crystals	140	7.1	1.883	1.423	32	137	69	Brittle			
BH02	UT	13	10.00	Stiff, extremely closely fissured brownish grey slightly micaceous slightly sandy CLAY with rare bioturbation and white flecks	200	5.5	1.918	1.470	30	185	93	Brittle			
BH02	UT	16	13.00	Stiff, extremely closely fissured brownish grey slightly micaceous CLAY with rare bioturbation and white flecks	260	2.9	1.959	1.538	27	288	144	Brittle			
BH02	UT	19	16.00	Stiff, extremely closely fissured brownish grey slightly micaceous slightly sandy CLAY with rare bioturbation and white flecks and a pyrite nodule (25x25mm) at 16.16m	320	6.9	1.940	1.533	27	267	134	Brittle (Sample tested between 16.03 and 16.23m)			
BH02	UT	22	19.00	Very stiff, extremely closely to very closely fissured brownish grey slightly micaceous CLAY with rare bioturbation, white flecks and a pyrite nodule (30x45mm) at 19.12m	380	3.3	2.024	1.591	27	229	115	Brittle (Sample tested between 19.04 and 19.24m)			
BH02	UT	25	22.00	Very stiff, extremely closely to very closely fissured greyish brown slightly micaceous CLAY with rare bioturbation and white flecks	440	4.7	1.993	1.564	27	251	126	Brittle			
Date - samples received: 27/07/2017				<p align="center">CONCEPT</p> <p align="center">47-49 Brunel Road, London W3 7XR Tel: 02087401553 Email: Lab@conceptconsultants.co.uk</p>											
Date - samples tested: 21/08/2017															
Checked by: KM		Date: 04/09/2017													
Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)															

CONCEPT SITE INVESTIGATIONS				Summary Test Report - Undrained Triaxial Compression (Single-Stage)						Date Reported:		13/09/2017	
				BS 1377 : Part 7: 1990 Clause 8						Job No.:		17/3003	
Site Location: 55 Fitzroy Park				Client: LBH Wembley Engineering									
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	
BH02	UT	28	25.00	Very stiff, extremely closely to very closely fissured greyish brown slightly micaceous CLAY with rare bioturbation and white flecks	500	3.2	2.005	1.580	27	627	314	Brittle	
BH02	UT	31	28.00	Very stiff, extremely closely to very closely fissured greyish brown slightly micaceous CLAY with rare bioturbation and white flecks	560	3.7	1.997	1.604	25	207	104	Brittle	
Date - samples received: 27/07/2017					<p align="center">CONCEPT</p> <p align="center">47-49 Brunel Road, London W3 7XR Tel: 02087401553 Email: Lab@conceptconsultants.co.uk</p>								
Date - samples tested: 22/08/2017													
Checked by: KM		Date: 04/09/2017											
Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)													

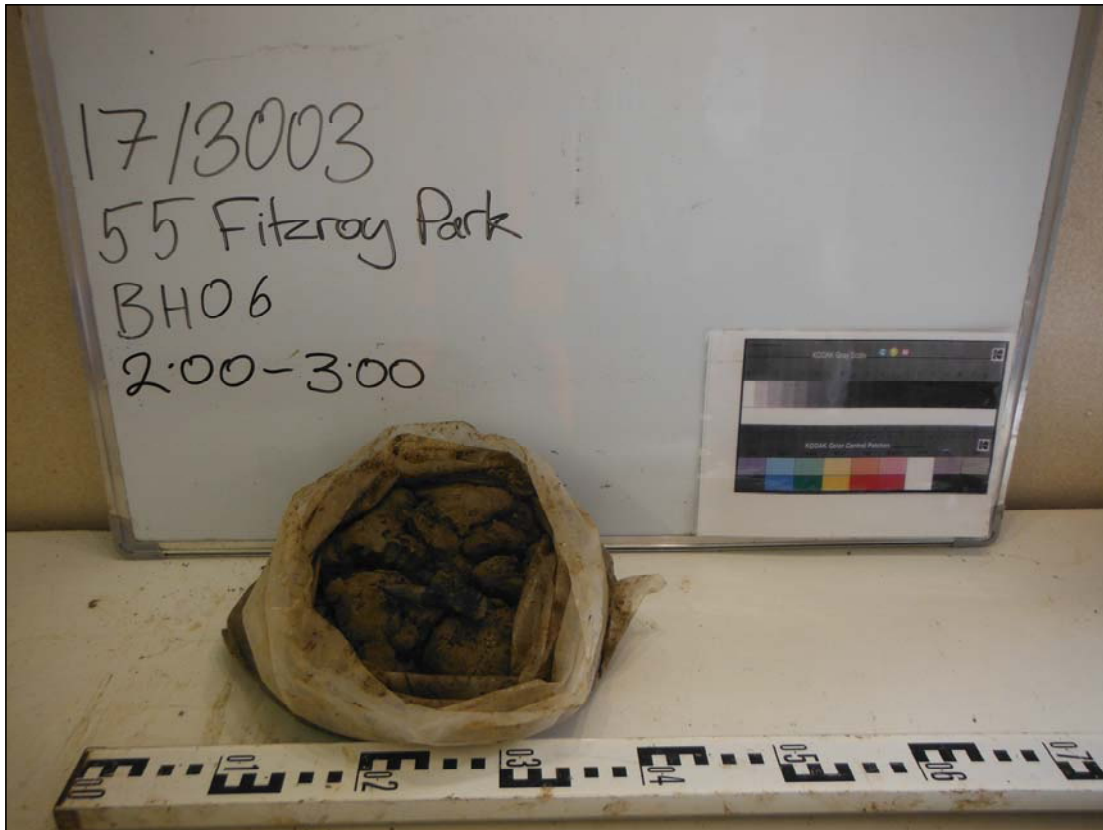
11. PHOTOGRAPHS

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH06
Carried out for	LBH Wembley Engineering	Date		Photograph	01



Photograph No 01

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH06
Carried out for	LBH Wembley Engineering	Date		Photograph	02



Photograph No 02

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH06
Carried out for	LBH Wembley Engineering	Date		Photograph	03



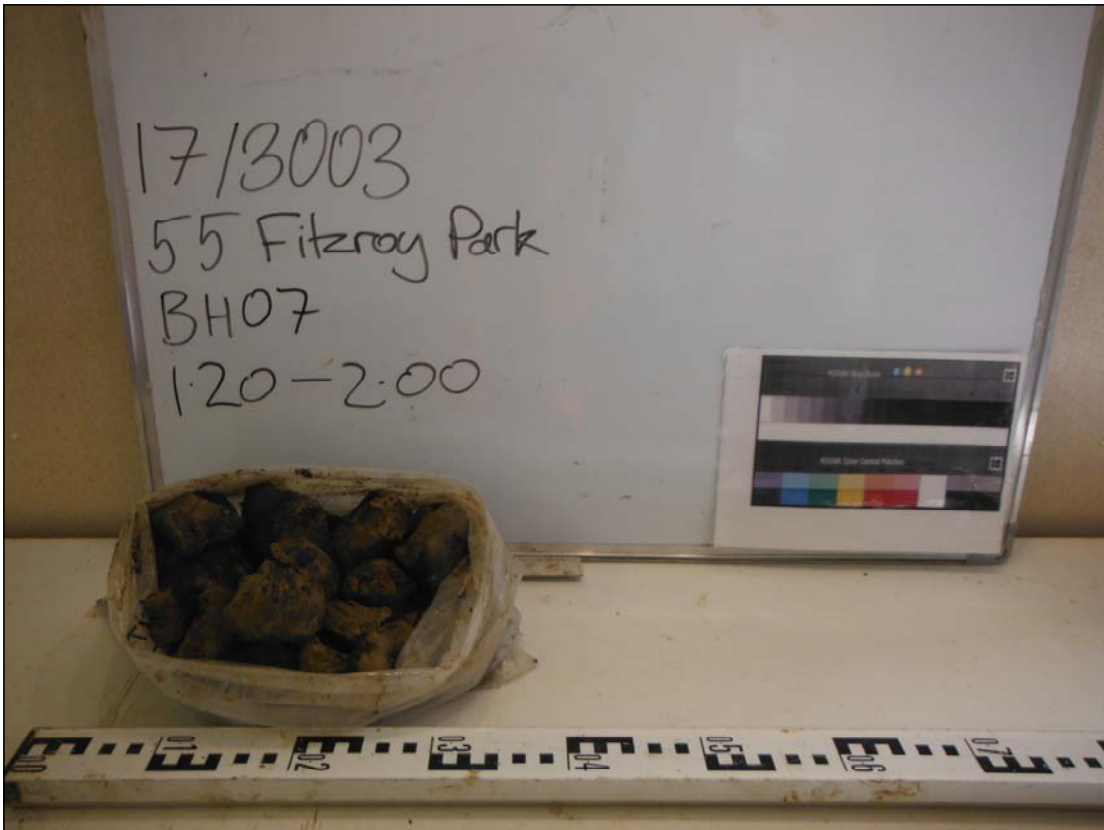
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Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH06
Carried out for	LBH Wembley Engineering	Date		Photograph	04



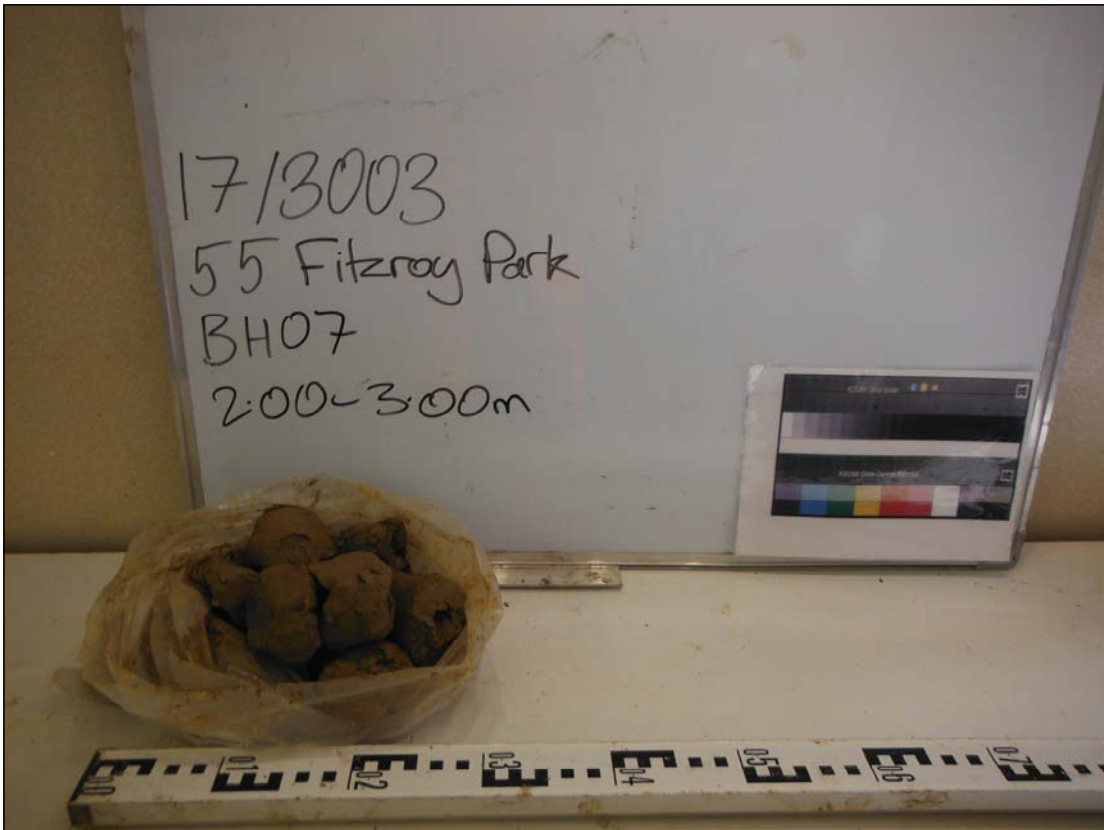
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Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH07
Carried out for	LBH Wembley Engineering	Date		Photograph	01



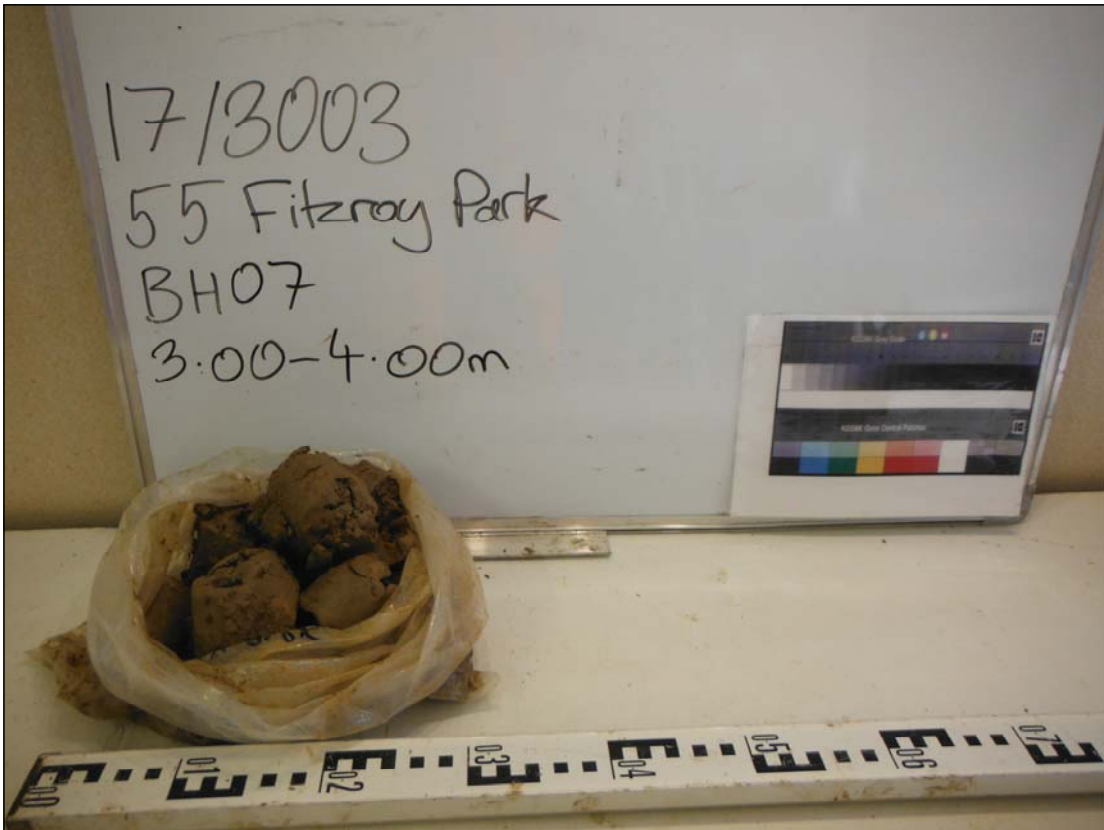
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Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH07
Carried out for	LBH Wembley Engineering	Date		Photograph	02



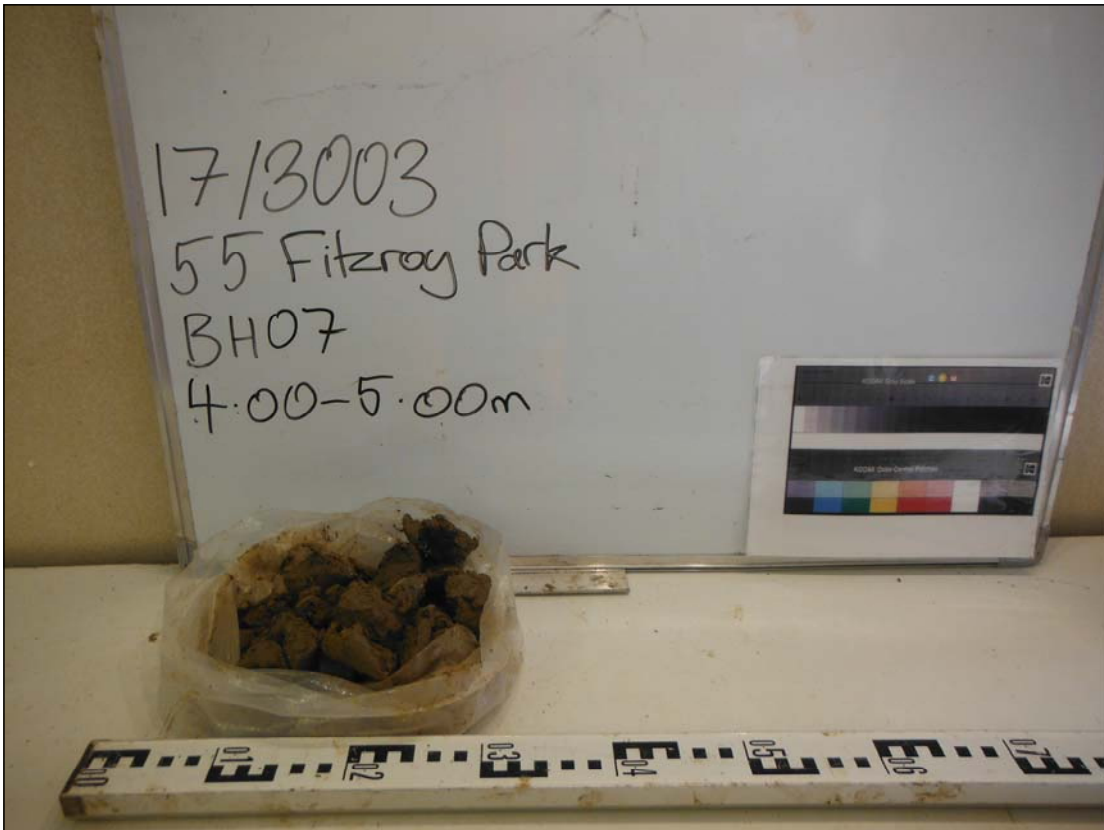
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Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH07
Carried out for	LBH Wembley Engineering	Date		Photograph	03



Photograph No 03

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH07
Carried out for	LBH Wembley Engineering	Date		Photograph	04



Photograph No 04

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH08
Carried out for	LBH Wembley Engineering	Date		Photograph	01 & 02

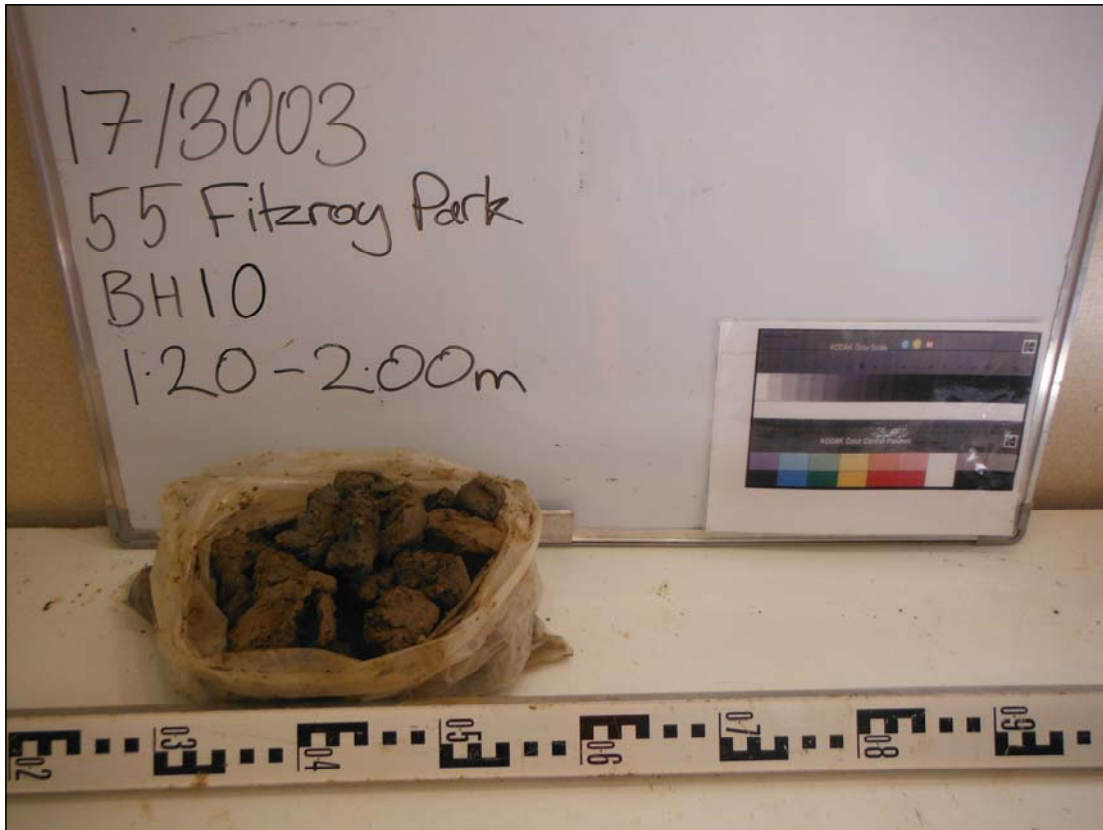


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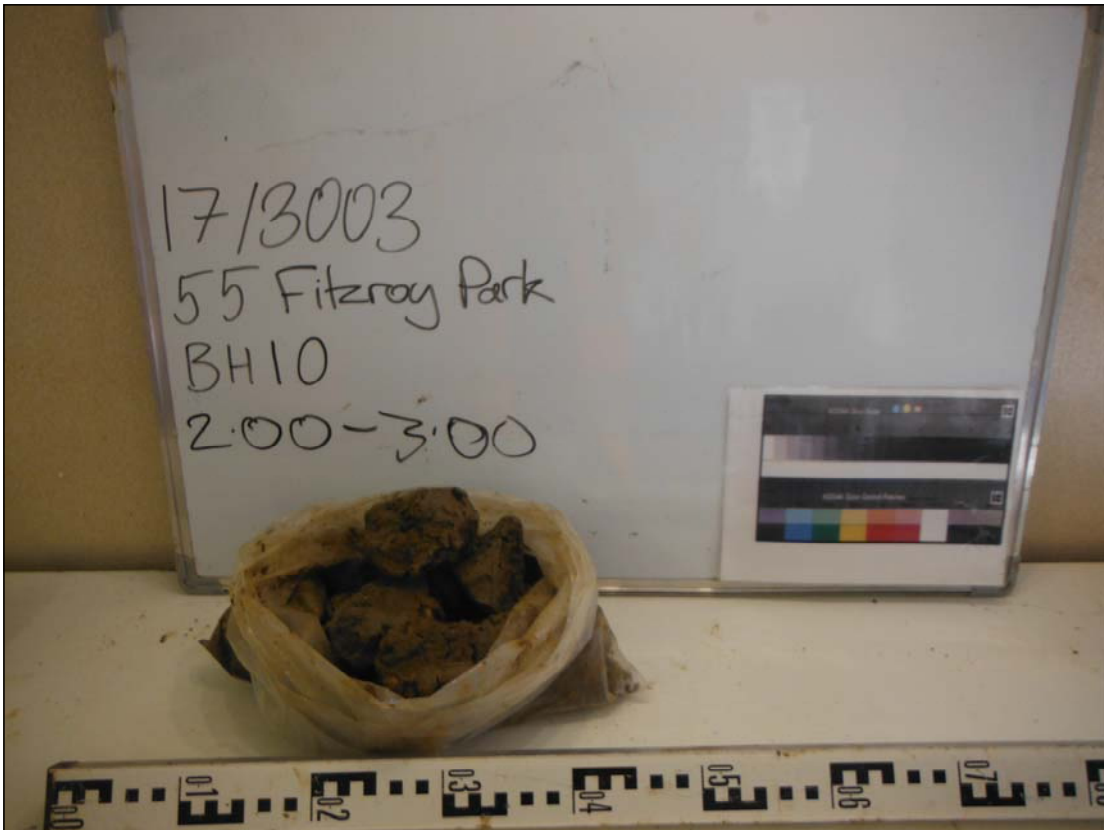
Photograph No 02

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH10
Carried out for	LBH Wembley Engineering	Date		Photograph	01



Photograph No 01

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH10
Carried out for	LBH Wembley Engineering	Date		Photograph	02



Photograph No 02

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH10
Carried out for	LBH Wembley Engineering	Date		Photograph	03



Photograph No 03

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH11
Carried out for	LBH Wembley Engineering	Date		Photograph	01



Photograph No 01

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH11
Carried out for	LBH Wembley Engineering	Date		Photograph	02



Photograph No 02

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH11
Carried out for	LBH Wembley Engineering	Date		Photograph	03 & 04

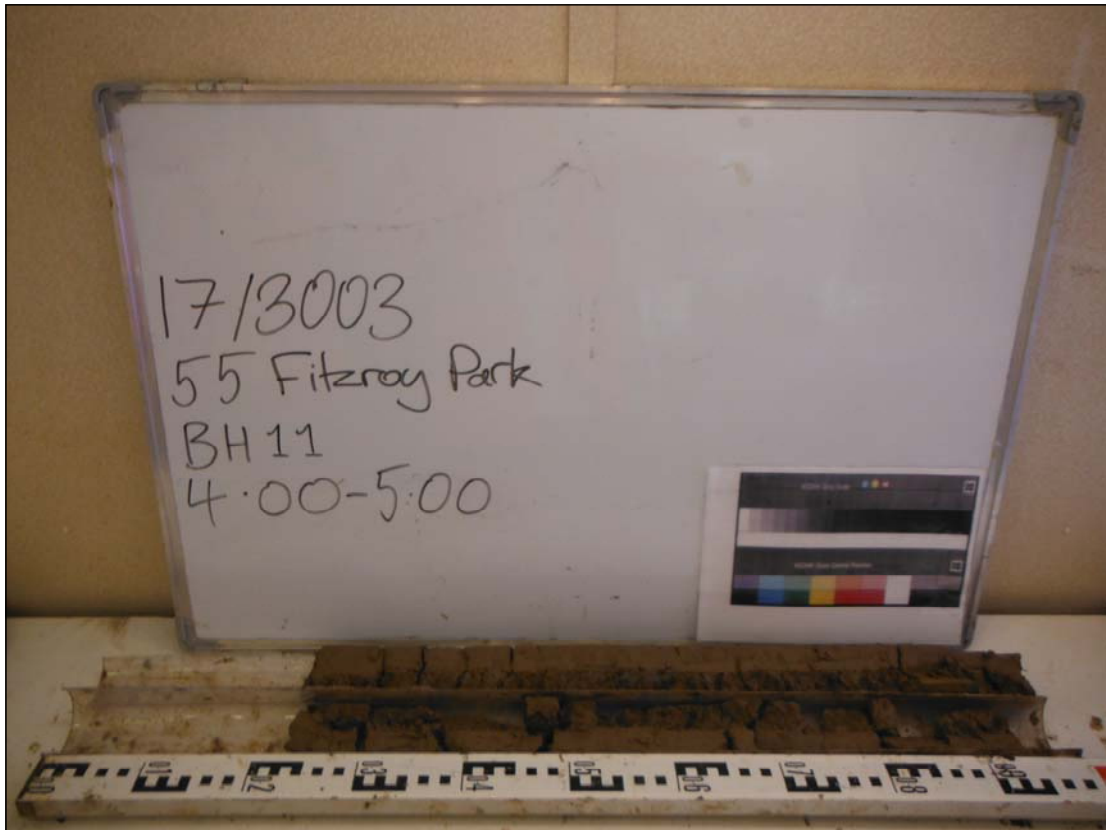


Photograph No 03



Photograph No 04

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH11
Carried out for	LBH Wembley Engineering	Date		Photograph	05



Photograph No 05

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH12
Carried out for	LBH Wembley Engineering	Date		Photograph	01 & 02



Photograph No 01



Photograph No 02

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH12
Carried out for	LBH Wembley Engineering	Date		Photograph	03 & 04



Photograph No 03



Photograph No 04

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH13
Carried out for	LBH Wembley Engineering	Date		Photograph	01



Photograph No 01

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH13
Carried out for	LBH Wembley Engineering	Date		Photograph	02 & 03

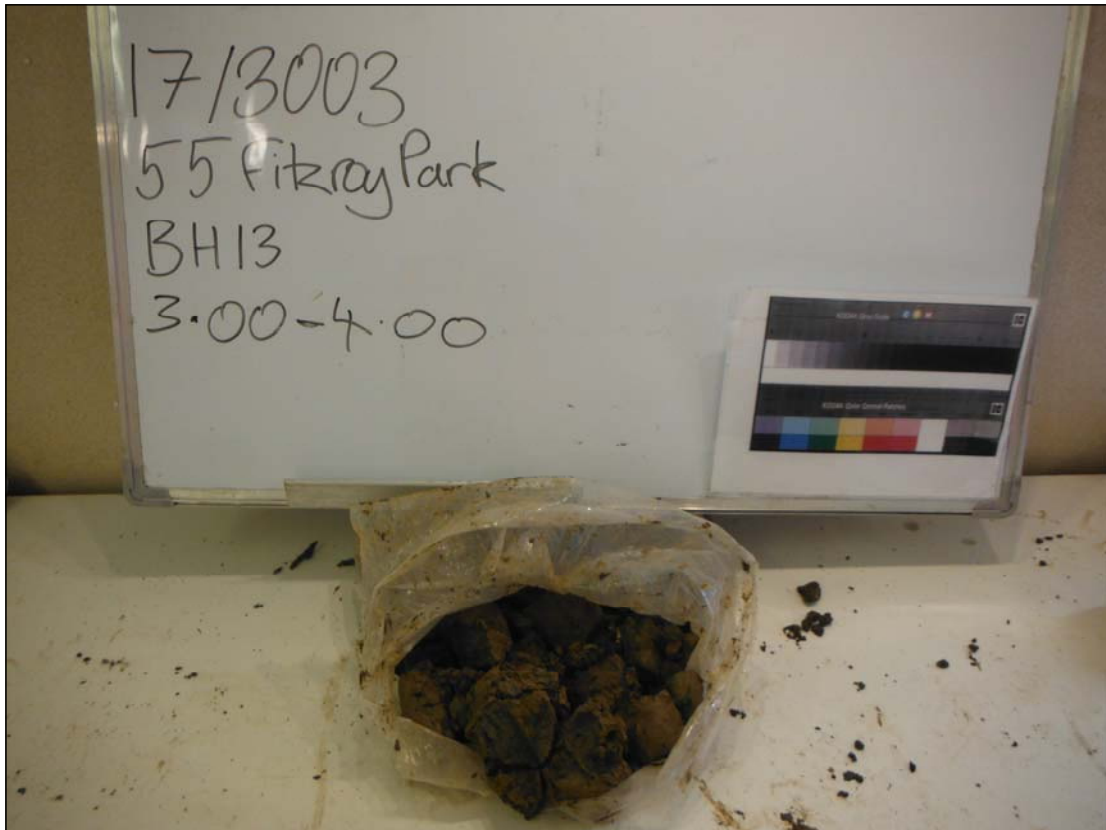


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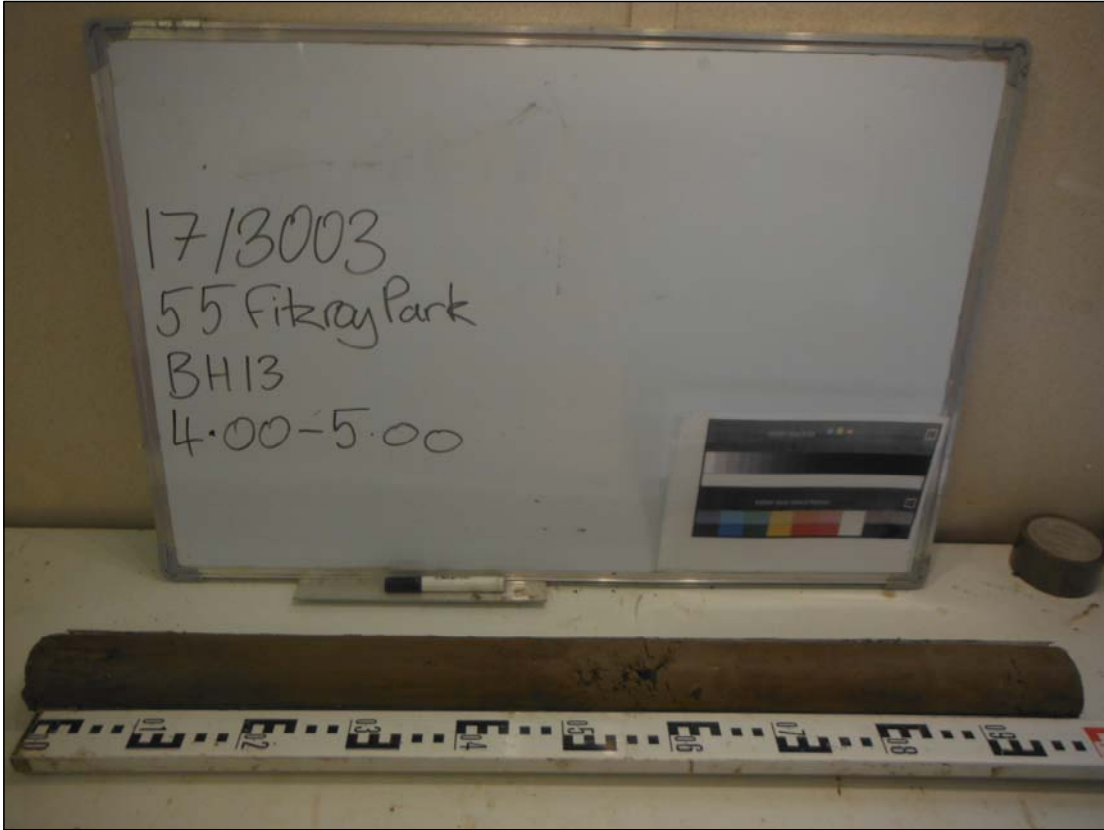
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Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH13
Carried out for	LBH Wembley Engineering	Date		Photograph	04



Photograph No 04

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH13
Carried out for	LBH Wembley Engineering	Date		Photograph	05 & 06



Photograph No 05



Photograph No 06

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH14
Carried out for	LBH Wembley Engineering	Date		Photograph	01

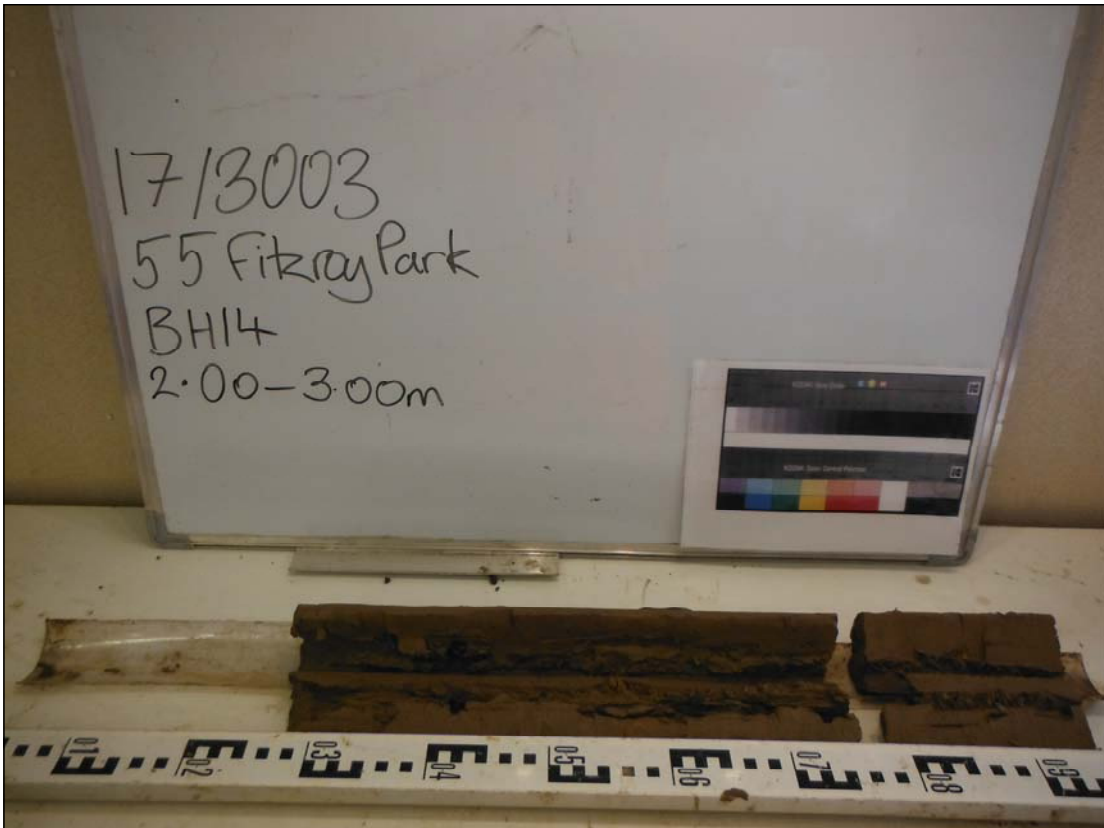


Photograph No 01

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH14
Carried out for	LBH Wembley Engineering	Date		Photograph	02 & 03



Photograph No 02



Photograph No 03

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH14
Carried out for	LBH Wembley Engineering	Date		Photograph	04



Photograph No 04

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH14
Carried out for	LBH Wembley Engineering	Date		Photograph	05



Photograph No 05

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH15
Carried out for	LBH Wembley Engineering	Date		Photograph	01 & 02



Photograph No 01

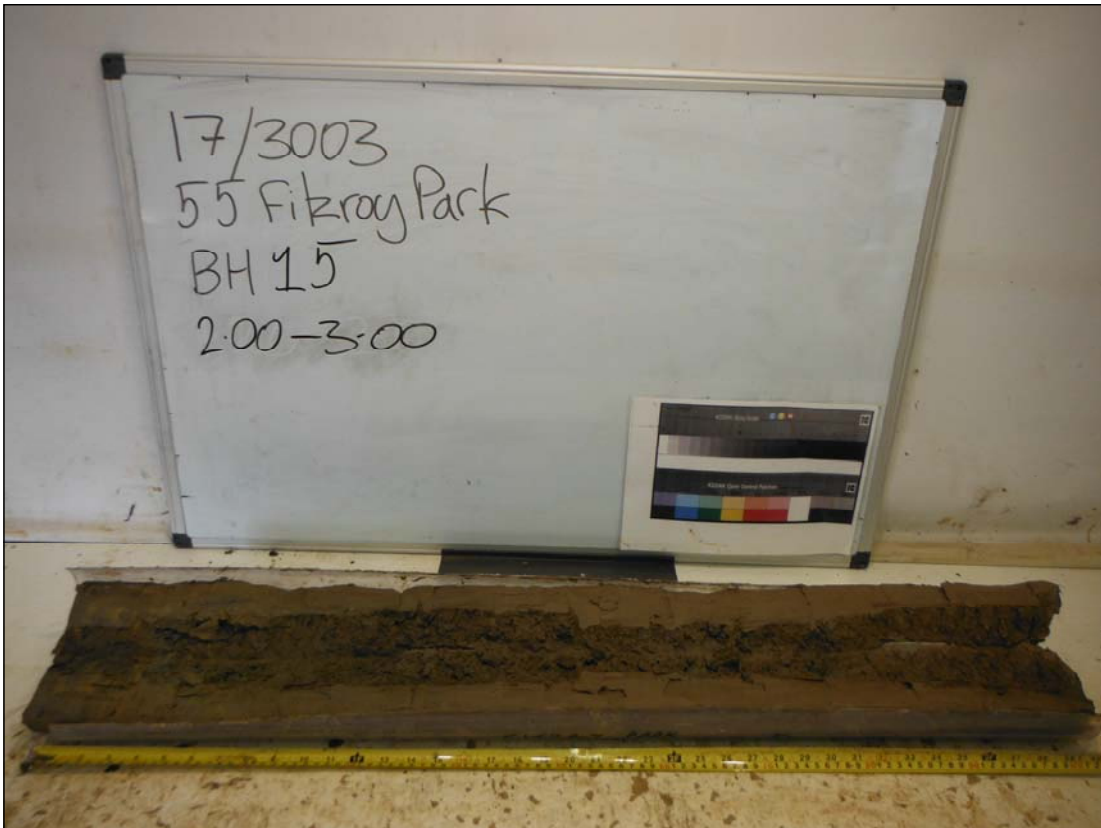


Photograph No 02

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH15
Carried out for	LBH Wembley Engineering	Date		Photograph	03 & 04



Photograph No 03



Photograph No 04

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH15
Carried out for	LBH Wembley Engineering	Date		Photograph	05 & 06

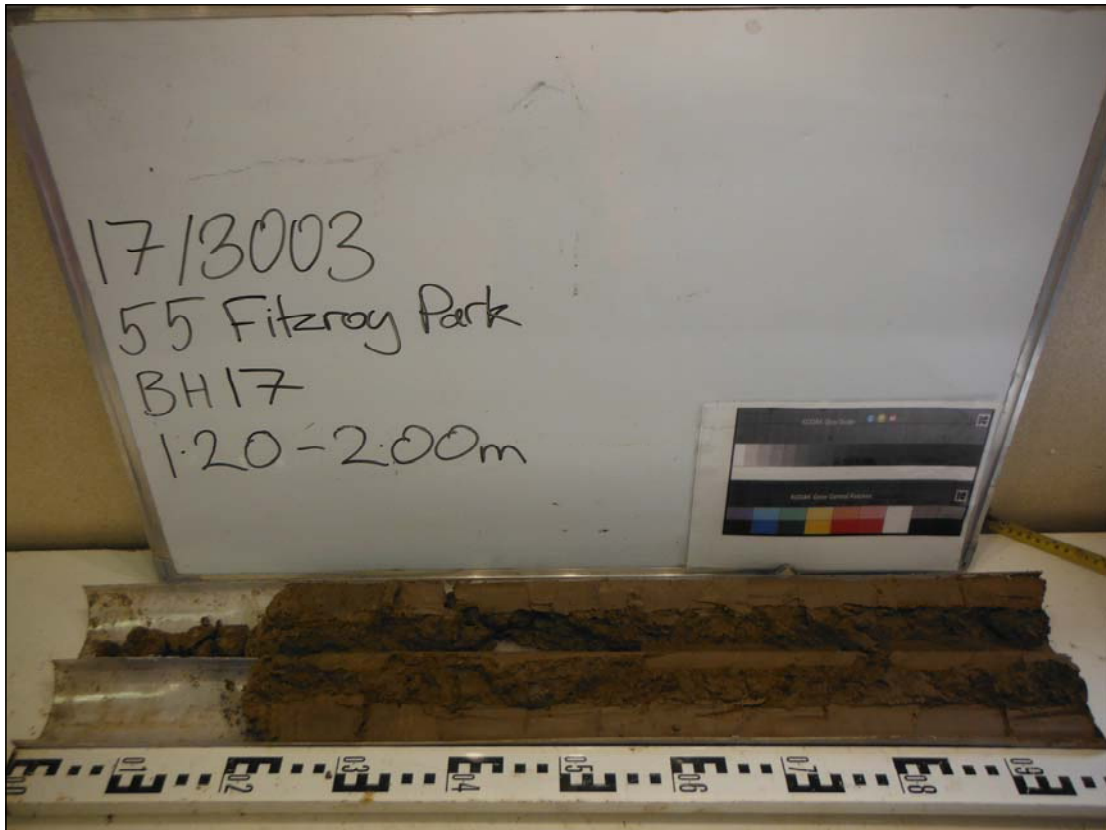


Photograph No 05



Photograph No 06

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH17
Carried out for	LBH Wembley Engineering	Date		Photograph	01



Photograph No 01

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH18
Carried out for	LBH Wembley Engineering	Date		Photograph	01 & 02



Photograph No 01



Photograph No 02

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH18
Carried out for	LBH Wembley Engineering	Date		Photograph	03 & 04

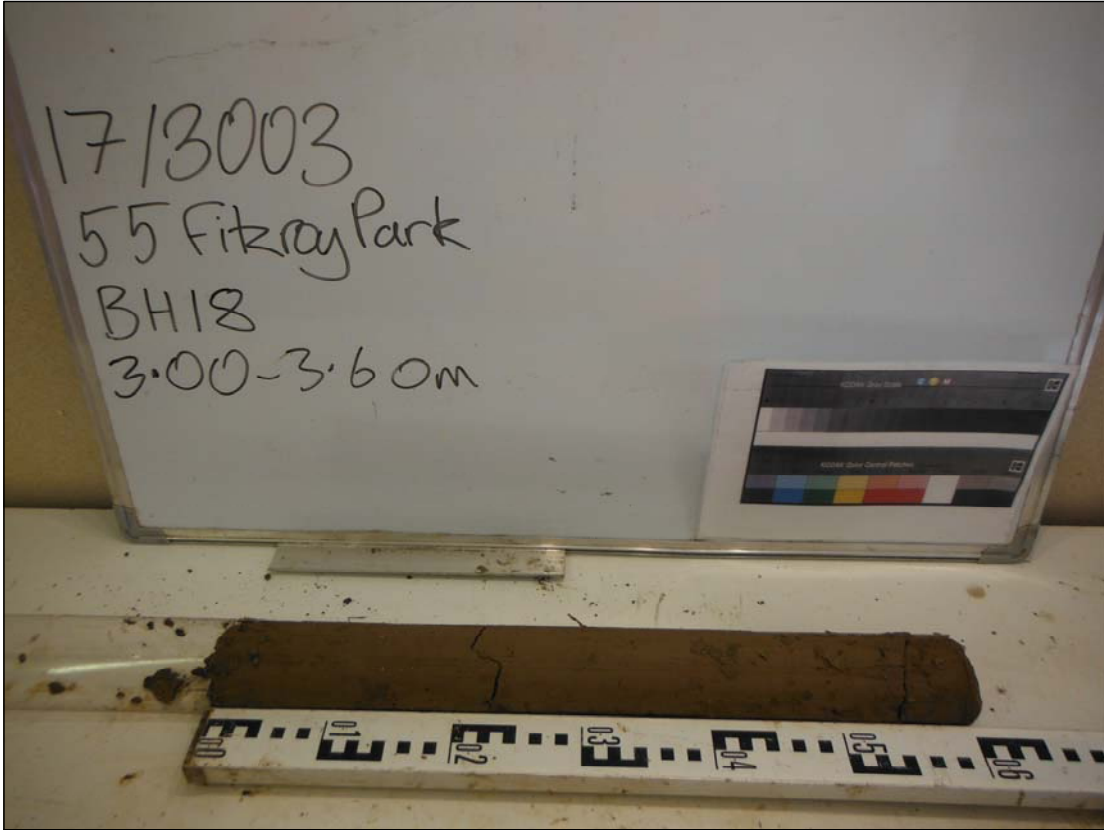


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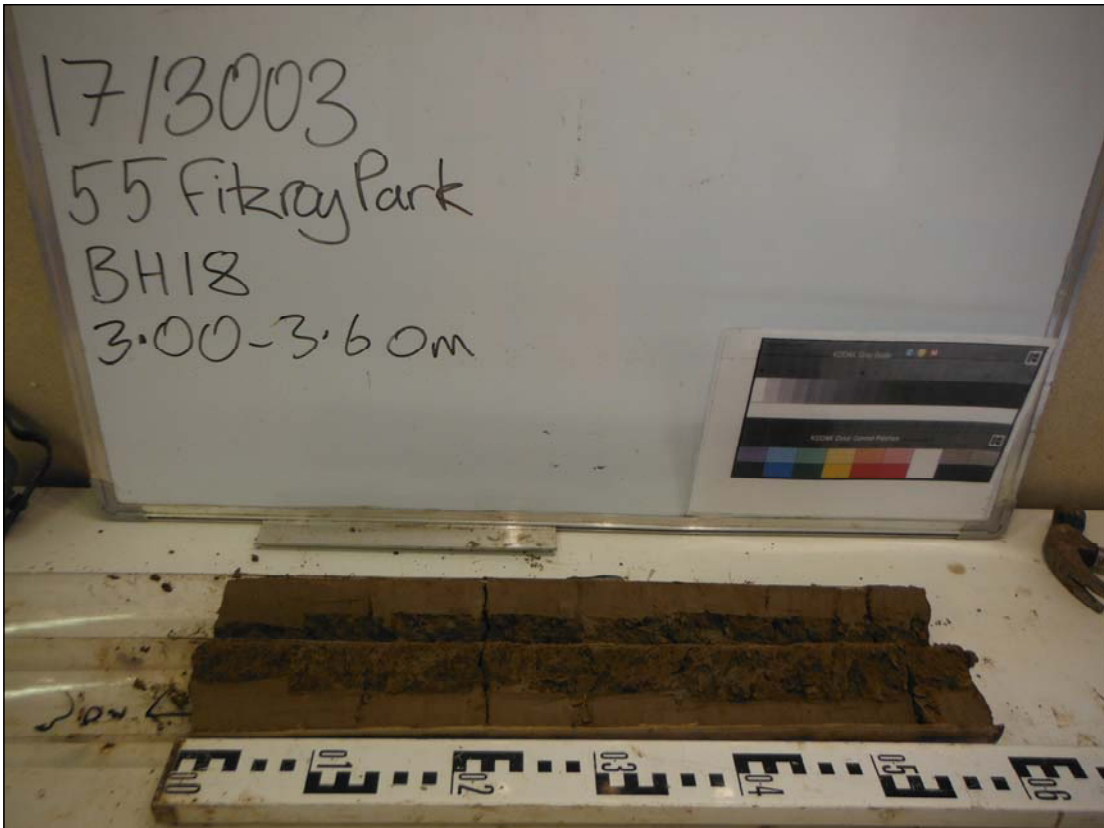


Photograph No 04

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH18
Carried out for	LBH Wembley Engineering	Date		Photograph	05 & 06



Photograph No 05



Photograph No 06

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH19
Carried out for	LBH Wembley Engineering	Date		Photograph	01 & 02



Photograph No 01



Photograph No 02

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH19
Carried out for	LBH Wembley Engineering	Date		Photograph	03 & 04



Photograph No 03

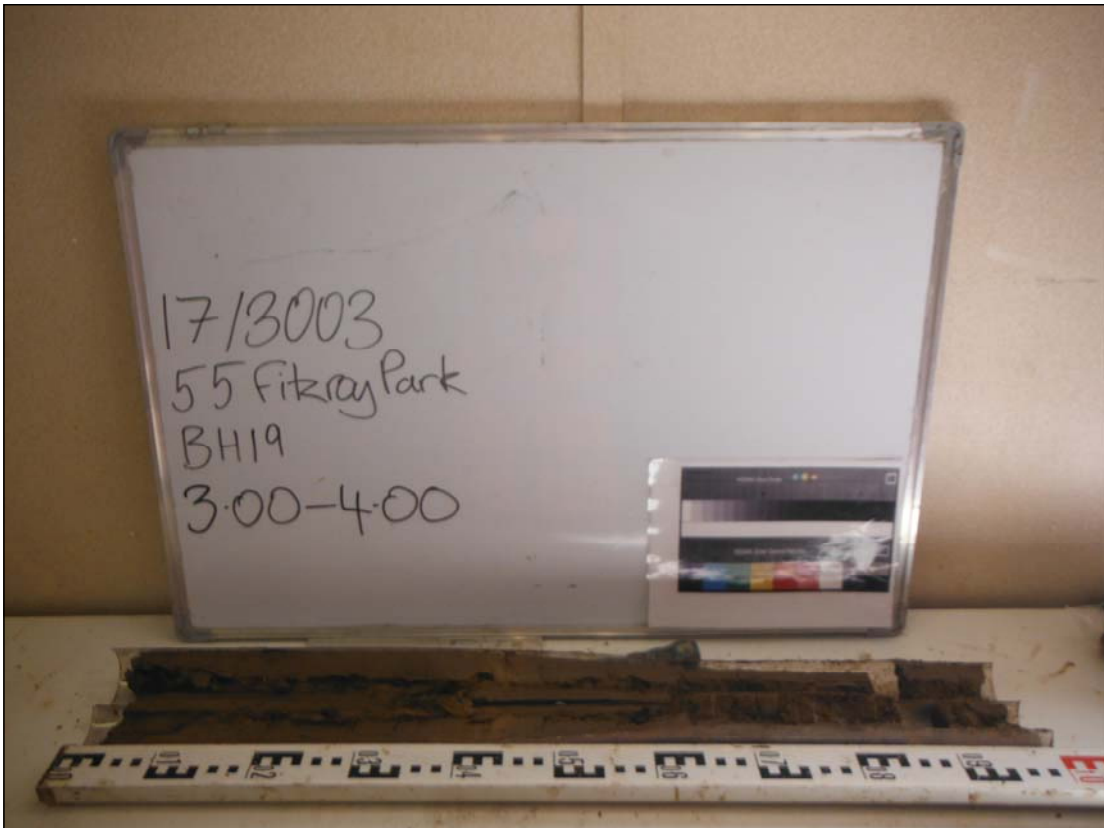


Photograph No 04

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH19
Carried out for	LBH Wembley Engineering	Date		Photograph	05 & 06



Photograph No 05



Photograph No 06

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH19
Carried out for	LBH Wembley Engineering	Date		Photograph	07 & 08



Photograph No 07



Photograph No 08

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH20
Carried out for	LBH Wembley Engineering	Date		Photograph	01 & 02

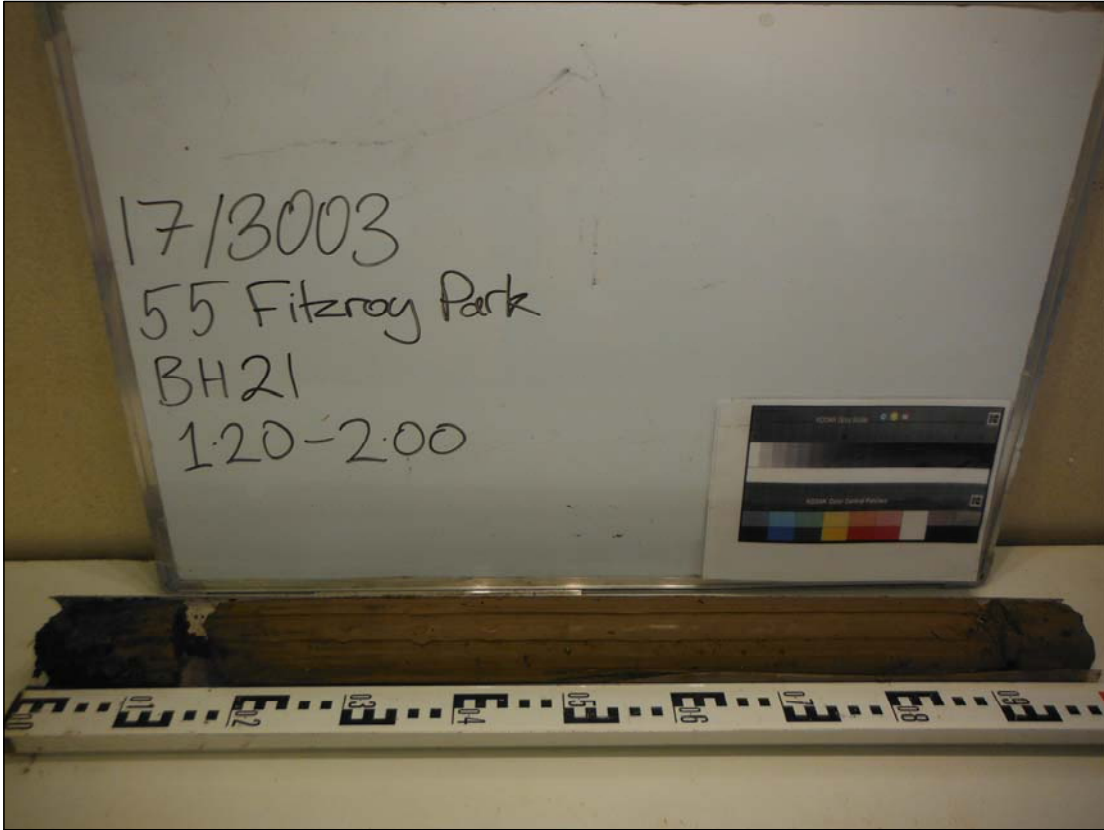


Photograph No 01



Photograph No 02

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH21
Carried out for	LBH Wembley Engineering	Date		Photograph	01 & 02



Photograph No 01



Photograph No 02

Site Name	55 Fitzroy Park	Job No.	17/3003	HOLE	BH21
Carried out for	LBH Wembley Engineering	Date		Photograph	03 & 04



Photograph No 03



Photograph No 04