

Project Name:	Trosnant Primary School	Project No.	5715	Co-ords:		Hole Type	WLS
Location:	Havant, Hampshire	Level:		Scale	1:50	Logged By	
Client:	Hampshire County Council	Dates:	02/06/2016				

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	ES		0.20			TOPSOIL: Dark brown silty sandy gravelly CLAY with fine roots	
		1.00	B		0.40			Stiff orange brown and brown with rusty inclusions silty sandy CLAY. Occasional sub-angular gravels of flint	
		1.00	SPT	50 (25 for 125mm/50 for 225mm)				Very dense brown to orange brown silty very clayey GRAVELS / very stiff silty very gravelly CLAY. Gravels are sub-angular of flint.	1
					1.60			Firm to locally soft, brown to orange brown and grey sandy silty CLAY	2
		2.00	SPT	N=5 (1,1/1,1,1,1)					
		3.00	SPT	N=5 (1,1/1,1,1,2)					3
		3.75	B		3.70			Firm to stiff dark grey silty CLAY	4
		4.00	SPT	N=9 (1,1/2,2,2,3)					
		5.00	SPT	N=8 (1,1/1,2,2,3)	5.00			End of Borehole at 5.00m	5
									6
									7
									8
									9
									10

Remarks

Project Name:	Trosnant Primary School	Project No.	5715	Co-ords:		Hole Type	WLS
Location:	Havant, Hampshire	Level:		Scale	1:50	Logged By	
Client:	Hampshire County Council	Dates:	02/06/2016				

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10			0.10			TOPSOIL: Dark brown silty sandy gravely CLAY with fine roots	
		0.40	ES		0.40			MADE GROUND: Light brown and beige silty clayey gravely SAND. Gravel sub-angular of flint and brick	
		0.90	B					Very dense brown to orange brown silty very clayey GRAVELS / Very stiff silty very gravelly CLAY. Gravels are sub-angular of flint.	1
		1.00	SPT	N=19 (8,10/7,4,4,4)					
		1.50	B		1.40			Firm to locally soft brown to orange brown and grey slightly sandy silty	2
		2.00	SPT	N=3 (0,0/0,1,1,1)					
		3.00	SPT	N=5 (1,1/1,1,1,2)					3
		3.50			3.50			Firm to stiff dark grey silty CLAY	4
		4.00	SPT	N=9 (1,1/1,2,3,3)					
		5.00	SPT	N=7 (1,1/1,2,2,2)	5.00			End of Borehole at 5.00m	5
									6
									7
									8
									9
									10

Remarks

ANNEX C
Trial Pit Logs

Project Name: Trosnant Primary School

Project No.
5715

Co-ords: -
Level:

Date
03/06/2016

Location: Havant, Hampshire

Dimensions: 1.60

Scale
1:25

Client: Hampshire County Council

Depth
1.60

Logged

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.10			TOPSOIL: Dark brown silty sandy gravelly CLAY with fine roots	
	0.30	ES		0.40			MADE GROUND: Brown slightly clayey silty gravelly SAND. Gravel sub-angular of flint, concrete and brick. Rare paving slabs	
	0.60	ES					Firm to stiff brown with orange brown rusty mottling slightly sandy silty CLAY. Occasional roots	
	1.00	B		1.00			Stiff brown to orange brown silty very gravelly CLAY. Gravels are sub-angular of flint. Recovered locally as very clayey GRAVELS.	1
				1.50			Firm to stiff brown silty sandy CLAY	
				1.60			End of Pit at 1.60m	
								2
								3
								4
								5

Remarks: Soakaway Test Undertaken

Stability:

Project Name: Trosnant Primary School

Project No.
5715

Co-ords: -
Level:

Date
03/06/2016

Location: Havant, Hampshire

Dimensions: 1.60

Depth
1.80

0.45

Scale
1:25

Logged

Client: Hampshire County Council

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.20			TOPSOIL: Dark brown silty sandy gravelly CLAY with fine roots	
	0.50	ES					MADE GROUND: Brown silty sandy gravelly CLAY with many roots	
	0.80	ES		0.70			Very dense brown to orange brown silty very clayey GRAVELS. Gravels are sub-angular of flint.	
	1.00	B						1
				1.45			Soft brown silty very sandy CLAY (Saturated)	
				1.80				2
							End of Pit at 1.80m	3
								4
								5

Remarks: Soakaway Test Undertaken

Stability:

ANNEX D Hand Excavated Inspection Pit Logs
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Project Name: Trosnant Primary School	Project No. 5715	Co-ords: - Level:	Date 02/06/2016
Location: Havant, Hampshire		Dimensions:	Scale 1:25
Client: Hampshire County Council		Depth 0.65	Logged

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.10			MADE GROUND: Asphalt	
				0.25			MADE GROUND: Hardcore	
				0.60			MADE GROUND: Brown silty sandy gravelly CLAY. Gravels sub-angular of flint, brick and ash	
				0.65			Very dense brown to orange brown silty very clayey GRAVELS. Gravels are sub-angular of flint.	
							End of Pit at 0.65m	

Remarks: Concrete foundation 0.50m deep & 0.15m thick, protruding 1.45m from wall (0.66m from pillar).

Stability:



Project Name: Trosnant Primary School

Project No.
5715

Co-ords: -
Level:

Date
03/06/2016

Location: Havant, Hampshire

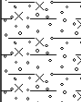
Dimensions:

Scale
1:25

Client: Hampshire County Council

Depth
0.78

Logged

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.10			MADE GROUND: Asphalt
				0.25			MADE GROUND: Hardcore
				0.35			MADE GROUND: Dark brown and grey silty sandy gravelly CLAY. Gravels sub-angular of flint, brick and concrete
				0.78			Very dense brown to orange brown silty very clayey GRAVELS . Gravels are sub-angular of flint.
							End of Pit at 0.78m

1

2

3

4

5

Remarks: Concrete foundation 0.50m deep & 0.28m thick (undercut 0.06m), protruding 0.63m from wall.

Stability:

Project Name: Trosnant Primary School

Project No.
5715

Co-ords: -
Level:

Date
02/06/2016

Location: Havant, Hampshire

Dimensions:

Scale
1:25

Client: Hampshire County Council

Depth
0.50

Logged

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30	ES		0.20			TOPSOIL: Dark brown silty sandy gravelly CLAY with fine roots	
				0.50			MADE GROUND: Brown grey with rusty inclusions silty sandy gravelly CLAY. Gravels are sub-angular of flint	
							End of Pit at 0.50m	
								1
								2
								3
								4
								5

Remarks: Soakaway Test Undertaken. CBR @ 0.20m (>15%, >15%, >15%)

Stability:

Project Name: Trosnant Primary School	Project No. 5715	Co-ords: - Level:	Date 02/06/2016
Location: Havant, Hampshire		Dimensions:	Scale 1:25
Client: Hampshire County Council		Depth 0.50	Logged

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.30			TOPSOIL: Dark brown silty sandy gravelly CLAY with fine roots	
				0.50			MADE GROUND: Brown grey and orange brown silty sandy gravelly CLAY. Gravels are sub-angular of flint	
							End of Pit at 0.50m	
								1
								2
								3
								4
								5

Remarks: CBR @ 0.50m (>15%, >15%, >15%)

Stability:



ANNEX E
In-situ Soakaway Test Results

TERRAFIRMA (SOUTH)

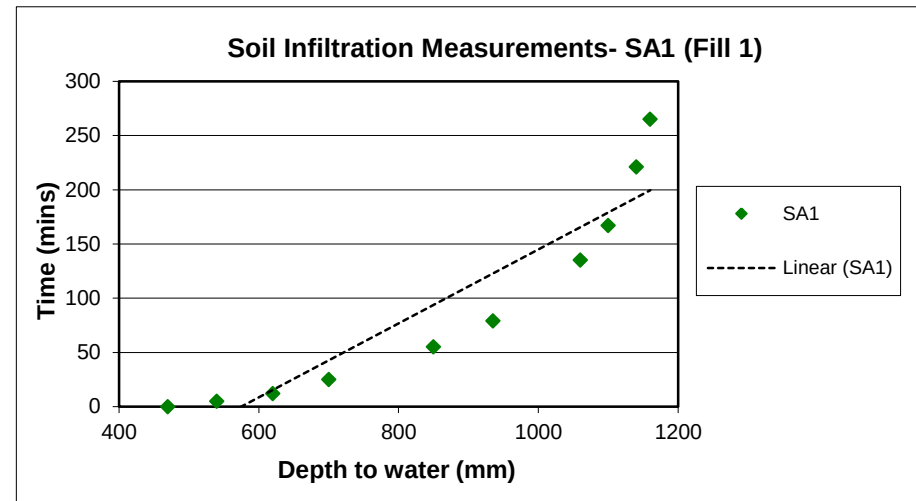
Site Name: Trosnant School, Havant

Date Undertaken: 03/06/2016

Trial Pit No.: SA1 - Fill 1

	Depth to Water (mm)	Time (Mins)
(effective depth - 100%)	470	0
	540	5
	620	12
	700	25
	850	55
	935	79
	1060	135
	1100	167
	1140	221
(effective depth - 0%)	1160	265

Length of Trial Pit (m)	1.6
Width of Trial Pit (m)	0.45
Depth of Trial Pit (m)	1.6
Effective Storage Depth (m)	0.69
75% Effective Depth (V _{p75})	0.6425
25% Effective Depth (V _{p25})	0.9875
Volume of Water Outflowing (m ³)	0.2484
Assumed 50% effective depth (a _{p50})	0.785
Mean Surface Area of outflow	3.9385
Time for 25% Outflow (tp ₂₅)	23.09474246
Time for 75% Outflow (tp ₇₅)	140.7241092
Soil Infiltration Rate (m/s)	8.93622E-06



NB. tp₂₅ and tp₇₅ were calculated through a linear trend by fitting a straight line using the least squares method to the known values

Soil Infiltration Worksheet: This worksheet has been produced in combination with the document 'BRE Digest 365- September 1991'

This worksheet can be used to determine soil infiltration rates from trial pit field measurements

Worksheet options are identified by a green background

TERRAFIRMA (SOUTH)

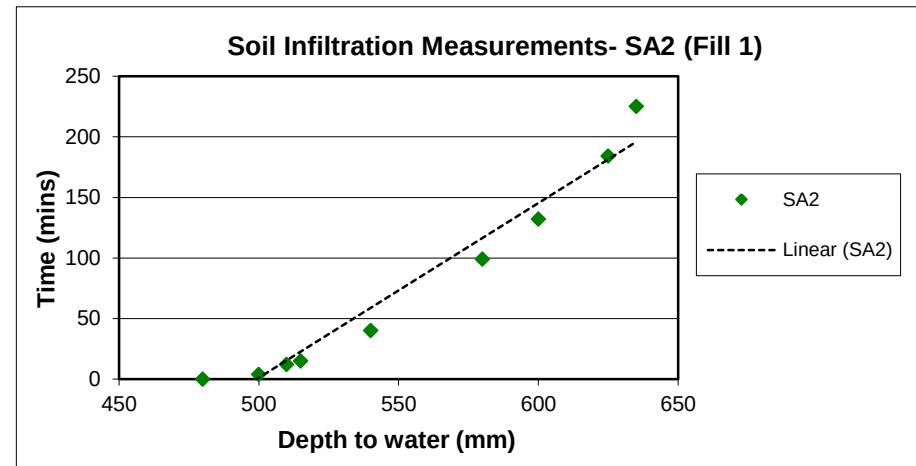
Site Name: Trosnant School, Havant

Date Undertaken: 03/06/2016

Trial Pit No.: SA2 - Fill 1

	Depth to Water (mm)	Time (Mins)
(effective depth - 100%)	480	0
	500	4
	510	12
	515	15
	540	40
	580	99
	600	132
	625	184
(effective depth - 0%)	635	225

Length of Trial Pit (m)	1.6
Width of Trial Pit (m)	0.45
Depth of Trial Pit (m)	1.8
Effective Storage Depth (m)	0.155
75% Effective Depth (V _{p75})	0.51875
25% Effective Depth (V _{p25})	0.59625
Volume of Water Outflowing (m ³)	0.0558
Assumed 50% effective depth (a _{p50})	1.2425
Mean Surface Area of outflow	5.81425
Time for 25% Outflow (tp ₂₅)	28.32955978
Time for 75% Outflow (tp ₇₅)	140.0849181
Soil Infiltration Rate (m/s)	1.43127E-06



NB. tp₂₅ and tp₇₅ were calculated through a linear trend by fitting a straight line using the least squares method to the known values

Soil Infiltration Worksheet: This worksheet has been produced in combination with the document 'BRE Digest 365- September 1991'

This worksheet can be used to determine soil infiltration rates from trial pit field measurements

Worksheet options are identified by a green background

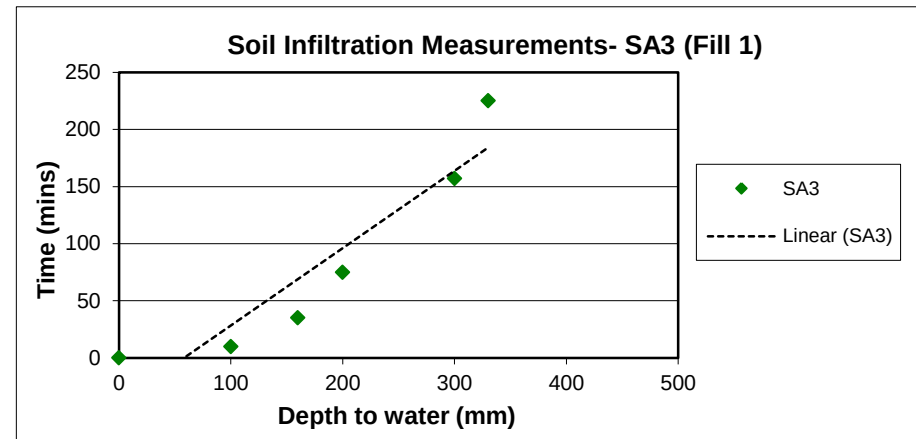
TERRAFIRMA (SOUTH)

Site Name: Trosnant School, Havant

Date Undertaken: 03/06/2016

Trial Pit No.: SA3 (HOTP5) - Fill 1

	Depth to Water (mm)	Time (Mins)
(effective depth - 100%)	0	0
	100	10
	160	35
	200	75
	300	157
(effective depth - 0%)	330	225
Length of Trial Pit (m)	0.2	
Width of Trial Pit (m)	0.2	
Depth of Trial Pit (m)	0.5	
Effective Storage Depth (m)	0.33	
75% Effective Depth (Vp75)	0.0825	
25% Effective Depth (Vp25)	0.2475	
Volume of Water Outflowing (m3)	0.0066	
Assumed 50% effective depth (ap50)	0.335	
Mean Surface Area of outflow	0.308	
Time for 25% Outflow (tp25)	16.56439311	
Time for 75% Outflow (tp75)	128.2135542	
Soil Infiltration Rate (m/s)	3.1988E-06	



NB. tp25 and tp75 were calculated through a linear trend by fitting a straight line using the least squares method to the known values

Soil Infiltration Worksheet: This worksheet has been produced in combination with the document 'BRE Digest 365- September 1991'

This worksheet can be used to determine soil infiltration rates from trial pit field measurements

Worksheet options are identified by a green background

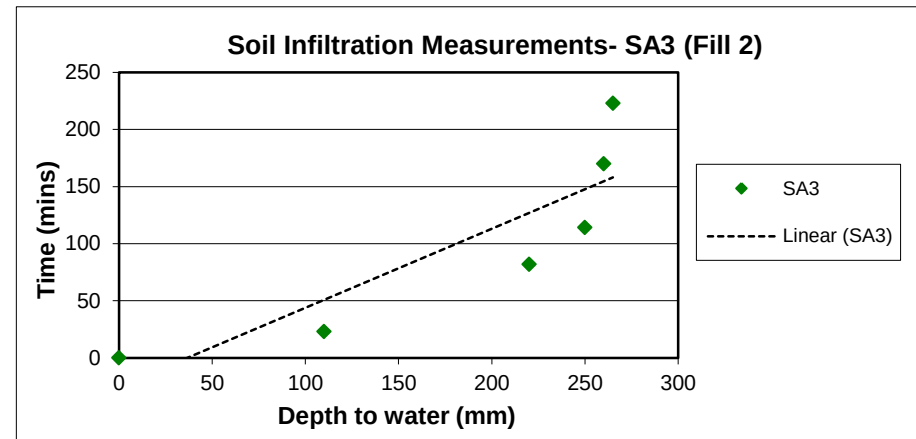
TERRAFIRMA (SOUTH)

Site Name: Trosnant School, Havant

Date Undertaken: 03/06/2016

Trial Pit No.: SA3 (HOTP5) - Fill 2

	Depth to Water (mm)	Time (Mins)
(effective depth - 100%)	0	0
	110	23
	220	82
	250	114
	260	170
(effective depth - 0%)	265	223
Length of Trial Pit (m)	0.2	
Width of Trial Pit (m)	0.2	
Depth of Trial Pit (m)	0.5	
Effective Storage Depth (m)	0.265	
75% Effective Depth (Vp75)	0.06625	
25% Effective Depth (Vp25)	0.19875	
Volume of Water Outflowing (m3)	0.0053	
Assumed 50% effective depth (ap50)	0.3675	
Mean Surface Area of outflow	0.334	
Time for 25% Outflow (tp25)	20.42432943	
Time for 75% Outflow (tp75)	112.0888639	
Soil Infiltration Rate (m/s)	2.88521E-06	



NB. tp25 and tp75 were calculated through a linear trend by fitting a straight line using the least squares method to the known values

Soil Infiltration Worksheet: This worksheet has been produced in combination with the document 'BRE Digest 365- September 1991'

This worksheet can be used to determine soil infiltration rates from trial pit field measurements

Worksheet options are identified by a green background

ANNEX F Laboratory Soil Chemical Test Results



Certificate of Analysis

Certificate Number 16-69644

21-Jun-16

Client Terra Firma South
Pump House
44 Marlbro Road
Exeter
Devon
EX2 4LL

Our Reference 16-69644

Client Reference 5715

Order No (not supplied)

Contract Title Trosnant School

Description 8 Soil samples, 4 Leachate samples.

Date Received 14-Jun-16

Date Started 14-Jun-16

Date Completed 21-Jun-16

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the scope of UKAS accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. Observations and interpretations are outside the scope of ISO 17025. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

A handwritten signature in black ink, appearing to read 'Rob Brown'.

Rob Brown
Business Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 16-69644

Client Ref 5715

Contract Title Trosnant School

Lab No	1005810	1005811	1005812	1005813	1005814	1005815
Sample ID	WS1	WS2	WS3	WS4	WS5	HDP5
Depth	0.40	0.30	0.25	0.30	0.40	0.30
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	02/06/16	02/06/16	02/06/16	02/06/16	02/06/16	02/06/16
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	6.5	8.0	8.1	13	12	11
Boron, Water Soluble	DETSC 2123#	0.2	mg/kg	1.6	1.0	0.8	0.5	0.7	0.7
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	0.2	0.2	< 0.1	< 0.1	0.3
Chromium	DETSC 2301#	0.15	mg/kg	12	14	13	30	19	17
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	13	16	15	12	12	28
Lead	DETSC 2301#	0.3	mg/kg	29	35	43	15	26	120
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	0.18	0.07	< 0.05	< 0.05	0.18
Nickel	DETSC 2301#	1	mg/kg	9.0	11	9.9	13	8.7	11
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	36	45	57	42	35	90
Inorganics									
pH	DETSC 2008#			11.3	9.3	8.1	8.1	8.3	8.1
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	< 0.6	1.7	< 0.6	< 0.6	1.2
Organic matter	DETSC 2002#	0.1	%	0.9	0.9	2.2	0.4	0.6	2.6
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	10	11	13	12	11	10
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	140	69			< 10	
Sulphide	DETSC 2024#	10	mg/kg	< 10	< 10	< 10	< 10	12	< 10
Sulphur as S, Total	DETSC 2320	0.01	%	0.07	0.04	0.02	< 0.01	< 0.01	0.02
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.20	0.09	0.04	0.02	0.02	0.04
Petroleum Hydrocarbons									
EPH (C10-C40)	DETSC 3311#	10	mg/kg	740	4900	180	< 10	< 10	< 10

Summary of Chemical Analysis

Soil Samples

Our Ref 16-69644

Client Ref 5715

Contract Title Trosnant School

Lab No	1005810	1005811	1005812	1005813	1005814	1005815
Sample ID	WS1	WS2	WS3	WS4	WS5	HDP5
Depth	0.40	0.30	0.25	0.30	0.40	0.30
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	02/06/16	02/06/16	02/06/16	02/06/16	02/06/16	02/06/16
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
PAHs									
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	4.4	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	4.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	0.6	35	0.4	< 0.1	0.2	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	0.2	8.2	0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	1.3	61	1.0	< 0.1	0.5	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	2.6	57	1.0	< 0.1	0.4	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	1.2	23	0.6	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	1.2	22	0.5	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	1.0	17	0.6	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	0.5	9.0	0.3	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	1.3	21	0.7	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	1.0	13	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	0.2	1.9	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	0.9	14	< 0.1	< 0.1	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	12	290	5.3	< 1.6	< 1.6	< 1.6
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	0.4	0.8

WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 16-69644
Client Ref 5715
Contract Title Trosnant School
Sample Id TP1 0.30

Sample Numbers 1005808 1005816 1005817
Date Analysed 21/06/2016

Test Results On Waste		
Determinand and Method Reference	Units	Result
DETSC 2084* Total Organic Carbon	%	1.2
DETSC 2003# Loss On Ignition	%	4.3
DETSC 3321# BTEX	mg/kg	< 0.04
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01
DETSC 3311# TPH (C10 - C40)	mg/kg	600
DETSC 3301 PAHs	mg/kg	38
DETSC 2008# pH	pH Units	9.7
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1

WAC Limit Values		
Inert Waste	SNRHW	Hazardous Waste
3	5	6
n/a	n/a	10
6	n/a	n/a
1	n/a	n/a
500	n/a	n/a
100	n/a	n/a
n/a	>6	n/a
n/a	TBE	TBE
n/a	TBE	TBE

Test Results On Leachate				
Determinand and Method Reference	Conc in Eluate ug/l		Amount Leached mg/kg	
	2:1	8:1	LS2	LS10
DETSC 2306 Arsenic as As	1.6	1	0.003	0.011
DETSC 2306 Barium as Ba	25	14	0.05	0.16
DETSC 2306 Cadmium as Cd	< 0.03	< 0.03	< 0.004	< 0.02
DETSC 2306 Chromium as Cr	1	0.32	< 0.02	< 0.1
DETSC 2306 Copper as Cu	3.6	2.1	0.007	0.023
DETSC 2306 Mercury as Hg	0.02	0.01	< 0.0004	< 0.002
DETSC 2306 Molybdenum as Mo	< 1.1	< 1.1	< 0.02	< 0.1
DETSC 2306 Nickel as Ni	1.1	0.7	< 0.02	< 0.1
DETSC 2306 Lead as Pb	2.1	0.9	< 0.01	< 0.05
DETSC 2306 Antimony as Sb	0.48	0.4	< 0.01	< 0.05
DETSC 2306 Selenium as Se	0.42	0.53	< 0.006	< 0.03
DETSC 2306 Zinc as Zn	3.7	2.8	0.007	0.029
DETSC 2055 Chloride as Cl	660	700	< 20	< 100
DETSC 2055* Fluoride as F	170	110	0.34	1.19
DETSC 2055 Sulphate as SO4	2100	1600	< 20	< 100
DETSC 2009* Total Dissolved Solids	48000	31000	96	334.2
DETSC 2130 Phenol Index	< 100	< 100	< 0.2	< 1
* Dissolved Organic Carbon	4500	2700	< 10	< 50

WAC Limit Values		
Limit values for LS10 Leachate		
Inert Waste	SNRHW	Hazardous Waste
0.5	2	25
20	100	300
0.04	1	5
0.5	10	70
2	50	100
0.01	0.2	2
0.5	10	30
0.4	10	40
0.5	10	50
0.06	0.7	5
0.1	0.5	7
4	50	200
800	15,000	25,000
10	150	500
1000	20,000	50,000
4000	60,000	100,000
1	n/a	n/a
500	800	1000

Additional Information

DETSC 2008 pH	8.4	7
DETSC 2009 Conductivity uS/cm	68.1	43.9
* Temperature*	10	20

Mass of Sample Kg	0.130
Mass of dry Sample Kg	0.124

Stage 1

Volume of Leachant L2	0.241
Volume of Eluate VE1	0.176

Stage 2

Volume of Leachant L8	0.988
Volume of Eluate VE2	0.89

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

Disclaimer: The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.

WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 16-69644
Client Ref 5715
Contract Title Trosnant School
Sample Id TP2 0.50

Sample Numbers 1005809 1005818 1005819
Date Analysed 21/06/2016

Test Results On Waste		
Determinand and Method Reference	Units	Result
DETSC 2084* Total Organic Carbon	%	1.2
DETSC 2003# Loss On Ignition	%	4.7
DETSC 3321# BTEX	mg/kg	< 0.04
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01
DETSC 3311# TPH (C10 - C40)	mg/kg	< 10
DETSC 3301 PAHs	mg/kg	< 1.6
DETSC 2008# pH	pH Units	8.0
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1

WAC Limit Values		
Inert Waste	SNRHW	Hazardous Waste
3	5	6
n/a	n/a	10
6	n/a	n/a
1	n/a	n/a
500	n/a	n/a
100	n/a	n/a
n/a	>6	n/a
n/a	TBE	TBE
n/a	TBE	TBE

Test Results On Leachate				
Determinand and Method Reference	Conc in Eluate ug/l		Amount Leached mg/kg	
	2:1	8:1	LS2	LS10
DETSC 2306 Arsenic as As	1.1	0.53	0.002	< 0.01
DETSC 2306 Barium as Ba	28	15	0.06	0.17
DETSC 2306 Cadmium as Cd	< 0.03	< 0.03	< 0.004	< 0.02
DETSC 2306 Chromium as Cr	0.75	0.46	< 0.02	< 0.1
DETSC 2306 Copper as Cu	2.4	5.2	0.005	0.048
DETSC 2306 Mercury as Hg	< 0.01	< 0.01	< 0.0004	< 0.002
DETSC 2306 Molybdenum as Mo	< 1.1	< 1.1	< 0.02	< 0.1
DETSC 2306 Nickel as Ni	0.8	1.5	< 0.02	< 0.1
DETSC 2306 Lead as Pb	0.6	0.19	< 0.01	< 0.05
DETSC 2306 Antimony as Sb	0.54	0.31	< 0.01	< 0.05
DETSC 2306 Selenium as Se	0.62	0.57	< 0.006	< 0.03
DETSC 2306 Zinc as Zn	3.3	8.5	0.007	0.078
DETSC 2055 Chloride as Cl	760	6000	< 20	< 100
DETSC 2055* Fluoride as F	290	< 100	0.58	0.37
DETSC 2055 Sulphate as SO4	1300	1300	< 20	< 100
DETSC 2009* Total Dissolved Solids	44000	39000	88	396.4
DETSC 2130 Phenol Index	< 100	< 100	< 0.2	< 1
* Dissolved Organic Carbon	4700	5000	< 10	< 50

WAC Limit Values		
Limit values for LS10 Leachate		
Inert Waste	SNRHW	Hazardous Waste
0.5	2	25
20	100	300
0.04	1	5
0.5	10	70
2	50	100
0.01	0.2	2
0.5	10	30
0.4	10	40
0.5	10	50
0.06	0.7	5
0.1	0.5	7
4	50	200
800	15,000	25,000
10	150	500
1000	20,000	50,000
4000	60,000	100,000
1	n/a	n/a
500	800	1000

Additional Information

DETSC 2008 pH	8.2	6.9
DETSC 2009 Conductivity uS/cm	62.1	55.1
* Temperature*	10	20

Mass of Sample Kg	0.130
Mass of dry Sample Kg	0.123

Stage 1

Volume of Leachant L2	0.238
Volume of Eluate VE1	0.156

Stage 2

Volume of Leachant L8	0.982
Volume of Eluate VE2	0.88

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

Disclaimer: The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.

Summary of Asbestos Analysis

Soil Samples

Our Ref 16-69644

Client Ref 5715

Contract Title Trosnant School

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1005810	WS1 0.40	SOIL	NAD	none	Colin Patrick
1005811	WS2 0.30	SOIL	NAD	none	Colin Patrick
1005812	WS3 0.25	SOIL	NAD	none	Colin Patrick
1005813	WS4 0.30	SOIL	NAD	none	Colin Patrick
1005814	WS5 0.40	SOIL	NAD	none	Colin Patrick
1005815	HDTP5 0.30	SOIL	NAD	none	Colin Patrick

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 16-69644
 Client Ref 5715
 Contract Trosnant School

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1005808	TP1 0.30 SOIL	03/06/16	GJ 250ml, GV, PT 1L	pH + Conductivity (7 days)	
1005809	TP2 0.50 SOIL	03/06/16	GJ 250ml, GV, PT 1L	pH + Conductivity (7 days)	
1005810	WS1 0.40 SOIL	02/06/16	GJ 250ml, PT 1L	pH + Conductivity (7 days)	
1005811	WS2 0.30 SOIL	02/06/16	GJ 250ml, PT 1L	pH + Conductivity (7 days)	
1005812	WS3 0.25 SOIL	02/06/16	GJ 250ml, PT 1L	pH + Conductivity (7 days)	
1005813	WS4 0.30 SOIL	02/06/16	GJ 250ml, PT 1L	pH + Conductivity (7 days)	
1005814	WS5 0.40 SOIL	02/06/16	GJ 250ml, PT 1L	pH + Conductivity (7 days)	
1005815	HDTP5 0.30 SOIL	02/06/16	GJ 250ml, PT 1L	pH + Conductivity (7 days)	
1005816	TP1 0.30 LEACHATE	03/06/16	GJ 250ml, GV, PT 1L		
1005817	TP1 0.30 LEACHATE	03/06/16	GJ 250ml, GV, PT 1L		
1005818	TP2 0.50 LEACHATE	03/06/16	GJ 250ml, GV, PT 1L		
1005819	TP2 0.50 LEACHATE	03/06/16	GJ 250ml, GV, PT 1L		

Key: G-Glass P-Plastic J-Jar V-Vial T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

ANNEX G Geotechnical Laboratory Test Results
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Laboratory Report



Contract Number: 31316

Client's Reference: **5715**

Report Date: **04-07-2016**

Client **Terrafirma South**
The Pump House
44 Marlborough Road
Exeter
EX2 4LL

Contract Title: **Trosnant School, Havant**
For the attention of: **Paul Standish**

Date Received: **14-06-2016**
Date Commenced: **14-06-2016**
Date Completed: **04-07-2016**

Test Description	Qty
Moisture Content - * UKAS	12
Atterburg Test - * UKAS	12
PSD - Wet - * UKAS	5
(GI) BRE SD1 Reduced Suite pH, Acid Soluble Sulphate, Water Soluble Sulphate and Total Sulphur 1377 : 1990 Part 3 & BRE CP2/79 - @ Non Accredited Test	4
Disposal of Samples on Project	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**
* - denotes test included in laboratory scope of accreditation
- denotes test carried out by approved contractor
@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved Signatories:

Alex Wynn (Associate Director) - Benjamin Sharp (Contracts Manager) - Emma Sharp (Office Manager)
Jon Tatam (Administrative/Quality Assistant) - Paul Evans (Quality/Technical Manager) - Vaughan Edwards (Managing Director)

Client ref: 5715
Location: Trosnant School, Havant
Contract Number: 31316-160616

[illegible]

Note: Results on this table are in summary format and may not meet the requirements of the relevant standards, additional information is held by the laboratory



For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Jon Tatam (Office/Quality Assistant)

Date: 4.7.16

Katam



Test Report: Method of the Determination of the plastic limit and plasticity index
BS 1377 : Part 2 : 5 : 1990

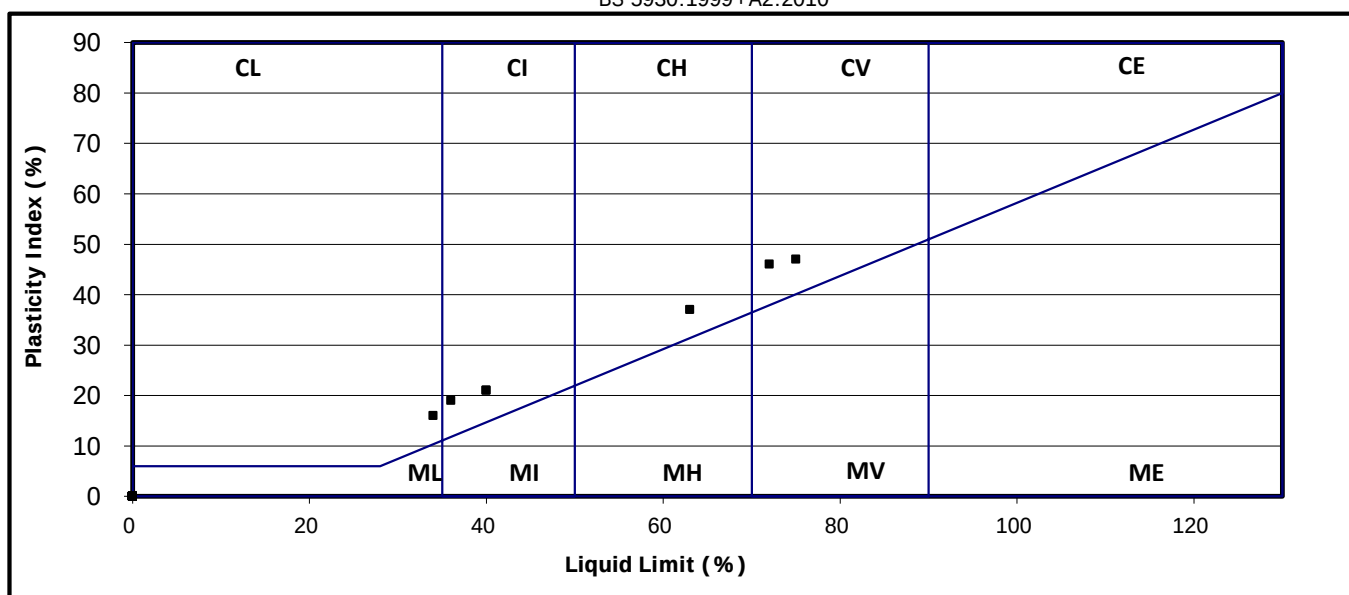
Client ref: 5715
Location: Trosnant School, Havant
Contract Number: 31316-160616

Hole / Sample Number	Sample Type	Depth m	Moisture Content % Cl. 3.2	Liquid Limit % Cl. 4.3 / 4.4	Plastic Limit % Cl. 5.3	Plasticity Index % Cl. 5.4	% Passing .425mm	Remarks
TP1	B	1.00	8.4	36	17	19	82	CI Intermediate Plasticity
TP2	B	1.00	6.1		NP		31	
WS1	B	1.30	19		NP		19	
WS1	B	1.80	27	72	26	46	100	CV Very High Plasticity
WS2	B	1.00	22	40	19	21	34	CI Intermediate Plasticity
WS2	B	2.00	21	40	19	21	100	CI Intermediate Plasticity
WS3	B	0.80	8.4		NP		13	
WS3	B	2.40	22	34	18	16	100	CL Low Plasticity
WS4	B	1.00	10		NP		18	
WS4	B	3.75	31	75	28	47	100	CV Very High Plasticity
WS5	B	0.90	11		NP		20	
WS5	B	1.50	34	63	26	37	100	CH High Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

BS 5930:1999+A2:2010



For and on behalf of GEO Site & Testing Services Ltd

Authorised By:
Jon Tatam (Office / Quality Assistant)
 Date: 4.7.16

Katam

Test Report:

Particle Size Distribution Test BS 1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Client ref: 5715
Contract Number: 31316-160616
Hole Number: WS1

Sample Number:
Depth from (m): 1.30
Depth to (m):
Sample Type: B

Location: Trosnant School, Havant
Description: Brown sandy silty clayey GRAVEL (fine-coarse)

	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
CLAY	SILT			SAND			GRAVEL			COBBLES

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	90
28	81
20	71
14	63
10	55
6.3	42
5.0	36
3.35	31
2.00	27
1.18	24
0.60	21
0.425	19
0.300	18
0.212	17
0.150	17
0.063	14



Particle Diameter	% Passing
0.02	#
0.006	#
0.002	#

	Silt and Clay	Sand	Gravel	Cobbles	Soil Fraction
	14	13	73	0	Total Percentage

Remarks:

#- not determined

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Jon Tatam (Office/Quality Assistant)

Tatam

Date: 4.7.16



Test Report:

Particle Size Distribution Test BS 1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

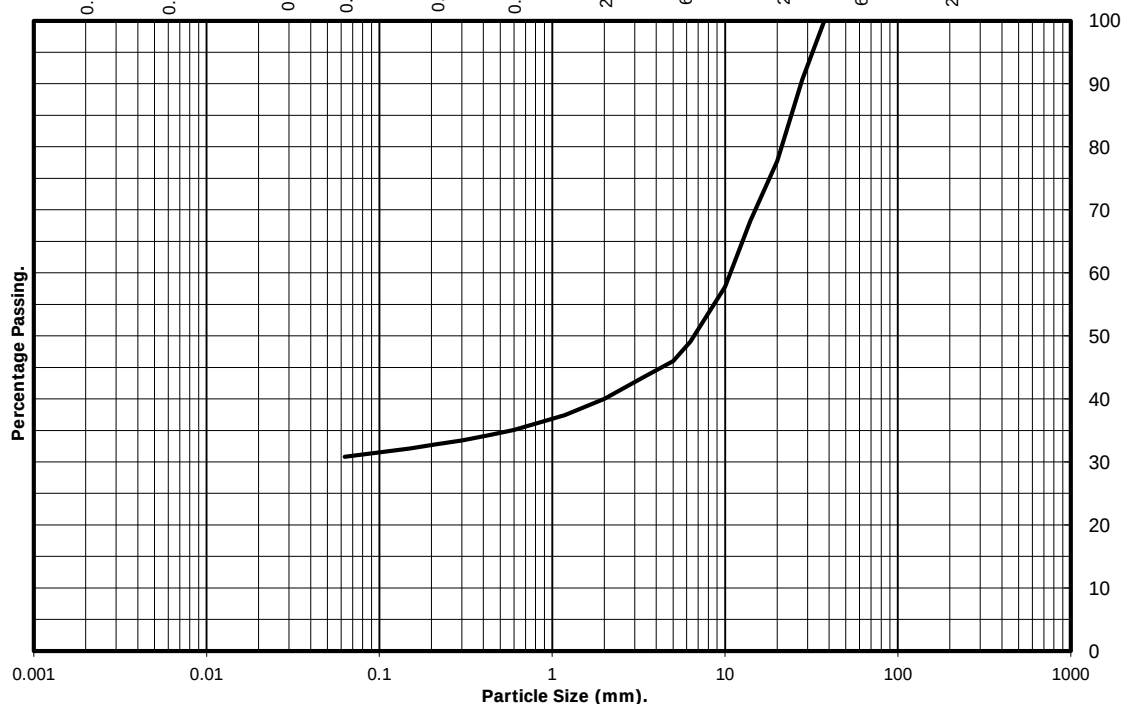
Client ref: 5715
Contract Number: 31316-160616
Hole Number: WS2

Sample Number:
Depth from (m): 1.00
Depth to (m):
Sample Type: B

Location: Trosnant School, Havant
Description: Brown sandy silty clayey GRAVEL (fine-coarse)

	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
CLAY	SILT			SAND			GRAVEL			COBBLES

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	91
20	78
14	68
10	58
6.3	49
5.0	46
3.35	43
2.00	40
1.18	37
0.60	35
0.425	34
0.300	33
0.212	33
0.150	32
0.063	31



Particle Diameter	% Passing
0.02	#
0.006	#
0.002	#

	Silt and Clay	Sand	Gravel	Cobbles	Soil Fraction
	31	9	60	0	Total Percentage

Remarks:

#- not determined

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
 Jon Tatam (Office/Quality Assistant)

Date: 4.7.16

Tatam



Test Report:

Particle Size Distribution Test BS 1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

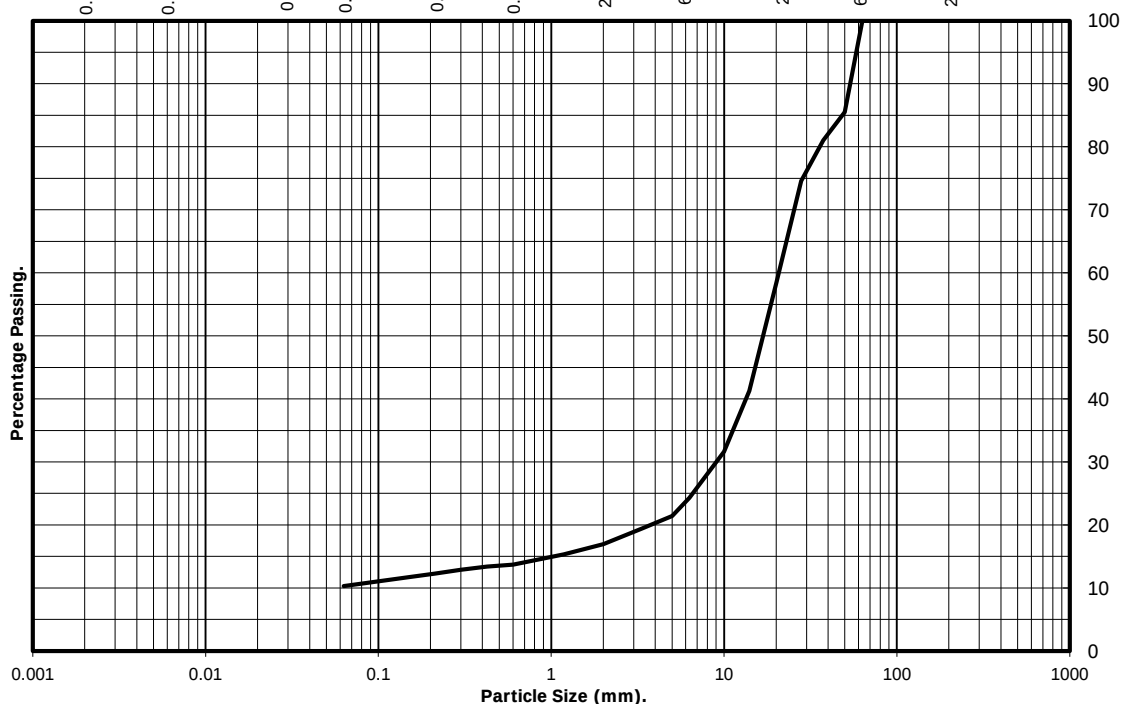
Client ref: 5715
Contract Number: 31316-160616
Hole Number: WS3

Sample Number:
Depth from (m): 0.80
Depth to (m):
Sample Type: B

Location: Trosnant School, Havant
Description: Brown sandy silty clayey GRAVEL (fine-coarse)

	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
CLAY	SILT			SAND			GRAVEL			COBBLES

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	85
37.5	81
28	75
20	58
14	41
10	32
6.3	24
5.0	21
3.35	19
2.00	17
1.18	15
0.60	14
0.425	13
0.300	13
0.212	12
0.150	12
0.063	10



Particle Diameter	% Passing
0.02	#
0.006	#
0.002	#

	Silt and Clay	Sand	Gravel	Cobbles	Soil Fraction
	10	7	83	0	Total Percentage

Remarks:

#- not determined

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
 Jon Tatam (Office/Quality Assistant)

Date: 4.7.16

Tatam

GSTL
 GEO SITE & TESTING SERVICES LTD



Test Report:

Particle Size Distribution Test BS 1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

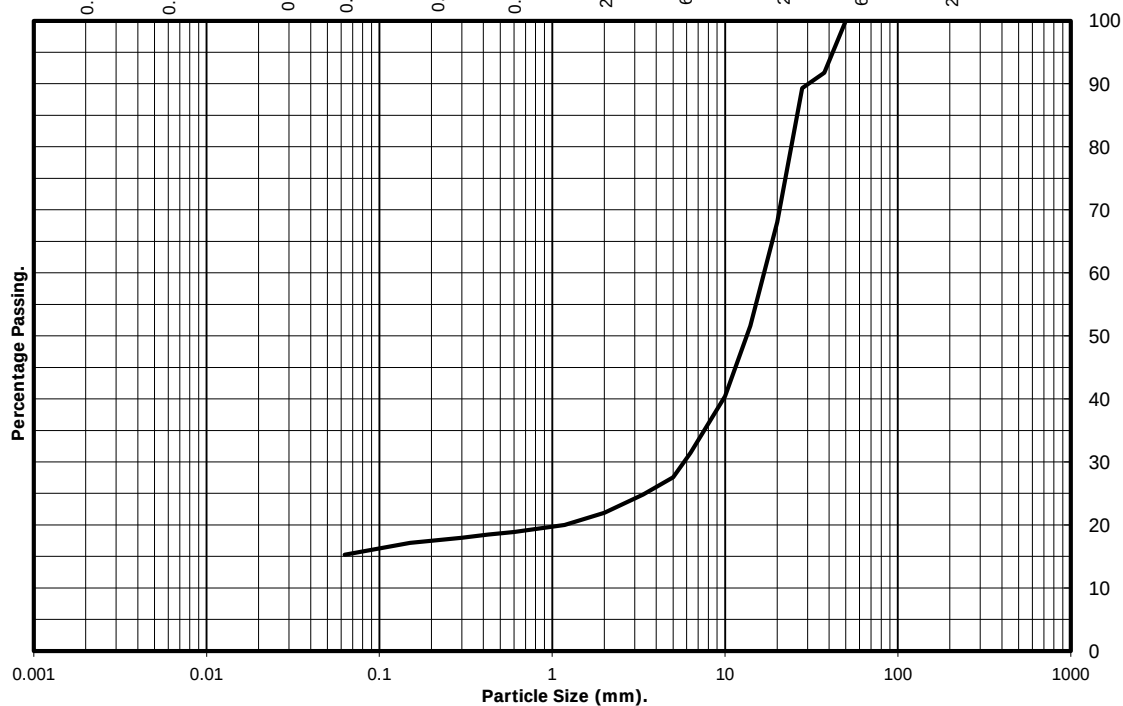
Client ref: 5715
Contract Number: 31316-160616
Hole Number: WS4

Sample Number:
Depth from (m): 1.00
Depth to (m):
Sample Type: B

Location: Trosnant School, Havant
Description: Brown sandy silty clayey GRAVEL (fine-coarse)

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	92
28	89
20	68
14	52
10	40
6.3	31
5.0	28
3.35	25
2.00	22
1.18	20
0.60	19
0.425	18
0.300	18
0.212	18
0.150	17
0.063	15



Particle Diameter	% Passing
0.02	#
0.006	#
0.002	#

	Silt and Clay	Sand	Gravel	Cobbles	Soil Fraction
	15	7	78	0	Total Percentage

Remarks:

#- not determined

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
 Jon Tatam (Office/Quality Assistant)

Date: 4.7.16

Tatam


Test Report:

Particle Size Distribution Test

BS 1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

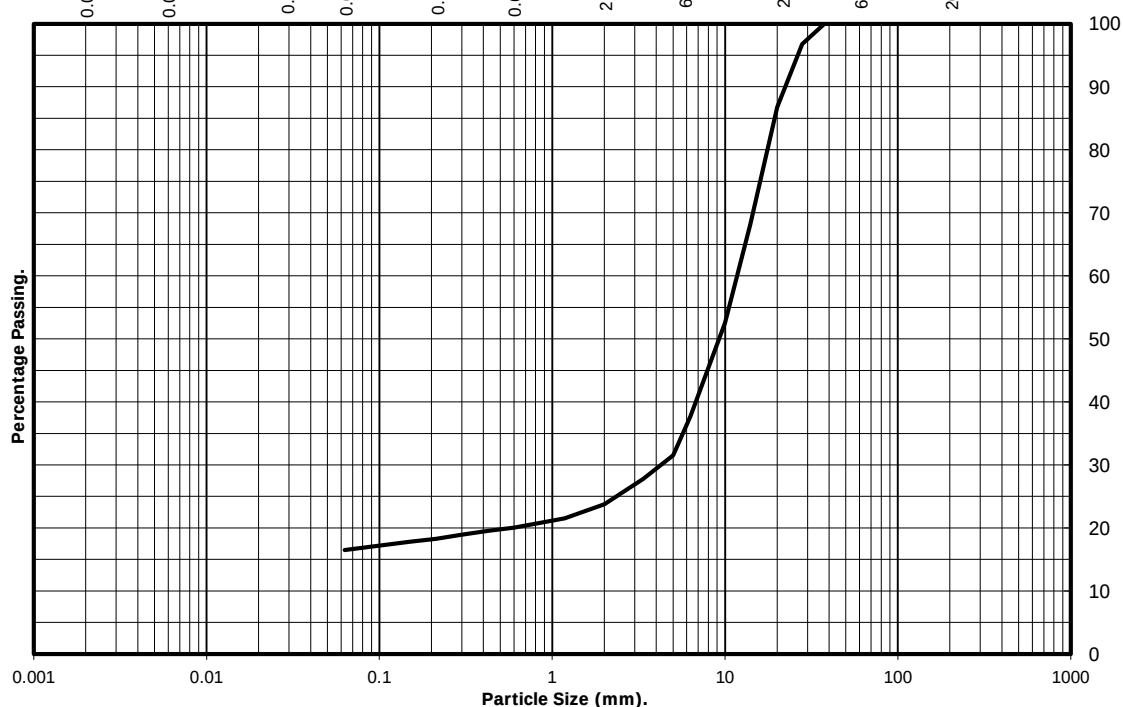
Client ref: 5715
Contract Number: 31316-160616
Hole Number: WS5

Sample Number:
Depth from (m): 0.90
Depth to (m):
Sample Type: B

Location: Trosnant School, Havant
Description: Brown sandy silty clayey GRAVEL (fine-coarse)

	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
CLAY	SILT			SAND			GRAVEL			COBBLES

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	97
20	87
14	68
10	53
6.3	38
5.0	32
3.35	28
2.00	24
1.18	21
0.60	20
0.425	20
0.300	19
0.212	18
0.150	18
0.063	17



Particle Diameter	% Passing
0.02	#
0.006	#
0.002	#

	Silt and Clay	Sand	Gravel	Cobbles	Soil Fraction
	17	7	76	0	Total Percentage

Remarks:

#- not determined

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Jon Tatam (Office/Quality Assistant)

Tatam

Date: 4.7.16





Unit 4
Heol Aur
Dafen Ind EstateDafen
Carmarthenshire
SA14 8QN
Tel: 01554 784040
01554 750752
Fax: 01554 770529
01554 784041
Web: www.geo.uk.com

Certificate of Analysis

Date: 23/06/2016

Client: Terra Firma (South)

Our Reference: 31316-160616

Client Reference: 5715

Contract Title: Trosnant School, Havant

Description: (Total Samples) 4

Date Received: 16/06/2016

Date Started: 21/06/2016

Date Completed: 23/06/2016

Test Procedures: (BRE BR 279)

Notes:

Solid samples will be disposed 1 month and liquids 2 weeks
after the date of issue of this test certificate

Approved By:

Authorised Signatories:

Emma Sharp
Laboratory Office Manager

Ben Sharp
Contracts Manager


Paul Evans
Quality Manager

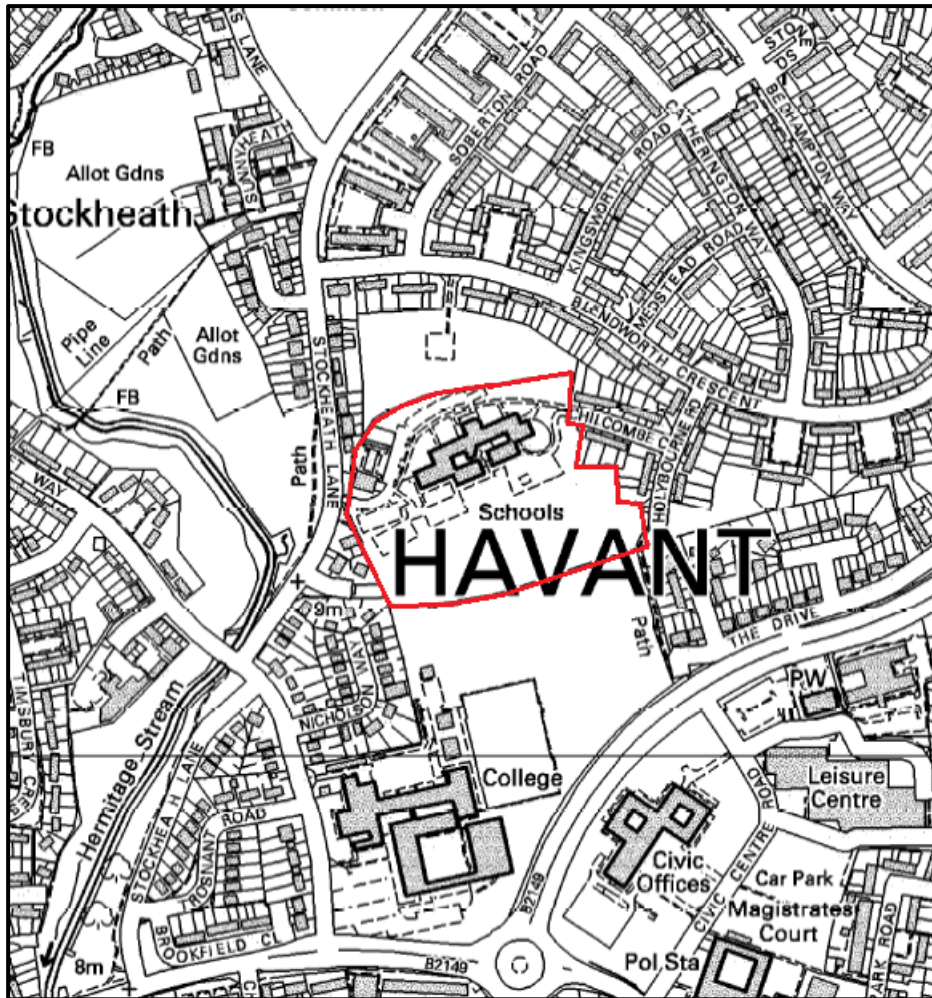
Contract No: 31316-160616
Client Ref: 5715
Location: Trosnant School, Havant
Date: 23/06/2016

Summary of Chemical Analysis

(BRE BR 279)

[illegible]

NCP - No Chloride present

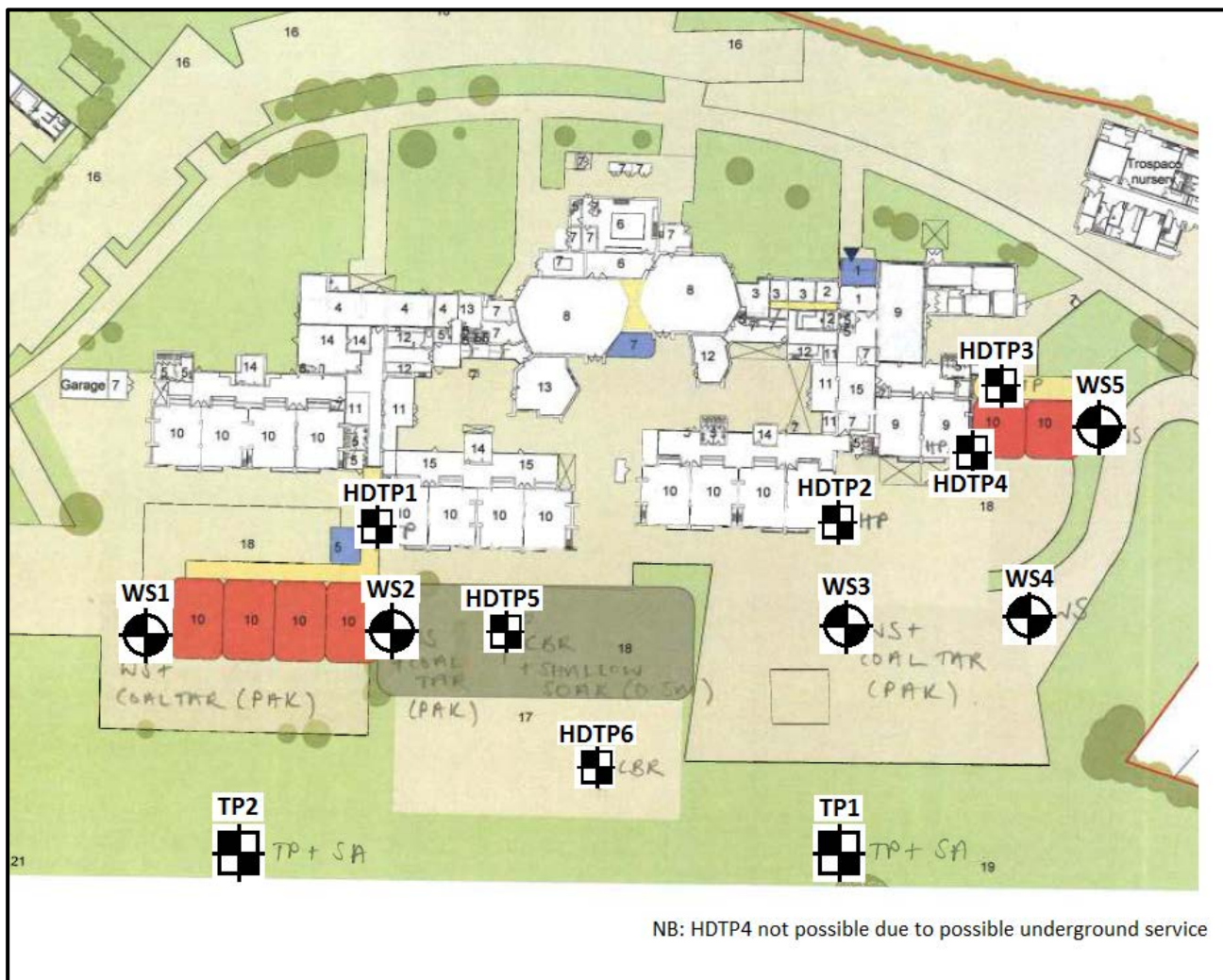


TERRA FIRMA (SOUTH)

The Pump House
44 Marlborough Road
Exeter
EX2 4LL
Tel. 01392 438982

**Project: Trosnant Primary School,
Havant**

**Drawing 01 – Site Location
NTS**



TERRA FIRMA (SOUTH)

The Pump House
44 Marlborough Road
Exeter
EX2 4LL
Tel. 01392 438982

**Project: Trosnant Primary School,
Havant**

**Drawing 02 – Exploratory
Hole Location Plan
NTS**