



ENCLOSURE A
EXPLORATORY HOLE RECORDS

Key to Exploratory Hole Records
Cable Percussive Borehole Records
Trial Pit Records

Key
BH101 to BH104
TP101 to TP104

Key to Exploratory Hole Records



Soil Mechanics

SAMPLES

Undisturbed

U	Driven tube sample	} nominally 100 mm diameter and full recovery unless otherwise stated
TW	Pushed thin wall tube sample	
P	Pushed piston sample	
L	Liner sample (from Windowless or similar sampler), full recovery unless otherwise stated	
CBR	CBR mould sample	
BLK	Block sample	
CS	Core sample (from rotary core) taken for laboratory testing	
AMAL	Amalgamated sample	

Disturbed

D	Small sample
B	Bulk sample

Other

W	Water sample
G	Gas sample

ES	Environmental chemistry samples (in more than one container where appropriate)
EW	Soil sample
	Water sample

Comments Sample reference numbers are assigned to every sample taken. A sample reference of 'NR' indicates that attempt was made to take a tube sample, however, there was no recovery.

Monitoring samples taken after completion of hole construction are not shown on the exploratory hole logs.

TESTS

SPT S or SPT C Standard Penetration Test, open shoe (S) or solid cone (C)

The Standard Penetration Test is defined in BS 1377 : Part 9 (1990). The incremental blow counts are given in the Field Records column; each increment is 75 mm unless stated otherwise and any penetration under self weight in mm (SW) is noted. Where the full 300 mm test drive is achieved the total number of blows for the test drive is presented as N = ** in the Test column. Where the test drive blows reach 50 (either in total or for a single increment) the total blow count beyond the seating drive is given (without the N = prefix).

IV	<i>in situ</i> Vane shear strength, peak (p) and remoulded (r)
HV	Hand vane shear strength, peak (p) and remoulded (r)
PP	Pocket penetrometer test, converted to shear strength
KFH, KRH, KPI	Variable head permeability tests (KFH = falling head test, KRH = rising head test, KPI = packer test), permeability value

Test results provided in Field Records column

DRILLING RECORDS

The mechanical indices (TCR/SCR/RQD & If) are defined in BS 5930 (1999)

TCR	Total Core Recovery, %
SCR	Solid Core Recovery, %
RQD	Rock Quality Designation, %
If	Fracture spacing, mm. Minimum, typical and maximum spacings are presented. The term non-intact (NI) is used where the core is fragmented.

Flush returns, estimated percentage with colour where relevant, are given in the Records column

CRF	Core recovered (length in m) in the following run
AZCL	Assessed zone of core loss
NR	Not recovered

GROUNDWATER



Groundwater strike
Groundwater level after standing period

Notes

Project Havant Thicket
Project No. D6072
Carried out for Portsmouth Water Ltd

Key

Sheet 1 of 2

Key to Exploratory Hole Records



Soil Mechanics

INSTALLATION

Standpipe/ piezometer

Details of standpipe/piezometer installations are given on the Record. Legend column shows installed instrument depths including slotted pipe section or tip depth, response zone filter material type and layers of backfill.

SP
SPIE
PPIE
EPIE

The type of instrument installed is indicated by a code in the Legend column at the depth of the response zone:
Standpipe
Standpipe piezometer
Pneumatic piezometer
Electronic piezometer

Inclinometer or Slip Indicator

The installation of vertical profiling instruments is indicated on the Record. The base of tubing is shown in the Legend column.

ICE
ICM
SLIP

The type of instrument installed is indicated by a code in the Legend column at the base of the tubing:
Biaxial inclinometer
Inclinometer tubing for use with probe
Slip indicator

Settlement Points or Pressure Cells

The installation of single point instruments is indicated on the Record. The location of the measuring device is shown in the Legend column.

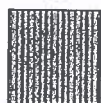
ESET
ETM
EPCE
PPCE

The type of instrument installed is indicated by a code in the Legend column:
Electronic settlement cell/gauge
Magnetic extensometer settlement point
Electronic embedment pressure cell
Electronic push in pressure cell

INSTALLATION LEGENDS

A legend describing the installation is shown in the rightmost column. Legends additional to BS5930 are used to describe the backfill materials as indicated below.

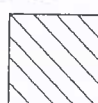
Arisings



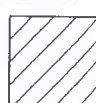
Concrete



Grout



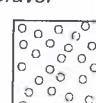
Bentonite



Sand



Gravel



Tarmac



NOTES

- 1 Strata legends are in accordance with BS 5930 (1999).
- 2 Water level observations of discernible entries during the advancing of the exploratory hole are given at the foot of the log and in the Legend column. The term "none observed" is used where no discrete entries are identified although this does not necessarily indicate that the hole has not been advanced below groundwater level. Under certain conditions groundwater cannot be observed, for instance, drilling with water flush or overwater, or boring at a rate much faster than water can make its way into the borehole (ref BS5930 : 1999, Clause 47.2.7). In addition, where appropriate, water levels in the hole at the time of recovering individual samples or carrying out in situ tests and at shift changes are given in the Records column.
- 3 Evidence of the occurrence of very coarse particles (cobbles and boulders) is presented on the logs, however, because of their size in relation to the exploratory hole these records may not be fully representative of their size and frequency in the ground mass.
- 4 The borehole logs present the results of Standard Penetration Tests recorded in the field without correction or interpretation. However, in certain ground conditions (eg high hydraulic head or where very coarse particles are present) some judgement may be necessary in considering whether the results are representative of in situ mass conditions.
- 5 The declination of bedding and joints is given with respect to the normal to the core axis. Thus in a vertical borehole this will be the dip.
- 6 The assessment of SCR, RQD and Fracture Spacing excludes artificial fractures

REFERENCES

BS 1377 : 1990 : British Standard Methods of test for soils for civil engineering purposes. British Standards Institution
BS 5930 : 1999 : Code of Practice for site investigations. British Standards Institution

Updated October 2006

Notes	Project Hayant Thicket Project No. 06072 Carried out for Portsmouth Water Ltd	Key Sheet 2 of 2
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Borehole Log



Soil Mechanics

Drilled PW Logged AB Checked EC		Start 10/11/2006 End 14/11/2006		Equipment, Methods and Remarks Dando D2000 Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 14.45m.		Depth from 0.00m to 14.45m		Diameter 150mm		Casing Depth 4.50m		Ground Level Coordinates National Grid Chainage		+33.56 mOD E 472025.00 N 109825.00	
Samples and Tests												Strata			
Depth	Type & No	Records	Date	Time		Description	Depth, Level (Thickness)	Legend	Backfill/ Instruments						
			10/11/2006	0800		Turf over soft light brown slightly sandy CLAY. Sand is fine to medium. Occasional rootlets. (TOPSOIL)	0.25 +33.25								
1.00	D 1					Soft to firm orange and grey mottled sandy CLAY. Sand is fine to coarse. Occasional rootlets. (Possible HEAD DEPOSITS)	(0.95)								
1.00-1.50	B 2						1.20 +32.30								
1.70	D 3					Firm brown grey mottled orange slightly sandy gravelly CLAY. Sand is fine to coarse. Driller notes cobbles of flint. (Possible HEAD DEPOSITS)	(0.50)								
2.00-2.45	SPT S	N=31 (2,4/6,7,8,10)	2.00	damp		Dense orange brown silty SAND. Sand is fine. (LONDON CLAY FORMATION)	1.70 +31.80								
2.00	D 4						(1.30)								
2.00-2.45	D 5														
2.45-3.00	B 6														
3.00-3.24	SPT S	• 50 (4,19/5,45 for 10mm)	10/11/2006	1800	damp		3.00 +30.50								
3.00	D 7						(0.30)								
3.00-3.25	D 8		13/11/2006	1.20		Stiff to very stiff fissured orange and grey mottled sandy CLAY. Sand is fine to coarse. Fissures are extremely closely spaced, randomly orientated and matt. (READING FORMATION)	3.30 +30.20								
3.30	D 9						(0.50)								
3.80	D 10						3.80 +29.70								
4.00	D 11		4.00	damp		Moderately weak to strong thinly laminated dark grey MUDSTONE. Abundant fine to coarse gravel size fossil fragments of bivalve and graptolite. (READING FORMATION)	(0.70)								
4.00-4.45	U 12	98 blows 350 mm rec					4.50 +29.00								
4.45-4.55	D 13														
4.50-5.00	B 14														
5.00-5.45	SPT S	N=33 (2,4/6,7,9,11)	4.50	damp		Firm to stiff grey slightly sandy CLAY. Sand is fine. (READING FORMATION)									
5.00	D 15														
5.00-5.45	D 16					Very stiff fissured blue grey mottled red and purple CLAY. Fissures are extremely closely spaced, randomly orientated and matt. (READING FORMATION)									
6.00	D 17		4.50												
6.00-6.45	D 18														
6.00-6.45	B 19														
6.00-6.45	U NR	91 blows No recovery		damp			(3.50)								
7.00-7.45	SPT S	N=38 (3,5/7,9,10,12)	4.50	damp											
7.00	D 20														
7.00-7.45	D 21		4.50	damp											
7.50-8.00	B 22														
8.00	D 23		4.50												
8.00-8.45	D 24														
8.00-8.45	B 25														
8.00-8.45	U NR	75 blows No recovery		damp		Very stiff fissured red mottled grey CLAY. Fissures are extremely closely spaced, randomly orientated and matt. (READING FORMATION)	8.00 +25.50								
9.00-9.45	SPT S	N=50 (3,6/10,11,13,16)	4.50	damp											
9.00	D 26														
9.00-9.45	D 27		4.50	damp											
9.50-10.00	B 28														
Stratum continues to 14.45 m															
Groundwater Entries						Depth Related Remarks *						Chiselling			
No.	Struck (m)	Post strike behaviour	Depth sealed (m)			From	to (m)				Depths (m)		Time	Tools used	
None observed (see Key Sheet)						3.00	3.80		Water added		3.30 - 3.80		60 mins	Chisel	
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project Havant Thicket						Borehole			
Project No. D6072												BH101			
Carried out for Portsmouth Water Ltd												Sheet 1 of 2			

Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale: 1:50

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Project Havant Thicket
Project No. D6072
Carried out for Portsmouth Water Ltd

Borehole

BH101

Sheet 1 of 2

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Drilled PW Logged AB Checked EC	Start 10/11/2006 End 14/11/2006	Equipment, Methods and Remarks Danda D2000 Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 14.45m.	Depth from 0.00m	to 14.45m	Diameter 150mm	Casing Depth 4.50m	Ground Level Coordinates National Grid Chainage	+33.50 mOD E 472025.00 N 109825.00
Samples and Tests			Strata					
Depth	Type & No	Records	Date Casing	Time Water	Description (Continued from Sheet 1)	Depth, Level (Thickness)	Legend	Backfill Instruments
10.00 10.00-10.45	D 29 B 30				Very stiff fissured red mottled grey CLAY. Fissures are extremely closely spaced, randomly orientated and matt. (READING FORMATION)			
11.00-11.43 11.00 11.00-11.45 11.00 11.50-12.00	SPT S D 31 D 32 W 33 B 34	49 (3,7/9,12,18,10 for 50mm)	13/11/2006 4.50 4.50 4.50 4.50	1800 damp damp damp 0800 6.70		11.00-13.00 m Locally mottled brown and yellow brown.	(6.45)	
12.00 12.00-12.45	D 35 B 36							
13.00-13.33 13.00 13.00-13.45 13.50-14.00	SPT S D 37 D 38 B 39	50 (4,9/16,19,15 for 25mm)	4.50 4.50	damp damp		13.00-14.45 m Grey brown mottled red.		
14.00 14.00-14.45	D 40 B 41		14/11/2006 4.50	1800 damp				
EXPLORATORY HOLE ENDS AT 14.45 m						14.45 +19.05		
Groundwater Entries			Depth Related Remarks *			Chiselling		
No.	Struck	Post strike behaviour	Depth sealed (m)			Depths (m)	Time	Tools used
None observed (see Key Sheet)								
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project Havant Thicket			Borehole BH101		
Project No. D6072			Carried out for Portsmouth Water Ltd			Sheet 2 of 2		

Borehole Log



Soil Mechanics

Drilled PW Logged AB Checked EC	Start 14/11/2006 End 15/11/2006	Equipment, Methods and Remarks Dando D2000 Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 14.45m.			Depth from 0.00m to 14.45m Diameter 150mm Casing Depth 3.00m	Ground Level +33.00 mOD Coordinates E 471750.00 National Grid N 109950.00 Chainage
Samples and Tests					Strata	
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level (Thickness)
0.00-0.10	D 1		14/11/2006	0800	Turf over very soft grey brown slightly sandy CLAY. Sand is fine to medium. Occasional rootlets. (TOPSOIL)	0.22 +32.78
0.40-0.50	D 2					0.40 +32.60
1.00-1.50	B 4					(0.80)
1.20-1.65	SPT S	N=10 (2,3/3,3,2,2)	1.20	dry	Soft grey brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded, fine to coarse of flint. Sand is fine to coarse. Occasional rootlets. (Possibly HEAD DEPOSITS)	1.20 +31.80
1.20-1.65	D 3		1.20	dry		
2.00	D 5					(1.20)
2.00-2.50	B 6					
2.40	D 7					2.40 +30.60
2.90-3.00	D 8					(0.50)
3.00-3.45	SPT S	N=22 (2,3/4,5,6,7)	3.00	dry	Firm to stiff grey mottled orange sandy gravelly CLAY. Gravel is subangular to rounded, fine to coarse of flint. Sand is fine to coarse. Occasional rootlets. (HEAD DEPOSITS)	2.90 +30.10
3.00-3.50	B 10		3.00	dry		
3.00-3.45	D 9					
4.00	D 11					
4.00-4.45	B 12					
5.00-5.45	SPT S	N=37 (2,4/6,9,10,12)	14/11/2006	1800		
5.00	D 13		3.00	dry		
5.00-5.45	D 14		3.00	dry		
5.00-5.50	B 15		15/11/2006	0800		
			3.00	dry		
6.00	D 16					
6.00-6.45	B 17					
7.00-7.45	SPT S	N=35 (2,5/7,9,9,10)	3.00	dry		
7.00	D 18		3.00	dry		
7.00-7.45	D 19					
7.00-7.50	B 20					
8.00	D 21					
8.00-8.50	B 22					
9.00-9.43	SPT S	50 (3,7/10,14,15,11 for 50mm)	3.00	dry		
9.00	D 23		3.00	dry		
9.00-9.45	D 24					
9.00-9.50	B 25					
Stratum continues to 11.60 m						
Groundwater Entries No. Struck Post strike behaviour Depth sealed (m)					Depth Related Remarks * From to (m)	
Chiselling Depths (m) Time Tools used						
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project Havant Thicket Project No. D6072 Carried out for Portsmouth Water Ltd	
Scale 1:50					Borehole BH102 Sheet 1 of 2	

Borehole Log



Soil Mechanics

Drilled PW Logged AB Checked EC	Start 14/11/2006 End 15/11/2006	Equipment, Methods and Remarks Bands D2000 Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 14.45m.				Depth from 0.00m to 14.45m Diameter 150mm Casing Depth 3.00m	Ground Level +33.00 mOD Coordinates E 471750.00 National Grid N 109950.00 Chainage		
Samples and Tests					Strata				
Depth	Type & No	Records	Date Casing	Time Water	Description (Continued from Sheet 1)	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
10.00 10.00-10.45	D 26 B 27				Stiff to very stiff fissured grey mottled red and yellow brown CLAY. Fissures are extremely closely spaced, randomly orientated and matt. (READING FORMATION)				
11.00-11.38 11.00 11.00-11.45 11.00-11.50	SPT S D 28 D 29 B 30	48 (6,10/13,16,19,0 for 0mm)	3.00 3.00	dry dry					
11.60	D 31				Recovered as soft grey locally mottled red sandy CLAY. Sand is fine to medium. (READING FORMATION)	11.60 +21.40 (0.40)			
12.00 12.00-12.45	D 32 B 33				Very stiff (hard) grey mottled red, locally brown slightly sandy CLAY. Sand is fine. (READING FORMATION)	12.00 +21.00			
13.00-13.38 13.00 13.00-13.45 13.00-13.50 13.40	SPT S D 34 D 35 B 36 W 39	49 (6,10/13,14,22,0 for 0mm)	3.00 3.00	dry dry		(2.45)			
14.00 14.00-14.45	D 37 B 38		15/11/2006 3.00	1800 damp					
EXPLORATORY HOLE ENDS AT 14.45 m						14.45 +18.55			
Depth	Type & No	Records	Date Casing	Time Water					
Groundwater Entries					Depth Related Remarks *		Chiselling		
No.	Struck (m)	Post strike behaviour	Depth sealed (m)	From	to (m)	Depths (m)	Time	Tools used	
1	13.40	Rose to 11.30 m after 20 minutes.							
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project Havant Thicket Project No. D6072 Carried out for Portsmouth Water Ltd		Borehole BH102 Sheet 2 of 2		

Scale 1:50

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Borehole Log



Soil Mechanics

Drilled PW Logged AB Checked EC	Start 15/11/2006 End 16/11/2006	Equipment, Methods and Remarks Danda D2000 Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 13.45m.		Depth from 0.00m	to 13.45m	Diameter 150mm	Casing Depth 3.00m	Ground Level Coordinates National Grid Chainage	+33.00 mOD E 471275.00 N 110025.00
Samples and Tests				Strata					
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.00-0.10	D 1		15/11/2006	0800	Turf over soft dark brown sandy CLAY. Sand is fine to coarse. Occasional rootlets. (TOPSOIL)	0.16 +32.84			
0.30-0.40	D 2					0.30 +32.70			
0.80-0.90	D 3					(0.50)			
1.00-1.50	B 4				Soft dark brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded, fine to coarse of flint and possible sandstone. Sand is fine to coarse. Occasional rootlets. (Possibly HEAD DEPOSITS)	0.80 +32.20			
						(1.20)			
2.00	D 5		2.00		Soft yellow grey mottled orange slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to rounded, fine to coarse of flint. Occasional rootlets. (HEAD DEPOSITS)	2.00 +31.00			
2.00-2.45	U 6	41 blows		dry		(0.45)			
2.45-2.55	D 7					2.45 +30.55			
						(0.55)			
3.00-3.45	SPT S	N=15 (1,2/3,3,4,5)	3.00	dry	Yellow brown mottled orange silty SAND. Sand is fine to coarse. (LONDON CLAY FORMATION)	3.00 +30.00			
3.00-3.50	B 10								
3.00	D 8								
3.00-3.45	D 9				Soft yellow brown locally mottled orange brown sandy CLAY. Sand is fine to coarse. (READING FORMATION)				
4.00	D 11		3.00		Stiff purple grey mottled red and brown CLAY. (READING FORMATION)				
4.00-4.45	U 12	74 blows		dry					
4.45-4.55	D 13				Stiff becoming very stiff (hard) with depth fissured grey mottled red, locally brown and purple grey CLAY. Fissures are extremely closely spaced, randomly orientated, matt. Occasional fine to medium gravel sized pockets of brown fine and medium sand. (READING FORMATION)				
5.00-5.45	SPT S	N=33 (2,4/7,8,9,9)	3.00	dry					
5.00	D 14								
5.00-5.45	D 15								
5.00-5.50	B 16		15/11/2006	1800					
			3.00	dry					
			15/11/2006	0800					
			3.00	damp					
6.00	D 17		3.00						
6.00-6.45	U 18	79 blows		damp					
6.45-6.55	D 19								
7.00-7.45	SPT S	N=34 (3,5/7,8,9,10)	3.00	dry					
7.00	D 20								
7.00-7.45	D 21								
7.00-7.50	B 22								
8.00	D 23		3.00						
8.00-8.45	U 24	95 blows		dry					
8.45-8.55	D 25								
9.00-9.45	SPT S	N=40 (2,5/7,9,11,13)	3.00	dry					
9.00	D 26								
9.00-9.45	D 27								
9.00-9.50	B 28								
					8.45-9.00 m Abundant purple grey mottling.				
					Stratum continues to 12.00 m				
Groundwater Entries					Depth Related Remarks *				
No.	Struck (m)	Post strike behaviour	Depth sealed (m)		From		to (m)		Chiselling Depths (m)
					Time		Tools used		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column					Project Havant Thicket				
Scale: 1:50					Project No. D6072				
16/11/2006 08:59:24					Carried out for Portsmouth Water Ltd				
					Borehole BH103				
					Sheet 1 of 2				

Borehole Log



Soil Mechanics

Drilled PW Logged AB Checked EC	Start 15/11/2006 End 16/11/2006	Equipment, Methods and Remarks Dando D2000 Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 13.45m.	Depth from 0.00m to 13.45m Diameter 150mm Casing Depth 3.00m	Ground Level +33.00 mOD Coordinates E 471275.00 National Grid N 110025.00 Chainage
Samples and Tests			Strata	
Depth	Type & No	Records	Date Casing Time Water	Description (Continued from Sheet 1)
10.00 10.00-10.45 10.45-10.55	D 30 U 31 D 32	100 blows	3.00 dry	Stiff becoming very stiff (hard) with depth fissured grey mottled red, locally brown and purple grey CLAY. Fissures are extremely closely spaced, randomly orientated, matt. Occasional fine to medium gravel sized pockets of brown fine and medium sand. (READING FORMATION)
11.00-11.38 11.00 11.00-11.45 11.00-11.50	SPT S D 33 D 34 B 35	49 (5,7/11,16,22,0 for 0mm)	3.00 dry	
12.00 12.00-12.35 12.35-12.45 12.50-13.00 12.50	D 36 U 37 D 38 B 39 W 42	100 blows	3.00 dry	Very stiff grey and brown, locally mottled red sandy CLAY. Sand is fine to coarse. (READING FORMATION)
13.00-13.43 13.00 13.00-13.45	SPT S D 40 D 41	50 (3,7/9,13,16,12 for 50mm)	3.00 10.50 16/11/2006 1800 3.00 10.50	
EXPLORATORY HOLE ENDS AT 13.45 m				
Depth	Type & No	Records	Date Casing Time Water	
Groundwater Entries				Depth Related Remarks *
No.	Struck (m)	Post strike behaviour	Depth sealed (m)	Chiselling Depths (m) Time Tools used
1	12.50	Rose to 10.50 m after 20 minutes.		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.				
Scale 1:50		Project Project No. Carried out for	Havant Thicket D5072 Portsmouth Water Ltd	
Borehole BH103 Sheet 2 of 2				

Borehole Log



Soil Mechanics

Drilled PW Logged AB Checked EC	Start 17/11/2006 End 17/11/2006	Equipment, Methods and Remarks Dando D2000 Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 14.55m.			Depth from 0.00m to 14.55m Diameter 150mm Casing Depth 1.50m	Ground Level Coordinates National Grid Chainage +29.50 mOD E 471025.00 N 109600.00
Samples and Tests					Strata	
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level (Thickness)
0.00-0.10	D 1		17/11/2006	0800	Turf over soft dark grey to black slightly sandy CLAY. Sand is fine to medium. Occasional rootlets. (TOPSOIL)	(0.30)
0.30-0.40	D 2					0.30 +29.20
1.00-1.50	B 3				Soft to firm grey mottled orange slightly sandy CLAY. Sand is fine to coarse. Occasional rootlets. (LONDON CLAY FORMATION)	(1.70)
2.00	D 4		1.50			2.00 +27.50
2.00-2.45	D 5					
2.00-2.45	B 6					
2.00-2.45	U NR	42 blows No recovery		dry	Stiff fissured brown mottled grey and orange, locally slightly sandy CLAY. Sand is fine to medium. Fissures are extremely closely spaced, randomly orientated and matt. (LONDON CLAY FORMATION)	
3.00-3.45	SPT S	N=16 (1,2/3,4,4,5)	1.50	dry		
3.00	D 7					
3.00-3.45	D 8					
3.00-3.50	B 9					
4.00	D 10		1.50	dry		
4.00-4.45	U 11	51 blows				(4.45)
4.45-4.55	D 12					
5.00-5.45	SPT S	N=20 (2,3/3,5,6,6)	1.50	dry		
5.00	D 13					
5.00-5.45	D 14					
5.00-5.50	B 15					
6.00	D 16		1.50	dry		
6.00-6.45	U 17	75 blows				
6.45-6.55	D 18					6.45 +21.05
7.00-7.45	SPT S	N=20 (2,2/4,5,5,6)	1.50	dry		
7.00	D 19					
7.00-7.45	D 20					
7.00-7.50	B 21					
8.00	D 22		1.50	dry		
8.00-8.45	U 23	65 blows				
8.45-8.55	D 24					(4.55)
9.00-9.45	SPT S	N=16 (2,2/3,4,4,5)	1.50	dry		
9.00	D 25					
9.00-9.45	D 26					
9.00-9.50	B 27					
Stratum continues to 11.00 m						
Groundwater Entries					Chiselling	
No.	Struck	Post strike behaviour	Depth sealed (m)	Depth Related Remarks *	From	to (m)
None observed (see Key Sheet)						
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Borehole	
Project					BH104	
Project No.					Sheet 1 of 2	
Carried out for						

Borehole Log



Soil Mechanics

Drilled PW Logged AB Checked EC	Start 17/11/2006 End 17/11/2006	Equipment, Methods and Remarks Dando D2000 Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 14.55m.		Depth from 0.00m to 14.55m Diameter 150mm Casing Depth 1.50m	Ground Level Coordinates National Grid Chainage	+29.50 mOD E 471025.00 N 109600.00
Samples and Tests				Strata		
Depth	Type & No	Records	Date Casing	Time Water	Description (Continued from Sheet 1)	Depth, Level/ (Thickness)
10.00 10.00-10.45	D 29 U 29	56 blows	1.50	dry	Very stiff fissured grey CLAY. Fissures are extremely closely spaced, randomly orientated and matt. Occasional fine to medium sand size selenite crystals. (LONDON CLAY FORMATION)	11.00 +18.50
10.45-10.55	D 30					
11.00-11.45 11.00 11.00-11.45 11.00-11.50	SPT S D 31 D 32 B 33	N=21 (2,3/4,5,6,8)	1.50	dry	Very stiff fissured grey CLAY. Fissures are extremely closely spaced, randomly orientated and matt. Occasional fine to medium, rarely coarse, gravel size lenses of fine to medium grey sand. (LONDON CLAY FORMATION)	(3.55)
12.00 12.00-12.45	D 34 U 35	95 blows	1.50	dry		
12.45-12.55	D 36					
13.00-13.45 13.00 13.00-13.45 13.00-13.50	SPT S D 37 D 38 B 39	N=21 (2,4/4,5,6,8)	1.50	dry		
14.00 14.00-14.45	D 40 U 41	98 blows	1.50	dry		
14.45-14.55	D 42		17/11/2006 1.50	1800 dry		
					EXPLORATORY HOLE ENDS AT 14.55 m	14.55 +14.95
					14.45-14.55 m Slightly sandy	
Depth	Type & No	Records	Date Casing	Time Water		
Groundwater Entries No. Struck Post strike behaviour (m)			Depth sealed (m)	Depth Related Remarks *		Chiselling Depths (m)
None observed (see Key Sheet)						Time Tools used
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project Havant Thicket		Borehole BH104	
Scale 1:50			Project No. D6072		Sheet 2 of 2	
AGS			Carried out for Portsmouth Water Ltd			

Trial Pit Log



Soil Mechanics

Logged AB Checked EC		Start 21/11/2006 End 21/11/2006	Equipment, Methods and Remarks JCB 3CX Machine excavated trial pit from GL to 2.50m Terminated by client at 2.50m.	Dimensions and Orientation Width 0.60 m Length 2.30 m		Ground Level Coordinates National Grid Chainage		+32.50 mOD E 471975.00 N 109930.00
Samples and Tests			Strata					
Depth	Type & No.	Date Records	Description		Depth, Level (Thickness)	Legend	Backfill/ Instruments	
			1 Turf over soft grey slightly sandy CLAY. Sand is fine to medium. Abundant rootlets. (TOPSOIL)		(0.27)			
			2 Firm grey mottled orange slightly sandy CLAY. Sand is fine to medium. Occasional rootlets. (POSSIBLY HEAD DEPOSITS)		0.27 +32.23 (0.49)			
1.00 1.00	D 5 B 6		3 Firm grey mottled orange slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to rounded, fine to coarse of flint. Occasional cobbles of flint. Occasional rootlets. (HEAD DEPOSITS)		0.76 +31.74 (0.44)			
1.50 1.50	D 1 B 2		4 Yellow grey slightly clayey SAND. Sand is fine to coarse. (LONDON CLAY FORMATION)		1.20 +31.30 (1.30)			
2.50 2.50	D 3 B 4		EXPLORATORY HOLE ENDS AT 2.50 m		2.50 +30.00			
Depth	Type & No.	Records Date						
Groundwater Entries No. Struck Post Strike Behaviour (m) 1 1.50 Seepage			Depth Related Remarks * From to (m) 0.40 1.50 Sidewalls spalling on faces A and C.		Stability Sidewalls spalling Shoring None Weather Overcast and wet			
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project Havant Thicket Project No. D6072 Carried out for Portsmouth Water Ltd		Trial Pit TP101 Sheet 1 of 1			

Scale 1:25

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Trial Pit Log



Soil Mechanics

Logged AB Checked EC		Start 22/11/2006 End 22/11/2006	Equipment, Methods and Remarks JCB 3CX Machine excavated trial pit from GL to 2.50m Sidewalls spalling between 0.20 and 2.00m		Dimensions and Orientation Width 0.60 m Length 2.40 m 		Ground Level Coordinates National Grid Chainage +36.50 mOD E 471875.00 N 110080.00	
Samples and Tests			Strata					
Depth	Type & No.	Date Records	Description			Depth, Level (Thickness)	Legend	Backfill/ Instruments
			1 Turf over soft brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse of flint. Occasional rootlets. (TOPSOIL)			(0.40)		
			2 Soft grey mottled orange slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded, fine to coarse of flint. Sand is fine to coarse. (POSSIBLY HEAD DEPOSITS)			0.40 +36.10		
						(0.90)		
1.50	D1		3 Soft, light brown mottled orange slightly sandy to sandy CLAY. Sand is fine to medium. (HEAD DEPOSITS/LONDON CLAY FORMATION)			1.30 +35.20		
1.50	B2					(0.80)		
			4 Soft grey slightly sandy CLAY. Sand is fine to coarse. (LONDON CLAY FORMATION)			2.10 +34.40		
						(0.40)		
2.50	D3		EXPLORATORY HOLE ENDS AT 2.50 m			2.50 +34.00		
2.50	B4							
Depth	Type & No.	Records Date						
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Depth Related Remarks * From to (m)			Stability Sidewalls spalling Shoring None Weather: Rain		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project Havant Thicket Project No. D6072 Carried out for Portsmouth Water Ltd			Trial Pit TP102 Sheet 1 of 1		

Scale 1:25

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Trial Pit Log



Soil Mechanics

Logged AB Checked EC	Start 22/11/2006 End 22/11/2006	Equipment, Methods and Remarks JCB 3CX Machine excavated trial pit from GL to 3.00m Sidewalls spalling between 0.90 and 1.30m and from 1.00 to 3.40m	Dimensions and Orientation Width 0.60 m Length 2.90 m 350 (Deg)	Ground Level Coordinates National Grid Chainage	+31.50 mOD E 471675.00 N 109925.00	
Samples and Tests			Strata			
Depth	Type & No.	Date Records	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
			1 Turf over soft grey slightly sandy CLAY. Sand is fine to coarse. Occasional rootlets. (TOPSOIL)			
			2 Soft to firm orange mottled grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse of flint. Occasional cobbles of flint and possibly sandstone. Occasional rootlets. (POSSIBLY HEAD DEPOSITS)	0.25 +31.25 (0.60)		
1.00 1.00	D 1 B 2		3 Orange grey to light brown slightly clayey SAND. Sand is fine to coarse. (HEAD DEPOSITS)	0.85 +30.65 (0.45)		
1.50 1.50	D 3 B 4		4 Soft to firm fissured orange and grey mottled slightly sandy CLAY. Sand is fine to coarse. Fissures are extremely closely spaced, randomly orientated and matt. (READING FORMATION)	1.30 +30.20 (0.50)		
1.70 1.70	D 5 B 6					
1.90	B 7		5 Weak to moderately weak, closely bedded yellow grey to dark grey MUDSTONE. (READING FORMATION)	1.80 +29.70 2.00 +29.50		
			6 Soft grey brown sandy CLAY. Sand is fine to coarse. (READING FORMATION)	(0.40)		
2.50 2.50	D 8 B 9		7 Soft dark grey slightly sandy to sandy CLAY. Sand is fine to coarse. (READING FORMATION)	2.40 +29.10 (0.60)		
3.20 3.20	D 10 B 11		8 Firm to stiff fissured red and grey mottled CLAY. Fissures are extremely closely spaced, randomly orientated and matt. (READING FORMATION)	3.00 +28.50 (0.40)		
			EXPLORATORY HOLE ENDS AT 3.40 m	3.40 +28.10		
Depth	Type & No.	Records Date				
Groundwater Entries No. Struck Post Strike Behaviour (m) 1 1.30 Seepage			Depth Related Remarks * From to (m)		Stability Sidewalls spalling Shoring None Weather Overcast and rain	
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project Havant Thicket Project No. D6072 Carried out for Portsmouth Water Ltd		Trial Pit TP103 Sheet 1 of 1	

Scale 1:25

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Trial Pit Log



Soil Mechanics

Logged AB Checked EC		Start 22/11/0616 End 22/11/2006	Equipment, Methods and Remarks JCB 3CX Machine excavated trial pit from GL to 3.00m. Sidewalls spalling between 0.5 and 2.00m.		Dimensions and Orientation Width 0.60 m Length 2.20 m 		Ground Level Coordinates National Grid Chainage		+34.50 mOD E 471550.00 N 110950.00	
Samples and Tests			Strata							
Depth	Type & No.	Date Records	Description			Depth, Level/ (Thickness)	Legend	Backfill/ Instruments		
			1 Turf over soft grey and brown mottled slightly sandy CLAY. Sand is fine to coarse. Abundant rootlets. (TOPSOIL)			(0.28)				
			2 Soft to firm orange and grey mottled slightly sandy CLAY. Sand is fine to coarse, predominantly fine to medium. (POSSIBLY HEAD DEPOSITS)			0.28 +34.22				
						(1.02)				
1.50 1.50	D 1 B 2		3 Firm fissured light brown mottled orange and grey slightly sandy CLAY. Sand is fine to medium. Fissures are extremely closely spaced, randomly orientated and matt. (LONDON CLAY FORMATION)			1.30 +33.20				
						(0.60)				
2.50 2.50	D 3 B 4		4 Stiff fissured grey and red mottled CLAY. Fissures are extremely closely spaced, randomly orientated and matt. (READING FORMATION)			1.90 +32.60				
						(1.10)				
			EXPLORATORY HOLE ENDS AT 3.00 m			3.00 +31.50				
Depth	Type & No.	Records Date								
Groundwater Entries No. Struck Post Strike Behaviour (m)			Depth Related Remarks * From to (m)			Stability Sidewalls spalling				
						Shoring None				
						Weather Overcast				
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project Havant Thicket Project No. D6072 Carried out for Portsmouth Water Ltd			Trial Pit TP104 Sheet 1 of 1				

Scale 1:25

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