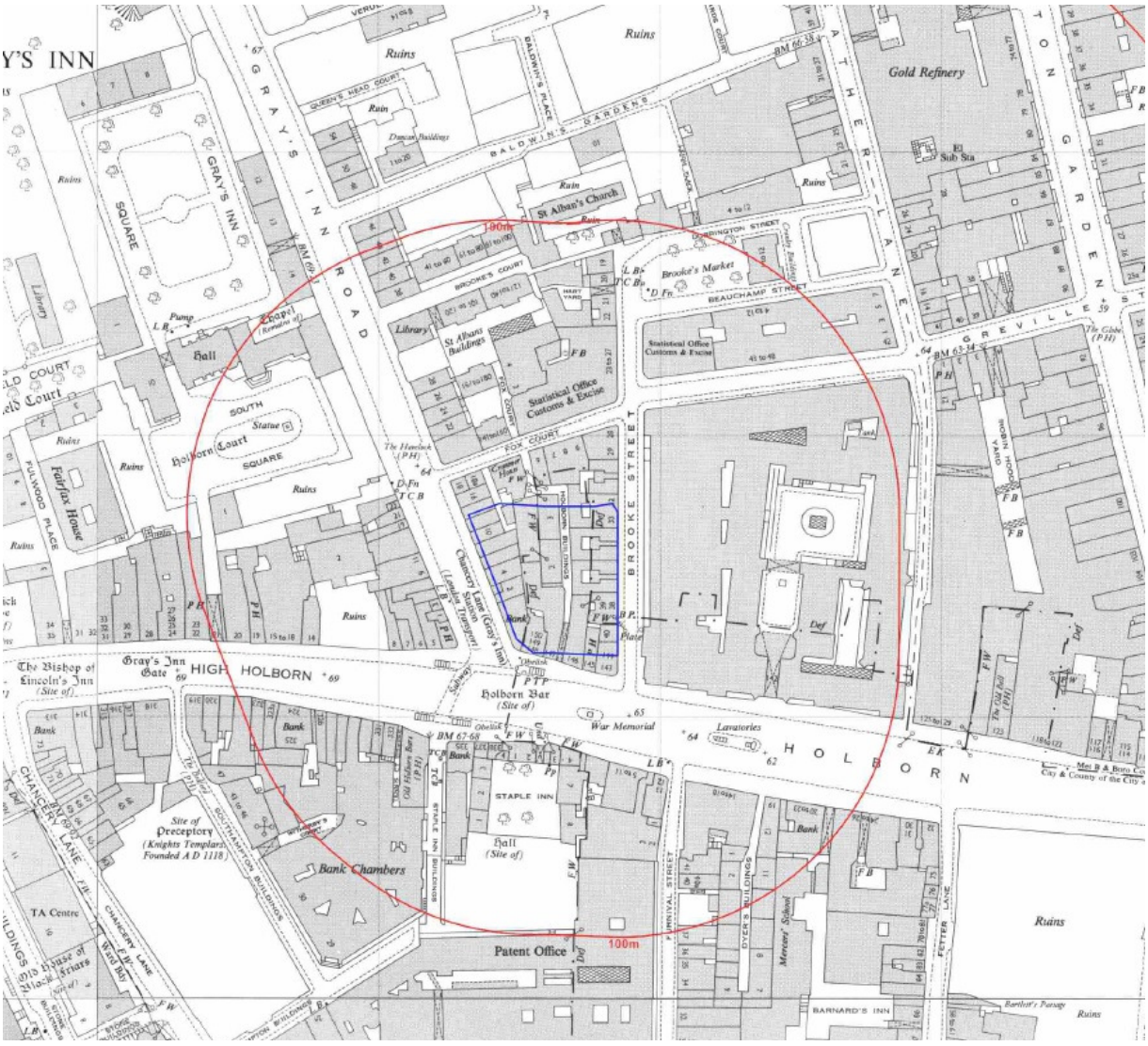


Figure 5: Historical Map Extract

Map Date: 1951

Scale: Not to scale

RPS
35 New Bridge Street
London
EC4V 6BW

☎ 020-7280-3200
www.rpsgroup.com

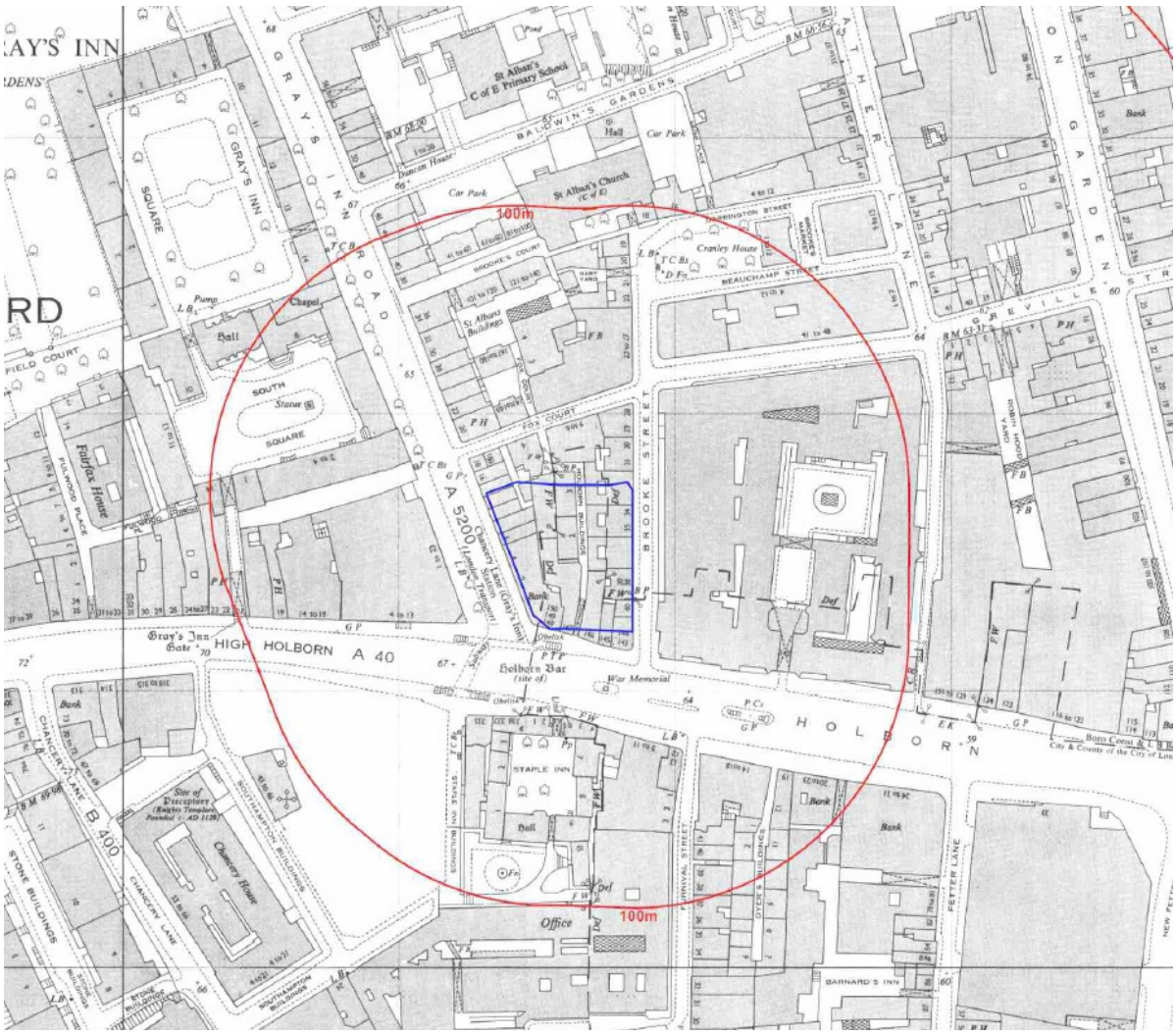


Figure 6: Historical Map Extract

Map Date: 1967

Scale: Not to scale

RPS
35 New Bridge Street
London
EC4V 6BW

☎ 020-7280-3200
www.rpsgroup.com

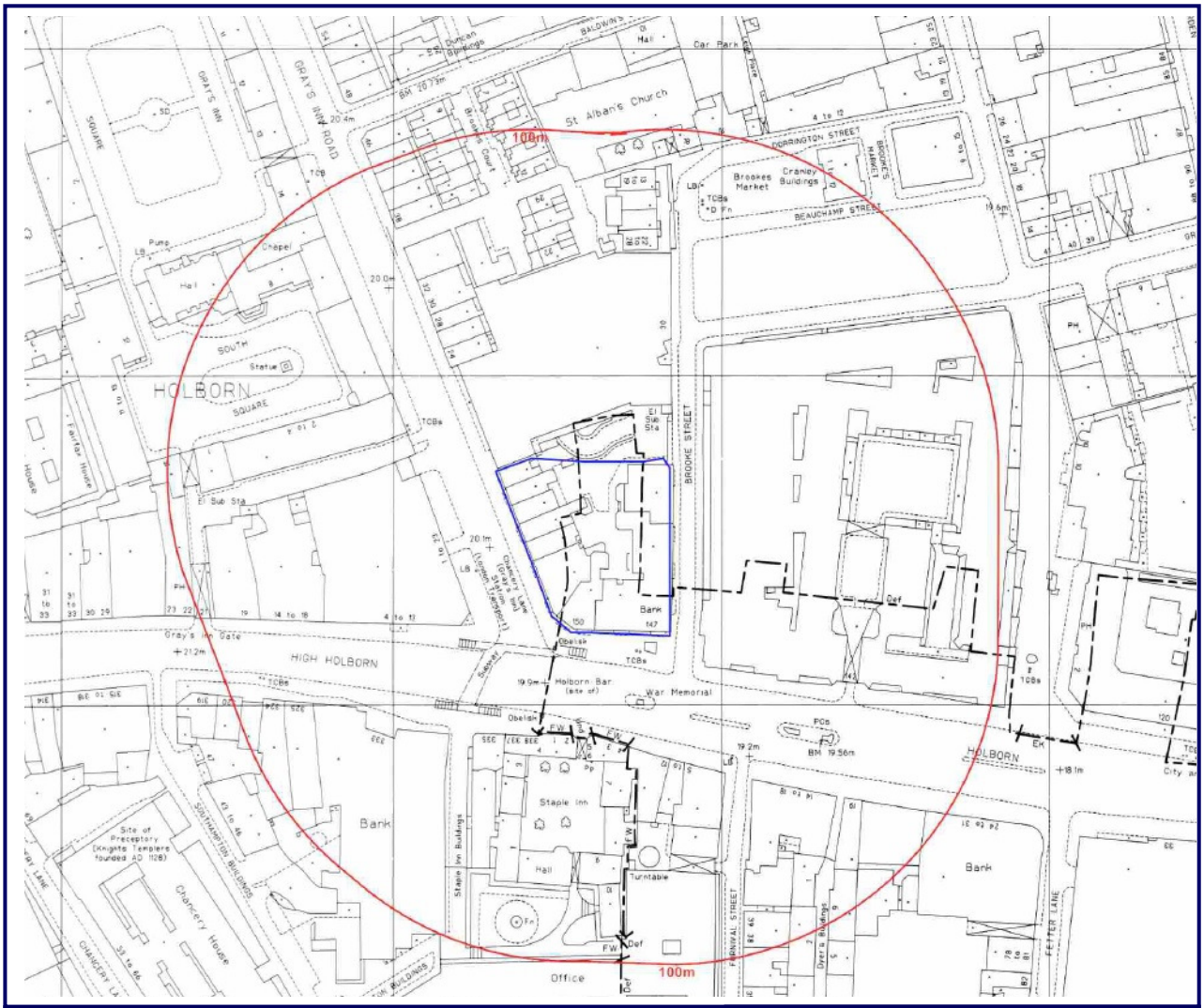


Figure 7: Historical Map Extract

Map Date: 1991

Scale: Not to scale

RPS
35 New Bridge Street
London
EC4V 6BW

☎ 020-7280-3200
www.rpsgroup.com

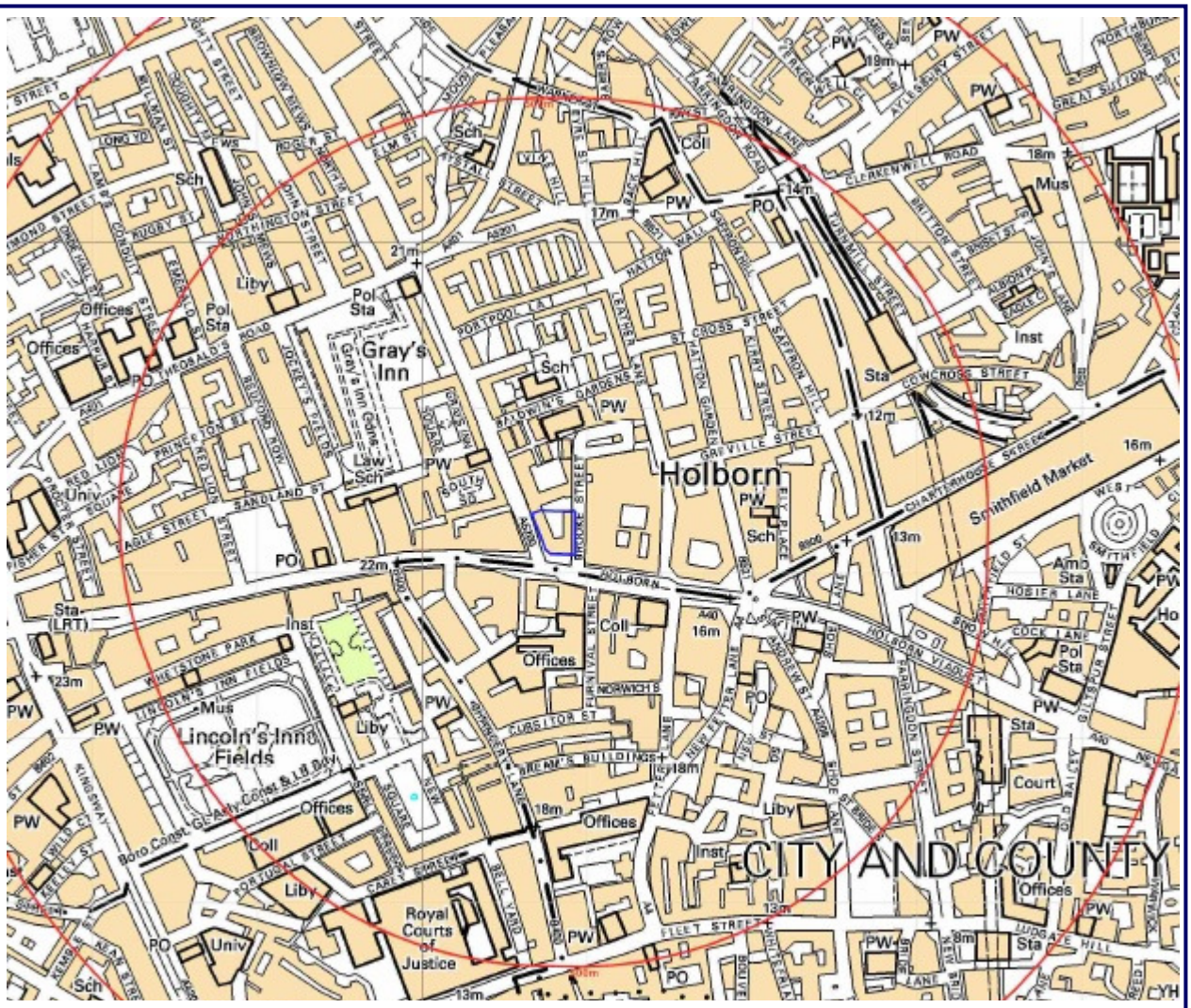


Figure 8: Historical Map Extract

Map Date: 2002

Scale: Not to scale

RPS
35 New Bridge Street
London
EC4V 6BW

☎ 020-7280-3200
www.rpsgroup.com

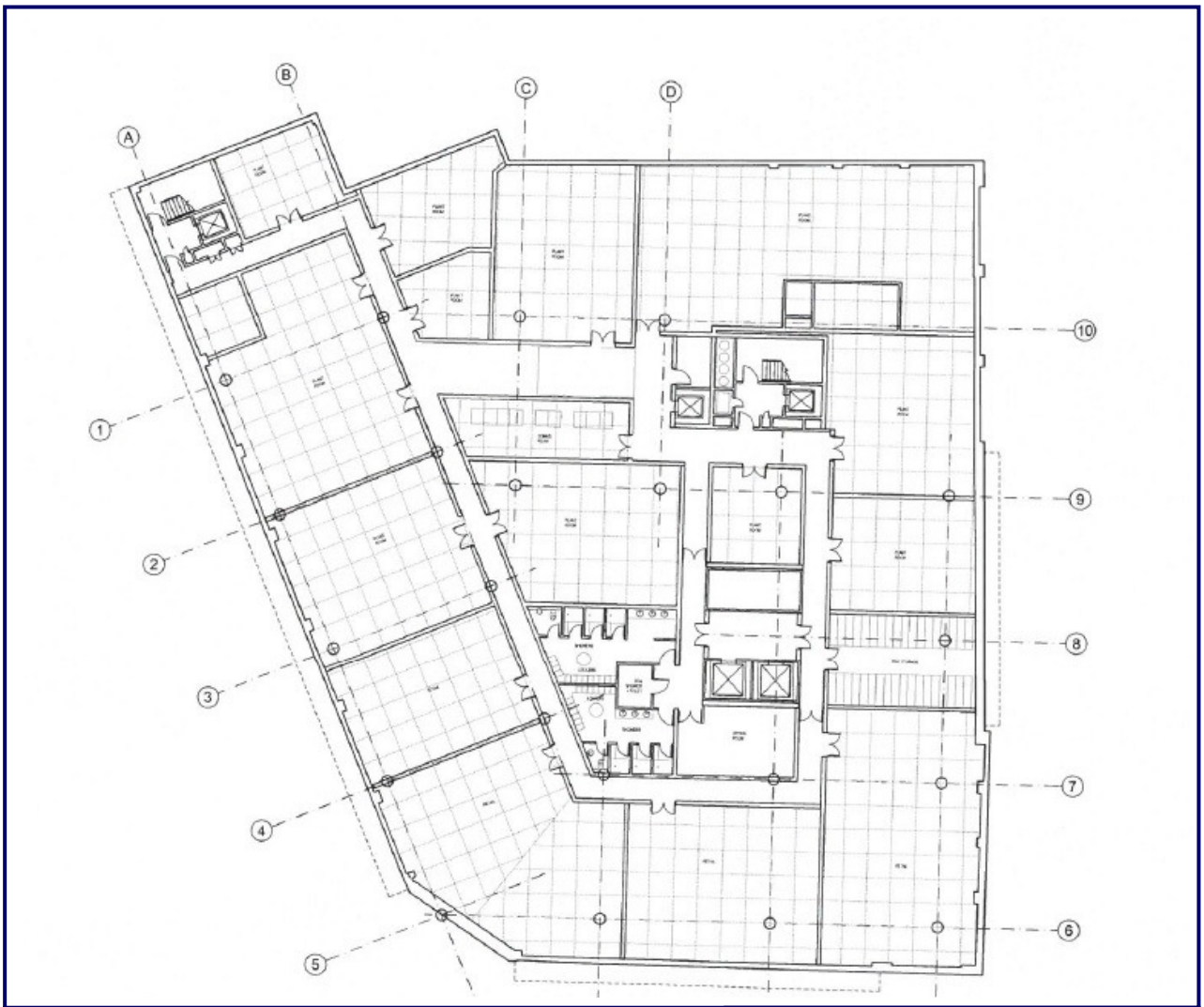
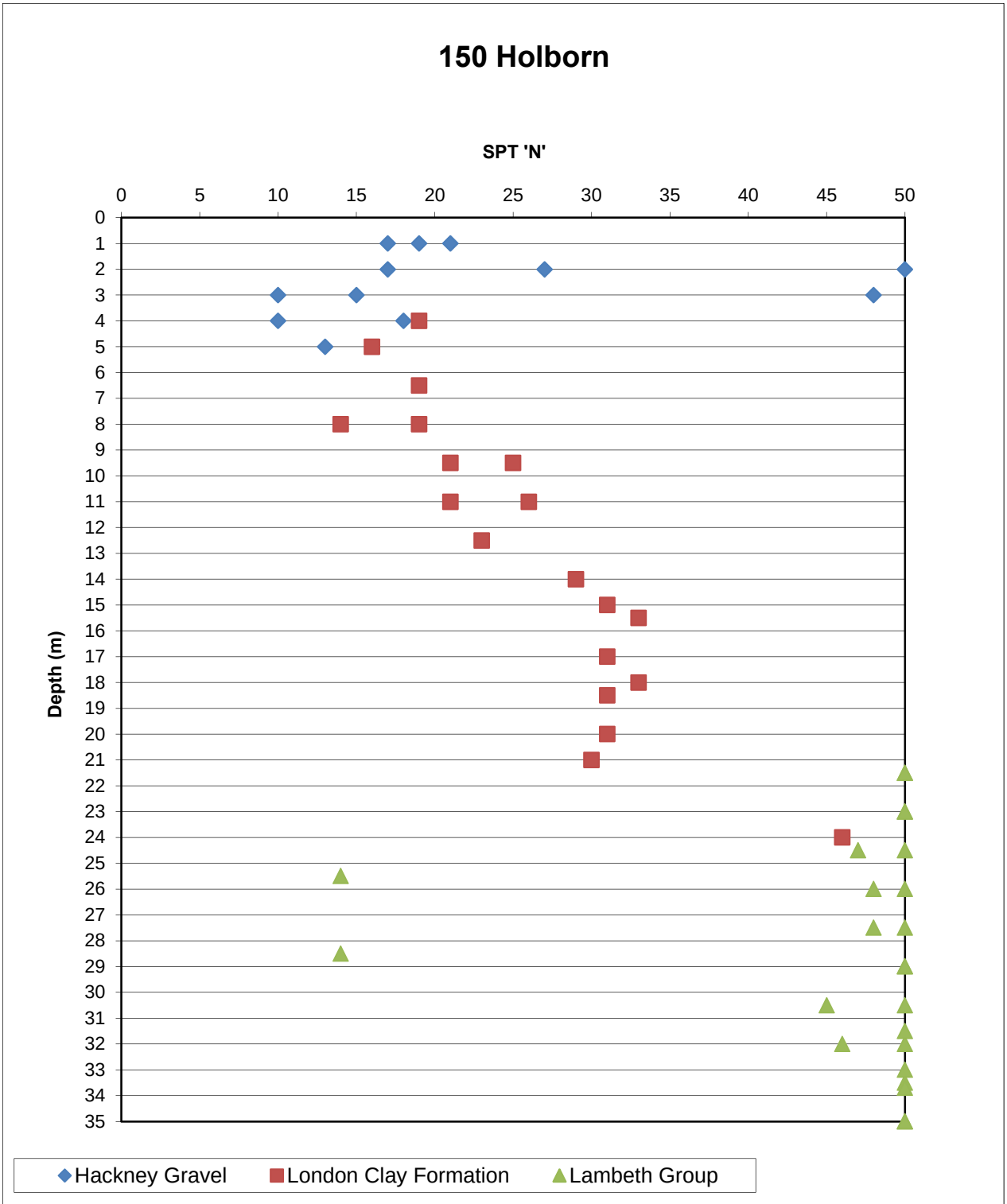


Figure 9: Proposed Development Plan

Scale: Not to scale

RPS
35 New Bridge Street
London
EC4V 6BW

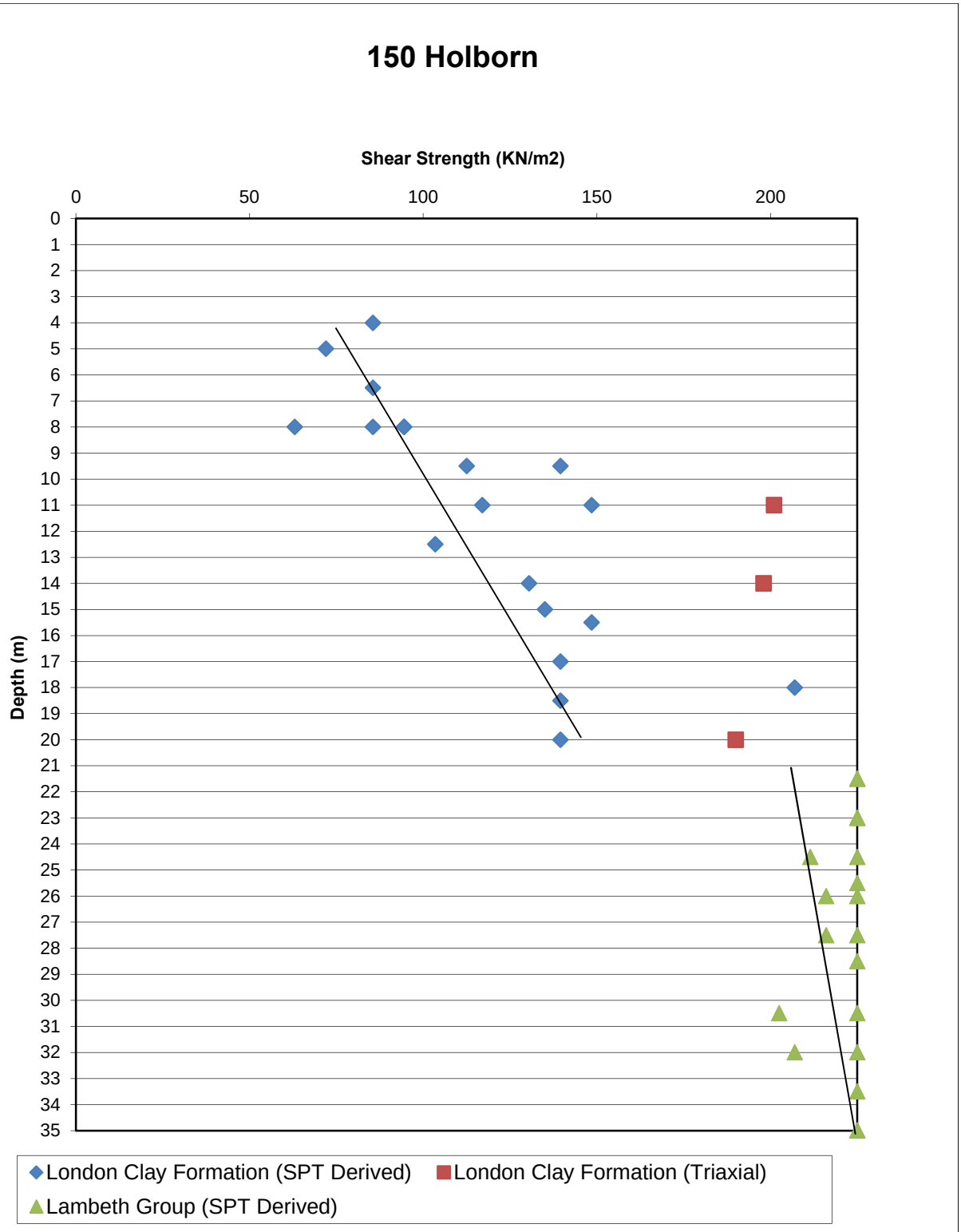
☎ 020-7280-3200
www.rpsgroup.com



Project: 150 Holborn
Project no: HLEI 39025
Date: May-16

Figure 10: SPT 'N' vs. Depth

RPS
35 New Bridge Street
London
EC4V 6BW
T: 020 7280 3200
F: 020 7283 9248
www.rpsgroup.com



Project: 150 Holborn
Project no: HLEI 39025
Date: May-16

Figure 11: Shear strength vs. Depth

RPS
35 New Bridge Street
London
EC4V 6BW
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F: 020 7283 9248
www.rpsgroup.com

APPENDIX A

General Notes

RPS HEALTH, SAFETY & ENVIRONMENT

Phase 1 - Environmental Risk Assessment / Desk Study Environmental Review

General Notes

1. A "desk study" means that no site visits have been carried out as any part thereof, unless otherwise specified.
2. This report provides available factual data for the site obtained only from the sources described in the text and related to the site on the basis of the location information provided by the Client.
3. The desk study information is not necessarily exhaustive and further information relevant to the site may be available from other sources.
4. The accuracy of maps cannot be guaranteed and it should be recognised that different conditions on site may have existed between and subsequent to the various map surveys.
5. No sampling or analysis has been undertaken in relation to this desk study.
6. Any borehole data from British Geological Survey sources is included on the basis that: "The British Geological Survey accept no responsibility for omissions or misinterpretation of the data from their Data Bank as this may be old or obtained from non-BGS sources and may not represent current interpretation".
7. Where any data supplied by the Client or from other sources, including that from previous site investigations, have been used it has been assumed that the information is correct. No responsibility can be accepted by RPS for inaccuracies in the data supplied by any other party.
8. This report is prepared and written in the context of an agreed scope of work and should not be used in a different context. Furthermore, new information, improved practices and changes in legislation may necessitate a re-interpretation of the report in whole or in part after its original submission.
9. The copyright in the written materials shall remain the property of the RPS Company but with a royalty-free perpetual licence to the Client deemed to be granted on payment in full to the RPS Company by the Client of the outstanding amounts.
10. The report is provided for sole use by the Client and is confidential to them, their professional advisors, no responsibility whatsoever for the contents of the report will be accepted to any person other than the Client. [Unless otherwise agreed]
11. These terms apply in addition to the RPS HSED "Standard Terms & Conditions" (or in addition to another written contract which may be in place instead thereof) unless specifically agreed in writing. (In the event of a conflict between these terms and the said Standard Terms & Conditions the said Standard Terms & Conditions shall prevail.) In the absence of such a written contract the Standard Terms & Conditions will apply.

RPS HEALTH, SAFETY & ENVIRONMENT

Phase 2 – Site Investigations

General Notes

1. The assessments made in this report are based on the ground conditions as revealed by intrusive investigations, together with the results of any field or laboratory testing or chemical analysis undertaken and other relevant data which may have been obtained including previous site investigations. In any event, ground contamination often exists as small discrete areas of contamination ("hot spots") and there can be no certainty that any or all such areas have been located and/or sampled.

2. There may be special conditions appertaining to the site which have not been taken into account in the report. The assessment may be subject to amendment in the light of additional information becoming available.

3. Where any data supplied by the Client or from other sources, including that from previous site investigations, have been used it has been assumed that the information is correct. No responsibility can be accepted by RPS Companies for inaccuracies within the data supplied by other parties.

4. Whilst the report may express an opinion on possible ground conditions between or beyond trial pit or borehole locations, or on the possible presence of features based on either visual, verbal or published evidence this is for guidance only and no liability can be accepted for the accuracy thereof.

5. Comments on groundwater conditions are based on observations made at the time of the investigation unless otherwise stated. Groundwater conditions may vary due to seasonal or other effects.

6. This report is prepared and written in the context of the agreed scope of work and should not be used in a different context. Furthermore, new information, improved practices and changes in legislation may necessitate a re-interpretation of the report in whole or part after its original submission.

7. The copyright in the written materials shall remain the property of the RPS Company but with a royalty-free perpetual licence to the client deemed to be granted on payment in full to the RPS Company by the client of the outstanding amounts.

8. The report is provided for sole use by the Client and is confidential to them and their professional advisors. No responsibility whatsoever for the contents of the report will be accepted to any person other than the Client.

9. These terms apply in addition to the RPS Group "Standard Terms of Business" (or in addition to another written contract which may be in place instead thereof) unless specifically agreed in writing. (In the event of a conflict between these terms and the said Standard Terms of Business the said Standard Terms of Business shall prevail). In the absence of such a written contract the Standard Terms of Business will apply.

APPENDIX B

Part 2A (The Contaminated Land Regime)

Contaminated Land Definition

Under Section 57 of the Environmental Act 1995, Part 2A was inserted into the Environmental Protection Act 1990 to include provisions for the management of contaminated land.

Subsequent regulations were first implemented in England in April 2000, Scotland in July 2000 and Wales in July 2001[1], providing a definition of 'contaminated land' and setting out the nature of liabilities that can be incurred by owners of contaminated land and groundwater.

According to the Act, contaminated land is defined as 'any land which appears to the local authority in whose area the land is situated to be in such a condition, by reason of substances in, on or under the land that:

a) *significant harm* is being caused or there is a *significant possibility* of such harm being caused; or
b) *significant pollution* of controlled waters[2] is being caused or there is a significant possibility of such pollution being caused[3],

The guidance on determining whether a particular possibility is significant is based on the principles of risk assessment and in particular on considerations of the magnitude or consequences of the different types of significant harm caused. The term 'possibility of significant harm being caused' should be taken, as referring to a measure of the probability, or frequency, of the occurrence of circumstances that could lead to significant harm being caused.

The following situations are defined where harm is to be regarded as significant:

i. Chronic or acute toxic effect, serious injury or death to humans
ii. Irreversible or other adverse harm to the ecological system
iii. Substantial damage to, or failure of, buildings
iv. Disease, other physical damage or death of livestock or crops
v. The pollution of controlled waters[4].

[1] In England by The Contaminated Land (England) Regulations 2000, updated by The Contaminated Land (England) (Amendment) Regulations 2012; in Scotland by The Contaminated Land (Scotland) Regulations 2000, updated by the Contaminated Land (Scotland) Regulations 2005; and in Wales by The Contaminated Land (Wales) Regulations 2001, updated by the Contaminated Land (Wales) Regulations 2006.

[2] In Scotland the term "controlled water" has been updated to "water environment" under the Contaminated Land (Scotland) Regulations 2005 in line with the Water Environment and Water Services (Scotland) Act 2003.

[3] The definition was amended in 2012 by implementation of the Water Act 2003.

[4] Groundwater in this context does not include waters within underground strata but above the saturated zone.

With regard to radioactivity, contaminated land is defined as 'any land which appears to be in such a condition, by reason of substances in, on or under the land that harm is being caused, or there is a *significant possibility of such harm being caused*[5]'.

The Risk Assessment Methodology

Risk assessment is the process of collating known information on a hazard or set of hazards in order to estimate actual or potential risks to receptors. The receptor may be humans, a water resource, a sensitive local ecosystem or future construction materials. Receptors can be connected with the hazard via one or several exposure pathways (e.g. the pathway of direct contact). Risks are generally managed by isolating or removing the hazard, isolating the receptor, or by intercepting the exposure pathway. Without the three essential components of a source (hazard), pathway and receptor, there can be no risk. Thus, the mere presence of a hazard at a site does not mean that there will necessarily be attendant risks.

The Risk Assessment

By considering where a viable pathway exists which connects a source with a receptor, this assessment will identify where pollutant linkages may exist. A pollutant linkage is the term used by the DEFRA in their standard procedure on risk assessment. If there is no pollutant linkage, then there is no risk. Therefore, only where a viable pollutant linkage is established does this assessment go on to consider the level of risk. Risk should be based on a consideration of both:

- The likelihood of an event (probability) - takes into account both the presence of the hazard and receptor and the integrity of the pathway.
- The severity of the potential consequence - takes into account both the potential severity of the hazard and the sensitivity of the receptor.

For further information please see the Contaminated Land section on the DEFRA website (www.defra.gov.uk).

[5] The Radioactive Contaminated Land (Modification of Enactments) (England) Regulations 2006 and Contaminated Land (Wales) Regulations 2006.

APPENDIX C

Exploratory Hole Logs

BOREHOLE LOG

Borehole No. **BH1**

Sheet 1 of 7

Project Name: 150 Holborn	Co-ordinates:	Date(s): 01/03/2016 - 04/03/2016			Hole Type:
Project No: HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location: Holborn	Northing:	Cut Down Cable Precussive	Casing Diameter (mm)	Casing Depth (m)	Scale:
Client: CNM	Ground Level (mAOD): 15.40	Logged By: SD			1:25

Well	Water Strike(s)	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
					0.00	(0.38)	15.40		Concrete (CONCRETE)	
					0.38	(0.42)	15.02		Dark brown gravelly fine to medium SAND. Gravel is fine to medium, angular to subrounded flint. (HACKNEY GRAVEL)	
		1.00 1.00 - 1.50	SPT(C) B	N=21 (2,2/3,5,6,7)	0.80	(1.00)	14.60		Slightly orangey brown very sandy medium to coarse angular to subrounded flint GRAVEL. Sand is fine to coarse. Contains cobbles of flint. (HACKNEY GRAVEL)	1
		1.60	ES							
		2.00 - 2.50	B		1.80	(1.90)	13.60		Orange brown very gravelly fine to medium SAND. Gravel is fine to medium subangular to subrounded flint. (HACKNEY GRAVEL)	2
		2.45	SPT(C)	N=27 (3,5/7,8,7,5)						
		3.00 3.00 - 3.50	SPT(C) B	N=10 (2,3/5,2,1,2)						3
		3.80	ES		3.70	(0.20)	11.70		Reddish brown mottled black slightly silty CLAY. Contains occasional pockets of red fine sand. (LONDON CLAY FORMATION)	
		4.00	SPT(S)	N=19 (1,4/4,4,5,6)	3.90		11.50		Stiff dark grey very slightly silty CLAY. (LONDON CLAY FORMATION) *Contains occasional pockets of fine red sand.*	4
		4.50	D							
									Continued on next sheet	5

Remarks

(1) Groundwater encountered at 1.4m bgl.

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)

AGS

BOREHOLE LOG

Borehole No. **BH1**

Sheet 2 of 7

Project Name: 150 Holborn	Co-ordinates:	Date(s): 01/03/2016 - 04/03/2016			Hole Type:
Project No: HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location: Holborn	Northing:	Cut Down Cable Precussive	Casing Diameter (mm)	Casing Depth (m)	Scale:
Client: CNM	Ground Level (mAOD): 15.40	Logged By: SD			1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		5.50	D							
		6.50	SPT(S)	N=19 (1,3/3,5,5,6)						6
		8.00 - 8.45	U							7
		9.50	SPT(S)	N=25 (2,4/5,6,7,7)						8
		9.50 - 9.95	D							9
		10.00	D						Continued on next sheet	10

Remarks

(1) Groundwater encountered at 1.4m bgl.

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)

AGS

BOREHOLE LOG

Borehole No. **BH1**

Sheet 3 of 7

Project Name: 150 Holborn	Co-ordinates:	Date(s): 01/03/2016 - 04/03/2016			Hole Type:
Project No: HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location: Holborn	Northing:	Cut Down Cable Precussive	Casing Diameter (mm)	Casing Depth (m)	Scale:
Client: CNM	Ground Level (mAOD): 15.40	Logged By: SD			1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		11.00 - 11.45	U							11
		12.50	SPT(S)	N=23 (2,3/5,5,6,7)		(17.10)				12
		13.00	D							13
		14.00 - 14.45	U							14
		14.50	D							15
									Continued on next sheet	

Remarks

(1) Groundwater encountered at 1.4m bgl.

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)

BOREHOLE LOG

Borehole No. **BH1**

Sheet 4 of 7

Project Name:	150 Holborn	Co-ordinates:	Date(s): 01/03/2016 - 04/03/2016			Hole Type:
Project No:	HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location:	Holborn	Northing:	Cut Down Cable Precussive	Casing Diameter (mm)	Casing Depth (m)	Scale:
Client:	CNM	Ground Level (mAOD): 15.40	Logged By: SD			1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		15.50	SPT(S)	N=33 (3,5/8,8,8,9)						16
		17.00 - 17.45	U							17
		18.50	SPT(S)	N=31 (4,6/7,7,8,9)						18
		20.00 - 20.45	U							19
										20

Continued on next sheet

Remarks

(1) Groundwater encountered at 1.4m bgl.

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)

BOREHOLE LOG

Borehole No. **BH1**

Sheet 5 of 7

Project Name: 150 Holborn	Co-ordinates:	Date(s): 01/03/2016 - 04/03/2016			Hole Type:
Project No: HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location: Holborn	Northing:	Cut Down Cable Precussive	Casing Diameter (mm)	Casing Depth (m)	Scale:
Client: CNM	Ground Level (mAOD): 15.40	Logged By: SD			1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results					*Contains coarse angular gravel of claystone.*	
					21.00	(0.70)	-5.60		Grey mottled brown CLAY. (LAMBETH GROUP)	21
		21.50	SPT(S)	N=54 (4,5/8,15,15,16)						
					21.70		-6.30		Grey clay mottled red slightly sandy silty CLAY. Sand is fine. (LAMBETH GROUP)	
		22.00	D							22
		23.00	SPT(S)	N=54 (5,9/10,13,15,16)						23
		23.50	D							
		24.50	SPT(S)	N=60 (5,10/13,14,16,17)						24
		25.00	D							25
									Continued on next sheet	

Remarks

(1) Groundwater encountered at 1.4m bgl.

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)

AGS

BOREHOLE LOG

Borehole No. **BH1**

Sheet 6 of 7

Project Name:	150 Holborn	Co-ordinates:	Date(s): 01/03/2016 - 04/03/2016			Hole Type:
Project No:	HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location:	Holborn	Northing:	Cut Down Cable Precussive	Casing Diameter (mm)	Casing Depth (m)	Scale:
Client:	CNM	Ground Level (mAOD): 15.40	Logged By: SD			1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		26.00	SPT(S)	48 (6,10/48 for 225mm)						26
		26.50	D			(7.10)				27
		27.50	SPT(S)	50 (8,9/50 for 225mm)						
		28.00	D							28
					28.80		-13.40		Brown grey slightly clayey silty fine SAND. (LAMBETH GROUP)	
		29.00	SPT(S)	53 (8,10/53 for 150mm)		(1.70)				29
									Continued on next sheet	30

Remarks

(1) Groundwater encountered at 1.4m bgl.

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)

BOREHOLE LOG

Borehole No. **BH1**

Sheet 7 of 7

Project Name: 150 Holborn	Co-ordinates:	Date(s): 01/03/2016 - 04/03/2016			Hole Type:
Project No: HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location: Holborn	Northing:	Cut Down Cable Precussive	Casing Diameter (mm)	Casing Depth (m)	Scale:
Client: CNM	Ground Level (mAOD): 15.40	Logged By: SD			1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		30.50	SPT(S)	45 (5,7/45 for 225mm)	30.50		-15.10		Blueish grey mottled red and yellow silty sandy CLAY. Sand is fine. (LAMBETH GROUP)	31
		32.00	SPT(S)	N=46 (3,4/5,8,14,19)		(4.50)				32
		34.00	D							33
		35.00	SPT(S)	50 (7,11/50 for 170mm)					End of Borehole at 35.00m	34
										35

Remarks

(1) Groundwater encountered at 1.4m bgl.

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)

BOREHOLE LOG

Borehole No. **BH2**

Sheet 1 of 8

Project Name: 150 Holborn	Co-ordinates:	Date(s): 09/03/2016 - 14/03/2016			Hole Type:
Project No: HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location: Holborn	Northing:		Casing Diameter (mm)	Casing Depth (m)	Scale:
Client: CNM	Ground Level (mAOD): 15.40	Logged By: LW			1:25

Well	Water Strike(s)	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
					0.00		15.40		Ceramic tile	
					0.02		15.38		(MADE GROUND)	
						(0.44)			Concrete.	
					0.45		14.95		(CONCRETE)	
									Brown very slightly silty sandy medium fine to coarse subrounded to angular flint GRAVEL. Sand is medium to coarse.	
									(HACKNEY GRAVEL)	
		1.00	ES							1
		1.00	SPT(C)	N=19 (2,3/4,4,5,6)						
		1.00 - 1.50	B			(1.55)				
		2.00	SPT(C)	N=17 (2,2/3,4,5,5)	2.00		13.40		Orange brown very sandy fine to coarse subrounded to angular flint GRAVEL. Sand is medium to coarse. Contains subrounded to rounded cobbles of flint.	2
		2.00 - 2.50	B						(HACKNEY GRAVEL)	
		2.50	D			(1.00)				
		3.00	SPT(C)	N=15 (2,2/3,3,4,5)	3.00		12.40		Orange brown gravelly fine to coarse SAND. Gravel is fine to medium subangular to subrounded flint.	3
		3.00 - 3.50	B						(HACKNEY GRAVEL)	
		3.20	ES							
						(1.30)				
		4.00	SPT(C)	N=10 (2,2/1,2,2,5)						4
					4.30		11.10		Reddish brown mottled grey brown slightly silty CLAY.	
		4.50	D			(0.40)			(LONDON CLAY FORMATION)	
					4.70		10.70		Dark grey CLAY with occasional partings of light grey silt.	
		5.00	SPT(S)	N=16 (2,2/3,4,4,5)					(LONDON CLAY FORMATION)	5
									Continued on next sheet	

Remarks

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)

AGS

BOREHOLE LOG

Borehole No. **BH2**

Sheet 2 of 8

Project Name: 150 Holborn	Co-ordinates:	Date(s): 09/03/2016 - 14/03/2016			Hole Type:
Project No: HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location: Holborn	Northing:		Casing Diameter (mm)	Casing Depth (m)	Scale:
Client: CNM	Ground Level (mAOD): 15.40	Logged By: LW			1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		5.50	D							
		5.50	ES							
		6.50 - 6.95	U							
		8.00	SPT(S)	N=19 (3,4/4,4,5,6)						
		8.50	D							
		9.50 - 9.95	U							

6 7 8 9 10

Continued on next sheet

Remarks

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)

AGS

BOREHOLE LOG

Borehole No. **BH2**

Sheet 3 of 8

Project Name: 150 Holborn	Co-ordinates:	Date(s): 09/03/2016 - 14/03/2016			Hole Type:
Project No: HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location: Holborn	Northing:		Casing Diameter (mm)	Casing Depth (m)	Scale:
Client: CNM	Ground Level (mAOD): 15.40	Logged By: LW			1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		11.00	SPT(S)	N=26 (3,3/5,6,7,8)					*Contains occasional selenite.*	11
		12.50 - 12.95	U			(15.70)				12
		13.00	D							13
		14.00	SPT(S)	N=29 (3,4/6,7,7,9)					*Contains occasional specks of light grey silt.*	14
		14.50	D							
									Continued on next sheet	15

Remarks

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)

BOREHOLE LOG

Borehole No. **BH2**

Sheet 4 of 8

Project Name: 150 Holborn	Co-ordinates:	Date(s): 09/03/2016 - 14/03/2016			Hole Type:
Project No: HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location: Holborn	Northing:		Casing Diameter (mm)	Casing Depth (m)	Scale:
Client: CNM	Ground Level (mAOD): 15.40	Logged By: LW			1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		17.00	SPT(S)	N=31 (4,5/7,8,8,8)						16 17 18 19
		20.00	SPT(S)	N=31 (4,6/7,7,8,9)					Continued on next sheet	20

Remarks

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)

AGS

BOREHOLE LOG

Borehole No. **BH2**

Sheet 5 of 8

Project Name: 150 Holborn	Co-ordinates:	Date(s): 09/03/2016 - 14/03/2016			Hole Type:
Project No: HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location: Holborn	Northing:		Casing Diameter (mm)	Casing Depth (m)	Scale:
Client: CNM	Ground Level (mAOD): 15.40	Logged By: LW			1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
					20.40		-5.00		Reddish brown mottled light grey and yellow silty CLAY. (LAMBETH GROUP)	21
		21.50	SPT(S)	N=52 (5,6/9,12,15,16)		(2.60)				22
		23.00	SPT(S)	N=52 (4,7/9,11,14,18)	23.00		-7.60		Red mottled light blueish grey silty CLAY with white speckles of fine sand. (LAMBETH GROUP)	23
		24.50	SPT(S)	47 (4,8/47 for 225mm)		(1.80)				24
					24.80		-9.40		Yellowish brown mottled light blueish grey and red brown silty CLAY.	25
									Continued on next sheet	

Remarks

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)

AGS

BOREHOLE LOG

Borehole No. **BH2**

Sheet 6 of 8

Project Name: 150 Holborn	Co-ordinates:	Date(s): 09/03/2016 - 14/03/2016			Hole Type:
Project No: HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location: Holborn	Northing:		Casing Diameter (mm)	Casing Depth (m)	Scale:
Client: CNM	Ground Level (mAOD): 15.40	Logged By: LW			1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		26.00	SPT(S)	55 (6,10/55 for 225mm)					(LAMBETH GROUP)	26
						(3.40)				27
		27.50	SPT(S)	48 (7,10/48 for 150mm)						
		28.00	D							28
					28.20		-12.80		Light blueish grey and yellow silty fine SAND. (LAMBETH GROUP)	
						(1.20)				29
		29.00	SPT(S)	51 (3,8/51 for 225mm)						
					29.40		-14.00		Blueish grey, black and white clayey silty fine SAND. (LAMBETH GROUP)	
						(0.40)				
					29.80		-14.40		Mottled yellow, orange, blueish grey and red CLAY with small pockets of dark red fine sand.	
		30.00	D							30

Continued on next sheet

Remarks

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)

AGS

BOREHOLE LOG

Borehole No. **BH2**

Sheet 7 of 8

Project Name: 150 Holborn	Co-ordinates:	Date(s): 09/03/2016 - 14/03/2016			Hole Type:
Project No: HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location: Holborn	Northing:		Casing Diameter (mm)	Casing Depth (m)	Scale:
Client: CNM	Ground Level (mAOD): 15.40	Logged By: LW			1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		30.50	SPT(S)	53 (5,11/53 for 225mm)					(LAMBETH GROUP)	
		31.00	D							31
		32.00	SPT(S)	54 (6,10/54 for 225mm)		(4.20)				32
		33.50	SPT(S)	50 (25 for 40mm/50 for 30mm)						33
					34.00	(0.80)	-18.60		Dark grey clayey sandy medium to coarse rounded flint GRAVEL with angular limestone fragments. Sand is fine. (LAMBETH GROUP)	34
					34.80	(0.20)	-19.40		Dark brown sandy gravelly CLAY. Gravel is medium to coarse rounded flint and fine to coarse angular limestone	
		35.00	SPT(S)	52 (8,19/52 for 75mm)						35

Continued on next sheet

Remarks

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)

BOREHOLE LOG

Borehole No. **BH2**

Sheet 8 of 8

Project Name: 150 Holborn	Co-ordinates:	Date(s): 09/03/2016 - 14/03/2016			Hole Type:
Project No: HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location: Holborn	Northing:		Casing Diameter (mm)	Casing Depth (m)	Scale:
Client: CNM	Ground Level (mAOD): 15.40	Logged By: LW			1:25

Well	Water Strike(s)	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
									fragments. Sand is fine to medium. (LAMBETH GROUP)	
									End of Borehole at 35.00m	

Scale: 36, 37, 38, 39, 40

Remarks

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)

AGS

BOREHOLE LOG

Borehole No. **BH3**

Sheet 1 of 7

Project Name:	150 Holborn	Co-ordinates:	Date(s): 30/03/2016 - 08/04/2016		Hole Type:
Project No:	HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm	CP
Location:	Holborn	Northing:		Casing Diameter (mm): 150, 200 / Casing Depth (m): 32.50, 13.50	Scale: 1:25
Client:	CNM	Ground Level (mAOD): 16.83	Logged By: MA		

Well	Water Strike(s)	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
					0.00	(0.90)	16.82		Concrete. (CONCRETE)	
		1.00	SPT(S)	N=17 (1,1/1,4,4,8)	0.90	(0.50)	15.92		Brown gravelly clayey fine to coarse sand. Gravel is fine to coarse subangular to subrounded flint. (MADE GROUND)	1
	▼	1.40 - 2.00	B3		1.40		15.42		Brown sandy fine to coarse subrounded to subangular GRAVEL of flint. Sand is fine to coarse. (HACKNEY GRAVEL)	
		2.00	SPT(C)	N=50 (2,3/50 for 275mm)						2
		2.00 - 2.50	B4							
		3.00	SPT(C)	N=48 (3,8/8,15,14,11)		(4.50)				3
		3.00 - 3.50	B5							
		4.00	SPT(C)	N=18 (1,1/3,4,4,7)						4
		4.00 - 4.50	B6							
		5.00	SPT(C)	N=13 (1,1/2,3,4,4)						5
		5.00 - 5.50	B7						Continued on next sheet	

Remarks

(1) Groundwater encountered at 1.50m bgl.

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)
1.50 12.00					

AGS

BOREHOLE LOG

Borehole No. **BH3**

Sheet 2 of 7

Project Name:	150 Holborn	Co-ordinates:	Date(s): 30/03/2016 - 08/04/2016			Hole Type:
Project No:	HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location:	Holborn	Northing:		Casing Diameter (mm)	Casing Depth (m)	Scale:
Client:	CNM	Ground Level (mAOD): 16.83	Logged By: MA	150 200	32.50 13.50	1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		5.90	D8		5.90	(0.60)	10.92		Brown sandy CLAY. Sand is fine to coarse. (LONDON CLAY FORMATION)	6
		7.50	D9		6.50	(5.50)	10.32		Grey thinly laminated silty CLAY with occasional pockets of fine grey SAND. (LONDON CLAY)	7
		8.00	SPT(S)	N=14 (1,1/2,4,4,4)						8
		9.00	D10							9
		9.50	SPT(S)	N=21 (2,3/4,4,6,7)						
									Continued on next sheet	10

Remarks

(1) Groundwater encountered at 1.50m bgl.

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)
1.50 12.00					

AGS

BOREHOLE LOG

Borehole No. **BH3**

Sheet 3 of 7

Project Name:	150 Holborn	Co-ordinates:	Date(s): 30/03/2016 - 08/04/2016			Hole Type:
Project No:	HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location:	Holborn	Northing:		Casing Diameter (mm)	Casing Depth (m)	Scale:
Client:	CNM	Ground Level (mAOD): 16.83	Logged By: MA	150 200	32.50 13.50	1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		10.50	D11							
		11.00	SPT(S)	N=21 (2,3/5,5,5,6)						11
	▼	12.00	D12		12.00	(0.10)	4.82		Grey claystone recovered as coarse angular GRAVEL. (LONDON CLAY)	12
					12.10		4.72		Grey silty slightly sandy CLAY. Sand is fine. (LONDON CLAY)	
		13.00	D13							13
		13.00 - 13.50	U14	Blows=130						
										14
		15.00	SPT(S)	N=30 (2,4/6,7,8,9)						15
									Continued on next sheet	

Remarks

(1) Groundwater encountered at 1.50m bgl.

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)
1.50 12.00					

AGS

BOREHOLE LOG

Borehole No. **BH3**

Sheet 4 of 7

Project Name:	150 Holborn	Co-ordinates:	Date(s): 30/03/2016 - 08/04/2016			Hole Type:
Project No:	HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location:	Holborn	Northing:		Casing Diameter (mm)	Casing Depth (m)	Scale:
Client:	CNM	Ground Level (mAOD): 16.83	Logged By: MA	150 200	32.50 13.50	1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		16.00	D15							16
		16.50	U16	Blows=52						
		17.00	D17							17
						(12.50)				
		18.00	SPT(S)	N=33 (4,5/7,7,8,11)						18
		19.00	D18							19
		19.50	U19	Blows=65						
		20.00	D20							20

Continued on next sheet

Remarks

(1) Groundwater encountered at 1.50m bgl.

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)
1.50 12.00					

AGS

BOREHOLE LOG

Borehole No. **BH3**

Sheet 5 of 7

Project Name:	150 Holborn	Co-ordinates:	Date(s): 30/03/2016 - 08/04/2016			Hole Type:
Project No:	HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location:	Holborn	Northing:		Casing Diameter (mm)	Casing Depth (m)	Scale:
Client:	CNM	Ground Level (mAOD): 16.83	Logged By: MA	150 200	32.50 13.50	1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		21.00	SPT(S)	N=30 (3,5/6,7,8,9)						21
		22.00	D21							22
		22.50	U22	Blows=63						
		23.00	D23							23
		24.00	SPT(S)	N=46 (3,5/8,10,13,15)						24
		24.60	D24		24.60		-7.78		Brown mottled blue, grey and red silty CLAY. (LAMBETH GROUP)	
									Continued on next sheet	25

Remarks

(1) Groundwater encountered at 1.50m bgl.

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)
1.50 12.00					

AGS

BOREHOLE LOG

Borehole No. **BH3**

Sheet 6 of 7

Project Name: 150 Holborn	Co-ordinates:	Date(s): 30/03/2016 - 08/04/2016			Hole Type:
Project No: HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location: Holborn	Northing:		Casing Diameter (mm)	Casing Depth (m)	Scale:
Client: CNM	Ground Level (mAOD): 16.83	Logged By: MA	150 200	32.50 13.50	1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		25.50	U25	Blows=77						26
		27.00	SPT(S)	50 (6,12/50 for 185mm)		(6.90)				27
		28.00	D26							28
		28.50	U27	Blows=50						
		29.00	D28							29
		30.00	SPT(S)	50 (5,10/50 for 165mm)					Continued on next sheet	30

Remarks

(1) Groundwater encountered at 1.50m bgl.

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)
1.50 12.00					

AGS

BOREHOLE LOG

Borehole No. **BH3**

Sheet 7 of 7

Project Name: 150 Holborn	Co-ordinates:	Date(s): 30/03/2016 - 08/04/2016			Hole Type:
Project No: HLEI39025	Easting:	Drilling Method:	Pipe Diameter: 50mm		CP
Location: Holborn	Northing:		Casing Diameter (mm)	Casing Depth (m)	Scale:
Client: CNM	Ground Level (mAOD): 16.83	Logged By: MA	150 200	32.50 13.50	1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		31.00	D29							31
		31.50	U30	Blows=75	31.50		-14.68		Brown fine to medium SAND with bands of grey brown very sandy silt with occasional off-white / brown shell fragments. (LAMBETH GROUP)	
		32.00 - 32.50	B31							32
						(2.50)				
		33.00	SPT(S)	50 (6,15/50 for 175mm)						33
		33.00 - 33.50	B32							
		33.70	SPT(S)	50 (5,12/50 for 160mm)						
									End of Borehole at 34.00m	34
										35

Remarks

(1) Groundwater encountered at 1.50m bgl.

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)
1.50 12.00					

AGS

APPENDIX D

Geotechnical Laboratory Certificates

LABORATORY REPORT

4043

Contract Number: PSL16/1211

Report Date: 29 March 2016

Client's Reference: HLEI39025

Client Name: RPS Health, Safety and Environment
14 Cornhill
London
EC3V 3ND

For the attention of: Rob Philip

Contract Title: 150 Holborn

Date Received: 17/3/2016
Date Commenced: 17/3/2016
Date Completed: 29/3/2016

Notes: Opinions and Interpretations are outside the UKAS Accreditation

Checked and Approved Signatories:

R Gunson (Director)
A Watkins (Director)
R Berriman (Quality Manager)

D Lambe (Senior Technician)
S Royle (Senior Technician)
L Knight (Senior Technician)

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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH1		B	1.00	1.50	Brown very sandy GRAVEL.
BH1		B	3.00	3.50	Brown slightly silty SAND & GRAVEL.
BH1		D	4.50		Greyish brown CLAY.
BH1		D	5.50		Greyish brown CLAY.
BH1		U	8.00	8.45	M
BH1		D	9.50	9.95	Greyish brown CLAY.
BH1		D	10.00		Greyish brown CLAY.
BH1		U	11.00	11.45	Very stiff greyish brown CLAY.
BH1		D	13.00		Greyish brown CLAY.
BH1		U	14.00	14.45	Very stiff greyish brown CLAY.
BH1		D	14.50		Greyish brown CLAY.
BH1		U	17.00	17.45	Greyish brown CLAY.
BH1		U	20.00	20.45	Very stiff greyish brown CLAY.
BH1		D	22.00		Brown CLAY.
BH1		D	23.50		Brown CLAY.
BH1		D	25.00		Brown slightly sandy CLAY.
BH1		D	26.50		Brown slightly sandy CLAY.
BH1		D	28.00		Brown slightly sandy CLAY.
BH1		D	34.00		Brown slightly sandy CLAY.

UKAS TESTING 4043	PSL Professional Soils Laboratory	Checked / Approved	Date 29/03/16	Contract No: PSL16/1211
		150 Holburn		Client Ref: HLEI 39025

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH2		B	2.00	2.50	Brown very gravelly slightly silty SAND.
BH2		B	3.00	3.50	Brown very gravelly slightly silty SAND.
BH2		D	4.50		Brown slightly gravelly slightly sandy CLAY.
BH2		D	5.50		Greyish brown CLAY.
BH2		U	6.50	6.95	Greyish brown CLAY.
BH2		D	8.50		Greyish brown CLAY.
BH2		U	9.50	9.95	Very stiff greyish brown CLAY.
BH2		U	12.50	12.95	M
BH2		D	13.00		Greyish brown CLAY.
BH2		D	14.50		Greyish brown CLAY.
BH2		D	28.00		Greyish brown slightly clayey very silty SAND.
BH2		D	30.00		Greyish brown brown CLAY.
BH2		D	31.00		Greyish brown brown CLAY.

UKAS TESTING
4043

PSL
Professional Soils Laboratory

Checked / Approved		Date	29/03/16	Contract No:
150 Holburn				PSL16/1211
				Client Ref:
				HLEI 39025

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH1		D	4.50		30							
BH1		D	5.50		35			73	30	43	100	Very high plasticity CV.
BH1		U	8.00	8.45								
BH1		D	9.50	9.95	27							
BH1		D	10.00		28			72	29	43	100	Very high plasticity CV.
BH1		U	11.00	11.45	22							
BH1		D	13.00		28			74	30	44	100	Very high plasticity CV.
BH1		U	14.00	14.45	22							
BH1		D	14.50		26			71	29	42	100	Very high plasticity CV.
BH1		U	17.00	17.45	21							
BH1		U	20.00	20.45	20							
BH1		D	22.00		22			74	30	44	100	Very high plasticity CV.
BH1		D	23.50		28							
BH1		D	25.00		27			61	26	35	100	High plasticity CH.
BH1		D	26.50		26							
BH1		D	28.00		28			65	27	38	100	High plasticity CH.
BH1		D	34.00		23			64	27	37	100	High plasticity CH.
BH2		D	4.50		29			67	28	39	96	High plasticity CH.
BH2		D	5.50		29							

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

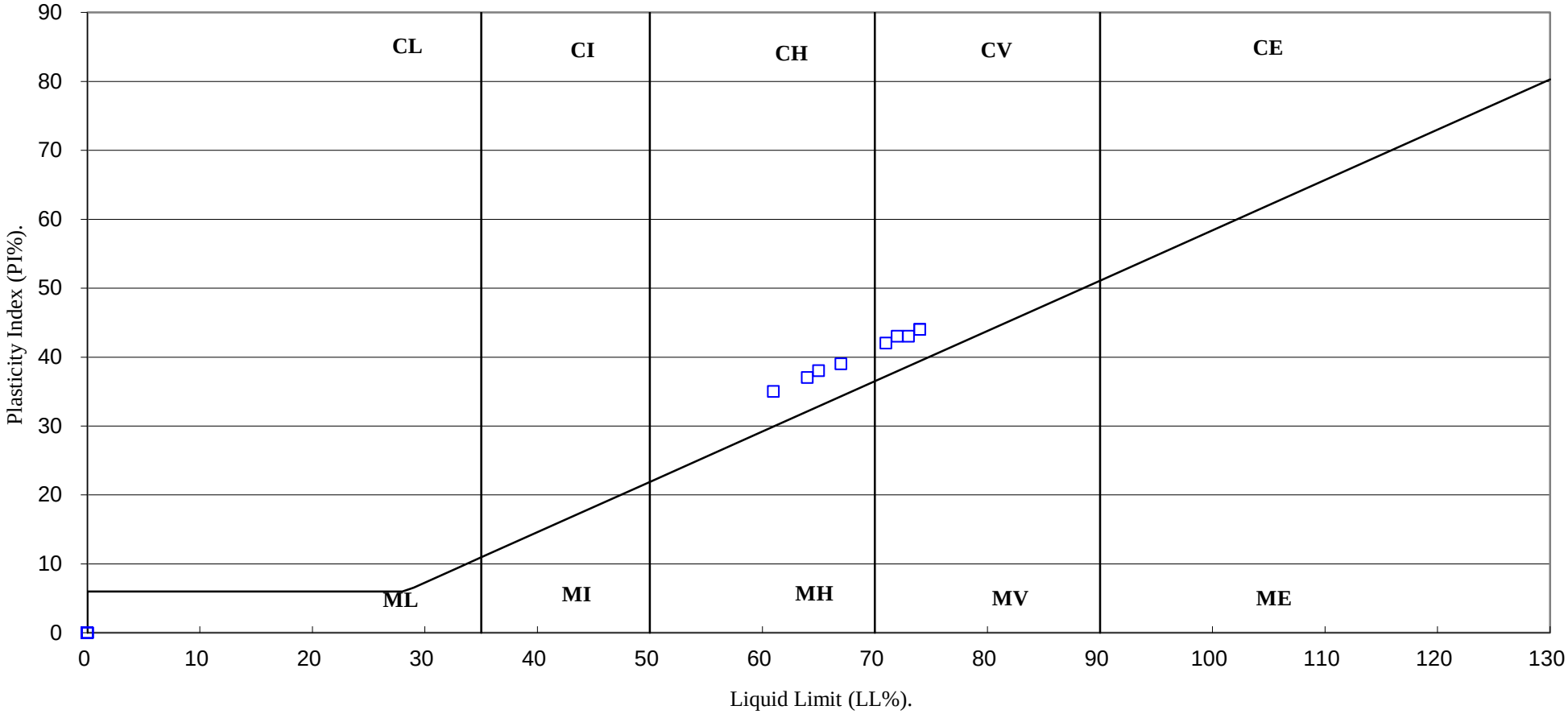
UKAS TESTING 4043

PSL Professional Soils Laboratory

Checked / Approved		Date	29/03/16	Contract No:
150 Holburn				PSL16/1211
				Client Ref:
				HLEI 39025

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(BS5930 :2015)



UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked /Approved**		**Date**	**29/03/16**	**Contract No:**
		150 Holburn				**PSL16/1211**
						Client Ref:
						HLEI 39025

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH2		U	6.50	6.95	25							
BH2		D	8.50		32			75	31	44	100	Very high plasticity CV.
BH2		U	9.50	9.95	25							
BH2		U	12.50	12.95								
BH2		D	13.00		25			71	29	42	100	Very high plasticity CV.
BH2		D	14.50		28							
BH2		D	28.00		18				NP			
BH2		D	30.00		26							
BH2		D	31.00		20			72	29	43	100	Very high plasticity CV.

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

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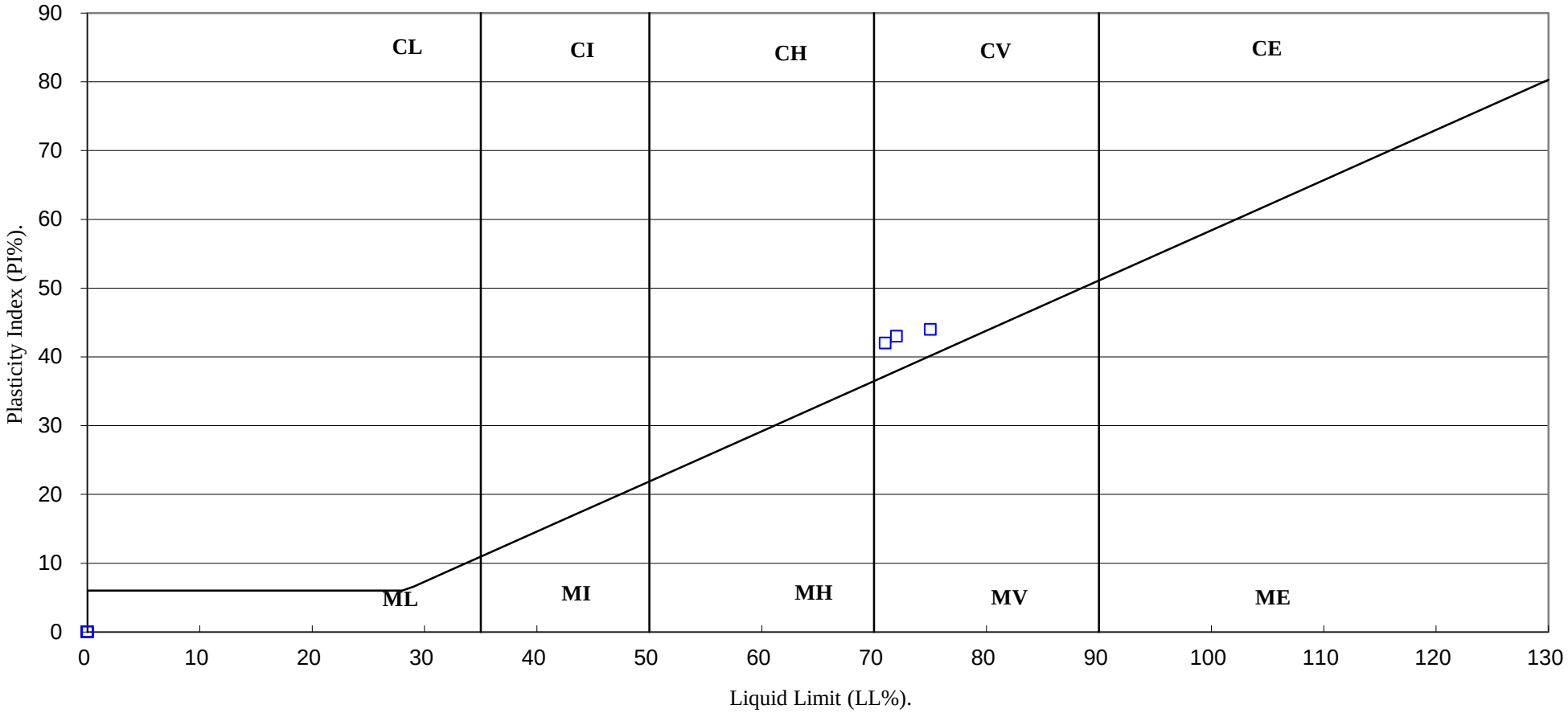
				Client Ref:
				HLEI 39025

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(BS5930 :2015)



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PARTICLE SIZE DISTRIBUTION TEST

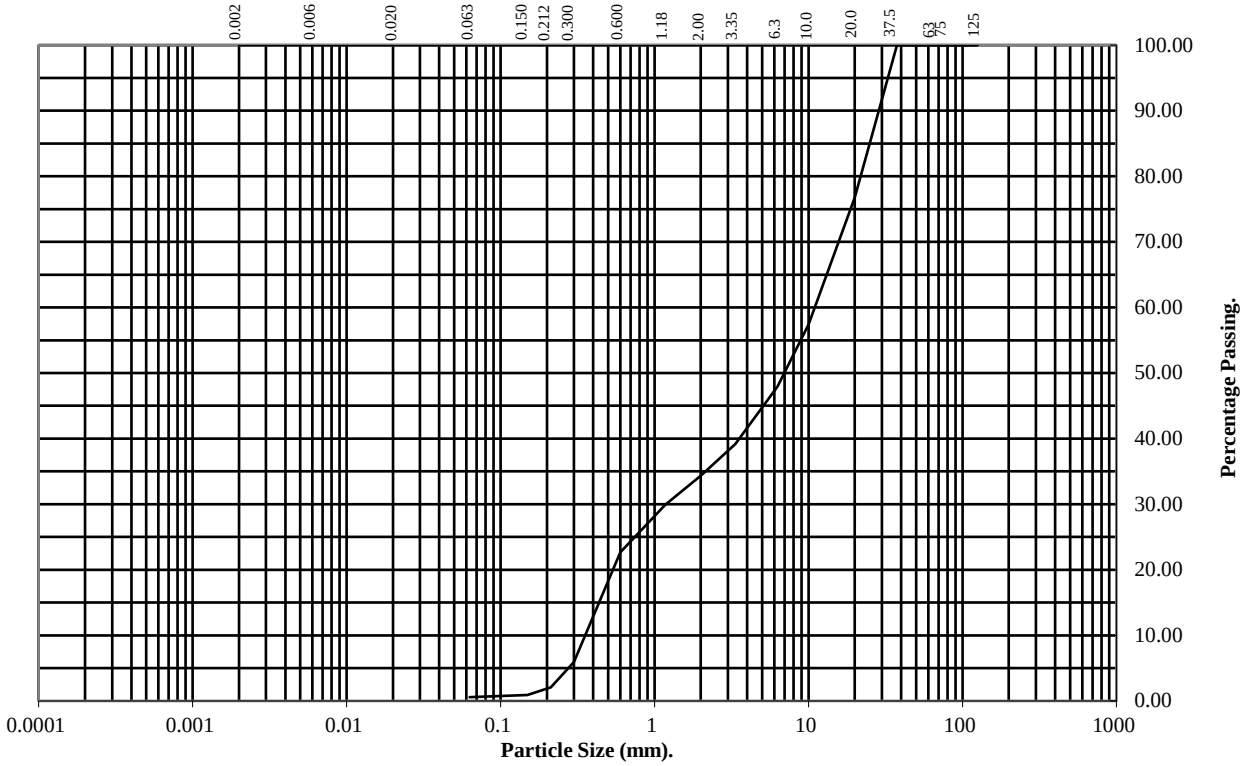
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH1** **Top Depth (m):** **1.00**

Sample Number: **Base Depth(m):** **1.50**

Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	77
10	57
6.3	48
3.35	39
2	34
1.18	30
0.6	23
0.3	6
0.212	2
0.15	1
0.063	1

Soil Fraction	Total Percentage
Cobbles	0
Gravel	66
Sand	33
Silt/Clay	1

Remarks:

See summary of soil descriptions.

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PARTICLE SIZE DISTRIBUTION TEST

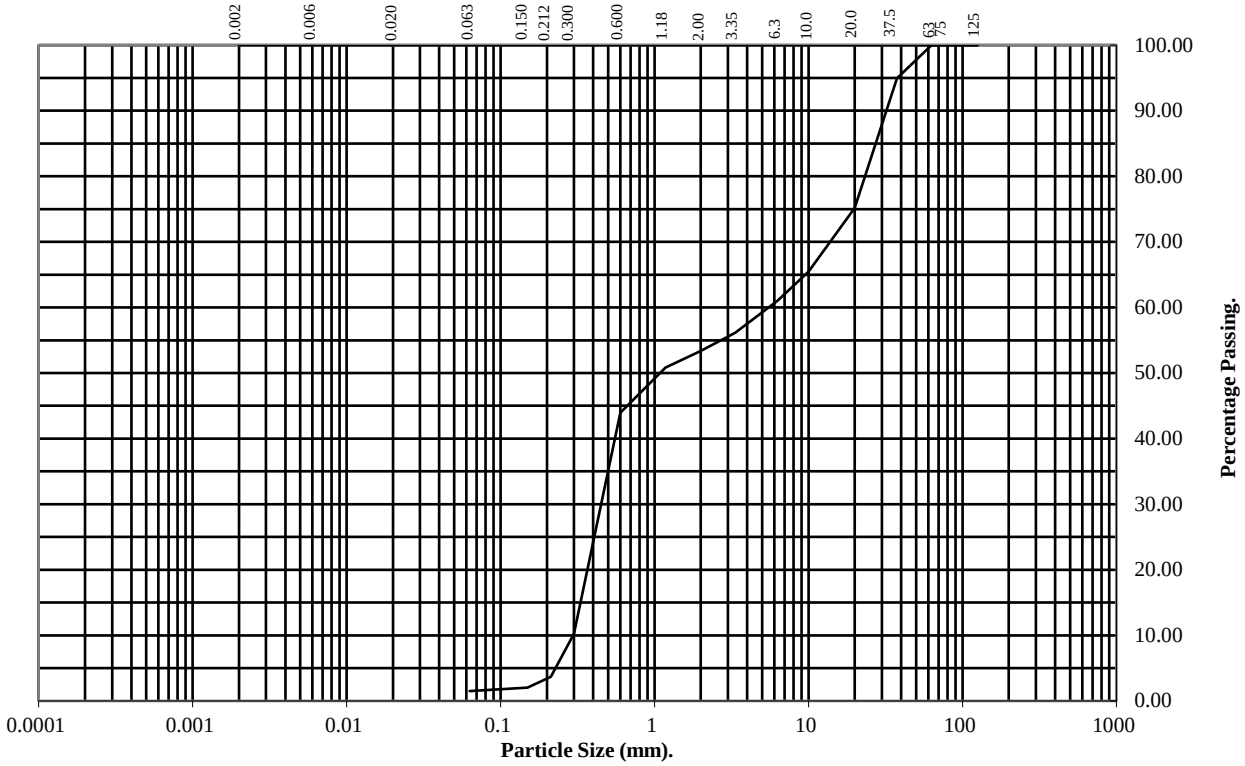
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH1** **Top Depth (m):** **3.00**

Sample Number: **Base Depth(m):** **3.50**

Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	95
20	75
10	65
6.3	61
3.35	56
2	53
1.18	51
0.6	44
0.3	10
0.212	4
0.15	2
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	47
Sand	51
Silt/Clay	2

Remarks:

See summary of soil descriptions.

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PARTICLE SIZE DISTRIBUTION TEST

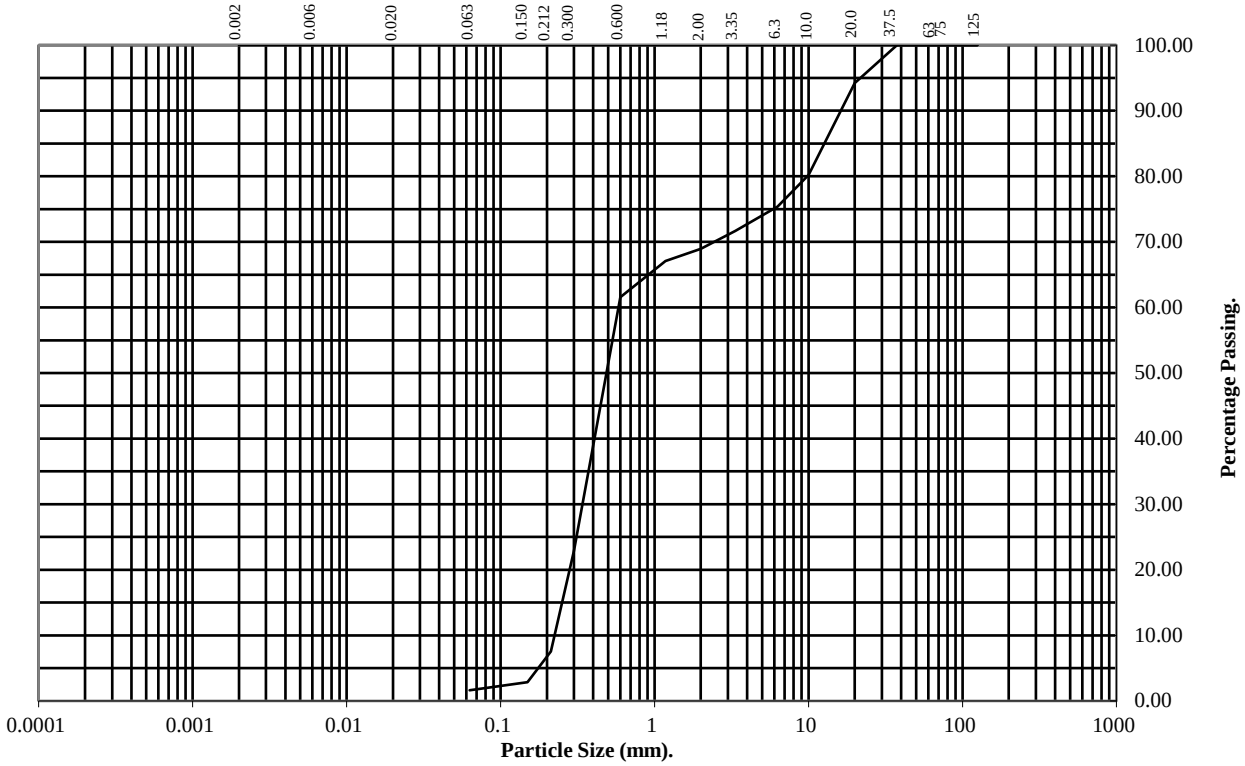
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH2** **Top Depth (m):** **2.00**

Sample Number: **Base Depth(m):** **2.50**

Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	94
10	80
6.3	75
3.35	72
2	69
1.18	67
0.6	62
0.3	23
0.212	8
0.15	3
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	31
Sand	67
Silt/Clay	2

Remarks:

See summary of soil descriptions.

UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**		**Date**	**29/03/16**	**Contract No:**
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PARTICLE SIZE DISTRIBUTION TEST

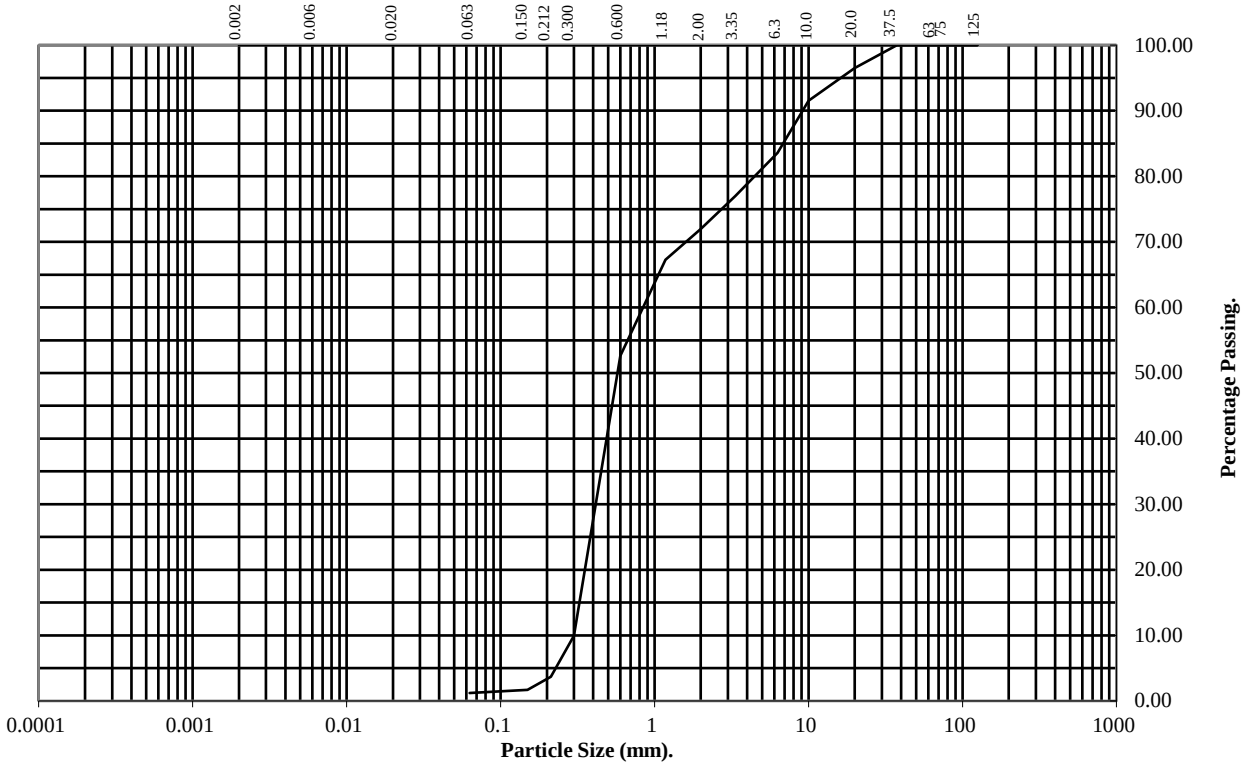
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH2** **Top Depth (m):** **3.00**

Sample Number: **Base Depth(m):** **3.50**

Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	96
10	92
6.3	84
3.35	77
2	72
1.18	67
0.6	53
0.3	10
0.212	4
0.15	2
0.063	1

Soil Fraction	Total Percentage
Cobbles	0
Gravel	28
Sand	71
Silt/Clay	1

Remarks:

See summary of soil descriptions.

UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**		**Date**	**29/03/16**	**Contract No:**
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						Client Ref:
						HLEI 39025

ONE DIMENSIONAL CONSOLIDATION TEST

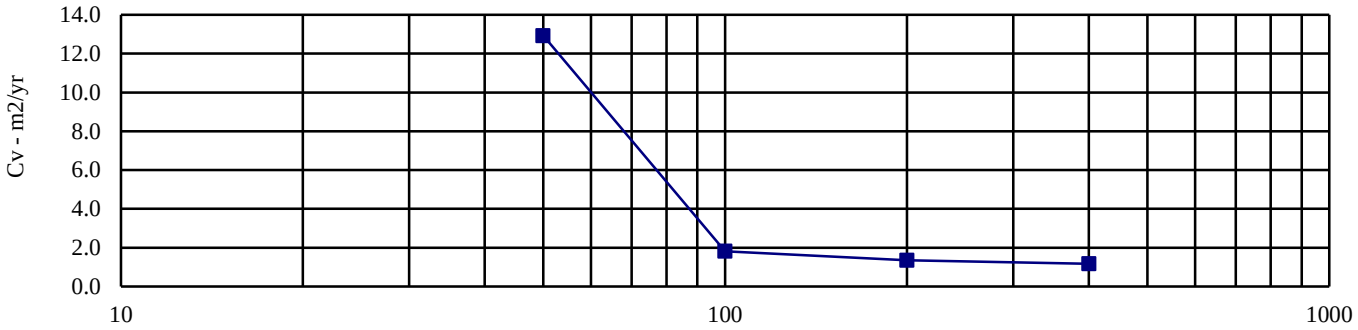
BS 1377: Part 5: 1990: Clause 3

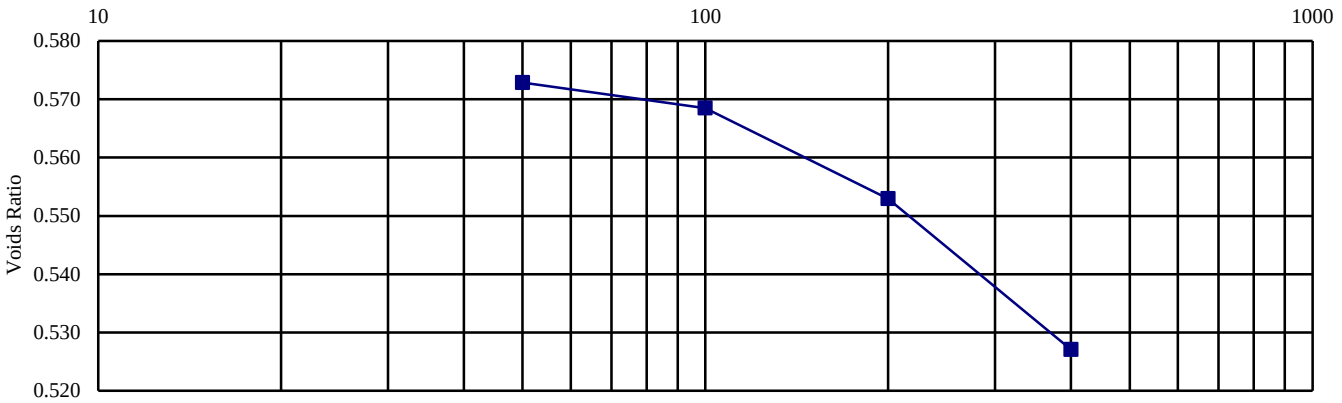
Hole Number: **BH1** **Top Depth (m):** **17.00**

Sample Number: **Base Depth (m) :** **17.45**

Sample Type: **U**

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	21						
Bulk Density (Mg/m3):	2.03	0	50	0.134	12.925	Method used to	
Dry Density (Mg/m3):	1.67	50	100	0.056	1.808	determine CV:	T90
Voids Ratio:	0.583	100	200	0.099	1.351	Nominal temperature	
Degree of saturation:	96.3	200	400	0.083	1.170	during test ' C:	20
Height (mm):	19.876					Remarks:	
Diameter (mm)	75.03					See summary of soils description.	
Particle Density (Mg/m3): Assumed	2.65						





UKAS TESTING 4043 / PSL Professional Soils Laboratory	Checked / Approved		Date 31/03/16	Contract No: PSL16/1211
	150 Holborn			Client Ref:

ONE DIMENSIONAL CONSOLIDATION TEST

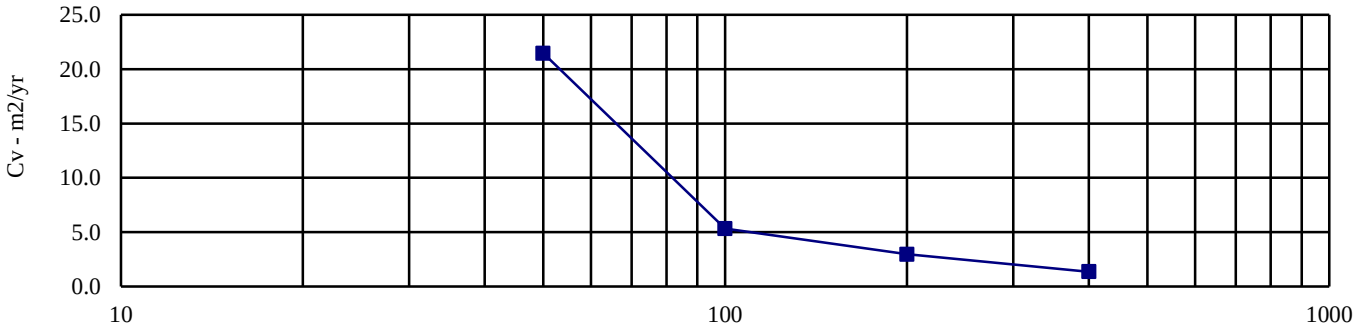
BS 1377: Part 5: 1990: Clause 3

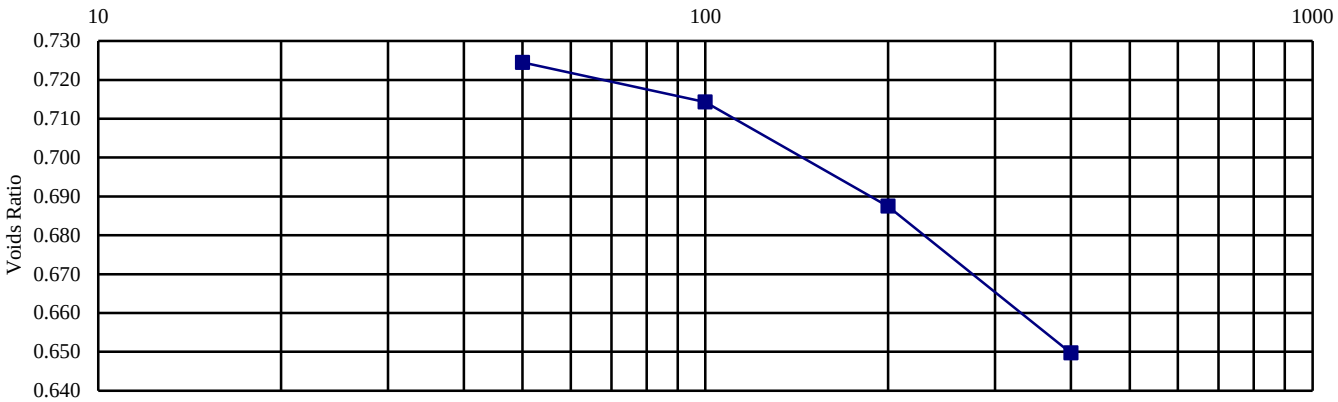
Hole Number: **BH2** **Top Depth (m):** **6.50**

Sample Number: **Base Depth (m) :** **6.95**

Sample Type: **U**

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	25						
Bulk Density (Mg/m3):	1.91	0	50	0.092	21.454	Method used to	
Dry Density (Mg/m3):	1.53	50	100	0.118	5.320	determine CV:	T90
Voids Ratio:	0.732	100	200	0.156	2.962	Nominal temperature	
Degree of saturation:	90.1	200	400	0.112	1.363	during test ' C:	20
Height (mm):	20.024					Remarks:	
Diameter (mm)	75.013					See summary of soils description.	
Particle Density (Mg/m3): Assumed	2.65						





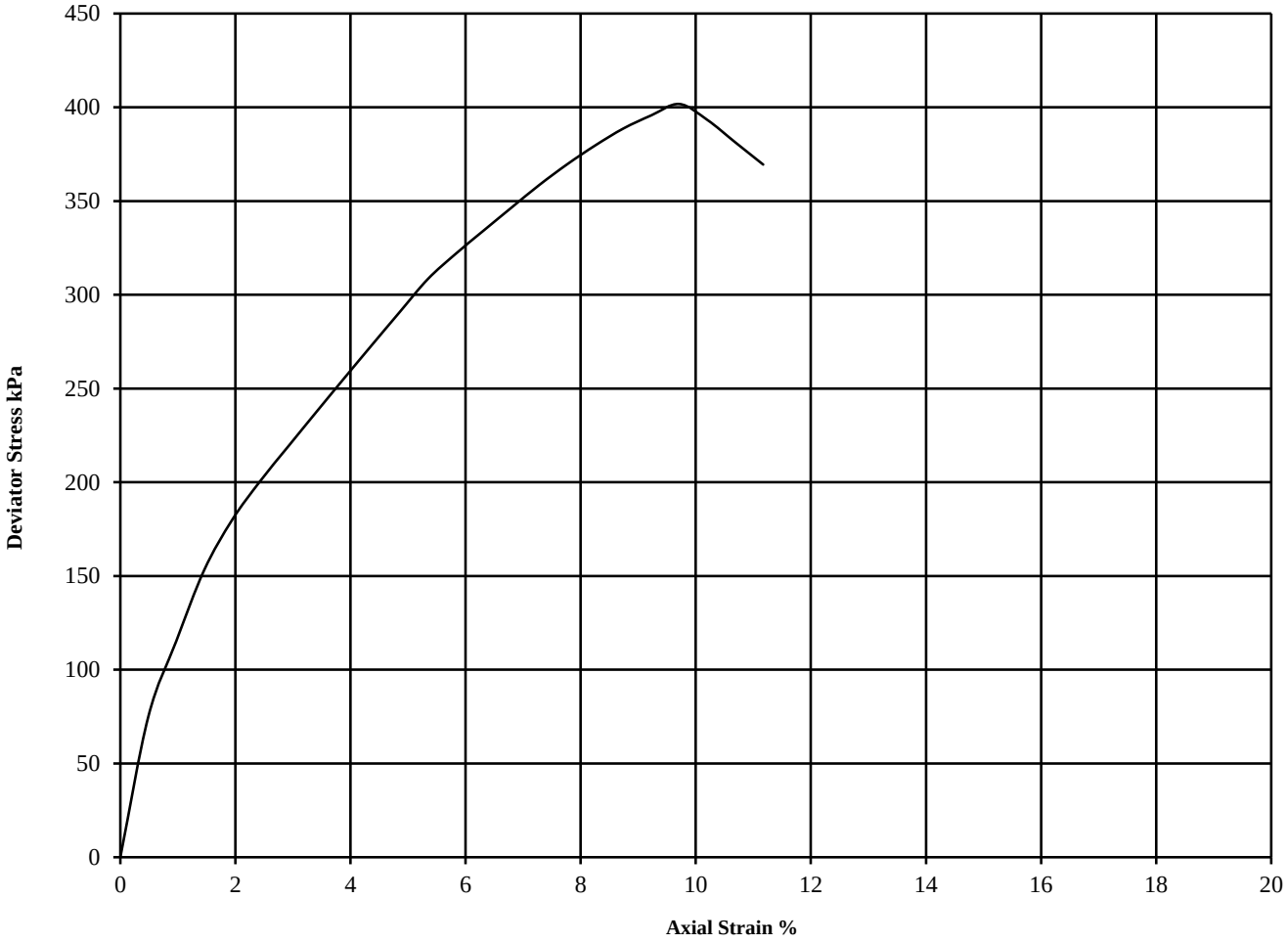
UKAS TESTING 4043 / PSL Professional Soils Laboratory	Checked / Approved	Date	31/03/16	Contract No:
	150 Holborn			PSL16/1211
				Client Ref:

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number:	**BH1**	**Top Depth (m):**	**11.00**
Sample Number:		**Base Depth (m):**	**11.45**
Sample Type	**U**		



Diameter (mm):		102.0	Height (mm):		210.0	Test:	UU Single Stage		Remarks
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.35
1	22	1.97	1.62	220	402	201	9.7	Brittle	See summary of soil descriptions.

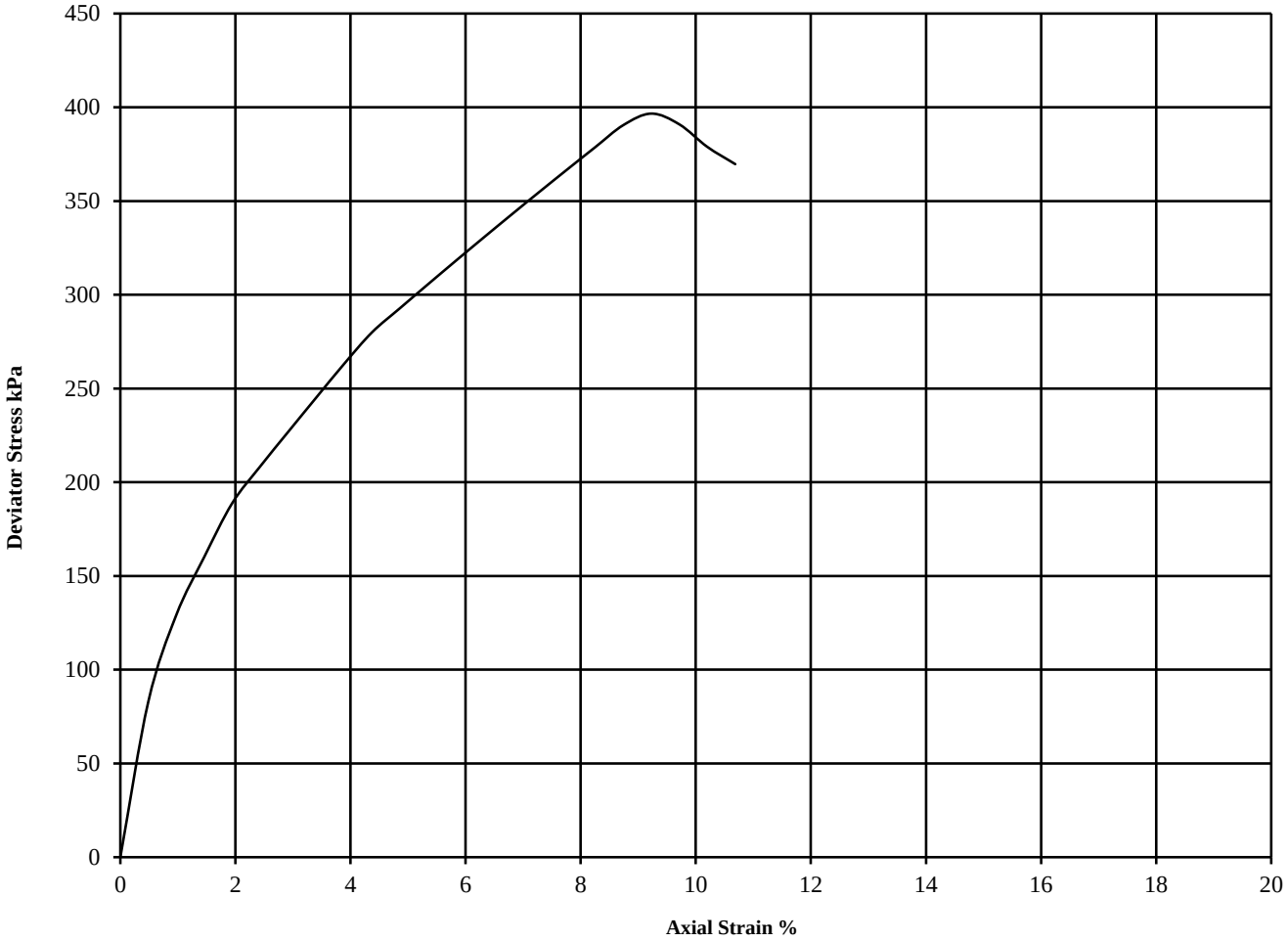
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**	BHH	**Date** 29/03/16	**Contract No:** PSL16/1211
		150 Holburn			**Client Ref:** HLEI 39025

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number:	**BH1**	**Top Depth (m):**	**14.00**
Sample Number:		**Base Depth (m):**	**14.50**
Sample Type	**U**		



Diameter (mm):		102.0	Height (mm):		210.0	Test:	UU Single Stage		Remarks
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.36
1	22	2.06	1.69	280	397	198	9.2	Brittle	See summary of soil descriptions.

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		150 Holburn			**PSL16/1211**
					Client Ref:
					HLEI 39025

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

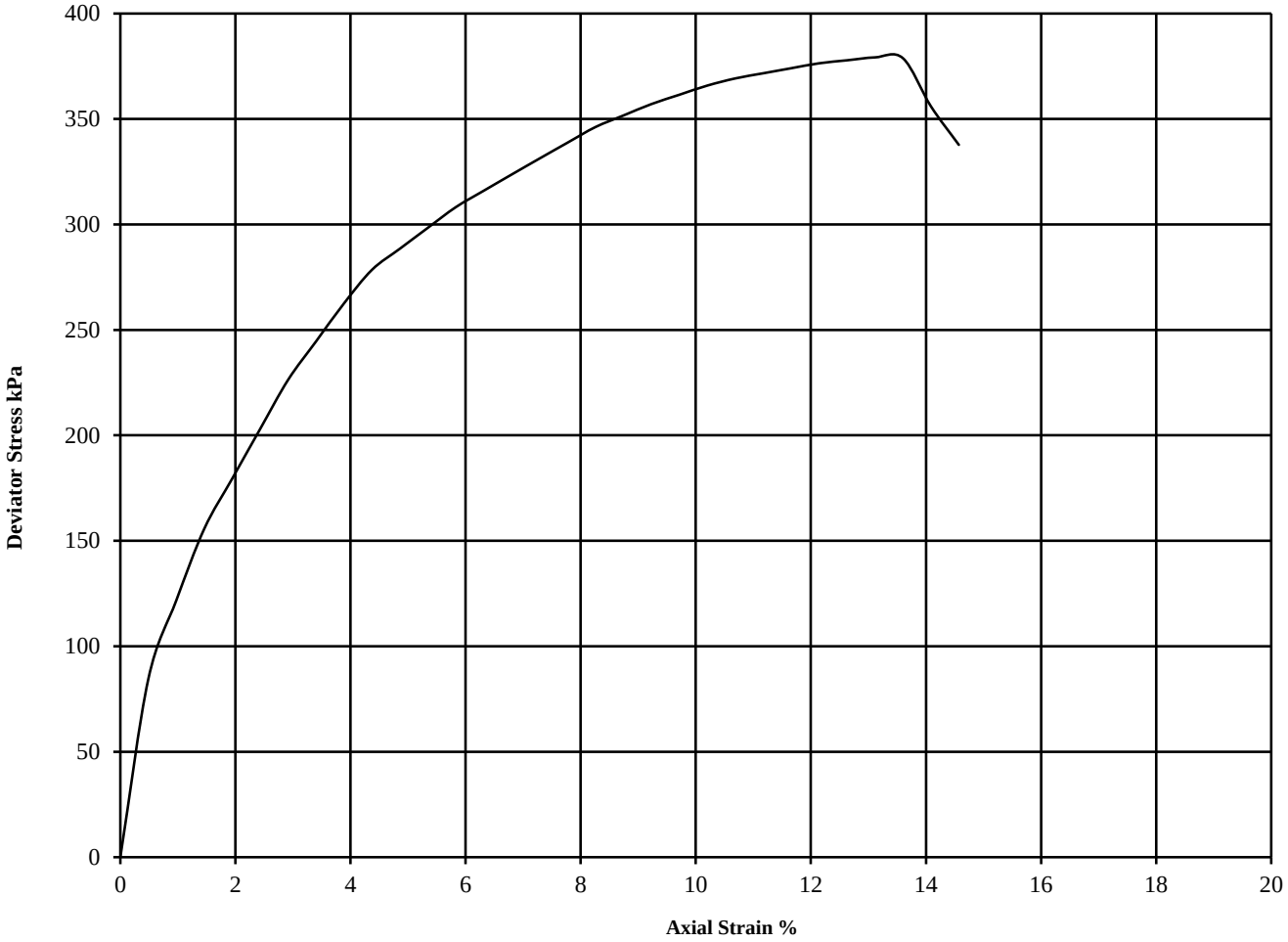
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: **BH1** **Top Depth (m):** **20.00**

Sample Number: **Base Depth (m):** **20.45**

Sample Type **U**



Diameter (mm):		102.0	Height (mm):		210.0	Test:	UU Single Stage		Remarks
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.35
1	20	2.02	1.68	400	379	190	13.1	Brittle	See summary of soil descriptions.

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					Client Ref:
					HLEI 39025