

TRIAL PIT LOG



Project Southall Advanced Earthworks				TRIAL PIT No TP01
Job No CGN03732D	Date 24-02-17	Ground Level (m) 34.29	Co-Ordinates (m) E 510,905.2 N 179,497.5	
Client CSPL				Sheet 1 of 1

SAMPLES & TESTS			Water	STRATA		
Depth (m)	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	DESCRIPTION
2.60 2.60 2.60 2.60 2.60	B1 D1 ES1 B2 D2					MADE GROUND. Light to dark brown slightly sandy slightly gravelly slightly clayey SILT. Gravel is fine to coarse, angular to rounded of flint. Occasional lumps of clay with shell fragments. Frequent fragments of brick, glass, plastic, wood, metal, and polystyrene.
3.50 3.50	ES2 B3			30.79		(Pit terminated at 3.5m)

Plan	General Remarks
Stability:	1. Samples: B - Bulk, D - Disturbed, ES - Environmental Sample. 2. No visual or olfactory evidence of contamination observed. 3. Pit sides were stable. 4. No groundwater encountered during excavation. 5. Pit terminated as a competent stratum was reached and to avoid breaching groundwater table. 6. Trial pit backfilled with arisings upon completion.

Method/ Plant Used	Field Crew	Logged By	Checked By
Tracked Excavator	Supplied by Client	ALD	BEJ

CGL TP LOG CGN03732D.GPJ GINT STD AGS 3.1.GDT 16/5/17

TRIAL PIT LOG



Project Southall Advanced Earthworks				TRIAL PIT No TP02
Job No CGN03732D	Date 24-02-17	Ground Level (m) 32.78	Co-Ordinates (m) E 510,887.9 N 179,507.4	
Client CSPL				Sheet 1 of 1

SAMPLES & TESTS			Water	STRATA		
Depth (m)	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	DESCRIPTION
0.60 0.60	B1 ES1					MADE GROUND. Light to dark brown slightly sandy slightly gravelly slightly clayey SILT. Gravel is fine to coarse, angular to rounded of flint. Occasional lumps of clay with shell fragments. Frequent fragments of brick, glass, plastic, wood, metal, and polystyrene.
1.00	D1					
1.50	B2					
2.50 2.50 2.50	D2 D3 D4					
3.20	ES2					2.80 Becoming dark brown
3.60 3.60	B3 B4			28.98		3.80 (Pit terminated at 3.8m)

Plan	General Remarks
Stability:	1. Samples: B - Bulk, D - Disturbed, ES - Environmental Sample. 2. No visual or olfactory evidence of contamination observed. 3. Pit sides were stable. 4. No groundwater encountered during excavation. 5. Pit terminated as a competent stratum was reached and to avoid breaching groundwater table. 6. Trial pit backfilled with arisings upon completion.

Method/ Plant Used	Field Crew	Logged By	Checked By
Tracked Excavator	Supplied by Client	ALD	BEJ

CGL TP LOG CGN03732D GPU GINT STD AGS 3.1 GDT 16/5/17

TRIAL PIT LOG



Project Southall Advanced Earthworks				TRIAL PIT No TP03
Job No CGN03732D	Date 24-02-17	Ground Level (m) 30.11	Co-Ordinates (m) E 510,901.4 N 179,522.5	
Client CSPL				Sheet 1 of 1

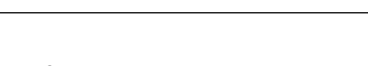
SAMPLES & TESTS			Water	STRATA		
Depth (m)	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	DESCRIPTION
0.60 0.60 0.80	B1 D1 ES1					MADE GROUND. Light to dark brown slightly sandy slightly gravelly slightly clayey SILT. Gravel is fine to coarse, angular to rounded of flint. Occasional lumps of clay with shell fragments. Frequent fragments of brick, glass, plastic, wood, metal, and polystyrene.
1.00	D2			29.01		1.10
1.50 1.50 1.50 1.70 1.70	B2 ES2 D3 B3 D4			28.31		1.80
						(Pit terminated at 1.8m)

Plan	General Remarks
Stability:	1. Samples: B - Bulk, D - Disturbed, ES - Environmental Sample. 2. No visual or olfactory evidence of contamination observed. 3. Pit sides were stable. 4. Slight groundwater inflow at 1.7m below ground level. 5. Pit terminated as a competent stratum was reached and to avoid breaching groundwater table. 6. Trial pit backfilled with arisings upon completion.

Method/ Plant Used	Field Crew	Logged By	Checked By
Tracked Excavator	Supplied by Client	ALD	BEJ

CGL TP LOG CGN03732D GPU GINT STD AGS 3.1 GDT 16/5/17

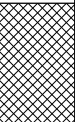
CGGL TP LOG CGN03732D.GPJ GINT STD AGS 3 1.GDT 16/5/17CGGL TP LOG CGN03732D.GPJ GINT STD AGS 3 1.GDT 16/5/17

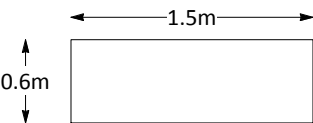
Plan 		General Remarks 1. Samples: B - Bulk, D - Disturbed, ES - Environmental Sample. 2. No visual or olfactory evidence of contamination observed. 3. Pit sides were stable. 4. No groundwater encountered during excavation. 5. Pit terminated as a competent stratum was reached and to avoid breaching groundwater table. 6. Trial pit backfilled with arisings upon completion.		
Method/ Plant Used	Tracked Excavator	Field Crew Supplied by Client	Logged By ALD	Checked By BEJ

TRIAL PIT LOG



Project Southall Advanced Earthworks				TRIAL PIT No TP-1B
Job No CGN03732D	Date 24-02-17	Ground Level (m) 26.92	Co-Ordinates (m) E 510,708.9 N 179,512.4	
Client CSPL				Sheet 1 of 1

SAMPLES & TESTS			Water	STRATA			
Depth (m)	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	Depth (m) (Thickness)	DESCRIPTION
0.80	HSV	60		26.42		(0.50) 0.50	Soft brown sandy gravelly CLAY with frequent rootlets. Gravel is subrounded to subangular medium to coarse of flint. Occasional brick cobbles. [MADE GROUND]
				26.12		(0.30) 0.80	Firm to stiff yellowish brown slightly sandy slight gravelly CLAY. Occasional flint cobbles. [ALLUVIUM]
							(Pit terminated at 0.8m)

Plan	General Remarks
 Stability:	1. Samples: B - Bulk, D - Disturbed, ES - Environmental Sample. 2. No visual or olfactory evidence of contamination observed. 3. Pit sides were stable. 4. No groundwater encountered during excavation. 5. Pit terminated as a competent stratum was reached and to avoid breaching groundwater table. 5. Trial pit backfilled with arisings upon completion.

Method/ Plant Used	Tracked Excavator	Field Crew Supplied by Client	Logged By OEF	Checked By BEJ
-----------------------	-------------------	----------------------------------	------------------	-------------------

CGI TP LOG CGN03732D.GPJ GINT STD AGS 3.1.GDT 16/5/17

Project Southall Advanced Earthworks				TRIAL PIT No TP-2B_A
Job No CGN03732D	Date 24-02-17	Ground Level (m) 26.88	Co-Ordinates (m) E 510,724.4 N 179,527.4	
Client CSPL				Sheet 1 of 1

SAMPLES & TESTS			Water	STRATA			
Depth (m)	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	Depth (m) (Thick-ness)	DESCRIPTION
0.20	ES			26.63		(0.25) 0.25	Soft brown slightly sandy slightly gravelly CLAY. Gravel is subround to subangular of mixed lithologies. Frequent plastic, glass, brick, textile and rootlets. Occasional wood. [MADE GROUND]
						(0.40)	Firm to stiff orangish brown CLAY. [ALLUVIUM]
0.65	B			26.23		0.65	
0.65	HSV	78		26.18		0.70	Firm light grey slightly sandy slightly clayey slightly sandy subrounded to angular coarse flint GRAVEL. [RIVER TERRACE DEPOSITS]
0.70	B						
0.70	HSV	63					(Pit terminated at 0.7m)

Plan  Stability:		General Remarks 1. Samples: B - Bulk, D - Disturbed, ES - Environmental Sample. 2. No visual or olfactory evidence of contamination observed. 3. Pit sides were stable. 4. Minor seepage observed at 0.65m bgl. No ingress. 5. Pit terminated as River Terrace Deposits encountered at shallow depth. 5. Trial pit backfilled with arisings upon completion.	
Method/ Plant Used	Tracked Excavator	Field Crew Supplied by Client	Logged By OEF Checked By BEJ

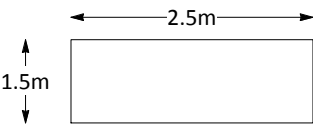
CGCL TP LOG CGN03732D.GPJ GINT STD AGS 3 1.GDT 16/5/17

TRIAL PIT LOG



Project Southall Advanced Earthworks				TRIAL PIT No TP-3B
Job No CGN03732D	Date 24-02-17	Ground Level (m) 30.37	Co-Ordinates (m) E 510,696.8 N 179,524.0	
Client CSPL				Sheet 1 of 1

SAMPLES & TESTS			Water	STRATA		
Depth (m)	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	DESCRIPTION
0.20	ES			30.17		Soft brown slightly sandy gravelly CLAY. Gravel is rounded to angular medium to coarse of flint with occasional concrete. Frequent rootlets, plastic and glass. [MADE GROUND]
1.50	B					Soft to firm light brown slightly sandy slightly silty GRAVEL with clods of firm orangey brown clay. Comprising; 5% metal wires and bars (up to 50mm diameter), 2% compressed metal drum (rusted, no odours or labels), 2% concrete slabs up to 0.7m by 0.5m, 2% plastic and textiles. [MADE GROUND]
2.70	ES/B			28.67		Light greyish brown slightly clayey slightly silty slightly sandy GRAVEL. Gravel is rounded to subangular fine to coarse of flint and concrete. Comprising 5% wood, 5% plastic, 10% metal wires and bars (up to 50mm diameter), 2% concrete slabs up to 0.7m by 0.5m and 1% textile. [MADE GROUND]
				27.57		(Pit terminated at 2.8m)

Plan  Stability:	General Remarks 1. Samples: B - Bulk, D - Disturbed, ES - Environmental Sample. 2. No visual or olfactory evidence of contamination observed. 3. Pit sides were stable. 4. No groundwater encountered during excavation. 5. Pit terminated as approximate depth of bund had been excavated. 6. Trial pit backfilled with arisings upon completion.
--	---

Method/ Plant Used Tracked Excavator	Field Crew Supplied by Client	Logged By OEF	Checked By BEJ
--	----------------------------------	------------------	-------------------

CGL TP LOG CGN03732D GPU GINT STD AGS 3.1 GDT 16/5/17

TRIAL PIT LOG



Project Southall Advanced Earthworks				TRIAL PIT No TP-4B
Job No CGN03732D	Date 24-02-17	Ground Level (m) 28.96	Co-Ordinates (m) E 510,714.1 N 179,534.8	
Client CSPL				Sheet 1 of 1

SAMPLES & TESTS			Water	STRATA			
Depth (m)	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	Depth (m) (Thickness)	DESCRIPTION
0.50	ES					(1.00)	Soft greyish brown mottled orange slightly sandy gravelly CLAY with frequent rootlets. Gravel is rounded to subangular fine to coarse of flint. Occasional glass, tile and wood. [MADE GROUND]
				27.96		1.00	
1.50	ES/B					(1.00)	Greyish brown mottled orange slightly silty slightly sandy GRAVEL. Gravel is rounded to subangular medium to coarse of flint with occasional concrete and possible clinker. Rare metal, tile and plastic. [MADE GROUND]
				26.96		2.00	1.70 - 2.00 Frequent brick cobbles.
							(Pit terminated at 2m)

Plan	General Remarks
Stability:	1. Samples: B - Bulk, D - Disturbed, ES - Environmental Sample. 2. No visual or olfactory evidence of contamination observed. 3. Pit sides were stable. 4. No groundwater encountered during excavation. 5. Pit terminated as full depth of bund had been excavated. 5. Trial pit backfilled with arisings upon completion.

Method/ Plant Used	Tracked Excavator	Field Crew	Supplied by Client	Logged By	OEF	Checked By	BEJ
-----------------------	-------------------	------------	--------------------	-----------	-----	------------	-----

CGI TP LOG CGN03732D GPU GINT STD AGS 3.1 GDT 16/5/17

CCGL TP LOG CGN03732D.GPJ GINT STD AGS 3 1.GDT 16/5/17CCGL TP LOG CGN03732D.GPJ GINT STD AGS 3 1.GDT 16/5/17CCGL TP LOG CGN03732D.GPJ GINT STD AGS 3 1.GDT 16/5/17

APPENDIX B

Geotechnical Test Results



TEST CERTIFICATE

Determination of Moisture Content

Tested in Accordance with BS 1377-2:1990: Clause 3.2

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



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

Test results

Laboratory Reference	Sample Reference	Location	Depth Top [m]	Depth Base [m]	Sample Type	Description	Moisture Content [%]
712411	2	TP1	2.6	Not Given	B	Dark brown slightly gravelly slightly sandy clayey SILT	21
712412	3	TP2	2.5	Not Given	D	Dark brown gravelly sandy CLAY	41
712413	4	TP2	2.5	Not Given	D	Dark brown slightly gravelly sandy CLAY	44
712415	4	TP2	3.6	Not Given	B	Black slightly gravelly slightly sandy clayey SILT	44
712417	3	TP3	1.7	Not Given	B	Brown slightly gravelly slightly sandy clayey SILT	60
712419	2	TP4	0.6	Not Given	B	Yellowish brown slightly gravelly silty CLAY	22
712420	1	TP2B	0.2	Not Given	D	Dark brown gravelly clayey SAND	30
712421	1	TP2B	0.65	Not Given	B	Yellowish brown gravelly slightly sandy CLAY	19
712422	2	TP2B	0.7	Not Given	B	Yellowish brown slightly sandy silty GRAVEL	11
712423	1	TP3B	0.2	Not Given	D	Dark brown gravelly sandy CLAY	15

Remarks

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 14/03/2017

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



TEST CERTIFICATE

Determination of Moisture Content

Tested in Accordance with BS 1377-2:1990: Clause 3.2

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



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

Test results

Laboratory Reference	Sample Reference	Location	Depth Top [m]	Depth Base [m]	Sample Type	Description	Moisture Content [%]
712424	1	TP3B	1.5	Not Given	B	Brown slightly sandy silty GRAVEL	11
712425	2	TP3B	2.7	Not Given	B	Brown slightly sandy clayey GRAVEL	12
712426	1	TP4B	1.5	Not Given	B	Dark brown slightly sandy clayey GRAVEL	10

Remarks

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 14/03/2017

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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



Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712411

Sample Reference: 2

Description: Dark brown slightly gravelly slightly sandy clayey SILT

Location: TP1

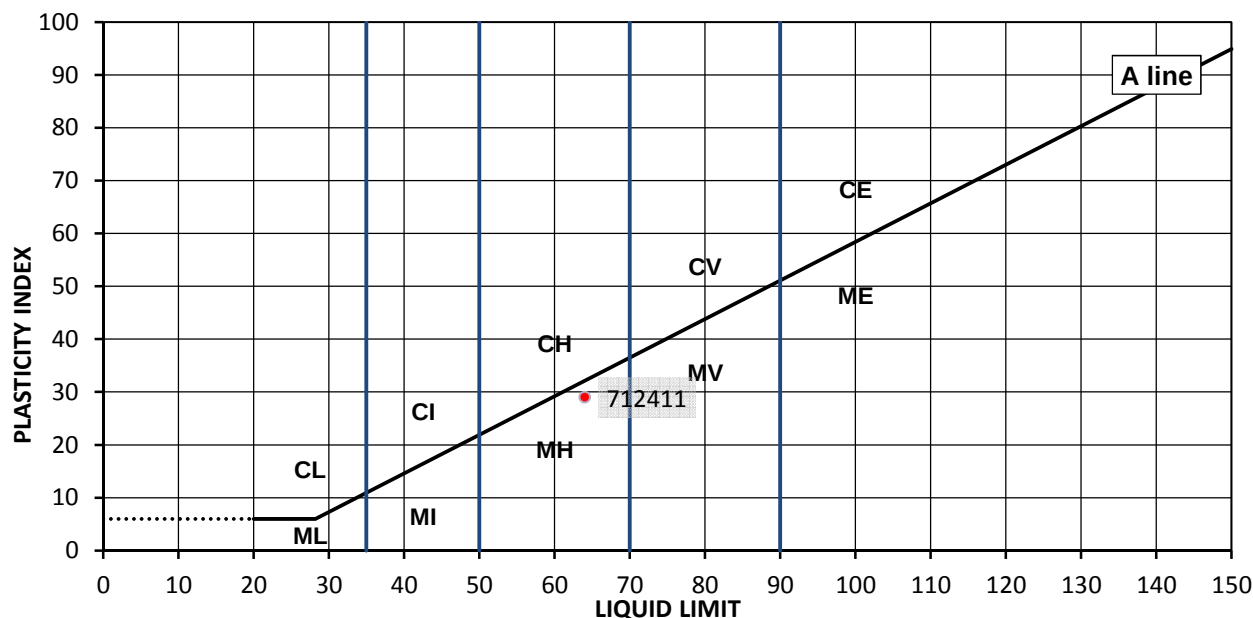
Sample Preparation: Tested after washing to remove >425um

Sample Type: B

Depth Top [m]: 2.6

Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
21	64	35	29	79



Legend, based on BS 5930:2015 Code of practice for site investigations

	Clay		Plasticity		Liquid Limit
C	Clay	L	Low		below 35
M	Silt	I	Medium		35 to 50
		H	High		50 to 70
		V	Very high		70 to 90
		E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)		

Remarks

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 15/03/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



4041

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

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



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712415

Sample Reference: 4

Description: Black slightly gravelly slightly sandy clayey SILT

Location: TP2

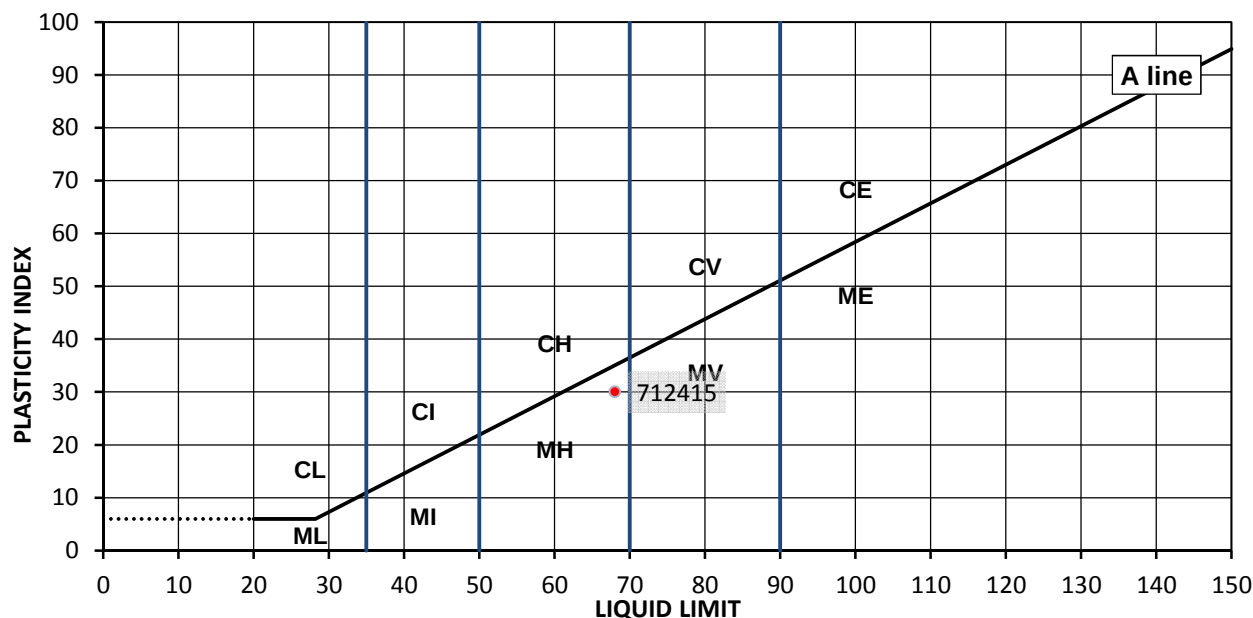
Sample Preparation: Tested after washing to remove >425um

Sample Type: B

Depth Top [m]: 3.6

Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
44	68	38	30	78



Remarks

Approved:

Miroslawa Pytlik
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 15/03/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."



4041

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

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



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712417

Sample Reference: 3

Description: Brown slightly gravelly slightly sandy clayey SILT

Location: TP3

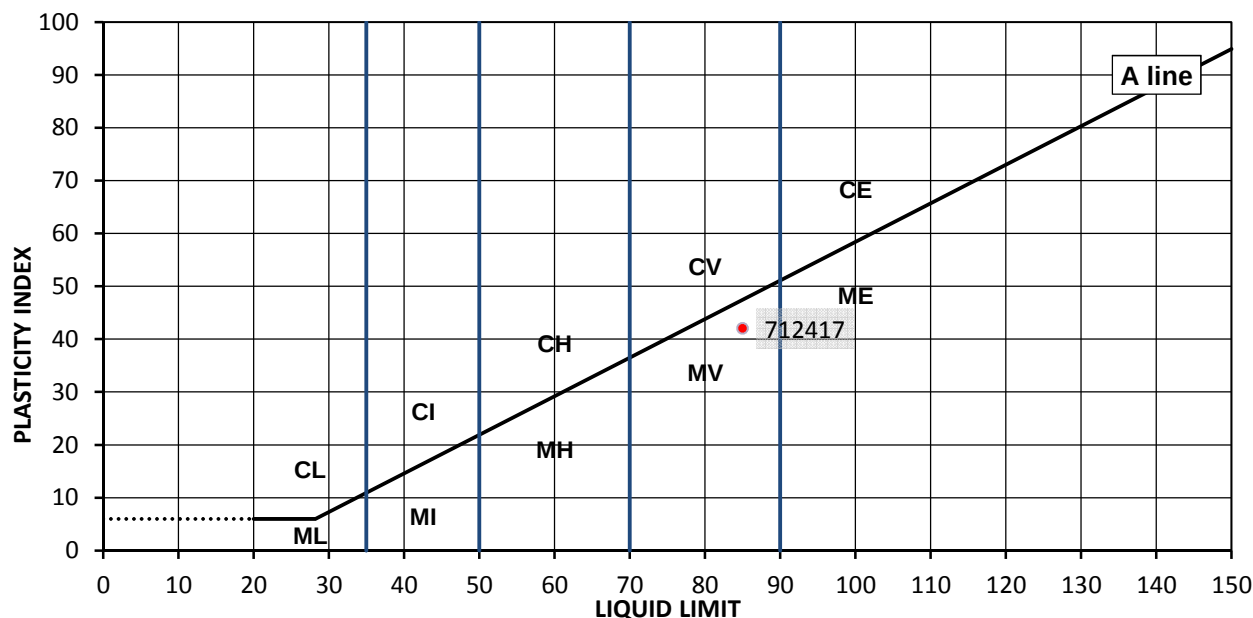
Sample Preparation: Tested after >425um removed by hand

Sample Type: B

Depth Top [m]: 1.7

Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
60	85	43	42	89



Legend, based on BS 5930:2015 Code of practice for site investigations

	Clay	Plasticity	Liquid Limit
C	Clay	L Low	below 35
M	Silt	I Medium	35 to 50
		H High	50 to 70
		V Very high	70 to 90
		E Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Remarks

Approved:

Miroslawa Pytlik
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 15/03/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."



TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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



Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712419

Sample Reference: 2

Description: Yellowish brown slightly gravelly silty CLAY

Location: TP4

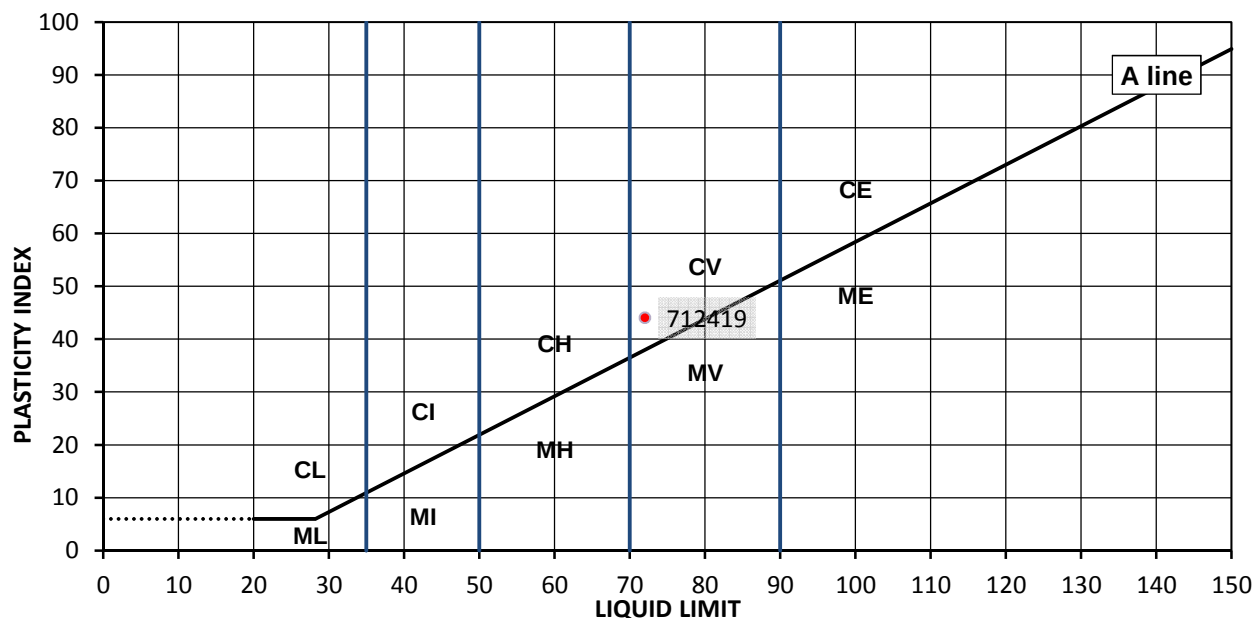
Sample Preparation: Tested after >425um removed by hand

Sample Type: B

Depth Top [m]: 0.6

Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
22	72	28	44	69



Legend, based on BS 5930:2015 Code of practice for site investigations

	Clay	Silt	Plasticity	Liquid Limit
C	Clay		L Low	below 35
M		Silt	I Medium	35 to 50
			H High	50 to 70
			V Very high	70 to 90
			E Extremely high	exceeding 90
	Organic		O	append to classification for organic material (eg CHO)

Remarks

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 15/03/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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



Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712420

Sample Reference: 1

Description: Dark brown gravelly clayey SAND

Location: TP2B

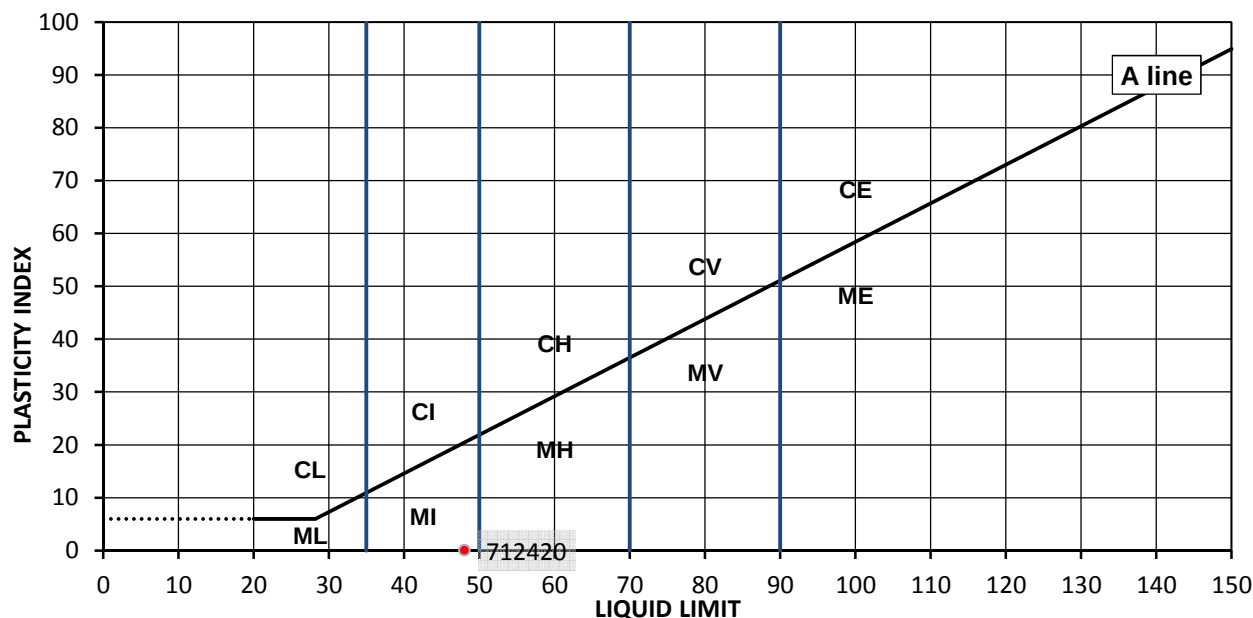
Sample Preparation: Tested after washing to remove >425um

Sample Type: D

Depth Top [m]: 0.2

Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
30	48	NP*	NA*	57



Remarks: *Sample unsuitable for the test (PL)

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 15/03/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."



TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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



Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712421

Sample Reference: 1

Description: Yellowish brown gravelly slightly sandy CLAY

Location: TP2B

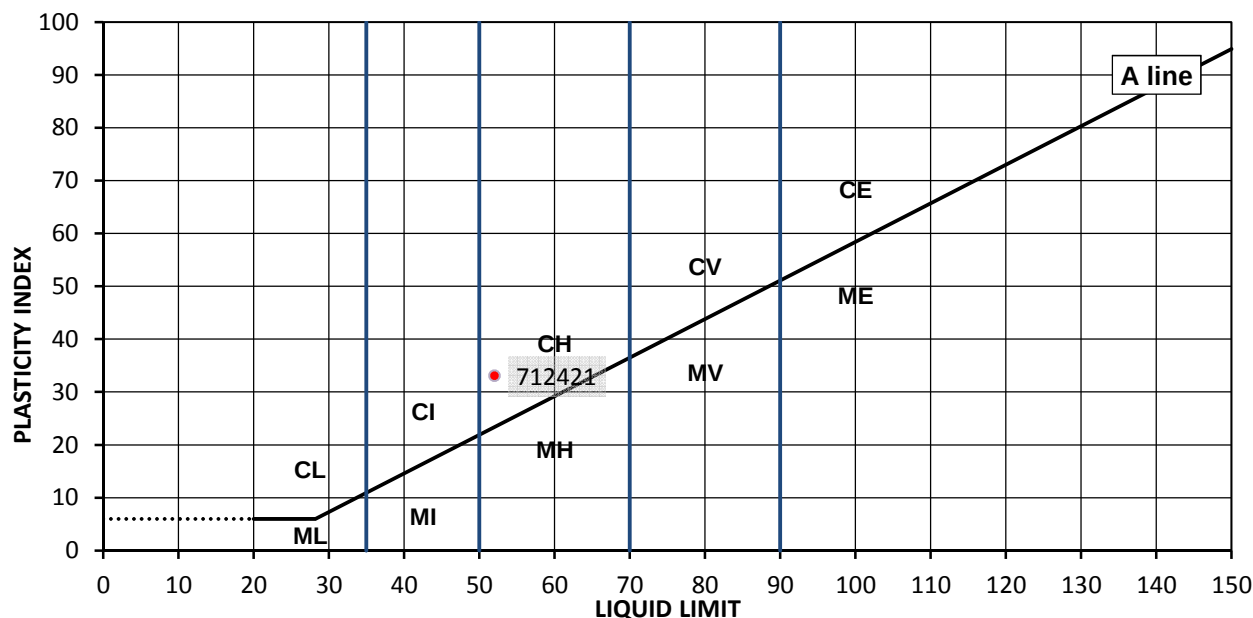
Sample Preparation: Tested after >425um removed by hand

Sample Type: B

Depth Top [m]: 0.65

Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
19	52	19	33	86



Legend, based on BS 5930:2015 Code of practice for site investigations

Plasticity		Liquid Limit
C	Clay	below 35
M	Silt	35 to 50
L	Low	50 to 70
I	Medium	70 to 90
H	High	exceeding 90
V	Very high	
E	Extremely high	
O	Organic append to classification for organic material (eg CHO)	

Remarks

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 15/03/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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



Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712422

Sample Reference: 2

Description: Yellowish brown slightly sandy silty GRAVEL

Location: TP2B

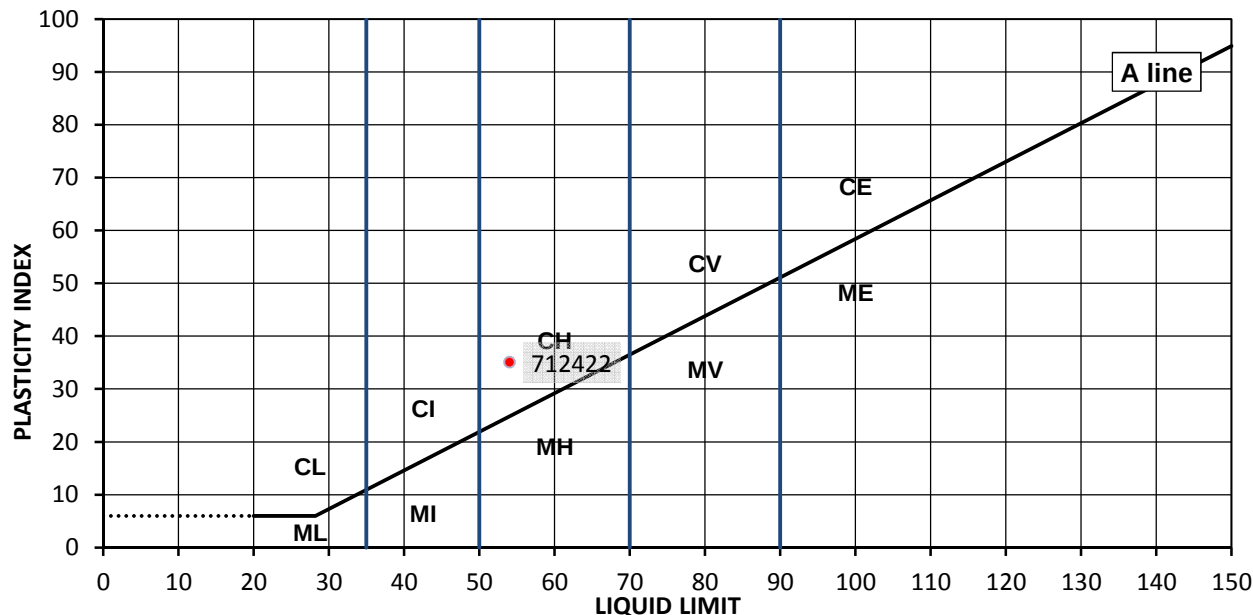
Sample Preparation: Tested after >425um removed by hand

Sample Type: B

Depth Top [m]: 0.7

Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
11	54	19	35	50



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	L	Low	Liquid Limit
M	Silt	I	Medium	below 35
		H	High	35 to 50
		V	Very high	50 to 70
		E	Extremely high	70 to 90
		O	append to classification for organic material (eg CHO)	exceeding 90
	Organic			

Remarks

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 15/03/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."



TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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



Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

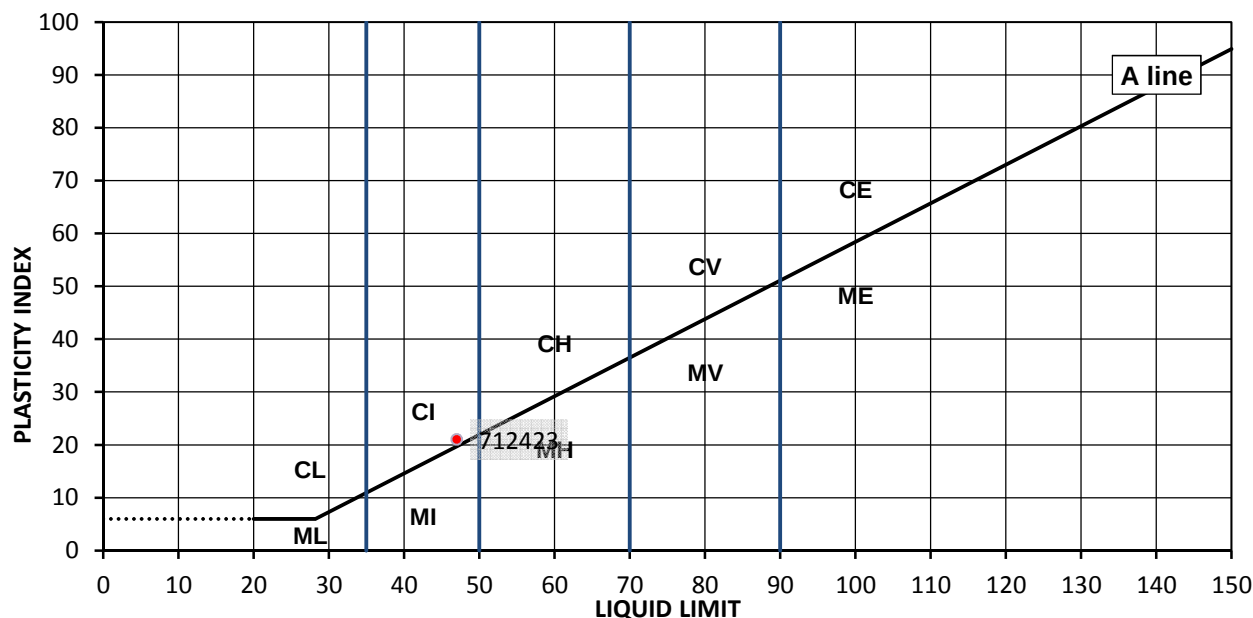
TEST RESULTS

Laboratory Reference: 712423
Sample Reference: 1

Description: Dark brown gravelly sandy CLAY
Location: TP3B
Sample Preparation: Tested after washing to remove >425um

Sample Type: D
Depth Top [m]: 0.2
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
15	47	26	21	48



Remarks

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 15/03/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."



TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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



Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

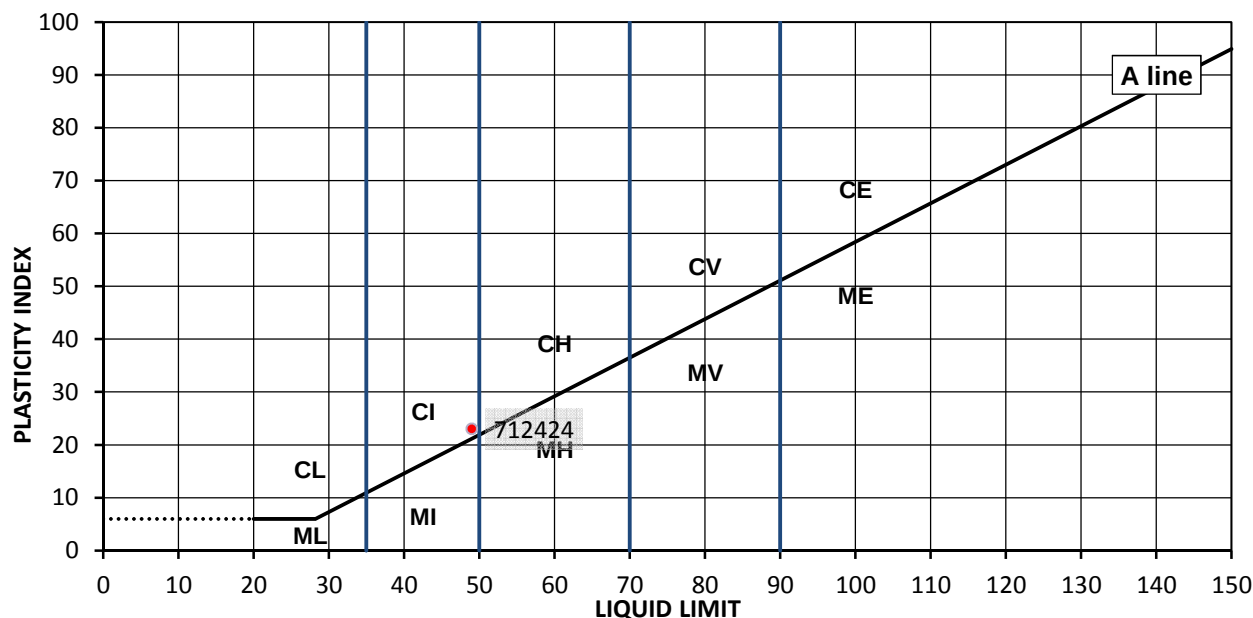
TEST RESULTS

Laboratory Reference: 712424
Sample Reference: 1

Description: Brown slightly sandy silty GRAVEL
Location: TP3B
Sample Preparation: Tested after washing to remove >425um

Sample Type: B
Depth Top [m]: 1.5
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
11	49	26	23	36



Legend, based on BS 5930:2015 Code of practice for site investigations

	Clay	Plasticity	Liquid Limit
C	Clay	L Low	below 35
M	Silt	I Medium	35 to 50
		H High	50 to 70
		V Very high	70 to 90
		E Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Remarks

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 15/03/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



4041

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

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



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712425

Sample Reference: 2

Description: Brown slightly sandy clayey GRAVEL

Location: TP3B

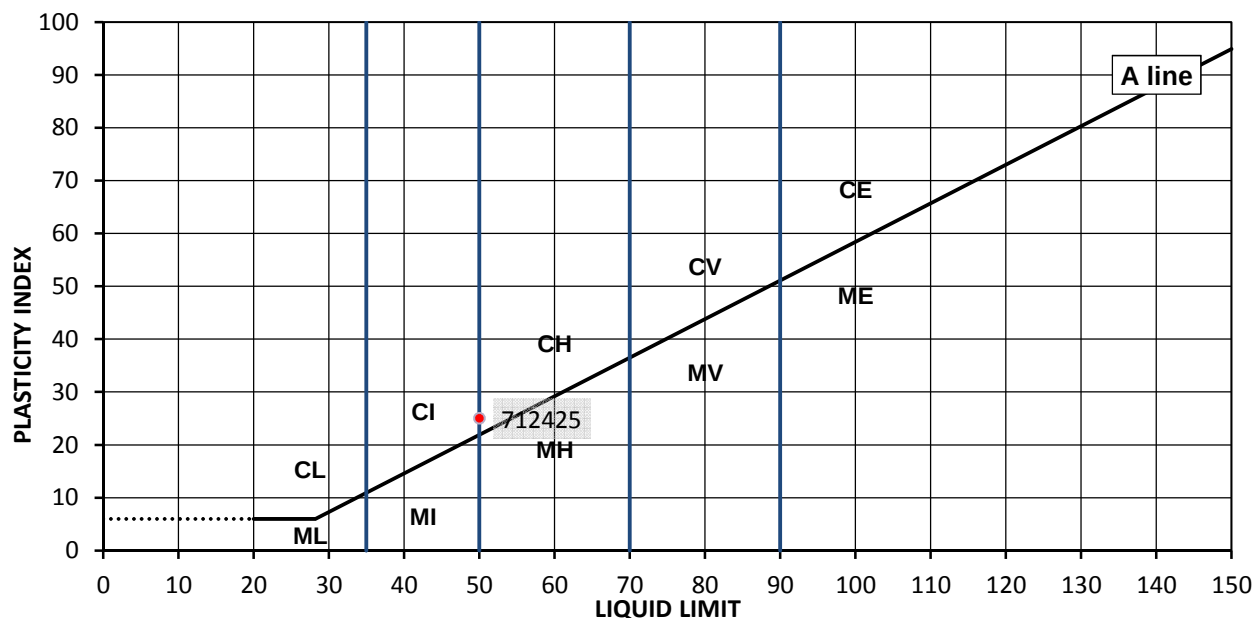
Sample Preparation: Tested after washing to remove >425um

Sample Type: B

Depth Top [m]: 2.7

Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
12	50	25	25	48



Legend, based on BS 5930:2015 Code of practice for site investigations

	Clay	Plasticity	Liquid Limit
C	Clay	L Low	below 35
M	Silt	I Medium	35 to 50
		H High	50 to 70
		V Very high	70 to 90
		E Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Remarks

Approved:

Miroslawa Pytlík
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 15/03/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."



TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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



Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712426

Sample Reference: 1

Description: Dark brown slightly sandy clayey GRAVEL

Location: TP4B

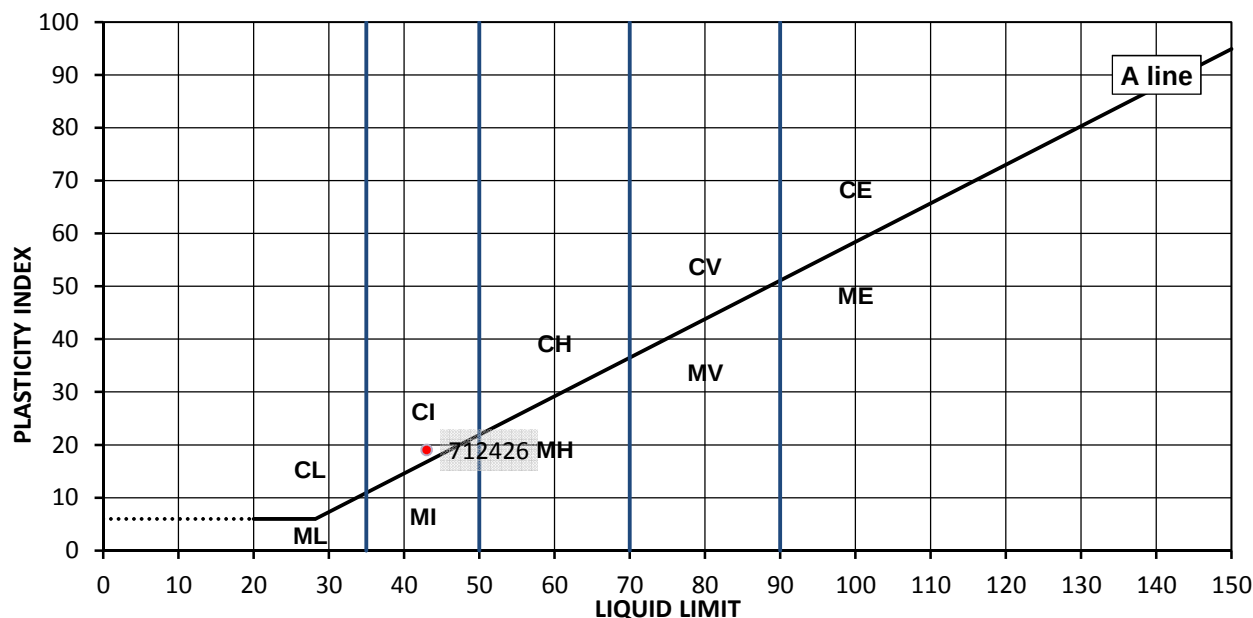
Sample Preparation: Tested after washing to remove >425um

Sample Type: B

Depth Top [m]: 1.5

Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
10	43	24	19	36



Legend, based on BS 5930:2015 Code of practice for site investigations

	Plasticity	Liquid Limit
C	Clay	below 35
M	Silt	35 to 50
	L	Low
	I	Medium
	H	High
	V	Very high
	E	Extremely high
Organic	O	append to classification for organic material (eg CHO)

Remarks

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 15/03/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."

TEST CERTIFICATE

Summary of Classification Test Results

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



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk	dry		% Passing 425um	LL	PL	PI	
							Mg/m3	Mg/m3		%	%	%	%	
712411	TP1	2	2.60	Not Given	B	Dark brown slightly gravelly slightly sandy clayey SILT			21	79	64	35	29	
712415	TP2	4	3.60	Not Given	B	Black slightly gravelly slightly sandy clayey SILT			44	78	68	38	30	
712417	TP3	3	1.70	Not Given	B	Brown slightly gravelly slightly sandy clayey SILT			60	89	85	43	42	
712419	TP4	2	0.60	Not Given	B	Yellowish brown slightly gravelly silty CLAY			22	69	72	28	44	
712420	TP2B	1	0.20	Not Given	D	Dark brown gravelly clayey SAND			30	57	48	NP*	NA*	
712421	TP2B	1	0.65	Not Given	B	Yellowish brown gravelly slightly sandy CLAY			19	86	52	19	33	
712422	TP2B	2	0.70	Not Given	B	Yellowish brown slightly sandy silty GRAVEL			11	50	54	19	35	
712423	TP3B	1	0.20	Not Given	D	Dark brown gravelly sandy CLAY			15	48	47	26	21	
712424	TP3B	1	1.50	Not Given	B	Brown slightly sandy silty GRAVEL			11	36	49	26	23	
712425	TP3B	2	2.70	Not Given	B	Brown slightly sandy clayey GRAVEL			12	48	50	25	25	

Comments: *Sample unsuitable for the test (PL)

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 15/03/2017

Signed:

Sushil Sharda
Technical Manager (Geotechnical
Division)

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierów 39, 41-711 Ruda Śląska, Poland."

TEST CERTIFICATE

Summary of Classification Test Results

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



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk	dry		% Passing 425um	LL	PL	PI	
							Mg/m3	Mg/m3		%	%	%	%	
712426	TP4B	1	1.50	Not Given	B	Dark brown slightly sandy clayey GRAVEL			10	36	43	24	19	

Comments:

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 15/03/2017

Signed:

Sushil Sharda
Technical Manager (Geotechnical
Division)

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



4041

TEST CERTIFICATE**Determination of Particle Size Distribution**

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712411

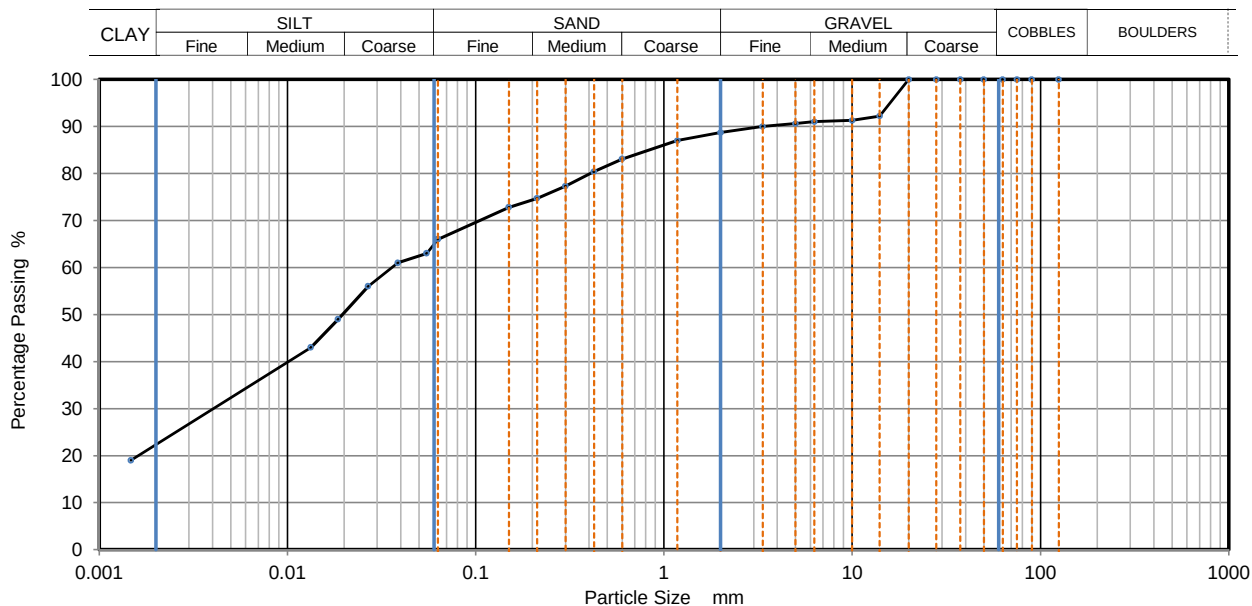
Sample Reference: 2

Sample description: Dark brown slightly gravelly slightly sandy clayey
SILT

Sample Type: B

Location: TP1
Supplier: Not Given

Depth Top [m]: 2.6
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	66
90	100	0.0549	63
75	100	0.0386	61
63	100	0.0269	56
50	100	0.0186	49
37.5	100	0.0133	43
28	100	0.0015	19
20	100		
14	92		
10	91		
6.3	91		
5	91		
3.35	90		
2	89		
1.18	87		
0.6	83	Particle density (assumed) 2.65 Mg/m ³	
0.425	80		
0.3	77		
0.212	75		
0.15	73		
0.063	66		

Dry Mass of sample [g]: 195

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	11.30
Sand	22.70
Silt	43.50
Clay	22.50

Grading Analysis	
D100	mm 20
D60	mm 0.0365
D30	mm 0.00395
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Approved:

Signed:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 14/03/2017

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



TEST CERTIFICATE

Determination of Particle Size Distribution

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



Tested in Accordance with BS1377:Part 2:1990, clause 9.2

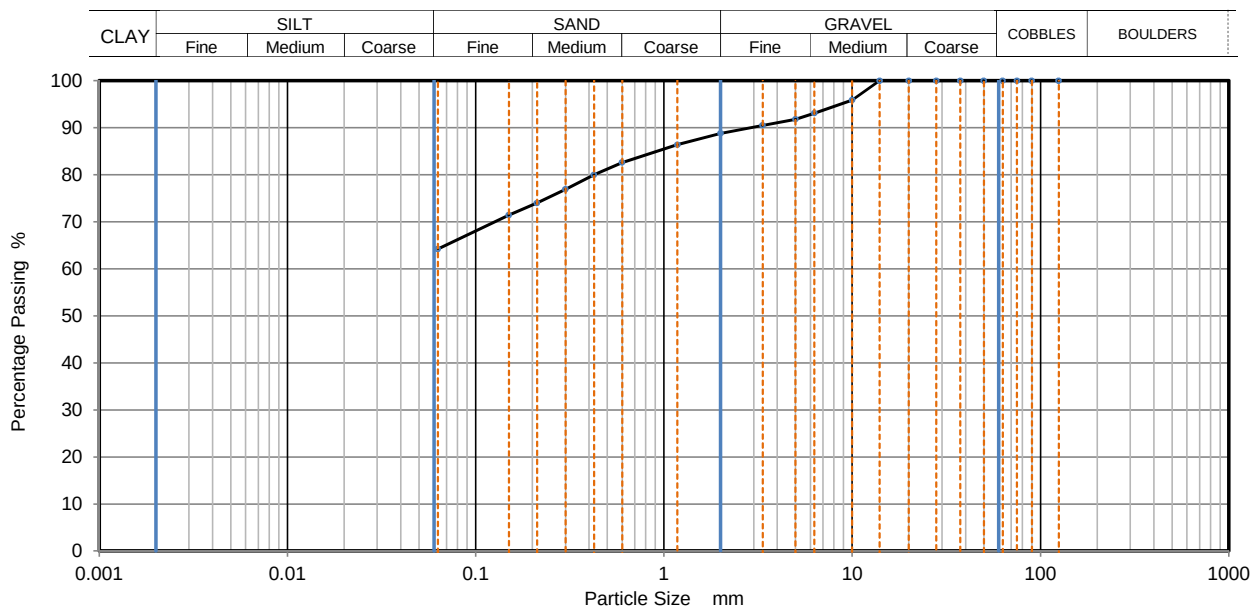
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 13/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712412
Sample description: Dark brown gravelly sandy CLAY
Location: TP2
Supplier: Not Given

Sample Reference: 3
Sample Type: D
Depth Top [m]: 2.5
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	96		
6.3	93		
5	92		
3.35	91		
2	89		
1.18	86		
0.6	83		
0.425	80		
0.3	77		
0.212	74		
0.15	71		
0.063	64		

Dry Mass of sample [g]: 205

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		11.20
Sand		24.60
Fines <0.063mm		64.20

Grading Analysis		
D100	mm	14
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 15/03/2017

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



TEST CERTIFICATE

Determination of Particle Size Distribution

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



Tested in Accordance with BS1377:Part 2:1990, clause 9.2

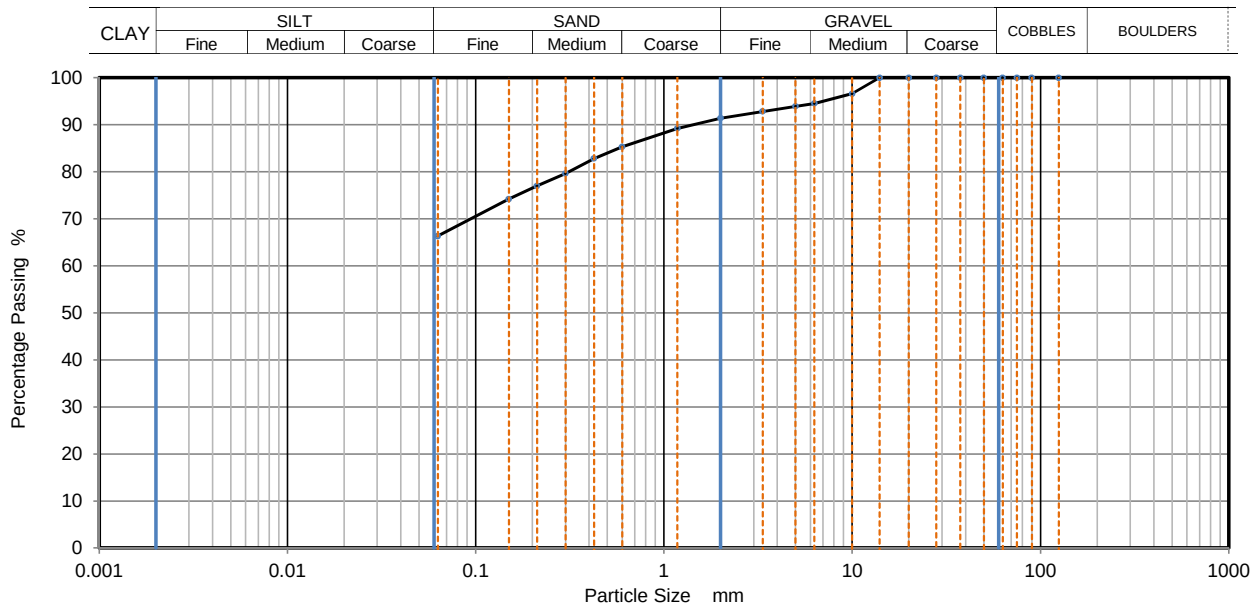
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 13/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712413
Sample description: Dark brown slightly gravelly sandy CLAY
Location: TP2
Supplier: Not Given

Sample Reference: 4
Sample Type: D
Depth Top [m]: 2.5
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	97		
6.3	95		
5	94		
3.35	93		
2	91		
1.18	89		
0.6	85		
0.425	83		
0.3	80		
0.212	77		
0.15	74		
0.063	66		

Dry Mass of sample [g]: 205

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		8.60
Sand		25.10
Fines <0.063mm		66.30

Grading Analysis		
D100	mm	14
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 15/03/2017

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



TEST CERTIFICATE

Determination of Particle Size Distribution

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



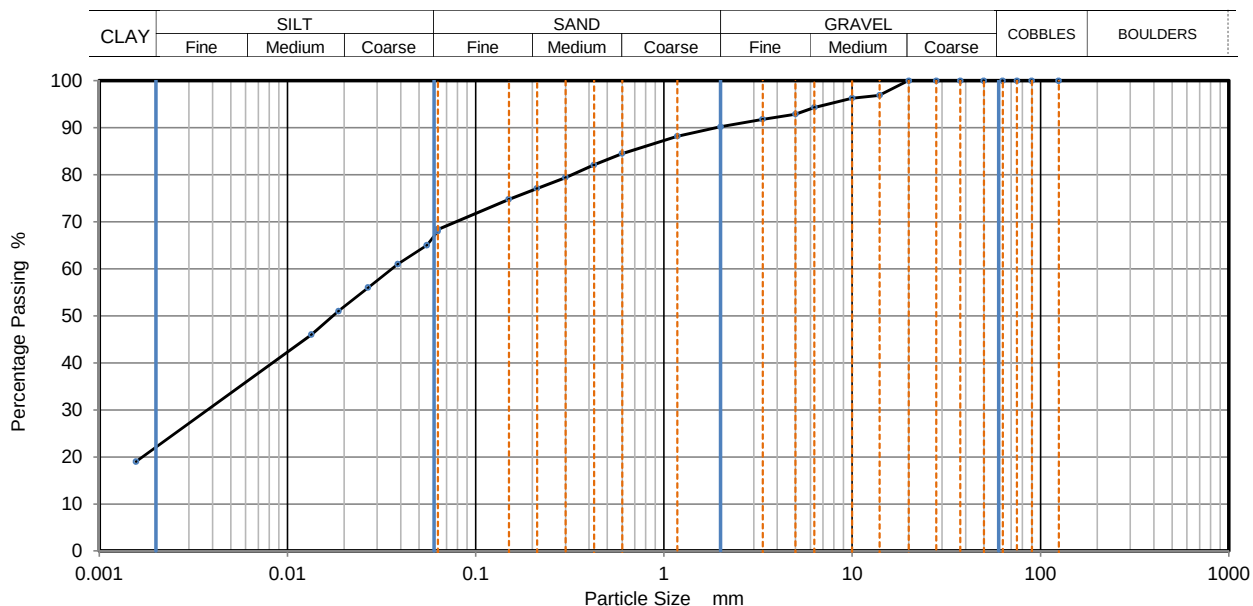
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712415
Sample description: Black slightly gravelly slightly sandy clayey SILT
Location: TP2
Supplier: Not Given

Sample Reference: 4
Sample Type: B
Depth Top [m]: 3.6
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	68
90	100	0.0552	65
75	100	0.0386	61
63	100	0.0269	56
50	100	0.0187	51
37.5	100	0.0134	46
28	100	0.0016	19
20	100		
14	97		
10	96		
6.3	94		
5	93		
3.35	92		
2	90		
1.18	88		
0.6	85	Particle density (assumed) 2.65 Mg/m ³	
0.425	82		
0.3	79		
0.212	77		
0.15	75		
0.063	68		

Dry Mass of sample [g]: 373

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		9.80
Sand		21.80
Silt		46.10
Clay		22.30

Grading Analysis		
D100	mm	20
D60	mm	0.0351
D30	mm	0.00376
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 14/03/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



4041

TEST CERTIFICATE**Determination of Particle Size Distribution**

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712417

Sample Reference: 3

Sample description: Brown slightly gravelly slightly sandy clayey SILT

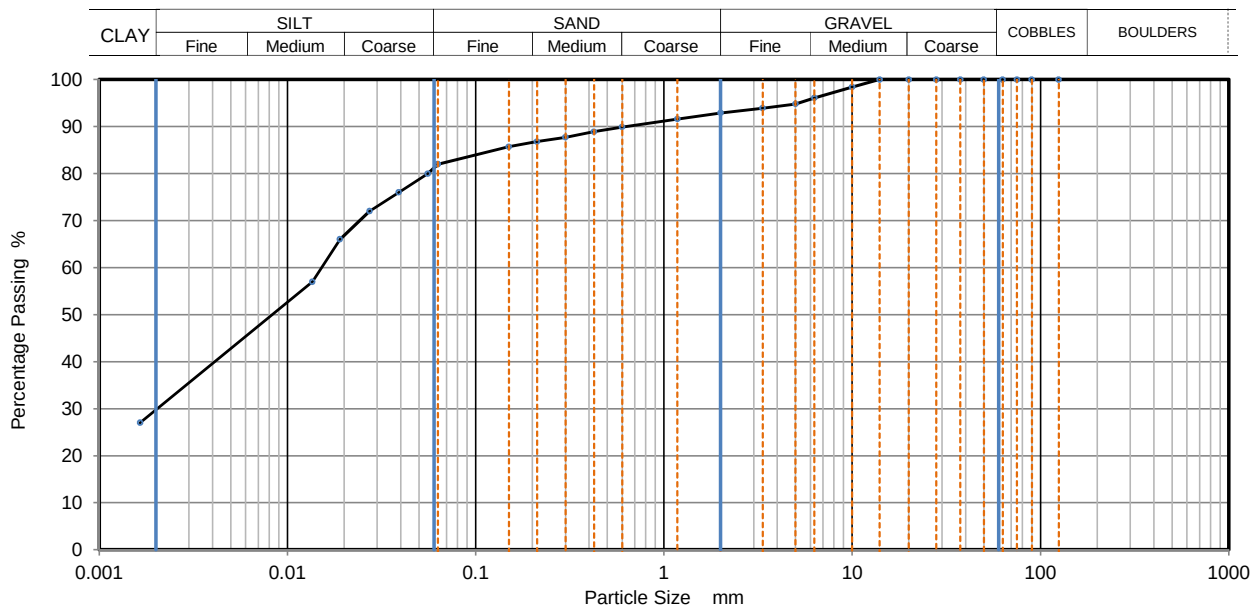
Sample Type: B

Location: TP3

Depth Top [m]: 1.7

Supplier: Not Given

Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	82
90	100	0.0557	80
75	100	0.0390	76
63	100	0.0273	72
50	100	0.0190	66
37.5	100	0.0136	57
28	100	0.0016	27
20	100		
14	100		
10	98		
6.3	96		
5	95		
3.35	94		
2	93		
1.18	92		
0.6	90	Particle density (assumed) 2.65 Mg/m ³	
0.425	89		
0.3	88		
0.212	87		
0.15	86		
0.063	82		

Dry Mass of sample [g]: 227

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	7.10
Sand	11.00
Silt	52.40
Clay	29.50

Grading Analysis	
D100	mm 14
D60	mm 0.0151
D30	mm 0.00207
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 14/03/2017

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



TEST CERTIFICATE

Determination of Particle Size Distribution

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



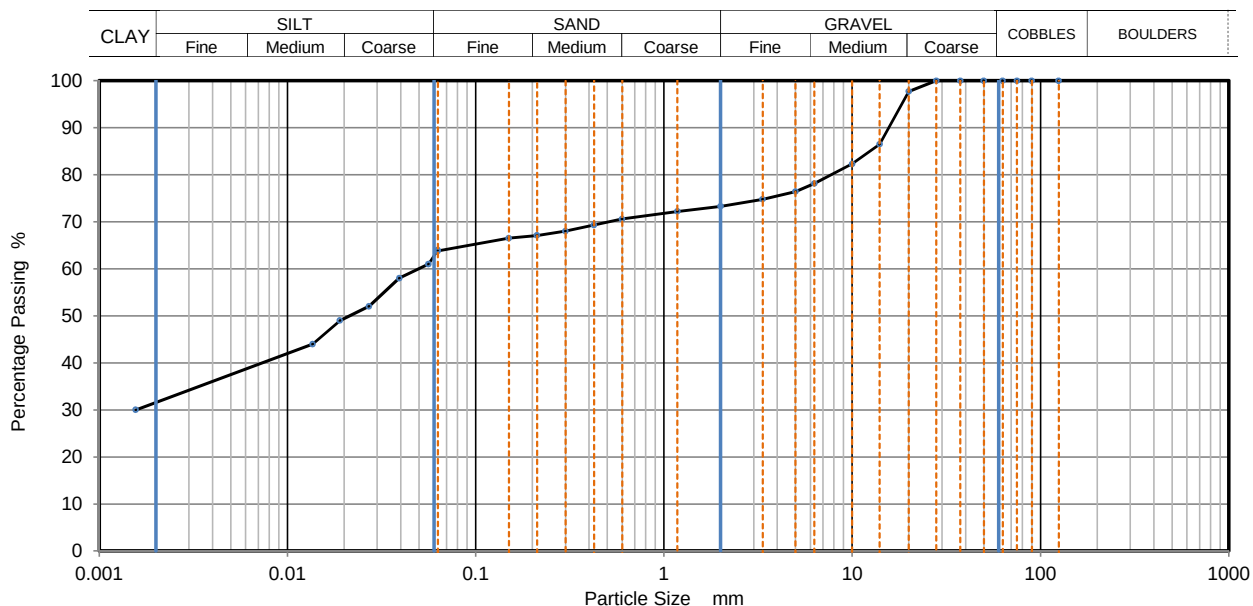
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712419
Sample description: Yellowish brown slightly gravelly silty CLAY
Location: TP4
Supplier: Not Given

Sample Reference: 2
Sample Type: B
Depth Top [m]: 0.6
Depth Base [m]: Not Given



Dry Mass of sample [g]: 474

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	64
90	100	0.0561	61
75	100	0.0393	58
63	100	0.0272	52
50	100	0.0190	49
37.5	100	0.0136	44
28	100	0.0016	30
20	98		
14	87		
10	82		
6.3	78		
5	76		
3.35	75		
2	73		
1.18	72		
0.6	71	Particle density (assumed) 2.65 Mg/m ³	
0.425	69		
0.3	68		
0.212	67		
0.15	67		
0.063	64		

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		26.70
Sand		9.60
Silt		31.80
Clay		31.90

Grading Analysis		
D100	mm	28
D60	mm	0.0513
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 14/03/2017

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



TEST CERTIFICATE

Determination of Particle Size Distribution

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



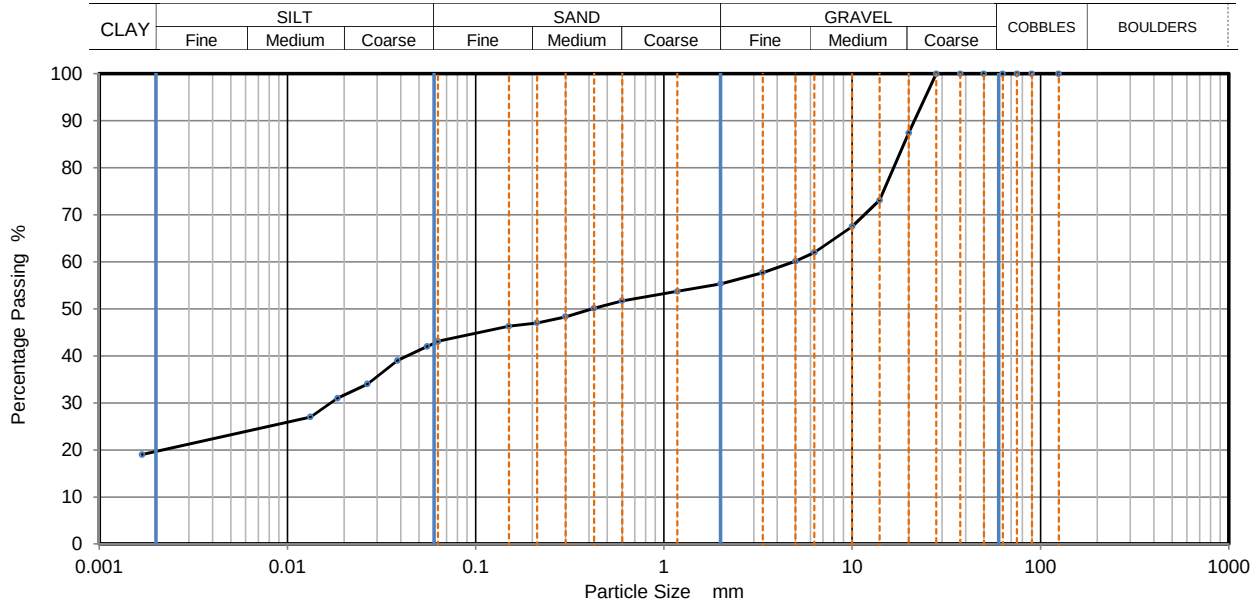
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712422
Sample description: Yellowish brown slightly sandy silty GRAVEL
Location: TP2B
Supplier: Not Given

Sample Reference: 2
Sample Type: B
Depth Top [m]: 0.7
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	43
90	100	0.0553	42
75	100	0.0384	39
63	100	0.0266	34
50	100	0.0185	31
37.5	100	0.0132	27
28	100	0.0017	19
20	87		
14	73		
10	68		
6.3	62		
5	60		
3.35	58		
2	55		
1.18	54		
0.6	52	Particle density (assumed) 2.65 Mg/m ³	
0.425	50		
0.3	48		
0.212	47		
0.15	46		
0.063	43		

Dry Mass of sample [g]: 513

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		44.70
Sand		12.10
Silt		23.30
Clay		19.90

Grading Analysis		
D100	mm	28
D60	mm	4.93
D30	mm	0.0174
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 14/03/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



TEST CERTIFICATE

Determination of Particle Size Distribution

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



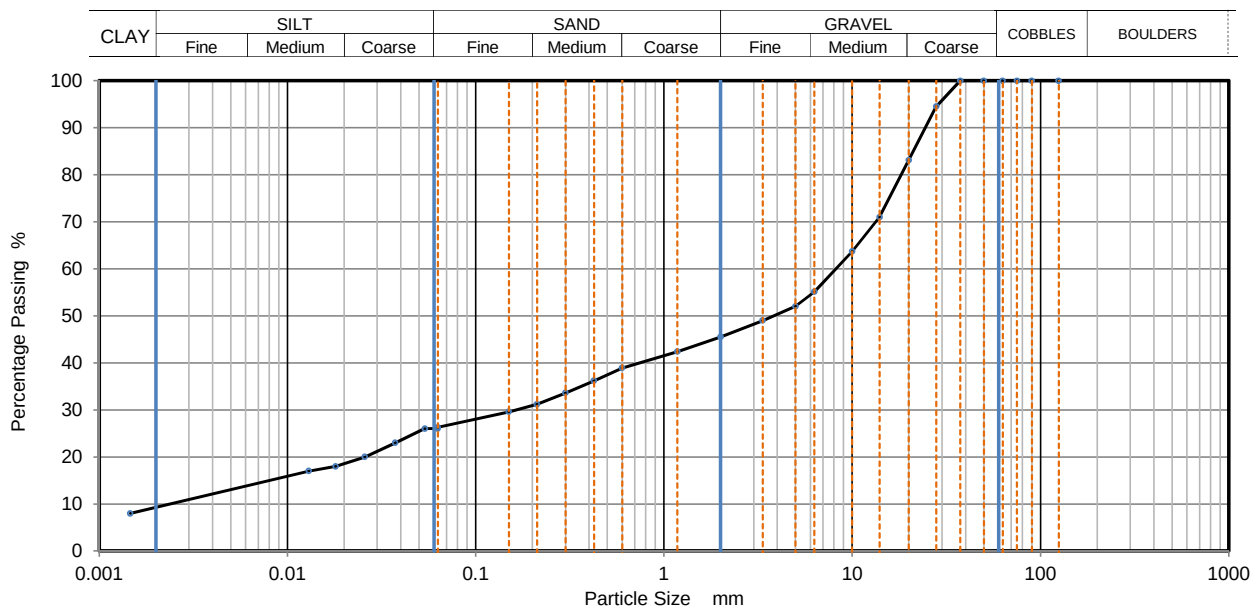
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712424
Sample description: Brown slightly sandy silty GRAVEL
Location: TP3B
Supplier: Not Given

Sample Reference: 1
Sample Type: B
Depth Top [m]: 1.5
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	26
90	100	0.0537	26
75	100	0.0374	23
63	100	0.0258	20
50	100	0.0180	18
37.5	100	0.0130	17
28	95	0.0015	8
20	83		
14	71		
10	64		
6.3	55		
5	52		
3.35	49		
2	46		
1.18	42		
0.6	39	Particle density (assumed) 2.65 Mg/m ³	
0.425	36		
0.3	34		
0.212	31		
0.15	30		
0.063	26		

Dry Mass of sample [g]: 549

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		54.50
Sand		19.10
Silt		17.20
Clay		9.20

Grading Analysis		
D100	mm	37.5
D60	mm	8.21
D30	mm	0.164
D10	mm	0.00243
Uniformity Coefficient		3400
Curvature Coefficient		1.3

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 14/03/2017

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



TEST CERTIFICATE

Determination of Particle Size Distribution

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



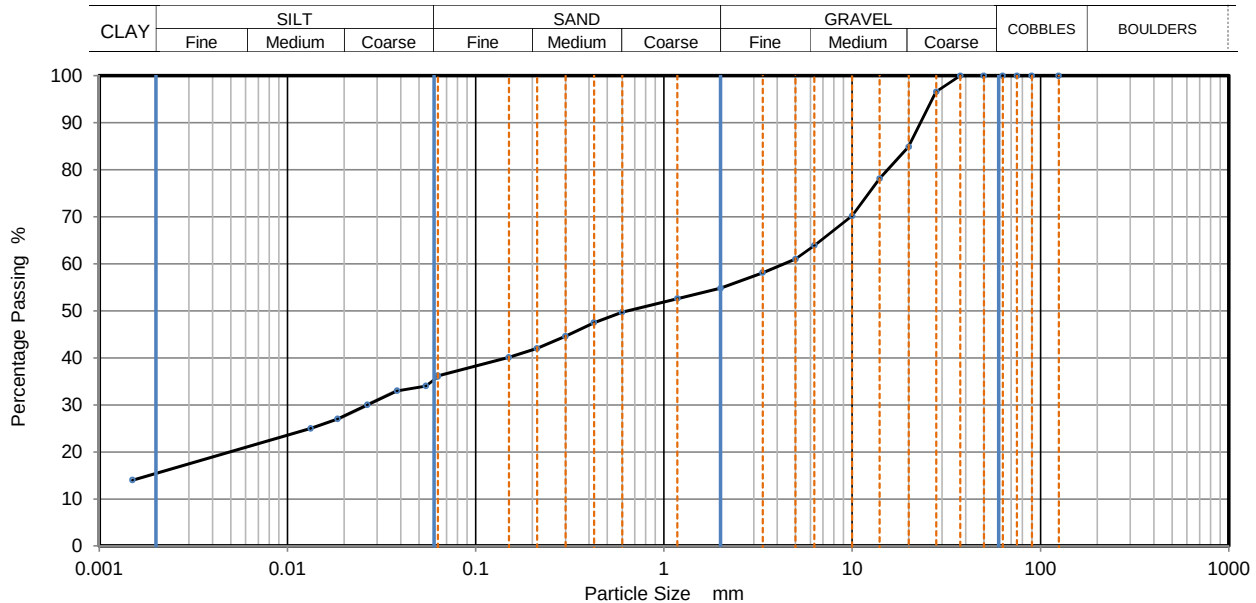
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712425
Sample description: Brown slightly sandy clayey GRAVEL
Location: TP3B
Supplier: Not Given

Sample Reference: 2
Sample Type: B
Depth Top [m]: 2.7
Depth Base [m]: Not Given





TEST CERTIFICATE

Determination of Particle Size Distribution

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



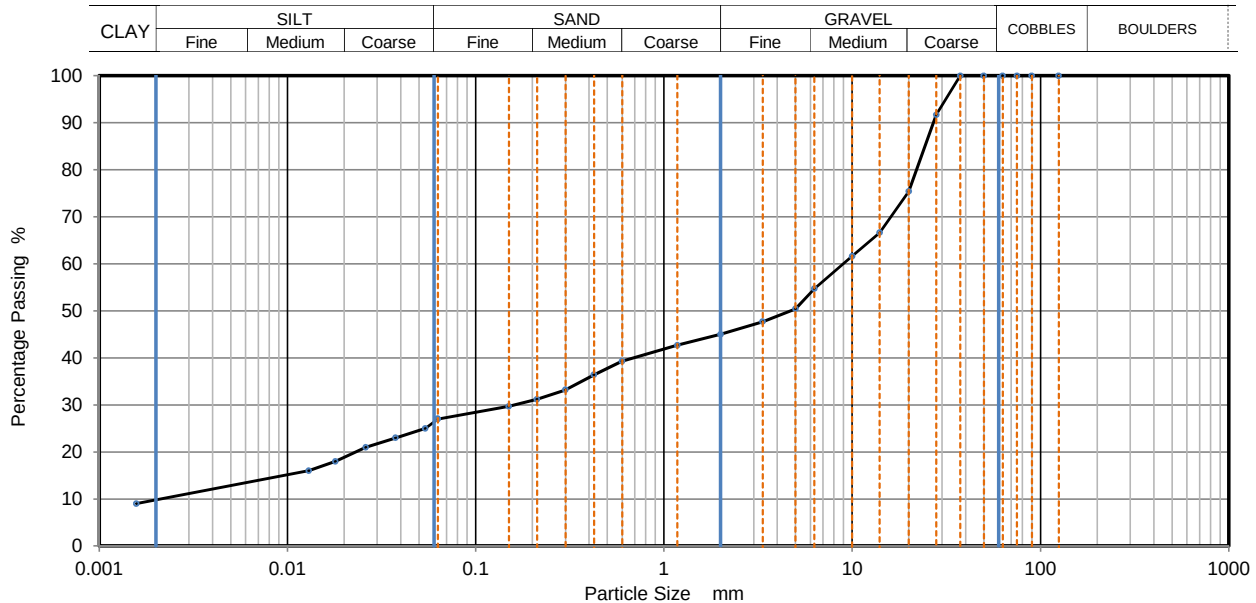
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712426
Sample description: Dark brown slightly sandy clayey GRAVEL
Location: TP4B
Supplier: Not Given

Sample Reference: 1
Sample Type: B
Depth Top [m]: 1.5
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	27
90	100	0.0541	25
75	100	0.0376	23
63	100	0.0261	21
50	100	0.0180	18
37.5	100	0.0130	16
28	92	0.0016	9
20	75		
14	67		
10	62		
6.3	55		
5	50		
3.35	48		
2	45		
1.18	43		
0.6	39	Particle density (assumed) 2.65 Mg/m ³	
0.425	36		
0.3	33		
0.212	31		
0.15	30		
0.063	27		

Dry Mass of sample [g]: 2583

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		55.00
Sand		18.00
Silt		17.00
Clay		10.00

Grading Analysis		
D100	mm	37.5
D60	mm	9
D30	mm	0.162
D10	mm	0.00198
Uniformity Coefficient		4600
Curvature Coefficient		1.5

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 14/03/2017

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



4041

TEST CERTIFICATE**Dry Density / Moisture Content Relationship
Light Compaction**

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



Environmental Science

Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW

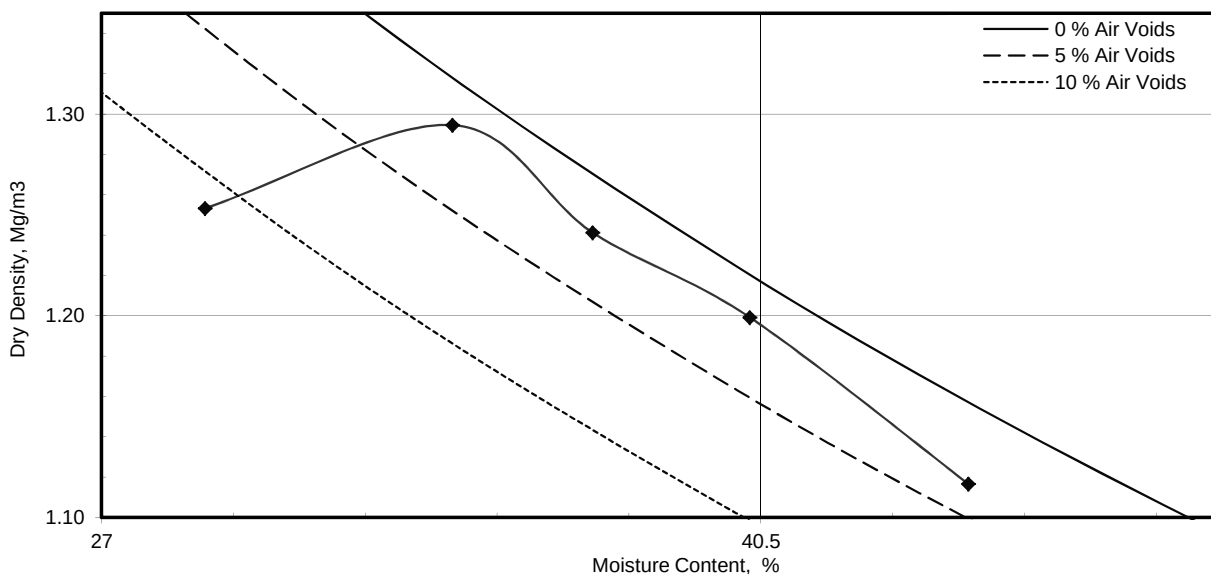
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712410
Hole No.: TP1
Sample Reference: 1
Sample Description: Dark brown slightly gravelly clayey SAND

Depth Top [m]: 2.6
Depth Base [m]: Not Given
Sample Type: B



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	2
Particle Density - Assumed	Mg/m³	2.40
As received Moisture Content	%	37
Maximum Dry Density	Mg/m³	1.29
Optimum Moisture Content	%	34

Remarks

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 14/03/2017

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



4041

TEST CERTIFICATE**Dry Density / Moisture Content Relationship
Light Compaction**

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



Environmental Science

Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW

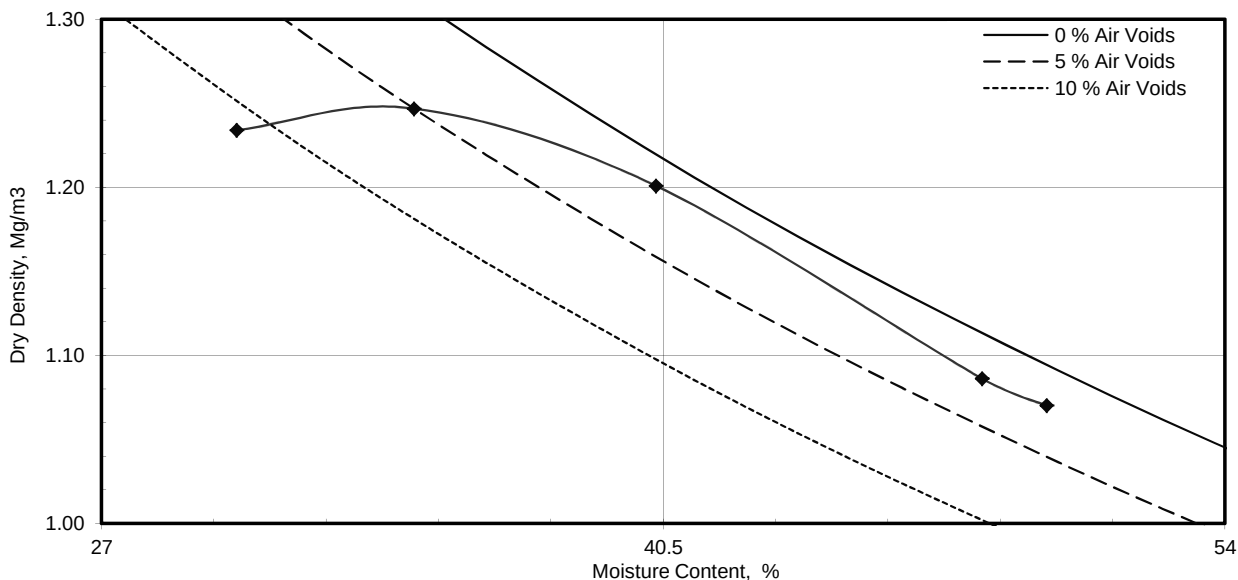
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712414
Hole No.: TP2
Sample Reference: 3
Sample Description: Brown gravelly slightly sandy CLAY

Depth Top [m]: 3.6
Depth Base [m]: Not Given
Sample Type: B



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	5
Particle Density - Assumed	Mg/m³	2.40
As received Moisture Content	%	48
Maximum Dry Density	Mg/m³	1.25
Optimum Moisture Content	%	35

Remarks

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 14/03/2017

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."



4041

TEST CERTIFICATE**Dry Density / Moisture Content Relationship
Light Compaction**

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



Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW

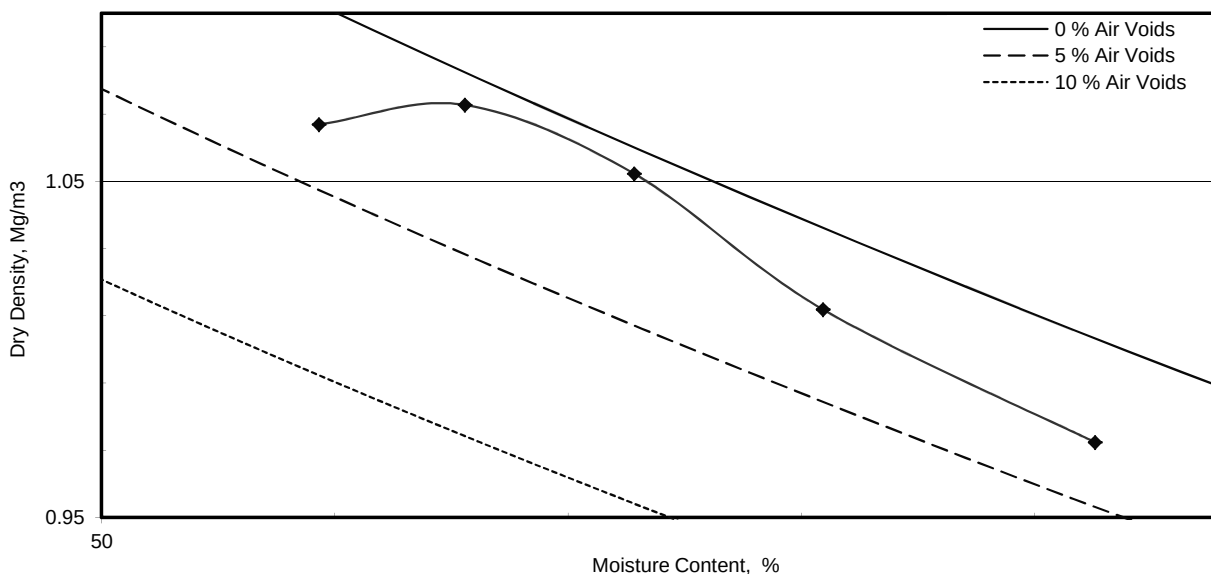
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712416
Hole No.: TP3
Sample Reference: 2
Sample Description: Brown slightly gravelly slightly sandy CLAY

Depth Top [m]: 1.5
Depth Base [m]: Not Given
Sample Type: B



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.62
As received Moisture Content	%	61
Maximum Dry Density	Mg/m³	1.07
Optimum Moisture Content	%	54

Remarks

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 14/03/2017

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



4041

TEST CERTIFICATE**Dry Density / Moisture Content Relationship
Light Compaction**

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



Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW

Client Reference: CGN/3732D

Job Number: 17-41710

Date Sampled: 24/02/2017

Date Received: 28/02/2017

Date Tested: 10/03/2017

Sampled By: Not Given

Contact: Owen Flowers

Site Name: Southall

Site Address: Not Given

TEST RESULTS

Laboratory Reference: 712418

Hole No.: TP4

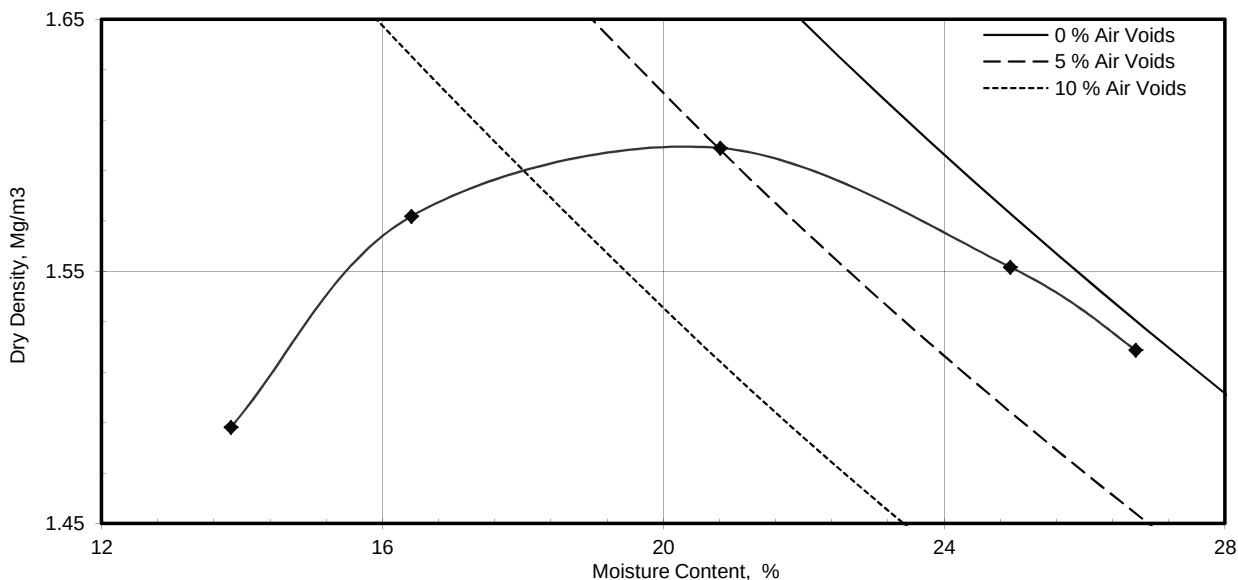
Sample Reference: 1

Sample Description: Brown gravelly slightly sandy CLAY

Depth Top [m]: 0.4

Depth Base [m]: Not Given

Sample Type: B



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	6
Material Retained on 20.0 mm Sieve	%	7
Particle Density - Assumed	Mg/m³	2.59
As received Moisture Content	%	27
Maximum Dry Density	Mg/m³	1.60
Optimum Moisture Content	%	21

Remarks

Insufficient material - compacted in proctor mould

Approved:

Signed:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 14/03/2017

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."



4041

TEST CERTIFICATE**Dry Density / Moisture Content Relationship
Light Compaction**

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



Environmental Science

Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW

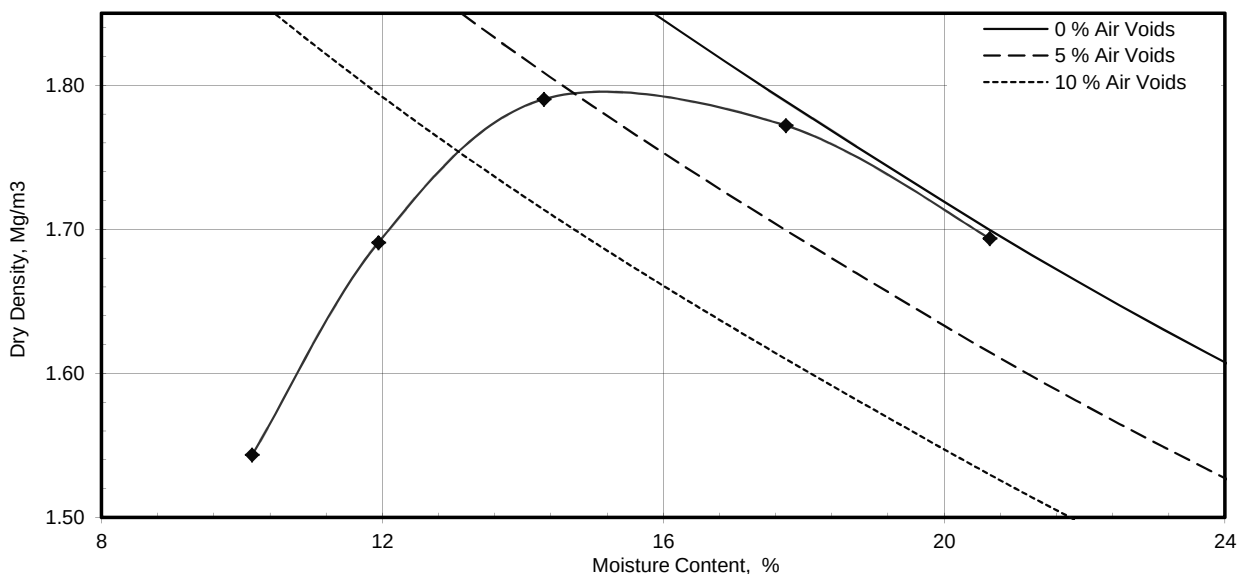
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712424
Hole No.: TP3B
Sample Reference: 1
Sample Description: Brown slightly sandy silty GRAVEL

Depth Top [m]: 1.5
Depth Base [m]: Not Given
Sample Type: B



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	3
Material Retained on 20.0 mm Sieve	%	11
Particle Density - Assumed	Mg/m³	2.62
As received Moisture Content	%	14
Maximum Dry Density	Mg/m³	1.80
Optimum Moisture Content	%	15

Remarks: Insufficient material - compacted in proctor mould

Approved:

Signed:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 14/03/2017

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."



4041

TEST CERTIFICATE

Determination of Moisture Condition Value

Tested in Accordance with BS 1377-4: 1990: Clause 5.4

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



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Lab Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 13/03/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Retained on 20mm sieve %	Moisture Content <20mm %	Moisture Condition Value	Method of Interpretation	Remarks
		Reference	Depth Top [m]	Depth Base [m]	Type						
712410	TP1	1.00	2.6	Not Given	B	Dark brown slightly gravelly clayey SAND	2	37	11.6	Steepest straight line	
712414	TP2	3.00	3.6	Not Given	B	Brown gravelly slightly sandy CLAY	5	48	8.2	Steepest straight line	
712416	TP3	2.00	1.5	Not Given	B	Brown slightly gravelly slightly sandy CLAY	0	62	6.7	Steepest straight line	
712418	TP4	1.00	0.4	Not Given	B	Brown gravelly slightly sandy CLAY	13	27	10.1	Steepest straight line	
712424	TP3B	1.00	1.5	Not Given	B	Brown slightly sandy silty GRAVEL	14	14	8.7	Steepest straight line	
712425	TP3B	2.00	2.7	Not Given	B	Brown slightly sandy clayey GRAVEL	18	11	13.6	Steepest straight line	
712426	TP4B	1.00	1.5	Not Given	B	Dark brown slightly sandy clayey GRAVEL	19	12	8.5	Steepest straight line	

Comments:

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 15/03/2017

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."

TEST CERTIFICATE

Dry Density/ Moisture Content Relationship Vibrating Hammer Compaction

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

Tested in accordance with BS 1377-4: 1990: Clause 3.7 using Vibrating Hammer

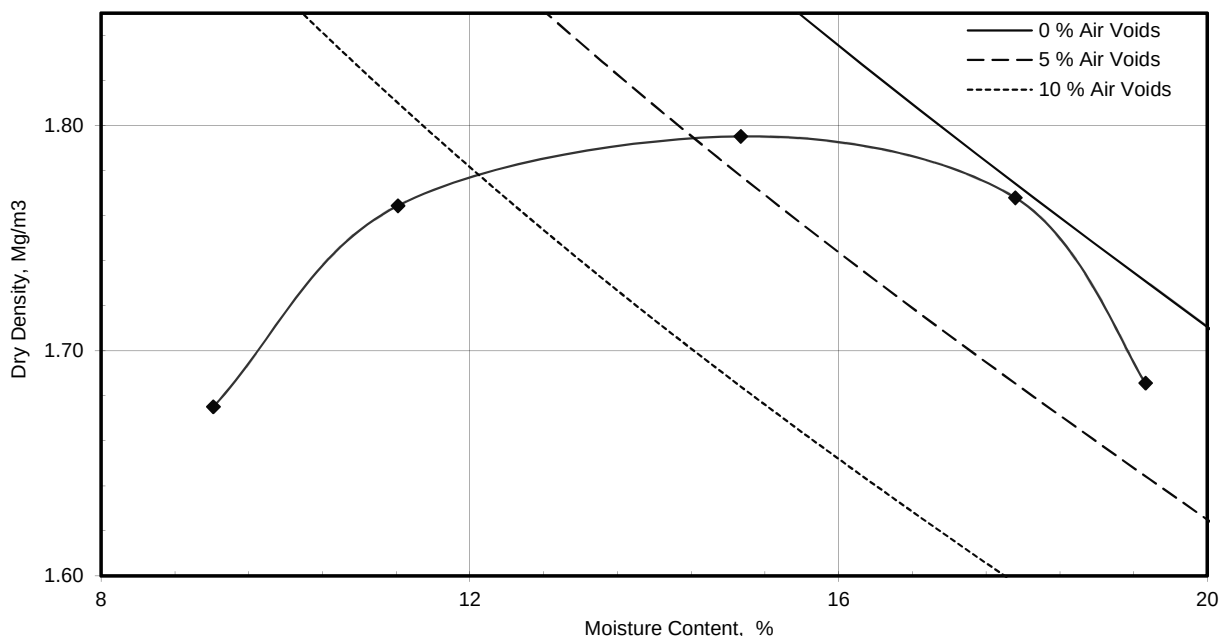
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712425
Hole No.: TP3B
Sample Reference: 2
Sample Description: Brown slightly sandy clayey GRAVEL

Depth Top [m]: 2.7
Depth Base [m]: Not Given
Sample Type: B



Preparation		Material used was natural
Mould Type		CBR
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	4
Material Retained on 20.0 mm Sieve	%	14
Particle Density - Assumed	Mg/m³	2.60
As received Moisture Content	%	11
Maximum Dry Density	Mg/m³	1.80
Optimum Moisture Content	%	15

Remarks

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 15/03/2017

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



TEST CERTIFICATE

Dry Density/ Moisture Content Relationship Vibrating Hammer Compaction

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



Tested in accordance with BS 1377-4: 1990: Clause 3.7 using Vibrating Hammer

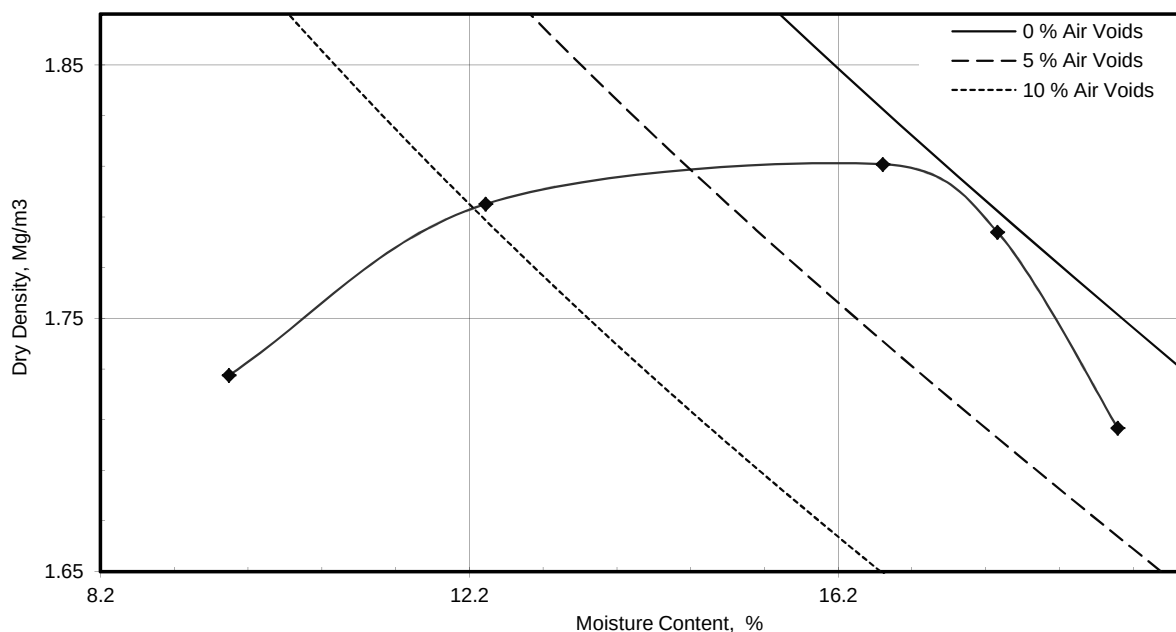
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Owen Flowers
Site Name: Southall
Site Address: Not Given

Client Reference: CGN/3732D
Job Number: 17-41710
Date Sampled: 24/02/2017
Date Received: 28/02/2017
Date Tested: 10/03/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 712426
Hole No.: TP4B
Sample Reference: 1
Sample Description: Dark brown slightly sandy clayey GRAVEL

Depth Top [m]: 1.5
Depth Base [m]: Not Given
Sample Type: B



Preparation	Material used was natural	
Mould Type	CBR	
Samples Used	Composite specimens tested	
Material Retained on 37.5 mm Sieve	%	4
Material Retained on 20.0 mm Sieve	%	16
Particle Density - Assumed	Mg/m³	2.64
As received Moisture Content	%	12
Maximum Dry Density	Mg/m³	1.81

Optimum Moisture Content	%	17
--------------------------	---	----

Remarks

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 15/03/2017

for and on behalf of i2 Analytical Ltd

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



Moisture Condition Value / Moisture Content Relationship

Job Ref 17-41710

Borehole/Pit No. TP2

Environmental science					
Site Name	Southall			Sample No.	4
Soil Description	Black slightly gravelly slightly sandy clayey SILT			Depth	3.6
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	712415
Test Method	BS1377:Part4:1990:clause 5.5			Date started	13/03/2017

Sample preparation

Amount of material larger than 20mm sieve removed	0	%
Natural Moisture Content of sample	43.6	%
Initial Moisture Content of test sample below 20mm	43.6	%
Composite of fresh and reused material tested		

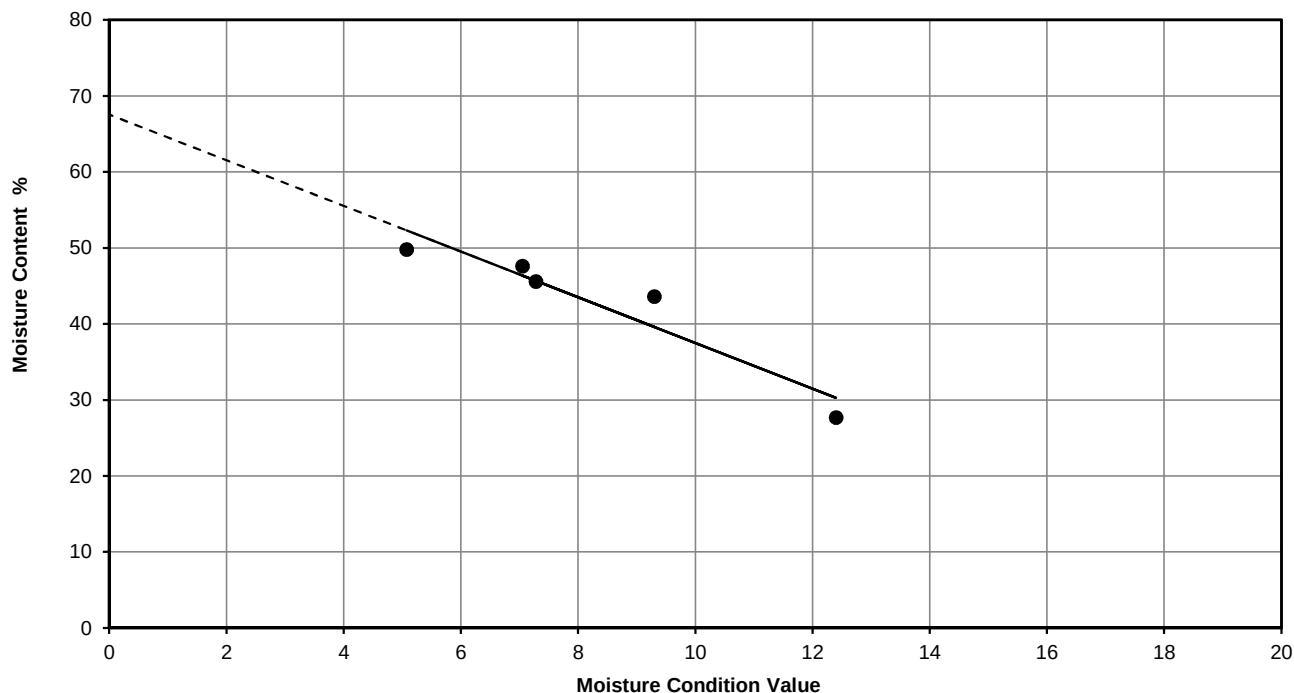
General remarks

Table of results

MCV Test Number
Moisture Content, %
Moisture Condition Value
MCV report
Effective / Valid data point
Specimen remarks

1	2	3	4	5
27.7	43.6	45.6	47.6	49.8
12.4	9.3	7.3	7.0	5.1
12.4	9.3	7.3	7	5.1
YES	YES	YES	YES	YES

● valid points × invalid points - - - - - extended regression — linear regression



Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section
Date Reported: 15/03/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland.



Moisture Condition Value / Moisture Content Relationship

Job Ref 17-41710

Borehole/Pit No. TP3

Site Name	Southall			Sample No.	3
Soil Description	Brown slightly gravelly slightly sandy clayey SILT			Depth	1.7
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	712417
Test Method	BS1377:Part4:1990:clause 5.5			Date started	13/03/2017

Sample preparation

Amount of material larger than 20mm sieve removed	0	%
Natural Moisture Content of sample	60.4	%
Initial Moisture Content of test sample below 20mm	60.4	%
Composite of fresh and reused material tested		

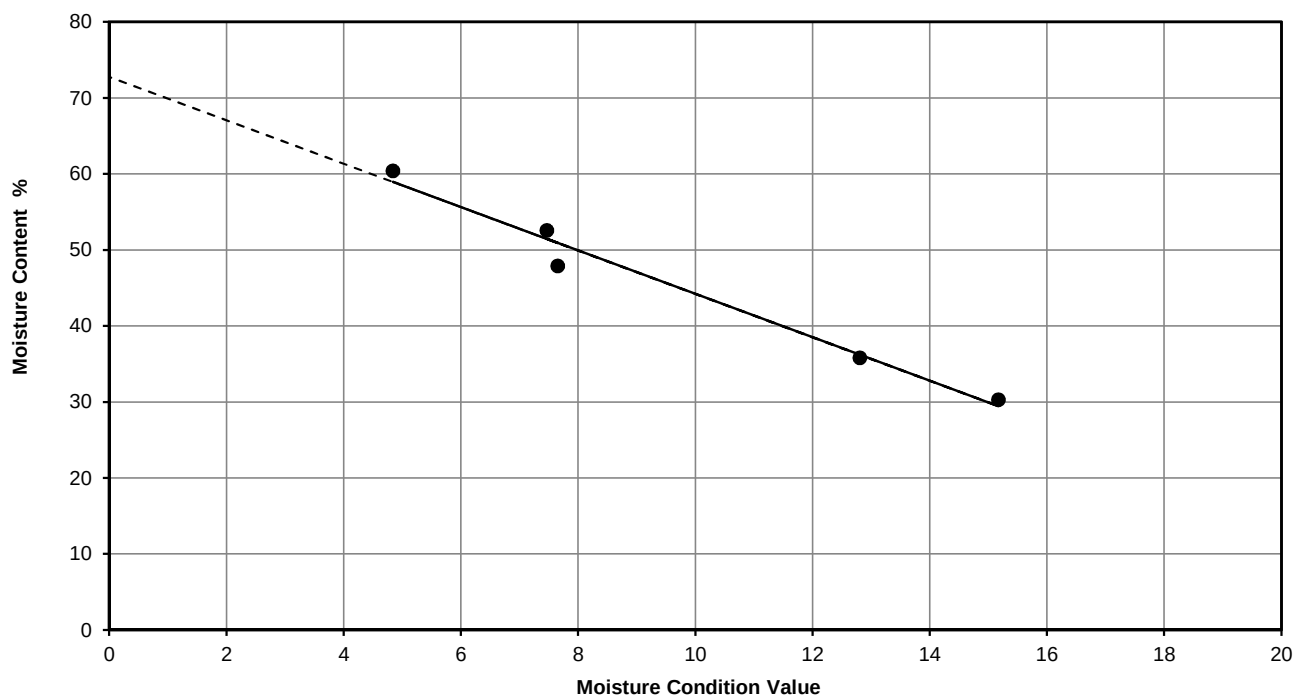
General remarks

Table of results

MCV Test Number
Moisture Content, %
Moisture Condition Value
MCV report
Effective / Valid data point
Specimen remarks

1	2	3	4	5
30.3	35.8	47.9	52.6	60.4
15.2	12.8	7.7	7.5	4.8
15.2	12.8	7.7	7.5	4.8
YES	YES	YES	YES	YES

● valid points × invalid points - - - - - extended regression — linear regression



Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section
Date Reported: 15/03/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland.



Moisture Condition Value / Moisture Content Relationship

Job Ref 17-41710

Borehole/Pit No. TP3B

Site Name	Southall			Sample No.	1
Soil Description	Brown slightly sandy silty GRAVEL			Depth	1.5
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	712424
Test Method	BS1377:Part4:1990:clause 5.5			Date started	13/03/2017

Sample preparation

Amount of material larger than 20mm sieve removed	14	%
Natural Moisture Content of sample	N/A	%
Initial Moisture Content of test sample below 20mm	14.3	%
Composite of fresh and reused material tested		

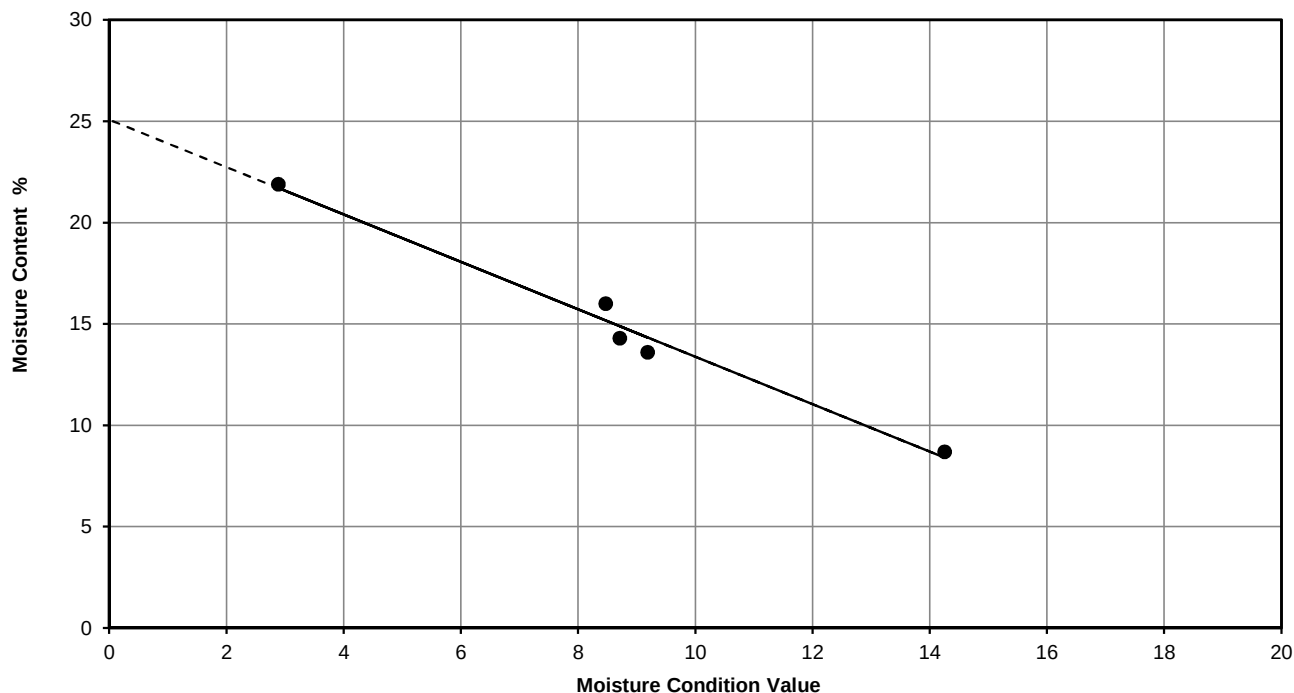
General remarks

Table of results

MCV Test Number
Moisture Content, %
Moisture Condition Value
MCV report
Effective / Valid data point
Specimen remarks

1	2	3	4	5
8.7	13.6	14.3	16.0	21.9
14.3	9.2	8.7	8.5	2.9
14.3	9.2	8.7	8.5	2.9
YES	YES	YES	YES	YES

● valid points × invalid points - - - - - extended regression — linear regression



Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section
Date Reported: 15/03/2017

Mirosława Pytlík

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

S. Sharda

for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland.



Moisture Condition Value / Moisture Content Relationship

Job Ref 17-41710

Borehole/Pit No. TP4

Site Name	Southall			Sample No.	2
Soil Description	Yellowish brown slightly gravelly silty CLAY			Depth	0.6
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	712419
Test Method	BS1377:Part4:1990:clause 5.5			Date started	13/03/2017

Sample preparation

Amount of material larger than 20mm sieve removed	6	%
Natural Moisture Content of sample	N/A	%
Initial Moisture Content of test sample below 20mm	23.6	%
Composite of fresh and reused material tested		

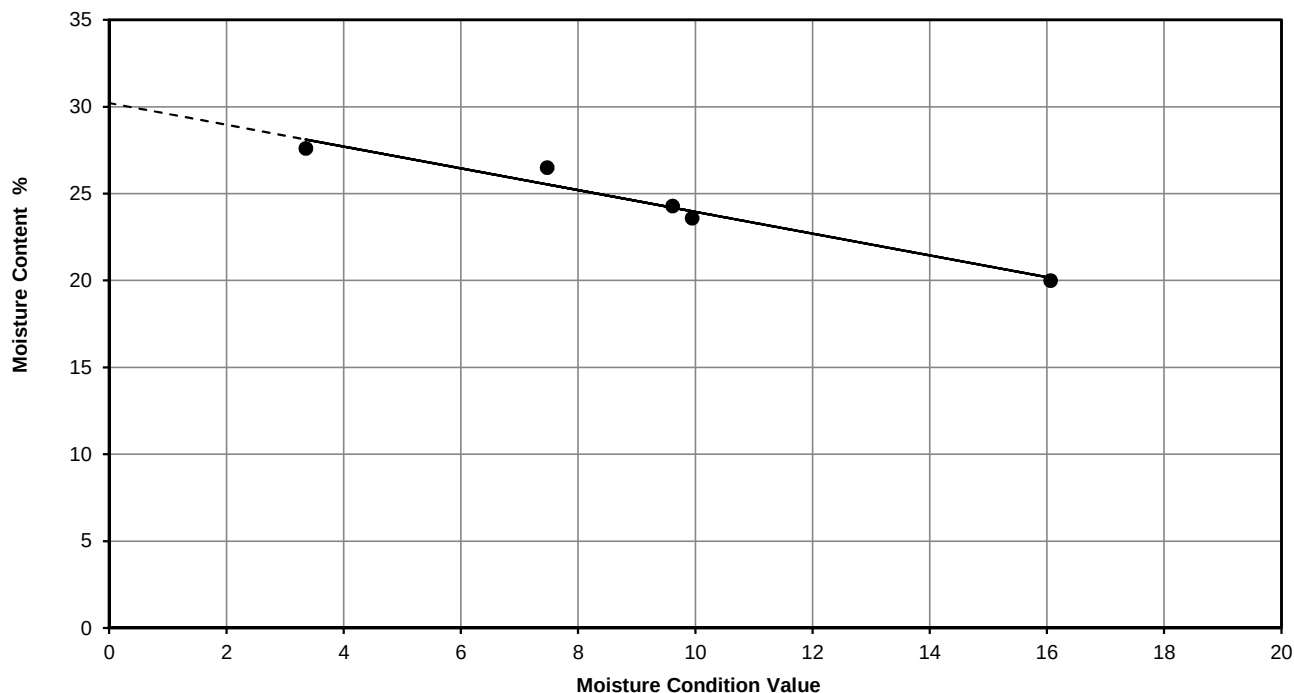
General remarks

Table of results

MCV Test Number
Moisture Content, %
Moisture Condition Value
MCV report
Effective / Valid data point
Specimen remarks

1	2	3	4	5
20.0	23.6	24.3	26.5	27.6
16.1	9.9	9.6	7.5	3.4
16.1	9.9	9.6	7.5	3.4
YES	YES	YES	YES	YES

● valid points × invalid points - - - - extended regression — linear regression



Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section
Date Reported: 15/03/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland.



Moisture Condition Value / Moisture Content Relationship

Job Ref 17-41710

Borehole/Pit No. TP1

Environmental science

Site Name	Southall			Sample No.	1
Soil Description	Dark brown slightly gravelly clayey SAND			Depth	2.6
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	712410
Test Method	BS1377:Part4:1990:clause 5.5			Date started	13/03/2017

Sample preparation

Amount of material larger than 20mm sieve removed	2	%
Natural Moisture Content of sample	N/A	%
Initial Moisture Content of test sample below 20mm	37.1	%
Composite of fresh and reused material tested		

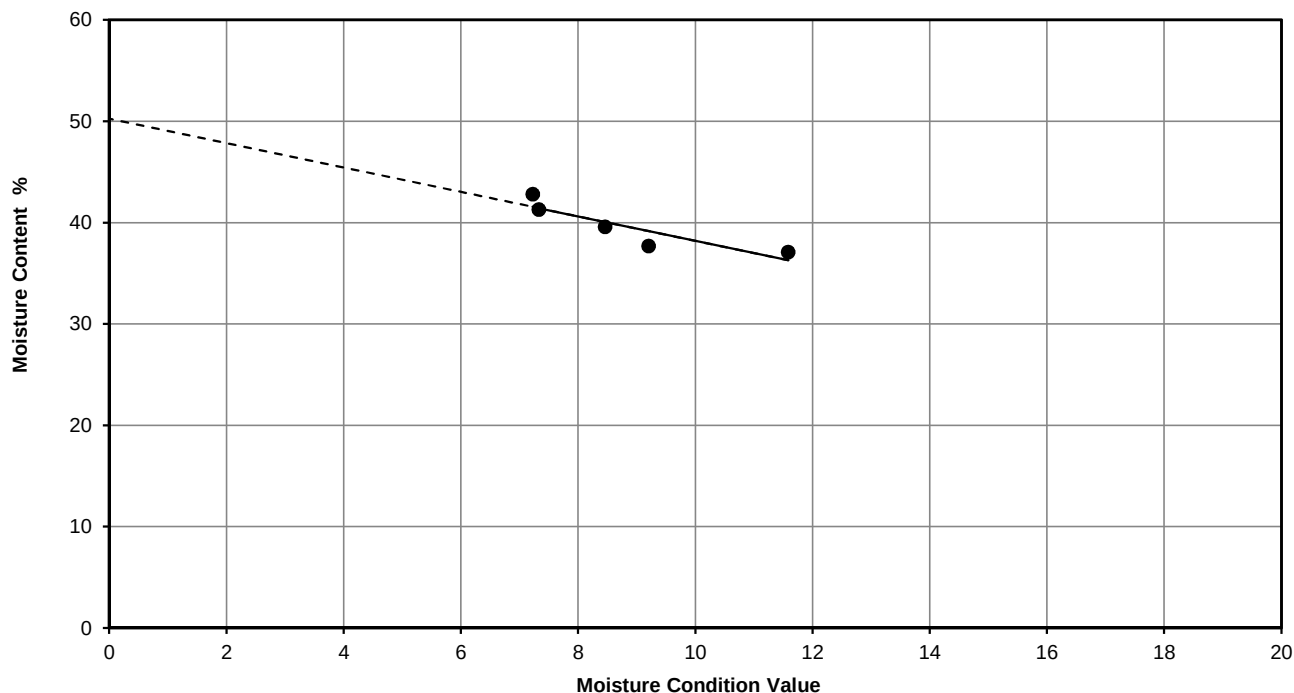
General remarks

Table of results

MCV Test Number
Moisture Content, %
Moisture Condition Value
MCV report
Effective / Valid data point
Specimen remarks

1	2	3	4	5
37.1	37.7	39.6	41.3	42.8
11.6	9.2	8.5	7.3	7.2
11.6	9.2	8.5	7.3	7.2
YES	YES	YES	YES	YES

● valid points × invalid points - - - - - extended regression — linear regression



Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section
Date Reported: 15/03/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

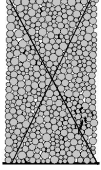
for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland.

Total Stress Triaxial Compression

Unconsolidated Undrained (Single Stage)

Summary Report

Sample Details  <i>sketch showing specimen location in original sample</i>	Depth	2.60		
	Description	Dark brown slightly gravelly slightly sandy clayey SILT		
	Type	B		
	Initial Sample Length	L_0	(mm)	70.6
	Initial Sample Diameter	D_0	(mm)	37.7
	Initial Sample Weight	W_0	(gr)	129.3
	Bulk Density	ρ_0	(Mg/m ³)	1.64
	Particle Density	ρ_s	(Mg/m ³)	2.65

Initial Conditions				
Initial Cell Pressure	σ_3	(kPa)	52	
Strain Rate	$\dot{\epsilon}$	(mm/min)	1.41220	
Membrane Thickness	m_b	(mm)	0.21	
Displacement Input	L_{IP}	(mm)	CH 2	
Load Input	N_{IP}	(N)	CH 1	
Initial Moisture	ω_i	(%)	27	
Initial Dry Density	ρ_{d0}	(Mg/m ³)	1.29	
Initial Voids Ratio	e_0	.	1.06	
Initial Degree of Saturation	S_o	(%)	69	

Final Conditions				
Max Deviator Stress	$(\sigma_1 - \sigma_3)_f$	(kPa)	181	
Membrane Correction	m_c	(kPa)	1.688	
Strain At Max Stress	ϵ_f	(%)	12.35	
Shear Strength	c_u	(kPa)	90	
Final Moisture	ω_f	(%)	27	
Final Dry Density	ρ_{df}	(Mg/m3)	1.29	
Final Voids Ratio	e_f	.	1.06	
Final Degree of Saturation	S_f	(%)	68.6	
Notes				
Triaxial at over burden				
				Failure Sketch (surface inclination)

	Test Method		BS1377-7 : 1990 Clause 8		Test Name		712411				
	Database:		. \SQLEXPRESS \ 6171-I2 Analytical		Test Date		13/03/2017				
	Site Reference		Southall		Borehole		TP1				
	Jobfile		17-41710		Sample		2				
	Client		Card		Depth		2.60				
	Operator		palmowska		Checked		pytlikm		Approved		pytlikm

i2 Analytical Limited, 7 Woodshots Meadow, Croxley Green Business Park, Herts WD18 8YS

i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland