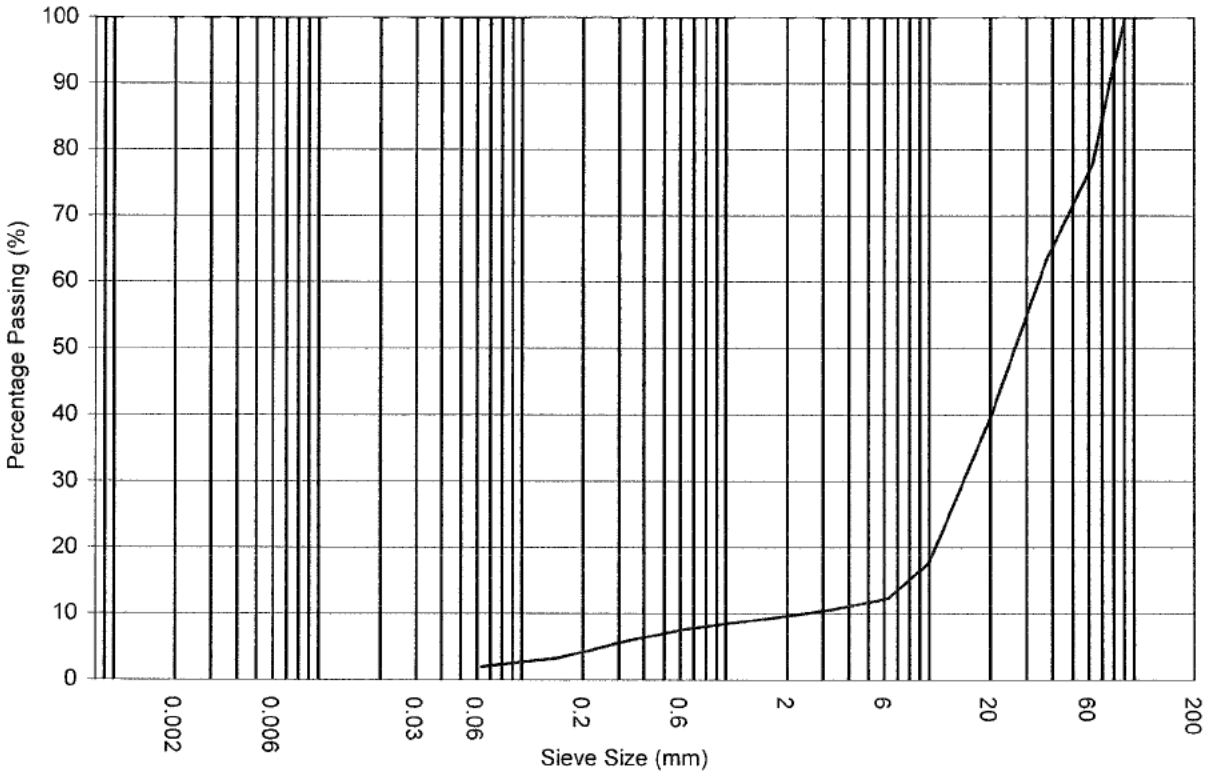
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 ~~& 9.4~~

Hole No. : BH1 Sample No. : 9 Sample Type : B Depth (m) : 4.00

Specimen Details
Test Date : 26/04/2010
Loss on Pretreatment : Not applicable

Soil Description : Brown slightly silty sandy very cobbly GRAVEL



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
	2	8	66	24
Uniformity Coefficient :	14			

Remarks : Insufficient material to comply with BS1377. Treat results with caution.

Notes : If no value given for percentage clay, all fines included in percentage silt

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Figure No.	LT2/ 3	Sheet	

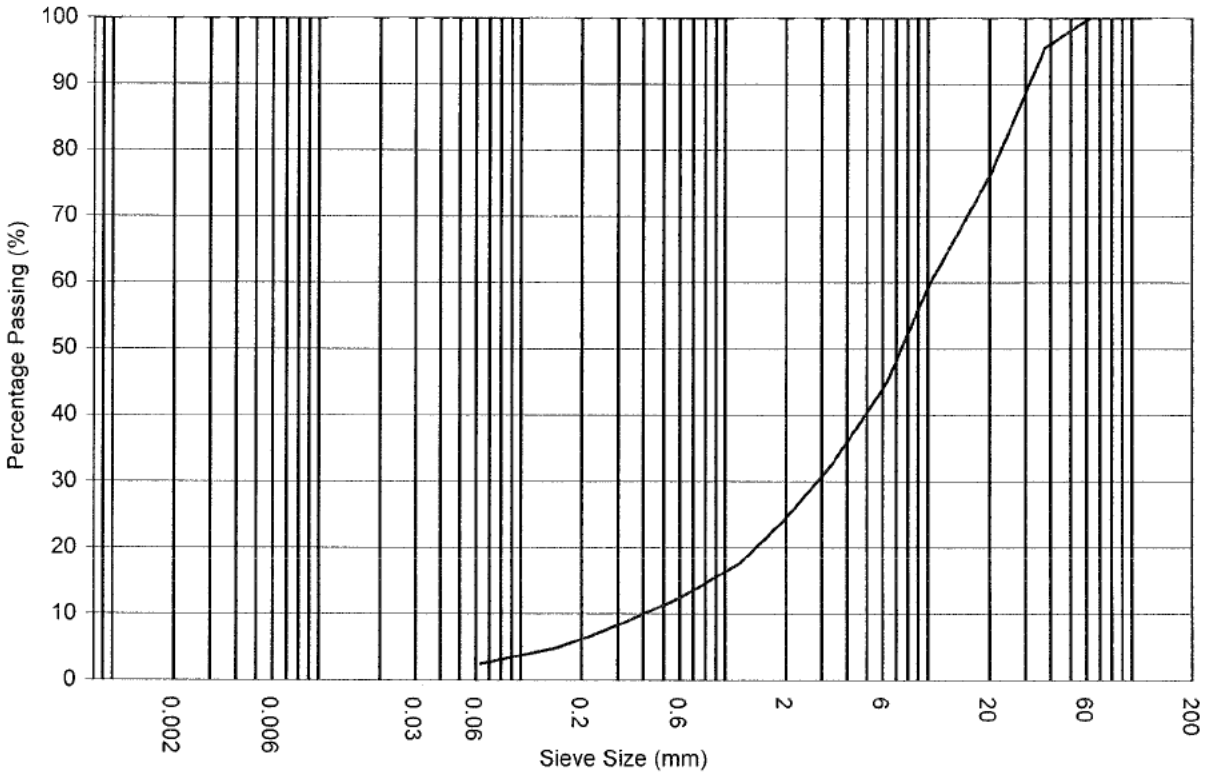
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 ~~& 9.4~~

Hole No. : BH2 Sample No. : 4 Sample Type : B Depth (m) : 2.00

Specimen Details
Test Date : 15/02/2010
Loss on Pretreatment : Not applicable

Soil Description : Brown slightly cobbly slightly silty very sandy GRAVEL



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
	2	22	75	1
Uniformity Coefficient :		24.6		
Remarks :				
Notes : If no value given for percentage clay, all fines included in percentage silt				

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Figure No.	LT2/ 4	Sheet	

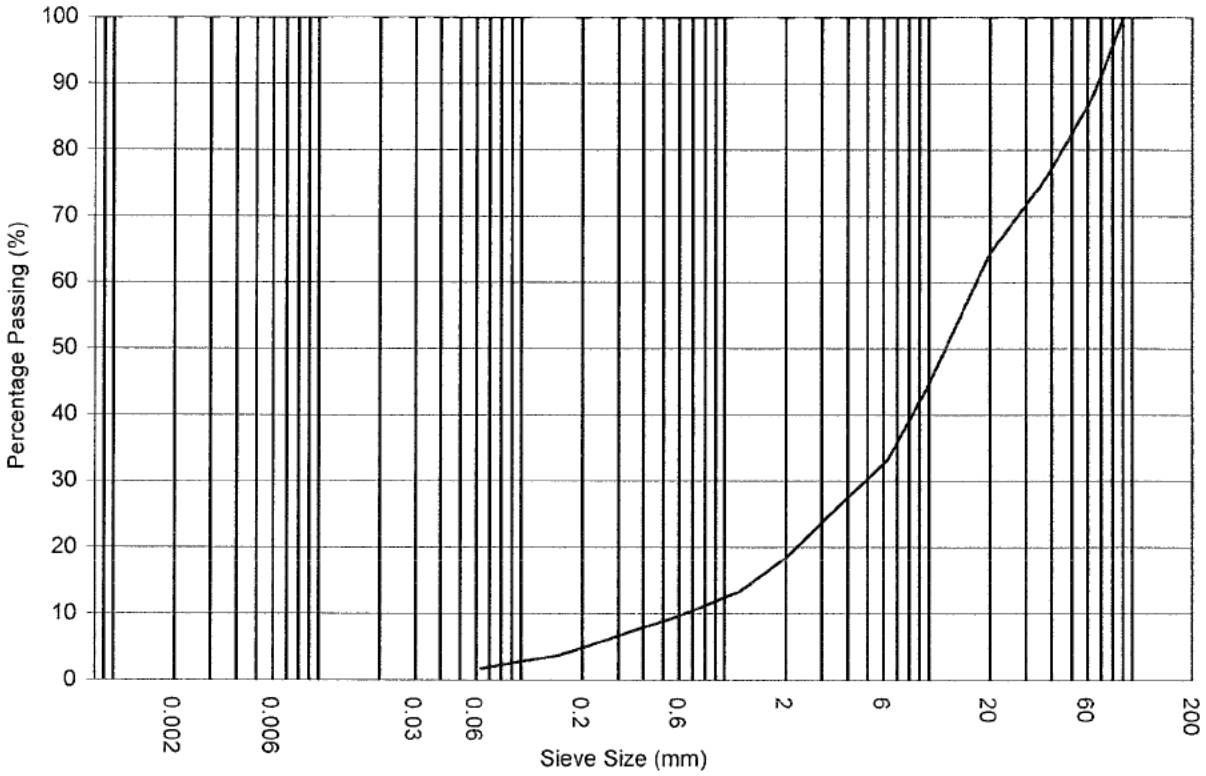
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 ~~& 9.4~~

Hole No. : BH2 Sample No. : 6 Sample Type : B Depth (m) : 3.00

Specimen Details
Test Date : 11/02/2010
Loss on Pretreatment : Not applicable

Soil Description : Brown slightly silty cobbly sandy GRAVEL



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
	2	16	68	14

Uniformity Coefficient : 27.4

Remarks : Insufficient material to comply with BS1377. Treat results with caution.

Notes : If no value given for percentage clay, all fines included in percentage silt

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Figure No.	LT2/ 5	Sheet	

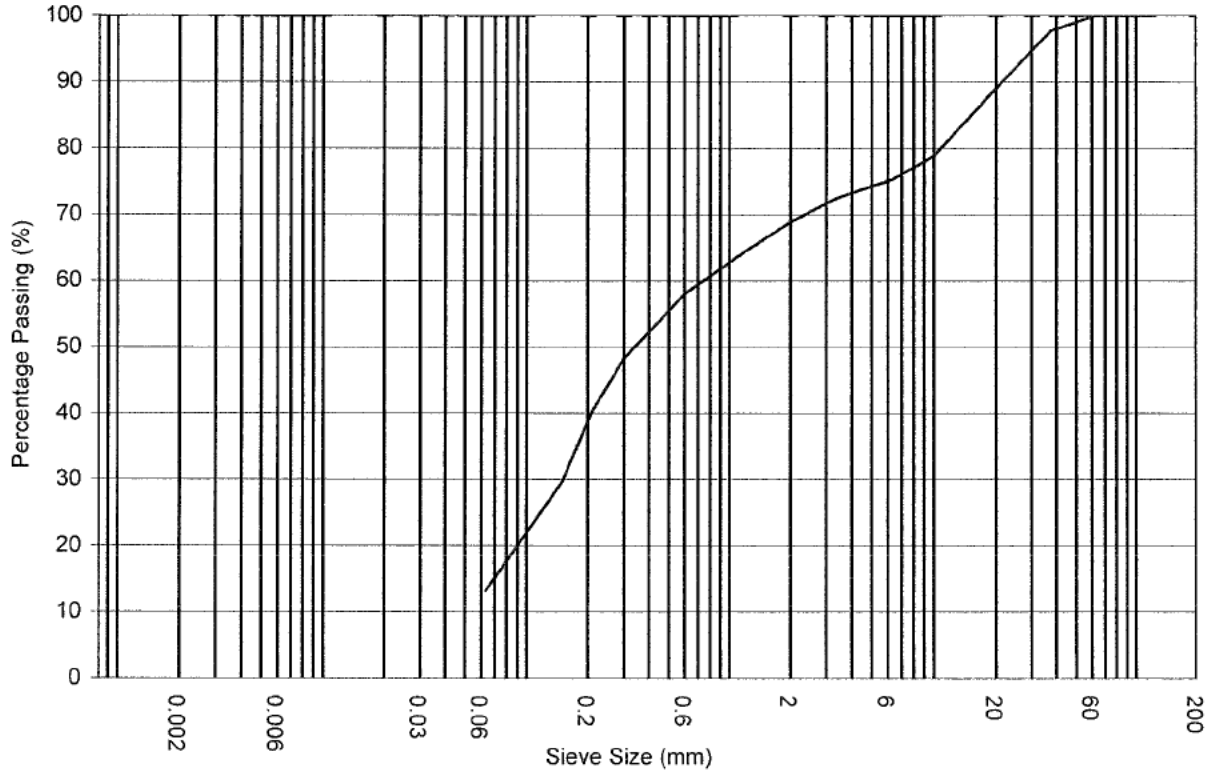
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 ~~& 9.4~~

Hole No. : BH3 Sample No. : 4 Sample Type : B Depth (m) : 1.20

Specimen Details
Test Date : 26/04/2010
Loss on Pretreatment : Not applicable

Soil Description : Brown silty very gravelly SAND



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
	13	56	31	0

Uniformity Coefficient : Not Applicable

Remarks :

Notes : If no value given for percentage clay, all fines included in percentage silt

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Figure No.	LT2/ 6	Sheet	

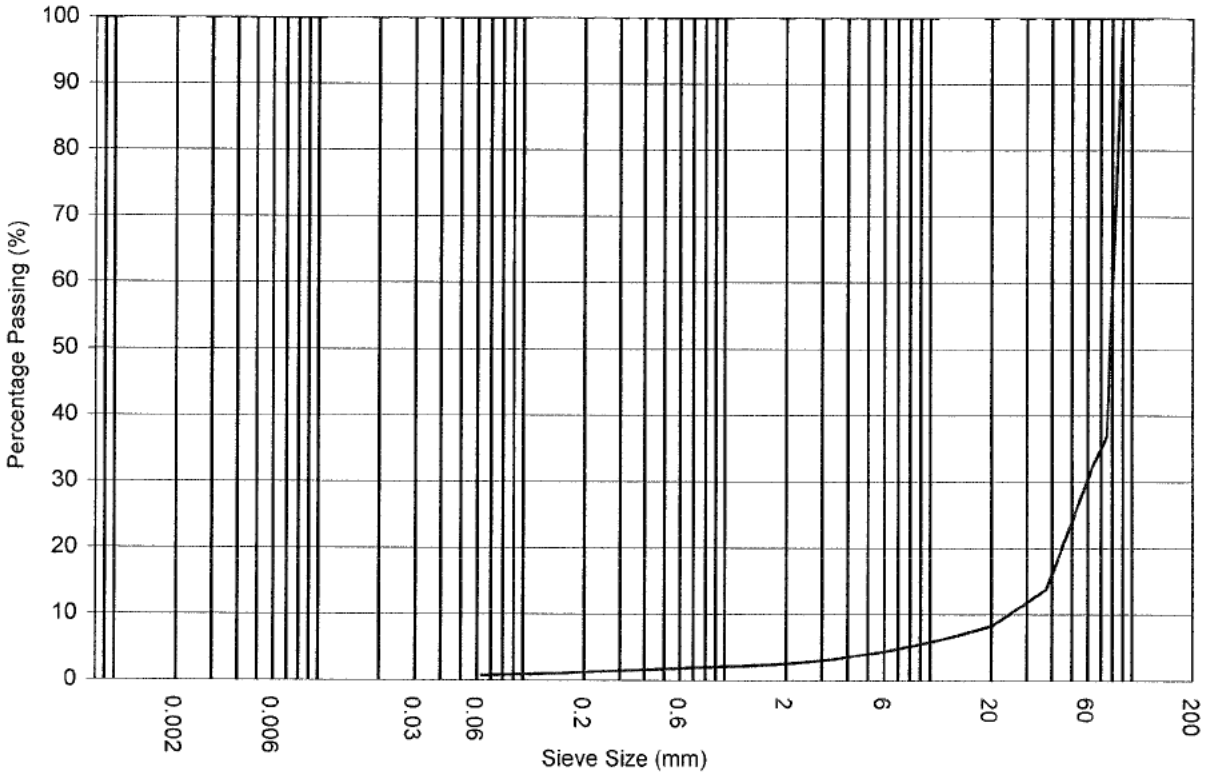
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 ~~& 9.4~~

Hole No. : BH3 Sample No. : 9 Sample Type : B Depth (m) : 4.00

Specimen Details
Test Date : 26/04/2010
Loss on Pretreatment : Not applicable

Soil Description : Grey slightly silty slightly sandy very gravelly COBBLES



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
	1	2	27	70

Uniformity Coefficient : 3.1

Remarks : Insufficient material to comply with BS1377. Treat results with caution.

Notes : If no value given for percentage clay, all fines included in percentage silt

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Figure No.	LT2/ 7	Sheet	

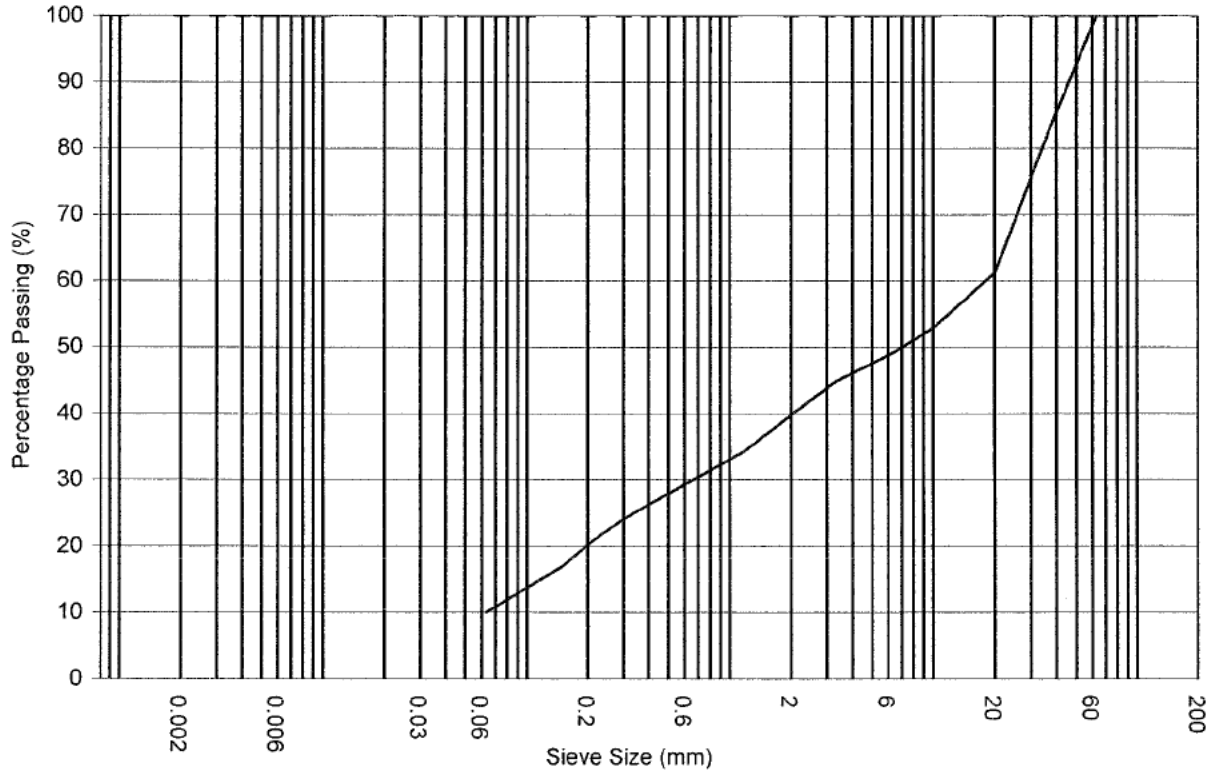
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 ~~& 9.4~~

Hole No. : BH4 Sample No. : 2 Sample Type : B Depth (m) : 1.20

Specimen Details
Test Date : 15/02/2010
Loss on Pretreatment : Not applicable

Soil Description : Brown slightly cobbly clayey very sandy GRAVEL



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
	10	30	58	2

Uniformity Coefficient : Not Applicable

Remarks : Insufficient material to comply with BS1377. Treat results with caution.

Notes : If no value given for percentage clay, all fines included in percentage silt

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Figure No.	LT2/ 8	Sheet	

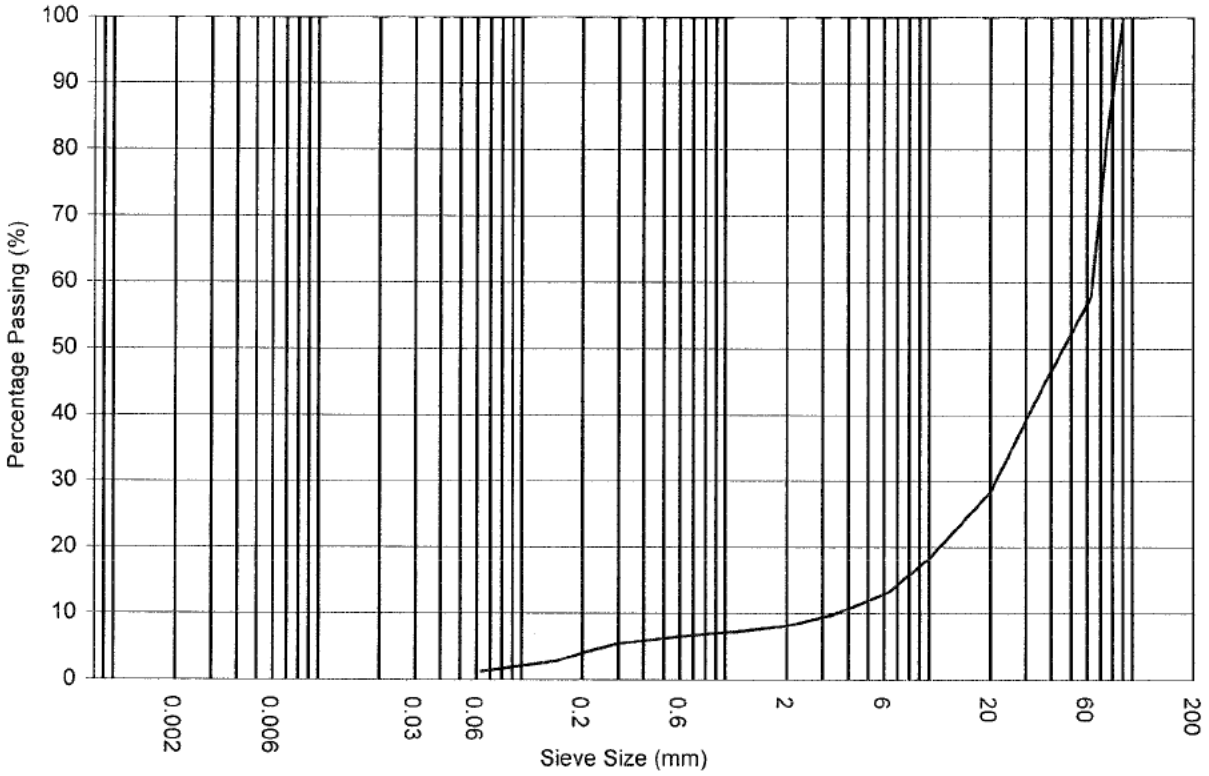
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 & ~~9.4~~

Hole No. : BH4 Sample No. : 6 Sample Type : B Depth (m) : 3.00

Specimen Details
Test Date : 11/02/2010
Loss on Pretreatment : Not applicable

Soil Description : Brown slightly silty sandy GRAVEL and COBBLES



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
	1	7	48	44

Uniformity Coefficient : 18.1

Remarks : Insufficient material to comply with BS1377. Treat results with caution.

Notes : If no value given for percentage clay, all fines included in percentage silt

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Figure No.	LT2/ 9	Sheet	

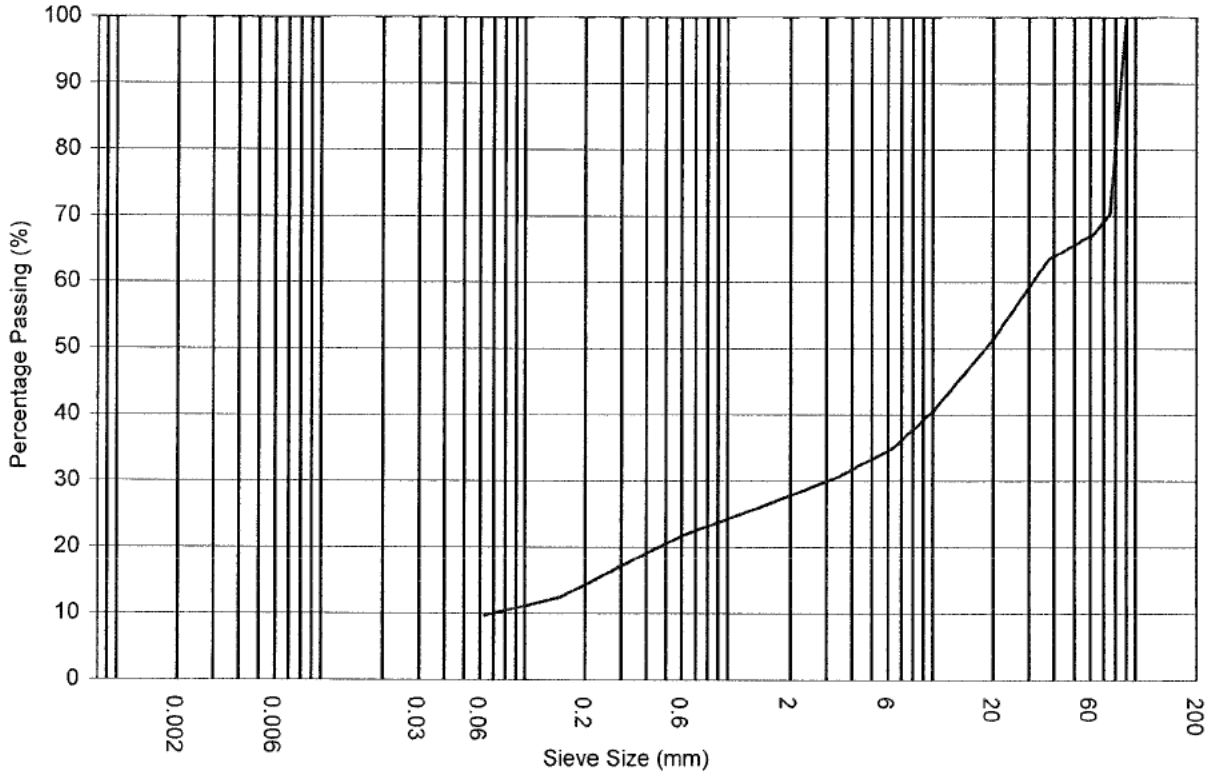
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 ~~& 9.4~~

Hole No. : BH6 Sample No. : 2 Sample Type : B Depth (m) : 1.20

Specimen Details
Test Date : 26/04/2010
Loss on Pretreatment : Not applicable

Soil Description : Grey silty sandy very cobbly GRAVEL



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
	10	18	39	33

Uniformity Coefficient : 443.1

Remarks : Insufficient material to comply with BS1377. Treat results with caution.

Notes : If no value given for percentage clay, all fines included in percentage silt

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Figure No.	LT2/ 10	Sheet	

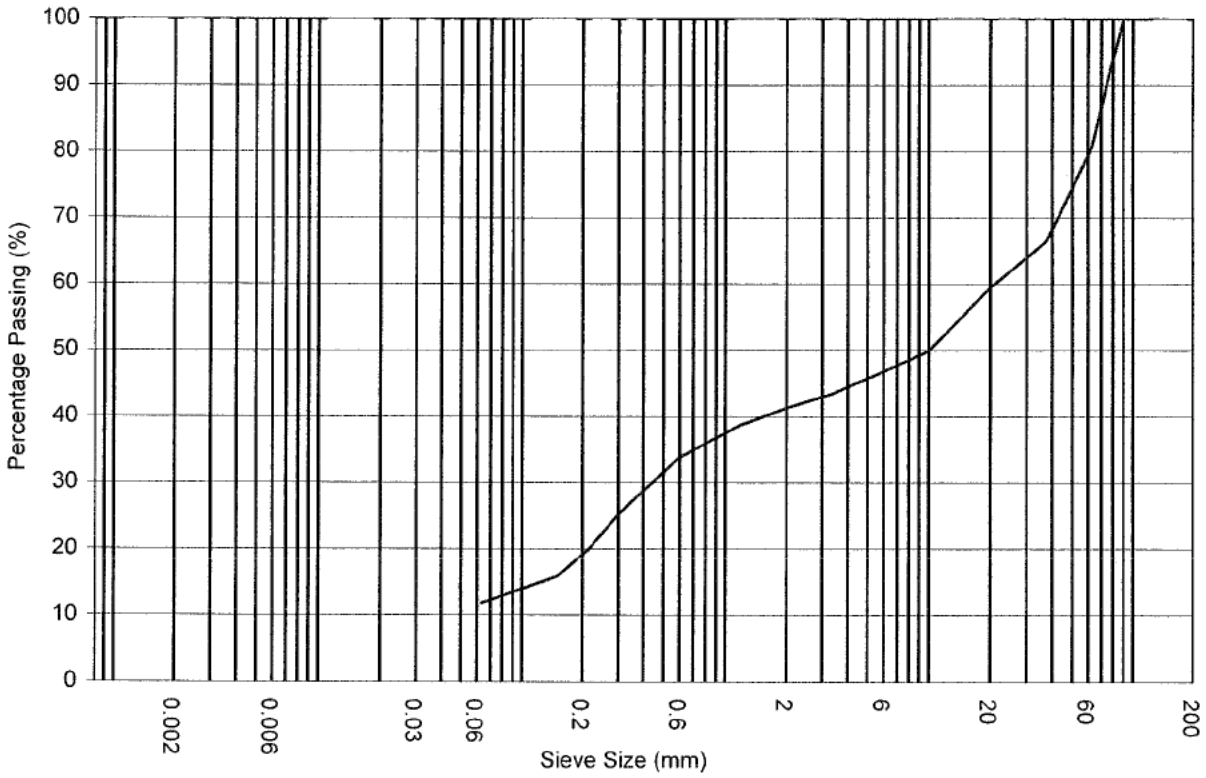
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 ~~& 9.4~~

Hole No. : BH9 Sample No. : 2 Sample Type : B Depth (m) : 1.20

Specimen Details
Test Date : 26/04/2010
Loss on Pretreatment : Not applicable

Soil Description : Grey silty very cobbly very sandy GRAVEL



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
	12	29	38	21

Uniformity Coefficient : Not Applicable

Remarks : Insufficient material to comply with BS1377. Treat results with caution.

Notes : If no value given for percentage clay, all fines included in percentage silt

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Figure No.	LT2/ 11	Sheet	

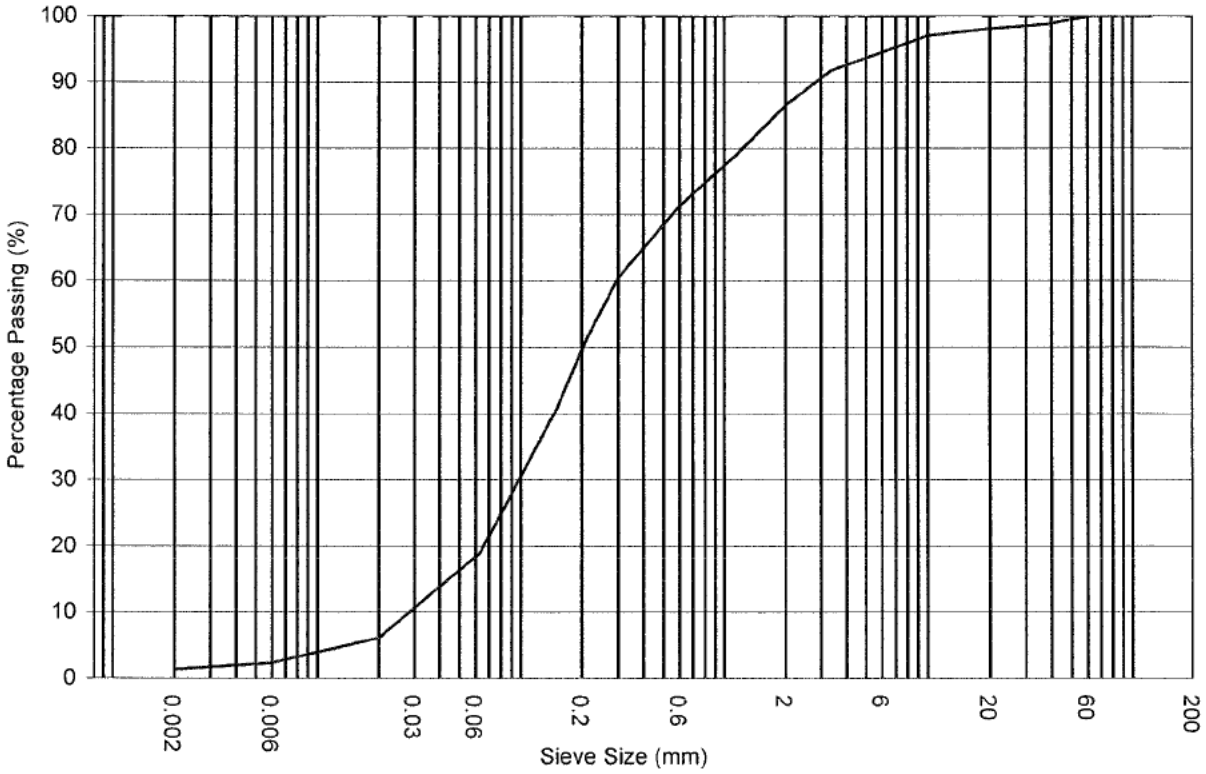
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 & 9.4

Hole No. : BH9 Sample No. : 6 Sample Type : B Depth (m) : 3.00

Specimen Details
Test Date : 26/04/2010
Loss on Pretreatment : Not applicable

Soil Description : Brown gravelly silty SAND



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
1	18	67	14	0

Uniformity Coefficient : Not Applicable

Remarks :

Notes : If no value given for percentage clay, all fines included in percentage silt

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Figure No.	LT2/ 12	Sheet	

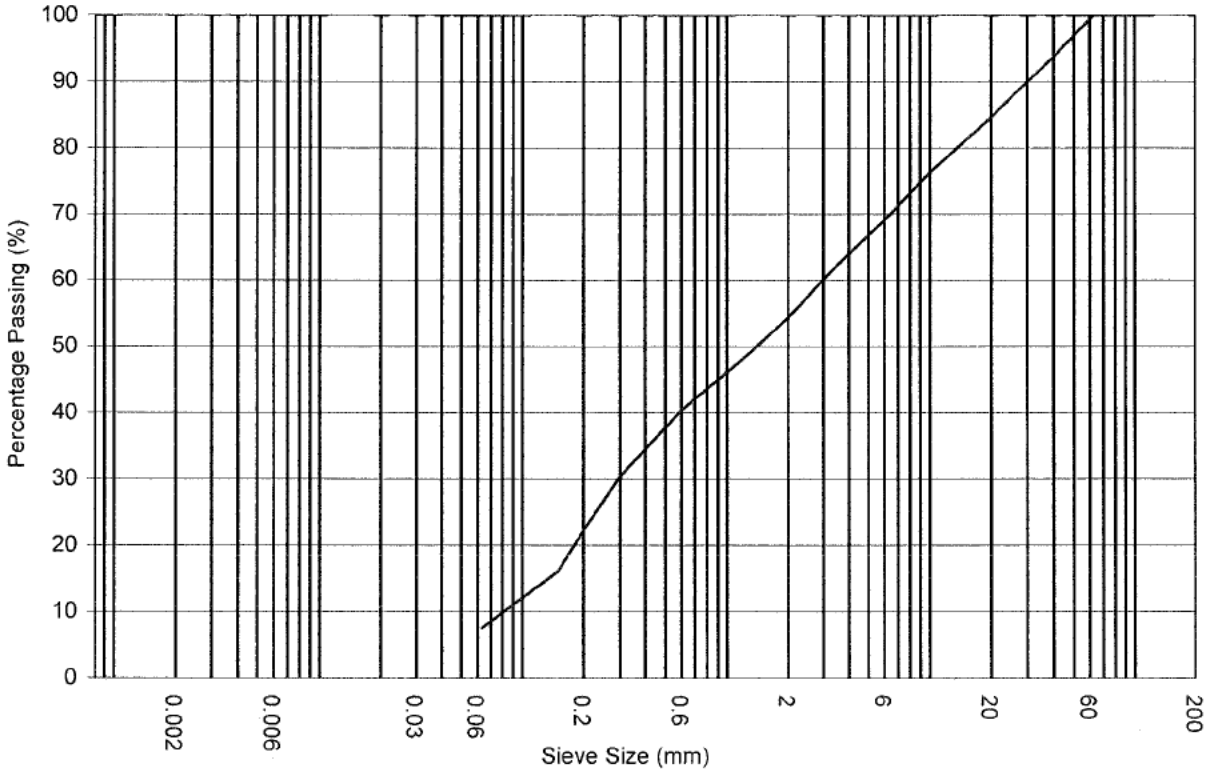
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 ~~& 9.4~~

Hole No. : BH10 Sample No. : 1 Sample Type : B Depth (m) : 1.20

Specimen Details
Test Date : 11/02/2010
Loss on Pretreatment : Not applicable

Soil Description : Brown slightly cobbly clayey SAND and GRAVEL



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
	7	47	45	1
Uniformity Coefficient :		34.4		

Remarks :

Notes : If no value given for percentage clay, all fines included in percentage silt

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Figure No.	LT2/ 13	Sheet	

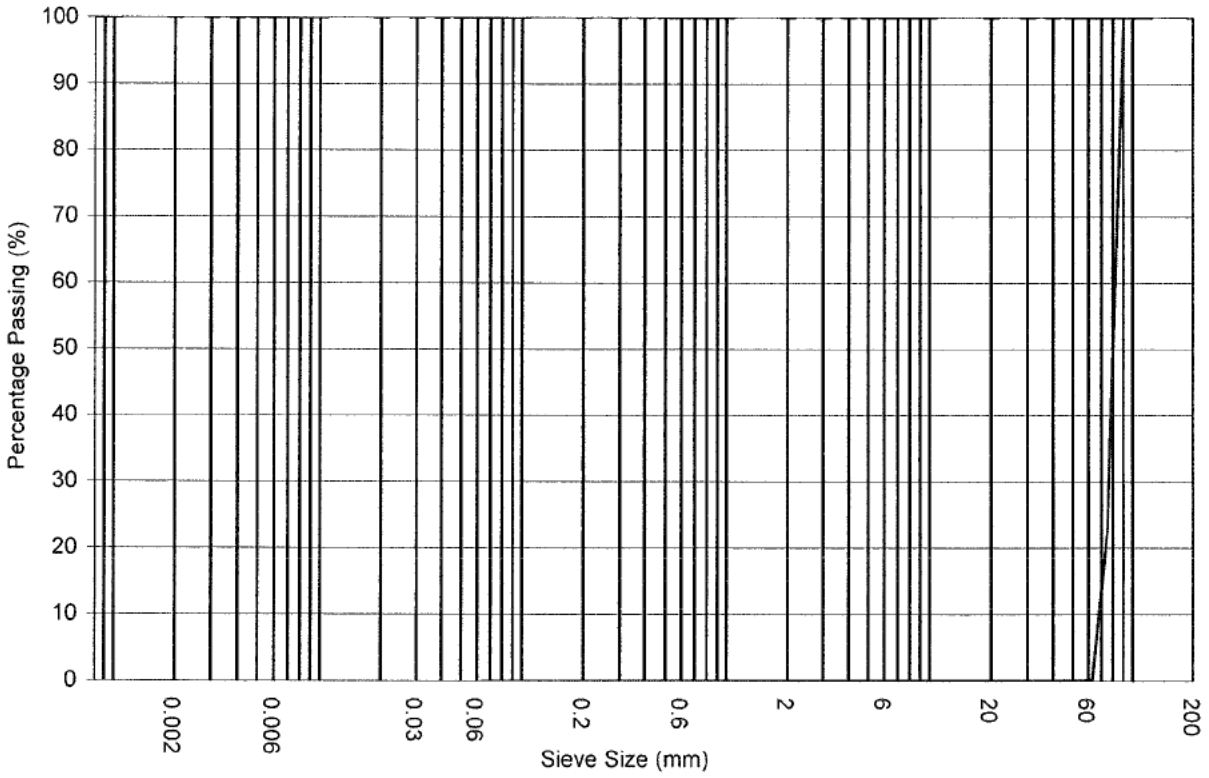
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 ~~& 9.4~~

Hole No. : BH10 Sample No. : 5 Sample Type : B Depth (m) : 2.00

Specimen Details
Test Date : 11/02/2010
Loss on Pretreatment : Not applicable

Soil Description : Brown COBBLES



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
	0	0	0	100
Uniformity Coefficient :	1.2			

Remarks : Insufficient material to comply with BS1377. Treat results with caution.

Notes : If no value given for percentage clay, all fines included in percentage silt

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Figure No.	LT2/ 14	Sheet	

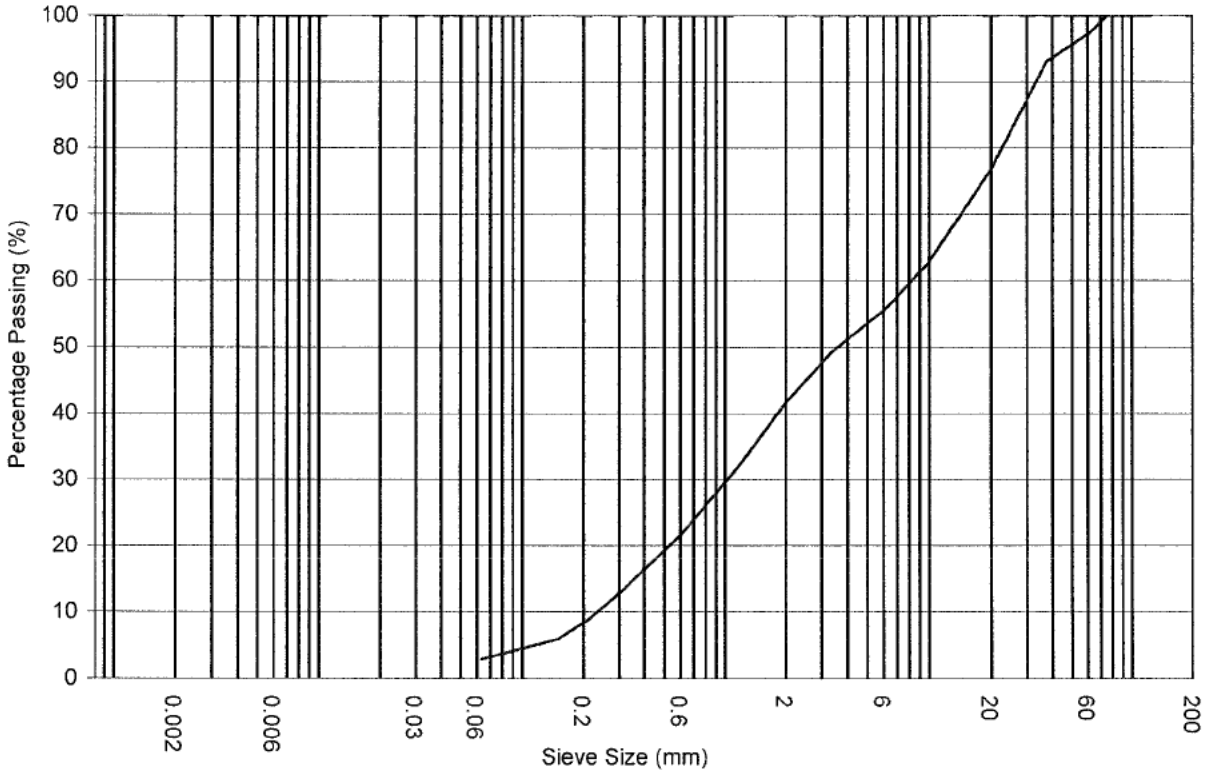
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 ~~& 9.4~~

Hole No. : BH10 Sample No. : 7 Sample Type : B Depth (m) : 3.00

Specimen Details
Test Date : 11/02/2010
Loss on Pretreatment : Not applicable

Soil Description : Brown slightly clayey slightly cobbly very sandy GRAVEL



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
	3	39	55	3

Uniformity Coefficient : 35.6

Remarks :

Notes : If no value given for percentage clay, all fines included in percentage silt

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Figure No.	LT2/ 15	Sheet	

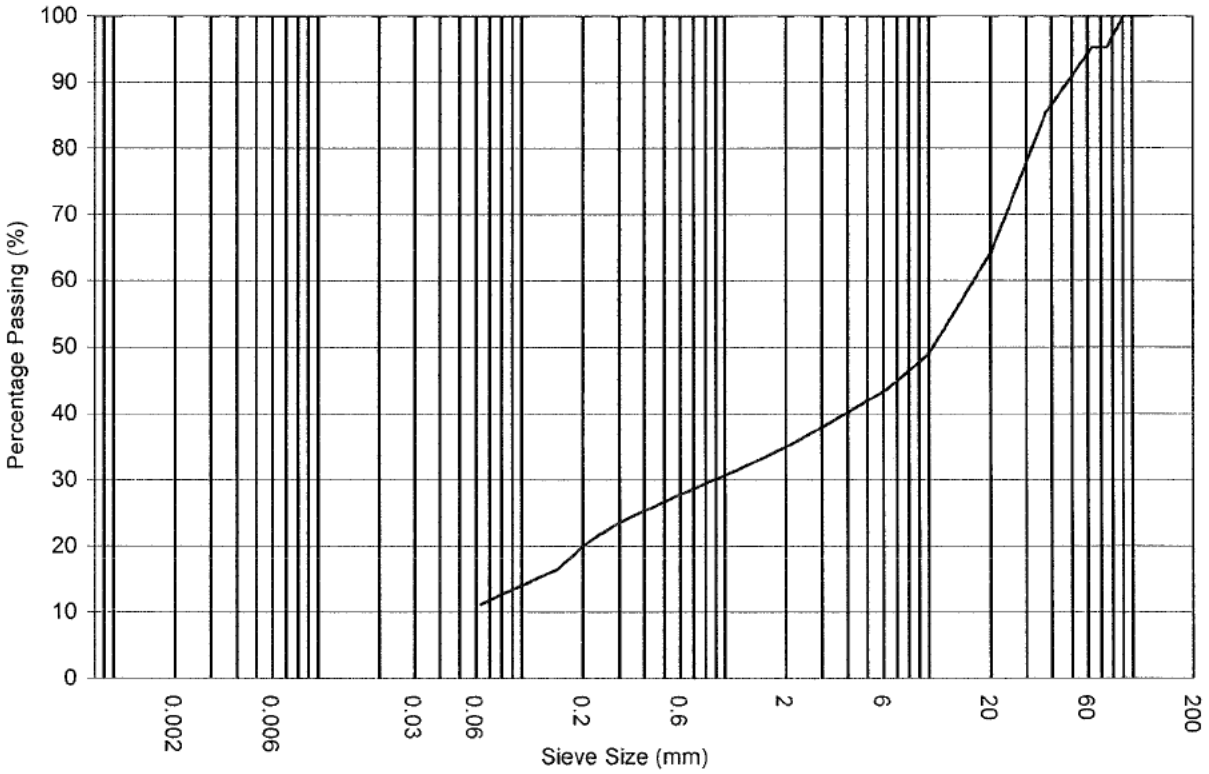
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 ~~& 9.4~~

Hole No. : BH11 Sample No. : 2 Sample Type : B Depth (m) : 2.00

Specimen Details
Test Date : 26/04/2010
Loss on Pretreatment : Not applicable

Soil Description : Brown cobbly silty very sandy GRAVEL



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
	11	24	59	6

Uniformity Coefficient : Not Applicable

Remarks :

Notes : If no value given for percentage clay, all fines included in percentage silt

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Figure No.	LT2/ 16	Sheet	

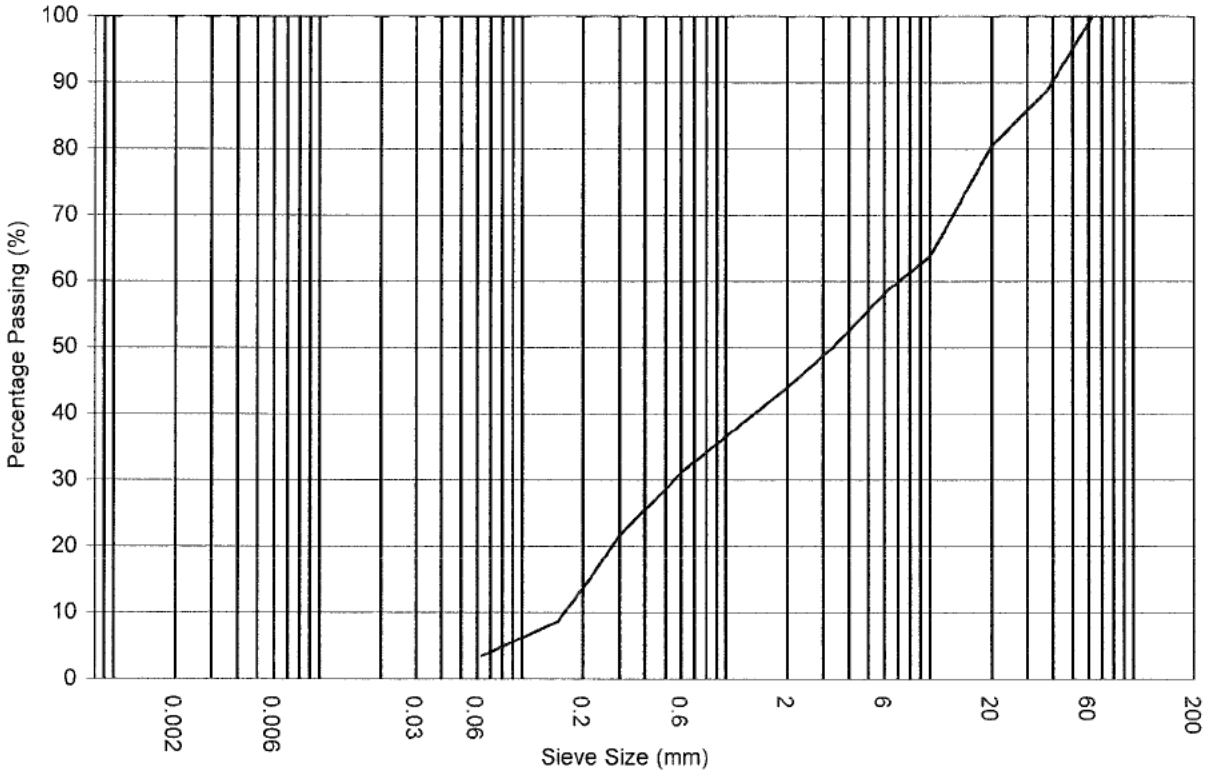
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 ~~& 9.4~~

Hole No. : TP2A Sample No. : 4 Sample Type : B Depth (m) : 1.10

Specimen Details
Test Date : 29/03/2010
Loss on Pretreatment : Not applicable

Soil Description : Brown slightly cobbly slightly silty SAND and GRAVEL



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
	3	41	55	1

Uniformity Coefficient : 44.1

Remarks : Insufficient material to comply with BS1377. Treat results with caution.

Notes : If no value given for percentage clay, all fines included in percentage silt

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Figure No.	LT2/ 17	Sheet	

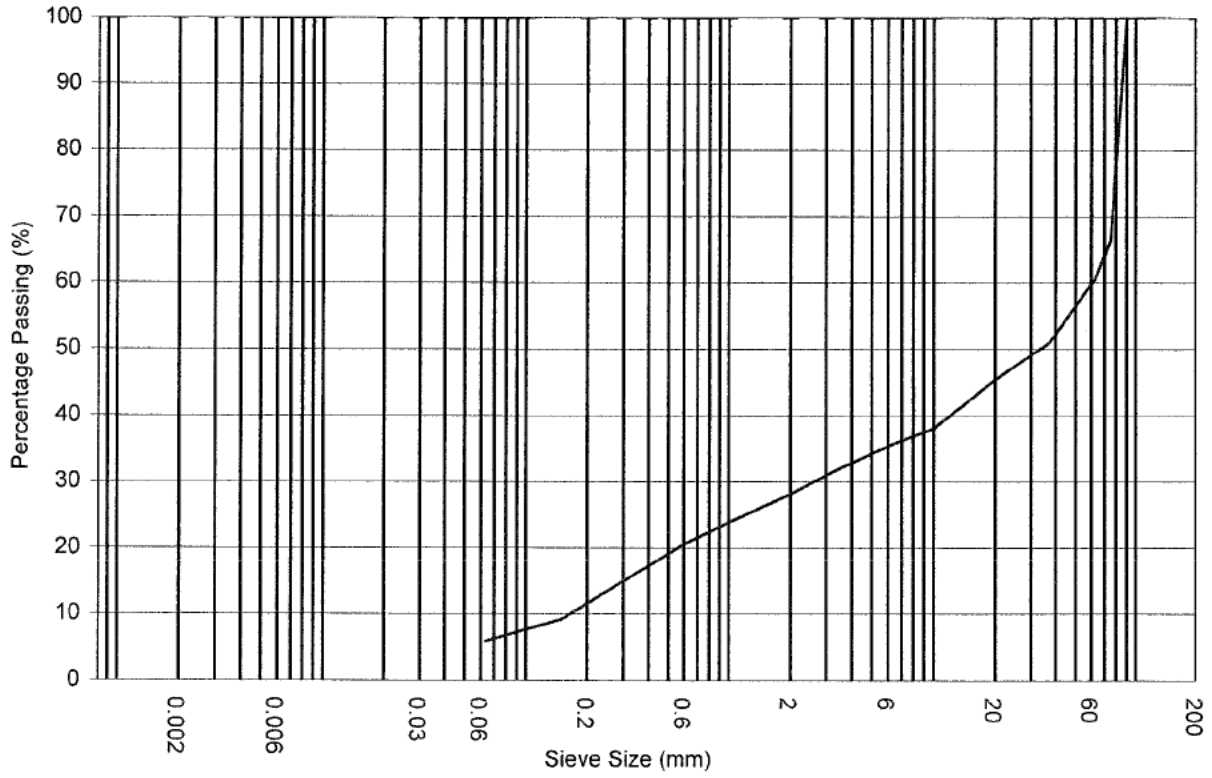
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 ~~& 9.4~~

Hole No. : TP4 Sample No. : 4 Sample Type : B Depth (m) : 1.70

Specimen Details
Test Date : 31/03/2010
Loss on Pretreatment : Not applicable

Soil Description : Brown silty very sandy very gravelly COBBLES



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
	6	22	32	40

Uniformity Coefficient : 364.4

Remarks : Insufficient material to comply with BS1377. Treat results with caution.

Notes : If no value given for percentage clay, all fines included in percentage silt

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Figure No.	LT2/ 18	Sheet	

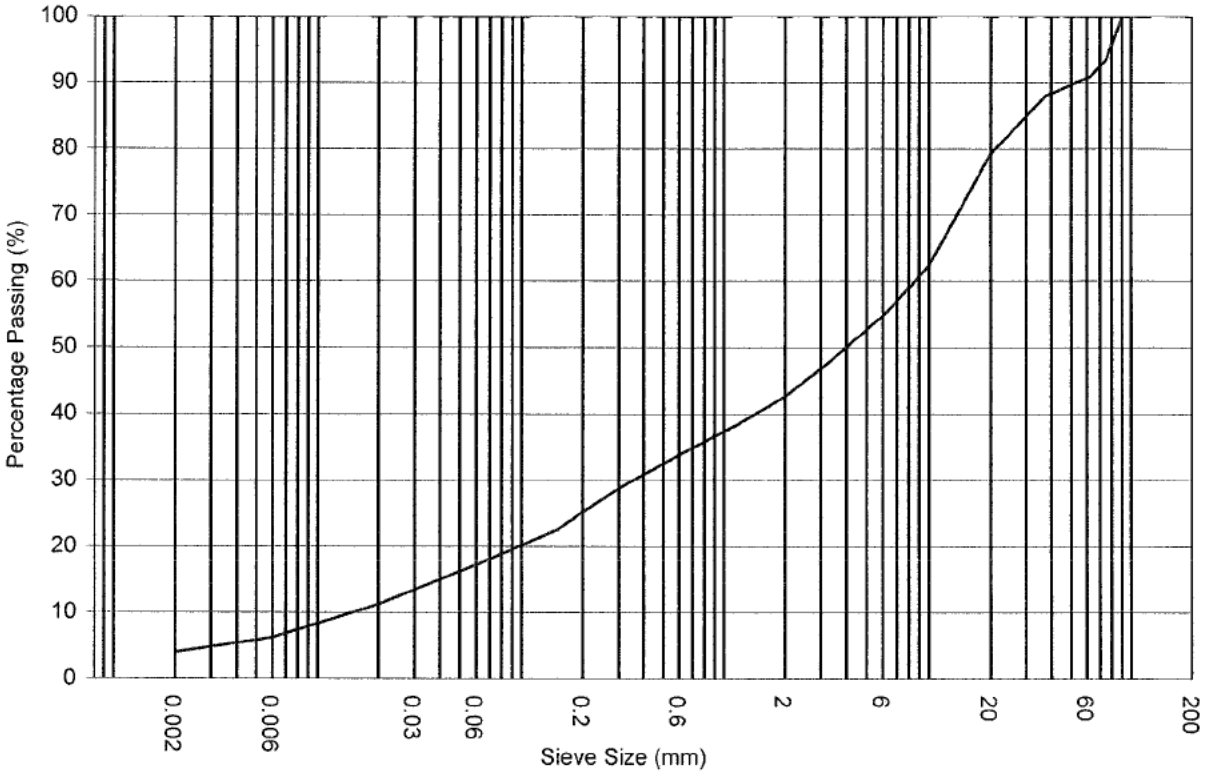
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 & 9.4

Hole No. : TP6 Sample No. : 4 Sample Type : B Depth (m) : 1.40

Specimen Details
Test Date : 31/03/2010
Loss on Pretreatment : Not applicable

Soil Description : Brown cobbly silty very sandy GRAVEL



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
4	13	26	48	9

Uniformity Coefficient : Not Applicable

Remarks : Insufficient material to comply with BS1377. Treat results with caution.

Notes : If no value given for percentage clay, all fines included in percentage silt

Prepared By	[redacted]	Checked By	[redacted]	Date	29/04/2010	Project No	CON103001

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Figure No.	LT2/ 19	Sheet	

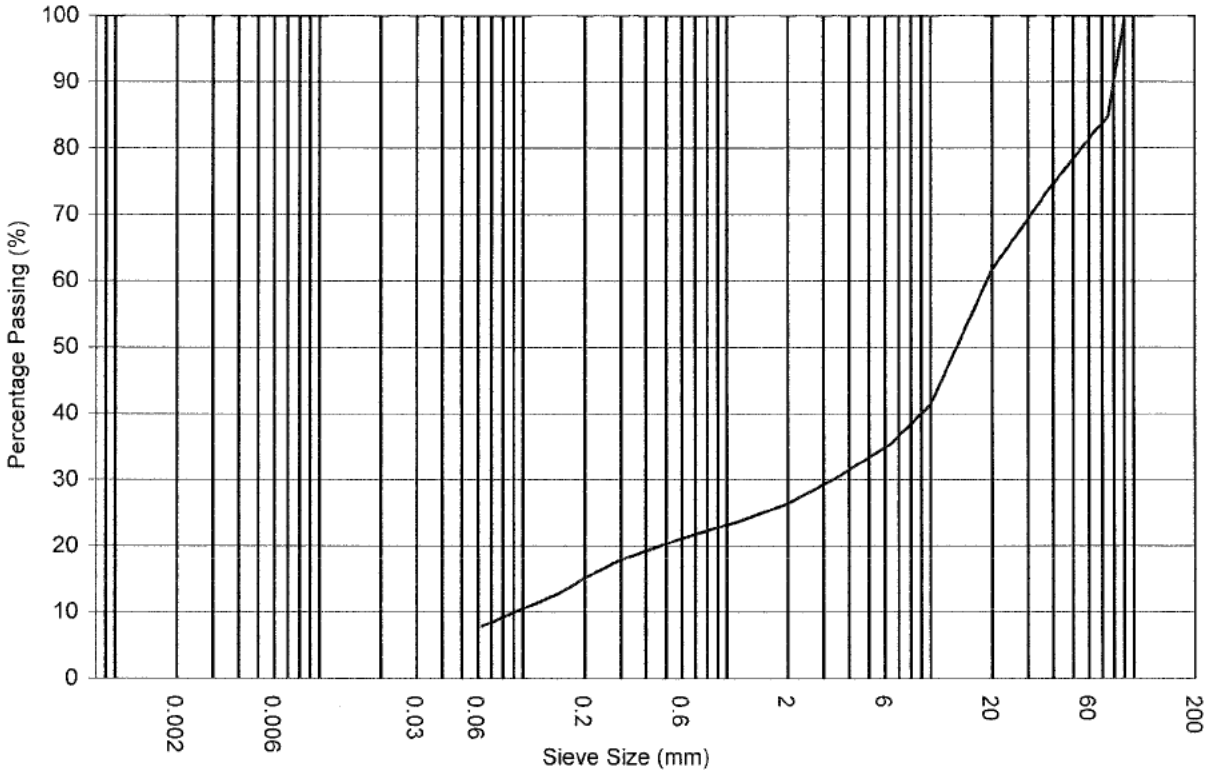
Scottish and Southern Energy
SLOY PUMPING STATION

PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 ~~& 9.4~~

Hole No. : TP7 Sample No. : 5 Sample Type : B Depth (m) : 1.50

Specimen Details
Test Date : 29/03/2010
Loss on Pretreatment : Not applicable

Soil Description : Brown silty sandy cobbly GRAVEL



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
	8	18	55	19
Uniformity Coefficient :		189		

Remarks : Insufficient material to comply with BS1377. Treat results with caution.

Notes : If no value given for percentage clay, all fines included in percentage silt

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Figure No.	LT2/ 20	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF ROCK CLASSIFICATION TESTS
ISRM 2007 Part 2

Hole	Sample no	Type	Depth	Bulk Density (kg/m^3)	Water Content (%)	Dry Density (kg/m^3)	Porosity (%)		Slake Durability (%)	Lithology
BH02		C	6.00						96.7	Grey MICA SCHIST
BH03		C	21.70						98	Grey MICA SCHIST
BH12		C	13.55						96	Grey MICA SCHIST

Remarks							
Prepared By	[redacted]	Checked By	[redacted]	Date	29/4/10	Project No	CON103001

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Figure No.	LT8/ 1	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF POINT LOAD STRENGTH TESTS
ISRM 2007

Hole	Sample no	Type	Depth	Specimen No	Test Type	Condition	Direction	Length (mm)	Width (mm)	Platen Separation at failure (mm)	Load P (kN)	D_e^2 (mm^2)	D_e (mm)	Point Load I_s (MPa)	Correction Factor F	Point Load $I_{s(50)}$ (MPa)	Lithology
BH01		C	6.40		a	AR	PD		98	68	6.33	8485	92	0.75	1.32	0.98	Grey MICA SCHIST
BH01		C	10.90		a	AR	PD		99	90	18.38	11345	107	1.62	1.41	2.28	Grey MICA SCHIST
BH01		C	11.85		d	AR	PL	155		101	8.34	10201	101	0.82	1.37	1.12	Grey MICA SCHIST
BH01		C	12.20		a	AR	PD		100	69	16.37	8785	94	1.86	1.33	2.47	Grey MICA SCHIST
BH01		C	15.25		d	AR	PL	180		100	15.37	10000	100	1.54	1.37	2.10	Grey MICA SCHIST
BH01		C	15.25	1	a	AR	PD		101	62	7.34	7973	89	0.92	1.30	1.20	Grey MICA SCHIST
BH02		C	4.60		i	AR	PL	100	74	61	5.33	5747	76	0.93	1.21	1.12	Grey MICA SCHIST
BH02		C	5.60		d	AR	PL	120		102	7.34	10404	102	0.71	1.38	0.97	Grey MICA SCHIST
BH02		C	7.00		d	AR	PL	115		103	3.83	10609	103	0.36	1.38	0.50	Grey MICA SCHIST

Type of Test: d - diametral, a - axial, b - block, i - irregular lump
Moisture Condition: A - air dried, S - saturated, AR - as received
Direction: PL - parallel, PD - Perpendicular, R - Random

Remarks							
Prepared By	[redacted]	Checked By	[redacted]	Date	24/05/2010	Project No	CON103001

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Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF POINT LOAD STRENGTH TESTS
ISRM 2007

Hole	Sample no	Type	Depth	Specimen No	Test Type	Condition	Direction	Length (mm)	Width (mm)	Platen Separation at failure (mm)	Load P (kN)	D_e^2 (mm^2)	D_e (mm)	Point Load I_s (MPa)	Correction Factor F	Point Load $I_{s(50)}$ (MPa)	Lithology
BH02		C	7.00	1	a	AR	PD		98	62	17.37	7736	88	2.25	1.29	2.90	Grey MICA SCHIST
BH02		C	8.50		a	AR	PD		99	40	7.34	5042	71	1.46	1.17	1.70	Grey MICA SCHIST
BH02		C	11.00		a	AR	PD		104	52	13.36	6886	83	1.94	1.26	2.44	Grey MICA SCHIST
BH02		C	14.25		a	AR	PD		101	46	16.37	5915	77	2.77	1.21	3.36	Grey MICA SCHIST
BH02		C	15.40		d	AR	PL	192		100	10.35	10000	100	1.04	1.37	1.41	Grey MICA SCHIST
BH02		C	17.50		d	AR	PL	120		103	6.33	10609	103	0.60	1.38	0.83	Grey MICA SCHIST
BH02		C	19.50		d	AR	PL	140		102	6.33	10404	102	0.61	1.38	0.84	Grey MICA SCHIST
BH02		C	19.50	1	a	AR	PD		102	62	9.35	8052	90	1.16	1.30	1.51	Grey MICA SCHIST
BH02		C	21.55		d	AR	PL	170		102	26.4	10404	102	2.54	1.38	3.50	Grey MICA SCHIST

Type of Test: d - diametral, a - axial, b - block, i - irregular lump
Moisture Condition: A - air dried, S - saturated, AR - as received
Direction: PL - parallel, PD - Perpendicular, R - Random

Remarks	[redacted]					
Prepared B	[redacted]	Checked By	[redacted]	Date	24/05/2010	Project No	CON103001

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Figure No.	LT8/ 3	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF POINT LOAD STRENGTH TESTS
ISRM 2007

Hole	Sample no	Type	Depth	Specimen No	Test Type	Condition	Direction	Length (mm)	Width (mm)	Platen Separation at failure (mm)	Load P (kN)	D_e^2 (mm^2)	D_e (mm)	Point Load I_s (MPa)	Correction Factor F	Point Load $I_{s(50)}$ (MPa)	Lithology
BH02		C	21.55	1	a	AR	PD		102	76	44.47	9870	99	4.51	1.36	6.14	Grey MICA SCHIST
BH02		C	24.10		a	AR	PD		102	51	8.34	6623	81	1.26	1.25	1.57	Grey MICA SCHIST
BH02		C	27.00		d	AR	PL	200		101	7.34	10201	101	0.72	1.37	0.99	Grey MICA SCHIST
BH02		C	27.00	1	a	AR	PD		101	45	7.94	5787	76	1.37	1.21	1.66	Grey MICA SCHIST
BH02		C	29.50		d	AR	PL	141		105	4.33	11025	105	0.39	1.40	0.55	Grey MICA SCHIST
BH02		C	29.50	1	a	AR	PD		104	72	14.36	9534	98	1.51	1.35	2.04	Grey MICA SCHIST
BH02		C	31.50		d	AR	PL	102		101	6.33	10201	101	0.62	1.37	0.85	Grey MICA SCHIST
BH02		C	31.50	1	a	AR	PD		101	64	16.37	8230	91	1.99	1.31	2.60	Grey MICA SCHIST
BH02		C	33.90		a	AR	PD		102	52	35.44	6753	82	5.25	1.25	6.56	Grey MICA SCHIST

Type of Test: d - diametral, a - axial, b - block, i - irregular lump
Moisture Condition: A - air dried, S - saturated, AR - as received
Direction: PL - parallel, PD - Perpendicular, R - Random

Remarks						
Prepared By [redacted]	hecked By [redacted]		Date	24/05/2010	Project No	CON103001

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Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF POINT LOAD STRENGTH TESTS
ISRM 2007

Hole	Sample no	Type	Depth	Specimen No	Test Type	Condition	Direction	Length (mm)	Width (mm)	Platen Separation at failure (mm)	Load P (kN)	D_e^2 (mm^2)	D_e (mm)	Point Load I_s (MPa)	Correction Factor F	Point Load $I_{s(50)}$ (MPa)	Lithology
BH03		C	6.60		a	AR	PD		101	90	19.38	11574	108	1.67	1.41	2.36	Grey MICA SCHIST
BH03		C	6.80		d	AR	PL	210		105	4.33	11025	105	0.39	1.40	0.55	Grey MICA SCHIST
BH03		C	7.50		a	AR	PD		105	84	15.37	11230	106	1.37	1.40	1.92	Grey MICA SCHIST
BH03		C	12.70		d	AR	PL	300		103	5.33	10609	103	0.50	1.38	0.70	Grey MICA SCHIST
BH03		C	12.70	1	a	AR	PD		103	76	30.42	9967	100	3.05	1.37	4.17	Grey MICA SCHIST
BH03		C	16.40		d	AR	PL	111		104	5.33	10816	104	0.49	1.39	0.69	Grey MICA SCHIST
BH03		C	16.40	1	a	AR	PD		100	62	13.36	7894	89	1.69	1.30	2.19	Grey MICA SCHIST
BH03		C	19.50		d	AR	PL	165		105	15.37	11025	105	1.39	1.40	1.95	Grey MICA SCHIST
BH03		C	19.50	1	a	AR	PD		100	78	29.42	9931	100	2.96	1.36	4.04	Grey MICA SCHIST

Type of Test: d - diametral, a - axial, b - block, i - irregular lump
Moisture Condition: A - air dried, S - saturated, AR - as received
Direction: PL - parallel, PD - Perpendicular, R - Random

Remarks						
Prepared By [redacted]	Checked By [redacted]	Date	24/05/2010	Project No	CON103001	

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Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF POINT LOAD STRENGTH TESTS
ISRM 2007

Hole	Sample no	Type	Depth	Specimen No	Test Type	Condition	Direction	Length (mm)	Width (mm)	Platen Separation at failure (mm)	Load P (kN)	D_e^2 (mm^2)	D_e (mm)	Point Load I_s (MPa)	Correction Factor F	Point Load $I_{s(50)}$ (MPa)	Lithology
BH03		C	21.20		i	AR	PL	100	62	50	15.37	3947	63	3.89	1.11	4.32	Grey MICA SCHIST
BH03		C	22.40		d	AR	PL	200		102	5.33	10404	102	0.51	1.38	0.71	Grey MICA SCHIST
BH03		C	22.40	1	a	AR	PD		102	75	5.33	9740	99	0.55	1.36	0.74	Grey MICA SCHIST
BH03		C	23.30		d	AR	PL	212		100	14.36	10000	100	1.44	1.37	1.96	Grey MICA SCHIST
BH03		C	23.30	1	a	AR	PD		100	62	20.38	7894	89	2.58	1.30	3.34	Grey MICA SCHIST
BH03		C	24.30		d	AR	PL	198		106	8.34	11236	106	0.74	1.40	1.04	Grey MICA SCHIST
BH03		C	24.30	1	a	AR	PD		100	58	21.39	7385	86	2.90	1.28	3.70	Grey MICA SCHIST
BH03		C	29.00		d	AR	PL	170		103	6.33	10609	103	0.60	1.38	0.83	Grey MICA SCHIST
BH04		C	3.80		d	AR	PL	102		105	8.34	11025	105	0.76	1.40	1.06	Grey MICA SCHIST

Type of Test: d - diametral, a - axial, b - block, i - irregular lump
Moisture Condition: A - air dried, S - saturated, AR - as received
Direction: PL - parallel, PD - Perpendicular, R - Random

Remarks						
Prepared By [redacted]	Checked By [redacted]	Date	24/05/2010	Project No	CON103001	

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Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF POINT LOAD STRENGTH TESTS
ISRM 2007

Hole	Sample no	Type	Depth	Specimen No	Test Type	Condition	Direction	Length (mm)	Width (mm)	Platen Separation at failure (mm)	Load P (kN)	D_e^2 (mm^2)	D_e (mm)	Point Load I_s (MPa)	Correction Factor F	Point Load $I_{s(50)}$ (MPa)	Lithology
BH04		C	3.80	1	a	AR	PD		105	30	22.39	4011	63	5.58	1.11	6.21	Grey MICA SCHIST
BH04		C	7.00		d	AR	PL	135		102	30.42	10404	102	2.92	1.38	4.03	Grey MICA SCHIST
BH04		C	7.00	1	a	AR	PD		102	28	27.41	3636	60	7.54	1.09	8.20	Grey MICA SCHIST
BH04		C	8.00		d	AR	PL	111		106	11.35	11236	106	1.01	1.40	1.42	Grey MICA SCHIST
BH04		C	8.00	1	a	AR	PD		106	50	25.4	6748	82	3.76	1.25	4.71	Grey MICA SCHIST
BH04		C	10.70		d	AR	PL	202		102	8.34	10404	102	0.80	1.38	1.10	Grey MICA SCHIST
BH04		C	10.70	1	a	AR	PD		102	60	18.38	7792	88	2.36	1.29	3.05	Grey MICA SCHIST
BH04		C	16.60		d	AR	PL	200		102	6.33	10404	102	0.61	1.38	0.84	Grey MICA SCHIST
BH04		C	16.60	1	a	AR	PD		102	72	30.42	9351	97	3.25	1.35	4.38	Grey MICA SCHIST

Type of Test: d - diametral, a - axial, b - block, i - irregular lump
Moisture Condition: A - air dried, S - saturated, AR - as received
Direction: PL - parallel, PD - Perpendicular, R - Random

Remarks							
Prepared By	[redacted]	Checked By	[redacted]	Date	24/05/2010	Project No	CON103001

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Figure No.	LT8/ 7	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF POINT LOAD STRENGTH TESTS
ISRM 2007

Hole	Sample no	Type	Depth	Specimen No	Test Type	Condition	Direction	Length (mm)	Width (mm)	Platen Separation at failure (mm)	Load P (kN)	D_e^2 (mm^2)	D_e (mm)	Point Load I_s (MPa)	Correction Factor F	Point Load $I_{s(50)}$ (MPa)	Lithology
BH04		C	17.60		a	AR	PD		101	52	10.35	6687	82	1.55	1.25	1.93	Grey MICA SCHIST
BH04		C	21.90		a	AR	PD		102	62	20.38	8052	90	2.53	1.30	3.29	Grey MICA SCHIST
BH04		C	24.30		d	AR	PL	181		104	9.35	10816	104	0.86	1.39	1.20	White QUARTZ
BH04		C	24.30	1	a	AR	PD		104	45	12.36	5959	77	2.07	1.22	2.52	White QUARTZ
BH04		C	25.00		a	AR	PD		103	75	11.35	9836	99	1.15	1.36	1.57	Grey MICA SCHIST
BH04		C	27.45		d	AR	PL	201		105	16.37	11025	105	1.48	1.40	2.07	Grey MICA SCHIST
BH04		C	27.45	1	a	AR	PD		102	42	16.37	5455	74	3.00	1.19	3.58	Grey MICA SCHIST
BH04		C	28.00		a	AR	PD		101	45	16.37	5787	76	2.83	1.21	3.42	Grey MICA SCHIST
BH04		C	30.60		d	AR	PL	134		108	6.33	11664	108	0.54	1.41	0.77	Grey MICA SCHIST

Type of Test: d - diametral, a - axial, b - block, i - irregular lump
Moisture Condition: A - air dried, S - saturated, AR - as received
Direction: PL - parallel, PD - Perpendicular, R - Random

Remarks							
Prepared By	[redacted]	Checked By	[redacted]	Date	24/05/2010	Project No	CON103001

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Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF POINT LOAD STRENGTH TESTS
ISRM 2007

Hole	Sample no	Type	Depth	Specimen No	Test Type	Condition	Direction	Length (mm)	Width (mm)	Platen Separation at failure (mm)	Load P (kN)	D_e^2 (mm^2)	D_e (mm)	Point Load I_s (MPa)	Correction Factor F	Point Load $I_{s(50)}$ (MPa)	Lithology
BH04		C	30.60	1	a	AR	PD		106	65	14.36	8773	94	1.64	1.33	2.17	Grey MICA SCHIST
BH04		C	33.35		a	AR	PD		102	45	12.36	5844	76	2.11	1.21	2.56	Grey MICA SCHIST
BH04		C	34.35		a	AR	PD		101	43	14.36	5530	74	2.60	1.20	3.10	Grey MICA SCHIST
BH05		C	4.70		d	AR	PL	140		104	6.33	10816	104	0.59	1.39	0.81	Grey MICA SCHIST
BH05		C	4.70	1	a	AR	PD		100	61	4.33	7767	88	0.56	1.29	0.72	Grey MICA SCHIST
BH05		C	5.70		d	AR	PL	185		100	4.33	10000	100	0.43	1.37	0.59	Grey MICA SCHIST
BH05		C	5.70	1	a	AR	PD		101	65	45.47	8359	91	5.44	1.31	7.14	Grey MICA SCHIST
BH06		C	3.40		d	AR	PL	192		105	10.35	11025	105	0.94	1.40	1.31	Grey MICA SCHIST
BH06		C	3.40	1	a	AR	PD		105	51	5.33	6818	83	0.78	1.25	0.98	Grey MICA SCHIST

Type of Test: d - diametral, a - axial, b - block, i - irregular lump
Moisture Condition: A - air dried, S - saturated, AR - as received
Direction: PL - parallel, PD - Perpendicular, R - Random

Remarks	[redacted]					
Prepared By	[redacted]	Checked By	[redacted]	Date	24/05/2010	Project No	CON103001

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Figure No.	LT8/ 9	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF POINT LOAD STRENGTH TESTS
ISRM 2007

Hole	Sample no	Type	Depth	Specimen No	Test Type	Condition	Direction	Length (mm)	Width (mm)	Platen Separation at failure (mm)	Load P (kN)	D_e^2 (mm^2)	D_e (mm)	Point Load I_s (MPa)	Correction Factor F	Point Load $I_{s(50)}$ (MPa)	Lithology
BH06		C	6.20		d	AR	PL	102		90	5.33	8100	90	0.66	1.30	0.86	Grey MICA SCHIST
BH06		C	6.20	1	a	AR	PD		90	45	15.37	5157	72	2.98	1.18	3.51	Grey MICA SCHIST
BH06		C	7.20		d	AR	PL	141		90	2.81	8100	90	0.35	1.30	0.45	Grey MICA SCHIST
BH06		C	7.20	1	a	AR	PD		90	52	6.14	5959	77	1.03	1.22	1.25	Grey MICA SCHIST
BH06		C	14.40		d	AR	PL	141		101	6.33	10201	101	0.62	1.37	0.85	Grey MICA SCHIST
BH06		C	14.40	1	a	AR	PD		101	62	27.41	7973	89	3.44	1.30	4.46	Grey MICA SCHIST
BH06		C	19.50		a	AR	PD		102	66	21.39	8571	93	2.50	1.32	3.29	Grey MICA SCHIST
BH06		C	21.70		d	AR	PL	220		104	14.36	10816	104	1.33	1.39	1.85	Grey MICA SCHIST
BH06		C	21.70	1	a	AR	PD		102	68	8.34	8831	94	0.94	1.33	1.25	Grey MICA SCHIST

Type of Test: d - diametral, a - axial, b - block, i - irregular lump
Moisture Condition: A - air dried, S - saturated, AR - as received
Direction: PL - parallel, PD - Perpendicular, R - Random

Remarks							
Prepared B [redacted]		Checked By	[redacted]	Date	24/05/2010	Project No	CON103001

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Figure No.	LT8/ 10	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF POINT LOAD STRENGTH TESTS
ISRM 2007

Hole	Sample no	Type	Depth	Specimen No	Test Type	Condition	Direction	Length (mm)	Width (mm)	Platen Separation at failure (mm)	Load P (kN)	D_e^2 (mm^2)	D_e (mm)	Point Load I_s (MPa)	Correction Factor F	Point Load $I_{s(50)}$ (MPa)	Lithology
BH06		C	24.70		d	AR	PL	161		105	10.35	11025	105	0.94	1.40	1.31	Grey MICA SCHIST
BH06		C	24.70	1	a	AR	PD		100	35	6.33	4456	67	1.42	1.14	1.62	Grey MICA SCHIST
BH06		C	27.50		d	AR	PL	192		103	5.33	10609	103	0.50	1.38	0.70	Grey MICA SCHIST
BH06		C	27.50	1	a	AR	PD		100	48	17.37	6112	78	2.84	1.22	3.48	Grey MICA SCHIST
BH06		C	28.55		d	AR	PL	340		102	20.38	10404	102	1.96	1.38	2.70	Grey MICA SCHIST
BH06		C	28.55	1	a	AR	PD		101	50	7.34	6430	80	1.14	1.24	1.41	Grey MICA SCHIST
BH06		C	31.10		a	AR	PD		100	42	8.34	5348	73	1.56	1.19	1.85	Grey MICA SCHIST
BH07		C	2.60		d	AR	PL	105		104	19.38	10816	104	1.79	1.39	2.49	Grey MICA SCHIST
BH07		C	3.20		d	AR	PL	160		104	10.35	10816	104	0.96	1.39	1.33	Grey MICA SCHIST

Type of Test: d - diametral, a - axial, b - block, i - irregular lump
Moisture Condition: A - air dried, S - saturated, AR - as received
Direction: PL - parallel, PD - Perpendicular, R - Random

Remarks							
Prepared B	[redacted]	Checked By	[redacted]	Date	24/05/2010	Project No	CON103001

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Figure No.	LT8/ 11	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF POINT LOAD STRENGTH TESTS
ISRM 2007

Hole	Sample no	Type	Depth	Specimen No	Test Type	Condition	Direction	Length (mm)	Width (mm)	Platen Separation at failure (mm)	Load P (kN)	D_e^2 (mm^2)	D_e (mm)	Point Load I_s (MPa)	Correction Factor F	Point Load $I_{s(50)}$ (MPa)	Lithology
BH07		C	3.20	1	a	AR	PD		101	60	25.4	7716	88	3.29	1.29	4.24	Grey MICA SCHIST
BH07		C	4.50		d	AR	PL	130		105	7.34	11025	105	0.67	1.40	0.93	Grey MICA SCHIST
BH07		C	4.50	1	a	AR	PD		105	62	32.43	8289	91	3.91	1.31	5.12	Grey MICA SCHIST
BH07		C	6.50		d	AR	PL	170		105	12.36	11025	105	1.12	1.40	1.57	Grey MICA SCHIST
BH07		C	6.50	1	a	AR	PD		104	78	28.41	10329	102	2.75	1.38	3.78	Grey MICA SCHIST
BH07		C	7.50		d	AR	PL	120		102	16.37	10404	102	1.57	1.38	2.17	Grey MICA SCHIST
BH07		C	7.50	1	a	AR	PD		101	62	9.35	7973	89	1.17	1.30	1.52	Grey MICA SCHIST
BH08		C	6.50		d	AR	PL	130		101	12.36	10201	101	1.21	1.37	1.66	Grey MICA SCHIST
BH08		C	7.20		d	AR	PL	121		100	5.33	10000	100	0.53	1.37	0.73	Grey MICA SCHIST

Type of Test: d - diametral, a - axial, b - block, i - irregular lump
Moisture Condition: A - air dried, S - saturated, AR - as received
Direction: PL - parallel, PD - Perpendicular, R - Random

Remarks							
Prepared B	[redacted]	Checked By	[redacted]	Date	24/05/2010	Project No	CON103001

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Figure No.	LT8/ 12	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF POINT LOAD STRENGTH TESTS
ISRM 2007

Hole	Sample no	Type	Depth	Specimen No	Test Type	Condition	Direction	Length (mm)	Width (mm)	Platen Separation at failure (mm)	Load P (kN)	D_e^2 (mm^2)	D_e (mm)	Point Load I_s (MPa)	Correction Factor F	Point Load $I_{s(50)}$ (MPa)	Lithology
BH08		C	7.20	1	a	AR	PD		100	42	6.33	5348	73	1.18	1.19	1.40	Grey MICA SCHIST
BH08		C	8.00		a	AR	PD		101	58	9.35	7459	86	1.25	1.28	1.60	Grey MICA SCHIST
BH09		C	6.30		d	AR	PL	108		101	5.33	10201	101	0.52	1.37	0.72	Grey MICA SCHIST
BH09		C	7.00		a	AR	PD		101	56	20.38	7201	85	2.83	1.27	3.59	Grey MICA SCHIST
BH10		C	6.00		d	AR	PL	190		100	12.36	10000	100	1.24	1.37	1.69	Grey MICA SCHIST
BH10		C	6.00	1	a	AR	PD		100	86	26.4	10950	105	2.41	1.39	3.36	Grey MICA SCHIST
BH10		C	6.45		d	AR	PL	195		100	0.24	10000	100	0.02	1.37	0.03	Grey white MICA SCHIST
BH10		C	6.70		a	AR	PD		102	88	0.39	11429	107	0.03	1.41	0.05	Grey white MICA SCHIST
BH10		C	6.90		i	AR	PL	110	90	45	6.63	5157	72	1.29	1.18	1.51	Grey white MICA SCHIST

Type of Test: d - diametral, a - axial, b - block, i - irregular lump
Moisture Condition: A - air dried, S - saturated, AR - as received
Direction: PL - parallel, PD - Perpendicular, R - Random

Remarks							
Prepared By	[redacted]	Checked By	[redacted]	Date	24/05/2010	Project No	CON103001

Sheet LR/04/102

Figure No.	LT8/ 13	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF POINT LOAD STRENGTH TESTS
ISRM 2007

Hole	Sample no	Type	Depth	Specimen No	Test Type	Condition	Direction	Length (mm)	Width (mm)	Platen Separation at failure (mm)	Load P (kN)	D_e^2 (mm^2)	D_e (mm)	Point Load I_s (MPa)	Correction Factor F	Point Load $I_{s(50)}$ (MPa)	Lithology
BH11		C	7.90		a	AR	PD		100	90	15.37	11459	107	1.34	1.41	1.89	Grey MICA SCHIST
BH11		C	8.30		d	AR	PL	165		105	6.33	11025	105	0.57	1.40	0.80	Grey MICA SCHIST
BH11		C	8.30	1	a	AR	PD		105	35	2.32	4679	68	0.50	1.15	0.57	Grey MICA SCHIST
BH11		C	9.90		a	AR	PD		100	86	15.37	10950	105	1.40	1.39	1.96	Grey MICA SCHIST
BH12		C	4.00		d	AR	PL	170		104	20.38	10816	104	1.88	1.39	2.62	Grey MICA SCHIST
BH12		C	4.00	1	a	AR	PD		104	45	18.38	5959	77	3.08	1.22	3.75	Grey MICA SCHIST
BH12		C	4.50		a	AR	PD		103	62	14.36	8131	90	1.77	1.30	2.30	Grey MICA SCHIST
BH12		C	10.75		d	AR	PL	160		106	7.34	11236	106	0.65	1.40	0.92	Grey MICA SCHIST
BH12		C	10.75	1	a	AR	PD		106	60	5.33	8098	90	0.66	1.30	0.86	Grey MICA SCHIST

Type of Test: d - diametral, a - axial, b - block, i - irregular lump
Moisture Condition: A - air dried, S - saturated, AR - as received
Direction: PL - parallel, PD - Perpendicular, R - Random

Remarks						
Prepared By [redacted]	Checked By [redacted]	Date	24/05/2010	Project No	CON103001	

Sheet LR/04/102

Figure No.	LT8/ 14	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF POINT LOAD STRENGTH TESTS
ISRM 2007

Hole	Sample no	Type	Depth	Specimen No	Test Type	Condition	Direction	Length (mm)	Width (mm)	Platen Separation at failure (mm)	Load P (kN)	D_e^2 (mm^2)	D_e (mm)	Point Load I_s (MPa)	Correction Factor F	Point Load $I_{s(50)}$ (MPa)	Lithology
BH12		C	14.70		d	AR	PL	180		106	4.33	11236	106	0.39	1.40	0.54	Grey MICA SCHIST
BH12		C	14.70	1	a	AR	PD		104	72	20.38	9534	98	2.14	1.35	2.89	Grey MICA SCHIST
BH12		C	19.15		d	AR	PL	224		105	5.33	11025	105	0.48	1.40	0.68	Grey MICA SCHIST
BH12		C	19.15	1	a	AR	PD		104	50	7.34	6621	81	1.11	1.24	1.38	Grey MICA SCHIST
BH12		C	20.10		a	AR	PD		102	51	15.37	6623	81	2.32	1.25	2.89	Grey MICA SCHIST
BH12		C	22.75		a	AR	PD		101	40	10.35	5144	72	2.01	1.18	2.37	Grey MICA SCHIST
BH12		C	23.15		a	AR	PD		100	50	7.34	6366	80	1.15	1.23	1.42	Grey MICA SCHIST
BH12		C	26.50		d	AR	PL	165		102	7.34	10404	102	0.71	1.38	0.97	Grey MICA SCHIST
BH12		C	26.50	1	a	AR	PD		100	50	10.35	6366	80	1.63	1.23	2.01	Grey MICA SCHIST

Type of Test: d - diametral, a - axial, b - block, i - irregular lump
Moisture Condition: A - air dried, S - saturated, AR - as received
Direction: PL - parallel, PD - Perpendicular, R - Random

Remarks							
Prepared B	[redacted]	Checked By	[redacted]	Date	24/05/2010	Project No	CON103001

Sheet LR/04/102

Figure No.	LT8/ 15	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF POINT LOAD STRENGTH TESTS
ISRM 2007

Hole	Sample no	Type	Depth	Specimen No	Test Type	Condition	Direction	Length (mm)	Width (mm)	Platen Separation at failure (mm)	Load P (kN)	D_e^2 (mm^2)	D_e (mm)	Point Load I_s (MPa)	Correction Factor F	Point Load $I_{s(50)}$ (MPa)	Lithology
BH12		C	27.00		d	AR	PL	170		105	6.33	11025	105	0.57	1.40	0.80	Grey MICA SCHIST
BH12		C	27.00	1	a	AR	PD		101	66	5.33	8487	92	0.63	1.32	0.83	Grey MICA SCHIST
BH12		C	28.15		a	AR	PD		99	62	21.39	7815	88	2.74	1.29	3.54	Grey MICA SCHIST
BH12		C	31.00		d	AR	PL	160		103	6.33	10609	103	0.60	1.38	0.83	Grey MICA SCHIST

Type of Test: d - diametral, a - axial, b - block, i - irregular lump
Moisture Condition: A - air dried, S - saturated, AR - as received
Direction: PL - parallel, PD - Perpendicular, R - Random

Remarks						
Prepared By	[redacted]	Checked By	[redacted]	Date	24/05/2010	Project No	CON103001

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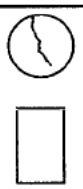
Figure No.	LT8/ 16	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF ROCK STRENGTH TESTS

ISRM 2007 Part 2

Hole	Sample no	Type	Depth (m)	Bulk Density (Mg/m^3)	Water Content (%)	Dry Density (Mg/m^3)	Diameter (mm)	Length (mm)	Stress Rate (MPa/min)	Load at failure (kN)	Tensile Strength (MPa)	Uniaxial Compressive Strength (MPa)	Mode of Failure	Lithology
BH01		C	6.20	2.99	0.3	2.98	98	148	4.32	193		24.6		Grey MICA SCHIST, weak
BH01		C	9.40	2.96	0.2	2.95	98	148	4.49	242		31.0		Grey MICA SCHIST, medium strong
BH01		C	12.25	2.97	0.1	2.97	98	194	5.89	279		36.8		Grey MICA SCHIST, medium strong
BH02		C	5.30	2.93	0.3	2.93	98	119	2.38	100		12.4		Grey MICA SCHIST, weak
BH02		C	11.50	2.98	0.2	2.97	98	108	5.06	257		31.1		Grey MICA SCHIST, medium strong
BH02		C	12.70	2.67	0.2	2.66	100	51		42	5.21			Grey MICA SCHIST

Remarks							
Prepared B	[redacted]	Checked By	[redacted]	Date	24/05/2010	Project No	CON103001

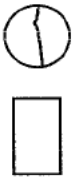
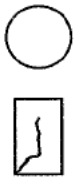
Sheet LR/04/103

Figure No.	LT8/ 17	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF ROCK STRENGTH TESTS

ISRM 2007 Part 2

Hole	Sample no	Type	Depth (m)	Bulk Density (Mg/m^3)	Water Content (%)	Dry Density (Mg/m^3)	Diameter (mm)	Length (mm)	Stress Rate (MPa/min)	Load at failure (kN)	Tensile Strength (MPa)	Uniaxial Compressive Strength (MPa)	Mode of Failure	Lithology
BH02		C	13.35	2.94	0.2	2.93	98	168	4.5	175		22.7		Grey MICA SCHIST, weak
BH02		C	16.75	2.90	0.1	2.89	98	161	3.21	209		26.9		Grey MICA SCHIST, medium strong
BH02		C	22.40	3.06	0.1	3.06	102	54		39	4.49			Grey MICA SCHIST
BH02		C	26.00	2.88	0.1	2.88	99	161	7.39	352		44.2		Grey MICA SCHIST, medium strong
BH02		C	32.30	3.07	0.3	3.07	99	157	0.94	67		8.4		Grey MICA SCHIST, weak
BH03		C	10.40	2.95	0.2	2.95	100	155	4.14	184		22.5		Grey MICA SCHIST, weak

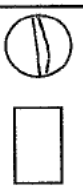
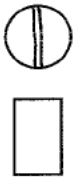
Remarks	[redacted]						
Prepared B	[redacted]	Checked By	[redacted]	Date	24/05/2010	Project No	CON103001

Sheet LR/04/103

Figure No.	LT8/ 18	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF ROCK STRENGTH TESTS
ISRM 2007 Part 2

Hole	Sample no	Type	Depth (m)	Bulk Density (Mg/m^3)	Water Content (%)	Dry Density (Mg/m^3)	Diameter (mm)	Length (mm)	Stress Rate (MPa/min)	Load at failure (kN)	Tensile Strength (MPa)	Uniaxial Compressive Strength (MPa)	Mode of Failure	Lithology
BH03		C	11.40	2.69	0.2	2.68	103	53		44	5.14			Grey MICA SCHIST
BH03		C	13.20	2.92	0.3	2.91	100	185	5.41	235		29.6		Grey MICA SCHIST, medium strong
BH03		C	18.70	2.76	0.3	2.75	103	53		75	8.71			Grey MICA SCHIST
BH03		C	22.50	2.83	0.3	2.82	100	137	1.78	111		13.4		Grey MICA SCHIST, weak
BH03		C	26.00	2.91	0.1	2.91	100	138	4.65	178		21.4		Grey MICA SCHIST, weak
BH04		C	9.80	2.79	0.2	2.78	104	52		27	3.18			Grey MICA SCHIST

Remarks							
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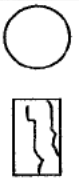
Figure No.	LT8/ 19	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF ROCK STRENGTH TESTS

ISRM 2007 Part 2

Hole	Sample no	Type	Depth (m)	Bulk Density (Mg/m^3)	Water Content (%)	Dry Density (Mg/m^3)	Diameter (mm)	Length (mm)	Stress Rate (MPa/min)	Load at failure (kN)	Tensile Strength (MPa)	Uniaxial Compressive Strength (MPa)	Mode of Failure	Lithology
BH04		C	12.00	2.96	0.4	2.95	100	136	2.29	143		17.2		Grey MICA SCHIST, weak
BH04		C	15.00	3.05	0.2	3.04	100	163	3.76	243		30.0		Grey MICA SCHIST, medium strong
BH04		C	18.80	2.80	0.2	2.79	103	48		22	2.82			Grey MICA SCHIST
BH04		C	21.60	2.98	0.1	2.98	100	130	3.7	196		23.5		Grey MICA SCHIST, medium strong
BH04		C	24.50	2.91	0.2	2.91	100	159	1.18	68		8.4		White QUARTZ, weak
BH04		C	26.50	2.64	0.6	2.63	100	138	5.33	340		41.0		White QUARTZ, medium strong

Remarks							
Prepared By	[redacted]	Checked By	[redacted]	Date	24/05/2010	Project No	CON103001

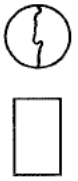
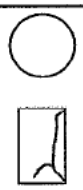
Sheet LR/04/103

Figure No.	LT8/ 20	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF ROCK STRENGTH TESTS

ISRM 2007 Part 2

Hole	Sample no	Type	Depth (m)	Bulk Density (Mg/m^3)	Water Content (%)	Dry Density (Mg/m^3)	Diameter (mm)	Length (mm)	Stress Rate (MPa/min)	Load at failure (kN)	Tensile Strength (MPa)	Uniaxial Compressive Strength (MPa)	Mode of Failure	Lithology
BH06		C	4.00	3.00	0.3	2.99	100	118	4.44	253		29.8		Grey MICA SCHIST, medium strong
BH06		C	9.60	2.84	0.2	2.84	103	58		27	2.86			Grey MICA SCHIST
BH06		C	12.40	2.96	0.3	2.95	100	109	2.73	232		26.8		Grey white MICA SCHIST, medium strong
BH06		C	15.40	2.84	0.3	2.83	100	142	4.02	291		35.2		Grey MICA SCHIST, medium strong
BH06		C	18.60	2.90	0.4	2.89	104	54		31	3.49			Grey MICA SCHIST
BH06		C	20.70	2.91	0.2	2.91	100	116	7.01	634		74.2		Grey MICA SCHIST, strong

Remarks	[redacted]						
Prepared B	[redacted]	Checked By	[redacted]	Date	24/05/2010	Project No	CON103001

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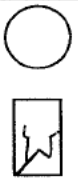
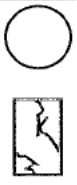
Figure No.	LT8/ 21	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF ROCK STRENGTH TESTS

ISRM 2007 Part 2

Hole	Sample no	Type	Depth (m)	Bulk Density (Mg/m^3)	Water Content (%)	Dry Density (Mg/m^3)	Diameter (mm)	Length (mm)	Stress Rate (MPa/min)	Load at failure (kN)	Tensile Strength (MPa)	Uniaxial Compressive Strength (MPa)	Mode of Failure	Lithology
BH06		C	26.40	2.97	0.3	2.96	100	147	3.24	150		18.3		Grey MICA SCHIST, weak
BH12		C	7.00	2.89	0.1	2.88	100	129	2.29	202		24.1		Grey MICA SCHIST, weak
BH12		C	9.85	3.03	0.3	3.02	100	153	4.65	141		17.5		Grey MICA SCHIST, weak
BH12		C	16.15	3.02	0.1	3.02	100	155	2.69	206		25.3		Grey MICA SCHIST, medium strong
BH12		C	18.65	2.97	0.2	2.97	100	129	4.37	311		37.1		Grey MICA SCHIST, medium strong
BH12		C	24.60	2.89	0.1	2.89	100	160	6.89	534		65.9		Grey MICA SCHIST, strong

Remarks							
Prepared B [redacted]		Checked By [redacted]		Date	24/05/2010	Project No	CON103001

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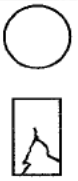
Figure No.	LT8/ 22	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

SUMMARY OF ROCK STRENGTH TESTS

ISRM 2007 Part 2

Hole	Sample no	Type	Depth (m)	Bulk Density (Mg/m^3)	Water Content (%)	Dry Density (Mg/m^3)	Diameter (mm)	Length (mm)	Stress Rate (MPa/min)	Load at failure (kN)	Tensile Strength (MPa)	Uniaxial Compressive Strength (MPa)	Mode of Failure	Lithology
BH12		C	32.30	2.97	0.1	2.96	100	164	5.13	236		29.5		Grey MICA SCHIST, medium strong
CH/01		C	1.30	2.58	6.0	2.43	96	131	4.67	224		29.0		Grey CONCRETE, medium strong
CH/01		C	1.80	2.66	3.7	2.56	97	152	4.08	204		26.8		Grey CONCRETE, medium strong
CH/01		C	2.20	2.57	6.0	2.43	97	172	5.63	233		31.0		Grey CONCRETE, medium strong

Remarks					
Prepared B [redacted]	Checked By [redacted]	Date	24/05/2010	Project No	CON103001

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Figure No.	LT8/ 23	Sheet	

Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

ISRM SUGGESTED METHODS

Hole No. : BH02 Sample No. : Sample Type : C Depth (m) : 6.60

Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

Sample Description : Grey MICA SCHIST (See sheet Fig. 2)

Initial Condition	Water Content				%	0.4
	Bulk Density				Mg/m^3	2.58
	Dry Density				Mg/m^3	2.57
	Height				mm	100.00
	Diameter				mm	48.00
	Particle Density				Mg/m^3	2.75
	Degree of Saturation				%	16
	Voids Ratio					0.07
	Moisture Condition during test					As Received
Joint Roughness Coefficient			Pre Test		Post Test	
	Upper Surface of Discontinuity					
	Lower Surface of Discontinuity					
Consolidation Stage	t_{100} (mins)	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
		01:00	01:30	01:00	02:00	01:30
Shearing stage		Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
	Normal Stress (kPa)	75	112.5	150	187.5	225
	Shear Stress (kPa)	83.3	125.0	166.7	187.5	229.2
	Residual Stress (kPa)					
	Normal Displacement (mm)	0.8	1.2		0.2	0.9
	Shear Displacement (mm)	0.6	3.6	4.8	3.0	3.0

Cohesion (kPa)				**Apparent Friction Angle (°)**			
Normal Stress less than	150	kPa	0	Normal Stress less than	150	kPa	48
Normal Stress greater than	150	kPa	38	Normal Stress greater than	150	kPa	40

Residual Friction Angle (°)	-

Prepared By	[redacted]	Checked By	[redacted]	Date	29/4/10	Project No	CON103001

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Figure No	LT8/ 24	Sheet	1 of 3

Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

ISRM SUGGESTED METHODS

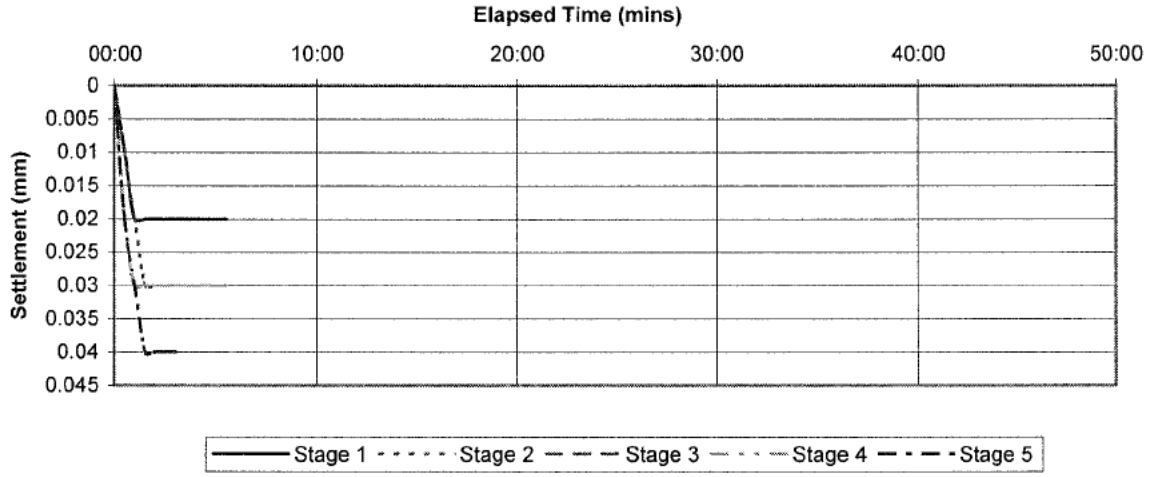
Hole No. : BH02 Sample No. : Sample Type : C Depth (m) : 6.60

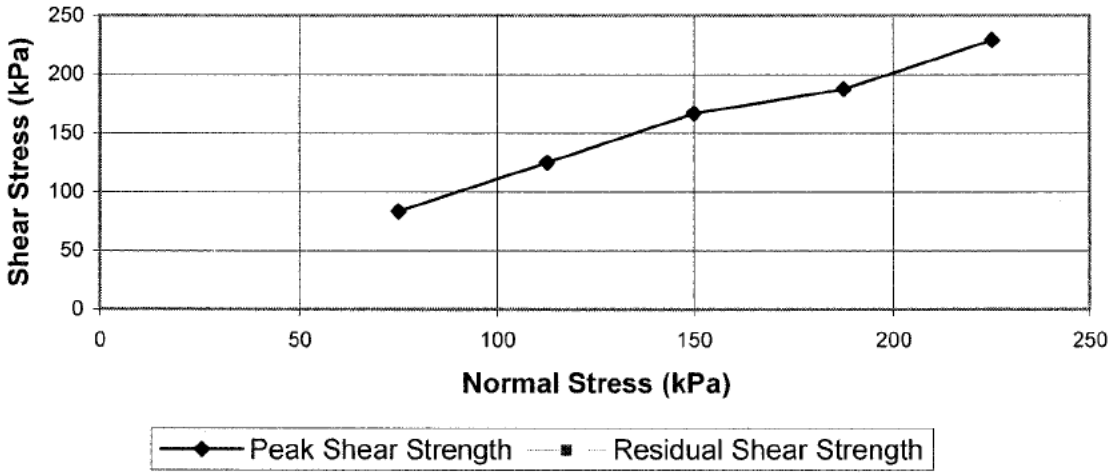
Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

Sample Description : Grey MICA SCHIST (See sheet Fig. 2)

Consolidation Stage





Prepared By	[redacted]	Checked By	[redacted]	Date	29/4/10	Project No	CON103001

Sheet LR/04/106

Figure No	LT8/ 25	Sheet	2 of 3

Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

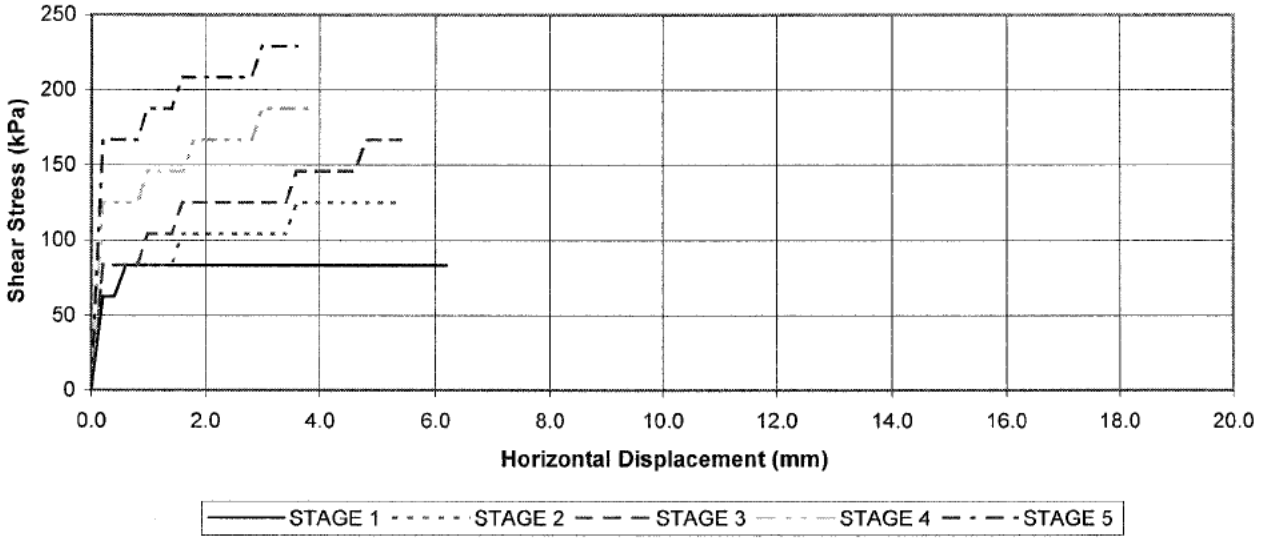
ISRM SUGGESTED METHODS

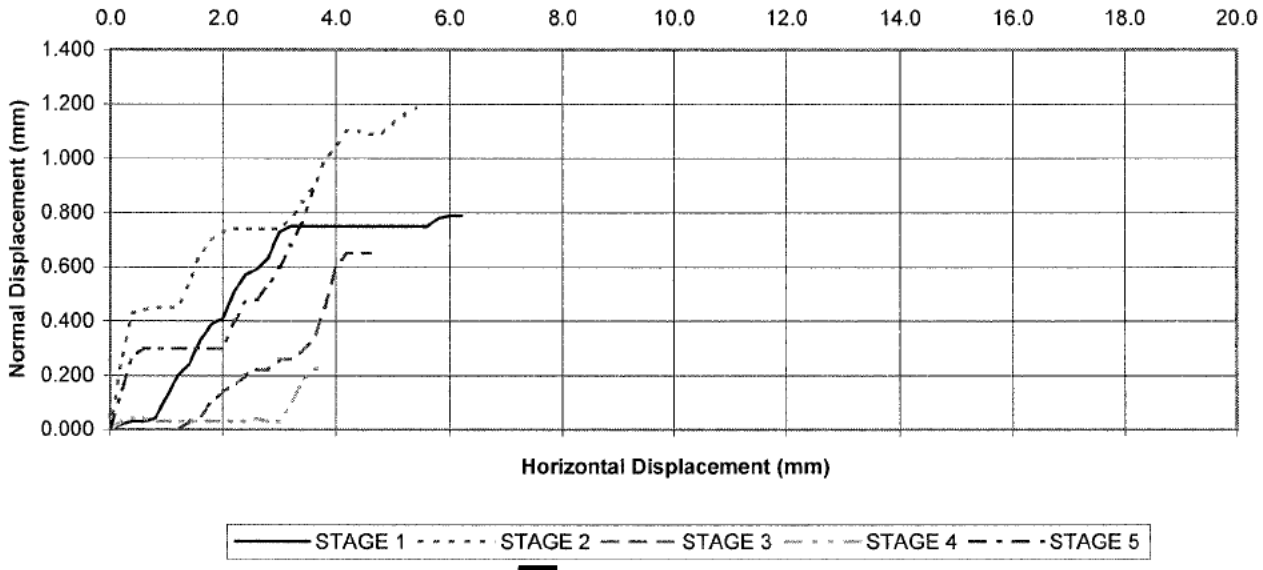
Hole No. : BH02 Sample No. : Sample Type : C Depth (m) : 6.60

Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

Sample Description : Grey MICA SCHIST (See sheet Fig. 2)





Prepared By	[redacted]	Checked By	[redacted]	Date	29/4/10	Project No	CON103001

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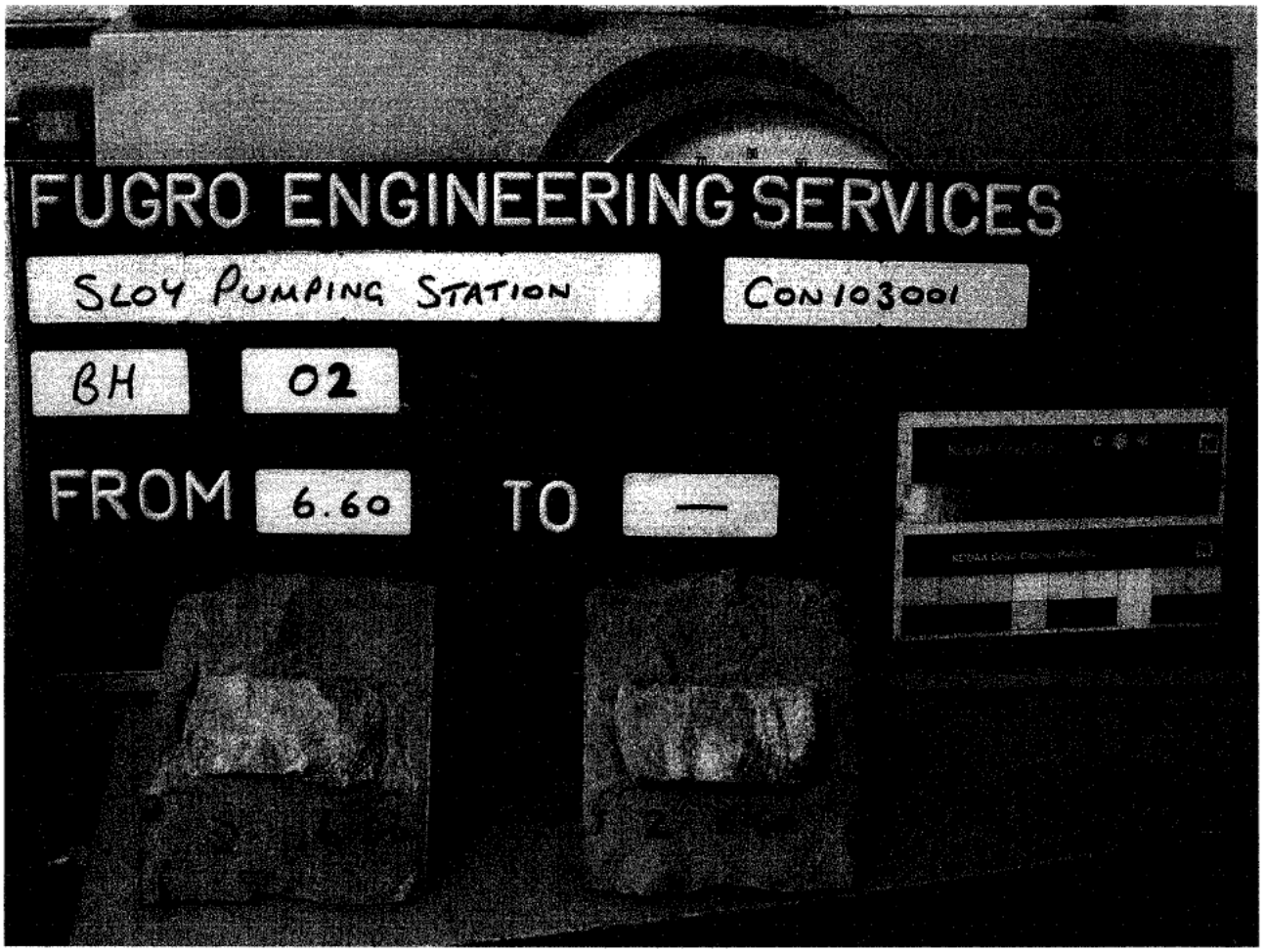
Figure No	LT8/ 26	Sheet	3 of 3

Post–test Photograph and Full Geological Description



Strong grey MICA SCHIST.

Discontinuity is smooth undulating strong open with rare fine sand/silt sized debris

		[redacted]	Date 29/04/10	Date 29/4/10	
FUGRO		SLOY PUMPING STATION		Contract No CON103001	
				Figure No Fig. 2	

Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

ISRM SUGGESTED METHODS

Hole No. : BH02 Sample No. : Sample Type : C Depth (m) : 15.29

Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

Sample Description : Grey MICA SCHIST (See sheet Fig. 3)

Initial Condition	Water Content				%	0.2
	Bulk Density				Mg/m^3	2.67
	Dry Density				Mg/m^3	2.66
	Height				mm	99.00
	Diameter				mm	99.00
	Particle Density				Mg/m^3	2.75
	Degree of Saturation				%	16
	Voids Ratio					0.03
	Moisture Condition during test					As Received
Joint Roughness Coefficient			Pre Test		Post Test	
	Upper Surface of Discontinuity					
	Lower Surface of Discontinuity					
Consolidation Stage	t_{100} (mins)	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
		02:30	02:30	02:00	02:30	02:00
Shearing stage		Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
	Normal Stress (kPa)	175	262.5	350	437.5	525
	Shear Stress (kPa)	142.9	181.9	220.8	272.8	298.8
	Residual Stress (kPa)					
	Normal Displacement (mm)	-0.1	-0.2	-0.2	-0.1	0.4
	Shear Displacement (mm)	4.0	5.0	5.4	3.0	1.6

Cohesion (kPa)				**Apparent Friction Angle (°)**			
Normal Stress less than	350	kPa	65	Normal Stress less than	350	kPa	24
Normal Stress greater than	350	kPa	69	Normal Stress greater than	350	kPa	24

Residual Friction Angle (°)	-

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Figure No	LT8/ 27	Sheet	1 of 3

Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

ISRM SUGGESTED METHODS

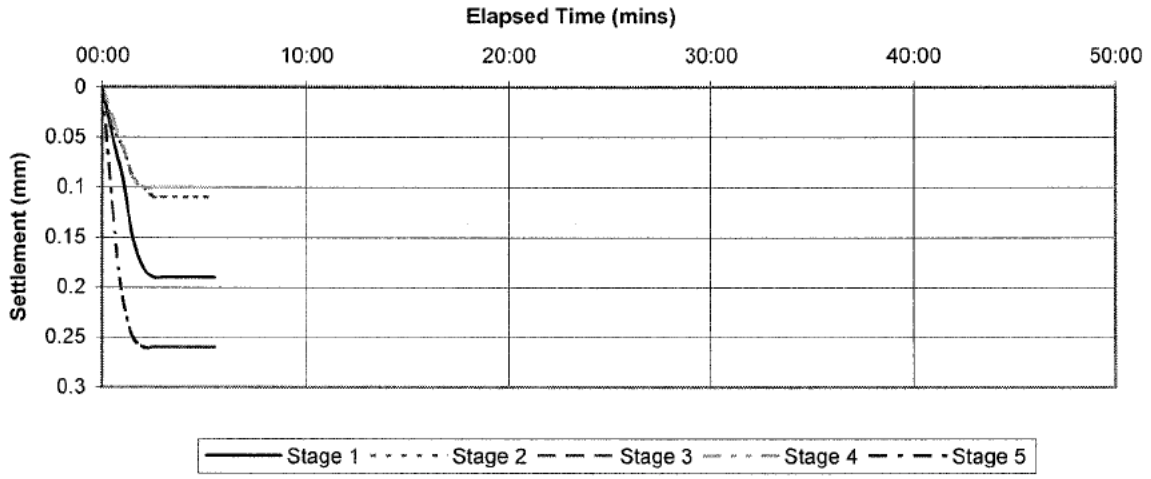
Hole No. : BH02 Sample No. : Sample Type : C Depth (m) : 15.29

Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

Sample Description : Grey MICA SCHIST (See sheet Fig. 3)

Consolidation Stage



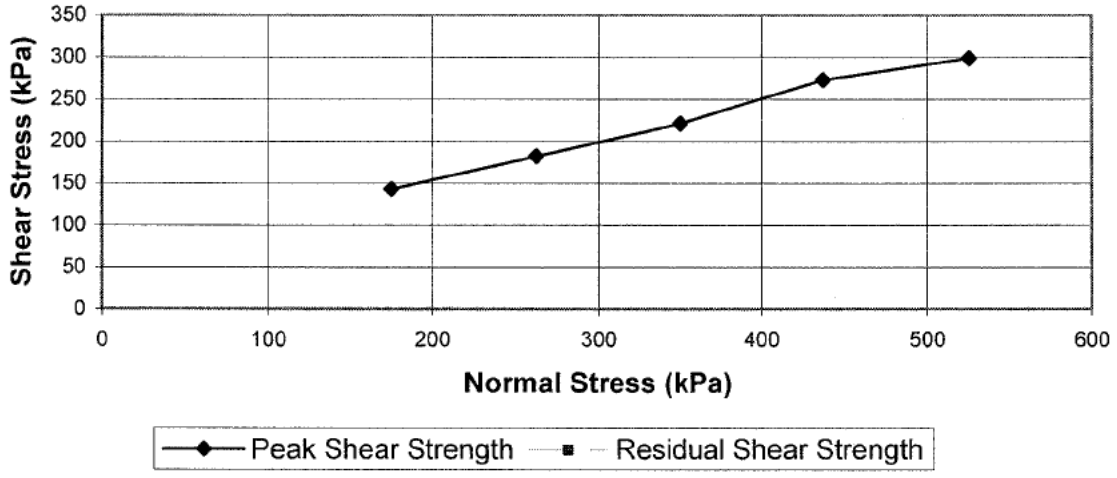


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Figure No	LT8/ 28	Sheet	2 of 3

Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

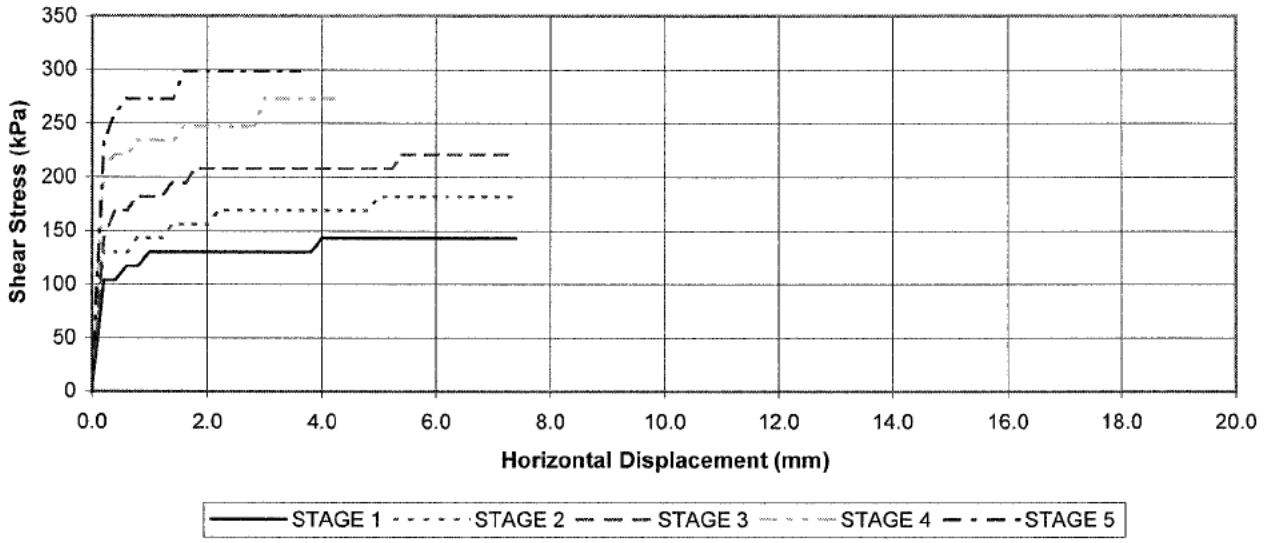
ISRM SUGGESTED METHODS

Hole No. : BH02 Sample No. : Sample Type : C Depth (m) : 15.29

Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

Sample Description : Grey MICA SCHIST (See sheet Fig. 3)



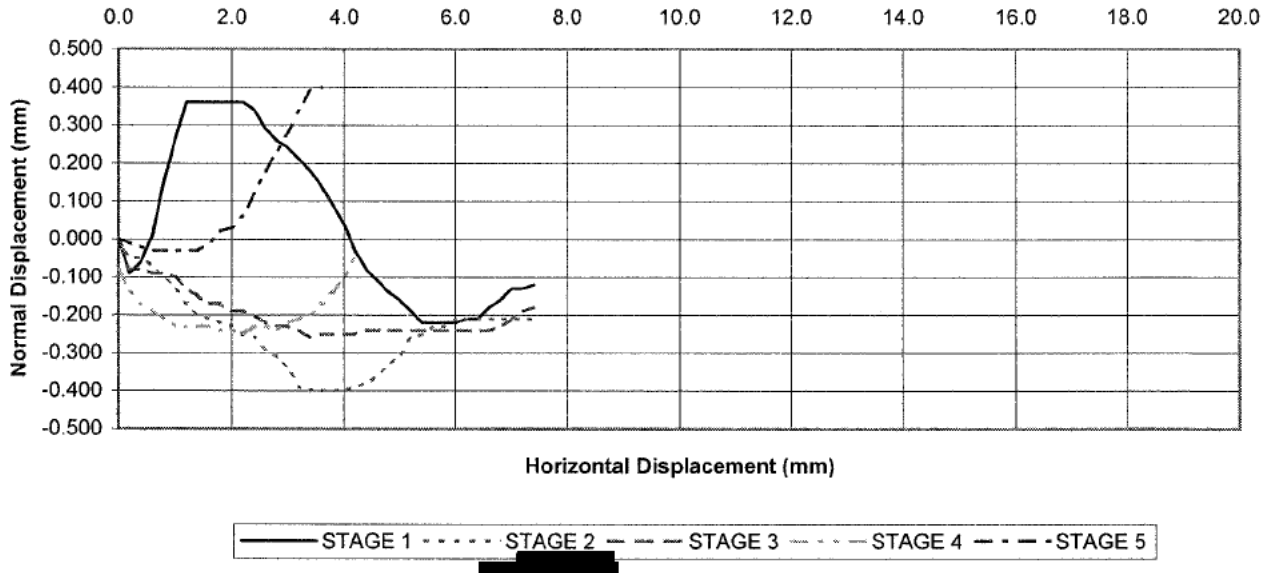


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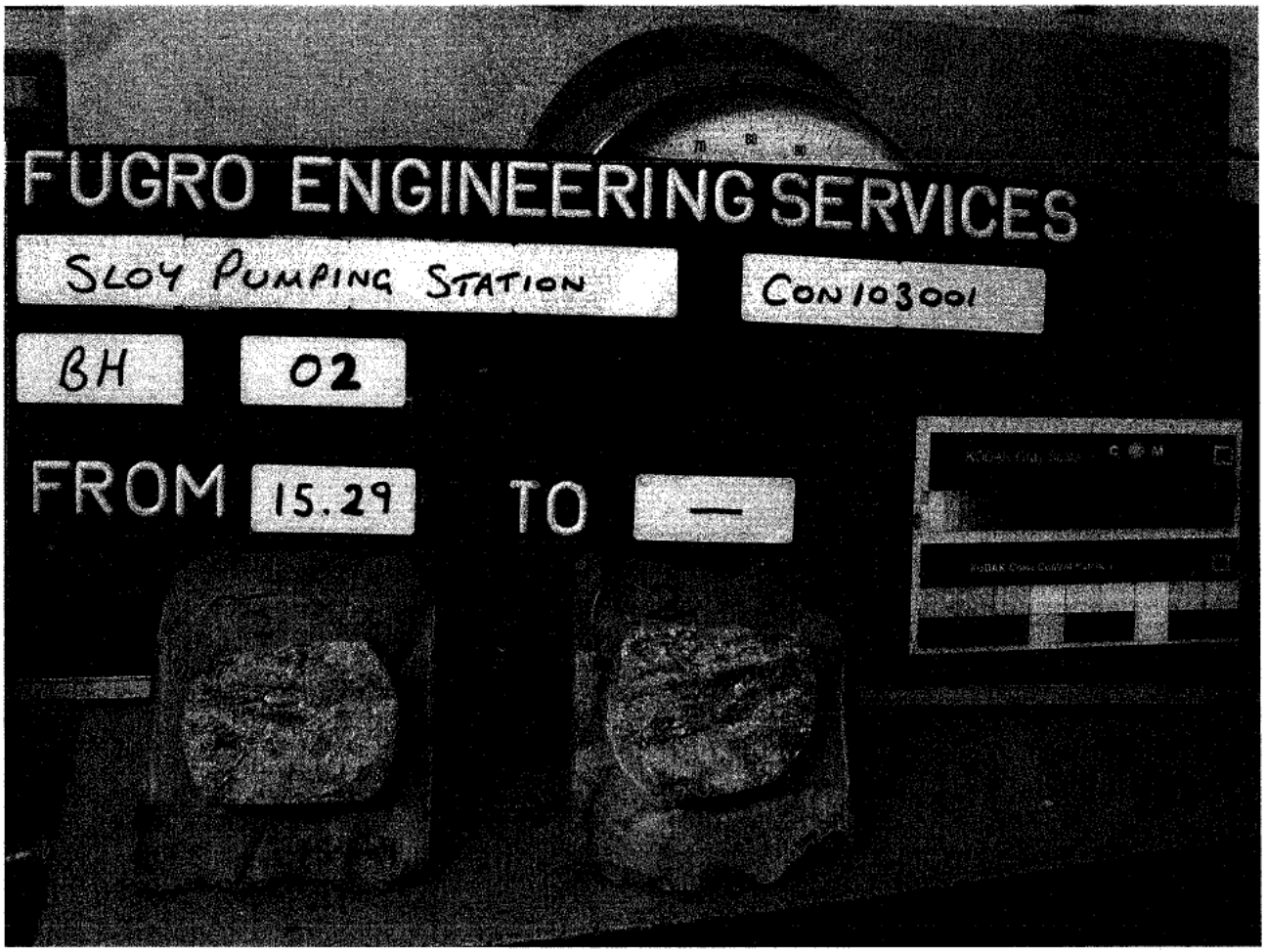
Figure No	LT8/ 29	Sheet	3 of 3

Post–test Photograph and Full Geological Description



Strong dark grey MICA SCHIST.

Discontinuity is rough undulating weak to strong moderately open with occasional fine sand/silt and very rare weak fine gravel sized debris

		[redacted]	Date 29/04/10	[redacted]	Date 29/4/10		
FUGRO		SLOY PUMPING STATION				Contract No CON103001	
						Figure No Fig. 3	

Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

ISRM SUGGESTED METHODS

Hole No. : BH03 Sample No. : Sample Type : C Depth (m) : 14.40

Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

Sample Description : Grey MICA SCHIST (See sheet Fig. 4)

Initial Condition	Water Content				%	0.3
	Bulk Density				Mg/m^3	2.69
	Dry Density				Mg/m^3	2.69
	Height				mm	104.00
	Diameter				mm	104.00
	Particle Density				Mg/m^3	2.75
	Degree of Saturation				%	37
	Voids Ratio					0.02
	Moisture Condition during test					As Received
Joint Roughness Coefficient			Pre Test		Post Test	
	Upper Surface of Discontinuity					
	Lower Surface of Discontinuity					
Consolidation Stage	t_{100} (mins)	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
		01:30	01:30	02:00	02:00	03:00
Shearing stage		Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
	Normal Stress (kPa)	175	262.5	350	437.5	525
	Shear Stress (kPa)	188.3	270.8	317.8	388.5	447.3
	Residual Stress (kPa)					
	Normal Displacement (mm)	-1.4	-0.6	-0.6	-1.1	-2.8
	Shear Displacement (mm)	4.4	4.4	3.0	5.8	5.8

Cohesion (kPa)				Apparent Friction Angle (°)			
Normal Stress less than	350	kPa	65	Normal Stress less than	350	kPa	36
Normal Stress greater than	350	kPa	61	Normal Stress greater than	350	kPa	36

Residual Friction Angle (°)	-

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Figure No	LT8/ 30	Sheet	1 of 3

Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

ISRM SUGGESTED METHODS

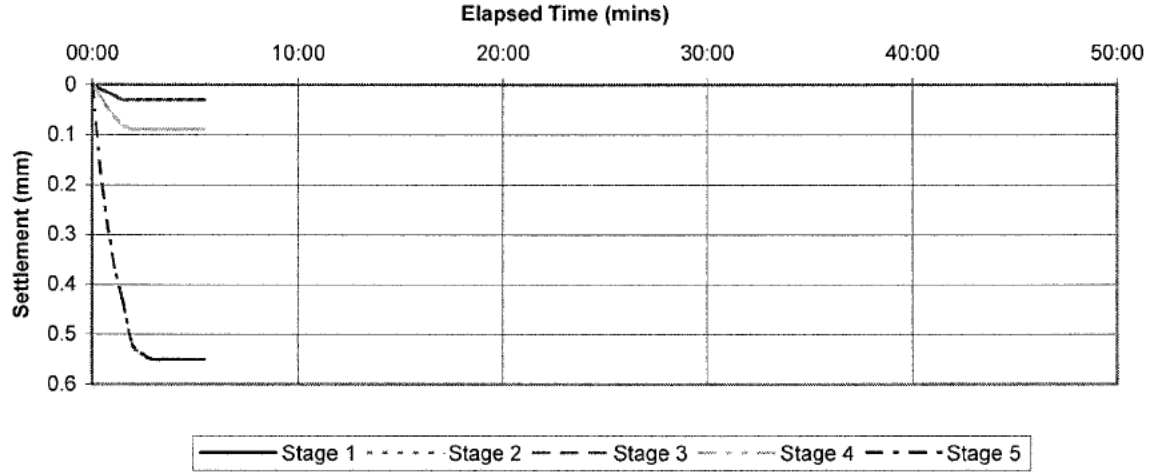
Hole No. : BH03 Sample No. : Sample Type : C Depth (m) : 14.40

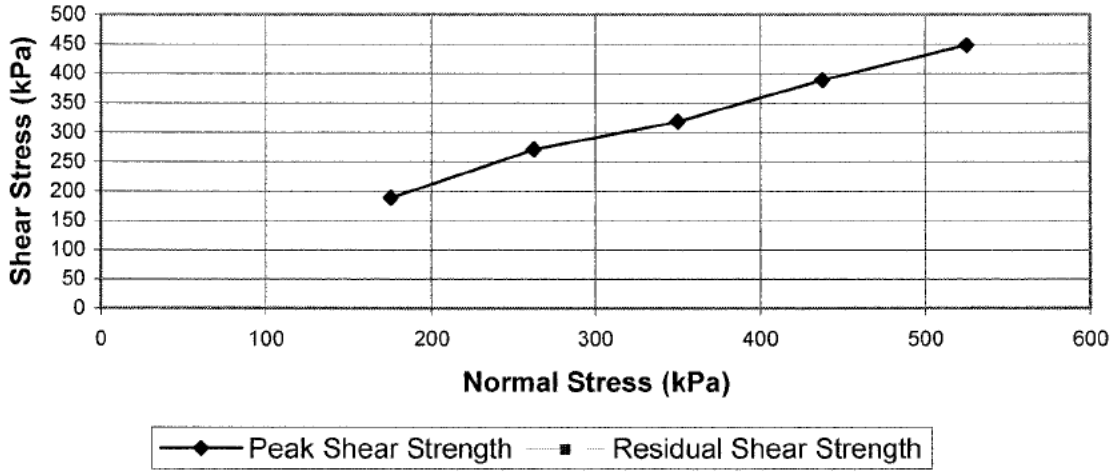
Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

Sample Description : Grey MICA SCHIST (See sheet Fig. 4)

Consolidation Stage





Prepared By	[redacted]	Checked By	[redacted]	Date	29/4/10	Project No	CON103001

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Figure No	LT8/ 31	Sheet	2 of 3

Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

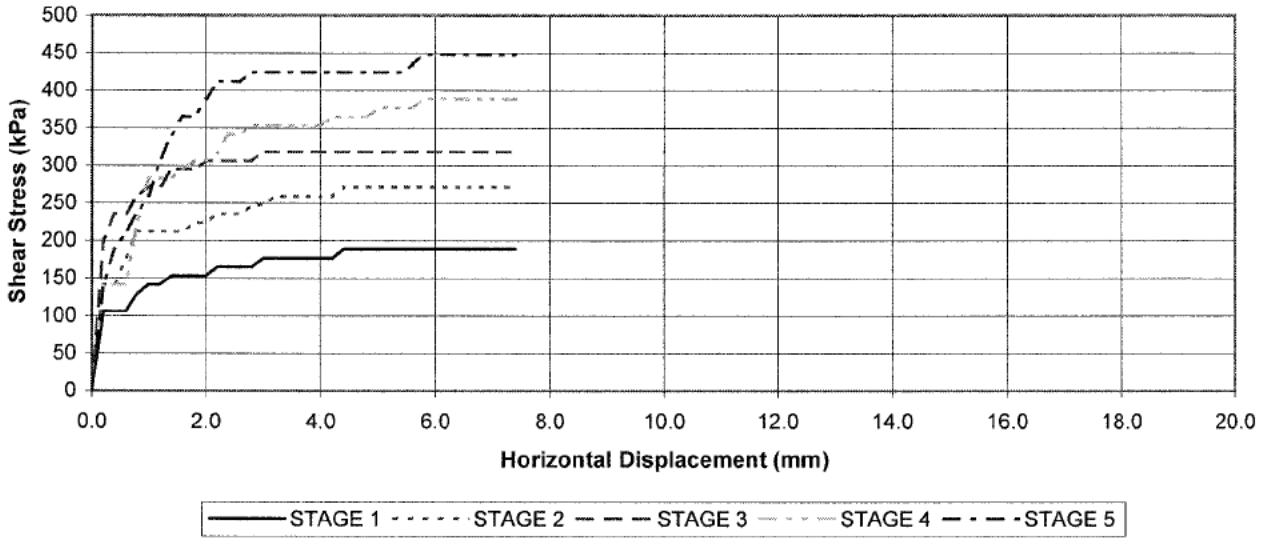
ISRM SUGGESTED METHODS

Hole No. : BH03 Sample No. : Sample Type : C Depth (m) : 14.40

Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

Sample Description : Grey MICA SCHIST (See sheet Fig. 4)



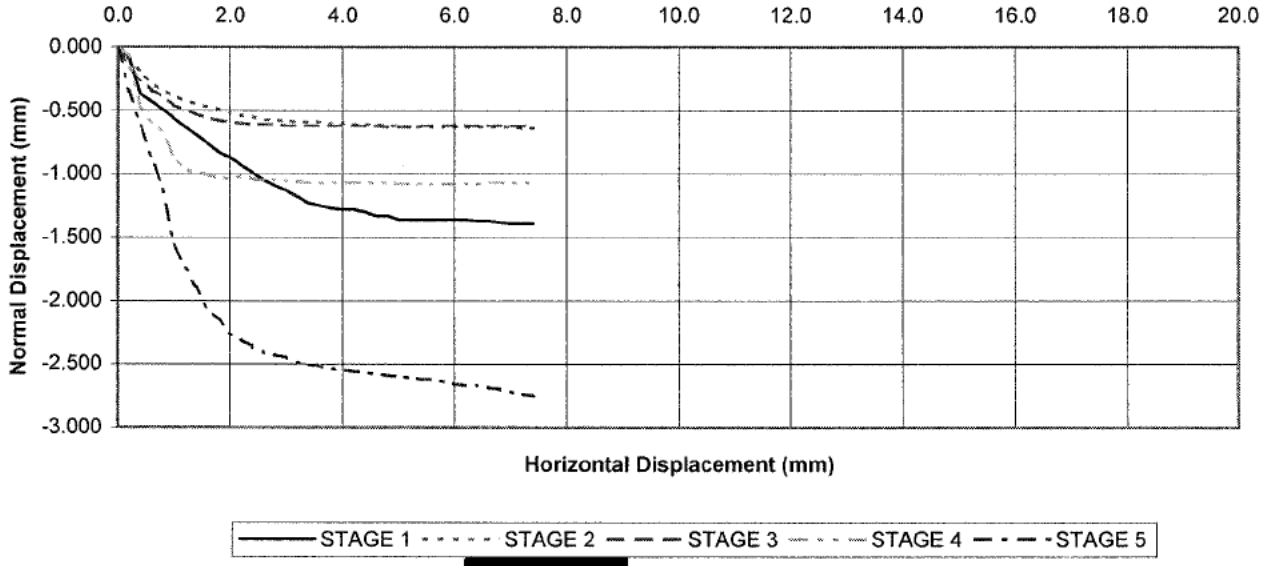


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Figure No	LT8/ 32	Sheet	3 of 3

Post–test Photograph and Full Geological Description

Strong light grey MICA SCHIST.

Discontinuity is rough undulating strong tight to moderately open with rare fine sand/silt sized debris

		[redacted]	Date 29/04/10	[redacted]	Date 29/4/10	
FUGRO		SLOY PUMPING STATION			Contract No CON103001	
					Figure No Fig. 4	

Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

ISRM SUGGESTED METHODS

Hole No. : BH03 Sample No. : Sample Type : C Depth (m) : 21.04

Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

Sample Description : Grey MICA SCHIST (See sheet Fig. 5)

Initial Condition	Water Content				%	0.4
	Bulk Density				Mg/m^3	2.58
	Dry Density				Mg/m^3	2.58
	Height				mm	96.00
	Diameter				mm	75.00
	Particle Density				Mg/m^3	2.75
	Degree of Saturation				%	17
	Voids Ratio					0.07
	Moisture Condition during test					As Received
Joint Roughness Coefficient			Pre Test		Post Test	
	Upper Surface of Discontinuity					
	Lower Surface of Discontinuity					
Consolidation Stage	t_{100} (mins)	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
		01:30	01:00	01:30	03:00	03:00
Shearing stage		Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
	Normal Stress (kPa)	200	300	400	500	600
	Shear Stress (kPa)	166.7	194.4	277.8	319.4	402.8
	Residual Stress (kPa)					
	Normal Displacement (mm)	0.5	0.0	0.1	0.2	0.5
	Shear Displacement (mm)	1.0	0.8	2.0	3.4	3.6

Cohesion (kPa)				**Apparent Friction Angle (°)**			
Normal Stress less than	400	kPa	46	Normal Stress less than	400	kPa	29
Normal Stress greater than	400	kPa	21	Normal Stress greater than	400	kPa	32

Residual Friction Angle (°)	-

Prepared By	[redacted]	Checked By	[redacted]	Date	29/4/10	Project No	CON103001

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Figure No	LT8/ 33	Sheet	1 of 3

Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

ISRM SUGGESTED METHODS

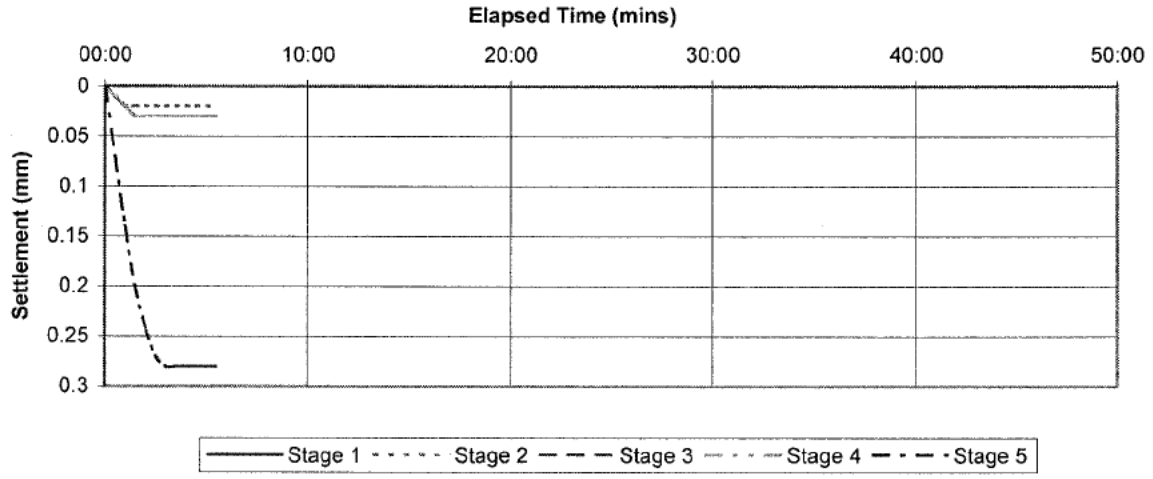
Hole No. : BH03 Sample No. : Sample Type : C Depth (m) : 21.04

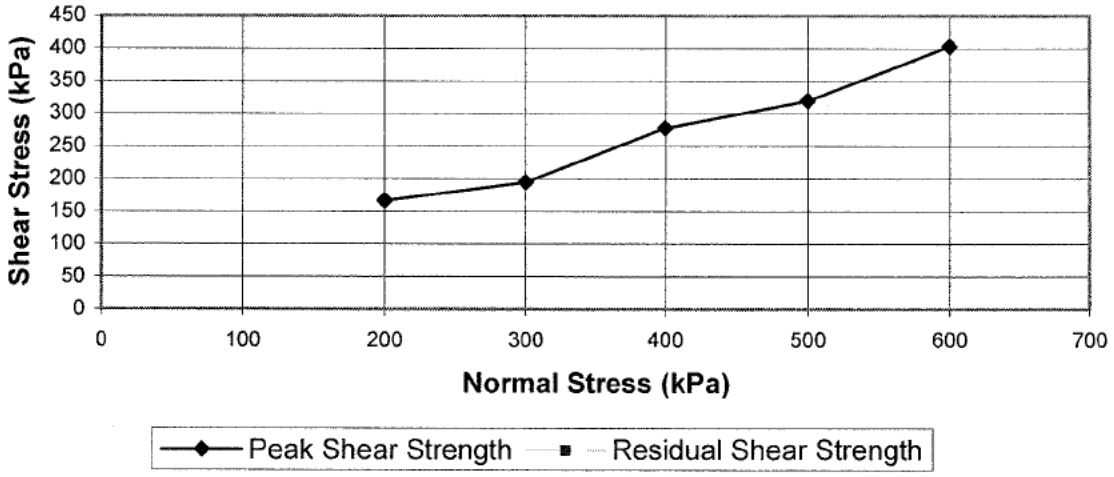
Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

Sample Description : Grey MICA SCHIST (See sheet Fig. 5)

Consolidation Stage





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Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

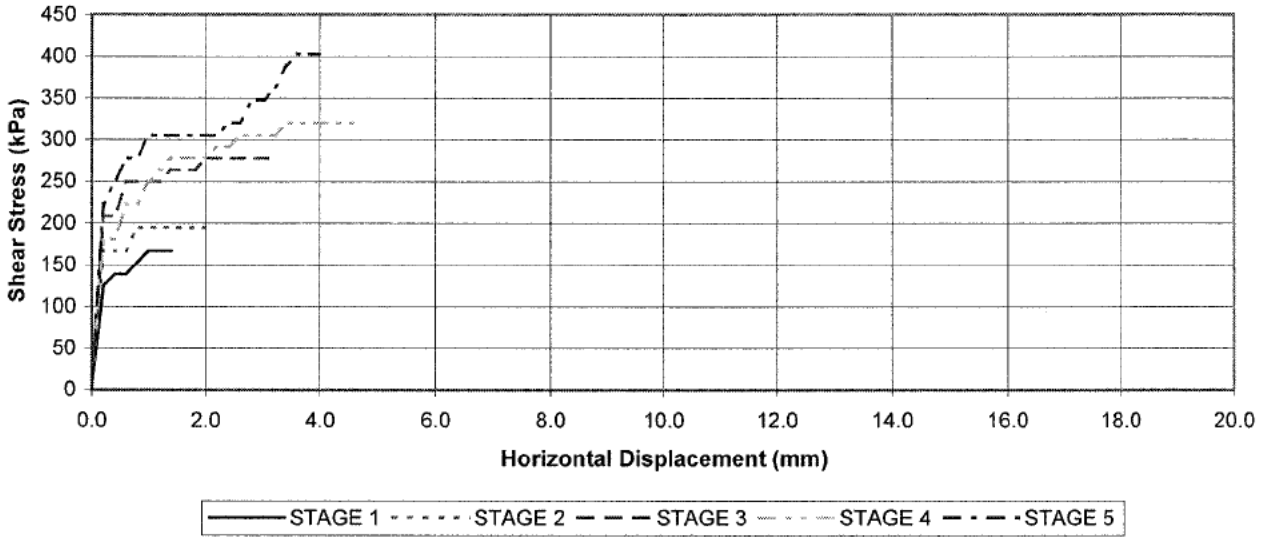
ISRM SUGGESTED METHODS

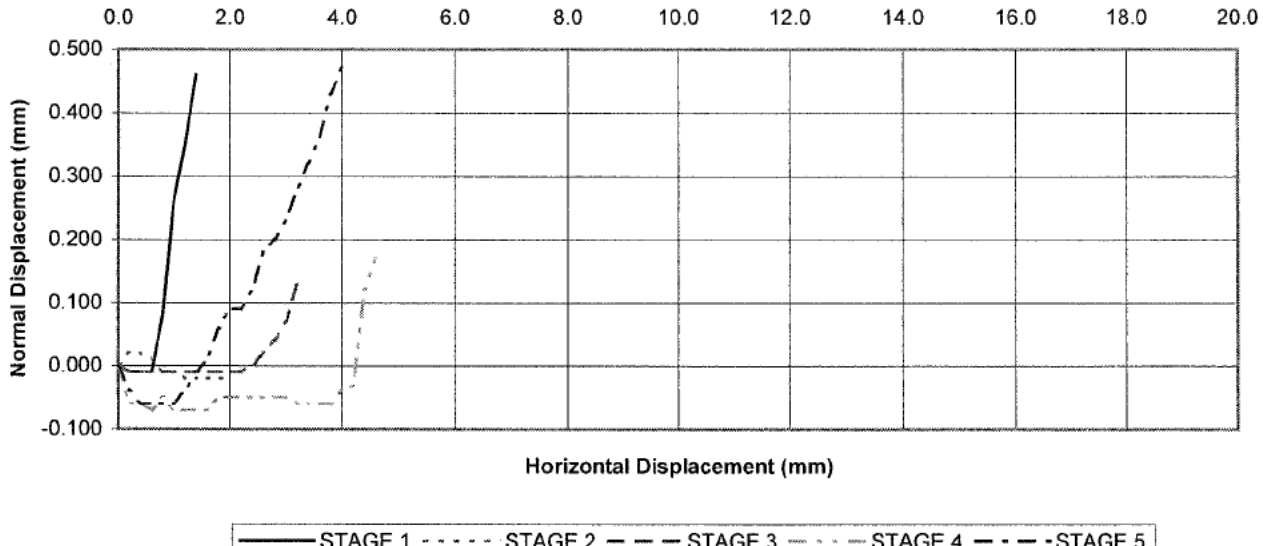
Hole No. : BH03 Sample No. : Sample Type : C Depth (m) : 21.04

Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

Sample Description : Grey MICA SCHIST (See sheet Fig. 5)





Prepared By	[redacted]	Checked By	[redacted]	Date	29/4/10	Project No	CON103001

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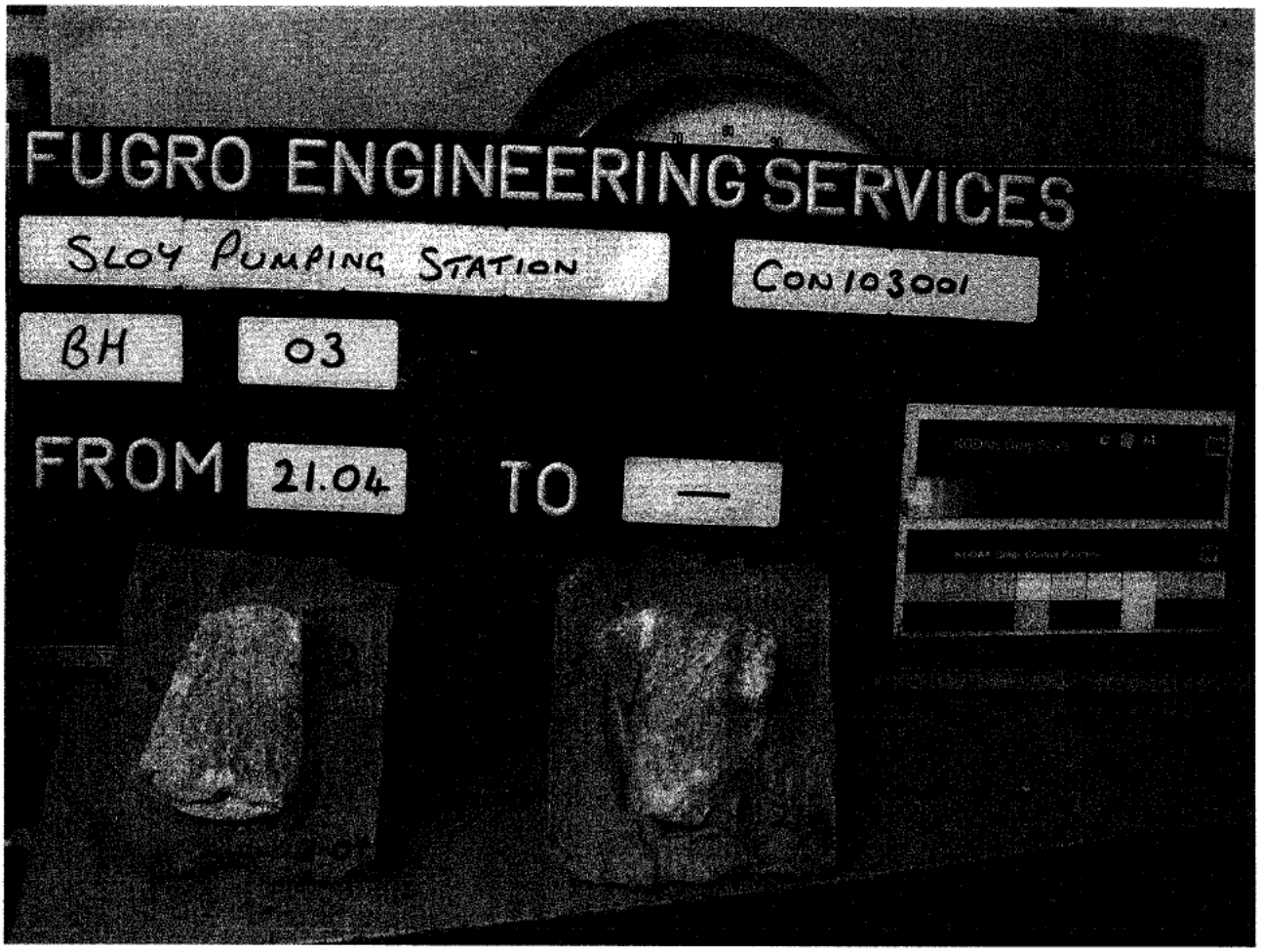
Figure No	LT8/ 35	Sheet	3 of 3

Post–test Photograph and Full Geological Description



Strong light grey MICA SCHIST.

Discontinuity is rough undulating strong open with occasional fine sand/silt sized debris

		[redacted]	Date 29/04/10 [redacted]	Date 29/4/10	
FUGRO		SLOY PUMPING STATION		Contract No CON103001	
				Figure No Fig. 5	

Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

ISRM SUGGESTED METHODS

Hole No. : BH06 Sample No. : Sample Type : C Depth (m) : 7.80

Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

Sample Description : Grey MICA SCHIST (See sheet Fig. 6)

Initial Condition	Water Content				%	1.7
	Bulk Density				Mg/m^3	2.67
	Dry Density				Mg/m^3	2.63
	Height				mm	101.00
	Diameter				mm	48.00
	Particle Density				Mg/m^3	2.75
	Degree of Saturation				%	102
	Voids Ratio					0.05
	Moisture Condition during test					As Received
Joint Roughness Coefficient			Pre Test		Post Test	
	Upper Surface of Discontinuity					
	Lower Surface of Discontinuity					
Consolidation Stage	t_{100} (mins)	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
		01:30	01:30	01:30	02:00	03:00
Shearing stage		Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
	Normal Stress (kPa)	75	112.5	150	187.5	225
	Shear Stress (kPa)	123.8	165.0	206.3	247.5	268.2
	Residual Stress (kPa)					
	Normal Displacement (mm)	0.0	0.4	0.8	-1.0	-2.2
	Shear Displacement (mm)	0.2	0.8	2.8	5.0	6.4

Cohesion (kPa)				**Apparent Friction Angle (°)**			
Normal Stress less than	150	kPa	41	Normal Stress less than	150	kPa	48
Normal Stress greater than	150	kPa	86	Normal Stress greater than	150	kPa	40

Residual Friction Angle (°)	-

Prepared By	[redacted]	Checked By	[redacted]	Date	29/4/10	Project No	CON103001

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Figure No	LT8/ 36	Sheet	1 of 3

Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

ISRM SUGGESTED METHODS

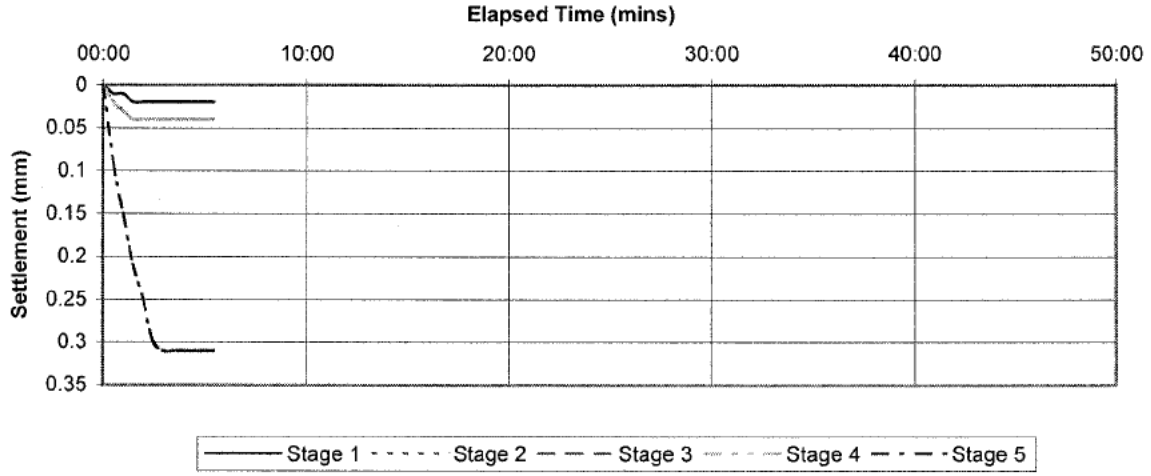
Hole No. : BH06 Sample No. : Sample Type : C Depth (m) : 7.80

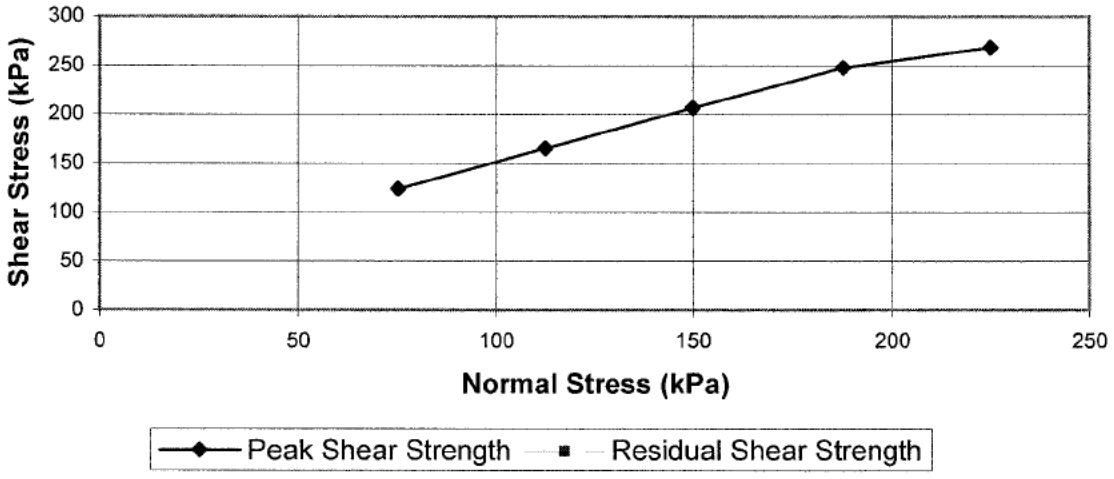
Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

Sample Description : Grey MICA SCHIST (See sheet Fig. 6)

Consolidation Stage





Prepared By	[redacted]	Checked By	[redacted]	Date	29/4/10	Project No	CON103001

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Figure No	LT8/ 37	Sheet	2 of 3

Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

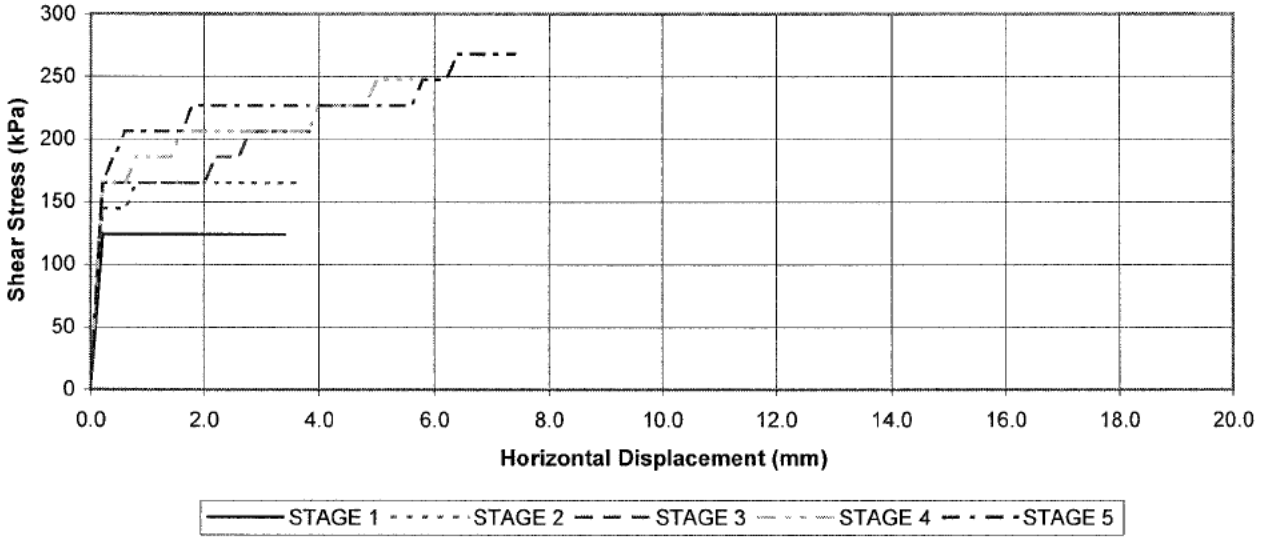
ISRM SUGGESTED METHODS

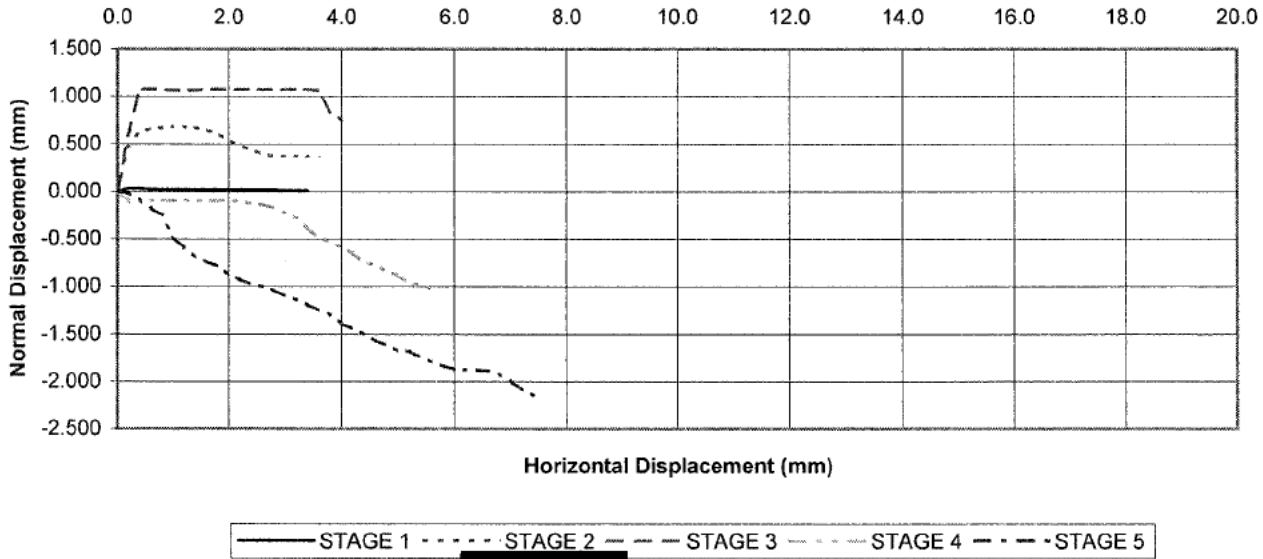
Hole No. : BH06 Sample No. : Sample Type : C Depth (m) : 7.80

Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

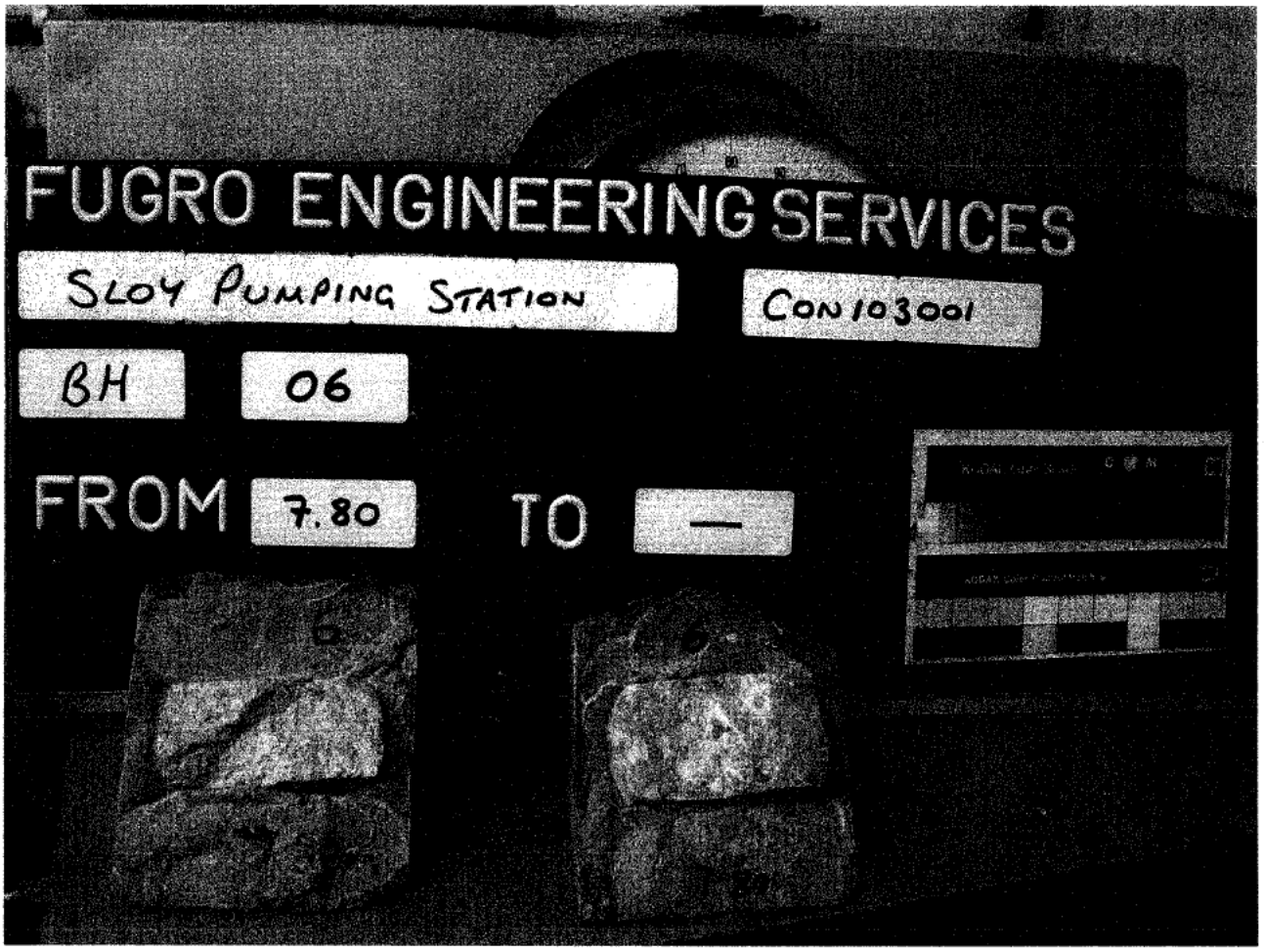
Sample Description : Grey MICA SCHIST (See sheet Fig. 6)





Prepared By	[redacted]	Checked By	[redacted]	Date	29/4/10	Project No	CON103001

Post–test Photograph and Full Geological Description



Strong light grey QUARTZ and MICA SCHIST.

Discontinuity is rough stepped strong very open with much fine sand/silt sized debris

		[redacted]	Date 29/04/10	Date 29/4/10	
FUGRO		SLOY PUMPING STATION			Contract No CON103001
					Figure No Fig. 6

Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

ISRM SUGGESTED METHODS

Hole No. : BH06 Sample No. : Sample Type : C Depth (m) : 10.40

Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

Sample Description : Grey MICA SCHIST (See sheet Fig. 7)

Initial Condition	Water Content				%	0.6
	Bulk Density				Mg/m^3	2.72
	Dry Density				Mg/m^3	2.70
	Height				mm	97.50
	Diameter				mm	73.20
	Particle Density				Mg/m^3	2.75
	Degree of Saturation				%	89
	Voids Ratio					0.02
	Moisture Condition during test					As Received
Joint Roughness Coefficient			Pre Test		Post Test	
	Upper Surface of Discontinuity					
	Lower Surface of Discontinuity					
Consolidation Stage	t_{100} (mins)	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
		01:00	01:00	01:30	01:00	01:30
Shearing stage		Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
	Normal Stress (kPa)	110	165	220	275	330
	Shear Stress (kPa)	124.9	160.6	214.1	267.6	285.4
	Residual Stress (kPa)					
	Normal Displacement (mm)	0.0	0.5	0.5	1.0	-0.8
	Shear Displacement (mm)	2.8	4.2	5.0	6.2	6.0

Cohesion (kPa)				Apparent Friction Angle (°)			
Normal Stress less than	220	kPa	33	Normal Stress less than	220	kPa	39
Normal Stress greater than	220	kPa	77	Normal Stress greater than	220	kPa	33

Residual Friction Angle (°)	-

Prepared By	[redacted]	Checked By	[redacted]	Date	29/4/10	Project No	CON103001

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Figure No	LT8/ 39	Sheet	1 of 3

Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

ISRM SUGGESTED METHODS

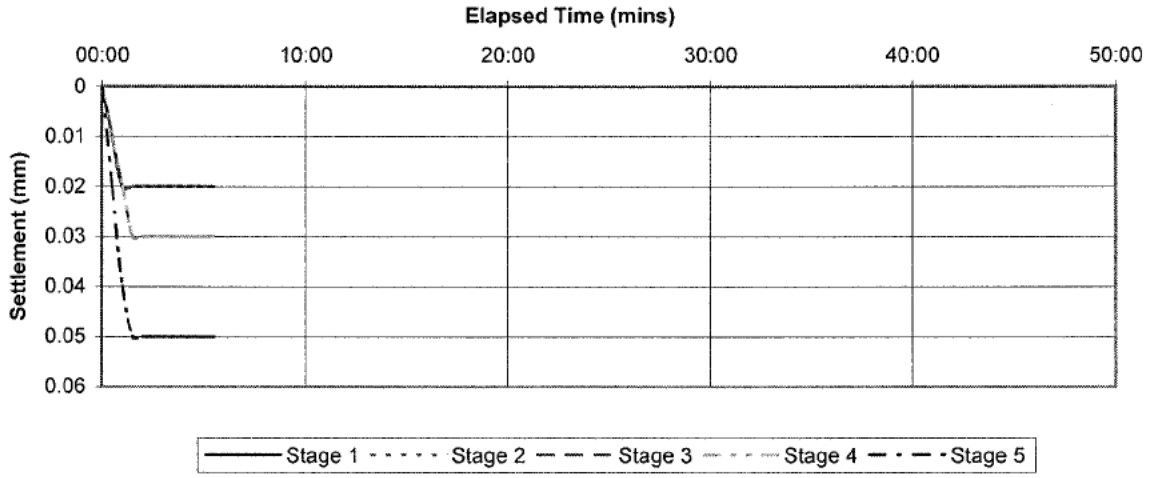
Hole No. : BH06 Sample No. : Sample Type : C Depth (m) : 10.40

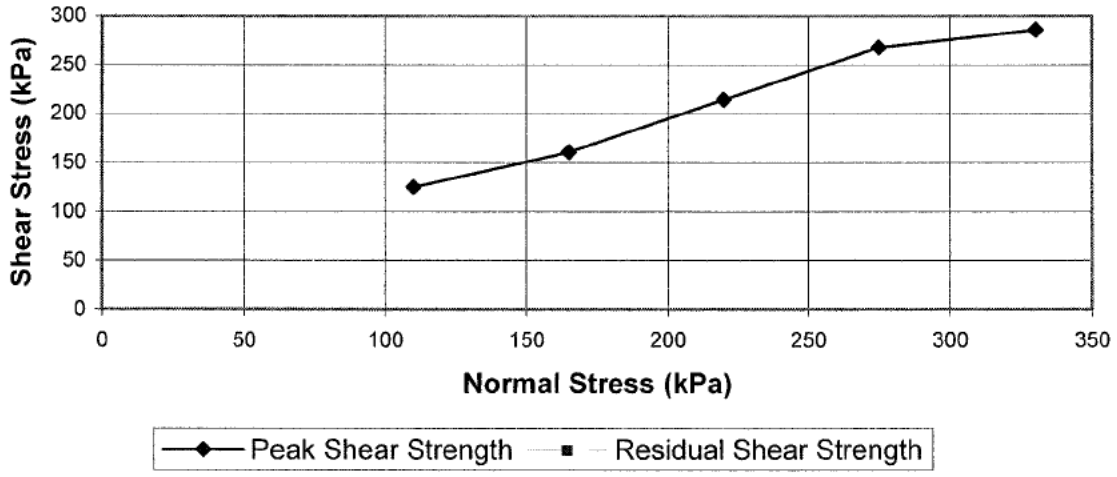
Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

Sample Description : Grey MICA SCHIST (See sheet Fig. 7)

Consolidation Stage





Prepared By	[redacted]	Checked By	[redacted]	Date	29/4/10	Project No	CON103001

Sheet LR/04/106

Figure No	LT8/ 40	Sheet	2 of 3

Scottish and Southern Energy
SLOY PUMPING STATION

DIRECT SHEAR STRENGTH OF ROCK DISCONTINUITIES

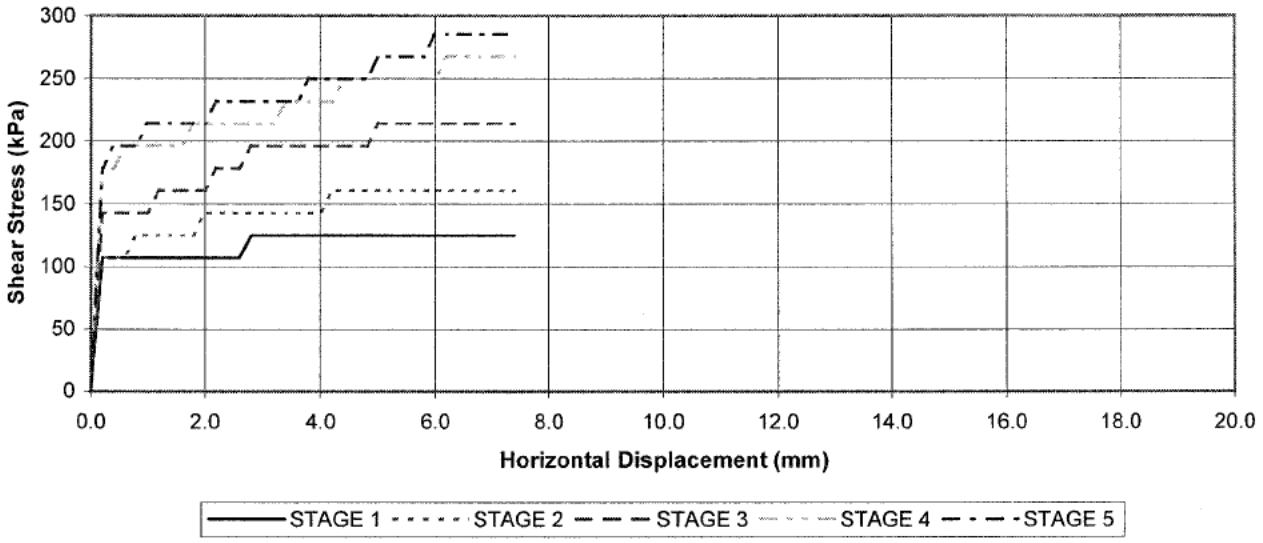
ISRM SUGGESTED METHODS

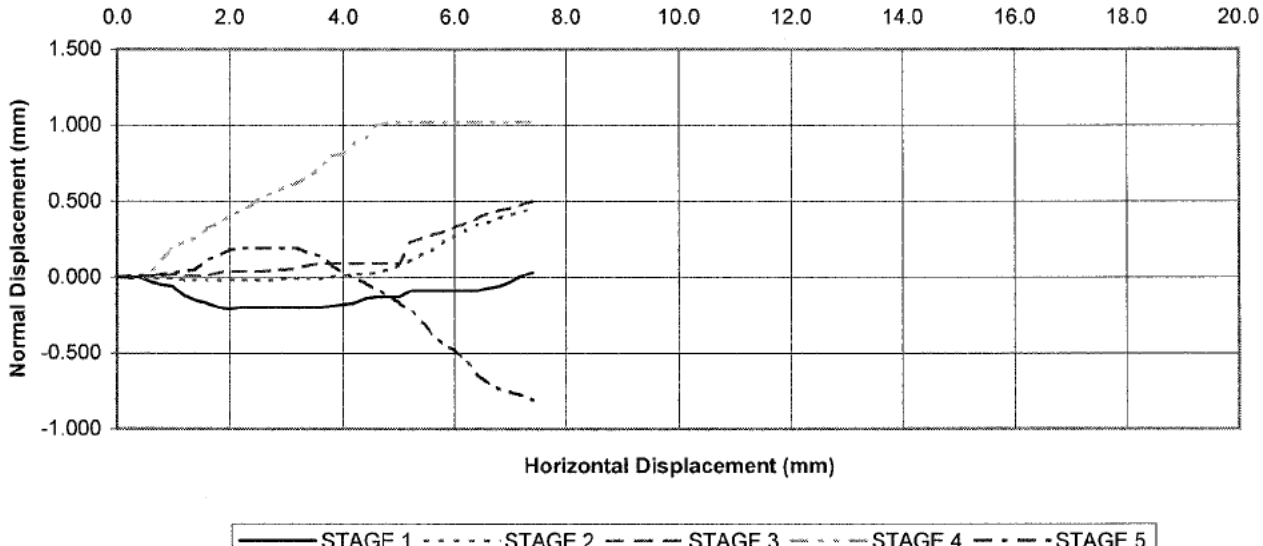
Hole No. : BH06 Sample No. : Sample Type : C Depth (m) : 10.40

Specimen Details

Source of specimen: Core Discontinuity Type: Existing Plane Encapsulating Material: Cement

Sample Description : Grey MICA SCHIST (See sheet Fig. 7)



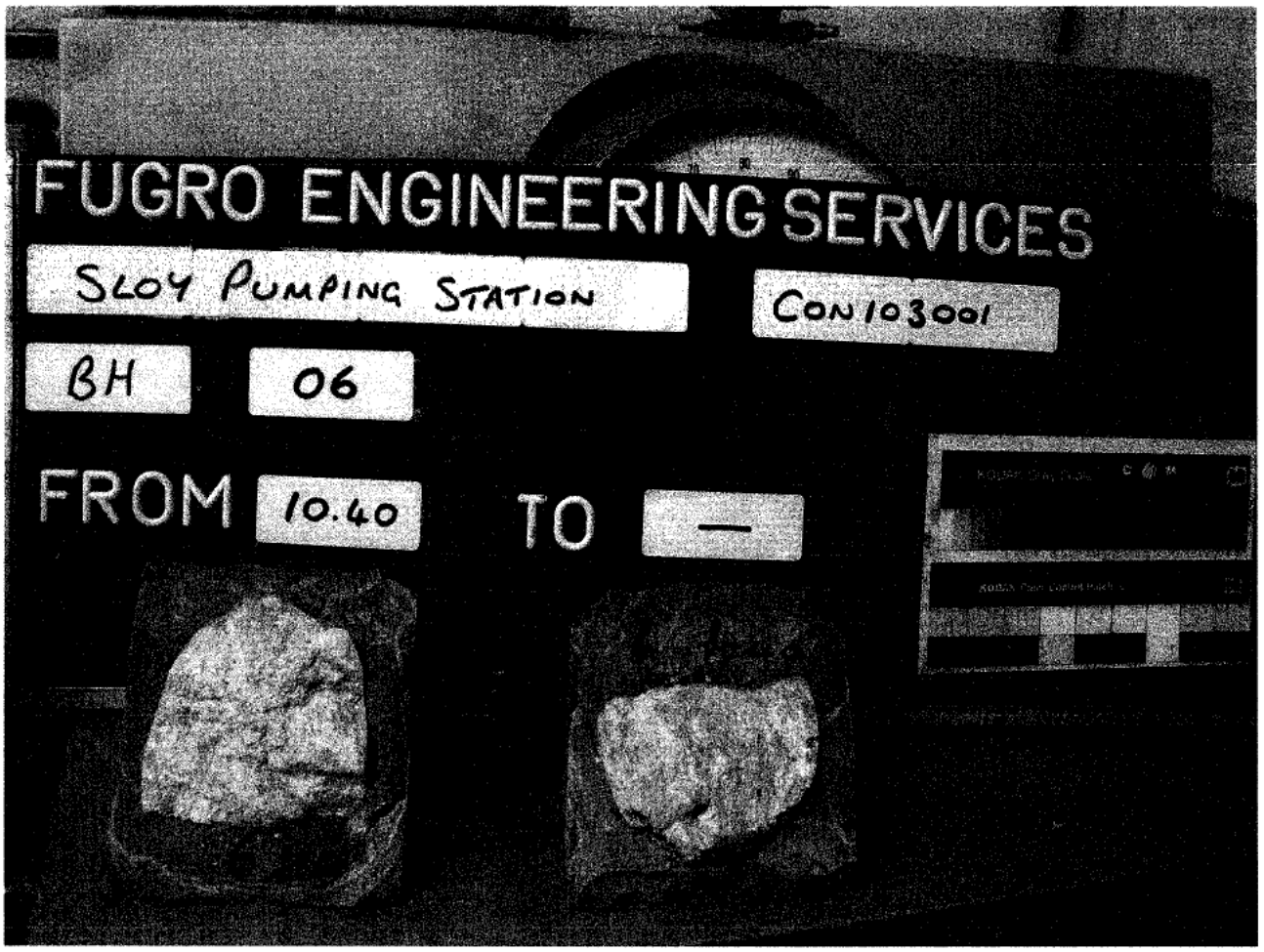


Prepared By	[redacted]	Checked By	[redacted]	Date	29/4/10	Project No	CON103001

Sheet LR/04/107

Figure No	LT8/ 41	Sheet	3 of 3

Post–test Photograph and Full Geological Description



Strong light grey MICA SCHIST.

Discontinuity is smooth stepped very weak to medium strong open with much fine sand/silt and occasional extremely weak fine gravel sized debris

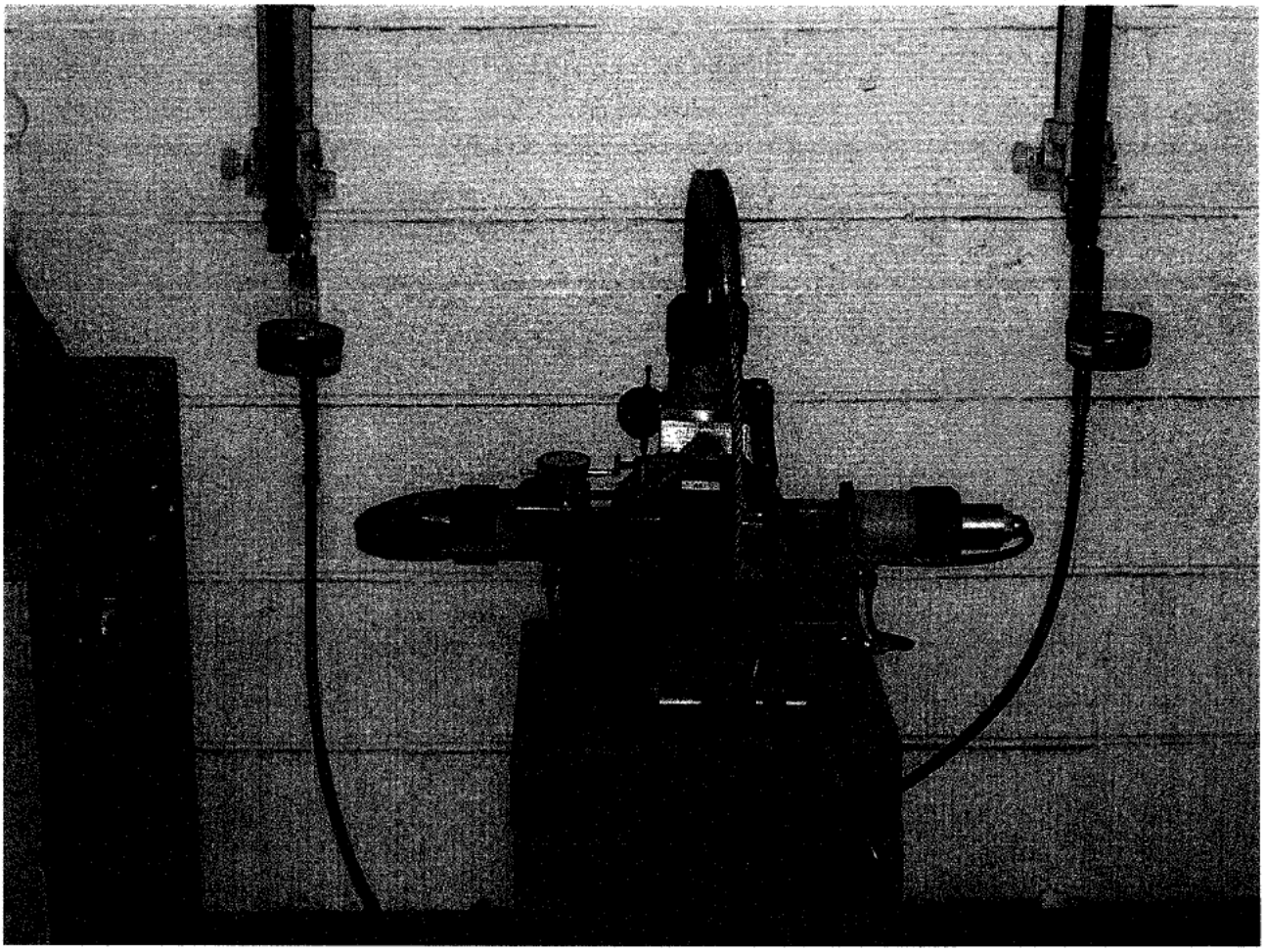
		[redacted]	Date 29/04/10	Date 29/4/10	
FUGRO		SLOY PUMPING STATION		Contract No CON103001	
				Figure No Fig. 7	

Direct Shear Apparatus Description

The Direct Shear apparatus comprises of a Hoëk Shearbox with hydraulic rams supplying pressure for the normal load and shear force. A photograph has been supplied (Fig. 1).

The apparatus is operated by 3 technicians and normal load is maintained by the operator monitoring the pressure gauge for the appropriate ram.

		[redacted]	Date 29/04/10	[redacted]	[redacted]
FUGRO		SLOY PUMPING STATION		Contract No CON103001	
				Figure No	



		C [redacted]	Date 29/04/10	[redacted]	Date 29/4/10		
FUGRO		SLOY PUMPING STATION				Contract No CON103001	
						Figure No Fig. 1	

Methods for Storing, Mounting and Testing Direct Shear Specimens

Samples for test were taken from site and transported to Fugro Engineering Services Limited (Consett) Laboratory. Samples were stored in the Fugro sample stores which are maintained at a temperature of above 2°C and below 45°C in accordance with BS5930.

The natural shear plane Direct Shear specimens were mounted in the 2 halves of the shearbox using quick setting cement. Consolidation of the specimens then took place at the first scheduled normal stress, with settlement being monitored by a clock face dial gauge.

Shearing of the specimens at the first pressure was carried out at the appropriate rate as determined by the consolidation phases. On completion of the first shearing the specimens were reset back to the starting point and the second consolidation pressure applied followed by shearing. This procedure was repeated for the remaining phases.

As with soil shearboxes, area of contact correction is considered to be negligible and therefore has not been made.

		[redacted]	Date 29/04/10	[redacted]	Date 29/4/10		
FUGRO		SLOY PUMPING STATION				Contract No CON103001	
						Figure No	

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[redacted]

SLOY PUMPING STATION (CON103001)

Laboratory Report	SM/10/1003	Date Sampled	Not Stated
Sample Number	SM/10/1003	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	2 @ 8.50m - 10.50m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.
The sample was received without an accompanying certificate of sampling.
The test was carried out in accordance with the appropriate standards.

Determination of Los Angeles coefficient, BS EN 1097-2:1998

Tests conducted on material passing a 14.0mm test sieve and retained on a 10.0mm test sieve.

Passing 11.2mm test sieve	33 %
Retaining 11.2mm test sieve	67 %
Los Angeles coefficient *LA*	43

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Laboratory Report	SM/10/1003	Date Sampled	Not Stated
Sample Number	SM/10/1003	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	2 @ 8.50m - 10.50m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.

The sample was received without an accompanying certificate of sampling.

The test was carried out in accordance with the appropriate standards.

Determination of Aggregate Crushing Value - BS 812: Part 110: 1990

Tests conducted on material passing a 14.0mm test sieve and retained on a 10.0mm test sieve.

Aggregate Crushing Value (dry)	20 %

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[redacted]

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Laboratory Report	SM/10/1003	Date Sampled	Not Stated
Sample Number	SM/10/1003	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	2 @ 8.50m - 10.50m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.
The sample was received without an accompanying certificate of sampling.
The test was carried out in accordance with the appropriate standards on a dry specimen.

Determination of aggregate impact value (AIV) - BS 812: Part 112: 1990	
Number of blows	NA
Aggregate impact value NOTE - Any AIV result greater than 30 should be treated with caution	30.6

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Laboratory Report	SM/10/1004	Date Sampled	Not Stated
Sample Number	SM/10/1004	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	2 @ 18.0m - 19.50m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.
The sample was received without an accompanying certificate of sampling.
The test was carried out in accordance with the appropriate standards.

Determination of Los Angeles coefficient, BS EN 1097-2:1998

Tests conducted on material passing a 14.0mm test sieve and retained on a 10.0mm test sieve.

Passing 11.2mm test sieve	31 %
Retaining 11.2mm test sieve	69 %
Los Angeles coefficient *LA*	45

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Laboratory Report	SM/10/1004	Date Sampled	Not Stated
Sample Number	SM/10/1004	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	2 @ 18.0m - 19.50m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.
The sample was received without an accompanying certificate of sampling.
The test was carried out in accordance with the appropriate standards on a dry specimen.

Determination of aggregate impact value (AIV) - BS 812: Part 112: 1990	
Number of blows	NA
Aggregate impact value	27.8

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Laboratory Report	SM/10/1004	Date Sampled	Not Stated
Sample Number	SM/10/1004	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	2 @ 18.0m - 19.50m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.
The sample was received without an accompanying certificate of sampling.
The test was carried out in accordance with the appropriate standards.

Determination of Aggregate Crushing Value - BS 812: Part 110: 1990

Tests conducted on material passing a 14.0mm test sieve and retained on a 10.0mm test sieve.

Aggregate Crushing Value (dry)	22 %

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Laboratory Report	SM/10/1005	Date Sampled	Not Stated
Sample Number	SM/10/1005	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	3 @ 26.90m - 29.00m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.
The sample was received without an accompanying certificate of sampling.
The test was carried out in accordance with the appropriate standards.

Determination of Los Angeles coefficient, BS EN 1097-2:1998

Tests conducted on material passing a 14.0mm test sieve and retained on a 10.0mm test sieve.

Passing 11.2mm test sieve	37 %
Retaining 11.2mm test sieve	63 %
Los Angeles coefficient *LA*	46

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Laboratory Report	SM/10/1005	Date Sampled	Not Stated
Sample Number	SM/10/1005	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	3 @ 26.90m - 29.00m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.

The sample was received without an accompanying certificate of sampling.

The test was carried out in accordance with the appropriate standards.

Determination of Aggregate Crushing Value - BS 812: Part 110: 1990

Tests conducted on material passing a 14.0mm test sieve and retained on a 10.0mm test sieve.

Aggregate Crushing Value (dry)	21 %

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Laboratory Report	SM/10/1005	Date Sampled	Not Stated
Sample Number	SM/10/1005	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	3 @ 26.90m - 29.00m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.
The sample was received without an accompanying certificate of sampling.
The test was carried out in accordance with the appropriate standards on a dry specimen.

Determination of aggregate impact value (AIV) - BS 812: Part 112: 1990

Number of blows	NA
Aggregate impact value	30.2

NOTE - Any AIV result greater than 30 should be treated with caution

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Laboratory Report	SM/10/1006	Date Sampled	Not Stated
Sample Number	SM/10/1006	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	4 @ 11.00m - 12.00m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.
The sample was received without an accompanying certificate of sampling.
The test was carried out in accordance with the appropriate standards.

Determination of Los Angeles coefficient, BS EN 1097-2:1998

Tests conducted on material passing a 14.0mm test sieve and retained on a 10.0mm test sieve.

Passing 11.2mm test sieve	31 %
Retaining 11.2mm test sieve	69 %
Los Angeles coefficient *LA*	36

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Sample Number	SM/10/1006	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	4 @ 11.00m - 12.00m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.
The sample was received without an accompanying certificate of sampling.
The test was carried out in accordance with the appropriate standards on a dry specimen.

Determination of aggregate impact value (AIV) - BS 812: Part 112: 1990	
Number of blows	NA
Aggregate impact value	23.6

[redacted]

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Sample Number	SM/10/1006	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	4 @ 11.00m - 12.00m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.

The sample was received without an accompanying certificate of sampling.

The test was carried out in accordance with the appropriate standards.

Determination of Aggregate Crushing Value - BS 812: Part 110: 1990

Tests conducted on material passing a 14.0mm test sieve and retained on a 10.0mm test sieve.

Aggregate Crushing Value (dry)	20 %

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SLOY PUMPING STATION (CON103001)

Laboratory Report	SM/10/1007	Date Sampled	Not Stated
Sample Number	SM/10/1007	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	6 @ 4.75m - 6.00m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.
The sample was received without an accompanying certificate of sampling.
The test was carried out in accordance with the appropriate standards.

Determination of Los Angeles coefficient, BS EN 1097-2:1998

Tests conducted on material passing a 14.0mm test sieve and retained on a 10.0mm test sieve.

Passing 11.2mm test sieve	30 %
Retaining 11.2mm test sieve	70 %
Los Angeles coefficient *LA*	32

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Sample Number	SM/10/1007	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	6 @ 4.75m - 6.00m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.
The sample was received without an accompanying certificate of sampling.
The test was carried out in accordance with the appropriate standards on a dry specimen.

Determination of aggregate impact value (AIV) - BS 812: Part 112: 1990	
Number of blows	NA
Aggregate impact value	24.3

[redacted]

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Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	6 @ 4.75m - 6.00m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.

The sample was received without an accompanying certificate of sampling.

The test was carried out in accordance with the appropriate standards.

Determination of Aggregate Crushing Value - BS 812: Part 110: 1990

Tests conducted on material passing a 14.0mm test sieve and retained on a 10.0mm test sieve.

Aggregate Crushing Value (dry)	18 %

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[redacted]

SLOY PUMPING STATION (CON103001)

Laboratory Report	SM/10/1008	Date Sampled	Not Stated
Sample Number	SM/10/1008	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	6 @ 15.00m - 16.50m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.
The sample was received without an accompanying certificate of sampling.
The test was carried out in accordance with the appropriate standards.

Determination of Los Angeles coefficient, BS EN 1097-2:1998
Tests conducted on material passing a 14.0mm test sieve and retained on a 10.0mm test sieve.

Passing 11.2mm test sieve	31 %
Retaining 11.2mm test sieve	69 %
Los Angeles coefficient *LA*	32

[redacted]

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SLOY PUMPING STATION (CON103001)

Laboratory Report	SM/10/1008	Date Sampled	Not Stated
Sample Number	SM/10/1008	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	6 @ 15.00m - 16.50m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.
The sample was received without an accompanying certificate of sampling.
The test was carried out in accordance with the appropriate standards on a dry specimen.

Determination of aggregate impact value (AIV) - BS 812: Part 112: 1990	
Number of blows	NA
Aggregate impact value	24.2

[redacted]

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Sample Number	SM/10/1008	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	6 @ 15.00m - 16.50m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.

The sample was received without an accompanying certificate of sampling.

The test was carried out in accordance with the appropriate standards.

Determination of Aggregate Crushing Value - BS 812: Part 110: 1990

Tests conducted on material passing a 14.0mm test sieve and retained on a 10.0mm test sieve.

Aggregate Crushing Value (dry)	18 %

[redacted]

Environmental Services Group Ltd
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Telephone: + 44 (0) 1977 518908
Fax: + 44 (0) 1977 553612

ESG Environmental Scientifics Group

UKAS TESTING
0001

TEST REPORT

Fugro Engineering Services Ltd
Armstrong House
Unit 43, Number One Industrial Estate
Medomsley Road
Consett
County Durham DH8 6DQ

[redacted]

SLOY PUMPING STATION (CON103001)

Laboratory Report	SM/10/1009	Date Sampled	Not Stated
Sample Number	SM/10/1009	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	12 @ 5.00m - 7.00m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.
The sample was received without an accompanying certificate of sampling.
The test was carried out in accordance with the appropriate standards.

Determination of Los Angeles coefficient, BS EN 1097-2:1998

Tests conducted on material passing a 14.0mm test sieve and retained on a 10.0mm test sieve.

Passing 11.2mm test sieve	30 %
Retaining 11.2mm test sieve	70 %
Los Angeles coefficient *LA*	36

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Laboratory Report	SM/10/1009	Date Sampled	Not Stated
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Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	12 @ 5.00m - 7.00m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.
The sample was received without an accompanying certificate of sampling.
The test was carried out in accordance with the appropriate standards on a dry specimen.

Determination of aggregate impact value (AIV) - BS 812: Part 112: 1990	
Number of blows	NA
Aggregate impact value	25.7

[redacted]

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SLOY PUMPING STATION (CON103001)

Laboratory Report	SM/10/1009	Date Sampled	Not Stated
Sample Number	SM/10/1009	Date Received	31/03/2010
Date	19-Apr-10	Date Completed	16/04/2010
Material Description	Dalradian Schist with Quartzite	Client Ref	Not Stated
Source	Ex Site	Location	12 @ 5.00m - 7.00m
Supplier	Ex Site		

The result below represents tests conducted on a sample of the above material which was submitted to the Laboratory by the client.

The sample was received without an accompanying certificate of sampling.

The test was carried out in accordance with the appropriate standards.

Determination of Aggregate Crushing Value - BS 812: Part 110: 1990

Tests conducted on material passing a 14.0mm test sieve and retained on a 10.0mm test sieve.

Aggregate Crushing Value (dry)	20 %

[redacted]