



4041

TEST CERTIFICATE

Determination of Unconsolidated Undrained Triaxial Compression

Tested in Accordance with BS1377: Part 7: 1990, clause 8, single specimen

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Client: LMB Geosolutions Ltd
Client Address: 28 Dresden Road
London
N19 3BD
Contact: Philip Lewis
Site Name: Castlewood House
Site Address: Not Given

Client Reference: LMB-CASTLEWOO
Job Number: 18-92021
Date Sampled: 21/06/2018
Date Received: 20/06/2018
Date Tested: 18/07/2018
Sampled By: PIL/DN

Test Result

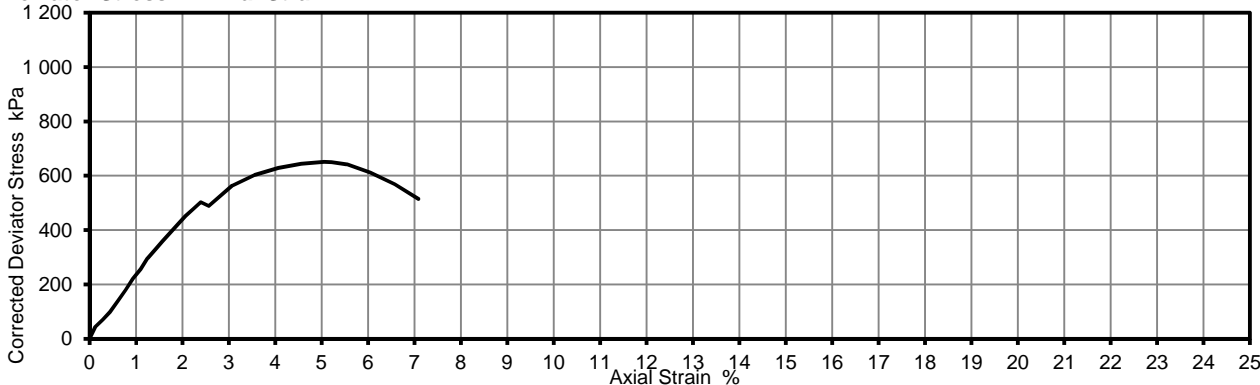
Laboratory Reference: 998216
Hole No.: BHDA104
Sample Reference: Not Given
Sample Description: Brown CLAY

Depth Top [m]: 13.00
Depth Base [m]: Not Given
Sample Type: U

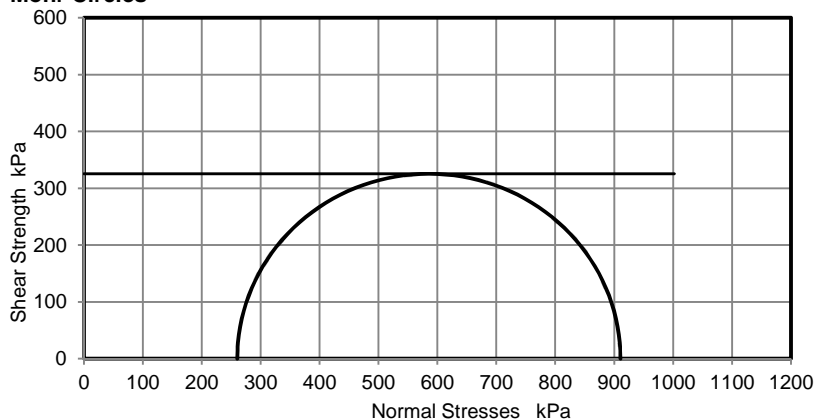
Test Number	1
Length	98.22 mm
Diameter	50.30 mm
Bulk Density	1.98 Mg/m3
Moisture Content	19 %
Dry Density	1.66 Mg/m3
Membrane Correction	0.62 kPa

Rate of Strain	2.00 %/min
Cell Pressure	260 kPa
Axial Strain at failure	5.0 %
Deviator Stress, ($\sigma_1 - \sigma_3$)f	651 kPa
Undrained Shear Strength, cu	325 kPa $\frac{1}{2}(\sigma_1 - \sigma_3)$ f
Mode of Failure	Compound
Membrane thickness	0.22 mm

Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Notes:

Remarks:

Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Comments:

Approved:

Signed:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Darren Berrill
Geotechnical General
Manager

Date Reported: 20/07/2018

for and on behalf of i2 Analytical Ltd

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Site Name: Castlewood House
Site Address: Not Given

Client Reference: LMB-CASTLEWOO
Job Number: 18-92021
Date Sampled: 22/06/2018
Date Received: 20/06/2018
Date Tested: 18/07/2018
Sampled By: PIL/DN

Test Result

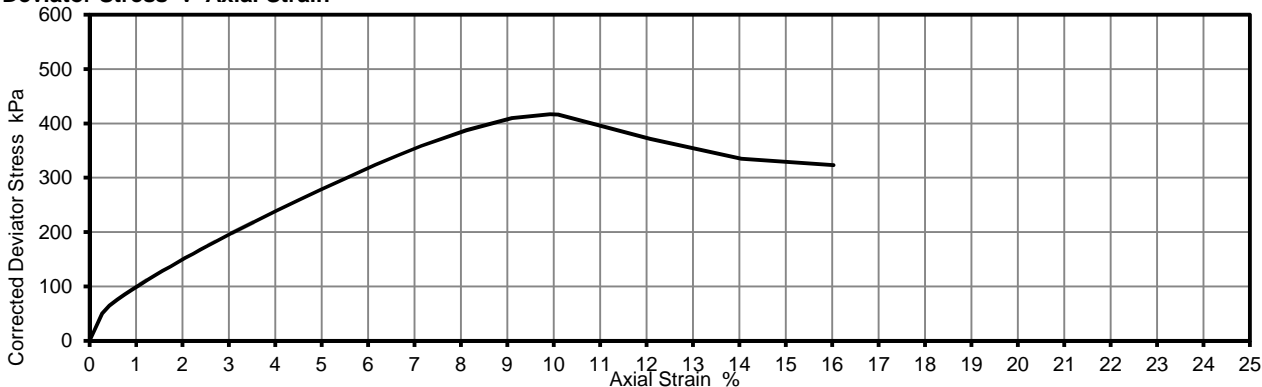
Laboratory Reference: 998218
Hole No.: BHDA104
Sample Reference: Not Given
Sample Description: Brown slightly sandy CLAY

Depth Top [m]: 16.00
Depth Base [m]: Not Given
Sample Type: U

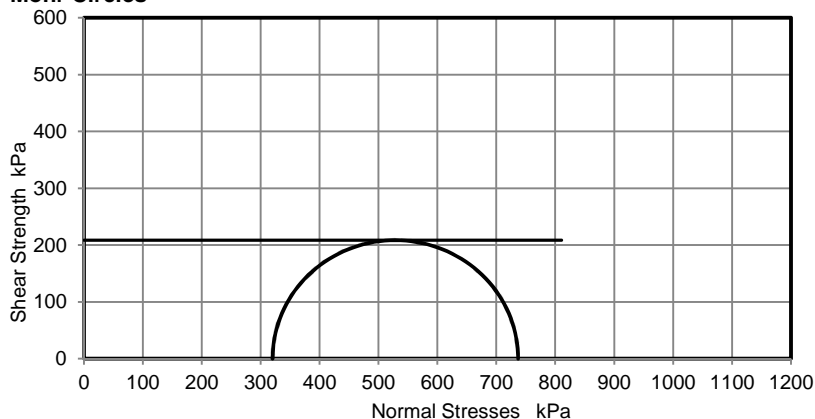
Test Number	1
Length	203.39 mm
Diameter	101.07 mm
Bulk Density	1.90 Mg/m ³
Moisture Content	23 %
Dry Density	1.54 Mg/m ³
Membrane Correction	0.61 kPa

Rate of Strain	1.97 %/min
Cell Pressure	320 kPa
Axial Strain at failure	9.9 %
Deviator Stress, (σ ₁ - σ ₃) _f	417 kPa
Undrained Shear Strength, c _u	208 kPa ½(σ ₁ - σ ₃) _f
Mode of Failure	Compound
Membrane thickness	0.28 mm

Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Notes:

Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
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Date Reported: 20/07/2018

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Contact: Philip Lewis
Site Name: Castlewood House
Site Address: Not Given

Client Reference: LMB-CASTLEWOO
Job Number: 18-92021
Date Sampled: 22/06/2018
Date Received: 20/06/2018
Date Tested: 18/07/2018
Sampled By: PIL/DN

Test Result

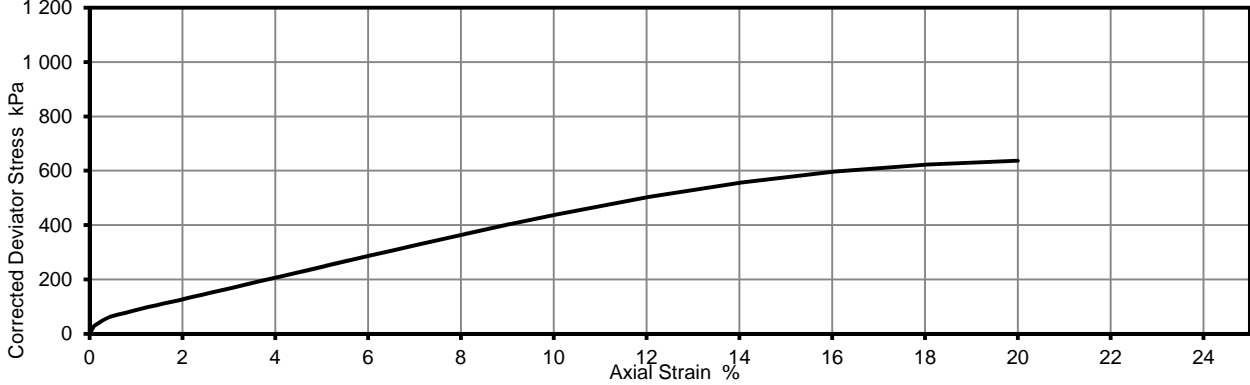
Laboratory Reference: 998219
Hole No.: BHDA104
Sample Reference: Not Given
Sample Description: Brown sandy CLAY

Depth Top [m]: 19.00
Depth Base [m]: Not Given
Sample Type: U

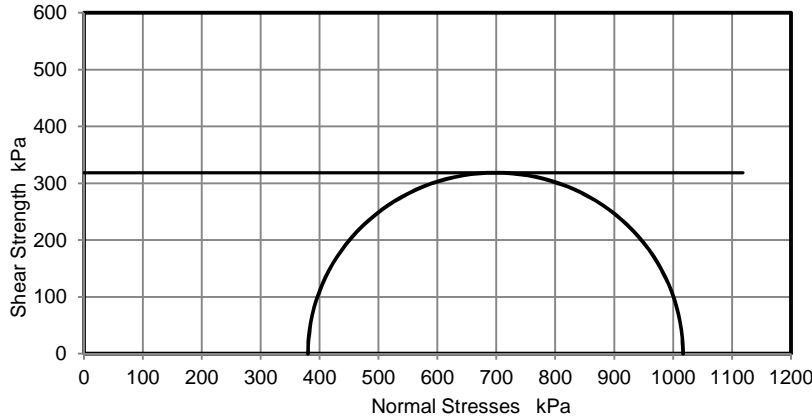
Test Number	1
Length	196.45 mm
Diameter	100.56 mm
Bulk Density	1.77 Mg/m ³
Moisture Content	19 %
Dry Density	1.48 Mg/m ³
Membrane Correction	0.92 kPa

Rate of Strain	2.00 %/min
Cell Pressure	380 kPa
Axial Strain at failure	20.0 %
Deviator Stress, (σ ₁ - σ ₃) _f	637 kPa
Undrained Shear Strength, c _u	318 kPa ½(σ ₁ - σ ₃) _f
Mode of Failure	Compound
Membrane thickness	0.24 mm

Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Notes:

Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
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Contact: Philip Lewis
Site Name: Castlewood House
Site Address: Not Given

Client Reference: LMB-CASTLEWOO
Job Number: 18-92021
Date Sampled: 22/06/2018
Date Received: 20/06/2018
Date Tested: 18/07/2018
Sampled By: PIL/DN

Test Result

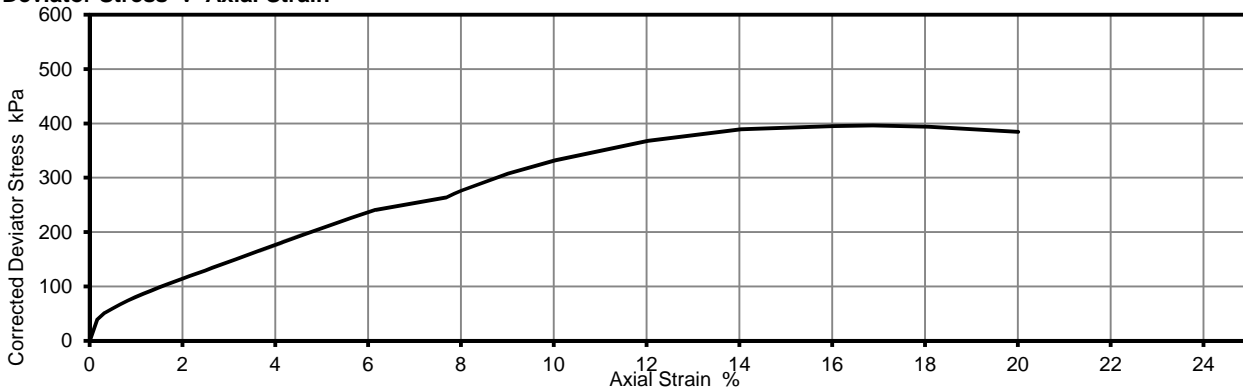
Laboratory Reference: 998220
Hole No.: BHDA104
Sample Reference: Not Given
Sample Description: Brown sandy CLAY

Depth Top [m]: 22.00
Depth Base [m]: Not Given
Sample Type: U

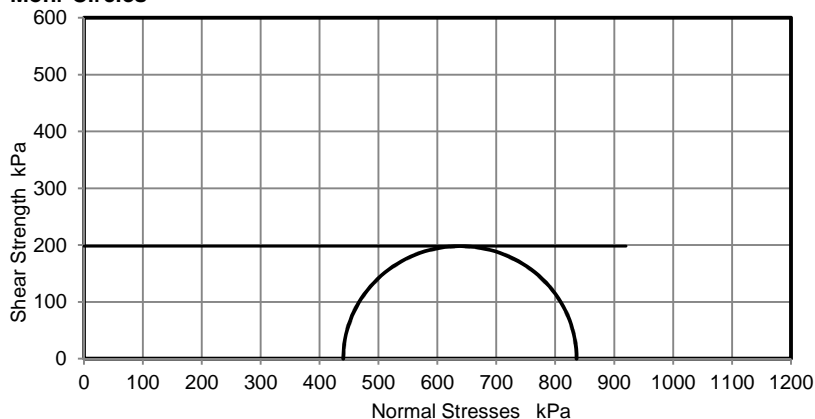
Test Number	1
Length	198.37 mm
Diameter	100.78 mm
Bulk Density	1.79 Mg/m ³
Moisture Content	19 %
Dry Density	1.51 Mg/m ³
Membrane Correction	0.76 kPa

Rate of Strain	2.00 %/min
Cell Pressure	440 kPa
Axial Strain at failure	16.9 %
Deviator Stress, (σ ₁ - σ ₃) _f	396 kPa
Undrained Shear Strength, c _u	198 kPa ½(σ ₁ - σ ₃) _f
Mode of Failure	Compound
Membrane thickness	0.23 mm

Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Notes:

Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
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APPENDICES

APPENDIX D MONITORING RESULTS

PROJECT: Castlewood House & Medius House

Date 13/07/2018 Operator Josh Davidson

Atmospheric Pressure (mb) Start 1020 Weather Cloudy 17C
 Finish 1021

Location	Time	CH ₄	CO ₂	O ₂	Flow (l/hr)	PID (ppm)	Groundwater Level		Ground Elevation
							m bgl	mAOD	
BHDA-101	60	0.00	0.20	16.70	0.10	13.90	3.50		
	120	0.00	0.20	16.70					
	240	0.00	0.20	16.70					
BHDA-102	60	0.00	0.10	19.90	0.10	1.60	3.38		
	120	0.00	0.10	19.90					
	240	0.00	0.10	19.90					
BHDA-103	60	0.00	0.20	19.80	0.10	7.10	3.30		
	120	0.00	0.20	19.80					
	240	0.00	0.20	19.80					
BHDA-104	60	0.00	1.80	17.50	0.00	9.00	4.10		
	120	0.00	1.80	17.50					
	240	0.00	1.80	17.50					
0	60								
	120								
	240								
0	60								
	120								
	240								
0	60								
	120								
	240								
0	60								
	120								
	240								
0	60								
	120								
	240								
0	60								
	120								
	240								

PROJECT: Castlewood House & Medius House

Date 20/07/2018 Operator Josh Davidson

Atmospheric Pressure (mb) Start 1012 Finish 1012 Weather Sunny with cloud (26°C)

Location	Time	CH ₄	CO ₂	O ₂	Flow (l/hr)	PID (ppm)	Groundwater Level		Ground Elevation
							m bgl	mAOD	
BHDA-101	60	0.10	0.50	17.60	0.00	11.30	3.53		
	120	0.10	0.50	17.60					
	240	0.10	0.50	17.60					
BHDA-102	60	0.10	0.10	19.90	0.00	1.00	3.38		
	120	0.10	0.10	19.90					
	240	0.10	0.10	19.90					
BHDA-103	60	0.00	0.10	19.70	0.00	4.80	3.31		
	120	0.00	0.10	19.70					
	240	0.00	0.10	19.70					
BHDA-104	60	0.10	1.80	17.80	0.00	7.50	3.13		
	120	0.10	1.80	17.80					
	240	0.10	1.80	17.80					
0	60								
	120								
	240								
0	60								
	120								
	240								
0	60								
	120								
	240								
0	60								
	120								
	240								
0	60								
	120								
	240								
0	60								
	120								
	240								

PROJECT: Castlewood House & Medius House

Date 01/08/2018 Operator Philip Lewis

Atmospheric Pressure (mb) Start 1018 Finish 1016 Weather sunny with cloud patches

Location	Time	CH ₄	CO ₂	O ₂	Flow (l/hr)	PID (ppm)	Groundwater Level		Ground Elevation
							m bgl	mAOD	
BHDA-101	60	0.00	0.80	17.70	0.00	0.80	3.52		
	120	0.00	0.80	17.70					
	240	0.00	0.80	17.70					
BHDA-102	60	0.00	0.10	20.70	0.00	0.00	3.39		
	120	0.00	0.10	20.70					
	240	0.00	0.10	20.70					
BHDA-103	60	0.00	0.10	20.80	0.00	0.50	3.30		
	120	0.00	0.10	20.80					
	240	0.00	0.10	20.80					
BHDA-104	60	0.00	1.30	18.70	0.00	0.00	3.12		
	120	0.00	1.30	18.70					
	240	0.00	1.30	18.70					
0	60								
	120								
	240								
0	60								
	120								
	240								
0	60								
	120								
	240								
0	60								
	120								
	240								
0	60								
	120								
	240								
0	60								
	120								
	240								

LMB Geosolutions Ltd**PROJECT:** Castlewood House & Medius House**Title:** Summary of Groundwater Monitoring Results

Location	Screened Lithology	Depth to Groundwater (m bgl)		
		13/07/2018	20/07/2018	01/08/2018
BHDA-101 (shallow)	MG / LHG	3.5	3.53	3.52
BHDA-101 (deep)	LG	29.7	29.5	29.4
BHDA-102 (shallow)	LHG	3.95	3.95	3.93
BHDA-102 (deep)	LC	12.12	12.08	12.1
BHDA-103 (shallow)	MG / LHG	3.3	3.31	3.3
BHDA-103 (deep)	LC	3.53	3.36	3.35
BHDA-104 (shallow)	MG / LHG	3.11	3.13	3.12
BHDA-104 (deep)	LG	20.24	20.25	20.3

MG Made Ground
LHG Lynch Hill Gravel Member
LC London Clay Formation
LG Lambeth Group

APPENDICES

APPENDIX E SPT CALIBRATION CERTIFICATES