



## TEST REPORT

**Client** Earth Environmental & Geotechnical Ltd

**Address** Houldsworth Mills Business & Arts Centre  
Houldsworth Street  
Reddish  
Stockport  
SK5 6DA

**Contract** A1819 –  
Busker Lane, Scissett

**Job Number** MRN 3077/4  
**Date of Issue** 07 March 2017  
**Page** 1 of 16

### Approved Signatories

S J Hutchings, O P Davies

### Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted. This does not, however, guarantee the balance of the materials from which the tested samples have been taken to be of equal quality.

# MURRAY RIX

33C Vauxhall Ind. Estate, Greg Street  
 Reddish, Stockport SK5 7BR  
 TEL 0161 475 0870 FAX 0161 475 0871



## TEST CERTIFICATE PARTICLE SIZE DISTRIBUTION BS 1377: PART 2: Clause 9.2: 1990

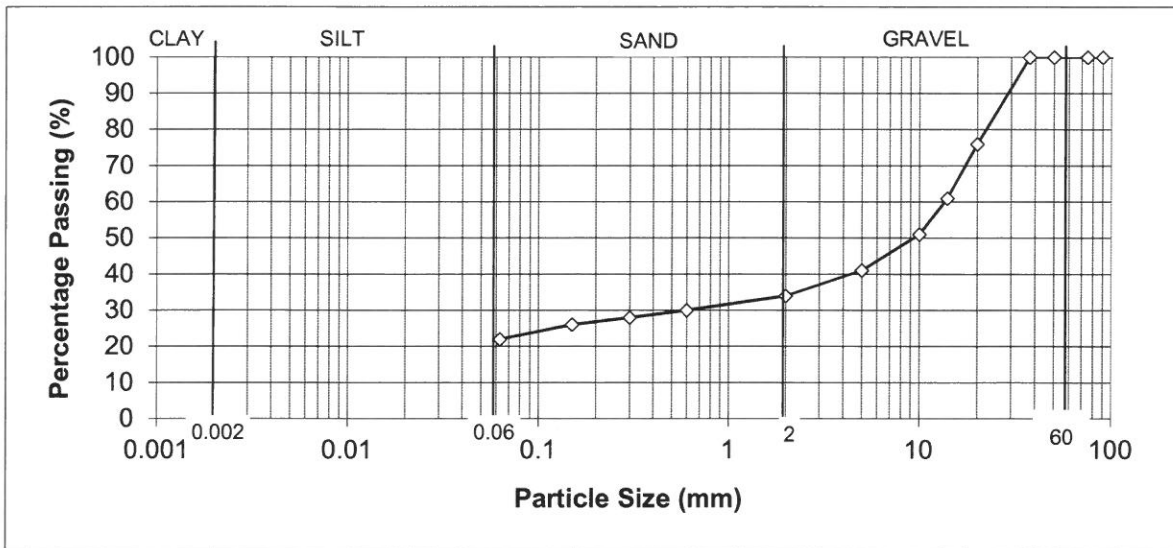
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	Busker Lane, Scissett
JOB NUMBER	MRN 3077/4

SAMPLE LABEL	WS102 1m	DATE SAMPLED	Not advised
LAB SAMPLE No	69174	DATE RECEIVED	28-Feb-17
DATE TESTED	01-Mar-17	SAMPLED BY	Client

MATERIAL	Sandstone
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	51	
90	100		5	41	
75	100		2	34	
50	100		0.6	30	
37.5	100		0.3	28	
20	76		0.15	26	
14	61		0.063	22	



### REMARKS

As received moisture content = 8.7%

SIGNED

NAME

O.P. Davies  
 (Deputy Laboratory Manager)

DATE

07-Mar-17

# MURRAY RIX

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## TEST CERTIFICATE

### LIQUID AND PLASTIC LIMIT

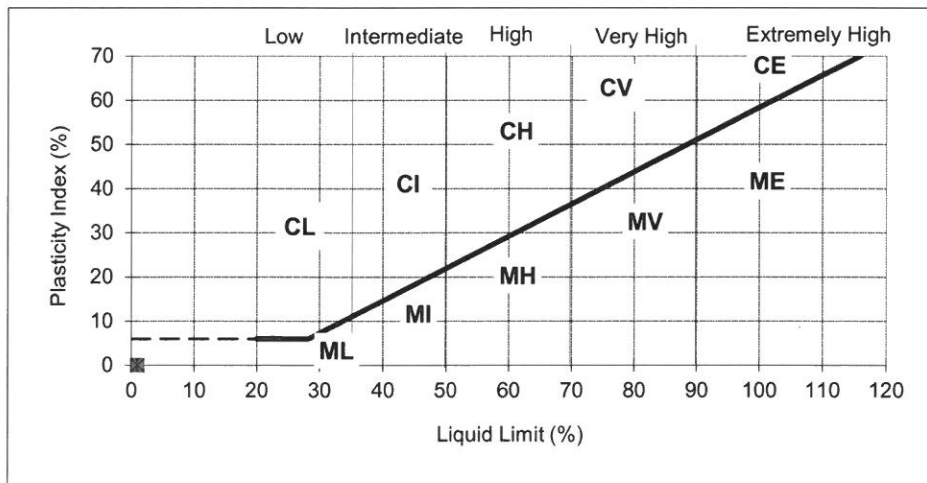
BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3  
 MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	Earth Environmental & Geotechnical Ltd		
SITE	Busker Lane, Scissett		
JOB NUMBER	MRN 3077/4		

SAMPLE LABEL	WS102 1m	DATE SAMPLED	Not advised
SAMPLE No.	69174	DATE RECEIVED	28-Feb-17
DATE TESTED	01-Mar-17	SAMPLED BY	Client

MATERIAL	Sandstone
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
8.7	N/A	Non-Plastic	N/A	28



### REMARKS

Sample tested after wet sieving

SIGNED

NAME

O.P. Davies  
 (Deputy Laboratory Manager)

DATE

07-Mar-17

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UNIT 33C, VAUXHALL IND. ESTATE, GREG STREET  
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## TEST CERTIFICATE

pH and Sulphate as SO<sub>4</sub>  
BS 1377: PART 3: 1990

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	Busker Lane, Scissett
JOB NUMBER	MRN 3077/4

SAMPLE LABEL	WS102 1m	DATE SAMPLED	Not advised
LAB SAMPLE No	69174	DATE RECEIVED	28 February 2017
DATE TESTED	01 March 2017	SAMPLED BY	Client

ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried

PH Value	7.0	g/l
Sulphate as SO <sub>4</sub> (2:1 Water Extract)	0.09	

### REMARKS

SIGNED



NAME O.P. Davies  
(Deputy Laboratory Manager)

DATE 07 March 2017

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## TEST CERTIFICATE

### PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.5: 1990

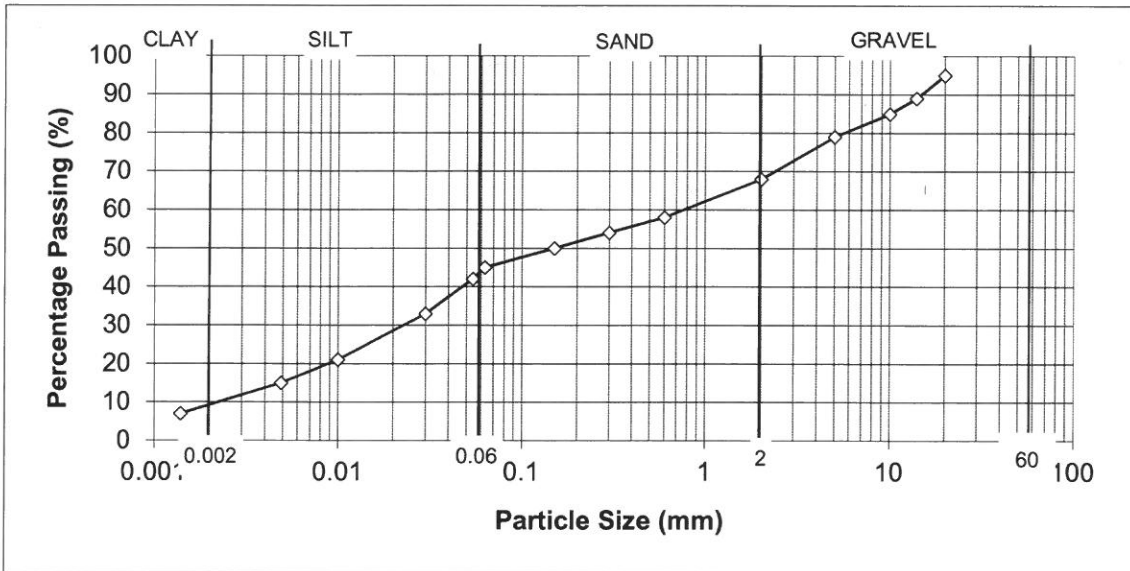
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	Busker Lane, Scissett
JOB NUMBER	MRN 3077/4

SAMPLE LABEL	WS103 1.8m	DATE SAMPLED	Not advised
LAB SAMPLE No	69175	DATE RECEIVED	28-Feb-17
DATE TESTED	01-Mar-17	SAMPLED BY	Client

MATERIAL	Stiff brown/grey mottled sandy silty CLAY with a little gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	Percentage Passing (%)	Sieve Size (mm)	Percentage Passing (%)
20	95	0.15	50
14	89	0.063	45
10	85	0.054	42
5	79	0.03	33
2	68	0.01	21
0.6	58	0.0049	15
0.3	54	0.0014	7



#### REMARKS

As received moisture content = 15%

SIGNED

NAME

O.P. Davies  
 (Deputy Laboratory Manager)

DATE

07-Mar-17

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## TEST CERTIFICATE

### LIQUID AND PLASTIC LIMIT

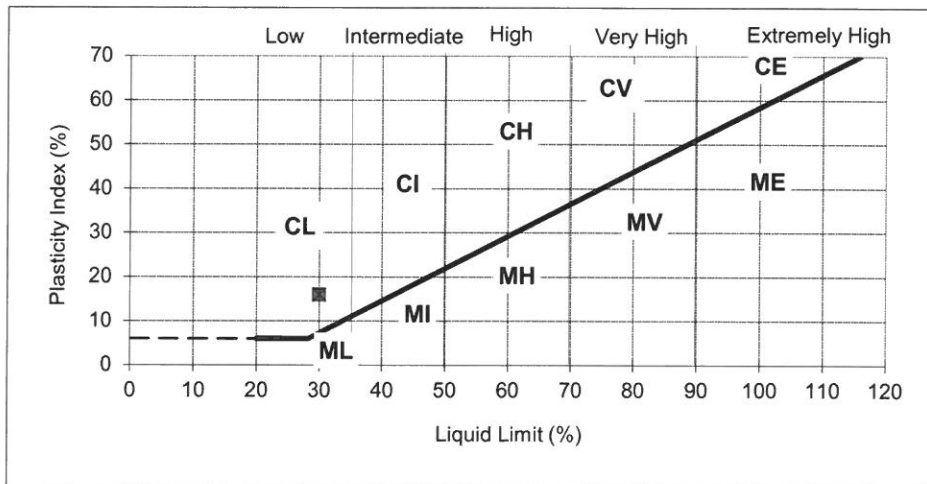
BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3  
 MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	Busker Lane, Scissett
JOB NUMBER	MRN 3077/4

SAMPLE LABEL	WS103 1.8m	DATE SAMPLED	Not advised
SAMPLE No.	69175	DATE RECEIVED	28-Feb-17
DATE TESTED	01-Mar-17	SAMPLED BY	Client

MATERIAL	Stiff brown/grey mottled sandy silty CLAY with a little gravel
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
15	30	14	16	56



### REMARKS

Sample tested after wet sieving

SIGNED

NAME

O.P. Davies

DATE

07-Mar-17

Page 6 of 16

(Deputy Laboratory Manager)

# MURRAY RIX

UNIT 33C, VAUXHALL IND. ESTATE, GREG STREET  
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## TEST CERTIFICATE

pH and Sulphate as SO<sub>4</sub>  
BS 1377: PART 3: 1990

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	Busker Lane, Scissett
JOB NUMBER	MRN 3077/4

SAMPLE LABEL	WS103 1.8m	DATE SAMPLED	Not advised
LAB SAMPLE No	69175	DATE RECEIVED	28 February 2017
DATE TESTED	01 March 2017	SAMPLED BY	Client

ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried

PH Value	6.9	g/l
Sulphate as SO <sub>4</sub> (2:1 Water Extract)	0.16	

### REMARKS

SIGNED



NAME O.P. Davies  
(Deputy Laboratory Manager)

DATE 07 March 2017

# MURRAY RIX

33C VAUXHALL INDUSTRIAL ESTATE, GREG STREET  
REDDISH, STOCKPORT SK5 7BR  
TEL 0161 475 0870 FAX 161 475N 0871

## TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION  
BS 1377: PART 7: 1990:CLAUSE 9 MULTI STAGE

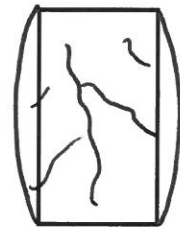
CLIENT	Earth Environmental & Geotechnical Ltd
SITE	Busker Lane, Scissett
JOB NUMBER	MRN 3077/4

SAMPLE LABEL	WS103 1.8m	DATE SAMPLED	Not advised
LAB SAMPLE No	69175	DATE RECEIVED	28 February 2017
DATE TESTED	01 March 2017	SAMPLED BY	Client

MATERIAL	Stiff brown/grey mottled sandy silty CLAY with a little gravel
ADVISED SOURCE	Site Investigation sample

SPECIMEN LENGTH	140	mm
SPECIMEN DIAMETER	70	mm
MOISTURE CONTENT OF SAMPLE	15	%
BULK DENSITY	2.16	Mg/m <sup>3</sup>
DRY DENSITY	1.88	Mg/m <sup>3</sup>
DEPTH OF TOP OF SPECIMEN	1.8	m
RATE OF STRAIN	2	%/min
RUBBER MEMBRANE THICKNESS	0.6	mm

SPECIMEN AT  
FAILURE



Measured Cell Pressure (kPa)	Strain at Failure (%)	Membrane Correction (kPa)	Corrected Max Deviator Stress (kPa)	Shear Stress Cu (kPa)
50	16	2.0	184.1	92
100	18	2.0	190.0	95
200	20	2.0	194.3	97

### REMARKS

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NAME O.P. Davies  
(Deputy Laboratory Manager)

DATE 07 March 2017

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## TEST CERTIFICATE

### PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.5: 1990

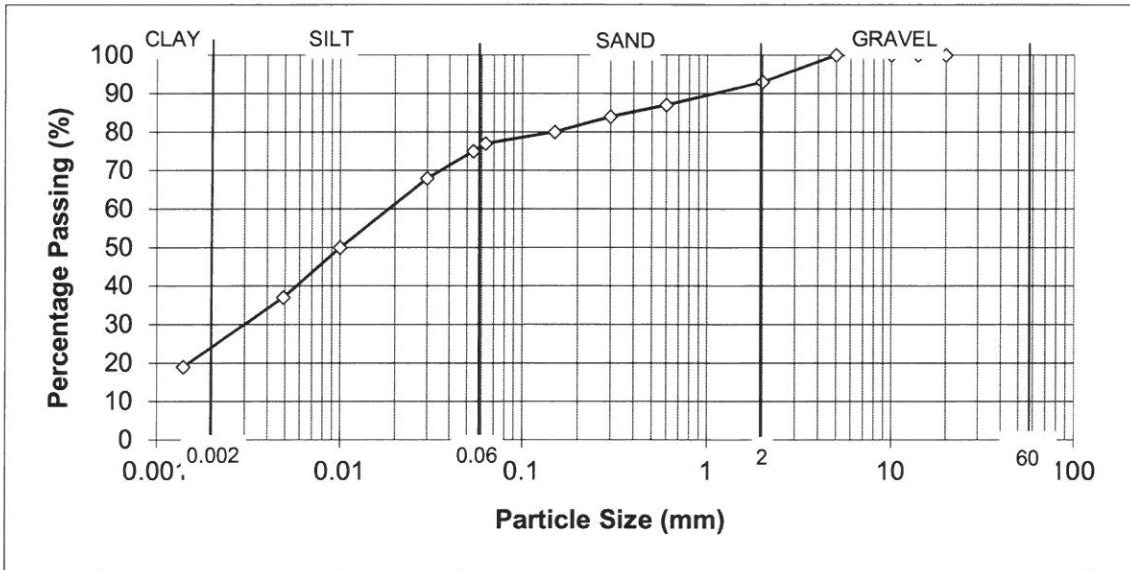
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	Busker Lane, Scissett
JOB NUMBER	MRN 3077/4

SAMPLE LABEL	WS104 1.8m	DATE SAMPLED	Not advised
LAB SAMPLE No	69176	DATE RECEIVED	28-Feb-17
DATE TESTED	01-Mar-17	SAMPLED BY	Client


MATERIAL	Stiff brown/grey mottled sandy silty CLAY with trace gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	Percentage Passing (%)	Sieve Size (mm)	Percentage Passing (%)
20	100	0.15	80
14	100	0.063	77
10	100	0.054	75
5	100	0.03	68
2	93	0.01	50
0.6	87	0.0049	37
0.3	84	0.0014	19



#### REMARKS

As received moisture content = 20%

SIGNED 

NAME O.P. Davies DATE 07-Mar-17  
 (Deputy Laboratory Manager)

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## TEST CERTIFICATE

### LIQUID AND PLASTIC LIMIT

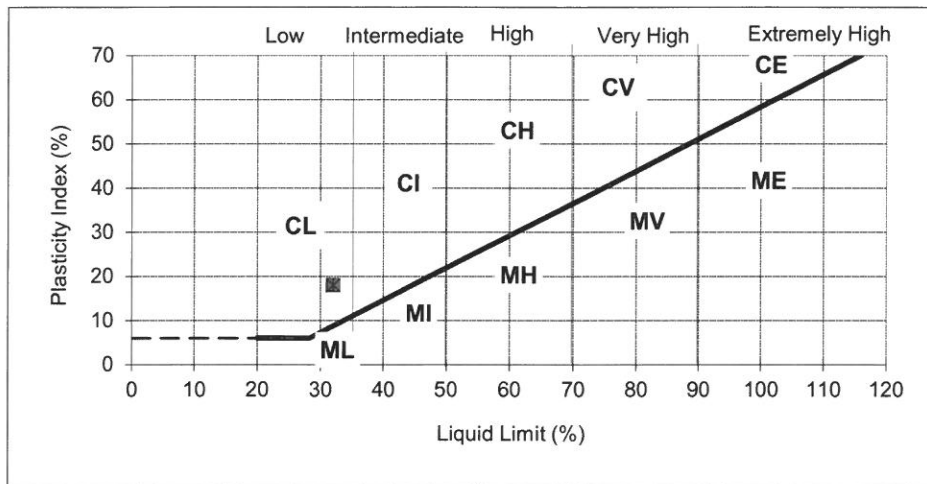
BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3  
 MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	Busker Lane, Scissett
JOB NUMBER	MRN 3077/4

SAMPLE LABEL	WS104 1.8m	DATE SAMPLED	Not advised
SAMPLE No.	69176	DATE RECEIVED	28-Feb-17
DATE TESTED	01-Mar-17	SAMPLED BY	Client

MATERIAL	Stiff brown/grey mottled sandy silty CLAY with a little gravel
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
20	32	14	18	85



### REMARKS

Sample tested after wet sieving

SIGNED

NAME

O.P. Davies

DATE

07-Mar-17

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(Deputy Laboratory Manager)

# MURRAY RIX

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## TEST CERTIFICATE

pH and Sulphate as SO<sub>4</sub>  
BS 1377: PART 3: 1990

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	Busker Lane, Scissett
JOB NUMBER	MRN 3077/4

SAMPLE LABEL	WS104 1.8m	DATE SAMPLED	Not advised
LAB SAMPLE No	69176	DATE RECEIVED	28 February 2017
DATE TESTED	01 March 2017	SAMPLED BY	Client

ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried

PH Value	7.2	g/l
Sulphate as SO <sub>4</sub> (2:1 Water Extract)	0.27	

REMARKS

SIGNED



NAME O.P. Davies  
(Deputy Laboratory Manager)

DATE 07 March 2017

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33C VAUXHALL INDUSTRIAL ESTATE, GREG STREET  
REDDISH, STOCKPORT SK5 7BR  
TEL 0161 475 0870 FAX 161 475N 0871

## TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION  
BS 1377: PART 7: 1990:CLAUSE 9 MULTI STAGE

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	Busker Lane, Scissett
JOB NUMBER	MRN 3077/4

SAMPLE LABEL	WS104 1.8m	DATE SAMPLED	Not advised
LAB SAMPLE No	69176	DATE RECEIVED	28 February 2017
DATE TESTED	01 March 2017	SAMPLED BY	Client

MATERIAL	Stiff brown/grey mottled sandy silty CLAY with a little gravel
ADVISED SOURCE	Site Investigation sample

SPECIMEN LENGTH	140	mm
SPECIMEN DIAMETER	70	mm
MOISTURE CONTENT OF SAMPLE	20	%
BULK DENSITY	1.94	Mg/m <sup>3</sup>
DRY DENSITY	1.62	Mg/m <sup>3</sup>
DEPTH OF TOP OF SPECIMEN	1.8	m
RATE OF STRAIN	2	%/min
RUBBER MEMBRANE THICKNESS	0.6	mm

SPECIMEN AT  
FAILURE



Measured Cell Pressure (kPa)	Strain at Failure (%)	Membrane Correction (kPa)	Corrected Max Deviator Stress (kPa)	Shear Stress Cu (kPa)
50	16	2.0	161.6	81
100	18	2.0	165.9	83
200	20	2.0	170.1	85

REMARKS

SIGNED



NAME O.P. Davies  
(Deputy Laboratory Manager)

DATE 07 March 2017

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## TEST CERTIFICATE PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

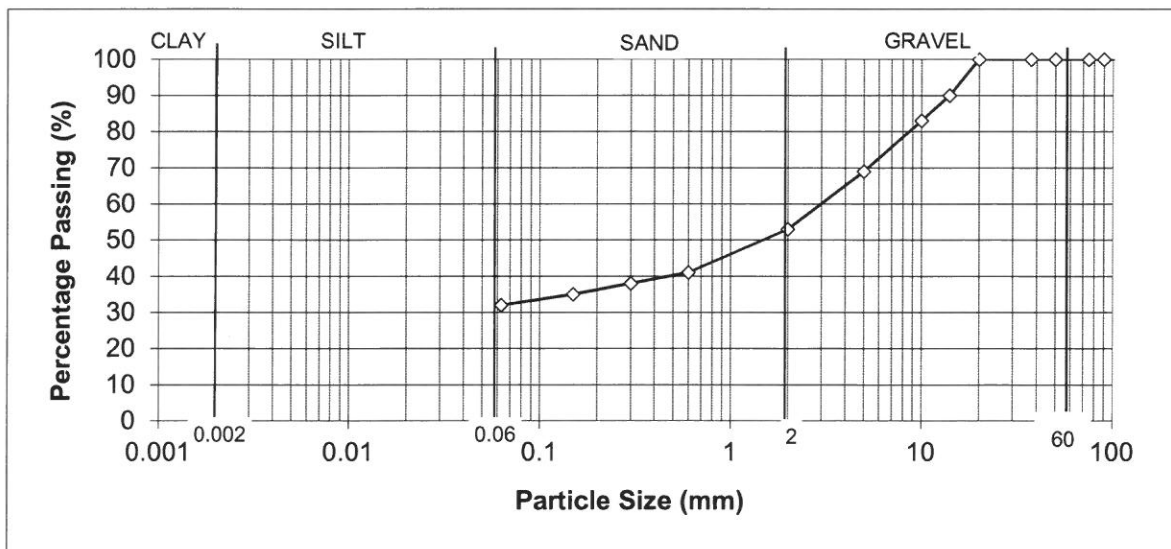
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	Busker Lane, Scissett
JOB NUMBER	MRN 3077/4

SAMPLE LABEL	WS105 0.6-1.0m	DATE SAMPLED	Not advised
LAB SAMPLE No	69177	DATE RECEIVED	28-Feb-17
DATE TESTED	01-Mar-17	SAMPLED BY	Client

MATERIAL	Stiff brown/grey mottled sandy silty CLAY with much gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	83	
90	100		5	69	
75	100		2	53	
50	100		0.6	41	
37.5	100		0.3	38	
20	100		0.15	35	
14	90		0.063	32	



### REMARKS

As received moisture content = 15%

### SIGNED

NAME

O.P. Davies  
 (Deputy Laboratory Manager)

DATE

07-Mar-17

# MURRAY RIX

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## TEST CERTIFICATE

### LIQUID AND PLASTIC LIMIT

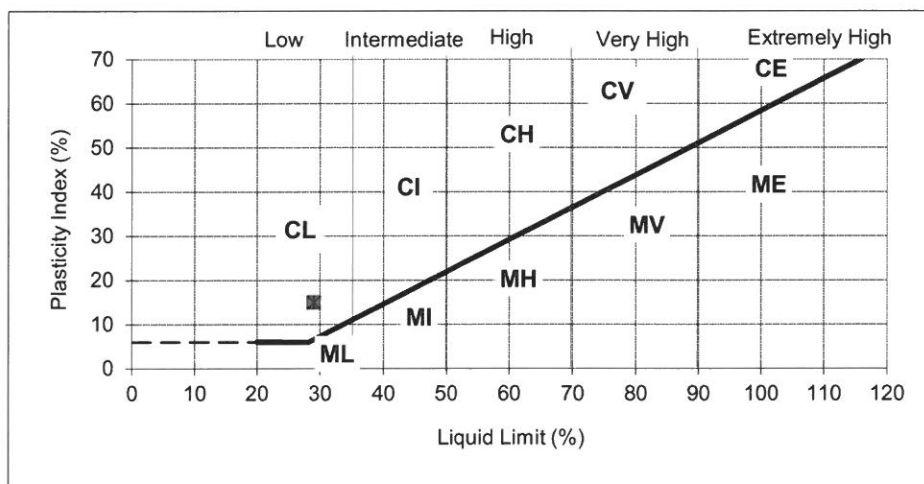
BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3  
 MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	Busker Lane, Scissett
JOB NUMBER	MRN 3077/4

SAMPLE LABEL	WS105 0.6-1.0m	DATE SAMPLED	Not advised
SAMPLE No.	69177	DATE RECEIVED	28-Feb-17
DATE TESTED	01-Mar-17	SAMPLED BY	Client

MATERIAL	Stiff brown/grey mottled sandy silty CLAY with much gravel
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
15	29	14	15	40



### REMARKS

Sample tested after wet sieving

SIGNED

NAME

O.P. Davies

DATE

07-Mar-17

Page 14 of 16

(Deputy Laboratory Manager)

# MURRAY RIX

UNIT 33C, VAUXHALL IND. ESTATE, GREG STREET  
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## TEST CERTIFICATE

pH and Sulphate as SO<sub>4</sub>  
BS 1377: PART 3: 1990

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	Busker Lane, Scissett
JOB NUMBER	MRN 3077/4

SAMPLE LABEL	WS105 0.6-1.0m	DATE SAMPLED	Not advised
LAB SAMPLE No	69177	DATE RECEIVED	28 February 2017
DATE TESTED	01 March 2017	SAMPLED BY	Client

ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried

PH Value	7.3	g/l
Sulphate as SO <sub>4</sub> (2:1 Water Extract)	0.22	

### REMARKS

SIGNED



NAME O.P. Davies  
(Deputy Laboratory Manager)

DATE 07 March 2017

# MURRAY RIX

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## TEST CERTIFICATE

### UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION BS 1377: PART 7: 1990:CLAUSE 9 MULTI STAGE

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	Busker Lane, Scissett
JOB NUMBER	MRN 3077/4

SAMPLE LABEL	WS105 0.6-1.0m	DATE SAMPLED	Not advised
LAB SAMPLE No	69177	DATE RECEIVED	28 February 2017
DATE TESTED	01 March 2017	SAMPLED BY	Client

MATERIAL	Stiff brown/grey mottled sandy silty CLAY with a little gravel
ADVISED SOURCE	Site Investigation sample

SPECIMEN LENGTH	140	mm
SPECIMEN DIAMETER	70	mm
MOISTURE CONTENT OF SAMPLE	15	%
BULK DENSITY	2.09	Mg/m <sup>3</sup>
DRY DENSITY	1.82	Mg/m <sup>3</sup>
DEPTH OF TOP OF SPECIMEN	0.65	m
RATE OF STRAIN	2	%/min
RUBBER MEMBRANE THICKNESS	0.6	mm

SPECIMEN AT  
FAILURE



Measured Cell Pressure (kPa)	Strain at Failure (%)	Membrane Correction (kPa)	Corrected Max Deviator Stress (kPa)	Shear Stress Cu (kPa)
20	16	2.0	168.0	84
40	18	2.0	174.1	87
80	20	2.0	179.9	90

#### REMARKS

SIGNED



NAME O.P. Davies  
(Deputy Laboratory Manager)

DATE 07 March 2017