Site Details:

The Hope Project,Camden,NW1 7JE

Client Ref: EMS_359708_482802
Report Ref: EMS-359708_482802
Grid Ref: 529242, 183412

Map Name: National Grid
Map date: **1989-1994**
Scale: 1:10,000
Printed at: 1:10,000

N
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S

Surveyed 1987
Revised 1989
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1984
Revised 1994
Edition N/A
Copyright N/A
Levelled N/A

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Site Details:

The Hope Project,Camden,NW1 7JE

Client Ref: EMS_359708_482802
Report Ref: EMS-359708_482802
Grid Ref: 529242, 183412

Map Name: 1:10,000 Raster
Map date: **2002**
Scale: 1:10,000
Printed at: 1:10,000

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2002

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Site Details:

The Hope Project,Camden,NW1 7JE

Client Ref:	EMS_359708_482802
Report Ref:	EMS-359708_482802
Grid Ref:	529242, 183412

Map Name:	National Grid
Map date:	**2010**
Scale:	1:10,000
Printed at:	1:10,000

N W E S

2010

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Site Details:

The Hope Project,Camden,NW1 7JE

Client Ref:	EMS_359708_482802
Report Ref:	EMS-359708_482802
Grid Ref:	529242, 183412

Map Name:	National Grid
Map date:	**2014**
Scale:	1:10,000
Printed at:	1:10,000

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2014

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Production date: 03 May 2016

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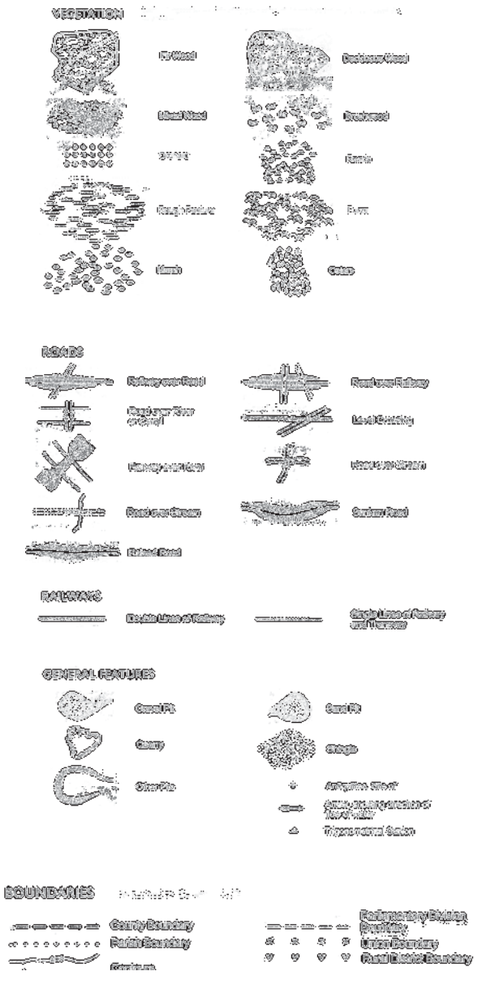
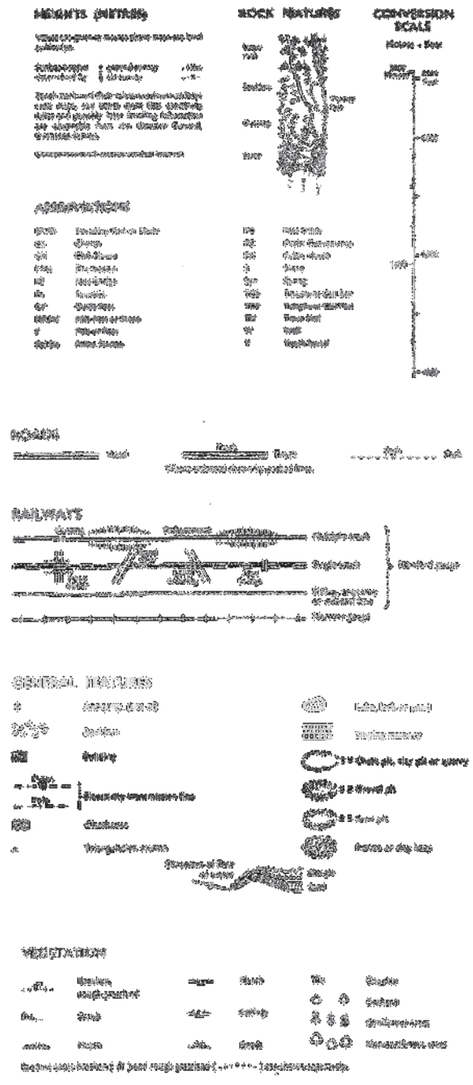
County Series 1:10,560 scale



National Grid 1:10,000 scale



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Historical Map Pack Legend

County Series & National Grid

1:10,560 scale

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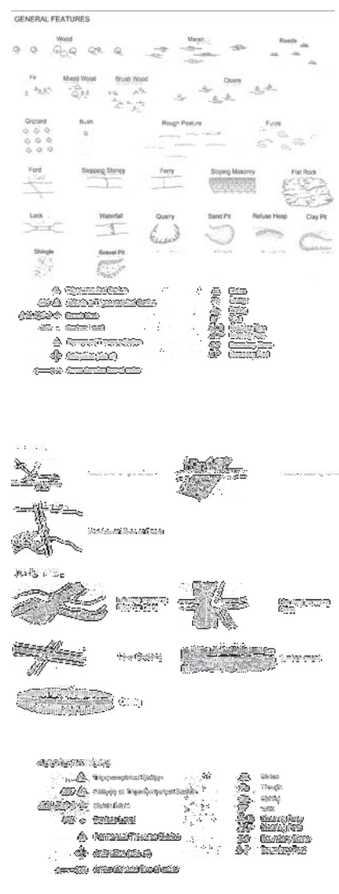
If you have a query regarding any of the maps provided please contact GroundSure's technical helpline. We will endeavour to answer any queries you may have.

Technical Helpline

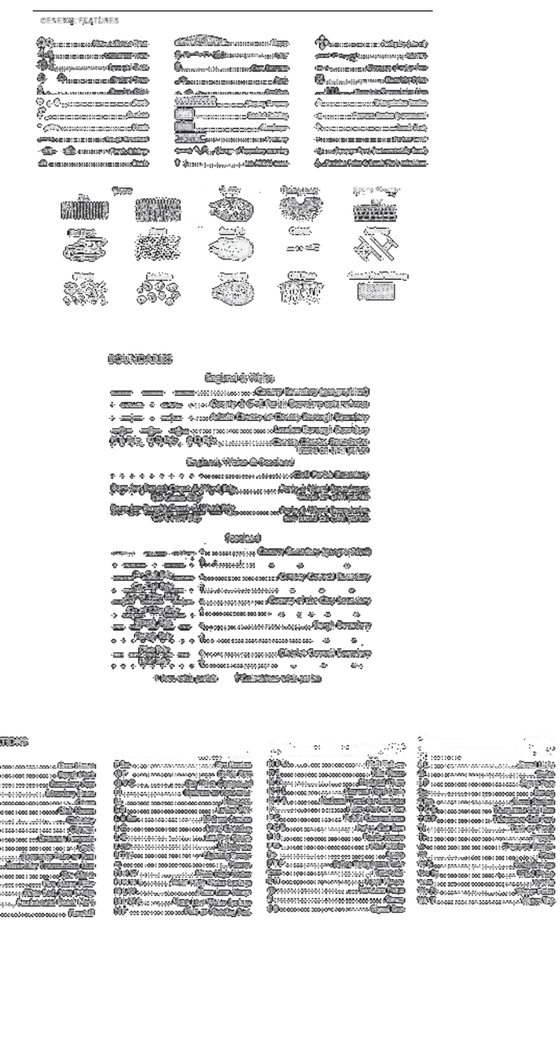
Tel 08444159000

groundsureinsight@groundsure.com
www.groundsure.com

County Series 1:2,500 scale



National Grid 1:2,500 / 1:1,250 scale



GroundSure

Historical Map Pack Legend

County Series

1:1,250 scale

~

County Series & National Grid

1:2,500 scale

Information present on these legends is sourced from the same Ordnance Survey mapping as the maps used in this product.

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Technical Helpline:

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APPENDIX G
PRELIMINARY UXO RISK ASSESSMENT

1st Line Defence Limited
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E-mail: info@1stlinedefence.co.uk
Company No: 7717863
VAT No: 128 8833 79

www.1stlinedefence.co.uk

Express Preliminary UXO Risk Assessment

Client	RSK
Project	The Hope Project
Site Address	The Hope Project, Camden, NW1 7JE
Report Reference	EP3439-00
Date	06/05/2016
Originator	WE

Assessment Objective

This preliminary risk assessment is a qualitative screening exercise to assess the likely potential of encountering unexploded ordnance (UXO) at The Hope Project. The assessment involves the consideration of the basic factors that affect the potential for UXO to be present at a site as outlined in Stage One of the UXO risk management process.

Background

This assessment uses the sources of information available in-house to 1st Line Defence Limited to enable the placement of a development site in context with events that may have led to the presence of German air-delivered or Allied military UXO. The report will identify any immediate necessity for risk mitigation or additional research in the form of a Detailed UXO Risk Assessment. It makes use of 1st Line Defence's extensive historical archives, library and unique geo-databases as well as internet resources, and is researched and compiled by UXO specialists and graduate researchers.

The assessment directly follows CIRIA C681 guidelines "Unexploded Ordnance, a Guide for the Construction Industry". The document will therefore assess the following factors:

- Basic Site Data
- Previous Military Use
- Indicators of potential aerial delivered UXO threat
- Consideration of any Mitigating Factors
- Extent of Proposed Intrusive Works
- Any requirement for Further Work

It should be noted that the vast majority of construction sites in the UK will have a low or negligible risk of encountering UXO and should be able to be screened out at this preliminary stage. The report is meant as a common sense 'first step' in the UXO risk management process. The content of the report and conclusions drawn are based on basic, preliminary research using the information available to 1st Line Defence at the time this report was produced.

Risk Assessment Considerations	
Site location and description/current use	The site is located in Mornington Crescent, in the London Borough of Camden. The site is an irregular shaped parcel of land. The eastern area of the site is defined by the former Hope and Anchor Pub, and the western section is occupied by the nightclub 'Koko'. The northern site boundary is adjacent to a number of commercial premises adjoining Camden High Street. The eastern site boundary is adjacent to Bayham Street. The southern site boundary is adjacent to Crowndale Road and the eastern site boundary is adjacent to Camden High Street. The site is centred on the approximate OS grid reference: **TQ 2923683404**
Are there any indicators of current/historical military activity on/close to the site?	There is no evidence to suggest any current or historic military occupation of the site area in available record sets. The closest recorded anti-aircraft battery was located 3.1km to the north-west in the vicinity of Primrose Hill. Regent's Park Barracks is located 450m to the west of the site area. There are numerous urban features located between the site and the barracks, including train lines, significantly reducing the chance of ordnance from the barracks contaminating the site area.
What was the pre- and post-WWII history of the site?	WWI era OS mapping indicates that the site was occupied by a 'Picture Theatre'. The building was also known as the Camden Theatre and was constructed in 1900. A 'Public House' is also evident in the east of the site at this time. There is no obivous alteration evident to structures on site in post WWI or pre WWII mapping. The Camden Theatre, later labelled the 'Camden Hippodrome' and the adjoining public house also appear unaltered in post war mapping.
Was the area subject to bombing during WWII?	The site was situated in the Metropolitan Borough of St. Pancras during WWII. St. Pancras experienced a high density bombing campaign with 258.4 items of ordnance recorded per 1,000 acres. A total of 641 HE bombs, 8 Parachute Mines, 14 Oil Bombs, 11 Phosphorus Bombs, 20 V1 Pilotless Aircraft and 2 V2 long range rocket bombs were recorded. There is no record of any strikes within the site boundary, or recorded on structures immediately adjacent to the site area on the available London bomb census mapping from the National Archives. The closest recorded strikes occurred on Oakley street and on Harrington Square, both located to the south of the site. Neither strike is considered sufficiently proximate to have resulted in significant damage or disturbance to the site area.
Is there any evidence of bomb damage on/close to the site?	London Bomb Damage Mapping indicates that the site was not damaged during WWII. Structures to the east and to the south of the site suffered general blast damage, largely light in nature. The closest structures recorded to have endured significant damage are located to the south-east on Oakley Street and to the south on Harrington Place. The damage largely corresponds with bomb census mapping. In addition low resolution WWII era photography indicates that the structures on the site were present and undamaged. The image further corroborates consulted records indicating areas of clearance to the south.

To what degree would the site have been subject to access?	Local historical information indicates that The Camden Hippodrome Theatre was converted into a cinema from 1913 and was later shut to the public at the outbreak of the war, in alignment with government policy. The theatre was reopened after the conclusion of the Blitz, although its exact date of reopening is not clear at this stage. Despite this it is considered likely that both the theatre and public house on-site would have served some form of communal or civic purpose during the war d, and would have been subject to regular, thorough, and specific post raid checks. In 1945 the site was used by the BBC as a base for broadcasting.
To what degree has the site been developed post-WWII?	There has been no significant structural development to the site area in the post war era.
What is the nature and extent of the intrusive works proposed?	The exact nature of the proposed works have not been disclosed at the time of writing but are believed to include site investigation works prior to the redevelopment of the Koko night club and the demolition of two adjacent buildings.

Summary and Conclusions

The site area was located in the Metropolitan Borough of St Pancras. St Pancras endured a high density bombing campaign during WWII, although the area immediately around the site appears to have evaded the worst concentration of bombing.

There is no record of bombing within the site area. The site does not alter in OS mapping, and it is not described as having sustained any damage in damage mapping. The structure appears relatively undamaged in low resolution WWII era photography.

The site was occupied by a theatre (converted into a cinema) and a Public House during WWII. The theatre was not open to the public for commercial purposes during the Blitz, but due to its size and importance is still likely to have been utilised by the local community and is anticipated to have sustained a reasonable frequency of access. It is highly likely that damage to the site and to adjacent structures would have been noted and investigated, and that the site would have been subject to regular and specific checks for signs of UXO.

There is no available record of any current or historic military occupation of the site area.

Recommendations

Based on the findings of this report, the risk of encountering UXO during the proposed works is considered to be **minimal**. Whilst it would be possible to undertake a Detailed UXO Threat Assessment for the site and obtain all available local historical information, it is not considered likely that this information would significantly change this preliminary assessment given the findings of this report. It is therefore **not recommended that any further action** should be taken for this site.

If the client has any anecdotal or empirical evidence of UXO risk on site, please contact 1st Line Defence.

APPENDIX H
EXPLORATORY HOLE RECORDS

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
The Hope Project	The Hope Lease Ltd	BH1

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371475	End: 01.07.16	22.75	---	1 of 4

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results						
						CONCRETE.	22.65	0.10	
						CONCRETE.	22.45	0.30	
						Made Ground: Dark brown slightly sandy gravelly silty CLAY. Gravel is very angular to subrounded fine to coarse flint, brick, charcoal, ash, clinker and pottery. With occasional light brown clay pockets.		(0.90)	
1.10	1	ES	Tubx1, VL + J			. . . Below 0.85m, occasional half bricks.	21.55	1.20	
1.40	1	D				Firm brown mottled grey silty CLAY. With occasional burrows infilled with grey clay. (LONDON CLAY FORMATION)			
1.60-2.05	1	SPT	N=5						
1.60	2	D				. . . At 1.40m, brown and orange mottled. Rare subrounded coarse gravel of claystone and rare fragments of carbonaceous matter.			
2.50	1	UT	40 blows 100% recovery						
2.95	3	D				. . . Below 2.95m, fissured. With occasional mica and light brown fine sand partings. Frequent orange silt lenses.			
3.50-3.95	2	SPT	N=9						
3.50	4	D				. . . Below 3.50m, occasional selenite crystals.			
4.50	2	UT	40 blows 100% recovery			. . . Below 4.50m, stiff.		(6.60)	
4.95	5	D				. . . Below 4.95m, with frequent becoming occasional partings of orange fine sand.			
5.50	6	D				. . . Below 5.50m, occasional nodules of cemented orange sand and selenite <10mm.			
6.00-6.45	3	SPT	N=16						
6.00	7	D							
7.00	8	D							
7.50	3	UT	45 blows 100% recovery				14.95	7.80	
7.95	9	D				Stiff fissured dark grey silty CLAY. Fissures are very closely spaced, randomly orientated. With occasional mica and rare pockets of orange fine sand. Rare, locally occasional, forams. (LONDON CLAY FORMATION)			
8.50	10	D							

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
29/06/16	08:00	1.20	-	150	Dry
29/06/16	17:00	6.50	1.50	150	Dry
30/06/16	08:00	6.50	1.50	150	Dry
30/06/16		24.50	1.50	150	24.50
30/06/16	17:00	30.00	1.50	150	Dry
01/07/16	08:00	30.00	1.50	150	Dry
01/07/16	17:00	30.00	1.50	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

1. Inspection pit dug to 1.20m by others.
2. Water seepage encountered at a depth of 24.50m.
3. On completion, the borehole was grouted to a depth of 5.90m. A 50mm diameter combined gas and groundwater standpipe was installed by engineer on 5/7/16 to a depth of 5.00m,

All dimensions in metres | Scale: 1:50

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	Dando 150 (cut down)	Dave Rosenwold	CSiberry	

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
The Hope Project	The Hope Lease Ltd	BH1

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371475	End: 01.07.16	22.75	---	2 of 4

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results						
9.00-9.45	4	SPT	N=20			Stiff fissured dark grey silty CLAY. Fissures are very closely spaced, randomly orientated. With occasional mica and rare pockets of orange fine sand. Rare, locally occasional, forams. (LONDON CLAY FORMATION) *(stratum copied from 7.80m from previous sheet)*			
9.00	11	D							
10.00	12	D				. . . At 10.00m, rare black fine sand pockets.			
10.50	4	UT	65 blows 100% recovery						
10.95	13	D				. . . Below 10.95m very stiff, dark brownish grey.		(6.70)	
11.50	14	D				. . . Between 11.80m and 11.90m, claystone.			
12.00-12.45	5	SPT	N=23						
12.00	15	D				. . . Between 12.80m and 13.10m, claystone.			
13.00	16	D							
13.50	5	UT	65 blows 100% recovery						
13.95	17	D					8.25	14.50	
14.50	18	D				Stiff / very stiff dark grey slightly sandy silty CLAY. Sand is fine and medium. With occasional mica. Rare forams and rare burrows infilled with grey clay. (LONDON CLAY FORMATION)			
15.00-15.45	6	SPT	N=27			. . . At 15.00m, with thick laminations of very stiff dark grey silty clay.			
15.00	19	D							
16.00	20	D							
16.50	6	UT	80 blows 100% recovery						
16.95	21	D							
17.50	22	D				. . . At 17.50m, rare pyritised wood fragments.		(6.50)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	with a response zone between 1.40m and 5.00m. 4. Standing groundwater in borehole on 5/7/16 at a depth of 4.85m depth. 5. SPT hammer DR02-2016 (E_r = 63.01%) used.

All dimensions in metres | Scale: 1:50

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	Dando 150 (cut down)	Dave Rosenwold	CSiberry	

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
The Hope Project	The Hope Lease Ltd	BH1

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371475	End: 01.07.16	22.75	---	3 of 4

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results						
18.00-18.45	7	SPT	N=31			Stiff / very stiff dark grey slightly sandy silty CLAY. Sand is fine and medium. With occasional mica. Rare forams and rare burrows infilled with grey clay. (LONDON CLAY FORMATION) *(stratum copied from 14.50m from previous sheet)*			
18.00	23	D							
19.00	24	D							
19.50	7	UT	90 blows 89% recovery						
19.95	25	D							
20.50	26	D				. . . At 20.50m, recovered as firm.	1.75	21.00	
21.00-21.45	8	SPT	N=33			Very stiff fissured dark grey silty CLAY. With occasional mica. Rare light brown fine sand partings and rare forams. (LONDON CLAY FORMATION)			
21.00	27	D						(1.95)	
22.00	28	D							
22.50	8	UT	90 blows 78% recovery				-0.20	22.95	
22.95	29	D				Very stiff dark grey slightly sandy silty CLAY. Sand is fine. With occasional light brown fine sand pockets <3mm. Occasional mica and rare forams. Rare burrows infilled with grey clay. Occasional black clay lenses <4mm. (LONDON CLAY FORMATION)		(1.05)	
23.50	30	D					-1.25	24.00	
24.00-24.45	9	SPT	N=32	≈		Stiff / very stiff dark greyish brown silty CLAY. With occasional pockets of partially pyritised black carbonaceous matter and with veins of pyrite. Occasional light brown fine sand partings and burrows infilled with grey clay. (LONDON CLAY FORMATION)		(1.00)	
24.00	31	D					-2.25	25.00	
25.00	32	D				Stiff / very stiff sandy silty CLAY. Sand is fine. With occasional light brown fine sand pockets <20mm and occasional dark green glauconitic fine and medium sand speckling. Rare forams and occasional mica. (HARWICH FORMATION - SWANSCOMBE MEMBER)	-2.65	25.40	
25.50	9	UT	100 blows 78% recovery			Very stiff fissured brown mottled blue-grey CLAY. Fissures are extremely closely spaced, randomly orientated, polished. (LAMBETH GROUP)			
25.95	33	D				. . . At 25.95m, blue-grey and yellowish brown mottled.			
26.50	34	D							

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: 1:50

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	Dando 150 (cut down)	Dave Rosenwold	CSiberry	

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_013 PrjVersion: v8_06 - Core+Logs - 001 | Log CABLE PERCUSSION LOG - A4P | 371475 THE HOPE PROJECT.GPJ - v8_06.
RSK Environment Ltd, 18 Frogmore Road, Hemel Hempstead, Hertfordshire, HP3 9RT. Tel: 01442 437500, Fax: 01442 437550, Web: www.rsk.co.uk. | 09/08/16 - 11:48 | CS1 |

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
The Hope Project	The Hope Lease Ltd	BH1

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371475	29.06.16	22.75	---	4 of 4
	End: 01.07.16			

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results						
27.00-27.43	10	SPT	N=54*			Very stiff fissured brown mottled blue-grey CLAY. Fissures are extremely closely spaced, randomly orientated, polished. (LAMBETH GROUP)			
27.00	35	D				*(stratum copied from 25.40m from previous sheet)*			
						. . . Below 27.00m, mottled dark red.		(4.60)	
28.00	36	D							
28.50	10	UT	110 blows 67% recovery						
28.95	37	D				. . . Below 28.95m, blue-grey mottled dark red and yellowish brown.			
29.20	38	D				. . . Below 29.20m, silty.			
29.50-29.92	11	SPT	N=56*						
29.50	39	D					-7.25	30.00	
						Cable percussion borehole terminated at a depth of 30.00m.			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: 1:50

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	Dando 150 (cut down)	Dave Rosenwold	CSiberry	

DRAFT

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
The Hope Project	The Hope Lease Ltd	WS1

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371475	20.07.16	19.40	---	1 of 1
	End: 20.07.16			

Progress	Samples / Tests				Water	Backfill & Instru-mentation	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
Window Run	Depth	No	Type	Results						
0.00 - 1.00 (98mm dia) 100% rec							MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is very angular to subangular fine to coarse flint, brick, concrete and ash. (Reworked London Clay).	19.05	(0.35) 0.35	
							MADE GROUND: (Soft) brown CLAY with rare angular to subangular fine to coarse gravel of flint and brick.	18.90	0.50	
	0.70	D1	D				. . . Between 0.40m and 0.50m, black sandy clay.			
1.00 - 2.00 (85mm dia) 100% rec	1.00-1.45	1	SPT	N=32			Firm becoming stiff fissured brown silty CLAY. With occasional thin laminae of orange brown silty fine sand. Fissures are extremely closely spaced, randomly orientated, with blue-grey gleying and locally with fine sand infill. Occasional mica. (LONDON CLAY FORMATION)			
							. . . Below 1.00m occasional locally frequent selenite crystals.			
							. . . Between 1.25m and 1.35m, claystone.			
	1.63	D3	D				. . . At 1.45m, thin horizon of very stiff/hard yellow silt, recovered as subangular clasts.			
2.00 - 3.00 (75mm dia) 100% rec	2.00-2.45	2	SPT	N=19			. . . Between 2.00m and 3.00m, occasional laminae of orange brown silty fine sand.		(3.21)	
	2.30	D5	D							
	2.75	D6	D							
3.00 - 3.60 (65mm dia) 100% rec	3.00-3.45	3	SPT	N=21	20/07					
	3.60-3.71	4	SPT	N=250*			. . . At 3.60m, claystone recovered as medium to coarse gravel.	15.69	3.71	
							Window sampler terminated at a depth of 3.71m on claystone.			

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)
20/07/16		0.00	-	0	Dry
20/07/16		1.25	1.00	98	1.25
20/07/16		2.00	1.00	85	2.00
20/07/16		3.71	1.00	65	3.20

General Remarks

1. Window sampler advanced through Trial Pit TP13a.
2. Window sampler refused at a depth of 3.60m on claystone.
3. Groundwater level at 3.20m upon completion of drilling, rising to 3.00m after pulling casing. Water level at 2.10m on completion of installation.
4. On completion, a 50mm diameter combined gas and groundwater monitoring standpipe was installed at a depth of 3.60m, with a response zone between 1.00m and 3.60m.

All dimensions in metres | Scale: 1:25

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Tracked window	Bespoke Rig	Ian Cowan	CSiberry + SRamaswamy	

DRAFT

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
The Hope Project	The Hope Lease Ltd	WS2

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371475	End: 20.07.16	17.65	---	1 of 2

Progress	Samples / Tests				Water	Backfill & Instru-mentation	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
Window Run	Depth	No	Type	Results						
0.00 - 1.00 (98mm dia) 100% rec							MADE GROUND: Brown clayey sandy GRAVEL. Gravel is very angular to subangular fine to coarse flint, brock, concrete and wood.		(0.60)	
								17.05	0.60	
							Stiff fissured brown silty CLAY. With occasional lenses of orange fine sand and occasional selenite crystals. (LONDON CLAY FORMATION)			
							. . . At 0.95m, 30mm nodule of very stiff cemented orange fine sand with selenite crystals in core of nodule. Blue-grey gleying on fissures.			
							. . . Below 0.95m, fissures stained dark red.			
1.00 - 2.00 (85mm dia) 100% rec	1.00-1.45	1	SPT	N=20						
							. . . At 1.45m, 2mm thick lense of dark orange silty fine and medium sand, occasionaly cemented.		(2.00)	
	1.60	D2	D							
							. . . Between 1.57m and 1.70m, sub-vertical fissure, plain, smooth, with dark orange fine sand dusting.			
							. . . Below 1.70m, occasional thin laminae of dark orange fine and medium sand.			
	2.00-2.45	2	SPT	N=21						
2.00 - 3.00 (75mm dia) 100% rec							. . . At 1.90m, horizon of coarse sand sized selenite crystals in a dark orange fine and medium sand horizon. Damp.			
								15.05	2.60	
	2.65	D4	D				Stiff fissured dark grey silty CLAY. With occasional mica and light brown silt pockets. With silt dustings on fissures. (LONDON CLAY FORMATION)			
	3.00-3.45	3	SPT	N=27						
3.00 - 4.00 (65mm dia) 100% rec										
	3.55	D6	D				. . . Between 3.60m and 3.87m, subvertical fissure, plain, smooth, with silt dustings.			
									(2.85)	
	4.00-4.45	4	SPT	N=28						
4.00 - 5.00 (65mm dia) 100% rec										

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)
20/07/16		0.00	-	0	Dry
20/07/16		5.45	1.00	65	Dry

General Remarks

1. Window sampler advanced through Trial Pit TP9.
2. Borehole dry on completion.
3. On completion, a 50mm diameter combined gas and groundwater monitoring standpipe was installed at a depth of 4.55m, with a response zone between 0.55m and 4.55m.

All dimensions in metres | Scale: 1:25

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Tracked window	Bespoke Rig	Ian Cowan	CSiberry + SRamaswamy	

DRAFT

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
The Hope Project	The Hope Lease Ltd	WS2

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371475	End: 20.07.16	17.65	---	2 of 2

Progress	Samples / Tests				Water	Backfill & Instru-mentation	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
Window Run	Depth	No	Type	Results						
4.00 - 5.00 (65mm dia) 100% rec	4.80	D8	D				. . . At 4.45m, nodule of light brown claystone. Stiff fissured dark grey silty CLAY. With occasional mica and light brown silt pockets. With silt dustings on fissures. (LONDON CLAY FORMATION) *(stratum copied from 2.60m from previous sheet)*			
	5.00-5.45	5	SPT	N=32				12.20	5.45	
							Window sampler terminated at a depth of 5.45m.			

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

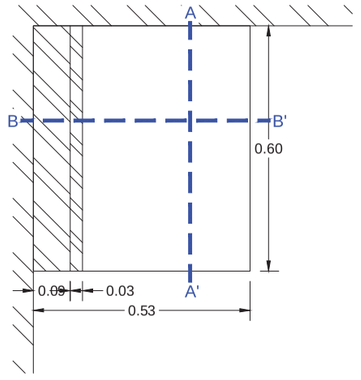
General Remarks

All dimensions in metres | Scale: 1:25

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Tracked window	Bespoke Rig	Ian Cowan	CSiberry + SRamaswamy	

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_013 PrjVersion: v8_06 - Core+Logs - 001 | Log WINDOW SAMPLE LOG - A4P | 371475 THE HOPE PROJECT.GPJ - v8_06 - 11:38 | CS1 |
RSK Environment Ltd, 18 Frogmore Road, Hemel Hempstead, Hertfordshire, HP3 9RT. Tel: 01442 437500, Fax: 01442 437550, Web: www.rsk.co.uk. | 09/08/16 - 11:38 | CS1 |

Plan View:
(1:10)



Scale 1 : 10
0 100 200 300 400 500 600 700 800 900 1000mm

LEGEND

- Section Line
- ① Concrete with damp proof sheet at 0.08m and 0.31m.
- ② MADE GROUND: Dark red brown and brown silty very gravelly SAND with clasts of sandy gravelly CLAY. Sand is fine to medium. Gravel is sub-angular to sub-rounded fine to coarse brick, concrete, occasional clinker, ash and rare slate.

Ground Level: 22.80m AOD

Excavated 07.07.16

Logged by: Mike McCann

Rev.	Date	Amendment	Drawn	Chkd.	Appd.

RSK
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Client
THE HOPE LEASE LTD

Project Title
THE HOPE PROJECT

Drawing Title
TRIAL PIT 1

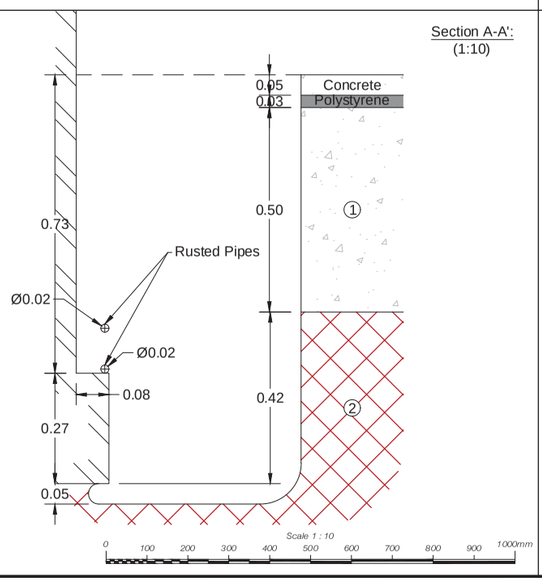
Drawn	Date	Checked	Date	Approved	Date
ASC	13.07.16	CS	13.07.16	CS	13.07.16

Scale	Orig Size	Dimensions
AS SHOWN	A3	m

Project No.	Drawing File
371475 - R01 (00)	371475 (R01-00) TP.dwg

Drawing No.	Rev.
TP1	P1

Section A-A':
(1:10)



Scale 1 : 10
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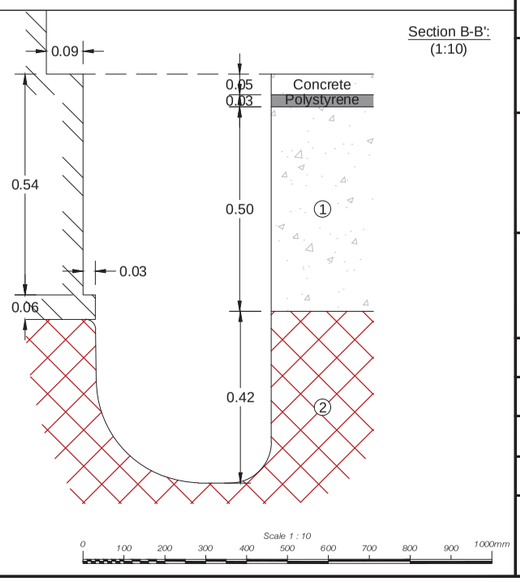
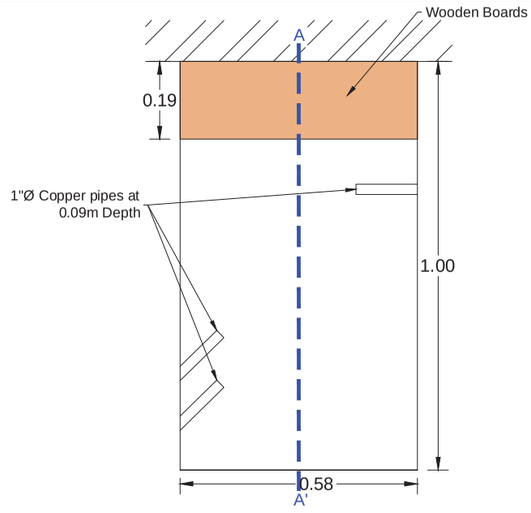
Section B-B':
(1:10)



Scale 1 : 10
0 100 200 300 400 500 600 700 800 900 1000mm

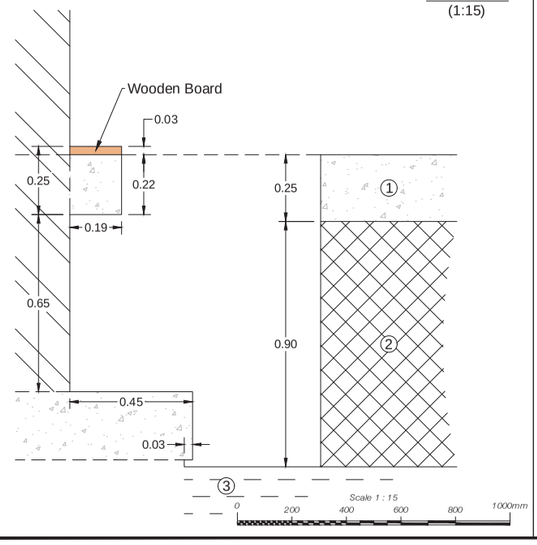
Plan View:
(1:10)



Copper Pipes within concrete, plastic sheeting at 0.10m

Scale 1 : 10
0 100 200 300 400 500 600 700 800 900 1000mm

Section A-A':
(1:15)



Scale 1 : 15
0 200 400 600 800 1000mm

LEGEND

- Section Line
- ① Concrete
- ② MADE GROUND: Brown slightly sandy gravelly silty CLAY. Gravel is very angular to sub-rounded fine to coarse flint, brick, ash and clinker. Occasional pockets of light brown clay.
- ③ Firm grey and brown mottled slightly gravelly silty CLAY. Gravel is very angular to rounded fine to coarse multicoloured flint.

Ground Level: 22.80m AOD

Excavated 28.06.16

Logged by: Claire Siberry

Rev.	Date	Amendment	Drawn	Chkd.	Appd.

RSK
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Client
The Hope Lease Ltd

Project Title
THE HOPE PROJECT

Drawing Title
TRIAL PIT 2

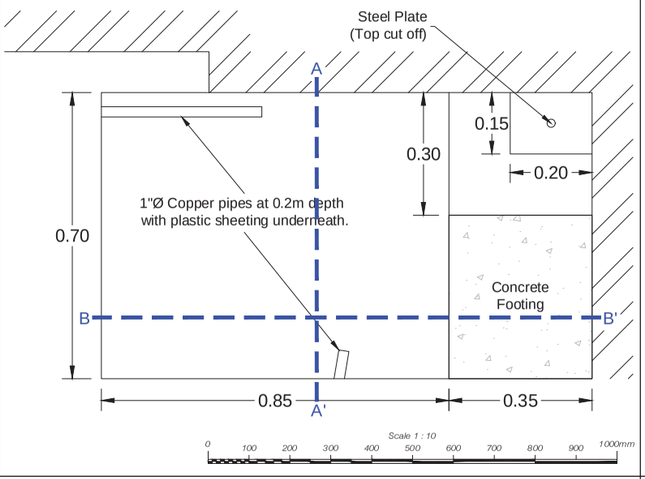
Drawn	Date	Checked	Date	Approved	Date
ASC	04.07.16	CS	04.07.16	CS	04.07.16

Scale	Orig Size	Dimensions
AS SHOWN	A3	m

Project No.	Drawing File
371475 - R01 (00)	371475 (R01-00) TP.dwg

Drawing No.	Rev.
TP2	P1

Plan View:
(1:10)



LEGEND

Section Line

① MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is very angular to subangular fine to coarse flint, brick, concrete, ash, clinker. Occasional pockets of black carbonaceous matter and occasional pockets of light brown clay.

② Damp, recovered as soft, dark brown slightly sandy silty CLAY (on end of road pin)

Groundwater in Base of Pit (29.06.16)

Ground Level: 22.80m AOD

Excavated 28.06.16

Logged by: Claire Siberry

Rev.	Date	Amendment	Drawn	Chkd.	Appd.

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Client

THE HOPE LEASE LTD

Project Title

THE HOPE PROJECT

Drawing Title

TRIAL PIT 3

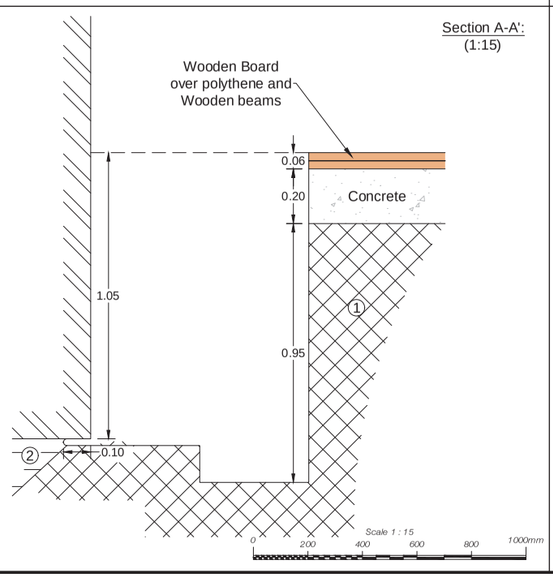
Drawn	Date	Checked	Date	Approved	Date
ASC	04.07.16	CS	04.07.16	CS	04.07.16

Scale	Orig Size	Dimensions
AS SHOWN	A3	m

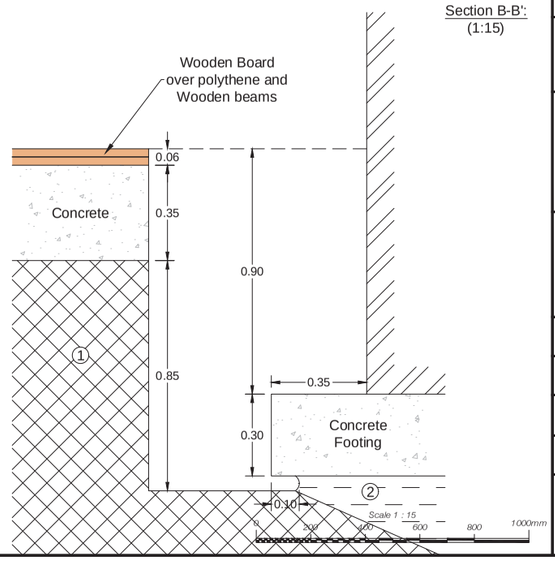
Project No.	Drawing File
371475 - R01 (00)	371475 (R01-00) TP.dwg

Drawing No.	Rev.
TP3	P1

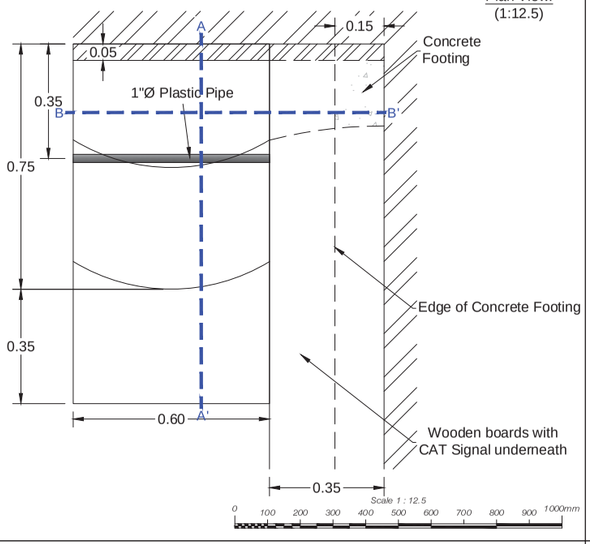
Section A-A':
(1:15)



Section B-B':
(1:15)



Plan View:
(1:12.5)



LEGEND

Section Line

① MADE GROUND: Brown sandy GRAVEL with occasional brick cobbles. Gravel is very angular to sub-angular fine to coarse flint and brick.

② MADE GROUND: Brown slightly sandy gravelly silty CLAY. Gravel is angular to sub-angular fine to coarse flint, brick, concrete clinker, ash and tile. Occasional light brown clay pockets.

③ Firm brown silty CLAY.

Ground Level: 22.80m AOD

Excavated 28.06.16

Logged by: Claire Siberry

Rev.	Date	Amendment	Drawn	Chkd.	Appd.

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Client

THE HOPE LEASE LTD

Project Title

THE HOPE PROJECT

Drawing Title

TRIAL PIT 4

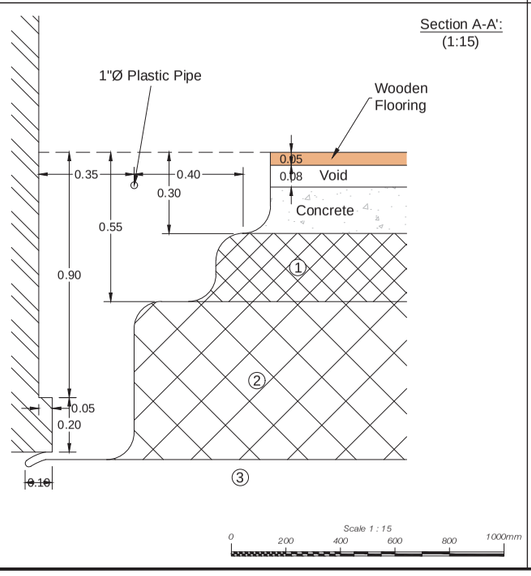
Drawn	Date	Checked	Date	Approved	Date
ASC	04.07.16	CS	04.07.16	CS	04.07.16

Scale	Orig Size	Dimensions
AS SHOWN	A3	m

Project No.	Drawing File
371475 - R01 (00)	371475 (R01-00) TP.dwg

Drawing No.	Rev.
TP4	P1

Section A-A':
(1:15)



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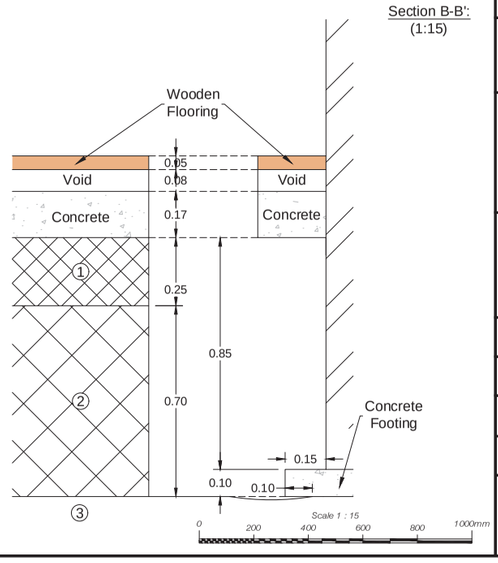
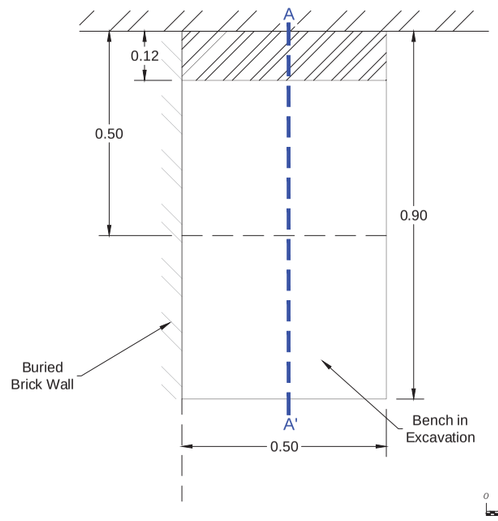
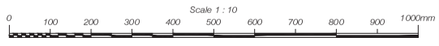
(1:15)

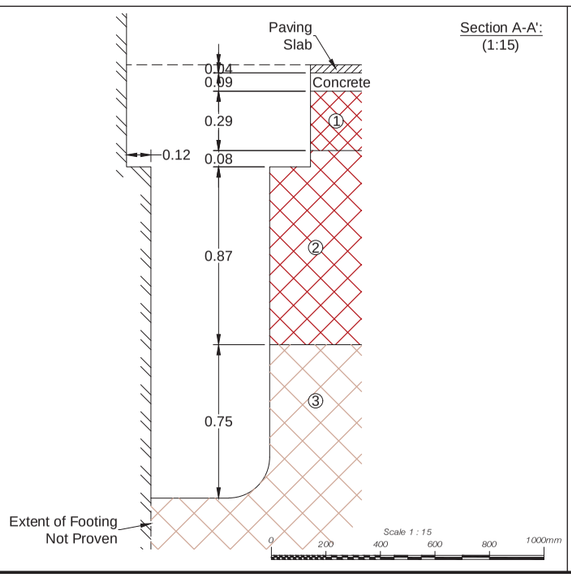


Plan View:
(1:10)





Section A-A':
(1:15)



LEGEND

Section Line

① MADE GROUND: Brown and dark brown silty gravelly SAND with high cobble content. Sand is fine to medium. Gravel is angular to sub-rounded fine to coarse concrete, brick and occasional pieces of earthenware.

② MADE GROUND: Brown and dark brown gravelly CLAY. Gravel is angular to sub-angular fine to coarse red brick, concrete and clinker slag.

③ Possible MADE GROUND: Firm orange brown, brown mottled grey CLAY with pockets of orange brown silty sand.

Excavated 30.06.16 - 08.07.16

Ground Level: 22.35m AOD

Logged by: Mike McCann

Rev.	Date	Amendment	Drawn	Chkd.	Appd.

RSK

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Client

THE HOPE LEASE LTD

Project Title

THE HOPE PROJECT

Drawing Title

TRIAL PIT 5

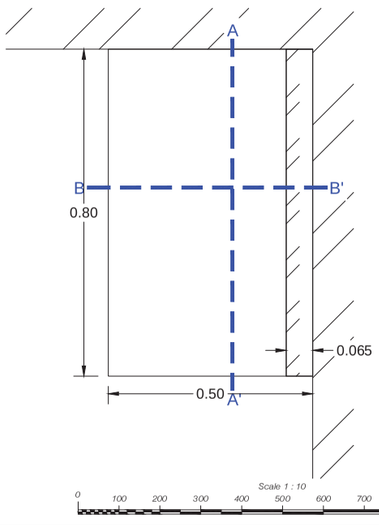
Drawn	Date	Checked	Date	Approved	Date
ASC	04.07.16	CS	04.07.16	CS	04.07.16

Scale	Orig Size	Dimensions
AS SHOWN	A3	m

Project No.	Drawing File
371475 - R01 (00)	371475 (R01-00) TP.dwg

Drawing No.	Rev.
TP5	P1

Plan View:
(1:10)



LEGEND

Section Line

① MADE GROUND: Brown slightly gravelly sandy CLAY. Gravel is angular to sub-angular fine to coarse of brick, flint, concrete and ash.
At top: 50mm layer of black sandy clay

② Firm fissured brown and grey mottled silty CLAY with occasional pockets of light brown silt and occasional mica.

Groundwater at 0.75m

Ground Level: 20.60m AOD

Excavated 30.06.16

Logged by: Claire Siberry

Rev.	Date	Amendment	Drawn	Chkd.	Appd.

RSK

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Client

THE HOPE LEASE LTD

Project Title

THE HOPE PROJECT

Drawing Title

TRIAL PIT 6

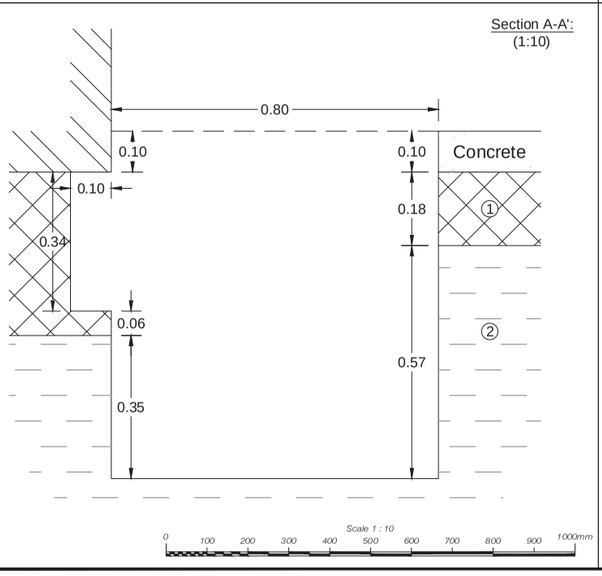
Drawn	Date	Checked	Date	Approved	Date
ASC	12.07.16	CS	12.07.16	CS	12.07.16

Scale	Orig Size	Dimensions
AS SHOWN	A3	m

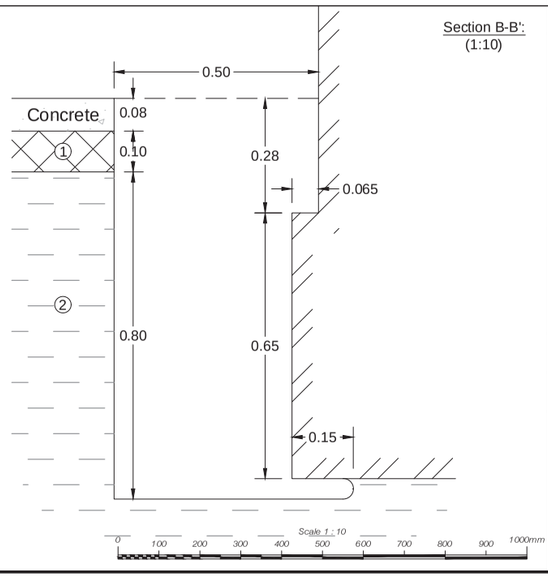
Project No.	Drawing File
371475 - R01 (00)	371475 (R01-00) TP.dwg

Drawing No.	Rev.
TP6	P1

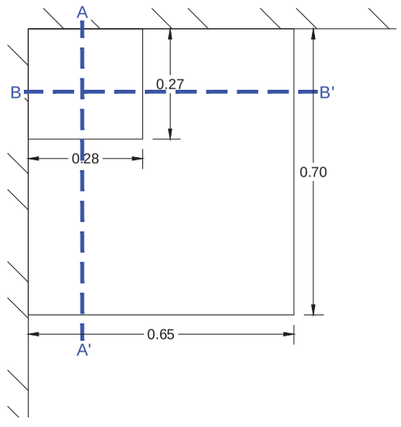
Section A-A':
(1:10)



Section B-B':
(1:10)



Plan View:
(1:10)



Scale 1 : 10
0 100 200 300 400 500 600 700 800 900 1000mm

LEGEND

Section Line

① MADE GROUND: Black ash GRAVEL.

② MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular to sub-angular fine to coarse of brick, ash, concrete and clinker.

③ Firm fissured brown and grey mottled silty CLAY with occasional mica and occasional grey gleying on fissures.

Groundwater at 0.53m

Ground Level: 20.65m AOD

Excavated 13.06.16

Logged by Claire Siberry

Rev.	Date	Amendment	Drawn	Chkd.	Appd.

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Client
THE HOPE LEASE LTD

Project Title
THE HOPE PROJECT

Drawing Title
TRIAL PIT 7

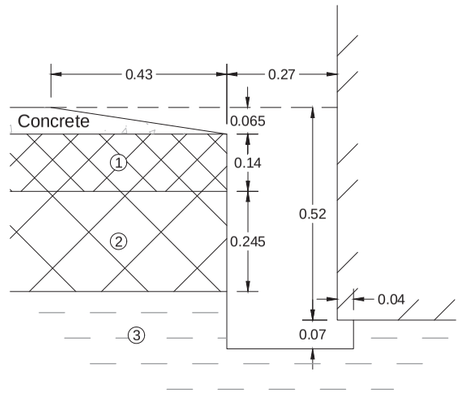
Drawn	Date	Checked	Date	Approved	Date
ASC	12.07.16	CS	12.07.16	CS	12.07.16

Scale	Orig Size	Dimensions
AS SHOWN	A3	m

Project No.	Drawing File
371475 - R01 (00)	371475 (R01-00) TP.dwg

Drawing No.	Rev.
TP7	P1

Section A-A':
(1:10)



Scale 1 : 10
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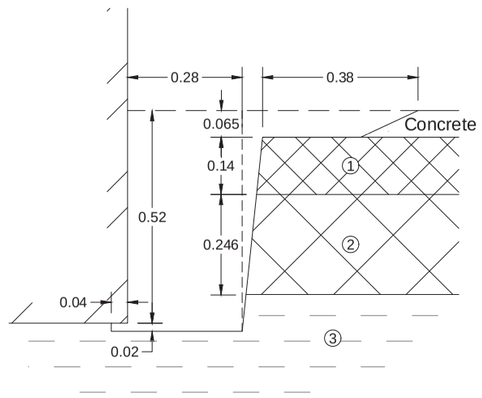
Section B-B':
(1:10)



Scale 1 : 10
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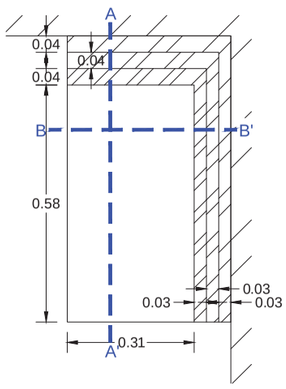
Plan View:
(1:10)



Scale 1 : 10
0 100 200 300 400 500 600 700 800 900 1000mm

LEGEND

Section Line

① MADE GROUND: Brown sandy slightly gravelly CLAY. Gravel is angular to sub-angular fine to coarse of brick, flint, ash and clinker. Occasional pockets of brown and grey mottled clay.

② Firm fissured brown mottled grey CLAY with occasional mica.

Ground Level: 20.65m AOD

Excavated 30.06.16

Logged by Claire Siberry

Rev.	Date	Amendment	Drawn	Chkd.	Appd.

RSK
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Client
THE HOPE LEASE LTD

Project Title
THE HOPE PROJECT

Drawing Title
TRIAL PIT 8

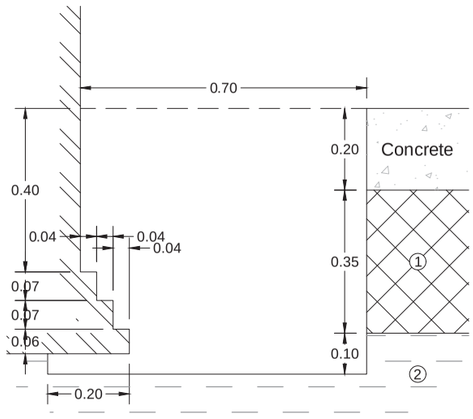
Drawn	Date	Checked	Date	Approved	Date
ASC	04.07.16	CS	04.07.16	CS	04.07.16

Scale	Orig Size	Dimensions
AS SHOWN	A3	m

Project No.	Drawing File
371475 - R01 (00)	371475 (R01-00) TP.dwg

Drawing No.	Rev.
TP8	P1

Section A-A':
(1:10)



Scale 1 : 10
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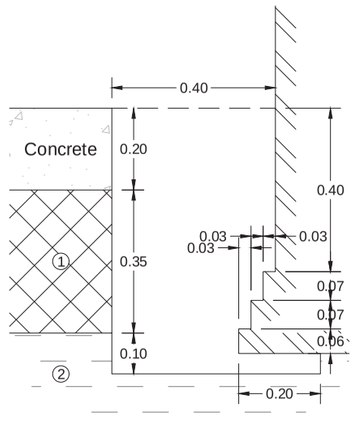
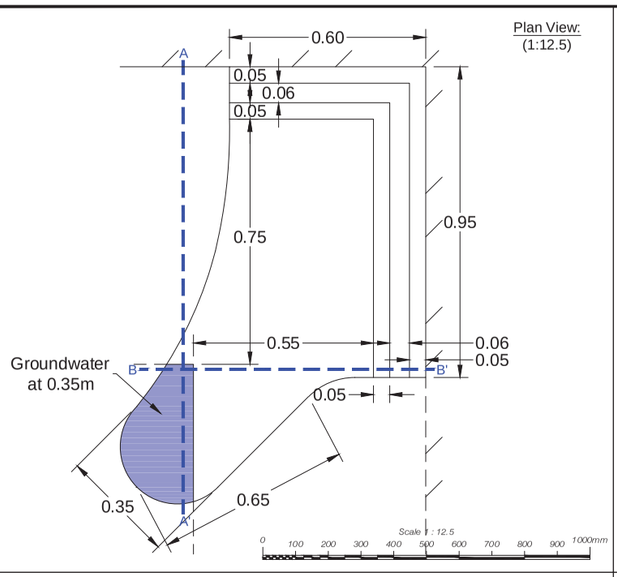
Section B-B':
(1:10)

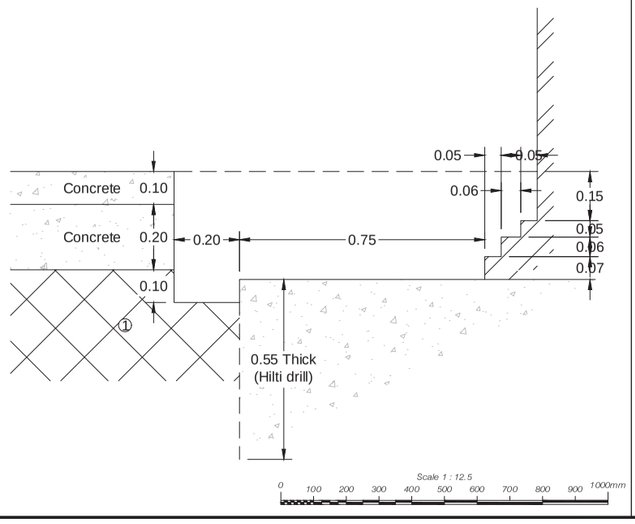


Scale 1 : 10
0 100 200 300 400 500 600 700 800 900 1000mm

Plan View:
(1:12.5)



Section A-A':
(1:12.5)



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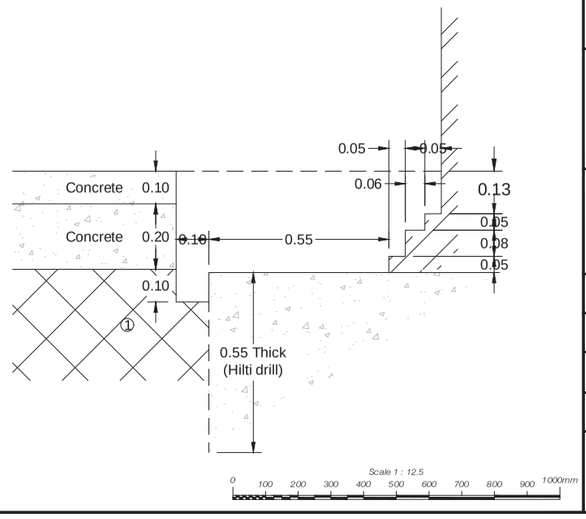
(1:12.5)



LEGEND

Section Line

① MADE GROUND: Brown clayey sandy GRAVEL. Gravel is very angular to sub-angular fine to coarse flint, brick, concrete and wood.

Groundwater at 0.35m

Ground Level: 17.65m AOD

Excavated 01.07.16

Logged by Claire Siberry

Rev.	Date	Amendment	Drawn	Chkd.	Appd.

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THE HOPE LEASE LTD

Project Title

THE HOPE PROJECT

Drawing Title

TRIAL PIT 9

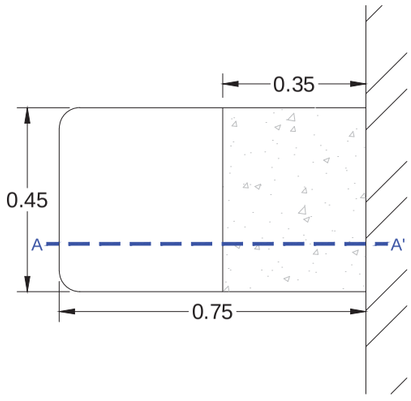
Drawn	Date	Checked	Date	Approved	Date
ASC	05.07.16	CS	05.07.16	CS	05.07.16

Scale	Orig Size	Dimensions
AS SHOWN	A3	m

Project No.	Drawing File
371475 - R01 (00)	371475 (R01-00) TP.dwg

Drawing No.	Rev.
TP9	P1

Plan View:
(1:10)



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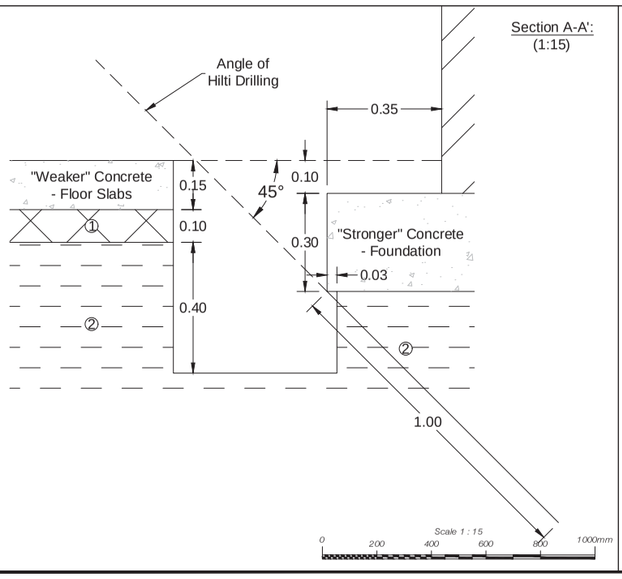
Section A-A':
(1:15)



LEGEND

Section Line

① MADE GROUND: Brown silty gravelly sand/sandy GRAVEL. Gravel is angular and sub-angular fine to coarse flint, brick, clinker and concrete.

② Firm fissured brown and grey mottled silty CLAY with occasional mica speckling.

Ground Level: 17.60m AOD

Excavated 29.06.16

Logged by Claire Siberry

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Project Title

THE HOPE PROJECT

Drawing Title

TRIAL PIT 10

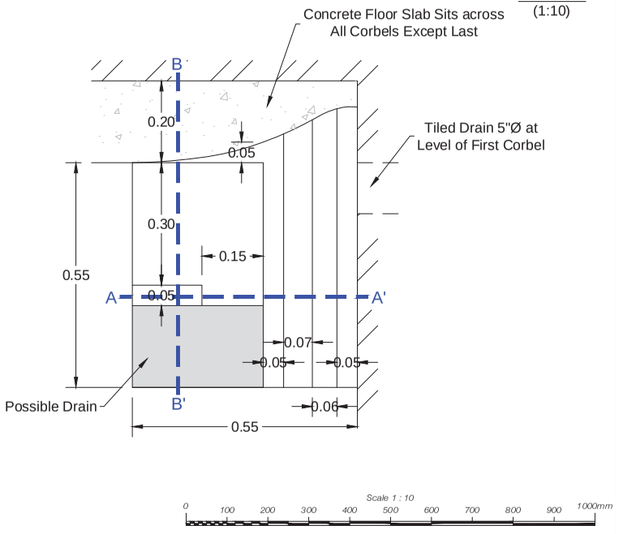
Drawn	Date	Checked	Date	Approved	Date
ASC	05.07.16	CS	05.07.16	CS	05.07.16

Scale	Orig Size	Dimensions
AS SHOWN	A3	m

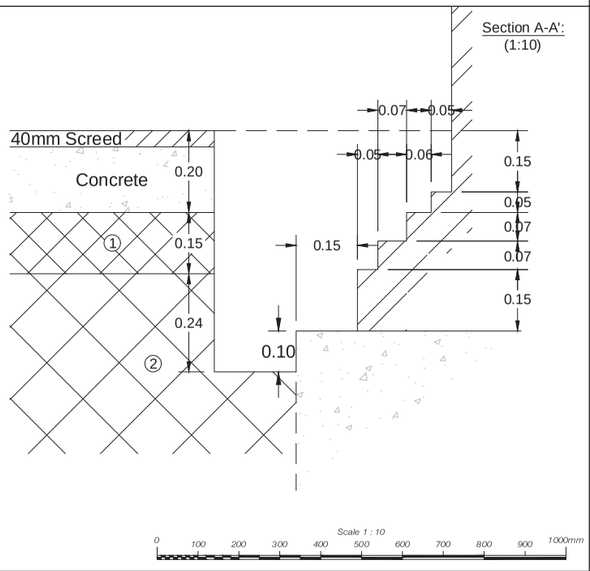
Project No.	Drawing File
371475 - R01 (00)	371475 (R01-00) TP.dwg

Drawing No.	Rev.
TP10	P1

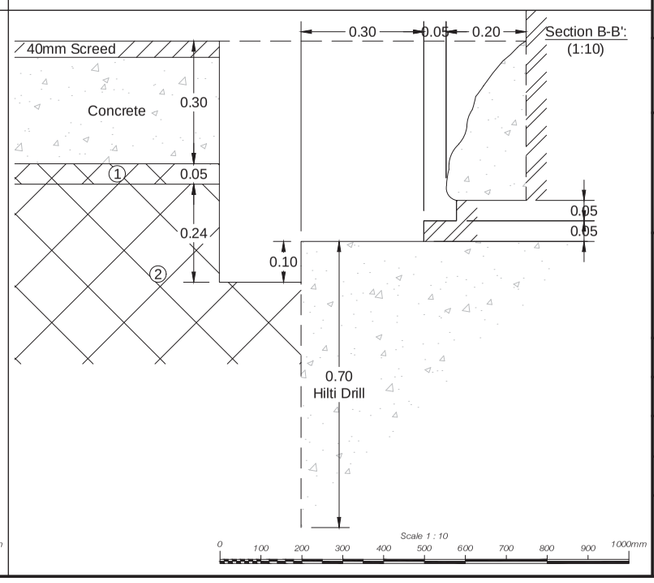
Plan View:
(1:10)



Section A-A':
(1:10)



Section B-B':
(1:10)



LEGEND

Section Line

① MADE GROUND: Brown slightly silty sandy GRAVEL. Gravel is very angular to angular fine to coarse flint, brick and tile.

② MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular to sub-rounded fine to coarse flint and brick with occasional pockets of firm clay. Recovered as soft and saturated.

Groundwater at 0.40m

Ground Level: 17.65m AOD

Excavated 01.07.16

Logged by Claire Siberry

Rev.	Date	Amendment	Drawn	Chkd.	Appd.

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Project Title

THE HOPE PROJECT

Drawing Title

TRIAL PIT 11

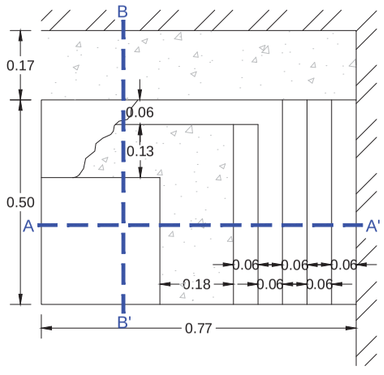
Drawn	Date	Checked	Date	Approved	Date
ASC	05.07.16	CS	05.07.16	CS	05.07.16

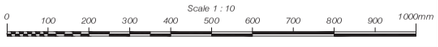
Scale	Orig Size	Dimensions
AS SHOWN	A3	m

Project No.	Drawing File
371475 - R01 (00)	371475 (R01-00) TP.dwg

Drawing No.	Rev.
TP11	P1

Plan View:
(1:10)





LEGEND

Section Line

① MADE GROUND: Brown slightly silty sandy GRAVEL. Gravel is very angular to angular fine to coarse flint, concrete, brick and tile.

② Firm to stiff brown mottled grey CLAY with occasional orange silt pockets.

Groundwater at 0.60m

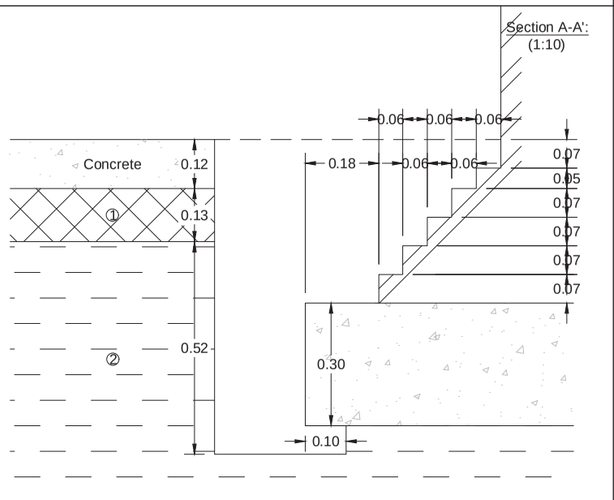
Ground Level: 17.55m AOD

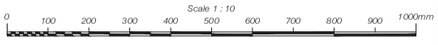
Excavated 01.07.16

Logged by Claire Siberry

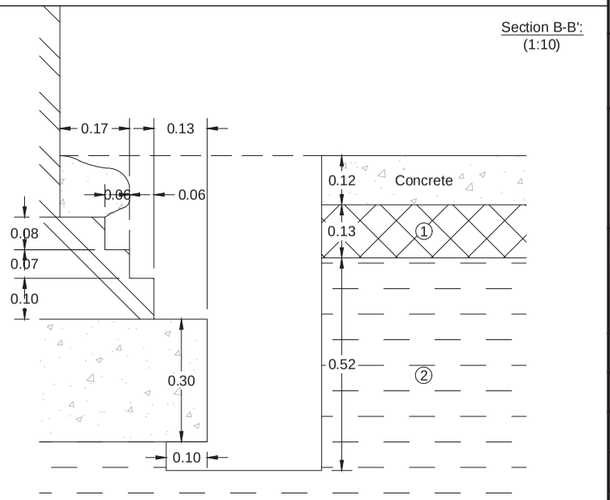
Rev.	Date	Amendment	Drawn	Chkd.	Appd.

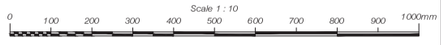
Section A-A':
(1:10)





Section B-B':
(1:10)





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Project Title

THE HOPE PROJECT

Drawing Title

TRIAL PIT 12

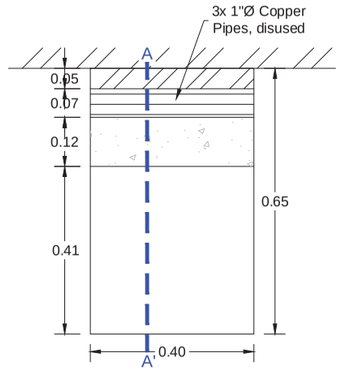
Drawn	Date	Checked	Date	Approved	Date
ASC	06.07.16	CS	06.07.16	CS	06.07.16

Scale	Orig Size	Dimensions
AS SHOWN	A3	m

Project No.	Drawing File
371475 - R01 (00)	371475 (R01-00) TP.dwg

Drawing No.	Rev.
TP12	P1

Plan View:
(1:10)



Scale 1 : 10
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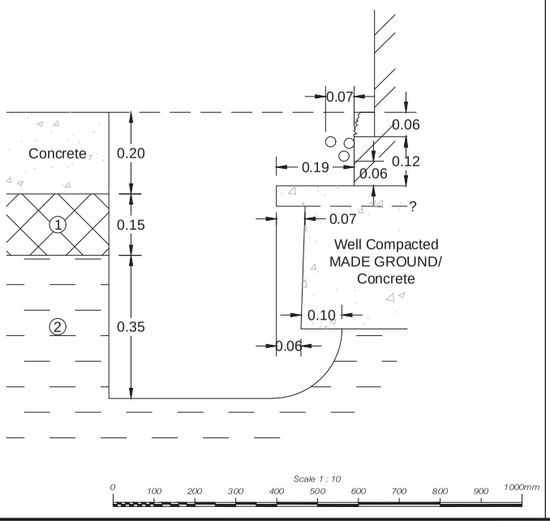
Section A-A':
(1:10)



Scale 1 : 10
0 100 200 300 400 500 600 700 800 900 1000mm

LEGEND

Section Line

① MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is very angular to sub-angular fine to coarse flint, brick, concrete and ash. (Reworked London Clay)

② Firm brown mottled grey CLAY with occasional orange fine sand pockets.

Strong sewage odour (Pit adjacent to sewer and in bin stores)

Groundwater at 0.60m, Black

Ground Level: 19.40m AOD

Excavated 06.07.16

Logged by Claire Siberry

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Drawing Title
TRIAL PIT 13a

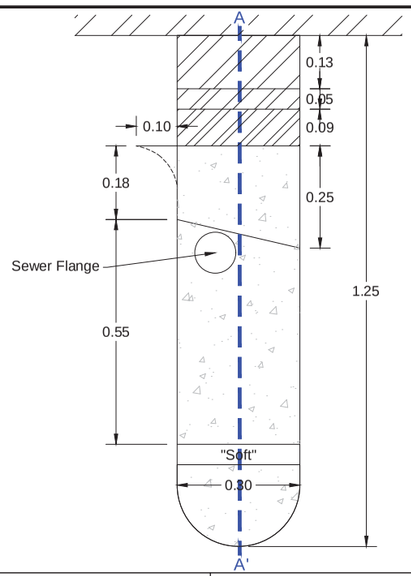
Drawn	Date	Checked	Date	Approved	Date
ASC	12.07.16	CS	12.07.16	CS	12.07.16

Scale	Orig Size	Dimensions
AS SHOWN	A3	m

Project No.	Drawing File
371475 - R01 (00)	371475 (R01-00) TP.dwg

Drawing No.	Rev.
TP13a	P1

Plan View:
(1:10)



Scale 1 : 10
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Section A-A':
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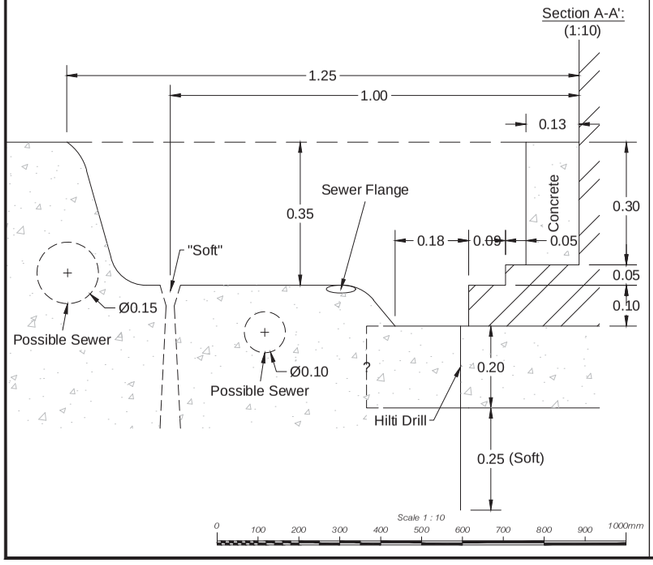

Scale 1 : 10
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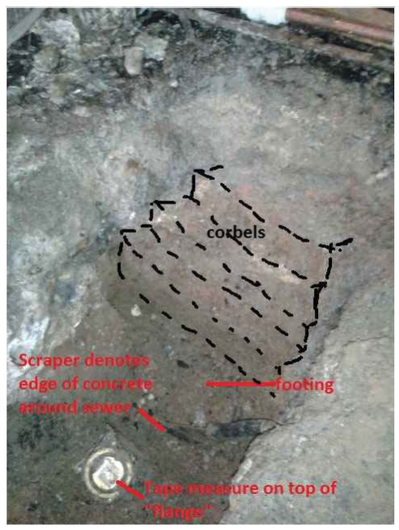

LEGEND

Section Line

MADE GROUND: Brown slightly sandy gravelly silty CLAY. Gravel is very angular to sub-angular flint, brick, concrete, chalk and tile.

Ground Level: 19.40m AOD

Excavated 06.07.16

Logged by Claire Siberry

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Project Title
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Drawing Title
TRIAL PIT 13b

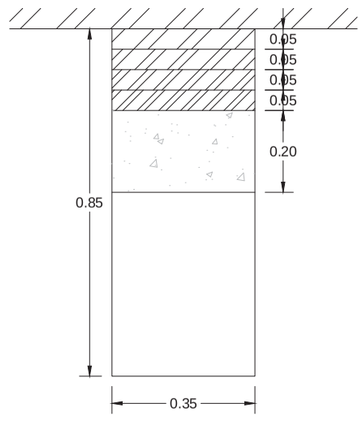
Drawn	Date	Checked	Date	Approved	Date
ASC	13.07.16	CS	13.07.16	CS	13.07.16

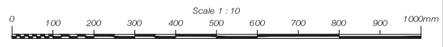
Scale	Orig Size	Dimensions
AS SHOWN	A3	m

Project No.	Drawing File
371475 - R01 (00)	371475 (R01-00) TP.dwg

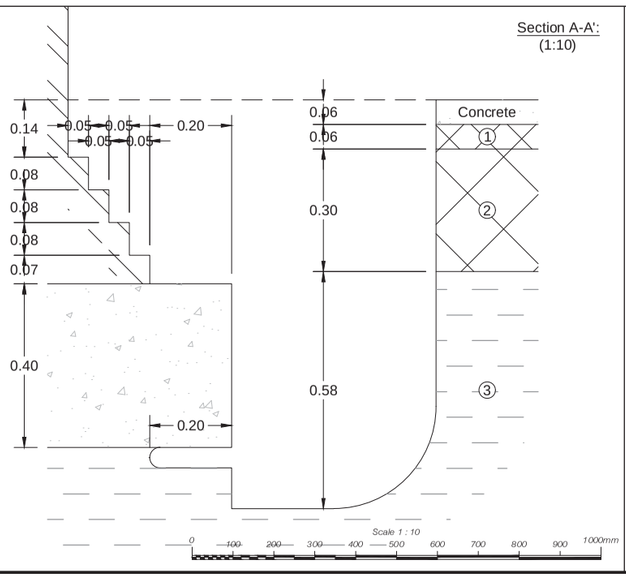
Drawing No.	Rev.
TP13b	P1

Plan View:
(1:10)





Section A-A':
(1:10)



LEGEND

- Section Line
- ① MADE GROUND: Brown sandy GRAVEL. Gravel is very angular to sub-rounded fine to coarse flint.
- ② MADE GROUND: Brown mottled grey slightly gravelly silty CLAY. Gravel is angular and sub-angular fine to coarse flint and brick with occasional black ash pockets. (Reworked London Clay)
- ③ Firm to stiff fissured brown mottled grey silty CLAY with occasional orange silt lenses.

Groundwater seepage at 1.00m

Ground Level: 19.35m AOD

Excavated 11.07.16

Logged by Claire Siberry

Rev.	Date	Amendment	Drawn	Chkd.	Appd.

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Project Title

THE HOPE PROJECT

Drawing Title

TRIAL PIT 14

Drawn	Date	Checked	Date	Approved	Date
ASC	14.07.16	CS	14.07.16	CS	14.07.16

Scale	Orig Size	Dimensions
AS SHOWN	A3	m

Project No.	Drawing File
371475 - R01 (00)	371475 (R01-00) TP.dwg

Drawing No.	Rev.
TP14	P1

STANDARD PENETRATION TEST SUMMARY TABLE

Exploratory Position ID	Depth (m)	Hole Dia (mm)	Casing Depth (m)	Water Depth (m)	Seating Drive		Test Drive			Hammer ID	Calibration Date	Energy Ratio (%)	N_{60}	Comments
					Blows	Pen (mm)	Blows	R (mm)	Result					
BH1	1.60	150	1.50	DRY	1,1	150	1,1,1,2		N=5	DR02-2016	11/04/2016	63.01	5	
	3.50	150	1.50	DRY	1,1	150	2,2,2,3		N=9	DR02-2016	11/04/2016	63.01	9	
	6.00	150	1.50	DRY	2,3	150	3,4,4,5		N=16	DR02-2016	11/04/2016	63.01	17	
	9.00	150	1.50	DRY	2,3	150	4,5,5,6		N=20	DR02-2016	11/04/2016	63.01	21	
	12.00	150	1.50	DRY	2,4	150	5,5,6,7		N=23	DR02-2016	11/04/2016	63.01	24	
	15.00	150	1.50	DRY	3,5	150	6,6,7,8		N=27	DR02-2016	11/04/2016	63.01	28	
	18.00	150	1.50	DRY	3,5	150	6,7,8,10		N=31	DR02-2016	11/04/2016	63.01	33	
	21.00	150	1.50	DRY	4,6	150	7,8,8,10		N=33	DR02-2016	11/04/2016	63.01	35	
	24.00	150	1.50	DRY	4,6	150	6,7,9,10		N=32	DR02-2016	11/04/2016	63.01	34	
	27.00	150	1.50	DRY	5,9	150	11,13,16,10+	280	N=54*	DR02-2016	11/04/2016	63.01	57	
	29.50	150	1.50	DRY	6,9	150	12,14,16,8+	270	N=56*	DR02-2016	11/04/2016	63.01	59	
WS1	1.00			DRY	4	150	3,18,6,5		N=32					
	2.00			2.00	5	150	4,4,5,6		N=19					
	3.00			2.90	7	150	4,5,6,6		N=21					
	3.60			3.60	25	50	50+	60	N=250*					
WS2	1.00			DRY	5	150	4,6,5,5		N=20					

Notes:
1. Tests carried out in general accordance with BS EN ISO 22476-3:2005, including amendment A1 (2011).
2. Reported blows are for 75mm penetration unless indicated "+".
3. Where full test drive was not achieved, actual penetration (R) and extrapolated N value (N*) reported.
4. Tests carried out using a split spoon sampler unless noted as SPT(c) (denotes use of solid cone method) in the comments column.
5. Entries in the water depth column reflects the measured water depth at time of test.

N_{60} = (Measured hammer energy ratio / 60) x N value

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Compiled By		Date	Contract Ref:
	CSIBERRY	22.07.16	371475

Contract: The Hope Project

AGS

STANDARD PENETRATION TEST SUMMARY TABLE

Exploratory Position ID	Depth (m)	Hole Dia (mm)	Casing Depth (m)	Water Depth (m)	Seating Drive		Test Drive			Hammer ID	Calibration Date	Energy Ratio (%)	N_{60}	Comments
					Blows	Pen (mm)	Blows	R (mm)	Result					
WS2	2.00			DRY	6	150	5,5,5,6		N=21					
	3.00			DRY	9	150	6,6,6,9		N=27					
	4.00			DRY	10	150	5,7,8,8		N=28					
	5.00			DRY	12	150	7,8,9,8		N=32					

Notes:
1. Tests carried out in general accordance with BS EN ISO 22476-3:2005, including amendment A1 (2011).
2. Reported blows are for 75mm penetration unless indicated "+".
3. Where full test drive was not achieved, actual penetration (R) and extrapolated N value (N*) reported.
4. Tests carried out using a split spoon sampler unless noted as SPT(c) (denotes use of solid cone method) in the comments column.
5. Entries in the water depth column reflects the measured water depth at time of test.

N_{60} = (Measured hammer energy ratio / 60) x N value

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Compiled By	Date	Contract Ref:
CSIBERRY	22.07.16	371475

Contract: **The Hope Project**

APPENDIX I
GROUND GAS / WATER MONITORING DATA

IN-SITU GAS MONITORING RESULTS

[Pressures]	Previous	During	Start	End	Equipment Used & Remarks
Round 2	Constant	Constant	1007	1007	Dipmeter + GA2000 + Weather: Dry and Sunnry + Ground: Dry + Wind: Light
Round 3	Constant	Constant	1009	1009	Dipmeter + GA2000 + Weather: Dry, sunny, hot + Ground: Dry + Wind: Light
Round 4	Falling	Falling	1019	1019	Dipmeter + GA2000 + Weather: Dry, sunny, cool + Ground: Dry + Wind: Light

Exploratory Position ID	Monitoring Round	Measured Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	PID (ppm)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
BH1	2	5.00	03/08/2016 11:05:00	-	1007	$0.1_{(SS)}$	3.90	$0.0_{(SS)}$	$0.0_{(SS)}$	$20.6_{(SS)}$	$0.0_{(SS)}$	$0.0_{(SS)}$	$0.0_{(SS)}$	$1.0_{(SS)}$	
BH1	2	5.00	15 secs	-	1007	-	3.90	0.0	0.0	20.1	0.0	-	0.0	1.0	
BH1	2	5.00	30 secs	-	1007	-	3.90	0.0	0.0	19.8	0.0	-	0.0	1.0	
BH1	2	5.00	60 secs	-	1007	-	3.90	0.0	0.0	19.7	0.0	-	0.0	1.0	
BH1	2	5.00	90 secs	-	1007	-	3.90	0.0	0.0	19.6	0.0	-	0.0	1.0	
BH1	2	5.00	120 secs	-	1007	-	3.90	0.0	0.0	19.6	0.0	-	0.0	1.0	
BH1	2	5.00	180 secs	-	1007	-	3.90	0.0	0.0	19.5	0.0	-	0.0	1.0	
BH1	2	5.00	240 secs	-	1007	-	3.90	0.0	0.0	19.3	0.0	-	0.0	2.0	
BH1	2	5.00	300 secs	-	1007	-	3.90	0.0	0.0	19.3	0.0	-	1.0	2.0	
BH1	2	5.00	360 secs	-	1007	-	3.90	0.0	0.0	19.2	0.0	-	0.0	1.0	
BH1	2	5.00	420 secs	-	1007	-	3.90	0.0	0.0	19.1	0.0	-	0.0	1.0	
BH1	2	5.00	540 secs	-	1007	-	3.90	0.0	0.0	19.2	0.0	-	0.0	1.0	
BH1	2	5.00	600 secs	-	1007	-	3.90	0.0	0.0	19.2	0.0	-	0.0	1.0	
BH1	4	---	03/11/2016 13:30:00	-	-	-	-	-	-	-	-	-	-	-	
	Remarks: Borehole obstructed - no monitoring undertaken.														
BH1	3	5.00	08/09/2019 11:15:00	-	1009	$-0.1_{(SS)}$	4.02	0.0	0.0	20.4	0.0	-	0.0	1.0	
BH1	3	5.00	15 secs	-	1009	-	4.02	0.0	0.0	19.3	0.0	-	0.0	1.0	
BH1	3	5.00	30 secs	-	1009	-	4.02	0.0	0.0	19.4	0.0	-	0.0	1.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	PID (ppm)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
BH1	3	5.00	60 secs	-	1009	-	4.02	0.0	0.0	19.9	0.0	-	0.0	1.0	
BH1	3	5.00	120 secs	-	1009	-	4.02	0.0	0.0	20.0	0.0	-	0.0	1.0	
BH1	3	5.00	180 secs	-	1009	-	4.02	0.0	0.0	20.1	0.0	-	0.0	1.0	
BH1	3	5.00	240 secs	-	1009	-	4.02	0.0	0.0	20.1	0.0	-	0.0	2.0	
BH1	3	5.00	300 secs	-	1009	-	4.02	0.0	0.0	20.1	0.0	-	2.0	2.0	
BH1	3	5.00	360 secs	-	1009	-	4.02	0.0	0.0	20.2	0.0	-	0.0	1.0	
BH1	3	5.00	420 secs	-	1009	-	4.02	0.0	0.0	20.2	0.0	-	0.0	1.0	
WS1	2	3.60	03/08/2016 13:35:00	-	1007	$0.2_{(SS)}$	0.88	-	-	-	-	-	-	-	
	Remarks: Initial flow of 13.4 l/hr noted falling to 0.2 l/hr after 5 minutes. Water sucked up into analyser. Test aborted.														
WS1	3	3.58	08/09/2016 12:00:00	-	1009	$0.1_{(SS)}$	0.95	-	-	20.5	-	-	1.0	1.0	
	Remarks: Initial flow of >>> l/hr (release of pressure heard), falling to 14.2 l.hr then to 0.1 l/hr after 10 minutes.														
WS1	3	3.58	30 secs	-	-	-	0.95	1.1	20.0	7.5	22.0	-	4.0	1.0	
WS1	3	3.58	60 secs	-	-	-	0.95	15.3	1.3	3.2	26.0	-	5.0	2.0	
WS1	3	3.58	120 secs	-	-	-	0.95	15.9	1.4	1.7	28.0	-	3.0	2.0	
WS1	3	3.58	180 secs	-	-	-	0.95	17.2	4.1	2.1	>>>	-	9.0	4.0	
WS1	3	3.58	240 secs	-	-	-	0.95	18.4	11.8	5.2	>>>	-	12.0	52.0	
WS1	3	3.58	300 secs	-	-	-	0.95	18.4	11.9	6.8	>>>	-	11.0	84.0	
WS1	3	3.58	360 secs	-	-	-	0.95	18.4	12.5	9.5	>>>	-	7.0	110.0	
WS1	3	3.58	420 secs	-	-	-	0.95	16.9	10.6	11.6	>>>	-	5.0	125.0	
WS1	3	3.58	480 secs	-	-	-	0.95	14.5	7.2	13.4	>>>	-	10.0	119.0	
WS1	3	3.58	540 secs	-	-	-	0.95	12.2	4.7	14.7	82.0	-	7.0	113.0	
WS1	3	3.58	600 secs	-	-	-	0.95	11.0	2.6	15.6	50.0	-	2.0	105.0	
WS1	3	3.58	660 secs	-	-	-	0.95	10.1	2.6	16.1	37.0	-	6.0	97.0	
WS1	3	3.58	720 secs	-	-	-	0.95	9.3	1.4	16.4	26.0	-	4.0	88.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	PID (ppm)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS1	3	3.58	780 secs	-	-	-	0.95	8.6	1.1	16.7	22.0	-	7.0	80.0	
WS1	3	3.58	840 secs	-	-	-	0.95	8.2	1.0	16.8	19.0	-	6.0	73.0	
WS1	4	3.50	03/11/2016 14:00:00	-	1018	$-0.4_{(SS)}$	1.00	0.0	-	20.0	-	-	-	-	
	Remarks: Initial flow of >>> l/hr (release of pressure heard), then steady fall to -0.4 l/hr after 6 minutes. Strong methane / hydrogen sulphide odour when pumping during monitoring.														
WS1	4	3.50	15 secs	-	-	-	1.00	0.0	0.0	20.4	0.0	-	0.0	1.0	
WS1	4	3.50	30 secs	-	-	-	1.00	33.1	71.0	3.6	>>>	-	0.0	99.0	
WS1	4	3.50	60 secs	-	-	-	1.00	36.4	70.9	0.2	>>>	-	0.0	161.0	
WS1	4	3.50	90 secs	-	-	-	1.00	36.3	70.8	0.0	>>>	-	0.0	175.0	
WS1	4	3.50	120 secs	-	-	-	1.00	36.1	71.2	0.0	>>>	-	0.0	180.0	
WS1	4	3.50	180 secs	-	-	-	1.00	35.8	71.0	0.0	>>>	-	0.0	185.0	
WS1	4	3.50	240 secs	-	-	-	1.00	35.5	70.8	0.0	>>>	-	0.0	196.0	
WS1	4	3.50	300 secs	-	-	-	1.00	35.6	70.9	0.0	>>>	-	0.0	214.0	
WS1	4	3.50	360 secs	-	-	-	1.00	34.5	60.7	1.7	>>>	-	0.0	>>>	
WS1	4	3.50	420 secs	-	-	-	1.00	26.8	38.7	5.5	>>>	-	0.0	>>>	
WS1	4	3.50	480 secs	-	-	-	1.00	23.4	26.7	7.7	0.0	-	0.0	>>>	
WS1	4	3.50	540 secs	-	-	-	1.00	20.7	19.8	9.5	>>>	-	5.0	>>>	
WS1	4	3.50	600 secs	-	-	-	1.00	19.3	15.4	10.7	>>>	-	0.0	>>>	
WS1	4	3.50	660 secs	-	-	-	1.00	18.1	13.0	11.5	>>>	-	7.0	>>>	
WS1	4	3.50	720 secs	-	-	-	1.00	17.1	9.9	12.3	>>>	-	4.0	>>>	
WS1	4	3.50	780 secs	-	-	-	1.00	15.6	6.9	13.3	>>>	-	3.0	>>>	
WS1	4	3.50	840 secs	-	-	-	1.00	14.5	5.3	13.8	>>>	-	5.0	>>>	
WS1	4	3.50	980 secs	-	-	-	1.00	8.2	2.3	16.6	49.0	-	3.0	109.0	
WS1	4	3.50	1040 secs	-	-	-	1.00	8.8	2.7	16.2	55.0	-	5.0	112.0	
WS1	4	3.50	1100 secs	-	-	-	1.00	9.5	2.9	15.7	59.0	-	5.0	101.0	
WS1	4	3.50	1160 secs	-	-	-	1.00	9.8	2.8	15.7	55.0	-	2.0	69.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

RSK Environment Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Compiled By	Date	Checked By	Date	Contract Ref:
	04/11/16			371475

Contract: **The Hope Project**

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	PID (ppm)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS1	4	3.50	1220 secs	-	-	-	1.00	9.1	2.4	16.0	49.0	-	1.0	51.0	
WS1	4	3.50	1280 secs	-	-	-	1.00	9.2	2.3	15.8	44.0	-	2.0	40.0	
WS2	2	4.53	03/08/2016 12:05:00	-	1007	-	0.18	-	-	-	-	$0.0_{(SS)}$	-	-	
	Remarks: Water sucked up into gas analyser. Test aborted. Basement partly flooded, including corridor next to WS2.														
WS2	3	4.55	08/09/2016 12:40:00	-	1009	$0.1_{(SS)}$	0.50	0.4	0.1	18.8	1.0	-	2.0	2.0	
	Remarks: Initial flow of >>> l/hr (release of pressure heard) then falling to 0.1 l/hr after 5 minutes.														
WS2	3	4.55	30 secs	-	-	-	0.50	0.3	0.0	19.1	0.0	-	2.0	2.0	
WS2	3	4.55	60 secs	-	-	-	0.50	0.2	0.0	19.5	0.0	-	0.0	2.0	
WS2	3	4.55	120 secs	-	-	-	0.50	0.0	0.0	20.2	0.0	-	0.0	2.0	
WS2	3	4.55	180 secs	-	-	-	0.50	0.0	0.0	20.5	0.0	-	0.0	1.0	
WS2	3	4.55	240 secs	-	-	-	0.50	0.0	0.0	20.7	0.0	-	1.0	1.0	
WS2	3	4.55	300 secs	-	-	-	0.50	0.0	0.0	20.8	0.0	-	1.0	2.0	
WS2	3	4.55	360 secs	-	-	-	0.50	0.0	0.0	20.7	0.0	-	0.0	1.0	
WS2	4	4.56	03/11/2016 13:45:00	-	1019	$-1.0_{(SS)}$	0.37	0.0	-	20.3	-	-	-	-	
	Remarks: Initial flow of 11.3 l/hr (release of pressure heard), falling to -1.0 l/hr after 2 minutes.														
WS2	4	4.58	15 secs	-	-	-	0.39	1.8	-	17.8	0.0	-	0.0	1.0	
WS2	4	4.58	30 secs	-	-	-	0.39	1.9	-	17.1	-	-	-	1.0	
WS2	4	4.58	60 secs	-	-	-	0.39	1.9	-	17.0	-	-	-	-	
	Remarks: Water sucked up into gas monitor - test aborted.														

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

RSK Environment Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Compiled By	Date	Checked By	Date	Contract Ref:
	04/11/16			371475

Contract: **The Hope Project**

GINT_LIBRARY_V8_06.GLB : E - GAS MON - REDUCED - 9A - A4L : 371475 THE HOPE PROJECT.GPJ : 04/11/16 11:50 : CS1 :

IN-SITU WATER MONITORING RESULTS

	Weather	Ground Conditions	Wind Conditions	Air Temperature (°C)	Equipment Used & Remarks
Round 1	Dry and Sunnry	Dry	Light	-	Dipmeter
Round 2	Dry and Sunnry	Dry	Light	-	Dipmeter + GA2000
Round 3	Dry, sunny, hot	Dry	Light	-	Dipmeter + GA2000
Round 4	Dry, sunny, cool	Dry	Light	-	Dipmeter + GA2000

Exploratory Position ID	Pipe Ref	Pipe Diameter	Monitoring Round / Test Number	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring	Water Depth (mbgl)	Remarks
BH1	1	50	1 / 1	5.00	5.00	1.40 to 5.00	20/07/2016 09:50	3.90	Operator: CSiberry, General Remarks: Borehole developed.
BH1	1	50	2 / 1	5.00	5.00	1.40 to 5.00	03/08/2016 11:05	3.90	Operator: CSiberry
BH1	1	50	3 / 1	5.00	4.97	1.40 to 5.00	08/09/2016 11:15	4.02	Operator: CSiberry
BH1	1	50	4 / 1	5.00	NDA	1.40 to 5.00	03/11/2016 13:30	---	Operator: CSiberry, General Remarks: Borehole obstructed - no monitoring undertaken.
WS1	1	50	2 / 1	3.60	3.60	1.00 to 3.60	03/08/2016 13:35	0.88	Operator: CSiberry, Weather: Damp in bin store., Surface Conditions: Damp, General Remarks: Groundwater noted to be black and have a very strong sewage odour. Water sample taken at 0.88m. Borehole developed.
WS1	1	50	3 / 1	3.60	3.60	1.00 to 3.60	08/09/2016 12:00	0.95	Operator: CSiberry, Weather: Damp in bin store., Surface Conditions: Damp
WS1	1	50	4 / 1	3.60	3.50	1.00 to 3.60	03/11/2016 14:00	1.00	Operator: CSiberry, Weather: Damp in bin store., Surface Conditions: Damp
WS2	1	50	2 / 1	4.55	4.53	0.55 to 5.00	03/08/2016 12:05	0.18	Operator: CSiberry, Weather: Dry, sunny, Surface Conditions: Flooded, General Remarks: Basement partly flooded, including corridor next to WS2. Borehole developed.
WS2	1	50	3 / 1	4.55	4.54	0.55 to 5.00	08/09/2016 12:40	0.48	Operator: CSiberry, Weather: Dry, sunny, Surface Conditions: Damp
WS2	1	50	4 / 1	4.55	4.56	0.55 to 5.00	03/11/2016 13:45	0.37	Operator: CSiberry, Weather: Dry, sunny, Surface Conditions: Damp

Key: NDA denotes 'no data available'.

RSK Environment Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Compiled By	Date	Checked By	Date	Contract Ref:
	04/11/16			371475

Contract: **The Hope Project**

Page: **1** of **1**

APPENDIX □

□ERTI□I□ATES O□ GEOTE□□NI□A□ ANA□□SIS

Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 16/04334
Issue Number: 1 **Date:** 27 July, 2016

Client: RSK Environment Ltd Hemel
18 Frogmore Road
Hemel Hempstead
Hertfordshire
UK
HP3 9RT

Project Manager: Claire Siberry
Project Name: The Hope Project, Camden
Project Ref: 371475
Order No: N/A
Date Samples Received: 14/07/16
Date Instructions Received: 14/07/16
Date Analysis Completed: 26/07/16

Prepared by:

Danielle Brierley
Administrative Assistant

Approved by:

Gill Walker
Laboratory Manager

Lab Sample ID	16/04334/1	16/04334/2	16/04334/3	16/04334/4	16/04334/5	16/04334/6	16/04334/7		Units	Method ref
Client Sample No	6	11	16	22	29	34	1			
Client Sample ID	BH1	BH1	BH1	BH1	BH1	BH1	BH1			
Depth to Top	5.50	9.00	13.00	17.50	22.95	26.50	1.40			
Depth To Bottom										
Date Sampled										
Sample Type	Soil - D	Soil - D	Solid	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	5	3	7	5	5	5	3			
% Stones >10mm$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		% w/w	A-T-044
pH BRE$_D^{M\#}$	7.84	8.20	8.31	8.43	8.52	9.23	8.02		pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	-	-	-	-	-	-	5.68		mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	-	-	-	-	-	-	8		mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	-	-	-	-	-	-	0.7		mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	2610	719	160	644	494	99	116		mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	-	-	-	-	-	-	0.05		% w/w	A-T-028s
Sulphur BRE (total)$_D$	-	-	-	-	-	-	0.02		% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	-	-	-	-	-	-	25		mg/l	A-T-SOLMETS

REPORT NOTES

Notes - Soil chemical analysis
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones and brick and concrete fragments >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis. For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General
This report shall not be reproduced, except in full, without written approval from Envirolab.
Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.
All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supersedes any "A" subscripts.
All analysis is performed on the sample as received for soil samples which are positive for asbestos and/or if they are from outside the European Union and this supercedes any "D" subscripts.
Superscript "M" indicates method accredited to MCERTS.
If results are in italic font they are associated with an AQC failure. These are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

TPH analysis of water by method A-T-007
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Asbestos in soil
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if present as discrete fibres/fragments. Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 16/04541
Issue Number: 1 **Date:** 29 July, 2016

Client: RSK Environment Ltd Hemel
18 Frogmore Road
Hemel Hempstead
Hertfordshire
UK
HP3 9RT

Project Manager: Claire Siberry/Nigel Austin
Project Name: The Hope Project, Camden
Project Ref: 371475
Order No: N/A
Date Samples Received: 25/07/16
Date Instructions Received: 25/07/16
Date Analysis Completed: 29/07/16

Prepared by:
Melanie Marshall
Laboratory Coordinator

Approved by:
Georgia King
Client Service Manager

UKAS TESTING 1247

Envirolab Job Number: 16/04541

Client Project Name: The Hope Project, Camden

Client Project Ref: 371475

Lab Sample ID	16/04541/1	16/04541/2	16/04541/3						Units	Method ref
Client Sample No	1	5	3							
Client Sample ID	WS1	WS1	WS2							
Depth to Top	0.70	2.30	2.00							
Depth To Bottom		2.40								
Date Sampled										
Sample Type	Soil - D	Soil - D	Soil - D							
Sample Matrix Code	5	6	3							
% Stones >10mm$_A$ #	<0.1	<0.1	<0.1						% w/w	A-T-044
pH BRE$_D$ M#	7.97	7.76	7.81						pH	A-T-031s
Sulphate BRE (water sol 2:1)$_D$ M#	1490	2490	2640						mg/l	A-T-026s

REPORT NOTES

Notes - Soil chemical analysis
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones and brick and concrete fragments >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis. For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.
All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supersedes any "A" subscripts.
All analysis is performed on the sample as received for soil samples which are positive for asbestos and/or if they are from outside the European Union and this supercedes any "D" subscripts.
Superscript "M" indicates method accredited to MCERTS.
If results are in italic font they are associated with an AQC failure. These are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

TPH analysis of water by method A-T-007
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Asbestos in soil
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if present as discrete fibres/fragments. Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

TESTING VERIFICATION CERTIFICATE

1774

The test results included in this report are certified as:-

ISSUE STATUS: **FINAL**

In accordance with the Structural Soils Ltd Laboratory Quality Management System, results sheets and summaries of results issued by the laboratory are checked by an approved signatory. The integrity of the test data and results are ensured by control of the computer system employed by the laboratory as part of the Software Verification Program as detailed in the Laboratory Quality Manual.

This testing verification certificate covers all testing compiled on or before the following datetime: **05/08/2016 14:03:17**.

Testing reported after this date is not covered by this Verification Certificate.

Dimitris Xirouchakis

Approved Signatory
Dimitris Xirouchakis (Associate Laboratory Director)

(Head Office)
Bristol Laboratory
Unit 1A, Princess Street
Bedminster
Bristol
BS3 4AG

Castleford Laboratory
The Potteries, Pottery Street
Castleford
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WF10 1NJ

Hemel Laboratory
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Tonbridge Laboratory
Anerley Court, Half Moon Lane
Hildenborough
Tonbridge
TN11 9HU

STRUCTURAL SOILS LTD	Contract: **The Hope Project**	Job No: **583462** AGS

STRUCTURAL SOILS LTD

TEST REPORT

1774

Report No. 583462-01 (00)

Date	08-August-2016	Contract	The Hope Project
Client	RSK		
Address	18 Frogmore Rd Apsley Hemel Hempstead Hertfordshire HP3 9RT		
For the Attention of	Claire Siberry		

Samples submitted by client	12-July-2016	Client Reference	371475
Testing Started	14-July-2016	Client Order No.	n/a
Testing Completed	27-July-2016	Instruction Type	Written

Tests marked 'Not UKAS Accredited' in this report are not included in the UKAS Accreditation Schedule for our Laboratory.

UKAS Accredited Tests

1.01	Moisture Content (oven drying method) BS1377:Part 2:1990:clause 3.2 (superseded)*
1.03	Liquid Limit (one point method) & Plastic Limit BS1377:Part 2:1990,clause 4.4/5.3
1.10	Particle Size Distribution wet sieve method BS1377:Part 2:1990,clause 9.2
1.13a	Particle Size Distribution sedimentation pipette method BS1377:Part 2: 1990,clause 9.4
5.04	Undrained shear strength triaxial compression without pore pressure measurement (definitive method) 100mm diameter specimens BS1377:Part 7:1990,clause 8.4

* This clause of BS1377 is no longer the most up to date method due to the publication of ISO17892

Please Note: Remaining samples will be retained for a period of one month from today and will then be disposed of .
Test were undertaken on samples 'as received' unless otherwise stated.
Opinions and interpretations expressed in this report are outside the scope of accreditation for this laboratory.

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with clauses 3.2,4.3,4.4,5.3,5.4,7.2,8.2,8.3 of BS1377:Part 2:1990

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
BH1	2	D	1.60	27					Brown CLAY
BH1	3	D	2.95	31					Brown slightly sandy CLAY
BH1	4	D	3.50	32	70	27	43	98	Brown slightly sandy CLAY with occasional gypsum
BH1	5	D	4.95	30	60	24	36	99	Brown slightly sandy CLAY
BH1	7	D	6.00	30					Brown slightly sandy CLAY
BH1	8	D	7.00	35					Brown slightly gravelly slightly sandy CLAY
BH1	10	D	8.50	29					Brown slightly sandy CLAY
BH1	12	D	10.00	29	76	31	45	100	Brown CLAY

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with clauses 3.2,4.3,4.4,5.3,5.4,7.2,8.2,8.3 of BS1377:Part 2:1990

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
BH1	14	D	11.50	29					Dark grey CLAY
BH1	15	D	12.00	30					Dark brown CLAY
BH1	17	D	13.95	30					Grey CLAY
BH1	19	D	15.00	26					Dark brown CLAY
BH1	20	D	16.00	28	78	33	45	100	Dark brown slightly sandy CLAY
BH1	21	D	16.95	24					Dark grey slightly sandy CLAY
BH1	24	D	19.00	23					Dark brown slightly sandy CLAY
BH1	26	D	20.50	22					Brown slightly sandy CLAY

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with clauses 3.2,4.3,4.4,5.3,5.4,7.2,8.2,8.3 of BS1377:Part 2:1990

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
BH1	28	D	22.00	27	78	30	48	100	Dark brown CLAY
BH1	31	D	24.00	22					Dark brown CLAY
BH1	33	D	25.95	24	56	25	31	100	Brown mottled grey CLAY
BH1	36	D	28.00	24					Grey mottled reddish brown CLAY
BH1	37	D	28.95	20	56	24	32	100	Grey mottled reddish brown CLAY
BH1	39	D	29.50	19					Grey mottled reddish brown CLAY

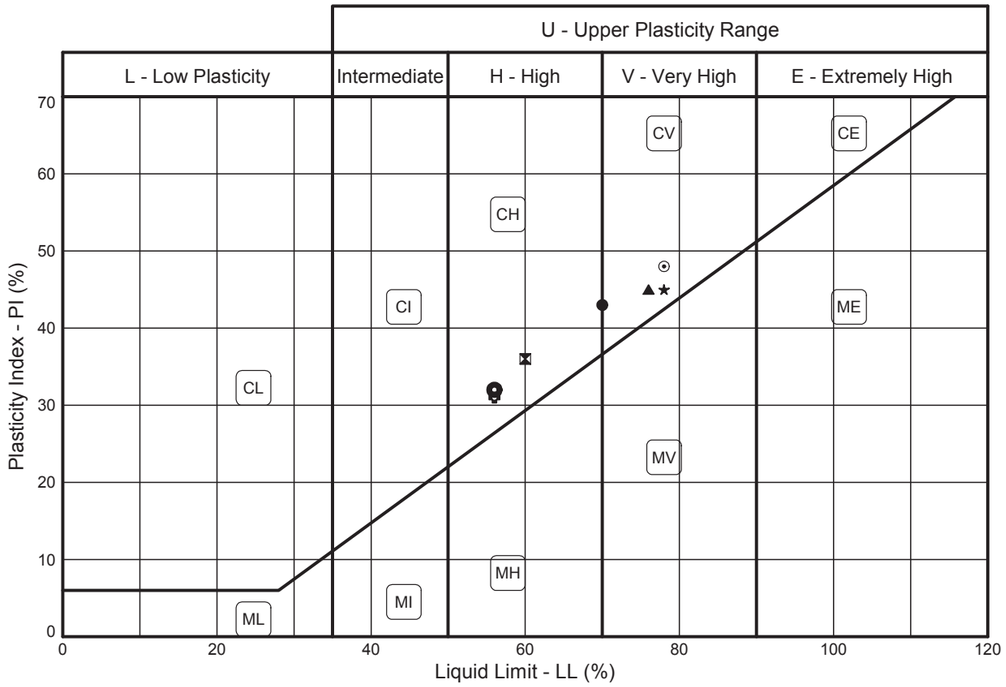
SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with clauses 3.2,4.3,4.4,5.3,5.4,7.2,8.2,8.3 of BS1377:Part 2:1990

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
WS1	2	D	1.00	25	73	32	41	98	Brown slightly sandy CLAY with much gypsum
WS1	4	D	2.00	26					Brown slightly sandy CLAY with much gypsum
WS1	6	D	2.75	30	70	28	42	98	Brown slightly sandy CLAY
WS2	2	D	1.60	30					Brown slightly sandy CLAY
WS2	4	D	2.65	28	75	30	45	100	Brown slightly sandy CLAY
WS2	6	D	3.55	28					Brown CLAY
WS2	8	D	4.80	28	75	26	49	100	Dark brown slightly sandy CLAY

PLASTICITY CHART - PI Vs LL

In accordance with clause 42.3 of BS5930:1999
Testing in accordance with BS1377-2:1990



Sample Identification				BS Test Method #	Preparation Method +	MC %	LL %	PL %	PI %	<425um %	Lab location	
	Exploratory Position ID	Sample	Depth (m)									
●	BH1	4D	3.50	3.2/4.4/5.3/5.4	4.2.4	32	70	27	43	98	H	
⊠	BH1	5D	4.95	3.2/4.4/5.3/5.4	4.2.4	30	60	24	36	99	H	
▲	BH1	12D	10.00	3.2/4.4/5.3/5.4	4.2.4	29	76	31	45	100	H	
★	BH1	20D	16.00	3.2/4.4/5.3/5.4	4.2.3	28	78	33	45	100	H	
⊙	BH1	28D	22.00	3.2/4.4/5.3/5.4	4.2.3	27	78	30	48	100	H	
✿	BH1	33D	25.95	3.2/4.4/5.3/5.4	4.2.3	24	56	25	31	100	H	
◉	BH1	37D	28.95	3.2/4.4/5.3/5.4	4.2.3	20	56	24	32	100	H	

Tested in accordance with the following clauses of BS1377-2:1990.

3.2 - Moisture Content
4.3 - Cone Penetrometer Method
4.4 - One Point Cone Penetrometer Method
4.6 - One Point Casagrande Method
5.3 - Plastic Limit Method
5.4 - Plasticity Index

+ Tested in accordance with the following clauses of BS1377-2:1990.

4.2.3 - Natural State
4.2.4 - Wet Sieved

Key: * = Non-standard test, NP = Non plastic.

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)

STRUCTURAL SOILS
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

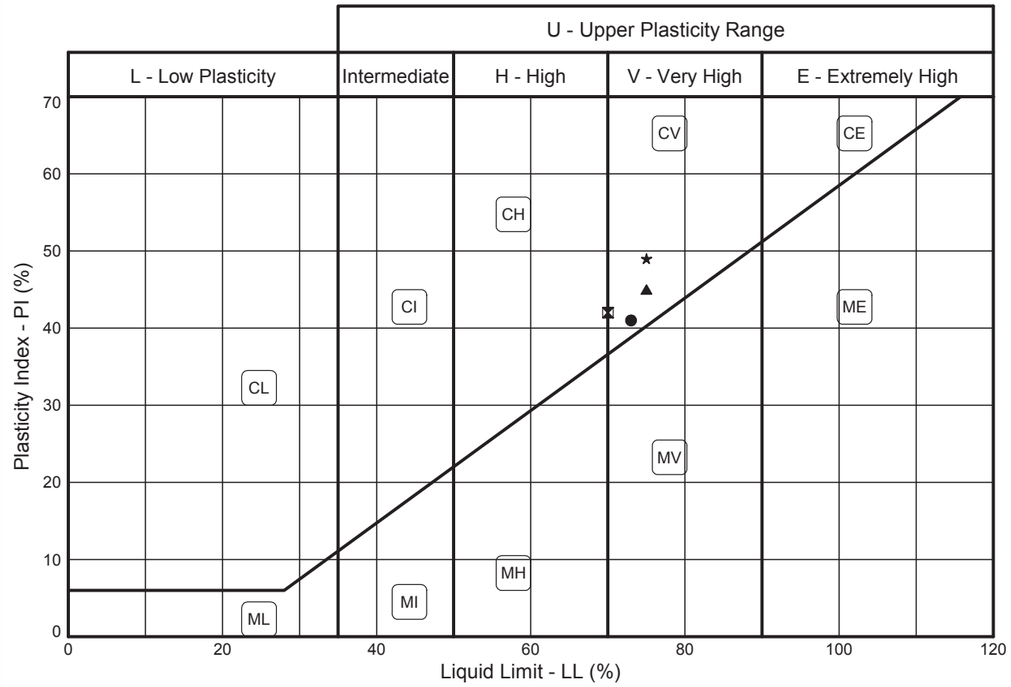
Compiled By		Date
SC	SHARON CAIRNS	05/08/16

Contract	Contract Ref:
The Hope Project	583462

AGS

PLASTICITY CHART - PI Vs LL

In accordance with clause 42.3 of BS5930:1999
Testing in accordance with BS1377-2:1990



Sample Identification				BS Test Method #	Preparation Method +	MC %	LL %	PL %	PI %	<425um %	Lab location	
	Exploratory Position ID	Sample	Depth (m)									
●	WS1	2D	1.00	3.2/4.4/5.3/5.4	4.2.4	25	73	32	41	98	H	
⊠	WS1	6D	2.75	3.2/4.4/5.3/5.4	4.2.4	30	70	28	42	98	H	
▲	WS2	4D	2.65	3.2/4.4/5.3/5.4	4.2.3	28	75	30	45	100	H	
★	WS2	8D	4.80	3.2/4.4/5.3/5.4	4.2.3	28	75	26	49	100	H	

Tested in accordance with the following clauses of BS1377-2:1990.

3.2 - Moisture Content
4.3 - Cone Penetrometer Method
4.4 - One Point Cone Penetrometer Method
4.6 - One Point Casagrande Method
5.3 - Plastic Limit Method
5.4 - Plasticity Index

+ Tested in accordance with the following clauses of BS1377-2:1990.

4.2.3 - Natural State
4.2.4 - Wet Sieved

Key: * = Non-standard test, NP = Non plastic.

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)

STRUCTURAL SOILS
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Hemel Hempstead
Hertfordshire
HP3 9RT

Compiled By		Date
SC	SHARON CAIRNS	05/08/16

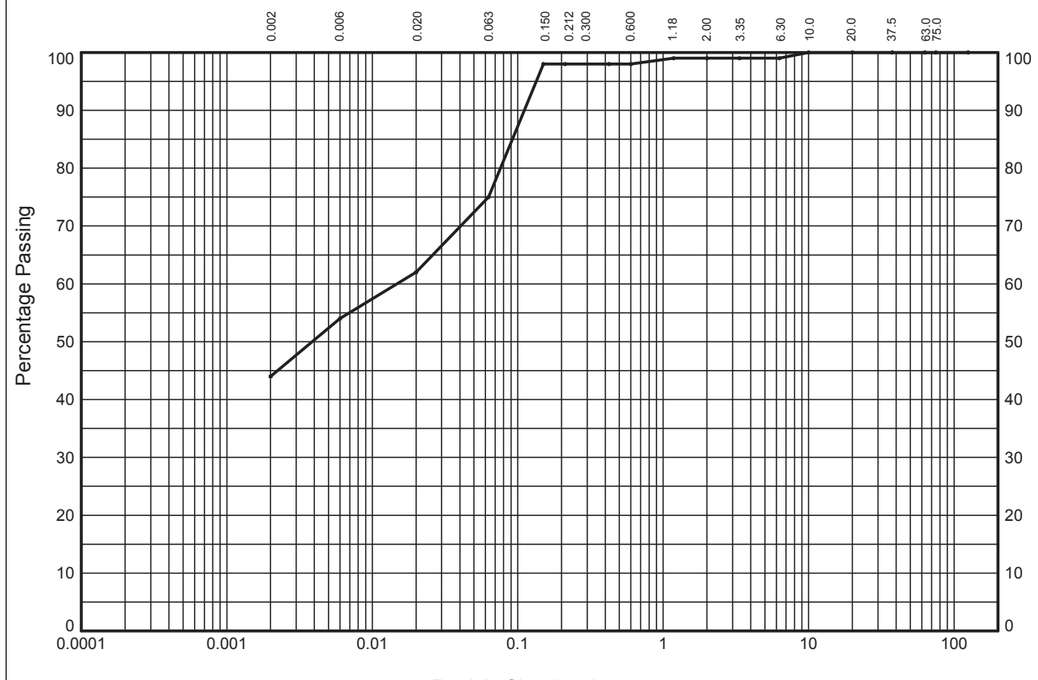
Contract	Contract Ref:
The Hope Project	583462

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2, 9.4 of BS1377:Part 2:1990

Borehole: **BH1** Sample Ref: **18** Sample Type: **D** Depth (m): **14.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**99**
3.35	**99**
2.00	**99**
1.18	**99**
0.600	**98**
0.425	**98**
0.212	**98**
0.150	**98**
0.063	**75**

Particle Diameter (mm)	Percent Passing (%)
0.02	**62**
0.006	**54**
0.002	**44**

Sedimentation sample was not pre-treated

Soil Fraction	Sieve Percentage (%)
GRAVEL	**1**
SAND	**24**
SILT	**31**
CLAY	**44**

Soil Description:
Dark grey slightly gravelly slightly sandy CLAY

STRUCTURAL SOILS
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Compiled By		Date
MDStrowger	**MICHAEL STROWGER**	**27/07/16**

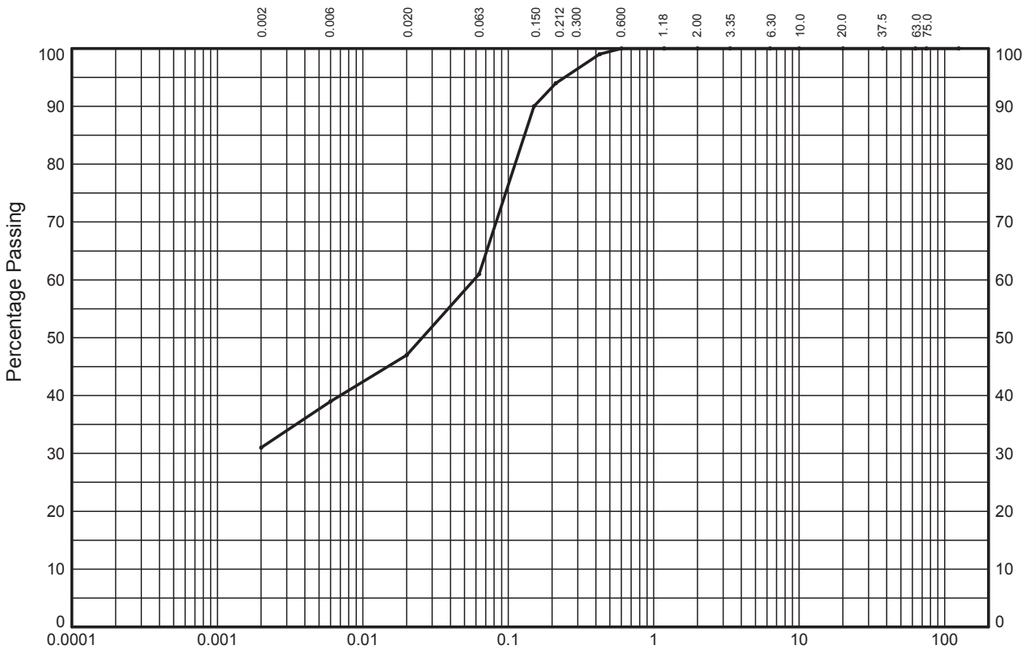
Contract	Contract Ref:
The Hope Project	**583462**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2, 9.4 of BS1377:Part 2:1990

Borehole: **BH1** Sample Ref: **32** Sample Type: **D** Depth (m): **25.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**100**
2.00	**100**
1.18	**100**
0.600	**100**
0.425	**99**
0.212	**94**
0.150	**90**
0.063	**61**

Particle Diameter (mm)	Percent Passing (%)
0.02	**47**
0.006	**39**
0.002	**31**

Sedimentation sample was not pre-treated

Soil Fraction	Sieve Percentage (%)
GRAVEL	**0**
SAND	**39**
SILT	**30**
CLAY	**31**

Soil Description:
Dark brown sandy CLAY

STRUCTURAL SOILS
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Compiled By		Date
MDStrowger	**MICHAEL STROWGER**	**27/07/16**

Contract	Contract Ref:
The Hope Project	**583462**

AGS

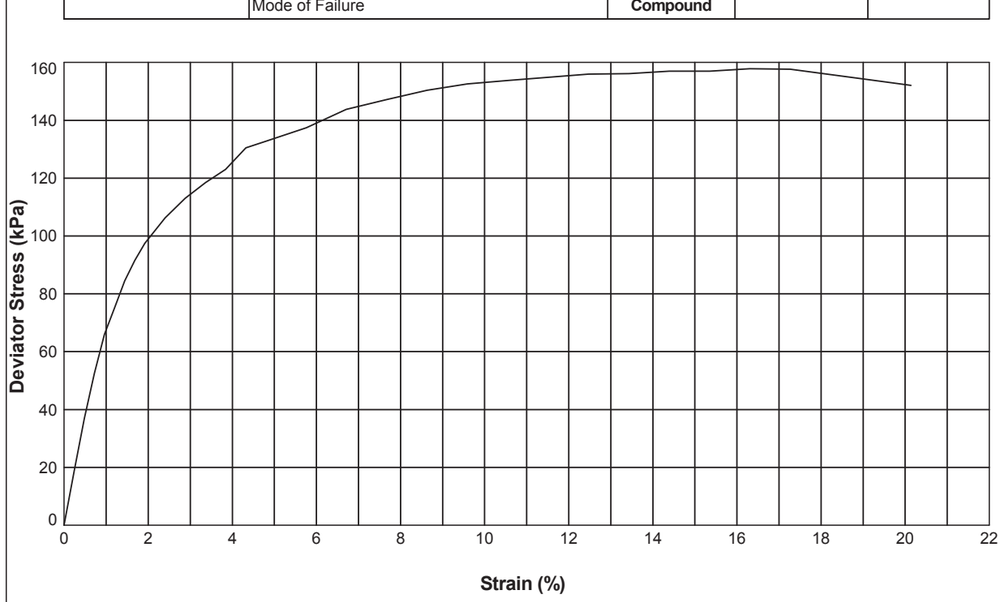
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH1** Sample Ref: **1** Sample Type: **U** Depth (m): **2.50**

Description : **Brown slightly sandy CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	103.68		
	Height	(mm)	208.49		
	Moisture Content	(%)	29		
	Bulk Density	(Mg/m^3)	1.98		
	Dry Density	(Mg/m^3)	1.54		
TEST DETAILS	Membrane Thickness	(mm)	0.30		
	Rate of Axial Displacement	(%/min)	1.99		
	Cell Pressure	(kPa)	50		
	Membrane Correction	(kPa)	0.94		
	Corrected Deviator Stress	(kPa)	158		
	Undrained Shear Strength	(kPa)	79		
	Strain at Failure	(%)	16.3		
	Mode of Failure		Compound		



	Compiled By		Date
STRUCTURAL SOILS 18 Frogmore Road Hemel Hempstead Hertfordshire HP3 9RT	MDStrowger	MICHAEL STROWGER	27/07/16
	Contract: **The Hope Project**	Contract Ref: **583462**	AGS

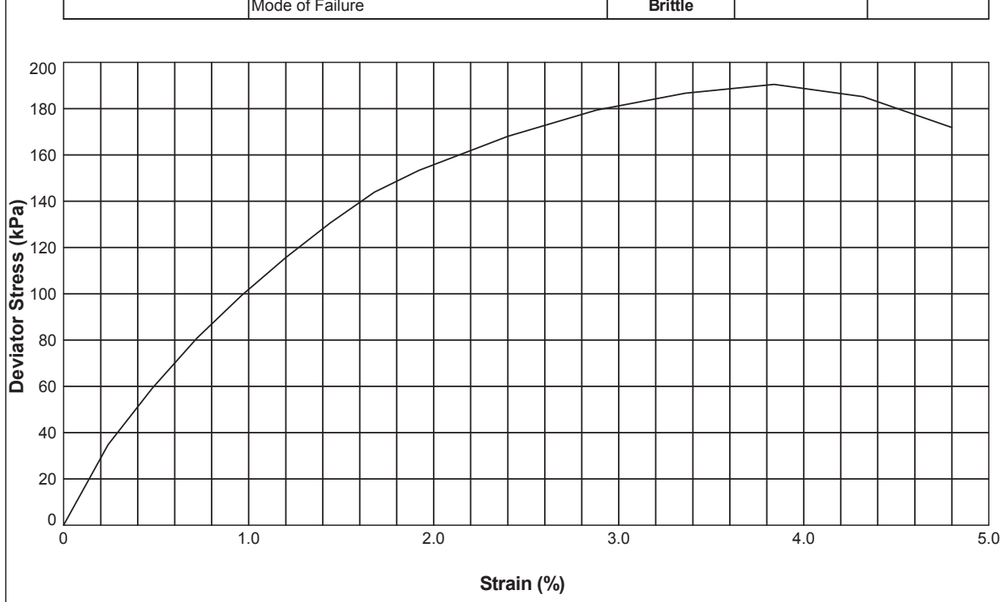
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH1** Sample Ref: **2** Sample Type: **U** Depth (m): **4.50**

Description : **Brown slightly sandy CLAY with occasional gypsum**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	103.58		
	Height	(mm)	208.29		
	Moisture Content	(%)	31		
	Bulk Density	(Mg/m^3)	1.96		
	Dry Density	(Mg/m^3)	1.49		
TEST DETAILS	Membrane Thickness	(mm)	0.29		
	Rate of Axial Displacement	(%/min)	1.51		
	Cell Pressure	(kPa)	90		
	Membrane Correction	(kPa)	0.30		
	Corrected Deviator Stress	(kPa)	190		
	Undrained Shear Strength	(kPa)	95		
	Strain at Failure	(%)	3.8		
	Mode of Failure		Brittle		



	Compiled By		Date
STRUCTURAL SOILS 18 Frogmore Road Hemel Hempstead Hertfordshire HP3 9RT	MDStrowger	MICHAEL STROWGER	27/07/16
	Contract: **The Hope Project**	Contract Ref: **583462**	AGS

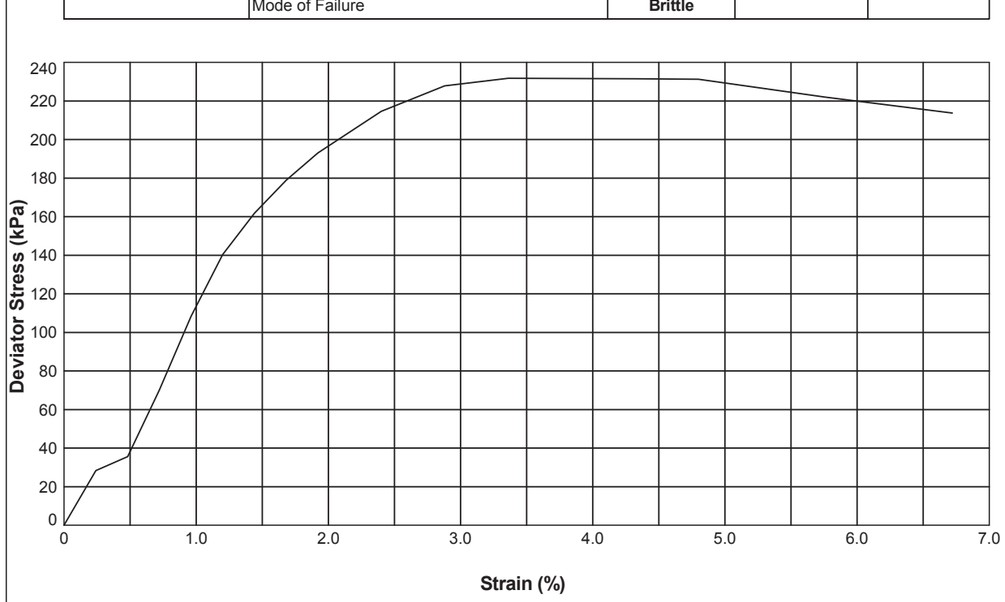
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH1** Sample Ref: **3** Sample Type: **U** Depth (m): **7.50**

Description : **Brown slightly sandy CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	104.00		
	Height	(mm)	208.42		
	Moisture Content	(%)	28		
	Bulk Density	(Mg/m^3)	1.97		
	Dry Density	(Mg/m^3)	1.53		
TEST DETAILS	Membrane Thickness	(mm)	0.23		
	Rate of Axial Displacement	(%/min)	1.39		
	Cell Pressure	(kPa)	150		
	Membrane Correction	(kPa)	0.21		
	Corrected Deviator Stress	(kPa)	232		
	Undrained Shear Strength	(kPa)	116		
	Strain at Failure	(%)	3.4		
	Mode of Failure		Brittle		



STRUCTURAL SOILS 18 Frogmore Road Hemel Hempstead Hertfordshire HP3 9RT	Compiled By		Date
	MDStrowger	MICHAEL STROWGER	27/07/16
	Contract: **The Hope Project**	Contract Ref: **583462**	AGS

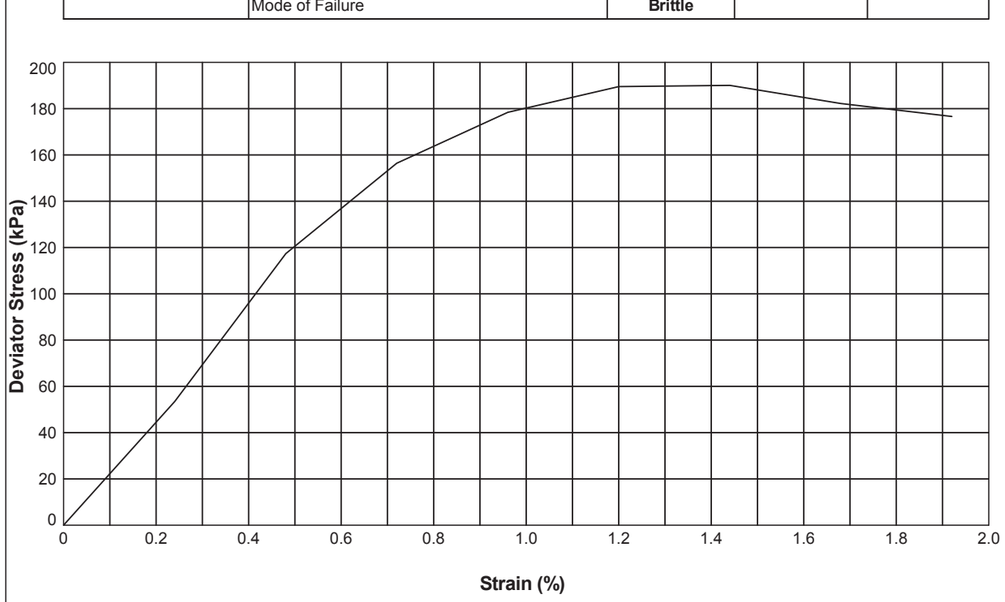
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH1** Sample Ref: **5** Sample Type: **U** Depth (m): **13.50**

Description : **Brown slightly sandy CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	103.06		
	Height	(mm)	208.21		
	Moisture Content	(%)	29		
	Bulk Density	(Mg/m^3)	1.98		
	Dry Density	(Mg/m^3)	1.53		
TEST DETAILS	Membrane Thickness	(mm)	0.24		
	Rate of Axial Displacement	(%/min)	1.20		
	Cell Pressure	(kPa)	270		
	Membrane Correction	(kPa)	0.10		
	Corrected Deviator Stress	(kPa)	190		
	Undrained Shear Strength	(kPa)	95		
	Strain at Failure	(%)	1.4		
	Mode of Failure		Brittle		



STRUCTURAL SOILS 18 Frogmore Road Hemel Hempstead Hertfordshire HP3 9RT	Compiled By		Date
	MDStrowger	MICHAEL STROWGER	27/07/16
	Contract: **The Hope Project**	Contract Ref: **583462**	AGS