LEGEND

BH	◒	Borehole
TP	⊠	Trial Pit
CBR	○	CBR Test
SA	■	Soakaway

REV.	DATE	DESCRIPTION	BY	CHD.	APR.
-	11.09.2008	-	SM	MB	-

DIMENSION	SCALE	ORIGIN SIZE
m	1:1500	A3

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CLIENT

HA Bailey, JA Bailey & CH Harvey

PROJECT

Grovefield Way, Cheltenham

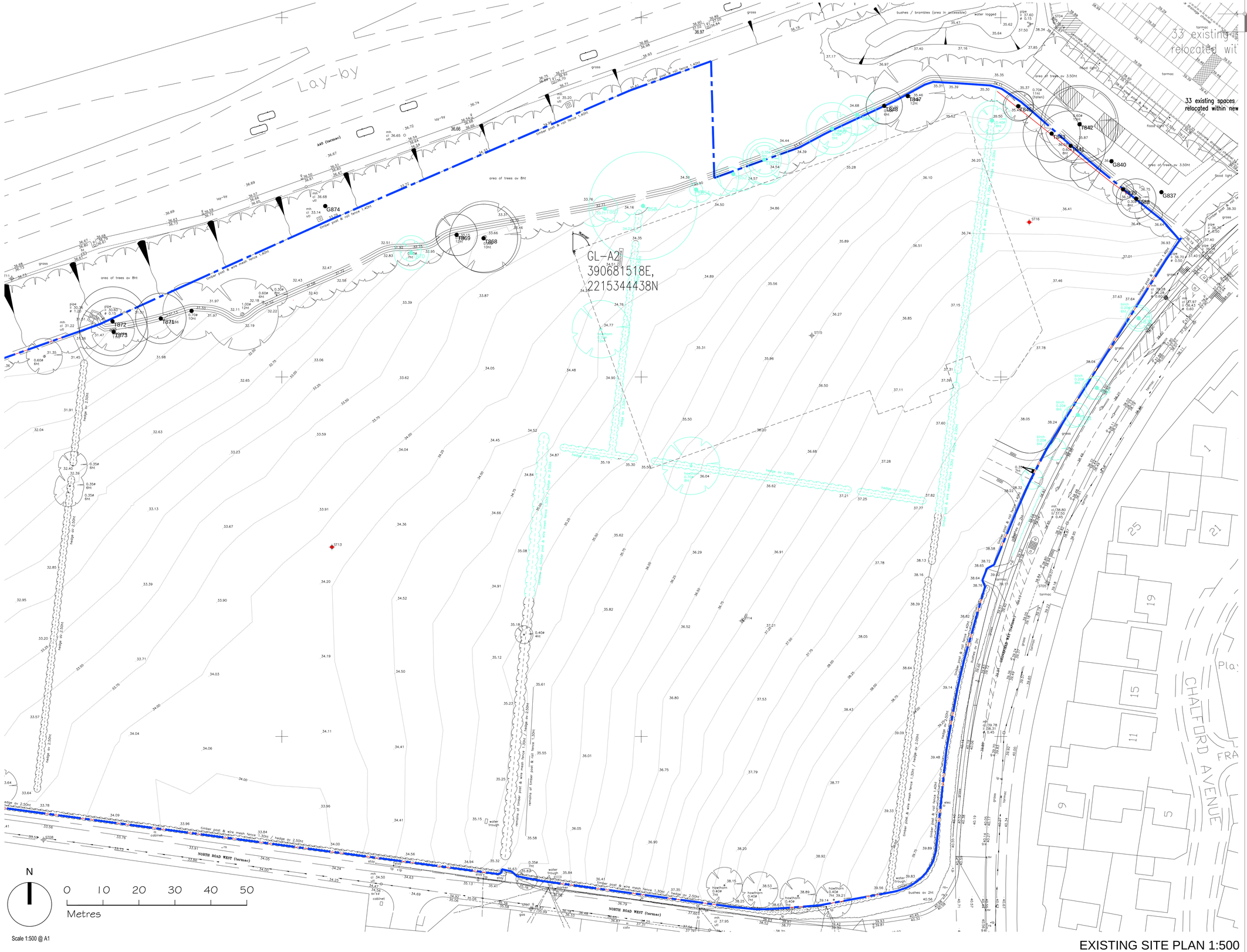
TITLE

EXPLORATORY HOLE LOCATION PLAN

JOB NO.	FIGURE
722048	-

DRAWING STATUS	REV.
-	-

COTSWOLD GROUP



Scale 1:500 @ A1

EXISTING SITE PLAN 1:500

= DEMOLITION

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FEB 2013 | M999.01J

BMW MINI CHELTENHAM

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APPENDIX B

(i) Borehole Logs

(ii) SPT Table of Results

(iii) Trial Pit Logs

(iv) Californian Bearing Ratio Logs

(v) Soakaway Logs

STRUCTURAL SOILS

KEY TO EXPLORATORY HOLE LOGS

SAMPLING

B	Bulk disturbed sample.
BLK	Block sample.
C	Core sample.
CBR	CBR mould sample.
CS	Core sample taken from rotary core for laboratory testing.
D	Small disturbed sample.
J	Glass jar sample.
LB	Large bulk disturbed sample (for earthworks testing).
P	Undisturbed pushed piston sample - 102 mm diameter, 1000 mm long.
TW	Thin walled push in sample.
U	Undisturbed driven tube sample - 102 mm diameter, 450 mm long. Number of blows indicated.
VL	Vial sample.
W	Water sample.
U+, P+	No recovery in undisturbed sample.

IN-SITU TESTING

SPT	Standard Penetration Test using split spoon sampler. ($SPT_{(NR)}$ indicates 'No Sample Recovery').
$SPT_{(c)}$	Standard Penetration Test using a solid 60 degree cone.

The N Value is the number of blows required to complete a test drive of 300 mm after a seating drive of 150 mm or 25 blows.
Where the full test drive is not completed, a linearly extrapolated N value is given and suffixed by a '*' character.
'NP' denotes No Penetration in the Test Drive.

HP	Hand Penetrometer Test. Value given as shear strength cu, in kPa.
$V_{(Cu)}$	Field Vane Test. Peak value given as shear strength cu, in kPa.
$V_{(Cr)}$	Field Vane Test. Residual value given as shear strength cr, in kPa.
G	Gas Test
PID	Photo Ionisation Detector Results, in ppm.

DRILLING RECORDS

W	Water flush returns.
TCR	Total Core Recovery, %.
SCR	Solid Core Recovery, %.
RQD	Rock Quality Designation, %.
If	Fracture spacing, mm. Where variable, the minimum, average and maximum spacing may be quoted. 'NI' denotes non intact core. 'NA' denotes not applicable.

Core	Hole progressed by rotary coring techniques.
O/H	Hole progressed by rotary percussive drilling techniques.
W/S	Hole progressed by dynamic drilling techniques.

WATER COLUMN SYMBOLS


First water strike, second water strike etc.


Standing water level following first strike, standing water level following second strike etc.


Seepage.


Standing water level recorded at documented date.

INSTRUMENTATION SYMBOLS


Arisings


Gravel filter


Sand filter


Bentonite seal


Bentonite cement grout


Concrete


Solid pipe


Slotted pipe


Stopcock cover


Upstand cover

NOTES:

1. All soil and rock descriptions and legends in general accordance with BS5930:1999.
2. All lengths used to determine rock core mechanical properties taken along the centre line of the core. Obvious induced fractures have been ignored.
3. The assessment of solid core is based on lengths that show a full diameter and not necessarily a full circumference.
4. Material types divided by a broken line (- - -) indicates an unclear boundary.

The data on any sheet showing the AGS icon is available in the AGS format.

AGS

STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**BH1**

Contract Ref:	Start:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	End: **06.08.08**	**37.21**	**E:390777.8 N:221502.3**	**1** of **1**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.50	1	B				Grass over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY. Gravel is fine subangular to subrounded brick and charcoal, also frequent rootlets.	(0.50)	
							0.50	
0.70	2	D				Firm brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine to medium subrounded mudstone. (Superficial Deposits)	(0.70)	
							1.20	
1.20-1.65	1	SPT	N=7			Firm grey mottled brown slightly sandy CLAY with occasional decomposing rootlets. (Charmouth Mudstone Formation)	(0.80)	
1.20	4	B						
1.90	5	D					2.00	
2.00	6	U	28 blows			Very stiff dark grey slightly sandy thinly laminated CLAY with occasional gypsum crystals (1mm to 5mm) and shell fragments. (Charmouth Mudstone Formation)		
2.60	7	D						
3.00-3.45	2	SPT	N=29					
3.70	9	D						
4.00-4.45	3	SPT	N=38			. . . no gypsum crystals below 4.00m depth.	(5.00)	
4.70	11	D						
5.00-5.45	4	SPT	N=50					
5.70	13	D						
6.00-6.38	5	SPT	N=67*					
							7.00	
7.00	15	D				Weak dark grey MUDSTONE with occasional shell fragments, (Charmouth Mudstone Formation)	(0.70)	
7.50-7.70	6	SPT	N=120*				7.70	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
05/08/08	17:00	7.70	1.60	150	Dry

Chiselling		
From	To	Duration (hh:mm)
7.20	7.50	01:00

General Remarks

1. No groundwater encountered.
2. Single standpipe installed on completion.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 3000**	**RS**	**MBaker**	**SP**

AGS

STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**BH2**

Contract Ref:	Start:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	End: **01.08.08**	**38.61**	**E:390755.3 N:221397.0**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.40	1	B				Grass over MADE GROUND: Dark brown black slightly sandy friable CLAY with frequent roots.	0.40	
0.40-0.80	2	B				MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY. Gravel is fine subangular to subrounded brick.	0.80	
0.80-1.20	3	B				Firm grey mottled brown slightly sandy CLAY. (Superficial Deposits)	(1.00)	
1.20	4	U	33 blows				1.80	
1.80	5	D				Stiff grey brown mottled orange sandy CLAY. Sand is fine to coarse in pockets of orange with abundant decomposing rootlets. (Superficial Deposits)	2.00	
2.00-2.45	1	SPT	N=20			Firm to stiff thinly laminated brown mottled grey slightly sandy CLAY with pockets of fine sandy orange clay. (Superficial Deposits)	(0.70)	
2.70	7	D				Stiff dark grey very thinly laminated slightly sandy CLAY and occasional orange pockets. (Charmouth Mudstone Formation)	2.70	
3.00-3.45	2	SPT	N=27			Stiff dark grey thinly laminated slightly sandy CLAY with frequent gypsum crystals (2mm in length) and rare shell fragments. (Charmouth Mudstone Formation)	3.00	
3.70	9	D					(1.60)	
4.00	10	U	44 blows				4.60	
4.60	11	D				Very stiff dark grey thinly laminated slightly sandy CLAY with rare shell fragments. (Charmouth Mudstone Formation)	5.00	
5.00-5.45	3	SPT	N=44			Very stiff dark grey thinly laminated CLAY with rare shell fragments. (Charmouth Mudstone Formation)		
5.60	13	D						
6.00	14	U	28 blows					
6.60	15	D						
7.50-7.88	4	SPT	N=67*				(6.10)	
8.50	17	D						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
31/07/08	17:00	6.00	1.60	150	Dry
01/08/08	17:00	11.80	1.60	150	Dry

Chiselling		
From	To	Duration (hh:mm)
11.70	11.85	01:00

General Remarks

1. No groundwater encountered.
2. Single standpipe installed on completion.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 3000**	**DS**	**MBaker**	**SP**

AGS

STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**BH2**

Contract Ref:	Start:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	End: **01.08.08**	**38.61**	**E:390755.3 N:221397.0**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.31	5	SPT	N=94*			Very stiff dark grey thinly laminated CLAY with rare shell fragments. (Charmouth Mudstone Formation) *(stratum text copied from layer at 5.00m depth from previous sheet)*		
10.00	19	D						
10.50	20	U	35 blows					
							11.10	
11.10	21	D				Very weak dark grey MUDSTONE. (Charmouth Mudstone Formation)	(0.70)	
11.70-11.80	6	SPT	N=333*				11.80	

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

Chiselling		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 3000**	**DS**	**MBaker**	**SP**

AGS

STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**BH3**

Contract Ref:	Start: **31.07.08**	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	End: **01.08.08**	**36.78**	**E:390724.1 N:221434.6**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.50	1	B				Grass over MADE GROUND: Brown slightly sandy slightly gravelly friable CLAY with frequent rootlets. Gravel is fine to medium subrounded charcoal, brick and limestone.	(0.50)	
							0.50	
0.50-1.00	2	B				MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subrounded charcoal and brick.	(0.50)	
							1.00	
1.10	3	D				Firm brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine subrounded limestone. (Superficial Deposits)		
1.20-1.65	1	SPT	N=8				(1.50)	
1.80	5	D						
2.00	6	U	36 blows					
							2.50	
2.50	7	D				Very stiff dark grey thinly laminated slightly sandy CLAY with pockets of orange sandy silt and rare to occasional shell fragments and fine (1mm) gypsum crystals. (Charmouth Mudstone Formation)		
3.00-3.45	2	SPT	N=29			. . . at 3.00m depth gypsum crystals occasional to frequent (1mm to 4mm) and no orange pockets.		
3.70	9	D						
4.00	10	U	52 blows					
4.50	11	D				. . . shell fragments frequent from 4.50m depth and no gypsum crystals.		
							(5.00)	
5.00-5.45	3	SPT	N=47					
5.70	13	D						
6.00-6.45	4	SPT	N=48					
7.00	15	D						
							7.50	
7.50-7.82	5	SPT	N=79*			Very weak grey MUDSTONE and rare very fine (1mm) shell fragments. (Charmouth Mudstone Formation)		
8.40	17	D					(2.65)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
31/07/08	17:00	5.00	1.60	150	Dry
01/08/08	17:00	10.15	1.60	150	Dry

Chiselling		
From	To	Duration (hh:mm)
9.00	10.00	01:00

General Remarks

1. No groundwater encountered.
2. Backfilled on completion.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 2000**	**RS**	**MBaker**	**SP**

AGS

STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**BH3**

Contract Ref:	Start:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	End: **01.08.08**	**36.78**	**E:390724.1 N:221434.6**	**2** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.21	6	SPT	N=158*			Very weak grey MUDSTONE and rare very fine (1mm) shell fragments. (Charmouth Mudstone Formation) *(stratum text copied from layer at 7.50m depth from previous sheet)*		
9.70	19	D						
10.00-10.15	7	SPT	N=200*				10.15	

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

Chiselling		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 2000**	**RS**	**MBaker**	**SP**

STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**BH4**

Contract Ref:	Start:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	End: **01.08.08**	**34.36**	**E:390669.9 N:221492.6**	**1** of **1**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.30	1	B				Grass over MADE GROUND: Brown slightly sandy slightly gravelly friable CLAY with frequent rootlets. Gravel is fine to coarse subangular to subrounded brick, limestone and charcoal.	0.30	
0.30-1.20	2	B				Firm light brown mottled grey slightly sandy CLAY with occasional rootlets. (Superficial Deposits)	(1.70)	
1.20	3	U	16 blows					
1.80	4	D				. . . thinly laminated at 1.80m depth.	2.00	
2.00-2.45	1	SPT	N=15			Stiff dark grey slightly sandy CLAY with occasional fine (1mm to 2mm) gypsum crystals. (Charmouth Mudstone Formation)		
2.00-2.50	6	B					(2.00)	
3.00	7	U	22 blows					
3.60	8	D				. . . rare gypsum crystals (2mm to 4mm) at 3.60m depth.	4.00	
4.00-4.45	2	SPT	N=33			Stiff dark grey slightly sandy thinly laminated CLAY. No gypsum crystals and rare shell fragments. (Charmouth Mudstone Formation)		
4.00-4.50	10	B					(1.60)	
5.00	11	U	35 blows					
5.60	12	D					5.60	
6.00-6.32	3	SPT	N=91*			Hard dark grey very thinly laminated CLAY with rare shell fragments. (Charmouth Mudstone Formation)		
6.00-6.50	14	B					(2.10)	
7.50	15	U					7.70	
8.20	17	D				Very weak dark grey thinly laminated MUDSTONE. (Charmouth Mudstone Formation)	(0.71)	
8.30-8.41	4	SPT	N=300*				8.41	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
01/08/08	17:00	8.41	1.60	150	Dry

Chiselling		
From	To	Duration (hh:mm)
8.00	8.30	01:00

General Remarks

1. No groundwater encountered.
2. Single standpipe installed on completion.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 2000**	**DS**	**MBaker**	**SP**

STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**BH5**

Contract Ref:	Start:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	End: **01.08.08**	**34.33**	**E:390626.0 N:221408.5**	**1** of **1**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.40	1	B				Grass over MADE GROUND: Dark brown slightly sandy friable CLAY with frequent rootlets.	(0.60)	
0.40-1.00	2	B					0.60	
						MADE GROUND: Firm light brown slightly sandy slightly gravelly CLAY. Gravel is fine subangular brick, charcoal, ceramic and limestone.	1.00	
1.20-1.65	1	SPT	N=6			Firm brown mottled grey slightly sandy CLAY. (Superficial Deposits)	(1.00)	
1.80	4	D					2.00	
2.00	5	U	23 blows			Stiff to very stiff dark grey thinly laminated CLAY with fine occasional gypsum crystals (2mm) and decomposing rootlets on laminated surfaces. (Charmouth Mudstone Formation)		
3.00-3.45	2	SPT	N=32				(3.00)	
3.70	7	D				. . . occasional shell fragments at 3.70m depth.		
4.00	8	U	40 blows					
4.60	9	D					5.00	
5.00-5.36	3	SPT	N=71*			Very weak dark grey thinly laminated MUDSTONE with occasional fine shell fragments. (Charmouth Mudstone Formation)		
5.70	11	D						
6.00-6.38	4	SPT	N=67*				(3.25)	
7.00	13	D						
7.50-7.86	5	SPT	N=71*					
7.50	15	D						
8.00	16	D						
8.10-8.25	6	SPT	N=200*			. . . becoming weak below 8.10m depth.	8.25	
8.10	18	D						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
01/08/08	17:00	8.25	1.60	150	Dry

Chiselling		
From	To	Duration (hh:mm)
5.20	6.00	01:00
7.90	8.10	00:30

General Remarks

1. No groundwater encountered.
2. Single standpipe installed on completion.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 2000**	**RS**	**MBaker**	**SP**

AGS

STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**BH6**

Contract Ref:	Start:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	End: **04.08.08**	**32.79**	**E:390566.0 N:221478.8**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	D				Grass over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY. Gravel is fine subangular to subrounded brick and charcoal.	(1.20)	
0.50	2	D						
0.50	3	D						
1.20	3a	U	16 blows				1.20	
						Stiff brown mottled grey slightly sandy CLAY. (Superficial Deposits)	(0.80)	
1.80	4	D					2.00	
2.00-2.45	1	SPT	N=18			Stiff dark grey CLAY. (Charmouth Mudstone Formation)		
2.00-2.50	6	B						
3.00	7	U	29 blows					
3.60	8	D						
4.00-4.41	2	SPT	N=59*			. . . very stiff and thinly laminated from 4.00m depth.		
4.00-4.45	10	B					(5.80)	
5.00	11	U	29 blows					
5.60	12	D				. . . occasional fine shell fragments and small gastropod shells (5mm diameter) at 5.60m depth.		
6.00-6.32	3	SPT	N=88*			. . . hard clay from 6.00m depth.		
6.00-6.65	14	B						
7.50-7.88	4	SPT	N=67*				7.80	
						Very weak dark grey MUDSTONE. (Charmouth Mudstone Formation)	8.15	
8.10-8.15	5	SPT	N=600*					

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
04/08/08	17:00	8.15	1.60	150	Dry

Chiselling		
From	To	Duration (hh:mm)
7.80	8.10	01:00

General Remarks

1. No groundwater encountered.
2. Backfilled on completion.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 2000**	**DS**	**MBaker**	**SP**

AGS

STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**BH7**

Contract Ref:	Start:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	End: **05.08.08**	**33.42**	**E:390528.3 N:221420.4**	**1** of **1**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Grass over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY with frequent rootlets. Gravel is fine to medium subangular to subrounded brick and charcoal.	0.30	
0.30-0.90	1	B				Firm grey brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subrounded mudstone and limestone. Occasional rootlets. (Superficial Deposits)	(1.50)	
1.20	2	U	26 blows				1.80	
1.80	3	D				Stiff brown and grey CLAY with occasional fine (1mm) gypsum crystals and rare decomposing purple rootlets. (Charmouth Mudstone Formation)	(0.90)	
2.00-2.45	1	SPT	N=7					
2.00-2.60	5	B				. . . from 2.00m depth gypsum crystals (5mm).	2.70	
2.70	6	D				Stiff dark grey thinly laminated slightly gravelly CLAY. Gravel is fine subrounded mudstone lithorelicts. Frequent gypsum crystals (5mm) (Charmouth Mudstone Formation)	(1.30)	
3.00-3.45	2	SPT	N=25					
3.70	8	D					4.00	
4.00-4.32	3	SPT	N=88*			Very weak dark grey thinly laminated MUDSTONE. (Charmouth Mudstone Formation)	(1.01)	
4.70	10	D						
5.00-5.01	4	$SPT_{(NR)}$	NP				5.01	
5.00	11	D						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
05/08/08	17:00	5.01	1.60	150	Dry

Chiselling		
From	To	Duration (hh:mm)
4.70	5.00	01:00

General Remarks

1. No groundwater encountered.
2. Single standpipe installed on completion.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 2000**	**RS**	**MBaker**	**SP**

AGS

STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**BH8**

Contract Ref:	Start:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	End: **04.08.08**	**31.99**	**E:390481.6 N:221447.9**	**1** of **1**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.30	1	B				Grass over MADE GROUND: Brown slightly sandy slightly gravelly friable CLAY with frequent rootlets. Gravel is fine to medium subangular to subrounded brick and charcoal.	0.30	
0.30-0.80	2	B				MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular brick and charcoal.	(0.50) 0.80	
1.10	3	D				Firm grey mottled brown slightly sandy CLAY. (Charmouth Mudstone Formation)	1.20	
1.50	4	U	15 blows			Firm grey CLAY with occasional thin laminations of grey fine grained sand. (Charmouth Mudstone Formation)	(0.80) 2.00	
1.80	5	D						
2.00-2.45	1	SPT	N=8			Firm to stiff dark grey slightly sandy CLAY with frequent gypsum crystals (1mm to 5mm) and occasional pockets of orange sandy silt. (Charmouth Mudstone Formation)	(1.60) 3.60	
2.70	7	D						
3.00	8	U	25 blows					
3.60	9	D				Stiff to very stiff dark grey thinly laminated slightly sandy CLAY. (Charmouth Mudstone Formation)	4.00	
4.00-4.43	2	SPT	N=55*			Very weak dark grey MUDSTONE. (Charmouth Mudstone Formation) . . . fine shell fragments at 4.00m depth.	(1.15) 5.15	
4.70	11	D						
5.00-5.15	3	$SPT_{(NR)}$	N=200*					
5.00	12	D						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
04/08/08	17:00	5.15	1.60	150	Dry

Chiselling		
From	To	Duration (hh:mm)
4.50	5.00	01:00

General Remarks

1. No groundwater encountered.
2. Single standpipe installed on completion.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 2000**	**RS**	**MBaker**	**SP**

AGS

STRUCTURAL SOILS

STANDARD PENETRATION TEST SUMMARY TABLE

Contract:	Client:	Job No:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**722048**

Exploratory Position ID	Depth (m)	Hole Dia (mm)	Casing Depth (m)	Water Depth (m)	Seating Drive		Test Drive			Comments
					Blows	Pen (mm)	Blows	R (mm)	Result	
BH1	1.20				2,2	150	2,3,1,1		N=7	
	3.00				5,5	150	6,7,8,8		N=29	
	4.00				5,6	150	8,8,10,12		N=38	
	5.00				6,8	150	8,11,14,17		N=50	
	6.00				6,9	150	11,17,22	225	N=67*	
	7.50				25	75	27,23+	125	N=120*	
BH2	2.00				3,3	150	4,5,5,6		N=20	
	3.00				3,4	150	4,6,8,9		N=27	
	5.00				3,6	150	9,10,12,13		N=44	
	7.50				6,11	150	15,15,20	225	N=67*	
	9.00				8,14	150	19,24,7+	160	N=94*	
	11.70				25	50	50+	45	N=333*	
BH3	1.20				1,1	150	2,2,3,1		N=8	
	3.00				4,5	150	6,6,8,9		N=29	
	5.00				7,7	150	10,11,11,15		N=47	
	6.00				4,4	150	9,11,12,16		N=48	
	7.50				15,10	125	19,20,11+	190	N=79*	
	9.00				15,10	115	30,20+	95	N=158*	
	10.00				25	75	50	75	N=200*	
BH4	2.00				1,2	150	3,4,4,4		N=15	
	4.00				3,5	150	6,8,9,10		N=33	
	6.00				8,17	150	18,19,13+	165	N=91*	
	8.30				25	60	50+	50	N=300*	
BH5	1.20				2,1	150	1,2,2,1		N=6	
	3.00				4,3	150	5,7,9,11		N=32	
	5.00				6,8	150	11,19,20+	210	N=71*	
	6.00				9,12	150	14,16,20	225	N=67*	
	7.50				7,8	150	10,19,21+	210	N=71*	

Notes:
1. Tests carried out in accordance with BS1377: Part 9: 1990: 3.3.
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 CPT in comments column.

STRUCTURAL SOILS

STANDARD PENETRATION TEST SUMMARY TABLE

Contract:	Client:	Job No:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**722048**

Exploratory Position ID	Depth (m)	Hole Dia (mm)	Casing Depth (m)	Water Depth (m)	Seating Drive		Test Drive			Comments
					Blows	Pen (mm)	Blows	R (mm)	Result	
BH5	8.10				25	75	50	75	N=200*	
BH6	2.00				2,3	150	4,4,4,6		N=18	
	4.00				7,12	150	14,14,14,8+	255	N=59*	
	6.00				7,11	150	16,21,13+	170	N=88*	
	7.50				5,8	150	17,26,7	225	N=67*	
	8.10				25	20	50+	25	N=600*	
BH7	2.00				2,1	150	1,2,2,2		N=7	
	3.00				5,7	150	7,5,6,7		N=25	
	4.00				7,17	150	18,19,13+	170	N=88*	
	5.00				25	10	50+	0	NP	No Recovery
BH8	2.00				2,2	150	1,2,3,2		N=8	
	4.00				6,7	150	9,11,15,15+	275	N=55*	
	5.00				0	75	50	75	N=200*	No Recovery

Notes:
1. Tests carried out in accordance with BS1377: Part 9: 1990: 3.3.
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 CPT in comments column.

AGS

STRUCTURAL SOILS

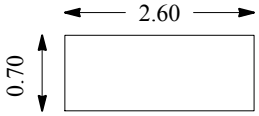
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**TP1**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**38.17**	**E:390801.4 N:221474.1**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.15	1	ES				Long grass over MADE GROUND: Brown slightly sandy slightly gravelly friable CLAY. Gravel is fine to medium subangular to subrounded limestone and brick and occasional rootlets.	0.20	
0.45	2	D				MADE GROUND: Stiff grey brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded brick and limestone with tree roots 20mm in diameter and rare rootlets.	(0.60)	
0.45		V	c_u=100/90/70				0.80	
0.80	3	ES				Firm becoming stiff grey mottled brown slightly sandy slightly gravelly CLAY with rare fine subrounded gravel of mudstone. (Charmouth Mudstone Formation)		
0.80	4	D						
0.80		V	c_u=80/80/75					
1.10	5	B				. . . occasional fine shell fragments at 1.10m and occasional pockets of orange red fine sand (possibly gypsum crystals).	(0.90)	
1.40	6	D				. . . occasional tree roots 10mm diameter at 1.40m.		
1.40		V	c_u=130/100/110				1.70	
1.70	7	D				Stiff to very stiff blue grey thickly laminated/thinly bedded (20mm) slightly sandy CLAY with fine sand sized gypsum crystals on laminated/bedded surfaces. (Charmouth Mudstone Formation)		
2.00	8	D						
2.00		HP	c_u=150/150/125				(1.10)	
2.40	9	D				. . . from 2.40m fine 2mm long gypsum crystals and rare fine shell fragments.		
							2.80	
2.80	10	D				Very stiff blue grey thinly laminated slightly sandy CLAY, with frequent gypsum crystals 2mm in length and rare to occasional tree roots 20mm in diameter and occasional shell fragments. (Charmouth Mudstone Formation)	3.00	
3.00	11	B						
3.00		HP	c_u=200/200/225					
						Very weak thinly laminated blue grey MUDSTONE. (Charmouth Mudstone Formation)	3.25	
3.25	12	D				. . . at 3.00m becoming very weak mudstone.		
						Trial pit terminated at 3.25 m depth.		

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Backfilled on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

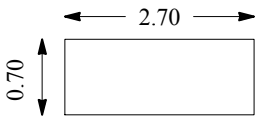
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**TP2**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**39.35**	**E:390782.0 N:221395.9**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Grass over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY. Gravel is fine to medium subangular to subrounded brick, charcoal and limestone fragments with frequent rootlets.	(0.30)	
0.20	1	D					0.30	
0.20	2	ES				Stiff light brown slightly sandy slightly gravelly CLAY. Gravel is fine subrounded limestone and mudstone. (Superficial Deposits)	(0.50)	
0.70	3	D					0.80	
0.70	4	ES				Stiff grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is fine subrounded limestone/mudstone. (Superficial Deposits)		
0.70		V	c_u=100/130/145					
0.95	5	D					(1.00)	
1.40	6	D				. . . pockets of orange sand sized gypsum crystals from 1.40m depth.	1.80	
1.80	7	D				Very stiff dark blue grey laminated slightly sandy CLAY with occasional decomposing rootlets and pockets of orange sand sized gypsum crystals. (Charmouth Mudstone Formation)		
2.30	8	B					(1.00)	
2.55	9	D				. . . occasional shell fragments from 2.50m.	2.80	
3.00	10	D				Very stiff dark blue grey slightly sandy CLAY thinly laminated and bedded with fine gypsum crystals 1mm long along bedding surfaces and occasional decomposing rootlets. (Charmouth Mudstone Formation)	(0.70)	
3.55	11	B					3.50	
						Very stiff to hard dark grey blue slightly sandy thinly laminated CLAY with occasional shell fragments. (Charmouth Mudstone Formation)	3.55	
						Trial pit terminated at 3.55 m depth.		

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Backfilled on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

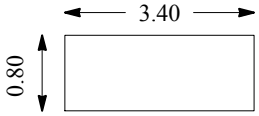
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**TP3**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**35.88**	**E:390765.7 N:221549.9**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.15	1	D				Grass over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY. Gravel is fine to coarse angular to subangular brick, charcoal and ceramic with frequent rootlets.	0.20	
0.15	2	ES				Firm to stiff light brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded mudstone and limestone. (Superficial Deposits)	(0.80)	
0.75	3	D						
0.75	4	ES						
0.75		V	c_u=100/130/110				1.00	
						Stiff grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subrounded limestone/mudstone and closely fissured. (Superficial Deposits)		
1.50	5	B						
1.50		V	c_u=120/135				(1.30)	
							2.30	
2.30	6	D				Stiff dark grey thinly laminated and bedded slightly sandy CLAY with occasional fine 1mm long gypsum crystals and pockets of orange sandy CLAY. (Charmouth Mudstone Formation)		
2.75	7	D					(0.70)	
							3.00	
						Hard dark blue grey slightly sandy CLAY with frequent shell fragments and occasional gypsum crystals 1-4mm long. (Charmouth Mudstone Formation)	3.20	
3.20	8	B				Trial pit terminated at 3.20 m depth.		

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Backfilled on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

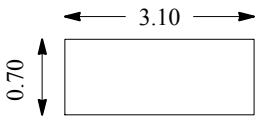
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**TP4**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**35.90**	**E:390730.7 N:221500.7**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Grass over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY with frequent rootlets. Gravel is fine to coarse subangular brick, charcoal, ceramic and limestone/mudstone.	0.20	
0.20	1	D				Firm brown slightly sandy slightly gravelly CLAY. Gravel is fine subrounded limestone, mudstone and occasional rootlets. (Superficial Deposits)	(0.55)	
0.21	2	ES					0.75	
0.80	3	D				Stiff grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is fine subrounded limestone/mudstone. (Superficial Deposits)		
0.80	4	ES						
0.80		V	c_u=130/140/140					
1.20	5	D					(1.45)	
1.70	6	B				. . . from 1.70m rare gypsum crystals and shell fragments.	2.20	
2.20	7	D				Very stiff hard dark blue grey mottled brown thickly laminated/ thinly bedded slightly sandy CLAY with orange pockets with occasional gypsum crystals and occasional shell fragments. (Charmouth Mudstone Formation)	(0.55)	
2.75	8	D				Hard dark grey blue sightly sandy CLAY with occasional shell fragments and no gypsum crystals. (Charmouth Mudstone Formation)	2.75	
3.10	9	D					(0.85)	
3.60	10	D				Trial pit terminated at 3.60 m depth.	3.60	

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Backfilled on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

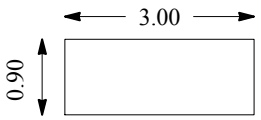
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**TP5**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**37.84**	**E:390722.9 N:221375.4**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.15	1	D				Long grass MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY. Gravel is fine subangular to subrounded brick, charcoal and limestone with frequent rootlets.	(0.30)	
0.15	2	ES					0.30	
						Firm light brown mottled grey slightly sandy CLAY. (Superficial Deposits)	(0.60)	
							0.90	
0.90	3	D				Stiff grey mottled brown slightly sandy slightly gravelly CLAY with occasional pockets of orange brown sandy CLAY. Gravel is fine subrounded mudstone lithorelicts. (Superficial Deposits)		
0.90	4	ES						
0.90		V	c_u=124/112/110					
1.20	5	D					(1.10)	
1.70	6	D					2.00	
2.10	7	B				Stiff grey mottled orange brown slightly laminated slightly sandy CLAY. (Charmouth Mudstone Formation)	(0.60)	
							2.60	
2.60	8	D				Very stiff dark grey thickly laminated/ thinly bedded slightly sandy CLAY with 1mm gypsum crystals on /laminated/bedding surfaces (40mm) and occasional decomposing rootlets. (Charmouth Mudstone Formation)		
2.90	9	D				. . . occasional shell fragments from 2.90m.	(0.60)	
3.20	10	B					3.20	
						Trial pit terminated at 3.20 m depth.		

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Backfilled on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

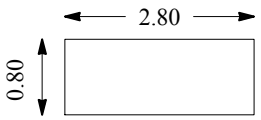
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**TP6**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**34.28**	**E:390687.4 N:221527.7**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.15	1	ES				Grass over MADE GROUND: Dark brown slightly sandy gravelly friable CLAY with frequent rootlets. Gravel is fine to coarse angular to subangular brick and ceramic.	0.20	
0.15	2	D				MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is fine to coarse subangular to angular ceramic piping, brick, pottery and sandstone.	0.45	
0.65	3	ES				MADE GROUND: Stiff light brown slightly sandy slightly gravelly CLAY with occasional tree roots 10mm diameter. Gravel is fine to coarse subangular brick, ceramic and charcoal and building stone.	(0.45)	
0.65	4	D						
0.65		V	c_u=180/140/160				0.90	
0.90	5	D				Stiff brown mottled grey slightly sandy CLAY with occasional rootlets. (Charmouth Mudstone Formation)		
0.90		V	c_u=150/140				(0.50)	
							1.40	
1.40	6	D				Stiff grey mottled brown slightly sandy CLAY with occasional fine (1mm) gypsum crystals. (Charmouth Mudstone Formation)	(0.50)	
							1.90	
2.00	7	D				Stiff blue grey mottled brown thinly laminated slightly sandy CLAY with rare medium subrounded mudstone lithorelicts and occasional decomposing rootlets. (Charmouth Mudstone Formation)		
							(1.10)	
2.50	8	B						
2.70	9	D				. . . at 2.70m depth small shell fragments and occasional gypsum crystals (1mm) and no gravel.		
							3.00	
3.00	10	D				Trial pit terminated at 3.00 m depth.		

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Backfilled on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

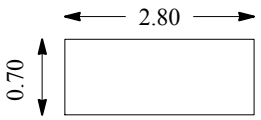
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**TP7**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**34.51**	**E:390681.8 N:221503.0**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	D				Grass over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY with frequent rootlets. Gravel is fine to medium subangular to subrounded brick and limestone.	0.10	
0.15	2	ES				MADE GROUND: Fine to coarse gravel sized subangular to subrounded BRICK.	0.20 0.45	
0.60	3	D				MADE GROUND: Firm to stiff brown slightly sandy gravelly CLAY with occasional rootlets. Gravel is fine to coarse subangular brick, building stone (sandstone/limestone and ceramic).		
0.60	4	ES						
0.60		V	c_u=150/130/180			Very stiff light brown slightly sandy CLAY with occasional tree roots 25mm diameter. (Charmouth Mudstone Formation)	(0.75)	
1.20	5	B				Stiff grey mottled brown friable thinly laminated slightly sandy gravelly CLAY. Gravel is fine subangular mudstone lithorelicts. (Charmouth Mudstone Formation)	1.20 (0.80)	
1.80	6	D					2.00	
2.30	7	D				Very stiff blue grey mottled brown thinly laminated CLAY interbedded with very weak grey mudstone excavated as cobbles. (Charmouth Mudstone Formation)		
2.30		V	c_u=160/160				(1.25)	
2.90	8	D				. . . at 2.90m 1-5mm gypsum crystals. . . . from 3.00m depth 10mm shell fragments with gypsum crystals 1-5mm.	3.25	
3.25	9	B				Trial pit terminated at 3.25 m depth.		

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Backfilled on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

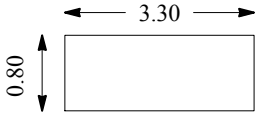
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**TP8**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**36.25**	**E:390692.6 N:221407.6**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.15	1	ES				Long grass/thistles over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY with frequent rootlets. Gravel is fine to coarse subangular ceramic, brick and charcoal.	(0.45)	
0.15	2	D					0.45	
0.60	3	ES				Stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subrounded limestone and charcoal with occasional rootlets.	(0.45)	
0.60	4	D						
0.60		V	c_u=200/140/130				0.90	
0.90	5	D				Stiff grey slightly sandy CLAY. (Superficial Deposits)	(0.70)	
							1.60	
1.60	6	B				Stiff grey mottled brown slightly sandy CLAY. (Superficial Deposits)	(0.60)	
1.60	6a	B					2.20	
2.20	7	D				Very stiff grey mottled brown thickly laminated slightly sandy CLAY, with coarse subangular mudstone lithorelicts. (Charmouth Mudstone Formation)		
2.55	8	D				. . . at 2.55m depth occasional decomposing red purple rootlets.		
2.85	9	D				. . . at 2.85m depth frequent 2mm gypsum crystals present.	(1.35)	
3.20	10	D				. . . pockets of orange slightly sandy clay from 3.20m depth.		
3.55	11	D				. . . gypsum crystals 5mm and frequent abundant shell fragments from 3.50m depth.	3.55	
						Trial pit terminated at 3.55m depth.		

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Backfilled on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

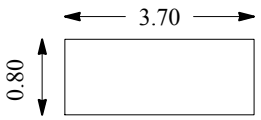
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**TP9**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**33.99**	**E:390635.0 N:221483.4**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Grass over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY with frequent rootlets. Gravel is fine subangular charcoal, brick and limestone.	0.20	
0.20	1	D				MADE GROUND: Stiff light orangish brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded limestone and charcoal.		
0.20	2	D						
0.60	3	D						
0.60	4	ES						
0.60		V	c_u=110/130/110				(1.20)	
							1.40	
1.40	5	B				Stiff grey mottled orange brown thinly laminated slightly sandy CLAY with occasional orange pockets of sandy clay. (Charmouth Mudstone Formation)	(0.60)	
							2.00	
2.10	6	D				Very stiff dark grey thinly laminated slightly sandy CLAY with 1mm gypsum crystals. (Charmouth Mudstone Formation)	(1.00)	
2.70	7	D				. . . at 2.70m depth occasional decomposing rootlets, rare to occasional gypsum crystals and weak mudstone beds excavated as cobbles.		
							3.00	
3.00	8	D				Trial pit terminated at 3.00m depth		

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Backfilled on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

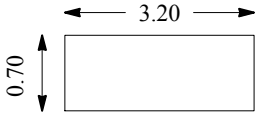
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**TP10**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**33.97**	**E:390574.4 N:221406.8**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.15	1	ES				Grass over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY. Gravel is fine to medium subangular to subrounded brick, charcoal, glass and ceramic with frequent rootlets.	0.20	
0.15	2	D				MADE GROUND: Stiff light brown mottled grey slightly sandy slightly gravelly firm CLAY. Gravel is fine subrounded brick, charcoal and limestone.	(0.30) 0.50	
0.40	3	D						
0.60	4	ES				Firm to stiff grey mottled orange slightly sandy CLAY with pockets of orange fine sand sized gypsum crustals. (Charmouth Mudstone Formation)		
0.60	5	D						
0.60		V	c_u=112/70/100				(1.00)	
1.10	6	D					1.50	
1.50	7	D				Stiff grey thinly laminated slightly sandy CLAY with fine gypsum crystals 1mm long with silty very fine sand on laminated surfaces. (Charmouth Mudstone Formation)		
1.50		V	c_u=90				(0.60)	
2.10	8	D				Stiff blue grey brown slightly sandy CLAY with occasional decomposiong rootlets and gypsum crystals of up to 10mm in length. (Charmouth Mudstone Formation)	2.10	
2.30	9	D					(0.50)	
2.60	10	D				Very stiff to hard thinly laminated grey blue brown slightly sandy CLAY interbedded with weak MUDSTONE and excavated as cobbles. (Charmouth Mudstone Formation)	2.60	
2.90	11	D					(0.50)	
3.10	12	D				Very stiff to hard dark grey slightly sandy very thinly laminated CLAY interbedded weak MUDSTONE excavated as cobbles. (Charmouth Mudstone Formation)	3.10	
3.40	13	B					(0.30) 3.40	
						Trial pit terminated at 3.40m depth.		

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Backfilled on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

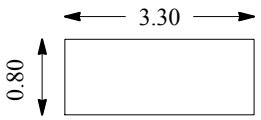
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**TP11**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**32.03**	**E:390526.1 N:221480.2**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Grass over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY. Gravel is fine to medium subangular brick, charcoal and limestone.	0.25	
0.20	1	ES						
0.20	2	D				Firm light brown slightly sandy slightly gravelly CLAY. Gravel of subrounded limestone. (Superficial Deposits)	(0.40)	
							0.65	
0.75	3	ES				Stiff light brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine subrounded limestone. (Superficial Deposits)	(0.70)	
0.75	4	D						
0.75		V	c_u=180/130/135					
							1.35	
1.35	5	D				Stiff grey mottled brown thinly laminated slightly sandy CLAY. (Charmouth Mudstone Formation)	(1.05)	
1.85	6	B				. . . decomposing purple rootlets from 1.85m depth and occasional shell fragments.		
							2.40	
2.40	7	D				Very stiff dark grey thinly laminated sandy CLAY with occasional shell fragments and fine frequent gypsum crystals 2mm. (Charmouth Mudstone Formation)	(0.90)	
2.90	8	D						
							3.30	
3.30	9	D				Very weak dark grey MUDSTONE. (Charmouth Mudstone Formation)	(0.30)	
							3.60	
3.60	10	B				Trial pit terminated at 3.60m depth.		

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Backfilled on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

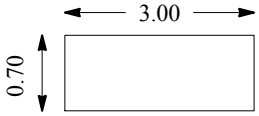
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**TP12**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**33.08**	**E:390490.5 N:221402.2**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.15	1	D				Grass and thistles over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY. Gravel is fine to medium subangular to subrounded charcoal, brick, ceramic, limestone and frequent rootlets.	(0.30)	
0.15	2	ES					0.30	
0.75	3	D				Very stiff light brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine to medium subrounded limestone and occasional rootlets. (Superficial Deposits)	(0.70)	
0.75	4	ES						
0.75		V	c_u=160/160/200				1.00	
1.00	5	D				Stiff grey slightly sandy slightly gravelly CLAY. Gravel is fine subangular to subrounded mudstone. (Superficial Deposits)	(0.50)	
							1.50	
1.60	6	D				Very stiff grey mottled/interbedded brown slightly sandy thinly laminated CLAY. (Charmouth Mudstone Formation)	(0.50)	
							2.00	
2.20	7	B				Very stiff blue grey laminated slightly sandy CLAY interbedded with weak MUDSTONE and excavated as cobbles with occasional decomposing red/purple rootlets. (Charmouth Mudstone Formation)	(0.80)	
2.65	8	D				. . . occasional to rare shell fragments from 2.60m depth.	2.80	
3.20	9	D				Weak dark grey blue MUDSTONE with occasional gypsum crystals and shell fragments, excavated as cobbles. (Charmouth Mudstone Formation)	(0.70)	
3.50	10	D				Trial pit terminated at 3.50m depth.	3.50	

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Backfilled on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

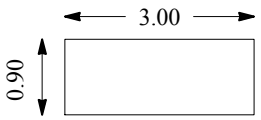
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**TP13**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**31.38**	**E:390478.2 N:221474.2**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Grass over MADE GROUND: Dark brown slightly sandy slighty gravelly friable CLAY. Gravel is fine to coarse subangular to angular glass, charcoal, brick and frequent rootlets.	0.25	
0.20	1	D						
0.20	2	ES				MADE GROUND: Light brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded charcoal and limestone with occasional rootlets.	0.50	
						Stiff light grey brown slightly sandy slightly gravelly CLAY. Gravel is fine subangular to subrounded limestone. (Superficial Deposits)	(1.20)	
0.70	3	D						
0.70	4	ES						
0.70		V	c_u=110/108/140					
1.10	5	D					1.70	
1.70	6	D				Stiff grey mottled brown closely fissured slightly sandy CLAY. (Charmouth Mudstone Formation)		
						. . . from 2.00m depth clay has become thinly laminated with abundant fine 1-2mm gypsum crystals.	(1.07)	
2.20	7	D					2.77	
2.77	8	D				Hard dark grey thinly laminated slightly sandy CLAY with rare to occasional 1-2mm gypsum crystals, interbedded with weak MUDSTONE and excavated as cobbles. (Charmouth Mudstone Formation)		
3.05	9	D				. . . at 3.05m depth decomposing red/purple rootlets on bedding surfaces of weak mudstone/hard clay.	(0.63)	
							3.40	
3.40	10	D				Weak dark blue grey MUDSTONE with occasional fossils and excavated as cobbles. (Charmouth Mudstone Formation)	3.60	
3.60	11	B				Trial pit terminated at 3.60m depth.		

Plan (Not to Scale)



General Remarks

1. Trail pit walls stable.
2. No groundwater encountered.
3. Backfilled on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

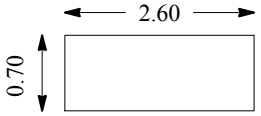
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**TP14**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**32.59**	**E:390472.6 N:221414.4**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Grass over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY with frequent rootlets. Gravel is fine subrounded brick, charcoal and limestone.	(0.30)	
0.20	1	ES					0.30	
0.20	2	D				Firm light brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine subrounded limestone with occasional rootlets. (Superficial Deposits)	(0.35)	
							0.65	
0.70	3	ES				Stiff light brown mottled grey closely fissured slightly sandy CLAY. (Superficial Deposits)		
0.70	4	D					(0.35)	
0.70		V	c_u=150/150/130				1.00	
1.00	5	B				Firm grey mottled brown fissured slightly sandy slightly gravelly CLAY. Gravel is fine to medium subrounded mudstone/limestone. (Superficial Deposits)		
1.00		V	c_u=70				(0.50)	
							1.50	
						Stiff dark grey laminated slightly sandy CLAY with abundant/frequent gypsum crystals 1-2mm (interbedded brown and grey). (Charmouth Mudstone Formation)		
1.85	6	B					(1.30)	
2.30	7	D				. . . at 2.30m depth 20mm laminations/beds along which gypsum crystals are present.		
							2.80	
2.80	8	D				Weak dark grey MUDSTONE with frequent gypsum crystals and shell fragments. Mudstone is excavated as cobbles. (Charmouth Mudstone Formation)		
							(0.85)	
3.30	9	D				. . . at 3.30m depth occasional gypsum crystals.		
3.40	10	B						
							3.65	
3.65	11	D				Trial pit terminated at 3.65m depth.		

Plan (Not to Scale)



General Remarks

1. Trail pit walls stable.
2. No groundwater encountered.
3. Backfilled on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

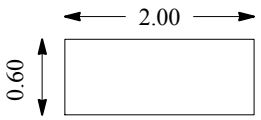
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**CBR1**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**38.41**	**E:390792.1 N:221451.9**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.15	1	D				Long grass over MADE GROUND: Brown slightly sandy slightly gravelly friable CLAY with gravel of fine to medium subangular brick, ceramic, bone and charcoal.	(0.27)	
0.15	2	ES					0.27	
						MADE GROUND: Stiff brown grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to rounded sandstone chert, brick and charcoal.	(0.21)	
0.48	3	D					0.48	
0.48	4	ES				Terminated at 0.48m depth.		
0.48		V	c_u=110/120/120					

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Californian Bearing Ration test completed.
4. Backfilled on completion.

All dimensions in metres | Scale: **1:15**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

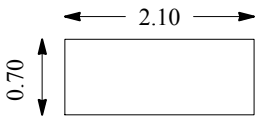
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**CBR2**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**38.53**	**E:390789.1 N:221441.7**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Grass (long) over MADE GROUND: Brown slightly sandy friable CLAY with frequent rootlets. Occasional ceramic pieces and fine subrounded fragments of charcoal and brick.	(0.40)	
0.20	1	D						
0.20	2	ES						
							0.40	
0.40	3	D				MADE GROUND: Stiff light brown slightly sandy slightly gravelly CLAY with occasional roots. Gravel is very fine subangular to subrounded fragments of charcoal and brick.	0.50	
							0.55	
0.55	4	ES				MADE GROUND: Stiff brown orange grey slightly sandy slightly gravelly CLAY. Gravel is fine subrounded fragments of charcoal and brick.		
0.55	5	D						
0.55		V	c_u=60/80/80					
						Terminated at 0.55m depth.		

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Californian Bearing Ratio test completed,
4. Backfilled on completion.

All dimensions in metres | Scale: **1:15**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

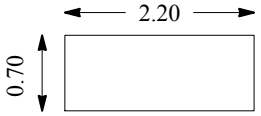
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**CBR3**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**37.22**	**E:390758.6 N:221464.1**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Long grass over MADE GROUND: Brown slightly sandy slightly gravelly friable CLAY. Gravel is fine to medium subangular to subrounded charcoal and brick with frequent rootlets.	(0.20)	
0.15	1	D					0.20	
0.15	2	ES				MADE GROUND: Stiff light brown and grey slightly sandy slightly gravelly CLAY. Gravel is fine to medium subrounded brick, charcoal and rare rootlets.		
0.30	3	D					(0.30)	
							0.50	
0.50	4	D				Terminated at 0.50m depth.		
0.50	5	ES						
0.50		V	c_u=130/120/100					

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Californian Bearing Ratio test completed.
4. Backfilled on completion.

All dimensions in metres | Scale: **1:15**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

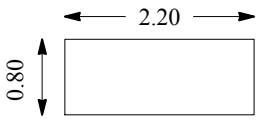
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**CBR4**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**35.97**	**E:390711.2 N:221461.7**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Long grass over MADE GROUND: Brown slightly sandy slightly gravelly friable CLAY. Gravel is fine to medium subrounded to subangular brick, charcoal and ceramic.	(0.30)	
0.20	1	D						
0.20	2	ES					0.30	
						MADE GROUND: Stiff brown mottled grey orange brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subrounded brick, charcoal and limestone.	(0.35)	
0.40	3	D						
							0.65	
0.65	4	D				Terminated at 0.65m depth.		
0.65	5	ES						
0.65		V	c_u=130/140/140					

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Californian Bearing Ratio test completed.
4. Backfilled on completion.

All dimensions in metres | Scale: **1:15**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

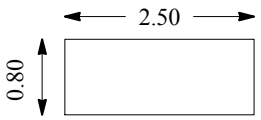
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**CBR5**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**34.90**	**E:390660.5 N:221445.3**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Grass over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY. Gravel is fine to coarse subangular brick, charcoal and limestone.	(0.20)	
0.15	1	ES					0.20	
0.15	2	D				MADE GROUND: Stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine subangular limestone, charcoal and brick.	(0.20)	
							0.40	
0.40	3	D				MADE GROUND: Stiff light brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine subangular to subrounded charcoal and brick.	(0.30)	
							0.70	
0.70	4	D				Terminated at 0.70m depth.		
0.70	5	ES						
0.70		V	c_u=70/80/90					

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Californian Bearing Ratio test completed.
4. Backfilled on completion.

All dimensions in metres | Scale: **1:15**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

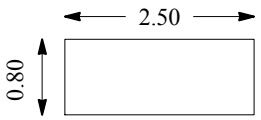
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**CBR6**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**34.04**	**E:390601.2 N:221433.1**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Long grass over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY. Gravel of subangular to subrounded brick and charcoal.	(0.20)	
0.15	2	D					0.20	
0.20	1	ES				MADE GROUND: Stiff light brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine subrounded limestone, charcoal and brick.	(0.30)	
							0.50	
0.50	3	ES				Terminated at 0.50m depth.		
0.50	4	D						
0.50		V	c_u=140/130/140					

Plan (Not to Scale)



General Remarks

1. Trial pit walls were stable.
2. No groundwater encountered.
3. Californian Bearing Ratio test completed.
4. Backfilled on completion.

All dimensions in metres | Scale: **1:15**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

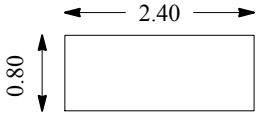
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**CBR7**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**01.08.08**	**33.43**	**E:390556.3 N:221436.1**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Grass over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY. Gravel of subangular to subrounded charcoal, brick and limestone.	0.15	
0.20 0.25	2 1	D ES				MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular brick, charcoal and limestone.	(0.25) 0.40	
						MADE GROUND: Stiff light brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine subangular to subrounded brick and charcoal.	0.50	
0.50 0.50 0.50	3 4	ES D V	c_u=112/112/130			Terminated at 0.50m depth.		

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Californian Bearing Ratio test completed.
4. Backfilled on completion.

All dimensions in metres | Scale: **1:15**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

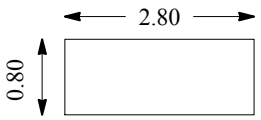
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**SA1**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**04.08.08**	**33.48**	**E:390637.1 N:221522.7**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Thistles and long grass over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY. Gravel is fine subangular to subrounded charcoal and brick with frequent rootlets.	0.26	
0.20	1	D						
0.20	2	ES				MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY. Gravel is fine subangular to subrounded charcoal and brick with occasional rootlets.	(0.31)	
							0.57	
						Stiff light brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine subangular to subrounded limestone and fine shell fragments. (Superficial Deposits)	(0.53)	
0.70	3	ES						
0.70	4	D						
0.70		V	c_u=130/130/130					
							1.10	
1.10	5	D				Stiff grey brown mottled orange slightly sandy CLAY. With occasional roots 2mm. (Charmouth Mudstone Formation)	(0.80)	
							1.90	
1.90	6	D				Stiff grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is fine subrounded limestone, 2mm gypsum crystals and occasional shell fragments. (Charmouth Mudstone Formation)	(0.75)	
1.90		V	c_u=90/110					
2.45	7	D						
							2.65	
2.65	8	D				Pit terminated at 2.65m depth.		

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Soakaway test completed.
4. Backfilled on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

AGS

STRUCTURAL SOILS

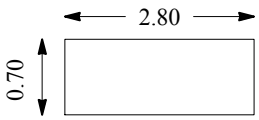
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**SA2**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**04.08.08**	**34.64**	**E:390642.3 N:221388.9**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Grass/weeds over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY. Gravel is fine to medium subangular to subrounded chert, brick, charcoal and ceramic with frequent rootlets.	(0.32)	
0.25	1	D					0.32	
0.25	2	ES				Firm brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular brick, charcoal and limestone and occasional rootlets.	0.55	
						Firm to stiff light brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine subrounded limestone and occasional rootlets. (Superficial Deposits)	(0.65)	
0.75	3	D						
0.75	4	ES						
0.75		V	c_u=106/112/120				1.20	
1.20	5	D				Stiff grey mottled brown slightly sandy closely fissured CLAY. (Superficial Deposits)	(0.50)	
1.20		V	c_u=138/130				1.70	
1.75	6	D				Stiff grey brown slightly sandy gravelly CLAY with orange staining. Gravel is fine angular to subangular mudstone/limestone. (Superficial Deposits)	(0.30)	
							2.00	
						Very stiff grey laminated slightly sandy CLAY with occasional decomposing (purple) rootlets and pockets of orange slightly silty slightly sandy fine mudstone gravel. (Superficial Deposits)	(0.50)	
2.20	7	D					2.50	
2.58	8	B				Very stiff dark blue grey laminated slightly sandy CLAY. With occasional decomposing rootlets and rare shell fragments. (Charmouth Mudstone Formation)	2.58	
						Pit terminated at 2.58m depth.		

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Soakaway test completed.
4. Backfilled on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

STRUCTURAL SOILS

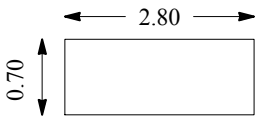
TRIAL PIT LOG

Contract:	Client:	Trialpit:
Grovefield Way, Cheltenham	**H N Bailey, J A Bailey and C H Harvey**	**SA3**

Contract Ref:	Date:	Ground Level (m):	National Grid Co-ordinate:	Sheet:
722048	**04.08.08**	**31.42**	**E:390442.3 N:221436.8**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				Grass over MADE GROUND: Dark brown slightly sandy slightly gravelly friable CLAY. Gravel is fine to coarse angular to subangular brick, glass and charcoal with frequent rootlets.	0.26	
0.20	2	D				MADE GROUND: Firm brown slightly sandy CLAY with occasional fragments of charcoal and brick.	(0.34)	
0.40	5	D					0.60	
0.85	3	ES				Firm grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subrounded mudstone. (Superficial Deposits)	(0.40)	
0.85	4	D					1.00	
0.85		V	c_u=110/120/130			Stiff dark grey mottled brown slightly laminated slightly sandy CLAY. (Charmouth Mudstone Formation)		
1.50	6	B						
1.80	7	D				. . . thinly laminated with fine 1-2mm gypsum crystals from 1.80m depth and occasional decomposing purple rootlets and becoming very stiff.	(1.60)	
2.15	8	D				. . . at 2.15m depth abundant gypsum crystals.		
2.40	9	D						
2.60	10	B					2.60	
						Pit terminated at 2.60m depth.		

Plan (Not to Scale)



General Remarks

1. Trial pit walls stable.
2. No groundwater encountered.
3. Soakaway test completed.
4. Backfilled on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MBaker**	**SP**

AGS

APPENDIX C

(i) Californian Bearing Ratio Test Results

(ii) Soakaway Test Results

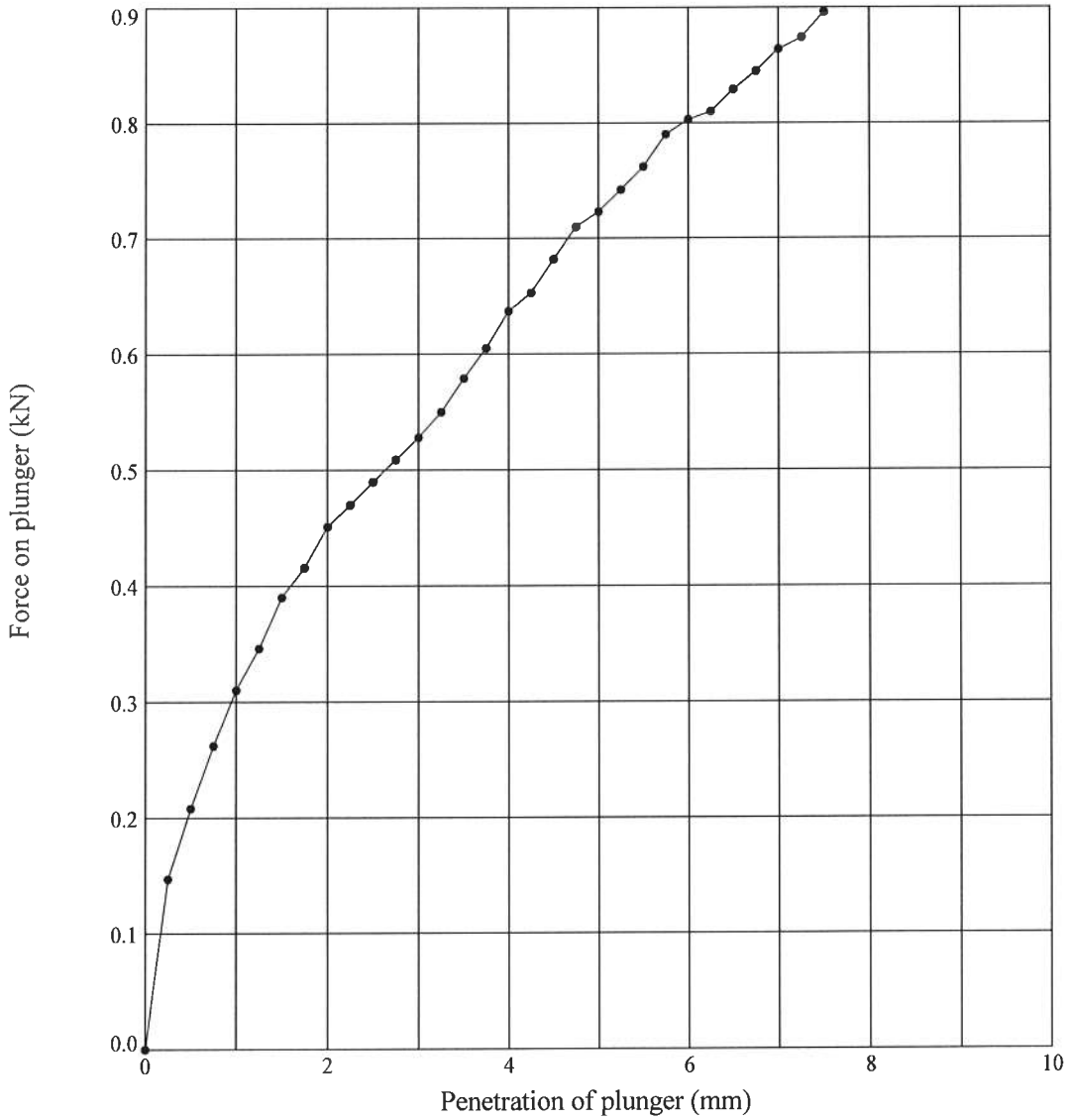
(iii) Laboratory Test Results

IN SITU CALIFORNIA BEARING RATIO TEST

In accordance with BS1377:Part 9:1990

Position Ref : **CBR1** Depth (m) : **0.50** Date : **01/08/08**

Ground Level (m): **39.3** National Grid Co-ordinates: **E:390792.4 N:221451.9**



Test Details			Initial Ground Conditions			Test Results
Kentledge	:	**Landrover**	Initial Moisture Content (%)	:	**25**	CBR Value (%) : **3.7**
Surcharge (kg)	:	**4.54**	Percentage greater than 20 mm	:	**0**	

Sample Description	Remarks
Brown slightly gravelly slightly sandy CLAY	**Test operator: JPlooy** **Test recorded by: JPlooy**

Approved Signatories: D. TROWBRIDGE A. FROST F. HAMILTON L. MARTIN

STRUCTURAL SOILS
The Old School
Stillhouse Lane
Bedminster
Bristol BS3 4EB

Compiled By	Date	Checked By	Date
A. J. Le	01/09/08	D Trowbridge	1/9/08

Contract: **Grovefield Way, Cheltenham**

Job No: **722048**

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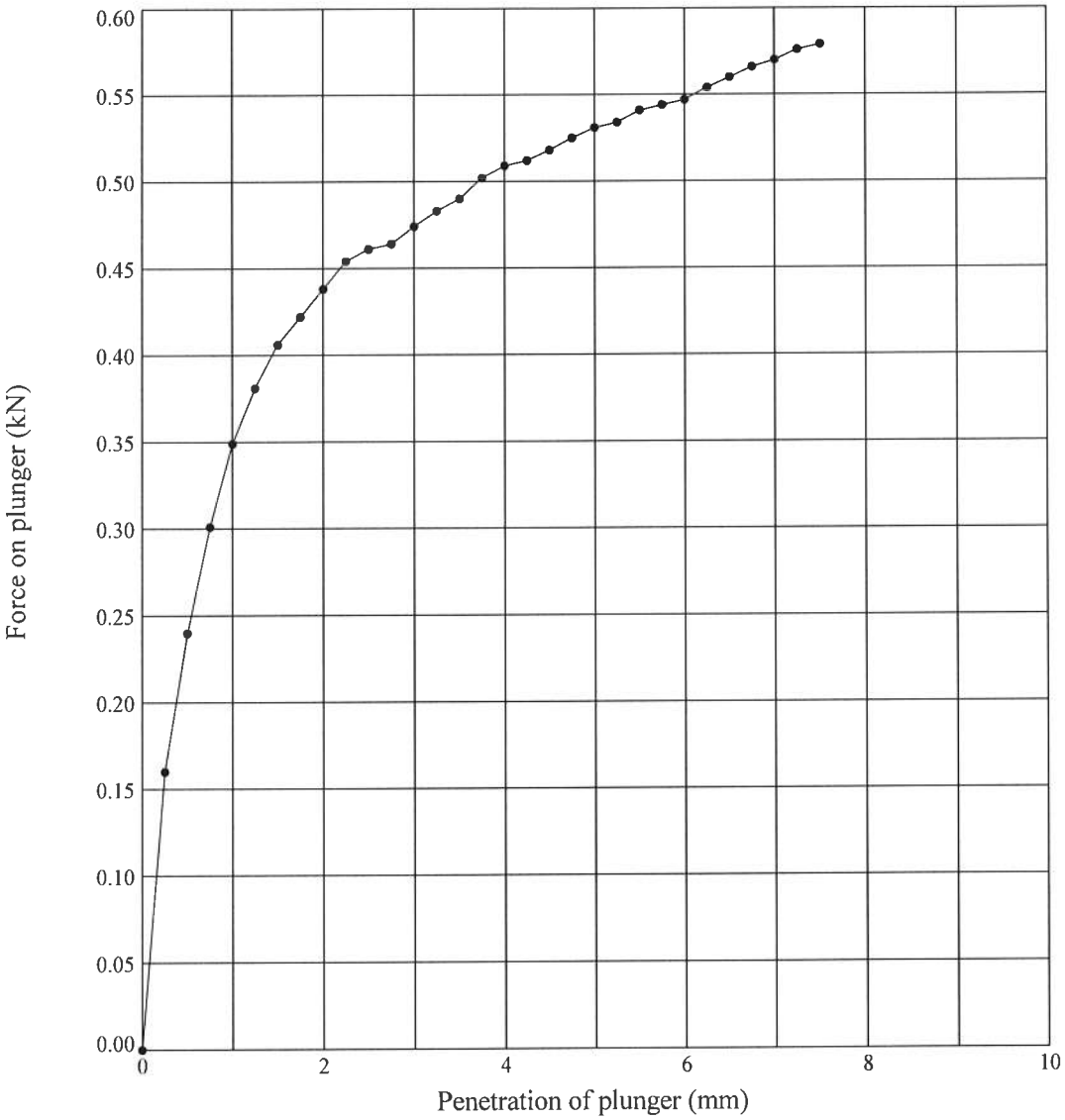
IN SITU CALIFORNIA BEARING RATIO TEST

In accordance with BS1377:Part 9:1990

Position Ref : **CBR2** Depth (m) : **0.50** Date : **01/08/08**

Ground Level (m): **39.5** National Grid Co-ordinates: **E:390789.4 N:221441.7**



Test Details			Initial Ground Conditions			Test Results
Kentledge	:	**Landrover**	Initial Moisture Content (%)	:	**29**	CBR Value (%) : **3.5**
Surcharge (kg)	:	**4.54**	Percentage greater than 20 mm	:	**0**	

Sample Description	Remarks
Greenish brown slightly gravelly slightly sandy CLAY	**Test operator: JPlooy** **Test recorded by: JPlooy**

Approved Signatories: D. TROWBRIDGE A. FROST F. HAMILTON L. MARTIN

STRUCTURAL SOILS
The Old School
Stillhouse Lane
Bedminster
Bristol BS3 4EB

Compiled By	Date	Checked By	Date
A D Le	01/09/08	D Waldron	1/9/08

Contract: **Grovefield Way, Cheltenham**

Job No: **722048**

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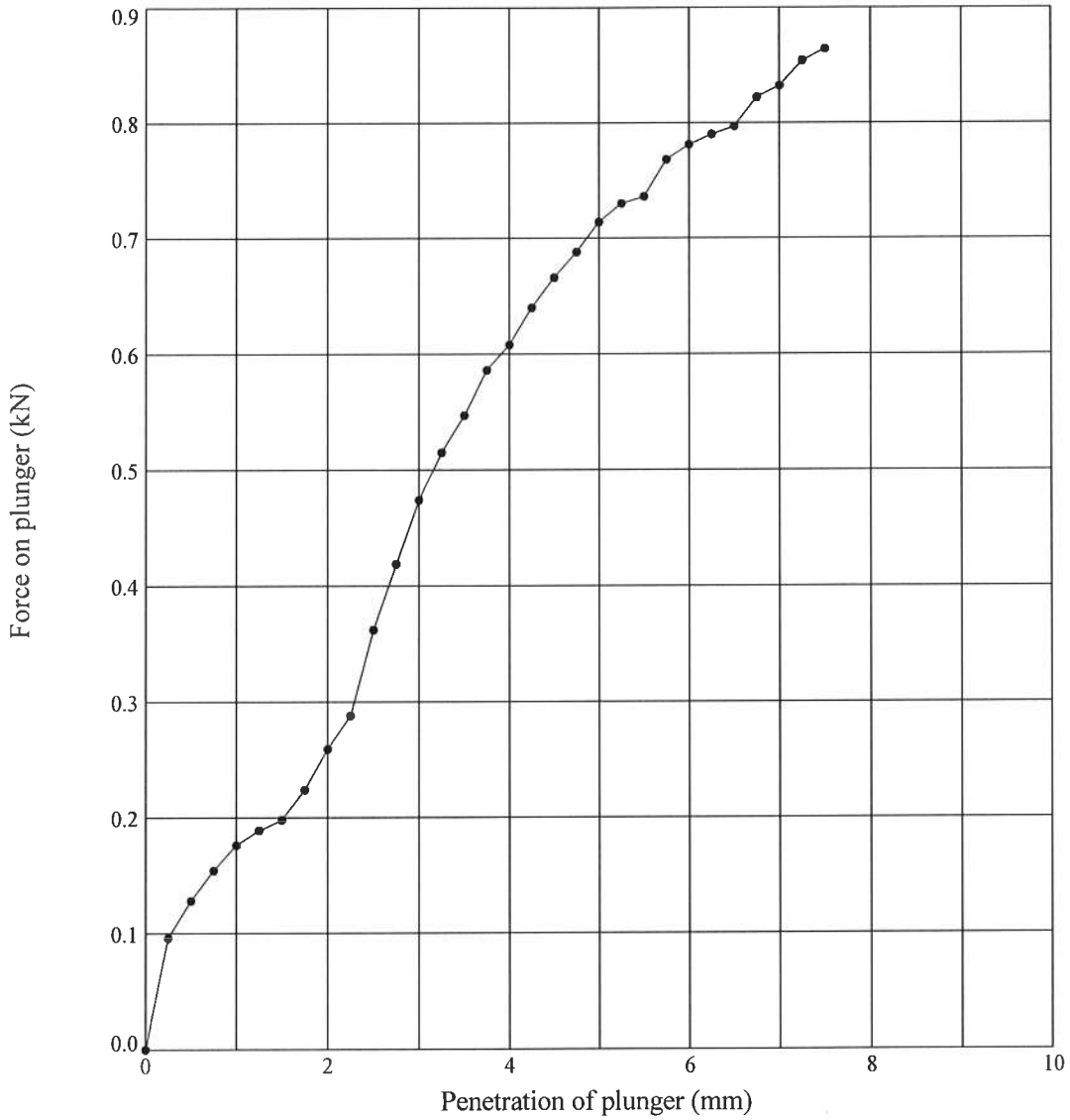
IN SITU CALIFORNIA BEARING RATIO TEST

In accordance with BS1377:Part 9:1990

Position Ref : **CBR3** Depth (m) : **0.50** Date : **01/08/08**

Ground Level (m): **38.1** National Grid Co-ordinates: **E:390758.9 N:221464.1**



Test Details			Initial Ground Conditions			Test Results
Kentledge	:	**Landrover**	Initial Moisture Content (%)	:	**24**	CBR Value (%) : **3.6**
Surcharge (kg)	:	**4.54**	Percentage greater than 20 mm	:	**0**	

Sample Description	Remarks
Greenish brown mottled orange slightly sandy CLAY	**Test operator: JPlooy** **Test recorded by: JPlooy**

Approved Signatories: D. TROWBRIDGE A. FROST F. HAMILTON L. MARTIN

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Stillhouse Lane
Bedminster
Bristol BS3 4EB

Compiled By	Date	Checked By	Date
A.J. Le	01/09/08	D Waldron	1/9/08

Contract: **Grovefield Way, Cheltenham**

Job No: **722048**

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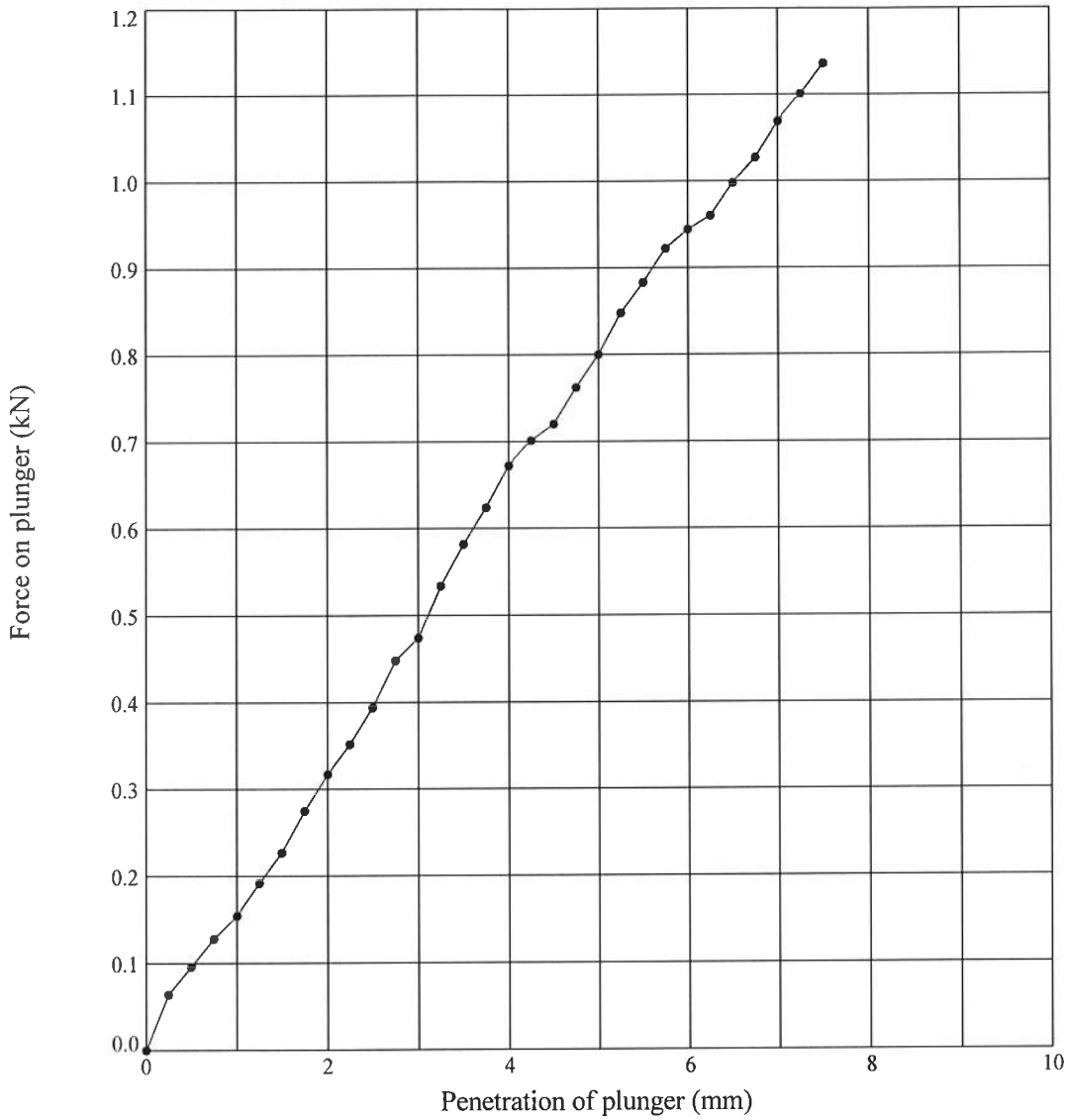
IN SITU CALIFORNIA BEARING RATIO TEST

In accordance with BS1377:Part 9:1990

Position Ref : **CBR4** Depth (m) : **0.50** Date : **01/08/08**

Ground Level (m): **36.9** National Grid Co-ordinates: **E:390711.5 N:221461.7**



Test Details			Initial Ground Conditions			Test Results
Kentledge	:	**Landrover**	Initial Moisture Content (%)	:	**21**	CBR Value (%) : **4.0**
Surcharge (kg)	:	**4.54**	Percentage greater than 20 mm	:	**0**	

Sample Description	Remarks
Greenish brown slightly sandy CLAY	**Test operator: JPlooy** **Test recorded by: JPlooy**

Approved Signatories: D. TROWBRIDGE A. FROST F. HAMILTON L. MARTIN

STRUCTURAL SOILS
The Old School
Stillhouse Lane
Bedminster
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Compiled By	Date	Checked By	Date
A.D.	01/09/08	D Walden	1/9/08

Contract: **Grovefield Way, Cheltenham**

Job No: **722048**

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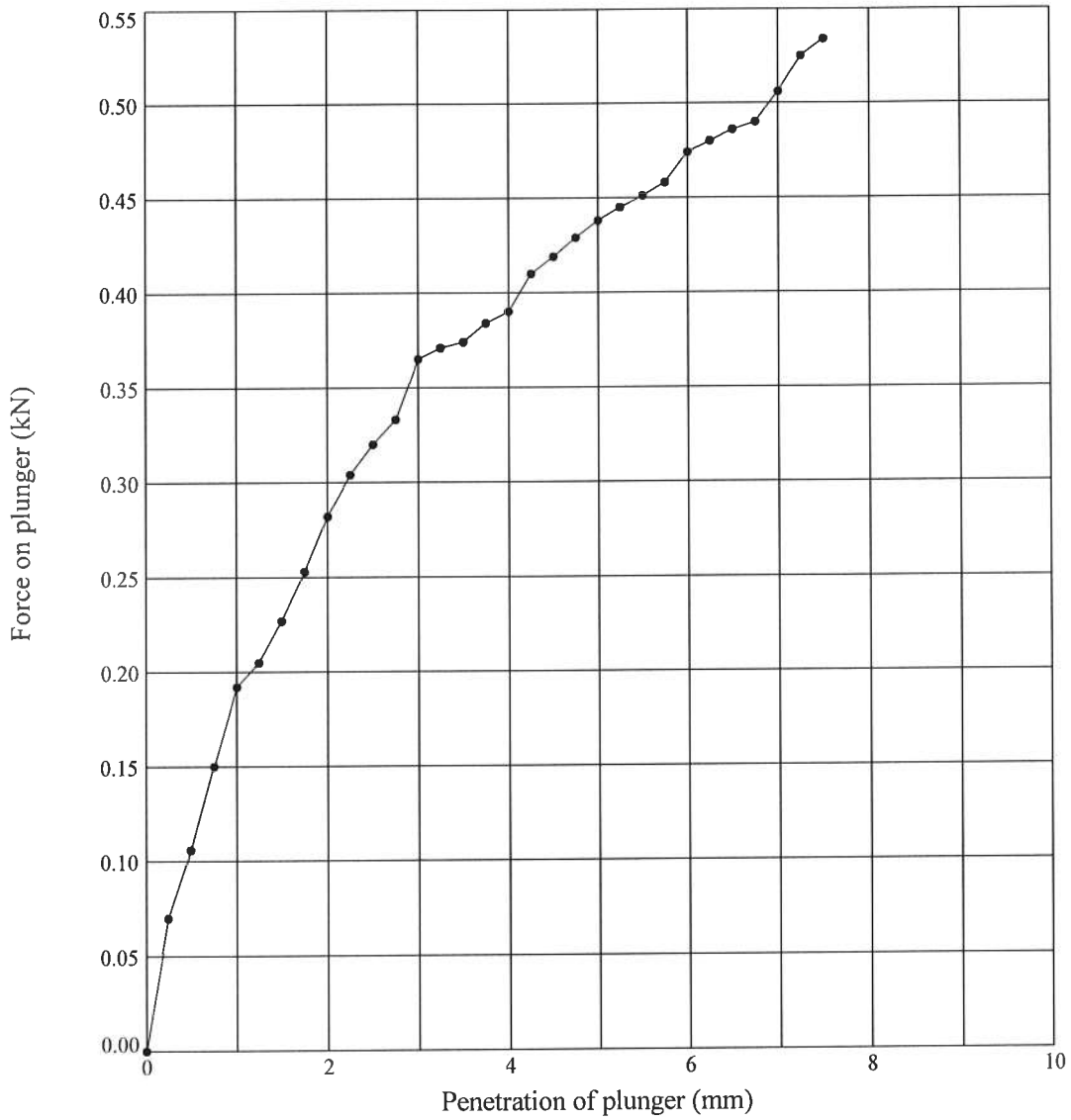
IN SITU CALIFORNIA BEARING RATIO TEST

In accordance with BS1377:Part 9:1990

Position Ref : **CBR5** Depth (m) : **0.60** Date : **01/08/08**

Ground Level (m): **35.8** National Grid Co-ordinates: **E:390660.8 N:221445.3**



Test Details			Initial Ground Conditions			Test Results
Kentledge	:	**Landrover**	Initial Moisture Content (%)	:	**32**	CBR Value (%) : **2.4**
Surcharge (kg)	:	**4.54**	Percentage greater than 20 mm	:	**0**	

Sample Description	Remarks
Greenish brown slightly sandy CLAY	**Test operator: JPlooy** **Test recorded by: JPlooy**

Approved Signatories: D. TROWBRIDGE A. FROST F. HAMILTON L. MARTIN

STRUCTURAL SOILS
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Stillhouse Lane
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Compiled By	Date	Checked By	Date
A.D.	01/09/08		1/9/08

Contract: **Grovefield Way, Cheltenham**

Job No: **722048**

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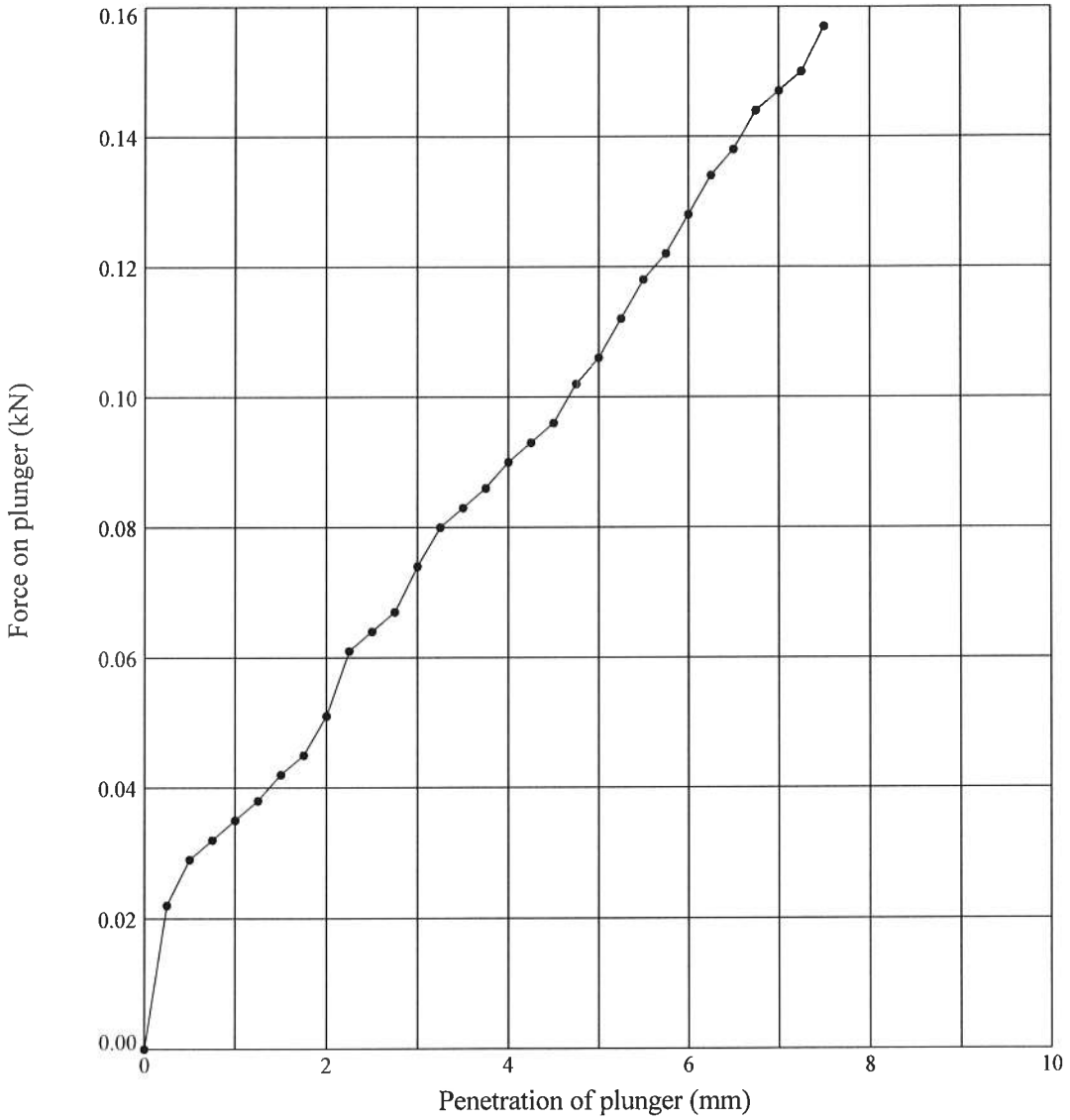
IN SITU CALIFORNIA BEARING RATIO TEST

In accordance with BS1377:Part 9:1990

Position Ref : **CBR6** Depth (m) : **0.70** Date : **01/08/08**

Ground Level (m): **35.0** National Grid Co-ordinates: **E:390601.5 N:221433.1**



Test Details			Initial Ground Conditions			Test Results
Kentledge	:	**Landrover**	Initial Moisture Content (%)	:	**26**	CBR Value (%) : **0.53**
Surcharge (kg)	:	**4.54**	Percentage greater than 20 mm	:	**0**	

Sample Description	Remarks
Brown slightly gravelly slightly sandy CLAY	**Test operator: JPlooy** **Test recorded by: JPlooy**

Approved Signatories: D. TROWBRIDGE A. FROST F. HAMILTON L. MARTIN

STRUCTURAL SOILS
The Old School
Stillhouse Lane
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Bristol BS3 4EB

Compiled By	Date	Checked By	Date
A.J.	01/09/08		1/9/08

Contract: **Grovefield Way, Cheltenham**

Job No: **722048**

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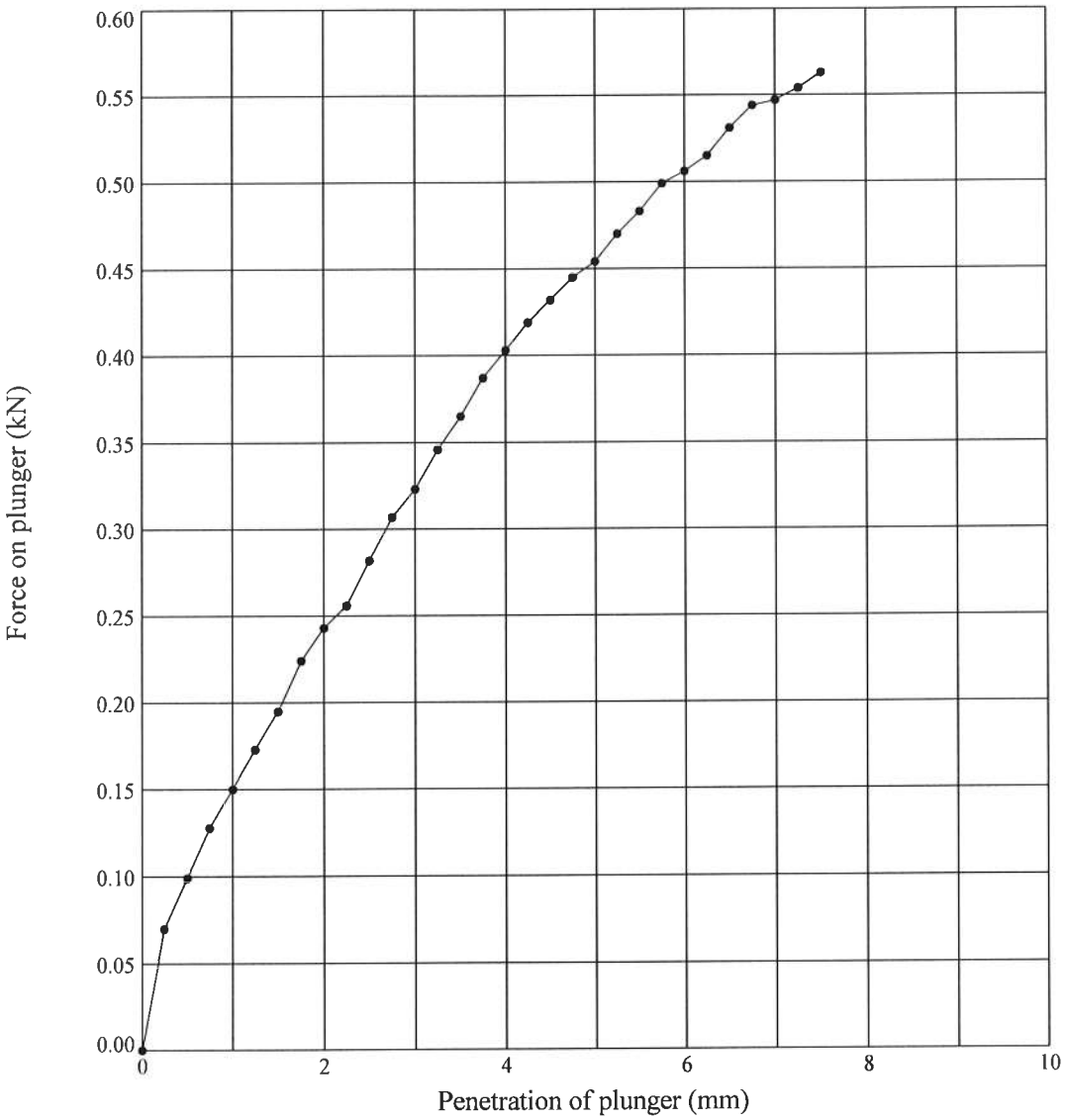
IN SITU CALIFORNIA BEARING RATIO TEST

In accordance with BS1377:Part 9:1990

Position Ref : **CBR7** Depth (m) : **0.50** Date : **01/08/08**

Ground Level (m): **34.4** National Grid Co-ordinates: **E:390556.6 N:221436.1**



Test Details			Initial Ground Conditions			Test Results
Kentledge	:	**Landrover**	Initial Moisture Content (%)	:	**33**	CBR Value (%) : **2.3**
Surcharge (kg)	:	**4.54**	Percentage greater than 20 mm	:	**0**	

Sample Description	Remarks
Greenish brown slightly sandy CLAY	**Test operator: JPlooy** **Test recorded by: JPlooy**

Approved Signatories: D. TROWBRIDGE A. FROST F. HAMILTON L. MARTIN

STRUCTURAL SOILS
The Old School
Stillhouse Lane
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Compiled By	Date	Checked By	Date
A.D.P.	01/09/08	D Wald	1/9/08

Contract: **Grovefield Way, Cheltenham**

Job No: **722048**

AGS

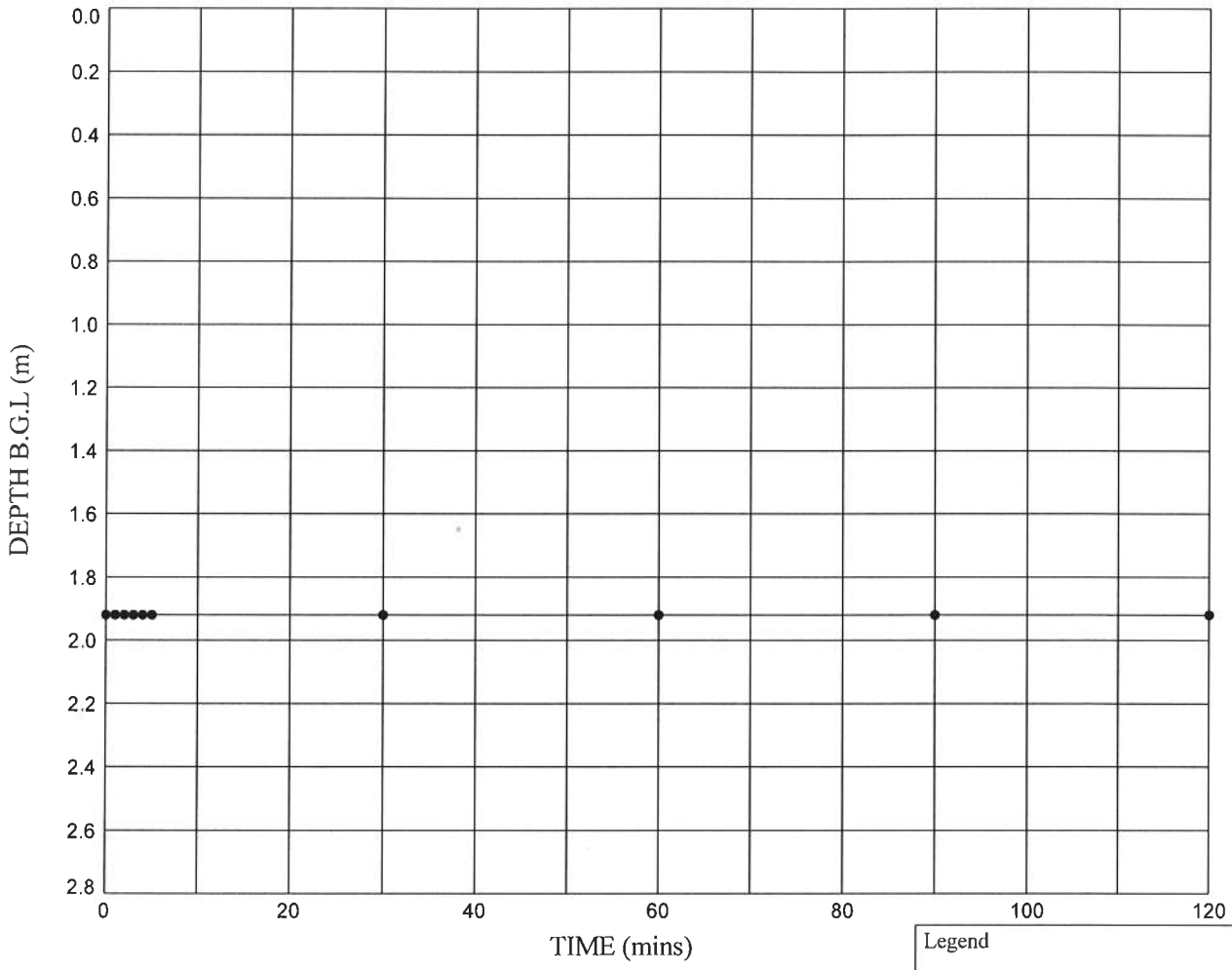
FULL SCALE SOAKAWAY TEST

In accordance with BRE 365

Soakaway Test - Position ID : **SA1**

Ground Level (m): **34.4** National Grid Co-ordinates: **E:390637.4 N:221522.7**

PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



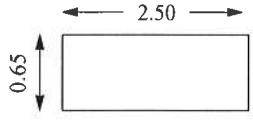
Legend

● Test 1 (04.08.08)

Effective depth, De	=	0.75	m
Effective storage volume, V_{p75-25}	=	0.6094	m^3
Surface area, a_{p50}	=	3.9875	m^2
Time, t_{p75-25}	=	NA	secs
Infiltration rate, f	=	NA	m/s

Notes : No drop in water level. Unable to calculate infiltration rate.

Plan (Not to scale)



No Bearing Taken

Approved Signatories: D. TROWBRIDGE A. FROST F. HAMILTON L. MARTIN

STRUCTURAL SOILS
The Old School
Stillhouse Lane
Bedminster
Bristol BS3 4EB

Compiled By	Date	Checked By	Date
A.D.	01/09/08		1/9/08

Contract: **Grovefield Way, Cheltenham**

Job No: **722048**

FULL SCALE SOAKAWAY TEST

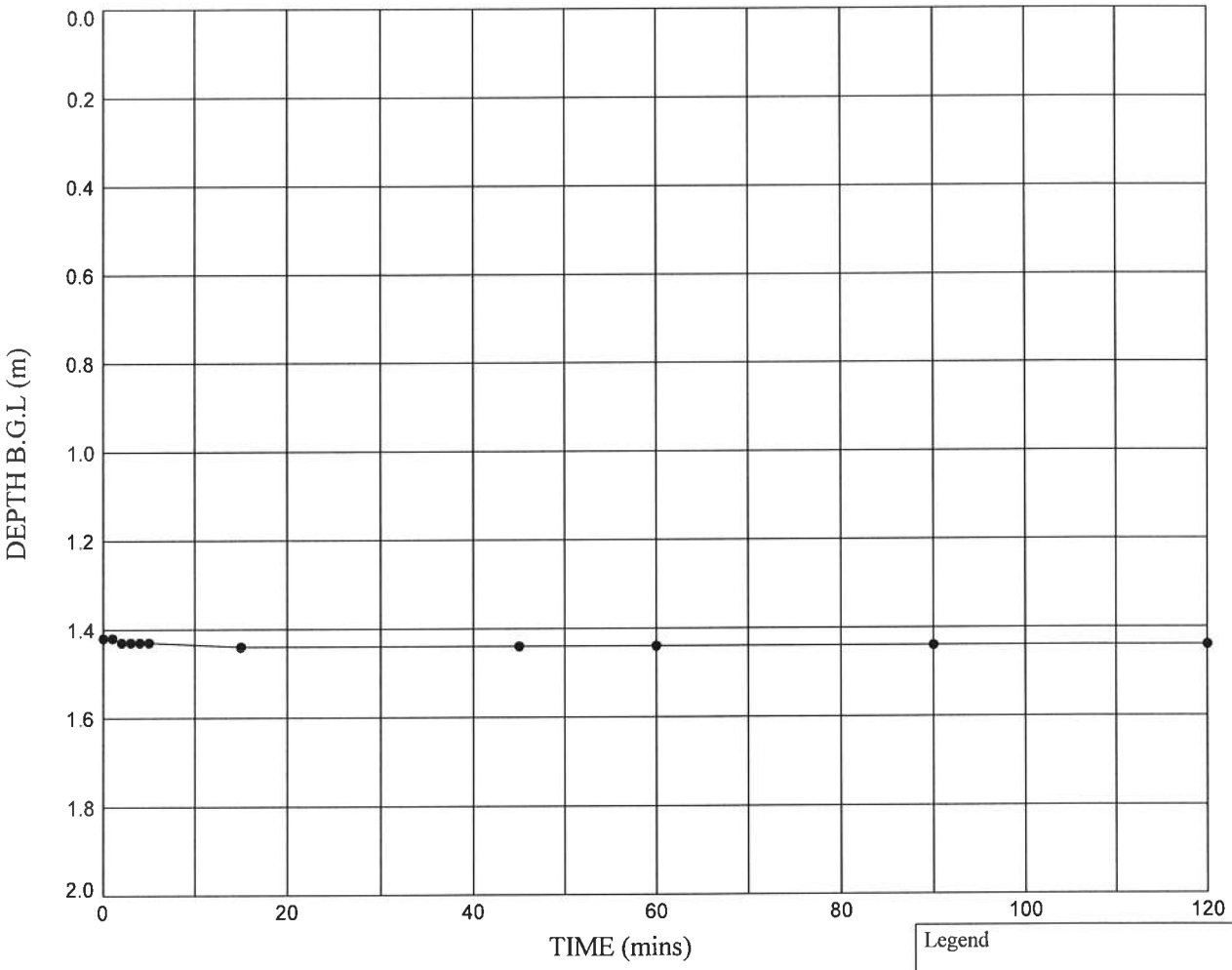
In accordance with BRE 365

Soakaway Test - Position ID : **SA2**

Ground Level (m): **35.6**

National Grid Co-ordinates: **E:390642.6 N:221388.9**

PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



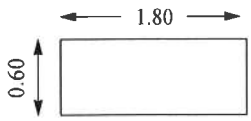
Legend

● Test 1 (04.08.08)

Effective depth, De	=	0.54	m
Effective storage volume, V_{p75-25}	=	0.2916	m^3
Surface area, a_{p50}	=	2.3760	m^2
Time, t_{p75-25}	=	NA	secs
Infiltration rate, f	=	NA	m/s

Notes : Insufficient drop in water level to calculate infiltration rate

Plan (Not to scale)



No Bearing Taken

Approved Signatories: D. TROWBRIDGE A. FROST F. HAMILTON L. MARTIN

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The Old School
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Bedminster
Bristol BS3 4EB

Compiled By	Date	Checked By	Date
A.D.Le	01/09/08	D Walker	1/9/08

Contract: **Grovefield Way, Cheltenham**

Job No: **722048**

FULL SCALE SOAKAWAY TEST

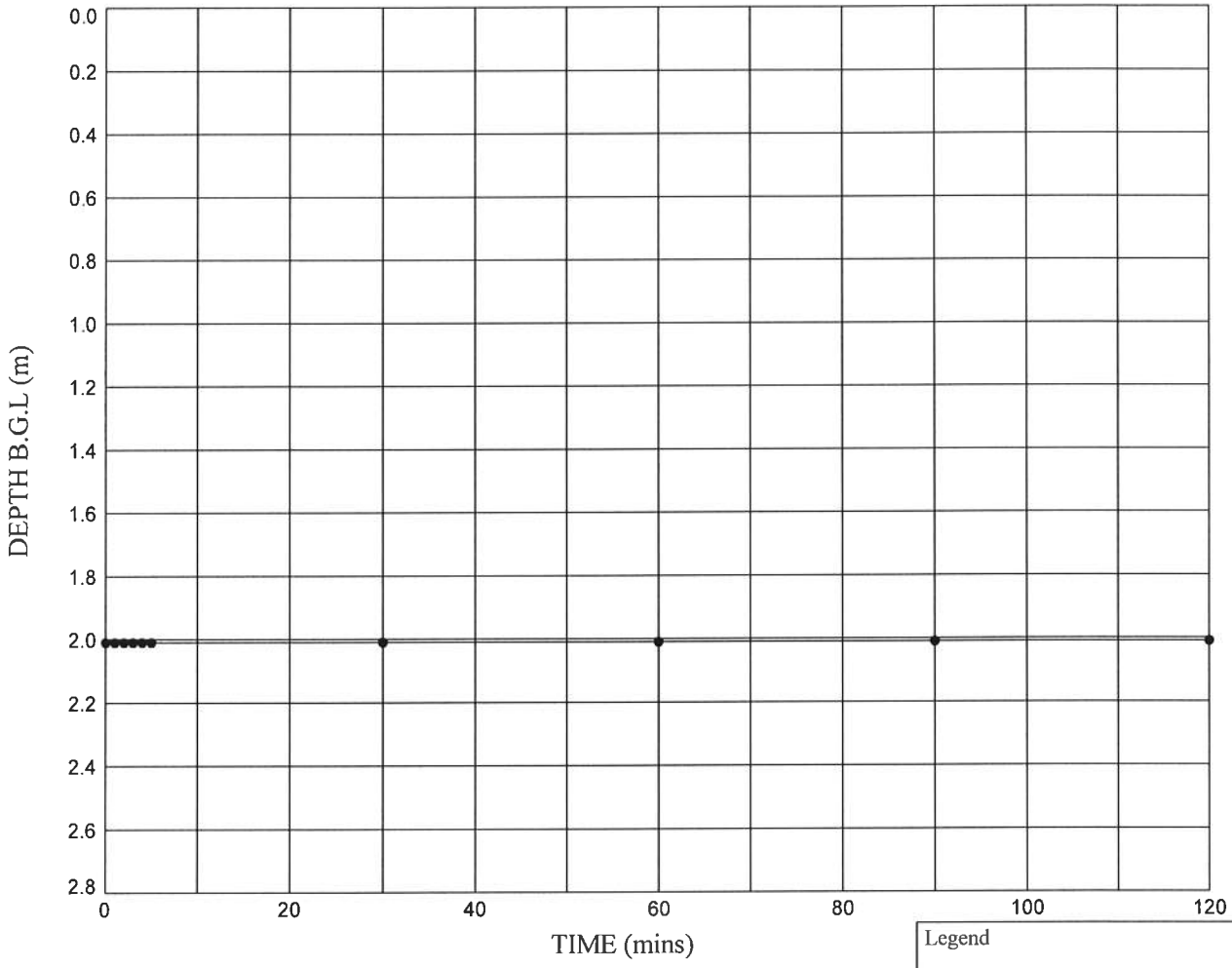
In accordance with BRE 365

Soakaway Test - Position ID : **SA3**

Ground Level (m): **32.3**

National Grid Co-ordinates: **E:390442.6 N:221436.8**

PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



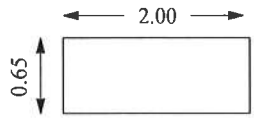
Legend

● Test 1 (04.08.08)

Effective depth, De	=	0.64	m
Effective storage volume, V_{p75-25}	=	0.4160	m³
Surface area, a_{p50}	=	2.9960	m²
Time, t_{p75-25}	=	NA	secs
Infiltration rate, f	=	NA	m/s

Notes : No drop in water level. Unable to calculate infiltration rate.

Plan (Not to scale)



No Bearing Taken

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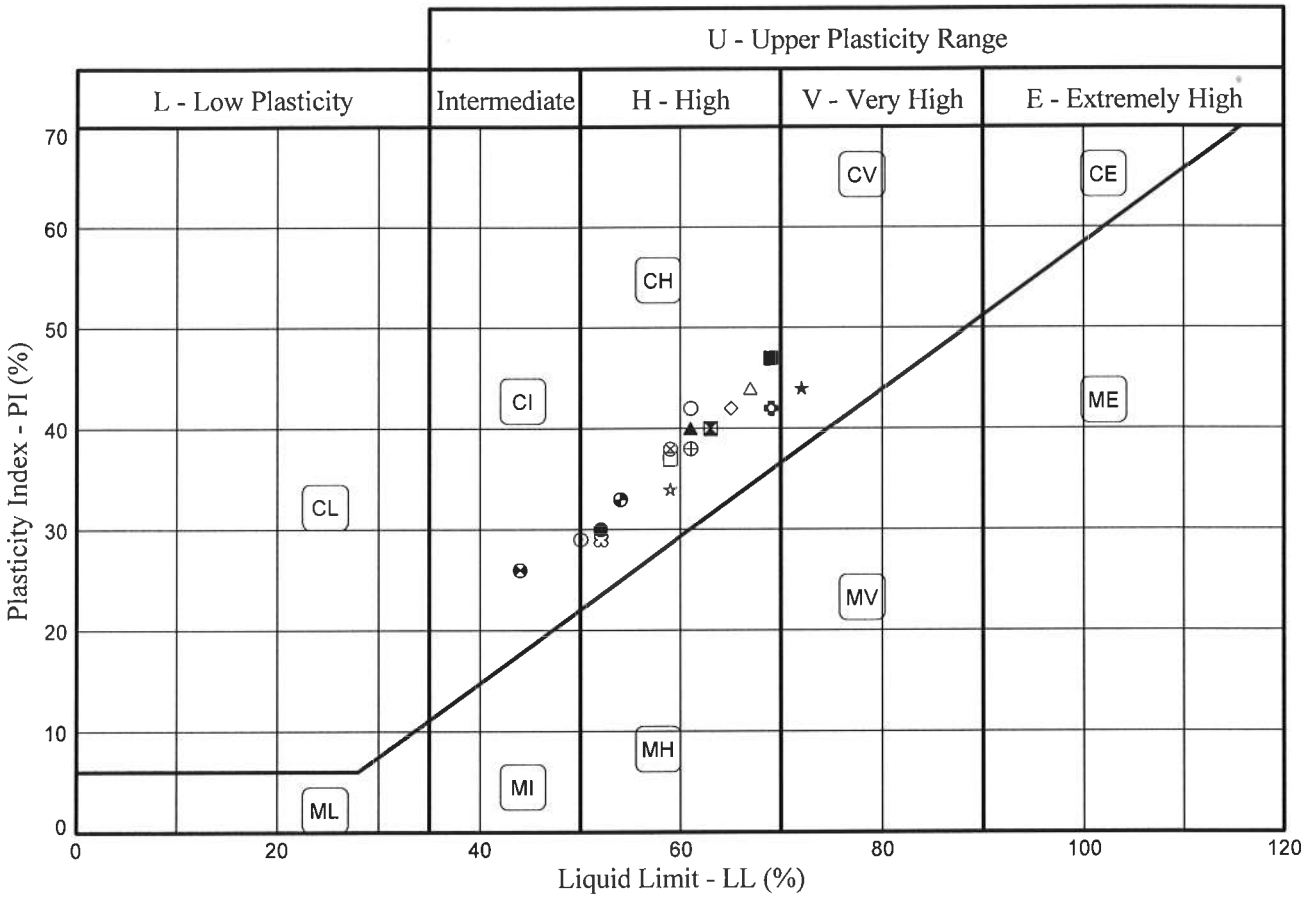
A.D.F	01/09/08	D Walker	1/9/08

Contract: **Grovefield Way, Cheltenham**

Job No: **722048**

PLASTICITY CHART - PI Vs LL

In accordance with clause 42.3 of BS5930:1981
Testing in accordance with clauses 3.2,4.3,4.4,5.3,5.4 of BS1377:Part 2:1990



Sample Identification				MC	LL	PL	PI	<425um	Specimen Description
	HoleID	Sample	Depth	%	%	%	%	%	
●	BH1	4D	1.90	26	52	22	30	99	Grey mottled yellowish brown slightly gravelly CLAY.
⊠	BH2	4B	0.80	29	63	23	40	100	Yellowish brown mottled grey CLAY.
▲	BH3	3D	1.10	25	61	21	40	93	Grey mottled brown slightly gravelly CLAY.
★	BH6	2D	0.50	26	72	28	44	90	Grey mottled orangish brown slightly gravelly CLAY.
⊙	BH7	3D	1.80	24	50	21	29	99	Light grey mottled yellowish brown slightly gravelly CLAY.
✿	SA1	5D	1.10	31	69	27	42	99	Light grey mottled orangish brown slightly gravelly CLAY.
○	SA2	5D	1.20	26	61	19	42	98	Grey mottled orangish brown slightly gravelly CLAY.
△	SA3	4D	0.85	27	67	23	44	98	Grey mottled yellowish brown slightly gravelly CLAY.
⊗	TP2	5D	0.95	25	59	21	38	96	Grey mottled orangish brown slightly gravelly CLAY.
⊕	TP5	5D	1.20	27	61	23	38	98	Grey mottled orangish brown slightly gravelly CLAY.
□	TP6	6D	1.40	24	59	22	37	94	Grey mottled orangish brown and light grey slightly gravelly CLAY.
⊛	TP7	5B	1.20	23	44	18	26	90	Grey mottled yellowish brown slightly gravelly sandy CLAY.
◒	TP7	6D	1.80	23	54	21	33	98	Grey mottled brown slightly gravelly CLAY.
☆	TP7	7D	2.30	24	59	25	34	100	Grey mottled yellowish brown CLAY.
⊠	TP7	9B	3.25	21	52	23	29	98	Grey mottled orangish brown slightly gravelly CLAY.
■	TP8	5D	0.90	24	69	22	47	94	Grey mottled brown slightly gravelly CLAY.
◆	TP9	3D	0.60	20	52	22	30	94	Grey mottled orangish brown slightly gravelly CLAY.
◇	TP10	5D	0.60	32	65	23	42	96	Grey mottled yellowish brown slightly gravelly CLAY.

* Non-standard test Approved Signatories: D. TROWBRIDGE A. FROST F. HAMILTON L. MARTIN

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Stillhouse Lane
Bedminster
Bristol BS3 4EB

Compiled By	Date	Checked By	Date
A. D. [illegible]	03/09/08	[illegible]	3/9/08

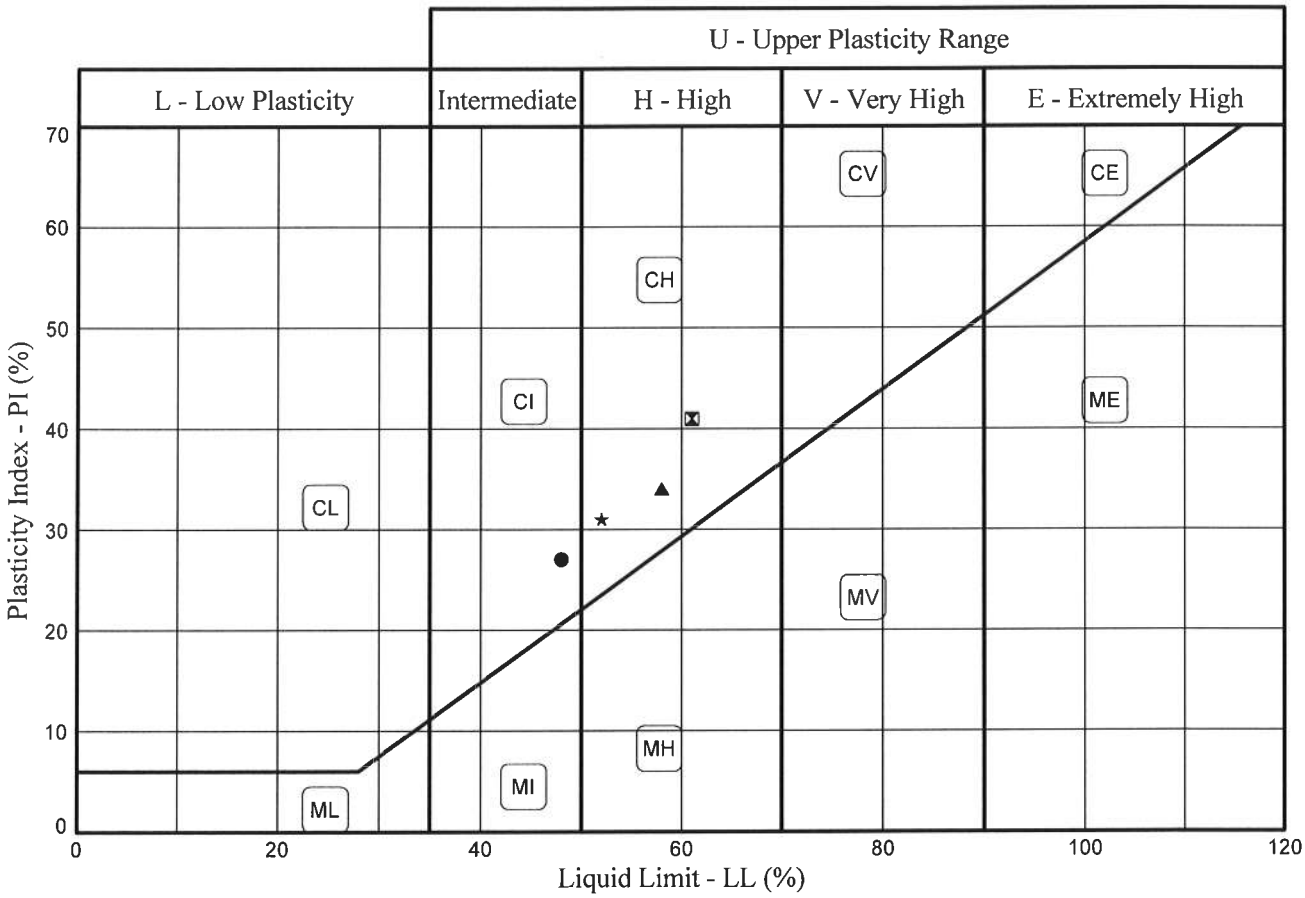
Contract: **Grovefield Way, Cheltenham**

Job No: **722048**

AGS

PLASTICITY CHART - PI Vs LL

In accordance with clause 42.3 of BS5930:1981
Testing in accordance with clauses 3.2,4.3,4.4,5.3,5.4 of BS1377:Part 2:1990



Sample Identification				MC	LL	PL	PI	<425um	Specimen Description
HoleID	Sample		Depth	%	%	%	%	%	
●	TP11	4D	0.75	23	48	21	27	95	Grey mottled yellowish brown and light grey slightly gravelly CLAY.
⊠	TP12	5D	1.00	25	61	20	41	96	Grey mottled orangish brown slightly gravelly CLAY.
▲	TP13	6D	1.70	27	58	24	34	100	Grey mottled orangish brown CLAY.
★	TP14	4D	0.70	25	52	21	31	98	Grey mottled yellowish brown slightly gravelly CLAY.

* Non-standard test

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Stillhouse Lane
Bedminster
Bristol BS3 4EB

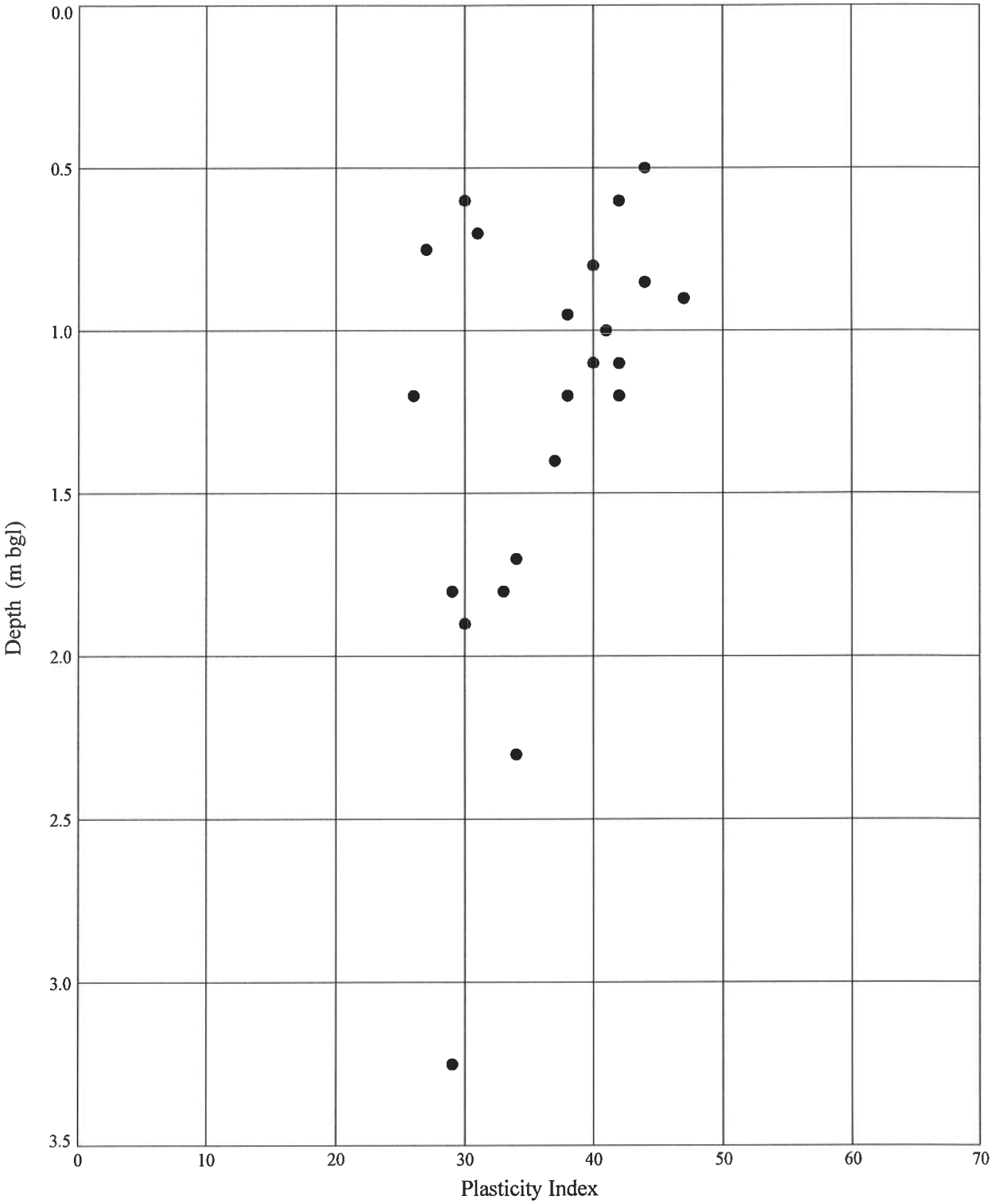
Compiled By	Date	Checked By	Date
A.D.Le	03/09/08	D Walsh	3/9/08

Contract: **Grovefield Way, Cheltenham**

Job No: **722048**

AGS

PLASTICITY INDEX vs DEPTH



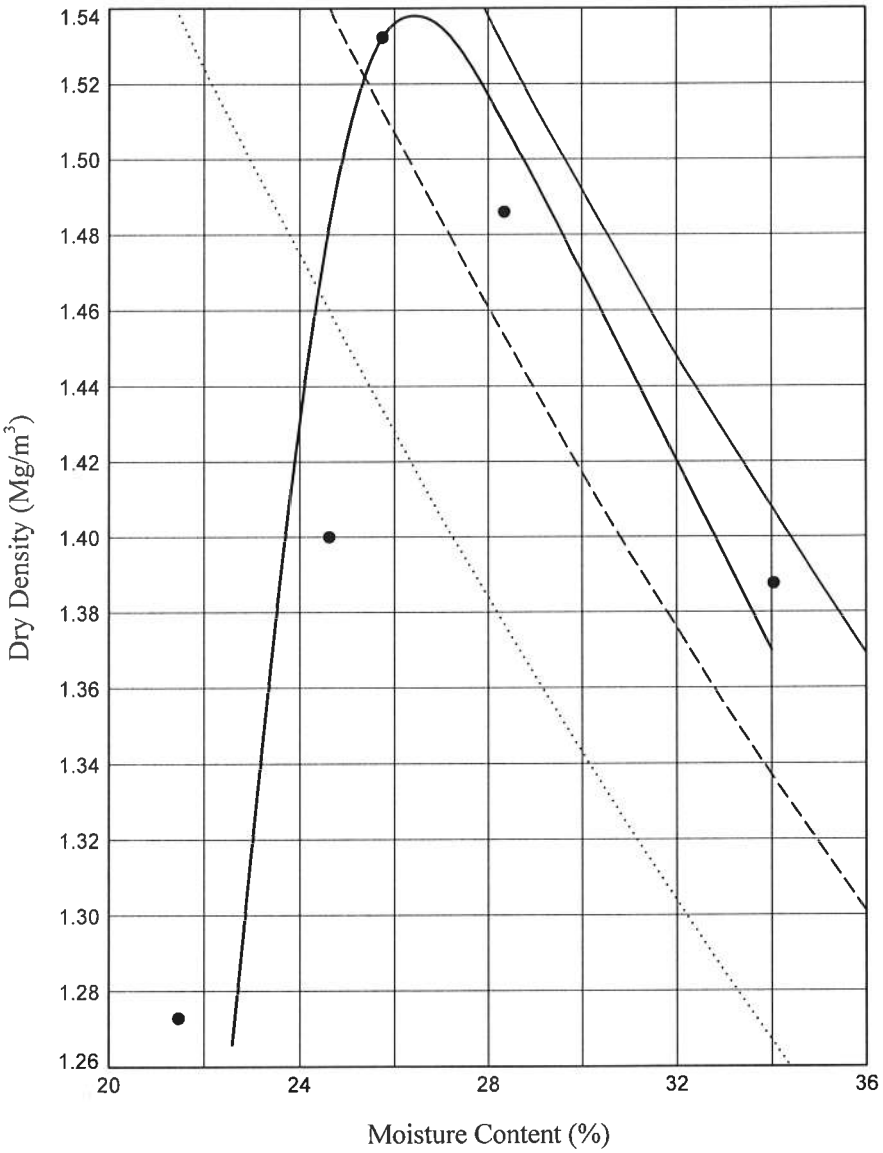
Exploratory Holes : **BH1, BH2, BH3, BH4, BH5, BH6, BH7, BH8, SA1, SA2, SA3, TP1, TP10, TP11, TP12, TP13, TP14, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9**

STRUCTURAL SOILS The Old School Stillhouse Lane Bedminster Bristol BS3 4EB	Contract **Grovefield Way, Cheltenham**	Date **12.09.08**	Checked By	Date
	Client **H Bailey**	Job No **722048**		

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP1** Sample Ref: **5** Sample Type: **B** Depth (m): **1.10**



Initial Sample Conditions		Test Details	Test Results
Initial Moisture Content (%) : **26**		Compaction Type : **Light**	Maximum Dry Density (Mg/m³) : **1.54**
% Retained on 37.5mm BS Sieve : **0**		Mass of Rammer (kg): **2.5**	Optimum Moisture Content (%) : **26**
% Retained on 20.0mm BS Sieve : **0**		Type of Mould : **Proctor**	Method Used: **Clause 3.3**
Particle Density - assumed (Mg/m³) : **2.70**			Remarks:
Size of Soil Pieces : **<20mm**		Separate samples were used.	

Sample Description	Key to Voids Ratio Lines		
Brown CLAY.	—— 0%	- - - - 5%	····· 10%

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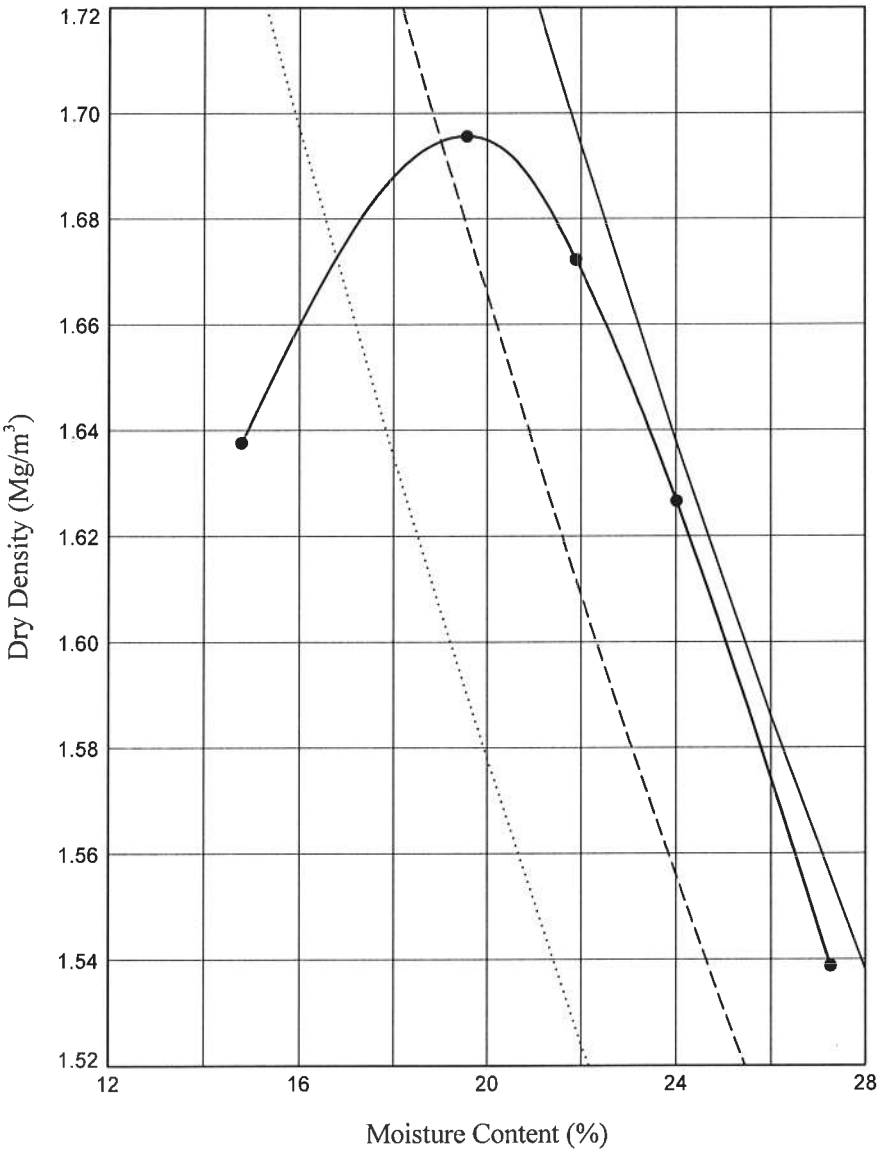
	Compiled By	Date	Checked By	Date
STRUCTURAL SOILS The Old School Stillhouse Lane Bedminster Bristol BS3 4EB	A-D-Pc	03/09/08	D Trowbridge	3/9/08
	Contract: **Grovefield Way, Cheltenham**		Job No: **722048**	

AGS

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP1** Sample Ref: **5** Sample Type: **B** Depth (m): **1.10**



Initial Sample Conditions		Test Details		Test Results	
Initial Moisture Content (%)	: **27**	Compaction Type	: **Heavy**	Maximum Dry Density (Mg/m³)	: **1.70**
% Retained on 37.5mm BS Sieve	: **0**	Mass of Rammer (kg):	**4.5**	Optimum Moisture Content (%)	: **20**
% Retained on 20.0mm BS Sieve	: **0**	Type of Mould	: **Proctor**	Method Used:	**Clause 3.5**
Particle Density - assumed (Mg/m³)	: **2.70**			Remarks:	
Size of Soil Pieces	: **<20mm**	Separate samples were used.			

Sample Description	Key to Voids Ratio Lines		
Brown CLAY.	—— 0%	- - - - 5%	····· 10%

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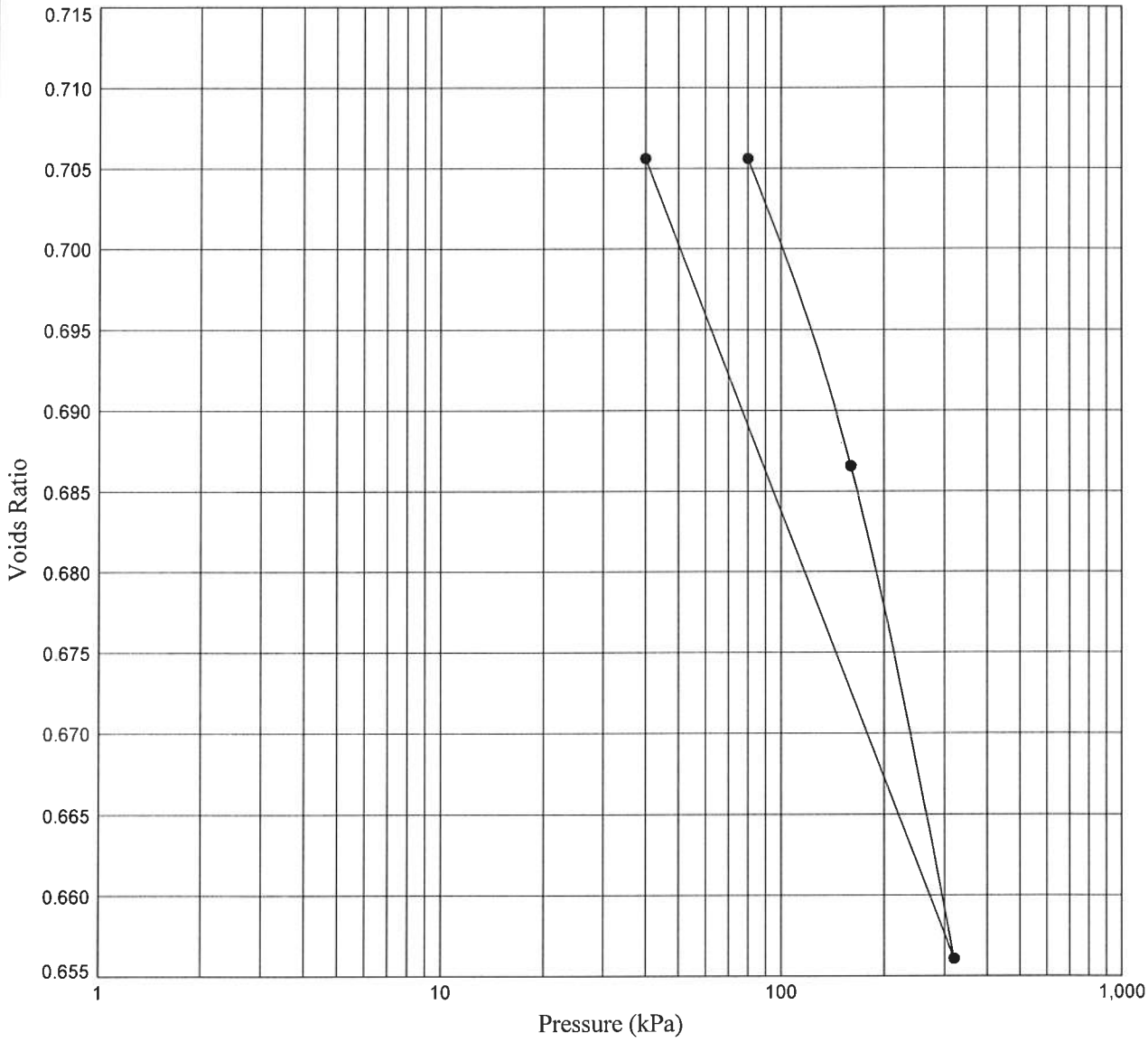
	Compiled By	Date	Checked By	Date
STRUCTURAL SOILS The Old School Stillhouse Lane Bedminster Bristol BS3 4EB	A.D.	03/09/08	D Walden	3/9/08
	Contract **Grovefield Way, Cheltenham**		Job No **722048**	

AGS

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH3** Sample Ref: **5** Sample Type: **U** Depth (m): **2.32**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**25**	Moisture Content (%)	:	**27**
Bulk Density (Mg/m^3)	:	**1.98**	Bulk Density (Mg/m^3)	:	**2.01**
Dry Density (Mg/m^3)	:	**1.58**	Dry Density (Mg/m^3)	:	**1.58**
Void Ratio	:	**0.7117**	Void Ratio	:	**0.7056**

Specimen Details		
Description	Height (mm)	: **20.31**
	Diameter (mm)	: **75.10**
Brown mottled grey slightly gravelly slightly sandy CLAY.	Particle Density (Mg/m^3) (assumed)	: **2.70**
	Swelling Pressure (kPa)	: **NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 40	**Sample**	**Swelling**
40 - 80	**0.084**	**19**
80 - 160	**0.14**	**10**
160 - 320	**0.11**	**5.1**
320 - 40	**0.11**	**5.0**

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STRUCTURAL SOILS
The Old School
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Compiled By	Date	Checked By	Date
A.D.	03/09/08		3/9/08

Contract: **Grovefield Way, Cheltenham**

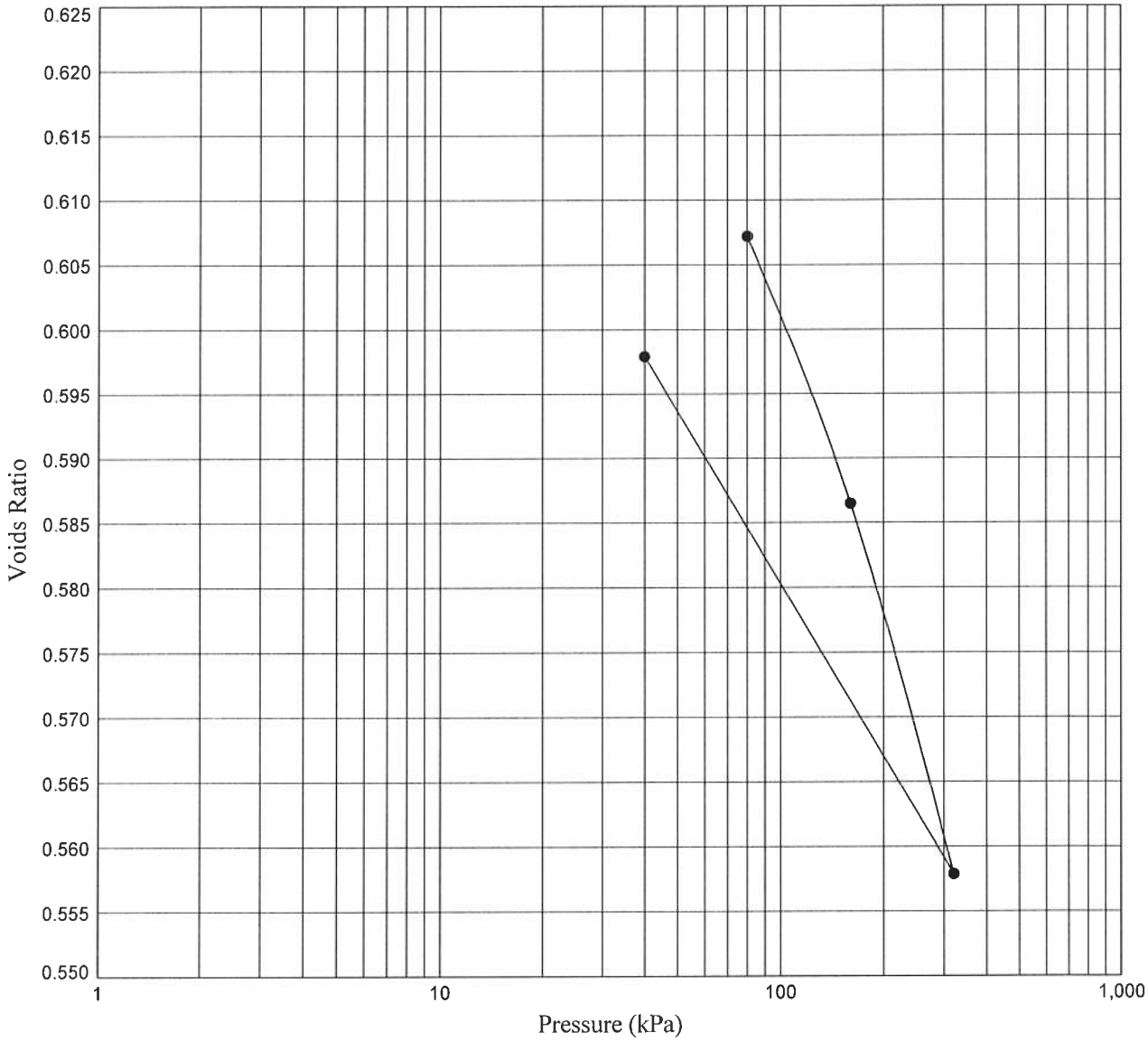
Job No: **722048**

AGS

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH4** Sample Ref: **6** Sample Type: **U** Depth (m): **3.27**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**23**	Moisture Content (%)	:	**24**
Bulk Density (Mg/m^3)	:	**2.03**	Bulk Density (Mg/m^3)	:	**2.09**
Dry Density (Mg/m^3)	:	**1.65**	Dry Density (Mg/m^3)	:	**1.68**
Void Ratio	:	**0.6397**	Void Ratio	:	**0.5979**

Specimen Details			
Description	Height (mm)	:	**19.63**
	Diameter (mm)	:	**75.02**
Grey CLAY.	Particle Density (Mg/m^3) (assumed)	:	**2.70**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 40	**Sample**	**Swelling**
40 - 80	**0.21**	**6.5**
80 - 160	**0.16**	**7.7**
160 - 320	**0.11**	**4.4**
320 - 40	**0.092**	**3.1**

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A.D.	03/09/08	D Walden	3/9/08

Contract: **Grovefield Way, Cheltenham**

Job No: **722048**

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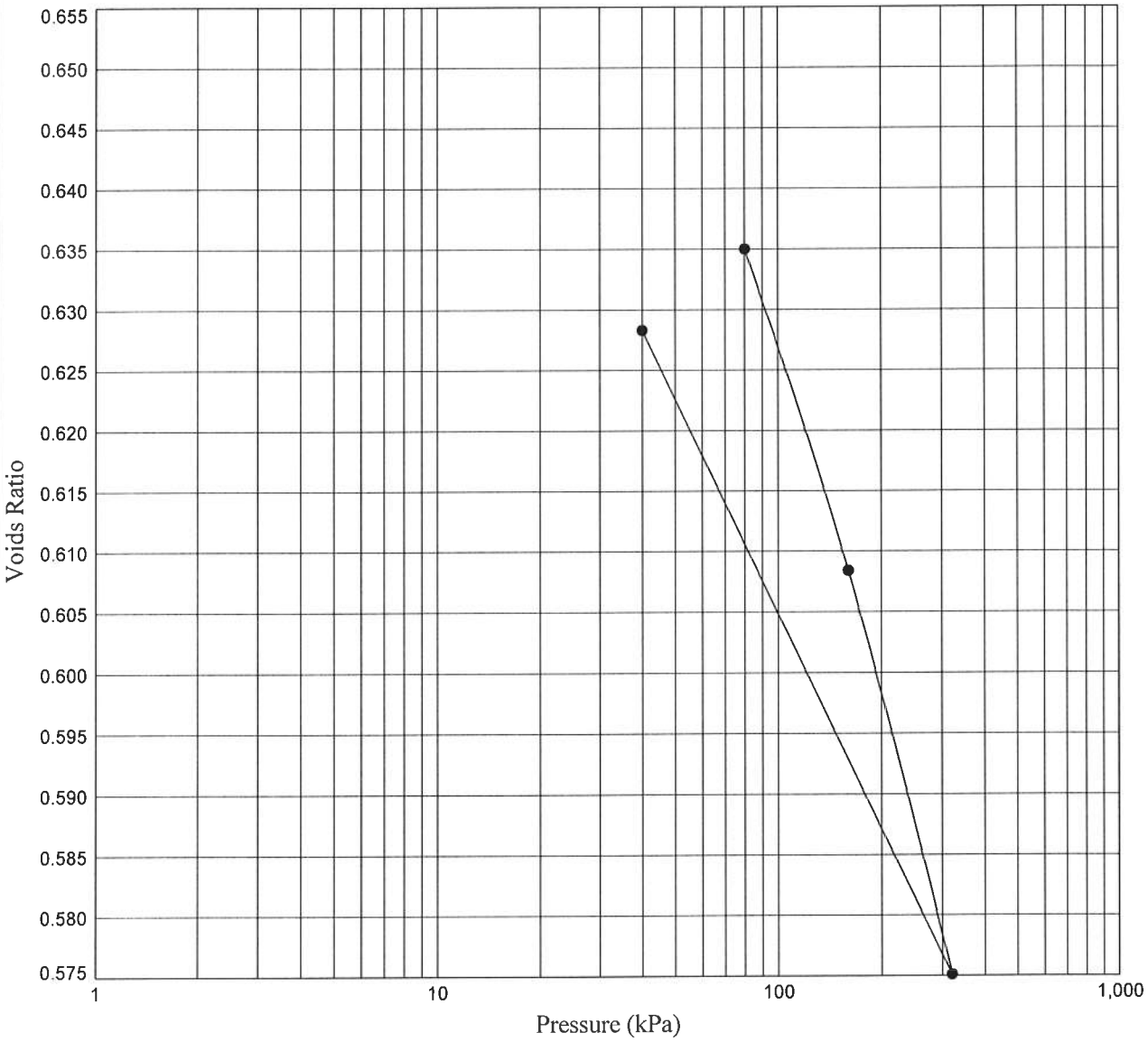
ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH5** Sample Ref: **8** Sample Type: **U** Depth (m): **2.32**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**24**	Moisture Content (%)	:	**24**
Bulk Density (Mg/m^3)	:	**1.99**	Bulk Density (Mg/m^3)	:	**2.06**
Dry Density (Mg/m^3)	:	**1.61**	Dry Density (Mg/m^3)	:	**1.66**
Void Ratio	:	**0.6776**	Void Ratio	:	**0.6283**

Specimen Details			
Description	Height (mm)	:	**20.93**
Grey CLAY.	Diameter (mm)	:	**75.10**
	Particle Density (Mg/m^3) (assumed)	:	**2.70**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 40	**Sample**	**Swelling**
40 - 80	**0.24**	**13**
80 - 160	**0.20**	**6.3**
160 - 320	**0.13**	**5.4**
320 - 40	**0.12**	**1.2**

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Compiled By	Date	Checked By	Date
A.D.	03/09/08		3/9/08

Contract: **Grovefield Way, Cheltenham**

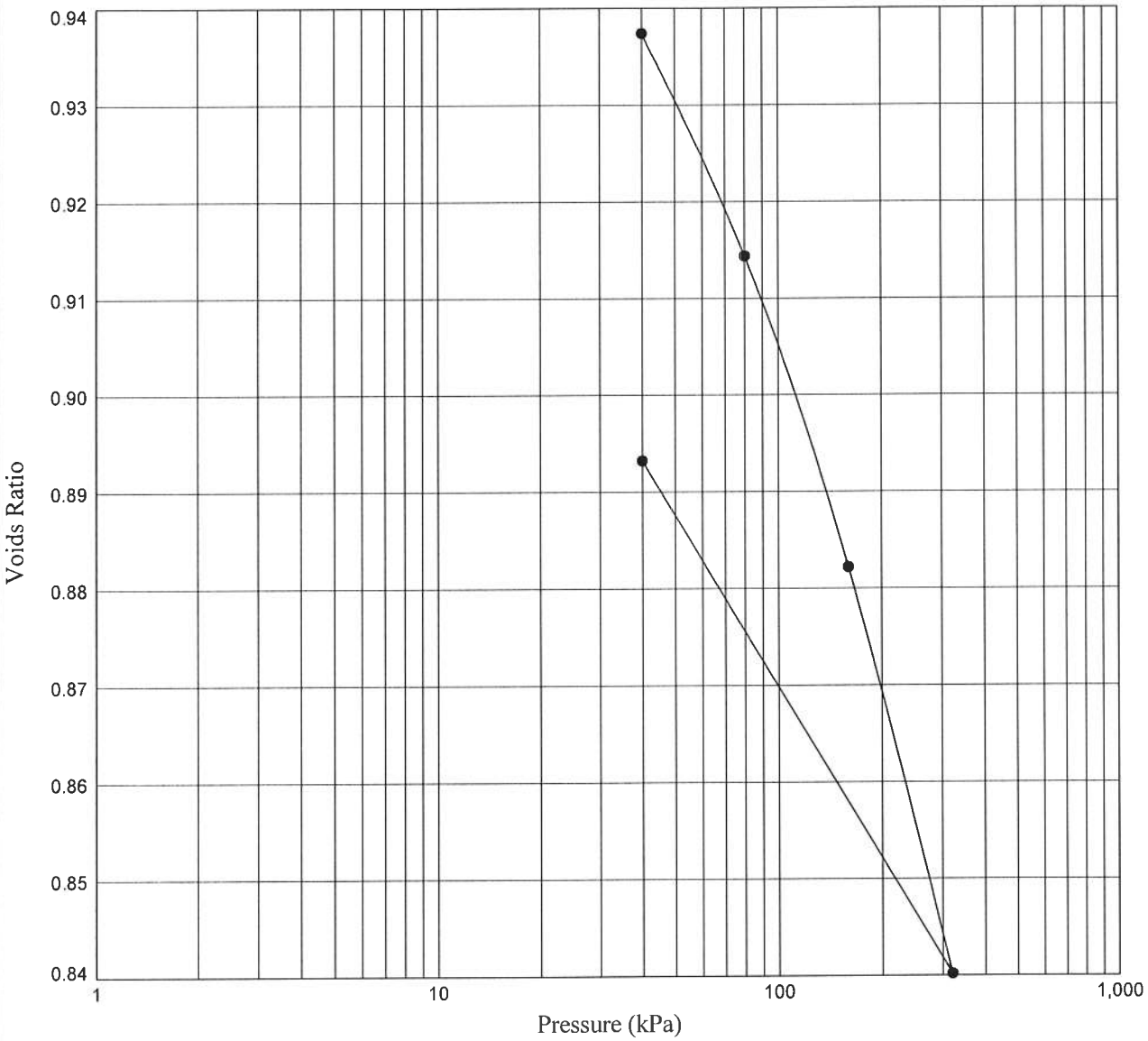
Job No: **722048**

AGS

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH8** Sample Ref: **7** Sample Type: **U** Depth (m): **3.35**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**32**	Moisture Content (%)	:	**32**
Bulk Density (Mg/m^3)	:	**1.81**	Bulk Density (Mg/m^3)	:	**1.88**
Dry Density (Mg/m^3)	:	**1.37**	Dry Density (Mg/m^3)	:	**1.42**
Void Ratio	:	**0.9703**	Void Ratio	:	**0.8932**

Specimen Details			
Description	Height (mm)	:	**20.74**
Grey CLAY.	Diameter (mm)	:	**75.15**
	Particle Density (Mg/m^3) (assumed)	:	**2.70**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 40	**0.42**	**47**
40 - 80	**0.30**	**8.9**
80 - 160	**0.21**	**7.5**
160 - 320	**0.14**	**19**
320 - 40	**0.10**	**3.7**

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STRUCTURAL SOILS
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Compiled By	Date	Checked By	Date
A-D. Le	03/09/08	D Wald	3/9/08

Contract: **Grovefield Way, Cheltenham**

Job No: **722048**

AGS

SUMMARY OF CHEMICAL ANALYSES

In accordance with clauses 9 of BS1377:Part 3:1990 where applicable.

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Aqueous Extract Sulphate (g/l SO_4)	pH	% passing 2mm sieve	Description
BH5	6	B	0.40	0.05	8.2	100	Brown mottled orangish brown CLAY.
BH6	8	D	1.80	0.31	8.2	100	Brown mottled orangish brown and grey CLAY.
BH8	2	B	0.30	0.02	8.1	98	Brown slightly gravelly CLAY.
SA2	3	D	0.75	0.03	8.4	98	Brown mottled grey slightly gravelly CLAY.
SA3	6	B	1.50	0.20	8.2	100	Brown mottled orangish brown and grey CLAY.
TP1	2	D	0.45	0.02	8.3	95	Brown slightly gravelly CLAY.
TP2	3	D	0.70	0.06	8.4	95	Brown mottled grey slightly gravelly CLAY.
TP3	3	D	0.75	0.05	8.4	98	Brown mottled grey slightly gravelly CLAY.

NOTES:- All chemical tests were undertaken by an external laboratory.

Approved Signatories: D. TROWBRIDGE A. FROST F. HAMILTON L. MARTIN

STRUCTURAL SOILS
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Stillhouse Lane
Bedminster
Bristol BS3 4EB

Compiled By	Date	Checked By	Date	Job No
A-D-L	03.09.08	D Trowbridge	3/9/08	722048

Contract: **Grovefield Way, Cheltenham**

SUMMARY OF CHEMICAL ANALYSES

In accordance with clauses 9 of BS1377:Part 3:1990 where applicable.

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Aqueous Extract Sulphate (g/l SO_4)	pH	% passing 2mm sieve	Description
TP4	5	D	1.20	0.10	8.6	98	Greenish brown mottled grey slightly gravelly CLAY.
TP5	3	D	0.90	0.03	8.5	100	Brown mottled orangish brown and grey CLAY.
TP6	4	D	0.65	0.02	8.4	100	Brown mottled orangish brown and grey CLAY.
TP6	5	D	0.90	0.16	8.3	100	Brown mottled orangish brown and grey CLAY.
TP7	3	D	0.60	0.02	8.4	98	Brown mottled orangish brown and grey slightly gravelly CLAY.
TP9	5	B	1.40	0.22	8.3	98	Brown mottled orangish brown and grey slightly gravelly CLAY.
TP10	6	D	1.10	0.32	8.5	100	Grey mottled brown CLAY.
TP11	5	D	1.35	0.04	8.5	98	Grey mottled brown slightly gravelly CLAY.

NOTES:- All chemical tests were undertaken by an external laboratory.

Approved Signatories: D. TROWBRIDGE A. FROST F. HAMILTON L. MARTIN

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Bristol BS3 4EB

Compiled By	Date	Checked By	Date	Job No
A.D.	03.09.08	D Trowbridge	3/9/08	722048

Contract: **Grovefield Way, Cheltenham**

SUMMARY OF CHEMICAL ANALYSES

In accordance with clauses 9 of BS1377:Part 3:1990 where applicable.

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Aqueous Extract Sulphate (g/l SO_4)	pH	% passing 2mm sieve	Description
TP12	3	D	0.75	0.03	8.3	100	Brown mottled orangish brown and grey CLAY.
TP14	5	B	1.00	0.06	8.1	100	Brown mottled orangish brown and grey CLAY.

NOTES:- All chemical tests were undertaken by an external laboratory.

Approved Signatories: D. TROWBRIDGE A. FROST F. HAMILTON L. MARTIN

STRUCTURAL SOILS
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Bristol BS3 4EB

Compiled By	Date	Checked By	Date	Job No
A.O.L	03.09.08	D Trowbridge	3/9/08	722048

Contract: **Grovefield Way, Cheltenham**

APPENDIX D

(i) Contamination Test Results

(ii) Gas and Groundwater Monitoring Results

(iii) Generic Assessment Criteria for Residential Scenario

ALcontrol Laboratories

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: mkt@alcontrol.co.uk
website: www.alcontrol.co.uk

Envirolab
Sandpits Business Park
Mottram Road
Hyde
SK14 3AR ATTN: Envirolab Data

CERTIFICATE OF ANALYSIS

Date: 01 September, 2008

Our Reference: 08/13955/02/01

Your Reference: 722048-4978

Location: GROVEFIELD WAY CHELTENHAM

A total of 21 samples was received for analysis on Friday, 15 August 2008 and completed on Friday, 22 August 2008. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials- whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Signed

Diane Whittlestone
Tech. Support Manager

David O'Hare
Project Manager

Caroline Suttie
Project Coordinator
Team Leader

Valid if signed by any of the above signatories.

Compiled By

Briony Johnson

1291
GROUP

ALcontrol Laboratories
TEST SCHEDULE

JOB NUMBER : 08/13955/02
CLIENT : Envirolab
CONTACT : Envirolab Data
DATE OF RECEIPT : 15/08/08
LOCATION : GROVEFIELD WAY CHELTENHAM

BATCH NUMBER : 1
CLIENT REF/CODE : 722048-4978
ORDER NUMBER : 34613
TURNAROUND : 5 days

Numeric values indicate additional scheduling

* indicates test subcontracted

		UKAS Accredited ?			✓	✓	✓	✓
Sample Number	Sample Identity	P / V	Depth	Sample Type	Metals ICP. 9 (S)	Organic Matter Total (S)	Sulphate Soluble Kone 2:1 (S)	pH (S)
1	90361 BH6 D5	TUB 400g	0.20	SOLID	X	X	X	X
2	90362 BH6 D6	TUB 400g	0.50	SOLID	X	X	X	X
3	90363 SA1 ES2	TUB 400g	0.20	SOLID	X	X	X	X
4	90364 SA2 ES2	TUB 400g	0.25	SOLID	X	X	X	X
5	90365 SA3 D5	TUB (D)	0.40	SOLID	X	X	X	X
6	90366 TP1 D4	TUB (D)	0.80	SOLID	X	X	X	X
7	90367 TP2 ES2	TUB 400g	0.20	SOLID	X	X	X	X
8	90368 TP3 ES2	TUB 400g	0.15	SOLID	X	X	X	X
9	90369 TP4 ES2	TUB 400g	0.21	SOLID	X	X	X	X
10	90370 TP5 ES2	TUB 400g	0.15	SOLID	X	X	X	X
11	90371 TP6 ES3	TUB 400g	0.65	SOLID	X	X	X	X
12	90372 TP6 ES1	TUB 400g	0.15	SOLID	X	X	X	X
13	90373 TP7 ES4	TUB 400g	0.60	SOLID	X	X	X	X
14	90374 TP8 D5	TUB 400g	0.90	SOLID	X	X	X	X
15	90375 TP9 ES4	TUB 400g	0.60	SOLID	X	X	X	X
16	90376 TP8 ES3	TUB 400g	0.60	SOLID	X	X	X	X
17	90377 TP9 D2	TUB (D)	0.20	SOLID	X	X	X	X
18	90378 TP10 D3	TUB (D)	0.40	SOLID	X	X	X	X
19	90379 TP11 ES1	TUB 400g	0.20	SOLID	X	X	X	X
20	90380 TP12 ES2	TUB 400g	0.15	SOLID	X	X	X	X
21	90381 TP13 ES2	TUB 400g	0.20	SOLID	X	X	X	X
		Total Number of Tests			**21**	**21**	**21**	**21**

Printed : 01/09/08 15:26:53

ALcontrol Laboratories Analytical Services
Sample Descriptions

Job Number: 08/13955/02/01
Client: Envirolab
Client Ref : 722048-4978

Grain sizes

<0.063mm	Very Fine
0.1mm - 0.063mm	Fine
0.1mm - 2mm	Medium
2mm - 10mm	Coarse
>10mm	Very Coarse

Sample Identity	Depth (m)	Colour	Grain Size	Description	Batch
90361 BH6 D5	0.20	Brown	0.1mm - 0.063mm	Loam (topsoil) with some Vegetation	1
90362 BH6 D6	0.50	Grey	0.1mm - 0.063mm	Clay with some Stones	1
90363 SA1 ES2	0.20	Brown	0.1mm - 0.063mm	Loam (topsoil) with some Vegetation	1
90364 SA2 ES2	0.25	Brown	0.1mm - 0.063mm	Clay Loam with some Vegetation	1
90365 SA3 D5	0.40	Brown	<0.063mm	Clay	1
90366 TP1 D4	0.80	Grey	0.1mm - 0.063mm	Silty Clay with some Stones	1
90367 TP2 ES2	0.20	Brown	0.1mm - 0.063mm	Clay	1
90368 TP3 ES2	0.15	Brown	0.1mm - 0.063mm	Silt Loam with some Vegetation	1
90369 TP4 ES2	0.21	Brown	0.1mm - 0.063mm	Loam (topsoil) with some Vegetation	1
90370 TP5 ES2	0.15	Brown	0.1mm - 0.063mm	Loam (topsoil) with some Vegetation	1
90371 TP6 ES3	0.65	Brown	0.1mm - 0.063mm	Silty Clay with some Vegetation	1
90372 TP6 ES1	0.15	Brown	0.1mm - 0.063mm	Loam (topsoil) with some Stones	1
90373 TP7 ES4	0.60	Brown	0.1mm - 0.063mm	Clay	1
90374 TP8 D5	0.90	Grey	0.1mm - 0.063mm	Silty Clay with some Stones	1
90375 TP9 ES4	0.60	Brown	0.1mm - 0.063mm	Silty Clay with some Stones	1
90376 TP8 ES3	0.60	Brown	0.1mm - 0.063mm	Clay	1
90377 TP9 D2	0.20	Brown	0.1mm - 0.063mm	Loam (topsoil) with some Vegetation	1
90378 TP10 D3	0.40	Grey	0.1mm - 0.063mm	Clay	1
90379 TP11 ES1	0.20	Brown	0.1mm - 0.063mm	Clay Loam with some Vegetation	1
90380 TP12 ES2	0.15	Brown	0.1mm - 0.063mm	Clay Loam with some Vegetation	1
90381 TP13 ES2	0.20	Brown	0.1mm - 0.063mm	Clay Loam with some Glass	1

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.
Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
[1] Sample Description supplied by client

Validated ✓
Preliminary

ALcontrol Laboratories Analytical Services
Table Of Results

[#] ISO 17025 accredited
[M] MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 08/13955/02/01 **Matrix:** SOLID
Client: Envirolab **Location:** GROVEFIELD WAY CHELTENHAM
Client Ref. No.: 722048-4978 **Client Contact:** Envirolab Data

Sample Identity	90361 BH6 D5	90362 BH6 D6	90363 SA1 ES2	90364 SA2 ES2	90365 SA3 D5	90366 TP1 D4	90367 TP2 ES2	90368 TP3 ES2	90369 TP4 ES2	Method Code	LoD/Units
Depth (m)	0.20	0.50	0.20	0.25	0.40	0.80	0.20	0.15	0.21		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date											
Sample Received Date	15.08.08	15.08.08	15.08.08	15.08.08	15.08.08	15.08.08	15.08.08	15.08.08	15.08.08		
Batch	1	1	1	1	1	1	1	1	1		
Sample Number(s)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**		
Arsenic	8	6	9	11	6	<3	8	10	11	TM129[#M]	<3.0 mg/kg
Cadmium	0.5	0.4	0.4	0.5	0.5	0.2	0.3	0.5	0.5	TM129	<0.2 mg/kg
Chromium	40	44	42	41	55	41	38	38	36	TM129[#M]	<4.5 mg/kg
Copper	36	29	29	35	37	23	25	30	30	TM129[#M]	<6 mg/kg
Lead	100	36	78	110	22	11	45	77	72	TM129[#M]	<2 mg/kg
Mercury	0.8	0.6	0.5	0.6	<0.4	0.4	<0.4	0.4	0.5	TM129[#M]	<0.4 mg/kg
Nickel	30	37	31	39	58	34	32	32	33	TM129[#M]	<0.9 mg/kg
Selenium	<3	<3	<3	<3	<3	<3	<3	<3	<3	TM129[#M]	<3 mg/kg
Zinc	140	100	130	130	99	68	86	120	120	TM129[#M]	<2.5 mg/kg
Water Soluble Sulphate as SO4 2:1 Extract	0.023	0.044	0.003	<0.003	0.029	0.067	<0.003	<0.003	<0.003	TM098[#M]	<0.003 g/l
pH Value	7.47	8.12	6.84	7.86	8.12	8.27	7.96	6.68	7.82	TM133[#M]	<1.00 pH Units
Total Organic Matter	9.8	2.8	7.4	6.4	1.4	1.0	4.1	7.7	7.3	TM132[#]	<0.35 %

All results expressed on a dry weight basis.

Date 01.09.2008

Validated ✓
Preliminary

ALcontrol Laboratories Analytical Services
Table Of Results

[#] ISO 17025 accredited
[M] MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 08/13955/02/01 **Matrix:** SOLID
Client: Envirolab **Location:** GROVEFIELD WAY CHELTENHAM
Client Ref. No.: 722048-4978 **Client Contact:** Envirolab Data

Sample Identity	90370 TP5 ES2	90371 TP6 ES3	90372 TP6 ES1	90373 TP7 ES4	90374 TP8 D5	90375 TP9 ES4	90376 TP8 ES3	90377 TP9 D2	90378 TP10 D3	Method Code	LoD/Units
Depth (m)	0.15	0.65	0.15	0.60	0.90	0.60	0.60	0.20	0.40		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date											
Sample Received Date	15.08.08	15.08.08	15.08.08	15.08.08	15.08.08	15.08.08	15.08.08	15.08.08	15.08.08		
Batch	1	1	1	1	1	1	1	1	1		
Sample Number(s)	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**		
Arsenic	12	6	11	8	3	6	6	11	3	TM129[#M]	<3.0 mg/kg
Cadmium	0.5	0.3	0.7	0.3	0.2	0.3	0.3	0.5	0.4	TM129	<0.2 mg/kg
Chromium	42	42	33	45	43	37	50	39	54	TM129[#M]	<4.5 mg/kg
Copper	43	20	58	25	24	22	27	34	27	TM129[#M]	<6 mg/kg
Lead	130	23	280	19	12	11	18	100	14	TM129[#M]	<2 mg/kg
Mercury	0.7	<0.4	0.5	<0.4	0.4	<0.4	<0.4	0.5	0.5	TM129[#M]	<0.4 mg/kg
Nickel	38	29	33	42	34	34	50	36	43	TM129[#M]	<0.9 mg/kg
Selenium	<3	<3	<3	<3	<3	<3	<3	<3	<3	TM129[#M]	<3 mg/kg
Zinc	150	90	300	92	67	69	92	110	83	TM129[#M]	<2.5 mg/kg
Water Soluble Sulphate as SO4 2:1 Extract	<0.003	0.009	0.016	<0.003	0.028	0.006	0.006	<0.003	0.031	TM098[#M]	<0.003 g/l
pH Value	6.86	8.37	7.69	8.27	8.19	8.27	8.14	7.59	8.07	TM133[#M]	<1.00 pH Units
Total Organic Matter	7.9	1.5	9.2	1.4	1.0	0.91	1.2	6.6	2.0	TM132[#]	<0.35 %

All results expressed on a dry weight basis.

Date 01.09.2008

Validated ✓
Preliminary

ALcontrol Laboratories Analytical Services
Table Of Results

[#] ISO 17025 accredited
[M] MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 08/13955/02/01 **Matrix:** SOLID
Client: Envirolab **Location:** GROVEFIELD WAY CHELTENHAM
Client Ref. No.: 722048-4978 **Client Contact:** Envirolab Data

Sample Identity	90379 TP11 ES1	90380 TP12 ES2	90381 TP13 ES2							Method Code	LoD/Units
Depth (m)	0.20	0.15	0.20								
Sample Type	SOLID	SOLID	SOLID								
Sampled Date											
Sample Received Date	15.08.08	15.08.08	15.08.08								
Batch	1	1	1								
Sample Number(s)	**19**	**20**	**21**								
Arsenic	10	24	13							TM129[#M]	<3.0 mg/kg
Cadmium	0.7	0.7	0.6							TM129	<0.2 mg/kg
Chromium	43	46	47							TM129[#M]	<4.5 mg/kg
Copper	44	55	64							TM129[#M]	<6 mg/kg
Lead	110	5000	150							TM129[#M]	<2 mg/kg
Mercury	0.6	0.8	0.8							TM129[#M]	<0.4 mg/kg
Nickel	37	42	44							TM129[#M]	<0.9 mg/kg
Selenium	<3	<3	<3							TM129[#M]	<3 mg/kg
Zinc	160	170	190							TM129[#M]	<2.5 mg/kg
Water Soluble Sulphate as SO4 2:1 Extract	0.004	0.008	0.068							TM098[#M]	<0.003 g/l
pH Value	7.90	7.83	7.96							TM133[#M]	<1.00 pH Units
Total Organic Matter	8.1	1.4	7.6							TM132[#]	<0.35 %

All results expressed on a dry weight basis.

Date 01.09.2008

ALcontrol Laboratories Analytical Services
Table Of Results - Appendix

Job Number: 08/13955/02/01
Client: Envirolab
Client Ref. No.: 722048-4978

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample [1]	Surrogate Corrected
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser	✓	✓	DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer			DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓	✓	DRY	
TM132	In - house Method	ELTRA CS800 Operators Guide	✓		DRY	
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter	✓	✓	WET	

[1] Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

ALcontrol Laboratories Analytical Services
Table Of Results - Appendix

Job Number: 08/13955/02/01
Client: Envirolab
Client Ref. No.: 722048-4978

Summary of Coolbox temperatures

Batch No.	Coolbox Temperature (°C)
1	10.4

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during a fibre screen and analysed for the presence of asbestos will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, the soil sample will be screened for the presence of fibres in-house and if no fibres are found will be reported as NFD – no fibres detected. If fibres are detected, they will be removed and analysed by our documented in house method based on HSG 248(2005). If a sample is suspected of containing asbestos, then further preparation and analysis will be suspended on that sample until the asbestos result is known. If asbestos is present, then no further analysis will be undertaken.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.
8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.
9. NDP – No determination possible due to insufficient/unsuitable sample.
10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
11. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
12. **Surrogate recoveries** – Currently the only analysis, which is surrogate corrected, is PAHs on soils. For EPH on soils the result is not surrogate corrected, but a percentage recovery is quoted.
13. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
14. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).
15. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 14).
16. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
17. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.
19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.
21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.
22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials – whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

LIQUID MATRICES EXTRACTION SUMMARY			
ANALYSIS	**EXTRACTION SOLVENT**	**EXTRACTION METHOD**	**ANALYSIS**
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GS MS
SVOC	DCM	LIQUID/LIQUID SHAKEN SVOC	GC MS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DCM/EA	SOLID PHASE EXTRACTION	GC MS
TRIAZINE HERBS	DCM/EA	SOLID PHASE EXTRACTION	GC MS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GC MS
TPH by INFRA RED (IR)	TCE	LIQUID/LIQUID EXTRACTION	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID EXTRACTION	HPLC
SAPONIFIABLE	TCE	LIQUID/LIQUID EXTRACTION	HPLC
UNSAPONIFIABLE	TCE	LIQUID/LIQUID EXTRACTION	HPLC
GLYCOLS	DCM	LIQUID/LIQUID EXTRACTION	EZ FLASH

SOLID MATRICES EXTRACTION SUMMARY				
ANALYSIS	**D/C OR WET**	**EXTRACTION SOLVENT**	**EXTRACTION METHOD**	**ANALYSIS**
Solvent Extractable Matter	D&C	DCM	SOXTHERM	GRAVIMETRIC
Cyclohexanes Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Min oil)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Cleaned up)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG by GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB tot / PCB con	D&C	HEXANE:ACETONE	END OVER END	GC-MS
Polyaromatic Hydrocarbons (MS)	D&C	HEXANE:ACETONE	END OVER END	GC-MS
Polyaromatic Hydrocarbons (FID)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
C8-C40 (C6-C40)EZ Flash	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Polyaromatic Hydrocarbons Rapid GC	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Semi Volatile Organic compounds	WET	DCM:ACETONE	SONICATE	GC-MS

envirolab

Date: 26 August 2008
Your Ref: 722048 - PO. 520151
Our Ref: 722048-(4978)-010
Project Manager: Margaret Baker
Report to: Margaret Baker

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

Final Test Report

Sample(s) of Soil from Grovefield Way, Cheltenham.
Received from Structural Soils Ltd
The Old School, Stillhouse Lane, Bristol, BS3 4EB

Date of receipt: 15 August 2008
Date analysis commenced: 15 August 2008
Date analysis completed: 26 August 2008

Method Statement

Speciated TPH analysis is performed in accordance with procedures A-T-022 using GC-MS with Head Space & A-T-023 using GC-FID.
Banded TPH analysis is performed in accordance with procedure A-T-007.
PAH analysis is performed in accordance with procedure A-T-019.
Loss on drying analysis is performed in accordance with procedure A-T-020.
Subcontract analysis was submitted to a laboratory on Envirolab's approved vendors list.
A copy of the report is attached, accreditation status is detailed on the report.

Prepared by:

Melanie Marshall
Laboratory Co-ordinator

Approved by:

Thi McNabb
Reporting Analytical Chemist

UKAS TESTING No. 1247

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
Tests marked "*" in this report are not included in the UKAS Accreditation Schedule for Envirolab.
Analytical results reflect the quality of the sample at the time of analysis only.

MCERTS

Envirolab Ref.	PROCEDURE	ISO17025	MCERTS	90361	90364	90365	90367	90368					
Location				**BH6**	**SA2**	**SA3**	**TP2**	**TP3**					
Depth (m)				**0.20**	**0.25**	**0.40**	**0.20**	**0.15**					
Sample Ref				**5**	**2**	**5**	**2**	**2**					
Sample Type				**D**	**ES**	**D**	**ES**	**ES**					
$MTBE_R$	A-T-022	**Y**	**N**	<0.01	<0.01	<0.01	<0.01	<0.01					
$Benzene_R$	A-T-022	**Y**	**N**	<0.01	<0.01	<0.01	<0.01	<0.01					
$Toluene_R$	A-T-022	**Y**	**N**	<0.01	<0.01	<0.01	<0.01	<0.01					
Ethyl $Benzene_R$	A-T-022	**Y**	**N**	<0.01	<0.01	<0.01	<0.01	<0.01					
m & p $Xylene_R$	A-T-022	**Y**	**N**	<0.01	<0.01	<0.01	<0.01	<0.01					
o $Xylene_R$	A-T-022	**Y**	**N**	<0.01	<0.01	<0.01	<0.01	<0.01					
Aliphatics C5-$C6_R$	A-T-022	**Y**	**N**	<0.01	<0.01	<0.01	<0.01	<0.01					
Aliphatics >C6-$C8_R$	A-T-022	**Y**	**N**	<0.01	<0.01	<0.01	<0.01	<0.01					
Aliphatics >C8-$C10_R$	A-T-022	**Y**	**N**	<0.01	<0.01	<0.01	<0.01	<0.01					
Aliphatics >C10-$C12_R$	A-T-023	**Y**	**N**	<0.1	<0.1	<0.1	<0.1	<0.1					
Aliphatics >C12-$C16_R$	A-T-023	**Y**	**N**	<0.1	<0.1	<0.1	<0.1	<0.1					
Aliphatics >C16-$C21_R$	A-T-023	**Y**	**N**	<0.1	<0.1	<0.1	<0.1	<0.1					
Aliphatics >C21-$C35_R$	A-T-023	**Y**	**N**	<0.1	<0.1	<0.1	6.6	<0.1					
Total Aliphatics		**Y**	**N**	**<0.1**	**<0.1**	**<0.1**	**6.60**	**<0.1**					
Aromatics >C5-$C7_R$	A-T-022	**Y**	**N**	<0.01	<0.01	<0.01	<0.01	<0.01					
Aromatics >C7-$C8_R$	A-T-022	**Y**	**N**	<0.01	<0.01	<0.01	<0.01	<0.01					
Aromatics >C8-$C9_R$	A-T-022	**Y**	**N**	<0.01	<0.01	<0.01	<0.01	<0.01					
Aromatics >C9-$C10_R$	A-T-022	**Y**	**N**	<0.01	<0.01	<0.01	<0.01	<0.01					
Aromatics >C10-$C12_R$	A-T-023	**Y**	**N**	<0.1	<0.1	<0.1	<0.1	<0.1					
Aromatics >C12-$C16_R$	A-T-023	**Y**	**N**	<0.1	<0.1	<0.1	<0.1	<0.1					
Aromatics >C16-$C21_R$	A-T-023	**Y**	**N**	<0.1	<0.1	<0.1	<0.1	<0.1					
Aromatics >C21-$C35_R$	A-T-023	**Y**	**N**	<0.1	<0.1	<0.1	<0.1	<0.1					
Total Aromatics		**Y**	**N**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**					
TPH (Aliphatics & Aromatics)		**Y**	**N**	**<0.1**	**<0.1**	**<0.1**	**6.60**	**<0.1**					

Table 1 - Soil Speciated TPH Results (mg/kg)

Envirolab Ref.	PROCEDURE	ISO17025	MCERTS	90361	90362	90363	90364	90365	90366	90367	90368	90369	90370
Location				**BH6**	**BH6**	**SA1**	**SA2**	**SA3**	**TP1**	**TP2**	**TP3**	**TP4**	**TP5**
Depth (m)				**0.20**	**0.50**	**0.20**	**0.25**	**0.40**	**0.80**	**0.20**	**0.15**	**0.21**	**0.15**
Sample Ref				**5**	**6**	**2**	**2**	**5**	**4**	**2**	**2**	**2**	**2**
Sample Type				**D**	**D**	**ES**	**ES**	**D**	**D**	**ES**	**ES**	**ES**	**ES**
Naphthalene$_R$	A-T-019	**Y**	**Y**	0.05	0.01	<0.01	0.01	<0.01	<0.01	0.05	0.03	0.29	0.12
Acenaphthylene$_R$	A-T-019	**Y**	**N**	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
Acenapthene$_R$	A-T-019	**Y**	**Y**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01
Fluorene$_R$	A-T-019	**Y**	**Y**	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.03	<0.01	0.01	<0.01
Phenanthrene$_R$	A-T-019	**Y**	**Y**	0.09	0.02	<0.01	0.15	<0.01	0.04	0.36	0.04	0.11	0.04
Anthracene$_R$	A-T-019	**Y**	**Y**	0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.06	<0.01	0.01	<0.01
Fluoranthene$_R$	A-T-019	**Y**	**Y**	0.18	0.07	0.02	0.32	<0.01	0.06	0.42	0.07	0.16	0.13
Pyrene$_R$	A-T-019	**Y**	**Y**	0.17	<0.01	<0.01	0.28	0.04	0.05	0.36	0.07	0.14	0.10
Benz [a] anthracene$_R$	A-T-019	**Y**	**Y**	0.07	<0.01	<0.01	0.12	<0.01	<0.01	0.10	<0.01	0.05	0.02
Chrysene$_R$	A-T-019	**Y**	**Y**	0.11	<0.01	<0.01	0.28	<0.01	0.01	0.21	0.02	0.11	0.07
Benzo [b] fluoranthene$_R$ Benzo [k] fluoranthene #$_R$	A-T-019	**Y**	**Y**	0.26	<0.01	<0.01	0.26	<0.01	0.01	0.20	<0.01	0.06	<0.01
Benzo [a] pyrene$_R$	A-T-019	**Y**	**Y**	0.12	<0.01	<0.01	0.10	<0.01	<0.01	0.1	<0.01	0.0	<0.01
Indeno [123-cd] pyrene$_R$	A-T-019	**Y**	**Y**	0.10	<0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.04	0.02
Dibenz [ah] anthracene$_R$	A-T-019	**Y**	**Y**	0.03	0.02	0.01	<0.01	<0.01	0.03	<0.01	0.01	0.01	<0.01
Benzo [ghi] perylene$_R$	A-T-019	**Y**	**Y**	0.16	0.03	0.03	0.12	<0.01	<0.01	0.04	0.04	0.08	0.03
Total 16 PAH Reported		**Y**	**N**	**1.36**	**0.15**	**0.08**	**1.69**	**0.05**	**0.21**	**1.96**	**0.29**	**1.08**	**0.53**

Due to coelution Benzo [b] fluoranthene and Benzo [k] fluoranthene are reported as one value.

Table 2 - Soil PAH Results (mg/kg, expressed on a dry weight basis)

Envirolab Ref.	PROCEDURE	ISO17025	MCERTS	90371	90372	90373	90374	90375	90376	90377	90378	90379	90380
Location				**TP6**	**TP6**	**TP7**	**TP8**	**TP9**	**TP8**	**TP9**	**TP10**	**TP11**	**TP12**
Depth (m)				**0.65**	**0.15**	**0.60**	**0.90**	**0.60**	**0.60**	**0.20**	**0.40**	**0.20**	**0.15**
Sample Ref				**3**	**1**	**4**	**5**	**4**	**3**	**2**	**3**	**1**	**2**
Sample Type				**ES**	**ES**	**ES**	**D**	**ES**	**ES**	**D**	**D**	**ES**	**ES**
Naphthalene$_R$	A-T-019	**Y**	**Y**	<0.01	0.20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene$_R$	A-T-019	**Y**	**N**	<0.01	0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenapthene$_R$	A-T-019	**Y**	**Y**	<0.01	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene$_R$	A-T-019	**Y**	**Y**	<0.01	0.07	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01
Phenanthrene$_R$	A-T-019	**Y**	**Y**	<0.01	1.35	0.01	<0.01	0.03	0.01	0.06	<0.01	0.03	0.20
Anthracene$_R$	A-T-019	**Y**	**Y**	<0.01	0.35	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.04
Fluoranthene$_R$	A-T-019	**Y**	**Y**	<0.01	3.33	0.04	<0.01	0.07	0.07	0.13	<0.01	0.10	0.34
Pyrene$_R$	A-T-019	**Y**	**Y**	<0.01	3.05	0.03	0.03	0.06	0.05	0.11	<0.01	0.10	0.30
Benz [a] anthracene$_R$	A-T-019	**Y**	**Y**	<0.01	1.95	<0.01	<0.01	0.03	<0.01	0.02	<0.01	<0.01	0.14
Chrysene$_R$	A-T-019	**Y**	**Y**	<0.01	3.35	<0.01	<0.01	0.07	<0.01	0.09	<0.01	0.04	0.31
Benzo [b] fluoranthene$_R$ Benzo [k] fluoranthene #$_R$	A-T-019	**Y**	**Y**	<0.01	2.55	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	<0.01	0.35
Benzo [a] pyrene$_R$	A-T-019	**Y**	**Y**	<0.01	1.81	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.05
Indeno [123-cd] pyrene$_R$	A-T-019	**Y**	**Y**	0.01	1.16	0.02	<0.01	0.01	0.02	<0.01	0.01	0.02	0.16
Dibenz [ah] anthracene$_R$	A-T-019	**Y**	**Y**	<0.01	0.08	0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01
Benzo [ghi] perylene$_R$	A-T-019	**Y**	**Y**	0.02	1.93	<0.01	0.02	0.01	<0.01	0.02	<0.01	0.02	0.22
Total 16 PAH Reported		**Y**	**N**	**0.03**	**21.40**	**0.11**	**0.05**	**0.30**	**0.15**	**0.49**	**0.02**	**0.34**	**2.12**

Due to coelution Benzo [b] fluoranthene and Benzo [k] fluoranthene are reported as one value.

Table 3 - Soil PAH Results (mg/kg, expressed on a dry weight basis)

Envirolab Ref.	PROCEDURE	ISO17025	MCERTS	90381									
Location				**TP13**									
Depth (m)				**0.20**									
Sample Ref				**2**									
Sample Type				**ES**									
Naphthalene$_R$	A-T-019	**Y**	**Y**	0.01									
Acenaphthylene$_R$	A-T-019	**Y**	**N**	<0.01									
Acenapthene$_R$	A-T-019	**Y**	**Y**	0.02									
Fluorene$_R$	A-T-019	**Y**	**Y**	<0.01									
Phenanthrene$_R$	A-T-019	**Y**	**Y**	<0.01									
Anthracene$_R$	A-T-019	**Y**	**Y**	<0.01									
Fluoranthene$_R$	A-T-019	**Y**	**Y**	0.07									
Pyrene$_R$	A-T-019	**Y**	**Y**	0.07									
Benz [a] anthracene$_R$	A-T-019	**Y**	**Y**	0.06									
Chrysene$_R$	A-T-019	**Y**	**Y**	0.12									
Benzo [b] fluoranthene$_R$ Benzo [k] fluoranthene #$_R$	A-T-019	**Y**	**Y**	0.01									
Benzo [a] pyrene$_R$	A-T-019	**Y**	**Y**	0.03									
Indeno [123-cd] pyrene$_R$	A-T-019	**Y**	**Y**	0.08									
Dibenz [ah] anthracene$_R$	A-T-019	**Y**	**Y**	<0.01									
Benzo [ghi] perylene$_R$	A-T-019	**Y**	**Y**	<0.01									
Total 16 PAH Reported		**Y**	**N**	**0.47**									

Due to coelution Benzo [b] fluoranthene and Benzo [k] fluoranthene are reported as one value.

Table 4 - Soil PAH Results (mg/kg, expressed on a dry weight basis)

Envirolab Ref.	PROCEDURE	ISO17025	MCERTS	90362	90363	90366	90369	90370	90371	90372	90373	90374	90375
Location				BH6	SA1	TP1	TP4	TP5	TP6	TP6	TP7	TP8	TP9
Depth (m)				0.50	0.20	0.80	0.21	0.15	0.65	0.15	0.6	0.9	0.6
Sample Ref				6	2	4	2	2	3	1	4	5	4
Sample Type				D	ES	D	ES	ES	ES	ES	ES	D	ES
>C6-C10$_R$	A-T-007	Y	N	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
>C10-C25$_R$	A-T-007	Y	N	<10	<10	<10	<10	<10	<10	77	<10	<10	<10
>C25-C36$_R$	A-T-007	Y	N	<10	<10	<10	<10	<10	<10	47	<10	<10	<10
Comments	A-T-007	N	N	-	-	-	-	-	-	Possible PAH	-	-	-

Table 5 - Soil Banded TPH Results (mg/kg, expressed on a dry weight basis)

Envirolab Ref.	PROCEDURE	ISO17025	MCERTS	90376	90377	90378	90379	90380	90381				
Location				TP8	TP9	TP10	TP11	TP12	TP13				
Depth (m)				0.6	0.2	0.4	0.2	0.15	0.20				
Sample Ref				3	2	3	1	2	2				
Sample Type				ES	D	D	ES	ES	ES				
>C6-C10$_R$	A-T-007	Y	N	<10	<10	<10	<10	<10	<10				
>C10-C25$_R$	A-T-007	Y	N	<10	<10	<10	<10	<10	<10				
>C25-C36$_R$	A-T-007	Y	N	<10	<10	<10	<10	<10	<10				
Comments	A-T-007	N	N	-	-	-	-	-	-				

Table 6 - Soil Banded TPH Results (mg/kg, expressed on a dry weight basis)

Envirolab Ref.	90361	90362	90363	90364	90365	90366	90367	90368	90369	90370
Location	BH6	BH6	SA1	SA2	SA3	TP1	TP2	TP3	TP4	TP5
Depth (m)	0.20	0.50	0.20	0.25	0.40	0.80	0.20	0.15	0.21	0.15
Sample Ref	5	6	2	2	5	4	2	2	2	2
Sample Type	D	D	ES	ES	D	D	ES	ES	ES	ES
Type	Loam	Clay	Clay	Loam	Clay	Clay	Clay	Loam	Loam	Loam
Colour	Brown	Grey	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Consistency	Loose	Firm	Firm	Loose	Firm	Firm	Firm	Loose	Loose	Loose
Some Stones	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
>50 Stones	No	No	No	No	No	No	No	No	No	No
Some Vegetation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Very Wet	No	No	No	No	No	No	No	No	No	No
Strong Odour	No	No	No	No	No	No	No	No	No	No

Table 7 - Soil Matrix Table

Envirolab Ref.	90371	90372	90373	90374	90375	90376	90377	90378	90379	90380
Location	TP6	TP6	TP7	TP8	TP9	TP8	TP9	TP10	TP11	TP12
Depth (m)	0.65	0.15	0.60	0.90	0.60	0.60	0.20	0.40	0.20	0.15
Sample Ref	3	1	4	5	4	3	2	3	1	2
Sample Type	ES	ES	ES	D	ES	ES	D	D	ES	ES
Type	Clay	Loam	Clay	Clay	Clay	Clay	Clay	Clay	Loam	Clay
Colour	Brown	Black	Light Brown	Mixed	Mixed	Mixed	Mixed	Mixed	Brown	Brown
Consistency	Firm	Loose	Firm	Firm	Firm	Firm	Firm	Firm	Loose	Loose
Some Stones	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
>50 Stones	No	No	No	No	No	No	No	No	No	No
Some Vegetation	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes
Very Wet	No	No	No	No	No	No	No	No	No	No
Strong Odour	No	No	No	No	No	No	No	No	No	No

Table 8 - Soil Matrix Table

Envirolab Ref.	90381									
Location	TP13									
Depth (m)	0.20									
Sample Ref	2									
Sample Type	ES									
Type	Clay									
Colour	Brown									
Consistency	Firm									
Some Stones	Yes									
>50 Stones	No									
Some Vegetation	Yes									
Very Wet	No									
Strong Odour	No									

Table 9 - Soil Matrix Table

envirolab

Appendix

Code	Description
+	Increased detection limit due to sample interference
#	Increased detection limit due to sample dilution
$	Analysis subcontracted
IS	Insufficient sample for analysis
IS-QC	Insufficient sample to retest following QC fail
NDP	No determination possible
~	Sample type outside the scope of our MCERTS accreditation since matrix not included in method validation
"	Analytes are associated with failed AQC targets for MCERTS, but passed UKAS AQC
^	Sample result is not covered under Envirolab's accreditation schedule for MCERTS as the result exceeds the validated range. See notes 1-3.
F	Analysis suffixed "$_F$" were performed on the filtered sample
D	Analysis suffixed "$_D$" were performed on the sample air dried at <30^{o}C
O	Analysis suffixed "$_O$" were performed on the sample oven dried at 95^{o}C
R	Analysis suffixed "$_R$" were performed on the sample as received. Where results are expressed on a dry weight basis, the samples were air dried at 95^{o}C
Notes	
1	For MCERTS the validated range covers up to 15mg/kg for individual PAHs, 200mg/kg for totals.
2	For MCERTS the validated range covers up to 3000mg/kg for Total TPH analysis.
3	For MCERTS the validated range covers up to 0.2mg/kg for individual PCBs, and 1.5mg/kg for the total reported as araclor.
4	Natural stones and debris are excluded from analyses
5	Coarse granular material such as concrete, gravel and brick are not MCERTS accredited if they comprise the major part of the sample. Envirolab are currently accredited for MCERTS on soil types Sand, Clay and Loam only

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CERTIFICATE OF ANALYSIS

Date:	11 September, 2008
Our Reference:	08/14520/02/01
Your Reference:	722048-5020
Location:	GROVEFIELD WAY

A total of 2 samples was received for analysis on Wednesday, 27 August 2008 and completed on Wednesday, 03 September 2008. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials- whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Signed

Diane Whittlestone
Tech. Support Manager

David O'Hare
Project Manager

Caroline Suttie
Project Coordinator
Team Leader

Valid if signed by any of the above signatories.

Compiled By .....
Briony Johnson

UKAS TESTING
1291
GROUP

ALcontrol Laboratories
TEST SCHEDULE

JOB NUMBER : 08/14520/02
CLIENT : Envirolab
CONTACT : Subcon
DATE OF RECEIPT : 27/08/08
LOCATION : GROVEFIELD WAY

BATCH NUMBER : 1
CLIENT REF/CODE : 722048-5020
ORDER NUMBER : 34708
TURNAROUND : 5 days

Numeric values indicate additional scheduling

* indicates test subcontracted

		UKAS Accredited ?			✓	✓	✓	✓																			
Sample Number	Sample Identity	P / V	Depth	Sample Type	Metals ICP-MS 9 (W)	Mercury Dissolved (W) (CVAF)	Sulphate Kone (W)	pH (W)																			
1	90759 BH5 EW1	1lplastic	5.75	LIQUID	X	X	X	X																			
2	90760 BH8 EW1	1lplastic	2.55	LIQUID	X	X	X	X																			
		Total Number of Tests			2	2	2	2																			

Printed : 11/09/08 16:49:24

Validated ☑
Preliminary ☐

ALcontrol Laboratories Analytical Services
Table Of Results

[#] ISO 17025 accredited
[M] MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 08/14520/02/01 **Matrix:** LIQUID
Client: Envirolab **Location:** GROVEFIELD WAY
Client Ref. No.: 722048-5020 **Client Contact:** Subcon

Sample Identity	90759 BH5 EW1	90760 BH8 EW1								Method Code	LoD/Units
Depth (m)	5.75	2.55									
Sample Type	LIQUID	LIQUID									
Sampled Date	21.08.08	21.08.08									
Sample Received Date	27.08.08	27.08.08									
Batch	1	1									
Sample Number(s)	**1**	**2**									
Arsenic Dissolved (ICP-MS)	6.2	2.7								TM152[#]	<0.75 ug/l
Boron Dissolved (ICP-MS)	2500	1400								TM152[#]	<20 ug/l
Cadmium Dissolved (ICP-MS)	<0.22	<0.22								TM152[#]	<0.22 ug/l
Chromium Dissolved (ICP-MS)	7	8								TM152[#]	<1 ug/l
Copper Dissolved (ICP-MS)	7.5	8.1								TM152[#]	<1.6 ug/l
Lead Dissolved (ICP-MS)	<0.4	<0.4								TM152[#]	<0.4 ug/l
Nickel Dissolved (ICP-MS)	30	23								TM152[#]	<1.5 ug/l
Selenium Dissolved (ICP-MS)	31	9								TM152[#]	<1 ug/l
Zinc Dissolved (ICP-MS)	8	7								TM152[#]	<5 ug/l
Mercury Dissolved (CVAF)	<0.01	<0.01								TM183[#]	<0.01 ug/l
Sulphate (soluble)	3200	3800								TM098[#]	<3 mg/l
pH Value	8.28	8.27								TM133[#]	<1.00 pH Units

Date 11.09.2008

ALcontrol Laboratories Analytical Services
Table Of Results - Appendix

Job Number: 08/14520/02/01
Client: Envirolab
Client Ref. No.: 722048-5020

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample [1]	Surrogate Corrected
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser	✓		NA	
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter	✓		NA	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS	✓		NA	
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry	✓		NA	

[1] Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

ALcontrol Laboratories Analytical Services
Table Of Results - Appendix

Job Number: 08/14520/02/01
Client: Envirolab
Client Ref. No.: 722048-5020

Summary of Coolbox temperatures

Batch No.	Coolbox Temperature (°C)
1	18*C

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during a fibre screen and analysed for the presence of asbestos will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, the soil sample will be screened for the presence of fibres in-house and if no fibres are found will be reported as NFD – no fibres detected. If fibres are detected, they will be removed and analysed by our documented in house method based on HSG 248(2005). If a sample is suspected of containing asbestos, then further preparation and analysis will be suspended on that sample until the asbestos result is known. If asbestos is present, then no further analysis will be undertaken.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.
8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.
9. NDP – No determination possible due to insufficient/unsuitable sample.
10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
11. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
12. **Surrogate recoveries** – Currently the only analysis, which is surrogate corrected, is PAHs on soils. For EPH on soils the result is not surrogate corrected, but a percentage recovery is quoted.
13. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
14. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).
15. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 14).
16. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
17. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.
19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.
21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.
22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials – whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

LIQUID MATRICES EXTRACTION SUMMARY			
ANALYSIS	**EXTRACTION SOLVENT**	**EXTRACTION METHOD**	**ANALYSIS**
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GS MS
SVOC	DCM	LIQUID/LIQUID SHAKEN SVOC	GC MS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DCM/EA	SOLID PHASE EXTRACTION	GC MS
TRIAZINE HERBS	DCM/EA	SOLID PHASE EXTRACTION	GC MS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GC MS
TPH by INFRA RED (IR)	TCE	LIQUID/LIQUID EXTRACTION	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID EXTRACTION	HPLC
SAPONIFIABLE	TCE	LIQUID/LIQUID EXTRACTION	HPLC
UNSAPONIFIABLE	TCE	LIQUID/LIQUID EXTRACTION	HPLC
GLYCOLS	DCM	LIQUID/LIQUID EXTRACTION	EZ FLASH

SOLID MATRICES EXTRACTION SUMMARY				
ANALYSIS	**D/C OR WET**	**EXTRACTION SOLVENT**	**EXTRACTION METHOD**	**ANALYSIS**
Solvent Extractable Matter	D&C	DCM	SOXTHERM	GRAVIMETRIC
Cyclohexanes Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Min oil)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Cleaned up)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG by GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB tot / PCB con	D&C	HEXANE:ACETONE	END OVER END	GC-MS
Polyaromatic Hydrocarbons (MS)	D&C	HEXANE:ACETONE	END OVER END	GC-MS
Polyaromatic Hydrocarbons (FID)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
C8-C40 (C6-C40)EZ Flash	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Polyaromatic Hydrocarbons Rapid GC	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Semi Volatile Organic compounds	WET	DCM:ACETONE	SONICATE	GC-MS

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Date: 01 September 2008
Your Ref: 722048 - PO: 520255
Our Ref: 722048-(5020)-020
Project Manager: Margaret Baker
Report to: Margaret Baker

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

Interim Test Report

Sample(s) of Water from Grovefield Way.
Received from Structural Soils Ltd
The Old School, Stillhouse Lane, Bristol, BS3 4EB

Date of receipt: 27 August 2008
Date analysis commenced: 27 August 2008
Date analysis completed: 29 August 2008

Method Statement

Speciated TPH analysis is performed in accordance with procedures A-T-022 using GC-MS with Head Space & A-T-023 using GC-FID.
PAH analysis is performed in accordance with procedure A-T-019.
Subcontract analysis was submitted to a laboratory on Envirolab's approved vendors list.

Prepared by:

MMarshall

Melanie Marshall
Laboratory Co-ordinator

Approved by:

GScott

Gill Scott
Laboratory Manager

UKAS TESTING No. 1247

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
Tests marked "*" in this report are not included in the UKAS Accreditation Schedule for Envirolab.
Analytical results reflect the quality of the sample at the time of analysis only.

Envirolab Ref.	PROCEDURE	ISO17025	90759	90760								
Location			**BH5**	**BH8**								
Depth (m)			**5.75**	**2.55**								
Sample Ref			**1**	**1**								
Sample Type			**EW**	**EW**								
MTBE$_R$	A-T-022	**Y**	<1	<1								
Benzene$_R$	A-T-022	**Y**	<1	<1								
Toluene$_R$	A-T-022	**Y**	<1	<1								
Ethyl Benzene$_R$	A-T-022	**Y**	<1	<1								
m & p Xylene$_R$	A-T-022	**Y**	<1	<1								
o Xylene$_R$	A-T-022	**Y**	<1	<1								
Aliphatics C5-C6$_R$	A-T-022	**Y**	1	<1								
Aliphatics >C6-C8$_R$	A-T-022	**Y**	<1	<1								
Aliphatics >C8-C10$_R$	A-T-022	**Y**	<1	<1								
Aliphatics >C10-C12$_R$	A-T-023	**Y**	<5	<5								
Aliphatics >C12-C16$_R$	A-T-023	**Y**	<5	<5								
Aliphatics >C16-C21$_R$	A-T-023	**Y**	<5	<5								
Aliphatics >C21-C35$_R$	A-T-023	**Y**	<5	<5								
Total Aliphatics		**Y**	**1**	**<5**								
Aromatics >C5-C7$_R$	A-T-022	**Y**	<1	<1								
Aromatics >C7-C8$_R$	A-T-022	**Y**	<1	<1								
Aromatics >C8-C9$_R$	A-T-022	**Y**	<1	<1								
Aromatics >C9-C10$_R$	A-T-022	**Y**	<1	<1								
Aromatics >C10-C12$_R$	A-T-023	**Y**	<5	<5								
Aromatics >C12-C16$_R$	A-T-023	**Y**	<5	<5								
Aromatics >C16-C21$_R$	A-T-023	**Y**	<5	<5								
Aromatics >C21-C35$_R$	A-T-023	**Y**	<5	<5								
Total Aromatics		**Y**	**<5**	**<5**								
TPH (Aliphatics & Aromatics)		**Y**	**1**	**<5**								

Table 1 - Water Speciated TPH Results (µg/l)

Envirolab Ref.	PROCEDURE	ISO17025	90759	90760								
Location			**BH5**	**BH8**								
Depth (m)			**5.75**	**2.55**								
Sample Ref			**1**	**1**								
Sample Type			**EW**	**EW**								
Naphthalene$_R$	A-T-019	**Y**	<0.01	<0.01								
Acenaphthylene$_R$	A-T-019	**Y**	<0.01	<0.01								
Acenapthene$_R$	A-T-019	**Y**	<0.01	<0.01								
Fluorene$_R$	A-T-019	**Y**	<0.01	<0.01								
Phenanthrene$_R$	A-T-019	**Y**	<0.01	<0.01								
Anthracene$_R$	A-T-019	**Y**	<0.01	<0.01								
Fluoranthene$_R$	A-T-019	**Y**	<0.01	<0.01								
Pyrene$_R$	A-T-019	**Y**	<0.01	<0.01								
Benz [a] anthracene$_R$	A-T-019	**Y**	<0.01	<0.01								
Chrysene$_R$	A-T-019	**Y**	<0.01	<0.01								
Benzo [b] fluoranthene$_R$ Benzo [k] fluoranthene #$_R$	A-T-019	**Y**	<0.01	<0.01								
Benzo [a] pyrene$_R$	A-T-019	**Y**	<0.01	<0.01								
Indeno [123-cd] pyrene$_R$	A-T-019	**Y**	<0.01	<0.01								
Dibenz [ah] anthracene$_R$	A-T-019	**Y**	<0.01	<0.01								
Benzo [ghi] perylene$_R$	A-T-019	**Y**	<0.01	<0.01								
Total 16 PAH Reported		**Y**	**<0.01**	**<0.01**								

Due to coelution Benzo [b] fluoranthene and Benzo [k] fluoranthene are reported as one value.

Table 2 - Water PAH Results (µg/l)

Subcontract results to follow.

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Appendix

Code	Description
+	Increased detection limit due to sample interference
#	Increased detection limit due to sample dilution
$	Analysis subcontracted
IS	Insufficient sample for analysis
IS-QC	Insufficient sample to retest following QC fail
NDP	No determination possible
~	Sample type outside the scope of our MCERTS accreditation since matrix not included in method validation
"	Analytes are associated with failed AQC targets for MCERTS, but passed UKAS AQC
^	Sample result is not covered under Envirolab's accreditation schedule for MCERTS as the result exceeds the validated range. See notes 1-3.
F	Analysis suffixed "$_F$" were performed on the filtered sample
D	Analysis suffixed "$_D$" were performed on the sample air dried at <30^{o}C
O	Analysis suffixed "$_O$" were performed on the sample oven dried at 95^{o}C
R	Analysis suffixed "$_R$" were performed on the sample as received. Where results are expressed on a dry weight basis, the samples were air dried at 95^{o}C
Notes	
1	For MCERTS the validated range covers up to 15mg/kg for individual PAHs, 200mg/kg for totals.
2	For MCERTS the validated range covers up to 3000mg/kg for Total TPH analysis.
3	For MCERTS the validated range covers up to 0.2mg/kg for individual PCBs, and 1.5mg/kg for the total reported as araclor.
4	Natural stones and debris are excluded from analyses
5	Coarse granular material such as concrete, gravel and brick are not MCERTS accredited if they comprise the major part of the sample. Envirolab are currently accredited for MCERTS on soil types Sand, Clay and Loam only

As cmpds (AsS), Cd (CdO), CrVI cmpds ($FeCrO_4$), Cu (Cu_2O), Inorg Hg cmpds (HgO), Pb cmpds ($PbSO_4$), Ni ($NiCO_3$), Se cmpds (SeS) and Zn as ZnO. Also Ba ($BaCO_3$), Be cmpds ($BeSO_4$), Co (CoO), Mn (MnO_2) and Mo (MoO_3).

HASWASTE v5.2b. Envirolab's Contaminated Land Soil Hazardous Waste Assessment Tool.

Envirolab, Sandpits Business Park, Mottram Road, Hyde, Cheshire SK14 3AR.

Site Code and Name	722048 Grovefield Way										
TP/WS/BH	BH6	BH6	SA1	SA2	SA3	TP1	TP2	TP3	TP4	TP5	TP6
Depth (m)	0.20	0.50	0.20	0.25	0.40	0.80	0.20	0.15	0.21	0.15	0.65
Envirolab reference	90361	90362	90363	90364	90365	90366	90367	90368	90369	90370	90371
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
% Moisture											
pH (soil)	7.47	8.12	6.84	7.86	8.12	8.27	7.96	6.68	7.82	6.86	8.37
pH (leachate)											
Arsenic	8	6	9	11	6	3	8	10	11	12	6
Cadmium	0.5	0.4	0.4	0.5	0.5	0.2	0.3	0.5	0.5	0.5	0.3
Copper	36	29	29	35	37	23	25	30	30	43	20
CrVI or Chromium	40	44	42	41	55	41	38	38	36	42	42
Lead	100	36	78	110	22	11	45	77	72	130	23
Mercury	0.80	0.60	0.50	0.60	0.40	0.40	0.40	0.40	0.50	0.70	0.40
Nickel	30	37	31	39	58	34	32	32	33	38	29
Selenium	3	3	3	3	3	3	3	3	3	3	3
Zinc	140	100	130	130	99	68	86	120	120	150	90
Barium											
Beryllium											
Cobalt											
Manganese											
Molybdenum											
TPH											
Petrol											
Diesel											
Lube Oil											
White Spirit / Kerosene											
Creosote											
Unknown TPH with ID		10.0	10.0			10.0			10.0	10.0	10.0
Unknown TPHCWG	0.1			0.1	0.1		6.6	0.1			
Inseparable TPH Mixtures											
Any											
Any but No Petrol											
White Spirit / Kerosene and Diesel											
Total USEPA 16 PAHs											
Acenaphthene	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01
Acenaphthylene	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Anthracene	0.01	0.01	0.01	0.02	0.01	0.01	0.06	0.01	0.01	0.01	0.01
Benzo(a)anthracene	0.07	0.01	0.01	0.12	0.01	0.01	0.10	0.01	0.05	0.02	0.01
Benzo(a)pyrene	0.12	0.01	0.01	0.10	0.01	0.01	0.10	0.01	0.00	0.01	0.01
Benzo(b)fluoranthene	0.26	0.01	0.01	0.26	0.01	0.01	0.20	0.01	0.06	0.01	0.01
Benzo(ghi)perylene	0.16	0.03	0.03	0.12	0.01	0.01	0.04	0.04	0.08	0.03	0.02
Benzo(k)fluoranthene	0.26	0.01	0.01	0.26	0.01	0.01	0.20	0.01	0.06	0.01	0.01
Chrysene	0.11	0.01	0.01	0.28	0.01	0.01	0.21	0.02	0.11	0.07	0.01
Dibenzo(ah)anthracene	0.03	0.02	0.01	0.01	0.01	0.03	0.01	0.01	0.01	0.01	0.01
Fluoranthene	0.18	0.07	0.02	0.32	0.01	0.06	0.42	0.07	0.16	0.13	0.01
Fluorene	0.01	0.01	0.01	0.02	0.01	0.01	0.03	0.01	0.01	0.01	0.01
Indeno(123cd)pyrene	0.10	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.04	0.02	0.01
Naphthalene	0.05	0.01	0.01	0.01	0.01	0.01	0.05	0.03	0.29	0.12	0.01
Phenanthrene	0.09	0.02	0.01	0.15	0.01	0.04	0.36	0.04	0.11	0.04	0.01
Pyrene	0.17	0.01	0.01	0.28	0.04	0.05	0.36	0.07	0.14	0.10	0.01
Benzene	0.01			0.01	0.01		0.01	0.01			
Toluene	0.01			0.01	0.01		0.01	0.01			
Ethylbenzene	0.01			0.01	0.01		0.01	0.01			
Xylenes	0.01			0.01	0.01		0.01	0.01			
Trimethylbenzenes											
Chlorobenzene											
1,2-Dichlorobenzene											
1,3-Dichlorobenzene											
1,4-Dichlorobenzene											
1,2,4-Trichlorobenzene											
2-Chlorotoluene											
4-Chlorotoluene											
Trichloroethene (TCE)											
Total Sulphide											
Free Cyanide											
Thiocyanate											
Elemental/Free Sulphur											
PCBs Total (eg EC7/WHO12)											
Phenols Total by HPLC											
Phenol											
Cresols											
Xylenols											
1-Naphthol											
Resourcinol											
2,3,5,6-Tetrachlorophenol											
2,4,5-Trichlorophenol											
2,4,6-Trichlorophenol											
2,4-Dichlorophenol											
4-Chloro-3-methylphenol											
Pentachlorophenol											
Bis(2-ethylhexyl)phthalate											
Butylbenzylphthalate											
Di-n-butylphthalate											

HASWASTE v5.2b. Envirolab's Contaminated Land Soil Hazardous Waste Assessment Tool.

Envirolab, Sandpits Business Park, Mottram Road, Hyde, Cheshire SK14 3AR.

Site Code and Name	722048 Grovefield Way

TP/WS/BH	BH6	BH6	SA1	SA2	SA3	TP1	TP2	TP3	TP4	TP5	TP6
Depth (m)	0.20	0.50	0.20	0.25	0.40	0.80	0.20	0.15	0.21	0.15	0.65
Envirolab reference	90361	90362	90363	90364	90365	90366	90367	90368	90369	90370	90371
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Asbestos in Soil	%	%	%	%	%	%	%	%	%	%	%
Asbestos detected in Soil (enter Y or N)											
Asbestos % Composition in Soil (Matrix Loose Fibres or Microscopic Identifiable Pieces only)											
Asbestos Identifiable Pieces visible with the naked eye detected in the Soil (enter Y or N)											

Hazard Codes	Thresholds										
Irritant H4	≥10%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Irritant H4	≥20%	0.0061	0.0075	0.0063	0.0079	0.0117	0.0069	0.0071	0.0065	0.0067	0.0077	0.0059
Harmful H5	≥25%	0.0201	0.0154	0.0183	0.0228	0.0181	0.0116	0.0145	0.0176	0.0183	0.0265	0.0114
Toxic H6	≥0.1%	0.00014	0.00011	0.00010	0.00012	0.00010	0.00006	0.00007	0.00010	0.00011	0.00013	0.00007
Toxic H6	≥3%	0.00734	0.00854	0.00763	0.00946	0.01280	0.00761	0.00772	0.00795	0.00825	0.00936	0.00692
Carcinogenic H7	≥0.1%	0.01324	0.01456	0.01390	0.01357	0.01821	0.01357	0.01258	0.01258	0.01192	0.01390	0.01390
Carcinogenic H7	≥1%	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00000	0.00003	0.00001	0.00000
Carcinogenic H7 Unknown TPH with ID	≥1,000mg/kg	0.00	10.00	10.00	0.00	0.00	10.00	0.00	0.00	10.00	10.00	10.00
Carcinogenic H7 b(a)p marker test (Unknown TPH with ID only)	≥0.01%	#DIV/0!	0.10000	0.10000	#DIV/0!	#DIV/0!	0.10000	#DIV/0!	#DIV/0!	0.00000	0.10000	0.10000
Carcinogenic H7 % Asbestos in Soil (Fibres)	≥0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Corrosive H8 (Irritant H4)	≥5%H4<10%; H8≥10%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
pH Corrosive H8 (Irritant H4) pH (soil or leachate)	H8 ≥11.5	7.47	8.12	6.84	7.86	8.12	8.27	7.96	6.68	7.82	6.86	8.37
pH Corrosive H8 (Irritant H4) pH (soil or leachate)	H8 ≤2	7.47	8.12	6.84	7.86	8.12	8.27	7.96	6.68	7.82	6.86	8.37
Toxic for Reproduction H10	≥0.5%	0.01000	0.00747	0.00780	0.01100	0.01172	0.00687	0.00646	0.00770	0.00720	0.01300	0.00586
Toxic for Reproduction H10	≥5%	0.01000	0.00360	0.00780	0.01100	0.00220	0.00110	0.00450	0.00770	0.00720	0.01300	0.00230
Mutagenic H11	≥0.1%	0.00001	0.00000	0.00000	0.00001	0.00001	0.00000	0.00066	0.00001	0.00000	0.00000	0.00000
Mutagenic H11 Unknown TPH with ID	≥1,000mg/kg	0.00	10.00	10.00	0.00	0.00	10.00	0.00	0.00	10.00	10.00	10.00
Mutagenic H11 b(a)p marker test (Unknown TPH with ID only)	≥0.01%	#DIV/0!	0.10000	0.10000	#DIV/0!	#DIV/0!	0.10000	#DIV/0!	#DIV/0!	0.00000	0.10000	0.10000
Mutagenic H11	≥1%	0.00606	0.00747	0.00626	0.00788	0.01172	0.00687	0.00646	0.00646	0.00667	0.00768	0.00586
Produces Toxic Gases H12 Sulphide	≥1,400mg/kg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases H12 Free Cyanide	≥1,200mg/kg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases H12 Thiocyanate	≥2,600mg/kg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H13 Sensitising	≥1%	0.01324	0.01456	0.01390	0.01357	0.01821	0.01357	0.01258	0.01258	0.01192	0.01390	0.01390
Ecotoxic H14	≥1.0	0.20917	0.17060	0.19606	0.21749	0.19922	0.13413	0.15419	0.18665	0.18382	0.24024	0.14709
Ecotoxic H14 individual substance specific thresholds	≥0.0025%	0.000007	0.000002	0.000001	0.000012	0.000001	0.000003	0.000010	0.000001	0.000005	0.000002	0.000001
Ecotoxic H14 individual substance specific thresholds	≥0.025%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

As cmpds (AsS), Cd (CdO), CrVI cmpds ($FeCrO_4$), Cu (Cu_2O), Inorg Hg cmpds (HgO), Pb cmpds ($PbSO_4$), Ni ($NiCO_3$), Se cmpds (SeS) and Zn as ZnO. Also Ba ($BaCO_3$), Be cmpds ($BeSO_4$), Co (CoO), Mn (MnO_2) and Mo (MoO_3).

HASWASTE v5.2b. Envirolab's Contaminated Land Soil Hazardous Waste Assessment Tool.

Envirolab, Sandpits Business Park, Mottram Road, Hyde, Cheshire SK14 3AR.

Site Code and Name											
TP/WS/BH	TP6	TP7	TP8	TP9	TP8	TP9	TP10	TP11	TP12	TP13	
Depth (m)	0.15	0.60	0.90	0.60	0.60	0.20	0.40	0.20	0.15	0.20	
Envirolab reference	90372	90373	90374	90375	90376	90377	90378	90379	90380	90381	
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
% Moisture											
pH (soil)	7.69	8.27	8.19	8.27	8.14	7.59	8.07	7.90	7.83	7.96	
pH (leachate)											
Arsenic	11	8	3	6	6	11	3	10	24	13	
Cadmium	0.7	0.3	0.2	0.3	0.3	0.5	0.4	0.7	0.7	0.6	
Copper	58	25	24	22	27	34	27	44	55	64	
CrVI or Chromium	33	45	43	37	50	39	54	43	46	47	
Lead	280	19	12	11	18	100	14	110	5,000	150	
Mercury	0.50	0.40	0.40	0.40	0.40	0.50	0.50	0.60	0.80	0.80	
Nickel	33	42	34	34	50	36	43	37	42	44	
Selenium	3	3	3	3	3	3	3	3	3	3	
Zinc	300	92	67	69	92	110	83	160	170	190	
Barium											
Beryllium											
Cobalt											
Manganese											
Molybdenum											
TPH											
Petrol											
Diesel											
Lube Oil											
White Spirit / Kerosene											
Creosote											
Unknown TPH with ID	124.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Unknown TPHCWG											
Inseparable TPH Mixtures											
Any											
Any but No Petrol											
White Spirit / Kerosene and Diesel											
Total USEPA 16 PAHs											
Acenaphthene	0.06	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
Acenaphthylene	0.16	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
Anthracene	0.35	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.01	
Benzo(a)anthracene	1.95	0.01	0.01	0.03	0.01	0.02	0.01	0.01	0.14	0.06	
Benzo(a)pyrene	1.81	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.03	
Benzo(b)fluoranthene	2.55	0.01	0.10	0.01	0.01	0.06	0.01	0.01	0.35	0.01	
Benzo(ghi)perylene	1.93	0.01	0.02	0.01	0.01	0.02	0.01	0.02	0.22	0.01	
Benzo(k)fluoranthene	2.55	0.01	0.10	0.01	0.01	0.06	0.01	0.01	0.35	0.01	
Chrysene	3.35	0.01	0.01	0.07	0.01	0.09	0.01	0.04	0.31	0.12	
Dibenzo(ah)anthracene	0.08	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	
Fluoranthene	3.33	0.04	0.01	0.07	0.07	0.13	0.01	0.10	0.34	0.07	
Fluorene	0.07	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
Indeno(123cd)pyrene	1.16	0.02	0.01	0.01	0.02	0.01	0.01	0.02	0.16	0.08	
Naphthalene	0.20	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
Phenanthrene	1.35	0.01	0.01	0.03	0.01	0.06	0.01	0.03	0.20	0.01	
Pyrene	3.05	0.30	0.03	0.06	0.05	0.11	0.01	0.10	0.30	0.07	
Benzene											
Toluene											
Ethylbenzene											
Xylenes											
Trimethylbenzenes											
Chlorobenzene											
1,2-Dichlorobenzene											
1,3-Dichlorobenzene											
1,4-Dichlorobenzene											
1,2,4-Trichlorobenzene											
2-Chlorotoluene											
4-Chlorotoluene											
Trichloroethene (TCE)											
Total Sulphide											
Free Cyanide											
Thiocyanate											
Elemental/Free Sulphur											
PCBs Total (eg EC7/WHO12)											
Phenols Total by HPLC											
Phenol											
Cresols											
Xylenols											
1-Naphthol											
Resourcinol											
2,3,5,6-Tetrachlorophenol											
2,4,5-Trichlorophenol											
2,4,6-Trichlorophenol											
2,4-Dichlorophenol											
4-Chloro-3-methylphenol											
Pentachlorophenol											
Bis(2-ethylhexyl)phthalate											
Butylbenzylphthalate											
Di-n-butylphthalate											

As cmpds (AsS), Cd (CdO), CrVI cmpds ($FeCrO_4$), Cu (Cu_2O), Inorg Hg cmpds (HgO), Pb cmpds ($PbSO_4$), Ni ($NiCO_3$), Se cmpds (SeS) and Zn as ZnO. Also Ba ($BaCO_3$), Be cmpds ($BeSO_4$), Co (CoO), Mn (MnO_2) and Mo (MoO_3).

HASWASTE v5.2b. Envirolab's Contaminated Land Soil Hazardous Waste Assessment Tool.

Envirolab, Sandpits Business Park, Mottram Road, Hyde, Cheshire SK14 3AR.

Site Code and Name

TP/WS/BH	TP6	TP7	TP8	TP9	TP8	TP9	TP10	TP11	TP12	TP13	
Depth (m)	0.15	0.60	0.90	0.60	0.60	0.20	0.40	0.20	0.15	0.20	
Envirolab reference	90372	90373	90374	90375	90376	90377	90378	90379	90380	90381	
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
Asbestos in Soil	%	%	%	%	%	%	%	%	%	%	%
Asbestos detected in Soil (enter Y or N)											
Asbestos % Composition in Soil (Matrix Loose Fibres or Microscopic Identifiable Pieces only)											
Asbestos Identifiable Pieces visible with the naked eye detected in the Soil (enter Y or N)											

Hazard Codes	Thresholds										
Irritant H4	≥10%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Irritant H4	≥20%	0.0067	0.0085	0.0069	0.0069	0.0101	0.0073	0.0087	0.0075	0.0085	0.0089	0.0000
Harmful H5	≥25%	0.0536	0.0142	0.0118	0.0115	0.0160	0.0221	0.0141	0.0244	0.5157	0.0321	0.0000
Toxic H6	≥0.1%	0.00013	0.00007	0.00006	0.00007	0.00007	0.00011	0.00010	0.00014	0.00016	0.00015	0.00000
Toxic H6	≥3%	0.00827	0.00974	0.00761	0.00793	0.01116	0.00885	0.00945	0.00898	0.01139	0.01068	0.00000
Carcinogenic H7	≥0.1%	0.01092	0.01490	0.01423	0.01225	0.01655	0.01291	0.01787	0.01423	0.01523	0.01556	0.00000
Carcinogenic H7	≥1%	0.00002	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Carcinogenic H7 Unknown TPH with ID	≥1,000mg/kg	124.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	0.00
Carcinogenic H7 b(a)p marker test (Unknown TPH with ID only)	≥0.01%	1.45968	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.50000	0.30000	#DIV/0!
Carcinogenic H7 % Asbestos in Soil (Fibres)	≥0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Corrosive H8 (Irritant H4)	≥5%H4<10%; H8≥10%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
pH Corrosive H8 (Irritant H4) pH (soil or leachate)	H8 ≥11.5	7.69	8.27	8.19	8.27	8.14	7.59	8.07	7.90	7.83	7.96	0.00
pH Corrosive H8 (Irritant H4) pH (soil or leachate)	H8 ≤2	7.69	8.27	8.19	8.27	8.14	7.59	8.07	7.90	7.83	7.96	0.00
Toxic for Reproduction H10	≥0.5%	0.02800	0.00848	0.00687	0.00687	0.01010	0.01000	0.00869	0.01100	**0.50000**	0.01500	0.00000
Toxic for Reproduction H10	≥5%	0.02800	0.00190	0.00120	0.00110	0.00180	0.01000	0.00140	0.01100	0.50000	0.01500	0.00000
Mutagenic H11	≥0.1%	0.00018	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00000	0.00000
Mutagenic H11 Unknown TPH with ID	≥1,000mg/kg	124.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	0.00
Mutagenic H11 b(a)p marker test (Unknown TPH with ID only)	≥0.01%	1.45968	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.50000	0.30000	#DIV/0!
Mutagenic H11	≥1%	0.00667	0.00848	0.00687	0.00687	0.01010	0.00727	0.00869	0.00747	0.00848	0.00889	0.00000
Produces Toxic Gases H12 Sulphide	≥1,400mg/kg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases H12 Free Cyanide	≥1,200mg/kg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases H12 Thiocyanate	≥2,600mg/kg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H13 Sensitising	≥1%	0.01092	0.01490	0.01423	0.01225	0.01655	0.01291	0.01787	0.01423	0.01523	0.01556	0.00000
Ecotoxic H14	≥1.0	0.37412	0.16403	0.13716	0.13015	0.17682	0.19809	0.16924	0.23741	**2.21738**	0.28969	0.00000
Ecotoxic H14 individual substance specific thresholds	≥0.0025%	0.000195	0.000001	0.000001	0.000003	0.000001	0.000002	0.000001	0.000002	0.000014	0.000006	0.000000
Ecotoxic H14 individual substance specific thresholds	≥0.025%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

As cmpds (AsS), Cd (CdO), CrVI cmpds ($FeCrO_4$), Cu (Cu_2O), Inorg Hg cmpds (HgO), Pb cmpds ($PbSO_4$), Ni ($NiCO_3$), Se cmpds (SeS) and Zn as ZnO. Also Ba ($BaCO_3$), Be cmpds ($BeSO_4$), Co (CoO), Mn (MnO_2) and Mo (MoO_3).

Site Code and Name	
TP/WS/BH **Depth (m)** **Envirolab reference**	
	mg/kg
% Moisture	
pH (soil)	
pH (leachate)	
Arsenic Cadmium Copper CrVI or Chromium Lead Mercury Nickel Selenium Zinc	
Barium Beryllium Cobalt Manganese Molybdenum	
TPH	
Petrol Diesel Lube Oil	
White Spirit / Kerosene	
Creosote	
Unknown TPH with ID	
Unknown TPHCWG	
Inseparable TPH Mixtures	
Any	
Any but No Petrol	
White Spirit / Kerosene and Diesel	
Total USEPA 16 PAHs	
Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(ghi)perylene Benzo(k)fluoranthene Chrysene Dibenzo(ah)anthracene Fluoranthene Fluorene Indeno(123cd)pyrene Naphthalene Phenanthrene Pyrene	
Benzene Toluene Ethylbenzene Xylenes Trimethylbenzenes	
Chlorobenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2,4-Trichlorobenzene 2-Chlorotoluene 4-Chlorotoluene	
Trichloroethene (TCE)	
Total Sulphide	
Free Cyanide	
Thiocyanate	
Elemental/Free Sulphur	
PCBs Total (eg EC7/WHO12)	
Phenols Total by HPLC	
Phenol Cresols Xylenols 1-Naphthol Resourcinol	
2,3,5,6-Tetrachlorophenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol 2,4-Dichlorophenol 4-Chloro-3-methylphenol Pentachlorophenol	
Bis(2-ethylhexyl)phthalate Butylbenzylphthalate Di-n-butylphthalate	

As cmpds (AsS), Cd (CdO), CrVI cmpds ($FeCrO_4$), Cu (Cu_2O), Inorg Hg cmpds (HgO), Pb cmpds ($PbSO_4$), Ni ($NiCO_3$), Se cmpds (SeS) and Zn as ZnO. Also Ba ($BaCO_3$), Be cmpds ($BeSO_4$), Co (CoO), Mn (MnO_2) and Mo (MoO_3).

Site Code and Name		
TP/WS/BH		
Depth (m)		
Envirolab reference		
		mg/kg
Asbestos in Soil		**%**
Asbestos detected in Soil (enter Y or N)		
Asbestos % Composition in Soil (Matrix Loose Fibres or Microscopic Identifiable Pieces only)		
Asbestos Identifiable Pieces visible with the naked eye detected in the Soil (enter Y or N)		

Hazard Codes	Thresholds	
Irritant H4	≥10%	0.00000
Irritant H4	≥20%	0.0000
Harmful H5	≥25%	0.0000
Toxic H6	≥0.1%	0.00000
Toxic H6	≥3%	0.00000
Carcinogenic H7	≥0.1%	0.00000
Carcinogenic H7	≥1%	0.00000
Carcinogenic H7 Unknown TPH with ID	≥1,000mg/kg	0.00
Carcinogenic H7 b(a)p marker test (Unknown TPH with ID only)	≥0.01%	#DIV/0!
Carcinogenic H7 % Asbestos in Soil (Fibres)	≥0.1%	0.00000
Corrosive H8 (Irritant H4)	≥5%H4<10%; H8≥10%	0.00000
pH Corrosive H8 (Irritant H4) pH (soil or leachate)	H8 ≥11.5	0.00
pH Corrosive H8 (Irritant H4) pH (soil or leachate)	H8 ≤2	0.00
Toxic for Reproduction H10	≥0.5%	0.00000
Toxic for Reproduction H10	≥5%	0.00000
Mutagenic H11	≥0.1%	0.00000
Mutagenic H11 Unknown TPH with ID	≥1,000mg/kg	0.00
Mutagenic H11 b(a)p marker test (Unknown TPH with ID only)	≥0.01%	#DIV/0!
Mutagenic H11	≥1%	0.00000
Produces Toxic Gases H12 Sulphide	≥1,400mg/kg	0.0
Produces Toxic Gases H12 Free Cyanide	≥1,200mg/kg	0.0
Produces Toxic Gases H12 Thiocyanate	≥2,600mg/kg	0.0
H13 Sensitising	≥1%	0.00000
Ecotoxic H14	≥1.0	0.00000

Ecotoxic H14 individual substance specific thresholds	≥0.0025%	0.000000
Ecotoxic H14 individual substance specific thresholds	≥0.025%	0.00000

Consider other individual contaminants on a case by case basis.

Table 3.2 of Annex VI of the CLP Regulation including 3rd ATP where applicable (sometimes called ATSP3).

GAS MONITORING RESULTS

Contract No: 722048
Contract Name: GROVEFIELD WAY, CHELTENHAM

Contract Engineer: MB
Date: 21/08/08

Weather Conditions: BRIGHT, CLOUDY
Atmospheric Wind Conditions: Light
ALM Pressure: Rising

Equipment used: GFM430

Data Collected By: IAN WARNE

Input Checked by (sign): NBR, M.Baker 11/09/08

Ground Conditions (eg dry, flooded, frost, snow etc): WET

Location	Flow (l/hr) (peak and residual) [ ] = time period	Atmospheric Pressure (mb)	BH Pressure (mb)	Time		% by volume in air			LEL (%)	(ppm)			Depth range to water (m bgl) (for a period of time (specify) following tap removal)	Well depth (mbgl) Current and [as installed]	Top of Response zone (m bgl)	Notes (eg, samples taken, dual installation, odours, sheens, broken headworks).
				hours mins	secs	Methane	Carbon Dioxide	Oxygen		H2S	CO	PID				
BH1	0.1	1005	1005		0 (initial)	<0.1	<0.1	20.8					DRY	5.95		
	0.1	1005	1005		15	<0.1	1.9	18.2								
					30	<0.1	1.9	16.9								
					60	<0.1	2.0	16.6								
					90	<0.1	2.0	16.5								
					120	<0.1	2.0	16.5								
					180	-	-	-								
					240	-	-	-								
BH2	0.1	1006	1006		0 (initial)	<0.1	<0.1	20.8					DRY	6.01		
	0.1	1006	1006		15	<0.1	2.0	18.1								
					30	<0.1	2.0	16.5								
					60	<0.1	2.0	16.1								
					90	<0.1	2.0	16.1								
					120	-	-	-								
					180	-	-	-								
					240	-	-	-								
BH4	0.1	1007	1007		0 (initial)	<0.1	<0.1	20.8					DRY	6.13		
	0.1	1007	1007		15	<0.1	2.1	17.1								
					30	<0.1	2.1	15.5								
					60	<0.1	2.1	15.2								
					90	<0.1	2.1	15.1								
					120	<0.1	2.1	15.1								
					180	-	-	-								
					240	-	-	-								
BH5	0.1	1008	1008		0 (initial)	<0.1	<0.1	20.8					5.75	6.04		Samples Taken
	0.1	1008	1008		15	<0.1	2.2	15.2								
					30	<0.1	2.3	12.5								
					60	<0.1	2.3	12.1								
					90	<0.1	2.3	12.1								
					120	-	-	-								
					180	-	-	-								
					240	-	-	-								

STRUCTURAL SOILS LTD

GAS MONITORING RESULTS

Contract No: 722048
Contract Name: GROVEFIELD WAY, CHELTENHAM

Contract Engineer: MB
Date: 21/08/08

Weather Conditions: BRIGHT, CLOUDY **Atmospheric Wind Conditions: Light** **ALM Pressure: Rising**				**Equipment used: GFM430**						**Data Collected By: IAN WARNE**				**Input Checked by (sign):** M. Baker 11/09/08		
Ground Conditions (eg dry, flooded, frost, snow etc): WET																
Location	**Flow (l/hr) (peak and residual) [ ] = time period**	**Atmospheric Pressure (mb)**	**BH Pressure (mb)**	**Time**		**% by volume in air**			**LEL (%)**	**(ppm)**			**Depth range to water (m bgl) (for a period of time (specify) following tap removal)**	**Well depth (mbgl) Current and [as installed]**	**Top of Response zone (m bgl)**	**Notes (eg, samples taken, dual installation, odours, sheens, broken headworks).**
				hours mins	**secs**	**Methane**	**Carbon Dioxide**	**Oxygen**		**H2S**	**CO**	**PID**				
BH7	0.1	1008	1008		**0 (initial)**	<0.1	<0.1	20.8					2.89	4.11		Samples taken
	0.1	1008	1008		**15**	<0.1	1.5	17.9								
					30	<0.1	1.6	16.3								
					60	<0.1	1.6	16.1								
					90	<0.1	1.6	16.1								
					120	<0.1	1.7	16.0								
					180	<0.1	1.7	16.0								
					240	-	-	-								
BH8	0.1	1006	1006		**0 (initial)**	<0.1	<0.1	20.8					2.55	4.71		Samples taken
	0.1	1006	1006		**15**	<0.1	1.8	19.7								
					30	<0.1	2.0	19.0								
					60	<0.1	2.1	18.7								
					90	<0.1	2.1	18.7								
					120	-	-	-								
					180	-	-	-								
					240	-	-	-								

STRUCTURAL SOILS LTD

GAS MONITORING RESULTS

Contract No: 722048
Contract Name: GROVEFIELD WAY, CHELTENHAM

Contract Engineer: MB
Date: 26/08/08

Weather Conditions: OVERCAST
Atmospheric Wind Conditions: Light
ALM Pressure: Rising

Equipment used: LMSxi

Data Collected By: BOB DAVIES

Input checked by: M. Bale 11/09/08

Ground Conditions (eg dry, flooded, frost, snow etc): DRY

Location	Flow (l/hr) (peak and residual) [ ] = time period	Atmospheric Pressure (mb)	BH Pressure (mb)	Time		% by volume in air			LEL (%)	(ppm)			Depth range to water (m bgl) (for a period of time (specify) following tap removal)	Well depth (mbgl) Current and [as installed]	Top of Response zone (m bgl)	Notes (eg, samples taken, dual installation, odours, sheens, broken headworks).
				hours mins	secs	Methane	Carbon Dioxide	Oxygen		H2S	CO	PID				
BH1	0.0	1015	1015		0 (initial)	0.0	0.0	20.9					5.76	9.95		
					15	0.0	1.5	17.2								
					30	0.1	1.6	17.0								
					60	0.1	1.7	16.9								
					90	0.1	1.7	16.9								
					120	-	-	-								
					180	-	-	-								
					240	-	-	-								
BH2	0.0	1015	1015		0 (initial)	0.0	0.0	20.9					DRY	5.99		
					15	0.0	0.6	19.6								
					30	0.1	0.5	19.3								
					60	0.1	0.5	19.3								
					90	-	-	-								
					120	-	-	-								
					180	-	-	-								
					240	-	-	-								
BH4	0.1	1015	1015		0 (initial)	0.0	0.0	20.8					DRY	6.11		
	0.0	1015	1015		15	0.1	1.8	15.2								
					30	0.1	1.8	15.0								
					60	0.3	1.9	14.9								
					90	0.3	1.9	14.7								
					120	0.3	1.9	14.7								
					180	-	-	-								
					240	-	-	-								
BH5	-0.1	1015	1015		0 (initial)	0.0	0.0	20.9					5.56	6.05		
	0.0	1015	1015		15	0.1	0.5	14.3								
					30	0.1	0.6	14.1								
					60	0.1	0.6	14.1								
					90	-	-	-								
					120	-	-	-								
					180	-	-	-								
					240	-	-	-								

GAS MONITORING RESULTS

Contract No: 722048
Contract Name: GROVEFIELD WAY, CHELTENHAM

Contract Engineer: MB
Date: 26/08/08

Weather Conditions: OVERCAST **Atmospheric Wind Conditions: Light** **ALM Pressure: Rising**				**Equipment used: LMSxi**						**Data Collected By: BOB DAVIES**				**Input checked by:** MB. 14/11/08		
Ground Conditions (eg dry, flooded, frost, snow etc): DRY																
Location	**Flow (l/hr) (peak and residual) [ ] = time period**	**Atmospheric Pressure (mb)**	**BH Pressure (mb)**	**Time**		**% by volume in air**			**LEL (%)**	**(ppm)**			**Depth range to water (m bgl) (for a period of time (specify) following tap removal)**	**Well depth (mbgl) Current and [as installed]**	**Top of Response zone (m bgl)**	**Notes (eg, samples taken, dual installation, odours, sheens, broken headworks).**
				hours mins	**secs**	**Methane**	**Carbon Dioxide**	**Oxygen**		**H2S**	**CO**	**PID**				
BH7	-0.9	1016	1012		**0 (initial)**	0.0	0.0	20.9					3.08	4.1		
	0.0	1016	1016		**15**	0.1	1.3	16.0								
					30	0.2	1.4	15.9								
					60	0.3	1.4	15.9								
					90	0.4	1.4	15.9								
					120	1.0	1.4	15.9								
					180	3.1	1.5	15.8								
					240	6.0	1.5	15.8								
					300	9.6	1.5	15.8								
					360	14.0	1.4	15.9								
					420	20.5	1.4	16.0								
					480	23.0	1.4	16.0								
					540	25.0	1.4	16.0								
					600	27.0	1.4	16.0								
					660	28.5	1.3	16.1								
					720	28.5	1.3	16.1								
BH8	0.0	1015	1015		**0 (initial)**	0.0	0.0	20.8					2.49	4.70		
					15	0.1	0.5	18.4								
					30	0.1	0.6	18.4								
					60	0.1	0.6	18.4								
					90	-	-	-								
					120	-	-	-								
					180	-	-	-								
					240	-	-	-								

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GAS MONITORING RESULTS

Contract No: 722048
Contract Name: GROVEFIELD WAY, CHELTENHAM

Contract Engineer: MB
Date: 02/09/08

Weather Conditions: OVERCAST
Atmospheric Wind Conditions: Strong
ALM Pressure: Falling

Equipment used: GFM 400

Data Collected By: BOB DAVIES

Input checked by: M.R. M.Bale 11/09/08.

Ground Conditions (eg dry, flooded, frost, snow etc):

Location	Flow (l/hr) (peak and residual) [ ] = time period	Atmospheric Pressure (mb)	BH Pressure (mb)	Time		% by volume in air			LEL (%)	(ppm)			Depth range to water (m bgl) (for a period of time (specify) following tap removal)	Well depth (mbgl) Current and [as installed]	Top of Response zone (m bgl)	Notes (eg, samples taken, dual installation, odours, sheens, broken headworks).
				hours mins	secs	Methane	Carbon Dioxide	Oxygen		H2S	CO	PID				
BH1	0.0	993	993		0 (initial)	0.0	0.0	21.0					5.64	5.95		
					15	0.0	1.9	18.4								
					30	0.0	2.0	17.3								
					60	0.0	2.0	17.1								
					90	0.0	2.0	17.1								
					120	-	-	-								
					180	-	-	-								
					240	-	-	-								
BH2	0.0	993	993		0 (initial)	0.0	0.0	20.9					4.18	5.97		
					15	0.0	2.2	15.3								
					30	0.0	2.3	13.7								
					60	0.0	2.3	13.7								
					90	-	-	-								
					120	-	-	-								
					180	-	-	-								
					240	-	-	-								
BH4	0.0	993	993		0 (initial)	0.0	0.0	20.9					5.49	6.08		
					15	0.0	2.3	16.9								
					30	0.0	2.3	15.4								
					60	0.0	2.5	14.9								
					90	0.0	2.5	14.9								
					120	-	-	-								
					180	-	-	-								
					240	-	-	-								
BH5	-	-	-		0 (initial)	0.0	0.0	21.0					4.67	6.05		
					15	0.0	3.3	15.3								
					30	0.0	3.4	13.2								
					60	0.0	3.4	12.8								
					90	0.0	3.4	12.7								
					120	-	-	-								
					180	-	-	-								
					240	-	-	-								

STRUCTURAL SOILS LTD

GAS MONITORING RESULTS

Contract No: 722048
Contract Name: GROVEFIELD WAY, CHELTENHAM

Contract Engineer: MB
Date: 02/09/08

Weather Conditions: OVERCAST Atmospheric Wind Conditions: Strong ALM Pressure: Falling						Equipment used: GFM400				Data Collected By: BOB DAVIES				Input Checked by (sign): M. Butler 11/09/08		
Ground Conditions (eg dry, flooded, frost, snow etc): WET																
Location	Flow (l/hr) (peak and residual) [ ] = time period	Atmospheric Pressure (mb)	BH Pressure (mb)	Time		% by volume in air			LEL (%)	(ppm)			Depth range to water (m bgl) (for a period of time (specify) following tap removal)	Well depth (mbgl) Current and [as installed]	Top of Response zone (m bgl)	Notes (eg, samples taken, dual installation, odours, sheens, broken headworks).
				hours mins	secs	Methane	Carbon Dioxide	Oxygen		H2S	CO	PID				
BH7	0.0	993	993		0 (initial)	0.0	0.0	21.0					2.72	4.11		
					15	0.0	1.9	18.5								
					30	0.0	1.9	17.2								
					60	0.0	2.0	16.9								
					90	0.0	2.0	16.9								
					120	-	-	-								
					180	-	-	-								
					240	-	-	-								
BH8	21.3	993			0 (initial)	0.0	0.0	21.0					0.19	4.17		
					15	0.0	0.6	20.7								
					30	0.0	0.6	20.4								
					60	0.0	0.6	20.4								
					90	-	-	-								
					120	-	-	-								
					180	-	-	-								
					240	-	-	-								

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