TEST CERTIFICATE

Determination of Unconsolidated Undrained Triaxial Compression

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

UKAS TESTING 4041

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

Client:	LMB Geosolutions Ltd	Client Reference:	LMB-CASTLEWOO
Client Address:	28 Dresden Road London N19 3BD	Job Number:	18-92021
		Date Sampled:	18/06/2018
		Date Received:	20/06/2018
Contact:	Philip Lewis	Date Tested:	17/07/2018
Site Name:	Castlewood House	Sampled By:	PIL/DN
Site Address:	Not Given		

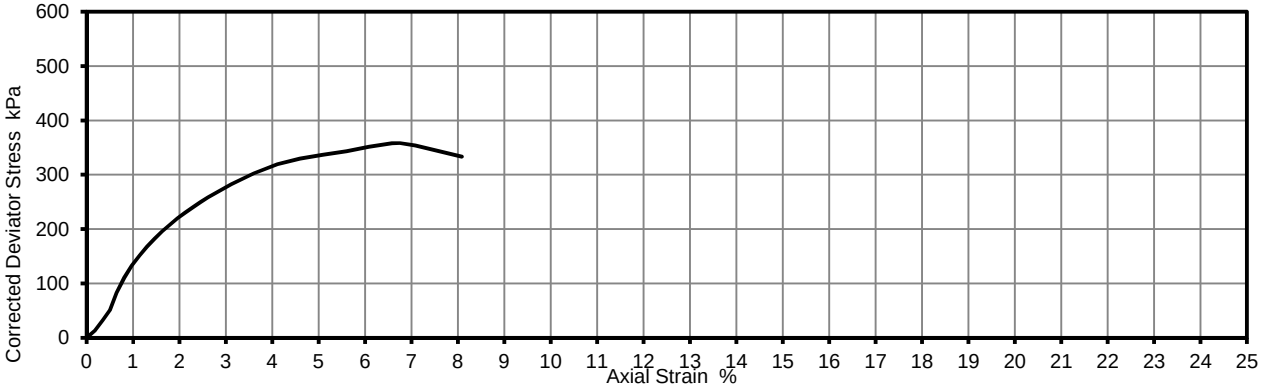
Test Result

Laboratory Reference: 998185
Hole No.: BHDA102
Sample Reference: Not Given
Sample Description: Brown CLAY

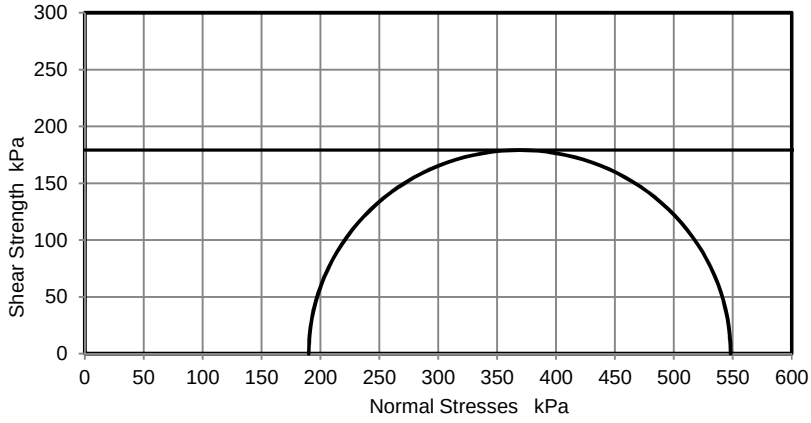
Depth Top [m]: 9.50
Depth Base [m]: Not Given
Sample Type: U

Test Number	1		Rate of Strain	1.98	%/min
Length	201.66	mm	Cell Pressure	190	kPa
Diameter	102.91	mm	Axial Strain at failure	6.8	%
Bulk Density	1.96	Mg/m3	Deviator Stress, (σ1 - σ3)f	358	kPa
Moisture Content	24	%	Undrained Shear Strength, cu	179	kPa ½(σ1 - σ3)f
Dry Density	1.58	Mg/m3	Mode of Failure	Brittle	
Membrane Correction	0.45	kPa	Membrane thickness	0.27	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
Geotechnical Section

Signed:

Darren Berrill
Geotechnical General Manager

Date Reported: 20/07/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

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

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Client Address:	28 Dresden Road London N19 3BD	Job Number:	18-92021
		Date Sampled:	18/06/2018
		Date Received:	20/06/2018
Contact:	Philip Lewis	Date Tested:	17/07/2018
Site Name:	Castlewood House	Sampled By:	PIL/DN
Site Address:	Not Given		

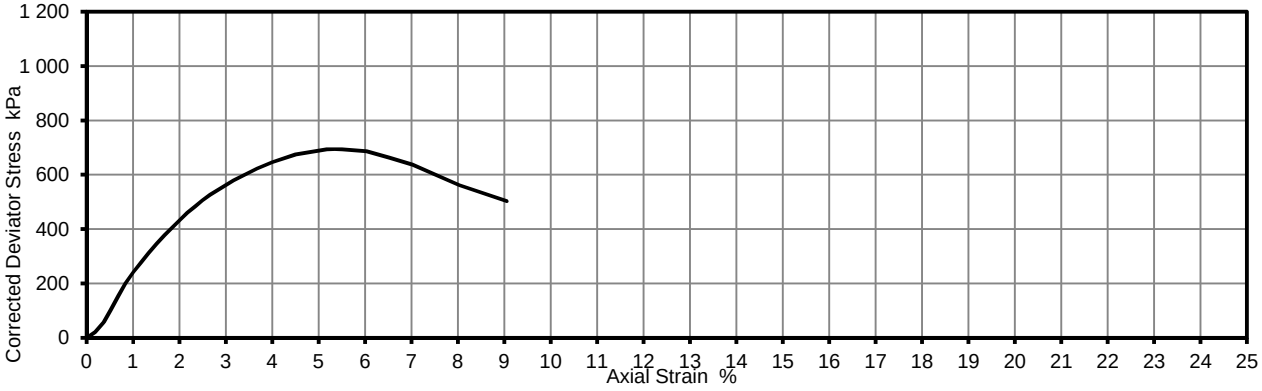
Test Result

Laboratory Reference: 998186
Hole No.: BHDA102
Sample Reference: Not Given
Sample Description: Brown CLAY

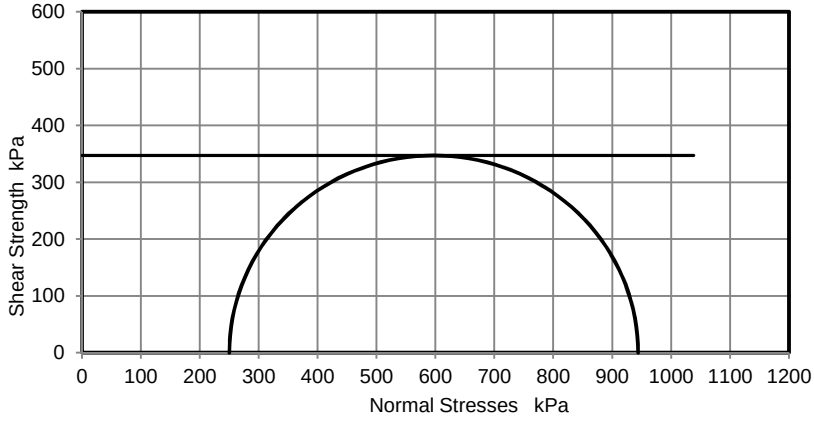
Depth Top [m]: 12.50
Depth Base [m]: Not Given
Sample Type: U

Test Number	1		Rate of Strain	2.00	%/min
Length	136.36	mm	Cell Pressure	250	kPa
Diameter	70.31	mm	Axial Strain at failure	5.3	%
Bulk Density	2.00	Mg/m3	Deviator Stress, (σ1 - σ3)f	694	kPa
Moisture Content	23	%	Undrained Shear Strength, cu	347	kPa ½(σ1 - σ3)f
Dry Density	1.62	Mg/m3	Mode of Failure	Compound	
Membrane Correction	0.59	kPa	Membrane thickness	0.28	mm

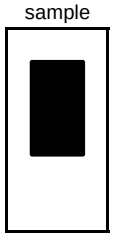
Deviator Stress v Axial Strain



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
Geotechnical Section

Signed:

Darren Berrill
Geotechnical General Manager

Date Reported: 20/07/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Unconsolidated Undrained Triaxial Compression

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

UKAS TESTING 4041

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

Client:	LMB Geosolutions Ltd	Client Reference:	LMB-CASTLEWOO
Client Address:	28 Dresden Road London N19 3BD	Job Number:	18-92021
		Date Sampled:	19/06/2018
		Date Received:	20/06/2018
Contact:	Philip Lewis	Date Tested:	18/07/2018
Site Name:	Castlewood House	Sampled By:	PIL/DN
Site Address:	Not Given		

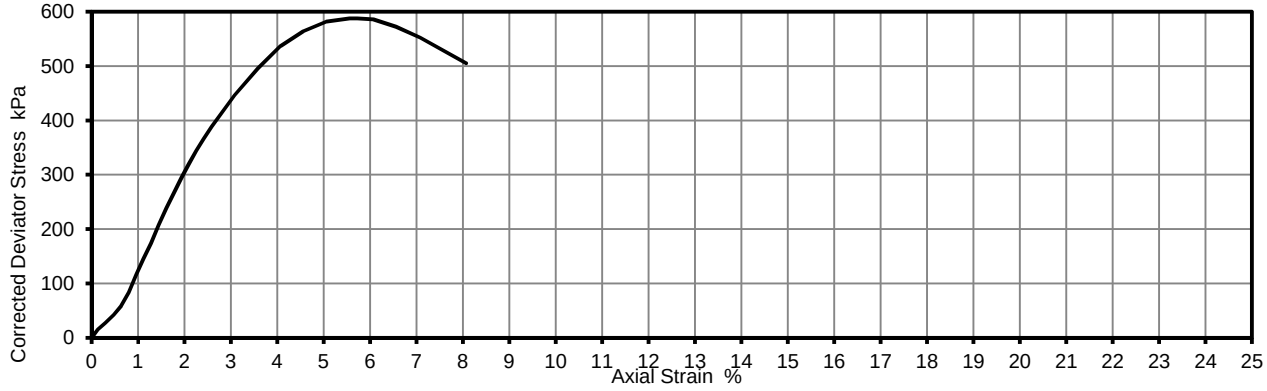
Test Result

Laboratory Reference: 998187
Hole No.: BHDA102
Sample Reference: Not Given
Sample Description: Brown sandy CLAY

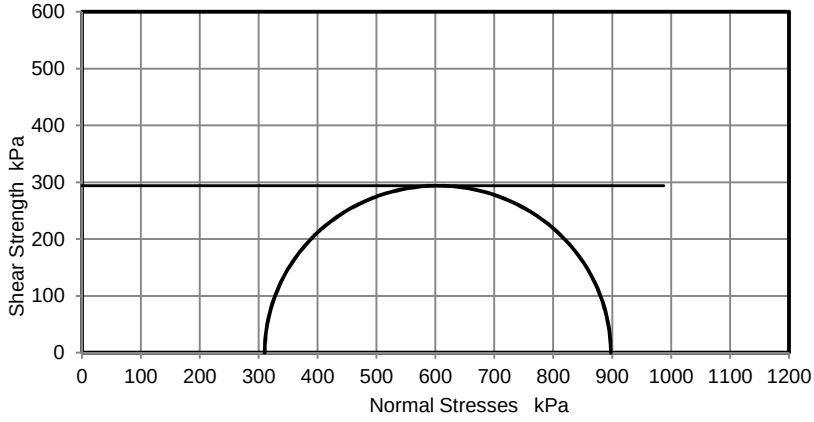
Depth Top [m]: 15.50
Depth Base [m]: Not Given
Sample Type: U

Test Number	1		Rate of Strain	2.00	%/min
Length	96.90	mm	Cell Pressure	310	kPa
Diameter	50.62	mm	Axial Strain at failure	5.7	%
Bulk Density	1.98	Mg/m3	Deviator Stress, (σ1 - σ3)f	588	kPa
Moisture Content	29	%	Undrained Shear Strength, cu	294	kPa ½(σ1 - σ3)f
Dry Density	1.54	Mg/m3	Mode of Failure	Brittle	
Membrane Correction	0.70	kPa	Membrane thickness	0.23	mm

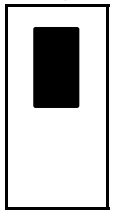
Deviator Stress v Axial Strain



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
Geotechnical Section

Signed:

Darren Berrill
Geotechnical General Manager

Date Reported: 20/07/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Unconsolidated Undrained Triaxial Compression

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

UKAS TESTING 4041

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

Client:	LMB Geosolutions Ltd	Client Reference:	LMB-CASTLEWOO
Client Address:	28 Dresden Road London N19 3BD	Job Number:	18-92021
		Date Sampled:	19/06/2018
		Date Received:	20/06/2018
Contact:	Philip Lewis	Date Tested:	17/07/2018
Site Name:	Castlewood House	Sampled By:	PIL/DN
Site Address:	Not Given		

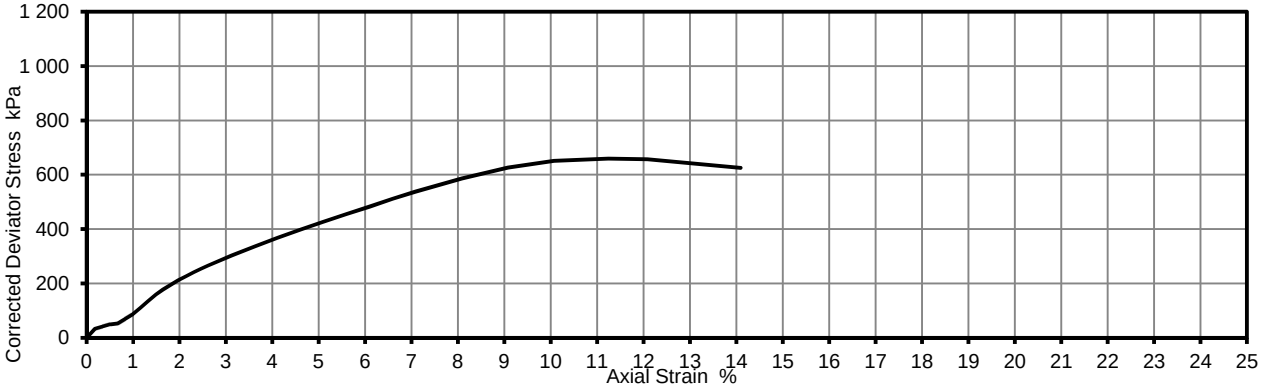
Test Result

Laboratory Reference: 998189
Hole No.: BHDA102
Sample Reference: Not Given
Sample Description: Brown CLAY

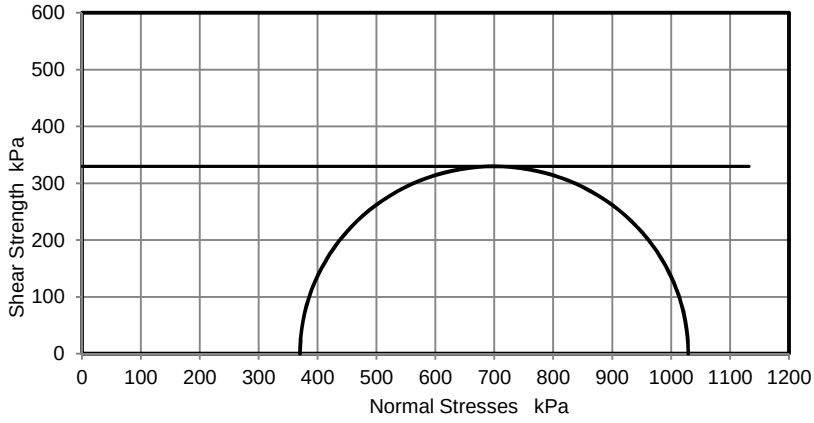
Depth Top [m]: 18.50
Depth Base [m]: Not Given
Sample Type: U

Test Number	1		Rate of Strain	2.00	%/min
Length	182.56	mm	Cell Pressure	370	kPa
Diameter	102.98	mm	Axial Strain at failure	11.2	%
Bulk Density	2.03	Mg/m3	Deviator Stress, (σ1 - σ3)f	659	kPa
Moisture Content	20	%	Undrained Shear Strength, cu	330	kPa ½(σ1 - σ3)f
Dry Density	1.70	Mg/m3	Mode of Failure	Compound	
Membrane Correction	0.57	kPa	Membrane thickness	0.24	mm

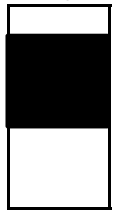
Deviator Stress v Axial Strain



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
Geotechnical Section

Signed:

Darren Berrill
Geotechnical General Manager

Date Reported: 20/07/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Unconsolidated Undrained Triaxial Compression

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

UKAS TESTING 4041

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

Client:	LMB Geosolutions Ltd	Client Reference:	LMB-CASTLEWOO
Client Address:	28 Dresden Road London N19 3BD	Job Number:	18-92021
		Date Sampled:	19/06/2018
		Date Received:	20/06/2018
Contact:	Philip Lewis	Date Tested:	17/07/2018
Site Name:	Castlewood House	Sampled By:	PIL/DN
Site Address:	Not Given		

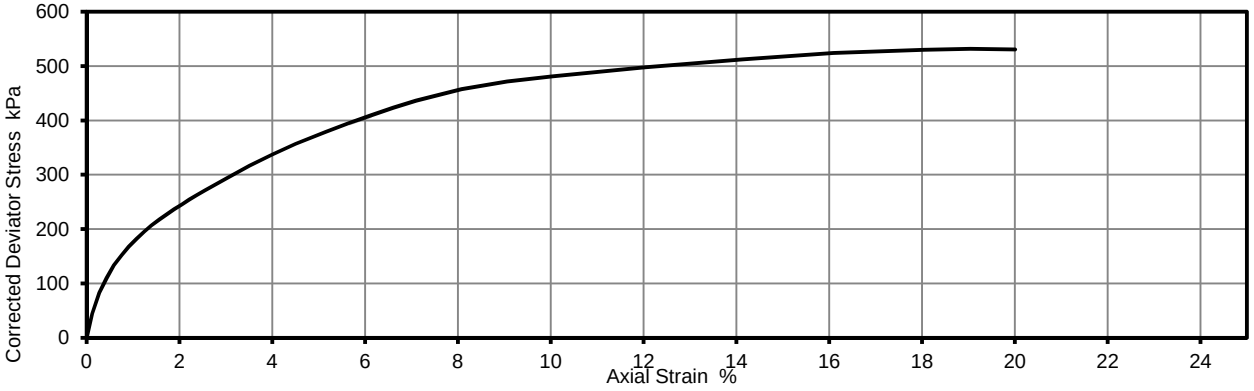
Test Result

Laboratory Reference: 998190
Hole No.: BHDA102
Sample Reference: Not Given
Sample Description: Brown gravelly slightly sandy CLAY

Depth Top [m]: 21.50
Depth Base [m]: Not Given
Sample Type: U

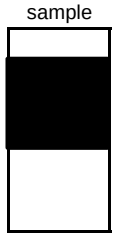
Test Number	1		Rate of Strain	1.95	%/min	
Length	204.63	mm	Cell Pressure	430	kPa	
Diameter	104.42	mm	Axial Strain at failure	19.0	%	
Bulk Density	2.01	Mg/m3	Deviator Stress, (σ1 - σ3)f	532	kPa	
Moisture Content	22	%	Undrained Shear Strength, cu	266	kPa	½(σ1 - σ3)f
Dry Density	1.65	Mg/m3	Mode of Failure	Compound		
Membrane Correction	0.81	kPa	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
Geotechnical Section

Signed:

Darren Berrill
Geotechnical General Manager

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Client Address:	28 Dresden Road London N19 3BD	Job Number:	18-92021
		Date Sampled:	19/06/2018
		Date Received:	20/06/2018
Contact:	Philip Lewis	Date Tested:	17/07/2018
Site Name:	Castlewood House	Sampled By:	PIL/DN
Site Address:	Not Given		

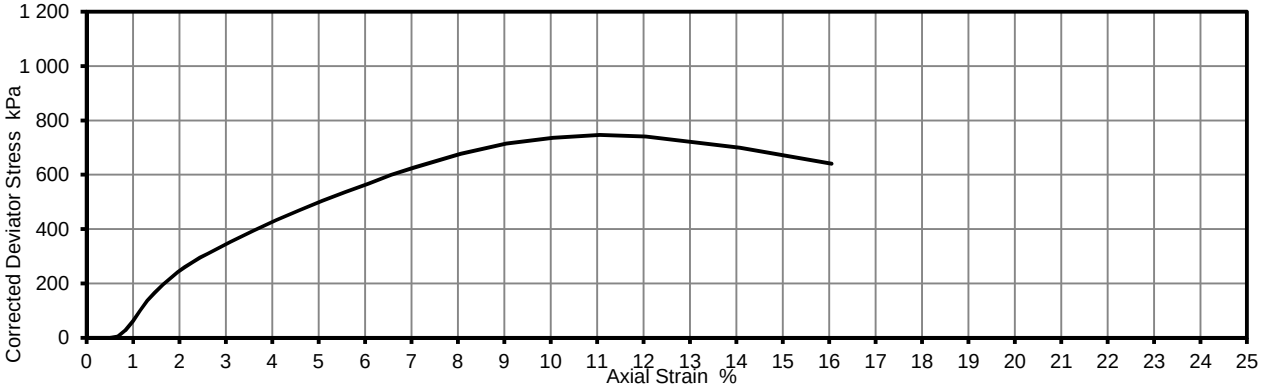
Test Result

Laboratory Reference: 998191
Hole No.: BHDA102
Sample Reference: Not Given
Sample Description: Brown gravelly CLAY

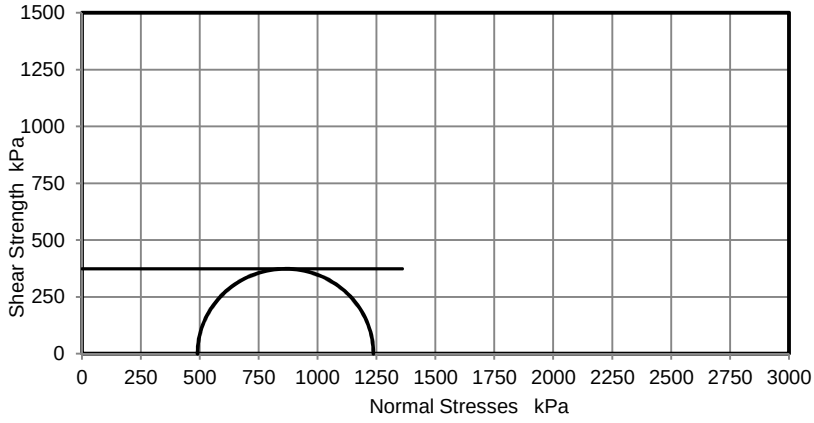
Depth Top [m]: 24.50
Depth Base [m]: Not Given
Sample Type: U

Test Number	1		Rate of Strain	2.00	%/min
Length	198.65	mm	Cell Pressure	490	kPa
Diameter	103.39	mm	Axial Strain at failure	11.1	%
Bulk Density	2.04	Mg/m3	Deviator Stress, (σ1 - σ3)f	746	kPa
Moisture Content	19	%	Undrained Shear Strength, cu	373	kPa ½(σ1 - σ3)f
Dry Density	1.72	Mg/m3	Mode of Failure	Compound	
Membrane Correction	0.53	kPa	Membrane thickness	0.23	mm

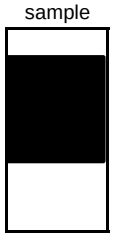
Deviator Stress v Axial Strain



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
Geotechnical Section

Signed:

Darren Berrill
Geotechnical General Manager

Date Reported: 20/07/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Unconsolidated Undrained Triaxial Compression

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

UKAS TESTING 4041

i2 Analytical Ltd
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Croxley Green Business Park
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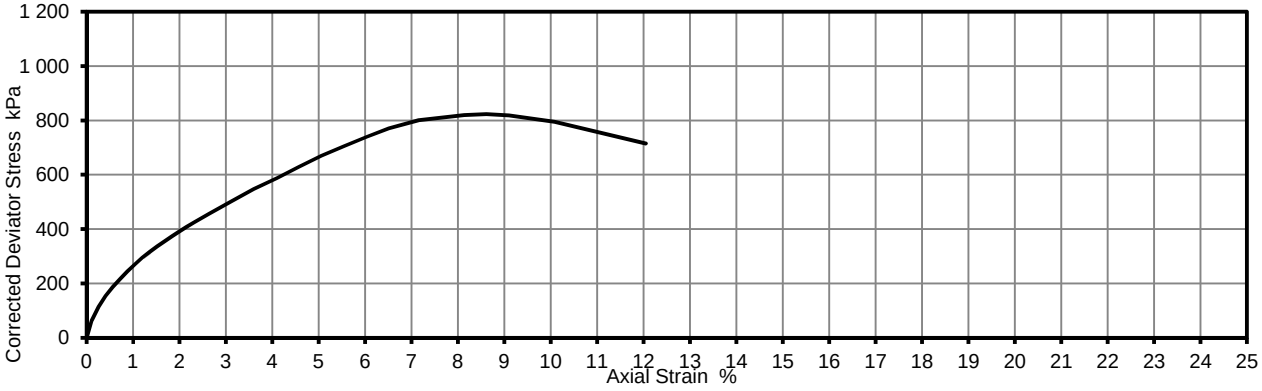
Client Address:	28 Dresden Road London N19 3BD	Job Number:	18-92021
		Date Sampled:	21/06/2018
		Date Received:	20/06/2018
Contact:	Philip Lewis	Date Tested:	17/07/2018
Site Name:	Castlewood House	Sampled By:	PIL/DN
Site Address:	Not Given		

Test Result

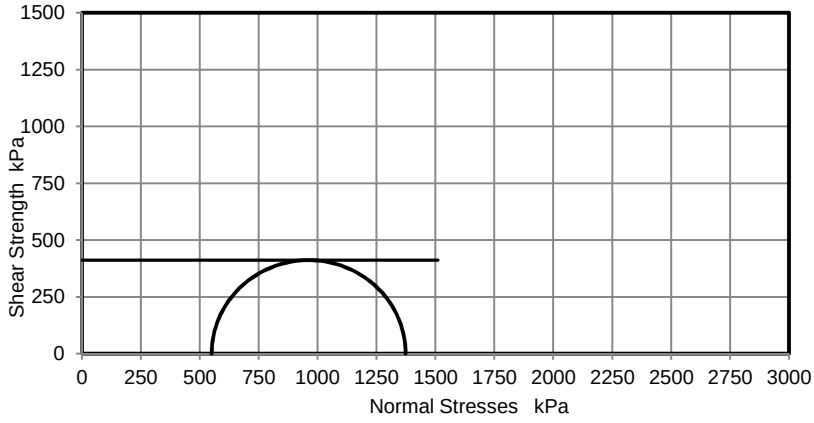
Laboratory Reference:	998193	Depth Top [m]:	27.50
Hole No.:	BHDA102	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Multicolour CLAY		

Test Number	1		Rate of Strain	1.96	%/min	
Length	204.54	mm	Cell Pressure	550	kPa	
Diameter	102.97	mm	Axial Strain at failure	8.6	%	
Bulk Density	2.08	Mg/m3	Deviator Stress, (σ1 - σ3)f	823	kPa	
Moisture Content	19	%	Undrained Shear Strength, cu	412	kPa	½(σ1 - σ3)f
Dry Density	1.75	Mg/m3	Mode of Failure	Compound		
Membrane Correction	0.54	kPa	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
Geotechnical Section

Signed:

Darren Berrill
Geotechnical General Manager

Date Reported: 20/07/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

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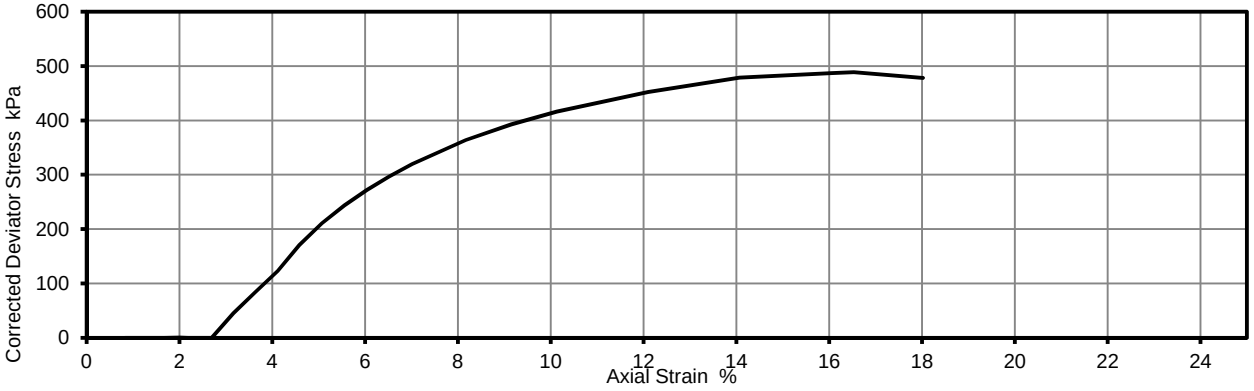
Client:	LMB Geosolutions Ltd	Client Reference:	LMB-CASTLEWOO
Client Address:	28 Dresden Road London N19 3BD	Job Number:	18-92021
		Date Sampled:	21/06/2018
		Date Received:	20/06/2018
Contact:	Philip Lewis	Date Tested:	17/07/2018
Site Name:	Castlewood House	Sampled By:	PIL/DN
Site Address:	Not Given		

Test Result

Laboratory Reference:	998194	Depth Top [m]:	30.50
Hole No.:	BHDA102	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Grey to reddish brown CLAY		

Test Number	1		Rate of Strain	1.98	%/min	
Length	202.32	mm	Cell Pressure	610	kPa	
Diameter	103.25	mm	Axial Strain at failure	16.5	%	
Bulk Density	1.90	Mg/m3	Deviator Stress, (σ1 - σ3)f	488	kPa	
Moisture Content	24	%	Undrained Shear Strength, cu	244	kPa	½(σ1 - σ3)f
Dry Density	1.53	Mg/m3	Mode of Failure	Brittle		
Membrane Correction	0.92	kPa	Membrane thickness	0.29	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
Geotechnical Section

Signed:

Darren Berrill
Geotechnical General Manager

Date Reported: 20/07/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Unconsolidated Undrained Triaxial Compression

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

UKAS TESTING 4041

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

Client:	LMB Geosolutions Ltd	Client Reference:	LMB-CASTLEWOO
Client Address:	28 Dresden Road London N19 3BD	Job Number:	18-92021
		Date Sampled:	21/06/2018
		Date Received:	20/06/2018
Contact:	Philip Lewis	Date Tested:	17/07/2018
Site Name:	Castlewood House	Sampled By:	PIL/DN
Site Address:	Not Given		

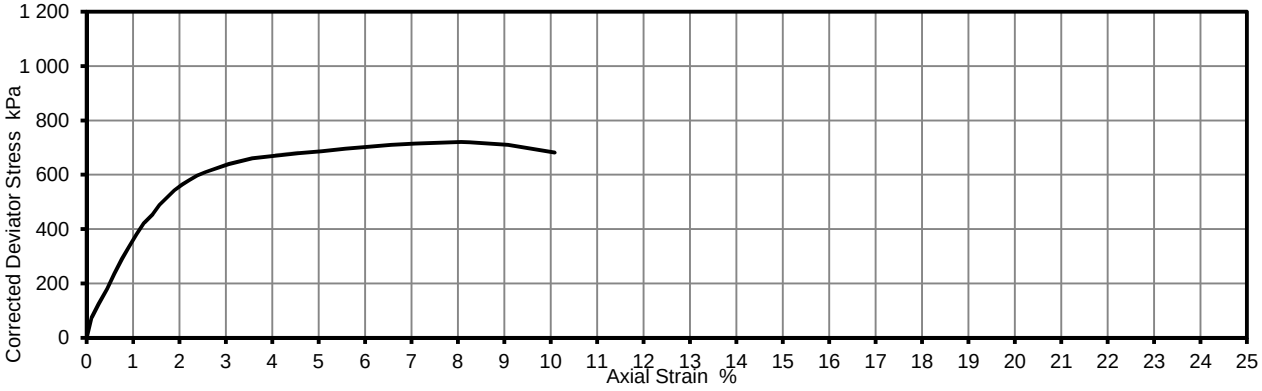
Test Result

Laboratory Reference: 998195
Hole No.: BHDA102
Sample Reference: Not Given
Sample Description: Mottled grey CLAY

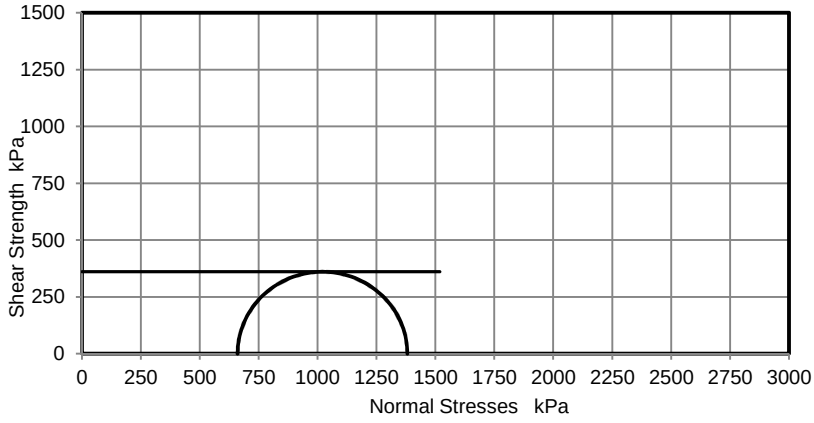
Depth Top [m]: 33.00
Depth Base [m]: Not Given
Sample Type: D

Test Number	1		Rate of Strain	2.00	%/min
Length	96.18	mm	Cell Pressure	660	kPa
Diameter	50.16	mm	Axial Strain at failure	8.1	%
Bulk Density	2.01	Mg/m3	Deviator Stress, (σ1 - σ3)f	720	kPa
Moisture Content	27	%	Undrained Shear Strength, cu	360	kPa ½(σ1 - σ3)f
Dry Density	1.59	Mg/m3	Mode of Failure	Brittle	
Membrane Correction	0.76	kPa	Membrane thickness	0.20	mm

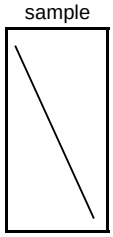
Deviator Stress v Axial Strain



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:

Unable to determine orientation

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

Darren Berrill
Geotechnical General Manager

Date Reported: 20/07/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Unconsolidated Undrained Triaxial Compression

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

UKAS TESTING 4041

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

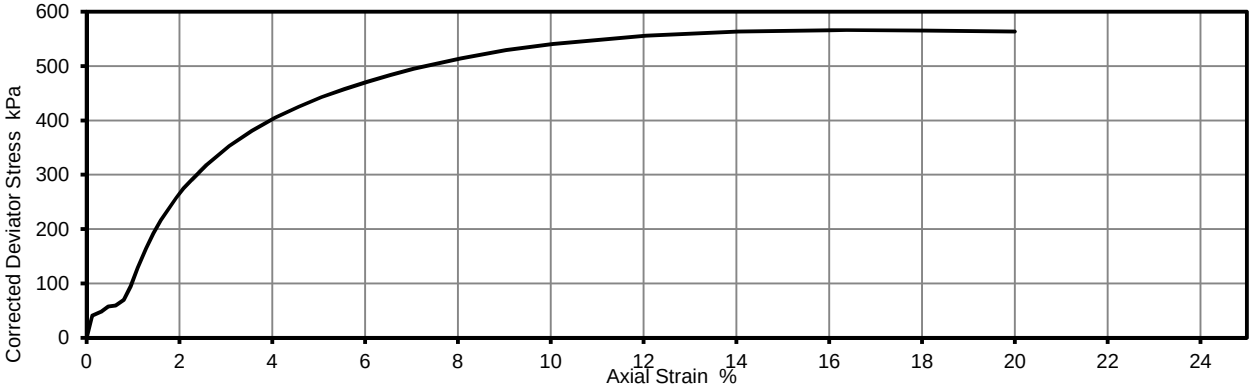
Client:	LMB Geosolutions Ltd	Client Reference:	LMB-CASTLEWOO
Client Address:	28 Dresden Road London N19 3BD	Job Number:	18-92021
		Date Sampled:	21/06/2018
		Date Received:	20/06/2018
Contact:	Philip Lewis	Date Tested:	17/07/2018
Site Name:	Castlewood House	Sampled By:	PIL/DN
Site Address:	Not Given		

Test Result

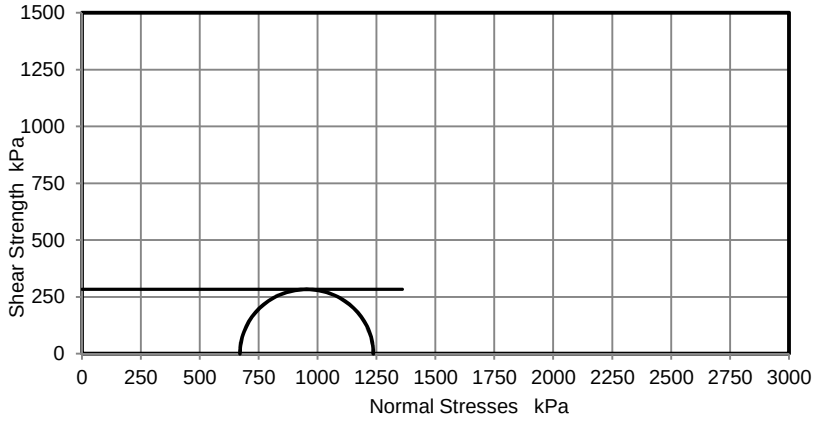
Laboratory Reference:	998196	Depth Top [m]:	33.50
Hole No.:	BHDA102	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Multicolour CLAY		

Test Number	1		Rate of Strain	2.00	%/min	
Length	175.25	mm	Cell Pressure	670	kPa	
Diameter	102.05	mm	Axial Strain at failure	16.4	%	
Bulk Density	2.05	Mg/m3	Deviator Stress, (σ1 - σ3)f	566	kPa	
Moisture Content	22	%	Undrained Shear Strength, cu	283	kPa	½(σ1 - σ3)f
Dry Density	1.68	Mg/m3	Mode of Failure	Compound		
Membrane Correction	0.96	kPa	Membrane thickness	0.30	mm	

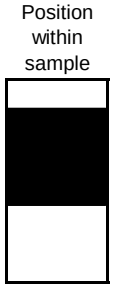
Deviator Stress v Axial Strain



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
Geotechnical Section

Signed:

Darren Berrill
Geotechnical General Manager

Date Reported: 20/07/2018

for and on behalf of i2 Analytical Ltd