Site	**Barrie House**	Borehole No:	**WS1**
Location	**29 St Edmund's Terrace, London NW8 7QH**		
Client:	**Robert Morley, Kaleminster Ltd**	Sheet	**1 of 2**
Engineer:	**StructureMode Ltd**	Report No:	**9241/OT**

Comments	Samples Type	Samples Depth[m]	Field Test	Strata Depth[m]		Strata Level[mOD]	Strata Description	Legend
BH constructed 17 Sep 2012 BH dia: 60mm reducing with depth				0.00	0	+45.60	MADE GROUND: [trial pit] - brown topsoil and clay with occasional building rubble	0
Groundwater at 0.95m on				0.90	1	+44.70	Concrete foundation [no reinforcement observed]	1
Groundwater at 1.4m on				1.75		+43.85	Stiff brown CLAY with occasional grey gleying, selenite crystals and rare orange sand partings	
Some disturbance in upper 200mm of clay due to coring operations and HV testing	HV	1.90	47		2		…incipient claystone at 2.05m	2
	HV/D	2.10	81					
	HV	2.30	88					
	D	2.40						
	HV	2.50	88					
	D	2.60						
	HV	2.70	78					
	D	2.80						
	HV	2.90	99		3			3
	D	3.10						
	HV	3.20	84					
	HV/D	3.40	82					
	HV	3.60	80					
	D	3.70						
	HV	3.80	82					
	HV/D	4.00	90		4			4
	HV	4.20	98					
	D	4.30						
	HV	4.40	92					
	D	4.60						
				5.00	5	+40.60	END OF BOREHOLE	5

Constructed using hand held window sample equipment

Key: U = Undisturbed B = Bulk D = Small disturbed W = Water S = SPT 'N' [split spoon sampler] C = SPT 'N' [solid cone] HV = Hand Vane [kPa] PP = Pocket Penetrometer [kg/cm^2]

Remarks :- Borehole constructed through an open trial pit which exposed the top of a footing and cored to base of footing at 75mm dia
Standpipe installed to 5.0m depth
Ground level interpolated from topographical survey

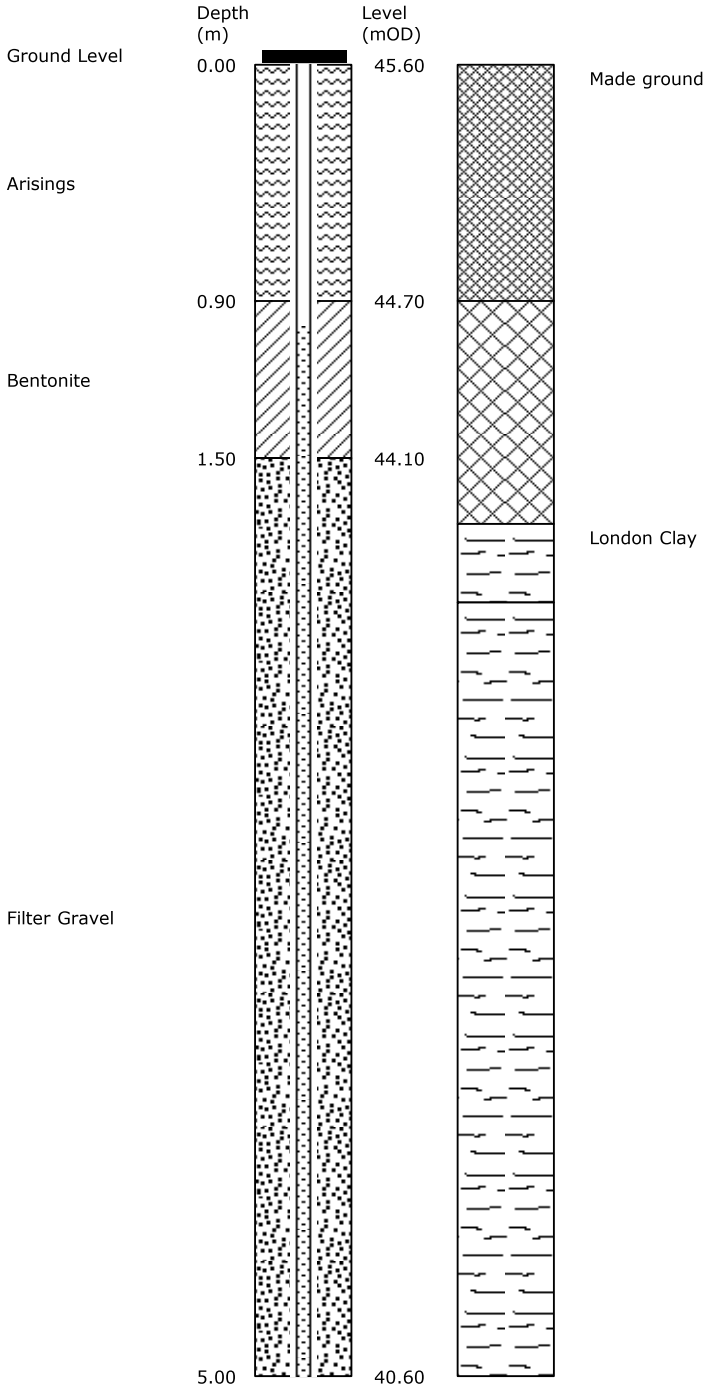
Borehole No: **WS1**

[* = extrapolated SPT 'N' value]

SoilConsultants

Site	**Barrie House**	Borehole No:	**WS1**
Location	**29 St Edmund's Terrace, London NW8 7QH**		
Client:	**Robert Morley, Kaleminster Ltd**	Sheet	**2 of 2**
Engineer:	**StructureMode Ltd**	Report No:	**9241/OT**

Borehole Installation and Backfill Details



Constructed using hand held window sample equipment

Remarks :- [i] Pipe diameter: 19mm
[ii] Tip at 5m depth [40.6m OD approx]

Borehole No: **WS1**

Site	**Barrie House**	Borehole No:	**WS2**
Location	**29 St Edmund's Terrace, London NW8 7QH**		
Client:	**Robert Morley, Kaleminster Ltd**	Sheet	**1 of 2**
Engineer:	**StructureMode Ltd**	Report No:	**9241/OT**

Comments	Samples Type	Samples Depth[m]	Field Test	Strata Depth[m]		Strata Level[mOD]	Strata Description	Legend
BH constructed 17 Sep 2012 BH dia: 60mm reducing with depth				0.00	0	+44.60	MADE GROUND: [trial pit] - brown topsoil and clay with occasional building rubble	0
				1.13	1	+43.47	MADE GROUND: soft to firm brown clay with occasional flint gravel and dark brown sand/silt lenses	1
	HV/D	2.10	88	2.10	2	+42.50	Stiff, locally firm brown CLAY with orange patches and scattered selenite crystals	2
	HV/D	2.30	74					
	HV	2.50	63				…below 2.25m becoming brown with occasional grey gleying and selenite crystals	
	D	2.60						
	HV	2.70	82					
	HV/D	2.90	78					
	HV/D	3.10	74		3			3
	HV	3.30	76					
	D	3.40						
Groundwater at 3.5m on 15/10/12	HV	3.50	93					
	HV/D	3.70	86					
	HV	3.90	84					
	HV/D	4.10	68		4			4
	HV	4.30	80					
	HV/D	4.50	106					
	HV	4.70	92					
	HV	4.90	120					
				5.00	5	+39.60	END OF BOREHOLE	5

Constructed using hand held window sample equipment

Key: U = Undisturbed B = Bulk D = Small disturbed W = Water S = SPT 'N' [split spoon sampler] C = SPT 'N' [solid cone] HV = Hand Vane [kPa] PP = Pocket Penetrometer [kg/cm^2]

Remarks :- Borehole constructed off edge of pad footing
Standpipe installed to 5.0m depth
Ground level interpolated from topographical survey

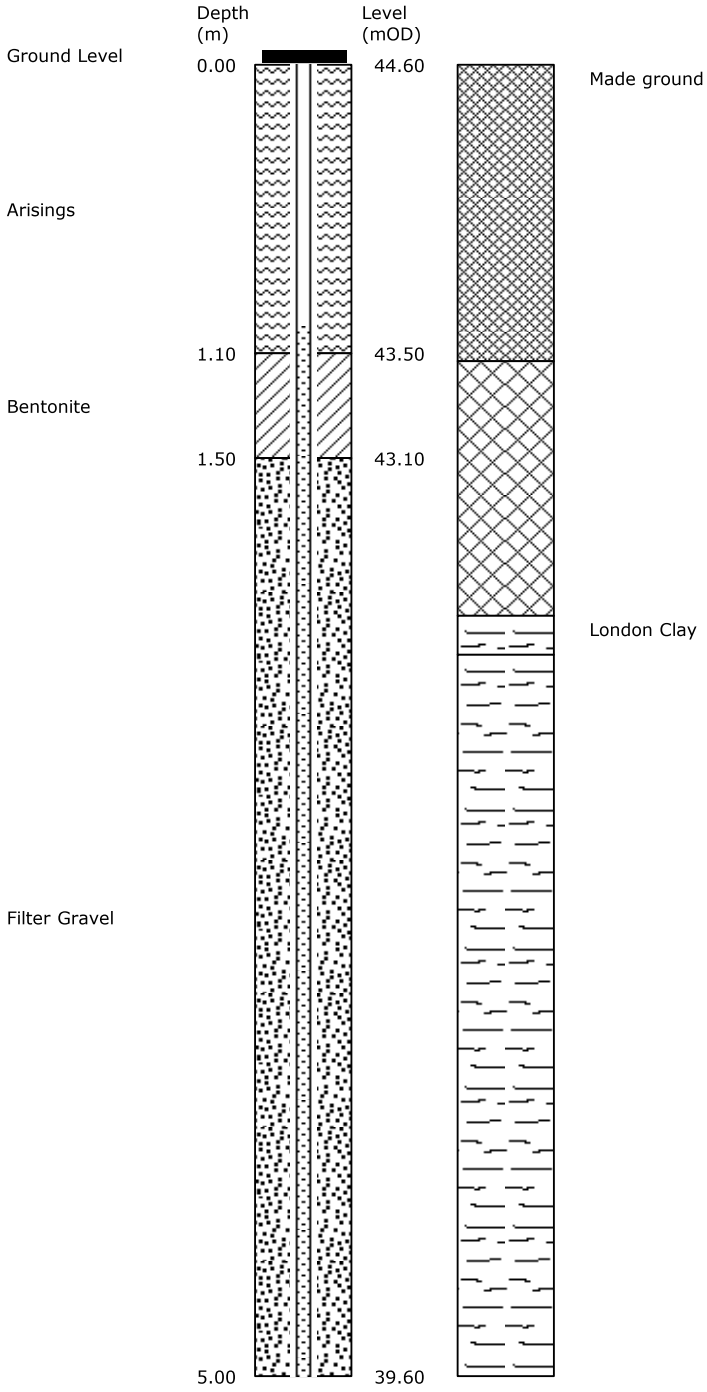
Borehole No: **WS2**

[* = extrapolated SPT 'N' value]

SoilConsultants

Site	**Barrie House**	Borehole No:	**WS2**
Location	**29 St Edmund's Terrace, London NW8 7QH**		
Client:	**Robert Morley, Kaleminster Ltd**	Sheet	**2 of 2**
Engineer:	**StructureMode Ltd**	Report No:	**9241/OT**

Borehole Installation and Backfill Details



Constructed using hand held window sample equipment

Remarks :- [i] Pipe diameter: 19mm
[ii] Tip at 5m depth [39.6m OD approx]

Borehole No: **WS2**

Site	**Barrie House**	Borehole No:	**WS3**
Location	**29 St Edmund's Terrace, London NW8 7QH**		
Client:	**Robert Morley, Kaleminster Ltd**	Sheet	**1 of 1**
Engineer:	**StructureMode Ltd**	Report No:	**9241/OT**

Comments	Samples Type	Samples Depth[m]	Field Test	Strata Depth[m]		Strata Level[mOD]	Strata Description	Legend
BH constructed 17 Sep 2012 BH dia: 60mm reducing with depth				0.00	0	+45.30	MADE GROUND: [trial pit] - brown topsoil and clay with occasional building rubble	0
Groundwater not observed				0.90	1	+44.40	Concrete foundation [single reinforcement bar, c.10mm dia, observed at 0.5m in core]	1
Some disturbance in upper 200mm of clay due to coring operations and HV testing				1.62		+43.68	Stiff brown CLAY with occasional grey gleying, selenite crystals and rare orange sand partings	
	HV	2.10	87		2		…incipient claystone at 2.05m	2
	D	2.20						
	HV	2.30	97					
	HV	2.50	114					
	HV	2.70	109					
	D	2.80						
	HV	2.90	119					
	HV/D	3.10	85		3			3
	HV	3.30	87					
	HV	3.50	90					
	D	3.60						
	HV	3.70	85					
	HV	3.90	94					
	HV	4.10	64		4			4
	D	4.20						
	HV	4.30	86					
	HV	4.50	96					
	HV	4.70	98					
	D	4.80						
	HV	4.90	97					
				5.00	5	+40.30	END OF BOREHOLE	5

Constructed using hand held window sample equipment

Key: U = Undisturbed B = Bulk D = Small disturbed W = Water S = SPT 'N' [split spoon sampler] C = SPT 'N' [solid cone] HV = Hand Vane [kPa] PP = Pocket Penetrometer [kg/cm^2]

Remarks :- Borehole constructed through an open trial pit which exposed the top of a footing and cored to base of footing at 75mm dia
Standpipe installed to 5.0m depth
Ground level interpolated from topographical survey

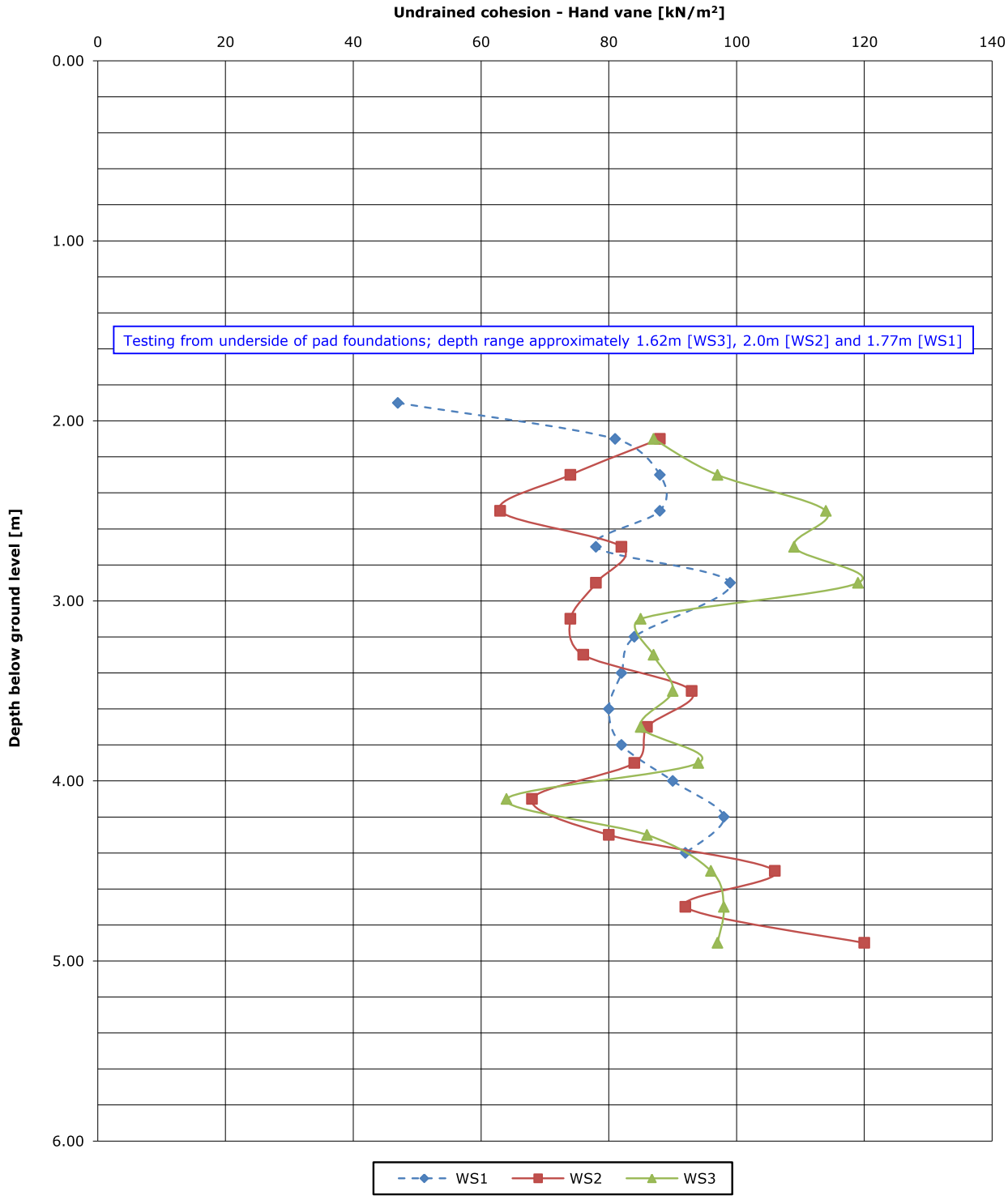
Borehole No: **WS3**

[* = extrapolated SPT 'N' value]

SCL Chart Generator Ver_1_5_11

Site Location	**Barrie House☐** **29 St Edmund's Terrace, London NW8 7QH**	Report No:	**9241/OT**

Strength Profile [Hand Vane]



SCL Chart Generator Ver_1_5_11

Site Location	**Barrie House☐** **29 St Edmund's Terrace, London NW8 7QH**	Report No:	**9241/OT**

Pocket Penetrometer Strength Profile

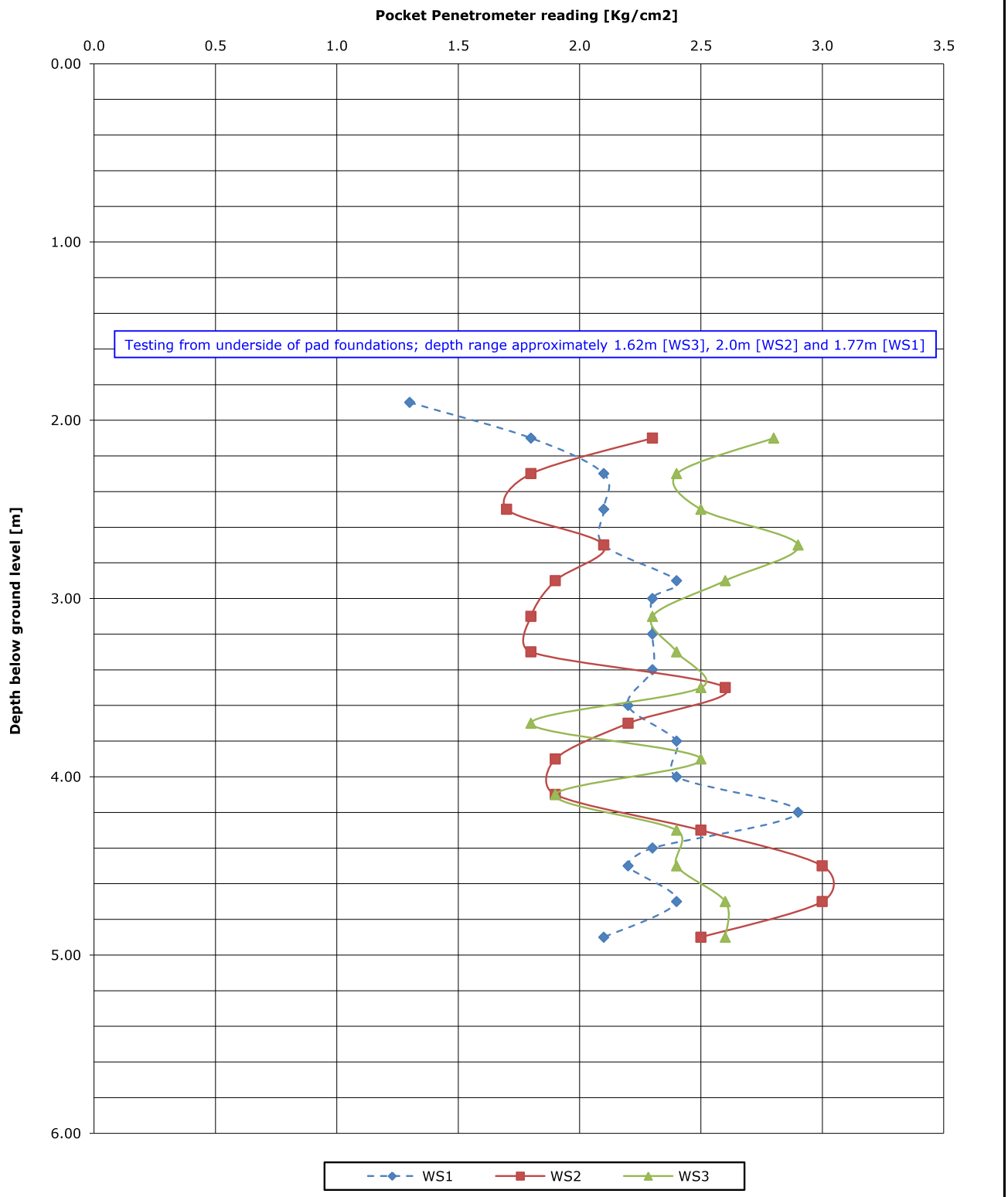
WS1		WS2		WS3							
Depth [m]	Value [n]	Depth [m]	Value [n]	Depth [m]	Value [n]	Depth [m]	Value [n]	Depth [m]	Value [n]	Depth [m]	Value [n]
1.9	1.30	2.1	2.30	2.1	2.80						
2.1	1.80	2.3	1.80	2.3	2.40						
2.3	2.10	2.5	1.70	2.5	2.50						
2.5	2.10	2.7	2.10	2.7	2.90						
2.7	2.10	2.9	1.90	2.9	2.60						
2.9	2.40	3.1	1.80	3.1	2.30						
3	2.30	3.3	1.80	3.3	2.40						
3.2	2.30	3.5	2.60	3.5	2.50						
3.4	2.30	3.7	2.20	3.7	1.80						
3.6	2.20	3.9	1.90	3.9	2.50						
3.8	2.40	4.1	1.90	4.1	1.90						
4	2.40	4.3	2.50	4.3	2.40						
4.2	2.90	4.5	3.00	4.5	2.40						
4.4	2.30	4.7	3.00	4.7	2.60						
4.5	2.20	4.9	2.50	4.9	2.60						
4.7	2.40										
4.9	2.10										

Notes

- Standard Penertration Test : BS1377 : Part 9 (1990) Clause 3.3
- * = Extrapolated Value

Site Location	**Barrie House☐** **29 St Edmund's Terrace, London NW8 7QH**	Report No:	**9241/OT**

Strength Profile [Pocket Penetrometer]



Site Location	**Barrie House☐** **29 St Edmund's Terrace, London NW8 7QH**	Report No:	**9241/OT**

Index Property Test Results

Sample Location	Depth (m)	Sample Description	Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Percent Passing [%]	Remarks
WS1	2.10	Brown CLAY with occasional grey gleying	20	78	25	53	>95	
WS1	2.40	Brown CLAY with occasional grey gleying	28					
WS1	2.60	Brown CLAY with occasional grey gleying	30					
WS1	2.80	Brown CLAY with occasional grey gleying	30	78	30	48	>95	
WS1	3.10	Brown CLAY with occasional grey gleying	31					
WS1	3.40	Brown CLAY with occasional grey gleying	32					
WS1	3.70	Brown CLAY with occasional grey gleying	31	83	30	53	>95	
WS1	4.00	Brown CLAY with occasional grey gleying	33					
WS1	4.30	Brown CLAY with occasional grey gleying	34					
WS1	4.60	Brown CLAY with occasional grey gleying	34					
WS2	2.10	MADE GROUND: Brown clay with occasional flint gravel and dark brown sand/silt lenses	28					
WS2	2.30	Brown CLAY with orange patches and grey gleying	30	83	27	56	>95	
WS2	2.60	Brown CLAY with orange patches and grey gleying	28					

Notes

- Moisture content test: BS 1377:Part 2 [1990] Clause 3.2 [value in brackets = calculated matrix moisture content for comparison with LL and PL]
- Liquid and Plastic Limit: BS 1377:Part 2 [1990] Clauses 4.4, 5.2, 5.3, 5.4 is carried out on fine grained soil matrix
- Percent passing 425 micron sieve is by estimation, by hand* or by wet sieving**
- LOI = Loss on Ignition

Sample examined by OT (Engineer)

Results checked by OT (Engineer) Certificate date : 02/10/2012

SoilConsultants

Site Location	**Barrie House☐** **29 St Edmund's Terrace, London NW8 7QH**	Report No:	**9241/OT**

Index Property Test Results

Sample Location	Depth (m)	Sample Description	Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Percent Passing [%]	Remarks
WS2	2.90	Brown CLAY with orange patches and grey gleying	31					
WS2	3.10	Brown CLAY with orange patches and grey gleying	32	91	30	61	>95	
WS2	3.40	Brown CLAY with orange patches and grey gleying	30					
WS2	3.70	Brown CLAY with orange patches and grey gleying	32					
WS2	4.10	Brown CLAY with orange patches and grey gleying	29					
WS2	4.50	Brown CLAY with orange patches and grey gleying	28					
WS3	2.20	Brown CLAY with occasional grey gleying	29	70	28	42	>95	
WS3	2.80	Brown CLAY with occasional grey gleying	31	80	28	52	>95	
WS3	3.10	Brown CLAY with occasional grey gleying	32					
WS3	3.60	Brown CLAY with occasional grey gleying	29					
WS3	4.20	Brown CLAY with occasional grey gleying	33					
WS3	4.80	Brown CLAY with occasional grey gleying	32					
BH1	1.10	Brown CLAY with grey patches	26					

Notes

- Moisture content test: BS 1377:Part 2 [1990] Clause 3.2 [value in brackets = calculated matrix moisture content for comparison with LL and PL]
- Liquid and Plastic Limit: BS 1377:Part 2 [1990] Clauses 4.4, 5.2, 5.3, 5.4 is carried out on fine grained soil matrix
- Percent passing 425 micron sieve is by estimation, by hand* or by wet sieving**
- LOI = Loss on Ignition

Sample examined by OT (Engineer)

Results checked by OT (Engineer) Certificate date : 02/10/2012

Soil Consultants

Site Location	**Barrie House☐** **29 St Edmund's Terrace, London NW8 7QH**	Report No:	**9241/OT**

Index Property Test Results

Sample Location	Depth (m)	Sample Description	Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Percent Passing [%]	Remarks
BH1	1.60	Brown CLAY with grey patches	27					
BH1	2.70	Brown CLAY with grey patches	29					
BH1	3.50	Brown CLAY with grey patches	28	71	29	42	>95	
BH1	4.60	Brown CLAY with grey patches	29					
BH1	5.50	Brown CLAY with grey patches	28	83	28	55	>95	
BH1	6.60	Brown CLAY with grey patches	30					
BH1	7.50	Brown CLAY with grey patches	30	82	30	52	>95	

Notes

- Moisture content test: BS 1377:Part 2 [1990] Clause 3.2 [value in brackets = calculated matrix moisture content for comparison with LL and PL]
- Liquid and Plastic Limit: BS 1377:Part 2 [1990] Clauses 4.4, 5.2, 5.3, 5.4 is carried out on fine grained soil matrix
- Percent passing 425 micron sieve is by estimation, by hand* or by wet sieving**
- LOI = Loss on Ignition

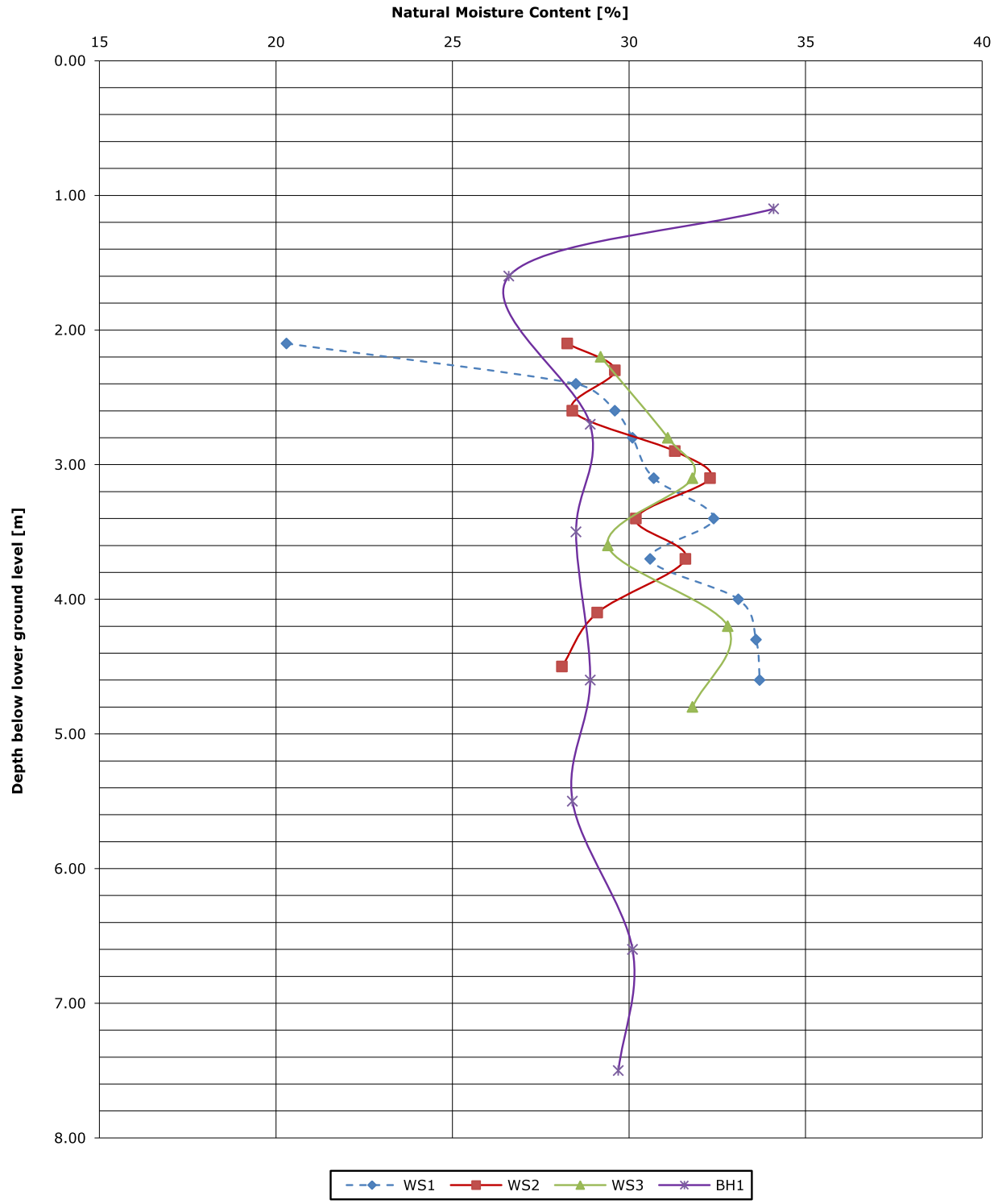
Sample examined by OT (Engineer)

Results checked by OT (Engineer) Certificate date : 02/10/2012

Soil Consultants

Site Location	**Barrie House☐** **29 St Edmund's Terrace, London NW8 7QH**	Report No:	**9241/OT**

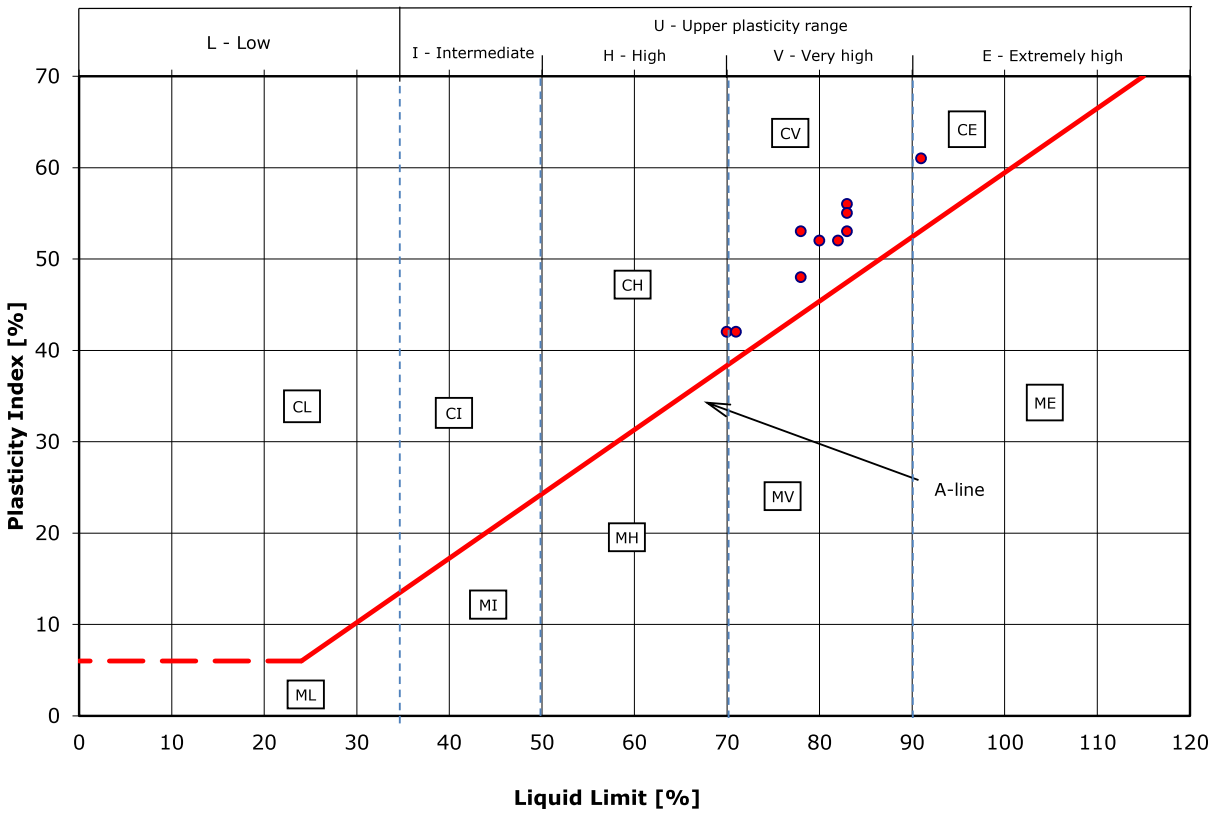
Moisture Content Profile



SCL Chart Generator Ver_1_5_11

Site Location	**Barrie House** **29 St Edmund's Terrace, London NW8 7QH**	Report No:	**9241/OT**

PLASTICITY CHART - BS5930 classification



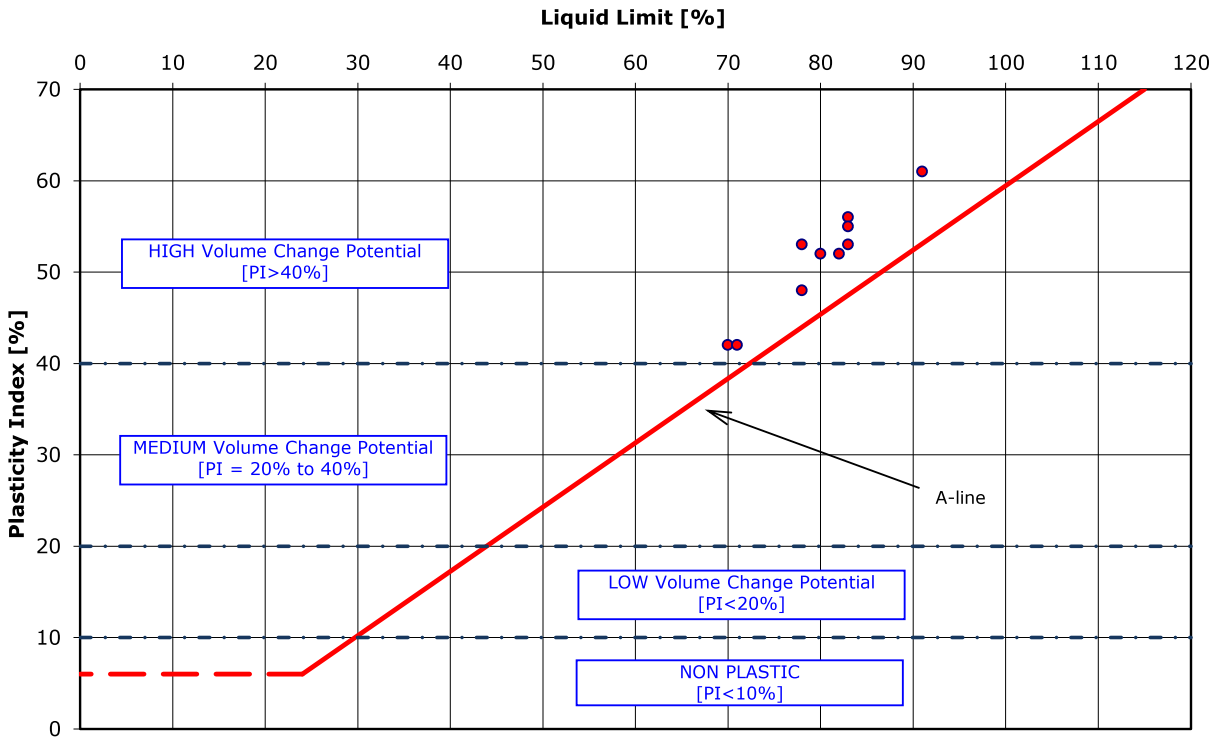
M - Silt [M-soil] plots below the A-line
C - Clay plots above the A-line

Notes:

Classification based upon BS5930:1999 'Code of practice for site investigations'

Site Location	**Barrie House** **29 St Edmund's Terrace, London NW8 7QH**	Report No:	**9241/OT**

PLASTICITY CHART - NHBC classification



Notes:

Classification based upon NHBC Standards, Part 4 'Foundations', Chapter 4.2 'Building near trees'

SoilConsultants

Site Location	**Barrie House☐** **29 St Edmund's Terrace, London NW8 7QH**	Report No:	**9241/OT**

Triaxial Compression Test Result

Sample Location	Depth (m)	Test Type	Cell Pressure [kN/m2]	Comp Strength [kN/m2]	Bulk Density [Mg/m3]	Moisture Content [%]	Cohesion [kN/m2]	Angle of Friction [deg]	Remarks
BH1	1.10	U102	60	51	1.99	34	26	0	

Notes

- Key : 38, 102 = dia in mm, U=Undrained, M= Multistage, MC = Moisture Content, QD = Quick Drained Test

K4 Soils Laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Date: Date:

Checked by: Approved by:

Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at300.xls]Report

Date: 15/10/2012

		Specimen 1	Specimen 2	Specimen 3
Specimen Details				
Job Ref.		13381		
Job Location		Barrie House, 29 St Edmund's Terrace, London, NW8 7QH		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	3.00	3.00	3.00
Date		01/10/2012	01/10/2012	01/10/2012
Disturbed / Undisturbed		undisturbed	undisturbed	undisturbed

Description of Specimen

Brown with blue grey veins CLAY with occasional selenite crystals

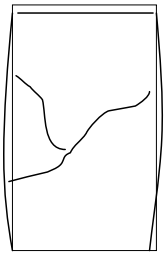
Initial Specimen Conditions

Height	mm	202.00		
Diameter	mm	105.00		
Area	mm^2	8659.01		
Volume	cm^3	1749.12		
Mass	g	3339.90		
Dry Mass	g	2559.80		
Density	Mg/m^3	1.91		
Dry Density	Mg/m^3	1.46		
Moisture Content	%	30.48		
Degree of Saturation	%	96.54		
Specific Gravity (assumed/measured)		2.72 assumed		

Final Specimen Conditions

Moisture Content	%			31.00
Density	Mg/m^3			2.02
Dry Density	Mg/m^3			1.54

Sketch of Failure of the Specimen



Specimen 1 Specimen 2 Specimen 3

K4 Soils Laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Date: Date:

Checked by: Approved by:

Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at300.xls]Report

Date: 15/10/2012

		Specimen 1	Specimen 2	Specimen 3
Specimen Details				
Job Ref.		13381		
Job Location		Barrie House, 29 St Edmund's Terrace, London, NW8 7QH		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	3.00	3.00	3.00
Date		01/10/2012	01/10/2012	01/10/2012
Test Setup				
Date started		20/09/2012		
Date Finished		30/09/2012		
Top Drain Used		y		
Base Drain Used		n		
Side Drains Used		y		
Pressure System Number		1		
Cell Number		1		
Saturation				
Cell Pressure Incr.	kPa	400.00		
Back Pressure Incr.	kPa	390.00		
Differential Pressure	kPa	10.00		
Final Cell Pressure	kPa	400.00		
Final Pore Pressure	kPa	391.00		
Final B Value		0.97		
Consolidation				
Effective Pressure	kPa	30.00	60.00	120.00
Cell Pressure	kPa	430.00	460.00	520.00
Back Pressure	kPa	400.00	400.00	400.00
Excess Pore Pressure	kPa	17.10	34.90	69.70
Pore Pressure at End	kPa	401.20	401.90	401.60
Consolidated Volume	cm^3	1680.52	1657.37	1620.67
Volumetric Strain		0.013073233	0.00459183	0.007381168
Consolidated Height	mm	199.36	193.67	187.67
Consolidated Area	mm^2	8432.61	8558.26	8636.70
Vol. Compressibility	m^2/MN	2.46665	0.41744	0.32516
Consolidation Coef.	$m^2/yr.$			

K4 Soils Laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Date: Date:

Checked by: Approved by:

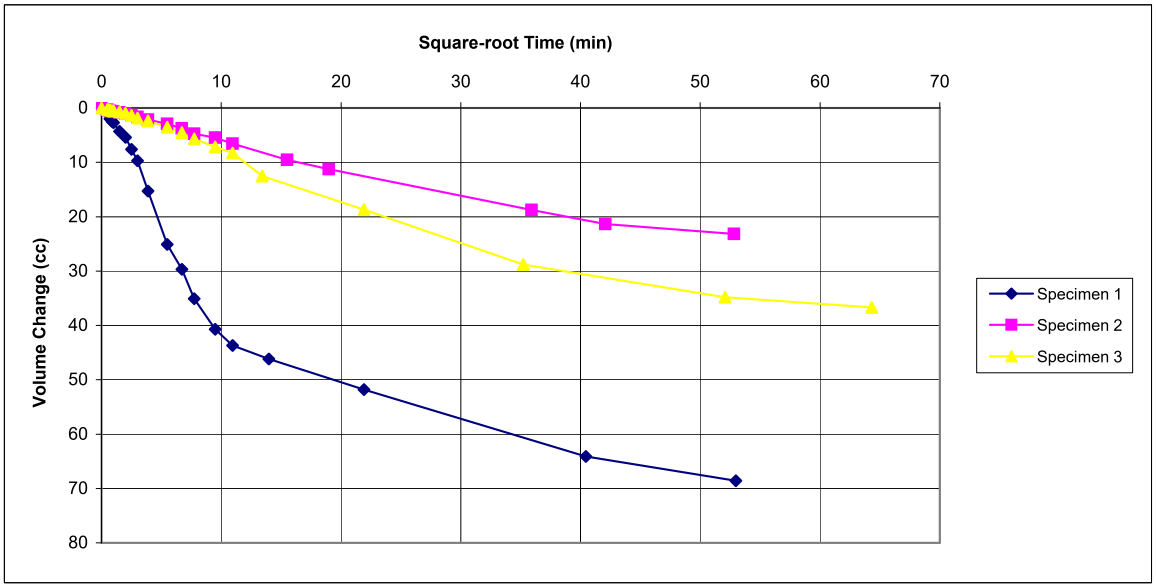
Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at300.xls]Report

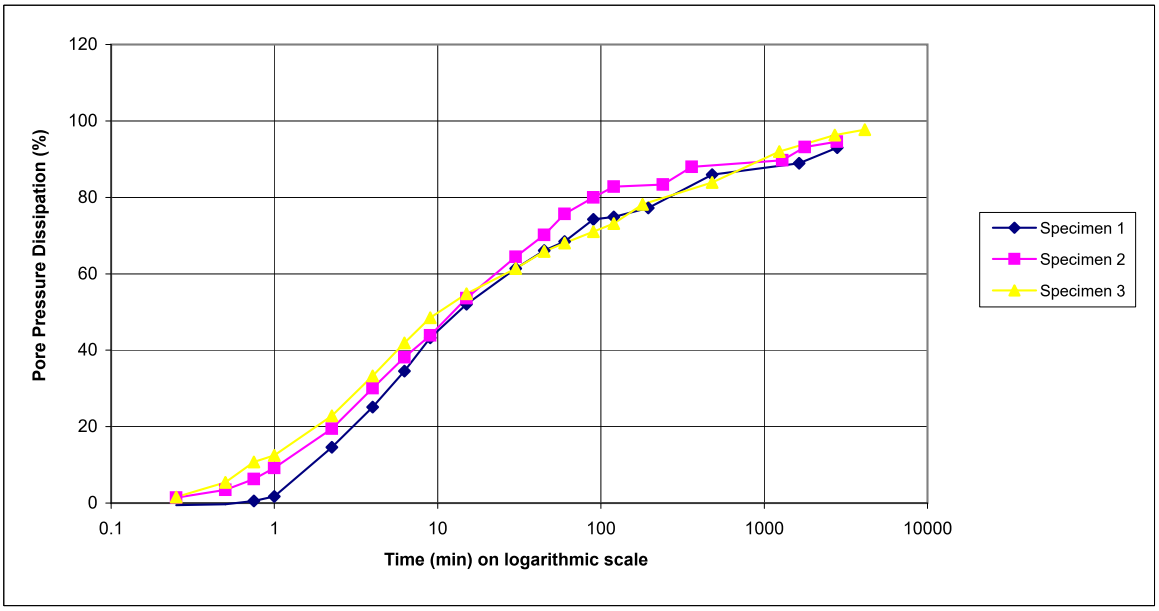
Date: 15/10/2012

Specimen Details

		Specimen 1	Specimen 2	Specimen 3
Job Ref.		13381		
Job Location		Barrie House, 29 St Edmund's Terrace, London, NW8 7QH		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	3.00	3.00	3.00
Date		01/10/2012	01/10/2012	01/10/2012

Consolidation Stage





K4 Soils Laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Date: Date:

Checked by: Approved by:

Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at300.xls]Report

Date: 15/10/2012

		Specimen 1	Specimen 2	Specimen 3
Specimen Details				
Job Ref.		13381		
Job Location		Barrie House, 29 St Edmund's Terrace, London, NW8 7QH		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	3.00	3.00	3.00
Date		01/10/2012	01/10/2012	01/10/2012
Shearing				
Initial Cell Pressure	kPa	430	460	520
Initial Pore Pressure	kPa	401	401	401.1
Rate of Strain	%/hour	0.594059406	0.61677883	0.634699585
Max Deviator Stress				
Axial Strain		2.247	2.231	5.536
Axial Stress	kPa	54.21	77.46	133.70
Cor. Deviator stress	kPa	53.51	76.73	132.94
Effective Major Stress	kPa	68.11	107.83	201.94
Effective Minor Stress	kPa	14.40	30.90	68.80
Effective Stress Ratio		4.730	3.490	2.935
s'	kPa	41.26	69.37	135.37
t'	kPa	26.86	38.47	66.57
Shear Resistance Angle	degs	25.00	25.00	25.00
Cohesion c'	kPa	10.21	10.21	10.21
Max Effective Priciple Stress Ratio				
Axial Strain		2.247	2.375	4.710
Axial Stress	kPa	54.21	77.34	133.03
Cor. Deviator stress	kPa	53.51	76.62	132.26
Effective Major Stress	kPa	68.11	107.32	200.46
Effective Minor Stress	kPa	14.40	30.50	68.00
Effective Stress Ratio		4.730	3.519	2.948
s'	kPa	41.26	68.91	134.23
t'	kPa	26.86	38.41	66.23

K4 Soils Laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Date: Date:

Checked by: Approved by:

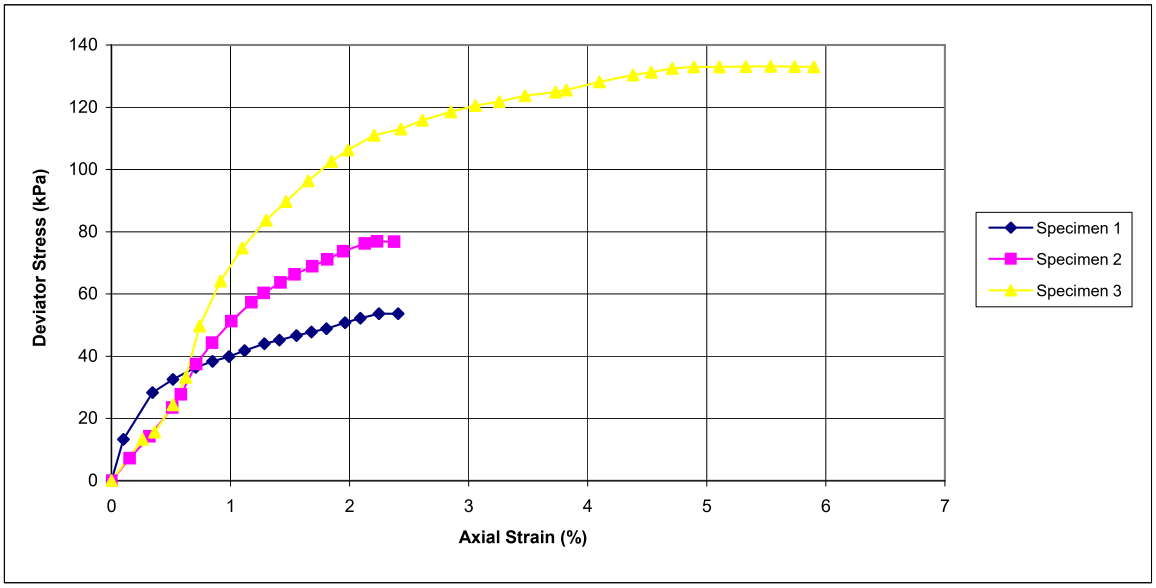
Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at300.xls]Report

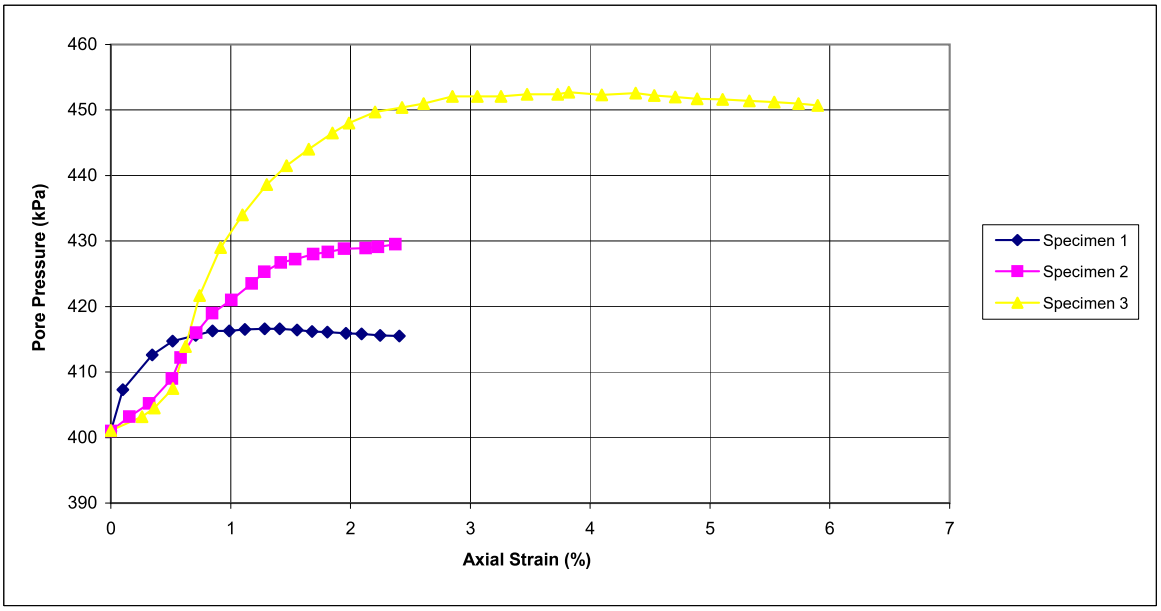
Date: 15/10/2012

Specimen Details

		Specimen 1	Specimen 2	Specimen 3
Job Ref.		13381		
Job Location		Barrie House, 29 St Edmund's Terrace, London, NW8 7QH		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	3.00	3.00	3.00
Date		01/10/2012	01/10/2012	01/10/2012

Shearing Stage





K4 Soils Laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Date: Date:

Checked by: Approved by:

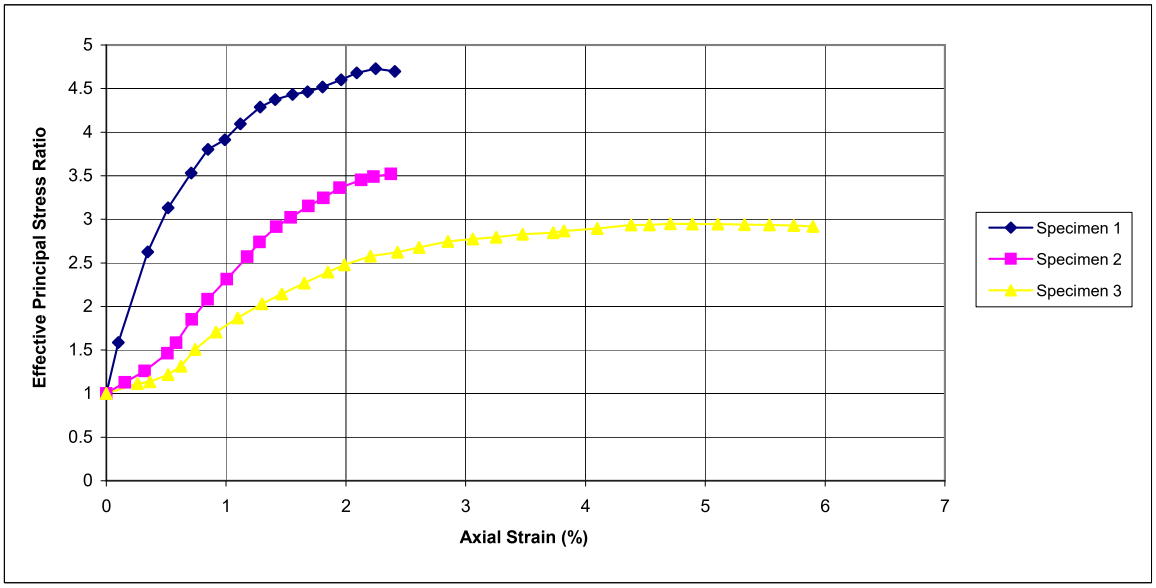
Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at300.xls]Report

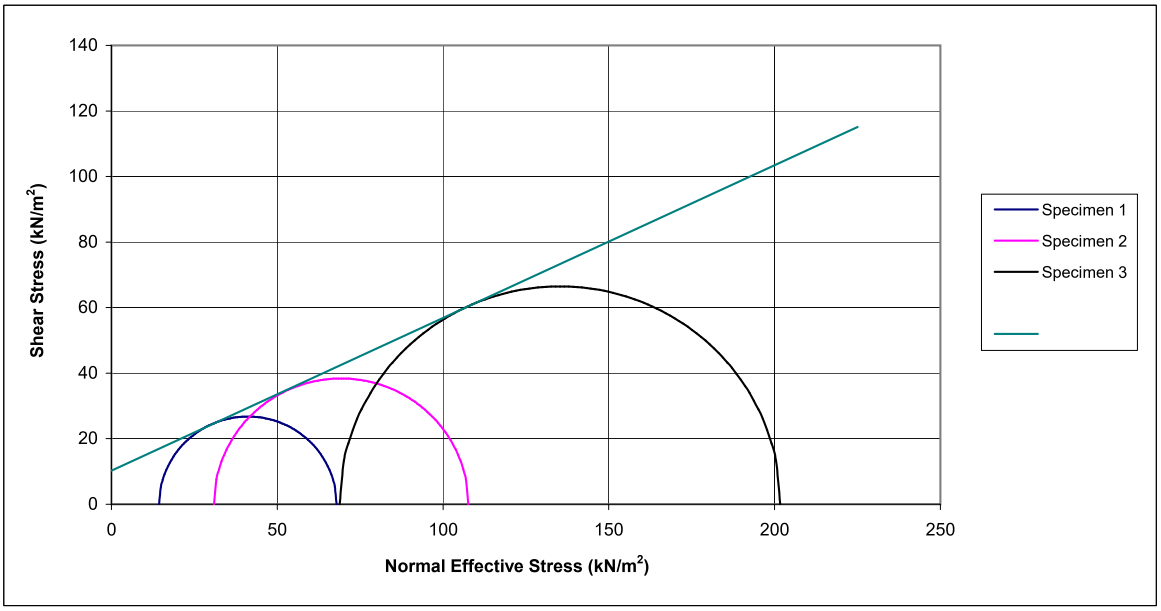
Date: 15/10/2012

Sample Details

		Specimen 1	Specimen 2	Specimen 3
Job Ref.		13381		
Job Location		Barrie House, 29 St Edmund's Terrace, London, NW8 7QH		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	3.00	3.00	3.00
Date		01/10/2012	01/10/2012	01/10/2012

Shearing Stage





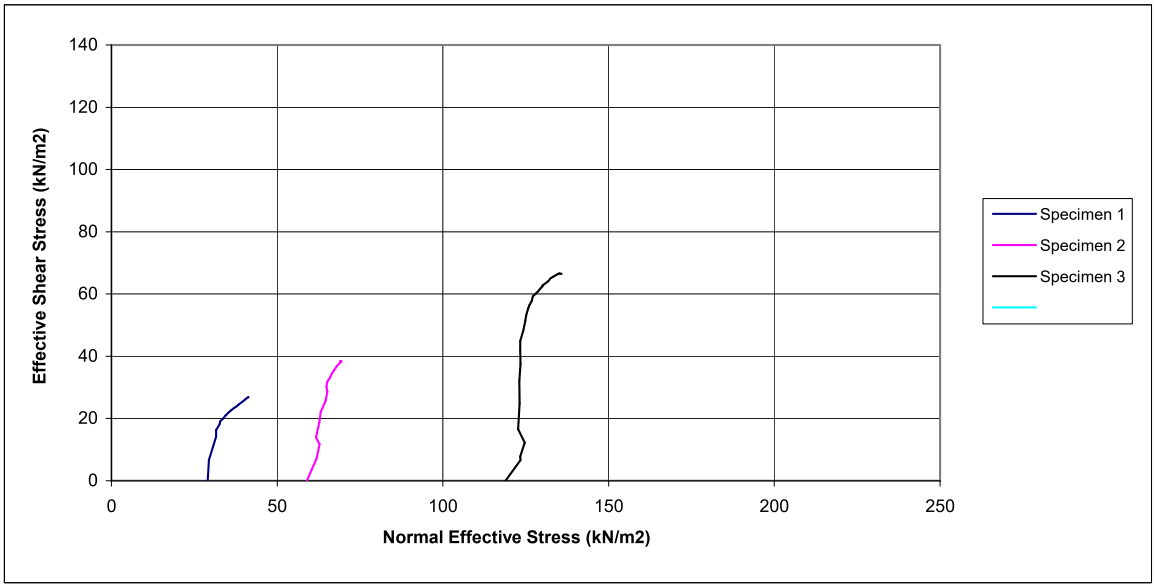
K4 Soils Laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

		Specimen 1	Specimen 2	Specimen 3
Sample Details				
Job Ref.		13381		
Job Location		Barrie House, 29 St Edmund's Terrace, London, NW8 7QH		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	3.00	3.00	3.00
Date		01/10/2012	01/10/2012	01/10/2012

Shearing Stage



Date: Date:

Checked by: Approved by:

Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at300.xls]Report

Date: 15/10/2012

K4 Soils laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Date: Date:

Checked by: Approved by:

Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at500+1.xls]Report

Date: 19/10/2012

		Specimen 1	Specimen 2	Specimen 3
Specimen Details				
Job Ref.		13381		
Job Location		Edmunds Terrace		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	5.00	5.00	5.00
Date		20/09/2012	20/09/2012	20/09/2012
Disturbed / Undisturbed		undisturbed	undisturbed	undisturbed

Description of Specimen

Brown and blue grey slightly silty CLAY with occasional selenite crystals

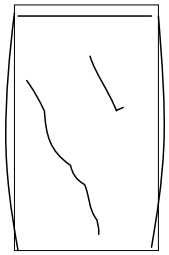
Initial Specimen Conditions

Height	mm	206.00		
Diameter	mm	105.00		
Area	mm^2	8659.01		
Volume	cm^3	1783.76		
Mass	g	3360.70		
Dry Mass	g	2554.50		
Density	Mg/m^3	1.88		
Dry Density	Mg/m^3	1.43		
Moisture Content	%	31.56		
Degree of Saturation	%	95.45		
Specific Gravity (assumed/measured)		2.72 assumed		

Final Specimen Conditions

Moisture Content	%			32.00
Density	Mg/m^3			1.96
Dry Density	Mg/m^3			1.49

Sketch of Failure of the Specimen



Specimen 1 Specimen 2 Specimen 3

K4 Soils laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Date: Date:

Checked by: Approved by:

Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at500+1.xls]Report

Date: 19/10/2012

		Specimen 1	Specimen 2	Specimen 3
Specimen Details				
Job Ref.		13381		
Job Location		Edmunds Terrace		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	5.00	5.00	5.00
Date		20/09/2012	20/09/2012	20/09/2012
Test Setup				
Date started		20/09/2012	20/09/2012	20/09/2012
Date Finished		18/10/2012	18/10/2012	18/10/2012
Top Drain Used		y	y	y
Base Drain Used		n	n	n
Side Drains Used		y	y	y
Pressure System Number		1	1	1
Cell Number		1	1	1
Saturation				
Cell Pressure Incr.	kPa	500.00		
Back Pressure Incr.	kPa	0.00		
Differential Pressure	kPa	500.00		
Final Cell Pressure	kPa	500.00		
Final Pore Pressure	kPa	485.20		
Final B Value		0.97		
Consolidation				
Effective Pressure	kPa	50.00	100.00	200.00
Cell Pressure	kPa	350.00	400.00	500.00
Back Pressure	kPa	300.00	300.00	300.00
Excess Pore Pressure	kPa	30.70	45.80	88.65
Pore Pressure at End	kPa	292.40	299.40	300.30
Consolidated Volume	cm^3	1754.06	1718.26	1683.41
Volumetric Strain		0.005550083	0.006803276	0.006760727
Consolidated Height	mm	204.86	200.36	196.00
Consolidated Area	mm^2	8562.90	8576.48	8589.61
Vol. Compressibility	m^2/MN	0.43473	0.43987	0.22957
Consolidation Coef.	$m^2/yr.$			

K4 Soils laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Date: Date:

Checked by: Approved by:

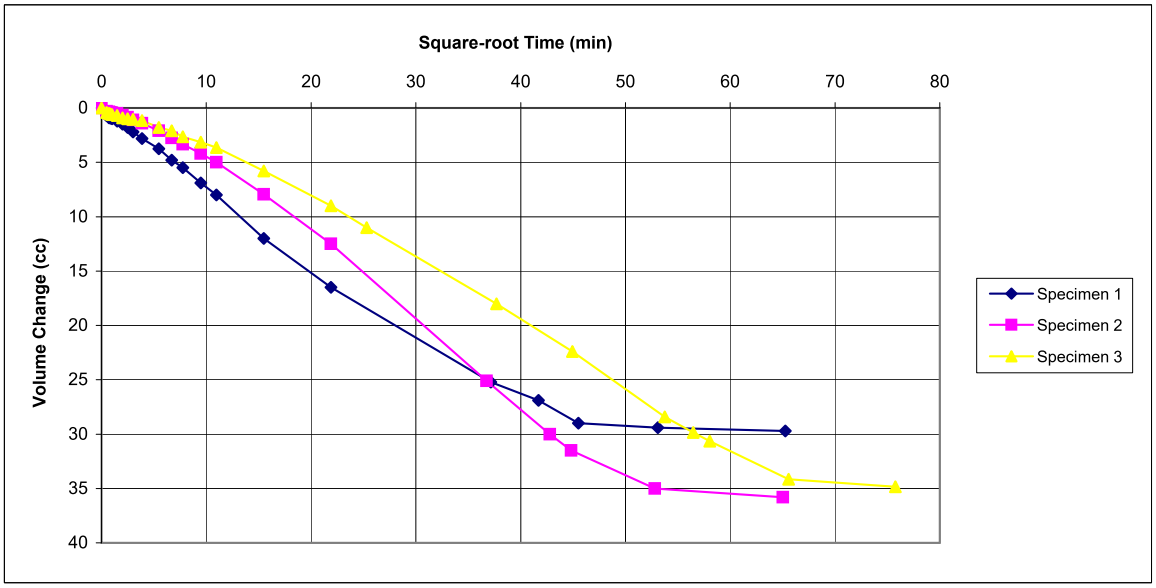
Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at500+1.xls]Report

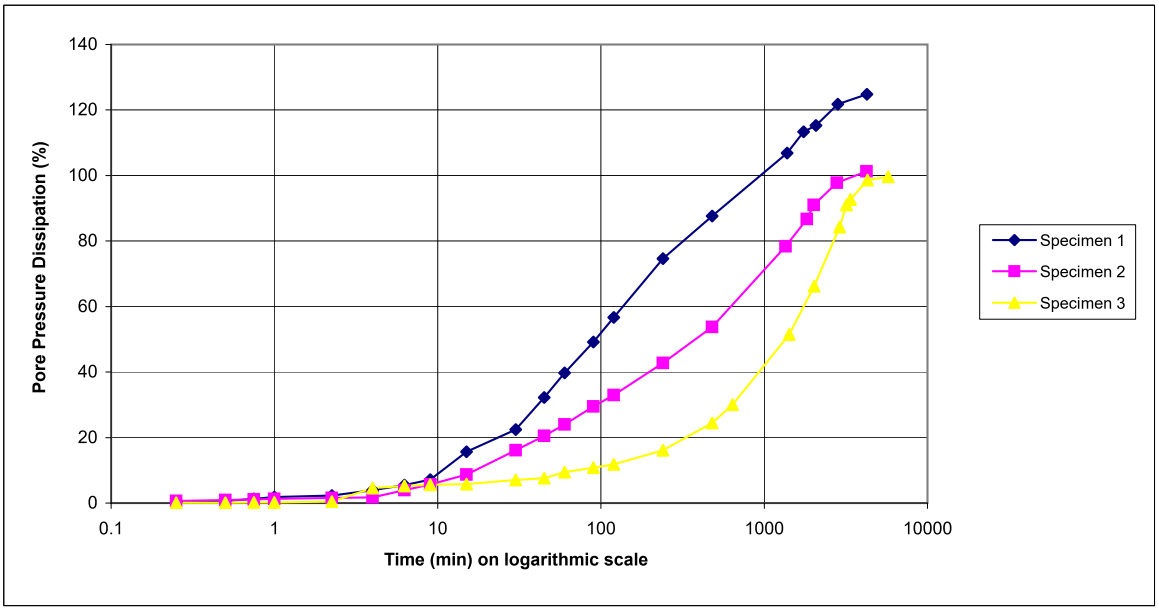
Date: 19/10/2012

Specimen Details

		Specimen 1	Specimen 2	Specimen 3
Job Ref.		13381		
Job Location		Edmunds Terrace		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	5.00	5.00	5.00
Date		20/09/2012	20/09/2012	20/09/2012

Consolidation Stage





K4 Soils laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Date: Date:

Checked by: Approved by:

Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at500+1.xls]Report

Date: 19/10/2012

		Specimen 1	Specimen 2	Specimen 3
Specimen Details				
Job Ref.		13381		
Job Location		Edmunds Terrace		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	5.00	5.00	5.00
Date		20/09/2012	20/09/2012	20/09/2012
Shearing				
Initial Cell Pressure	kPa	350	400	500
Initial Pore Pressure	kPa	292	288.8	299.4
Rate of Strain	%/hour	0.349514563	0.356900882	0.364863239
Max Deviator Stress				
Axial Strain		1.328	1.512	2.781
Axial Stress	kPa	48.49	69.81	114.54
Cor. Deviator stress	kPa	47.89	69.15	113.78
Effective Major Stress	kPa	85.69	149.25	243.68
Effective Minor Stress	kPa	37.60	79.90	129.70
Effective Stress Ratio		2.279	1.868	1.879
s'	kPa	61.65	114.57	186.69
t'	kPa	24.05	34.67	56.99
Shear Resistance Angle	degs	18.00	18.00	18.00
Cohesion c'	kPa	0.00	0.00	0.00
Max Effective Priciple Stress Ratio				
Axial Strain		1.328	1.512	2.602
Axial Stress	kPa	48.49	69.81	114.37
Cor. Deviator stress	kPa	47.89	69.15	113.61
Effective Major Stress	kPa	85.69	149.25	243.21
Effective Minor Stress	kPa	37.60	79.90	129.40
Effective Stress Ratio		2.279	1.868	1.880
s'	kPa	61.65	114.57	186.31
t'	kPa	24.05	34.67	56.91

K4 Soils laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Date: Date:

Checked by: Approved by:

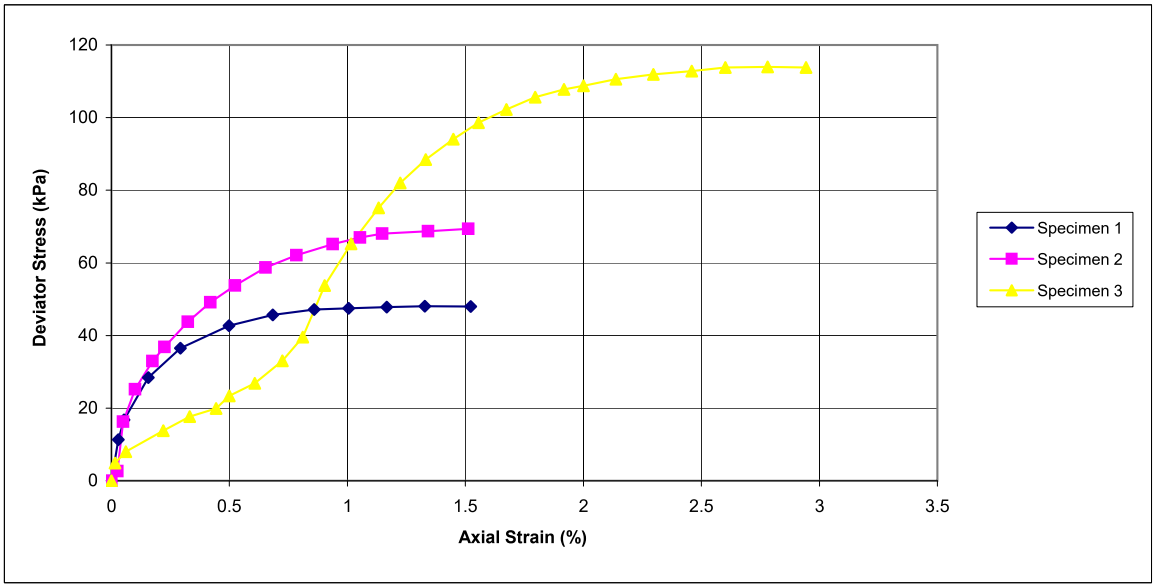
Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at500+1.xls]Report

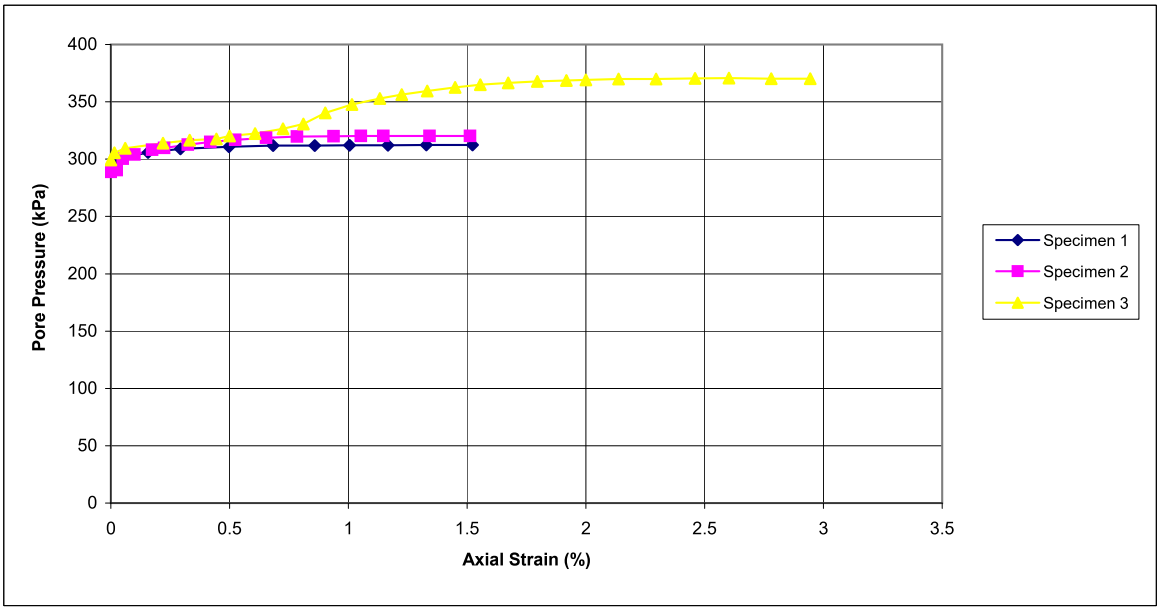
Date: 19/10/2012

Specimen Details

		Specimen 1	Specimen 2	Specimen 3
Job Ref.		13381		
Job Location		Edmunds Terrace		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	5.00	5.00	5.00
Date		20/09/2012	20/09/2012	20/09/2012

Shearing Stage





K4 Soils laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Date: Date:

Checked by: Approved by:

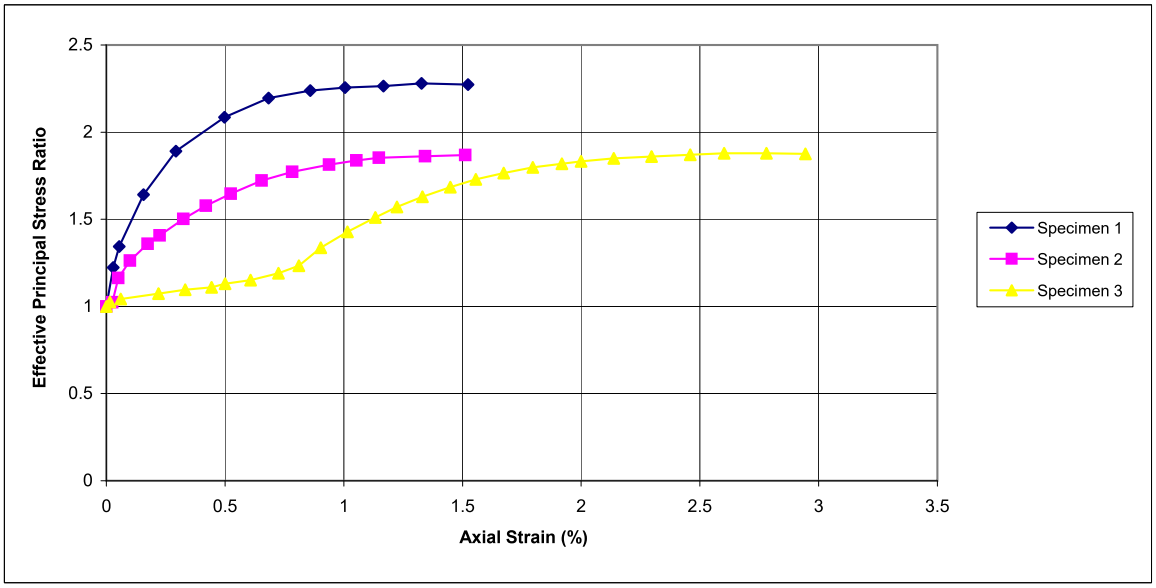
Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at500+1.xls]Report

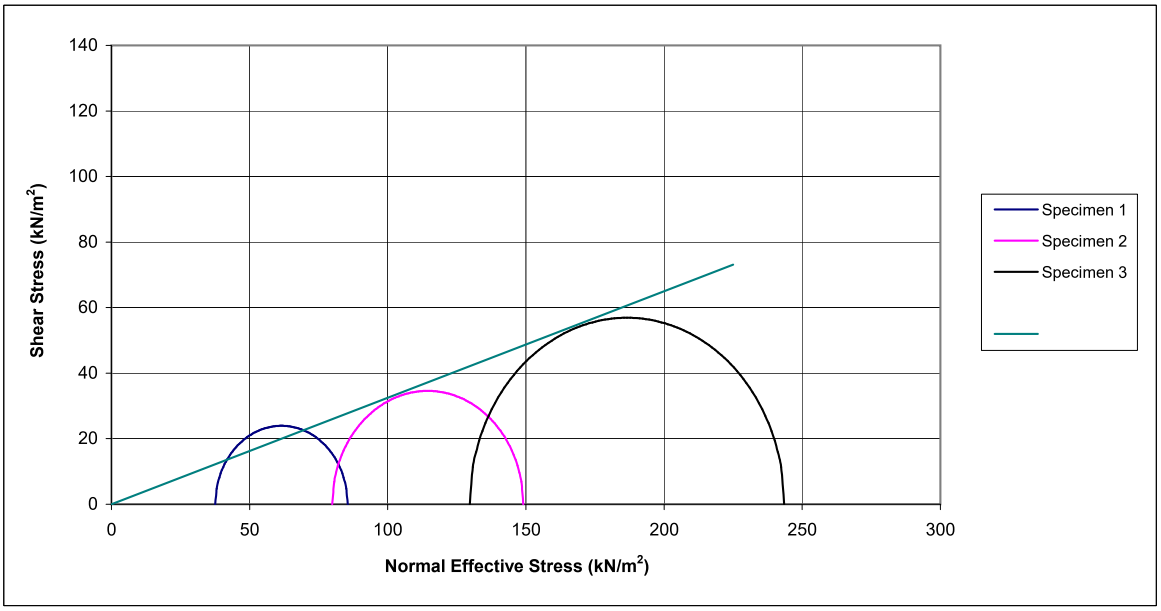
Date: 19/10/2012

Sample Details

		Specimen 1	Specimen 2	Specimen 3
Job Ref.		13381		
Job Location		Edmunds Terrace		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	5.00	5.00	5.00
Date		20/09/2012	20/09/2012	20/09/2012

Shearing Stage





K4 Soils laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Date: Date:

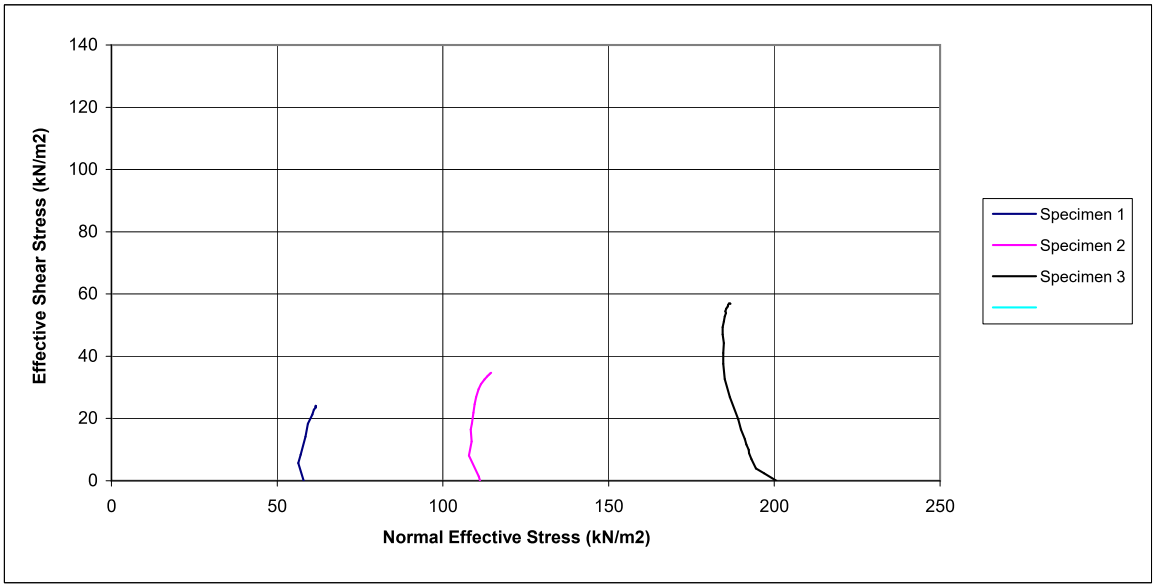
Checked by: Approved by:

Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at500+1.xls]Report

Date: 19/10/2012

		Specimen 1	Specimen 2	Specimen 3
Sample Details				
Job Ref.		13381		
Job Location		Edmunds Terrace		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	5.00	5.00	5.00
Date		20/09/2012	20/09/2012	20/09/2012

Shearing Stage



K4 Soils Laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Date: Date:

Checked by: Approved by:

Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at700.xls]Report

Date: 15/10/2012

Specimen Details

		Specimen 1	Specimen 2	Specimen 3
Job Ref.		13381		
Job Location		Barrie House, 29 St Edmunds Terrace, London, NW8 7QH		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	7.00	7.00	7.00
Date		21/09/2012	21/09/2012	21/09/2012
Disturbed / Undisturbed		undisturbed	undisturbed	undisturbed

Description of Specimen

Brown CLAY with selenite crystals

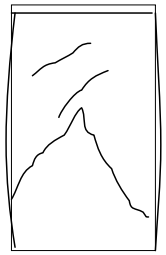
Initial Specimen Conditions

Height	mm	206.00		
Diameter	mm	105.00		
Area	mm^2	8659.01		
Volume	cm^3	1783.76		
Mass	g	3433.90		
Dry Mass	g	2666.71		
Density	Mg/m^3	1.93		
Dry Density	Mg/m^3	1.49		
Moisture Content	%	28.77		
Degree of Saturation	%	95.50		
Specific Gravity (assumed/measured)		2.72 assumed		

Final Specimen Conditions

Moisture Content	%			28.68
Density	Mg/m^3			2.00
Dry Density	Mg/m^3			1.55

Sketch of Failure of the Specimen



Specimen 1 Specimen 2 Specimen 3

K4 Soils Laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Date: Date:

Checked by: Approved by:

Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at700.xls]Report

Date: 15/10/2012

		Specimen 1	Specimen 2	Specimen 3
Specimen Details				
Job Ref.		13381		
Job Location		Barrie House, 29 St Edmunds Terrace, London, NW8 7QH		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	7.00	7.00	7.00
Date		21/09/2012	21/09/2012	21/09/2012
Test Setup				
Date started		21/09/2012		
Date Finished		10/10/2012		
Top Drain Used		y		
Base Drain Used		n		
Side Drains Used		y		
Pressure System Number		1		
Cell Number		1		
Saturation				
Cell Pressure Incr.	kPa	400.00		
Back Pressure Incr.	kPa	0.00		
Differential Pressure	kPa	400.00		
Final Cell Pressure	kPa	400.00		
Final Pore Pressure	kPa	383.60		
Final B Value		0.96		
Consolidation				
Effective Pressure	kPa	70.00	140.00	280.00
Cell Pressure	kPa	370.00	440.00	580.00
Back Pressure	kPa	300.00	300.00	300.00
Excess Pore Pressure	kPa	46.20	79.80	158.30
Pore Pressure at End	kPa	300.20	301.90	312.00
Consolidated Volume	cm^3	1752.76	1717.46	1678.06
Volumetric Strain		0.005793016	0.006713233	0.007646965
Consolidated Height	mm	204.81	196.72	188.45
Consolidated Area	mm^2	8558.69	8731.40	8905.36
Vol. Compressibility	m^2/MN	0.37781	0.25853	0.15681
Consolidation Coef.	$m^2/yr.$			

K4 Soils Laboratory

Consolidated Undrained Triaxial Compression Test

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Date: Date:

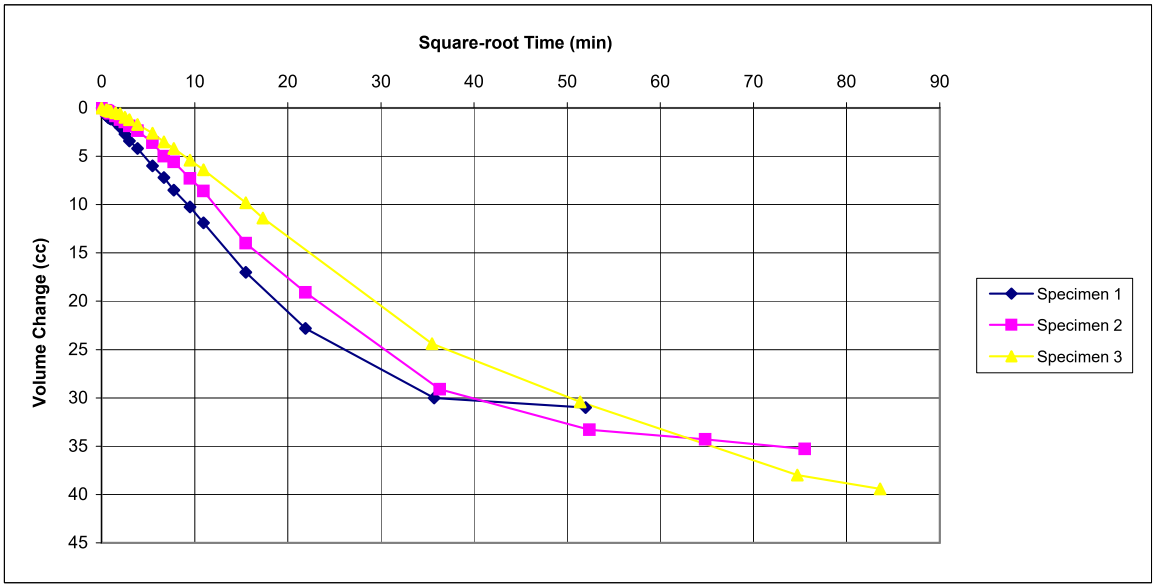
Checked by: Approved by:

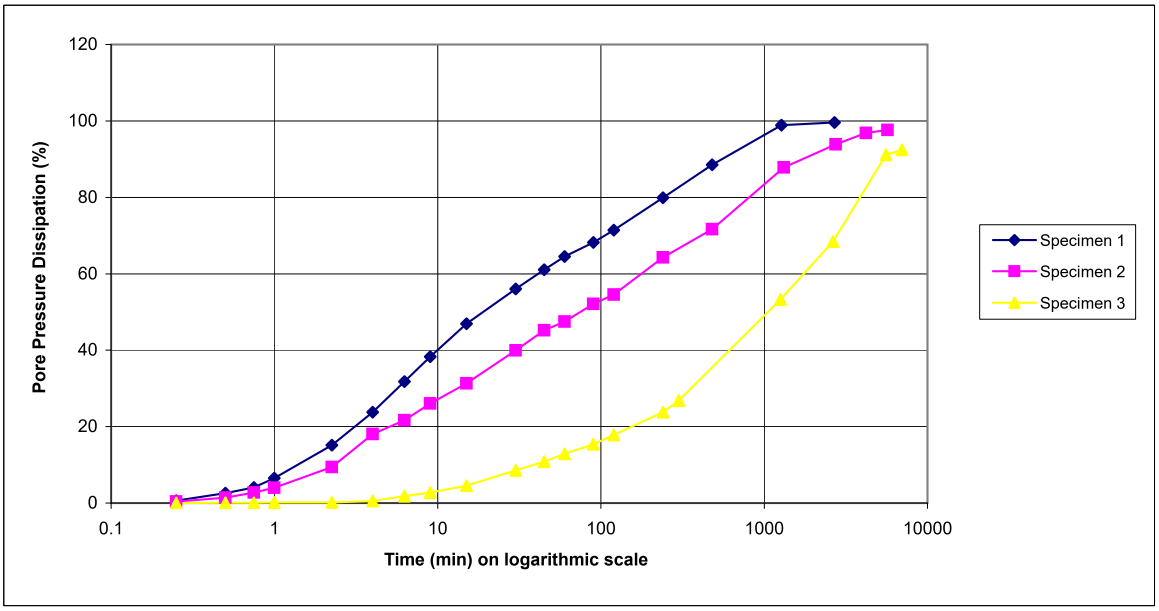
Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at700.xls]Report

Date: 15/10/2012

		Specimen 1	Specimen 2	Specimen 3
Specimen Details				
Job Ref.		13381		
Job Location		Barrie House, 29 St Edmunds Terrace, London, NW8 7QH		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	7.00	7.00	7.00
Date		21/09/2012	21/09/2012	21/09/2012

Consolidation Stage





K4 Soils Laboratory

Consolidated Undrained Triaxial Compression Test

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Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at700.xls]Report

Date: 15/10/2012

		Specimen 1	Specimen 2	Specimen 3
Specimen Details				
Job Ref.		13381		
Job Location		Barrie House, 29 St Edmunds Terrace, London, NW8 7QH		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	7.00	7.00	7.00
Date		21/09/2012	21/09/2012	21/09/2012
Shearing				
Initial Cell Pressure	kPa	370	440	580
Initial Pore Pressure	kPa	300.2	301.5	300.5
Rate of Strain	%/hour	0.582524272	0.605917883	0.631887889
Max Deviator Stress				
Axial Strain		3.301	3.462	3.667
Axial Stress	kPa	83.90	135.60	229.71
Cor. Deviator stress	kPa	83.28	134.91	228.89
Effective Major Stress	kPa	121.18	213.51	395.39
Effective Minor Stress	kPa	37.70	78.40	166.30
Effective Stress Ratio		3.214	2.723	2.378
s'	kPa	79.44	145.96	280.84
t'	kPa	41.74	67.56	114.54
Shear Resistance Angle	degs	21.07	21.07	21.07
Cohesion c'	kPa	14.87	14.87	14.87
Max Effective Priciple Stress Ratio				
Axial Strain		3.301	3.020	3.667
Axial Stress	kPa	83.90	134.72	229.71
Cor. Deviator stress	kPa	83.28	134.04	228.89
Effective Major Stress	kPa	121.18	211.44	395.39
Effective Minor Stress	kPa	37.70	77.20	166.30
Effective Stress Ratio		3.214	2.739	2.378
s'	kPa	79.44	144.32	280.84
t'	kPa	41.74	67.12	114.54

K4 Soils Laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Date: Date:

Checked by: Approved by:

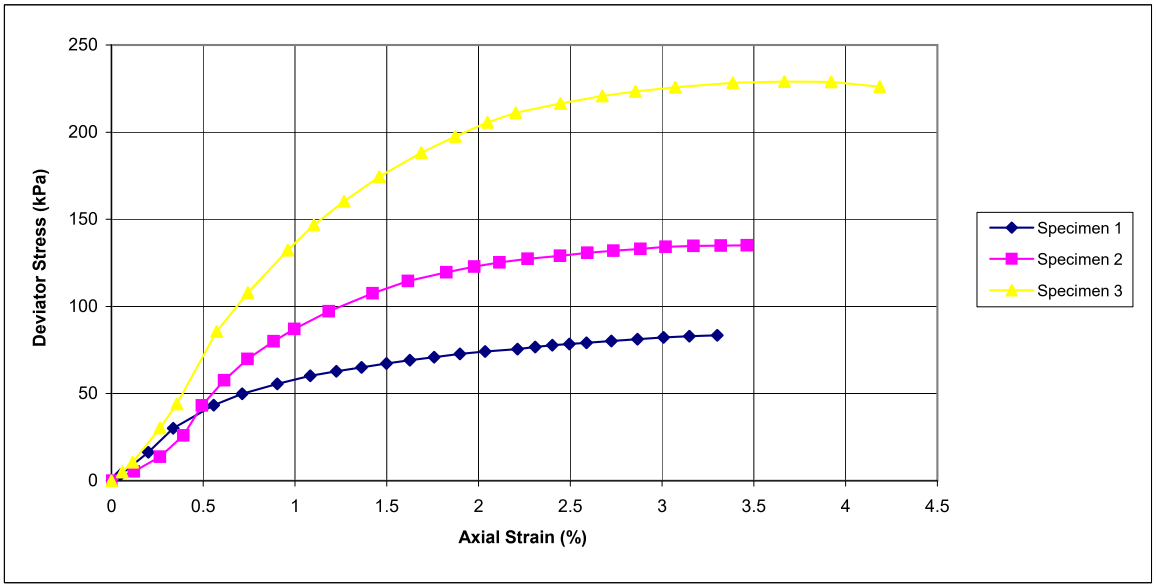
Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at700.xls]Report

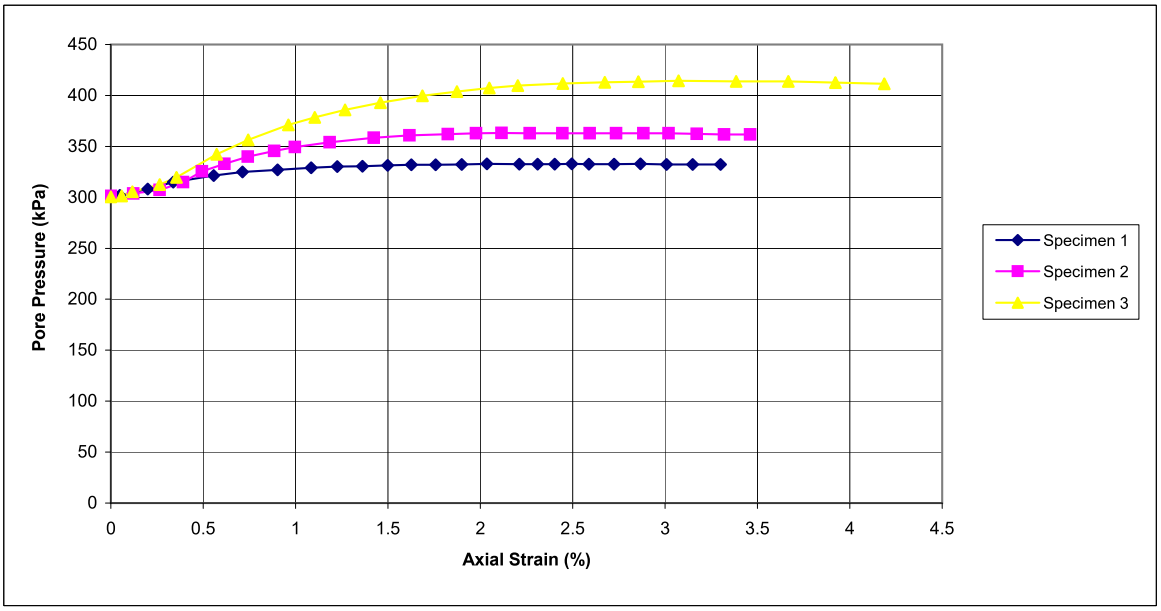
Date: 15/10/2012

Specimen Details

		Specimen 1	Specimen 2	Specimen 3
Job Ref.		13381		
Job Location		Barrie House, 29 St Edmunds Terrace, London, NW8 7QH		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	7.00	7.00	7.00
Date		21/09/2012	21/09/2012	21/09/2012

Shearing Stage





K4 Soils Laboratory

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Date: Date:

Checked by: Approved by:

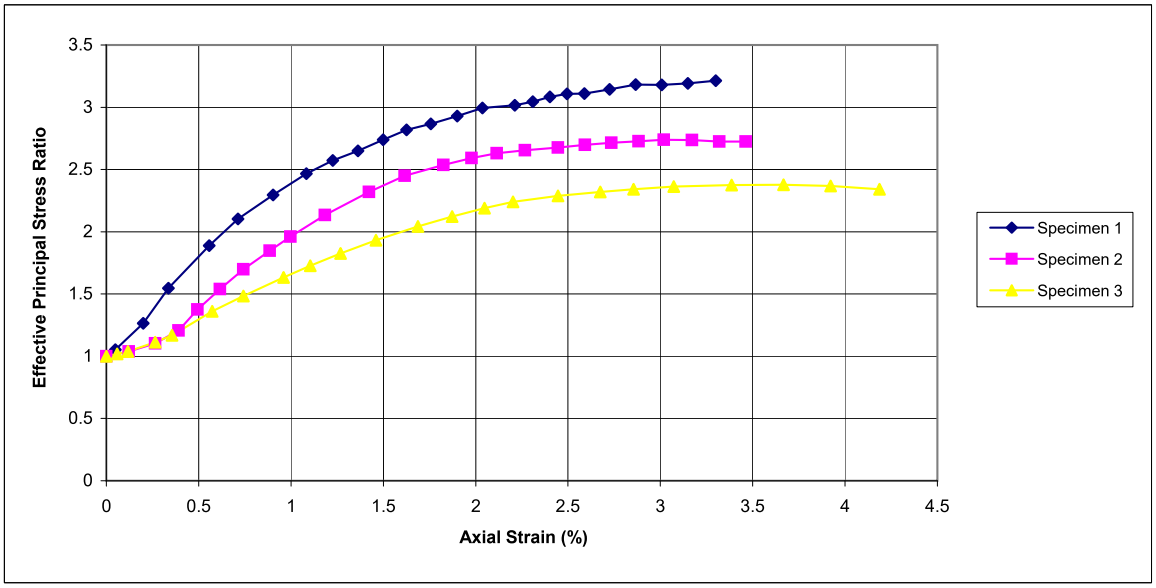
Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at700.xls]Report

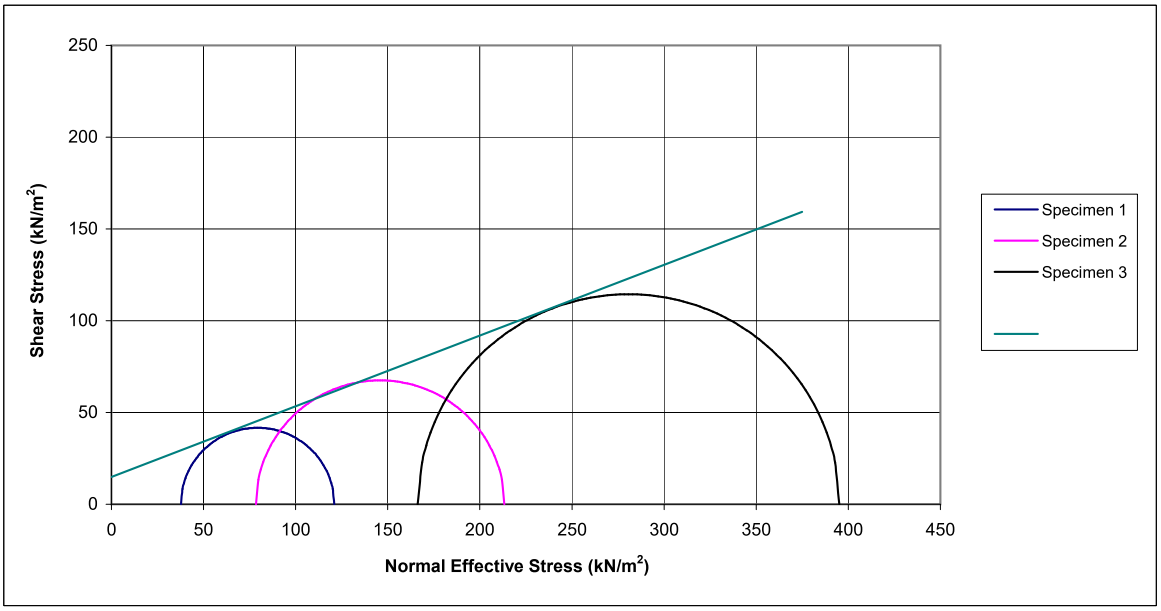
Date: 15/10/2012

Sample Details

		Specimen 1	Specimen 2	Specimen 3
Job Ref.		13381		
Job Location		Barrie House, 29 St Edmunds Terrace, London, NW8 7QH		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	7.00	7.00	7.00
Date		21/09/2012	21/09/2012	21/09/2012

Shearing Stage





K4 Soils Laboratory

Consolidated Undrained Triaxial Compression Test

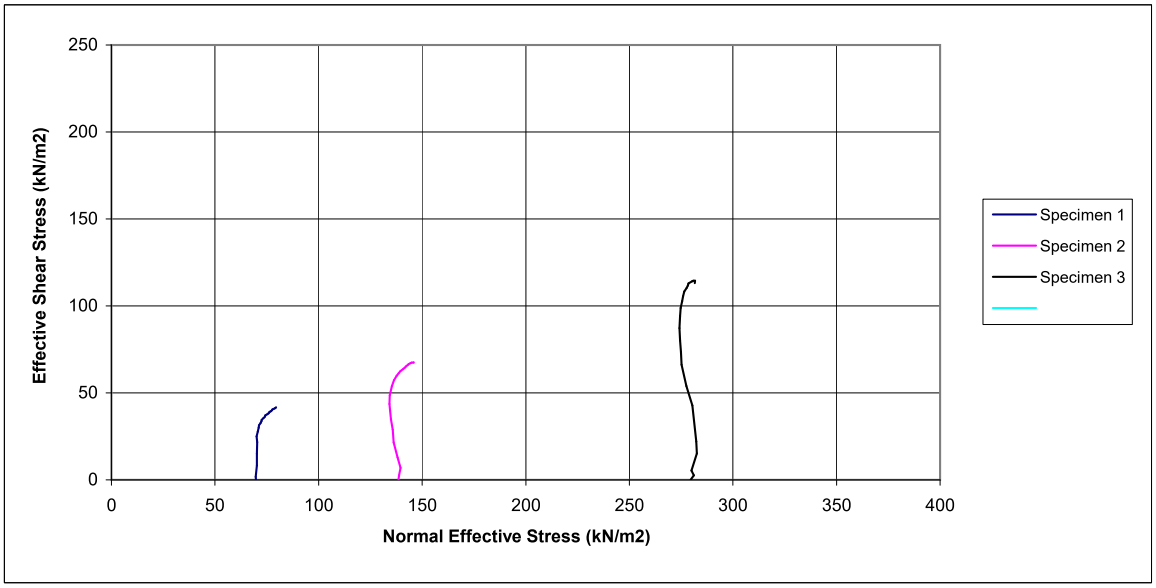
BS 1377 : Part 8 : 1990

Date:

Date:

		Specimen 1	Specimen 2	Specimen 3
Sample Details				
Job Ref.		13381		
Job Location		Barrie House, 29 St Edmunds Terrace, London, NW8 7QH		
Borehole		BH1	BH1	BH1
Sample No.		U2	U2	U2
Depth	m	7.00	7.00	7.00
Date		21/09/2012	21/09/2012	21/09/2012

Shearing Stage



Checked by:

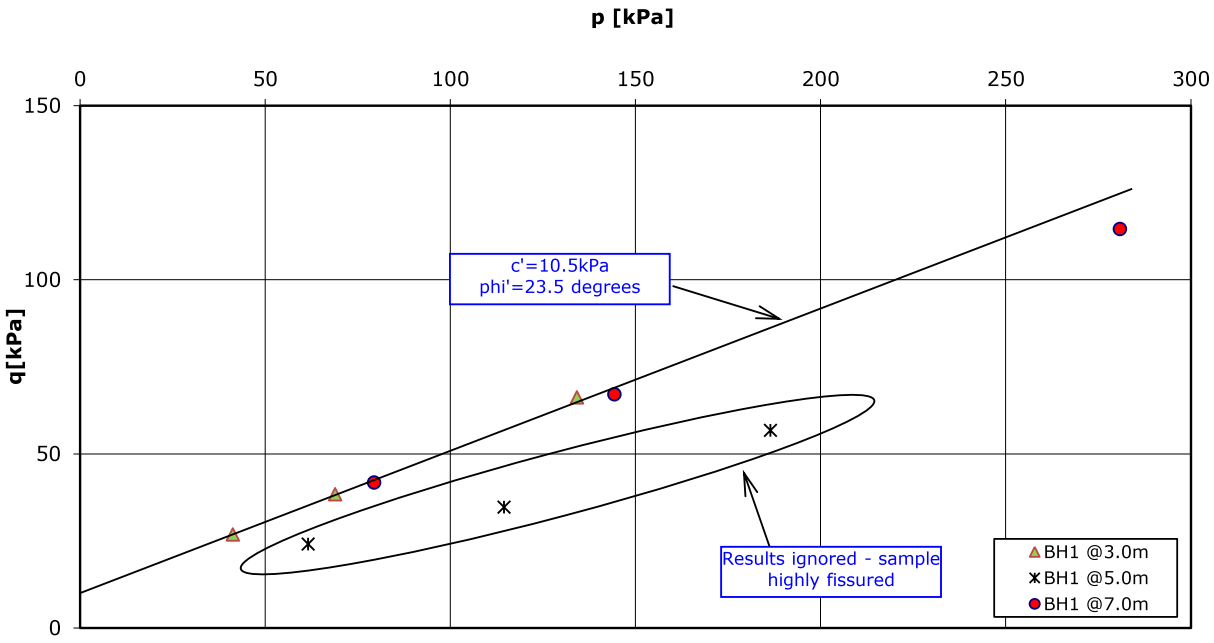
Approved by:

Filename: Y:\2012\CLIENTS\Soils Consultants\13381\[13381bh1at700.xls]Report

Date: 15/10/2012

Site Location	**Barrie House** **29 St Edmund's Terrace, London NW8 7QH**	Report No:	**9241/OT**

p-q Plot

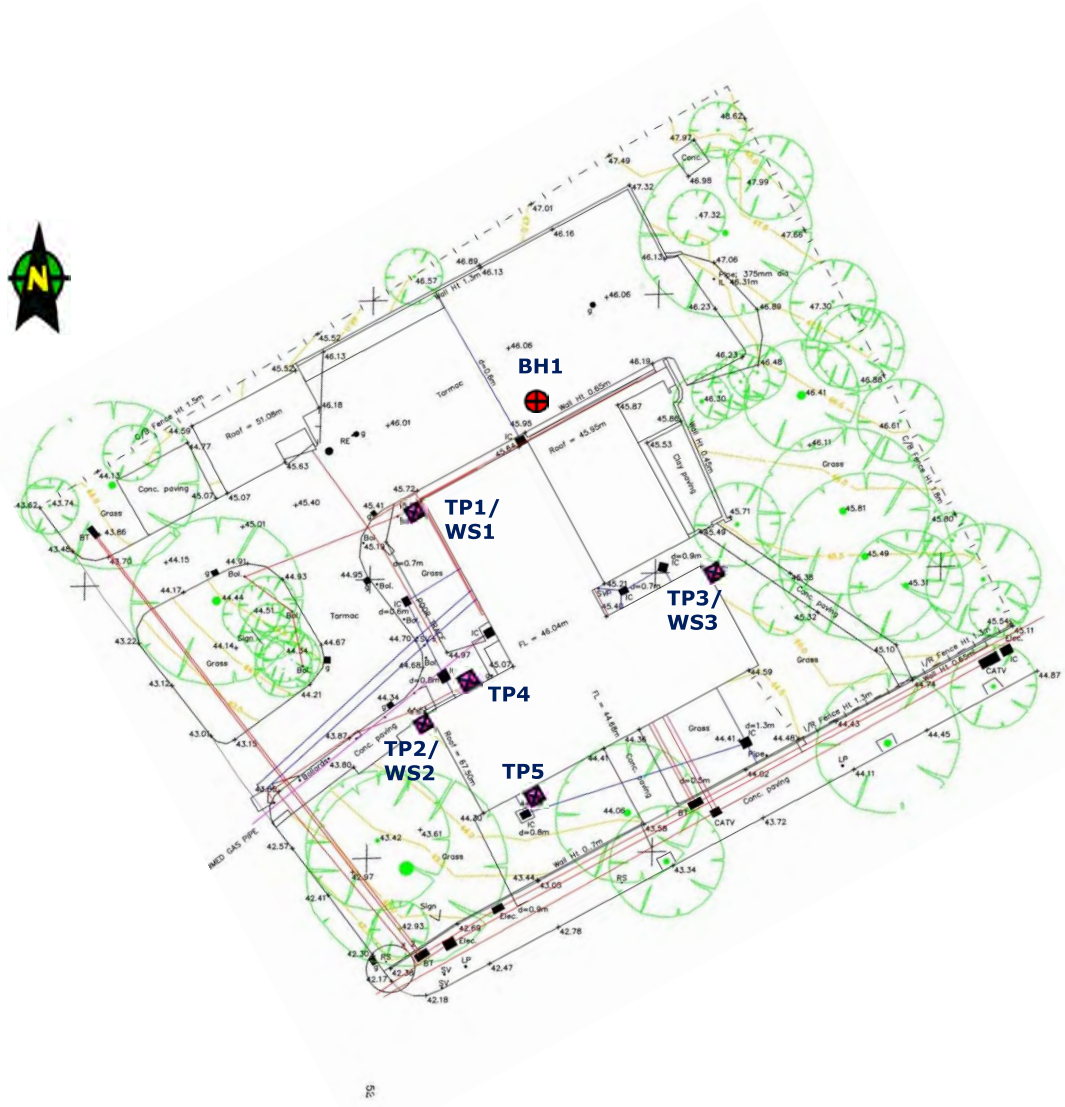


Notes:

Summary of multistage consolidated underained triaxial tests with pore pressure measurement on BH1 samples by K4 Soils Laboratory

Site Location	**Barrie House** **29 St Edmund's Terrace, London NW8 7QH**	Report No	**9241/OT**

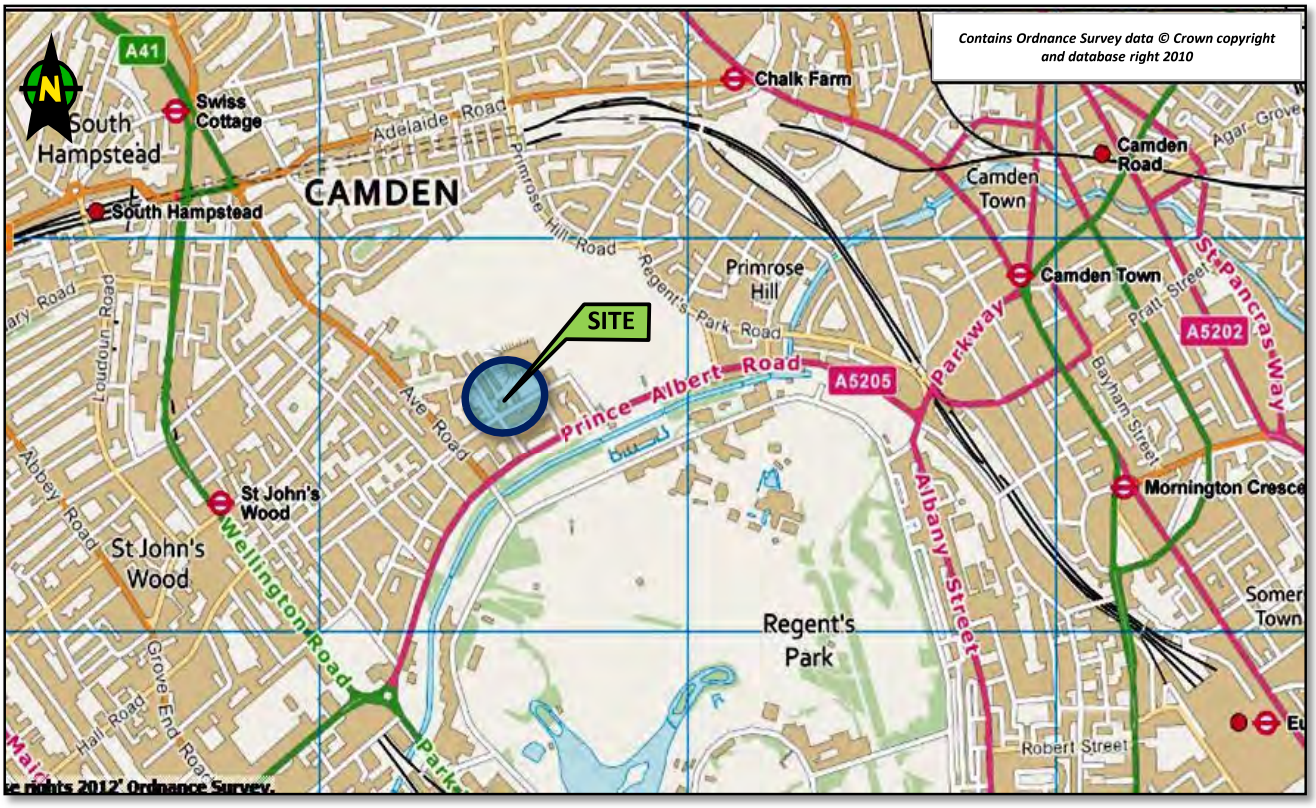
Site Plan



Approx scale 1:500 [@A4]

Site Location	**Barrie House** **29 St Edmund's Terrace, London NW8 7QH**	Report No	**9241/OT**

Location Map



Approx NGR of site 527495E, 183575N

Soil Consultants

March 2023

RT/SMS/5295

Broxwood View
Appendix 6 - Calculations

Broxwood View
(Previously 29 Barrie House)

Appendix 6
Calculations

For

Attanasio d'Aponte
Arbitrage Broxwood Ltd

5295

March 2023

CONTENTS

1.0 General

As part of the redevelopment of a site at Barrie House, 29 St Edmunds Terrace, Camden, London NW8, it is proposed to construct a new four storey residential development including a single level basement. The site is currently occupied by a car park and a two-storey masonry structure.

The site can be located by National Grid Reference TQ27497 83580 and lies off the East side of Broxwood Way, which provides the site access. The southern boundary adjoins the existing Barrie House block, while the Northern boundary adjoins block of flats on Broxwood Wat. The Eastern boundary adjoins the gardens and multi-storey block of number 35 St Edmund's Terrace.

The proposed basement is to be constructed by utilizing a secant and contiguous piled retaining wall around the perimeter of the site except for a small section between grid lines 12 and 15 (refer to Appendix 3 drawing 5295-S02) where a reinforced concrete underpinned wall is proposed. The piled retaining wall will retain the soil pressures and adjacent surcharge loads (including adjacent foundation loads where applicable). The piled wall will be temporarily propped during constriction and permanently propped via the capping beam and ground floor slab. A 200mm thick liner wall is proposed within the basement to retaining water pressures. A raft foundation is proposed to transfer the vertical loads into the ground. These calculations justify the design of the elements above.

These calculations are not to be relied on by any third party without prior written consent from RTA.

2.0 Design Criteria

2.1 Design Life
The design life of the building is to be 60 years and as such categorized as 'Normal Life' to BS 7543.

2.2 Loading

2.2.1 Dead Loading

The following loads have been assumed for the weight of the structure / finishes and facades. Loads have also been provided for the CLT superstructure, refer to Appendix 3.

Element	Description	DL Load press. (kN/m²)	DL Applied UDL (KN/m)
Basement			
	950 Raft	23	
	100 Screed	1.8	
	Finishes	0.5	
	Total	25.3	
Ground Floor			
	325 Slab	7.8	
	100 Screed	1.8	
	Finishes	0.5	
	Ceiling	0.5	
	Total	10.6	
Retaining Wall	200 wall	5	15
Façade	Masonry skin	2.5	7.5
Super Structure	Refer to loads from superstructure designer.		

2.2.2 Imposed Loading

Element	Description	LL Load press. (kN/m²)	Point Load (kN)
Floors	Category A1 (residential)	1.5	2
	Partitions	1	
	Total	2.5	2
Corridors	Category C31 (communal areas in blocks of flats)		
		3	4.5
Stairs	Category C32	3	4
Balconies	Category A5	2.5	2
Super Structure	Refer to loads from superstructure designer.		

2.2.3 Wind Loading
The basic map velocity is 21.5m/s this equates to a peak velocity pressure of 0.728kN/m².

2.2.4 Snow Loading
The superstructure designer has accounted for snow loading in their loadings. Refer to Appendix 3

2.3 Materials
The following structural materials are to be used, Steel grade : S355. Concrete grade C40. Reinforcement fy=500N/mm².

2.4 Durability
Concrete elements will be designed to the recommendations in BS EN 19921-1 Design of Concrete Structures and BS 8500. Concrete mixes specified to suit 'normal' structural performance. Where concrete elements are in contact with the ground special consideration has been give to the concrete mix with respect to sulphates.

2.5 Robustness
The design of the building assumes a categorization of building type as Consequence Class 2B Upper Risk Group.
The design of the structure will be to the recommendations made in BS EN 1991-1-7.

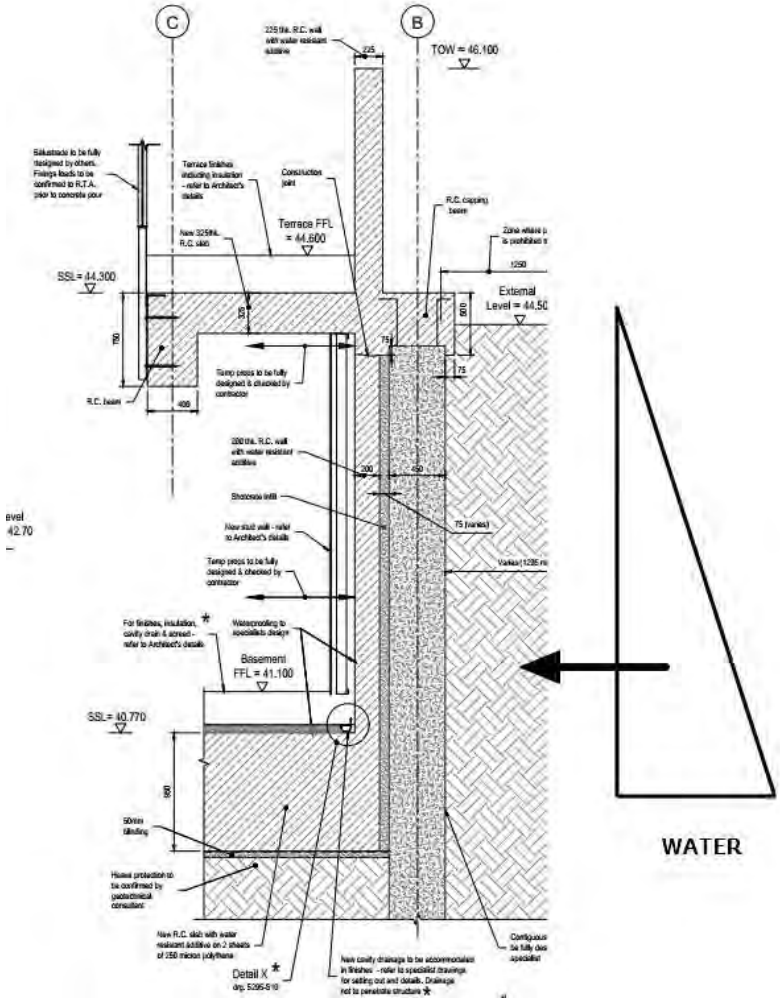
2.6 Fire Rating
As informed by the fire statement prepared by Emco, 60mins rating to structural elements.

2.7 Design Guides
The following codes of practice and design guides have been used in the assessment of the development to this stage:

Reference	Title
BS648	Weights
BS6399	Loadings
BS7543	Durability
BS8002	Earth Retaining Structure
BS8004	foundations
BS8110	Structural Use of Concrete
BS8500-1:2002	Concrete
BS EN 206-1	Concrete: Specification
BS EN 1991	Loadings

3.0 Retaining Wall

Conservatively the lateral pressure from possible water has been taken assuming a maximum water depth.



Head = 3.4m
Total pressure = 3.4 x 10 x 3.4 x 0.5 = 58kN/m

Propped cantilever
Maximum moment = 26kNm/m (CHAR) = 39kNm/m (ULT)
Maximum shear = 46kN/m (CHAR) = 69kN/m (ULT)

Concrete Design Check to BS8110

Wall Retaining Wall

Job no:	5295
Date:	01/08/2022
By:	DW
Page:	

Design Parameters

Free body diagram		Simply Supported	
Element		Slab/Wall	
Span	L =	3.4	m
Section depth	D =	200	mm
Screed	=	0	mm
Clear cover (tension face)	=	50	mm
Link size	=	0	mm
Bar diameter	ϕ =	16	mm
Concrete strength	F_{cu} =	35	MPa
Steel yield stress	F_y =	500	MPa
Effective depth	d =	142	mm
Breadth	b =	1000	mm

Loading

Uniformly distributed loads			
Self weight	w_{sw} =	0.00	kN/m
Live load	w_{LL} =		kN/m
Additional dead load	w_{DL} =		kN/m
Total UDL (ULT)	w* =		kN/m

Point loads			
Dead point load	P_{DL} =		kN
Live point load	P_{LL} =		kN
Total Point load (ULT)	P* =		kN

Input Point loads (even if 0)

Bending

Maximum moment	M* =	39.00	kNm
(Calculated or input)			
Compressive capacity	M_u =	110.10	kNm
No compression reinforcement required			
	K =	0.0553	
	K' =		
Lever arm	z =	132.67	mm
Depth to NA	x =		mm
Clear cover (comp face)	=		mm
Comp bar diameter	ϕ' =		mm
Depth to comp steel	d' =		mm
Area defl steel req	$A_{sc\,req}$ =		
Area defl steel provided	$A_{sc\,prov}$ =		mm^2
Area steel required	$A_{st\,req}$ =	675.79	mm^2
Provide B 16 @ 150 c / c			
Area steel provided	$A_{st\,prov}$ =	1340	mm^2

Shear

Max shear force	V* =	69.00	kN
Shear stress	v =	0.49	MPa
	$100A_s/bd$ =	0.94	
Concrete shear stress	v_c =	0.90	MPa
No shear reinforcement required			
Link spacing	s_v =		mm
Shear steel required	$A_{sv\,req}$ =		mm^2
Shear steel provided	$A_{sv\,prov}$ =		mm^2

Deflection

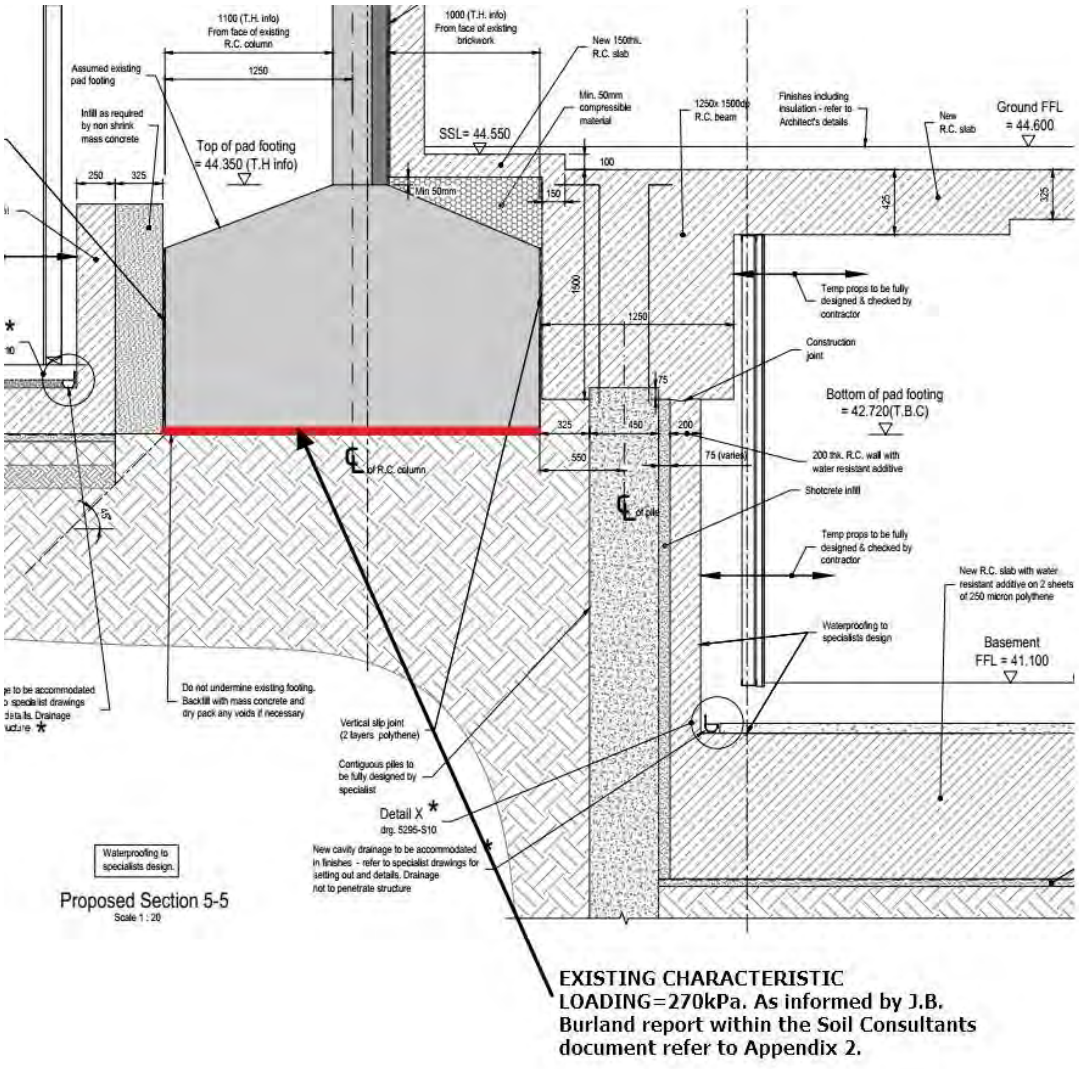
Steel stress	f_s =	157.60	MPa
Modification factor	MF =	1.49	
Modification factor	MF' =		
Min effective depth	d_{min} =	114.16	mm

Deflection check OK

Therefore the 200 thick wall is satisfactory with B16 bars at 150c/c.

4.0 Piled Retaining Wall

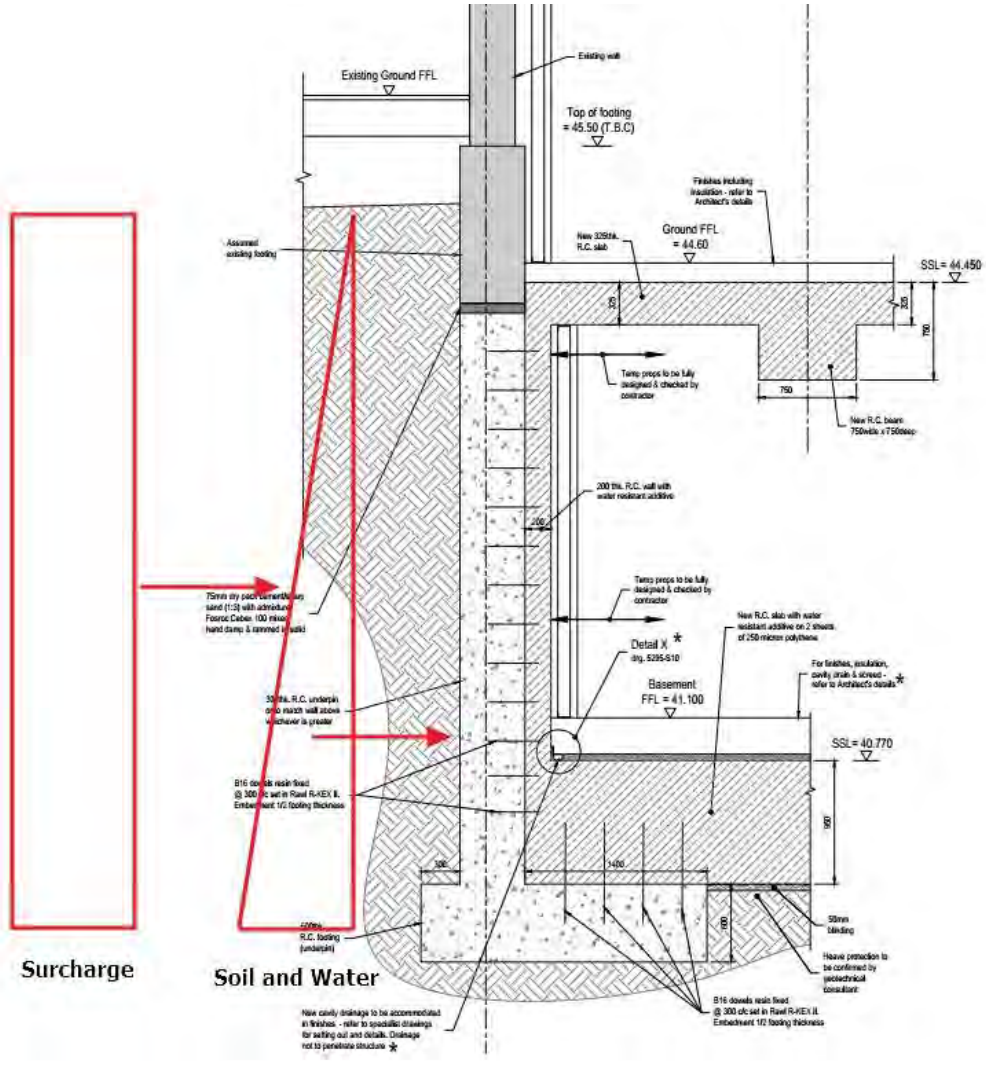
The piled retaining wall will be fully designed by a specialist however for the purposes of this report an assessment has been carried out to justify that a 450mm dia contiguous piled wall is suitable. The most onerous load arrangement has been looked at; adjacent to the existing pad foundations of Barrie House. When the specialist designs the other sections of the wall fire truck loading will be added to the surcharge loads in the relevant areas – refer to Appendix 3 drawing 5295-S02.



Refer to CGL BIA Appendix G for the Pile Design.

5.0 Underpinned Retaining Wall

The underpinning, on grid line F between 12 and 15 is designed to transfer the vertical loads from the single storey building down to the basement level and retain the earth under the adjacent single storey building. The temporary condition is the most onerous before the raft is poured where the wall is spanning 4.5m between the temporary top and bottom lateral props.



Surcharge load: 5kN/m² x Ko = 3kN/m²
Soil load submerged: 10kN/m² x Ko x 4.5m = 27kN/m²
Water Load = 10 x 4.5m = 45kN/m²
Vertical load = 20kN + 55kN(Self) = 75kN/m

Propped:
Maximum Bending = 72kNm/m (CHAR) = 108kNm/m (ULT)
Maximum Shear = 124kN/m (CHAR) = 186kN/m (ULT)

Concrete Design Check to BS8110	Job no:	5295
	Date:	01/08/2022
Underpinning	By:	DW
	Page:	

Design Parameters			
Free body diagram		Simply Supported	
Element		Slab/Wall	
Span	L =	4.5	m
Section depth	D =	300	mm
Screed	=	0	mm
Clear cover (tension face)	=	50	mm
Link size	=	0	mm
Bar diameter	ϕ =	20	mm
Concrete strength	F_{cu} =	40	MPa
Steel yield stress	F_y =	500	MPa
Effective depth	d =	240	mm
Breadth	b =	1000	mm

Loading			
Uniformly distributed loads			
Self weight	w_{sw} =	75.00	kN/m
Live load	w_{LL} =	0.00	kN/m
Additional dead load	w_{DL} =	0.00	kN/m
Total UDL (ULT)	w* =	105.00	kN/m
Point loads			
Dead point load	P_{DL} =	0.00	kN
Live point load	P_{LL} =	0.00	kN
Total Point load (ULT)	P* =	0.00	kN

Bending			
Maximum moment	M* =	108.00	kNm
(Calculated or input)			
Compressive capacity	M_u =	359.42	kNm
No compression reinforcement required			
	K =	0.0469	
	K' =		
Lever arm	z =	226.77	mm
Depth to NA	x =		mm
Clear cover (comp face)	=		mm
Comp bar diameter	ϕ' =		mm
Depth to comp steel	d' =		mm
Area defl steel req	$A_{sc\ req}$ =		
Area defl steel provided	$A_{sc\ prov}$ =		mm^2
Area steel required	$A_{st\ req}$ =	1094.83	mm^2
Provide B 20 @ 150 c / c			
Area steel provided	$A_{st\ prov}$ =	2090	mm^2

Shear			
Max shear force	V* =	186.00	kN
Shear stress	v =	0.78	MPa
	$100A_s/bd$ =	0.87	
Concrete shear stress	v_c =	0.80	MPa
No shear reinforcement required			
Link spacing	s_v =		mm
Shear steel required	$A_{sv\ req}$ =		mm^2
Shear steel provided	$A_{sv\ prov}$ =		mm^2

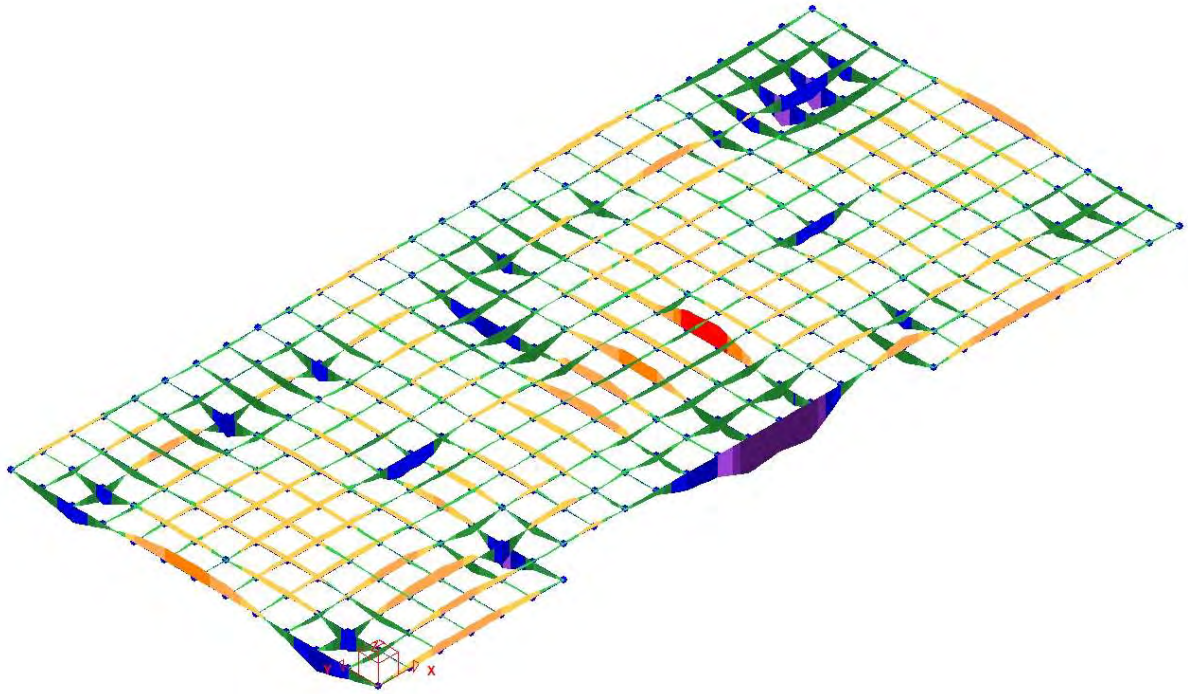
Deflection			
Steel stress	f_s =	163.70	MPa
Modification factor	MF =	1.49	
Modification factor	MF' =		
Min effective depth	d_{min} =	150.92	mm
Deflection check OK			

Therefore 300mm underpinning is satisfactory with B20 bars @ 150 c/c.

6.0 Raft Foundation

The raft foundation has been analyzed as a grillage with nodes and springs to model the soil properties. We have been informed by CGL regarding the spring stiffnesses. A number of models

have been analyzed, with stiffer springs and softer springs and with cracked and uncracked concrete; also soft spot sensitivity analysis has been carried out and the most onerous results have been taken through to the final design of the raft foundation.



Taking the maximum vertical loads from the superstructure the average characteristic bearing pressure is 88kN/m². We have been informed by CGL that a safe bearing capacity of 120kPa can be assumed.

Richard Tant Associates
Consulting Civil & Structural Engineers

March 2023

RT/SMS/5295

Broxwood View
(Previously 29 Barrie House)

Appendix 7
SUDS Confirmation of Approval

For

Attanasio d'Aponte
Arbitrage Broxwood Ltd

5295

March 2023

CONTENTS

Application ref: 2022/1340/P
Contact: Elaine Quigley
Tel: 020 7974 5101
Email: Elaine.Quigley@camden.gov.uk
Date: 31 January 2023

Development Management
Regeneration and Planning
London Borough of Camden
Town Hall
Judd Street
London
WC1H 9JE

Phone: 020 7974 4444

planning@camden.gov.uk
www.camden.gov.uk/planning

Carbogno Ceneda Architects
Angle House, 48a Anthill Road
London
N15 4BA

Dear Sir/Madam

DECISION

Town and Country Planning Act 1990 (as amended)

Approval of Details Granted

Address:
Barrie House
29 St Edmund's Terrace
London
NW8 7QH

Proposal:
Details of sustainable urban drainage (SUDS) required by condition 21 of planning permission 2018/0645/P allowed on appeal (ref APP/X5210/W/19/3240401) dated 19/03/2020 for redevelopment of existing two-storey porter's lodge and surface level car park to construct a part four, part five storey extension to provide 9 self-contained residential flats.
Drawing Nos: Covering letter prepared by Carbogno Ceneda Architects dated 31/10/2022; SuDS Assessment prepared by Motion dated January 2018; Pre-enquiry letter from Thames Water dated 25/03/2022; email from Charlotte Orrell of DP9 dated 01/12/2022.

The Council has considered your application and decided to grant permission.

Informative(s):

1 Reasons for granting approval of details:

Details of the sustainable urban drainage system (SuDS) have been submitted which includes a SuDS assessment and a letter from Thames Water dated

25/03/2022. The report proposes a system of below-ground attenuation located below the proposed car park which will hold surface water before being discharged into the sewer. Permeable paving will be installed for all paved walkways. Following discussions with the applicant, details have also been provided of the named party who will undertake maintenance of the SuDS once it has been built.

A letter from Thames Water has been submitted by the applicant which confirms that there will be sufficient foul and surface water capacity in the sewage network to serve the development and that the proposed surface water discharge rates are satisfactory. The proposed run-off rate of 5 l/s is greater than the greenfield run-off rate of 0.3 l/s but meets the 5 l/s contained in the wording of condition 21.

The information has been reviewed by the Council's sustainability officer who is satisfied with the details. The condition can therefore be discharged.

The planning and appeal history of the site has been taken into account when coming to this decision.

The submitted details are consistent with the general expectations of the approved scheme and are acceptable in all other respects.

As such, the proposed details are in general accordance with policies CC2 and CC3 of the Camden Local Plan 2017.

2 You are reminded that Condition 4 (sample of materials); Condition 7 (obscure glazing); Condition 24 (PV cells); Condition 31 (boundary treatment); Condition 33 (waste storage); Condition 34 (acoustic isolation) of planning permission 2018/0645/P dated 19/03/2020 allowed at appeal (ref APP/X5210/W/19/3240401) are outstanding and require details to be submitted and approved.

3 You are advised that details for Condition 5 (noise assessment); Condition 6 (sound insulation measures); Condition 8 (hard and soft landscaping); Condition 10 (ground investigation); Condition 16 (blue-green roof feasibility assessment); Condition 19 (appointment of qualified chartered engineer); Condition 21 (SuDS); Condition 22 (tree protection measures); Condition 23 (ground source heat pumps); Condition 25 (method statement for piling); Condition 26 (lighting strategy); Condition 27 (bird and bat nesting features); Condition 28 (active birds nest); Condition 29 (landscaping for biodiversity) of planning permission 2018/0645/P allowed at appeal (ref APP/X5210/W/19/3240401) dated 19/03/2020 have been submitted to the Council and are pending consideration.

In dealing with the application, the Council has sought to work with the applicant in a positive and proactive way in accordance with paragraph 38 of the National Planning Policy Framework 2021.

You can find advice about your rights of appeal at:
http://www.planningportal.gov.uk/planning/appeals/guidance/guidancecontent

Yours faithfully

Daniel Pope
Chief Planning Officer

March 2023

RT/SMS/5295

Broxwood View
Appendix 8 – Thames Water – Letter of No Further Comment

Broxwood View
(Previously 29 Barrie House)

Appendix 8
Thames Water Letter of No Further Comment

For

Attanasio d'Aponte
Arbitrage Broxwood Ltd

5295

March 2023

CONTENTS

FAO: Wieland Kreuder

Broxwood View LTD
62 St Martins Lane
London
WC2N 4JS

Developer Services - Asset Protection

Your ref
Our ref X2039/1807 v1
Name Alexandru Birgauan
Phone 07768 801 351
E-Mail alex.birgauan@thameswater.co.uk

04th December 2023

Dear Wieland Kreuder,

RE: Broxwood View, 29 St Edmund's Terrace, NW8 7QH – Letter of No Further Comments on proposed demolition, excavation, piling and construction adjacent to Thames Water's clean water main.

I write to confirm that we have completed the review of your submissions listed below in relation to the proposed development works located adjacent to Thames Water's clean water main.

Based on the information provided, we are satisfied that the proposed works will pose negligible risk to the Thames Water assets, and therefore we have no further comments to make.

Please notify Thames Water of any changes to the design solution as detailed in the submissions below:

a) Report ref: CG/28408B titled "Barrie House, 29 St Edmund's Terrace, London – Thames Water Impact Assessment" Rev 1 produced by Card Geotechnics Limited dated October 2022;
b) Report ref: CG/28408B titled "Barrie House, 29 St Edmund's Terrace, London – Thames Water Emergency Preparedness Plan" Rev 1 produced by Card Geotechnics Limited dated November 2022;
c) Report ref: CG/28408B titled "Barrie House, 29 St Edmund's Terrace, London – Monitoring Movement and Contingency Plan" Rev 1 produced by Card Geotechnics Limited dated November 2022;
d) Drawing no. 5295-TS10 titled "Section 1-1" produced by Carbogno Ceneda Architects dated 27 September 2022;
e) Drawing no. 5295-TS11 titled "Section 2-2" produced by Carbogno Ceneda Architects dated 27 September 2022.

Based on the information presented in the submission, we have no further comments to your proposed development adjacent to Thames Water's 24" cast iron clean water trunk main.

However, the proposal detailed in the documentation listed above is subject to the following conditions:

a) Contractor to contact Thames Water to inform when the below ground works have started and finished.
b) "Real-Time" vibration monitoring is required throughout the demolition phase. The monitoring proposal is to allow for monitor installations as close to the asset alignments as possible, with trigger levels set as follows:
    a. Amber Trigger – 5 mm/s PPV (reportable to Thames Water)

b. Red Trigger – 10 mm/s PPV (reportable to Thames Water and work stops until risk is mitigated

c) The developer shall not place any lifting equipment that will impose point loads greater than the maximum allowable highway loading within the Thames Water asset exclusion zones.

Please be advised that Thames Water will hold **Broxwood View LTD** and any appointed contractors or sub-contractors liable for any losses incurred or damage caused to Thames Water assets arising from the construction and / or subsequent use of the facility.

Yours sincerely,

Alex Birgauan

Alexandru Birgauan
Major Project – Developer Services