

Figure 5: Historical Map Extract

Map Date: 1951

Scale: Not to scale

RPS 35 New Bridge Street

London EC4V 6BW

200-7280-3200300 www.rpsgroup.com

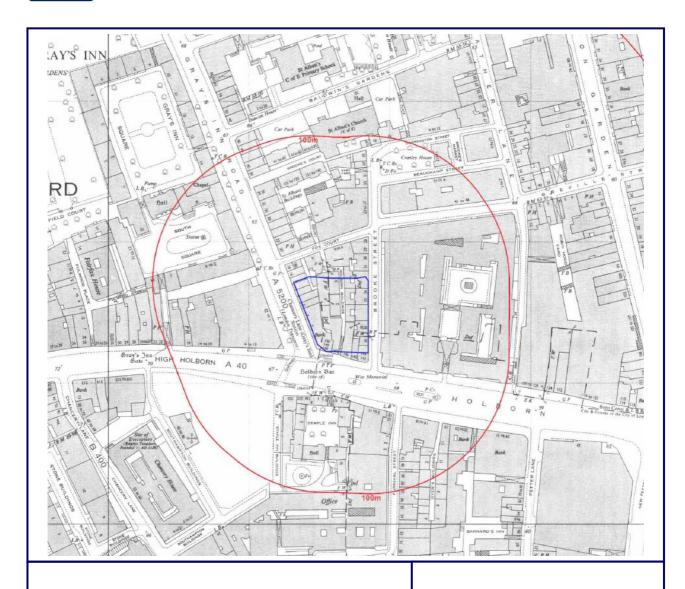


Figure 6: Historical Map Extract

Map Date: 1967

Scale: Not to scale

RPS 35 New Bridge Street London EC4V 6BW

20-7280-320030-7280-3200

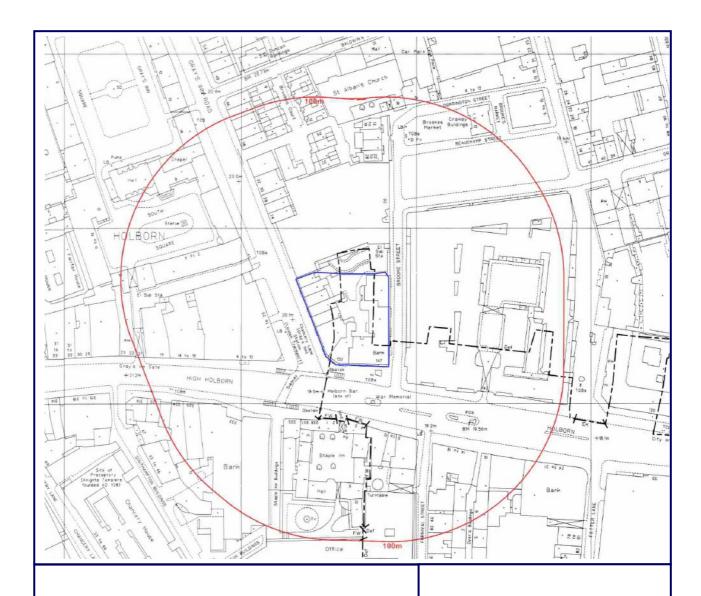


Figure 7: Historical Map Extract

Map Date: 1991

Scale: Not to scale

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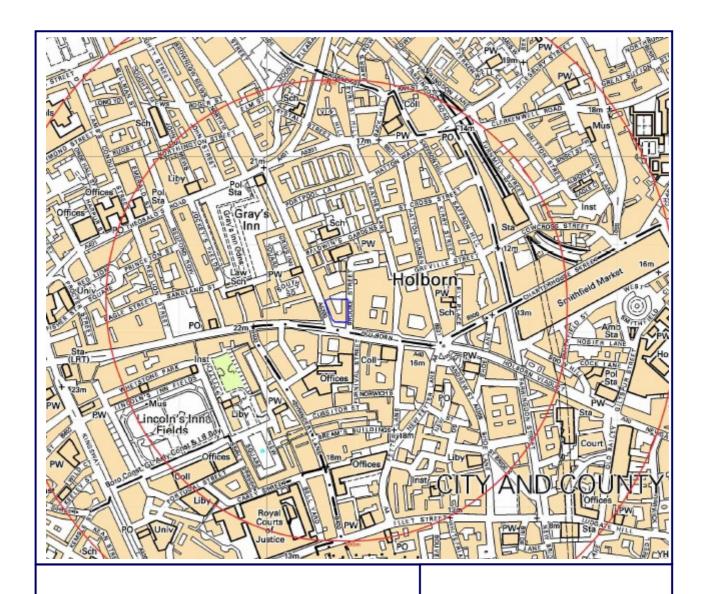


Figure 8: Historical Map Extract

Map Date: 2002

Scale: Not to scale

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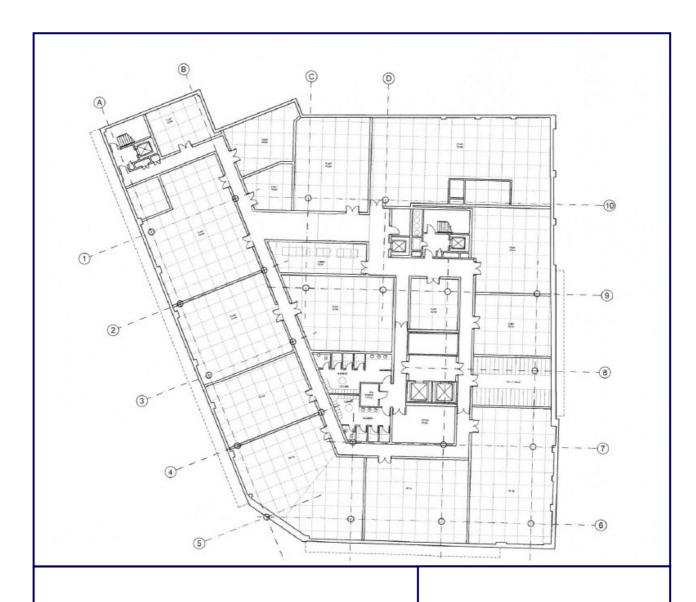
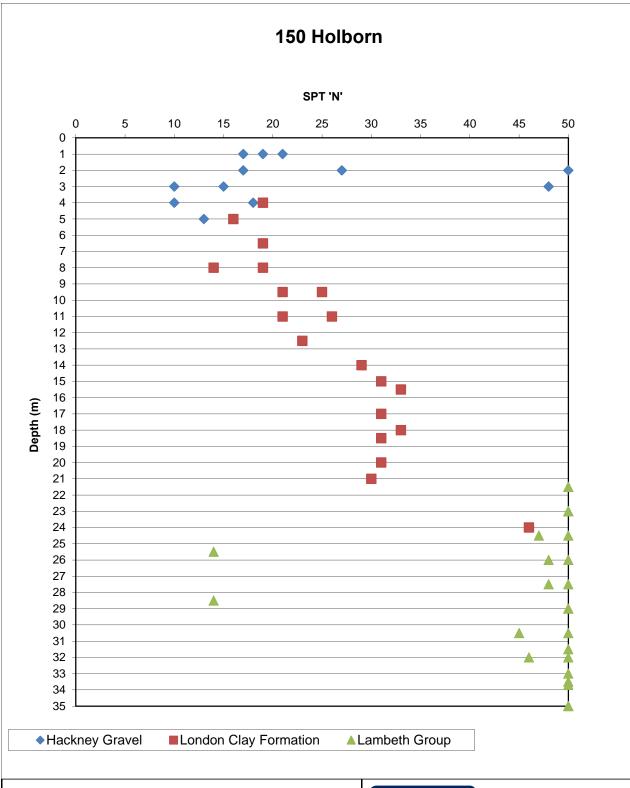


Figure 9: Proposed Development Plan

Scale: Not to scale

RPS 35 New Bridge Street London EC4V 6BW

20-7280-320030-7280-3200



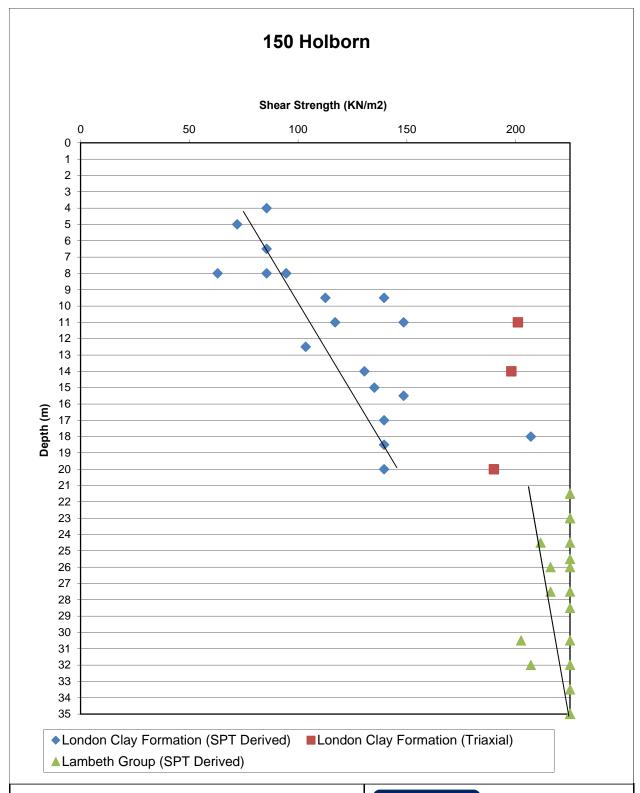
Project: 150 Holborn
Project no: HLEI 39025
Date: May-16

Figure 10: SPT 'N' vs. Depth



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

Figure 11: Shear strength vs. Depth



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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 2001¹, 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 waters² is being caused or there is a significant possibility of such pollution being caused³,

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 waters⁴.

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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 caused⁵'.

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).

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



APPENDIX C

Exploratory Hole Logs

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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: CP Pipe Diameter: 50mm Casing Diameter (mm) Casing Depth (m) Location: Holborn Cut Down Cable Precussive Scale: Northing: Ground Level Client: CNM 1:25 15.40 Logged By:

| 1.00 | lient: | CNM | | Gro (mA | und Level OD): | 15.40 | Log | ged By: | SD 1:25 | |
|--|------------------------|--------------|-------------|--------------------|-------------------|--------|-------|---------------------|--|------|
| 1.00 SPT(C) N=21 (2.2/3.5.8.7) 1.80 13.60 2.00 - 2.50 B 2.45 SPT(C) N=27 (3.8/7.8.7.5) 3.80 ES 4.00 SPT(S) N=19 (1.4/4.4.5.6) | Well Water Strike(s | | <u> </u> | | | | | Legend | Stratum Description | Sca |
| 1.00 | | Deptil (III) | Турс | results | 1 | | l | | | |
| 1.00 1.00 - 1.50 SPT(C) N=21 (2.2/3,56.7) 1.80 13.60 Contains cobles of find. Charge brown very gravelly fine to medium SAND. Gravel is fine in medium subergular to subrounded filed. Charge brown very gravelly fine to medium SAND. Gravel is fine in medium subergular to subrounded filed. Charge brown very gravelly fine to medium SAND. Gravel is fine in medium subergular to subrounded filed. Charge brown very gravelly fine to medium SAND. Gravel is fine in medium subergular to subrounded filed. Charge brown very gravelly fine to medium SAND. Gravel is fine in medium subergular to subrounded filed. Charge brown very gravelly fine to medium SAND. Gravel is fine in medium subergular to subrounded filed. Charge brown very gravelly fine to medium SAND. Gravel is fine in medium subergular to subrounded filed. Charge brown very gravelly fine to medium SAND. Gravel is fine in medium subergular to subrounded filed. Charge brown were gravelly fine to medium SAND. Gravel is fine in medium subergular to subrounded filed. Charge brown very gravelly fine to medium SAND. Gravel is fine in medium subergular to subrounded filed. Charge brown very gravelly fine to medium SAND. Gravel is fine in medium subergular to subrounded filed. Charge brown were gravelly fine to medium SAND. Gravel is fine in medium subergular to subrounded filed. Charge brown very gravelly fine to medium SAND. Gravel is fine in medium subergular to subrounded filed. Charge brown very gravelly fine to medium SAND. Gravel is fine in medium subergular to subrounded filed. Charge brown very gravelly fine to medium SAND. Gravel is fine to coarse. Charge brown very gravelly fine to medium SAND. Gravel is fine to coarse. Charge brown very gravelly fine to medium SAND. Gravel is fine to coarse. Charge brown very gravelly fine to medium SAND. Gravel is fine to coarse. Charge brown very gravelly fine to medium SAND. Gravel is fine to coarse. Charge brown very gravelly fine to coarse. Charge brown very gravelly fine to coarse. | | | | | | | | | medium, angular to subrounded flint. | |
| 2.00 - 2.50 B 2.00 - 2.50 B 2.45 SPT(C) N=27 (3.57,8.7.5) 3.00 3.00 - 3.50 B 3.80 ES 4.00 SPT(S) N=19 (1.4/4.4.5.6) 3.90 SPT(S) D 11.70 Reddish brown mottled black slightly silty CLAY. Contains occasional pockets of red fine sand. (LONDON CLAY FORMATION) SIR did say region spokets of red fine sand. (LONDON CLAY FORMATION) SIR did say region spokets of red fine red sand. Contains occasional pockets of fine red sand. | | | SPT(C) B | N=21 (2,2/3,5,6,7) | | (1.00) | 14.60 | | angular to subrounded flint GRAVEL. Sand is fine to coarse Contains cobbles of flint. | |
| 3.80 ES 4.00 SPT(S) N=19 (1,4/4,4,5,6) SPT(S) D SPT(S) D A.50 D SPT(C) N=10 (2,3/5,2,1,2) (0.20) | | | | | 1.80 | | 13.60 | | fine to medium subangular to subrounded flint. | 3 |
| 3.00 3.00 - 3.50 SPT(C) B N=10 (2.3/5,2,1,2) | | 2.45 | SPT(C) | N=27 (3,5/7,8,7,5) | | | | | | |
| 3.80 ES 4.00 SPT(S) N=19 (1,4/4,4,5,6) A.50 D Reddish brown mottled black slightly sitty CLAY. Contains occasional pockets of red fine sand. (0.20) 3.90 11.50 Reddish brown mottled black slightly sitty CLAY. (LONDON CLAY FORMATION) Stiff dark grey very slightly sitty CLAY. (LONDON CLAY FORMATION) Contains occasional pockets of fine red sand. | | | SPT(C) B | N=10 (2,3/5,2,1,2) | | (1.90) | | | | |
| 4.50 D | | | | N=19 (1,4/4,4,5,6) | 3.90 | (0.20) | | ×——× | occasional pockets of red fine sand. (LONDON CLAY FORMATION) Stiff dark grey very slightly silty CLAY. (LONDON CLAY FORMATION) | |
| | | 4.50 | D | | | | | X———X X————X | | |
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| | Groundwater | | Chiselling | | | | |
|------------------|------------------|------------------------|---------------------|---------------|----------------|--|--|
| Depth Strike (m) | Depth Casing (m) | Level After 20 Mins | Duration (hh:mm) | Top Depth (m) | Base Depth (m) | | |
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Borehole No. **BH1**

Sheet 2 of 7

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

| Client: | | CNM | | Gro (mA | and Level OD): | 15.40 | Logg | ged By: | SD | | | 1:25 | |
|---------|--------------------|------------------------------|--------|--------------------|-------------------|-----------|-----------------|--|----|------|-----------------------|------|-------|
| Well | Water Strike(s) | | | Situ Testing | Depth | Thickness | Level (mAOD) | Legend | | Q+r | ratum Description | | Scale |
| vveii | Strike(s) | Depth (m) | Туре | Results | (mbGL) | (m) | (mAOD) | Legenu | | - Su | ratum Description | | Scale |
| | | 5.50 | D | | | | | X | | | | | |
| | | 6.50 | SPT(S) | N=19 (1,3/3,5,5,6) | | | | xx xx xx xx xx xx xx xx xx xx | | | | | 6 |
| | | 8.00 - 8.45 | U | | | | | | | | | | 8 - |
| | | 9.50 9.50 - 9.95 10.00 | SPT(S) | N=25 (2,4/5,6,7,7) | | | | X | | | ntinued on next sheet | | 9 |
| | | 10.00 | ט | | | | | | | Coi | ntinued on next sheet | | 10 |
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| | Groundwater | | Chiselling | | | | |
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| Depth Strike (m | Depth Casing (m) | Level After 20 Mins | Duration (hh:mm) | Top Depth (m) | Base Depth (m) | | |
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Borehole No. **BH1**

Sheet 3 of 7

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

| 12.50 SPT(S) N=23 (2.3/5.58.7) (97.16) The state of the | Oliciti. | | CINIVI | (mAO | D): | 10.40 | Logi | ged by. | 30 | | | 1.23 | |
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| 13.00 D 13.00 D 14.00 - 14.45 U 14.50 D | | | | results | | 1,77 | | | | | | | 11 - |
| 14.50 D | | | | N=23 (2,3/5,5,6,7) | | (17.10) | | X | | | | | 13 - |
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| | Groundwater | | Chiselling | | | | |
|------------------|------------------|------------------------|---------------------|--|--|--|--|
| Depth Strike (m) | Depth Casing (m) | Level After 20 Mins | Duration (hh:mm) | | | | |
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|---------|-----------|--|-----------|--------------|---------------|------|
| Project | Name | e: 150 Ho | lborn | | Co- | orc |
| Project | No: | HLEI39 | 9025 | | Easti | ing: |
| Locatio | n: | Holbor | n | | North | ning |
| Client: | | CNM | | | Groun (mAO | |
| Well | Water | Samp | oles & In | Situ Testing | | С |
| vveii | Strike(s) | Depth (m) | Туре | Results | | (m |
| X/XX/X | | | | | | |

Borehole No.

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

| Client: | | CNM | | (mAO | | 15.40 | Log | gea By: | 3D | | | 1:25 | |
|--|--------------------|-------------------|-------------|-------------------------|-----------------|---------------|-----------------|---------------|----|------|----------------------|------|-------|
| Well | Water Strike(s) | Samp Depth (m) | ples & In S | Situ Testing Results | Depth (mbGL) | Thickness (m) | Level (mAOD) | Legend | | Str | atum Description | | Scale |
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| Remarks | | | | | | | | - - | | | Chiselling | | _ |

| Remarks |
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| (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) | | | |
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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: CP Pipe Diameter: 50mm Casing Diameter (mm) Location: Holborn Cut Down Cable Precussive Casing Depth (m) Scale: Northing: Ground Level Client: CNM 15.40 1:25 Logged By: SD

| March Marc | Client: | | CNM | | (m | AOD): | 15.40 | Log | ged By: | SD | | | 1:25 | |
|--|--------------|--------------------|----------------|--------|---------------------------|----------------|---------------|-----------------|--|-----------------|-------------------------------|----------------------|-------------------|-------|
| 21.00 | Well | Water Strike(s) | | | | Depth (mbGL) | Thickness (m) | Level (mAOD) | Legend | | | | | Scale |
| 24.50 SPT(S) N=60 (5,10/13,14,16,17) | Client: Well | Water Strike(s) | 21.50 22.00 | SPT(S) | N=54 (4,5/8,15,15,16) | 21.00 21.70 | (m) | Level (mAOD) | X————————————————————————————————————— | Grey n (LAME | nottled brown CLA'BETH GROUP) | gravel of claystone. | AY. Sand is fine. | 21 |
| 25.00 D Continued on next sheet | | | | | N=60 (5,10/13,14,16,17 |) | | | | | | | | 24 |
| | Y/\\Y/\\ | | 25.00 | l D | I | I | 1 | I | | | Conti | nued on next sheet | | 25 — |

| | Groundwater | | Chiselling | | | | | | |
|------------------|------------------|------------------------|---------------------|---------------|----------------|--|--|--|--|
| Depth Strike (m) | Depth Casing (m) | Level After 20 Mins | Duration (hh:mm) | Top Depth (m) | Base Depth (m) | | | | |
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Borehole No. **BH1**

Sheet 6 of 7

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

| Client: | | CINIVI | | | OD): | 15.40 | Logi | gea By: | 2D | | | | | 1:25 | |
|---------|--------------------|------------------|-------------|---------------------------|-----------------|---------------|-----------------|------------|----------------|--------------------------|-------|----------------|------|------|------|
| Well | Water Strike(s) | Sam Depth (m) | ples & In S | Situ Testing Results | Depth (mbGL) | Thickness (m) | Level (mAOD) | Legend | | | Strat | tum Descript | tion | | Scal |
| | | 26.00 | SPT(S) | 48 (6,10/48 for 225mm) | | (7.10) | | | | | | | | | 26 - |
| | | 27.50 28.00 | SPT(S) | 50 (8,9/50 for 225mm) | | | | X | | | | | | | 28 - |
| | | 29.00 | SPT(S) | 53 (8,10/53 for 150mm) | 28.80 | (1.70) | -13.40 | | Brown (LAMB | grey slightl ETH GROU | | y silty fine S | | | 29 - |
| Remarks | | | | | | | | Froundwate | | | | Chiselling | | | |

| | Groundwater | | | Chiselling | |
|------------------|------------------|------------------------|---------------------|---------------|----------------|
| Depth Strike (m) | Depth Casing (m) | Level After 20 Mins | Duration (hh:mm) | Top Depth (m) | Base Depth (m) |
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Borehole No. **BH1**

Sheet 7 of 7

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

| 30.50 SPT(S) 45 (5.745 for 225mm) 30.50 -15.10 - | | Oilci i. | | CIVIVI | | (mAOI | D): | 10.40 | | geu by. | 00 | | | 1.20 | |
|---|--|------------------|--------------------|-----------|----------|---------------------------|--------|-----------|--------|-----------------|------------------------------|-----------------------------------|----------------------|----------------|-------|
| 30.50 SPT(S) 45 (3.745 for 2.25mm) 30.50 -15.10 Shush grey motted red and yellow sity sandy CLAY. Sand in final (IAMBETH GROUP) 31 | 30.50 SPT(S) 45 (5.745 for 2.25mm) 30.50 -15.10 -15 | Well | Water Strike(s) | | | | Depth | Thickness | Level | Legend | | Stra | tum Description | | Scale |
| 32.00 SPT(S) N=48 (3.4/5,8,14,19) (4.50) 34.00 D | 32.00 SPT(S) N=48 (3.4/5.8,14,19) 32.00 D 34.00 D | \// <u>/</u> \/\ | ourke(S) | Depth (m) | Туре | Results | (mbGL) | (m) | (MAOD) | | | | F | | 1 |
| 32.00 SPT(S) N=46 (3.4/5,8,14,19) (4.50) | 32.00 SPT(S) N=46 (3.4/5.8.14.19) (4.50) (4.50) (4.50) (4.50) (3.4/5.8.14.19) (4.50) | | | 30.50 | SPT(S) | 45 (5,7/45 for 225mm) | 30.50 | | -15.10 | | Blueisl is fine. (LAMB | h grey mottled red SETH GROUP) | and yellow silty sar | ndy CLAY. Sand | 31 - |
| 34.00 D | 34.00 D | | | 32.00 | SPT(S) | N=46 (3,4/5,8,14,19) | | | | | | | | | |
| | | | | | | | | (4.50) | | X | | | | | 33 - |
| 35.00 SPT(S) 50 (7,11/50 for 170mm) End of Borehole at 35.00m | 35.00 SPT(S) 50 (7,11/50 for 170mm) End of Borehole at 35.00m | | | 34.00 | D | | | | | | | | | | 34 - |
| ' 35.00 'SPI(S)' 50 (7,11/50 for ' ' End of Borehole at 35.00m 35 | ' 35.00 'SPI(S)' 50 (7,11/50 for ' End of Borehole at 35.00m 35 | | | 05.00 | ODT/C: | 50 (7.41/50) | | | | X——× | | | | | |
| | , | 2//X\Y//X\ | ļ | 35.00 | ' SPT(S) | 50 (7,11/50 for 170mm) | ' | 1 | 1 | - · · · · · · · | | End of | f Borehole at 35.00m | | 35 |

| | Groundwater | | Chiselling | | | | | | |
|------------------|------------------|------------------------|---------------------|---------------|----------------|--|--|--|--|
| Depth Strike (m) | Depth Casing (m) | Level After 20 Mins | Duration (hh:mm) | Top Depth (m) | Base Depth (m) | | | | |
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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: CP Pipe Diameter: 50mm Casing Diameter (mm) Location: Holborn Casing Depth (m) Scale: Northing: Ground Level (mAOD): Client: CNM 15.40 LW 1:25 Logged By:

| Jilent: | | CINIVI | | (m/ | AOD): | 15.40 | Log | gea | LVV | 1:2 | |
|---------|--------------------|-----------------------------|-------------------|-------------------------|--------------|---------------|-----------------|---|------------------|--|-------|
| Well | Water Strike(s) | Samp Depth (m) | ples & In S | Situ Testing Results | Depth (mbGL) | Thickness (m) | Level (mAOD) | Legend | | Stratum Description | Scale |
| | | | 3111 | | 0.00 0.02 | (0.44) | 15.40 15.38 | | Concre | E GROUND) | |
| | | | | | 0.45 | | 14.95 | × × × × × × × × × × × × × × × × × × × | subrou coarse | very slightly silty sandy medium fine to coarse unded to angular flint GRAVEL. Sand is medium to except the same of the same o | |
| | | 1.00 1.00 1.00 - 1.50 | ES SPT(C) B | N=19 (2,3/4,4,5,6) | | (1.55) | | | | | 1 - |
| | | 2.00 2.00 - 2.50 | SPT(C) B | N=17 (2,2/3,4,5,5) | 2.00 | | 13.40 | **** | angula subrou | e brown very sandy fine to coarse subrounded to ar flint GRAVEL. Sand is medium to coarse. Contain: unded to rounded cobbles of flint. (NEY GRAVEL) | 2 - |
| | | 2.50 | D | | | (1.00) | | | | | |
| | | 3.00 3.00 - 3.50 3.20 | SPT(C) B ES | N=15 (2,2/3,3,4,5) | 3.00 | | 12.40 | | to med | e brown gravelly fine to coarse SAND. Gravel is fine dium subangular to subrounded flint. (NEY GRAVEL) | 3 - |
| | | 4.00 | SPT(C) | N=10 (2,2/1,2,2,5) | | (1.30) | | | | | 4 - |
| | | 4.50 | D | | 4.30 | (0.40) | 11.10 | XX XX XX | Reddis (LOND | sh brown mottled grey brown slightly silty CLAY. DON CLAY FORMATION) | |
| | | | | | 4.70 | | 10.70 | × × = = = = = = = = = = = = = = = = = = | Dark g (LOND | grey CLAY with occasional partings of light grey silt. DON CLAY FORMATION) | |
| | | 5.00 | SPT(S) | N=16 (2,2/3,4,4,5) | , | | | | | Continued on next sheet | 5 - |
| emarks | | | | | | | | Groundwate | | Chicalling | |



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| | RP | S | | | В | OR | EH | JL | ᆫ | O(| j | | BH2 | |
| | | | | | | | | | | | | | Sheet 2 of | 8 |
| Project | Name | e: 150 Ho | olborn | | Co-d | ordinate | es: | | | Date(s) | : 09/03/2016 - 1 | 4/03/2016 | Hole Typ | e: |
| Project | No: | HLEI39 | 9025 | | Easti | ng: | | D | rilling Met | hod: | | eter: 50mm | СР | |
| Locatio | n: | Holbor | n | | North | ning: | | | | | Casing Diameter (mm) | Casing Depth (m) | Scale: | |
| Client: | | CNM | | | Ground (mAOI | d Level D): | 15.40 | Log | ged By: | LW | | | 1:25 | |
| Well | Water | Samı | oles & In | Situ Testing | (| Depth | Thickness | Level | Legend | | Strat | um Description | | Scale |
| AACII | Strike(s) | Depth (m) | Туре | Results | | (mbGL) | (m) | (mAOD) | Legenu | | Strat | um Description | | Scale |
| | | 5.50 5.50 | D ES | | | | | | | | | | | 6 |
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| | 8.00 | SPT(S) | N=19 (3,4/4,4,5,6) | | l ⊢_ | | | 8 - | - |
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|---|------------------|------------------|------------------------|---------------------|---------------|----------------|---|
| | Depth Strike (m) | Depth Casing (m) | Level After 20 Mins | Duration (hh:mm) | Top Depth (m) | Base Depth (m) | |
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Borehole No. BH2

Sheet 3 of 8

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

| | | | | | DD): | | | | | | | 1:25 | |
|---------|--------------------|------------------------|-------------|-------------------------|-----------------|---------------|-----------------|----------|--------|----------------------|--------------------------------|------|-------|
| Well | Water Strike(s) | Samp Depth (m) | oles & In S | Situ Testing Results | Depth (mbGL) | Thickness (m) | Level (mAOD) | Legend | | Stra | tum Description | | Scale |
| | | 11.00 | SPT(S) | N=26 (3,3/5,6,7,8) | | | | | Contai | ins occasional seler | nite. | | 11 - |
| | | 12.50 - 12.95 13.00 | U D | | | (15.70) | | | | | | | 13 — |
| | | 14.00 14.50 | SPT(S) | N=29 (3,4/6,7,7,9) | | | | | Contai | ins occasional spec | iks of light grey silt. | | 14 - |
| Remarks | | | | | | | | roundwat | | Conti | nued on next sheet Chisellina | | 15 — |

Remarks Groundwater Chiselling

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



| | RP | S | | | ВОІ | REH | OL | ΕL | .00 | 3 | | Borehole I BH2 Sheet 4 o | |
|----------|--------------------|------------------|-----------|-------------------------|----------------------|-----------------------|-----------------|------------|---------|----------------------|------------------|----------------------------|------|
| Projec | t Name | : 150 H | olborn | | Co-ordina | ates: | | I | Date(s) | : 09/03/2016 - 1 | 14/03/2016 | Hole Typ | oe: |
| Projec | t No: | HLEI3 | 9025 | | Easting: | | D | rilling Me | thod: | | eter: 50mm | СР | |
| Location | on: | Holbor | 'n | | Northing: | | | | | Casing Diameter (mm) | Casing Depth (m) | Scale | : |
| Client: | | CNM | | | Ground Level (mAOD): | 15.40 | Log | ged By: | LW | | | 1:25 | |
| Well | Water Strike(s) | Sam Depth (m) | ples & In | Situ Testing Results | Dept (mbG | h Thickness L) (m) | Level (mAOD) | Legend | | Strat | um Description | | Scal |
| | | 17.00 | SPT(S) | N=31 (4,5/7,8,8 | 8,8) | | | | | | | | 16 - |

| Remarks | | Groundwater | | | Chiselling | | |
|---------|------------------|------------------|------------------------|---------------------|---------------|----------------|--|
| | Depth Strike (m) | Depth Casing (m) | Level After 20 Mins | Duration (hh:mm) | Top Depth (m) | Base Depth (m) | |
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20.00

SPT(S) N=31 (4,6/7,7,8,9)



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Borehole No. BH2

Sheet 5 of 8

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

| | | CIVIVI | | (mAO | U). | 15.40 | | ged by. | LVV | | | 1.20 | |
|--|--------------------|-----------|--------|--------------------------|--------|-----------|--------|---|---------------------------|---|----------------------|------------------|--------|
| Well | Water Strike(s) | | | Situ Testing | Depth | Thickness | Level | Legend | | Stra | tum Description | | Scale |
| \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | ourke(s) | Depth (m) | Туре | Results | (mbGL) | (m) | (mAOD) | | | | | | |
| | | | | | 20.40 | | -5.00 | X X X X X X X X X X X X X X X X X X X | Reddis (LAMB | sh brown mottled li BETH GROUP) | ght grey and yellow | silty CLAY. | - |
| | | 21.50 | SPT(S) | N=52 (5,6/9,12,15,16) | | (2.60) | | X | | | | | 21 - |
| | | | | | | | | X - x X - x X - x X - x X - x X - x X - x X - x X - x X - x X - x X - x X - x | | | | | 22 - |
| | | 23.00 | SPT(S) | N=52 (4,7/9,11,14,18) | 23.00 | | -7.60 | X | Red m of fine (LAMB | nottled light blueish sand. BETH GROUP) | grey silty CLAY wit | h white speckles | - 23 - |
| | | 24.50 | SPT(S) | 47 (4,8/47 for 225mm) | 24.80 | (1.80) | -9.40 | X X X X X X X X X X X X X X X X X X X | Yellowi | ish brown mottled | light blueish arev a | nd red brown | 24 - |
| | | | | | | | | ×× | silty Cl | | light blueish grey a | | 25 — |
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Remarks Groundwater Chiselling

Depth Strike (m) Depth Casing (m) Level After 20 (http://min.mm) Top Depth (m) Base Depth (m)



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Borehole No. BH2

Sheet 6 of 8

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

| Client: | | CNM | | (r | nAOD): | 15.40 | Logo | ged By: | LVV | | | 1:25 | |
|---------|--------------------|------------------|-------------|---------------------------|--------------|---------------|------------------|--|--------------------|--|--|------|-------|
| Well | Water Strike(s) | Sam Depth (m) | ples & In S | Situ Testing Results | Depth (mbGL) | Thickness (m) | Level (mAOD) | Legend | | | tum Description | | Scale |
| | | 26.00 | SPT(S) | 55 (6,10/55 for 225mm) | | (3.40) | | | (LAMB | ETH GROUP) | | | 26 - |
| | | 27.50 28.00 | SPT(S) | 48 (7,10/48 for 150mm) | | | | | | | | | 27 |
| | | 29.00 | SPT(S) | 51 (3,8/51 for 225mm) | 28.20 | (1.20) | -12.80 | | Light b (LAMB | lueish grey and ye ETH GROUP) | illow silty fine SAND |). | 29 — |
| Remarks | | 30.00 | D | | 29.40 | (0.40) | -14.00 -14.40 | i vi | Mottled small p | d yellow, orange, b lockets of dark red | white clayey silty fine lueish grey and red fine sand. | | 30 |

Remarks Groundwater Chiselling

Depth Strike (m) Depth Casing (m) Level After 20 (Mins Mins Chimm) Top Depth (m) Base Depth (m)



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Borehole No. **BH2**

Sheet 7 of 8

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

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| Well | Water Strike(s) | Sam | oles & In | Situ Testing | Depth | Thickness | Level (mAOD) | Legend | | Ctro | tum Description | | Scale |
| vveii | Strike(s) | Depth (m) | Туре | Results | (mbGL) | (m) | (mAOD) | Legena | | Sila | turn Description | | Scale |
| XXXXXX | | | | | | | | | (LAMBETH | GROUP) | | | _ |
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| | | 30.50 | SPT(S) | 53 (5,11/53 for | | | | \vdash $ \dashv$ | | | | | 1 - |
| | | | , | 53 (5,11/53 for 225mm) | | | | H | | | | | |
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| | | 32.00 | SPT(S) | 54 (6,10/54 for | | (4.20) | | | | | | | 32 — |
| | | 02.00 | 01 1(0) | 225mm) | | (4.20) | | H | | | | | 32 |
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| | | 33.50 | SPT(S) | 50 (25 for 40mm/50 for 30mm) | | | | | | | | | 1 = |
| | | | | for 30mm) | | | | H | | | | | - |
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| | | | | | 34.00 | | -18.60 | | Dorl: | lavas: == : 1 | andium to come | adad fili-t | 34 — |
| | | | | | | | | | Dark grey c | th angular !:- | nedium to coarse rou lestone fragments. Sa | naea tiint | 1 - = |
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| | | | | | | (5.50) | | | | | | | - |
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| | | | [| | 1 | | | | | | | | |
| | | | | | 24.00 | | 10.40 | | | | | | - |
| | | | | | 34.80 | | -19.40 | | Dark brown | sandy gravel | ly CLAY. Gravel is me fine to coarse angular | dium to |]] |
| | | | | | | (0.20) | | | coarse roun | nded flint and | fine to coarse angular | limestone | - |
| | | 35.00 | SPT(S) | 52 (8,19/52 for | I | | | | | | nued on next sheet | | 35 |
| | | | ` ' | 52 (8,19/52 for 75mm) | | | | | | Conti | nueu on next sneet | | |
| _ | | | | • | | | | | | | | т | <u> </u> |
| Remarks | | | | | | | (| Groundwate | er | 1 | Chiselling | | |

Remarks Groundwater Chiselling

Depth Strike (m) Depth Casing (m) Depth Casing (m) Duration (hh:mm) Top Depth (m) Base Depth (m)



| | RP. | s S | | | В | OF | REH | OL | ΕL | .00 | } | | | | Borehole N BH2 Sheet 8 of | |
|---------|--------------------|-----------|-------|--------------|-----------------|-----------------|----------|----------------|------------------|-----------|-----------------|----------------------|--------------|----------------|---------------------------|----------------|
| Project | t Name | : 150 Hc | lborn | | Co-d | ordinate | es: | | | Date(s) | : 09/0 | 03/2016 - | 14/03/20 |)16 | Hole Typ | e: |
| Project | t No: | HLEI39 | 9025 | | Easti | ng: | | | rilling Met | thod: | | Pipe Dian | | mm | CP | |
| Locatio | on: | Holbori | n | | North | ning: | | | | | Casi | ing Diameter (mm) | Casing D | epth (m) | Scale: | |
| Client: | | CNM | | | Ground (mAOI | d Level O): | 15.40 | Log | ged By: | LW | | | | | 1:25 | |
| Well | Water Strike(s) | | | Situ Testing | | Depth (mbGL) | Thicknes | Level (mAOD | Legend | | | Stra | itum Descr | iption | | Scale |
| | (0) | Depth (m) | Туре | Results | | (IIIDGL) | (m) | (IIIAOD | , | \ fragme | ents. S | and is fine t | o medium. | | | - |
| | | | | | | | | | | | | | | | | 36 |
| | | | | | | | | | | | | | | | | 40 |
| Remarks | | | | | | | | (| Groundwat | | | | Chiselling | | | |
| | | | | | | | Depth | Strike (m) | Depth Casing (m) | g Level A | arter 20 ins | Duration (hh:mm) | op Depth (m) | Base Depth (m) | AG | S |



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 Casing Diameter (mm)
150
200 Casing Depth (m) Location: Holborn Scale: Northing: 32.50 13.50 Ground Level Client: CNM 16.83 1:25 Logged By: MA

| lient: | | CNM | | (n | AOD): | 16.83 | Log | ged By: | MA | 200 | 13.50 | 1:25 | |
|----------|--------------------|---------------------|---------------|---------------------------|----------------|-----------|-----------------|---------|--------|--|---------------------------------------|-------------------|-----|
| Well | Water Strike(s) | | 1 | Situ Testing | Depth | Thickness | Level | Legend | | Strat | tum Description | | Sca |
| | Strike(s) | Depth (m) | Туре | Results | (mbGL) 0.00 | (m) | (mAOD) 16.82 | | Concre | ete. | · · · · · · · · · · · · · · · · · · · | | |
| | | | | | | | | | (CONC | CRETE) | | | |
| | | | | | | | | | | | | | |
| | | | | | | (0.90) | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | 1.00 | SPT(S) | N=17 (1,1/1,4,4,8 | 0.90 | | 15.92 | | Brown | gravelly clayey fine subangular to sub | e to coarse sand. (| Gravel is fine to | 1 |
| | | 1.00 | 01 1(0) | 11 (1, 1/1, 4, 4, | " | (0.50) | | | (MADE | E GROUND) | nounded lillit. | | ' |
| | | | | | | (0.50) | | | | | | | |
| | | 1.40 - 2.00 | B3 | | 1.40 | | 15.42 | | | | | | |
| | | 1.40 - 2.00 | | | 1.40 | | 15.42 | | GRAVI | sandy fine to coars | se subrounded to s fine to coarse. | subangular | |
| | | | | | | | | | (HACK | (NEY GRAVEL) | | | |
| - | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | 2.00 | SPT(C) | N=50 (2,3/50 fo 275mm) | - | | | | | | | | 2 |
| | | 2.00 - 2.50 | B4 | 27511111) | | | | | | | | | |
| | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | |
| | | 3.00 | SPT(C) | N=48 | | | | | | | | | 3 |
| | | | | (3,8/8,15,14,11) | | | | | | | | | ` |
| | | 3.00 - 3.50 | B5 | | | (4.50) | | | | | | | |
| | | | | | | | | | , | | | | |
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| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | 4.00 | SPT(C) | N=18 (1,1/3,4,4,7 | ') | | | | | | | | 4 |
| | | 4.00 - 4.50 | В6 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
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|]:.] | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | - 00 | 007:5 | N 46 // 4/5 5 | ., | | | | | | | | |
| | ' | 5.00 5.00 - 5.50 | 'SPT(C) B7 | N=13 (1,1/2,3,4,4 | +) ' | • | ' | | | Conti | nued on next sheet | | - 5 |

(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 | | | | | | | | | |



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| RPS |

Borehole No. **BH3**

Sheet 2 of 7

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

| 5.90 Depth (m) Type Restalts (most) (m) Indicated Street Restalts (most) | Type Results MoGL) MoGL) MoGA Mo | Oliciti. | CIVIVI | | (mAC | DD): | 10.00 | | geu by. | 1717 | 200 | 13.50 | 1.20 | |
|--|--|----------------|--------|-----------|--------------------|--------|-----------|--------|---------|--------|----------------------|--------------------|-----------------|-------|
| Total Tota | Segretary Segr | Water | Sam | ples & In | Situ Testing | Depth | Thickness | Level | l | | <u> </u> | . 5 | | |
| 5.90 D8 5.90 10.92 8 6.90 10.92 8 6.50 10.32 8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 | 5.90 D8 5.90 10.32 Brown sandy CLAY, Sand is fine to coarse. (I.C.MDCN CLAY FORMATION) 6 6.50 10.32 Grey think laminated stifty CLAY with occasional pockets of fine grey SAND. (I.C.MDCN CLAY) 7.50 D9 8.00 SPT(S) N=14 (1,1/2,4,4,4) 8 9.00 D10 0 | VVeII Strike(s | | | | (mbGL) | (m) | (mAOD) | Legend | | Stra | tum Description | | Scale |
| 7.50 D9 8.00 SPT(S) N=14 (1,1/2,4,4,4) 9.00 D10 9.50 SPT(S) N=21 (2,3/4,4,6,7) | 7.50 D9 8.00 SPT(S) N=14 (1,1/2,4,4,4) 9.00 D10 9.50 SPT(S) N=21 (2,3/4,4,6,7) | | | | | | | 10.92 | | Grev t | hinly laminated silt | | onal pockets of | 6 — |
| 9.50 SPT(S) N=21 (2,3/4,4,6,7) | 9.50 SPT(S) N=21 (2,3/4,4,6,7) | | | | N=14 (1,1/2,4,4,4) | | (5.50) | | | | | | | 7 |
| Continued on next sheet 10 | | | | | N=21 (2,3/4,4,6,7) | | | | | | Conti | nued on next sheet | | 9 — |

| | 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 | | | | | | | | | |



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| RPS |

Borehole No. BH3

Sheet 3 of 7

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

| Client: | | CINIVI | | (mAO | D): | 10.83 | Loge | jea By: | IVIA | 200 | 13.50 | 1.25 | |
|---------|--------------------|--------|----------------------|-----------------------|-----------------|---------------|-----------------|---------|------|-------|--------------------|------|---------|
| Well | Water Strike(s) | | | Situ Testing Results | Depth (mbGL) | Thickness (m) | Level (mAOD) | Legend | | Stra | tum Description | | Scale |
| | Water Strike(s) | | D11 SPT(S) D13 U14 | | Depth | | | | | Stra | | | 11 - 12 |
| | | 15.00 | SPT(S) | N=30 (2,4/6,7,8,9) | | | | | | Conti | nued on next sheet | | 15 - |

(1) Groundwater encountered at 1.50m bgl.



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| RPS |

Borehole No. BH3

Sheet 4 of 7

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

| Client: | | CINIVI | | (mAC | DD): | 10.83 | Logo | gea By: | IVIA | 200 | 13.50 | 1:25 | |
|---------|--------------------|-----------|-----------|-----------------------|-----------------|---------------|-----------------|---------|------|-------|--------------------|------|-------|
| Well | Water Strike(s) | | ples & In | Situ Testing Results | Depth (mbGL) | Thickness (m) | Level (mAOD) | Legend | | Stra | tum Description | | Scale |
| | -(-/ | Depth (m) | туре | Results | (IIIDGL) | (111) | (111400) | | | | | | |
| | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | |
| | | 16.00 | D15 | | | | | | | | | | 16 - |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | 16.50 | U16 | Blows=52 | | | | | | | | | |
| | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | |
| | | 17.00 | D17 | | | | | | | | | | 17 - |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | (12.50) | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | 18.00 | SPT(S) | N=33 (4,5/7,7,8,11) | | | | | | | | | 18 - |
| | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | |
| | | 19.00 | D18 | | | | | | | | | | 19 - |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | 19.50 | U19 | Blows=65 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | 20.00 | D20 | | | | | | | Conti | nued on next sheet | | 20 - |
| | | | | | | | | | | Sona | | | |

(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 | | | | | | | |



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| DDC |
| KP3 |
| |

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: CP Pipe Diameter: 50mm Casing Diameter Location: Casing Depth (m) Scale: Holborn Northing: (mm) 150 32.50 Ground Level (mAOD): Client: CNM 1:25 16.83 MA Logged By:

| Oliciti. | | CIVIVI | | (mAO | D): | 10.00 | | geu by. | | 200 | 13.50 | 1.20 | |
|----------|--------------------|-----------|--------|--------------------------|-----------------|-----------|-----------------|---------|----------------|------|----------------------|------|--|
| Well | Water Strike(s) | | | Situ Testing | Depth (mbGL) | Thickness | Level (mAOD) | Legend | | Stra | tum Description | | Scale |
| V V G II | Strike(s) | Depth (m) | Туре | Results | (mbGL) | (m) | (mAOD) | Logeria | | Stra | atam Dosonption | | Coali |
| | | 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 (LAMB | | y and red silty CLAY | | 25 - |
| | | | | | | - | | | | | | | <u>: </u> |

Remarks
(1) Groundwater encountered at 1.50m bgl.

Groundwater Chiselling

Depth Strike (m) Depth Casing (m) Mins Chiselling Top Depth (m) Base Depth (m)

1.50 12.00



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| RP: | S |

Borehole No. BH3

Sheet 6 of 7

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

| 0 | | • | | (mAC | וטו. | | | | 200 | | 10.00 | |
|--------|--------------------|---|-----------|---------------------------|--------------|---------------|--------|--------|---------|-------|--------------------|-----------|
| 14/511 | Water | Sam | ples & In | Situ Testing | Depth | Thickness | Level | 1000 | | C+ | um Description | Casta |
| Well | Water Strike(s) | Depth (m) | Туре | Results | Depth (mbGL) | Thickness (m) | (mAOD) | Legend | | Strai | um Description | Scale |
| | | 25.50 | U25 | Blows=77 | | | | | | | | |
| | | 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) | I | | | | | Conti | nued on next sheet | 30 - |

| | 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 | | | | | | | |



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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: CP Pipe Diameter: 50mm Casing Diameter (mm)
150
200 Casing Depth (m) Location: Holborn Scale: Northing: 32.50 13.50 Ground Level Client: CNM 16.83 1:25 Logged By: MA

| New Samples & In Situ Testing Depth (m) Type Results Check Check |
|--|
| 31.50 U30 Blows=75 31.50 -14.68 Frown fine to medium SAND with bands of grey brown very sandy silt with occasional off-white / brown shell fragments. (LAMSETH GROUP) 32.00 - 32.50 B31 (2.50) 33.00 SPT(S) 50 (6.15/50 for 175mm) 33.70 SPT(S) 50 (6.12/50 for 180mm) |
| |

(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 | | | | | | |





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

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

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

EK#

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

Page 1 of

5 – 7 Hexthorpe Road, Hexthorpe,

Doncaster DN4 0AR

tel: +44 (0)844 815 6641 fax: +44 (0)844 815 6642

e-mail: rgunson@prosoils.co.uk awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

| Hole Number | Sample Number | Sample Type | Top Depth m | Base Depth m | Description of Sample |
|----------------|------------------|----------------|-------------------|--------------------|-------------------------------------|
| BH1 | | В | 1.00 | 1.50 | Brown very sandy GRAVEL. |
| BH1 | | В | 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. |

| Cit | BOI | Checked / Approved | £KH | Date | 29/03/16 | Contract No: |
|--------------------|-------------------------------|--------------------|-------------|------|----------|--------------|
| (≯≮) | PSL | | | | | PSL16/1211 |
| U K A S TESTING | Professional Sails Laboratory | | 150 Holburn | | | Client Ref: |
| 4043 | Professional Soils Laboratory | | | | | HLEI 39025 |

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

| Hole Number | Sample Number | Sample Type | Top Depth m | Base Depth m | Description of Sample |
|----------------|------------------|----------------|-------------------|--------------------|--|
| BH2 | | В | 2.00 | 2.50 | Brown very gravelly slightly silty SAND. |
| BH2 | | В | 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. |
| | | | | | |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |

| Cit | BAT | Checked / Approved | EX | Date | 29/03/16 | Contract No: |
|--------------------|-------------------------------|--------------------|-------------|------|----------|--------------|
| (≯≮) | | | | | | PSL16/1211 |
| U K A S TESTING | Professional Sails Laboratory | | 150 Holburn | | | Client Ref: |
| 4043 | Professional Soils Laboratory | | | | | HLEI 39025 |

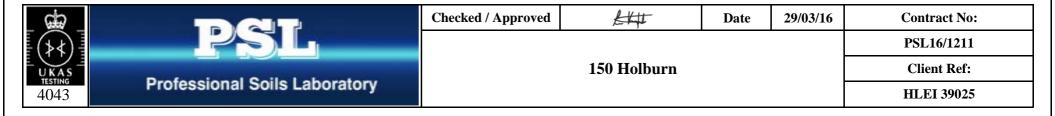
SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377: PART 2: 1990)

| Hole Number | Sample Number | Sample Type | Top Depth | Base Depth | Moisture Content | Linear Shrinkage % | Particle Density Mg/m ³ | Liquid Limit % | Plastic Limit % | Plasticity Index % | Passing .425mm | Remarks |
|----------------|------------------|----------------|--------------|---------------|---------------------|--------------------------|--|----------------------|-----------------------|--------------------------|-------------------|--------------------------|
| | | | m | m | Clause 3.2 | Clause 6.5 | Clause 8.2 | Clause 4.3/4 | Clause 5.3 | Clause 5.4 | | |
| 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 | | | | | | | |

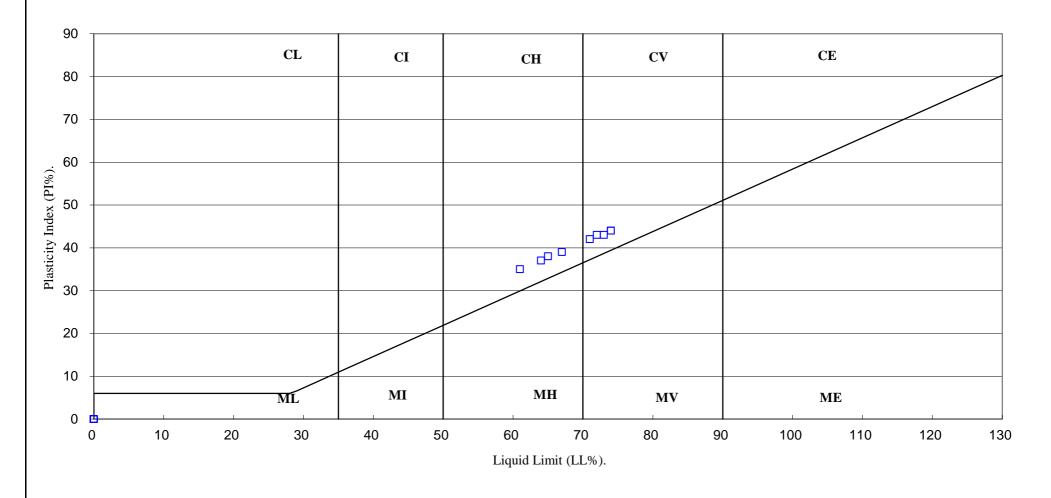
SYMBOLS: NP: Non Plastic

^{*:} Liquid Limit and Plastic Limit Wet Sieved.



PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(BS5930:2015)



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| 4043 | Professional Soils Laboratory | | | | | HLEI 39025 |

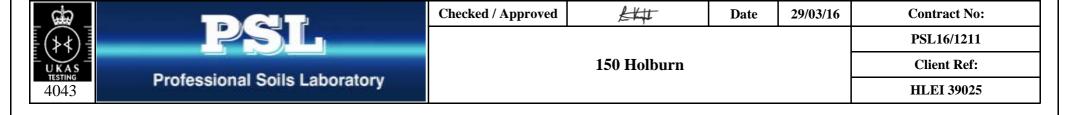
SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377: PART 2: 1990)

| Hole Number | Sample Number | Sample Type | Top Depth | Base Depth | Moisture Content % | Linear Shrinkage % | Particle Density Mg/m ³ | Liquid Limit % | Plastic Limit % | Plasticity Index % | Passing .425mm % | Remarks |
|----------------|------------------|----------------|--------------|---------------|--------------------------|--------------------------|--|----------------------|-----------------------|--------------------------|------------------------|--------------------------|
| | | | m | m | Clause 3.2 | Clause 6.5 | Clause 8.2 | Clause 4.3/4 | Clause 5.3 | Clause 5.4 | | |
| 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. |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
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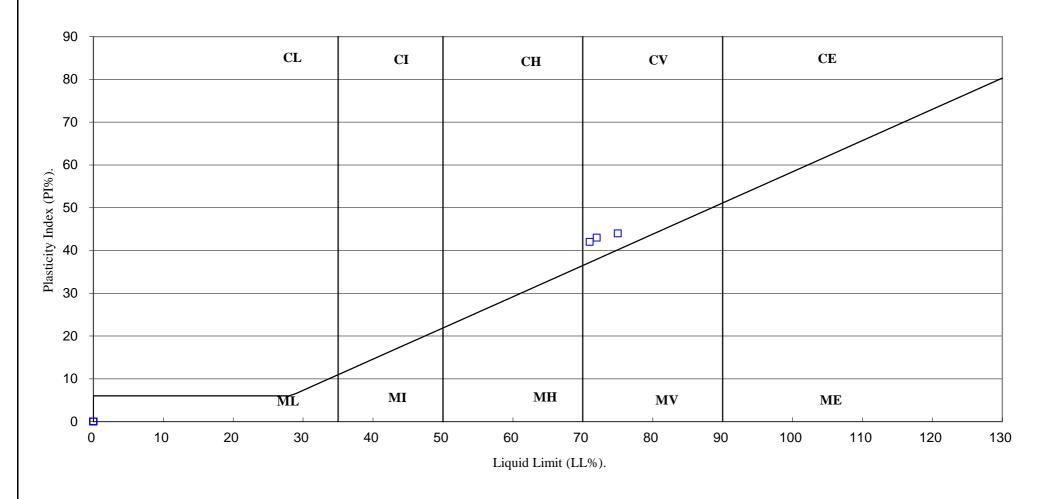
SYMBOLS: NP: Non Plastic

^{*:} Liquid Limit and Plastic Limit Wet Sieved.



PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(BS5930 :2015)



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| 4043 | Professional Soils Laboratory | | | | | HLEI 39025 |

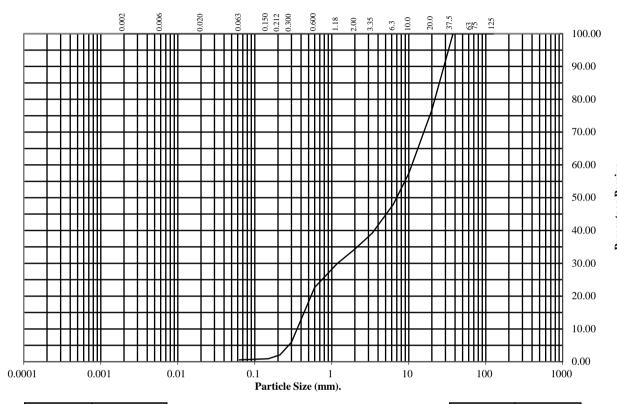
BS1377: Part 2: 1990

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 | Percentage |
|---------|------------|
| Sieve | 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 | Total |
|--|--------------------|
| Fraction | Percentage |
| Cobbles Gravel Sand Silt/Clay | 0 66 33 1 |

Remarks:

See summary of soil descriptions.



| <u> PSL</u> | |
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Date

29/03/16

Contract No: PSL16/1211

150 Holburn

Client Ref: HLEI 39025

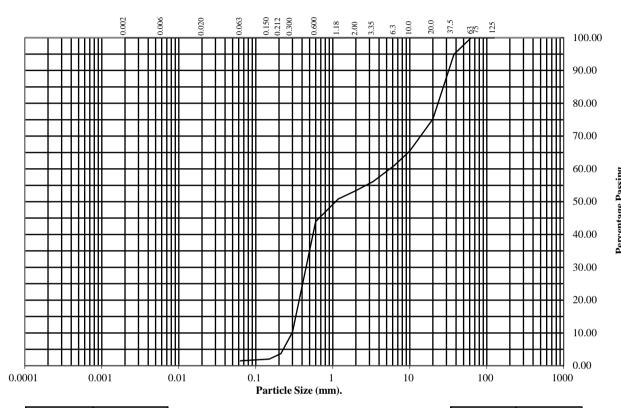
BS1377: Part 2: 1990

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 | Percentage |
|---------|------------|
| Sieve | 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 | Total |
|--|--------------------|
| Fraction | Percentage |
| Cobbles Gravel Sand Silt/Clay | 0 47 51 2 |

| 1 | | | 1 |
|---|----|-----|-----|
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See summary of soil descriptions.

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| Professional Soils Laboratory |

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150 Holburn

| Client Ref: |
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| HLEI 39025 |

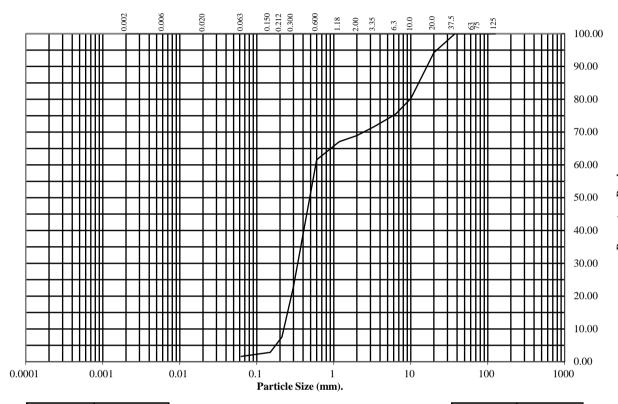
BS1377: Part 2: 1990

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 | Percentage | |
|---------|------------|--|
| Sieve | 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 | Total |
|--|--------------------|
| Fraction | Percentage |
| Cobbles Gravel Sand Silt/Clay | 0 31 67 2 |

Remarks:

See summary of soil descriptions.



| PSL | |
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| Professional Soils Laboratory | |

| Checked / Approved | EKH | Date | 29/03/16 | |
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| Client Ref: |
| HLEI 39025 |

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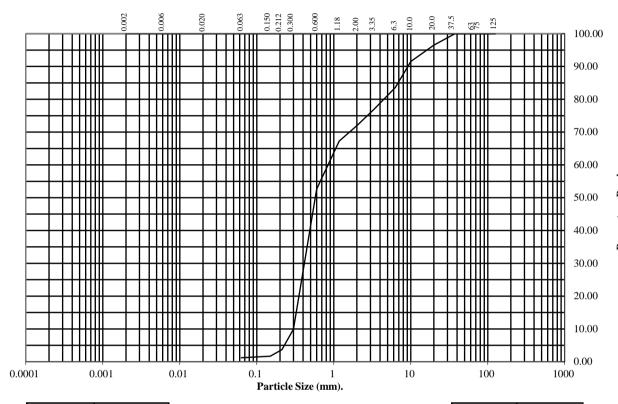
BS1377: Part 2: 1990

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 | Percentage |
|---------|------------|
| Sieve | 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 | Total |
|--|--------------------|
| Fraction | Percentage |
| Cobbles Gravel Sand Silt/Clay | 0 28 71 1 |

Remarks:

See summary of soil descriptions.



Professional Soils Laboratory

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Date

29/03/16

Contract No: PSL16/1211

150 Holburn

Client Ref: HLEI 39025

ONE DIMENSIONAL CONSOLIDATION TEST

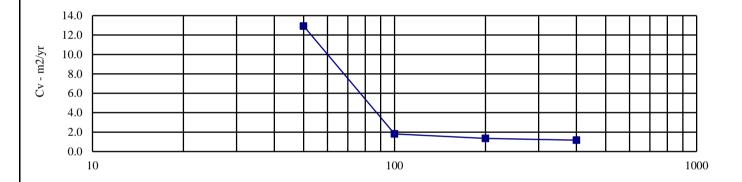
BS 1377: Part 5: 1990: Clause 3

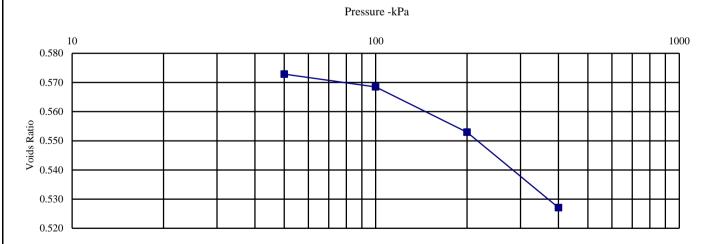
Hole Number: BH1 Top Depth (m): 17.00

Sample Number: Base Depth (m): 17.45

Sample Type: U

| Initial Conditions | | Pressure | Range | Mv | Cv | Specimen location | | |
|---------------------------|--------|----------|-------|-------|--------|-----------------------------------|-----|--|
| Moisture Content (%): | 21 | kP | a | m2/MN | m2/yr | within tube: | Top | |
| 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): | 2.65 | | | | | | | |
| Assumed | 2.03 | | | | | | | |





| <u> </u> | | Checked / Approved | Checked / Approved | | | | | | |
|------------------|-------------------------------|--------------------|--------------------|--|--|--|--|--|--|
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| U KAS TESTING | | 150 | Client Ref: | | | | | | |
| 4043 | Professional Soils Laboratory | | | | | | | | |

ONE DIMENSIONAL CONSOLIDATION TEST

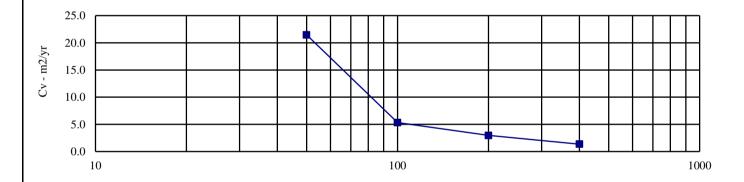
BS 1377: Part 5: 1990: Clause 3

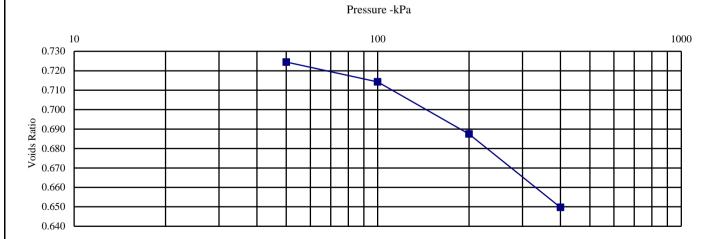
Hole Number: BH2 Top Depth (m): 6.50

Sample Number: Base Depth (m): 6.95

Sample Type: U

| Initial Conditions | | Pressure | Range | Mv | Cv | Specimen location | | |
|---------------------------|--------|----------|-------|-------|--------|-----------------------------------|-----|--|
| Moisture Content (%): | 25 | kPa | | m2/MN | m2/yr | within tube: | Top | |
| 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): | 2.65 | | | | | | | |
| Assumed | 2.03 | | | | | | | |





| <u></u> | Bal | Checked / Approved | EKH | Date | 31/03/16 | Contract No: |
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| U K A S TESTING | | 150 | Client Ref: | | | |
| 4043 | Professional Soils Laboratory | | | | | |

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

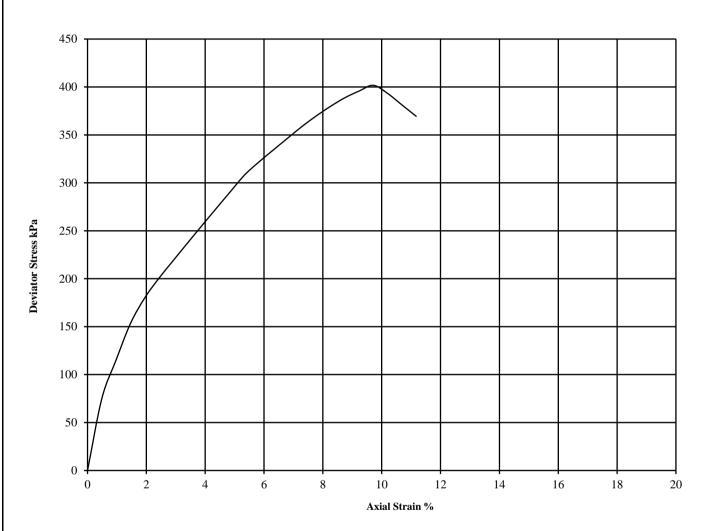
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377: Part7: 1990: Clause 8

Hole Number: BH1 Top Depth (m): 11.00

Sample Number: Base Depth (m): 11.45

Sample Type U



| Diamet | er (mm): | 102.0 | Height | (mm): | 210.0 | Test: | UU Single Stage | | Remarks |
|----------|----------|---------|---------|------------|---------------------------|--|-----------------|---------|-----------------------------------|
| Specimen | Moisture | Bulk | Dry | Cell | Corr. Max. | Shear | Failure Mode | | Undisturbed Sample |
| | Content | Density | Density | Pressure | Deviator | Strength | Strain | of | Sample taken from top of tube |
| | (%) | (Mg/m3) | (Mg/m3) | (kPa) | Stress | Cu | (%) Failure | | Rate of strain = 2 %/min |
| | | | | | (kPa) | (kPa) | | | Latex Membrane used 0.2 mm thick, |
| | | | | θ_3 | $(\theta_1 - \theta_3)_f$ | $^{1}/_{2}(\theta_{1}-\theta_{3})_{f}$ | | | Correction applied 0.35 |
| 1 | 22 | 1.97 | 1.62 | 220 | 402 | 201 | 9.7 | Brittle | See summary of soil descriptions. |

| air | | Checked / Approved | Contract No: | |
|------------------|-------------------------------|--------------------|--------------|------------|
| (> 4) | PSL | | | PSL16/1211 |
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| 4043 | Professional Soils Laboratory | | HLEI 39025 | |

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

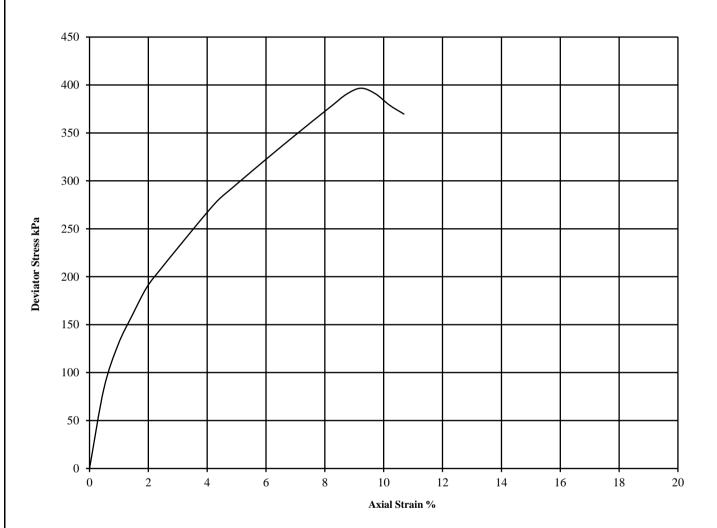
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377: Part7: 1990: Clause 8

Hole Number: BH1 Top Depth (m): 14.00

Sample Number: Base Depth (m): 14.50

Sample Type U



| Diamet | er (mm): | 102.0 | Height | (mm): | 210.0 | Test: | UU Single Stage | | Remarks |
|----------|----------|---------|---------|------------|---------------------------|--|-----------------|--|-----------------------------------|
| Specimen | Moisture | Bulk | Dry | Cell | Corr. Max. | Shear | Failure Mode | | Undisturbed Sample |
| | Content | Density | Density | Pressure | Deviator | Strength | Strain | of | Sample taken from top of tube |
| | (%) | (Mg/m3) | (Mg/m3) | (kPa) | Stress | Cu | (%) Failure | | Rate of strain = 2 %/min |
| | | | | | (kPa) | (kPa) | | | Latex Membrane used 0.2 mm thick, |
| | | | | θ_3 | $(\theta_1 - \theta_3)_f$ | $^{1}/_{2}(\theta_{1}-\theta_{3})_{f}$ | | | Correction applied 0.36 |
| 1 | 22 | 2.06 | 1.69 | 280 | 397 | 198 | 9.2 | .2 Brittle See summary of soil descrip | |

| air | BOI | Checked / Approved | Contract No: | |
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| 4043 | Professional Soils Laboratory | | HLEI 39025 | |

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

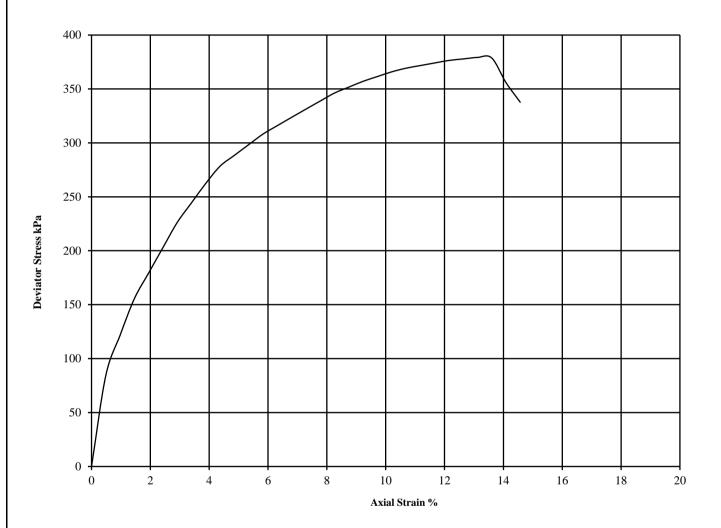
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377: Part7: 1990: Clause 8

Hole Number: BH1 Top Depth (m): 20.00

Sample Number: Base Depth (m): 20.45

Sample Type U



| Diamet | er (mm): | 102.0 | Height | (mm): | 210.0 | Test: | UU Single Stage | | Remarks |
|----------|----------|---------|---------|------------|---------------------------|--|-----------------|--|-----------------------------------|
| Specimen | Moisture | Bulk | Dry | Cell | Corr. Max. | Shear | Failure Mode | | Undisturbed Sample |
| | Content | Density | Density | Pressure | Deviator | Strength | Strain | of | Sample taken from top of tube |
| | (%) | (Mg/m3) | (Mg/m3) | (kPa) | Stress | Cu | (%) Failure | | Rate of strain = 2 %/min |
| | | | | | (kPa) | (kPa) | | | Latex Membrane used 0.2 mm thick, |
| | | | | θ_3 | $(\theta_1 - \theta_3)_f$ | $^{1}/_{2}(\theta_{1}-\theta_{3})_{f}$ | | | Correction applied 0.35 |
| 1 | 20 | 2.02 | 1.68 | 400 | 379 | 190 | 13.1 | 13.1 Brittle See summary of soil descrip | |

| | PSL | Checked / Approved | EKH | Date | 29/03/16 | Contract No: |
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| | | | | | | PSL16/1211 |
| U K A S TESTING | Professional Caile Laborators | 150 Holburn | | | Client Ref: | |
| 4043 | Professional Soils Laboratory | | | | | HLEI 39025 |