

Phoenix Place Boreholes																			
Borehole	Ground Level (mAOD)	Groundwater level 1 (mbgl)	Groundwater level 1 (mAOD)	Groundwater level 2 (mbgl)	Groundwater level 2 (mAOD)	Groundwater level 3 (mbgl)	Groundwater level 3 (mAOD)	Groundwater level 4 (mbgl)	Groundwater level 4 (mAOD)	Groundwater level 5 (mbgl)	Groundwater level 5 (mAOD)	Groundwater level 6 (mbgl)	Groundwater level 6 (mAOD)	Groundwater level 7 (mbgl)	Groundwater level 7 (mAOD)	Groundwater level 8 (mbgl)	Groundwater level 8 (mAOD)	Groundwater level 9 (mbgl)	Groundwater level 9 (mAOD)
BH11	17.458	5.84	11.62	5.60	11.86	5.59	11.87	5.57	11.89	5.77	11.69	5.67	11.79	5.67	11.79	5.69	11.77	5.73	11.728
BH11 Deep	17.46	10.40	7.06	10.42	7.04	10.41	7.05	10.45	7.01	10.40	7.06	10.35	7.11	10.35	7.11	10.56	6.90	10.54	6.92
BH12	16.047	4.77	11.28	4.82	11.23	4.75	11.30	4.67	11.38	4.67	11.38	4.62	11.43	4.64	11.41	4.82	11.23	4.82	11.227
BH12 Deep	16.05	10.12	-1.21	17.14	-1.09	17.97	-1.92	17.85	-1.80	17.97	-1.92	17.65	-1.60	19.50	-3.45	19.39	-3.34	19.08	-3.03
BH13	14.687	1.95	12.74	1.96	12.73	1.96	12.73	1.97	12.72	1.96	12.73	1.96	12.73	1.94	12.75	Dry	N/A		
BH13 Deep	14.69	4.20	10.49	4.19	10.50	4.20	10.49	4.15	10.54	4.20	10.49	4.18	10.51	4.24	10.45	3.25	11.44		
BH14	14.204	4.66	9.54	4.00	10.20	3.95	10.25	3.96	10.24	3.95	10.25	3.96	10.24	3.93	10.28	4.10	10.10		
BH14 Deep	14.2	26.73	-12.53	26.32	-12.12	26.45	-12.25	26.82	-12.62	26.75	-12.55	26.74	-12.56	26.60	-12.40	Dry	Dry		
BH15 Shallow	17.611	Dry	N/A	Dry	N/A	Dry	N/A	Dry	N/A	Dry	N/A	Dry	N/A	Dry	N/A	Dry	N/A	Dry	N/A
BH15 Deep 1	17.611	15.70	1.91	14.03	3.58	14.22	3.39	14.71	2.90	14.71	2.09	13.41	4.20	13.41	4.20	13.19	4.42	11.72	5.891
BH15 Deep 2	17.611	Dry	N/A	Dry	N/A	Dry	N/A	Dry	N/A	23.29	-5.68	23.10	-5.49	23.10	-5.49	23.10	-5.49	Dry	N/A
BH19	18.723	3.85	14.87	3.90	14.82	3.86	14.86	3.95	14.77	3.73	14.99	3.75	14.97	3.80	14.92	3.73	14.99		
BH19 Deep	18.723	8.12	10.60	8.10	10.62	7.50	11.22	7.76	10.96	7.81	10.91	7.80	10.92	7.56	11.16				
BH19 Deep 2	18.723	21.69	-2.97	21.50	-2.78	21.58	-2.86	21.55	-2.83	21.47	-2.75	21.62	-2.90	21.51	-2.79				
BH20	17.169	5.37	11.80	5.42	11.75	5.50	11.67	5.59	11.58	5.69	11.48	5.62	11.55	5.75	11.42				
BH21	16.92	4.30	12.62	3.01	13.91	2.99	13.93	3.01	13.91	2.75	14.17	2.84	14.08	2.84	14.08	2.98	13.94	3.21	13.71
BH21 Deep	16.92	9.85	7.07	9.83	7.09	9.83	7.09	9.83	7.09	9.80	7.12	9.74	7.18	9.74	7.18	9.53	7.39	9.9	7.02
BH22	11.891	1.97	9.92	2.07	9.82	1.99	9.90	1.99	9.90	2.00	9.89	2.08	9.81	2.06	9.83				
BH23	14.011	3.53	10.48	3.57	10.44	3.60	10.41	3.51	10.50	3.63	10.38	3.50	10.51	3.53	10.48				
BH23 Deep	14.011	24.30	-10.29	24.25	-10.24	24.20	-10.19	24.35	-10.34	24.30	-10.29	24.26	-10.25	Dry	N/A				
Calthorpe Street Boreholes																			
BH1	14.728	3.41	11.32	3.34	11.39	3.30	11.43	3.35	11.38	3.39	11.34	3.16	11.57						
BH3	14.729	1.56	13.17	Dry	N/A	1.55	13.18	1.55	13.18	Dry	N/A	1.50	13.23						
BH3 Deep	14.729	18.66	-3.93	19.32	-4.59	19.32	-4.59	19.85	-5.12	19.85	-5.12	19.73	-5.00						
BH4	19.946	4.51	15.44	4.48	15.47	4.52	15.25	4.47	15.48	4.45	15.50	4.48	15.47						
BH4 Deep	19.946	10.81	9.14	12.05	7.90	12.82	7.13	12.80	7.15	12.50	7.45	12.55	7.40						
BH5	14.585	1.23	13.36	1.34	13.25	1.30	13.29	1.28	13.31	1.25	13.34								
BH5 Deep	14.59	19.31	-4.72	20.25	-5.66	20.14	-5.55	20.20	-5.61	20.05	-5.46								
BH6	14.768	3.66	11.11	3.70	11.07	3.60	11.17	3.59	11.18	3.53	11.24								
BH7	14.73	3.70	11.03	3.71	11.02	3.66	11.07	3.70	11.03	3.71	11.02	3.68	11.05	3.70	11.03				
BH8	18.427	7.36	11.07	7.30	11.13	7.32	11.11	7.31	11.12	7.32	11.11	7.29	11.14	7.37	11.06				
BH8 Deep	18.427	10.44	7.99	7.35	11.08	7.38	11.05	7.48	11.02	7.42	11.01	7.76	10.67	7.47	10.96				
BH9	18.373	7.02	11.35	6.69	11.68	7.00	11.37	7.01	11.36	7.05	11.32	6.89	11.48	7.08	11.29				
BH9 Deep	18.373	7.09	11.28	10.22	8.15	7.28	11.09	7.25	11.12	7.31	11.06	7.59	10.78	7.34	11.03				
BH10	18.648	5.25	13.40	5.28	13.37	5.10	13.55	5.16	13.49	5.15	13.50	5.15	13.50						
BH10 Deep	18.648	7.45	11.20	7.45	11.20	7.45	11.20	7.57	11.14	7.50	11.15	7.59	11.06						
BH16	14.816	2.88	11.94	2.59	12.23	2.67	12.15	2.98	11.84	2.51	12.31	2.50	12.32	2.76	12.06	2.66	12.16		
BH16 Deep	14.816	19.36	-4.54	19.04	-4.22	19.38	-4.56	19.50	-4.68	19.47	-4.65	19.45	-4.63	19.28	-4.46	19.30	-4.48		
BH17	14.517	1.32	13.20	1.32	13.20	1.32	13.20	1.35	13.17	1.30	13.22	1.34	13.18						
BH18	18.153	8.28	9.87	8.26	9.89	8.28	9.87	8.05	10.10	8.07	10.08	8.11	10.04	8.30	9.85				



APPENDIX E

CERTIFICATES OF GEOTECHNICAL LABORATORY ANALYSIS

Structural Soils Limited

The Old School
Stillhouse Lane
Bedminster
Bristol
BS3 4EB
For the attention of Sharon Cairns

Report No: B20578
Issue No 01

LABORATORY TEST REPORT

Project Name		ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	
Project Number		B20578	Date samples received 12/01/2017
Your Ref			Date written instructions received 12/01/2017
Purchase Order		28459	Date testing commenced 12/01/2017
Please find enclosed the results as summarised below			
Figure / Table	Test Quantity	Description	ISO 17025 Accredited
1	~	Summary of Geotechnical Tests	See report
2	46	BRE Suites - Soil	See report
3-41	39	Atterberg Limit	Yes
42-75	34	Particle Size Distribution	Yes
76-77	2	One Dimensional Consolidation	Yes
78-84	7	Shear Strength by Direct Shear (small shearbox)	Yes
85	1	Hand Vane	No
86-119	34	Unconsolidated Undrained Single Stage Triaxial Compression	Yes
120-122	3	Consolidated Undrained Multistage Triaxial Test with Pore Pressure Measurement	Yes
App S1	~	Sample Descriptions - Soil	N/A
App S2	~	Deviating Samples - Soil	N/A
App S3	~	Summary of In-House Analytical Test Methods - Soil	N/A
Remarks :			
Issued by : Stephen Langman		Date of Issue : 29/03/2017	Key to symbols used in this report S/C : Testing was sub-contracted
Approved Signatories :  29/03/2017 G Wilson (JMD/Laboratories Director), S Langman (Laboratory Coordinator)			
Unless we are notified to the contrary, samples will be disposed after a period of one month from this date. The results reported relate to samples received in the laboratory only. All results contained in this report are provisional unless signed by an approved signatory This report should not be reproduced except in full without the written approval of the laboratory. Under multisite accreditation the testing contained in this report may have been performed at another Terra Tek laboratory. The enclosed results remain the property of Terra Tek Limited and we reserve the right to withdraw our report if we have not received cleared funds in accordance with our standard terms and conditions Only those results indicated in this report are UKAS accredited and any opinions or interpretations expressed are outside the scope of UKAS accreditation. Feedback on the this report may be left via our website www.terratek.co.uk/contact-us			



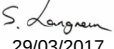
Moor Lane, Witton, Birmingham, B6 7HG
Tel: +44 (0)121 344 4838 Fax: +44 (0)121 356 3599
birmingham@terratek.co.uk
www.terratek.co.uk
Terra Tek Ltd is registered in Scotland No. 121594
Offices in Airdrie, Birmingham, Belfast and Chesham

Head Office : 62 Rochsolloch Road, Airdrie, ML6 9BG



TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE															Contract No B20578				
	Client Royal Mail Group Limited																			
	Engineer																			
Sample Identification				Lab Sample ID	Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress			Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C	Angle of Shearing Resistance Phi			
BH11	8.50		T	405418	Brown slightly sandy CLAY.	24	56	18	38	0	CH							BRE SD1 Suite		
BH11	10.50		T	405419	Dark brown CLAY with some fine to medium gravel.															
BH11	12.00		U	405724		26						2.03	1.61	157						
BH11	14.50		T	405420	Brown CLAY.	32	57	20	37	0	CH									
BH11	17.50		T	405421	Brown CLAY.	29	78	25	53	0	CV									
Notes				Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets		
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS															Tk Figure 1 Sheet 2 of 33	
ME		S. Langren 29/03/2017																		

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE															Contract No B20578			
	Client Royal Mail Group Limited																		
	Engineer																		
Sample Identification					Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress		Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C		Angle of Shearing Resistance Phi	
BH11	18.00-18.45		U	405719	Red brown mottled grey CLAY.	24	69	27	42	0	CH						BRE SD1 Suite		
BH11	20.50		T	405422	Grey mottled brown CLAY with occasional fine gravel.														
BH11	24.00		U	405721		24						1.97	1.59	175					
BH11	26.50		T	405423	Brown mottled grey very sandy CLAY.	13	44	17	27	0	CI								
BH11	29.50		U	405722		16						2.07	1.78	291					
Notes				Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets	
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS														Tk Figure 1 Sheet 3 of 33	
ME		S. Langren 29/03/2017																	

 TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE												Contract No B20578			
				Client Royal Mail Group Limited															
				Engineer															
Sample Identification				Lab Sample ID	Non Engineering Sample Description	Moisture Content %	Atterberg limits					Particle Density Mg/m ³	Density		Total Stress			Other Tests	
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit %	Plastic Limit %	Plasticity Index %	Percentage retained 425µm %	Atterberg Classification		Bulk Mg/m ³	Dry Mg/m ³	Shear Strength kPa	Apparent Cohesion C kPa	Angle of Shearing Resistance Phi		
BH11	31.00-32.00	COMBINED	B	405914	Brown sandy CLAY with occasional fine gravel.													PSD	
BH11	34.00-34.50		B	405492														PSD	
BH11	35.50-36.00		B	405493														BRE SD1 Suite	
BH11	37.00-37.50		B	405494														Shearbox	
BH11	40.00-40.50		B	405495														PSD	
Notes Opinions and interpretations are outside the scope of UKAS accreditation					UKAS Accredited Test Y/N	Test details are given on the 'Notes on Laboratory Procedures' sheet											See individual report sheets		
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS														 Figure 1 Sheet 4 of 33	
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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE														Contract No B20578				
	Client Royal Mail Group Limited																		
	Engineer																		
Sample Identification					Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress		Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C		Angle of Shearing Resistance Phi	
BH12	3.20-3.65		B	405496	Dark brown CLAY with some fine to medium gravel.	%	%	%				Mg/m³	Mg/m³	Mg/m³	kPa	kPa	BRE SD1 Suite		
BH12	8.00-8.45		B	405497	Dark brown CLAY with some fine to medium gravel.												BRE SD1 Suite		
BH12	8.70		B	405498	Brown CLAY.	33	75	28	47	0	CV								
BH12	9.50		U	405716		27						2.01	1.58	112					
BH12	11.00-11.45		B	405499	Brown CLAY with occasional fine to medium gravel.												BRE SD1 Suite		
Notes				Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets	
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS														Tk Figure 1 Sheet 5 of 33	
ME		S. Langren 29/03/2017																	

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE													Contract No B20578		
				Client Royal Mail Group Limited															
				Engineer															
Sample Identification					Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress			Other Tests	
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C	Angle of Shearing Resistance Phi		
BH12	12.50-12.95		U	405718	Brown mottled grey CLAY. Brownish grey CLAY	21							2.11	1.74	93			BRE SD1 Suite Oed	
BH12	15.50-15.95		U	405715		39								1.99	1.43	21			
BH12	16.30		T	405425		27	76	27	49	0	CV								
BH12	19.50		T	405426															
BH12	22.00-22.95		U	405717		24								2.01	1.62				
Notes Opinions and interpretations are outside the scope of UKAS accreditation				UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet												See individual report sheets	
						Y	Y	Y	Y	Y	-	Y	Y	Y	Y	Y	Y		
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS														Tk Figure 1	
ME		S. Langren 29/03/2017																	
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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE															Contract No B20578				
	Client Royal Mail Group Limited																			
	Engineer																			
Sample Identification					Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress			Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C	Angle of Shearing Resistance Phi			
BH12	28.50	COMBINED	U	405714	Brown mottled grey CLAY.	30	80	29	51	0	CV	Mg/m³	Mg/m³	Mg/m³	kPa	kPa		Shear Vane		
BH12	28.95		T	405427	Brown CLAY.	25	59	23	36	0	CH									
BH12	33.00-39.00		T	405915														PSD		
BH12	33.00		T	405428	Brown clayey SAND with occasional fine to medium gravel.													BRE SD1 Suite		
BH13	2.20		T	405431	Brown SAND with some fine to medium gravel.													BRE SD1 Suite		
Notes Opinions and interpretations are outside the scope of UKAS accreditation				UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet												See individual report sheets		
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS															Tk Figure 1	
ME		S. Langren 29/03/2017																		
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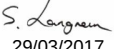
Figure 1

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Tk **Figure 1**

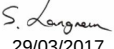
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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				ROYAL MAIL MOUNT PLEASANT SORTING OFFICE													Contract No B20578			
				Client Royal Mail Group Limited																
				Engineer																
Sample Identification					Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress			Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C	Angle of Shearing Resistance Phi			
BH13	23.40		T	405440	Brownish grey CLAY with occasional fine gravel.	%	%	%				Mg/m³	Mg/m³	Mg/m³	kPa	kPa		BRE SD1 Suite		
BH13	24.00-24.95		U	405696		24							2.08	1.68	173					
BH13	25.50		T	405441	Brown slightly sandy CLAY with occasional gravel. Gravel is fine to medium.	19	51	18	33	4	CH									
BH13	27.00-27.45		U	406033	Light brown very clayey very silty SAND.	22	57	19	38	0	CH							PSD		
BH13	27.40-28.00	COMBINED	T	405916														PSD		
Notes				Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets		
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS															Tk Figure 1 Sheet 10 of 33	
ME		S. Langren 29/03/2017																		

 TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE												Contract No B20578			
				Client Royal Mail Group Limited															
				Engineer															
Sample Identification				Lab Sample ID	Non Engineering Sample Description	Moisture Content %	Atterberg limits					Particle Density Mg/m ³	Density		Total Stress			Other Tests	
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit %	Plastic Limit %	Plasticity Index %	Percentage retained 425µm %	Atterberg Classification		Bulk Mg/m ³	Dry Mg/m ³	Shear Strength kPa	Apparent Cohesion C kPa	Angle of Shearing Resistance Phi		
BH13	28.50-29.00		B	405501													PSD		
BH13	31.50-32.00		B	405502	Greyish brown SAND.												Shearbox		
BH13	33.00-33.50		B	405503													PSD		
BH13	37.50-38.00		B	405504	White putty CHALK.	25	29	19	10	0	CL								
BH13	43.00-43.50		B	406039	White clayey CHALK with occasional flint and gravel. Gravel is fine to medium.	25	28	15	13	4	CL								
Notes				Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets	
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS														 Figure 1 Sheet 11 of 33	
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 TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE												Contract No B20578				
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Sample Identification				Lab Sample ID	Non Engineering Sample Description	Moisture Content %	Atterberg limits					Particle Density Mg/m ³	Density		Total Stress			Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit %	Plastic Limit %	Plasticity Index %	Percentage retained 425µm %	Atterberg Classification		Bulk Mg/m ³	Dry Mg/m ³	Shear Strength kPa	Apparent Cohesion C kPa	Angle of Shearing Resistance Phi			
BH13	49.00-49.50		B	405505	White clayey CHALK with occasional flint and gravel. Gravel is fine to medium.	11	23	15	8	4	CL							BRE SD1 Suite		
BH14	1.20-1.70		B	405506	Dark brown SAND with some fine to medium gravel.															
BH14	4.00-4.50		B	405507	Dark brown CLAY with some fine to medium gravel.															
BH14	6.20		D	405469	Brown CLAY.	38	82	28	54	0	CV									
BH14	8.00		U	405732		29						2.02	1.57	85						
Notes					Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets	
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS														 Figure 1 Sheet 12 of 33		
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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE														Contract No B20578				
	Client Royal Mail Group Limited																		
	Engineer																		
Sample Identification					Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress		Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C		Angle of Shearing Resistance Phi	
BH14	9.00		D	405470	Brown CLAY	%	%	%		%							BRE SD1 Suite		
BH14	12.00		D	405471	Brown CLAY.	26	61	23	38	0	CH								
BH14	14.00		U	406032	Brown CLAY.	24						2.12	1.71	90					
BH14	15.00		D	405472	Brown CLAY												BRE SD1 Suite		
BH14	17.00		U	406031	Brown CLAY/SAND.	15						1.99	1.73	103					
Notes				Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets	
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS														Tk Figure 1 Sheet 13 of 33	
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 TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE												Contract No B20578			
				Client Royal Mail Group Limited															
				Engineer															
Sample Identification				Lab Sample ID	Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress			Other Tests	
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C	Angle of Shearing Resistance Phi		
BH14	18.00		D	405473	Brown slightly sandy CLAY.	16	44	18	26	0	CI								
BH14	23.00-23.50		B	405508	Grey fine to coarse GRAVEL with some sand.														PSD
BH14	26.00-26.50		B	405509															PSD,BRE SD1 Suite
BH14	28.50		D	405474															PSD
BH14	30.00		D	406041	A slurry of brown SILT.														Shearbox
Notes				Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets	
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS														 Figure 1 Sheet 14 of 33	
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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				ROYAL MAIL MOUNT PLEASANT SORTING OFFICE													Contract No B20578			
				Client Royal Mail Group Limited																
				Engineer																
Sample Identification					Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress			Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C	Angle of Shearing Resistance Phi			
BH14	34.50		D	405476	Grey SAND	%	%	%				Mg/m³	Mg/m³	Mg/m³	kPa	kPa		PSD,BRE SD1 Suite		
BH15B	4.80		D	405478	Brown CLAY with occasional fine gravel.													BRE SD1 Suite		
BH15B	6.50		U	405705		32							1.91	1.45	70					
BH15B	7.50		D	405479	Brown slightly sandy CLAY.	34	81	27	54	0	CV									
BH15B	9.50		U	406034	Dark brown CLAY.	24							2.10	1.69	99					
Notes				Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets		
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS															Tk Figure 1 Sheet 15 of 33	
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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE															Contract No B20578				
	Client Royal Mail Group Limited																			
	Engineer																			
Sample Identification				Lab Sample ID	Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress			Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C	Angle of Shearing Resistance Phi			
BH15B	10.50		D	405480	Brown slightly sandy CLAY.	29	67	22	45	0	CH							BRE SD1 Suite		
BH15B	12.00		D	405481	Dark brown CLAY with some fine gravel.															
BH15B	15.50		U	405706		23						2.09	1.70	176						
BH15B	16.50		D	405482	Brown CLAY.	15	53	19	34	0	CH							PSD		
BH15B	18.00		D	405483																
Notes				Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets		
						Y		Y		Y		Y		Y		Y		Y		
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS															Tk Figure 1	
ME		S. Langren 29/03/2017																		
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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE												Contract No B20578			
				Client Royal Mail Group Limited															
				Engineer															
Sample Identification					Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress			Other Tests	
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C	Angle of Shearing Resistance Phi		
BH15B	22.50	COMBINED	D	405484	Grey SAND	24												BRE SD1 Suite	
BH15B	23.00		U	405707									2.05	1.65	185				
BH15B	25.00-25.50		D	405917															PSD
BH15B	26.00		D	406040	Brown clayey SAND with occasional fine gravel.														BRE SD1 Suite
BH15B	30.50-31.00		B	405510															
Notes Opinions and interpretations are outside the scope of UKAS accreditation				UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet												See individual report sheets	
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS														Tk Figure 1 Sheet 17 of 33	
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TERRA TEK
SITE INVESTIGATION AND LABORATORY SERVICES

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE															Contract No B20578				
	Client Royal Mail Group Limited																			
	Engineer																			
Sample Identification				Lab Sample ID	Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress			Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C	Angle of Shearing Resistance Phi			
BH19	4.90		D	405735	Brown CLAY.	43	68	27	41	0	CH							BRE SD1 Suite		
BH19	9.50		U	405748		26						2.00	1.59	118						
BH19	10.50		D	405736	Grey CLAY															
BH19	15.00		D	405737	Brown CLAY.	29	71	26	45	0	CV									
BH19	19.50		D	405738	Brown CLAY.	20	64	23	41	0	CH									
Notes Opinions and interpretations are outside the scope of UKAS accreditation				UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet												See individual report sheets		
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS															Tk Figure 1 Sheet 19 of 33	
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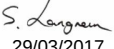
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				ROYAL MAIL MOUNT PLEASANT SORTING OFFICE													Contract No B20578		
				Client Royal Mail Group Limited															
				Engineer															
Sample Identification					Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress			Other Tests	
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C	Angle of Shearing Resistance Phi		
BH19	23.00		U	405749	Brown CLAY	22						2.09	1.71	196			BRE SD1 Suite		
BH19	24.00		D	405739															
BH19	29.00		U	405750		21						2.09	1.73	213					
BH19	31.50		D	405740	Brown mottled grey CLAY.	21	70	25	45	0	CH							PSD	
BH19	33.00		D	405741															
Notes				Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets	
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS														Tk Figure 1	
ME		S. Langren 29/03/2017																	
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TTk **Figure 1**

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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE															Contract No B20578				
	Client Royal Mail Group Limited																			
	Engineer																			
Sample Identification				Lab Sample ID	Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress			Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C	Angle of Shearing Resistance Phi			
BH20	11.00-11.45		U	406037	Brown sandy silty CLAY.	40	67	18	49	0	CH						BRE SD1 Suite			
BH20	12.00-12.45		B	405516	Brown CLAY															
BH20	15.00-15.45		U	405727		29						2.04	1.58	97						
BH20	18.00-18.45		B	405517	Brown CLAY.	32	84	29	55	0	CV									
BH20	21.00-21.45		U	405729		25						2.01	1.61	155						
Notes				Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets		
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS															Tk Figure 1 Sheet 22 of 33	
ME		S. Langren 29/03/2017																		

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE												Contract No B20578					
				Client Royal Mail Group Limited																	
				Engineer																	
Sample Identification					Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress			Other Tests			
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C	Angle of Shearing Resistance Phi				
BH20	22.00-22.45		B	405518	Dark brown CLAY	%	%	%				Mg/m³	Mg/m³	Mg/m³	kPa	kPa		BRE SD1 Suite			
BH20	25.00-25.45		U	405730		15							2.08	1.81	232						
BH20	28.00		B	405519	Brown mottled grey CLAY.	30	67	19	48	0	CH										
BH20	31.00		U	405728	Dark brown sandy CLAY.	14							2.08	1.82	385						
BH20	34.00		B	405520														PSD			
Notes Opinions and interpretations are outside the scope of UKAS accreditation				UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet												See individual report sheets			
Originator				Approved		SUMMARY OF GEOTECHNICAL TESTS														Tk Figure 1 Sheet 23 of 33	
ME				S. Langren 29/03/2017																	

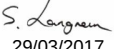
 TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE												Contract No B20578			
				Client Royal Mail Group Limited															
				Engineer															
Sample Identification				Lab Sample ID	Non Engineering Sample Description	Moisture Content %	Atterberg limits					Particle Density Mg/m ³	Density		Total Stress			Other Tests	
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit %	Plastic Limit %	Plasticity Index %	Percentage retained 425µm %	Atterberg Classification		Bulk Mg/m ³	Dry Mg/m ³	Shear Strength kPa	Apparent Cohesion C kPa	Angle of Shearing Resistance Phi		
BH20	35.00		B	405521	Brown SAND with occasional gravel. Gravel is fine to medium.													Shearbox	
BH20	36.00		B	405522	Dark brown SAND													BRE SD1 Suite	
BH20	38.00		B	405523														PSD	
BH21	3.20		T	405446	Dark brown CLAY with some fine to coarse gravel.													BRE SD1 Suite	
BH21	4.50-4.95		U	405709	Dark brown CLAY.	32							1.88	1.42	77				
Notes					Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet								See individual report sheets		
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS														 Figure 1 Sheet 24 of 33	
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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE															Contract No B20578				
	Client Royal Mail Group Limited																			
	Engineer																			
Sample Identification				Lab Sample ID	Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress			Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C	Angle of Shearing Resistance Phi			
BH21	7.00		T	405447	Brown CLAY.	30	74	26	48	0	CV							BRE SD1 Suite PSD		
BH21	7.50-7.95		U	406038	Dark brown CLAY.	32						1.99	1.51	102						
BH21	13.00		T	405448	Dark brown CLAY															
BH21	15.00-19.50		B	405533																
BH21	17.50		T	405449	Brown mottled grey CLAY.	22	72	28	44	0	CV									
Notes				Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets		
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS															Tk Figure 1 Sheet 25 of 33	
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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE													Contract No B20578			
				Client Royal Mail Group Limited																
				Engineer																
Sample Identification				Lab Sample ID	Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress			Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C	Angle of Shearing Resistance Phi			
BH21	23.10		T	405450	Dark brown CLAY	%	%	%				Mg/m³	Mg/m³	Mg/m³	kPa	kPa		BRE SD1 Suite		
BH21	24.00-24.95		U	405733		27							1.95	1.54	110					
BH21	29.50		T	405451	Red brown mottled grey sandy CLAY.	21	42	18	24	0	CI							BRE SD1 Suite		
BH21	32.50		T	405452	Greyish brown CLAY															
BH21	34.50		T	405453	Brown SAND with some fine to medium gravel.													BRE SD1 Suite		
Notes				Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets		
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS															Tk Figure 1 Sheet 26 of 33	
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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE														Contract No B20578				
	Client Royal Mail Group Limited																		
	Engineer																		
Sample Identification					Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress		Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C		Angle of Shearing Resistance Phi	
BH21	38.50		D	405745	Brown SAND with occasion shell fragment.	%	%	%									Shearbox		
BH22	3.20		T	405454	Brown sandy CLAY with some fine to medium gravel.												BRE SD1 Suite		
BH22	4.50		U	405692		22						2.05	1.68	42					
BH22	7.00		T	405455	Brown CLAY.	25	56	21	35	0	CH								
BH22	9.00		T	405456	Brown CLAY												BRE SD1 Suite		
Notes				Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets	
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS														Tk Figure 1 Sheet 27 of 33	
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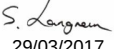
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE															Contract No B20578				
	Client Royal Mail Group Limited																			
	Engineer																			
Sample Identification					Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress			Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C	Angle of Shearing Resistance Phi			
BH22	13.00		T	405457	Brown CLAY.	26											PSD			
BH22	15.90		T	405458	Brown CLAY.	25	69	23	46	0	CH									
BH22	16.50-17.00		B	405524																
BH22	17.80		T	405459	Light brown CLAY.	28	78	31	47	0	CV									
BH22	19.50-19.95		U	405693	Dark brown very sandy CLAY.	14						1.97	1.73	27						
Notes Opinions and interpretations are outside the scope of UKAS accreditation				UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet											See individual report sheets			
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS															Tk Figure 1	
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 TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE												Contract No B20578			
				Client Royal Mail Group Limited															
				Engineer															
Sample Identification				Lab Sample ID	Non Engineering Sample Description	Moisture Content %	Atterberg limits					Particle Density Mg/m ³	Density		Total Stress			Other Tests	
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit %	Plastic Limit %	Plasticity Index %	Percentage retained 425µm %	Atterberg Classification		Bulk Mg/m ³	Dry Mg/m ³	Shear Strength kPa	Apparent Cohesion C kPa	Angle of Shearing Resistance Phi		
BH22	19.90		T	406029	Brown / grey CLAY with occasional fine gravel.	12													BRE SD1 Suite
BH22	22.50-23.00		B	405525	Dark brown very sandy CLAY with occasional gravel. Gravel is fine to medium.														PSD
BH22	25.50-29.95		U	405694									1.98	1.77	238				
BH22	27.00-27.50		B	405526															PSD
BH22	30.00-30.50		B	405527															PSD
Notes				Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets	
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS														 Figure 1 Sheet 29 of 33	
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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE														Contract No B20578				
	Client Royal Mail Group Limited																		
	Engineer																		
Sample Identification					Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress		Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C		Angle of Shearing Resistance Phi	
BH22	33.00-33.50		B	405528	Dardk Brown SILT.	%	%	%				Mg/m³	Mg/m³	Mg/m³	kPa	kPa	Shearbox		
BH23	4.20		T	405461	Dark brown CLAY with some fine to medium gravel.												BRE SD1 Suite		
BH23	6.00-6.45		U	405713		33						1.92	1.44	43					
BH23	7.00		T	405462	Brown CLAY.	27	66	26	40	0	CH								
BH23	9.40		T	405463	Brown CLAY												BRE SD1 Suite		
Notes Opinions and interpretations are outside the scope of UKAS accreditation				UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet											See individual report sheets		
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS														Tk Figure 1 Sheet 30 of 33	
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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE															Contract No B20578			
	Client Royal Mail Group Limited																		
	Engineer																		
Sample Identification				Lab Sample ID	Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress			Other Tests	
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C	Angle of Shearing Resistance Phi		
BH23	11.50		T	405464	Brown CLAY.	24	73	25	48	0	CV	Mg/m³	Mg/m³	Mg/m³	kPa	kPa		BRE SD1 Suite PSD	
BH23	15.00		U	405710	Dark brown CLAY.	26							2.02	1.60	117				
BH23	17.10		T	405465	Light brown SAND														
BH23	18.00-18.45		T	406030															
BH23	19.50		U	405711	Brown sandy CLAY.	22							2.15	1.76	255				
Notes Opinions and interpretations are outside the scope of UKAS accreditation				UKAS Accredited Test Y/N		Y	Y	Y	Y	Y	-	Y	Y	Y	Y	Y	Y	See individual report sheets	
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS														Tk Figure 1	
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	Client Royal Mail Group Limited																		
	Engineer																		
Sample Identification					Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress		Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C		Angle of Shearing Resistance Phi	
BH23	23.50-24.00		B	405529	Brown clayey silty SAND with some gravel. Gravel is fine to coarse. Dark brown SAND	%	%	%		%		Mg/m³	Mg/m³	Mg/m³	kPa	kPa		PSD	
BH23	27.50		U	405712		15	30	17	13	30	CL							PSD	
BH23	30.50-31.00		B	405530														PSD	
BH23	31.50		T	405467														BRE SD1 Suite	
BH23	36.50-37.00		B	405531														PSD	
Notes Opinions and interpretations are outside the scope of UKAS accreditation					UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets		
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS														Tk Figure 1 Sheet 32 of 33	
ME		S. Langren 29/03/2017																	

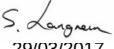
 TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE												Contract No B20578				
				Client Royal Mail Group Limited																
				Engineer																
Sample Identification				Lab Sample ID	Non Engineering Sample Description	Moisture Content	Atterberg limits					Particle Density	Density		Total Stress			Other Tests		
Exploratory Hole	Depth m	Sample Ref	Sample Type				Liquid Limit	Plastic Limit	Plasticity Index	Percentage retained 425µm	Atterberg Classification		Bulk	Dry	Shear Strength	Apparent Cohesion C	Angle of Shearing Resistance Phi			
BH23	39.00		T	405468	Grey SAND with much fine to medium gravel.	%	%	%				Mg/m³	Mg/m³	Mg/m³	kPa	kPa		BRE SD1 Suite		
Notes					Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Test details are given on the 'Notes on Laboratory Procedures' sheet										See individual report sheets	
Originator		Approved		SUMMARY OF GEOTECHNICAL TESTS														 Figure 1 Sheet 33 of 33		
ME		 29/03/2017																		

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE																Contract No B20578			
				Client Royal Mail Group Limited																			
				Engineer																			
Sample Identification				Lab Sample ID	Sulphate (acid soluble as SO4) %	Sulphate (water soluble in 2:1 extract) as SO4 g/l	pH	Chloride (water soluble) %	Nitrate mg/kg	Total Sulphur %													
Hole	Depth m	Sample Ref	Sample Type																				
BH11	1.20		T	405416	~	0.12	8.8	<0.01	<1	~													
BH11	10.50		T	405419	0.28	1.26	6.8	~	~	0.39													
BH11	20.50		T	405422	<0.02	0.12	9.0	~	~	<0.05													
BH11	35.50-36.00		B	405493	~	0.22	8.4	~	~	~													
BH12	3.20-3.65		B	405496	~	0.03	8.4	<0.01	<1	~													
BH12	8.00-8.45		B	405497	~	0.09	8.0	<0.01	<1	~													
BH12	11.00-11.45		B	405499	0.35	1.51	7.4	~	~	0.38													
BH12	19.50		T	405426	<0.02	0.02	9.0	~	~	<0.05													
BH12	33.00		T	405428	~	0.82	7.0	~	~	~													
BH13	2.20		T	405431	~	0.46	8.5	0.02	4	~													
Limits of Detection Terra Tek Analysis Method					0.02 TP029 M	0.01 TP043 M	0.1 TP019 M	0.01 TP134 M	1 S/C N	0.05 S/C N													
Accreditation M=Mcerts U=UKAS N=No accreditation																							
Originator		Checked & Approved		BRE SD1 SUITE - SOIL																		Tk Figure 2 Sheet 1 of 5	
TGH		S. Langman 29/03/2017																					

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE														Contract No B20578					
				Client Royal Mail Group Limited																			
				Engineer																			
Sample Identification				Lab Sample ID	Sulphate (acid soluble as SO4) %	Sulphate (water soluble in 2:1 extract) as SO4 g/l	pH	Chloride (water soluble) %	Nitrate mg/kg	Total Sulphur %													
Hole	Depth m	Sample Ref	Sample Type																				
BH13	7.00		T	405432	~	1.04	7.8	<0.01	<1	~													
BH13	9.00-9.45		T	405434	0.28	1.28	7.9	~	~	2.40													
BH13	14.50		T	405435	<0.02	0.15	8.7	~	~	<0.05													
BH13	23.40		T	405440	<0.02	0.06	9.1	~	~	<0.05													
BH14	1.20-1.70		B	405506	~	0.32	8.5	<0.01	<1	~													
BH14	4.00-4.50		B	405507	~	0.37	8.4	<0.01	<1	~													
BH14	9.00		D	405470	0.10	0.46	8.1	~	~	0.37													
BH14	15.00		D	405472	<0.02	<0.01	9.1	~	~	<0.05													
BH14	26.00-26.50		B	405509	~	0.04	9.1	~	~	~													
BH14	34.50		D	405476	~	0.13	8.2	~	~	~													
Limits of Detection Terra Tek Analysis Method					0.02 TP029 M	0.01 TP043 M	0.1 TP019 M	0.01 TP134 M	1 S/C N	0.05 S/C N													
Accreditation M=Mcerts U=UKAS N=No accreditation																							
Originator	Checked & Approved		BRE SD1 SUITE - SOIL																			Tk Figure 2 Sheet 2 of 5	
TGH	S. Langman 29/03/2017																						

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE																Contract No B20578			
				Client Royal Mail Group Limited																			
				Engineer																			
Sample Identification				Lab Sample ID	Sulphate (acid soluble as SO4) %	Sulphate (water soluble in 2:1 extract) as SO4 g/l	pH	Chloride (water soluble) %	Nitrate mg/kg	Total Sulphur %													
Hole	Depth m	Sample Ref	Sample Type																				
BH15B	4.80		D	405478	~	0.09	7.7	<0.01	<1	~													
BH15B	12.00		D	405481	0.16	0.69	8.1	~	~	0.47													
BH15B	22.50		D	405484	0.07	0.45	8.0	~	~	0.40													
BH15B	26.00		D	406040	~	0.04	9.4	~	~	~													
BH15B	34.50		D	405488	~	0.21	8.3	~	~	~													
BH19	2.70		D	405734	~	1.31	9.4	<0.01	71	~													
BH19	10.50		D	405736	0.02	0.16	8.1	~	~	0.42													
BH19	24.00		D	405739	<0.02	0.07	8.8	~	~	<0.05													
BH19	36.00		D	405742	~	0.05	8.7	~	~	~													
BH20	4.00-4.45		B	405513	~	0.18	8.9	<0.01	7	~													
Limits of Detection Terra Tek Analysis Method					0.02 TP029 M	0.01 TP043 M	0.1 TP019 M	0.01 TP134 M	1 S/C N	0.05 S/C N													
Accreditation M=Mcerts U=UKAS N=No accreditation																							
Originator		Checked & Approved		BRE SD1 SUITE - SOIL																		Tk Figure 2 Sheet 3 of 5	
TGH		S. Langman 29/03/2017																					

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE														Contract No B20578					
				Client Royal Mail Group Limited																			
				Engineer																			
Sample Identification				Lab Sample ID	Sulphate (acid soluble as SO4) %	Sulphate (water soluble in 2:1 extract) as SO4 g/l	pH	Chloride (water soluble) %	Nitrate mg/kg	Total Sulphur %													
Hole	Depth m	Sample Ref	Sample Type																				
BH20	12.00-12.45		B	405516	0.16	0.80	7.9	~	~	0.61													
BH20	22.00-22.45		B	405518	0.07	0.55	7.6	~	~	1.40													
BH20	36.00		B	405522	~	0.18	8.1	~	~	~													
BH21	3.20		T	405446	~	0.25	8.0	<0.01	<1	~													
BH21	13.00		T	405448	0.23	1.07	7.6	~	~	0.51													
BH21	23.10		T	405450	0.25	1.22	7.4	~	~	2.20													
BH21	32.50		T	405452	~	0.01	9.0	~	~	~													
BH21	34.50		T	405453	~	0.25	8.1	~	~	~													
BH22	3.20		T	405454	~	0.44	9.6	0.05	<1	~													
BH22	9.00		T	405456	<0.02	0.18	8.8	~	~	<0.05													
Limits of Detection Terra Tek Analysis Method					0.02 TP029 M	0.01 TP043 M	0.1 TP019 M	0.01 TP134 M	1 S/C N	0.05 S/C N													
Accreditation M=Mcerts U=UKAS N=No accreditation																							
Originator	Checked & Approved		BRE SD1 SUITE - SOIL																			Tk Figure 2 Sheet 4 of 5	
TGH	S. Langman 29/03/2017																						

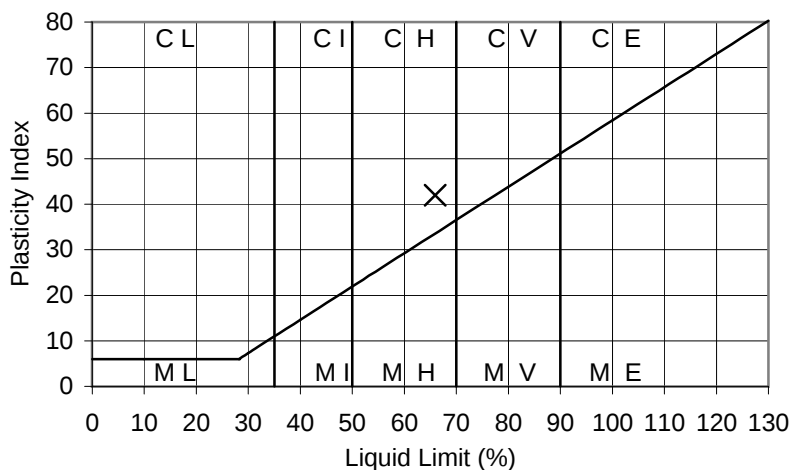
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES				Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE														Contract No B20578					
				Client Royal Mail Group Limited																			
				Engineer																			
Sample Identification				Lab Sample ID	Sulphate (acid soluble as SO4) %	Sulphate (water soluble in 2:1 extract) as SO4 g/l	pH	Chloride (water soluble) %	Nitrate mg/kg	Total Sulphur %													
Hole	Depth m	Sample Ref	Sample Type																				
BH22	19.90		T	406029	<0.02	0.04	9.1	-	-	<0.05													
BH23	4.20		T	405461	-	0.54	8.2	0.02	<1	-													
BH23	9.40		T	405463	0.50	1.91	7.7	-	-	0.33													
BH23	17.10		T	405465	<0.02	0.03	9.3	-	-	<0.05													
BH23	31.50		T	405467	-	0.17	8.5	-	-	-													
BH23	39.00		T	405468	-	0.59	8.2	-	-	-													
Limits of Detection Terra Tek Analysis Method					0.02 TP029 M	0.01 TP043 M	0.1 TP019 M	0.01 TP134 M	1 S/C N	0.05 S/C N													
Accreditation M=Mcerts U=UKAS N=No accreditation																							
Originator	Checked & Approved		BRE SD1 SUITE - SOIL																		 Figure 2 Sheet 5 of 5		
TGH	 29/03/2017																						



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH11
Engineer		Sample Ref	
		Depth (m)	3.90
		Sample Type	T

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 32 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 66 %
 Plastic Limit : 24 %
 Plasticity Index : 42

Equivalent moisture content of material passing 425µm sieve : 32 %
 Liquidity Index : 0.19

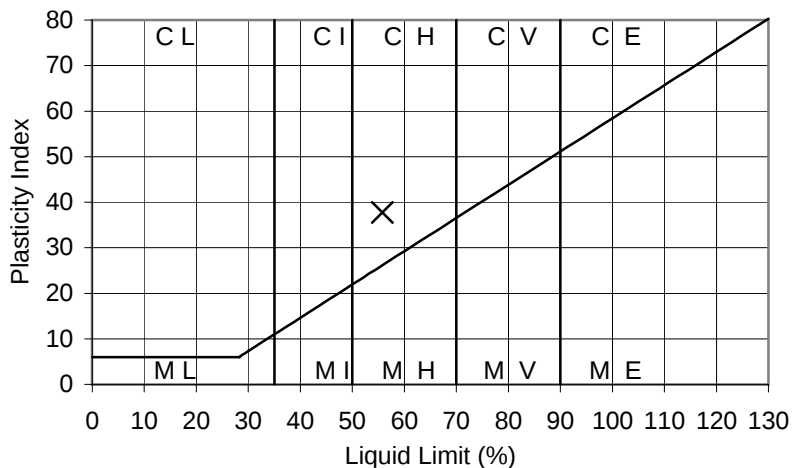
Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	Figure 3 Sheet 1 of 1
KP/TE	<i>S. Langman</i> 29/03/2017		



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH11
Engineer		Sample Ref	
		Depth (m)	8.50
		Sample Type	T

Non Engineering Description : Brown slightly sandy CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 24 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 56 %
 Plastic Limit : 18 %
 Plasticity Index : 38

Equivalent moisture content of material passing 425µm sieve : 24 %
 Liquidity Index : 0.16

Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	Figure 4 Sheet 1 of 1
KP	<i>S. Langdon</i> 29/03/2017		



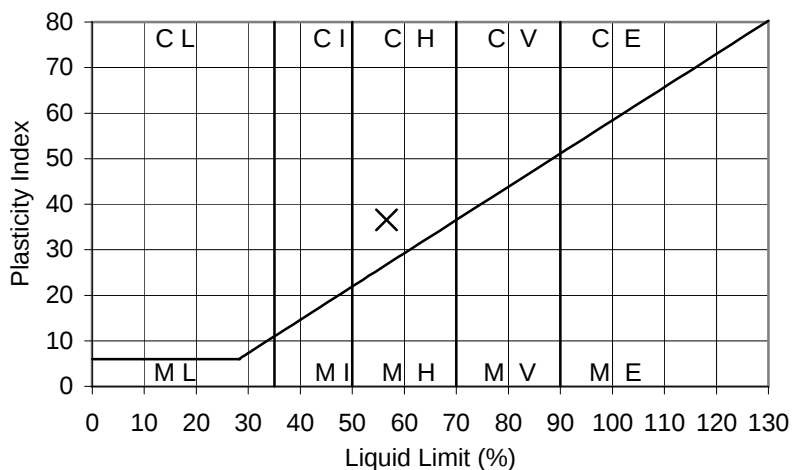
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH11
Sample Ref
Depth (m) 14.50
Sample Type T

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 32 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 57 %
 Plastic Limit : 20 %
 Plasticity Index : 37
 Equivalent moisture content of material passing 425µm sieve : 32 %
 Liquidity Index : 0.32

Originator

Checked & Approved

KP/TE

S. Langman
29/03/2017

**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990
BS 1377:Part 2:Clause 5:1990



Figure 5

Sheet 1 of 1



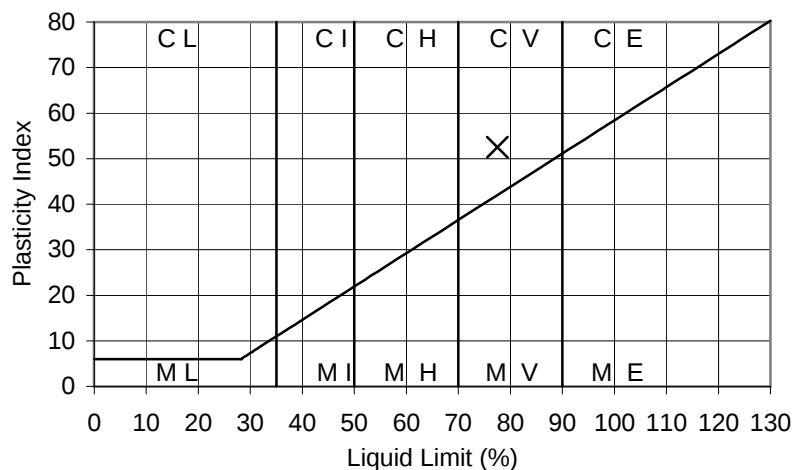
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH11
Sample Ref
Depth (m) 17.50
Sample Type T

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 29 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 78 %
 Plastic Limit : 25 %
 Plasticity Index : 53

 Equivalent moisture content of material passing 425µm sieve : 29 %
 Liquidity Index : 0.08

Originator

Checked & Approved

KP

S. Langman
29/03/2017

**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990
BS 1377:Part 2:Clause 5:1990



Figure 6

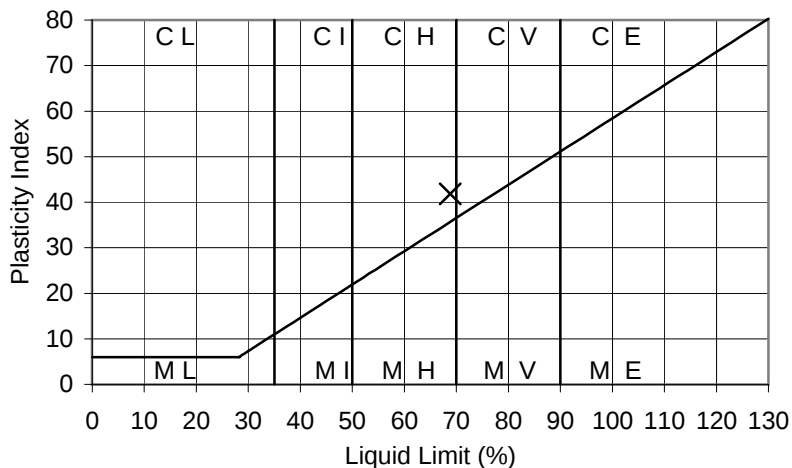
Sheet 1 of 1



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH11
Engineer		Sample Ref	
		Depth (m)	18.00-18.45
		Sample Type	U

Non Engineering Description : Red brown mottled grey CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	24 %
Percentage retained on 425µm sieve :	0 %
Liquid Limit :	69 %
Plastic Limit :	27 %
Plasticity Index :	42
Equivalent moisture content of material passing 425µm sieve :	24 %
Liquidity Index :	-0.07

Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	Figure 7 Sheet 1 of 1
KP	S. Langman 29/03/2017		



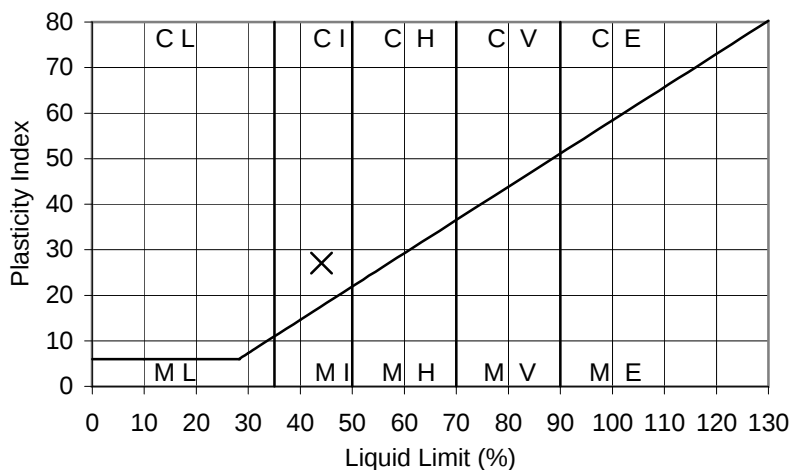
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH11
Sample Ref
Depth (m) 26.50
Sample Type T

Non Engineering Description : Brown mottled grey very sandy CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 13 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 44 %
 Plastic Limit : 17 %
 Plasticity Index : 27

 Equivalent moisture content of material passing 425µm sieve : 13 %
 Liquidity Index : -0.15

Originator

Checked & Approved

KP/TE

S. Langman
29/03/2017

**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990
BS 1377:Part 2:Clause 5:1990



Figure 8

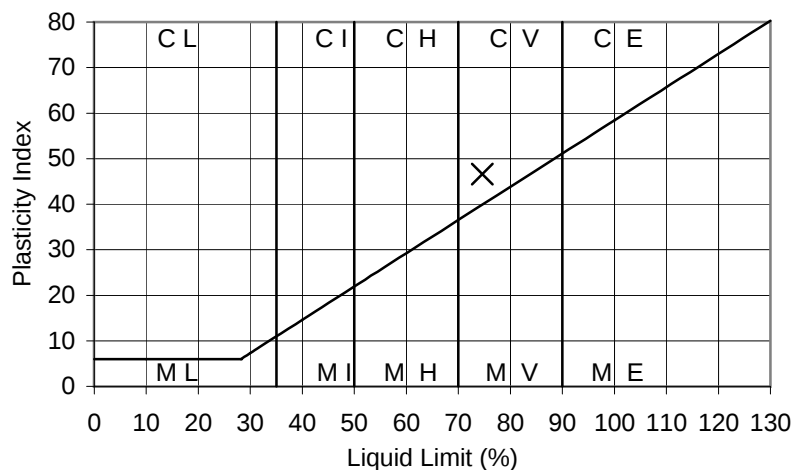
Sheet 1 of 1



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH12
Engineer		Sample Ref	
		Depth (m)	8.70
		Sample Type	B

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 33 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 75 %
 Plastic Limit : 28 %
 Plasticity Index : 47

Equivalent moisture content of material passing 425µm sieve : 33 %
 Liquidity Index : 0.11

Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	Figure 9 Sheet 1 of 1
KP/TE	S. Langman 29/03/2017		



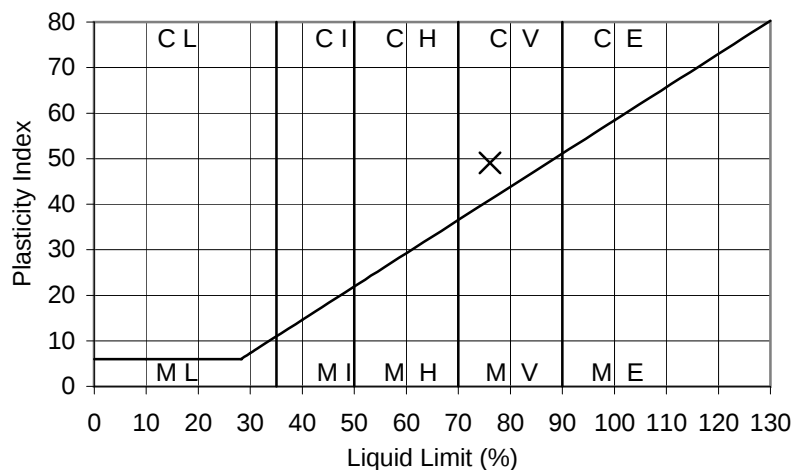
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH12
Sample Ref
Depth (m) 16.30
Sample Type T

Non Engineering Description : Brown mottled grey CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 27 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 76 %
 Plastic Limit : 27 %
 Plasticity Index : 49

 Equivalent moisture content of material passing 425µm sieve : 27 %
 Liquidity Index : 0.00

Originator

Checked & Approved

TE

S. Langman
29/03/2017

**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990

BS 1377:Part 2:Clause 5:1990



Figure 10

Sheet 1 of 1



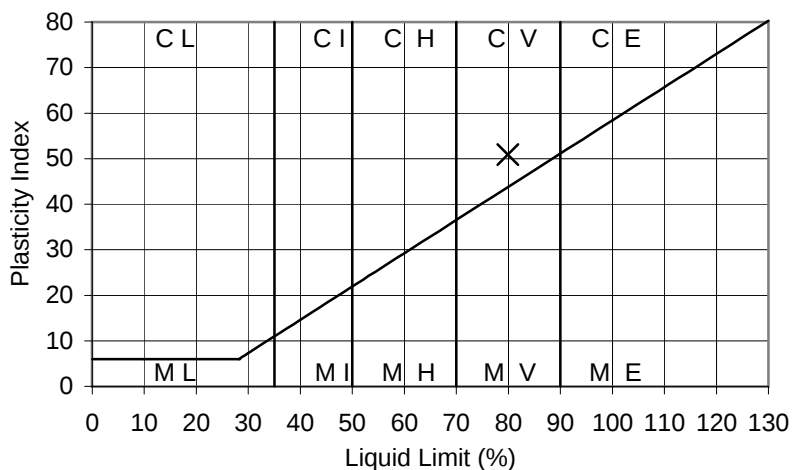
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH12
Sample Ref
Depth (m) 28.50
Sample Type U

Non Engineering Description : Brown mottled grey CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 30 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 80 %
 Plastic Limit : 29 %
 Plasticity Index : 51
 Equivalent moisture content of material passing 425µm sieve : 30 %
 Liquidity Index : 0.02

Originator

Checked & Approved

TE

S. Langman
29/03/2017

**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990
BS 1377:Part 2:Clause 5:1990



Figure 11

Sheet 1 of 1



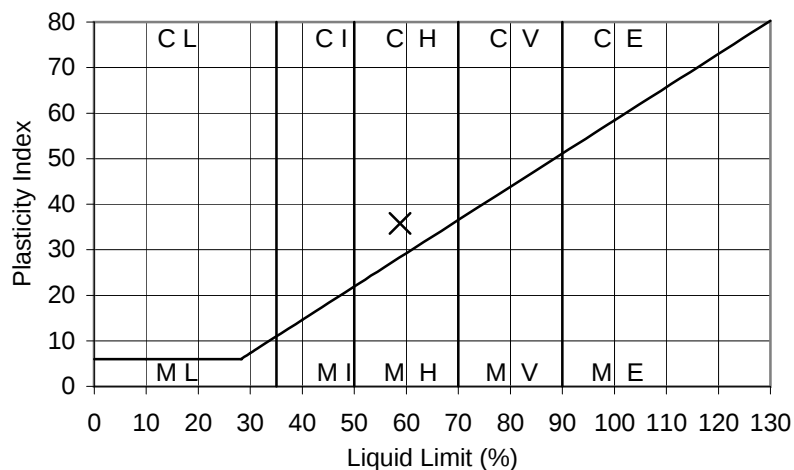
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH12
Sample Ref
Depth (m) 28.95
Sample Type T

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 25 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 59 %
 Plastic Limit : 23 %
 Plasticity Index : 36

 Equivalent moisture content of material passing 425µm sieve : 25 %
 Liquidity Index : 0.06

Originator

Checked & Approved

TE/KP

S. Langman
29/03/2017

**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990

BS 1377:Part 2:Clause 5:1990



Figure 12

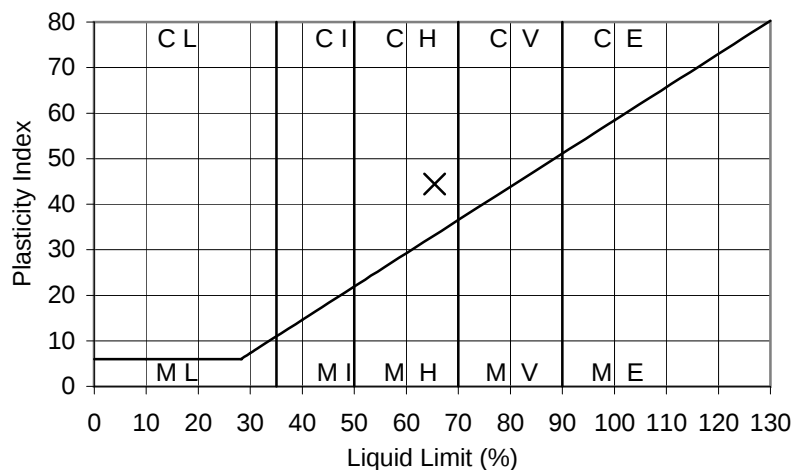
Sheet 1 of 1



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH13
Engineer		Sample Ref	
		Depth (m)	8.50
		Sample Type	T

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 16 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 65 %
 Plastic Limit : 21 %
 Plasticity Index : 44

Equivalent moisture content of material passing 425µm sieve : 16 %
 Liquidity Index : -0.11

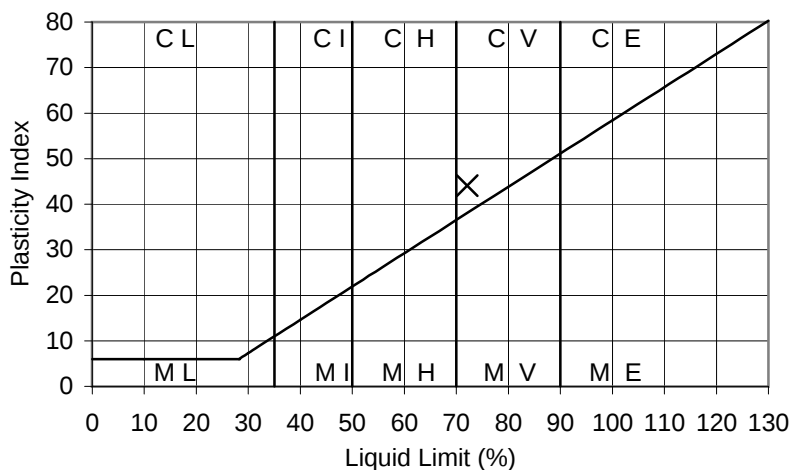
Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	Figure 13 Sheet 1 of 1
KP/TE	S. Langman 29/03/2017		



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH13
Engineer		Sample Ref	
		Depth (m)	17.50
		Sample Type	T

Non Engineering Description : Brown mottled grey CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 26 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 72 %
 Plastic Limit : 28 %
 Plasticity Index : 44

Equivalent moisture content of material passing 425µm sieve : 26 %
 Liquidity Index : -0.05

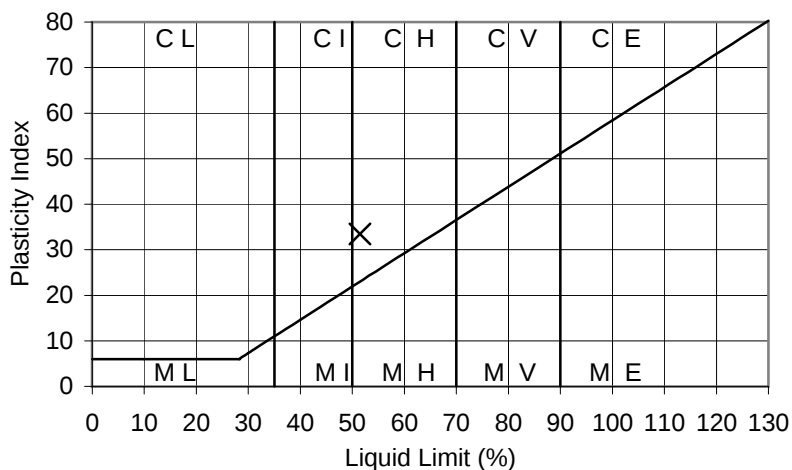
Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	Figure 14 Sheet 1 of 1
TE	<i>S. Langman</i> 29/03/2017		



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH13
Engineer		Sample Ref	
		Depth (m)	25.50
		Sample Type	T

Non Engineering Description : Brown slightly sandy CLAY with occasional gravel. Gravel is fine to medium.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	19 %
Percentage retained on 425µm sieve :	4 %
Liquid Limit :	51 %
Plastic Limit :	18 %
Plasticity Index :	33
Equivalent moisture content of material passing 425µm sieve :	20 %
Liquidity Index :	0.06

Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	Figure 15 Sheet 1 of 1
KP	S. Langman 29/03/2017		



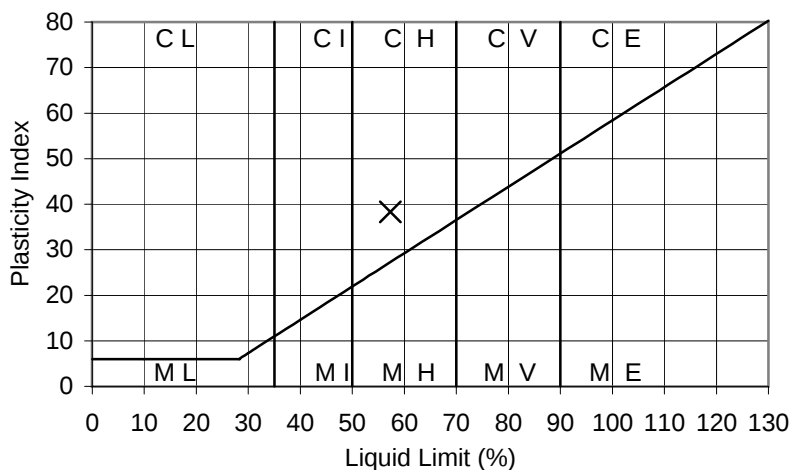
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH13
Sample Ref
Depth (m) 27.00-27.45
Sample Type U

Non Engineering Description : Light brown very clayey very silty SAND.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 22 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 57 %
 Plastic Limit : 19 %
 Plasticity Index : 38

 Equivalent moisture content of material passing 425µm sieve : 22 %
 Liquidity Index : 0.08

Originator

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**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990
BS 1377:Part 2:Clause 5:1990



Figure 16

Sheet 1 of 1



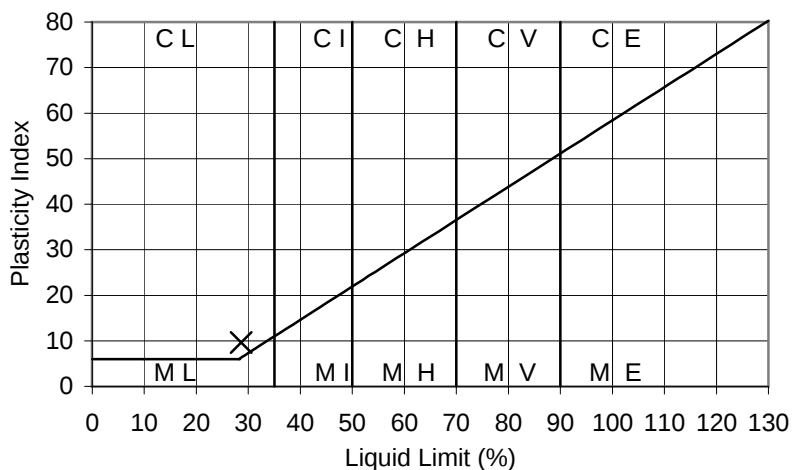
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH13
Sample Ref
Depth (m) 37.50-38.00
Sample Type B

Non Engineering Description : White putty CHALK.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 25 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 29 %
 Plastic Limit : 19 %
 Plasticity Index : 10

 Equivalent moisture content of material passing 425µm sieve : 25 %
 Liquidity Index : 0.60

Originator

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**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990

BS 1377:Part 2:Clause 5:1990



Figure 17

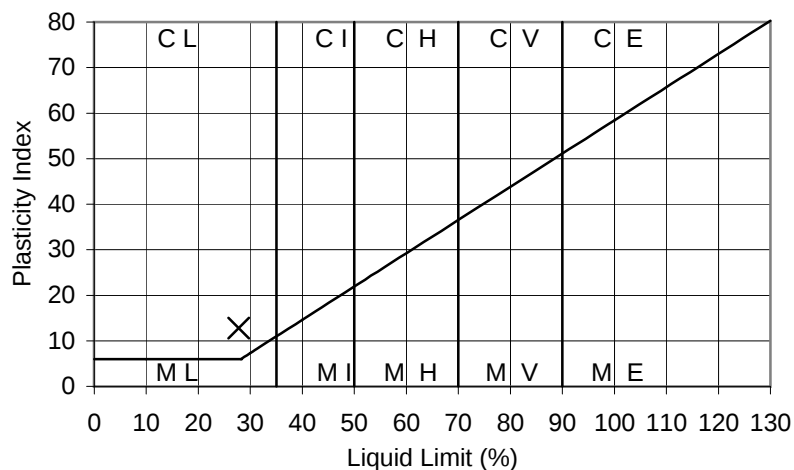
Sheet 1 of 1



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH13
Engineer		Sample Ref	
		Depth (m)	43.00-43.50
		Sample Type	B

Non Engineering Description : White clayey CHALK with occasional flint and gravel. Gravel is fine to medium.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 25 %
 Percentage retained on 425µm sieve : 4 %
 Liquid Limit : 28 %
 Plastic Limit : 15 %
 Plasticity Index : 13

Equivalent moisture content of material passing 425µm sieve : 26 %
 Liquidity Index : 0.85

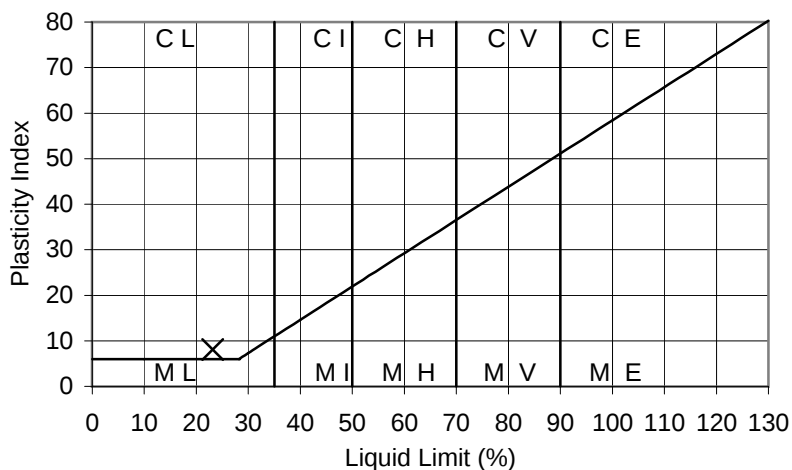
Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	Figure 18 Sheet 1 of 1
KP	S. Langdon 29/03/2017		



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH13
Engineer		Sample Ref	
		Depth (m)	49.00-49.50
		Sample Type	B

Non Engineering Description : White clayey CHALK with occasional flint and gravel. Gravel is fine to medium.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 11 %
 Percentage retained on 425µm sieve : 4 %
 Liquid Limit : 23 %
 Plastic Limit : 15 %
 Plasticity Index : 8.0

Equivalent moisture content of material passing 425µm sieve : 11 %
 Liquidity Index : -0.50

Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	Figure 19 Sheet 1 of 1
KP	S. Langdon 29/03/2017		



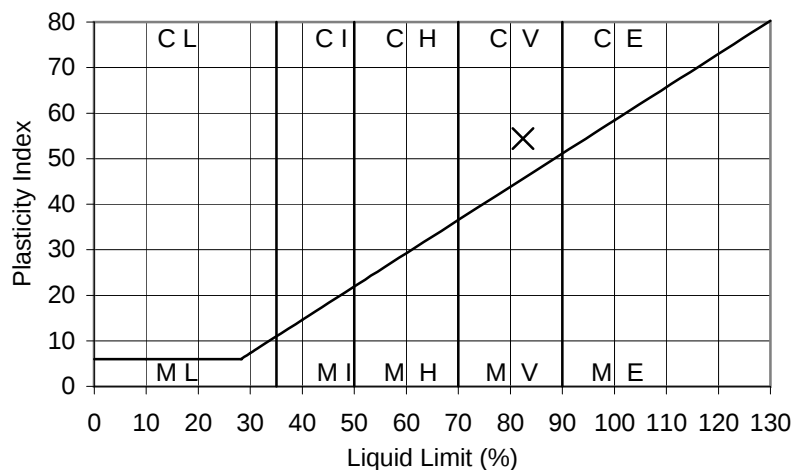
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH14
Sample Ref
Depth (m) 6.20
Sample Type D

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 38 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 82 %
 Plastic Limit : 28 %
 Plasticity Index : 54

 Equivalent moisture content of material passing 425µm sieve : 38 %
 Liquidity Index : 0.19

Originator

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**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990
BS 1377:Part 2:Clause 5:1990



Figure 20

Sheet 1 of 1



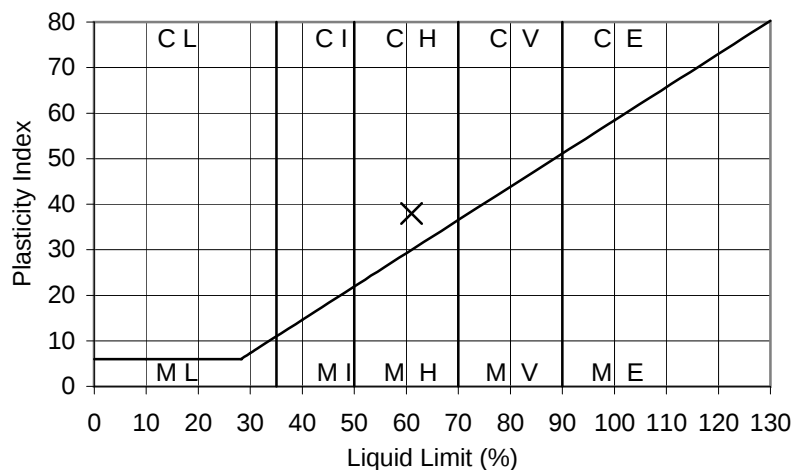
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH14
Sample Ref
Depth (m) 12.00
Sample Type D

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 26 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 61 %
 Plastic Limit : 23 %
 Plasticity Index : 38

 Equivalent moisture content of material passing 425µm sieve : 26 %
 Liquidity Index : 0.08

Originator

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**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990
BS 1377:Part 2:Clause 5:1990



Figure 21

Sheet 1 of 1



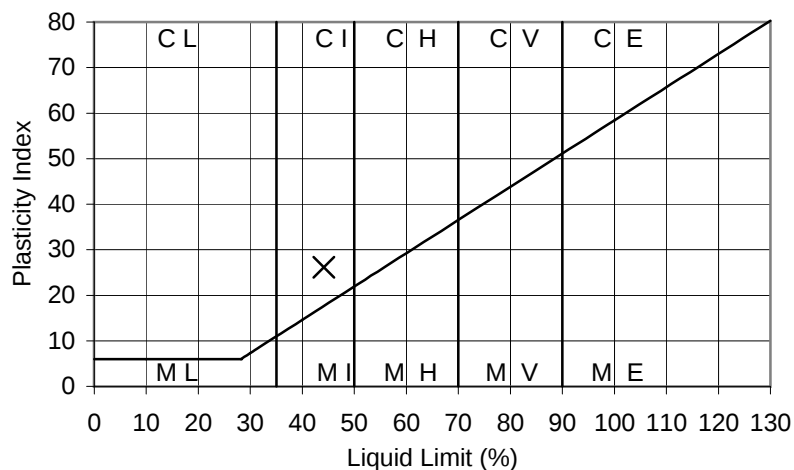
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH14
Sample Ref
Depth (m) 18.00
Sample Type D

Non Engineering Description : Brown slightly sandy CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 16 %
Percentage retained on 425µm sieve : 0 %
Liquid Limit : 44 %
Plastic Limit : 18 %
Plasticity Index : 26

Equivalent moisture content of material passing 425µm sieve : 16 %
Liquidity Index : -0.08

Originator

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**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990
BS 1377:Part 2:Clause 5:1990



Figure 22

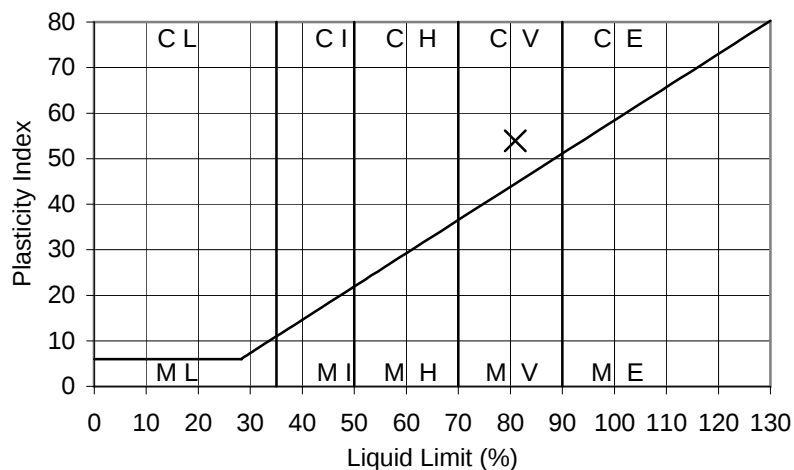
Sheet 1 of 1



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH15B
Engineer		Sample Ref	
		Depth (m)	7.50
		Sample Type	D

Non Engineering Description : Brown slightly sandy CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 34 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 81 %
 Plastic Limit : 27 %
 Plasticity Index : 54

Equivalent moisture content of material passing 425µm sieve : 34 %
 Liquidity Index : 0.13

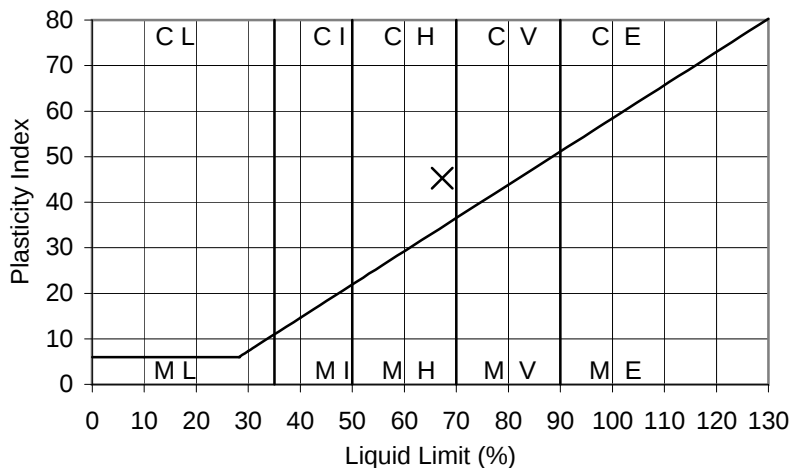
Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	Figure 23 Sheet 1 of 1
TE	<i>S. Langman</i> 29/03/2017		



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH15B
Engineer		Sample Ref	
		Depth (m)	10.50
		Sample Type	D

Non Engineering Description : Brown slightly sandy CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 29 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 67 %
 Plastic Limit : 22 %
 Plasticity Index : 45

Equivalent moisture content of material passing 425µm sieve : 29 %
 Liquidity Index : 0.16

Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	Figure 24 Sheet 1 of 1
KP/TE	<i>S. Langdon</i> 29/03/2017		



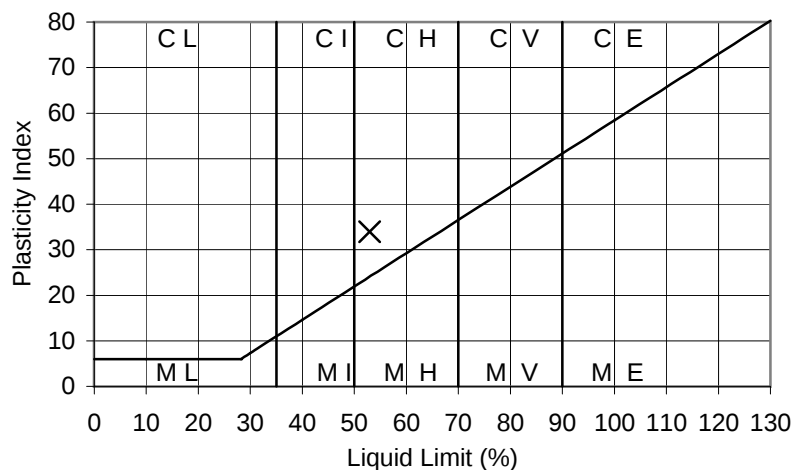
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH15B
Sample Ref
Depth (m) 16.50
Sample Type D

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 15 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 53 %
 Plastic Limit : 19 %
 Plasticity Index : 34
 Equivalent moisture content of material passing 425µm sieve : 15 %
 Liquidity Index : -0.12

Originator

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**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990

BS 1377:Part 2:Clause 5:1990



Figure 25

Sheet 1 of 1



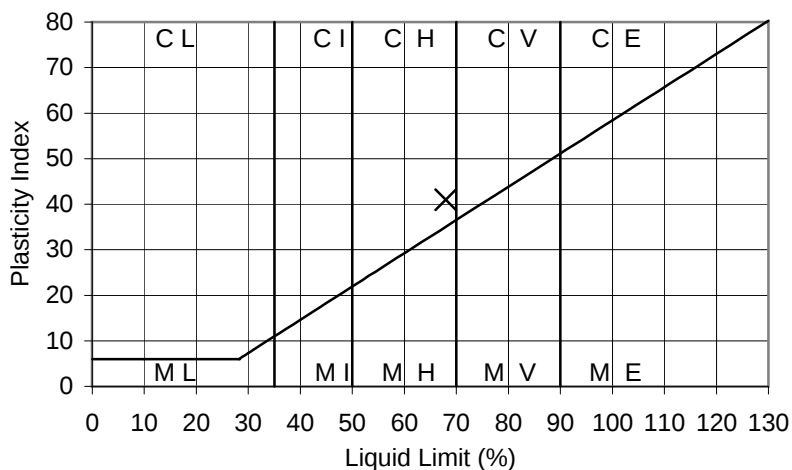
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH19
Sample Ref
Depth (m) 4.90
Sample Type D

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 43 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 68 %
 Plastic Limit : 27 %
 Plasticity Index : 41

 Equivalent moisture content of material passing 425µm sieve : 43 %
 Liquidity Index : 0.39

Originator

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**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990
BS 1377:Part 2:Clause 5:1990



Figure 26

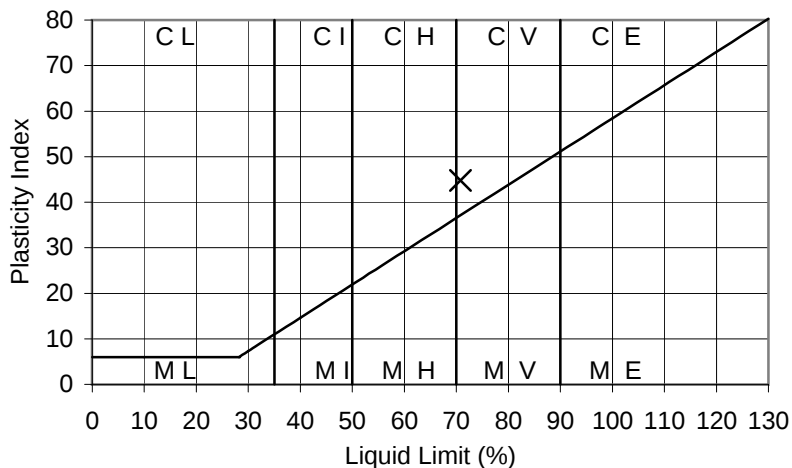
Sheet 1 of 1



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH19
Engineer		Sample Ref	
		Depth (m)	15.00
		Sample Type	D

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	29 %
Percentage retained on 425µm sieve :	0 %
Liquid Limit :	71 %
Plastic Limit :	26 %
Plasticity Index :	45
Equivalent moisture content of material passing 425µm sieve :	29 %
Liquidity Index :	0.07

Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	Figure 27 Sheet 1 of 1
TE	<i>S. Langman</i> 29/03/2017		



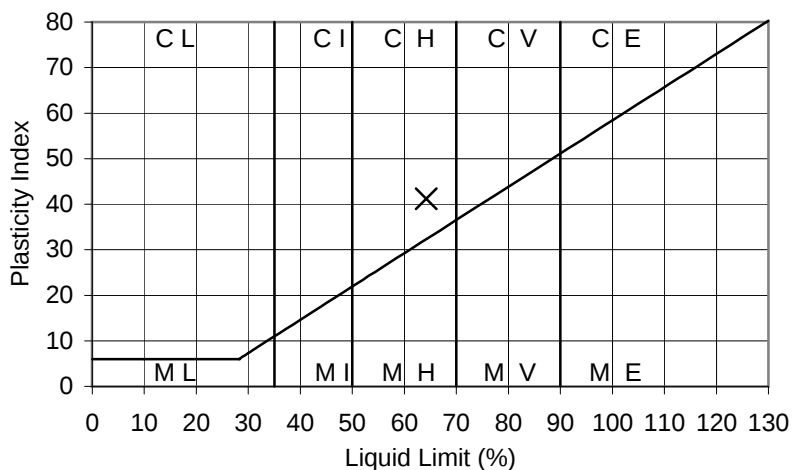
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH19
Sample Ref
Depth (m) 19.50
Sample Type D

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 20 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 64 %
 Plastic Limit : 23 %
 Plasticity Index : 41

 Equivalent moisture content of material passing 425µm sieve : 20 %
 Liquidity Index : -0.07

Originator

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**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990

BS 1377:Part 2:Clause 5:1990



Figure 28

Sheet 1 of 1



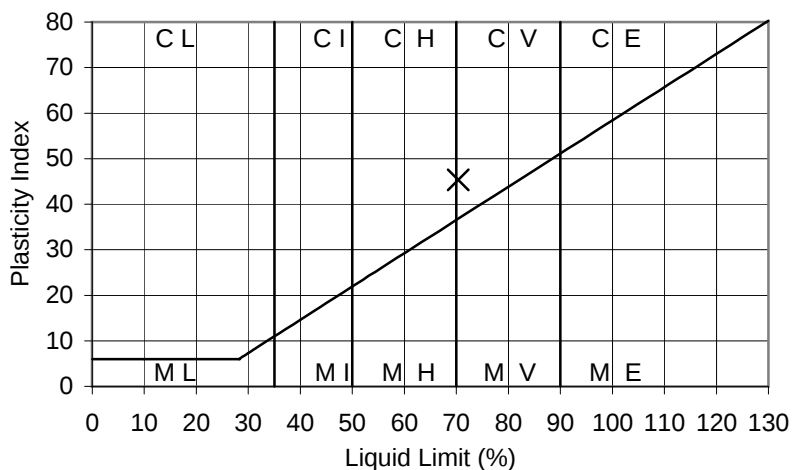
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH19
Sample Ref
Depth (m) 31.50
Sample Type D

Non Engineering Description : Brown mottled grey CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 21 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 70 %
 Plastic Limit : 25 %
 Plasticity Index : 45

 Equivalent moisture content of material passing 425µm sieve : 21 %
 Liquidity Index : -0.09

Originator

Checked & Approved

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29/03/2017

**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990
BS 1377:Part 2:Clause 5:1990



Figure 29

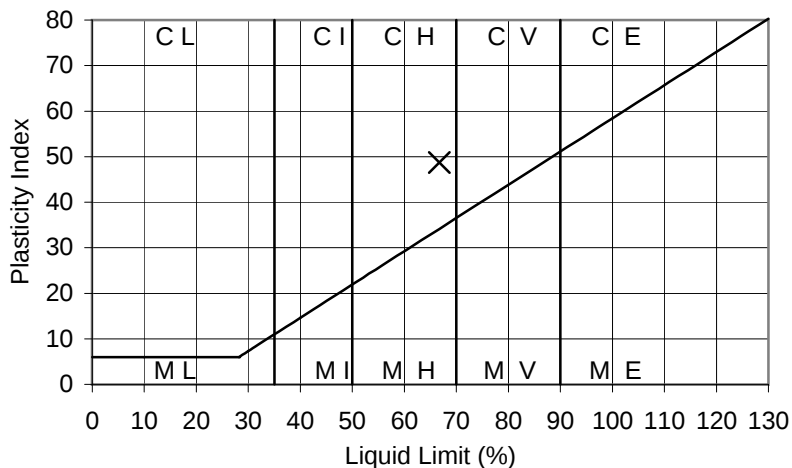
Sheet 1 of 1



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH20
Engineer		Sample Ref	
		Depth (m)	11.00-11.45
		Sample Type	U

Non Engineering Description : Brown sandy silty CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 40 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 67 %
 Plastic Limit : 18 %
 Plasticity Index : 49

Equivalent moisture content of material passing 425µm sieve : 40 %
 Liquidity Index : 0.45

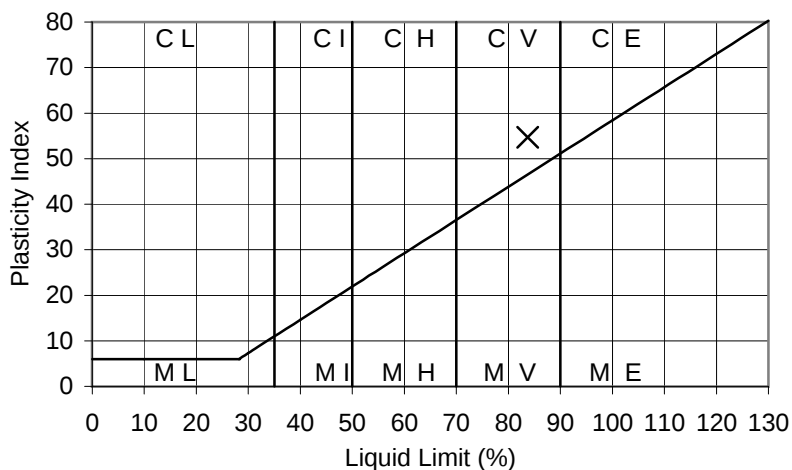
Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	Figure 30 Sheet 1 of 1
KP	S. Langman 29/03/2017		



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH20
Engineer		Sample Ref	
		Depth (m)	18.00-18.45
		Sample Type	B

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 32 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 84 %
 Plastic Limit : 29 %
 Plasticity Index : 55

Equivalent moisture content of material passing 425µm sieve : 32 %
 Liquidity Index : 0.05

Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	Figure 31 Sheet 1 of 1
TE	S. Langman 29/03/2017		



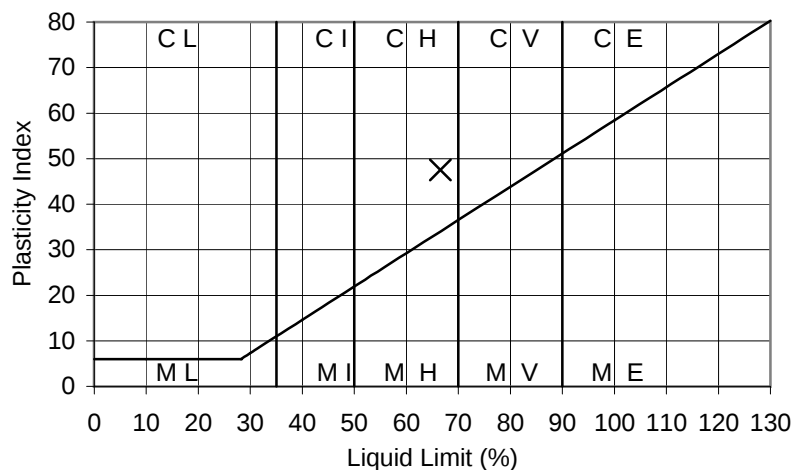
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH20
Sample Ref
Depth (m) 28.00
Sample Type B

Non Engineering Description : Brown mottled grey CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 30 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 67 %
 Plastic Limit : 19 %
 Plasticity Index : 48

 Equivalent moisture content of material passing 425µm sieve : 30 %
 Liquidity Index : 0.23

Originator

Checked & Approved

TE

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29/03/2017

**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990
BS 1377:Part 2:Clause 5:1990



Figure 32

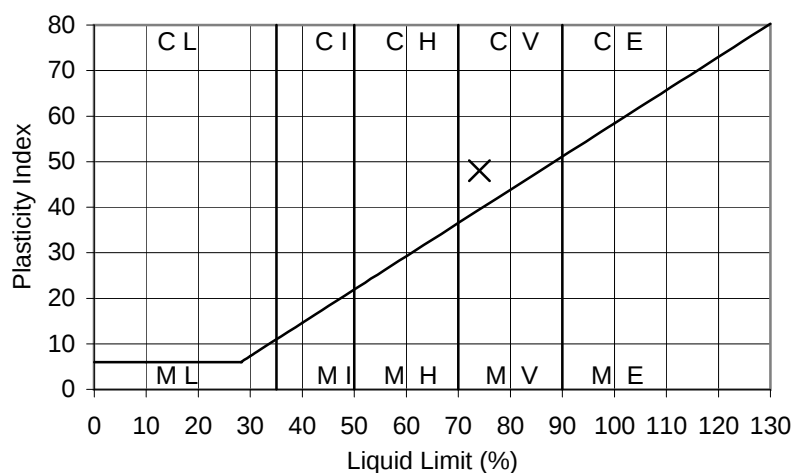
Sheet 1 of 1



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH21
Engineer		Sample Ref	
		Depth (m)	7.00
		Sample Type	T

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 30 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 74 %
 Plastic Limit : 26 %
 Plasticity Index : 48

Equivalent moisture content of material passing 425µm sieve : 30 %
 Liquidity Index : 0.08

Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	Figure 33 Sheet 1 of 1
KP/TE	<i>S. Langman</i> 29/03/2017		



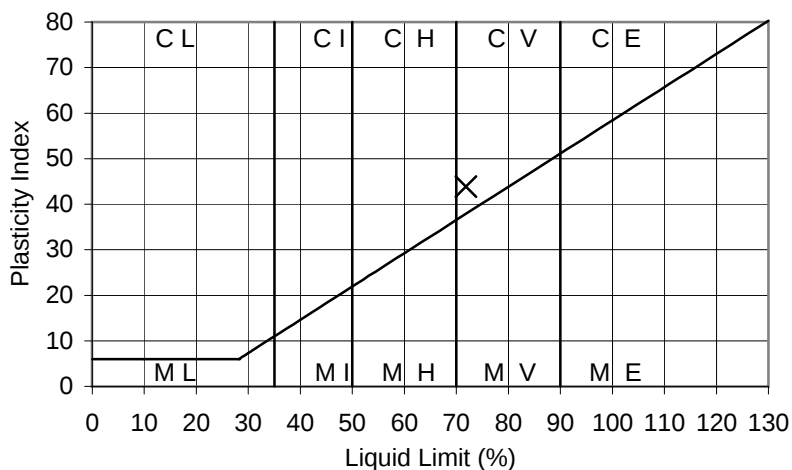
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH21
Sample Ref
Depth (m) 17.50
Sample Type T

Non Engineering Description : Brown mottled grey CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 22 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 72 %
 Plastic Limit : 28 %
 Plasticity Index : 44

 Equivalent moisture content of material passing 425µm sieve : 22 %
 Liquidity Index : -0.14

Originator

Checked & Approved

KP/TE

S. Langman
29/03/2017

**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990
BS 1377:Part 2:Clause 5:1990



Figure 34

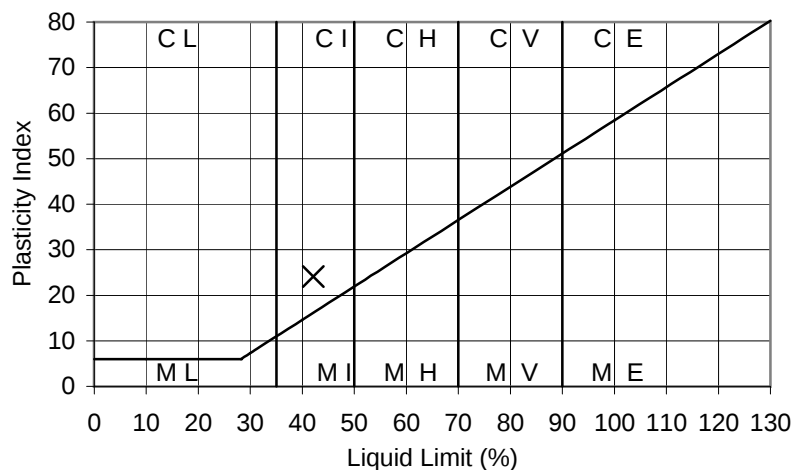
Sheet 1 of 1



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH21
Engineer		Sample Ref	
		Depth (m)	29.50
		Sample Type	T

Non Engineering Description : Red brown mottled grey sandy CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 21 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 42 %
 Plastic Limit : 18 %
 Plasticity Index : 24

Equivalent moisture content of material passing 425µm sieve : 21 %
 Liquidity Index : 0.13

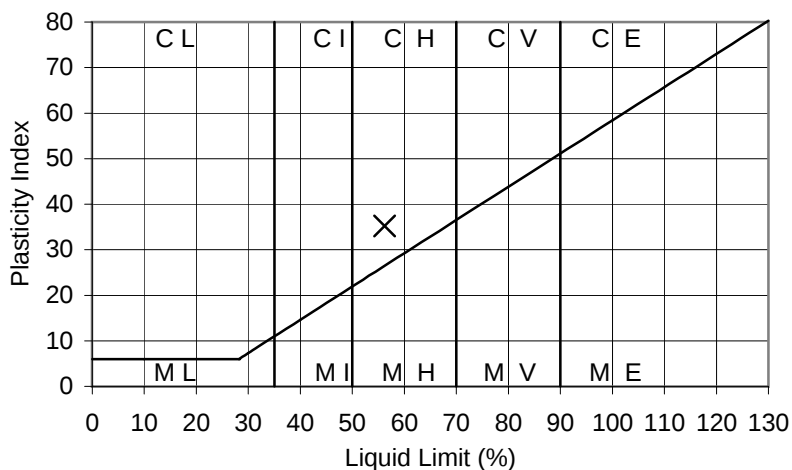
Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	 Figure 35 Sheet 1 of 1
KP/TE	<i>S. Langman</i> 29/03/2017		



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH22
Engineer		Sample Ref	
		Depth (m)	7.00
		Sample Type	T

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	25 %
Percentage retained on 425µm sieve :	0 %
Liquid Limit :	56 %
Plastic Limit :	21 %
Plasticity Index :	35
Equivalent moisture content of material passing 425µm sieve :	25 %
Liquidity Index :	0.11

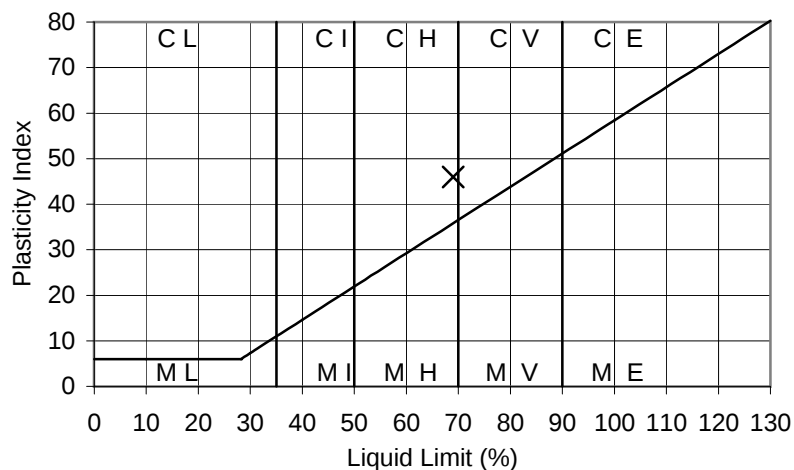
Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	 Figure 36 Sheet 1 of 1
KP/TE	<i>S. Langman</i> 29/03/2017		



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH22
Engineer		Sample Ref	
		Depth (m)	15.90
		Sample Type	T

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	25 %
Percentage retained on 425µm sieve :	0 %
Liquid Limit :	69 %
Plastic Limit :	23 %
Plasticity Index :	46
Equivalent moisture content of material passing 425µm sieve :	25 %
Liquidity Index :	0.04

Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	Figure 37 Sheet 1 of 1
KP/TE	<i>S. Langman</i> 29/03/2017		



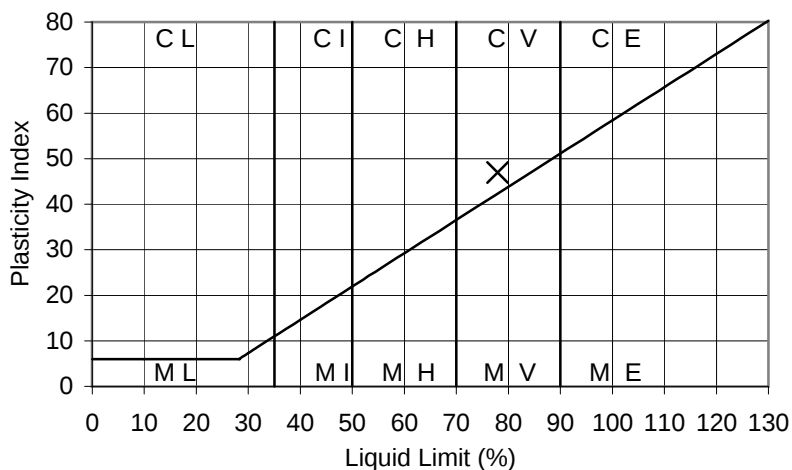
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH22
Sample Ref
Depth (m) 17.80
Sample Type T

Non Engineering Description : Light brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 28 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 78 %
 Plastic Limit : 31 %
 Plasticity Index : 47
 Equivalent moisture content of material passing 425µm sieve : 28 %
 Liquidity Index : -0.06

Originator

Checked & Approved

KP/TE

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29/03/2017

**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990
BS 1377:Part 2:Clause 5:1990



Figure 38

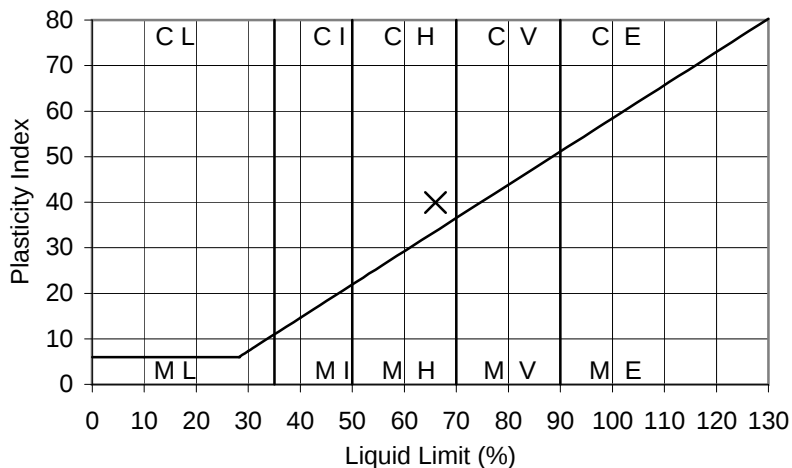
Sheet 1 of 1



Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole ID	BH23
Engineer		Sample Ref	
		Depth (m)	7.00
		Sample Type	T

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 27 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 66 %
 Plastic Limit : 26 %
 Plasticity Index : 40

Equivalent moisture content of material passing 425µm sieve : 27 %
 Liquidity Index : 0.03

Originator	Checked & Approved	Liquid Limit (One Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.4:1990 BS 1377:Part 2:Clause 5:1990	Figure 39 Sheet 1 of 1
KP/TE	<i>S. Langdon</i> 29/03/2017		



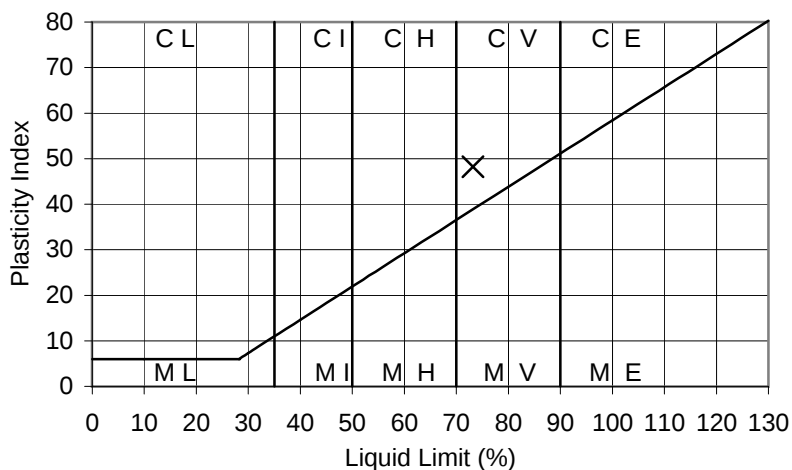
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH23
Sample Ref
Depth (m) 11.50
Sample Type T

Non Engineering Description : Brown CLAY.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 24 %
 Percentage retained on 425µm sieve : 0 %
 Liquid Limit : 73 %
 Plastic Limit : 25 %
 Plasticity Index : 48

 Equivalent moisture content of material passing 425µm sieve : 24 %
 Liquidity Index : -0.02

Originator

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29/03/2017

**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990

BS 1377:Part 2:Clause 5:1990



Figure 40

Sheet 1 of 1



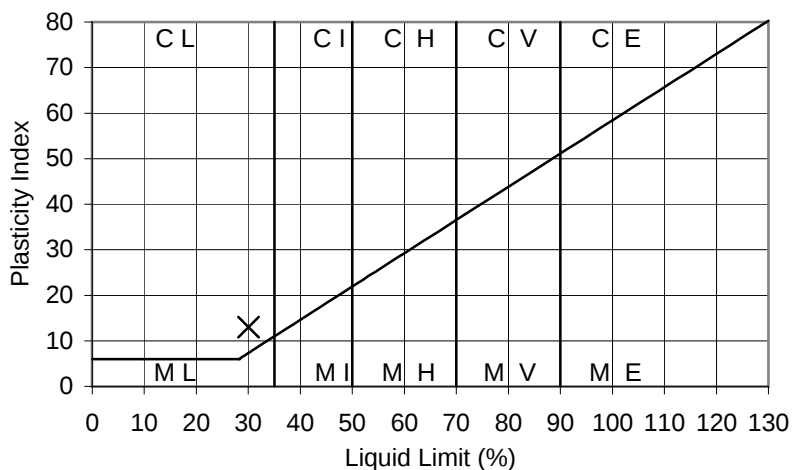
Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
Client Royal Mail Group Limited
Engineer

Contract No. **B20578**

Hole ID BH23
Sample Ref
Depth (m) 27.50
Sample Type U

Non Engineering Description : Brown clayey silty SAND with some gravel. Gravel is fine to coarse.

Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990) 15 %
Percentage retained on 425µm sieve : 30 %
Liquid Limit : 30 %
Plastic Limit : 17 %
Plasticity Index : 13

Equivalent moisture content of material passing 425µm sieve : 21 %
Liquidity Index : 0.31

Originator

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KP

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29/03/2017

**Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index**

BS 1377:Part 2:Clause 4.4:1990
BS 1377:Part 2:Clause 5:1990



Figure 41

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH11

Sample Ref

COMBINED

Depth (m)

31.00-32.00

Sample Type

B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	99
2.00 mm	99
1.18 mm	99
600 µm	97
425 µm	92
300 µm	85
212 µm	77
150 µm	68
63 µm	51
20 µm	36
6 µm	27
2 µm	20

Non Engineering Description

Dark grey very silty clayey SAND with occasional gravel.
Gravel is fine to medium.

Sample Proportions - %

Cobbles	0.0
Gravel	1.1
Sand	49.3
Silt	29.4
Clay	20.2

Particle Diameter - mm

D100	14
D60	0.10
D10	
Uniformity Coefficient	N/A

Notes

Sedimentation sample not pre-treated

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
	Silt			Sand			Gravel			

Percentage Passing - %

Particle Size - mm	Percentage Passing - %
0.002	20
0.006	25
0.02	36
0.06	51
0.2	77
0.6	97
2	99
6	100
20	100
60	100
200	100

Particle Size - mm

Originator

LG

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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Tk

Figure 43

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH11

Sample Ref

Depth (m)

34.00-34.50

Sample Type

B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	100
425 µm	100
300 µm	99
212 µm	97
150 µm	82
63 µm	31

Non Engineering Description

Dark brown silty clayey SAND.

Sample Proportions - %

Cobbles	0.0
Gravel	0.0
Sand	69.3
Silt & Clay	30.7

Particle Diameter - mm

D100	2.0
D60	0.10
D10	
Uniformity Coefficient	N/A

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
Silt				Sand			Gravel			

Percentage Passing - %

Particle Size (mm)	Percentage Passing (%)
0.075	31
0.15	82
0.3	97
0.6	99
1.2	100
2.5	100
5.0	100
10.0	100
20.0	100
40.0	100
60.0	100
75.0	100
100.0	100

Particle Size - mm

Originator

LG

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29/03/2017

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Tk

Figure 44

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH11

Sample Ref

Depth (m)

40.00-40.50

Sample Type

B

Particle Size

% Passing

125.0 mm

100

90.0 mm

100

75.0 mm

100

63.0 mm

100

50.0 mm

100

37.5 mm

100

28.0 mm

100

20.0 mm

100

14.0 mm

100

10.0 mm

100

6.30 mm

100

5.00 mm

100

3.35 mm

100

2.00 mm

100

1.18 mm

100

600 µm

99

425 µm

99

300 µm

99

212 µm

98

150 µm

87

63 µm

49

Non Engineering Description

Brown very silty very clayey SAND.

Sample Proportions - %

Cobbles

0.0

Gravel

0.2

Sand

50.6

Silt & Clay

49.2

Particle Diameter - mm

D100

6.3

D60

0.081

D10

Uniformity Coefficient

N/A

Notes

Clay

Fine

Medium

Coarse

Fine

Medium

Coarse

Fine

Medium

Coarse

Cobbles

Silt

Sand

Gravel

Percentage Passing - %

Particle Size - mm

100

90

80

70

60

50

40

30

20

10

0

0.002

0.006

0.02

0.06

0.2

0.6

2

6

20

60

200

Originator

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29/03/2017

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Tk

Figure 45

Sheet 1 of 1

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

 Contract No **B20578**

 Hole BH12
 Sample Ref COMBINED
 Depth (m) 33.00-39.00
 Sample Type T

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	99
6.30 mm	98
5.00 mm	98
3.35 mm	98
2.00 mm	98
1.18 mm	98
600 µm	97
425 µm	97
300 µm	96
212 µm	93
150 µm	77
63 µm	27

Non Engineering Description

Dark brown silty clayey SAND with occasional gravel. Gravel is fine to medium.

Sample Proportions - %

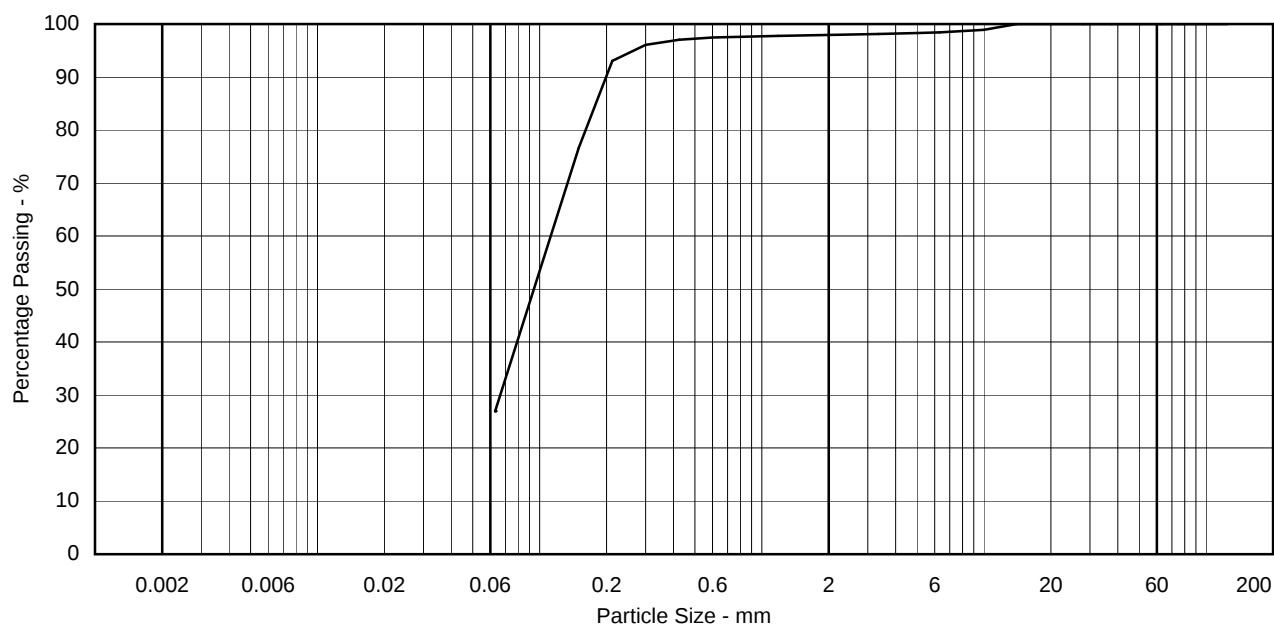
Cobbles	0.0
Gravel	2.0
Sand	71.0
Silt & Clay	27.0

Particle Diameter - mm

D100	14
D60	0.11
D10	
Uniformity Coefficient	N/A

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
	Silt			Sand			Gravel			



Originator

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LG

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 29/03/2017

PARTICLE SIZE DISTRIBUTION
 BS1377:Part 2:1990 Clause 9.2 - Wet Sieving


Figure 46

Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site		ROYAL MAIL MOUNT PLEASANT SORTING OFFICE		Contract No		B20578	
	Client		Royal Mail Group Limited		Hole		BH13	
	Engineer				Sample Ref			
				Depth (m)		22.00		
				Sample Type		T		

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	100
425 µm	100
300 µm	100
212 µm	92
150 µm	50
63 µm	15

Non Engineering Description	
Brown silty clayey SAND.	

Sample Proportions - %	
Cobbles	0.0
Gravel	0.0
Sand	84.6
Silt & Clay	15.4

Particle Diameter - mm	
D100	0.60
D60	0.16
D10	
Uniformity Coefficient	N/A

Notes	

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
	Silt			Sand			Gravel			

100	90	80	70	60	50	40	30	20	10	0
Particle Size - mm										
0.002	0.006	0.02	0.06	0.2	0.6	2	6	20	60	200

Originator	Checked & Approved	PARTICLE SIZE DISTRIBUTION BS1377:Part 2:1990 Clause 9.2 - Wet Sieving	Tk Figure 47
LG	S. Longren 29/03/2017		

Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No	B20578	
	Client	Royal Mail Group Limited		Hole	BH13
	Engineer		Sample Ref	27.00-27.45	
			Depth (m)	27.00-27.45	
			Sample Type	U	

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	99
425 µm	98
300 µm	97
212 µm	96
150 µm	88
63 µm	50
20 µm	35
6 µm	28
2 µm	22

Non Engineering Description	
Light brown very clayey very silty SAND.	

Sample Proportions - %	
Cobbles	0.0
Gravel	0.5
Sand	50.4
Silt	26.7
Clay	22.3

Particle Diameter - mm	
D100	10
D60	0.079
D10	
Uniformity Coefficient	N/A

Notes
Sedimentation sample not pre-treated

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
	Silt			Sand			Gravel			

Percentage Passing - %

Particle Size - mm

Originator	Checked & Approved	PARTICLE SIZE DISTRIBUTION BS1377:Part 2:1990 Clause 9.2 - Wet Sieving BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette	Tk Figure 48 Sheet 1 of 1
LG	S. Langston 29/03/2017		

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH13

Sample Ref

Depth (m)

28.50-29.00

Sample Type

B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	97
14.0 mm	97
10.0 mm	96
6.30 mm	94
5.00 mm	93
3.35 mm	91
2.00 mm	91
1.18 mm	89
600 µm	84
425 µm	77
300 µm	64
212 µm	51
150 µm	41
63 µm	29

Non Engineering Description

Dark brown silty clayey SAND with some gravel. Gravel is fine to coarse.

Sample Proportions - %

Cobbles	0.0
Gravel	9.3
Sand	61.5
Silt & Clay	29.2

Particle Diameter - mm

D100	28
D60	0.27
D10	
Uniformity Coefficient	N/A

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
Silt			Sand			Gravel				

Percentage Passing - %

Particle Size (mm)	Percentage Passing (%)
0.075	29
0.15	41
0.3	77
0.6	84
1.18	89
2.5	91
5.0	93
10.0	96
20.0	97
425	100
600	100
75	100
90	100
125	100

Particle Size - mm

Originator

LG

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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Tk

Figure 50

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH13

Sample Ref

Depth (m)

33.00-33.50

Sample Type

B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	100
425 µm	100
300 µm	99
212 µm	98
150 µm	55
63 µm	15

Non Engineering Description

Dark grey silty clayey SAND.

Sample Proportions - %

Cobbles	0.0
Gravel	0.0
Sand	84.9
Silt & Clay	15.1

Particle Diameter - mm

D100	2.0
D60	0.16
D10	
Uniformity Coefficient	N/A

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
Silt				Sand			Gravel			

Percentage Passing - %

Particle Size (mm)	Percentage Passing (%)
0.075	15
0.15	55
0.3	98
0.6	100

Particle Size - mm

Originator

LG

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S. Langston
29/03/2017

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Tk

Figure 51

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH14

Sample Ref

Depth (m)

26.00-26.50

Sample Type

B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	96
28.0 mm	78
20.0 mm	40
14.0 mm	21
10.0 mm	15
6.30 mm	12
5.00 mm	11
3.35 mm	10
2.00 mm	10
1.18 mm	9
600 µm	9
425 µm	8
300 µm	8
212 µm	8
150 µm	7
63 µm	4

Non Engineering Description

Light brown fine to coarse GRAVEL with some slightly silty sand.

Sample Proportions - %

Cobbles	0.0
Gravel	90.3
Sand	5.8
Silt & Clay	3.9

Particle Diameter - mm

D100	50
D60	24
D10	2.7
Uniformity Coefficient	8.9

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
	Silt			Sand			Gravel			

Percentage Passing - %

Particle Size (mm)	Percentage Passing (%)
0.075	4
0.25	10
0.6	20
2.0	40
4.75	78
75	100

Particle Size - mm

Originator

LG

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29/03/2017

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Tk

Figure 53

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH14

Sample Ref

Depth (m)

28.50

Sample Type

D

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	100
425 µm	100
300 µm	99
212 µm	91
150 µm	56
63 µm	17

Non Engineering Description

Dark brown silty clayey SAND.

Sample Proportions - %

Cobbles	0.0
Gravel	0.0
Sand	82.7
Silt & Clay	17.3

Particle Diameter - mm

D100	0.60
D60	0.16
D10	
Uniformity Coefficient	N/A

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
Silt			Sand			Gravel				

Percentage Passing - %

Particle Size (mm)	Percentage Passing (%)
0.075	17
0.15	56
0.3	91
0.6	100

Particle Size - mm

Originator

LG

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29/03/2017

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Tk

Figure 54

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH14

Sample Ref

Depth (m)

34.50

Sample Type

D

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	99
425 µm	99
300 µm	97
212 µm	92
150 µm	56
63 µm	13

Non Engineering Description	
Brown silty clayey SAND.	

Sample Proportions - %	
Cobbles	0.0
Gravel	0.5
Sand	86.1
Silt & Clay	13.4

Particle Diameter - mm	
D100	5.0
D60	0.16
D10	
Uniformity Coefficient	N/A

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
Silt			Sand			Gravel				

Percentage Passing - %

Particle Size (mm)	Percentage Passing (%)
0.075	13
0.15	56
0.3	92
0.6	97
1.18	99
2.0	99
4.75	100
63	100
200	100

Particle Size - mm

Originator

LG

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29/03/2017

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Figure 55

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH15B

Sample Ref

Depth (m)

18.00

Sample Type

D

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	98
425 µm	98
300 µm	90
212 µm	78
150 µm	65
63 µm	46

Non Engineering Description

Brown silty clayey SAND.

Sample Proportions - %

Cobbles	0.0
Gravel	0.5
Sand	53.3
Silt & Clay	46.2

Particle Diameter - mm

D100	14
D60	0.12
D10	
Uniformity Coefficient	N/A

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
	Silt			Sand			Gravel			

Percentage Passing - %

Particle Size (mm)	Percentage Passing (%)
0.075	46
0.15	65
0.25	90
0.6	100

Particle Size - mm

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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Tk

Figure 56

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH15B

Sample Ref

COMBINED

Depth (m)

25.00-25.50

Sample Type

D

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	100
425 µm	100
300 µm	99
212 µm	97
150 µm	76
63 µm	35

Non Engineering Description

Brown silty clayey SAND.

Sample Proportions - %

Cobbles	0.0
Gravel	0.0
Sand	65.2
Silt & Clay	34.8

Particle Diameter - mm

D100	2.0
D60	0.11
D10	
Uniformity Coefficient	N/A

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
	Silt			Sand			Gravel			

Percentage Passing - %

Particle Size - mm

Originator

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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Figure 57

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH15B

Sample Ref

Depth (m)

30.50-31.00

Sample Type

B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	94
14.0 mm	94
10.0 mm	93
6.30 mm	92
5.00 mm	92
3.35 mm	92
2.00 mm	92
1.18 mm	91
600 µm	90
425 µm	88
300 µm	81
212 µm	74
150 µm	66
63 µm	43
20 µm	28
6 µm	21
2 µm	17

Non Engineering Description	
Dark brown silty clayey SAND with some gravel. Gravel is fine to coarse.	

Sample Proportions - %	
Cobbles	0.0
Gravel	8.1
Sand	50.1
Silt	24.7
Clay	17.1

Particle Diameter - mm	
D100	28
D60	0.12
D10	
Uniformity Coefficient	N/A

Notes
Sedimentation sample not pre-treated

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
Silt			Sand			Gravel				

Percentage Passing - %

Particle Size (mm)	Percentage Passing (%)
0.075	17
0.15	21
0.3	28
0.6	43
1.2	66
2.5	81
5.0	92
10	93
20	94
40	94
75	100

Particle Size - mm

Originator

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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Figure 58

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH15B

Sample Ref

Depth (m)

32.00-32.50

Sample Type

B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	97
14.0 mm	91
10.0 mm	87
6.30 mm	81
5.00 mm	76
3.35 mm	73
2.00 mm	72
1.18 mm	70
600 µm	68
425 µm	66
300 µm	62
212 µm	55
150 µm	42
63 µm	17

Non Engineering Description

Dark grey silty clayey SAND with much gravel. Gravel is fine to coarse.

Sample Proportions - %	
Cobbles	0.0
Gravel	28.5
Sand	54.4
Silt & Clay	17.1

Particle Diameter - mm	
D100	28
D60	0.27
D10	
Uniformity Coefficient	N/A

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
Silt			Sand			Gravel				

Percentage Passing - %

Particle Size (mm)	Percentage Passing (%)
0.075	17
0.25	42
0.6	66
2	73
6	81
20	100

Particle Size - mm

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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Tk

Figure 59

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH15B

Sample Ref

Depth (m)

39.00

Sample Type

D

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	99
6.30 mm	99
5.00 mm	99
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	98
425 µm	97
300 µm	96
212 µm	93
150 µm	66
63 µm	19

Non Engineering Description

Brown silty clayey SAND with occasional gravel. Gravel is fine to medium.

Sample Proportions - %

Cobbles	0.0
Gravel	1.4
Sand	79.7
Silt & Clay	18.9

Particle Diameter - mm

D100	20
D60	0.13
D10	
Uniformity Coefficient	N/A

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
	Silt			Sand			Gravel			

Percentage Passing - %

Particle Size (mm)	Percentage Passing (%)
0.075	19
0.15	66
0.3	93
0.6	97
1.18	98
2.0	99
4.75	99
7.5	99
15	99
30	100
60	100
125	100

Particle Size - mm

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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Tk

Figure 60

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH19

Sample Ref

Depth (m)

4.00-4.45

Sample Type

B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	98
28.0 mm	94
20.0 mm	80
14.0 mm	61
10.0 mm	42
6.30 mm	28
5.00 mm	25
3.35 mm	21
2.00 mm	19
1.18 mm	18
600 µm	16
425 µm	15
300 µm	12
212 µm	9
150 µm	8
63 µm	6

Non Engineering Description

Brown fine to coarse GRAVEL with some silty clayey sand.

Sample Proportions - %

Cobbles	0.0
Gravel	81.0
Sand	12.9
Silt & Clay	6.1

Particle Diameter - mm

D100	50
D60	14
D10	0.23
Uniformity Coefficient	60.9

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
	Silt			Sand			Gravel			

Percentage Passing - %

Particle Size (mm)	Percentage Passing (%)
0.075	6
0.15	8
0.3	12
0.6	15
1.2	18
2.5	20
5.0	25
10	42
20	80
40	95
60	100

Particle Size - mm

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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Tk

Figure 61

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH19

Sample Ref

Depth (m)

33.00

Sample Type

D

Particle Size

% Passing

125.0 mm

100

90.0 mm

100

75.0 mm

100

63.0 mm

100

50.0 mm

100

37.5 mm

100

28.0 mm

100

20.0 mm

100

14.0 mm

100

10.0 mm

100

6.30 mm

100

5.00 mm

100

3.35 mm

100

2.00 mm

100

1.18 mm

100

600 µm

100

425 µm

100

300 µm

100

212 µm

98

150 µm

88

63 µm

28

Non Engineering Description

Brown silty clayey SAND.

Sample Proportions - %

Cobbles

0.0

Gravel

0.0

Sand

71.7

Silt & Clay

28.3

Particle Diameter - mm

D100

0.60

D60

0.10

D10

Uniformity Coefficient

N/A

Notes

Clay

Fine

Medium

Coarse

Fine

Medium

Coarse

Fine

Medium

Coarse

Cobbles

Silt

Sand

Gravel

Percentage Passing - %

Particle Size - mm

100

90

80

70

60

50

40

30

20

10

0

0.002

0.006

0.02

0.06

0.2

0.6

2

6

20

60

200

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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Tk

Figure 62

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH20

Sample Ref

Depth (m)

6.00-6.45

Sample Type

B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	91
28.0 mm	88
20.0 mm	82
14.0 mm	69
10.0 mm	62
6.30 mm	56
5.00 mm	53
3.35 mm	50
2.00 mm	48
1.18 mm	47
600 µm	44
425 µm	39
300 µm	33
212 µm	29
150 µm	27
63 µm	23
20 µm	17
6 µm	14
2 µm	12

Non Engineering Description

Brown fine to coarse GRAVEL with much silty clayey sand.

Sample Proportions - %

Cobbles	0.0
Gravel	51.9
Sand	25.9
Silt	10.8
Clay	11.5

Particle Diameter - mm

D100	50
D60	8.7
D10	
Uniformity Coefficient	N/A

Notes

Sedimentation sample not pre-treated

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
Silt			Sand			Gravel				

Percentage Passing - %

Particle Size (mm)	Percentage Passing (%)
0.075	12
0.15	15
0.3	20
0.6	28
1.2	35
2.5	42
5.0	48
10	55
20	75
40	90
60	100

Particle Size - mm

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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Tk

Figure 63

Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No		B20578	
	Client	Royal Mail Group Limited		Hole	BH20	
	Engineer		Sample Ref	34.00		Depth (m)
			Sample Type	B		

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	99
6.30 mm	99
5.00 mm	99
3.35 mm	99
2.00 mm	99
1.18 mm	99
600 µm	99
425 µm	99
300 µm	99
212 µm	97
150 µm	85
63 µm	25

Non Engineering Description	
Dark brown silty clayey SAND.	

Sample Proportions - %	
Cobbles	0.0
Gravel	0.8
Sand	74.2
Silt & Clay	25.0

Particle Diameter - mm	
D100	20
D60	0.10
D10	
Uniformity Coefficient	N/A

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
Silt			Sand			Gravel				

Percentage Passing - %

Particle Size - mm

Originator	Checked & Approved	PARTICLE SIZE DISTRIBUTION BS1377:Part 2:1990 Clause 9.2 - Wet Sieving	Tk Figure 64 Sheet 1 of 1
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TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH20

Sample Ref

Depth (m)

38.00

Sample Type

B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	99
2.00 mm	99
1.18 mm	99
600 µm	99
425 µm	98
300 µm	97
212 µm	95
150 µm	74
63 µm	18

Non Engineering Description

Dark brown silty clayey SAND.

Sample Proportions - %

Cobbles	0.0
Gravel	0.9
Sand	80.6
Silt & Clay	18.5

Particle Diameter - mm

D100	14
D60	0.12
D10	
Uniformity Coefficient	N/A

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
	Silt			Sand			Gravel			

Percentage Passing - %

Particle Size - mm	Percentage Passing - %
0.075	18
0.25	95
0.6	100

Particle Size - mm

Originator

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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Tk

Figure 65

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH21

Sample Ref

Depth (m)

15.00-19.50

Sample Type

B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	95
28.0 mm	91
20.0 mm	82
14.0 mm	72
10.0 mm	62
6.30 mm	49
5.00 mm	39
3.35 mm	28
2.00 mm	16
1.18 mm	11
600 µm	9
425 µm	8
300 µm	8
212 µm	7
150 µm	7
63 µm	5
20 µm	3
6 µm	2
2 µm	1

Non Engineering Description

Brown fine to coarse GRAVEL with some slightly clayey slightly silty sand.

Sample Proportions - %

Cobbles	0.0
Gravel	84.2
Sand	11.1
Silt	3.4
Clay	1.3

Particle Diameter - mm

D100	50
D60	9.2
D10	0.90
Uniformity Coefficient	10.2

Notes

Sedimentation sample not pre-treated

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
Silt			Sand			Gravel				

Percentage Passing - %

Particle Size - mm

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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Tk

Figure 66

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH22

Sample Ref

Depth (m)

16.50-17.00

Sample Type

B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	100
425 µm	99
300 µm	99
212 µm	99
150 µm	97
63 µm	76

Non Engineering Description	
Dark brown very silty sandy CLAY.	

Sample Proportions - %	
Cobbles	0.0
Gravel	0.2
Sand	24.3
Silt & Clay	75.5

Particle Diameter - mm	
D100	5.0
D60	
D10	
Uniformity Coefficient	N/A

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
Silt				Sand			Gravel			

Percentage Passing - %

Particle Size (mm)	Percentage Passing (%)
0.075	76
0.15	97
0.3	99
0.6	99
1.18	100
2.0	100
4.75	100
7.5	100
15	100
30	100
60	100
125	100

Particle Size - mm

Originator

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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Tk

Figure 67

Sheet 1 of 1

Originator	Checked & Approved	PARTICLE SIZE DISTRIBUTION BS1377:Part 2:1990 Clause 9.2 - Wet Sieving	 Figure 68
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TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH22

Sample Ref

Depth (m)

27.00-27.50

Sample Type

B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	94
28.0 mm	79
20.0 mm	40
14.0 mm	27
10.0 mm	15
6.30 mm	10
5.00 mm	9
3.35 mm	8
2.00 mm	6
1.18 mm	5
600 µm	4
425 µm	4
300 µm	3
212 µm	2
150 µm	2
63 µm	2

Non Engineering Description

Brown fine to coarse GRAVEL with some slightly silty sand.

Sample Proportions - %

Cobbles	0.0
Gravel	93.5
Sand	4.9
Silt & Clay	1.5

Particle Diameter - mm

D100	50
D60	24
D10	5.9
Uniformity Coefficient	4.1

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
Silt			Sand			Gravel				

Percentage Passing - %

Particle Size - mm

Originator

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BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Tk

Figure 69

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH22

Sample Ref

Depth (m)

30.00-30.50

Sample Type

B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	100
425 µm	99
300 µm	99
212 µm	95
150 µm	73
63 µm	9

Non Engineering Description

Dark grey slightly silty slightly clayey SAND.

Sample Proportions - %

Cobbles	0.0
Gravel	0.1
Sand	90.4
Silt & Clay	9.5

Particle Diameter - mm

D100	6.3
D60	0.13
D10	0.063
Uniformity Coefficient	2.1

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
	Silt			Sand			Gravel			

Percentage Passing - %

Particle Size (mm)	Percentage Passing (%)
0.075	9
0.15	40
0.25	95
0.6	100
2.0	100
6.3	100
20	100
63	100
200	100

Particle Size - mm

Originator

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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Tk

Figure 70

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH23

Sample Ref

Depth (m)

27.50

Sample Type

U

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	95
20.0 mm	86
14.0 mm	83
10.0 mm	82
6.30 mm	79
5.00 mm	78
3.35 mm	77
2.00 mm	76
1.18 mm	76
600 µm	75
425 µm	70
300 µm	57
212 µm	41
150 µm	32
63 µm	23
20 µm	18
6 µm	16
2 µm	13

Non Engineering Description

Brown clayey silty SAND with some gravel. Gravel is fine to coarse.

Sample Proportions - %

Cobbles	0.0
Gravel	23.6
Sand	53.4
Silt	9.8
Clay	13.2

Particle Diameter - mm

D100	38
D60	0.33
D10	
Uniformity Coefficient	N/A

Notes

Sedimentation sample not pre-treated

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
Silt			Sand			Gravel				

Percentage Passing - %

Particle Size (mm)	Percentage Passing (%)
0.075	13
0.15	16
0.3	18
0.6	23
1.2	32
2.5	41
5.0	57
10	70
20	75
40	76
60	77
75	79
100	82
150	83
200	86
250	95
300	100

Particle Size - mm

Originator

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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Tk

Figure 73

Sheet 1 of 1

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site

ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client

Royal Mail Group Limited

Engineer

Contract No

B20578

Hole

BH23

Sample Ref

Depth (m)

36.50-37.00

Sample Type

B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	98
6.30 mm	96
5.00 mm	95
3.35 mm	93
2.00 mm	92
1.18 mm	92
600 µm	91
425 µm	91
300 µm	90
212 µm	85
150 µm	56
63 µm	10

Non Engineering Description

Dark grey silty clayey SAND with some gravel. Gravel is fine to medium.

Sample Proportions - %

Cobbles	0.0
Gravel	7.8
Sand	82.5
Silt & Clay	9.7

Particle Diameter - mm

D100	14
D60	0.16
D10	0.063
Uniformity Coefficient	2.5

Notes

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles
Silt			Sand			Gravel				

Percentage Passing - %

Particle Size (mm)	Percentage Passing (%)
0.06	10
0.15	55
0.25	85
0.425	91
0.6	92
1.18	92
2.0	93
4.75	95
6.3	96
7.5	98
10.0	98
125.0	100

Particle Size - mm

Originator

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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Tk

Figure 75

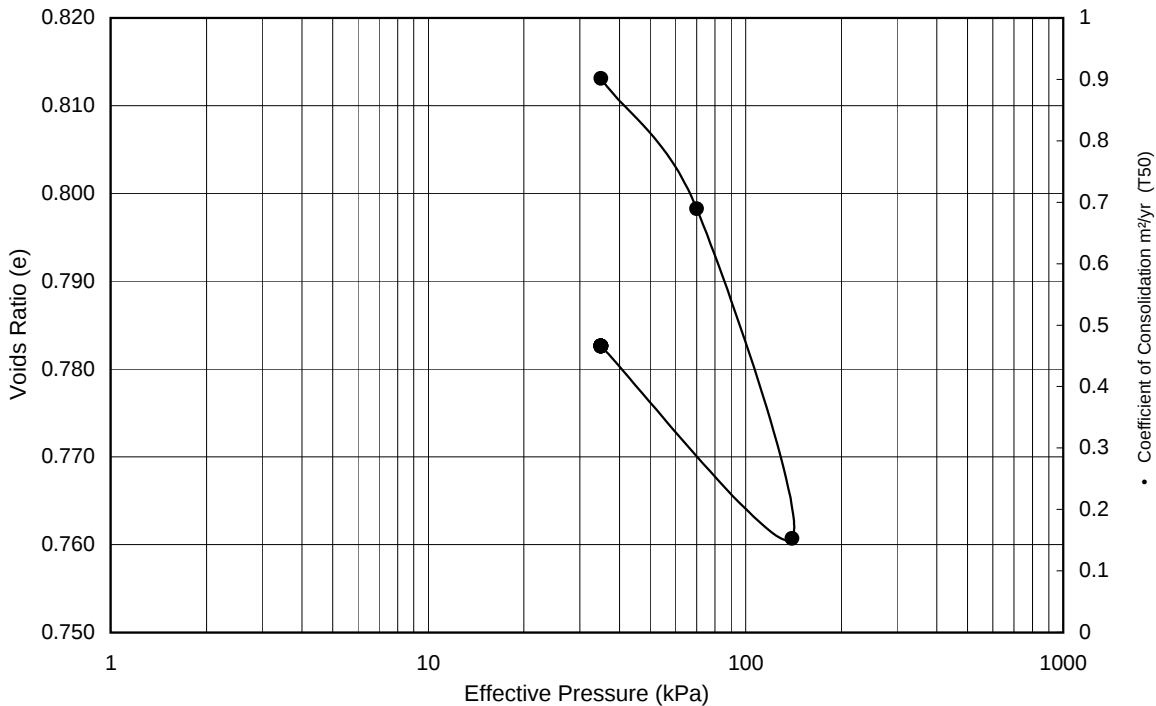
Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No	B20578
	Client	Royal Mail Group Limited	Hole ID	BH11
	Engineer		Sample Ref	
			Depth (m)	3.50
			Sample Type	U

Non Engineering Description: Brown CLAY.

Initial Moisture Content	30 %	Final Moisture Content	30 %	
Initial Voids Ratio	0.823	Final Voids Ratio	0.783	
Initial Bulk Density	1.91 Mg/m³	Particle Density	2.68 Mg/m³	Assumed
Initial Dry Density	1.47 Mg/m³	Degree of saturation	97 %	
Specimen Dimensions	19.83mm x 75.02mm dia			
Laboratory temperature	20±2°C			
Specimen taken 50mm below top of (U100) tube by vertical extrusion with horizontal orientation				

Pressure Range kPa	M _v m ² /MN	C _v (root time) m ² /year	C _v (log time) m ² /year	Voids ratio (e)	C _{sec}	Duration days
2 - 35	0.157	swelling	swelling	0.813		1
35 - 70	0.234	2.69	1.89	0.798		1
70 - 140	0.298	5.20	1.39	0.761		1
140 - 35	0.119	4.34	0.69	0.783		1



Originator	Checked & Approved	ONE DIMENSIONAL CONSOLIDATION BS1377:PART 5:1990	TK Figure 76
MUF	S. Langman 29/03/2017		

Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE		Contract No		B20578	
	Client	Royal Mail Group Limited		Hole ID	BH12		
	Engineer			Sample Ref			
				Depth (m)	22.00-22.95		
				Sample Type	U		

Non Engineering Description:

Grey friable CLAY.

Initial Moisture Content

24 %

Final Moisture Content

23 %

Initial Voids Ratio

0.659

Final Voids Ratio

0.601

Initial Bulk Density

2.01 Mg/m³

Particle Density

2.68 Mg/m³

Assumed

Initial Dry Density

1.62 Mg/m³

Degree of saturation

99 %

Specimen Dimensions

19.96mm x 74.96mm dia

Laboratory temperature

20±2°C

Specimen taken 50mm below top of (U100) tube by vertical extrusion with horizontal orientation

Pressure Range kPa	M _v m ² /MN	C _v (root time) m ² /year	C _v (log time) m ² /year	Voids ratio (e)	C _{sec}	Duration days
2 - 225	0.056	swelling	swelling	0.638		1
225 - 450	0.085	1.69	0.66	0.607		1
450 - 900	0.071	0.91	0.43	0.556		1
900 - 225	0.043	0.69	0.29	0.601		1

Voids Ratio (e)

0.65

0.64

0.63

0.62

0.61

0.60

0.59

0.58

0.57

0.56

0.55

Effective Pressure (kPa)

1

10

100

1000

10000

• Coefficient of Consolidation m²/yr (T50)

1

0.9

0.8

0.7

0.6

0.5

0.4

0.3

0.2

0.1

0

0.638

0.607

0.556

0.601

0.9

0.6

0.1

Originator	Checked & Approved	ONE DIMENSIONAL CONSOLIDATION BS1377:PART 5:1990	Tk Figure 77
MUF	S. Langren 29/03/2017		

Sheet 1 of 1



SITE INVESTIGATION AND LABORATORY SERVICES

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
 Client Royal Mail Group Limited
 Engineer

Contract No **B20578**

Hole BH11
 Sample Ref
 Depth (m) 37.00-37.50
 Sample Type B

Specimen Details

Depth within original sample N/A
 Orientation within original sample N/A
 Test condition Submerged

Non Engineering Description Brown CLAY

Preparation Material was remoulded at manageable moisture content to maximum attainable wet density.

Specimen Number

		1	2	3
Length	mm	60.0	60.0	60.0
Width	mm	59.9	59.9	59.9
Height	mm	22.0	22.0	22.0
Initial moisture content	%	21	21	21
Initial wet density	Mg/m ³	2.09	2.09	2.09
Initial dry density	Mg/m ³	1.73	1.73	1.73
Particle Density (assumed)	Mg/m ³	2.68	2.68	2.68

Consolidation Stage

Normal stress	kPa	250	500	1000
Height change	mm	-1.2	-2.5	-2.8
Duration	day(s)	—	—	—

Shearing Stage

Normal stress	kPa	250	500	1000
---------------	-----	-----	-----	------

Peak Conditions:

Rate of horizontal displacement	mm/min	1.2	1.2	0.246
Maximum shear stress	kPa	74	84	102
Horizontal displacement	mm	6.0	4.5	5.5
Height change	mm	-0.2	-0.2	-0.6

Final Conditions

Final moisture content	%	21	20	17
Duration	day(s)	1	1	1

Shear Strength Parameters

Maximum Condition: (linear tangent interpretation)		
Effective Cohesion	kPa	64
Effective Angle of Shearing Resistance	degrees	2.5

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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 78

Sheet 1 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

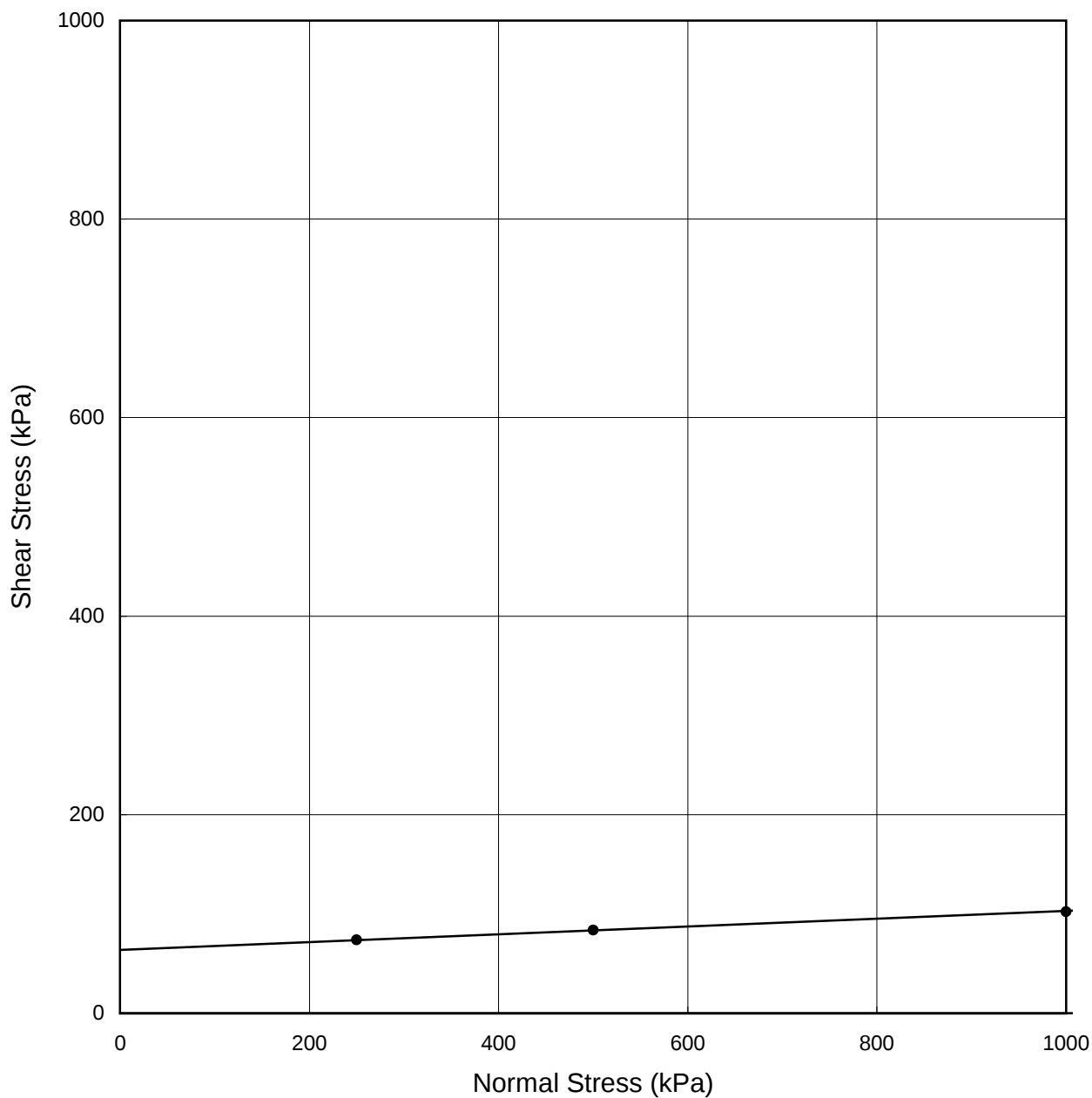
Hole BH11

Sample Ref

Depth (m) 37.00-37.50

Sample Type B

Shear Stress v Normal Stress



Shear Strength Parameters

 $c' = 64 \text{ kPa}$ $\phi' = 2.5^\circ$

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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4

Tk

Figure 78

Sheet 2 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH11

Sample Ref

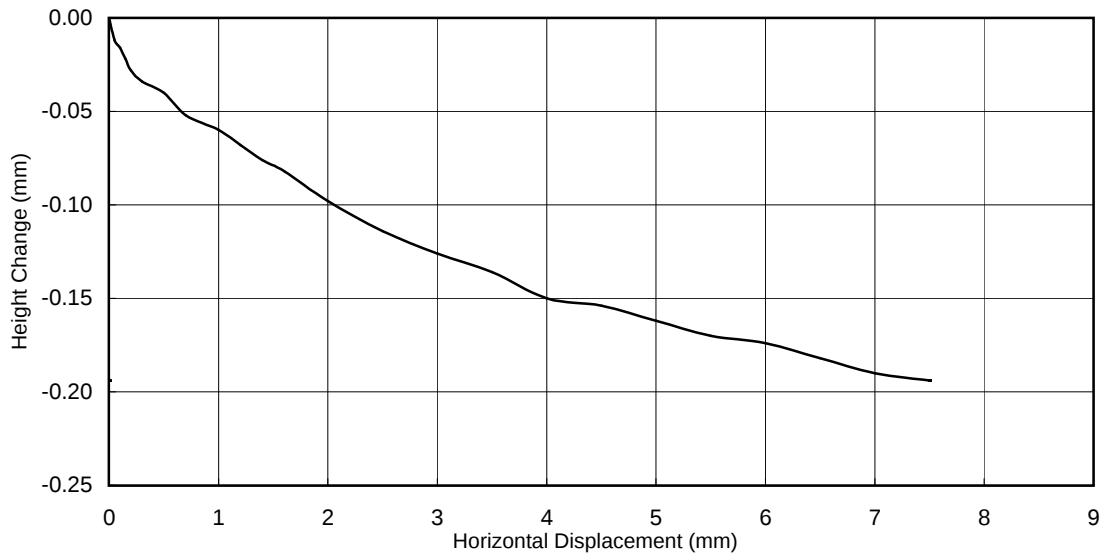
Depth (m) 37.00-37.50

Sample Type B

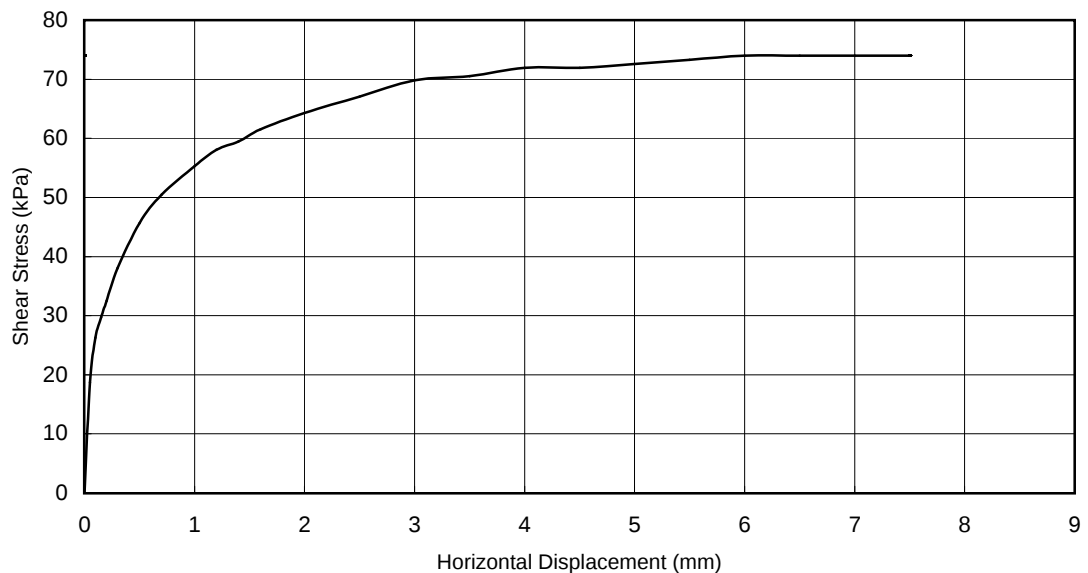
Specimen No. 1

Normal Pressure = 250 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 78

Sheet 3 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH11

Sample Ref

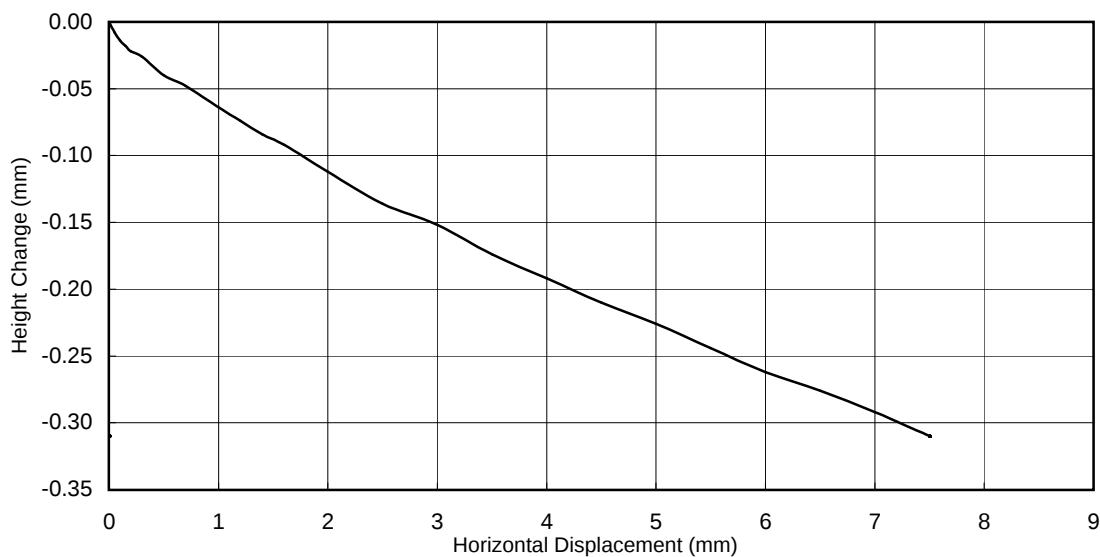
Depth (m) 37.00-37.50

Sample Type B

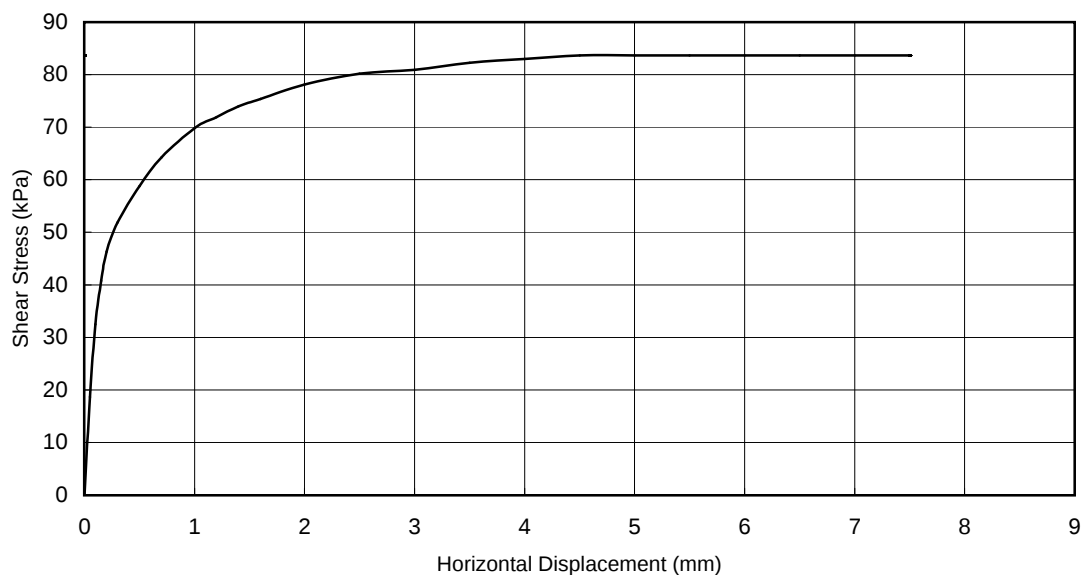
Specimen No. 2

Normal Pressure = 500 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4

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Figure 78

Sheet 4 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH11

Sample Ref

Depth (m) 37.00-37.50

Sample Type B

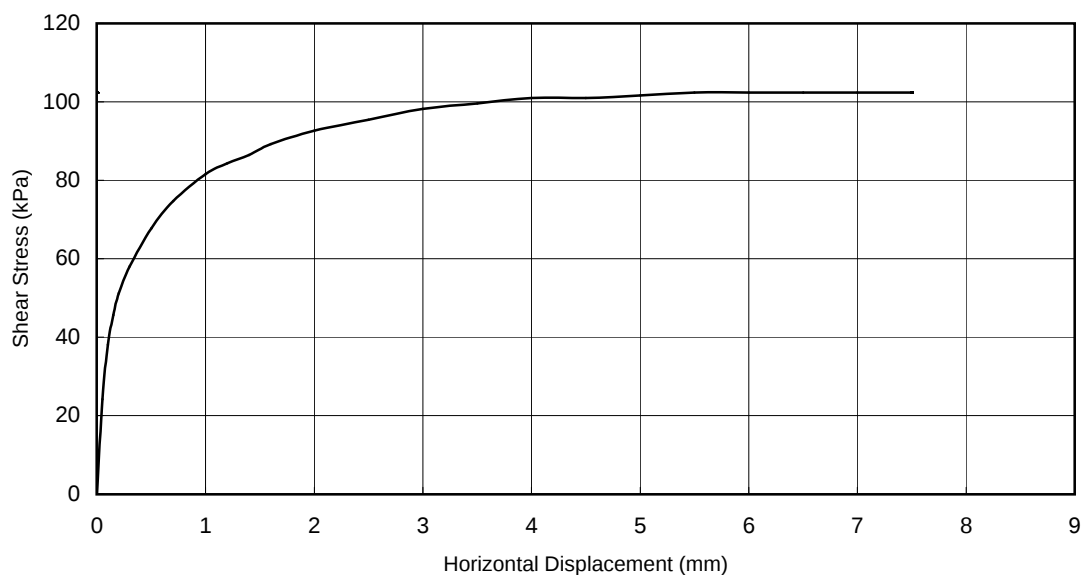
Specimen No. 3

Normal Pressure = 1000 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 78

Sheet 5 of 5



SITE INVESTIGATION AND LABORATORY SERVICES

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
 Client Royal Mail Group Limited
 Engineer

Contract No **B20578**
 Hole BH13
 Sample Ref
 Depth (m) 31.50-32.00
 Sample Type B

Specimen Details

Depth within original sample N/A
 Orientation within original sample N/A
 Test condition Submerged
 Non Engineering Description Greyish brown SAND.
 Preparation Material was remoulded at natural moisture content to maximum attainable wet density.

Specimen Number

		1	2	3
Length	mm	60.0	60.0	60.0
Width	mm	59.9	59.9	59.9
Height	mm	24.0	24.0	24.0
Initial moisture content	%	27	27	27
Initial wet density	Mg/m ³	1.91	1.91	1.91
Initial dry density	Mg/m ³	1.50	1.50	1.50
Particle Density (assumed)	Mg/m ³	2.68	2.68	2.68

Consolidation Stage

Normal stress	kPa	250	500	1000
Height change	mm	-0.5	-0.7	-1.1
Duration	day(s)	—	—	—

Shearing Stage

Normal stress	kPa	250	500	1000
---------------	-----	-----	-----	------

Peak Conditions:

Rate of horizontal displacement	mm/min	1.2	1.2	1.2
Maximum shear stress	kPa	195	366	685
Horizontal displacement	mm	2.0	2.5	2.5
Height change	mm	-0.1	-0.2	-0.3

Final Conditions

Final moisture content	%	24	24	24
Duration	day(s)	1	1	1

Shear Strength Parameters

Maximum Condition: (linear tangent interpretation)
 Effective Cohesion kPa **33**
 Effective Angle of Shearing Resistance degrees **33.5**

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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 79

Sheet 1 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

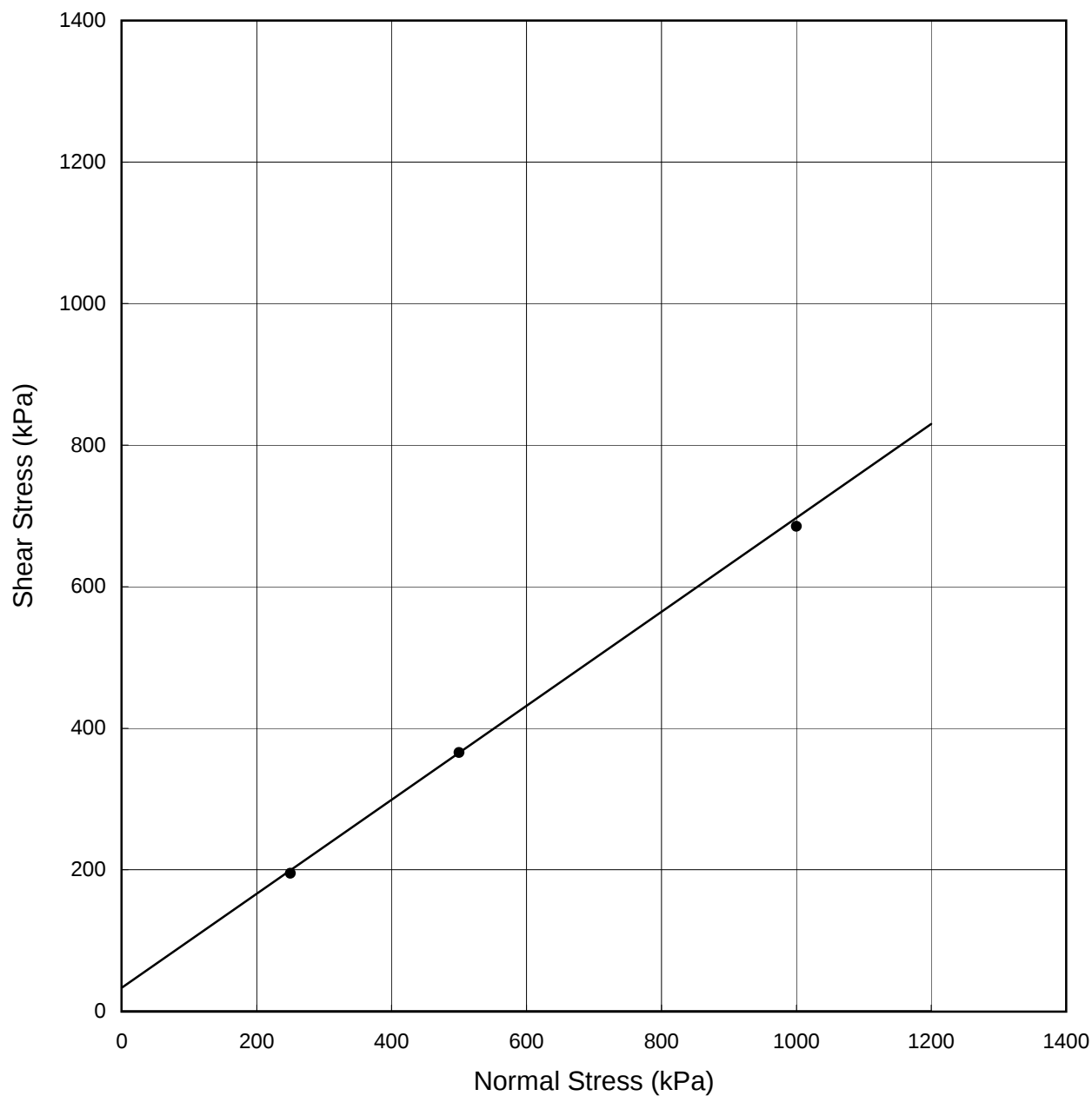
Hole BH13

Sample Ref

Depth (m) 31.50-32.00

Sample Type B

Shear Stress v Normal Stress



Shear Strength Parameters

 $c' = 33 \text{ kPa}$ $\phi' = 33.5^\circ$

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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 79

Sheet 2 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH13

Sample Ref

Depth (m) 31.50-32.00

Sample Type B

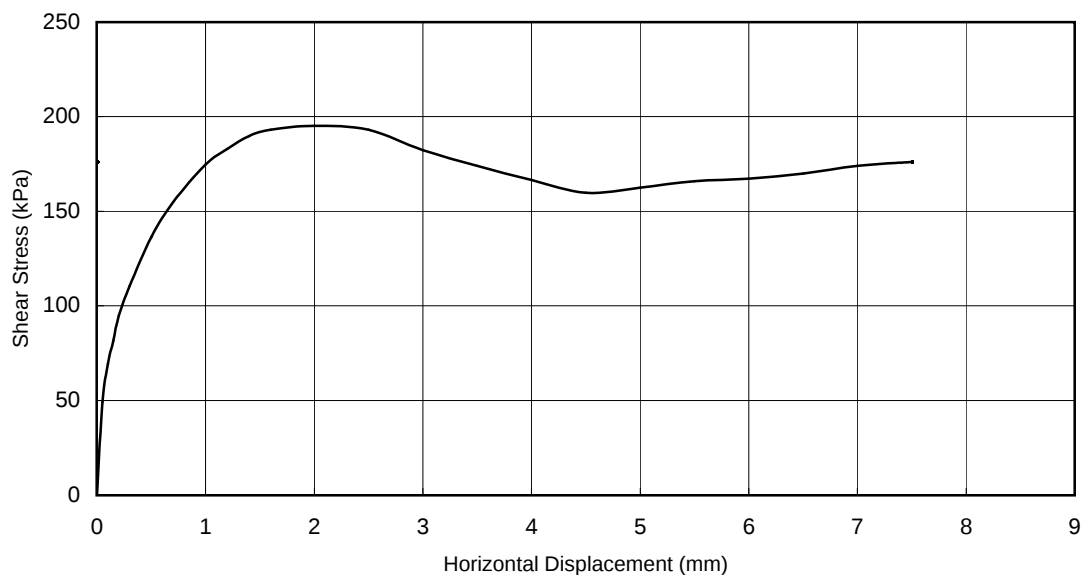
Specimen No. 1

Normal Pressure = 250 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 79

Sheet 3 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH13

Sample Ref

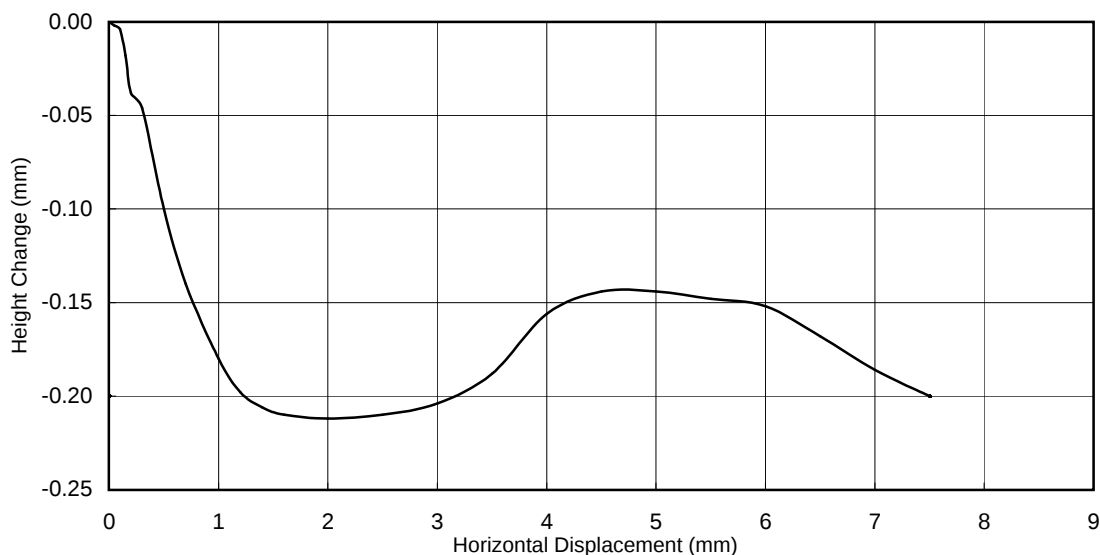
Depth (m) 31.50-32.00

Sample Type B

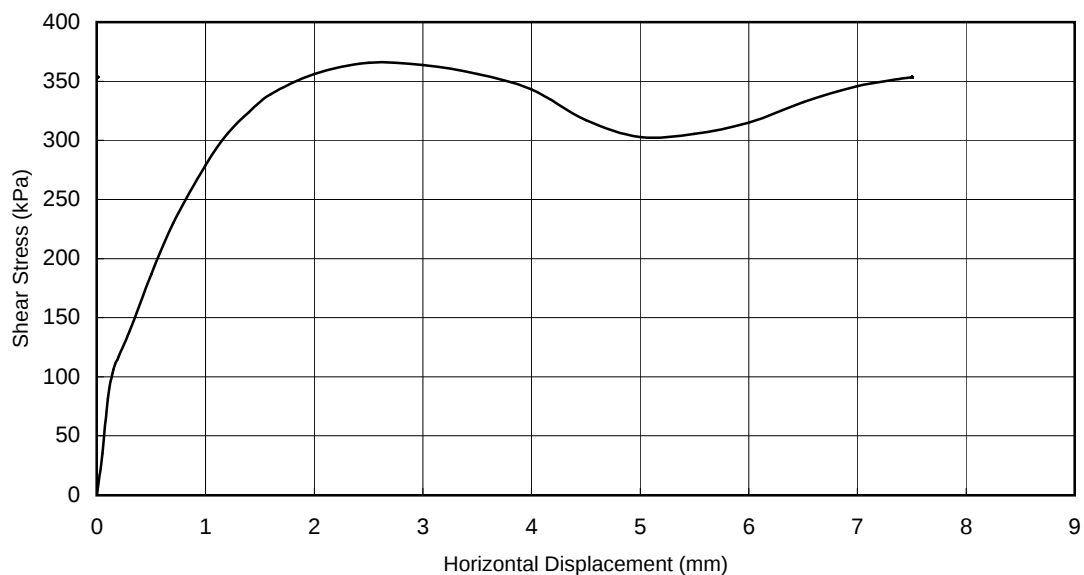
Specimen No. 2

Normal Pressure = 500 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4

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Figure 79

Sheet 4 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH13

Sample Ref

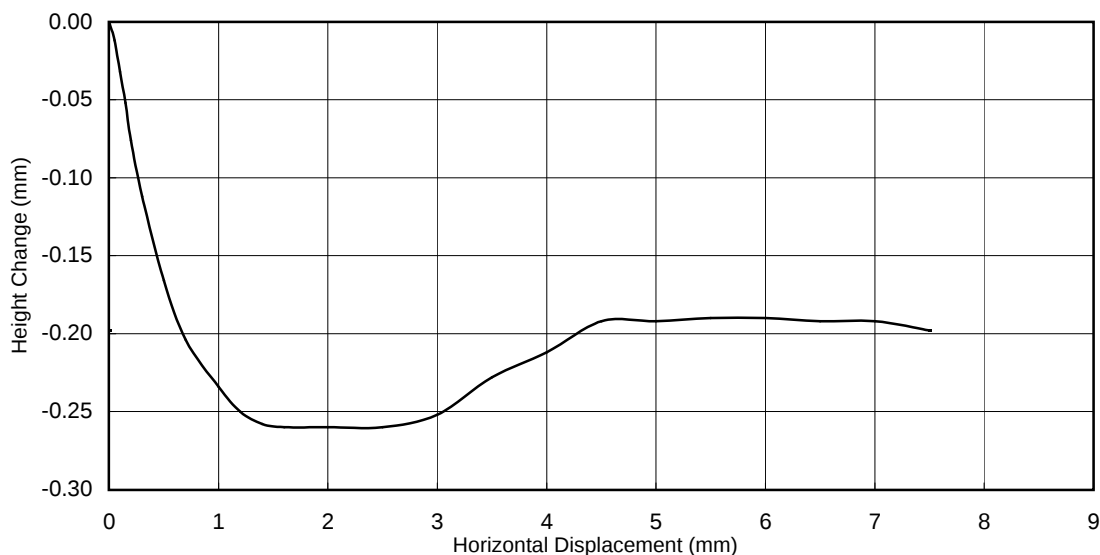
Depth (m) 31.50-32.00

Sample Type B

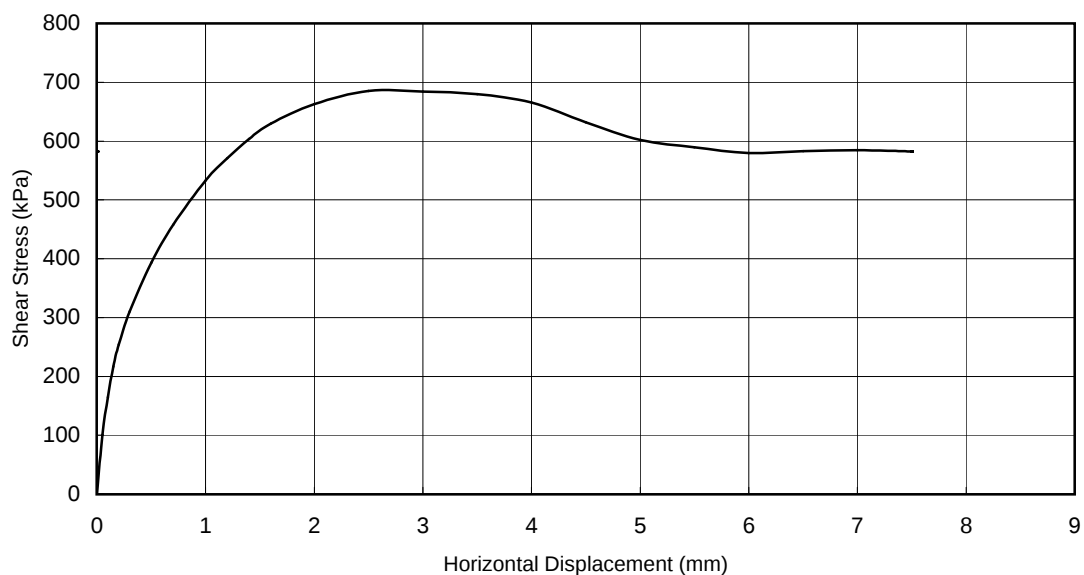
Specimen No. 3

Normal Pressure = 1000 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 79

Sheet 5 of 5



SITE INVESTIGATION AND LABORATORY SERVICES

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE
 Client Royal Mail Group Limited
 Engineer

Contract No **B20578**

Hole BH14
 Sample Ref
 Depth (m) 30.00
 Sample Type D

Specimen Details

Depth within original sample N/A
 Orientation within original sample N/A
 Test condition Submerged

Non Engineering Description A slurry of brown SILT.

Preparation Material was remoulded at manageable moisture content to maximum attainable wet density.

Specimen Number

		1	2	3
Length	mm	60.0	60.0	60.0
Width	mm	59.9	59.9	59.9
Height	mm	24.0	24.0	24.0
Initial moisture content	%	12	12	12
Initial wet density	Mg/m ³	1.91	1.91	1.91
Initial dry density	Mg/m ³	1.72	1.72	1.72
Particle Density (assumed)	Mg/m ³	2.68	2.68	2.68

Consolidation Stage

Normal stress	kPa	250	500	1000
Height change	mm	-0.4	-0.5	-1.0
Duration	day(s)	—	—	—

Shearing Stage

Normal stress	kPa	250	500	1000
---------------	-----	-----	-----	------

Peak Conditions:

Rate of horizontal displacement	mm/min	1.2	1.2	1.2
Maximum shear stress	kPa	180	347	712
Horizontal displacement	mm	2.0	3.0	2.5
Height change	mm	0.0	-0.1	-0.1

Final Conditions

Final moisture content	%	19	18	18
Duration	day(s)	1	1	1

Shear Strength Parameters

Maximum Condition: (linear tangent interpretation)		
Effective Cohesion	kPa	0
Effective Angle of Shearing Resistance	degrees	35.5

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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 80

Sheet 1 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

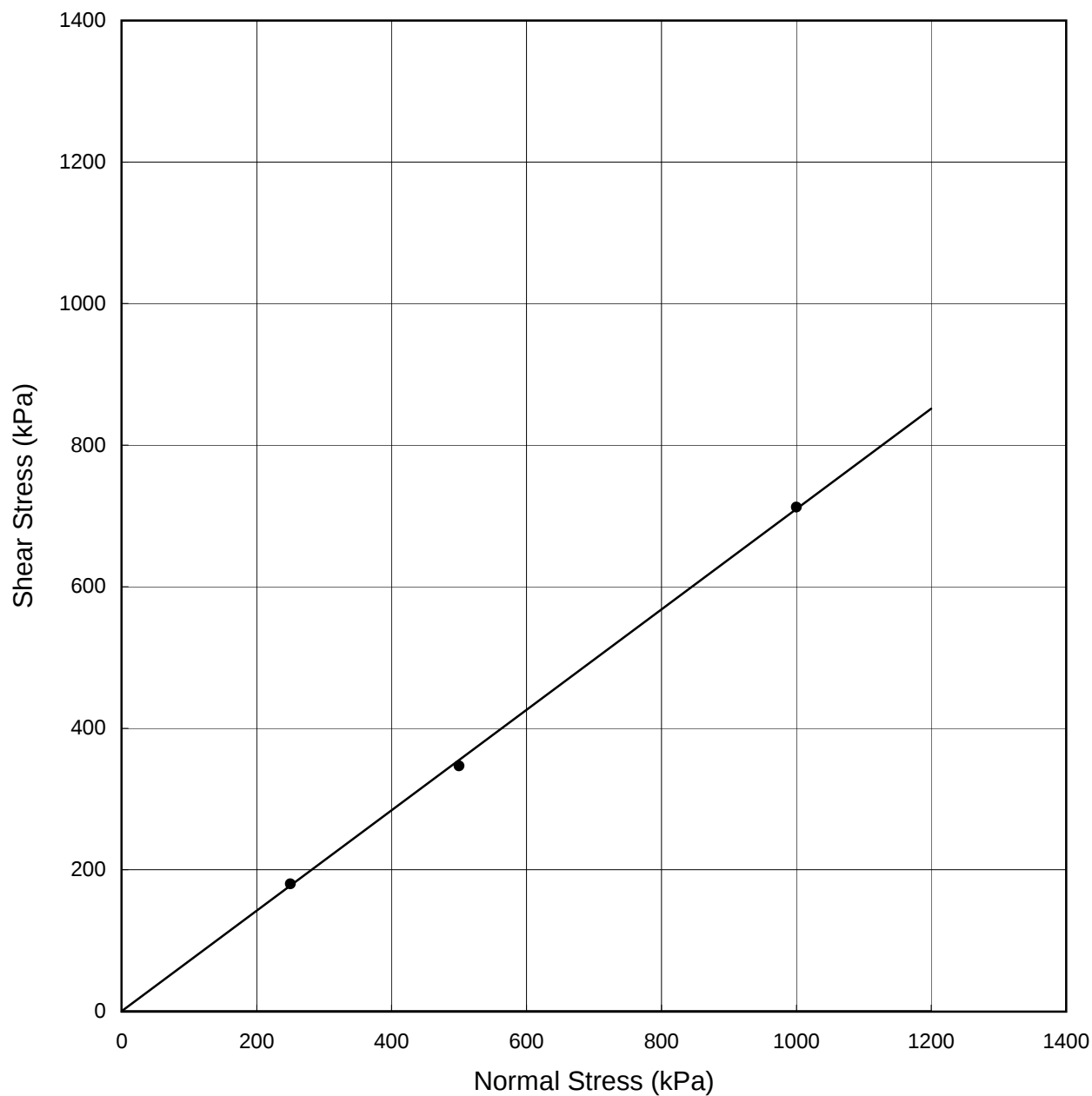
Hole BH14

Sample Ref

Depth (m) 30.00

Sample Type D

Shear Stress v Normal Stress



Shear Strength Parameters

 $c' = 0$ kPa $\phi' = 35.5^\circ$

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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4

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Figure 80

Sheet 2 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH14

Sample Ref

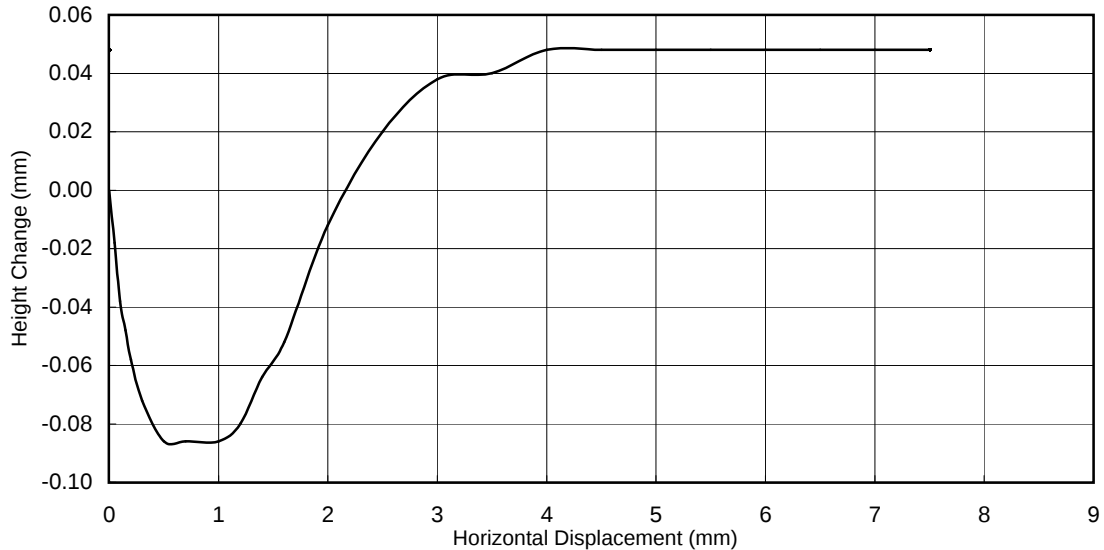
Depth (m) 30.00

Sample Type D

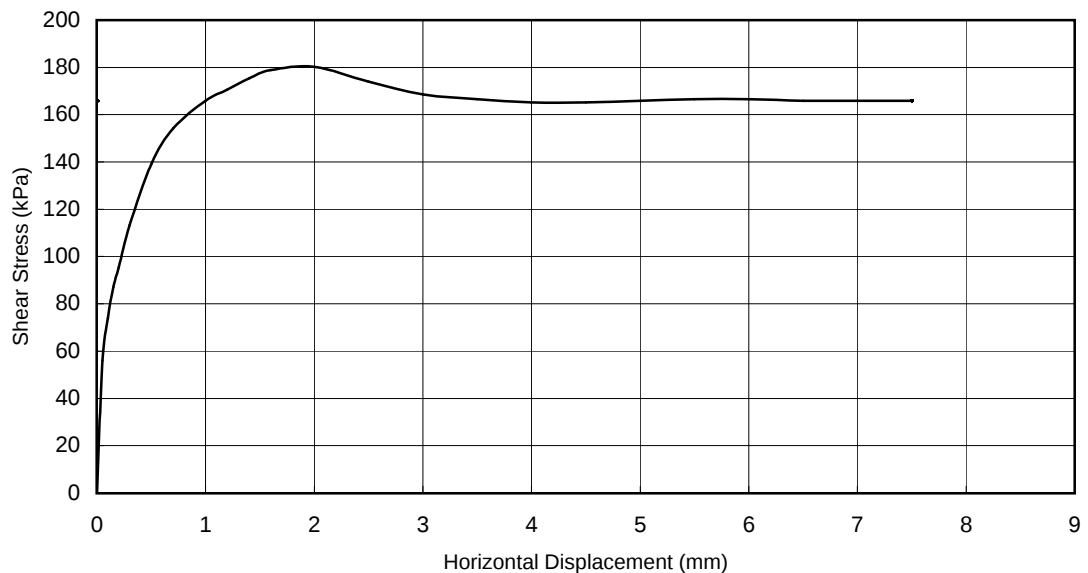
Specimen No. 1

Normal Pressure = 250 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



Originator

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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 80

Sheet 3 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH14

Sample Ref

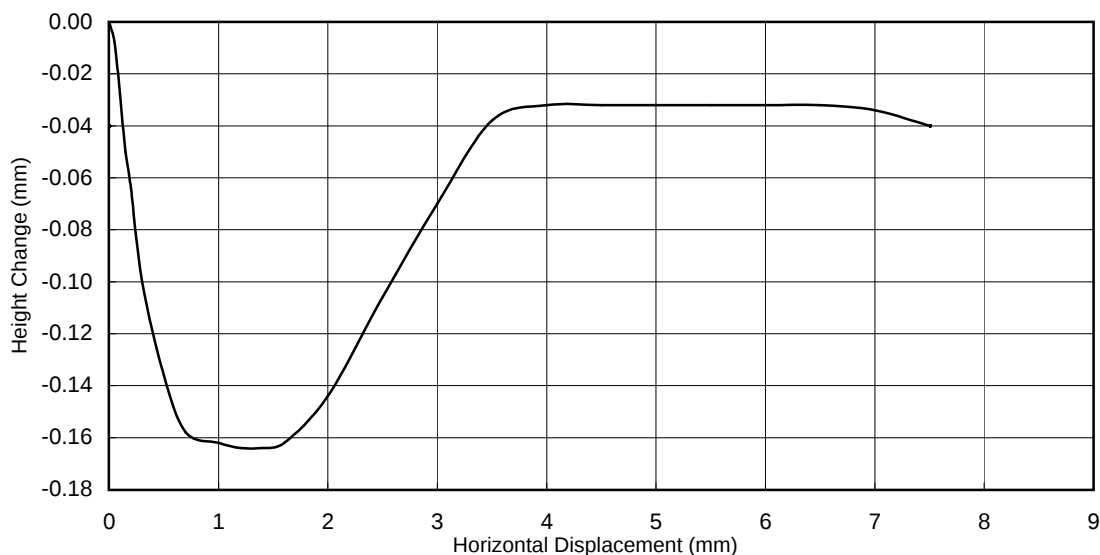
Depth (m) 30.00

Sample Type D

Specimen No. 2

Normal Pressure = 500 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 80

Sheet 4 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH14

Sample Ref

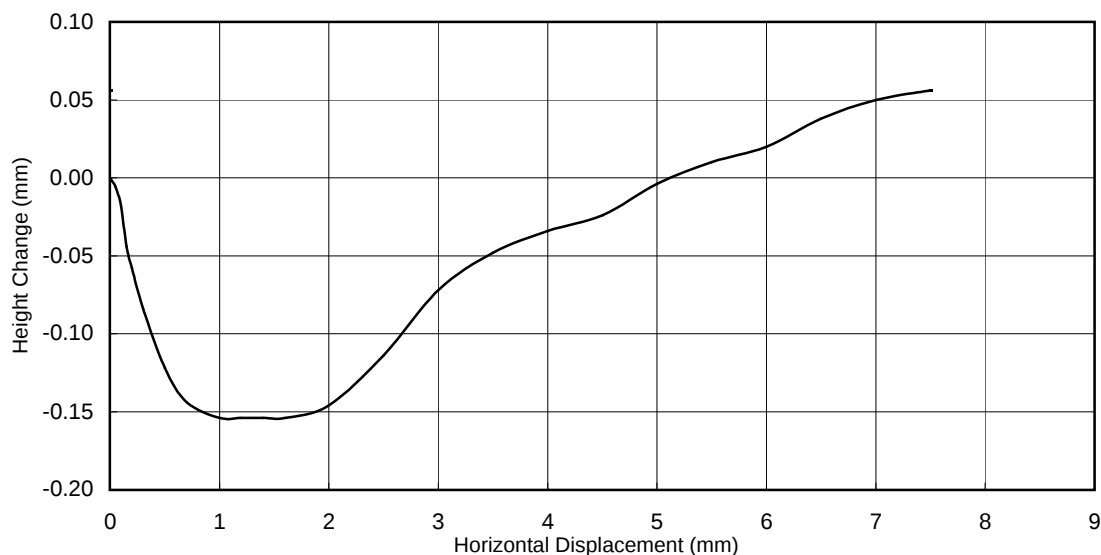
Depth (m) 30.00

Sample Type D

Specimen No. 3

Normal Pressure = 1000 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 80

Sheet 5 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH19

Sample Ref
Depth (m) 39.00

Sample Type D

Specimen Details

Depth within original sample N/A
Orientation within original sample N/A
Test condition Submerged

Non Engineering Description Brown very sandy silty CLAY.

Preparation Material was remoulded at manageable moisture content to maximum attainable wet density.

Specimen Number

		1	2	3
Length	mm	60.0	60.0	60.0
Width	mm	59.9	59.9	59.9
Height	mm	22.0	22.0	22.0
Initial moisture content	%	21	21	21
Initial wet density	Mg/m ³	2.09	2.09	2.09
Initial dry density	Mg/m ³	1.72	1.72	1.72
Particle Density (assumed)	Mg/m ³	2.68	2.68	2.68

Consolidation Stage

Normal stress	kPa	250	500	1000
Height change	mm	-2.2	-2.7	-2.8
Duration	day(s)	—	—	—

Shearing Stage

Normal stress	kPa	250	500	1000
---------------	-----	-----	-----	------

Peak Conditions:

Rate of horizontal displacement	mm/min	1.2	1.2	1.2
Maximum shear stress	kPa	162	340	672
Horizontal displacement	mm	7.0	5.5	5.5
Height change	mm	-0.9	-1.2	-1.7

Final Conditions

Final moisture content	%	17	16	15
Duration	day(s)	1	1	1

Shear Strength Parameters

Maximum Condition: (linear tangent interpretation)

Effective Cohesion	kPa	0
Effective Angle of Shearing Resistance	degrees	34

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S. Langman
29/03/2017**Shear Strength by Direct Shear (small shearbox)**

BS1377:Part 7:1990 Clause 4

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Figure 81

Sheet 1 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

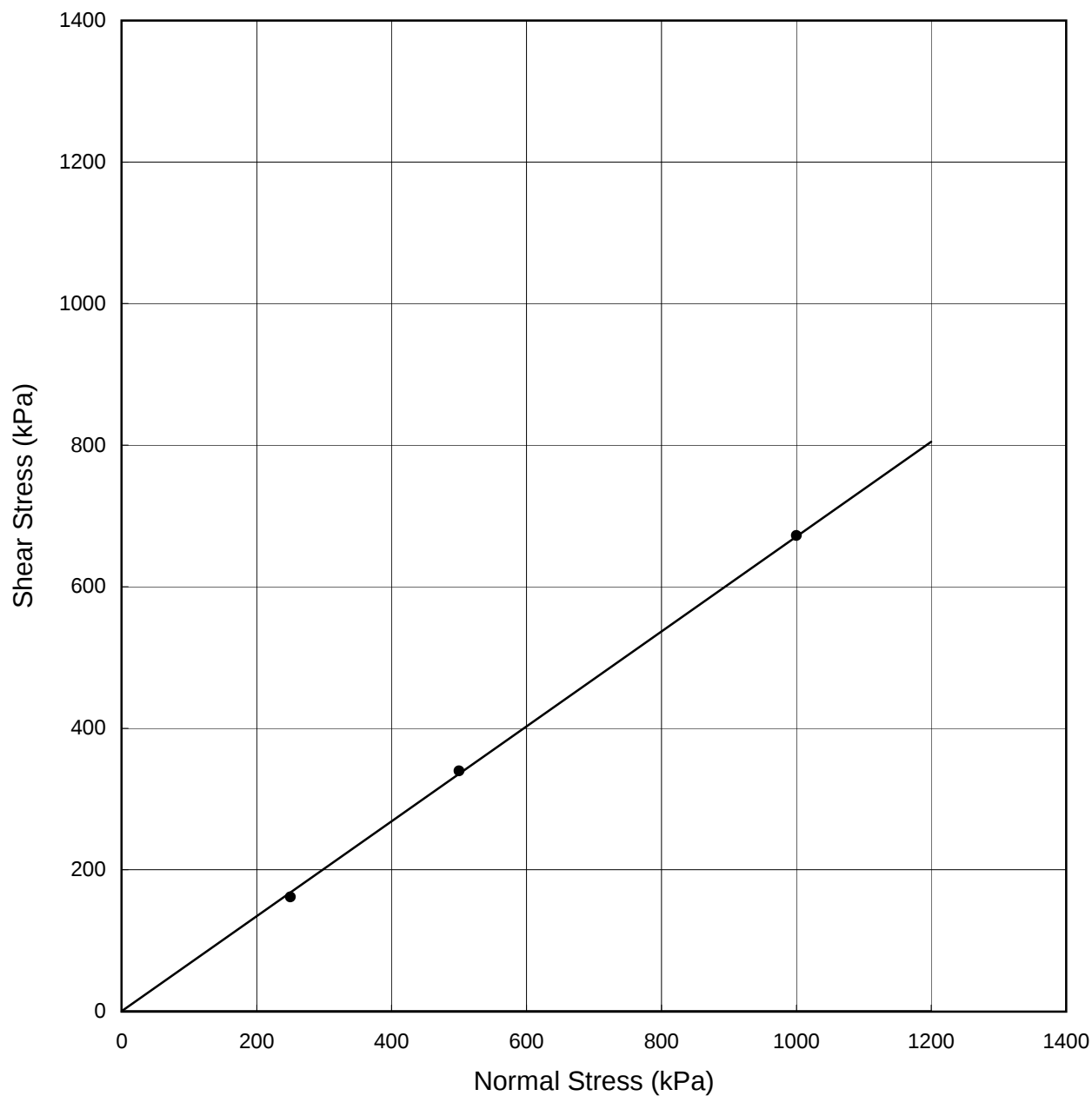
Hole BH19

Sample Ref

Depth (m) 39.00

Sample Type D

Shear Stress v Normal Stress



Shear Strength Parameters

$$c' = 0 \text{ kPa}$$

$$\phi' = 34^\circ$$

Originator

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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 81

Sheet 2 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH19

Sample Ref

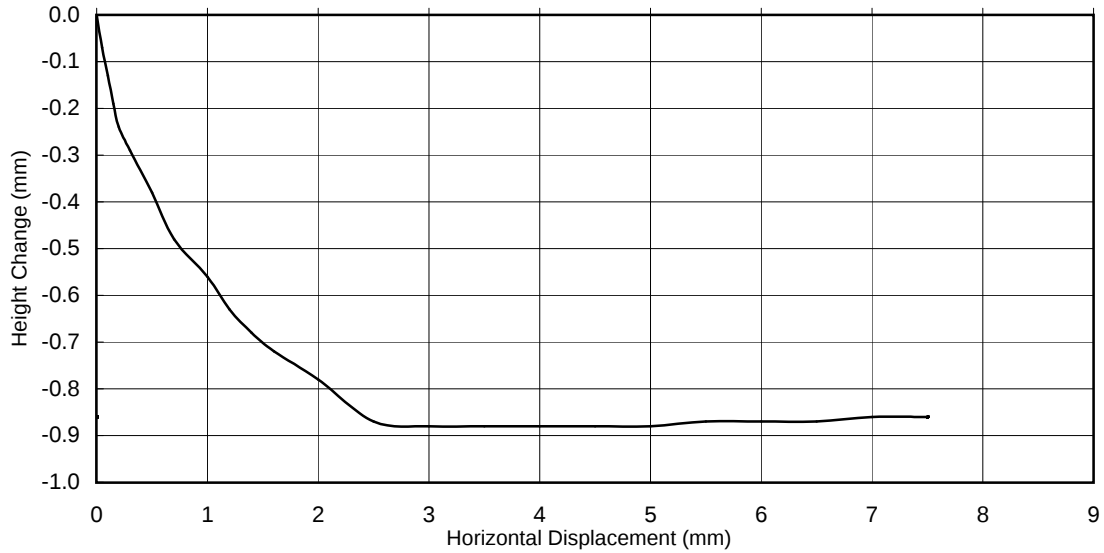
Depth (m) 39.00

Sample Type D

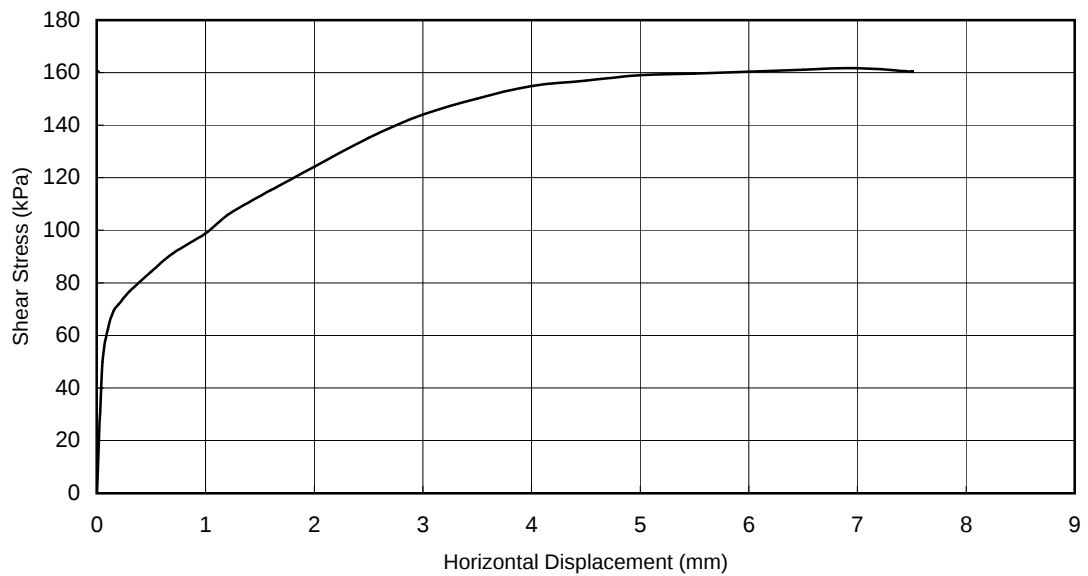
Specimen No. 1

Normal Pressure = 250 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



Originator

RS

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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 81

Sheet 3 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH19

Sample Ref

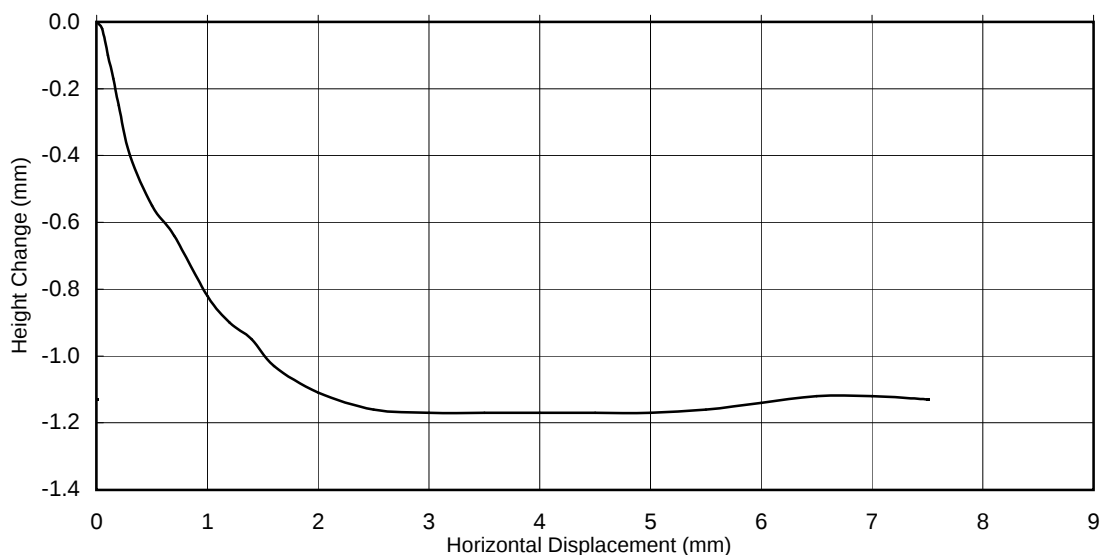
Depth (m) 39.00

Sample Type D

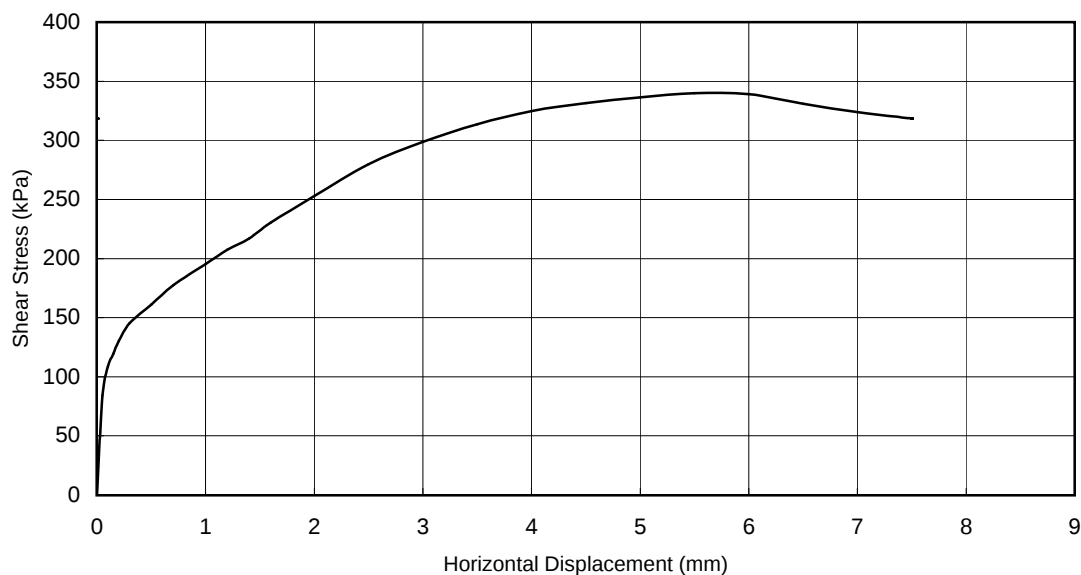
Specimen No. 2

Normal Pressure = 500 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



Originator

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Shear Strength by Direct Shear (small shearbox)

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Figure 81

Sheet 4 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH19

Sample Ref

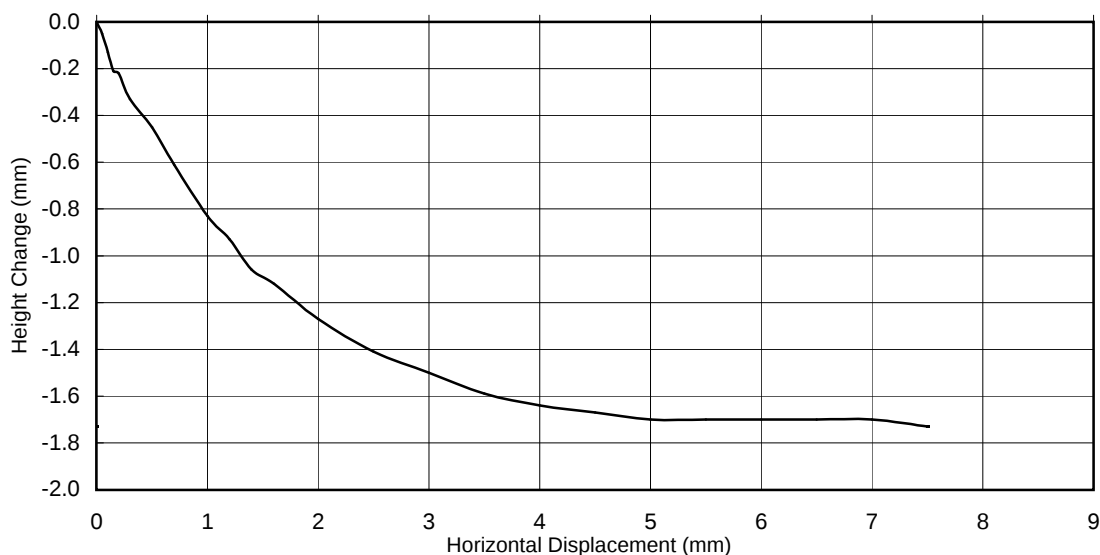
Depth (m) 39.00

Sample Type D

Specimen No. 3

Normal Pressure = 1000 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 81

Sheet 5 of 5

 TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES		Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE		Contract No B20578	
		Client Royal Mail Group Limited		Hole BH20	
		Engineer	Sample Ref Depth (m) 35.00 Sample Type B		

Specimen Details

Depth within original sample

N/A

Orientation within original sample

N/A

Test condition

Submerged

Non Engineering Description

Brown SAND with occasional gravel. Gravel is fine to medium.

Preparation

Material >2mm removed (99.3% passing). Remoulded at natural moisture content to maximum attainable wet density.

Specimen Number		1	2	3
Length	mm	60.0	60.0	60.0
Width	mm	59.9	59.9	59.9
Height	mm	24.0	24.0	24.0
Initial moisture content	%	16	16	16
Initial wet density	Mg/m ³	1.91	1.91	1.91
Initial dry density	Mg/m ³	1.65	1.65	1.65
Particle Density (assumed)	Mg/m ³	2.68	2.68	2.68

Consolidation Stage

Normal stress

kPa

250

500

1000

Height change

mm

-0.7

-0.7

-1.0

Duration

day(s)

—

—

—

Shearing Stage

Normal stress

kPa

250

500

1000

Peak Conditions:

Rate of horizontal displacement

mm/min

1.2

1.2

1.2

Maximum shear stress

kPa

196

367

654

Horizontal displacement

mm

2.0

2.5

2.5

Height change

mm

0.1

0.0

-0.2

Final Conditions

Final moisture content

%

18

18

18

Duration

day(s)

1

1

1

Shear Strength Parameters

Maximum Condition: (linear tangent interpretation)

Effective Cohesion

kPa

56

Effective Angle of Shearing Resistance

degrees

31.5

Originator	Checked & Approved	Shear Strength by Direct Shear (small shearbox) BS1377:Part 7:1990 Clause 4	 Figure 82 Sheet 1 of 5
RS	<i>S. Langman</i> 29/03/2017		

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

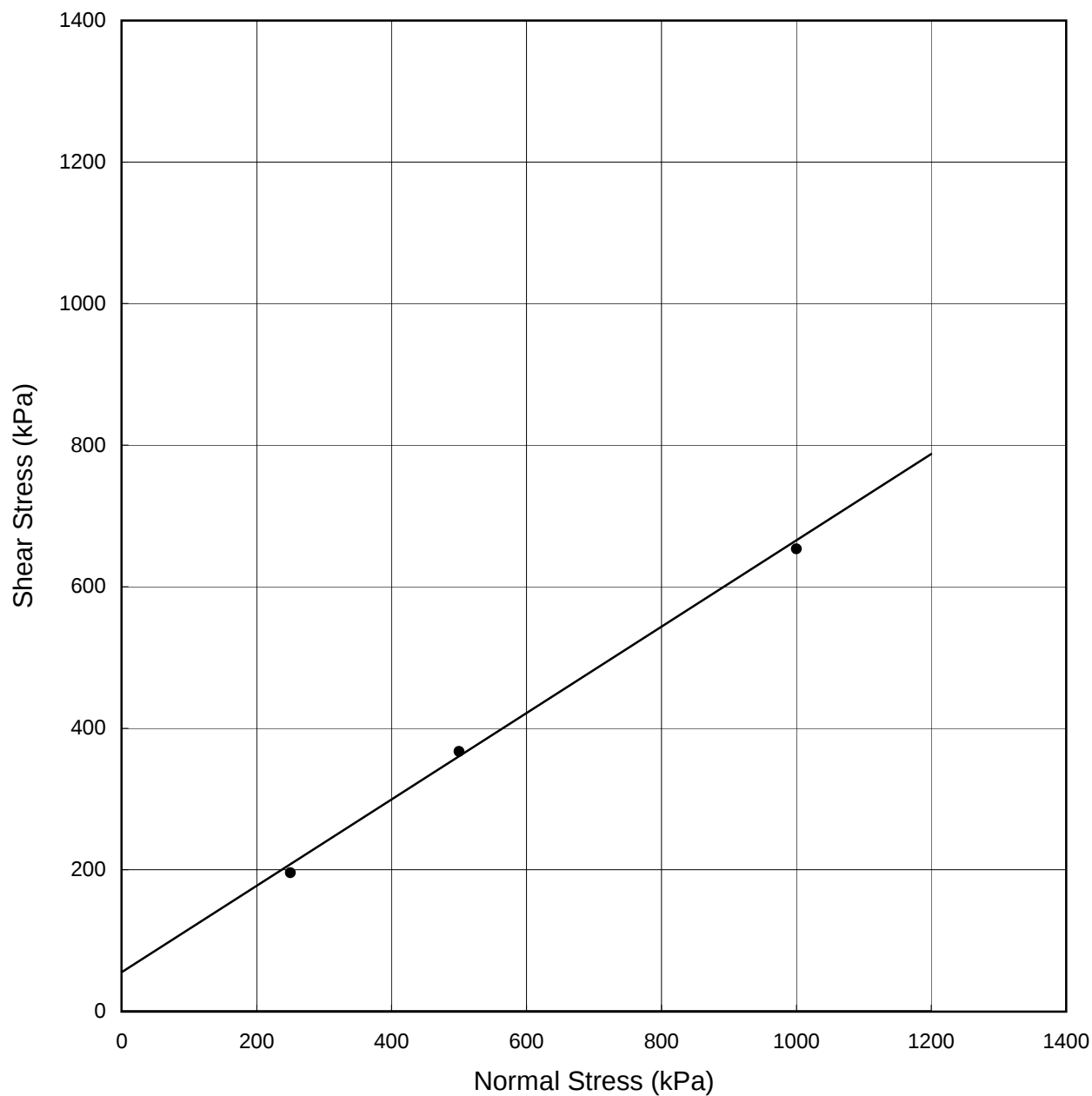
Hole BH20

Sample Ref

Depth (m) 35.00

Sample Type B

Shear Stress v Normal Stress



Shear Strength Parameters

 $c' = 56 \text{ kPa}$ $\phi' = 31.5^\circ$

Originator

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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 82

Sheet 2 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH20

Sample Ref

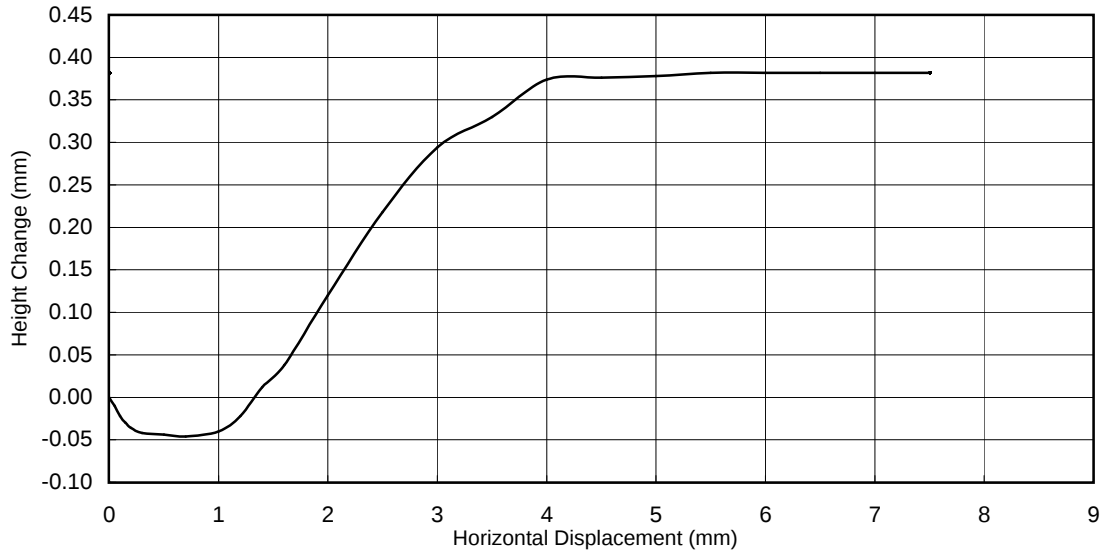
Depth (m) 35.00

Sample Type B

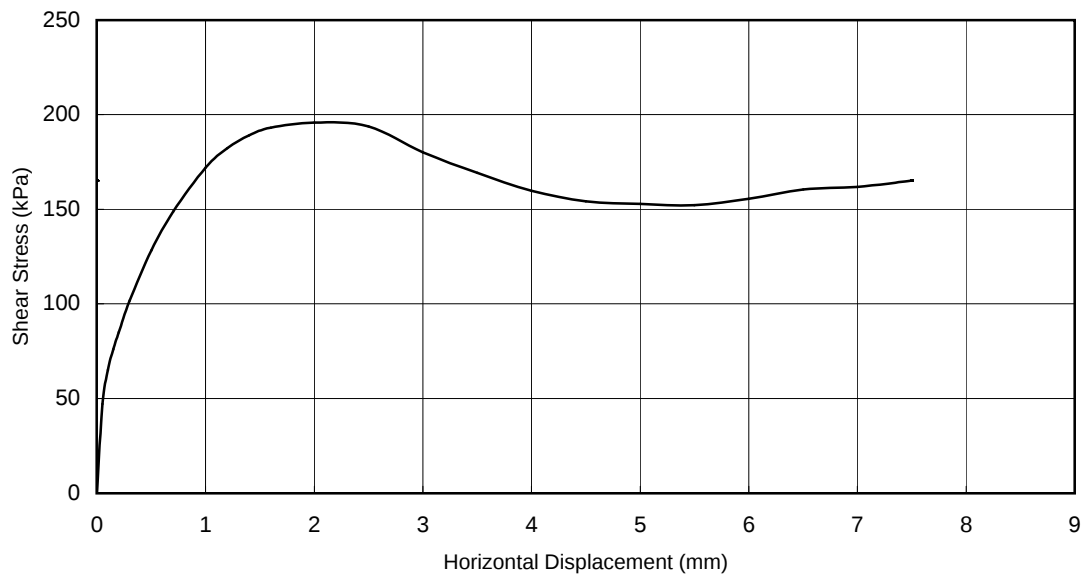
Specimen No. 1

Normal Pressure = 250 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



Originator

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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 82

Sheet 3 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH20

Sample Ref

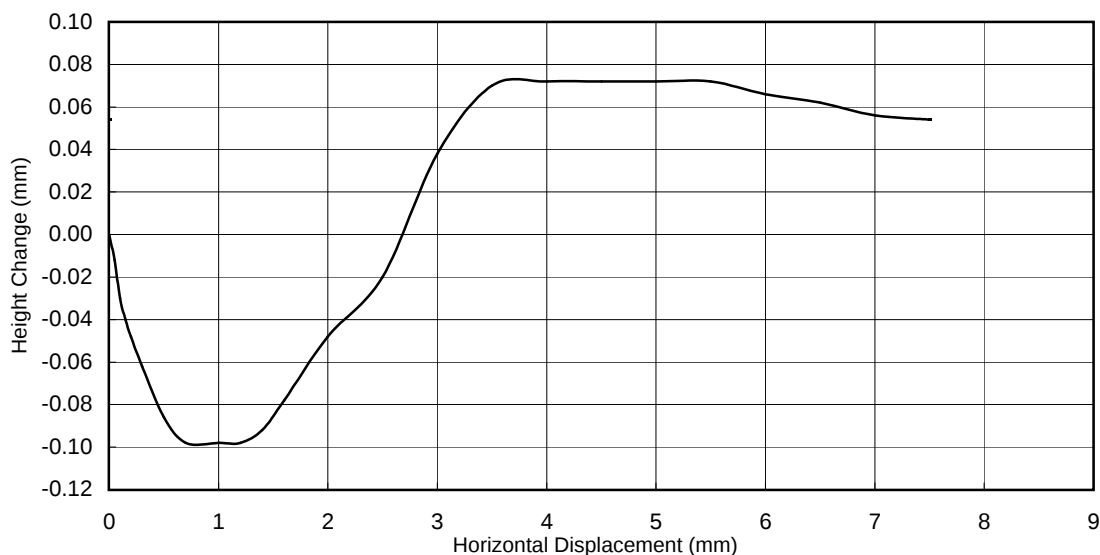
Depth (m) 35.00

Sample Type B

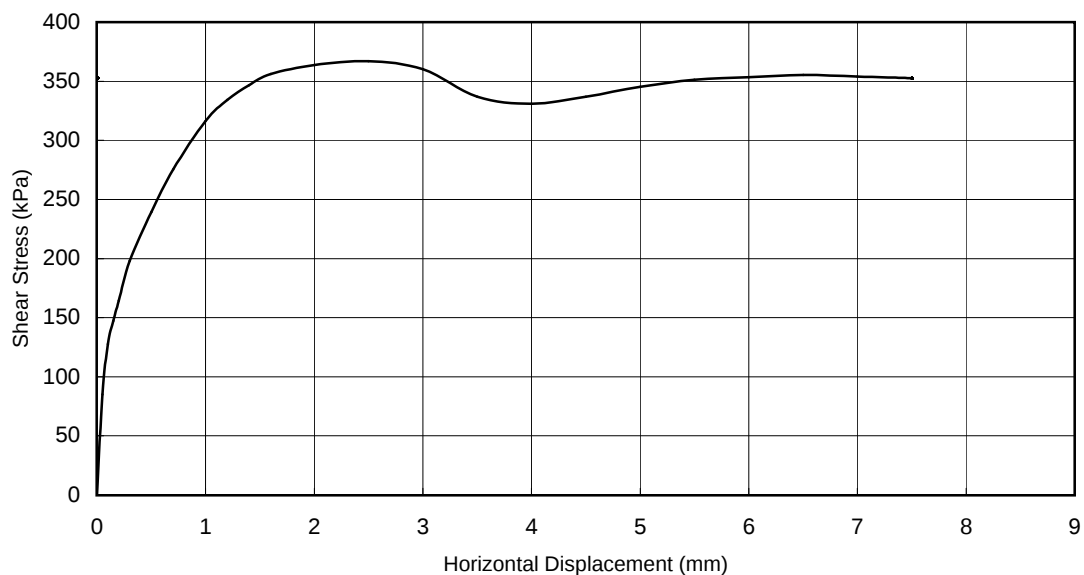
Specimen No. 2

Normal Pressure = 500 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



Originator

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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 82

Sheet 4 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH20

Sample Ref

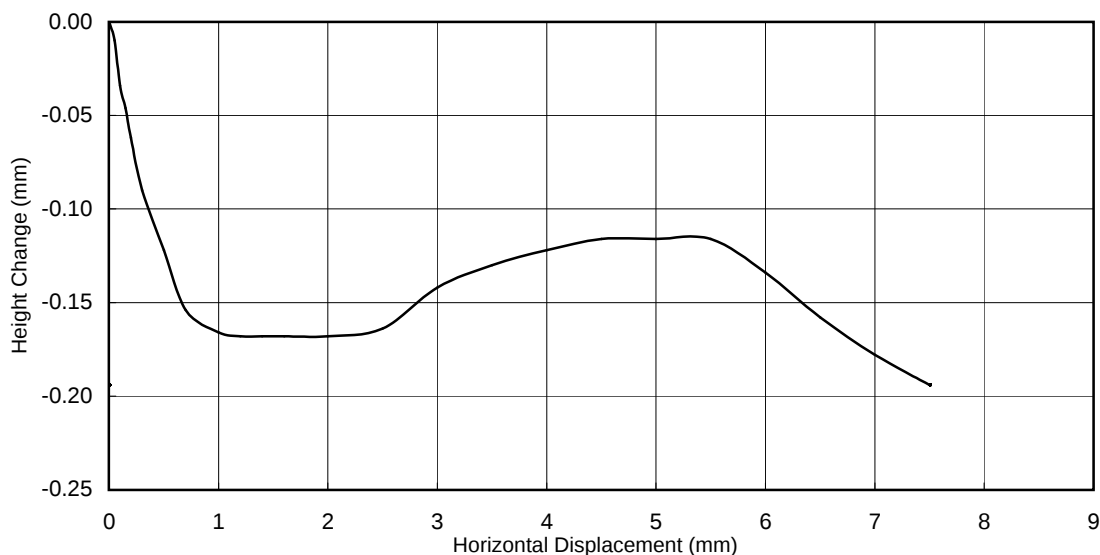
Depth (m) 35.00

Sample Type B

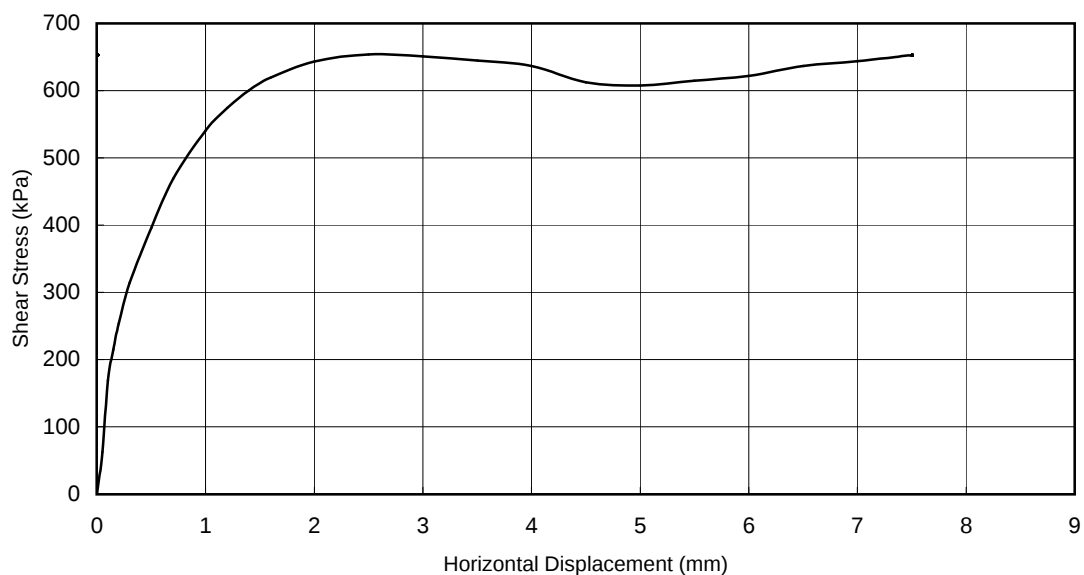
Specimen No. 3

Normal Pressure = 1000 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



Originator

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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 82

Sheet 5 of 5

 TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES		Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE		Contract No B20578	
		Client Royal Mail Group Limited		Hole BH21	
		Engineer		Sample Ref Depth (m) 38.50 Sample Type D	

Specimen Details

Depth within original sample	N/A
Orientation within original sample	N/A
Test condition	Submerged
Non Engineering Description	Brown SAND with occasional shell fragment.
Preparation	Material was remoulded at natural moisture content to maximum attainable wet density.

Specimen Number	1	2	3
Length	60.0	60.0	60.0
Width	59.9	59.9	59.9
Height	25.0	25.0	25.0
Initial moisture content	21	21	21
Initial wet density	1.84	1.84	1.84
Initial dry density	1.52	1.52	1.52
Particle Density (assumed)	2.68	2.68	2.68

Consolidation Stage

Normal stress	kPa	250	500	1000
Height change	mm	-0.5	-0.4	-0.5
Duration	day(s)	—	—	—

Shearing Stage

Normal stress	kPa	250	500	1000
---------------	-----	-----	-----	------

Peak Conditions:

Rate of horizontal displacement	mm/min	1.2	1.2	1.2
Maximum shear stress	kPa	208	409	725
Horizontal displacement	mm	2.0	2.0	2.5
Height change	mm	0.1	0.0	-0.2

Final Conditions

Final moisture content	%	22	20	21
Duration	day(s)	1	1	1

Shear Strength Parameters

Maximum Condition: (linear tangent interpretation)	
Effective Cohesion	kPa 33
Effective Angle of Shearing Resistance	degrees 35.5

Originator	Checked & Approved	Shear Strength by Direct Shear (small shearbox) BS1377:Part 7:1990 Clause 4	 Figure 83 Sheet 1 of 5
RS	<i>S. Langman</i> 29/03/2017		

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

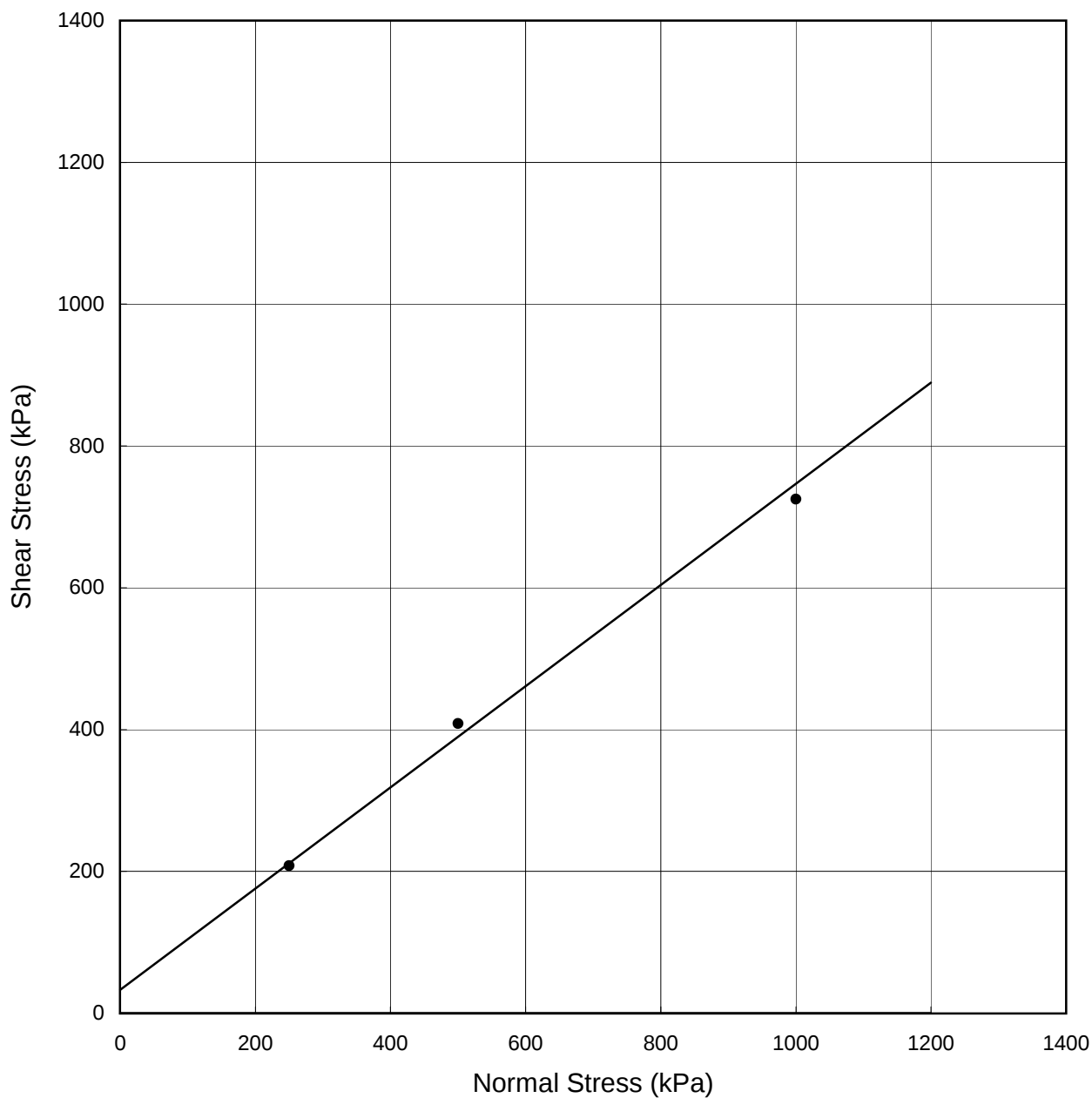
Hole BH21

Sample Ref

Depth (m) 38.50

Sample Type D

Shear Stress v Normal Stress



Shear Strength Parameters

 $c' = 33 \text{ kPa}$ $\phi' = 35.5^\circ$

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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 83

Sheet 2 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH21

Sample Ref

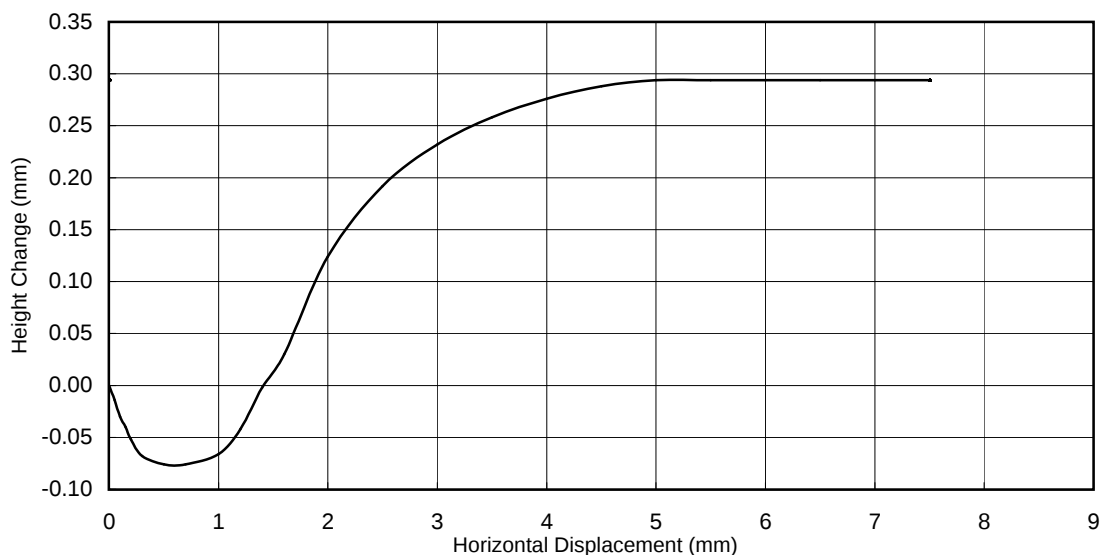
Depth (m) 38.50

Sample Type D

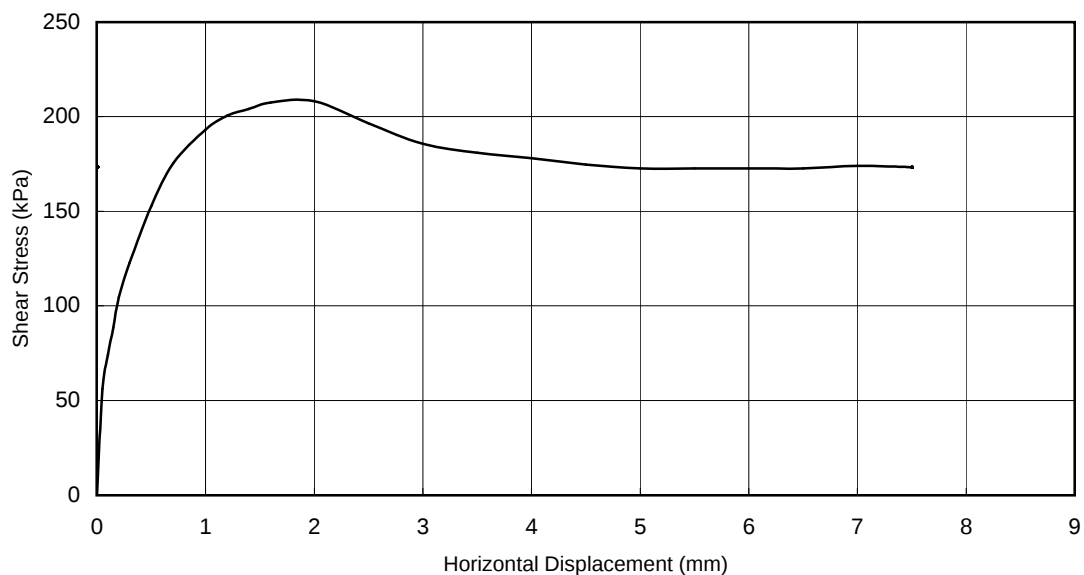
Specimen No. 1

Normal Pressure = 250 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



Originator

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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4

Tk

Figure 83

Sheet 3 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH21

Sample Ref

Depth (m) 38.50

Sample Type D

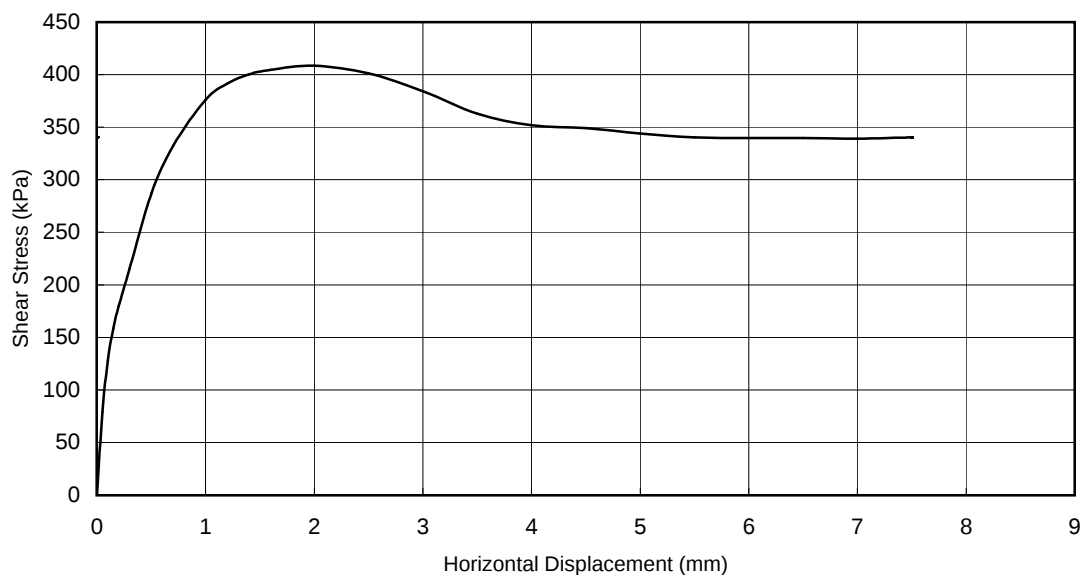
Specimen No. 2

Normal Pressure = 500 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 83

Sheet 4 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH21

Sample Ref

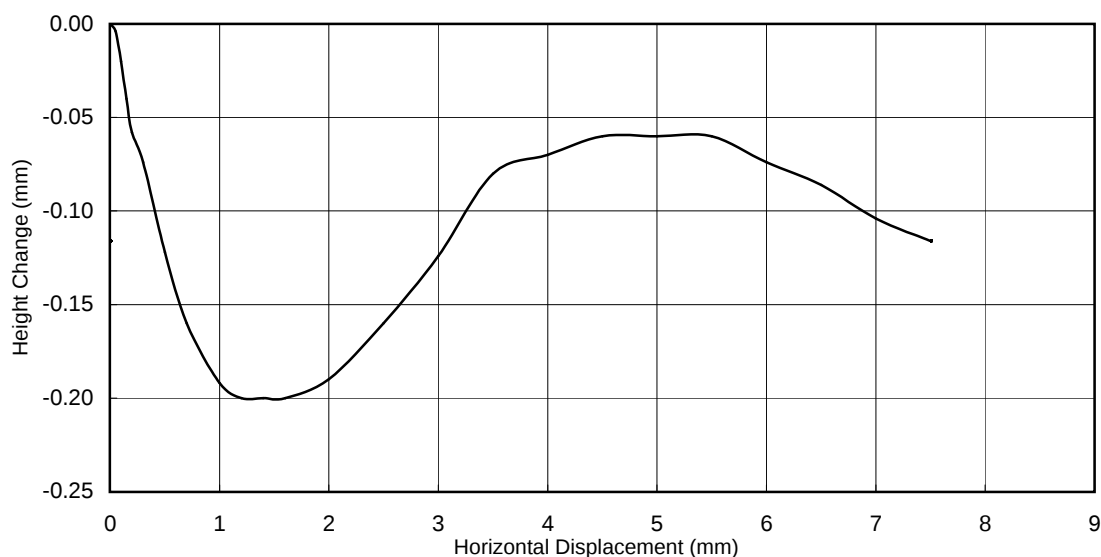
Depth (m) 38.50

Sample Type D

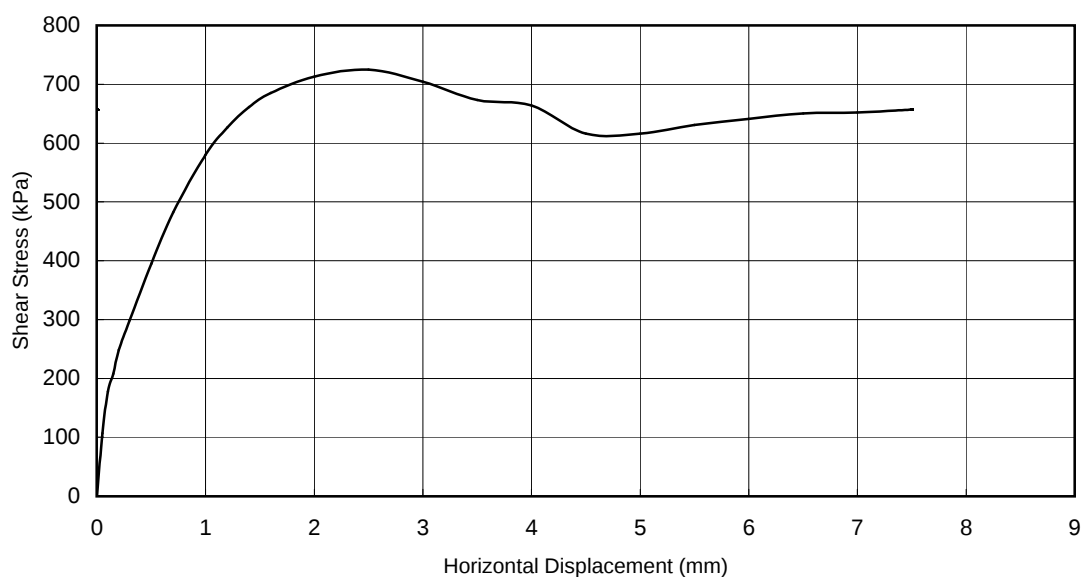
Specimen No. 3

Normal Pressure = 1000 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 83

Sheet 5 of 5

 TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES		Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE		Contract No B20578	
		Client Royal Mail Group Limited		Hole BH22	
		Engineer	Sample Ref Depth (m) 33.00-33.50 Sample Type B		

Specimen Details

Depth within original sample	N/A
Orientation within original sample	N/A
Test condition	Submerged
Non Engineering Description	Dark Brown SILT.
Preparation	Material was remoulded at natural moisture content to maximum attainable wet density.

Specimen Number		1	2	3
Length	mm	60.0	60.0	60.0
Width	mm	59.9	59.9	59.9
Height	mm	24.0	24.0	24.0
Initial moisture content	%	22	22	22
Initial wet density	Mg/m ³	1.91	1.91	1.91
Initial dry density	Mg/m ³	1.57	1.57	1.57
Particle Density (assumed)	Mg/m ³	2.68	2.68	2.68

Consolidation Stage

Normal stress	kPa	250	500	1000
Height change	mm	-0.6	-0.5	-0.6
Duration	day(s)	—	—	—

Shearing Stage

Normal stress	kPa	250	500	1000
---------------	-----	-----	-----	------

Peak Conditions:

Rate of horizontal displacement	mm/min	1.2	1.2	1.2
Maximum shear stress	kPa	206	390	710
Horizontal displacement	mm	2.0	2.0	2.5
Height change	mm	0.0	-0.1	-0.2

Final Conditions

Final moisture content	%	24	22	22
Duration	day(s)	1	1	1

Shear Strength Parameters

Maximum Condition: (linear tangent interpretation)			
Effective Cohesion	kPa		45
Effective Angle of Shearing Resistance	degrees		34

Originator	Checked & Approved	Shear Strength by Direct Shear (small shearbox) BS1377:Part 7:1990 Clause 4	 Figure 84 Sheet 1 of 5
RS	<i>S. Langman</i> 29/03/2017		

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

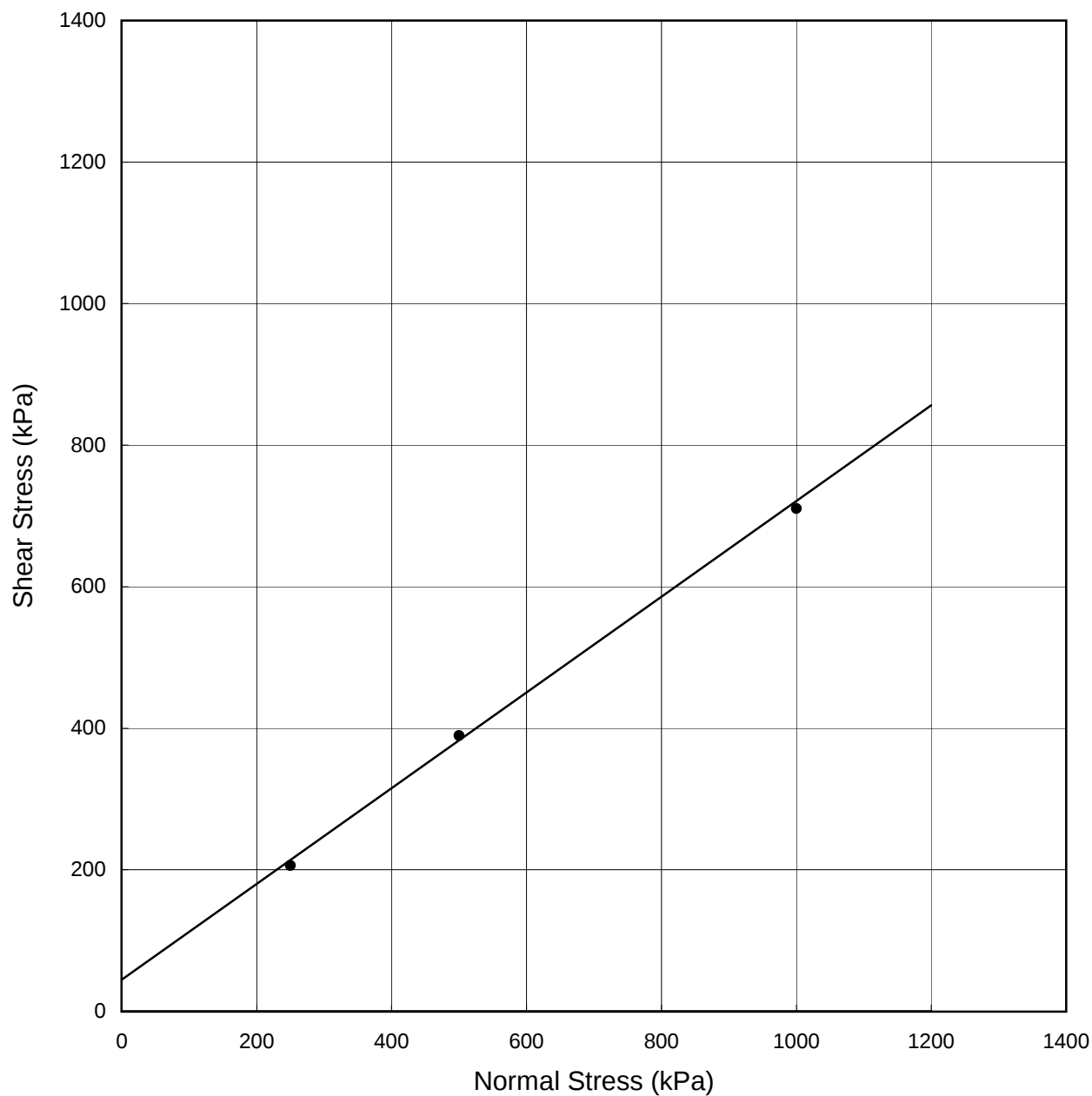
Hole BH22

Sample Ref

Depth (m) 33.00-33.50

Sample Type B

Shear Stress v Normal Stress



Shear Strength Parameters

$$c' = 45 \text{ kPa}$$

$$\phi' = 34^\circ$$

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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 84

Sheet 2 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH22

Sample Ref

Depth (m) 33.00-33.50

Sample Type B

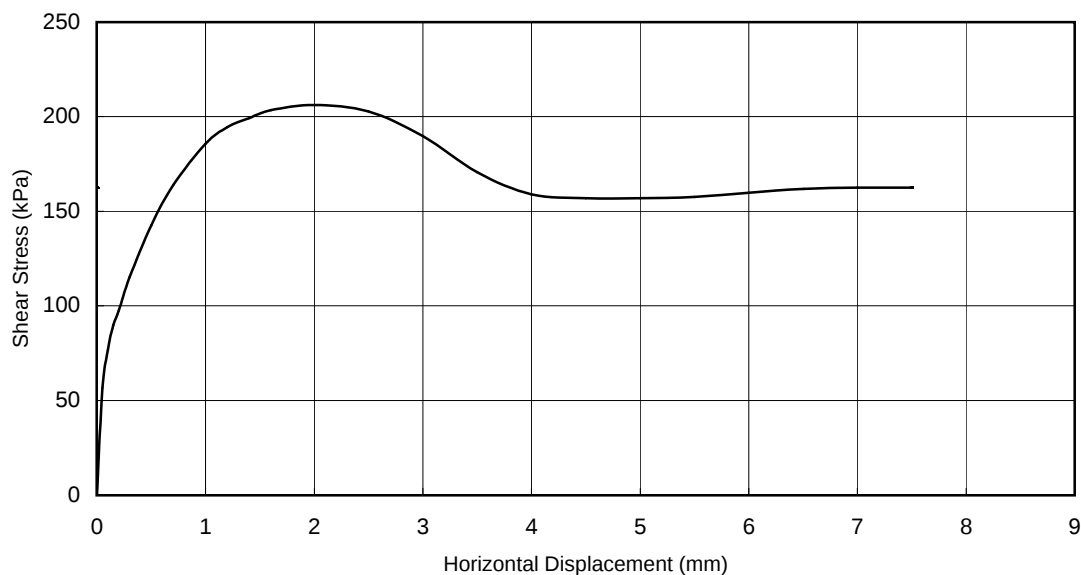
Specimen No. 1

Normal Pressure = 250 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4

TK

Figure 84

Sheet 3 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH22

Sample Ref

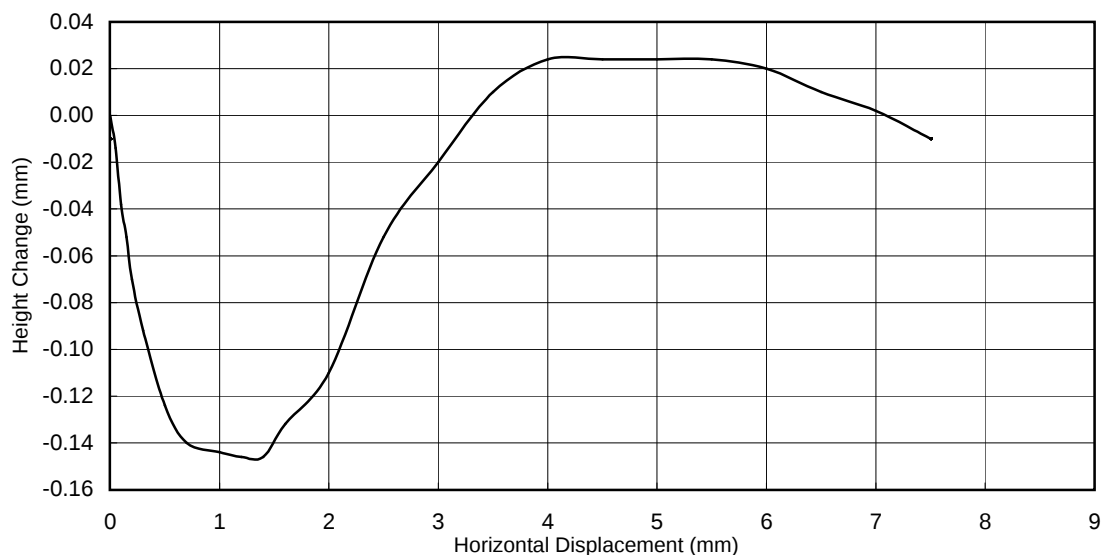
Depth (m) 33.00-33.50

Sample Type B

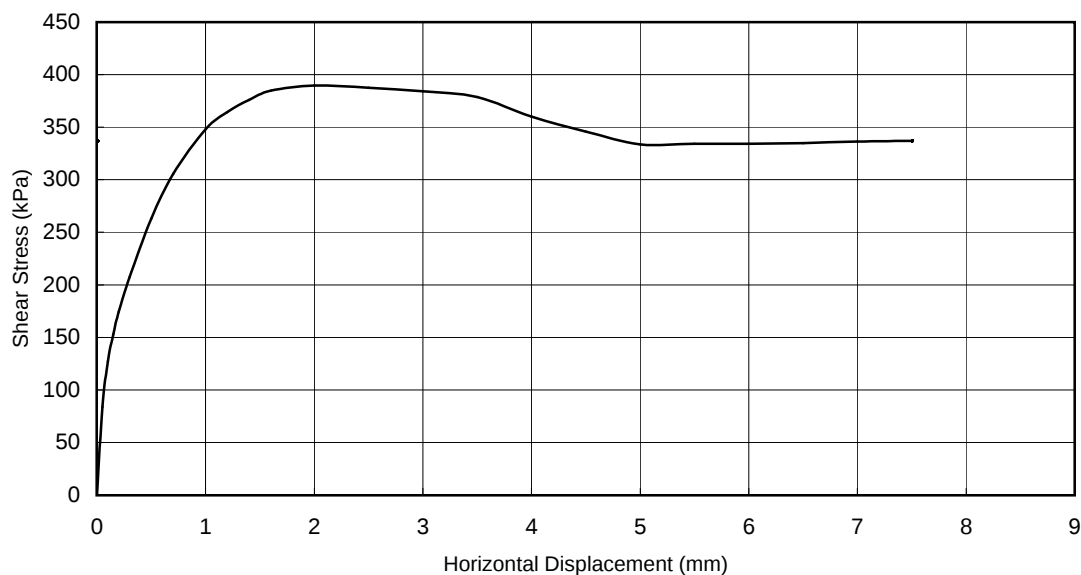
Specimen No. 2

Normal Pressure = 500 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 84

Sheet 4 of 5

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH22

Sample Ref

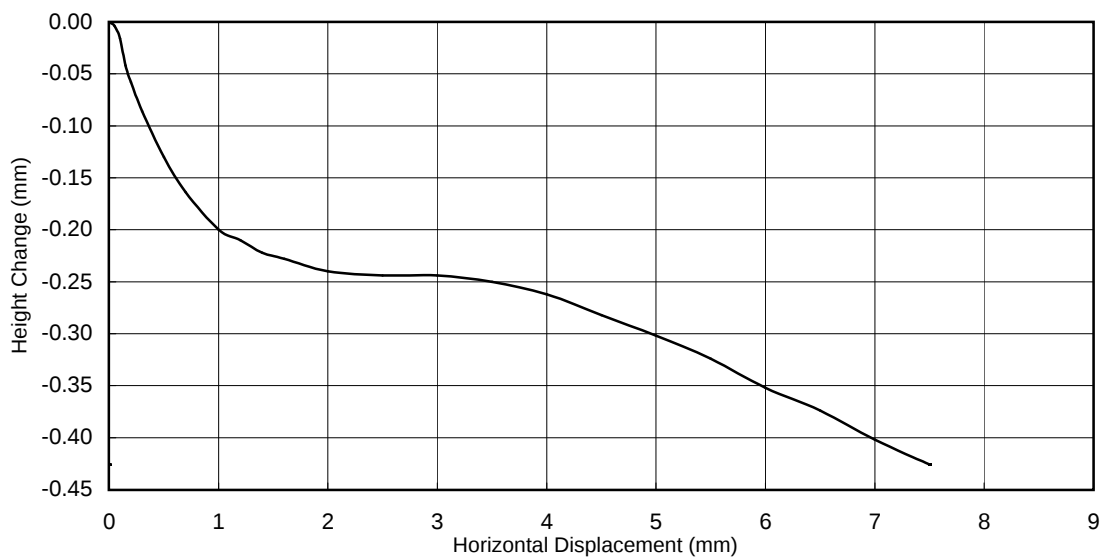
Depth (m) 33.00-33.50

Sample Type B

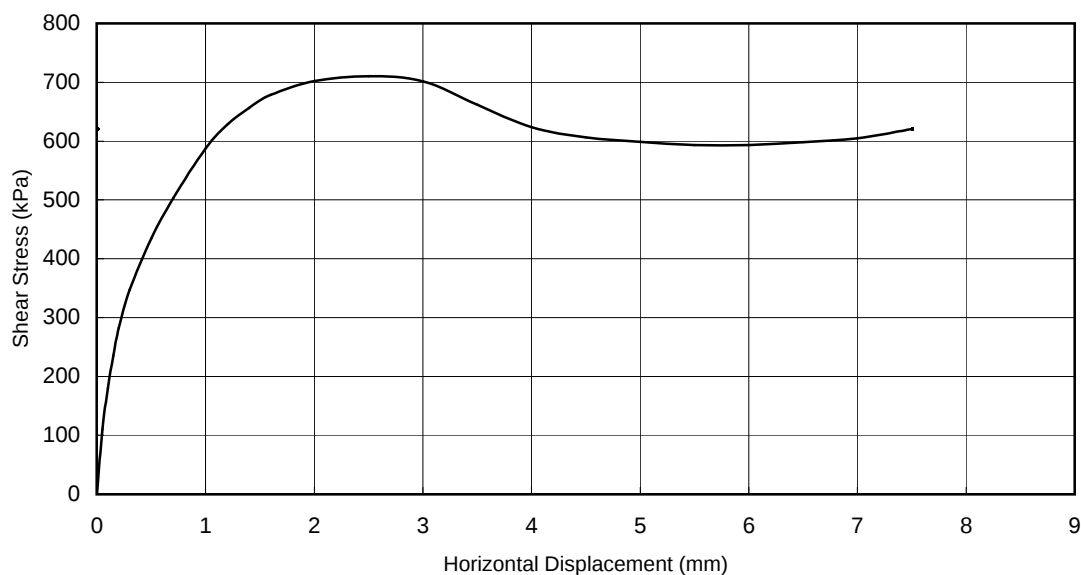
Specimen No. 3

Normal Pressure = 1000 kPa

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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Shear Strength by Direct Shear (small shearbox)

BS1377:Part 7:1990 Clause 4



Figure 84

Sheet 5 of 5

Site

ROYAL MAIL MOUNT PLEASANT SORTING
OFFICEContract No **B20578**

Client

Royal Mail Group Limited

Engineer

Sample Identification

Sample Identification				Lab Sample ID	Reading 1 kPa	Reading 2 kPa	Reading 3 kPa	Mean kPa	Notes
Exploratory Hole	Depth m	Sample Ref	Sample Type						
BH12	28.50		U						
					44	74	40	53	
Notes					Opinions and interpretations are outside the scope of UKAS accreditation				UKAS Accredited Test No
Originator		Approved		HAND VANE TEST					 Figure 85
ME		SPL							

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE		Contract No.	B20578	
	Client	Royal Mail Group Limited		Hole	BH11	
	Engineer			Sample Ref		
				Depth (m)	6.00	
				Sample Type	U	

Sample Details		Undisturbed		Comments Undisturbed specimen taken 100mm below top of tube
Sample Condition				
Height	mm	199.3		
Diameter	mm	103.8		
Moisture Content	%	25		
Bulk Density	Mg/m³	1.96		
Dry Density	Mg/m³	1.56		
Test Details				
Membrane Thickness	mm	0.20		
Membrane Correction	kPa	0.72		
Rate of Axial Displacement	%/min	1.51		
Cell Pressure	kPa	120		
Strain at Failure	%	19.6		
Maximum Deviator Stress	kPa	74		
Shear Strength	kPa	37		
Mode of Failure		Plastic		
Non Engineering Description		Brown sandy CLAY.		

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°

Strain (%)	Deviator Stress (kPa)
0	0
5	50
10	65
15	70
19.6	74

Normal Stress (kPa)	Shear Stress (kPa)
120	0
157	37
196	0

Originator	Checked & Approved	UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION BS 1377 : Part 7 : 1990 Clause 8	Tk Figure 86
KP/TE/ME	S. Longren 29/03/2017		

Sheet 1 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES		Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE		Contract No B20578	
		Client Royal Mail Group Limited Engineer		Hole BH11	
				Sample Ref Depth (m) 6.00 Sample Type U	
 					
Originator		Checked & Approved		Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	
KP/TE/ME		<i>S. Langman</i> 29/03/2017			
				 Figure 86 Sheet 2 of 2	

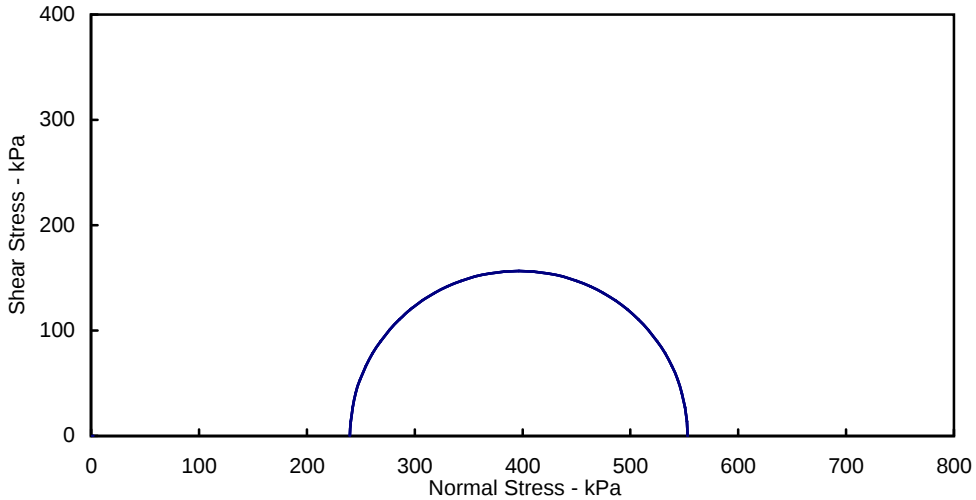
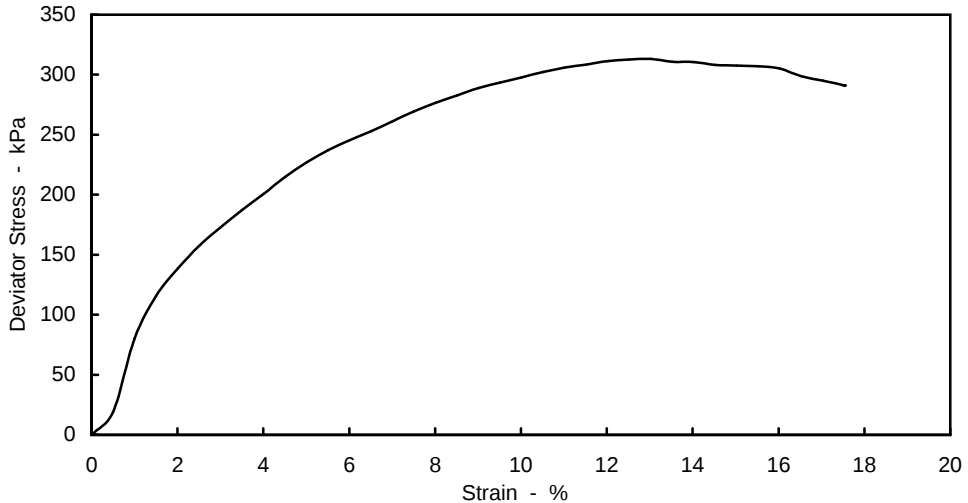


Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
Client	Royal Mail Group Limited	Hole	BH11
Engineer		Sample Ref	
		Depth (m)	12.00
		Sample Type	U

Sample Details		Undisturbed		
Sample Condition				
Height	mm	199.7		
Diameter	mm	100.8		
Moisture Content	%	26		
Bulk Density	Mg/m ³	2.03		
Dry Density	Mg/m ³	1.61		
Test Details				
Membrane Thickness	mm	0.20		
Membrane Correction	kPa	0.55		
Rate of Axial Displacement	%/min	2.00		
Cell Pressure	kPa	240		
Strain at Failure	%	13.0		
Maximum Deviator Stress	kPa	313		
Shear Strength	kPa	157		
Mode of Failure			Brittle	
Non Engineering Description		Grey CLAY.		

Comments
Undisturbed specimen taken
100mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°



Originator	Checked & Approved	UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION BS 1377 : Part 7 : 1990 Clause 8	 Figure 87
SG	<i>S. Langren</i> 29/03/2017		
Sheet 1 of 2			

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES		Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No	B20578
		Client	Royal Mail Group Limited	Hole	BH11
		Engineer		Sample Ref	
				Depth (m)	12.00
				Sample Type	U
 					
Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.			
SG	S. Langman 29/03/2017				
		Tk Figure 87			Sheet 2 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No. B20578
	Client Royal Mail Group Limited	Hole BH11
	Engineer	Sample Ref Depth (m) Sample Type 24.00 U

Sample Details Sample Condition Undisturbed Height mm 199.3 Diameter mm 99.4 Moisture Content % 24 Bulk Density Mg/m³ 1.97 Dry Density Mg/m³ 1.60				Comments Undisturbed specimen taken 100mm below top of tube
Test Details Membrane Thickness mm 0.20 Membrane Correction kPa 0.40 Rate of Axial Displacement %/min 2.01 Cell Pressure kPa 480 Strain at Failure % 8.5 Maximum Deviator Stress kPa 350 Shear Strength kPa 175 Mode of Failure Brittle				
Non Engineering Description Dark grey CLAY.				

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°

Deviator Stress - kPa

Strain - %

Shear Stress - kPa

Normal Stress - kPa

Originator SG	Checked & Approved S. Longren 29/03/2017	UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION BS 1377 : Part 7 : 1990 Clause 8	Tk Figure 88 Sheet 1 of 2
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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES		Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No B20578
		Client Royal Mail Group Limited	Hole BH11
		Engineer	Sample Ref Depth (m) Sample Type 24.00 U
 			
Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	
SG	S. Langman 29/03/2017		
		Tk	Figure 88 Sheet 2 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No. B20578
	Client Royal Mail Group Limited	Hole BH11
	Engineer	Sample Ref Depth (m) Sample Type 29.50 U

Sample Details

Sample Condition	Undisturbed		
Height	mm	199.5	
Diameter	mm	103.1	
Moisture Content	%	16	
Bulk Density	Mg/m³	2.07	
Dry Density	Mg/m³	1.78	

Test Details

Membrane Thickness	mm	0.20	
Membrane Correction	kPa	0.60	
Rate of Axial Displacement	%/min	2.01	
Cell Pressure	kPa	590	
Strain at Failure	%	15.0	
Maximum Deviator Stress	kPa	581	
Shear Strength	kPa	291	
Mode of Failure		Brittle	

Non Engineering Description

Dark brown CLAY.

Comments

Undisturbed specimen taken 100mm below top of tube

Shear Strength Parameters

C	n/a	kPa
Phi	n/a	°

Deviator Stress - kPa

700

600

500

400

300

200

100

0

0

5

10

15

20

25

Strain - %

Shear Stress - kPa

700

600

500

400

300

200

100

0

0

200

400

600

800

1000

1200

1400

Normal Stress - kPa

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No	B20578
	Client	Royal Mail Group Limited	Hole	BH11
	Engineer		Sample Ref	
			Depth (m)	29.50
			Sample Type	U
				
				
Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.		
SG	S. Langman 29/03/2017			
		Tk Figure 89 Sheet 2 of 2		

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No. B20578
	Client Royal Mail Group Limited	Hole BH12
	Engineer	Sample Ref Depth (m) Sample Type 9.50 U

Sample Details

Sample Condition	Undisturbed		
Height	mm	200.0	
Diameter	mm	102.3	
Moisture Content	%	27	
Bulk Density	Mg/m³	2.01	
Dry Density	Mg/m³	1.59	

Test Details

Membrane Thickness	mm	0.20	
Membrane Correction	kPa	0.31	
Rate of Axial Displacement	%/min	2.00	
Cell Pressure	kPa	190	
Strain at Failure	%	6.5	
Maximum Deviator Stress	kPa	225	
Shear Strength	kPa	112	
Mode of Failure	Brittle		

Comments

Undisturbed specimen taken 100mm below top of tube

Shear Strength Parameters

C	n/a	kPa
Phi	n/a	°

Non Engineering Description

Dark grey CLAY.

Deviator Stress - kPa

Strain - %

Shear Stress - kPa

Normal Stress - kPa

Originator	Checked & Approved	UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION BS 1377 : Part 7 : 1990 Clause 8	Tk Figure 90 Sheet 1 of 2
SG	S. Longman 29/03/2017		

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES		Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE		Contract No B20578	
		Client Royal Mail Group Limited		Hole BH12	
		Engineer		Sample Ref Depth (m) 9.50 Sample Type U	
 					
Originator SG		Checked & Approved S. Langman 29/03/2017		Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil. Tk Figure 90 Sheet 2 of 2	

TERRA TEK

SITE INVESTIGATION AND LABORATORY SERVICES

Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE

Client Royal Mail Group Limited

Engineer

Contract No **B20578**

Hole BH12

Sample Ref

Depth (m) 12.50-12.95

Sample Type U



Originator

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Approved

SG

S. Langman
29/03/2017

Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.

Tk**Figure 91**

Sheet 2 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE		Contract No.	B20578	
	Client	Royal Mail Group Limited		Hole	BH12	
	Engineer			Sample Ref	BH12	
				Depth (m)	15.50-15.95	
				Sample Type	U	

Sample Details			Comments Undisturbed specimen taken 100mm below top of tube
Sample Condition		Undisturbed	
Height	mm	199.9	
Diameter	mm	101.5	
Moisture Content	%	39	
Bulk Density	Mg/m³	1.99	
Dry Density	Mg/m³	1.42	
Test Details			Brittle
Membrane Thickness	mm	0.20	
Membrane Correction	kPa	0.58	
Rate of Axial Displacement	%/min	2.00	
Cell Pressure	kPa	319	
Strain at Failure	%	14.0	
Maximum Deviator Stress	kPa	41	
Shear Strength	kPa	21	
Mode of Failure			
Non Engineering Description		Dark brown CLAY.	

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°

Deviator Stress - kPa

Strain - %

Shear Stress - kPa

Normal Stress - kPa

Originator	Checked & Approved	UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION BS 1377 : Part 7 : 1990 Clause 8	Tk Figure 92
SG	S. Longman 29/03/2017		

Sheet 1 of 2

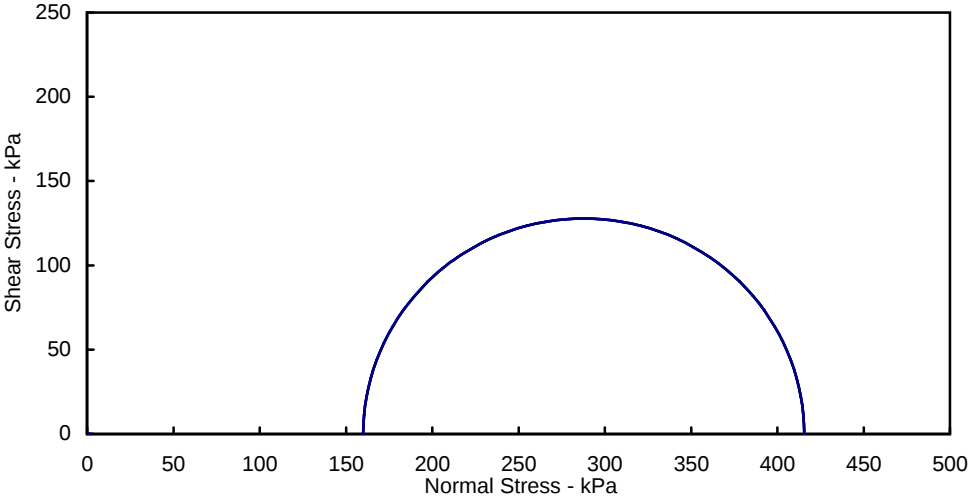
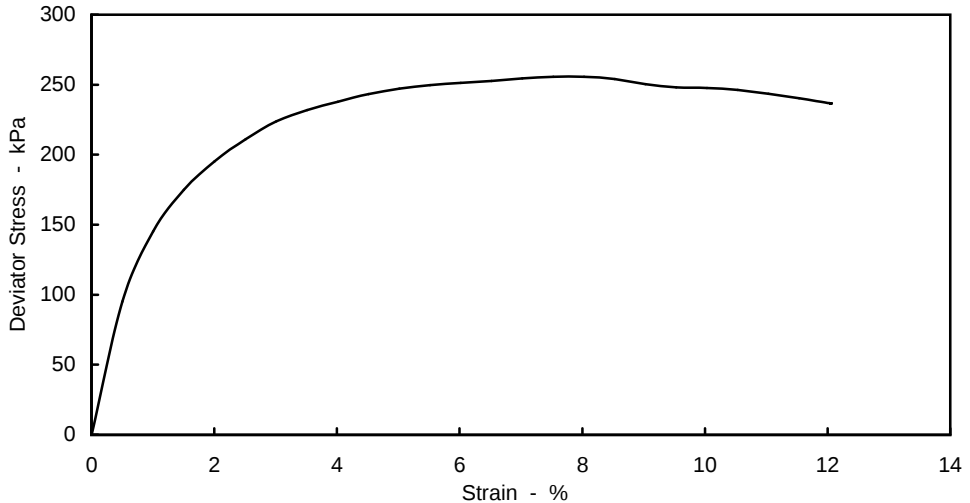
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES		Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No B20578
		Client Royal Mail Group Limited	Hole BH12
		Engineer	Sample Ref Depth (m) Sample Type 15.50-15.95 U
 			
Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	
SG	S. Langman 29/03/2017		
		Tk	Figure 92 Sheet 2 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
	Client	Royal Mail Group Limited	Hole	BH13
	Engineer		Sample Ref	
			Depth (m)	7.50-7.95
			Sample Type	U

Sample Details		Undisturbed		
Sample Condition				
Height	mm	199.3		
Diameter	mm	102.5		
Moisture Content	%	29		
Bulk Density	Mg/m ³	2.01		
Dry Density	Mg/m ³	1.56		
Test Details				
Membrane Thickness	mm	0.20		
Membrane Correction	kPa	0.35		
Rate of Axial Displacement	%/min	2.01		
Cell Pressure	kPa	160		
Strain at Failure	%	7.5		
Maximum Deviator Stress	kPa	256		
Shear Strength	kPa	128		
Mode of Failure			Brittle	
Non Engineering Description		Dark grey CLAY.		

Comments
 Undisturbed specimen taken 100mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°



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SG	<i>S. Longman</i> 29/03/2017		

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES		SiteROYAL MAIL MOUNT PLEASANT SORTING OFFICE ClientRoyal Mail Group Limited Engineer	Contract NoB20578 HoleBH13 Sample Ref Depth (m)7.50-7.95 Sample TypeU
			
Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	
SG	S. Langman 29/03/2017		
		Tk	Figure 93 Sheet 2 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE		Contract No.	B20578	
	Client	Royal Mail Group Limited		Hole	BH13	
	Engineer			Sample Ref	BH13	
				Depth (m)	13.50-13.95	
				Sample Type	U	

Sample Details		Undisturbed		
Sample Condition				
Height	mm	200.0		
Diameter	mm	102.6		
Moisture Content	%	20		
Bulk Density	Mg/m³	2.13		
Dry Density	Mg/m³	1.78		
Test Details				
Membrane Thickness	mm	0.20		
Membrane Correction	kPa	0.16		
Rate of Axial Displacement	%/min	2.00		
Cell Pressure	kPa	279		
Strain at Failure	%	3.0		
Maximum Deviator Stress	kPa	97		
Shear Strength	kPa	49		
Mode of Failure			Brittle	
Non Engineering Description		Dark brown CLAY.		

Comments		
Undisturbed specimen taken 100mm below top of tube		

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°

Deviator Stress - kPa

Strain - %

Shear Stress - kPa

Normal Stress - kPa

Originator	Checked & Approved	UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION BS 1377 : Part 7 : 1990 Clause 8	Tk Figure 94
SG	S. Longman 29/03/2017		

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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES		Site ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No B20578
		Client Royal Mail Group Limited	Hole BH13
		Engineer	Sample Ref
			Depth (m) 13.50-13.95
			Sample Type U



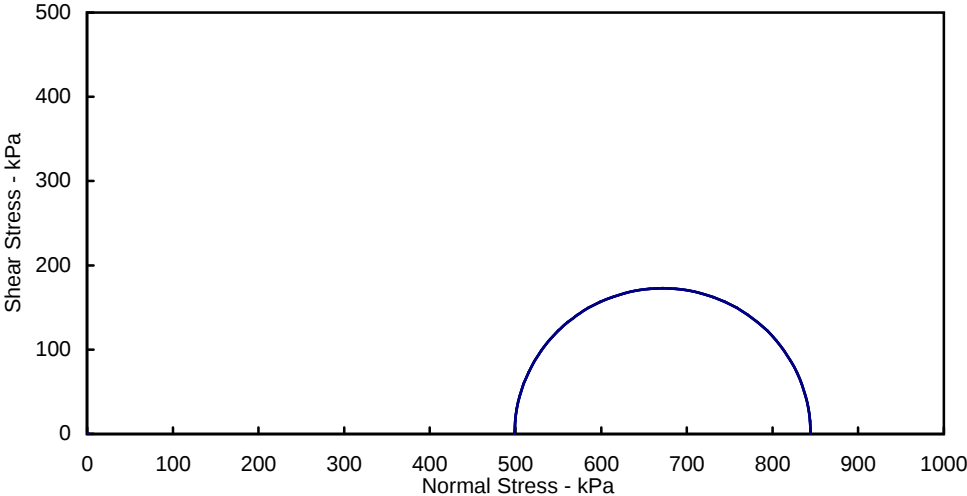
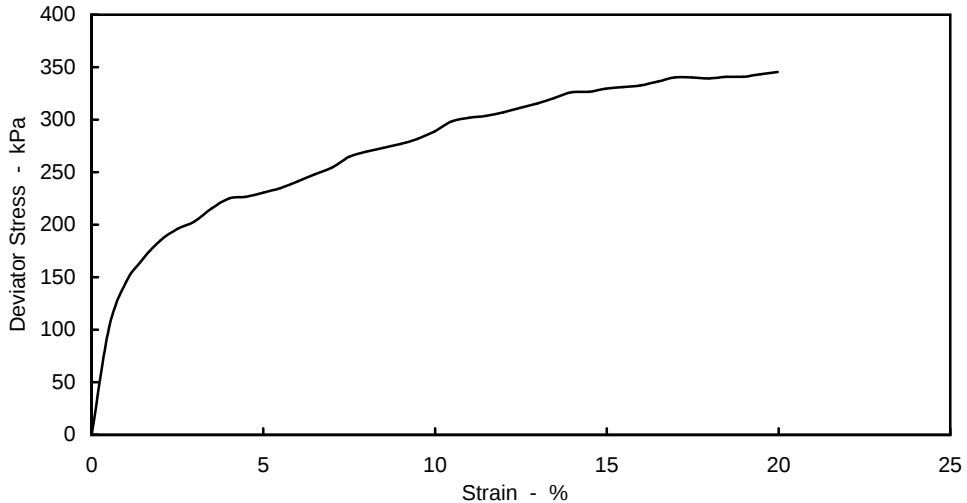

Originator SG	Checked & Approved S. Langman 29/03/2017	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	Tk Figure 94 Sheet 2 of 2
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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No.	B20578
	Client	Royal Mail Group Limited	Hole	BH13
	Engineer		Sample Ref	
			Depth (m)	24.00-24.95
			Sample Type	U

Sample Details		Undisturbed		
Sample Condition				
Height	mm	200.3		
Diameter	mm	102.9		
Moisture Content	%	24		
Bulk Density	Mg/m ³	2.08		
Dry Density	Mg/m ³	1.68		
Test Details				
Membrane Thickness	mm	0.20		
Membrane Correction	kPa	0.74		
Rate of Axial Displacement	%/min	2.00		
Cell Pressure	kPa	499		
Strain at Failure	%	20.0		
Maximum Deviator Stress	kPa	346		
Shear Strength	kPa	173		
Mode of Failure			Brittle	
Non Engineering Description		Dark grey slightly sandy CLAY.		

Comments
 Undisturbed specimen taken 100mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°



Originator	Checked & Approved	UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION BS 1377 : Part 7 : 1990 Clause 8	 Figure 95
SG	S. Longren 29/03/2017		

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE	Contract No	B20578
	Client	Royal Mail Group Limited	Hole	BH13
			Sample Ref	
			Depth (m)	24.00-24.95
	Engineer		Sample Type	U





Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	Tk Figure 95
SG	S. Langman 29/03/2017		

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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	ROYAL MAIL MOUNT PLEASANT SORTING OFFICE		Contract No.	B20578	
	Client	Royal Mail Group Limited		Hole	BH14	
	Engineer			Sample Ref		
				Depth (m)	8.00	
				Sample Type	U	

Sample Details		Undisturbed		
Sample Condition				
Height	mm	199.7		
Diameter	mm	102.1		
Moisture Content	%	29		
Bulk Density	Mg/m³	2.02		
Dry Density	Mg/m³	1.56		
Test Details				
Membrane Thickness	mm	0.20		
Membrane Correction	kPa	0.44		
Rate of Axial Displacement	%/min	2.00		
Cell Pressure	kPa	160		
Strain at Failure	%	10.0		
Maximum Deviator Stress	kPa	170		
Shear Strength	kPa	85		
Mode of Failure			Brittle	
Non Engineering Description		Dark grey CLAY.		

Comments		
Undisturbed specimen taken 100mm below top of tube		

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°

Deviator Stress - kPa

Strain - %

Shear Stress - kPa

Normal Stress - kPa

Originator	Checked & Approved	UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION BS 1377 : Part 7 : 1990 Clause 8	Tk Figure 96
SG	S. Longman 29/03/2017		

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