Appendix F Laboratory test results



SOIL AND ROCK SAMPLE ANALYSIS LABORATORY TEST REPORT

То:	Bord Gais
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Date:	25/02/15
Ref:	14-645

Greater Dublin Drainage Scheme Ground Investigation

We are pleased to attach the results of laboratory testing carried out for the above project. This memo and its attachments constitute a report of the results of tests as detailed in the *Contents page(s)*.

The samples were delivered to our laboratory in Ballymoney, Co. Antrim on 18/01/2015 and tested in accordance with the electronic schedule received on 20/01/2015. Further testing instructions were received on 16/02/2015 All testing was performed 26/01/2015 to 25/02/2015.

The attached results complete the testing requested and we would therefore wish to confirm that samples will be retained without charge for a period of one month from the above date after which they will be appropriately disposed of unless we receive written instructions to the contrary prior to that date.

We trust our report meets with your approval but if you have any queries or require additional information, please do not hesitate to contact the undersigned.

Approved Signatory

Stephen Watson Laboratory Manager

Causeway Geotech Ltd

8 Drumahiskey Road, Ballymoney Co. Antrim, N. Ireland, BT53 7QL



Project Name Greater Dublin Drainage Scheme Ground Investigation

Report Reference. 14-645

The table below details the tests carried out, the specifications used and the number of tests included in this report:

Material tested	Type of test/Properties measured/Range of measurement	Standard specifications	Number of test results included in the report	Comments
SOIL	Moisture content - oven drying method	BS 1377-2:1990	64	Currently working towards UKAS accreditation
SOIL	Liquid limit - cone penetrometer	BS 1377-2:1990	44	Currently working towards UKAS accreditation
SOIL	Liquid limit - cone penetrometer - one point	BS 1377-2:1990	44	Currently working towards UKAS accreditation
SOIL	Plastic limit	BS 1377-2:1990	44	Currently working towards UKAS accreditation
SOIL	Plasticity index and liquidity index	BS 1377-2:1990	44	Currently working towards UKAS accreditation
SOIL	Particle size distribution - wet sieving	BS 1377-2:1990	42	Currently working towards UKAS accreditation
SOIL	Particle size distribution - dry sieving	BS 1377-2:1990	0	Currently working towards UKAS accreditation
SOIL	Particle size distribution -sedimentation hydrometer method	BS 1377-2:1990	40	Currently working towards UKAS accreditation
SOIL	Density - linear	BS 1377-2:1990	0	Currently working towards UKAS accreditation
SOIL	Particle density – gas jar	BS 1377-2:1990	0	Currently working towards UKAS accreditation
SOIL	Dry density/moisture content relationship (2.5 kg rammer)	BS 1377-4:1990	0	Currently working towards UKAS accreditation
	Dry density/moisture content relationship (4.5 kg rammer)	BS 1377-4:1990	0	Currently working towards UKAS accreditation
SOIL	MCV	BS 1377-4:1990	0	Currently working towards UKAS accreditation

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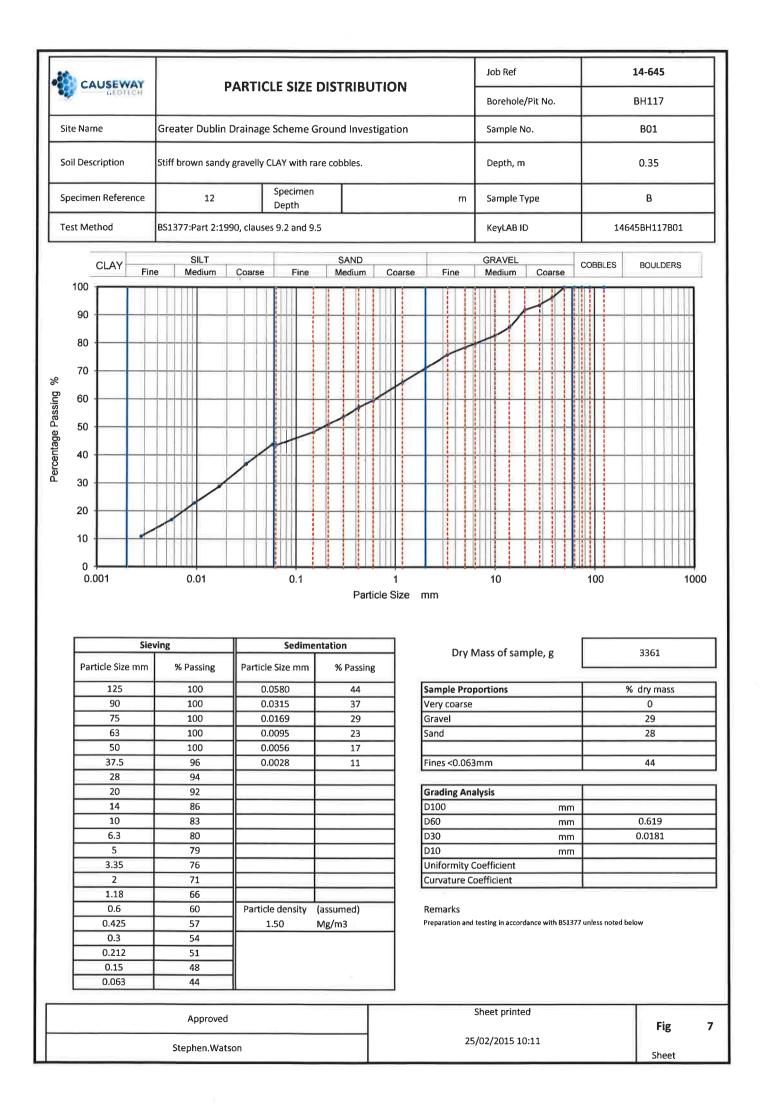
SOIL	MCV relationship	BS 1377-4:1990	0	Currently working towards UKAS accreditation
SOIL	California Bearing Ratio (CBR)	BS 1377-4:1990	0	Currently working towards UKAS accreditation
SOIL	One-dimensional consolidation properties	BS 1377- 5:1990	0	Currently working towards UKAS accreditation
SOIL	Laboratory vane	BS 1377- 7:1990	0	Currently working towards UKAS accreditation
SOIL	Undrained shear strength – triaxial compression without measurement of pore pressure (loads from 0.12 to 24 kN)	BS 1377- 7:1990	0	Currently working towards UKAS accreditation
SOIL	Undrained shear strength – triaxial compression with multistage loading and without measurement of pore pressure (loads from 0.12 to 24 kN)	BS 1377- 7:1990	0	Currently working towards UKAS accreditation
ROCK	Point load index	ISRM Commission on Testing Methods. Suggested Method for Determining Point Load Strength 1985	10	Currently working towards UKAS accreditation
ROCK	UCS	ISRM Suggested Methods - Rock Characterization Testing and Monitoring, Ed. E T Brown - 1981	6	Currently working towards UKAS accreditation

CA	GEO	VAY			Summar	y of Cl	assif	icatio	n Test	Re	sul	ts	
Project No.			Project	Name									
14	-645				Greater I	Dublin Drair	nage So	heme Gro	ound Inve	estiga	tion		
Hole No.	Ref	Sar Top	mple Base	Туре	Soil Description	I	lry	425µm	LL	PL	PI	Particle density	Remarks
BH117	B03	3.50	4.00	в	Very stiff dark grey to black sandy gravelly CLAY with occasional	Mg/m3	14.		% 28 -1pt	% NP	%	Mg/m3	
BH117	B04	4.50	5.00	В	cobbles. Very stiff dark grey to black sandy gravelly CLAY with occasional		13.	0					
BH117	D05	5.00		D	cobbles. Very stiff dark grey to black sandy gravelly CLAY with occasional		15.	0					
BH117	B02	1.80	3.00	в	cobbles. Very stiff dark grey to black sandy gravelly CLAY with occasional		11.	0 44	27 -1pt	15	12		
BH117	B01	0.35	1.20	В	cobbles. Stiff brown sandy gravelly CLAY with rare cobbles.		12.	0 57	29 -1pt	17	12		
BH118	8	8.00	8.45	В	Stiff dark grey slightly sandy slightly gravelly CLAY.		20.	0 50	31 -1pt	18	13		
BH120	14	9.50		D	Firm to stiff black sandy gravelly CLAY.		22.	0					
BH120	11	5.00		D	Stiff black sandy gravelly CLAY.		18.	0					
BH120	4	5.50	6.50	в	Firm to stiff black sandy gravelly CLAY.		19.	0 68	31 -1pt	16	15		
BH120	12	6.50		D	Firm to stiff black sandy gravelly CLAY.		12.	0					
BH120	13	8.00		D	Firm to stiff black sandy gravelly CLAY.		17.	0 50	28 -1pt	16	12		
BH120	2	1.70	2.00	в	Stiff brown sandy gravelly CLAY.		13.	0 60	30 -1pt	17	13		
BH120	3	3.10	4.00	в	Stiff black sandy gravelly CLAY.		16.	0 52	29 -1pt	15	14		
BH121	4	3.50	4.00	в	Stiff black sandy gravelly CLAY.		8.9	9 53	28 -1pt	16	12		
BH121	6	2.00		D	MADE GROUND - Firm very sandy gravelly CLAY with occasional boulders.		13.	0 45	25 -1pt	16	9		
BH122	B07	9.50	10.00	В	Black very stiff gravelly CLAY with occasional cobbles and boulders.		27.	0 56	31 -1pt	17	14		
BH122	B04	4.50	5.00	В	Black very stiff gravelly CLAY with occasional cobbles and boulders.		13.	0					
BH122	B05	6.00	6.50	в	Black very stiff gravelly CLAY with occasional cobbles and boulders.		13.	0 39	28 -1pt	15	13		
BH122	B06	7.00	7.50	В	Black very stiff gravelly CLAY with occasional cobbles and boulders.		16.	0					
BH122	B03	2.50	3.00	В	Black very stiff gravelly CLAY with occasional cobbles and boulders.		12.	0 54	29 -1pt	15	14		
Il tests perf	ormed	in acco	rdance v	vith BS	61377:1990 unless specified	d otherwise	9						
Key							Dat	e Printed		Appr	oved	By	Table
Density Linear r		nent unles	is :	Liquid I 4pt con		e density nall pyknomete	er O	4/09/2015	00:00				1
		acement			asagrande method gj - gas		ľ		0 0				sheet
	ter displa nersion i				asagrande method gj - gas ngle point test	s jäl				Step	hen.	.Watson	

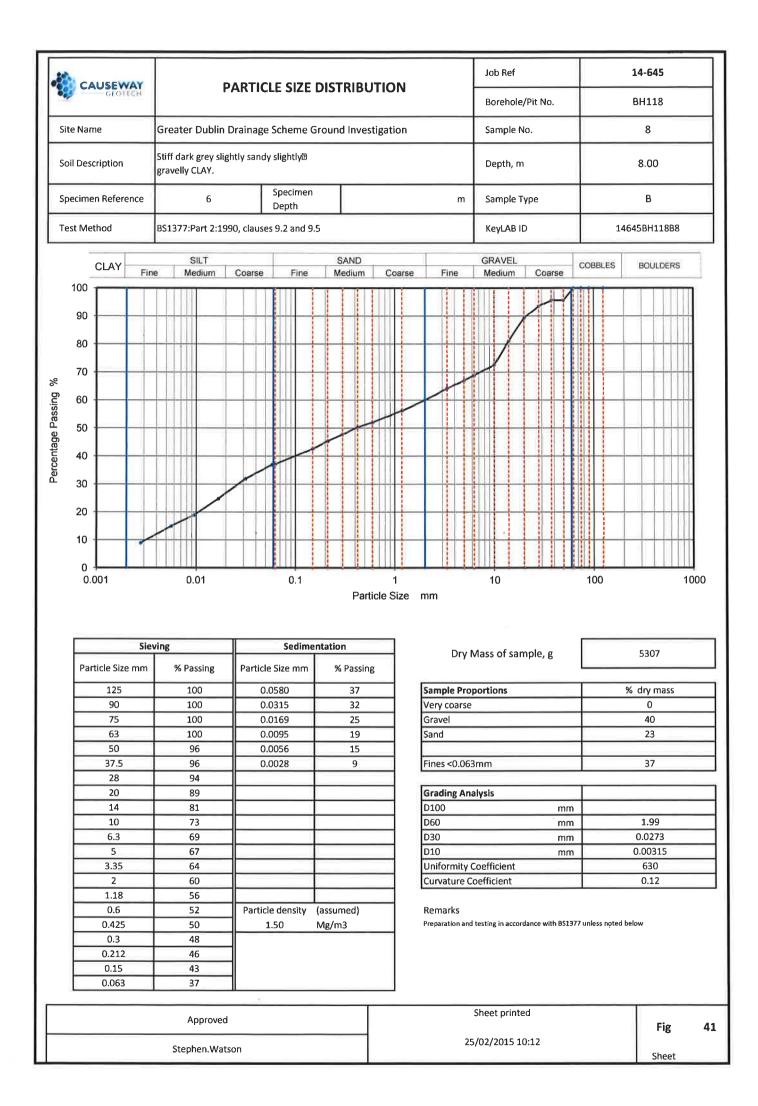
CA	USEV	VAY TECH			Summar	y of C	las	sific	ation	Test	Re	sul	ts	
Project No.			Project	Name										
14-	645				Greater D	Dublin Drai	inag	e Sche	me Gro	und Inve	estigat	ion		
Hole No.	Ref	Sar Top	mple Base	Туре	Soil Description	Density bulk	y dry	w	Passing 425µm	LL	PL	ΡI	Particle density	Remarks
	1.01	1.00	Duoo	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Mg/m3		%	%	%	%	%	Mg/m3	
BH122	B01	0.20	1.20	в	Brown firm to stiff gravelly CLAY with occasional cobbles and boulders.			12.0	48	29 -1pt	16	13		
BH123	D04	4.00		D	Very stiff dark grey to black sandy gravelly CLAY with occasional cobbles and rare boulders.			9.1						
BH123	B02	1.30	2.00	В	Stiff dark brown sandy gravelly CLAY with occasional cobbles and boulders.			13.0	49	28 -1pt	15	13		
BH123	B03	2.50	3.00	в	Very stiff dark grey to black sandy gravelly CLAY with occasional cobbles and boulders.			11.0	48	31 -1pt	18	13		
BH123	B01	0.25	1.00	в	Firm to stift dark brown sandy gravelly CLAY with occasional cobbles and boulders.			13.0	52	31 -1pt	17	14		
BH124	2	1.50	2.00	в	Firm brown gravelly CLAY			14.0	46	30 -1pt	17	13		
BH124	3	2.10	3.00	в	Very stiff black sandy gravelly CLAY.			16.0	51	30 -1pt	16	14		
BH124	1	0.00	1.20	в	Firm brown gravelly CLAY			16.0	64	35 -1pt	17	18		
BH125	3	3.50		в	Very stiff black sandy gravelly CLAY.			16.0	45	29 -1pt	15	14		
BH127	7	4.00		D	Very stiff black sandy gravelly CLAY.			12.0	57	29 -1pt	15	14		
BH127	2	1.80	2.00	в	Very stiff black sandy gravelly CLAY.			14.0						
BH127	3	2.50	3.00		Very stiff black sandy gravelly CLAY.			12.0	49	29 -1pt	16	13		
BH127	1	0.30	1.20	в	Stiff brown grey sandy gravelly CLAY			34.0	67	44 -1pt	32	12		
BH128	D03	3.50		D	Very stiff black gravelly CLAY with occasional cobbles and boulders.			9.7	35	29 -1pt	16	13		
BH128	B04	2.50	3.00	в	Very stiff black gravelly CLAY with occasional cobbles and boulders.			8.2	41	29 -1pt	16	13		
BH128	B02	0.30	1.10	В	Firm to stiff light brown gravelly CLAY with occasional cobbles and boulders.			30.0	78	45 -1pt	28	17		
BH128	B03	1.10	2.00	в	Very stiff black gravelly CLAY with occasional cobbles and boulders.			15.0	42	25 -1pt	14	11		
BH130	6	5.00	5.45	в	Very stiff dark grey slightly sandy slightly gravelly CLAY.			20.0	62	32 -1pt	18	14		
BH130	2	1.20	1.65	в	Firm brown mottled grey slightly gravelly CLAY.			16.0	53	32 -1pt	17	15		
BH135	6	5.00	5.45	в	Stiff dark grey sandy gravelly CLAY.			16.0	71	29 -1pt	16	13		
All tests perfe	ormed	in acco	rdance v	with BS	S1377:1990 unless specified	d otherwise	e							
Key								Date F	rinted		Appr	oved	Ву	Table
Density Linear n		ment unles	s:	Liquid I 4pt con		e density nall pyknomet	er	04/ና	9/2015	00:00				2
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wi-imn	nersion i	in water		1pt - sii	ngle point test						Step	hen.	Watson	2

	USEV	VAY TECH			Summar	y of C	Clas	sific	ation	Test	Re	sult	ts		
Project No. 14-	645		Project	Name	Greater [Dublin Dr	rainag	je Sche	eme Gro	und Inve	estigat	ion			
		Sar	mple	1		Dens		w	Passing	LL	PL	ΡI	Particle		
Hole No.	Ref	Тор	Base	Туре	Soil Description	bulk Mg/m	dry n3	%	425µm %	%	%	%	density Mg/m3	Rem	arks
BH135	2	1.20	1.65	в	Brown mottled grey sandy gravelly CLAY			20.0	60	35 -1pt	20	15			
BH137	2	1.20	1.65	в	Firm to soft brown sandy gravelly CLAY.			19.0	63	35 -1pt	17	18			
BH138	B03	2.50	3.00	в	Medium dense grey slightly sandy subangular to rounded fine to medium GRAVEL.			6.0							
BH138	B02	0.90	1.50	в	Medium dense grey slightly sandy subangular to rounded fine to medium GRAVEL.			5.4	10	27 -1pt	19	8			
BH139	8	8.00	8.45	в	Firm to stift dark grey slightly sandy gravelly CLAY with occasional cobbles.			14.0	54	28 -1pt	15	13			
BH139	7	6.00	6.45	в	Stiff black slightly sandy slightly gravelly CLAY with occasional cobbles.			13.0	58	28 -1pt	15	13			
BH139	3	2.00	2.45	в	Firm to stiff brown slightly sandy slightly gravelly CLAY			16.0	67	30 -1pt	17	13			
TP100	B02	1.50		в	Firm brown gravelly CLAY.			8.3	33	29 -1pt	18	11			
TP100	B01	0.50		в	MADE GROUND - Firm brown grey gravelly CLAY with fragments of plastic timber and gravel.			14.0	55	29 -1pt	18	11			
TP101	B01	0.50		В	MADE GROUND - Soft to firm light brown gravelly CLAY with fragments of plastic and glass.			20.0	59	41 -1pt	27	14			
TP102	2	1.50		в	Firm grey gravelly CLAY with fragments of weathered roots.			13.0	37	30 -1pt	22	8			
TP102	B01	0.50		в	Firm brown gravelly CLAY.			14.0	35	37 -1pt	25	12			
TP103	B01	0.50		в	Firm brown gravelly CLAY			15.0	33	34 -1pt	24	10			
TP103	B02	0.90		в	Firm brown gravelly CLAY with fragments of weathered roots.			8.5	25	33 -1pt	24	9			
TP104	B01	0.50		в	Firm brown gravelly CLAY with occasional cobbles.			32.0	92	51 -1pt	29	22			
TP104	B02	1.00		в	Firm grey brown gravelly CLAY with occasional cobbles.			15.0	58	46 -1pt	28	18			
TP105	B02	0.80		В	Firm brown gravelly CLAY.			18.0	55	41 -1pt	25	16			
TP106	B01	0.30		В	MADE GROUND - Firm brown gravelly CLAY with fragments of brick,glass and timbers.			24.0	55	42 -1pt	25	17			
TP108	2	2.00		в	Firm to stiff dark grey gravelly CLAY with occasional cobbles			9.5	40	29 -1pt	17	12			
TP109	7	3.00		в	Soft grey gravelly CLAY.			22.0	59	39 -1pt	21	18			
All tests perfo	ormed	in acco	rdance v	vith BS	61377:1990 unless specified	d otherwi	ise								
Key								Date F	rinted		Appr	oved	Ву	Table	
Density		ment unles	s ·	Liquid I		e density nall pyknom	oter	04/0)9/2015	00.00					3
wd - wat			з.		e unless : sp - sm asagrande method gj - gas		10101	04/(1312013	00.00				sheet	
wi-imm	nersion i	n water		1pt - si	ngle point test						Step	hen.	Watson		3

•	CA		WAY			Summa	ry of (Clas	sific	ation	Test	Re	sult	ts		
Project	No.			Project	Name	1										
	14-0	645				Greater	Dublin D	rainag	ge Sche	eme Gro	und Inve	estigat	tion			
			Sa	mple			Dens	sity	w	Passing	LL	PL	ΡI	Particle		
Hole I	No.	Ref	Тор	Base	Turne	Soil Description	bulk	dry		425µm				density	Rem	arks
		Rei	тор	Dase	Туре		Mg/n	n3	%	%	%	%	%	Mg/m3		
TP11	10	5	1.50		в	Firm brown gravelly CLAY with occasional cobbles and boulders.			13.0	49	32 -1pt	18	14			
TP11	12	2	1.50		в	Firm to stiff dark grey gravelly CLAY with cobbles and boulders.			10.0	26	33 -1pt	18	15			
TP11	13	4	4.00		в	Firm to stiff dark grey gravelly CLAY with cobbles and boulders.			10.0	62	25 -1pt	15	10			
TP11	14	4	4.00		в	Firm to stiff dark grey gravelly CLAY with occasional cobbles			9.1	65	26 -1pt	15	11			
All tests	s perfo	orme	d in acco	ordance	with B	S1377:1990 unless specif	ied otherv	vise					-			
Key									Date F	Printed		Appr	oved	Ву	Table	
	Density				Liquid I		cle density			0/00/-	00.00					4
v	vd - wat	er disp	ement unle lacement in water	SS :	cas - C		small pyknon as jar	neter	04/0)9/2015	00:00	Sten	hen	Watson	sheet	4
v	•• ••••		water		1917-31	ngio point toot			L					** 413011		



CA	USEWAY	r	PARTICLE SIZE I		N	Job Ref		14-645
	GEOTECH		ANTICLE SIZE I			Borehole/Pit No.		BH117
Site Nam	ie	Greater Dublin	Drainage Scheme G	round Investigation	on	Sample No.		B03
Soil Desci	ription	Very stiff dark gro	ey to black sandy grave	lly CLAY with occas	ional cobbles.	Depth, m		3.50
Specimer	n Reference	12	Specimen Depth		m	Sample Type		В
Test Metl	hod	BS1377:Part 2:19	190, clauses 9.2 and 9.5	5		KeyLAB ID	1464	ISBH117B03
(CLAY Fin	SILT e Medium	Coarse Fine	SAND Medium Coa	arse Fine	GRAVEL Medium Coarse	COBBLES	BOULDERS
100								
90 -								
80 -						H		
70 -		<u></u>						
° ₽ 60								
200								
50								
60 - 50 - 50 - 50 - 50 - 50 - 50 - 50 -								
- 30 -								
20								
10								
0 0.0	001	0.01	0.1	Particle Si		10	100	1000
				Particle Si		10	100	1000
0.0	Sie	ving	Sedimer	Particle Si	ze mm	10 Mass of sample, g	100	3458
0.0	Sie icle Size mm	ving % Passing	Sedimer Particle Size mm	Particle Si	ize mm DryN	Nass of sample, g		3458
0.0	Sie	ving	Sedimer	Particle Si	ze mm	Nass of sample, g		
0.0	Sier icle Size mm 125 90 75	ving % Passing 100 100 100	Sedimer Particle Size mm 0.0575 0.0315 0.0168	Particle Si tation % Passing 45 37 30	ize mm Dry N Sample Proj Very coarse Gravel	Nass of sample, g		3458 dry mass 0 25
0.0	Siev icle Size mm 125 90	ving % Passing 100 100	Sedimer Particle Size mm 0.0575 0.0315	Particle Si tation % Passing 45 37	ize mm Dry M Sample Proj Very coarse	Nass of sample, g		3458 dry mass 0
0.0	Sie icle Size mm 125 90 75 63 50 37.5	ving % Passing 100 100 100 100 100 100	Sedimer Particle Size mm 0.0575 0.0315 0.0168 0.0095	Particle Si tation % Passing 45 37 30 24	ize mm Dry N Sample Proj Very coarse Gravel	Mass of sample, g		3458 dry mass 0 25
0.0	Sie icle Size mm 125 90 75 63 50	ving % Passing 100 100 100 100 100	Sedimer Particle Size mm 0.0575 0.0315 0.0168 0.0095 0.0056	Particle Si Atation % Passing 45 37 30 24 18	ize mm Dry N Sample Proj Very coarse Gravel Sand	Mass of sample, g		3458 dry mass 0 25 30
0.0	Siev icle Size mm 125 90 75 63 50 37.5 28 20 14	ving % Passing 100 100 100 100 100 96 93 91	Sedimer Particle Size mm 0.0575 0.0315 0.0168 0.0095 0.0056	Particle Si Atation % Passing 45 37 30 24 18	ze mm Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Grading Ana D100	Mass of sample, g portions Smm	%	3458 dry mass 0 25 30 45
0.0	Sien icle Size mm 125 90 75 63 50 37.5 28 20	ving % Passing 100 100 100 100 100 100 96 93	Sedimer Particle Size mm 0.0575 0.0315 0.0168 0.0095 0.0056	Particle Si atation % Passing 45 37 30 24 18	ze mm Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Grading Ana	Mass of sample, g portions	%	3458 dry mass 0 25 30
0.0	Sier icle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5	ving % Passing 100 100 100 100 100 96 93 93 91 85 82 82 81	Sedimer Particle Size mm 0.0575 0.0315 0.0168 0.0095 0.0056	Particle Si atation % Passing 45 37 30 24 18	ze mm Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	Mass of sample, g portions Smm alysis mm mm mm mm mm mm	%	3458 dry mass 0 25 30 45 0.35
0.0	Sier icle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3	ving % Passing 100 100 100 100 100 96 93 93 91 85 82 81 78 75	Sedimer Particle Size mm 0.0575 0.0315 0.0168 0.0095 0.0056	Particle Si atation % Passing 45 37 30 24 18	ze mm Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30	Mass of sample, g portions Imm Ilysis mm mm mm Coefficient	%	3458 dry mass 0 25 30 45 0.35
0.0	Sieve iicle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18	ving % Passing 100 100 100 100 96 93 91 85 82 81 78 75 71	Sedimen Particle Size mm 0.0575 0.0315 0.0095 0.0028 0.0028 0.0028 0.0028	Particle Si tation % Passing 45 37 30 24 18 12 	ze mm Dry N Sample Pro Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co	Mass of sample, g portions Imm Ilysis mm mm mm Coefficient	%	3458 dry mass 0 25 30 45 0.35
0.0	Sieve iicle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2	ving % Passing 100 100 100 100 100 96 93 93 91 85 82 81 78 75	Sedimen Particle Size mm 0.0575 0.0315 0.0095 0.0095 0.0028	Particle Si atation % Passing 45 37 30 24 18	ze mm Dry N Sample Pro Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co	Mass of sample, g portions Imm Ilysis mm mm mm Coefficient	%	3458 dry mass 0 25 30 45 0.35 0.0166
0.0	Siev icle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 0.425 0.3	ving % Passing 100 100 100 100 96 93 91 85 82 81 85 82 81 78 75 71 65 62 59	Sedimen Particle Size mm 0.0575 0.0315 0.0095 0.0095 0.0028	Particle Si tation % Passing 45 37 30 24 18 12 	ze mm Dry N Sample Pro Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co	Mass of sample, g	%	3458 dry mass 0 25 30 45 0.35 0.0166
0.0	Sieve iicle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 0.425	ving % Passing 100 100 100 100 96 93 91 85 82 81 78 75 71 65 62	Sedimen Particle Size mm 0.0575 0.0315 0.0095 0.0095 0.0028	Particle Si tation % Passing 45 37 30 24 18 12 	ze mm Dry N Sample Pro Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co	Mass of sample, g	%	3458 dry mass 0 25 30 45 0.35 0.0166
0.0	Siev icle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 0.425 0.3 0.212	ving % Passing 100 100 100 100 96 93 91 85 82 81 78 75 71 65 62 59 55	Sedimen Particle Size mm 0.0575 0.0315 0.0095 0.0095 0.0028	Particle Si tation % Passing 45 37 30 24 18 12 	ze mm Dry N Sample Pro Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co	Mass of sample, g	%	3458 dry mass 0 25 30 45 0.35 0.0166
0.0	Siev icle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15	ving % Passing 100 100 100 100 100 96 93 93 91 85 82 82 81 78 82 81 78 75 71 65 62 59 55 52	Sedimer Particle Size mm 0.0575 0.0315 0.0095 0.0095 0.0028 0.0028 Particle density 1.50	Particle Si tation % Passing 45 37 30 24 18 12 	ze mm Dry N Sample Pro Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity O Curvature Co Remarks Preparation and	Mass of sample, g	%	3458 dry mass 0 25 30 45 0.35 0.0166

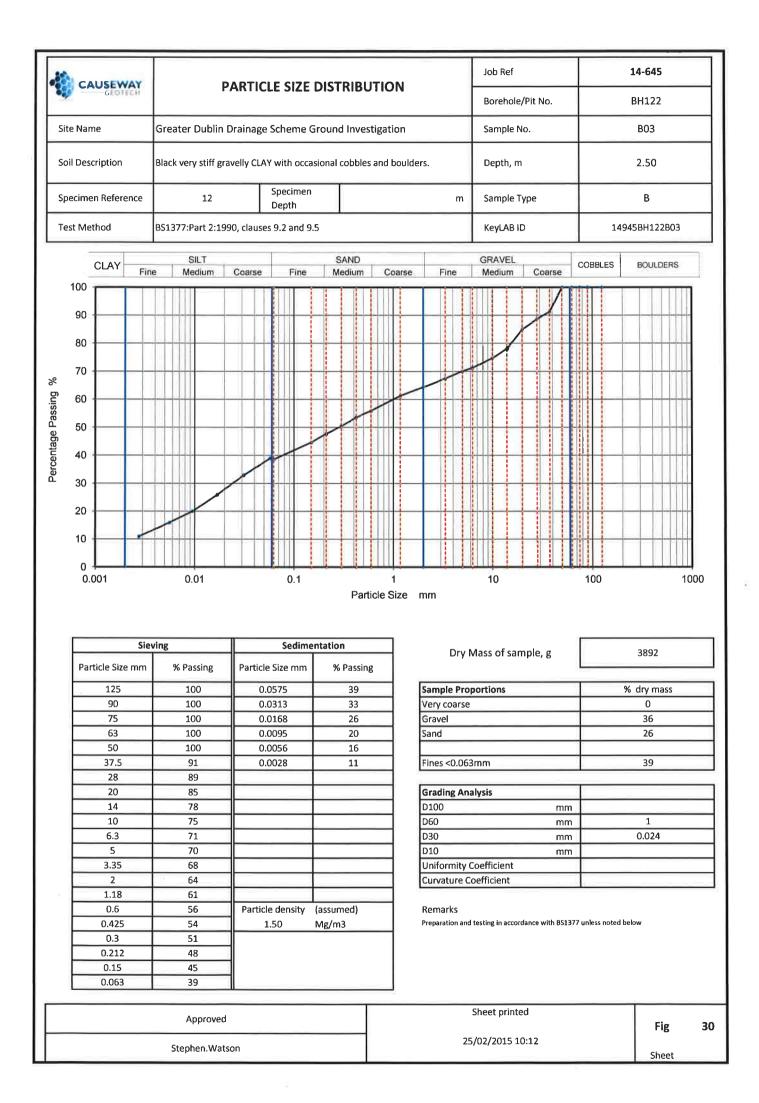


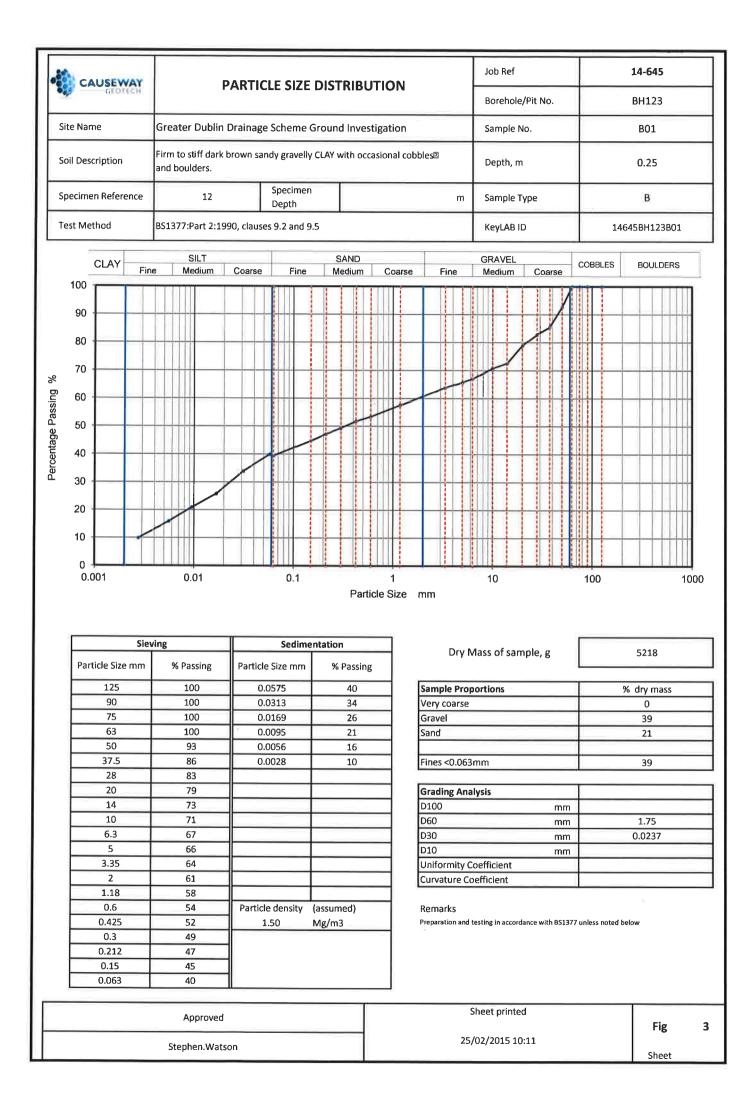
	CAUSEW	AY		PARTIC	I F SI7E	יפדצום	BUTION	J	Job Ref		14-645
•	GEOTI	ECH -						•	Borehole/Pit No.		BH120
Site N	Name		Greater Dubli	n Drainage	Scheme	Ground In	vestigatio	n	Sample No.		2
Soil D	Description		Stiff brown sand	dy gravelly (CLAY,				Depth, m		1.70
Speci	imen Refere	ence	12		Specimer Depth			m	Sample Type		В
Test I	Method		BS1377:Part 2:1	.990, clause	s 9.2 and 9).5			KeyLAB ID	146	645BH120B2
	CLAY	Fin	SILT e Medium	Coarse	Fine	SAN Mediu		rse Fine	GRAVEL Medium Coarse	COBBLES	BOULDERS
10											
9	90										
8	30										
27	70										
	50										
5	50					Y					
n i											
4	10				1						
3	30	_		\wedge			-				
2	20										
1	0	-									
										1111	
	0 .001		0.01		0.1	F	1 Particle Siz	e mm	10	100	100
		Siev		<u> </u>			1 Particle Siz			100	1000
F			ving	Particle		entation			10 Nass of sample, g	100	2869
F	0.001				Sedime Size mm	entation % Pas	sing	Dry N	Aass of sample, g		2869
F	0.001 Particle Size 125 90		/ing % Passing 100 100	0.0	Sedime e Size mm 0571 0315	ntation % Pas	sing	Dry N Sample Prop Very coarse	Aass of sample, g		2869 <u>6 dry mass</u> 0
F	0.001 Particle Size 125		/ing % Passing 100	0.0	Sedime e Size mm 0571 0315 0168	entation % Pas	sing 2 1 3	Dry N Sample Prop	Aass of sample, g		2869 % dry mass 0 27
F	0.001 Particle Size 125 90 75 63 50		ving % Passing 100 100 100 100 100	0.0	Sedime Size mm 0571 0315 0168 0095 0056	entation % Pas 42 34 28 22 17	sing 2 4 3 2 7	Dry N Sample Prop Very coarse Gravel Sand	Nass of sample, g		2869 % dry mass 0 27 30
F	0.001 Particle Size 125 90 75 63		ving % Passing 100 100 100 100	0.0	Sedime Size mm 0571 0315 0168 0095	entation % Pas 42 34 28 22	sing 2 4 3 2 7	Dry N Sample Prop Very coarse Gravel	Nass of sample, g		2869 % dry mass 0 27
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20		ving % Passing 100 100 100 100 100 100 98 95	0.0	Sedime Size mm 0571 0315 0168 0095 0056	entation % Pas 42 34 28 22 17	sing 2 4 3 2 7	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana	Nass of sample, g		2869 % dry mass 0 27 30
F	0.001 Particle Size 125 90 75 63 50 37.5 28		ving % Passing 100 100 100 100 100 100 98 95 90	0.0	Sedime Size mm 0571 0315 0168 0095 0056	entation % Pas 42 34 28 22 17	sing 2 4 3 2 7	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100	Nass of sample, g	9 	2869 % dry mass 0 27 30 42
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3		ring % Passing 100 100 100 100 100 100 98 95 95 90 85 81	0.0	Sedime Size mm 0571 0315 0168 0095 0056	entation % Pas 42 34 28 22 17	sing 2 4 3 2 7	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30	Nass of sample, g	9 	2869 % dry mass 0 27 30
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5		ring % Passing 100 100 100 100 100 100 98 95 95 90 85 81 79	0.0	Sedime Size mm 0571 0315 0168 0095 0056	entation % Pas 42 34 28 22 17	sing 2 4 3 2 7	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	Nass of sample, g	9 	2869 % dry mass 0 27 30 42 0.416
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2		ring % Passing 100 100 100 100 100 100 98 95 90 85 81 79 76 73	0.0	Sedime Size mm 0571 0315 0168 0095 0056	entation % Pas 42 34 28 22 17	sing 2 4 3 2 7	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30	Nass of sample, g	9 	2869 % dry mass 0 27 30 42 0.416
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 2 1.18		ving % Passing 100 100 100 100 98 95 90 85 81 79 76 73 69		Sedime e Size mm 0571 0315 0168 0095 0028	entation % Pas 42 34 28 22 17 12	sing 2 4 3 2 7 2	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co	Nass of sample, g	9 	2869 % dry mass 0 27 30 42 0.416
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2		ring % Passing 100 100 100 100 100 100 98 95 90 85 81 79 76 73	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Sedime e Size mm 0571 0315 0056 0028 0028 e density	entation % Pas 42 34 28 22 17 12 12 12 12 12 12 12 12 12 12 12 12 12	sing 2 4 3 2 7 2	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Nass of sample, g	9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2869 % dry mass 0 27 30 42 0.416 0.021
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 2 1.18 0.6 0.425 0.3		/ing % Passing 100 100 100 100 100 98 95 90 85 81 79 76 73 69 63 60 57	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Sedime e Size mm 0571 0315 0056 0028 0028 e density	entation % Pas 42 34 28 22 17 12	sing 2 4 3 2 7 2	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Aass of sample, g	9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2869 % dry mass 0 27 30 42 0.416 0.021
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212		/ing % Passing 100 100 100 100 100 98 95 90 85 81 79 76 73 69 63 60 57 53	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Sedime e Size mm 0571 0315 0056 0028 0028 e density	entation % Pas 42 34 28 22 17 12 12 12 12 12 12 12 12 12 12 12 12 12	sing 2 4 3 2 7 2	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Aass of sample, g	9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2869 % dry mass 0 27 30 42 0.416 0.021
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 2 1.18 0.6 0.425 0.3		/ing % Passing 100 100 100 100 100 98 95 90 85 81 79 76 73 69 63 60 57	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Sedime e Size mm 0571 0315 0056 0028 0028 e density	entation % Pas 42 34 28 22 17 12 12 12 12 12 12 12 12 12 12 12 12 12	sing 2 4 3 2 7 2	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Aass of sample, g	9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2869 % dry mass 0 27 30 42 0.416 0.021
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 2 1.18 0.6 0.425 0.3 0.212 0.15		ving % Passing 100 100 100 100 100 98 95 90 85 81 90 85 81 79 90 85 81 79 76 73 69 63 69 63 60 57 53 50	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Sedime e Size mm 0571 0315 0056 0028 0028 e density	entation % Pas 42 34 28 22 17 12 12 12 12 12 12 12 12 12 12 12 12 12	sing 2 4 3 2 7 2	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Fines <0.063 D10 D10 D10 D10 Uniformity C Curvature Co Remarks Preparation and the	Aass of sample, g	9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2869 % dry mass 0 27 30 42 0.416 0.021

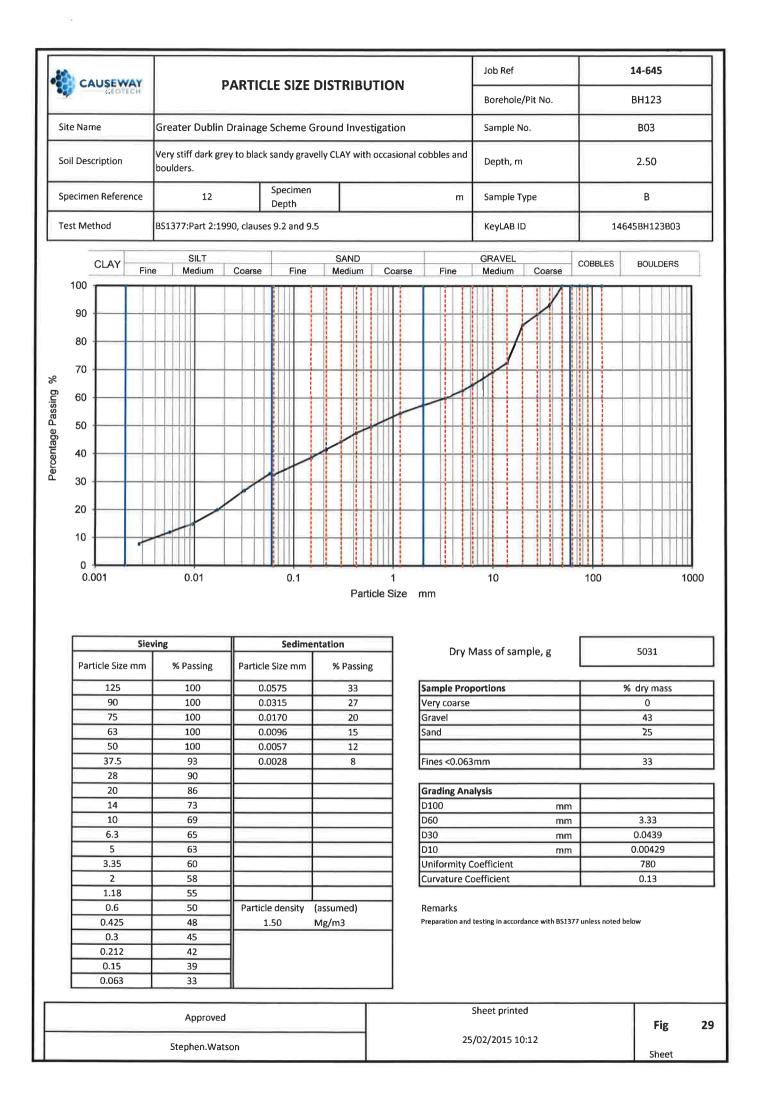
CAUS	EWAY		PARTICLE SIZE	ופופדצום			Job Ref			14-645
	FOLICH						Borehole/Pit No	0.		BH120
Site Name		Greater Dublin	Drainage Scheme	Ground Inve	stigation		Sample No.			4
Soil Descripti	ion	Firm to stiff blac	k sandy gravelly CLAY				Depth, m			5.50
Specimen Re	eference	12	Specime Depth	n 🛛		m	Sample Type			В
Test Method		BS1377:Part 2:1	990, clauses 9.2 and	9.5			KeyLAB ID		14	645BH120B4
CLA	AY Fin	SILT e Medium	Coarse Fine	SAND Medium	Coarse	Fine	GRAVEL Medium Coa	arse	COBBLES	BOULDERS
100										
90	-									
80										
70										
60										
50										
, in the second se										
60		/								
30										
20										
	1									
10					•			1 1 1 1		
0		0.01	0.1		1		10		100	100
0						mm	10		100	100
0	Sie	ving		Part	•	J <u>_</u> i <u>t</u> itit	10 Mass of sample, p	g	100	2868
0	Sie Size mm				ticle Size	J <u>_</u> i <u>t</u> itit		g	100	
0 0.001 Particle	Size mm 25	ving % Passing 100	Particle Size mm	entation % Passin 53	ticle Size	mm Dry N Sample Prop	Nass of sample, I	g		2868 % dry mass
0 .001	Size mm 25 90	Ving % Passing 100 100	Particle Size mm 0.0575 0.0311	entation % Passin 53 46	ticle Size	mm Dry N Sample Prop Very coarse	Nass of sample, I	g		2868 % dry mass 0
0 0.001 Particle 1: 9 7 6	Size mm 25 90 75 53	ving % Passing 100	Particle Size mm	entation % Passin 53	ticle Size	mm Dry N Sample Prop	Nass of sample, I	g		2868 % dry mass
0 0.001 Particle 11 9 7 6 5	Size mm 25 90 75 53 50	Ving % Passing 100 100 100 100 100	Sedim Particle Size mm 0.0575 0.0311 0.0167 0.0095 0.0056	entation % Passin 53 46 37 28 22	ticle Size	mm Dry N Sample Prop Very coarse Gravel Sand	Mass of sample, poortions	g		2868 % dry mass 0 24 24 24
0 0.001 Particle 1: 9 7 6 5 37	Size mm 25 90 75 53	Ving % Passing 100 100 100 100	Particle Size mm 0.0575 0.0311 0.0167 0.0095	entation % Passin 53 46 37 28	ticle Size	mm Dry N Sample Prop Very coarse Gravel	Mass of sample, poortions	g		2868 % dry mass 0 24
0 0.001 Particle 12 9 7 6 5 37 2 2 2	Size mm 25 30 75 53 50 7.5 28 20	ving % Passing 100 100 100 100 100 100 96 93	Sedim Particle Size mm 0.0575 0.0311 0.0167 0.0095 0.0056	entation % Passin 53 46 37 28 22	ticle Size	mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana	Mass of sample, portions			2868 % dry mass 0 24 24 24
0 0.001 Particle 12 9 7 6 5 37 2 2 2 2 1	Size mm 25 30 75 33 30 50 7.5 28 20 20 4	ving % Passing 100 100 100 100 100 96 93 87	Sedim Particle Size mm 0.0575 0.0311 0.0167 0.0095 0.0056	entation % Passin 53 46 37 28 22	ticle Size	mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100	Mass of sample, portions	mm		2868 % dry mass 0 24 24 24 52
0 0.001 Particle 12 9 7 6 5 37 2 2 2 2 1 1	Size mm 25 30 75 53 50 7.5 28 20	ving % Passing 100 100 100 100 100 100 96 93	Sedim Particle Size mm 0.0575 0.0311 0.0167 0.0095 0.0056	entation % Passin 53 46 37 28 22	ticle Size	mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana	Mass of sample, portions			2868 % dry mass 0 24 24 24
0 0.001 Particle 11: 99 77 66 55 377 22 22 11 11 66	Size mm 25 30 75 33 36 30 7.5 28 8 20 4 4 4 00 .3 3 5	ving % Passing 100 100 100 100 100 96 93 87 82 80 79	Sedim Particle Size mm 0.0575 0.0311 0.0167 0.0095 0.0056	entation % Passin 53 46 37 28 22	ticle Size	mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	Mass of sample, poortions	mm		2868 % dry mass 0 24 24 52 52 0.168
0 0.001 Particle 11: 99 77 66 55 37 2 2 2 2 1 1 1 66 55 37 2 2 3.3	Size mm 25 30 75 33 36 30 7.5 28 82 20 44 40 00 .3	ving % Passing 100 100 100 100 100 96 93 87 82 80 79 78	Sedim Particle Size mm 0.0575 0.0311 0.0167 0.0095 0.0056	entation % Passin 53 46 37 28 22	ticle Size	mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C	Mass of sample, poortions	mm mm		2868 % dry mass 0 24 24 52 52 0.168
0 0.001 Particle 11: 99 77 66 55 377 22 2 2 1 1 1 66 55 377 22 2 2 1 1 1 1 66 55 377 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Size mm 25 25 27 33 50 7.5 28 20 44 40 0 .3 5 35 2 2 18	Ving % Passing 100 100 100 100 100 96 93 87 82 80 79 78 78 76 74	Sedim Particle Size mm 0.0575 0.0311 0.0167 0.0095 0.0056 0.0028	entation % Passin 53 46 37 28 22 14 14	ticle Size	mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	Mass of sample, poortions	mm mm		2868 % dry mass 0 24 24 52 52 0.168
0 0.001 Particle 11: 99 77 66 55 37 22 22 11 11 66 55 37 22 22 11 11 66 55 37 22 22 11 11 66 55 37 22 11 11 12 12 12 12 12 12 12 12 12 12	Size mm 25 25 27 33 50 7.5 28 20 44 20 44 20 35 5 35 2 2 18 18 .6	Ving % Passing 100 100 100 100 96 93 87 82 80 79 78 82 80 79 78 76 74 70	Sedim Particle Size mm 0.0575 0.0311 0.0167 0.0095 0.0028 0.0028 0.0028 0.00167 0.0028	entation % Passin 53 46 37 28 22 14 14	ticle Size	mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sample, poortions	mm mm mm		2868 % dry mass 0 24 24 52 52 0.168 0.0109
0 0.001 Particle 11: 99 77 66 55 37 22 22 11 11 66 55 37 22 22 11 11 66 55 37 22 22 11 11 66 55 37 22 22 11 11 11 11 11 11 11 11 11 11 11	Size mm 25 25 27 33 50 7.5 28 20 44 40 0 .3 5 35 2 2 18	Ving % Passing 100 100 100 100 100 96 93 87 82 80 79 78 78 76 74	Sedim Particle Size mm 0.0575 0.0311 0.0167 0.0095 0.0056 0.0028	entation % Passin 53 46 37 28 22 14 14	ticle Size	mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sample, poortions	mm mm mm		2868 % dry mass 0 24 24 52 52 0.168 0.0109
0 0.001 Particle 11: 99 77 66 55 377 22 2 2 11 1 1 66 55 377 22 2 2 11 1 1 66 55 377 22 11 1 1 66 55 377 22 11 1 1 66 55 377 20 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Size mm 25 30 75 33 30 75 28 20 44 40 40 55 355 2 2 18 425 33 5 2 2 18 20 2 12	ving % Passing 100 100 100 100 100 96 93 87 82 80 79 78 76 74 74 70 68 65 62	Sedim Particle Size mm 0.0575 0.0311 0.0167 0.0095 0.0028 0.0028 0.0028 0.00167 0.0028	entation % Passin 53 46 37 28 22 14 14	ticle Size	mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sample, poortions	mm mm mm		2868 % dry mass 0 24 24 52 52 0.168 0.0109
0 0.001 Particle 11: 99 77 66 55 377 22 2 11 11 66 55 377 22 11 11 66 55 377 22 11 11 66 55 377 22 11 11 66 55 377 22 11 11 11 66 55 377 22 11 11 11 11 11 11 11 11 11 11 11 11	Size mm 25 30 0 75 33 50 7 5 8 8 20 4 4 0 0 .3 35 2 1 8 1 8 .6 6 .3 2 12 1 5	ving % Passing 100 100 100 100 100 96 93 87 82 80 79 78 82 80 79 78 76 74 74 70 68 65 65 62 59	Sedim Particle Size mm 0.0575 0.0311 0.0167 0.0095 0.0028 0.0028 0.0028 0.00167 0.0028	entation % Passin 53 46 37 28 22 14 14	ticle Size	mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sample, poortions	mm mm mm		2868 % dry mass 0 24 24 52 52 0.168 0.0109
0 0.001 Particle 11: 99 77 66 55 377 22 2 11 11 66 55 377 22 11 11 66 55 377 22 11 11 66 55 377 22 11 11 66 55 377 22 11 11 11 66 55 377 22 11 11 11 11 11 11 11 11 11 11 11 11	Size mm 25 30 75 33 30 75 28 20 44 40 40 55 355 2 2 18 425 33 5 2 2 18 20 2 12	ving % Passing 100 100 100 100 100 96 93 87 82 80 79 78 76 74 74 70 68 65 62	Sedim Particle Size mm 0.0575 0.0311 0.0167 0.0095 0.0028 0.0028 0.0028 0.00167 0.0028	entation % Passin 53 46 37 28 22 14 14	ticle Size	mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 D100 D100 D100 D100 D100 D100 D100 D10	Mass of sample, portions	mm mm mm		2868 % dry mass 0 24 24 52 52 0.168 0.0109
0 0.001 Particle 11: 99 77 66 55 377 22 2 11 11 66 55 377 22 11 11 66 55 377 22 11 11 66 55 377 22 11 11 66 55 377 22 11 11 11 66 55 377 22 11 11 11 11 11 11 11 11 11 11 11 11	Size mm 25 30 0 75 33 50 7 5 8 8 20 4 4 0 0 .3 35 2 1 8 1 8 .6 6 .3 2 12 1 5	ving % Passing 100 100 100 100 100 96 93 87 82 80 79 78 82 80 79 78 76 74 74 70 68 65 62 59	Sedim Particle Size mm 0.0575 0.0311 0.0167 0.0095 0.0028	entation % Passin 53 46 37 28 22 14 14	ticle Size	mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 D100 D100 D100 D100 D100 D100 D100 D10	Mass of sample, poortions	mm mm mm		2868 % dry mass 0 24 24 52 52 0.168 0.0109

Contraction of the	CAUSEWAY		ARTICLE SIZE [Job Ref	14-645
1	GEOTECH					Borehole/Pit No.	BH121
Site N	lame	Greater Dublin D	Drainage Scheme Gr	ound Investigation	1	Sample No.	4
Soil Dr	escription	Stiff black sandy g	ravelly CLAY.			Depth, m	3.50
Specir	men Reference	11	Specimen Depth		m	Sample Type	В
Test N	vethod	BS1377:Part 2:199	0, clauses 9.2 and 9.5			KeyLAB ID	14645BH121B4
	CLAY	SILT e Medium	Coarse Fine	SAND Medium Coar	se Fine	GRAVEL Medium Coarse	COBBLES BOULDERS
100	0						
90	0						
80	0						
70	0						
	o 				1		
50							
`							
40	0						
30	0						
20	0						
10	0						
	0.001	0.01	0.1	1 Particle Size	e mm	10	100 100
	0.001	0.01	0.1 Sedimen		e mm		
F	0.001				e mm	10 Nass of sample, g	100 100 3718
F	0.001 Siev Particle Size mm 125	ving % Passing 100	Sedimen Particle Size mm 0.0584	tation % Passing 39	e mm Dry N Sample Prop	Nass of sample, g	3718 % dry mass
F	0.001 Siev Particle Size mm	ving % Passing	Sedimen Particle Size mm	tation % Passing	e mm Dry N	Nass of sample, g	3718
F	0.001 Siev Particle Size mm 125 90 75 63	ving % Passing 100 100 100 100	Sedimen Particle Size mm 0.0584 0.0317 0.0170 0.0096	tation % Passing 39 32 25 19	e mm Dry N Sample Prop Very coarse	Nass of sample, g	3718 % dry mass 0
F	0.001 Sieu Particle Size mm 125 90 75 63 50 37.5	ving % Passing 100 100 100 100 100 100	Sedimen Particle Size mm 0.0584 0.0317 0.0170	tation % Passing 39 32 25	e mm Dry N Sample Prop Very coarse Gravel	Mass of sample, g	3718 % dry mass 0 35
F	0.001 Sieu Particle Size mm 125 90 75 63 50	ving % Passing 100 100 100 100 100 100 93	Sedimen Particle Size mm 0.0584 0.0317 0.0170 0.0096 0.0056	tation % Passing 39 32 25 19 16	e mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063	Mass of sample, g	3718 % dry mass 0 35 27
F	0.001 Siev Particle Size mm 125 90 75 63 50 37.5 28 20 14	ving % Passing 100 100 100 100 100 100 93 90 81	Sedimen Particle Size mm 0.0584 0.0317 0.0170 0.0096 0.0056	tation % Passing 39 32 25 19 16	e mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100	Mass of sample, g	3718 % dry mass 0 35 27 39
F	0.001 Siev Particle Size mm 125 90 75 63 50 37.5 28 20	ving % Passing 100 100 100 100 100 100 93 90	Sedimen Particle Size mm 0.0584 0.0317 0.0170 0.0096 0.0056	tation % Passing 39 32 25 19 16	e mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana	Mass of sample, g	3718 % dry mass 0 35 27
F	0.001 Sieve Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5	ving % Passing 100 100 100 100 100 93 90 81 78 75 73	Sedimen Particle Size mm 0.0584 0.0317 0.0170 0.0096 0.0056	tation % Passing 39 32 25 19 16	e mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	Mass of sample, g	3718 % dry mass 0 35 27 39 39 1.03 0.0256 0.00291
F	0.001 Siev Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3	ving % Passing 100 100 100 100 100 100 93 93 90 81 78 75	Sedimen Particle Size mm 0.0584 0.0317 0.0170 0.0096 0.0056	tation % Passing 39 32 25 19 16	e mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30	Mass of sample, g	3718 % dry mass 0 35 27 39 39
F	0.001 Sieve Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18	ving % Passing 100 100 100 100 100 93 90 81 78 75 73 73 70 66 61	Sedimen Particle Size mm 0.0584 0.0317 0.0170 0.0096 0.0028 0.0028 0.0028 0.0028	tation % Passing 39 32 25 19 16 10	e mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co	Mass of sample, g	3718 % dry mass 0 35 27 39 39 1.03 0.0256 0.00291 360
F	0.001 Siev Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2	ving % Passing 100 100 100 100 93 90 81 78 75 73 73 70 66 61 55 53	Sediment Particle Size mm 0.0584 0.0317 0.0096 0.0096 0.0028	tation % Passing 39 32 25 19 16	e mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co	Mass of sample, g	3718 % dry mass 0 35 27 39 1.03 0.0256 0.00291 360 0.22
F	0.001 Sieve Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3	ving % Passing 100 100 100 100 93 90 81 78 75 73 73 70 66 61 55 53 49	Sediment Particle Size mm 0.0584 0.0317 0.0096 0.0096 0.0028	tation % Passing 39 32 25 19 16 10	e mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co	Mass of sample, g	3718 % dry mass 0 35 27 39 1.03 0.0256 0.00291 360 0.22
F	0.001 Sieve Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15	ving % Passing 100 100 100 100 100 93 90 81 78 75 73 70 66 61 55 53 49 47 44	Sediment Particle Size mm 0.0584 0.0317 0.0096 0.0096 0.0028	tation % Passing 39 32 25 19 16 10	e mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co	Mass of sample, g	3718 % dry mass 0 35 27 39 1.03 0.0256 0.00291 360 0.22
F	0.001 Sieve Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212	ving % Passing 100 100 100 100 93 90 81 78 75 73 73 70 66 61 55 53 49 49 47	Sediment Particle Size mm 0.0584 0.0317 0.0096 0.0096 0.0028	tation % Passing 39 32 25 19 16 10	e mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co	Mass of sample, g	3718 % dry mass 0 35 27 39 1.03 0.0256 0.00291 360 0.22
F	0.001 Sieve Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15	ving % Passing 100 100 100 100 100 93 90 81 78 75 73 70 66 61 55 53 49 47 44	Sediment Particle Size mm 0.0584 0.0317 0.0096 0.0096 0.0028	tation % Passing 39 32 25 19 16 10	e mm Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks Preparation and	Mass of sample, g	3718 % dry mass 0 35 27 39 1.03 0.0256 0.00291 360 0.22

67.0 C	CAUSEW	AY		DADT	ICLE SIZE	ופופדפוח			Job Ref		14-645
197 V	GEOTI	СН		PARI	ICLE SIZE	DISTRIB	UTION		Borehole/Pit No.		BH122
Site N	lame		Greater Dub	lin Draina	age Scheme	Ground Inve	stigation		Sample No.		B01
Soil D	escription		Brown firm to	stiff grave	lly CLAY with	occasional co	bbles and b	oulders.	Depth, m		0.20
Specir	men Refere	nce	12		Specimer Depth	1		m	Sample Type		В
Test N	Vethod		BS1377:Part 2	2:1990, cla	uses 9.2 and 9).5			KeyLAB ID	1494	45BH122B01
	CLAY	Fin	SILT e Mediun	n Coars	se Fine	SAND Medium	Coarse	Fine	GRAVEL Medium Coarse	COBBLES	BOULDERS
100	°						r m	TIT			
90	0			_						4	
80											
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20	0										
1(0										
	Ĭ	•									
	0.001		0.01		0.1		1		10	100	100
							1 rticle Size	mm	10	100	100
F	0.001		ving		Sedim	entation	rticle Size		10 Mass of sample, g	100	6324
F	0.001 Particle Size		ving % Passing	g Pari	Sedim ticle Size mm	entation % Passir	rticle Size	Dry N	Nass of sample, g		6324
F	0.001 Particle Size 125		ving % Passing 100	g Pari	Sedimo ticle Size mm 0.0575	entation % Passir 35	rticle Size	Dry N Sample Proj	Nass of sample, g		6324 6 dry mass
F	0.001 Particle Size		ving % Passing	g Part	Sedim ticle Size mm	entation % Passir	rticle Size	Dry N	Nass of sample, g		6324
F	0.001 Particle Size 125 90 75 63		ving % Passing 100 100 100 100	g Pari	Sedim ticle Size mm 0.0575 0.0313 0.0168 0.0095	entation % Passir 35 30 24 19	rticle Size	Dry N Sample Prop Very coarse	Nass of sample, g		6324 6 dry mass 0
F	0.001 Particle Size 125 90 75 63 50		ving % Passing 100 100 100 100 90	g Part	Sedim ticle Size mm 0.0575 0.0313 0.0168 0.0095 0.0056	entation % Passir 35 30 24 19 14	rticle Size	Dry N Sample Proj Very coarse Gravel Sand	Mass of sample, g		6324 6 dry mass 0 43 22
F	0.001 Particle Size 125 90 75 63		ving % Passing 100 100 100 100	g Pari	Sedim ticle Size mm 0.0575 0.0313 0.0168 0.0095	entation % Passir 35 30 24 19	rticle Size	Dry N Sample Prop Very coarse Gravel	Mass of sample, g		6324 6 dry mass 0 43
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20		ving % Passing 100 100 100 100 90 86 82 82 77	g Part	Sedim ticle Size mm 0.0575 0.0313 0.0168 0.0095 0.0056	entation % Passir 35 30 24 19 14	rticle Size	Dry N Sample Prog Very coarse Gravel Sand Fines <0.063 Grading Ana	Mass of sample, g		6324 6 dry mass 0 43 22
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14		ving % Passing 100 100 100 100 90 86 82 82 77 69	g Part	Sedim ticle Size mm 0.0575 0.0313 0.0168 0.0095 0.0056	entation % Passir 35 30 24 19 14	rticle Size	Dry N Sample Prog Very coarse Gravel Sand Fines <0.063 Grading Ana D100	Mass of sample, g portions Smm alysis m	%	6324 6 dry mass 0 43 22 35
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20		ving % Passing 100 100 100 100 90 86 82 82 77	g Pari	Sedim ticle Size mm 0.0575 0.0313 0.0168 0.0095 0.0056	entation % Passir 35 30 24 19 14	rticle Size	Dry N Sample Prog Very coarse Gravel Sand Fines <0.063 Grading Ana	Mass of sample, g	%	6324 6 dry mass 0 43 22
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5		ving % Passing 100 100 100 90 86 82 77 69 67	g Part	Sedim ticle Size mm 0.0575 0.0313 0.0168 0.0095 0.0056	entation % Passir 35 30 24 19 14	rticle Size	Dry N Sample Prog Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	Mass of sample, g	%	6324 6 dry mass 0 43 22 35 35 3.26 0.0319 0.00306
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35		ving % Passing 100 100 100 90 86 82 77 69 67 69 67 64 63 60	g Pari	Sedim ticle Size mm 0.0575 0.0313 0.0168 0.0095 0.0056	entation % Passir 35 30 24 19 14	rticle Size	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity O	Mass of sample, g	%	6324 6 dry mass 0 43 22 35 35 3.26 0.0319 0.00306 1100
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2		ving % Passing 100 100 100 90 86 82 77 69 67 69 67 64 63 63 60 57	g Part	Sedim ticle Size mm 0.0575 0.0313 0.0168 0.0095 0.0056	entation % Passir 35 30 24 19 14	rticle Size	Dry N Sample Prog Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	Mass of sample, g	%	6324 6 dry mass 0 43 22 35 35 3.26 0.0319 0.00306
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35		ving % Passing 100 100 100 90 86 82 77 69 67 69 67 64 63 60		Sedim ticle Size mm 0.0575 0.0313 0.0168 0.0095 0.0056	entation % Passir 35 30 24 19 14	rticle Size	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity O	Mass of sample, g	%	6324 6 dry mass 0 43 22 35 35 3.26 0.0319 0.00306 1100
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 0.425		ving % Passing 100 100 100 90 86 82 77 69 67 67 69 67 67 69 67 64 63 60 57 54 50 48		Sedima ticle Size mm 0.0575 0.0313 0.0168 0.0095 0.0056 0.0028	entation % Passin 35 30 24 19 14 9	rticle Size	Dry N Sample Prog Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sample, g	m m m	6324 6 dry mass 0 43 22 35 35 3.26 0.0319 0.00306 1100 0.1
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 2 1.18 0.6 0.425 0.3		ving % Passing 100 100 100 90 86 82 77 69 67 67 69 67 67 64 63 60 57 54 50 48 45		Sedimo ticle Size mm 0.0575 0.0313 0.0168 0.0095 0.0028 0.0028	entation % Passin 35 30 24 19 14 9 	rticle Size	Dry N Sample Prog Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sample, g	m m m	6324 6 dry mass 0 43 22 35 35 3.26 0.0319 0.00306 1100 0.1
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 0.425		ving % Passing 100 100 100 90 86 82 77 69 67 67 69 67 67 69 67 64 63 60 57 54 50 48		Sedimo ticle Size mm 0.0575 0.0313 0.0168 0.0095 0.0028 0.0028	entation % Passin 35 30 24 19 14 9 	rticle Size	Dry N Sample Prog Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sample, g	m m m	6324 6 dry mass 0 43 22 35 35 3.26 0.0319 0.00306 1100 0.1
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 2 1.18 0.6 0.425 0.3 0.212		ving % Passing 100 100 100 90 86 82 77 69 67 67 64 63 67 64 63 60 57 54 50 48 45 43		Sedimo ticle Size mm 0.0575 0.0313 0.0168 0.0095 0.0028 0.0028	entation % Passin 35 30 24 19 14 9 	rticle Size	Dry N Sample Prog Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sample, g	m m m	6324 6 dry mass 0 43 22 35 35 3.26 0.0319 0.00306 1100 0.1
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 2 1.18 0.6 0.425 0.3 0.212 0.15		ving % Passing 100 100 100 90 86 82 77 69 67 67 69 67 64 63 63 60 57 54 50 54 50 48 45 43 40 35	Par	Sedimo ticle Size mm 0.0575 0.0313 0.0168 0.0095 0.0028 0.0028	entation % Passin 35 30 24 19 14 9 	rticle Size	Dry N Sample Pro Very coarse Gravel Sand Fines <0.063 Fines <0.063 D100 D60 D30 D100 Uniformity C Curvature Co Remarks Preparation and	Mass of sample, g	m m m	6324 6 dry mass 0 43 22 35 35 3.26 0.0319 0.00306 1100 0.1
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 2 1.18 0.6 0.425 0.3 0.212 0.15		ving % Passing 100 100 100 90 90 86 82 77 69 67 64 63 60 57 54 63 60 57 54 50 48 45 43 40	Par	Sedimo ticle Size mm 0.0575 0.0313 0.0168 0.0095 0.0028 0.0028	entation % Passin 35 30 24 19 14 9 	rticle Size	Dry N Sample Pro Very coarse Gravel Sand Fines <0.063 Fines <0.063 D100 D60 D30 D100 Uniformity C Curvature Co Remarks Preparation and	Mass of sample, g	m m m	6 dry mass 0 43 22 35 3.26 0.0319 0.00306 1100 0.1







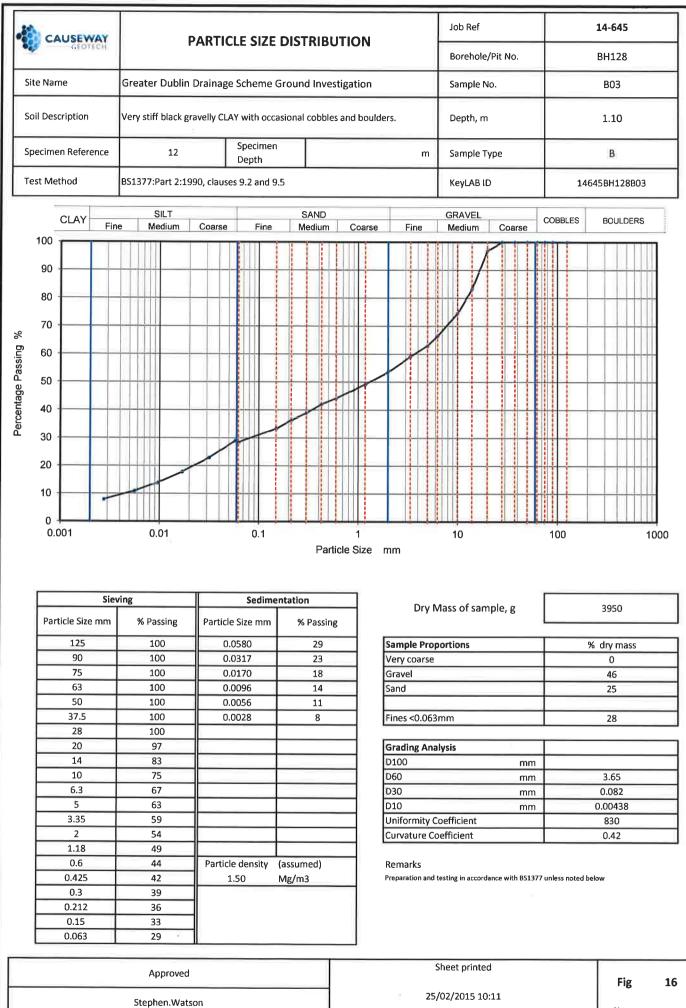
	CAUSEW					DIGTO				Job Ref		14-645
-	GLOT	ECH		PARTICI	LE SIZE	DISTRI	BOLI	ON		Borehole/Pit No.		BH124
Sit	e Name		Greater Dublin	Drainage	Scheme	Ground In	vestiga	tion		Sample No.		1
So	il Description		Firm brown grave	elly CLAY						Depth, m		0.00
Sp	ecimen Refere	ence	12		Specimen Depth				m	Sample Type		В
Те	st Method		BS1377:Part 2:19	90, clauses	9.2 and 9	.5				KeyLAB ID	146	45BH124B1
	CLAY	Fin	SILT e Medium	Coarse	Fine	SANI Mediu		Coarse	Fine	GRAVEL Medium Coarse	COBBLES	BOULDERS
	¹⁰⁰ 90											
	80											
	70							-				
sing %	60											
Percentage Passing	50											
ercenta	40											
ď	30							+				
	20	-										
	10											
	0.001		0.01	T	0.1		article	1 Size	mm	10	100	1000
	Particle Size	Siev mm	% Passing	Particle	Sedime Size mm	ntation % Pas	sing		Dry N	lass of sample, g		2706
	125		100	0.0	567	46	- i		Sample Prop	oortions	%	dry mass
	90 75		100		309 167	40	_		Very coarse Gravel			0 23
	63		100	0.0	094	24			Sand			30
	50 37.5		100		056 028	19 13	-		Fines < 0.063	mm		46
	28 20		99 96					1			1	
	14		96					1	Grading Ana D100	lysis mm		
	10		90					1	D60	mm		0.283
	6.3 5		86 84					-	D30 D10	mm		0.0154
	3.35		81					1	Uniformity C	oefficient		
	2		77					1	Curvature Co			
	1.18		73 67	Particle	density	(assumed)		{	Remarks			
	0.425		64			Mg/m3				testing in accordance with BS1377	7 unless noted bel	ow
	0.3	_	61					1				
	0.212		57									
	0.063		46	1								
			Approved						2	Sheet printed		Fig 1
			Stephen.Wats	ion					25,	/02/2015 10:11		_
		-			_							Sheet

Post	CAUSEW	AY			DAD	TICI		¢176		חדי				R I				J	ob R	ef							1	4-6	45			
1 97	GEOTE	CH			PAN	RTICL		SIZE			(IB	UI	IU	IN				E	orel	nole/	/Pit l	No.					E	9H1	25			
Site	Name		Great	er Dubli	in Drai	nage	Sch	eme	Grou	nd I	Inve	estig	gati	on				s	amp	le N	о.							3				
Soil I	Description		Very s	tiff black	sandy	gravell	ly CL	LAY,										C	ept	ъ, m								3.5	0			
Spec	cimen Refere	nce		6			Spe Dep	cime oth	ı	T							m	s	amp	le T	ype	_						в				
Test	Method		BS137	7:Part 2:	1990, o	lauses	s 9.2	and	9.5									ĸ	ley∟	AB ID)					14	464	5BH	112	583	3	
	CLAY	Fin		SILT Medium	6	arse	-	Fine		SA Mec			Co	arse		Fine			RAV		C	oars	e	со	BBLE	ES		BO	ULD	DERS	6	
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	0 0.001			0.01				0.1			Pa	Inticl	1 e S	ize	mm				10					1	00						10	000
Г		Sie	ving	0.01					entat	ion	Pa	urticle	1 e S	ize	mm									1	00						10	000
F			ving %	0.01 Passing	P	article	S	Sedim	entat	ion % P			1 e S	ize	mm		Dry I			san	nple	, g		1	00			440	69		10	
-	0.001				P		S Size	Gedim	entat	% P			1 e S	ize		C		Mas	s of		nple	, g		1	00		%	44e dry		ass	1(
	0.001 Particle Size 125 90			Passing 100 100	P	0.0	S Size 0580 0315	Sedim e mm	entat	% P	assi 33 28		1 e S	ize	Sar Ver	D nple Ty coa	Pro	Mas	s of		nple	, g			00		%	dry 0	ma)	ass	10	
	0.001 Particle Size 125 90 75			Passing 100 100 100	P	0.0	S Size 0580 0315 0168	e mm	entat	% P	assi 33 28 23		1 e S	ize	Sar Ver Gra	n ple y coa	Pro	Mas	s of		nple	, g			00		%	dry 0 4!	ma) 5	ass	10	
	0.001 Particle Size 125 90			Passing 100 100	P	0.0 0.0 0.0	S Size 0580 0315	e mm	entat	% P	assi 33 28			ize	Sar Ver	n ple y coa	Pro	Mas	s of		nple	, g			00		%	dry 0	ma) 5	ass	10	
	0.001 Particle Size 125 90 75 63 50 37.5			Passing 100 100 100 100 100 97	P	0.0 0.0 0.0 0.0	s Size 5580 0315 0168 0095	e mm	entat	% P	assi 33 28 23 18		1 e S	ize	Sar Ver Gra Sar	n ple y coa	Pro arse	Mas	s of		nple	, g			00		%	dry 0 4!	ma) 5 1	ass	10	
	0.001 Particle Size 125 90 75 63 50 37.5 28			Passing 100 100 100 100 100 97 93	P	0.0 0.0 0.0 0.0	S 2580 2315 2168 2095 2056	e mm	entat	% P	assi 33 28 23 18 14		1 e S	ize	Sar Ver Gra Sar Fin	E nple y cos nvel nd es <0	Pro arse	Mas port	s of		nple	, g			00		%	dry 0 4! 2:	ma) 5 1	ass	10	
	0.001 Particle Size 125 90 75 63 50 37.5			Passing 100 100 100 100 97 93 89	P	0.0 0.0 0.0 0.0	S 2580 2315 2168 2095 2056	e mm	entat	% P	assi 33 28 23 18 14		1 e S	ize	Sar Ver Graa Sar Fin	E nple y coa nd es <0	Pro arse	Mas port	s of		nple				00		%	dry 0 4! 2:	ma) 5 1	ass	10	
	0.001 Particle Size 125 90 75 63 50 37.5 28 20			Passing 100 100 100 100 100 97 93	P	0.0 0.0 0.0 0.0	S 2580 2315 2168 2095 2056	e mm	entat	% P	assi 33 28 23 18 14			ize	Sar Ver Gra Sar Fin	nple y coa ad es <0 ading	Pro arse	Mas port	s of		nple		mm		00			dry 0 4! 3: 3:	ma) 5 1 3		10	
	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3			Passing 100 100 100 100 97 93 89 89 82 71 64	P	0.0 0.0 0.0 0.0	S 2580 2315 2168 2095 2056	e mm	entat	% P	assi 33 28 23 18 14			lize	Sar Gra Sar Fin D10 D30	Provide the second seco	Pro arse	Mas port	s of		nple		mm mm		00			dry 0 4! 2: 33 4.0	ma) 5 1 3 3 06 389)		
	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5			Passing 100 100 100 100 97 93 89 82 71 64 62	P	0.0 0.0 0.0 0.0	S 2580 2315 2168 2095 2056	e mm	entat	% P	assi 33 28 23 18 14			lize	Sar Gra Sar Fin D10 D30 D10	Provide the second seco	Pro arse	Mas port 3mn alysi	s of ions		nple		mm		00			dry 0 4! 2: 33 4.0 0.03	ma) 5 1 3 06 389)		
	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3			Passing 100 100 100 100 97 93 89 89 82 71 64	P	0.0 0.0 0.0 0.0	S 2580 2315 2168 2095 2056	e mm	entat	% P	assi 33 28 23 18 14			lize	Sar Ver Gra Sar Fin D10 D30 D10 D30 D10 Un	۲ mple y co: ivel id es <0 ading ading 00 0 0 0 0 0 0 0 0 0 0 0 0	Pro arse).063 ; An	Mas port 3mn alysi	s of ions	nt	nple		mm mm		00			dry 0 4! 2: 33 4.0	ma 5 1 3 06 389 0348)		
	0.001 Particle Size 125 90 75 63 75 63 50 37.5 28 20 14 10 6.3 5 5 3.35 2 3.35 2 1.18			Passing 100 100 100 97 93 89 82 71 64 62 59 55 51			Size Size 5580 0315 0095 00056 0028	Sedim e mm) 5 3 5 5 3 3 		% P	assi 33 28 23 18 14 8			ize	Sar Ver Gra Sar Fin D10 D30 D10 D30 D10 Un	Provide the second seco	Pro arse).063 ; An	Mas port 3mn alysi	s of ions	nt	nple		mm mm		00			dry 0 4! 2: 33 4.0 0.03 0.00 120	ma 5 1 3 06 389 0348)		
	0.001 Particle Size 125 90 75 63 75 63 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6			Passing 100 100 100 97 93 89 82 71 64 62 59 55 51 47		0.0 0.0 0.0 0.0 0.0	\$ 2580 0580 00315 0056 0028	Sedim e mm) 5 3 5 5 3 3 	(ass	% P	assi 33 28 23 18 14 8			lize	Sar Gra Sar Fin D10 D10 D10 D10 D10 D10 D10 D10 D10 D10	nple y co: wel ad es <0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Pro arse).063 ; Ana hity (re C	Mass port 3mn alys Coeff	s of ions is ficier	nt			mm mm				(dry 0 4! 2: 33 4.0 0.03 0.00 120 0.1	ma 5 1 3 06 389 0348)		
	0.001 Particle Size 125 90 75 63 37.5 28 20 14 10 6.3 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 5 0.425			Passing 100 100 100 97 93 89 82 71 64 62 59 55 51 47 45		0.0 0.0 0.0 0.0 0.0	Size Size 5580 0315 0095 00056 0028	Sedim e mm) 5 3 5 5 3 3 		% P	assi 33 28 23 18 14 8			lize	Sar Gra Sar Fin D10 D10 D10 D10 D10 D10 D10 D10 D10 D10	E nple y coa ivel id es <0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Pro arse).063 ; Ana hity (re C	Mass port 3mn alys Coeff	s of ions is ficier	nt			mm mm			noted	(dry 0 4! 2: 33 4.0 0.03 0.00 120 0.1	ma 5 1 3 06 389 0348)		
	0.001 Particle Size 125 90 75 63 75 63 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6			Passing 100 100 100 97 93 89 82 71 64 62 59 55 51 47		0.0 0.0 0.0 0.0 0.0	\$ 2580 0580 00315 0056 0028	Sedim e mm) 5 3 5 5 3 3 	(ass	% P	assi 33 28 23 18 14 8			lize	Sar Gra Sar Fin D10 D10 D10 D10 D10 D10 D10 D10 D10 D10	nple y co: wel ad es <0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Pro arse).063 ; Ana hity (re C	Mass port 3mn alys Coeff	s of ions is ficier	nt			mm mm			noted	(dry 0 4! 2: 33 4.0 0.03 0.00 120 0.1	ma 5 1 3 06 389 0348)		
	0.001 Particle Size 125 90 75 63 37.5 28 20 14 10 6.3 5 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15			Passing 100 100 100 97 93 89 82 71 64 62 59 55 51 47 45 43 41 38		0.0 0.0 0.0 0.0 0.0	\$ 2580 0580 00315 0056 0028	Sedim e mm) 5 3 5 5 3 3 	(ass	% P	assi 33 28 23 18 14 8			lize	Sar Gra Sar Fin D10 D10 D10 D10 D10 D10 D10 D10 D10 D10	nple y co: wel ad es <0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Pro arse).063 ; Ana hity (re C	Mass port 3mn alys Coeff	s of ions is ficier	nt			mm mm			noted	(dry 0 4! 2: 33 4.0 0.03 0.00 120 0.1	ma 5 1 3 06 389 0348)		
	0.001 Particle Size 125 90 75 63 37.5 28 20 14 10 6.3 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 6 0.425 0.3 1			Passing 100 100 100 97 93 89 82 71 64 62 59 55 51 47 45 43 41		0.0 0.0 0.0 0.0 0.0	\$ 2580 0580 00315 0056 0028	Sedim e mm) 5 3 5 5 3 3 	(ass	% P	assi 33 28 23 18 14 8			ize	Sar Gra Sar Fin D10 D10 D10 D10 D10 D10 D10 D10 D10 D10	nple y co: wel ad es <0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Pro arse).063 ; Ana hity (re C	Mass port 3mn alys Coeff	s of ions is ficier	nt			mm mm			voted	(dry 0 4! 2: 33 4.0 0.03 0.00 120 0.1	ma 5 1 3 06 389 0348)		
	0.001 Particle Size 125 90 75 63 37.5 28 20 14 10 6.3 5 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15			Passing 100 100 100 97 93 89 82 71 64 62 59 55 51 47 45 43 41 38 33		0.0 0.0 0.0 0.0 0.0	\$ 2580 0580 00315 0056 0028	Sedim e mm) 5 3 5 5 3 3 	(ass	% P	assi 33 28 23 18 14 8			lize	Sar Gra Sar Fin D10 D10 D10 D10 D10 D10 D10 D10 D10 D10	nple y co: wel ad es <0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Pro arse).063 ; Ana ; Ana re C	Mass port	s of	nt	Jance		mm mm			noted	(dry 0 4! 2: 33 4.0 0.03 0.00 120 0.1	ma 5 1 3 06 389 0348)		
	0.001 Particle Size 125 90 75 63 37.5 28 20 14 10 6.3 5 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15			Passing 100 100 100 97 93 89 82 71 64 62 59 55 51 47 45 43 41 38		0.0 0.0 0.0 0.0 0.0	\$ 2580 0580 00315 0056 0028	Sedim e mm) 5 3 5 5 3 3 	(ass	% P	assi 33 28 23 18 14 8			lize	Sar Gra Sar Fin D10 D10 D10 D10 D10 D10 D10 D10 D10 D10	nple y co: wel ad es <0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Pro arse).063 ; Ana ; Ana re C	Mass port	s of	nt	Jance		mm mm			noted	(dry 0 4! 2: 33 4.0 0.03 0.00 120 0.1	ma) 5 1 3 3 00 11)		

CAUSEV	VAY		PARTICLE SIZI				Job Ref			14-645
George George	(ECH						Borehole,	/Pit No.		BH127
Site Name		Greater Dublin	Drainage Scheme	Ground Inv	estigation		Sample N	lo.		1
Soil Description		Stiff brown grey	sandy gravelly CLAY				Depth, m			0.30
Specimen Refer	ence	12	Specime Depth	n		m	Sample T	уре		В
Test Method		B\$1377:Part 2:19	990, clauses 9.2 and	9.5			KeyLAB II	D	14	4645BH127B1
CLAY	Fin	SILT Nedium	Coarse Fine	SAND Medium	Coarse	Fine	GRAVEL Medium	Coarse	COBBLES	BOULDERS
100				TIT				MI	m	
90										
80										
70									111	
		<u> </u>				_				
50										
40										
60 50 40 30										
30										
20						_				
10	-									
0 0.001		0.01	0.1	Pa	1 rticle Size	mm	10		100	100
	61-0				•	mm	10		100	100
0.001		ving	Sedim	entation	rticle Size		10 Nass of sam	nple, g	100	2277
0.001 Particle Size				entation	rticle Size	Dry N	Nass of sam	nple, g	100	
0.001 Particle Size		ving % Passing 100	Particle Size mm	entation % Passi 60	rticle Size	Dry N Sample Prop	Nass of sam	nple, g		2277 % dry mass
0.001 Particle Size 125 90		ving % Passing 100 100	Particle Size mm 0.0584 0.0319	entation % Passi 60 50	rticle Size	Dry N Sample Prop Very coarse	Nass of sam	nple, g		2277 % dry mass 0
0.001 Particle Size 125 90 75 63		ving % Passing 100	Particle Size mm	entation % Passi 60	rticle Size	Dry N Sample Prop	Nass of sam	nple, g		2277 % dry mass
0.001 Particle Size 90 75 63 50		ving % Passing 100 100 100 100 100	Sedim Particle Size mm 0.0584 0.0319 0.0172 0.0097 0.0058	entation % Passi 60 50 37 27 18	rticle Size	Dry N Sample Prop Very coarse Gravel Sand	Nass of sam	nple, g		2277 % dry mass 0 16 24
0.001 Particle Size 125 90 75 63		ving % Passing 100 100 100 100	Sedim Particle Size mm 0.0584 0.0319 0.0172 0.0097	entation % Passi 60 50 37 27	rticle Size	Dry N Sample Prop Very coarse Gravel	Nass of sam	nple, g		2277 % dry mass 0 16
0.001 Particle Size 125 90 75 63 50 37.5 28 20		ving % Passing 100 100 100 100 100 100 99 98	Sedim Particle Size mm 0.0584 0.0319 0.0172 0.0097 0.0058	entation % Passi 60 50 37 27 18	rticle Size	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana	Nass of sam	nple, g		2277 % dry mass 0 16 24
0.001 Particle Size 125 90 75 63 50 37.5 28 20 14		ving % Passing 100 100 100 100 100 99 98 98 94	Sedim Particle Size mm 0.0584 0.0319 0.0172 0.0097 0.0058	entation % Passi 60 50 37 27 18	rticle Size	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100	Nass of sam	mm		2277 % dry mass 0 16 24 60
0.001 Particle Size 125 90 75 63 50 37.5 28 20		ving % Passing 100 100 100 100 100 100 99 98	Sedim Particle Size mm 0.0584 0.0319 0.0172 0.0097 0.0058	entation % Passi 60 50 37 27 18	rticle Size	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60	Nass of sam	mm		2277 % dry mass 0 16 24 60 0.0571
0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5		ving % Passing 100 100 100 100 100 100 99 98 98 94 90 87 87 87	Sedim Particle Size mm 0.0584 0.0319 0.0172 0.0097 0.0058	entation % Passi 60 50 37 27 18	rticle Size	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	Aass of sam	mm		2277 % dry mass 0 16 24 60
0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35		ving % Passing 100 100 100 100 100 100 99 98 98 94 90 87 87 87 85	Sedim Particle Size mm 0.0584 0.0319 0.0172 0.0097 0.0058	entation % Passi 60 50 37 27 18	rticle Size	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C	Aass of sam	mm mm		2277 % dry mass 0 16 24 60 0.0571
0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5		ving % Passing 100 100 100 100 100 100 99 98 98 94 90 87 87 87	Sedim Particle Size mm 0.0584 0.0319 0.0172 0.0097 0.0058	entation % Passi 60 50 37 27 18	rticle Size	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	Aass of sam	mm mm		2277 % dry mass 0 16 24 60 0.0571
0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2		ving % Passing 100 100 100 100 100 99 98 98 94 90 87 87 87 87 87 87 85 84 82 79	Sedim Particle Size mm 0.0584 0.0319 0.0172 0.0097 0.0058	entation % Passi 60 50 37 27 18 12 	rticle Size	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C	Aass of sam	mm mm		% dry mass 0 16 24 60 0.0571
0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425	e mm	ving % Passing 100 100 100 100 99 98 94 90 87 87 87 87 87 85 85 84 82 79 79 77	Sedim Particle Size mm 0.0584 0.0319 0.0172 0.0097 0.0058 0.0028	entation % Passi 60 50 37 27 18 12 	rticle Size	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co	Aass of sam	mm mm mm		2277 % dry mass 0 16 24 60 0.0571 0.0116
0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6	e mm	ving % Passing 100 100 100 100 99 98 94 90 87 87 87 87 87 85 85 84 85 84 82 79 77 75	Sedim Particle Size mm 0.0584 0.0319 0.0072 0.0097 0.0058 0.0028	entation % Passi 60 50 37 27 18 12 	rticle Size	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Aass of sam	mm mm mm		2277 % dry mass 0 16 24 60 0.0571 0.0116
0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15	e mm	ving % Passing 100 100 100 100 100 100 99 98 98 94 94 90 87 87 85 87 87 85 87 87 87 79 77 75 72 69	Sedim Particle Size mm 0.0584 0.0319 0.0072 0.0097 0.0058 0.0028	entation % Passi 60 50 37 27 18 12 	rticle Size	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Aass of sam	mm mm mm		2277 % dry mass 0 16 24 60 0.0571 0.0116
0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212	e mm	ving % Passing 100 100 100 100 100 99 98 98 94 90 87 87 87 87 87 85 87 87 85 84 82 79 77 75 72	Sedim Particle Size mm 0.0584 0.0319 0.0072 0.0097 0.0058 0.0028	entation % Passi 60 50 37 27 18 12 	rticle Size	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Aass of sam	mm mm mm		2277 % dry mass 0 16 24 60 0.0571 0.0116
0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15	e mm	ving % Passing 100 100 100 100 100 100 99 98 98 94 94 90 87 87 85 87 87 85 87 87 87 79 77 75 72 69	Sedim Particle Size mm 0.0584 0.0319 0.0172 0.0097 0.0028 0.0028 0.0028 Particle density 1.50	entation % Passi 60 50 37 27 18 12 	rticle Size	Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks Preparation and the	Aass of sam	mm mm mm		2277 % dry mass 0 16 24 60 0.0571 0.0116

	CAUSEW	AY		ραρτις	1 F CI7F	DISTRIB			Job Ref			14-645
•39	Gtori	СН							Borehole/	Pit No.		BH127
Site	Name		Greater Dublin	n Drainage	e Scheme G	Ground Invo	estigation		Sample No).		3
Soil [Description		Very stiff black s	andy grave	elly CLAY.				Depth, m			2.50
Spec	cimen Refere	псе	12		Specimen Depth			m	Sample Ty	pe		В
Test	t Method		BS1377:Part 2:1	990, clause	es 9.2 and 9.	.5			KeyLAB ID		14	4645BH127B3
	CLAY	Fin	SILT Medium	Coarse	Fine	SAND Medium	Coarse	Fine	GRAVEL Medium	Coarse	COBBLES	BOULDERS
1(00											
ę	90											
8	80							_				
7	70											
2 20 a	60											
	00											
, f	50							_				
4	40											
) ; . ,	30											
	30											
2	20											<u></u>
	10	-										
	0											
						Pa	rticle Size	mm	10		100	100
Γ		Sie	ving		Sedime		rticle Size					
F	Particle Size		ving % Passing	Partic	Sedime	ntation			Mass of sam	ple, g		6617
	Particle Size		% Passing	_	e Size mm	ntation % Passi		Dry N	Mass of sam	ple, g		6617
	Particle Size 125 90			0.		ntation			Mass of sam	ple, g		
	125 90 75		% Passing 100 100 100	0.	e Size mm .0571 .0313 .0169	ntation % Passi 36 30 23		Dry N Sample Prop Very coarse Gravel	Mass of sam	ple, g		6617 % dry mass 0 40
	125 90 75 63		% Passing 100 100	0.	e Size mm .0571 .0313	ntation % Passi 36 30 23 19		Dry N Sample Prop Very coarse	Mass of sam	ple, g		6617 % dry mass 0
	125 90 75 63 50 37.5		% Passing 100 100 100 100 91 91	0.	e Size mm .0571 .0313 .0169 .0095	ntation % Passi 36 30 23		Dry N Sample Prop Very coarse Gravel	Mass of sam	ple, g		6617 % dry mass 0 40
	125 90 75 63 50 37.5 28		% Passing 100 100 100 91 91 88	0.	e Size mm .0571 .0313 .0169 .0095 .0056	ntation % Passi 36 30 23 19 15		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063	Mass of sam	ple, g		6617 % dry mass 0 40 23
	125 90 75 63 50 37.5 28 20 14		% Passing 100 100 100 91 91 88 88 84 76	0.	e Size mm .0571 .0313 .0169 .0095 .0056	ntation % Passi 36 30 23 19 15		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100	Mass of sam	ple, g		6617 % dry mass 0 40 23 36
	125 90 75 63 50 37.5 28 20 14 10		% Passing 100 100 100 91 91 88 88 84 76 72	0.	e Size mm .0571 .0313 .0169 .0095 .0056	ntation % Passi 36 30 23 19 15		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60	Mass of sam	mm		6617 % dry mass 0 40 23 36 2.08
	125 90 75 63 50 37.5 28 20 14		% Passing 100 100 100 91 91 88 88 84 76	0.	e Size mm .0571 .0313 .0169 .0095 .0056	ntation % Passi 36 30 23 19 15		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100	Mass of sam	mm		6617 % dry mass 0 40 23 36
	125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35		% Passing 100 100 100 91 91 88 84 76 72 68 66 64	0.	e Size mm .0571 .0313 .0169 .0095 .0056	ntation % Passi 36 30 23 19 15		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C	Mass of sam	mm mm		6617 % dry mass 0 40 23 36 36 2.08 0.0309 0.00302 690
	125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2		% Passing 100 100 100 91 91 88 84 76 72 68 66 64 60	0.	e Size mm .0571 .0313 .0169 .0095 .0056	ntation % Passi 36 30 23 19 15		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	Mass of sam	mm mm		6617 % dry mass 0 40 23 36 36 2.08 0.0309 0.00302
	125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35		% Passing 100 100 100 91 91 88 84 76 72 68 66 64		e Size mm .0571 .0313 .0169 .0095 .0056 .0028	ntation % Passi 36 30 23 19 15		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C	Mass of sam	mm mm		6617 % dry mass 0 40 23 36 2.08 0.0309 0.00302 690
	125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 2 1.18 0.6 0.425		% Passing 100 100 100 91 91 88 84 76 72 68 66 64 60 56 51 49	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	e Size mm .0571 .0313 .0169 .0095 .0056 .0028	ntation % Passi 36 30 23 19 15 9		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sam	mm mm mm		6617 % dry mass 0 40 23 36 36 2.08 0.0309 0.00302 690 0.15
	125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 2 1.18 0.6		% Passing 100 100 100 91 91 88 84 76 72 68 66 64 60 56 51	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	e Size mm .0571 .0313 .0169 .0095 .0056 .0028	ntation % Passi 36 30 23 19 15 9		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sam	mm mm mm		6617 % dry mass 0 40 23 36 36 2.08 0.0309 0.00302 690 0.15
	125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15		% Passing 100 100 100 91 91 88 84 76 72 68 66 64 60 56 51 49 47 45 42	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	e Size mm .0571 .0313 .0169 .0095 .0056 .0028	ntation % Passi 36 30 23 19 15 9		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sam	mm mm mm		6617 % dry mass 0 40 23 36 36 2.08 0.0309 0.00302 690 0.15
	125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 2 1.18 0.6 0.425 0.3 0.212		% Passing 100 100 100 91 91 88 84 76 72 68 66 64 60 56 51 49 47 45	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	e Size mm .0571 .0313 .0169 .0095 .0056 .0028	ntation % Passi 36 30 23 19 15 9		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sam	mm mm mm		6617 % dry mass 0 40 23 36 36 2.08 0.0309 0.00302 690 0.15
	125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15		% Passing 100 100 100 91 91 88 84 76 72 68 66 64 66 64 60 56 51 49 47 45 42 36	0.000000000000000000000000000000000000	e Size mm .0571 .0313 .0169 .0095 .0056 .0028	ntation % Passi 36 30 23 19 15 9		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 D10 D60 D30 D10 Uniformity C Curvature Co Remarks Preparation and	Mass of sam	mm mm mm		6617 % dry mass 0 40 23 36 2.08 0.0309 0.00302 690 0.15 below
	125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15		% Passing 100 100 100 91 91 88 84 76 72 68 66 64 60 56 51 49 47 45 42	0.000000000000000000000000000000000000	e Size mm .0571 .0313 .0169 .0095 .0056 .0028	ntation % Passi 36 30 23 19 15 9		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks Preparation and	Mass of sam	mm mm mm		% dry mass 0 40 23 36 2.08 0.0309 0.00302 690 0.15

10	CALIFERINA						Job Ref		14-645	٦
-	GEOTICH		PARTICLE SIZE	DISTRIB	UTION	N	Borehole/Pit No.		BH128	
Site	Name	Greater Dublin	Drainage Scheme	Ground Inve	estigatio	n	Sample No.		B02	
Soil	Description	Firm to stiff light	brown gravelly CLAY	with occasio	nal cobbl	es and boulders.	Depth, m		0.30	
Spee	cimen Reference	12	Specimer Depth			m	Sample Type		В	
Test	t Method	BS1377:Part 2:19	90, clauses 9.2 and 9).5			KeyLAB ID	1464	5BH128B02	
	CLAY	SILT ine Medium	Coarse Fine	SAND Medium	Соа	rse Fine	GRAVEL Medium Coarse	COBBLES	BOULDERS	
1	00									
	90									
	80									
	70									
%	10									
Percentage Passing	60									
Pas	50									
itage										
rcen	40									
Ре	30									
	20									
	20									
	10					-				
	0.001									
[Si	eving	Sedimo	entation	rticle Siz		flass of sample, g		2304	
	Particle Size mm	n % Passing	Particle Size mm	% Passi	ng	biyn	luss of sumple, g		2304	
t	125	100	0.0571	55		Sample Prop	ortions	%	dry mass	
ł	90 75	100	0.0311	47		Very coarse			0	_
ł	63	100	0.0166	40		Gravel Sand		-	14 30	-
1	50	100	0.0056	22						
-	37.5	100 93	0.0028	14		Fines < 0.063	mm		55	_
t	20	92				Grading Ana	lysis	1		
F	14	92				D100	mm		0.0040	
ŀ	10 6.3	91 89	-			D60 D30	mm mm		0.0943	-
t	5	88				D10	mm			
-	3.35	87				Uniformity C				
ŀ	2	86				Curvature Co	perficient	1		
Ľ	0.6	80	Particle density	(assumed)		Remarks				
F	0.425	78	1.50	Mg/m3		Preparation and	testing in accordance with BS13	77 unless noted belo	w	
-	0.3	75								
Ē	0.15	65								
Ľ	0.063	55								
		Approved				÷	Sheet printed		Fig	6
1		Stephen.Wats	son			25,	/02/2015 10:11		Sheet	



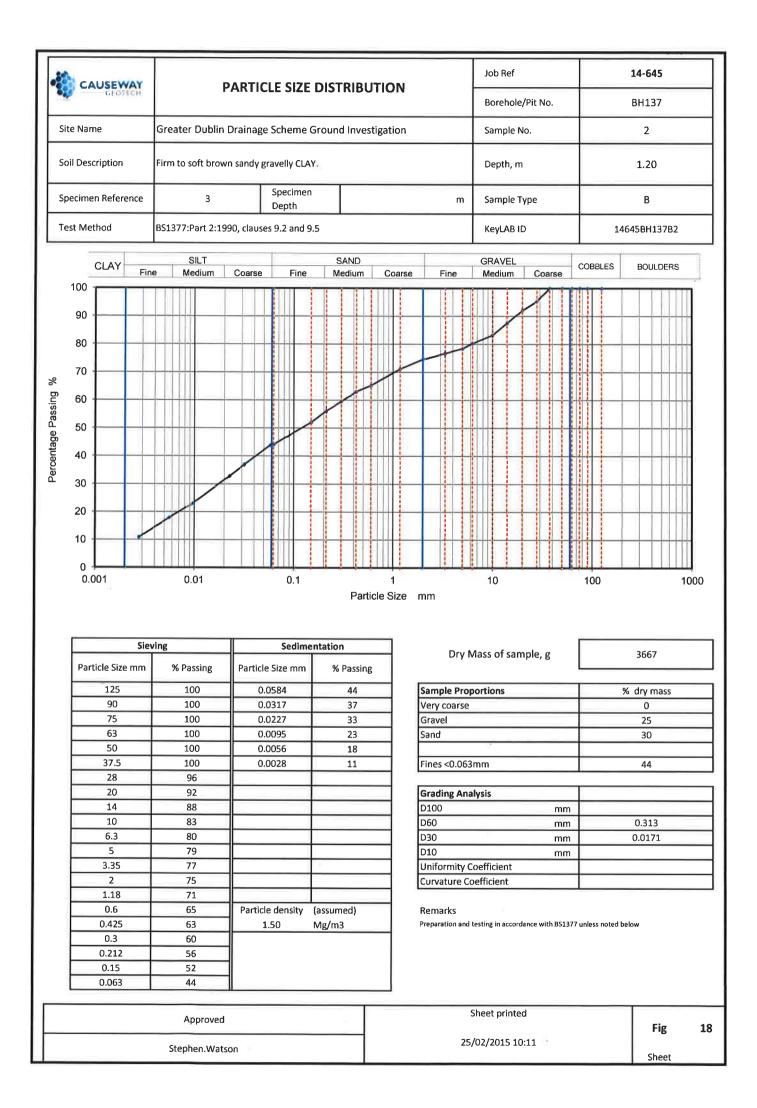
Sheet

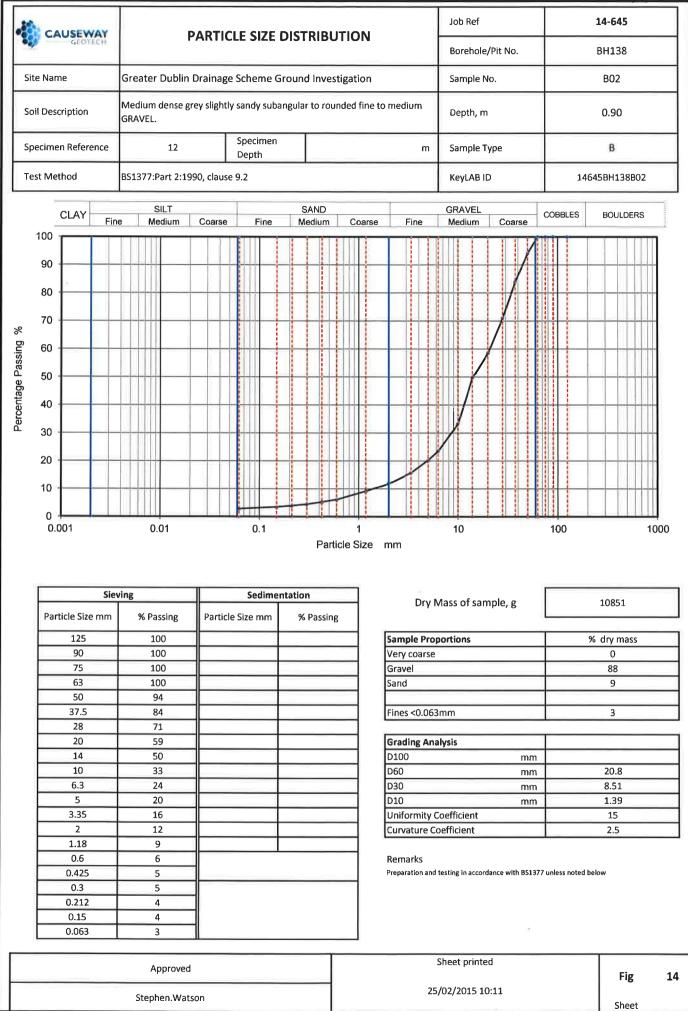
23	CAUSEWA	AY			I E C17E	DISTRIB			Job Ref		14-645
5	GIOTE	сн							Borehole/Pit No.		BH130
Site	Name		Greater Dublin	Drainage	Scheme (Ground Inv	estigation		Sample No.		2
Soil	Description		Firm brown mot	tled grey sl	ightly grave	elly CLAY:			Depth, m		1.20
Spe	cimen Referen	nce	6		Specimen Depth			m	Sample Type		В
Test	t Method		BS1377:Part 2:1	990, clause	s 9.2 and 9	.5			KeyLAB ID	140	645BH130B2
	CLAY	Fin	SILT e Medium	Coarse	Fine	SAND Medium	Coarse	Fine	GRAVEL Medium Coarse	COBBLES	BOULDERS
ciccinado r assing 10	90 80 70 60 50 40 30										
	20										
ſ	0.001	Sie	0.01		0.1	Pa	1 rticle Size	mm	10 Mass of sample, g	100	5961
	0			Particle			rticle Size	Dry N	Nass of sample, g		5961
	0.001 Particle Size 1 125		ring % Passing 100	0.	Sedime e Size mm 0575	ntation % Pass 40	rticle Size	Dry N Sample Proj	Mass of sample, g		5961 % dry mass
-	0 0.001 Particle Size		ving % Passing	0.	Sedim e Size mm	ntation % Pass	rticle Size	Dry N	Mass of sample, g		5961
	0 0.001 Particle Size 1 125 90 75 63		ving % Passing 100 100 100 96	0. 0. 0.	Sedime e Size mm 0575 0313 0167 0094	witation % Pass 40 34	rticle Size	Dry N Sample Proj Very coarse	Mass of sample, g		5961 % dry mass 4
	0 0.001 Particle Size 1 125 90 75 63 50		ving % Passing 100 100 100 96 93	0. 0. 0. 0.	Sedime e Size mm 0575 0313 0167 0094 0056	*ntation % Pass 40 34 28 23 18	rticle Size	Dry N Sample Proj Very coarse Gravel Sand	Mass of sample, g		5961 % dry mass 4 32 24
	0 0.001 Particle Size 1 125 90 75 63 50 37.5		ving % Passing 100 100 100 96 93 93	0. 0. 0. 0.	Sedime e Size mm 0575 0313 0167 0094	*ntation % Pass 40 34 28 23	rticle Size	Dry N Sample Proj Very coarse Gravel	Mass of sample, g		5961 % dry mass 4 32
	0 0.001 Particle Size 1 125 90 75 63 50		ving % Passing 100 100 96 93 93 93 92	0. 0. 0. 0.	Sedime e Size mm 0575 0313 0167 0094 0056	*ntation % Pass 40 34 28 23 18	rticle Size	Dry N Sample Proj Very coarse Gravel Sand Fines <0.063	Mass of sample, g		5961 % dry mass 4 32 24
	0 0.001 Particle Size 1 125 90 75 63 50 37.5 28		ving % Passing 100 100 100 96 93 93	0. 0. 0. 0.	Sedime e Size mm 0575 0313 0167 0094 0056	*ntation % Pass 40 34 28 23 18	rticle Size	Dry N Sample Proj Very coarse Gravel Sand	Mass of sample, g	9	5961 % dry mass 4 32 24
	0 0.001 Particle Size 1 125 90 75 63 50 37.5 28 20 14 10		ving % Passing 100 100 96 93 93 93 93 92 89 80 78	0. 0. 0. 0.	Sedime e Size mm 0575 0313 0167 0094 0056	*ntation % Pass 40 34 28 23 18	rticle Size	Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60	Mass of sample, g	9	5961 % dry mass 4 32 24 40 1.22
	0 0.001 Particle Size 1 125 90 75 63 50 37.5 28 20 14 10 6.3		ving % Passing 100 100 96 93 93 93 93 93 92 89 80 78 74	0. 0. 0. 0.	Sedime e Size mm 0575 0313 0167 0094 0056	*ntation % Pass 40 34 28 23 18	rticle Size	Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30	Mass of sample, g	9	5961 % dry mass 4 32 24 40 1.22 0.0197
	0 0.001		ving % Passing 100 100 96 93 93 93 93 93 92 89 80 78 74 74 72	0. 0. 0. 0.	Sedime e Size mm 0575 0313 0167 0094 0056	*ntation % Pass 40 34 28 23 18	rticle Size	Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	Mass of sample, g	9	5961 % dry mass 4 32 24 40 1.22 0.0197 0.00317
	0 0.001		ving % Passing 100 100 96 93 93 93 93 93 92 89 80 78 74 72 69	0. 0. 0. 0.	Sedime e Size mm 0575 0313 0167 0094 0056	*ntation % Pass 40 34 28 23 18	rticle Size	Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity 0	Mass of sample, g	9	5961 % dry mass 4 32 24 40 1.22 0.0197 0.00317 390
	0 0.001		ving % Passing 100 100 96 93 93 93 93 93 92 89 80 78 74 74 72	0. 0. 0. 0.	Sedime e Size mm 0575 0313 0167 0094 0056	*ntation % Pass 40 34 28 23 18	rticle Size	Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	Mass of sample, g	9	5961 % dry mass 4 32 24 40 1.22 0.0197 0.00317
	0 0.001		ving % Passing 100 100 96 93 93 93 93 93 92 89 80 78 74 74 72 69 69 64		Sedime = Size mm 0575 0313 0167 0094 0056 0028	*ntation % Pass 40 34 28 23 18	rticle Size	Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity 0	Mass of sample, g	9	5961 % dry mass 4 32 24 40 1.22 0.0197 0.00317 390
	0.001 Particle Size 1 125 90 125 63 50 37.5 28 20 14 10 6.3 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 0.425		ving % Passing 100 100 96 93 93 93 93 93 93 93 93 93 93 93 93 93	0. 0. 0. 0. 0. 0. 0.	Sedime = Size mm 0575 0313 0167 0094 0056 0028 	**************************************	rticle Size	Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Fines <0.063 D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sample, g	9	5961 % dry mass 4 32 24 40 1.22 0.0197 0.00317 390 0.1
	0.001 Particle Size 1 125 90 125 125 125 125 125 125 125 125		ving % Passing 100 100 96 93 93 93 93 92 89 80 78 80 78 74 72 69 64 60 55 53 51	0. 0. 0. 0. 0. 0. 0.	Sedime = Size mm 0575 0313 0167 0094 0056 0028 	Image: metation % Pass 40 34 28 23 18 8	rticle Size	Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Fines <0.063 D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sample, g	9	5961 % dry mass 4 32 24 40 1.22 0.0197 0.00317 390 0.1
	0.001 Particle Size 1 125 90 125 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 0.425 0.3 0.212		ving % Passing 100 100 96 93 93 93 93 93 92 89 0 80 78 89 80 78 74 72 69 64 60 55 53 51 48	0. 0. 0. 0. 0. 0. 0.	Sedime = Size mm 0575 0313 0167 0094 0056 0028 	Image: metation % Pass 40 34 28 23 18 8	rticle Size	Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Fines <0.063 D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sample, g	9	5961 % dry mass 4 32 24 40 1.22 0.0197 0.00317 390 0.1
	0 0.001 Particle Size 1 125 90 125 63 50 37.5 28 20 14 10 6.3 5 20 14 10 6.3 5 3.35 2 3.35 2 2 1.18 0.6 0.425 0.3 1.212 0.15		ving % Passing 100 100 96 93 93 93 93 92 89 30 92 89 80 78 74 74 72 69 64 60 55 53 51 48 48	0. 0. 0. 0. 0. 0. 0.	Sedime = Size mm 0575 0313 0167 0094 0056 0028 	Image: metation % Pass 40 34 28 23 18 8	rticle Size	Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Fines <0.063 D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sample, g	9	5961 % dry mass 4 32 24 40 1.22 0.0197 0.00317 390 0.1
	0.001 Particle Size 1 125 90 125 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 0.425 0.3 0.212		ving % Passing 100 100 96 93 93 93 93 93 92 89 0 80 78 89 80 78 74 72 69 64 60 55 53 51 48	0. 0. 0. 0. 0. 0. 0.	Sedime = Size mm 0575 0313 0167 0094 0056 0028 	Image: metation % Pass 40 34 28 23 18 8	rticle Size	Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Fines <0.063 D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sample, g	9	5961 % dry mass 4 32 24 40 1.22 0.0197 0.00317 390 0.1

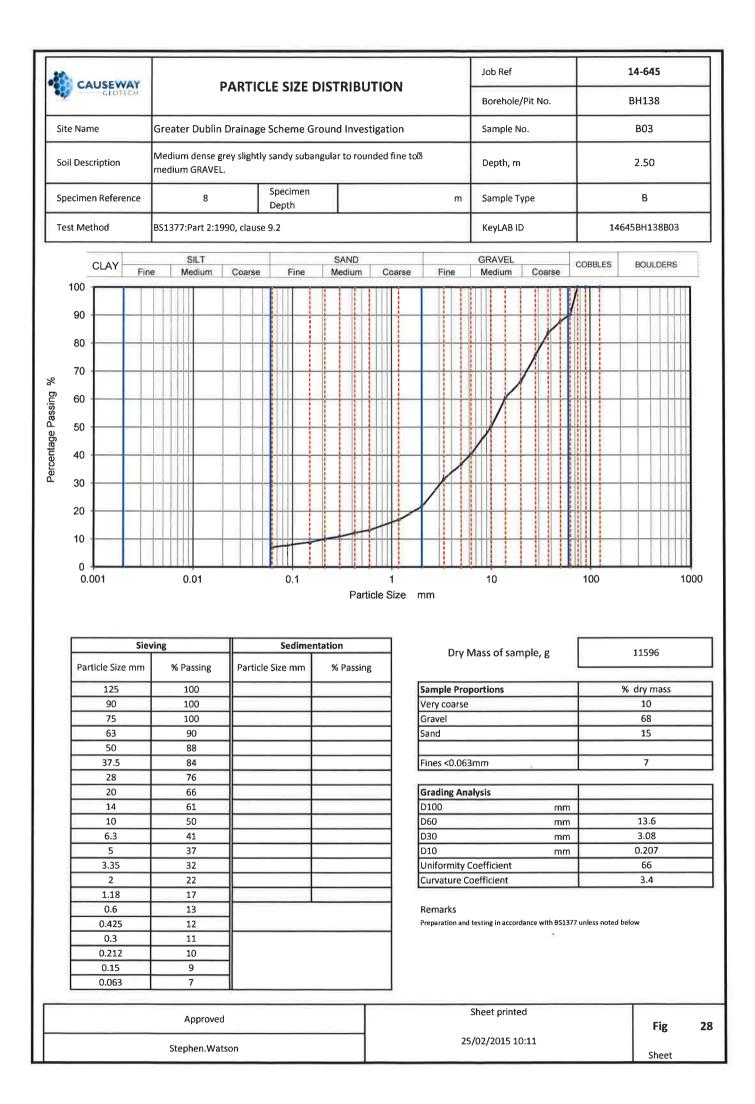
0-0	CAUSEW	AY		סאסדורי	E 6175	DISTRIBL			Job Ref		14-645
2	debiti	CH		FARTIC		DISTRIBU			Borehole/Pit No.		BH130
Site I	Name		Greater Dublin	Drainage	Scheme G	Ground Inve	stigation		Sample No.		6
Soil I	Description		Very stiff dark g	ey slightly s	andy slight	ly gravelly CL	AY.		Depth, m		5.00
Spec	cimen Referer	nce	6		Specimen Depth			m	Sample Type	_	В
Test	Method		BS1377:Part 2:1	990, clause:	s 9.2 and 9.	5			KeyLAB ID	1464	45BH130B6
	CLAY	Fin	SILT Nedium	Coarse	Fine	SAND Medium	Coarse	Fine	GRAVEL Medium Coarse	COBBLES	BOULDERS
1(00								1		
ę	90										
ł	80										
-	70	_									
	60	_									
	50										
	40										
	30	+									
:	20					_		_			
	10	/									
	0.001	_	0.01		0.1	Par	1 ticle Size	mm	10	100	100
Г		Sie		<u> </u>			1 ticle Size			100	100
F	0.001		ving	Particle	Sedime	ntation			10 Vlass of sample, g	100	2508
	0.001 Particle Size		ving % Passing		Sedime Size mm	ntation % Passin		Dry I	Mass of sample, g		2508
-	0.001 Particle Size 125 90		ving % Passing 100 100	0.0	Sedime e Size mm 0580 0320	ntation % Passin 47 37			Mass of sample, g portions		2508 5 dry mass 0
-	0.001 Particle Size 125 90 75		ving % Passing 100 100 100	0.0	Sedime 2 Size mm 0580 0320 0170	ntation % Passin 47 37 30		Dry I Sample Pro Very coarse Gravel	Mass of sample, g portions		2508 5 dry mass 0 27
	0.001 Particle Size 125 90		ving % Passing 100 100	0.0	Sedime e Size mm 0580 0320	ntation % Passin 47 37		Dry I Sample Pro Very coarse	Mass of sample, g portions		2508 5 dry mass 0
	0.001 Particle Size 125 90 75 63 50 37.5		ving % Passing 100 100 100 100 100 100	0.0	Sedime Size mm 0580 0320 0170 0095	ntation % Passin 47 37 30 24		Dry I Sample Pro Very coarse Gravel	Vlass of sample, g		2508 5 dry mass 0 27
-	0.001 Particle Size 125 90 75 63 50		ving % Passing 100 100 100 100 100	0.0	Sedime Size mm 0580 0320 0170 0095 0056	ntation % Passin 47 37 30 24 19		Dry I Sample Pro Very coarse Gravel Sand	Mass of sample, g portions		2508 6 dry mass 0 27 26
	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14		ving % Passing 100 100 100 100 100 96 93 87	0.0	Sedime Size mm 0580 0320 0170 0095 0056	ntation % Passin 47 37 30 24 19		Dry I Sample Pro Very coarse Gravel Sand Fines <0.063 Grading Ana D100	Mass of sample, g portions 3mm alysis mr	%	2508 6 dry mass 0 27 26 47
	0.001 Particle Size 125 90 75 63 50 37.5 28 20		ving % Passing 100 100 100 100 100 100 96 93	0.0	Sedime Size mm 0580 0320 0170 0095 0056	ntation % Passin 47 37 30 24 19		Dry I Sample Pro Very coarse Gravel Sand Fines <0.063 Grading Ana	Mass of sample, g portions Bmm alysis	%	2508 6 dry mass 0 27 26
	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5		ving % Passing 100 100 100 100 100 96 93 87 85 81 80	0.0	Sedime Size mm 0580 0320 0170 0095 0056	ntation % Passin 47 37 30 24 19		Dry I Sample Pro Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	Mass of sample, g portions Bmm alysis mr mr mr mr	%	2508 6 dry mass 0 27 26 47 0.347
	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3		ving % Passing 100 100 100 100 100 96 93 87 85 81	0.0	Sedime Size mm 0580 0320 0170 0095 0056	ntation % Passin 47 37 30 24 19		Dry I Sample Pro Very coarse Gravel Sand Fines <0.063 Grading An D100 D60 D30 D10 Uniformity 0	Mass of sample, g portions alysis mr coefficient	%	2508 6 dry mass 0 27 26 47 0.347
	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18		ving % Passing 100 100 100 100 100 96 93 87 85 87 85 81 80 77 73 68		Sedime 2 Size mm 0580 0320 0170 0095 0028	ntation % Passin 47 37 30 24 19 11		Dry I Sample Pro Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity 0 Curvature C	Mass of sample, g portions alysis mr coefficient	%	2508 6 dry mass 0 27 26 47 0.347
	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6		ving % Passing 100 100 100 100 96 93 87 85 85 81 85 81 80 77 73 68 68 63	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Sedime e Size mm 0580 0320 0170 0095 0056 0028	ntation % Passin 47 37 30 24 19 11		Dry I Sample Pro Very coarse Gravel Sand Fines <0.063 Fines <0.063 D100 D60 D30 D10 Uniformity 0 Curvature C	Mass of sample, g portions alysis mr coefficient	- %	2508 6 dry mass 0 27 26 47 0.347 0.017
	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 3.35 2 1.18 0.6 5 0.425 0.3		ving % Passing 100 100 100 100 96 93 87 85 85 81 85 81 80 77 73 68 68 63 62 59	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Sedime e Size mm 0580 0320 0170 0095 0056 0028	ntation % Passin 47 37 30 24 19 11		Dry I Sample Pro Very coarse Gravel Sand Fines <0.063 Fines <0.063 D100 D60 D30 D10 Uniformity 0 Curvature C	Vlass of sample, g portions 3mm alysis mr mr Coefficient oefficient	- %	2508 6 dry mass 0 27 26 47 0.347 0.017
	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 3.35 2 3.35 2 1.18 0.6 0.425 0.3 1 2		ving % Passing 100 100 100 100 96 93 87 85 85 81 87 85 81 80 77 73 68 68 63 62 59 57	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Sedime e Size mm 0580 0320 0170 0095 0056 0028	ntation % Passin 47 37 30 24 19 11		Dry I Sample Pro Very coarse Gravel Sand Fines <0.063 Fines <0.063 D100 D60 D30 D10 Uniformity 0 Curvature C	Vlass of sample, g portions 3mm alysis mr mr Coefficient oefficient	- %	2508 6 dry mass 0 27 26 47 0.347 0.017
	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 3.35 2 1.18 0.6 5 0.425 0.3		ving % Passing 100 100 100 100 96 93 87 85 85 81 85 81 80 77 73 68 68 63 62 59	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Sedime e Size mm 0580 0320 0170 0095 0056 0028	ntation % Passin 47 37 30 24 19 11		Dry I Sample Pro Very coarse Gravel Sand Fines <0.063 Fines <0.063 D100 D60 D30 D10 Uniformity 0 Curvature C	Vlass of sample, g portions 3mm alysis mr mr Coefficient oefficient	- %	2508 6 dry mass 0 27 26 47 0.347 0.017
	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 3.35 2 3.35 2 1.18 0.6 0.425 0.3 1.212 0.51		ving % Passing 100 100 100 100 96 93 87 85 81 87 85 81 80 77 73 68 68 63 62 59 57 53	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Sedime e Size mm 0580 0320 0170 0095 0056 0028	ntation % Passin 47 37 30 24 19 11		Dry I Sample Pro Very coarse Gravel Sand Fines <0.063 Grading An D100 D60 D30 D10 Uniformity 0 Curvature C Remarks Preparation and	Vlass of sample, g portions 3mm alysis mr mr Coefficient oefficient	- %	2508 6 dry mass 0 27 26 47 0.347 0.017

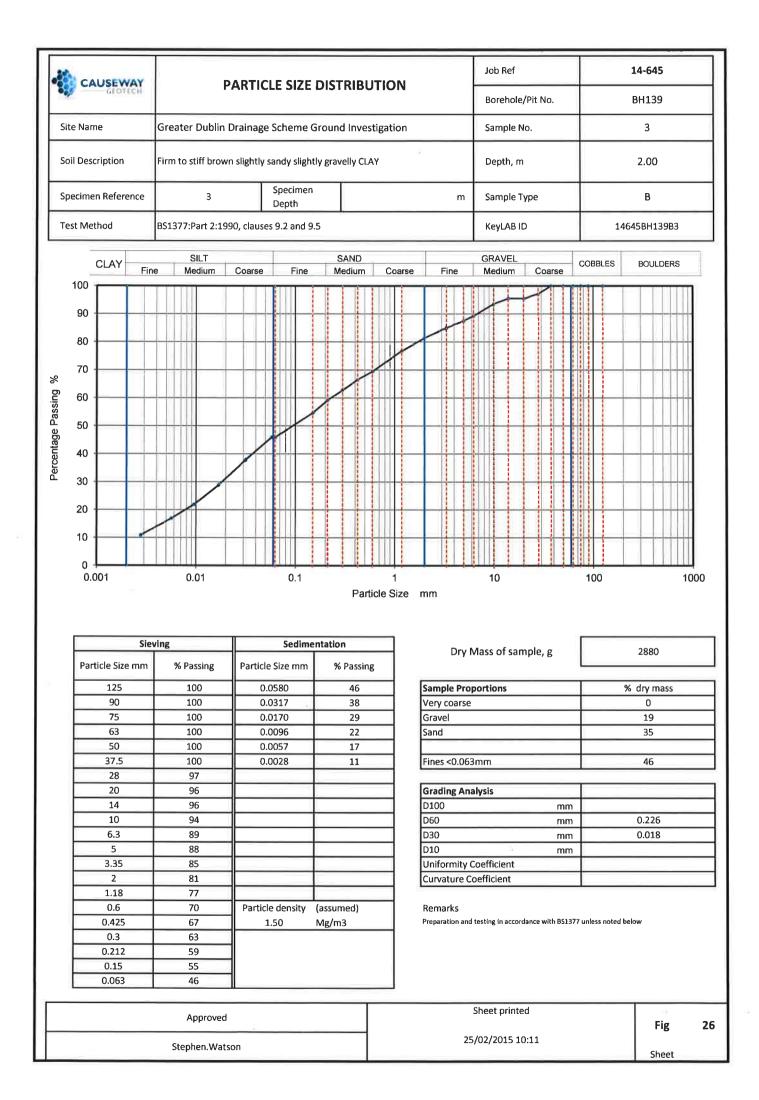
800 I	CAUSEWAY		PARTICLE SIZE		N	Job Ref	:	14-645
	GFOTICH		ANTICLE SIZE	DISTRIBUTIO	///	Borehole/Pit No.		BH135
Site N	Name	Greater Dublin	Drainage Scheme G	round Investigat	ion	Sample No.		2
Soil D	Description	Brown mottled g	rey sandy gravelly CLA	Y		Depth, m		1.20
Speci	imen Reference	3	Specimen Depth		m	Sample Type		В
Test N	Method	BS1377:Part 2:19	90, clauses 9.2 and 9.	5		KeyLAB ID	1464	45BH135B2
	CLAY	SILT ne Medium	Coarse Fine	SAND Medium Co	oarse Fine	GRAVEL Medium Coarse	COBBLES	BOULDERS
10				TITT				
9	90							
8	80							
7	70							
2 6	20				-			
5 5 5 4 C								
5 5	50	++++++						
4	ю — — —							
) } - 2	30							
5								
2	20							
				1 1 1 1				
1(0	1						
(0 0.001	0.01	0.1	Particle S	1	10	100	100
(0.001		0.1	Particle S	1 Size mm		100	
F	0.001	0.01		Particle S	1 Size mm	10 Mass of sample, g	100	1000
F	0.001	ving	Sedime	Particle S	1 Size mm	Mass of sample, g		
F	0 0.001 Sie Particle Size mm 125 90	Wing % Passing 100 100	Sedime Particle Size mm 0.0584 0.0315	Particle S ntation % Passing 43 38	1 Size mm Dry M Sample Proj Very coarse	Mass of sample, g		3168 dry mass 0
F	0 0.001 Sie Particle Size mm 125	ving % Passing 100	Particle Size mm 0.0584	Particle S ntation % Passing 43	1 Size mm Dry N Sample Proj	Mass of sample, g		3168 dry mass
F	0 0.001 Sie Particle Size mm 125 90 75 63 50	wing % Passing 100 100 100 100 100 91	Sedime Particle Size mm 0.0584 0.0315 0.0170 0.0096 0.0057	Particle S ntation % Passing 43 38 28 28 22 16	1 Size mm Dry N Sample Proj Very coarse Gravel Sand	Mass of sample, g		3168 dry mass 0 30 27
F	0 0.001 Sie Particle Size mm 125 90 75 63 50 37.5	% Passing 100 100 100 100 91 91	Sedime Particle Size mm 0.0584 0.0315 0.0170 0.0096	Particle S ntation % Passing 43 38 28 28 22	1 Size mm Dry N Sample Proj Very coarse Gravel	Mass of sample, g		3168 dry mass 0 30
F	0 0.001 Sie Particle Size mm 125 90 75 63 50	ving % Passing 100 100 100 91 91 88 88 86	Sedime Particle Size mm 0.0584 0.0315 0.0170 0.0096 0.0057	Particle S ntation % Passing 43 38 28 28 22 16	1 Size mm Dry N Sample Proj Very coarse Gravel Sand	Mass of sample, g portions		3168 dry mass 0 30 27
F	0 0.001 Sie Particle Size mm 125 90 75 63 50 37.5 28 20 14	ving % Passing 100 100 100 91 91 88 88 86 82	Sedime Particle Size mm 0.0584 0.0315 0.0170 0.0096 0.0057	Particle S ntation % Passing 43 38 28 28 22 16	1 Size mm Dry N Sample Prop Very coarse Grave! Sand Fines <0.063 Grading Ana D100	Mass of sample, g portions 3mm alysis mm	%	3168 dry mass 0 30 27 43
F	0 0.001 Sie Particle Size mm 125 90 75 63 50 37.5 28 20	ving % Passing 100 100 100 91 91 88 88 86	Sedime Particle Size mm 0.0584 0.0315 0.0170 0.0096 0.0057	Particle S ntation % Passing 43 38 28 28 22 16	1 Size mm Dry N Sample Pro Very coarse Grave! Sand Fines <0.063 Grading Ana	Mass of sample, g portions 3mm alysis mm	%	3168 dry mass 0 30 27 43 0.415
F	0 0.001 Sie Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5	% Passing 100 100 100 100 91 91 88 86 82 80 77 75	Sedime Particle Size mm 0.0584 0.0315 0.0170 0.0096 0.0057	Particle S ntation % Passing 43 38 28 28 22 16	1 Size mm Dry N Sample Pro Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	Mass of sample, g portions 3mm alysis mm mm mm mm mm	%	3168 dry mass 0 30 27 43 0.415 0.0191 0.00298
F	0 0.001 Sie Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35	% Passing 100 100 100 100 91 91 88 86 82 80 77 75 72	Sedime Particle Size mm 0.0584 0.0315 0.0170 0.0096 0.0057	Particle S ntation % Passing 43 38 28 28 22 16	1 Size mm Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity O	Mass of sample, g portions alysis mm mm mm coefficient	%	3168 dry mass 0 30 27 43 0.415 0.0191 0.00298 140
F	0 0.001 Sie Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5	% Passing 100 100 100 100 91 91 88 86 82 80 77 75	Sedime Particle Size mm 0.0584 0.0315 0.0170 0.0096 0.0057	Particle S ntation % Passing 43 38 28 28 22 16	1 Size mm Dry N Sample Pro Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	Mass of sample, g portions alysis mm mm mm coefficient	%	3168 dry mass 0 30 27 43 0.415 0.0191 0.00298
F	0 0.001 Sie Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6	wing % Passing 100 100 100 100 91 91 88 86 82 80 77 75 72 70 67 62	Sedime Particle Size mm 0.0584 0.0315 0.0170 0.0096 0.0057 0.0028 0.0028 0.0010 0.0028	Particle S ntation % Passing 43 38 28 22 16 9 	1 Size mm Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity O Curvature Co Remarks	Mass of sample, g	%	3168 dry mass 0 30 27 43 0.415 0.0191 0.00298 140 0.3
F	0 0.001 Sie Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 0.425	wing % Passing 100 100 100 100 91 91 88 86 82 80 77 75 72 70 67 62 60	Sedime Particle Size mm 0.0584 0.0315 0.0170 0.0096 0.0057 0.0028 0.0028 0.0010 0.0028	Particle S ntation % Passing 43 38 28 22 16 9	1 Size mm Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity O Curvature Co Remarks	Mass of sample, g portions alysis mm mm mm coefficient	%	3168 dry mass 0 30 27 43 0.415 0.0191 0.00298 140 0.3
F	0 0.001 Sie Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6	wing % Passing 100 100 100 100 91 91 88 86 82 80 77 75 72 70 67 62	Sedime Particle Size mm 0.0584 0.0315 0.0170 0.0096 0.0057 0.0028 0.0028 0.0010 0.0028	Particle S ntation % Passing 43 38 28 22 16 9 	1 Size mm Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity O Curvature Co Remarks	Mass of sample, g	%	3168 dry mass 0 30 27 43 0.415 0.0191 0.00298 140 0.3
F	0 0.001 Sie Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15	% Passing 100 91 88 86 82 80 77 75 72 70 67 62 60 57 54 50	Sedime Particle Size mm 0.0584 0.0315 0.0170 0.0096 0.0057 0.0028 0.0028 0.0010 0.0028	Particle S ntation % Passing 43 38 28 22 16 9 	1 Size mm Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity O Curvature Co Remarks	Mass of sample, g	%	3168 dry mass 0 30 27 43 0.415 0.0191 0.00298 140 0.3
F	0 0.001 Sie Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 0.425 0.3 0.212	ving % Passing 100 100 100 91 91 91 88 86 82 80 77 75 72 72 70 67 67 62 60 57 54	Sedime Particle Size mm 0.0584 0.0315 0.0170 0.0096 0.0057 0.0028 0.0028 0.0010 0.0028	Particle S ntation % Passing 43 38 28 22 16 9 	1 Size mm Dry N Sample Proj Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity O Curvature Co Remarks	Mass of sample, g	%	3168 dry mass 0 30 27 43 0.415 0.0191 0.00298 140 0.3
F	0 0.001 Sie Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15	% Passing 100 91 88 86 82 80 77 75 72 70 67 62 60 57 54 50	Sedime Particle Size mm 0.0584 0.0315 0.0096 0.0097 0.0028 0.0028 Particle density 1.50	Particle S ntation % Passing 43 38 28 22 16 9 	1 Size mm Dry N Sample Pro Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity O Curvature Co Remarks Preparation and	Mass of sample, g	%	dry mass 0 30 27 43 0.415 0.0191 0.00298 140 0.3

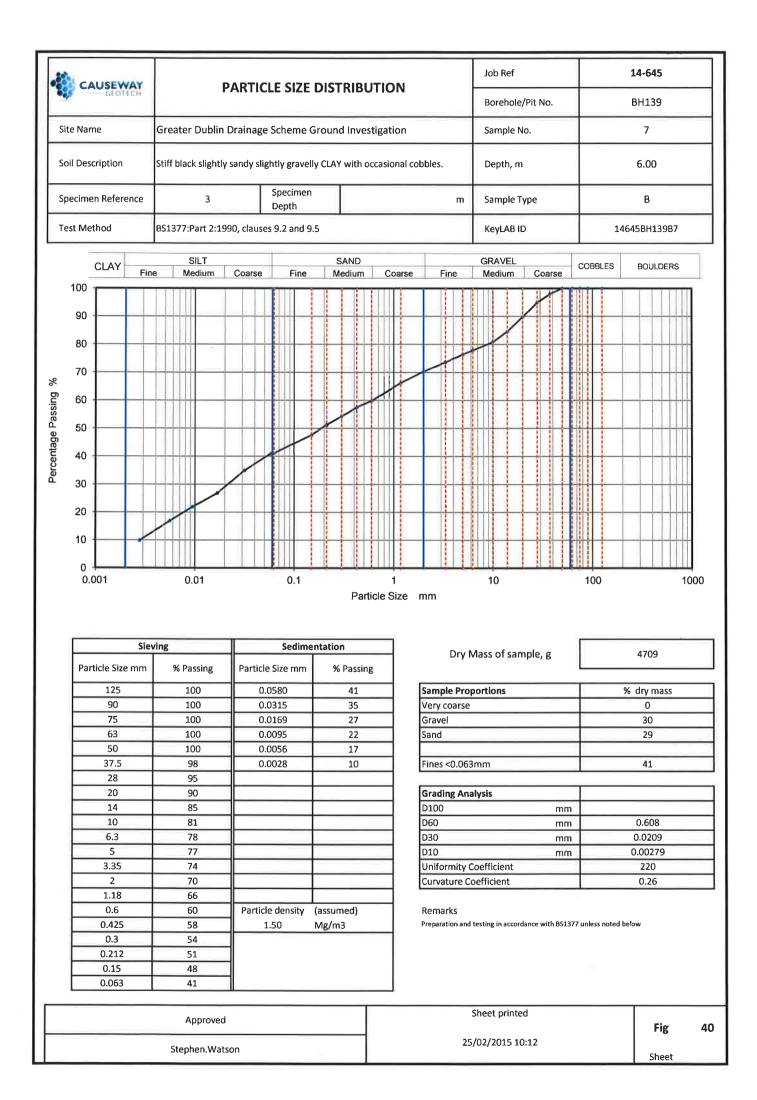
RSU	CALISEWAY					Job Ref	1	14-645
1 23	GEOTECH		PARTICLE SIZE [Borehole/Pit No.	E	3H135
Site I	Name	Greater Dublin	Drainage Scheme G	round Investigat	tion	Sample No.		6
Soil (Description	Stiff dark grey sar	ndy gravelly CLAY.			Depth, m		5.00
Spec	cimen Reference	3	Specimen Depth		m	Sample Type		В
Test	Method	BS1377:Part 2:19	90, clauses 9.2 and 9.5	j		KeyLAB ID	1464	I5BH135B6
	CLAY	SILT ne Medium	Coarse Fine	SAND Medium C	oarse Fine	GRAVEL Medium Coarse	COBBLES	BOULDERS
1(00							
ę	90							
	80							
2	70							
	60							
, t	50							
4	40							
	30							
	20							
1	10							
				Particle	Size mm			
1	C1	wing	I Codimon	****	T			
	Si Particle Size mm	% Passing	Sedimer		Dry	Mass of sample, g		3067
	Particle Size mm	% Passing	Particle Size mm 0.0584	% Passing 50	Sample Pr	oportions	%	dry mass
	Particle Size mm 125 90	% Passing 100 100	Particle Size mm 0.0584 0.0320	% Passing 50 41	Sample Pr Very coars	oportions	%	dry mass 0
	Particle Size mm 125 90 75 63	% Passing 100 100 100 100	Particle Size mm 0.0584 0.0320 0.0171 0.0096	% Passing 50 41 31 25	Sample Pr	oportions	%	dry mass
	Particle Size mm 125 90 75 63 50	% Passing 100 100 100 100 100	Particle Size mm 0.0584 0.0320 0.0171 0.0096 0.0057	% Passing 50 41 31 25 19	Sample Pr Very coars Gravel Sand	oportions e	%	dry mass 0 17 33
	Particle Size mm 125 90 75 63 50 37.5 28	% Passing 100 100 100 100 100 100 98	Particle Size mm 0.0584 0.0320 0.0171 0.0096	% Passing 50 41 31 25	Sample Pr Very coars Gravel Sand Fines <0.0	oportions e 53mm	%	dry mass 0 17
	Particle Size mm 125 90 75 63 50 37.5 28 20	% Passing 100 100 100 100 100 100 98 98 98	Particle Size mm 0.0584 0.0320 0.0171 0.0096 0.0057	% Passing 50 41 31 25 19	Sample Pr Very coars Gravel Sand Fines <0.0	oportions e 53mm nalysis		dry mass 0 17 33
	Particle Size mm 125 90 75 63 50 37.5 28	% Passing 100 100 100 100 100 100 98	Particle Size mm 0.0584 0.0320 0.0171 0.0096 0.0057	% Passing 50 41 31 25 19	Sample Pr Very coars Gravel Sand Fines <0.0	oportions e 53mm nalysis	%	dry mass 0 17 33
	Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3	% Passing 100 100 100 100 100 100 98 98 96 92 89	Particle Size mm 0.0584 0.0320 0.0171 0.0096 0.0057	% Passing 50 41 31 25 19	Sample Pr Very coars Gravel Sand Fines <0.0 Grading A D100 D60 D30	oportions e 53mm nalysis r r	nm nm nm	dry mass 0 17 33 50
	Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5	% Passing 100 100 100 100 100 100 98 98 96 92 89 88	Particle Size mm 0.0584 0.0320 0.0171 0.0096 0.0057	% Passing 50 41 31 25 19	Sample Pr Very coars Gravel Sand Fines <0.0 Grading A D100 D60 D30 D10	oportions e 53mm nalysis r r	nm	dry mass 0 17 33 50 0.159
	Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3	% Passing 100 100 100 100 100 100 98 98 96 92 89	Particle Size mm 0.0584 0.0320 0.0171 0.0096 0.0057	% Passing 50 41 31 25 19	Sample Pr Very coars Gravel Sand Fines <0.0 Fines <0.0 D100 D30 D10 Uniformity	oportions e 53mm nalysis r r	nm nm nm	dry mass 0 17 33 50 0.159
	Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18	% Passing 100 100 100 100 100 100 100 98 98 96 92 89 88 86 83 80	Particle Size mm 0.0584 0.0320 0.0171 0.0096 0.0057 0.0028	% Passing 50 41 31 25 19 12	Sample Pr Very coars Gravel Sand Fines <0.0 Fines <0.0 D100 D100 D30 D10 Uniformity Curvature	oportions e 53mm nalysis r r r r r r	nm nm nm	dry mass 0 17 33 50 0.159
	Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6	% Passing 100 100 100 100 100 98 98 98 98 98 98 98 98 98 98	Particle Size mm 0.0584 0.0320 0.0171 0.0096 0.0057 0.0028	% Passing 50 41 31 25 19 12 12	Sample Pr Very coars Gravel Sand Fines <0.0 Fines <0.0 D100 D100 D100 D100 D100 Uniformity Curvature Remarks	oportions e 53mm nalysis r r r r r coefficient Coefficient	nm nm nm nm	dry mass 0 17 33 50 0.159 0.0153
	Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18	% Passing 100 100 100 100 100 100 100 98 98 96 92 89 88 86 83 80	Particle Size mm 0.0584 0.0320 0.0171 0.0096 0.0057 0.0028	% Passing 50 41 31 25 19 12	Sample Pr Very coars Gravel Sand Fines <0.0 Fines <0.0 D100 D100 D100 D100 D100 Uniformity Curvature Remarks	oportions e 53mm nalysis r r r r r r	nm nm nm nm	dry mass 0 17 33 50 0.159 0.0153
	Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425	% Passing 100 100 100 100 100 100 100 100 100 98 98 96 92 89 88 86 83 80 74 71	Particle Size mm 0.0584 0.0320 0.0171 0.0096 0.0057 0.0028	% Passing 50 41 31 25 19 12 12	Sample Pr Very coars Gravel Sand Fines <0.0 Fines <0.0 D100 D100 D100 D100 D100 Uniformity Curvature Remarks	oportions e 53mm nalysis r r r r r coefficient Coefficient	nm nm nm nm	dry mass 0 17 33 50 0.159 0.0153
	Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15	% Passing 100 100 100 100 100 100 100 100 100 100 100 98 98 98 96 92 89 88 86 83 80 74 71 67 64 59	Particle Size mm 0.0584 0.0320 0.0171 0.0096 0.0057 0.0028	% Passing 50 41 31 25 19 12 12	Sample Pr Very coars Gravel Sand Fines <0.0 Fines <0.0 D100 D100 D100 D100 D100 Uniformity Curvature Remarks	oportions e 53mm nalysis r r r r r coefficient Coefficient	nm nm nm nm	dry mass 0 17 33 50 0.159 0.0153
	Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212	% Passing 100 100 100 100 100 100 100 100 100 100 100 98 98 98 96 92 89 88 86 83 80 74 71 67 64	Particle Size mm 0.0584 0.0320 0.0171 0.0096 0.0057 0.0028	% Passing 50 41 31 25 19 12 12	Sample Pr Very coars Gravel Sand Fines <0.0 Fines <0.0 D100 D100 D100 D100 D100 Uniformity Curvature Remarks	oportions e 53mm nalysis r r r r r coefficient Coefficient	nm nm nm nm	dry mass 0 17 33 50 0.159 0.0153
	Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15	% Passing 100 100 100 100 100 100 100 100 100 100 100 98 98 96 92 89 88 86 83 80 74 71 67 64 59 50	Particle Size mm 0.0584 0.0320 0.0171 0.0096 0.0057 0.0028	% Passing 50 41 31 25 19 12 12	Sample Pr Very coars Gravel Sand Fines <0.0 Fines <0.0 D100 D100 D100 D100 D100 Uniformity Curvature Remarks	oportions e 53mm nalysis r r r r r coefficient Coefficient	nm nm nm nm	dry mass 0 17 33 50 0.159 0.0153 ow
	Particle Size mm 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15	% Passing 100 100 100 100 100 100 100 100 100 100 100 98 98 98 96 92 89 88 86 83 80 74 71 67 64 59	Particle Size mm 0.0584 0.0320 0.0171 0.0096 0.0057 0.0028	% Passing 50 41 31 25 19 12 12	Sample Pr Very coars Gravel Sand Fines <0.0 D100 D60 D30 D10 Uniformity Curvature Remarks Preparation a	oportions e 63mm falysis r r r coefficient Coefficient t	nm nm nm nm	dry mass 0 17 33 50 0.159 0.0153

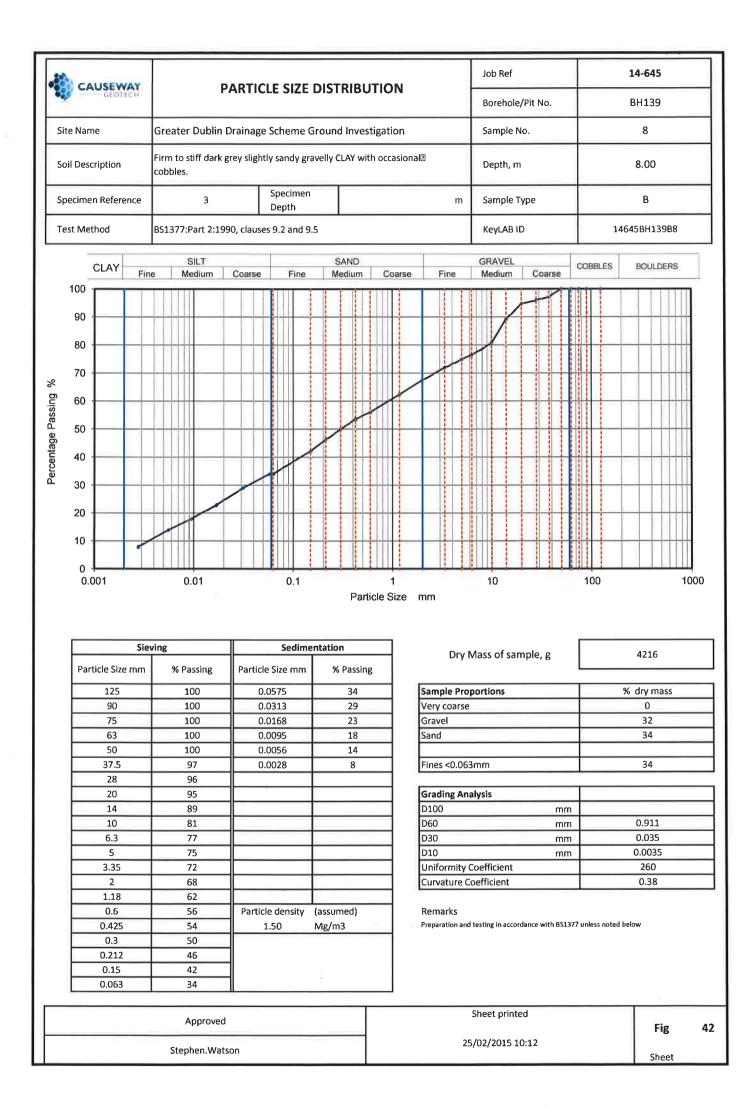


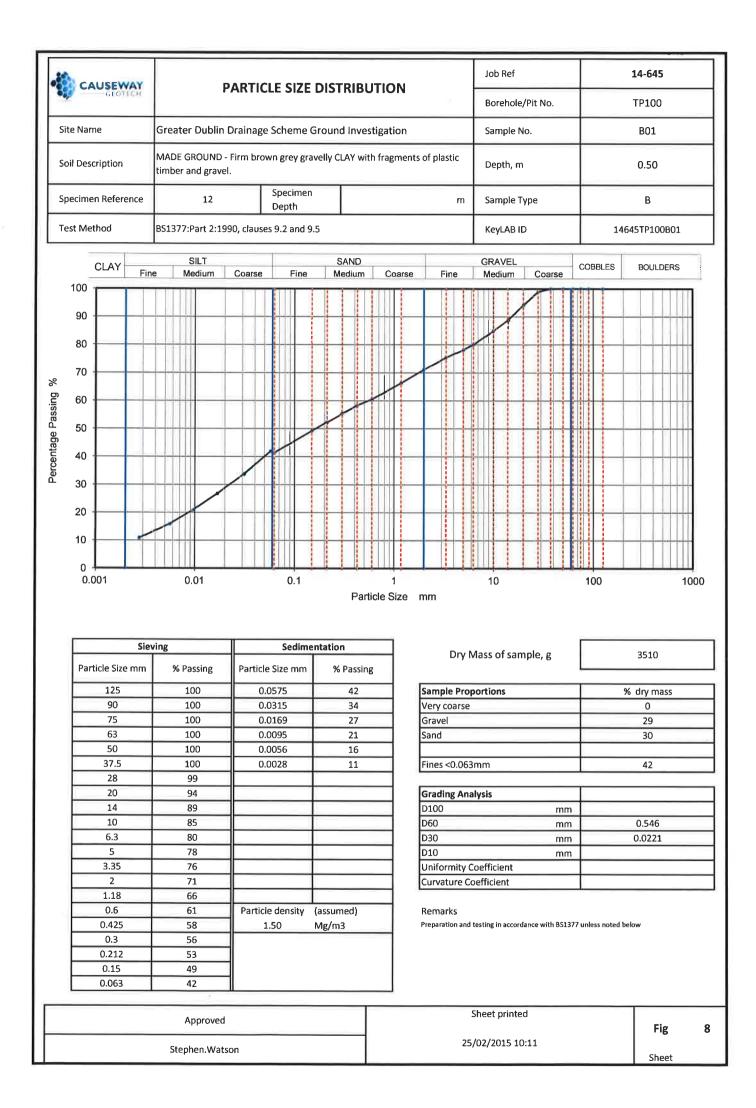


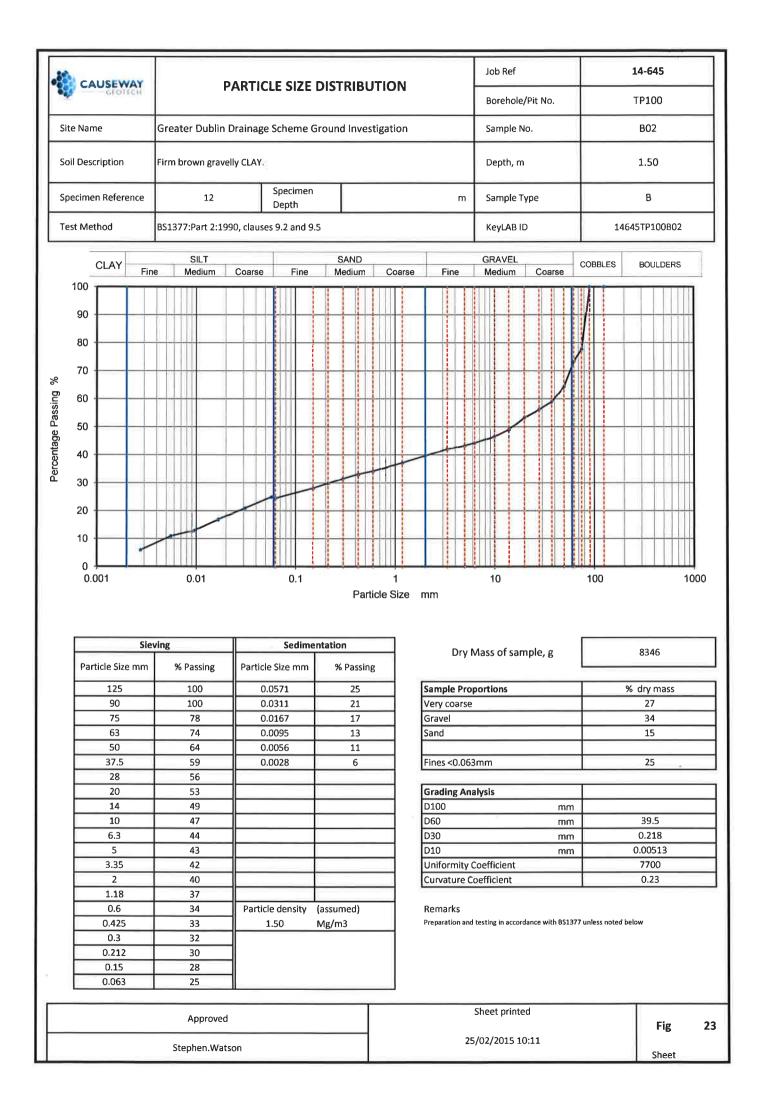


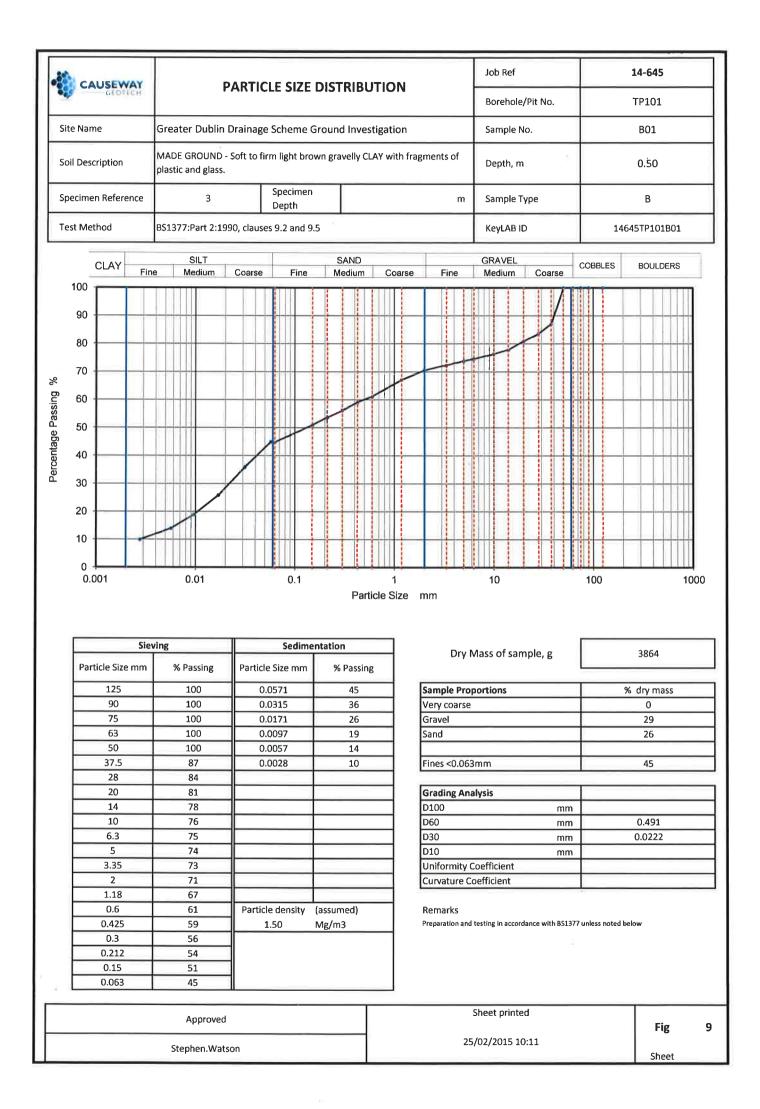




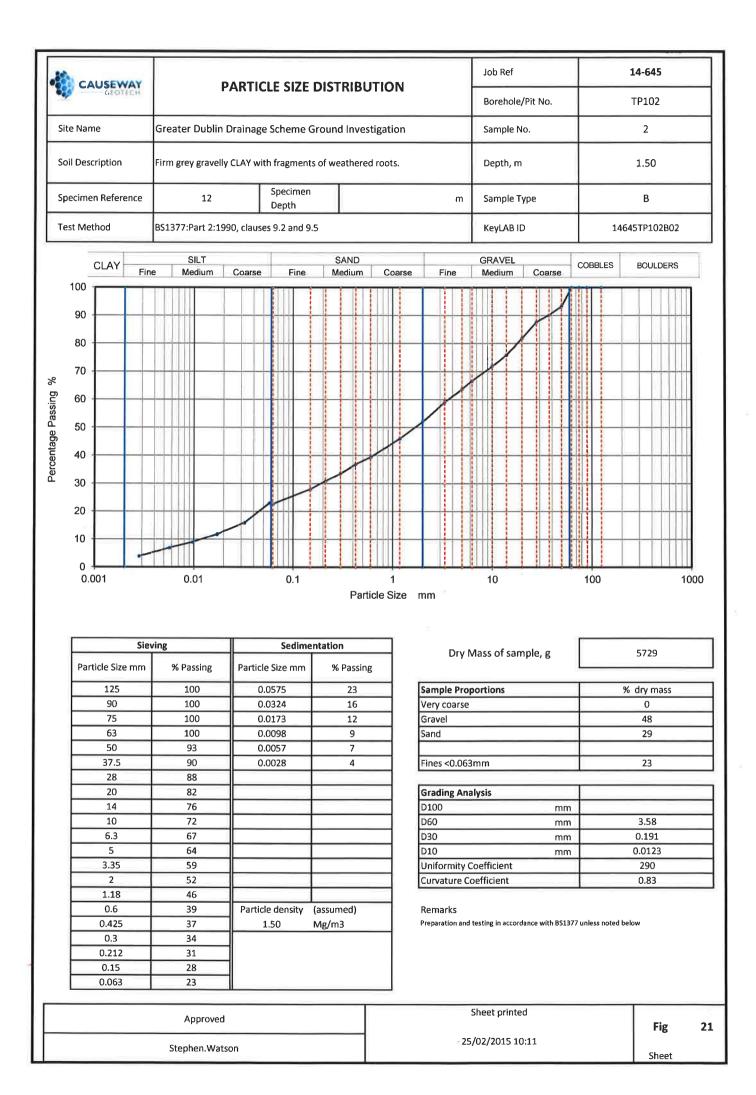


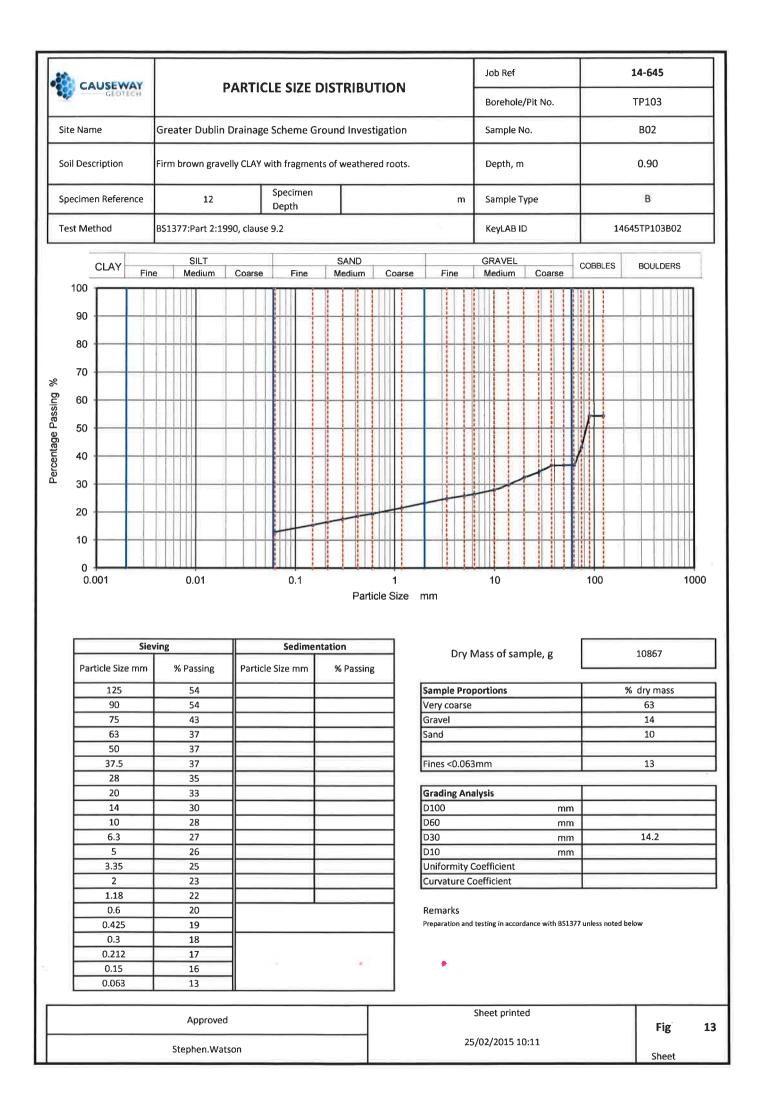




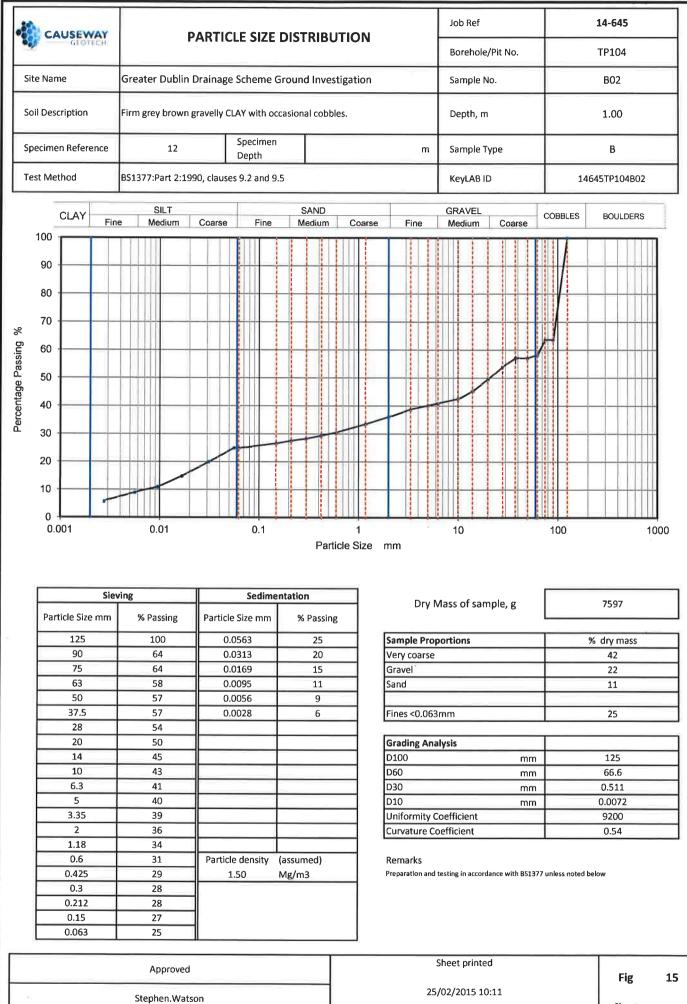


in e	CAUSEW	AY		DADTICI	E (17E	DISTRIBI			Job Ref			14-645	
1	GEOT	CH							Borehole/	'Pit No.		TP102	
Site Na	lame	_	Greater Dublin	n Drainage	Scheme G	iround Inve	stigation		Sample N	0.		B01	
Soil De	escription		Firm brown grav	elly CLAY.					Depth, m			0.50	
Specin	men Refere	nce	12		Specimen Depth			m	Sample Ty	/pe		В	
Test N	Vethod		BS1377:Part 2:1	990, clauses	9.2 and 9.	5			KeyLAB ID)	14	645TP102B01	
	CLAY	Fin	SILT e Medium	Coarse	Fine	SAND Medium	Coarse	e Fine	GRAVEL Medium	Coarse	COBBLES	BOULDERS	
100	°						T T				/		
90										/		<u> </u>	
80													
2 2 2													
60													
50													
30													
20													
10													
	0.001	_	0.01		0.1		1		10		100	10	00
		Siev	0.01		0.1		1 ticle Size	mm			100		000
F				Particle					10 Nass of sam	nple, g	100	6955	000
F	0.001 Particle Size 125		ving % Passing 100	0.0	Sedime Size mm	ntation % Passir 27		Dry N Sample Prop	Mass of sam	nple, g		6955 % dry mass	000
F	0.001 Particle Size		ving % Passing	0.0	Sedime Size mm	ntation % Passir		Dry N	Mass of sam	nple, g		6955	000
F	0.001 Particle Size 125 90 75 63		ving % Passing 100 100 91 91	0.0	Size mm 9567 9313 9170 9097	ntation % Passir 27 22 16 11		Dry N Sample Prop Very coarse	Mass of sam	pple, g		6955 % dry mass 9	
F	0.001 Particle Size 125 90 75		ving % Passing 100 100 91	0.0 0.0 0.0 0.0 0.0	Sedime Size mm 0567 0313 0170	ntation % Passir 27 22 16		Dry N Sample Prop Very coarse Gravel	Mass of sam	nple, g		6955 % dry mass 9 49	
F	0.001 Particle Size 125 90 75 63 50 37.5 28		ving % Passing 100 100 91 91 89 78 78 74	0.0 0.0 0.0 0.0 0.0	Size mm 5567 0313 0170 0097 0057	ntation % Passir 27 22 16 11 9		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063	Mass of sam portions	aple, g		6955 % dry mass 9 49 16	
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20		ving % Passing 100 100 91 91 89 78 78 74 68	0.0 0.0 0.0 0.0 0.0	Size mm 5567 0313 0170 0097 0057	ntation % Passir 27 22 16 11 9		Dry N Sample Prog Very coarse Gravel Sand Fines <0.063 Grading Ana	Mass of sam portions			6955 % dry mass 9 49 16	
F	0.001 Particle Size 125 90 75 63 50 37.5 28		ving % Passing 100 100 91 91 89 78 78 74	0.0 0.0 0.0 0.0 0.0	Size mm 5567 0313 0170 0097 0057	ntation % Passir 27 22 16 11 9		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063	Mass of sam portions	nple, g		6955 % dry mass 9 49 16	
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3		ving % Passing 100 100 91 91 89 78 74 68 68 60 54 50	0.0 0.0 0.0 0.0 0.0	Size mm 5567 0313 0170 0097 0057	ntation % Passir 27 22 16 11 9		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30	Mass of sam portions	mm		6955 % dry mass 9 49 16 27 27 13.9 0.146	
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5		ving % Passing 100 100 91 91 89 78 74 68 68 60 54 50 48	0.0 0.0 0.0 0.0 0.0	Size mm 5567 0313 0170 0097 0057	ntation % Passir 27 22 16 11 9		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	Mass of sam	mm		6955 % dry mass 9 49 16 27 27 13.9 0.146 0.00725	
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35		ving % Passing 100 100 91 91 89 78 74 68 60 54 50 48 48 46	0.0 0.0 0.0 0.0 0.0	Size mm 5567 0313 0170 0097 0057	ntation % Passir 27 22 16 11 9		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C	Mass of sam	mm mm mm		6955 % dry mass 9 49 16 27 27 13.9 0.146 0.00725 1900	
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5		ving % Passing 100 100 91 91 89 78 74 68 68 60 54 50 48	0.0 0.0 0.0 0.0 0.0	Size mm 5567 0313 0170 0097 0057	ntation % Passir 27 22 16 11 9		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	Mass of sam	mm mm mm		6955 % dry mass 9 49 16 27 27 13.9 0.146 0.00725	
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6		ving % Passing 100 100 91 91 91 89 78 74 68 60 54 50 48 46 43 39 36		Sedime Size mm 0567 0313 0170 0097 0028	ntation % Passir 27 22 16 11 9 6		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sam	mm mm mm		6955 % dry mass 9 49 16 27 27 13.9 0.146 0.00725 1900 0.21	
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 0.425		ving % Passing 100 100 91 91 91 89 78 74 68 60 54 50 48 46 43 39 36 35	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Sedime Size mm 0567 0313 0170 0097 0028	ntation % Passir 27 22 16 11 9 6		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sam	mm mm mm		6955 % dry mass 9 49 16 27 27 13.9 0.146 0.00725 1900 0.21	
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3		ving % Passing 100 100 91 91 91 89 78 74 68 60 54 50 54 50 48 46 43 39 36 35 33	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Sedime Size mm 0567 0313 0170 0097 0028	ntation % Passir 27 22 16 11 9 6		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sam	mm mm mm		6955 % dry mass 9 49 16 27 27 13.9 0.146 0.00725 1900 0.21	
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 0.425		ving % Passing 100 100 91 91 91 89 78 74 68 60 54 50 54 50 54 50 48 46 43 39 36 35 33 32	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Sedime Size mm 0567 0313 0170 0097 0028	ntation % Passir 27 22 16 11 9 6		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sam	mm mm mm		6955 % dry mass 9 49 16 27 27 13.9 0.146 0.00725 1900 0.21	
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212		ving % Passing 100 100 91 91 91 89 78 74 68 60 54 50 54 50 48 46 43 39 36 35 33	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Sedime Size mm 0567 0313 0170 0097 0028	ntation % Passir 27 22 16 11 9 6		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks	Mass of sam	mm mm mm		6955 % dry mass 9 49 16 27 27 13.9 0.146 0.00725 1900 0.21	
F	0.001 Particle Size 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15		ving % Passing 100 100 91 91 91 89 78 74 68 60 54 50 54 50 54 50 48 46 43 39 36 35 33 32 30	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Sedime Size mm 0567 0313 0170 0097 0028	ntation % Passir 27 22 16 11 9 6		Dry N Sample Prop Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity C Curvature Co Remarks Preparation and	Mass of sam	mm mm ance with BS137		6955 % dry mass 9 49 16 27 27 13.9 0.146 0.00725 1900 0.21	

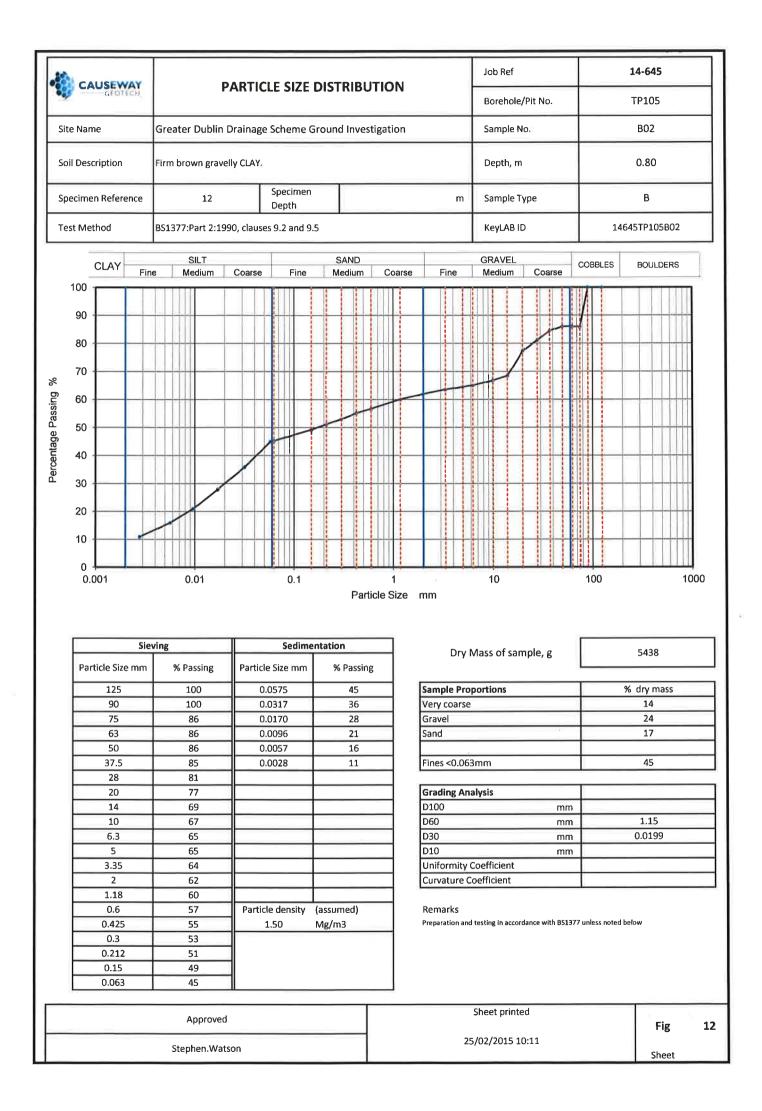


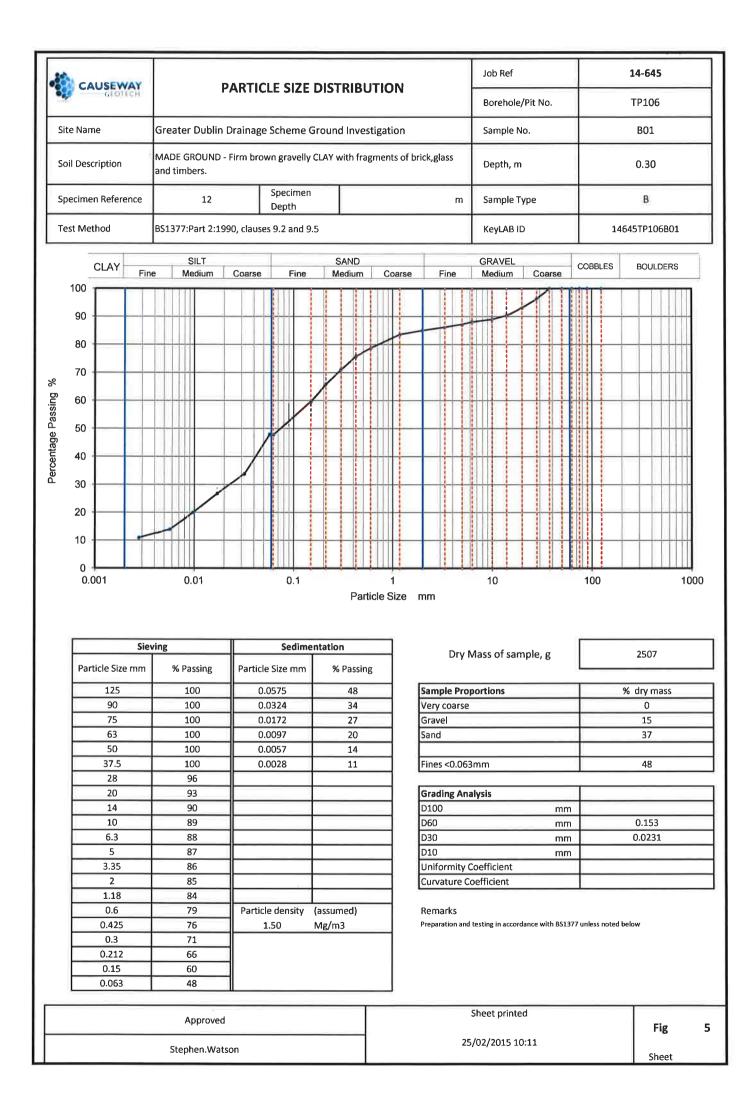


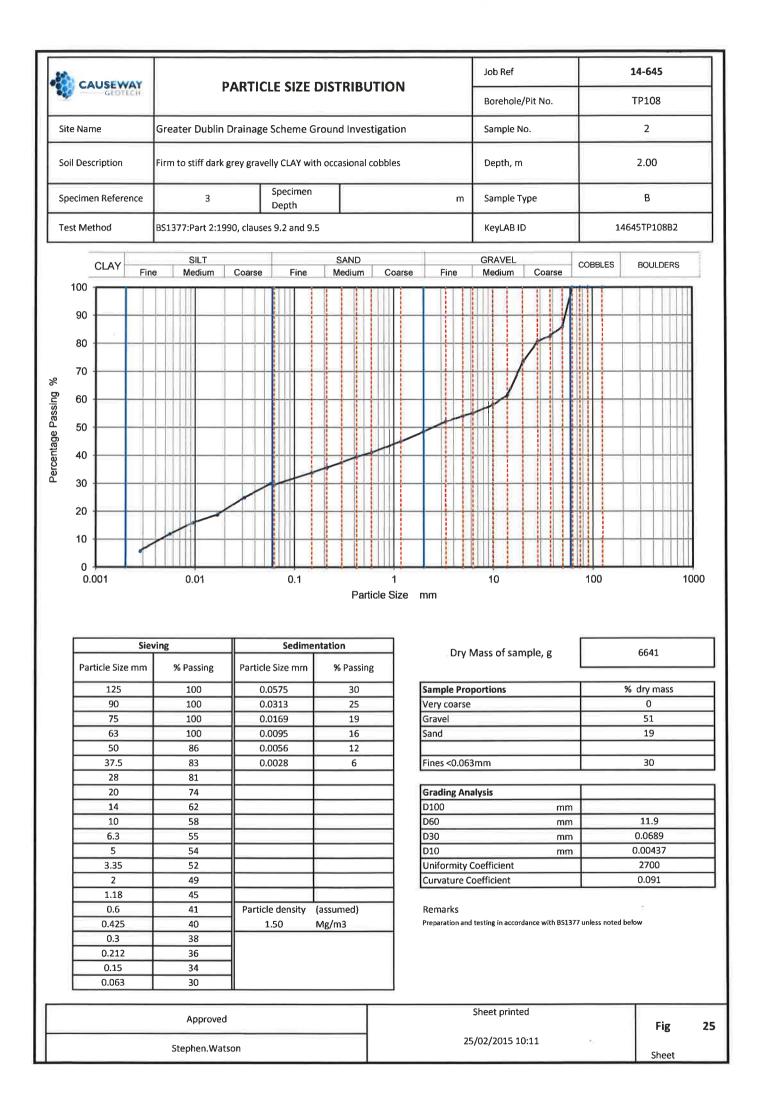
CAUSEWAY	D	ARTICLE SIZE [NSTRIRUTIO	N	Job Ref	14-6	645
GEOTECH					Borehole/Pit No.	TP1	.04
Site Name	Greater Dublin D	orainage Scheme G	ound Investigat	Sample No.	B01 0.50		
Soil Description	Firm brown gravel	ly CLAY with occasion	al cobbles.	Depth, m			
Specimen Reference	12	Specimen Depth		m	Sample Type	E	3
Test Method	BS1377:Part 2:199	0, clauses 9.2 and 9.5			KeyLAB ID	14645TP	104801
CLAY Fi	SILT ne Medium	Coarse Fine	SAND Medium C	oarse Fine	GRAVEL Medium Coarse	COBBLES BO	ULDERS
100							
90							
80							
70							
60	/						
50							
60	V						
40	<u>/</u>						
30							
30							
20							
10							
		(f)		1	24		
	eving	Sedimen		Dry	Mass of sample, g	19	35
Particle Size mm	% Passing	Particle Size mm	% Passing				
125							
00	100	0.0567	81	Sample Pro			/ mass
90 75	100 100 100	0.0567 0.0311 0.0166	67	Very coarse		(r mass D 4
75 63	100 100 100	0.0311 0.0166 0.0094	67 56 43			(2
75 63 50	100 100 100 100	0.0311 0.0166 0.0094 0.0056	67 56 43 31	Very coarse Gravel Sand		() 4 6
75 63	100 100 100	0.0311 0.0166 0.0094	67 56 43	Very coarse Gravel		(0 4
75 63 50 37.5 28 20	100 100 100 100 100 98 97	0.0311 0.0166 0.0094 0.0056	67 56 43 31	Very coarse Gravel Sand Fines <0.063 Grading Ana	3mm	() 4 6
75 63 50 37.5 28 20 14	100 100 100 100 100 98 97 97 97	0.0311 0.0166 0.0094 0.0056	67 56 43 31	Very coarse Gravel Sand Fines <0.063 Grading Ana D100	3mm alysis mm) 4 6 11
75 63 50 37.5 28 20	100 100 100 100 100 98 97	0.0311 0.0166 0.0094 0.0056	67 56 43 31	Very coarse Gravel Sand Fines <0.063 Grading Ana	3mm alysis) 4 6
75 63 50 37.5 28 20 14 10 6.3 5	100 100 100 100 98 97 97 97 97 97 97 97 97	0.0311 0.0166 0.0094 0.0056	67 56 43 31	Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	3mm alysis mm mm mm mm		208
75 63 50 37.5 28 20 14 10 6.3 5 3.35	100 100 100 100 98 97 97 97 97 97 97 97 97 97 97 97	0.0311 0.0166 0.0094 0.0056	67 56 43 31	Very coarse Gravel Sand Fines <0.063 Grading An D100 D60 D30 D10 Uniformity (3mm alysis mm mm mm Coefficient		208
75 63 50 37.5 28 20 14 10 6.3 5	100 100 100 100 98 97 97 97 97 97 97 97 97	0.0311 0.0166 0.0094 0.0056	67 56 43 31	Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10	3mm alysis mm mm mm Coefficient		208
75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6	100 100 100 100 98 97 97 97 97 97 97 97 97 97 97 97 97 96 96 93	0.0311 0.0166 0.0094 0.0056 0.0028	67 56 43 31 22 assumed)	Very coarse Gravel Sand Fines <0.063 Grading And D100 D60 D30 D10 Uniformity O Curvature C	3mm alysis mm mm mm Coefficient oefficient		208
75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425	100 100 100 100 98 97 97 97 97 97 97 97 97 97 97 97 97 97	0.0311 0.0166 0.0094 0.0056 0.0028	67 56 43 31 22	Very coarse Gravel Sand Fines <0.063 Grading And D100 D60 D30 D10 Uniformity O Curvature C	3mm alysis mm mm mm Coefficient		208
75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6	100 100 100 100 98 97 97 97 97 97 97 97 97 97 97 97 97 97	0.0311 0.0166 0.0094 0.0056 0.0028	67 56 43 31 22 assumed)	Very coarse Gravel Sand Fines <0.063 Grading And D100 D60 D30 D10 Uniformity O Curvature C	3mm alysis mm mm mm Coefficient oefficient		208
75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15	100 100 100 100 98 97 97 97 97 97 97 97 97 97 97 97 97 97	0.0311 0.0166 0.0094 0.0056 0.0028	67 56 43 31 22 assumed)	Very coarse Gravel Sand Fines <0.063 Grading And D100 D60 D30 D10 Uniformity O Curvature C	3mm alysis mm mm mm Coefficient oefficient		208
75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212	100 100 100 100 98 97 97 97 97 97 97 97 97 97 97 97 97 97	0.0311 0.0166 0.0094 0.0056 0.0028	67 56 43 31 22 assumed)	Very coarse Gravel Sand Fines <0.063 Grading And D100 D60 D30 D10 Uniformity O Curvature C	3mm alysis mm mm mm Coefficient oefficient		208
75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15	100 100 100 100 100 98 97 96 93 92 89 87 85 81	0.0311 0.0166 0.0094 0.0056 0.0028	67 56 43 31 22 assumed)	Very coarse Gravel Sand Fines <0.063 D100 D60 D30 D10 Uniformity (Curvature C Remarks Preparation and	3mm alysis mm mm mm Coefficient oefficient		D 4 6 1 208 0504
75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15	100 100 100 100 98 97 97 97 97 97 97 97 97 97 97 97 97 97	0.0311 0.0166 0.0094 0.0056 0.0028	67 56 43 31 22 assumed)	Very coarse Gravel Sand Fines <0.063 Grading Ana D100 D60 D30 D10 Uniformity (Curvature C Remarks Preparation and	3mm alysis mm mm Coefficient coefficient testing in accordance with BS13		208

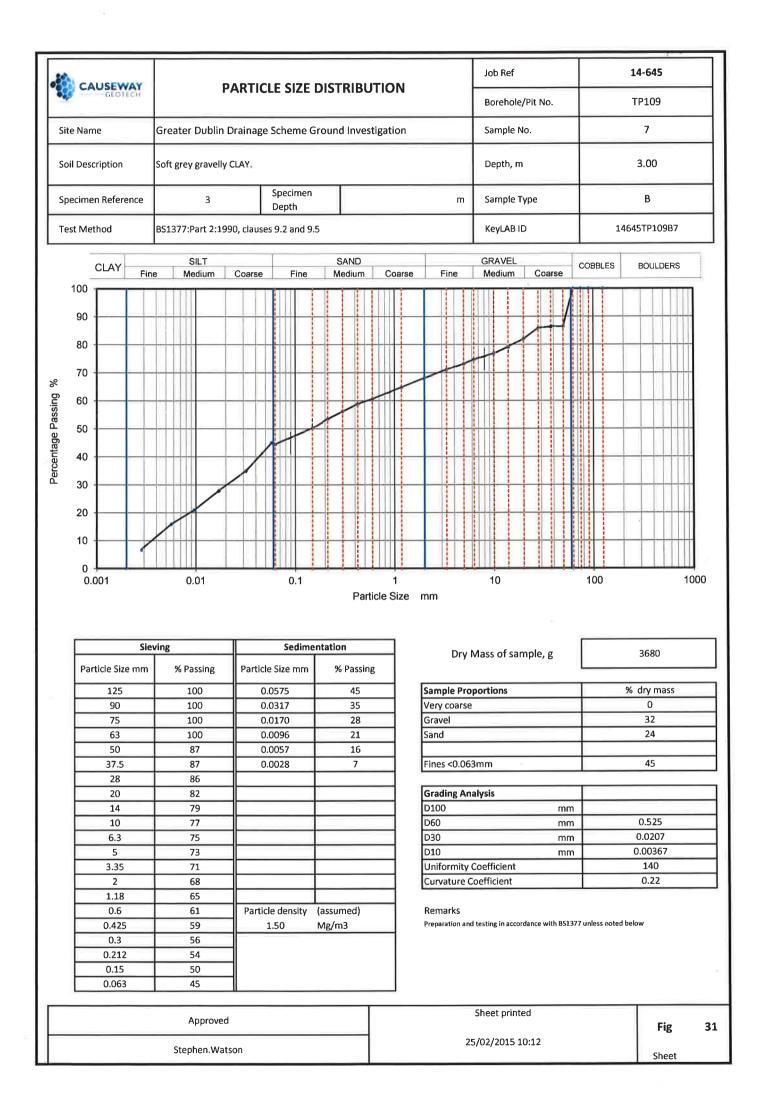


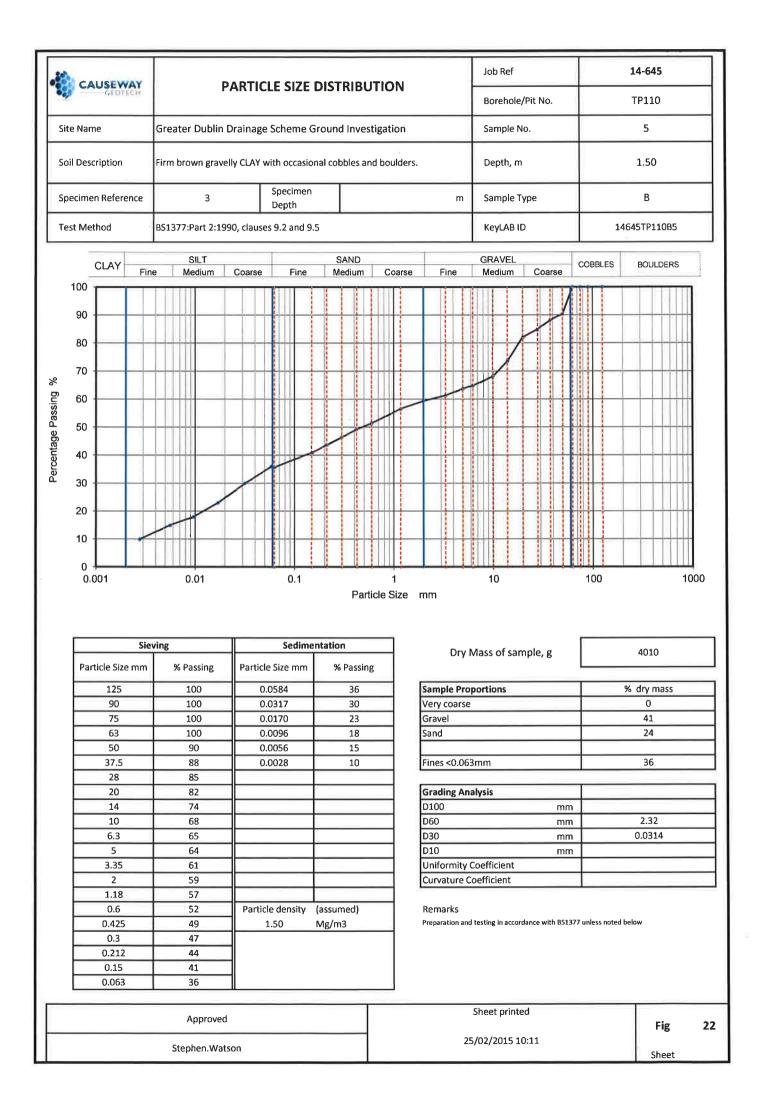
Sheet











	CAUSE	WAY			1 E CI7E	DISTRIB			Job Ref			14-645
200	GLC	TECH		PARTIC		DISTRIB			Borehole/	Pit No.		TP112
Site	Name		Greater Dublin Drainage Scheme Ground Investigation Firm to stiff dark grey gravelly CLAY with cobbles and boulders.						Sample No. Depth, m		2	
Soil	Description	'n										
Spe	cimen Refe	rence	3		Specimen Depth			m	Sample Ty	рe		В
Tes	t Method		BS1377:Part 2	2:1990, clause	es 9.2 and 9	.5			KeyLAB ID		14	4645TP112B2
	CLAY	, Fir	SILT Ie Medium	1 Coarse	Fine	SAND Medium	Coarse	e Fine	GRAVEL Medium	Coarse	COBBLES	BOULDERS
1	100										N	
	90				-							
	80											·
	70											<u> </u>
2	60											
	50								1			
	40											
	30				-			-				
	20											
	10				-							
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