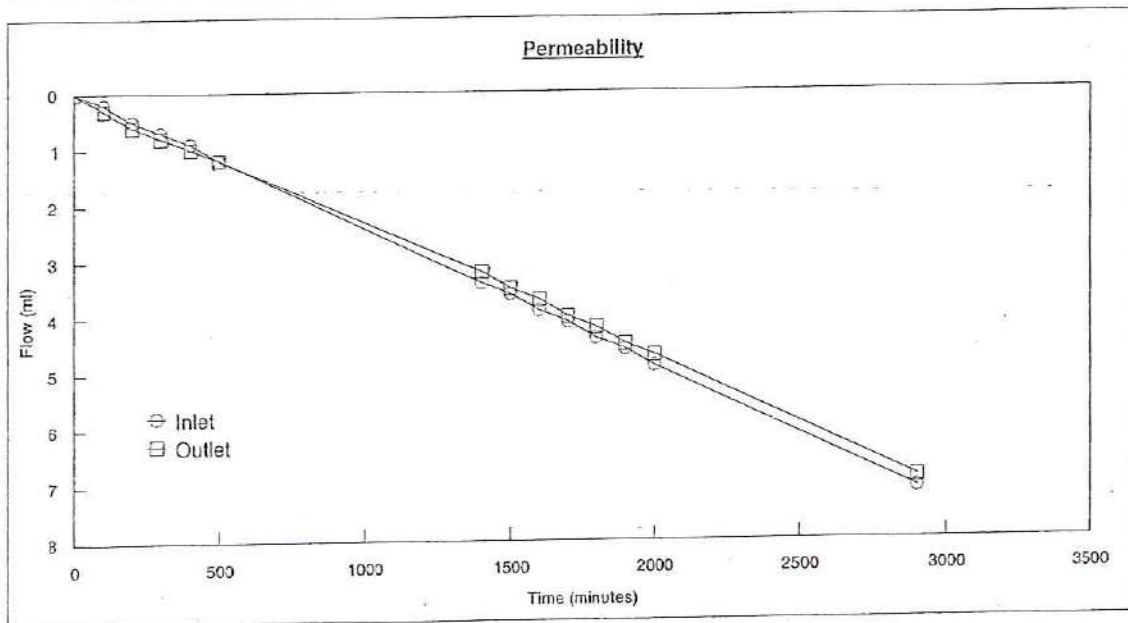
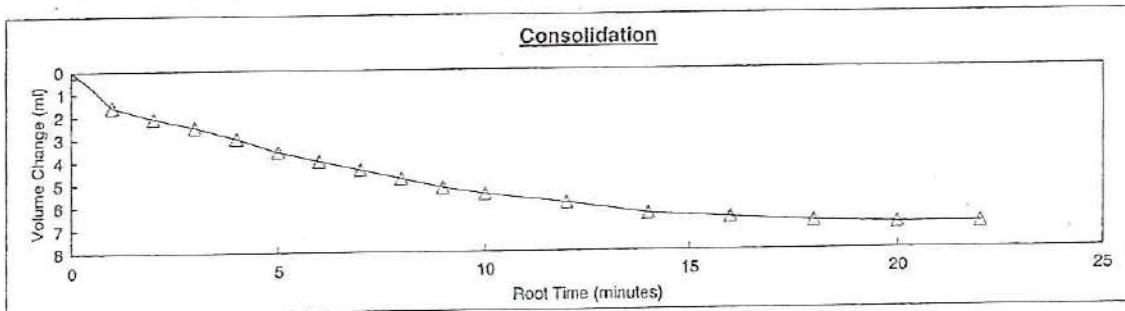
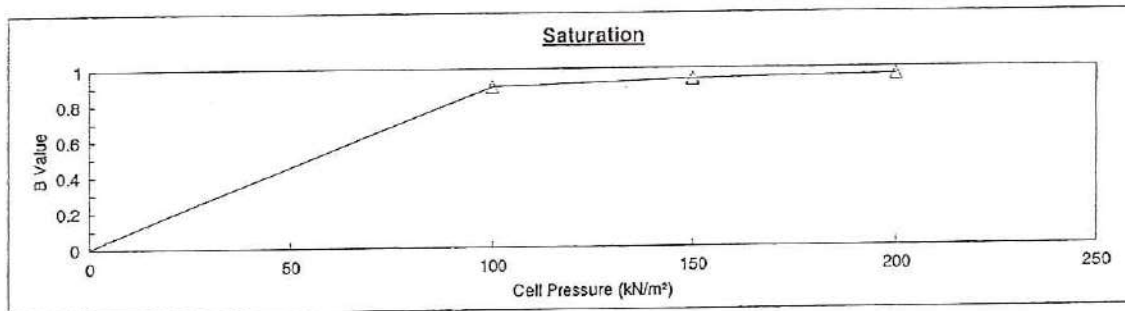


Laboratory Report:  
Date:

SA/03/CHP/7652 continued  
19-Jan-04



*A400*  
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**UK COAL**

**REMEDIATION OF LAND CONTAMINATION AT FORMER GAS PURIFICATION PLANT  
MONCKTON WORKS, ROYSTON - CAPPING WORKS**

**Authorised signatories**

L J Church, Managing Director  
J A Hardcastle, Lab Manager  
A F D'Hozzard, Dep Lab Mgr  
M Beardsall, Dep Lab Mgr  
J Church, QA Manager

|                       |                                                 |                 |                  |
|-----------------------|-------------------------------------------------|-----------------|------------------|
| Laboratory Report:    | SA/03/CHP/7735                                  | Date Sampled:   | 06/11/03         |
| Sample Number:        | SA/03/7735                                      | Date Received:  | 06/11/03         |
| Date:                 | 19-Jan-04                                       | Date Completed: | 18/11/03         |
| Material Description: | 1 Part MRF - 2 Parts Colliery Shale (Processed) | Client Ref:     |                  |
| Source:               | Kellingley Colliery                             | Location:       | Capping Layer 1  |
| Supplier:             | UK Coal                                         |                 | SE 37355E 11738N |

The results below represent tests conducted on a sample of the above material which was taken from the site by L J Church Laboratory Services Ltd.\*

The sample was received with an accompanying certificate of sampling.

**Determination of constant head permeability in a triaxial cell - BS 1377: Part 6: 1990**

**Specimen Data:**

|                                                                      |                        |
|----------------------------------------------------------------------|------------------------|
| Sample Type                                                          | undisturbed            |
| Sample Length                                                        | 102.4 mm               |
| Sample Diameter                                                      | 101.8 mm               |
| Bulk Density                                                         | 1.95 Mg/m <sup>3</sup> |
| Initial Moisture Content                                             | 11 %                   |
| Dry Density                                                          | 1.76 Mg/m <sup>3</sup> |
| Specimens saturated by increments of back pressure and cell pressure |                        |
| Final B value                                                        | 0.98                   |

**Permeability Stage**

|                       |                 |
|-----------------------|-----------------|
| Pressure Difference   | 25 kPa          |
| Mean Effective Stress | 50 kPa          |
| Hydraulic gradient    | 25              |
| Mean rate of flow     | 3.7E-003 ml/min |

**After test**

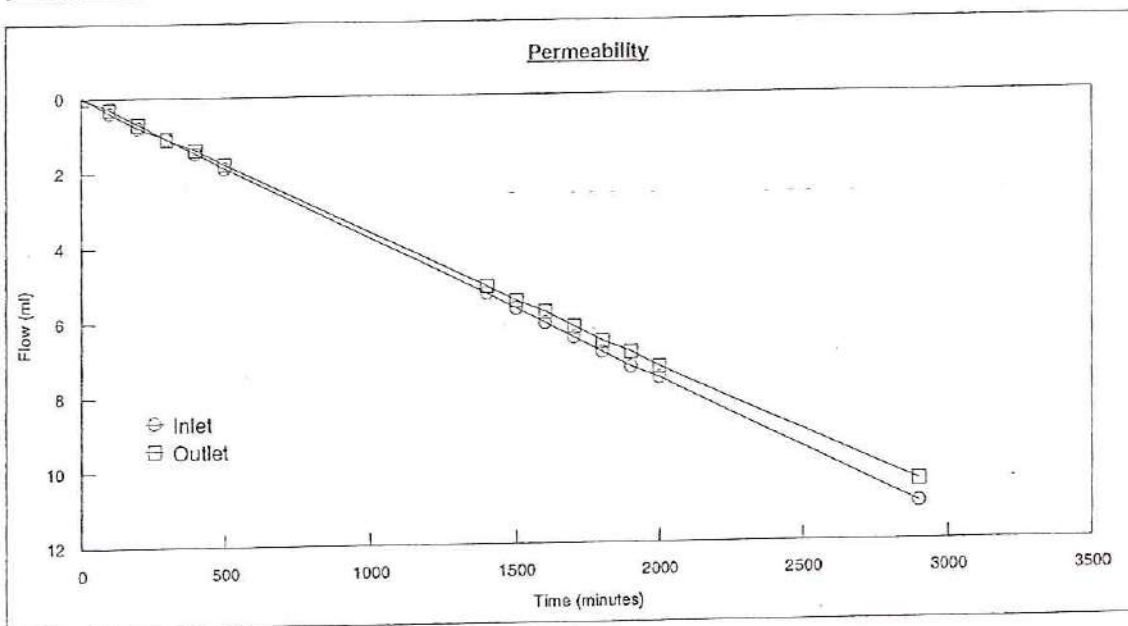
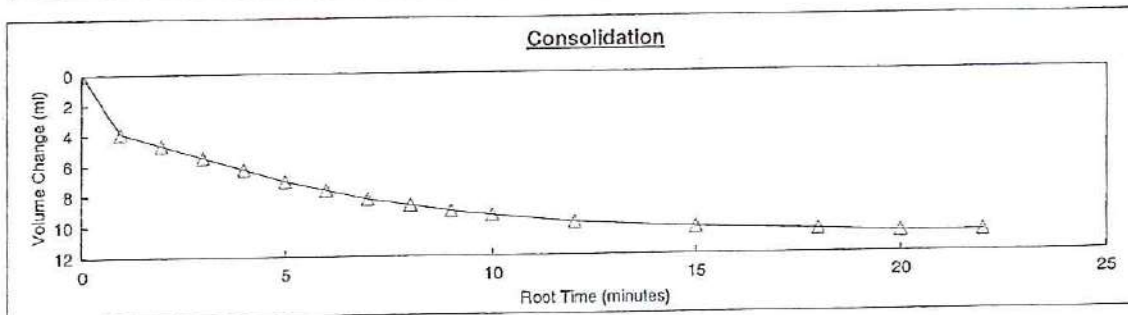
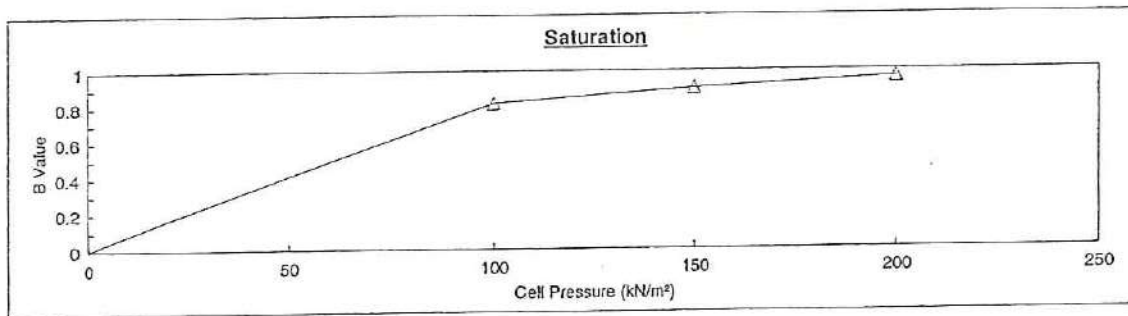
|                        |                        |
|------------------------|------------------------|
| Final bulk density     | 1.96 Mg/m <sup>3</sup> |
| Final moisture content | 11 %                   |

|                                                 |                     |
|-------------------------------------------------|---------------------|
| <b>Coefficient of Permeability (kv) at 20°C</b> | <b>3.0E-010 m/s</b> |
|-------------------------------------------------|---------------------|

\* denotes not UKAS Accredited. Tests marked "not UKAS Accredited" in this report are not included in the United Kingdom Accreditation Schedule for our laboratory

Laboratory Report:  
Date:

SA/03/CHP/7735 continued  
19-Jan-04



*[Signature]*  
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## **Appendix F**

### **Results of Classification Tests**

UK COAL  
REMEDIATION OF LAND CONTAMINATION AT FORMER GAS PURIFICATION PLANT  
MONCKTON WORKS, ROYSTON - CAPPING WORKS

| Date               | Lab Ref | Location                           | Sample Description                            | Source              | Moisture % | Particle size distribution |             |             |            |            |      |      | Atterberg Limits |              |                        |           | Compaction data |  |  | Remarks |
|--------------------|---------|------------------------------------|-----------------------------------------------|---------------------|------------|----------------------------|-------------|-------------|------------|------------|------|------|------------------|--------------|------------------------|-----------|-----------------|--|--|---------|
|                    |         |                                    |                                               |                     |            | % Pass 75mm                | % Pass 63um | % Pass 20um | % Pass 5um | % Pass 2um | PL % | LL % | PI %             | % pass 425um | Particle Density Mg/m³ | MDD Mg/m³ | OMC %           |  |  |         |
| 20/10/03           | 7218    | Field Trial Layer 1                | 1 Part MRF 2 Parts Colliery Shale (Processed) | Kellingley Colliery | 9.0        | 100                        | 24          | 22          | 17         | 9          | 19   | 35   | 16               | 32           | 2.31                   | 1.84      | 9.0             |  |  |         |
| 20/10/03           | 7219    | Field Trial Layer 2 SE 61009 11933 | 1 Part MRF 2 Parts Colliery Shale (Processed) | Kellingley Colliery | 15         | 100                        | 37          | 33          | 21         | 11         | 20   | 36   | 16               | 51           | 2.27                   | 1.88      | 9.0             |  |  |         |
| 21/10/03           | 7247A   | Field Trial Layer 2                | 1 Part MRF 2 Parts Colliery Shale (Processed) | Kellingley Colliery | -          | -                          | -           | -           | -          | -          | -    | -    | -                | -            | 2.28                   | -         | -               |  |  |         |
| 21/10/03           | 7247B   | Field Trial Layer 3                | 1 Part MRF 2 Parts Colliery Shale (Processed) | Kellingley Colliery | -          | -                          | -           | -           | -          | -          | -    | -    | -                | -            | 2.23                   | -         | -               |  |  |         |
| 21/10/03           | 7247C   | Field Trial Layer 3                | 1 Part MRF 2 Parts Colliery Shale (Processed) | Kellingley Colliery | -          | -                          | -           | -           | -          | -          | -    | -    | -                | -            | 2.28                   | -         | -               |  |  |         |
| 21/10/03           | 7247D   | Field Trial Layer 3                | 1 Part MRF 2 Parts Colliery Shale (Processed) | Kellingley Colliery | -          | -                          | -           | -           | -          | -          | -    | -    | -                | -            | 2.34                   | -         | -               |  |  |         |
| 21/10/03           | 7249    | Field Trial Layer 3                | 1 Part MRF 2 Parts Colliery Shale (Processed) | Kellingley Colliery | 13         | 100                        | 45          | 35          | 23         | 16         | 18   | 34   | 16               | 54           | 2.18                   | 1.75      | 9.5             |  |  |         |
| 22/10/03           | 7305    | Field Trial Layer 4                | 1 Part MRF 2 Parts Colliery Shale (Processed) | Kellingley Colliery | 12         | 100                        | 45          | 38          | 27         | 13         | 17   | 31   | 14               | 54           | 2.28                   | 1.80      | 10              |  |  |         |
| 23/10/03           | 7307    | Capping Layer 1                    | 1 Part MRF 2 Parts Colliery Shale (Processed) | Kellingley Colliery | 11         | 100                        | 28          | 25          | 19         | 10         | 18   | 32   | 14               | 35           | 2.27                   | 1.82      | 10              |  |  |         |
| 27/10/03           | 7478    | Capping Layer 4 SE 37315E 11841N   | 1 Part MRF 2 Parts Colliery Shale (Processed) | Kellingley Colliery | 9.5        | 100                        | 26          | 23          | 15         | 9          | 20   | 36   | 16               | 31           | 2.25                   | 1.88      | 8.5             |  |  |         |
| 28/10/03           | 7534    | Capping Layer 3 SE 37319E 11809N   | 1 Part MRF 2 Parts Colliery Shale (Processed) | Kellingley Colliery | 11         | 100                        | 50          | 27          | 22         | 12         | 21   | 39   | 18               | 54           | 2.22                   | 1.84      | 9.0             |  |  |         |
| 30/10/03           | 7578    | Capping Layer 2 SE 37355E 11787N   | 1 Part MRF 2 Parts Colliery Shale (Processed) | Kellingley Colliery | 9.9        | 100                        | 26          | 21          | 12         | 9          | 21   | 35   | 15               | 33           | 2.27                   | 1.85      | 8.2             |  |  |         |
| 04/11/03           | 7653    | Capping Layer 2 SE 37349E 11751N   | 1 Part MRF 2 Parts Colliery Shale (Processed) | Kellingley Colliery | 10         | 100                        | 32          | 28          | 21         | 13         | 26   | 35   | 9                | 39           | 2.30                   | 1.84      | 10              |  |  |         |
| 08/11/03           | 7736    | Capping Layer 1 SE 37355E 11739N   | 1 Part MRF 2 Parts Colliery Shale (Processed) | Kellingley Colliery | 9.8        | 100                        | 24          | 21          | 18         | 9          | 20   | 37   | 17               | 33           | 2.18                   | 1.86      | 7.5             |  |  |         |
| Average            |         |                                    |                                               |                     | 11.0       | 100                        | 34          | 27          | 20         | 11         | 20   | 35   | 15               | 42           | 2.26                   | 1.83      | 9               |  |  |         |
| Standard Deviation |         |                                    |                                               |                     | 1.8        | 0.0                        | 9.3         | 5.8         | 4.1        | 2.3        | 2.4  | 2.2  | 2.3              | 9.8          | 0.04                   | 0.03      | 0.8             |  |  |         |

Total No of Samples 14

**UK COAL**  
**REMEDIATION OF LAND CONTAMINATION AT FORMER GAS PURIFICATION PLANT**  
**MONCKTON WORKS, ROYSTON - CAPPING WORKS**

Laboratory Report SA/03/7218  
Sample Number SA/03/7218  
Date 19/01/04

Date Sampled 20/10/03  
Date Received 20/10/03  
Date Completed 31/10/03

Material Description 1 Part MRF - 2 Parts Colliery Shale (Processed)  
Source Kellingley Colliery  
Supplier UK Coal

Client Ref  
Location Field Trial Layer 1

The results below represent tests conducted on a sample of the above material which was taken from the site by L.J. Church Laboratory Services Ltd\*.  
The sample was received with an accompanying certificate of sampling.  
The tests were carried out on a bulk sample in accordance with the appropriate standards.

|                                                                                                                                                                                                                                                            |                  |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------|
| Determination of moisture content - BS 1377: Part 2: 1990 Clause 3<br>Sample prepared in accordance with BS 1377: Part 1: 1990 Clause 7.3.4(a)                                                                                                             |                  |               |
| Moisture Content                                                                                                                                                                                                                                           | 9.0 %            |               |
| Determination of particle size distribution (wet sieving method) - BS 1377: Part 2: 1990 Clause 9.2<br>Sample prepared in accordance with BS 1377: Part 1: 1990 clause 7.3.4(a)                                                                            |                  | Specification |
| BS Sieve Size                                                                                                                                                                                                                                              | Passing BS Sieve |               |
| 63 mm                                                                                                                                                                                                                                                      | 100 %            |               |
| 50 mm                                                                                                                                                                                                                                                      | 100 %            |               |
| 37.5 mm                                                                                                                                                                                                                                                    | 100 %            |               |
| 28 mm                                                                                                                                                                                                                                                      | 100 %            |               |
| 20 mm                                                                                                                                                                                                                                                      | 99 %             |               |
| 14 mm                                                                                                                                                                                                                                                      | 94 %             |               |
| 10 mm                                                                                                                                                                                                                                                      | 86 %             |               |
| 6.3 mm                                                                                                                                                                                                                                                     | 77 %             |               |
| 5 mm                                                                                                                                                                                                                                                       | 71 %             |               |
| 3.35 mm                                                                                                                                                                                                                                                    | 61 %             |               |
| 2 mm                                                                                                                                                                                                                                                       | 50 %             |               |
| 1.18 mm                                                                                                                                                                                                                                                    | 41 %             |               |
| 600 µm                                                                                                                                                                                                                                                     | 34 %             |               |
| 425 µm                                                                                                                                                                                                                                                     | 32 %             |               |
| 300 µm                                                                                                                                                                                                                                                     | 30 %             |               |
| 150 µm                                                                                                                                                                                                                                                     | 26 %             |               |
| 63 µm                                                                                                                                                                                                                                                      | 24 %             |               |
| Determination of particle size distribution (Hydrometer Method) - BS 1377: Part 2: 1990 Clause 9.5<br>Sample prepared in accordance with BS 1377: Part 1: 1990 clause 7.3.4(a)<br>Pretreatment for organic matter with hydrogen peroxide was not required. |                  |               |
| 20 µm                                                                                                                                                                                                                                                      | 22 %             |               |
| 6 µm                                                                                                                                                                                                                                                       | 17 %             |               |
| 2 µm                                                                                                                                                                                                                                                       | 9 %              |               |
| Determination of Plastic Limit, Liquid Limit and Plasticity Index - BS 1377: Part 2: 1990<br>The sample was prepared from a natural soil specimen and in accordance with BS1377: Part 1: 1990: Clause 7.3.4(b)                                             |                  |               |
| Liquid Limit (BS 1377: Part 2: 1990 Clause 4.4)                                                                                                                                                                                                            | 35 %             |               |
| Plastic Limit (BS 1377: Part 2: 1990 Clause 5.3)                                                                                                                                                                                                           | 19 %             |               |
| Plasticity Index (BS 1377: Part 2: 1990 Clause 5.4)                                                                                                                                                                                                        | 16 %             |               |
| Material Passing 425 µm test sieve                                                                                                                                                                                                                         | 32 %             |               |

SA/03/7218 Continued

Determination of Particle Density (gas jar method) - BS 1377: Part 2: 1990 Clause 8.2

Average particle density

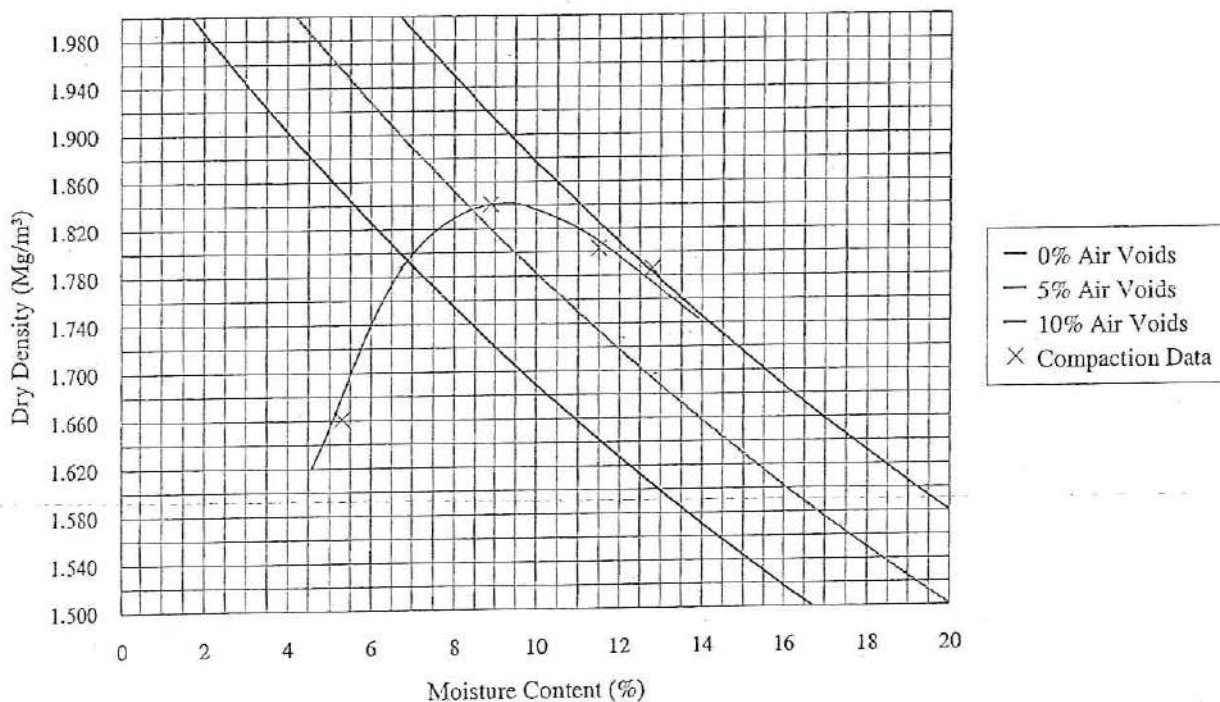
2.31

Determination of dry density / moisture content relationship - BS 1377: Part 4: 1990 Clause 3.3

Specification

The tests were carried out using separate samples, each prepared in accordance with BS1377: Part 1: 1990 Clause 7.3.4(b)

### Dry density / moisture content plot



Optimum Moisture Content

9 %

Maximum Dry Density

1.84 Mg/m³

Material Retained on 20.0 mm test sieve

0 %

Material Retained on 37.5 mm test sieve

0 %

\* denotes not UKAS Accredited. Tests marked "not UKAS Accredited" in this report are not included in the United Kingdom Accreditation Schedule for our laboratory

*[Signature]*

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**UK COAL**  
**REMEDIATION OF LAND CONTAMINATION AT FORMER GAS PURIFICATION PLANT**  
**MONCKTON WORKS, ROYSTON - CAPPING WORKS**

Laboratory Report SA/03/7219  
Sample Number SA/03/7219  
Date 19/01/04

Date Sampled 20/10/03  
Date Received 20/10/03  
Date Completed 31/10/03

Material Description 1 Part MRF - 2 Parts Colliery Shale (Processed)  
Source Kellingley Colliery  
Supplier UK Coal

Client Ref  
Location Field Trial Layer 2  
SE 51009 11963

The results below represent tests conducted on a sample of the above material which was taken from the site by L J Church Laboratory Services Ltd\*.  
The sample was received with an accompanying certificate of sampling.  
The tests were carried out on a bulk sample in accordance with the appropriate standards.

|                                                                                                                                                                                                                                                                   |  |                  |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------|---------------|
| <b>Determination of moisture content - BS 1377: Part 2: 1990 Clause 3</b><br>Sample prepared in accordance with BS 1377: Part 1: 1990 Clause 7.3.4(a)                                                                                                             |  | 15 %             |               |
| Moisture Content                                                                                                                                                                                                                                                  |  |                  | Specification |
| <b>Determination of particle size distribution (wet sieving method) - BS 1377: Part 2: 1990 Clause 9.2</b><br>Sample prepared in accordance with BS 1377: Part 1: 1990 clause 7.3.4(a)                                                                            |  | Passing BS Sieve |               |
| BS Sieve Size                                                                                                                                                                                                                                                     |  |                  |               |
| 63 mm                                                                                                                                                                                                                                                             |  | 100 %            |               |
| 50 mm                                                                                                                                                                                                                                                             |  | 100 %            |               |
| 37.5 mm                                                                                                                                                                                                                                                           |  | 100 %            |               |
| 28 mm                                                                                                                                                                                                                                                             |  | 100 %            |               |
| 20 mm                                                                                                                                                                                                                                                             |  | 96 %             |               |
| 14 mm                                                                                                                                                                                                                                                             |  | 94 %             |               |
| 10 mm                                                                                                                                                                                                                                                             |  | 90 %             |               |
| 6.3 mm                                                                                                                                                                                                                                                            |  | 85 %             |               |
| 5 mm                                                                                                                                                                                                                                                              |  | 81 %             |               |
| 3.35 mm                                                                                                                                                                                                                                                           |  | 75 %             |               |
| 2 mm                                                                                                                                                                                                                                                              |  | 68 %             |               |
| 1.18 mm                                                                                                                                                                                                                                                           |  | 61 %             |               |
| 600 µm                                                                                                                                                                                                                                                            |  | 53 %             |               |
| 425 µm                                                                                                                                                                                                                                                            |  | 51 %             |               |
| 300 µm                                                                                                                                                                                                                                                            |  | 47 %             |               |
| 150 µm                                                                                                                                                                                                                                                            |  | 41 %             |               |
| 63 µm                                                                                                                                                                                                                                                             |  | 37 %             |               |
| <b>Determination of particle size distribution (Hydrometer Method) - BS 1377: Part 2: 1990 Clause 9.5</b><br>Sample prepared in accordance with BS 1377: Part 1: 1990 clause 7.3.4(a)<br>Pretreatment for organic matter with hydrogen peroxide was not required. |  | 33 %             |               |
| 20 µm                                                                                                                                                                                                                                                             |  | 21 %             |               |
| 6 µm                                                                                                                                                                                                                                                              |  | 11 %             |               |
| 2 µm                                                                                                                                                                                                                                                              |  |                  |               |
| <b>Determination of Plastic Limit, Liquid Limit and Plasticity Index - BS 1377: Part 2: 1990</b><br>The sample was prepared from a natural soil specimen and in accordance with BS1377: Part 1: 1990: Clause 7.3.4(b)                                             |  | 36 %             |               |
| Liquid Limit (BS 1377: Part 2: 1990 Clause 4.4)                                                                                                                                                                                                                   |  | 20 %             |               |
| Plastic Limit (BS 1377: Part 2: 1990 Clause 5.3)                                                                                                                                                                                                                  |  | 16 %             |               |
| Plasticity Index (BS 1377: Part 2: 1990 Clause 5.4)                                                                                                                                                                                                               |  | 51 %             |               |
| Material Passing 425 µm test sieve                                                                                                                                                                                                                                |  |                  |               |

SA/03/7219 Continued

Determination of Particle Density (gas jar method) - BS 1377: Part 2: 1990 Clause 8.2

Average particle density

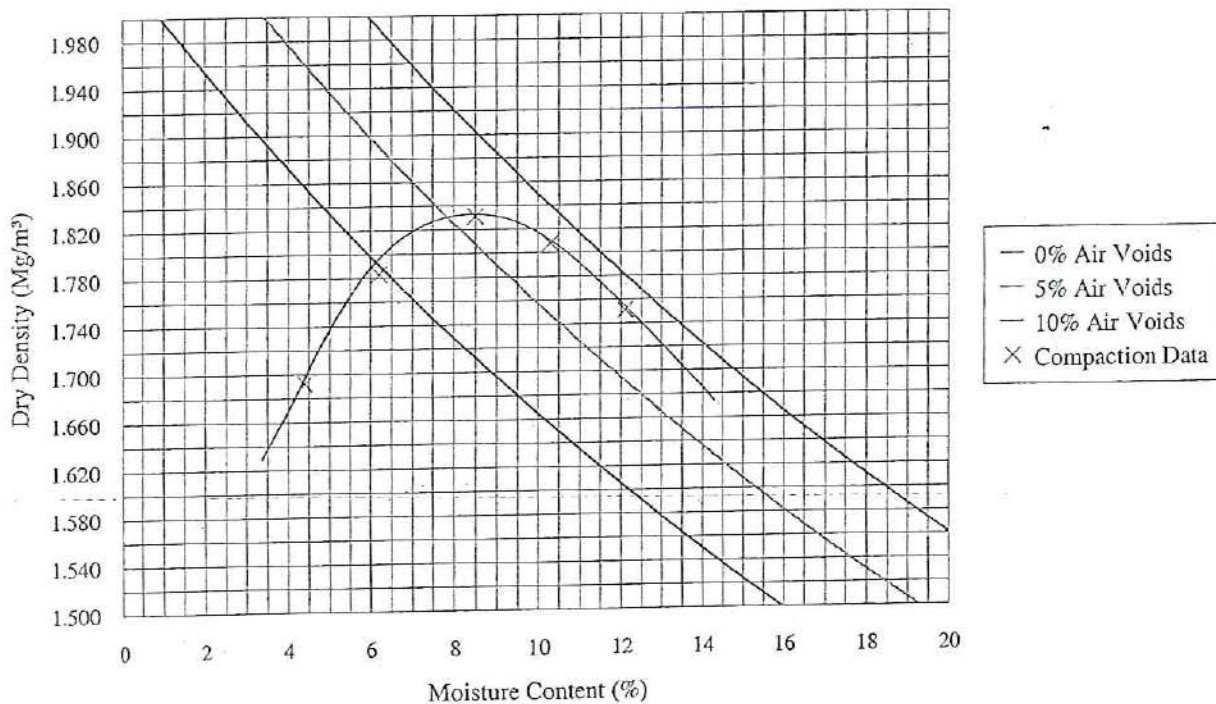
2.27

Determination of dry density / moisture content relationship - BS 1377: Part 4: 1990 Clause 3.3

Specification

The tests were carried out using separate samples, each prepared in accordance with BS1377: Part 1: 1990 Clause 7.3.4(b)

### Dry density / moisture content plot



Optimum Moisture Content

9 %

Maximum Dry Density

1.83 Mg/m³

Material Retained on 20.0 mm test sieve

0 %

Material Retained on 37.5 mm test sieve

0 %

\* denotes not UKAS Accredited. Tests marked "not UKAS Accredited" in this report are not included in the United Kingdom Accreditation Schedule for our laboratory

*[Signature]*

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**UK COAL**  
**REMEDATION OF LAND CONTAMINATION AT FORMER GAS PURIFICATION PLANT**  
**MONCKTON WORKS, ROYSTON - CAPPING WORKS**

Laboratory Report SA/03/7247A  
Sample Number SA/03/7247A  
Date 19/01/04

Date Sampled 21/10/03  
Date Received 21/10/03  
Date Completed 22/10/03

Material Description 1 Part MRF - 2 Parts Colliery Shale (Processed)  
Source Kellingley Colliery  
Supplier UK Coal

Client Ref  
Location Field Trial Layer 2

The result below represents tests conducted on a sample of the above material which was taken from the site by L J Church Laboratory Services Ltd\*.  
The sample was received with an accompanying certificate of sampling.  
The test was carried out on a bulk sample in accordance with the appropriate standards.

Determination of Particle Density (gas jar method) - BS 1377: Part 2: 1990 Clause 8.2

Average particle density

2.28

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**UK COAL**  
**REMEDATION OF LAND CONTAMINATION AT FORMER GAS PURIFICATION PLANT**  
**MONCKTON WORKS, ROYSTON - CAPPING WORKS**

|                      |                                                 |                |                     |
|----------------------|-------------------------------------------------|----------------|---------------------|
| Laboratory Report    | SA/03/7247B                                     | Date Sampled   | 21/10/03            |
| Sample Number        | SA/03/7247B                                     | Date Received  | 21/10/03            |
| Date                 | 19/01/04                                        | Date Completed | 22/10/03            |
| Material Description | 1 Part MRF - 2 Parts Colliery Shale (Processed) | Client Ref     |                     |
| Source               | Kellingley Colliery                             | Location       | Field Trial Layer 3 |
| Supplier             | UK Coal                                         |                |                     |

The result below represents tests conducted on a sample of the above material which was taken from the site by L J Church Laboratory Services Ltd\*.  
 The sample was received with an accompanying certificate of sampling.  
 The test was carried out on a bulk sample in accordance with the appropriate standards.

|                                                                                       |      |
|---------------------------------------------------------------------------------------|------|
| Determination of Particle Density (gas jar method) - BS 1377: Part 2: 1990 Clause 8.2 |      |
| Average particle density                                                              | 2.23 |

\* denotes not UKAS Accredited. Tests marked "not UKAS Accredited" in this report are not included in the United Kingdom Accreditation Schedule for our laboratory

**UK COAL**  
**REMEDIATION OF LAND CONTAMINATION AT FORMER GAS PURIFICATION PLANT**  
**MONCKTON WORKS, ROYSTON - CAPPING WORKS**

Laboratory Report SA/03/7247C  
Sample Number SA/03/7247C  
Date 19/01/04

Date Sampled 21/10/03  
Date Received 21/10/03  
Date Completed 22/10/03

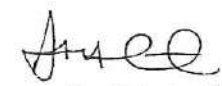
Material Description 1 Part MRF - 2 Parts Colliery Shale (Processed)  
Source Kellingley Colliery  
Supplier UK Coal

Client Ref  
Location Field Trial Layer 3

The result below represents tests conducted on a sample of the above material which was taken from the site by L.J Church Laboratory Services Ltd\*.  
The sample was received with an accompanying certificate of sampling.  
The test was carried out on a bulk sample in accordance with the appropriate standards.

|                                                                                       |      |
|---------------------------------------------------------------------------------------|------|
| Determination of Particle Density (gas jar method) - BS 1377: Part 2: 1990 Clause 8.2 |      |
| Average particle density                                                              | 2.29 |

\* denotes not UKAS Accredited. Tests marked "not UKAS Accredited" in this report are not included in the United Kingdom Accreditation Schedule for our laboratory

  
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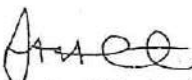
**UK COAL**  
**REMEDIATION OF LAND CONTAMINATION AT FORMER GAS PURIFICATION PLANT**  
**MONCKTON WORKS, ROYSTON - CAPPING WORKS**

|                      |                                                 |                |                     |
|----------------------|-------------------------------------------------|----------------|---------------------|
| Laboratory Report    | SA/03/7247D                                     | Date Sampled   | 21/10/03            |
| Sample Number        | SA/03/7247D                                     | Date Received  | 21/10/03            |
| Date                 | 19/01/04                                        | Date Completed | 22/10/03            |
| Material Description | 1 Part MRF - 2 Parts Colliery Shale (Processed) | Client Ref     |                     |
| Source               | Kellingley Colliery                             | Location       | Field Trial Layer 3 |
| Supplier             | UK Coal                                         |                |                     |

The result below represents tests conducted on a sample of the above material which was taken from the site by L J Church Laboratory Services Ltd\*.  
 The sample was received with an accompanying certificate of sampling.  
 The test was carried out on a bulk sample in accordance with the appropriate standards.

|                                                                                       |      |
|---------------------------------------------------------------------------------------|------|
| Determination of Particle Density (gas jar method) - BS 1377: Part 2: 1990 Clause 8.2 |      |
| Average particle density                                                              | 2.34 |

\* denotes not UKAS Accredited. Tests marked "not UKAS Accredited" in this report are not included in the United Kingdom Accreditation Schedule for our laboratory

  
 pp L J Church Laboratory Services Ltd

**UK COAL**  
**REMEDIAION OF LAND CONTAMINATION AT FORMER GAS PURIFICATION PLANT**  
**MONCKTON WORKS, ROYSTON - CAPPING WORKS**

Laboratory Report SA/03/7249  
Sample Number SA/03/7249  
Date 19/01/04

Date Sampled 21/10/03  
Date Received 21/10/03  
Date Completed 03/11/03

Material Description 1 Part MRF - 2 Parts Colliery Shale (Processed)  
Source Kellingley Colliery  
Supplier UK Coal

Client Ref  
Location Field Trial Layer 3

The results below represent tests conducted on a sample of the above material which was taken from the site by L J Church Laboratory Services Ltd\*.  
The sample was received with an accompanying certificate of sampling.  
The tests were carried out on a bulk sample in accordance with the appropriate standards.

|                                                                                                                                                                                                                                                                   |       |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------|
| <b>Determination of moisture content - BS 1377: Part 2: 1990 Clause 3</b><br>Sample prepared in accordance with BS 1377: Part 1: 1990 Clause 7.3.4(a)                                                                                                             |       |               |
| Moisture Content                                                                                                                                                                                                                                                  | 13 %  |               |
| <b>Determination of particle size distribution (wet sieving method) - BS 1377: Part 2: 1990 Clause 9.2</b><br>Sample prepared in accordance with BS 1377: Part 1: 1990 clause 7.3.4(a)                                                                            |       | Specification |
| BS Sieve Size                                                                                                                                                                                                                                                     |       |               |
| 63 mm                                                                                                                                                                                                                                                             | 100 % |               |
| 50 mm                                                                                                                                                                                                                                                             | 100 % |               |
| 37.5 mm                                                                                                                                                                                                                                                           | 97 %  |               |
| 28 mm                                                                                                                                                                                                                                                             | 97 %  |               |
| 20 mm                                                                                                                                                                                                                                                             | 94 %  |               |
| 14 mm                                                                                                                                                                                                                                                             | 93 %  |               |
| 10 mm                                                                                                                                                                                                                                                             | 89 %  |               |
| 6.3 mm                                                                                                                                                                                                                                                            | 83 %  |               |
| 5 mm                                                                                                                                                                                                                                                              | 79 %  |               |
| 3.35 mm                                                                                                                                                                                                                                                           | 75 %  |               |
| 2 mm                                                                                                                                                                                                                                                              | 69 %  |               |
| 1.18 mm                                                                                                                                                                                                                                                           | 63 %  |               |
| 600 µm                                                                                                                                                                                                                                                            | 57 %  |               |
| 425 µm                                                                                                                                                                                                                                                            | 54 %  |               |
| 300 µm                                                                                                                                                                                                                                                            | 52 %  |               |
| 150 µm                                                                                                                                                                                                                                                            | 48 %  |               |
| 63 µm                                                                                                                                                                                                                                                             | 45 %  |               |
| <b>Determination of particle size distribution (Hydrometer Method) - BS 1377: Part 2: 1990 Clause 9.5</b><br>Sample prepared in accordance with BS 1377: Part 1: 1990 clause 7.3.4(a)<br>Pretreatment for organic matter with hydrogen peroxide was not required. |       |               |
| 20 µm                                                                                                                                                                                                                                                             | 35 %  |               |
| 6 µm                                                                                                                                                                                                                                                              | 23 %  |               |
| 2 µm                                                                                                                                                                                                                                                              | 16 %  |               |
| <b>Determination of Plastic Limit, Liquid Limit and Plasticity Index - BS 1377: Part 2: 1990</b><br>The sample was prepared from a natural soil specimen and in accordance with BS1377: Part 1: 1990: Clause 7.3.4(b)                                             |       |               |
| Liquid Limit (BS 1377: Part 2: 1990 Clause 4.4)                                                                                                                                                                                                                   | 34 %  |               |
| Plastic Limit (BS 1377: Part 2: 1990 Clause 5.3)                                                                                                                                                                                                                  | 18 %  |               |
| Plasticity Index (BS 1377: Part 2: 1990 Clause 5.4)                                                                                                                                                                                                               | 16 %  |               |
| Material Passing 425 µm test sieve                                                                                                                                                                                                                                | 54 %  |               |

SA/03/7249 Continued

Determination of Particle Density (gas jar method) - BS 1377: Part 2: 1990 Clause 8.2

Average particle density

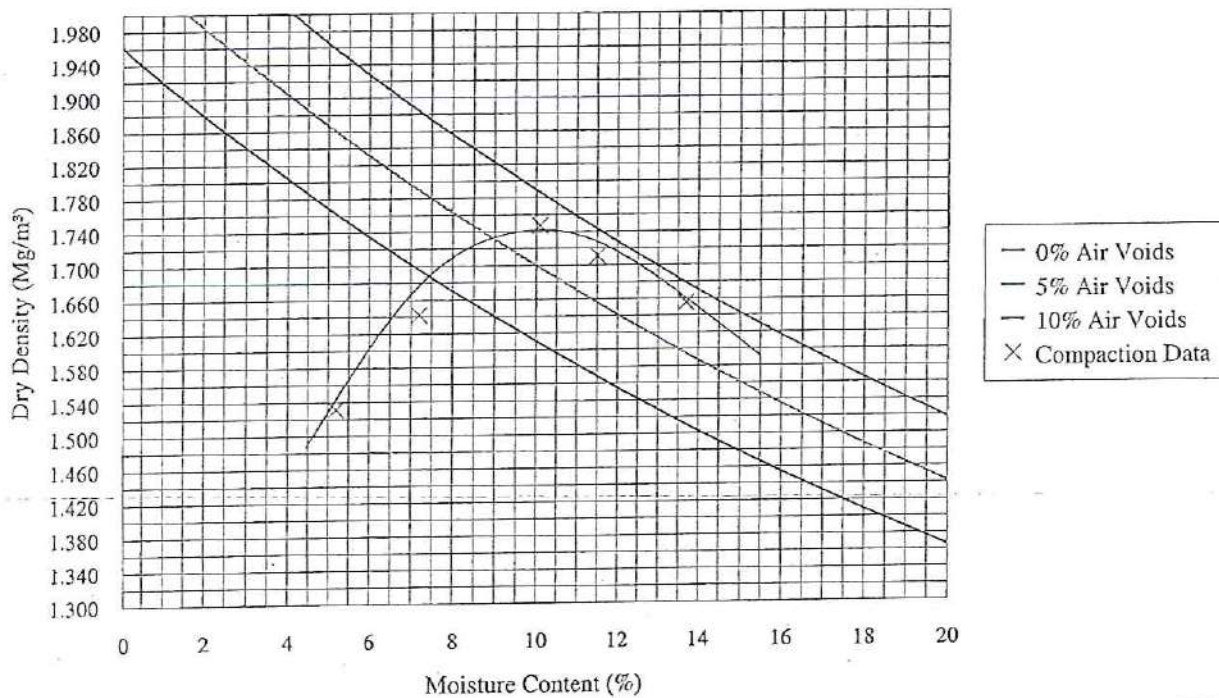
2.18

Determination of dry density / moisture content relationship - BS 1377: Part 4: 1990 Clause 3.3

Specification

The tests were carried out using separate samples, each prepared in accordance with BS1377: Part 1: 1990 Clause 7.3.4(b)

### Dry density / moisture content plot



Optimum Moisture Content

9.5 %

Maximum Dry Density

1.75 Mg/m³

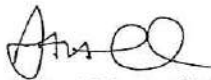
Material Retained on 20.0 mm test sieve

0 %

Material Retained on 37.5 mm test sieve

0 %

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**UK COAL**  
**REMEDICATION OF LAND CONTAMINATION AT FORMER GAS PURIFICATION PLANT**  
**MONCKTON WORKS, ROYSTON - CAPPING WORKS**

Laboratory Report SA/03/7305  
Sample Number SA/03/7305  
Date 19/01/04

Date Sampled 22/10/03  
Date Received 22/10/03  
Date Completed 04/11/03

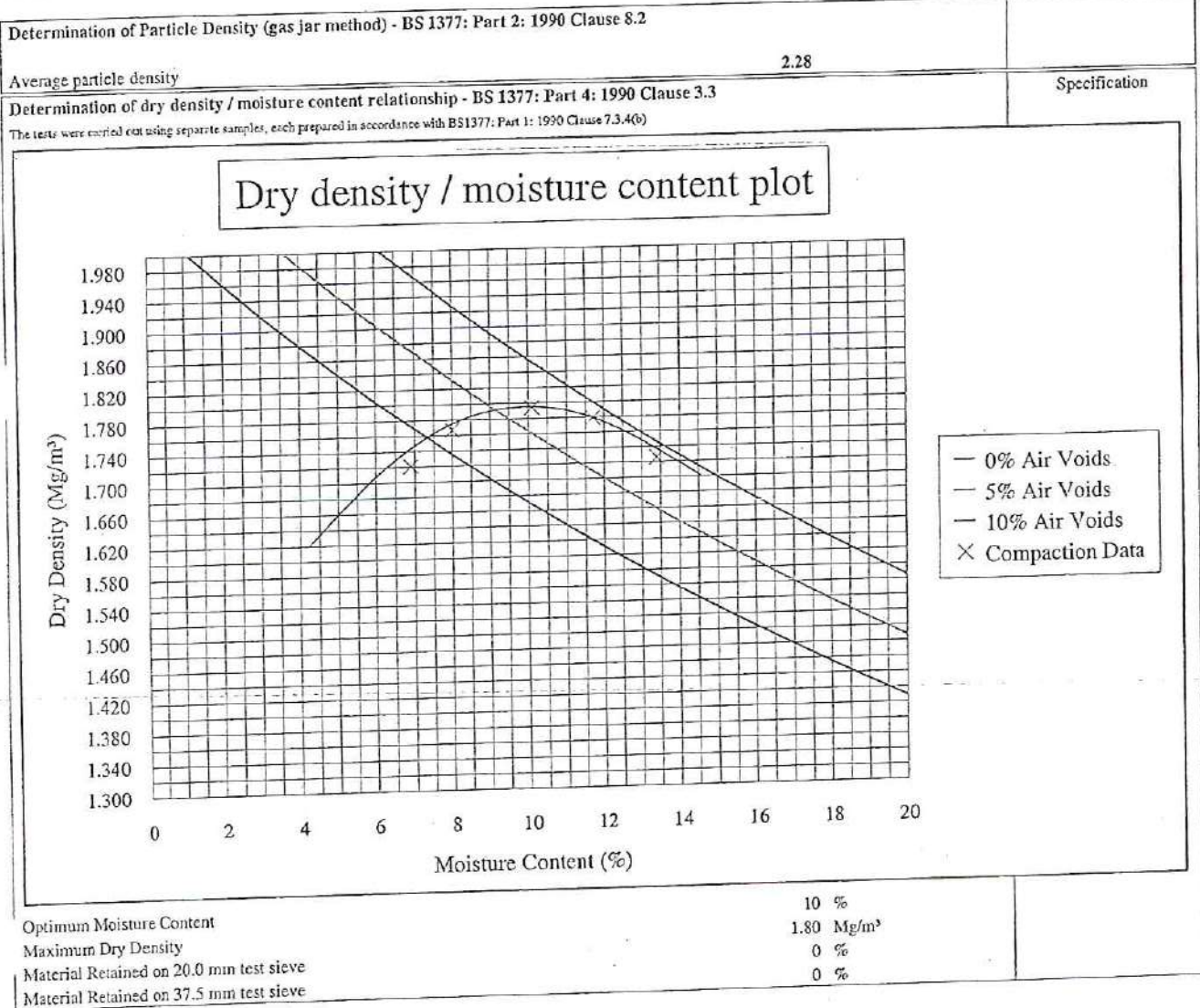
Material Description 1 Part MRF - 2 Parts Colliery Shale (Processed)  
Source Kellingley Colliery  
Supplier UK Coal

Client Ref  
Location Field Trial Layer 4

The results below represent tests conducted on a sample of the above material which was taken from the site by L.J. Church Laboratory Services Ltd\*.  
The sample was received with an accompanying certificate of sampling.  
The tests were carried out on a bulk sample in accordance with the appropriate standards.

|                                                                                                                                                                                                                                                                   |       |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------|
| <b>Determination of moisture content - BS 1377: Part 2: 1990 Clause 3</b><br>Sample prepared in accordance with BS 1377: Part 1: 1990 Clause 7.3.4(a)                                                                                                             |       |               |
| Moisture Content                                                                                                                                                                                                                                                  | 12 %  |               |
| <b>Determination of particle size distribution (wet sieving method) - BS 1377: Part 2: 1990 Clause 9.2</b><br>Sample prepared in accordance with BS 1377: Part 1: 1990 clause 7.3.4(a)                                                                            |       | Specification |
| BS Sieve Size                                                                                                                                                                                                                                                     |       |               |
| 63 mm                                                                                                                                                                                                                                                             | 100 % |               |
| 50 mm                                                                                                                                                                                                                                                             | 100 % |               |
| 37.5 mm                                                                                                                                                                                                                                                           | 100 % |               |
| 28 mm                                                                                                                                                                                                                                                             | 100 % |               |
| 20 mm                                                                                                                                                                                                                                                             | 99 %  |               |
| 14 mm                                                                                                                                                                                                                                                             | 98 %  |               |
| 10 mm                                                                                                                                                                                                                                                             | 96 %  |               |
| 6.3 mm                                                                                                                                                                                                                                                            | 90 %  |               |
| 5 mm                                                                                                                                                                                                                                                              | 87 %  |               |
| 3.35 mm                                                                                                                                                                                                                                                           | 81 %  |               |
| 2 mm                                                                                                                                                                                                                                                              | 71 %  |               |
| 1.18 mm                                                                                                                                                                                                                                                           | 62 %  |               |
| 600 µm                                                                                                                                                                                                                                                            | 56 %  |               |
| 425 µm                                                                                                                                                                                                                                                            | 54 %  |               |
| 300 µm                                                                                                                                                                                                                                                            | 51 %  |               |
| 150 µm                                                                                                                                                                                                                                                            | 48 %  |               |
| 63 µm                                                                                                                                                                                                                                                             | 45 %  |               |
| <b>Determination of particle size distribution (Hydrometer Method) - BS 1377: Part 2: 1990 Clause 9.5</b><br>Sample prepared in accordance with BS 1377: Part 1: 1990 clause 7.3.4(a)<br>Pretreatment for organic matter with hydrogen peroxide was not required. |       |               |
| 20 µm                                                                                                                                                                                                                                                             | 38 %  |               |
| 6 µm                                                                                                                                                                                                                                                              | 27 %  |               |
| 2 µm                                                                                                                                                                                                                                                              | 13 %  |               |
| <b>Determination of Plastic Limit, Liquid Limit and Plasticity Index - BS 1377: Part 2: 1990</b><br>The sample was prepared from a natural soil specimen and in accordance with BS1377: Part 1: 1990: Clause 7.3.4(b)                                             |       |               |
| Liquid Limit (BS 1377: Part 2: 1990 Clause 4.4)                                                                                                                                                                                                                   | 31 %  |               |
| Plastic Limit (BS 1377: Part 2: 1990 Clause 5.3)                                                                                                                                                                                                                  | 17 %  |               |
| Plasticity Index (BS 1377: Part 2: 1990 Clause 5.4)                                                                                                                                                                                                               | 14 %  |               |
| Material Passing 425 µm test sieve                                                                                                                                                                                                                                | 54 %  |               |

SA/03/7305 Continued



\* denotes not UKAS Accredited. Tests marked "not UKAS Accredited" in this report are not included in the United Kingdom Accreditation Schedule for our laboratory

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**UK COAL**  
**REMEDIATION OF LAND CONTAMINATION AT FORMER GAS PURIFICATION PLANT**  
**MONCKTON WORKS, ROYSTON - CAPPING WORKS**

Laboratory Report SA/03/7337  
Sample Number SA/03/7337  
Date 19/01/04

Date Sampled 23/10/03  
Date Received 23/10/03  
Date Completed 03/11/03

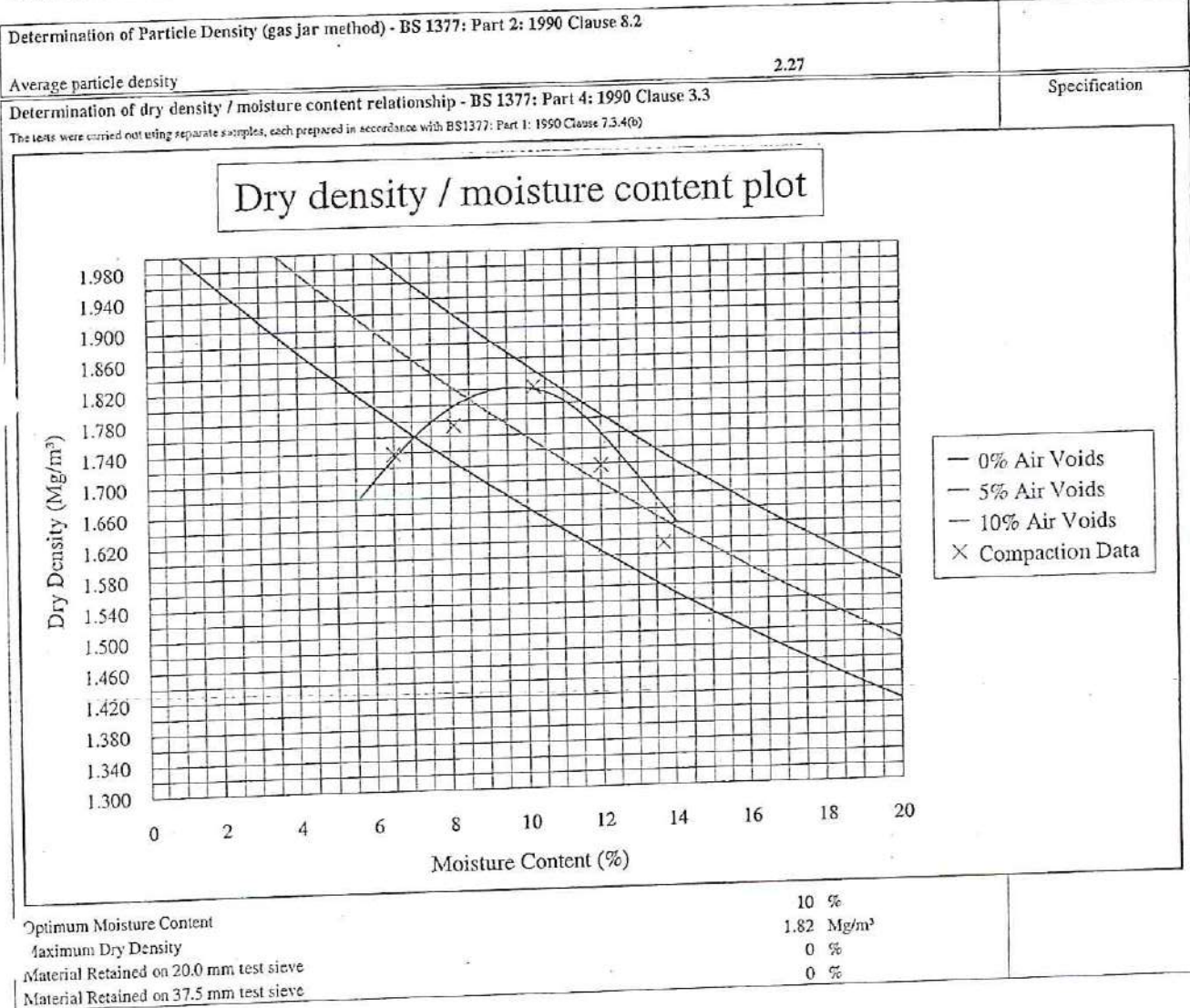
Material Description 1 Part MRF - 2 Parts Colliery Shale (Processed)  
Source Kellingley Colliery  
Supplier UK Coal

Client Ref  
Location Capping Layer 1

The results below represent tests conducted on a sample of the above material which was taken from the site by L J Church Laboratory Services Ltd\*.  
The sample was received with an accompanying certificate of sampling.  
The tests were carried out on a bulk sample in accordance with the appropriate standards.

|                                                                                                                                                                                                                                                                                  |       |               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------|
| <b>Determination of moisture content - BS 1377: Part 2: 1990 Clause 3</b><br><small>Sample prepared in accordance with BS 1377: Part 1: 1990 Clause 7.3.4(a)</small>                                                                                                             |       |               |
| Moisture Content                                                                                                                                                                                                                                                                 | 11 %  |               |
| <b>Determination of particle size distribution (wet sieving method) - BS 1377: Part 2: 1990 Clause 9.2</b><br><small>Sample prepared in accordance with BS 1377: Part 1: 1990 clause 7.3.4(a)</small>                                                                            |       | Specification |
| BS Sieve Size                                                                                                                                                                                                                                                                    |       |               |
| 63 mm                                                                                                                                                                                                                                                                            | 100 % |               |
| 50 mm                                                                                                                                                                                                                                                                            | 100 % |               |
| 37.5 mm                                                                                                                                                                                                                                                                          | 100 % |               |
| 28 mm                                                                                                                                                                                                                                                                            | 100 % |               |
| 20 mm                                                                                                                                                                                                                                                                            | 100 % |               |
| 14 mm                                                                                                                                                                                                                                                                            | 97 %  |               |
| 10 mm                                                                                                                                                                                                                                                                            | 91 %  |               |
| 6.3 mm                                                                                                                                                                                                                                                                           | 82 %  |               |
| 5 mm                                                                                                                                                                                                                                                                             | 75 %  |               |
| 3.35 mm                                                                                                                                                                                                                                                                          | 70 %  |               |
| 2 mm                                                                                                                                                                                                                                                                             | 59 %  |               |
| 1.18 mm                                                                                                                                                                                                                                                                          | 50 %  |               |
| 600 µm                                                                                                                                                                                                                                                                           | 42 %  |               |
| 425 µm                                                                                                                                                                                                                                                                           | 39 %  |               |
| 300 µm                                                                                                                                                                                                                                                                           | 35 %  |               |
| 150 µm                                                                                                                                                                                                                                                                           | 32 %  |               |
| 63 µm                                                                                                                                                                                                                                                                            | 28 %  |               |
| <b>Determination of particle size distribution (Hydrometer Method) - BS 1377: Part 2: 1990 Clause 9.5</b><br><small>Sample prepared in accordance with BS 1377: Part 1: 1990 clause 7.3.4(a)</small><br>Pretreatment for organic matter with hydrogen peroxide was not required. |       |               |
| 20 µm                                                                                                                                                                                                                                                                            | 25 %  |               |
| 6 µm                                                                                                                                                                                                                                                                             | 19 %  |               |
| 2 µm                                                                                                                                                                                                                                                                             | 10 %  |               |
| <b>Determination of Plastic Limit, Liquid Limit and Plasticity Index - BS 1377: Part 2: 1990</b><br><small>The sample was prepared from a natural soil specimen and in accordance with BS1377: Part 1: 1990: Clause 7.3.4(b)</small>                                             |       |               |
| Liquid Limit (BS 1377: Part 2: 1990 Clause 4.4)                                                                                                                                                                                                                                  | 32 %  |               |
| Plastic Limit (BS 1377: Part 2: 1990 Clause 5.3)                                                                                                                                                                                                                                 | 18 %  |               |
| Plasticity Index (BS 1377: Part 2: 1990 Clause 5.4)                                                                                                                                                                                                                              | 14 %  |               |
| Material Passing 425 µm test sieve                                                                                                                                                                                                                                               | 35 %  |               |

SA/03/7337 Continued



\* denotes not UKAS Accredited. Tests marked "not UKAS Accredited" in this report are not included in the United Kingdom Accreditation Schedule for our laboratory

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UK COAL  
REMEDICATION OF LAND CONTAMINATION AT FORMER GAS PURIFICATION PLANT  
MONCKTON WORKS, ROYSTON - CAPPING WORKS

Laboratory Report SA/03/7478  
Sample Number SA/03/7478  
Date 19/01/04

Date Sampled 27/10/03  
Date Received 27/10/03  
Date Completed 11/11/03

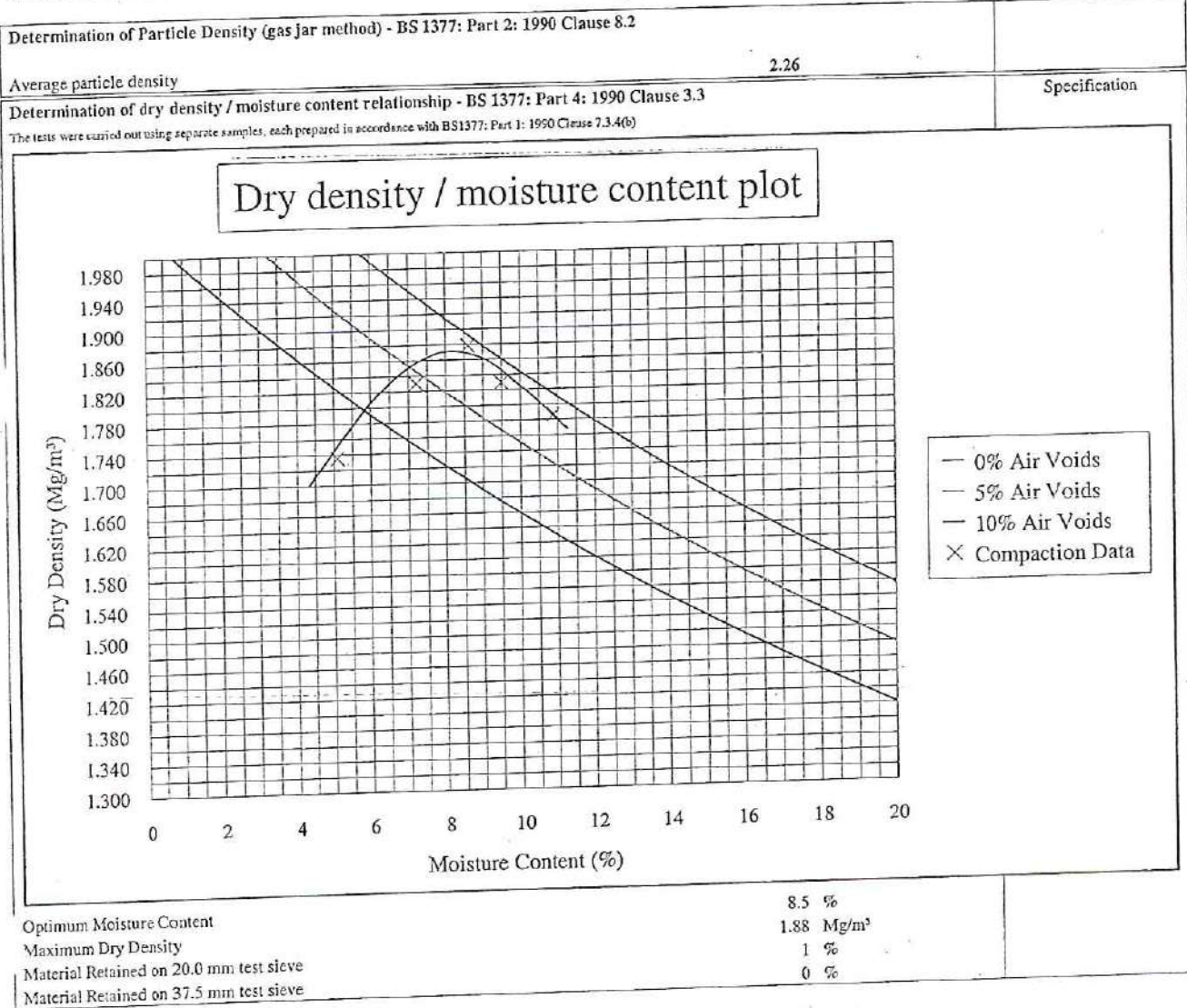
Material Description 1 Part MRF - 2 Parts Colliery Shale (Processed)  
Source Kellingley Colliery  
Supplier UK Coal

Client Ref  
Location Capping Layer 4  
SE 37315E 11841N

The results below represent tests conducted on a sample of the above material which was taken from the site by L.J Church Laboratory Services Ltd\*.  
The sample was received with an accompanying certificate of sampling.  
The tests were carried out on a bulk sample in accordance with the appropriate standards.

|                                                                                                                                                                                                                                                                   |       |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------|
| <b>Determination of moisture content - BS 1377: Part 2: 1990 Clause 3</b><br>Sample prepared in accordance with BS 1377: Part 1: 1990 Clause 7.3.4(a)                                                                                                             |       |               |
| Moisture Content                                                                                                                                                                                                                                                  | 9.5 % |               |
| <b>Determination of particle size distribution (wet sieving method) - BS 1377: Part 2: 1990 Clause 9.2</b><br>Sample prepared in accordance with BS 1377: Part 1: 1990 Clause 7.3.4(a)                                                                            |       | Specification |
| BS Sieve Size                                                                                                                                                                                                                                                     |       |               |
| 50 mm                                                                                                                                                                                                                                                             | 100 % |               |
| 37.5 mm                                                                                                                                                                                                                                                           | 100 % |               |
| 28 mm                                                                                                                                                                                                                                                             | 100 % |               |
| 20 mm                                                                                                                                                                                                                                                             | 99 %  |               |
| 14 mm                                                                                                                                                                                                                                                             | 92 %  |               |
| 10 mm                                                                                                                                                                                                                                                             | 89 %  |               |
| 6.3 mm                                                                                                                                                                                                                                                            | 83 %  |               |
| 5 mm                                                                                                                                                                                                                                                              | 77 %  |               |
| 3.35 mm                                                                                                                                                                                                                                                           | 71 %  |               |
| 2 mm                                                                                                                                                                                                                                                              | 59 %  |               |
| 1.18 mm                                                                                                                                                                                                                                                           | 48 %  |               |
| 600 µm                                                                                                                                                                                                                                                            | 39 %  |               |
| 425 µm                                                                                                                                                                                                                                                            | 36 %  |               |
| 300 µm                                                                                                                                                                                                                                                            | 33 %  |               |
| 150 µm                                                                                                                                                                                                                                                            | 29 %  |               |
| 63 µm                                                                                                                                                                                                                                                             | 26 %  |               |
| <b>Determination of particle size distribution (Hydrometer Method) - BS 1377: Part 2: 1990 Clause 9.5</b><br>Sample prepared in accordance with BS 1377: Part 1: 1990 Clause 7.3.4(a)<br>Pretreatment for organic matter with hydrogen peroxide was not required. |       |               |
|                                                                                                                                                                                                                                                                   | 23 %  |               |
| 20 µm                                                                                                                                                                                                                                                             | 15 %  |               |
| 6 µm                                                                                                                                                                                                                                                              | 9 %   |               |
| 2 µm                                                                                                                                                                                                                                                              |       |               |
| <b>Determination of Plastic Limit, Liquid Limit and Plasticity Index - BS 1377: Part 2: 1990</b><br>The sample was prepared from a natural soil specimen and in accordance with BS1377: Part 1: 1990: Clause 7.3.4(b)                                             |       |               |
| Liquid Limit (BS 1377: Part 2: 1990 Clause 4.4)                                                                                                                                                                                                                   | 36 %  |               |
| Plastic Limit (BS 1377: Part 2: 1990 Clause 5.3)                                                                                                                                                                                                                  | 20 %  |               |
| Plasticity Index (BS 1377: Part 2: 1990 Clause 5.4)                                                                                                                                                                                                               | 16 %  |               |
| Material Passing 425 µm test sieve                                                                                                                                                                                                                                | 31 %  |               |

SA/03/7478 Continued



\* denotes not UKAS Accredited. Tests marked "not UKAS Accredited" in this report are not included in the United Kingdom Accreditation Schedule for our laboratory

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**UK COAL**  
**REMEDIAION OF LAND CONTAMINATION AT FORMER GAS PURIFICATION PLANT**  
**MONCKTON WORKS, ROYSTON - CAPPING WORKS**

Laboratory Report SA/03/7534  
Sample Number SA/03/7534  
Date 19/01/04

Date Sampled 29/10/03  
Date Received 29/10/03  
Date Completed 12/11/03

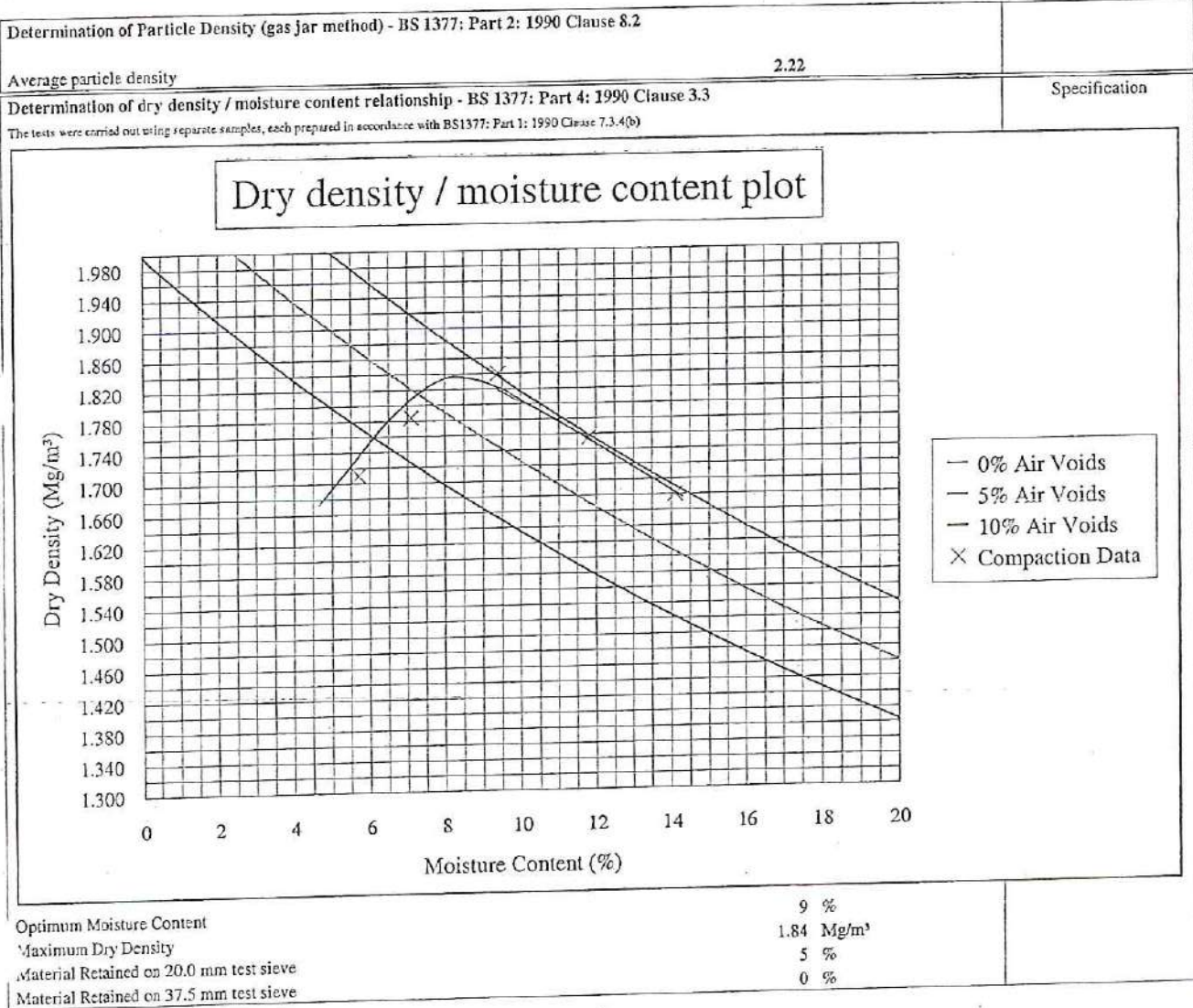
Material Description 1 Part MRF - 2 Parts Colliery Shale (Processed)  
Source Kellingley Colliery  
Supplier UK Coal

Client Ref  
Location Capping Layer 3  
SE 37319E 11809N

The results below represent tests conducted on a sample of the above material which was taken from the site by L J Church Laboratory Services Ltd\*.  
The sample was received with an accompanying certificate of sampling.  
The tests were carried out on a bulk sample in accordance with the appropriate standards.

|                                                                                                                    |       |               |
|--------------------------------------------------------------------------------------------------------------------|-------|---------------|
| <b>Determination of moisture content - BS 1377: Part 2: 1990 Clause 3</b>                                          |       |               |
| Sample prepared in accordance with BS 1377: Part 1: 1990 Clause 7.3.4(a)                                           |       |               |
| Moisture Content                                                                                                   | 11 %  |               |
| <b>Determination of particle size distribution (wet sieving method) - BS 1377: Part 2: 1990 Clause 9.2</b>         |       | Specification |
| Sample prepared in accordance with BS 1377: Part 1: 1990 Clause 7.3.4(a)                                           |       |               |
| BS Sieve Size                                                                                                      |       |               |
| 63 mm                                                                                                              | 100 % |               |
| 50 mm                                                                                                              | 100 % |               |
| 37.5 mm                                                                                                            | 100 % |               |
| 28 mm                                                                                                              | 100 % |               |
| 20 mm                                                                                                              | 95 %  |               |
| 14 mm                                                                                                              | 88 %  |               |
| 10 mm                                                                                                              | 80 %  |               |
| 6.3 mm                                                                                                             | 75 %  |               |
| 5 mm                                                                                                               | 73 %  |               |
| 3.35 mm                                                                                                            | 68 %  |               |
| 2 mm                                                                                                               | 63 %  |               |
| 1.18 mm                                                                                                            | 69 %  |               |
| 600 µm                                                                                                             | 56 %  |               |
| 425 µm                                                                                                             | 54 %  |               |
| 300 µm                                                                                                             | 53 %  |               |
| 150 µm                                                                                                             | 51 %  |               |
| 63 µm                                                                                                              | 50 %  |               |
| <b>Determination of particle size distribution (Hydrometer Method) - BS 1377: Part 2: 1990 Clause 9.5</b>          |       |               |
| Sample prepared in accordance with BS 1377: Part 1: 1990 Clause 7.3.4(a)                                           |       |               |
| Pretreatment for organic matter with hydrogen peroxide was not required.                                           |       |               |
| 20 µm                                                                                                              | 27 %  |               |
| 6 µm                                                                                                               | 22 %  |               |
| 2 µm                                                                                                               | 12 %  |               |
| <b>Determination of Plastic Limit, Liquid Limit and Plasticity Index - BS 1377: Part 2: 1990</b>                   |       |               |
| The sample was prepared from a natural soil specimen and in accordance with BS 1377: Part 1: 1990: Clause 7.3.4(b) |       |               |
| Liquid Limit (BS 1377: Part 2: 1990 Clause 4.4)                                                                    | 39 %  |               |
| Plastic Limit (BS 1377: Part 2: 1990 Clause 5.3)                                                                   | 21 %  |               |
| Plasticity Index (BS 1377: Part 2: 1990 Clause 5.4)                                                                | 18 %  |               |
| Material Passing 425 µm test sieve                                                                                 | 54 %  |               |

SA/03/7534 Continued



\* denotes not UKAS Accredited. Tests marked "not UKAS Accredited" in this report are not included in the United Kingdom Accreditation Schedule for our laboratory

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**UK COAL**  
**REMEDATION OF LAND CONTAMINATION AT FORMER GAS PURIFICATION PLANT**  
**MONCKTON WORKS, ROYSTON - CAPPING WORKS**

Laboratory Report SA/03/7578  
Sample Number SA/03/7578  
Date 19/01/04

Date Sampled 30/10/03  
Date Received 30/10/03  
Date Completed 12/11/03

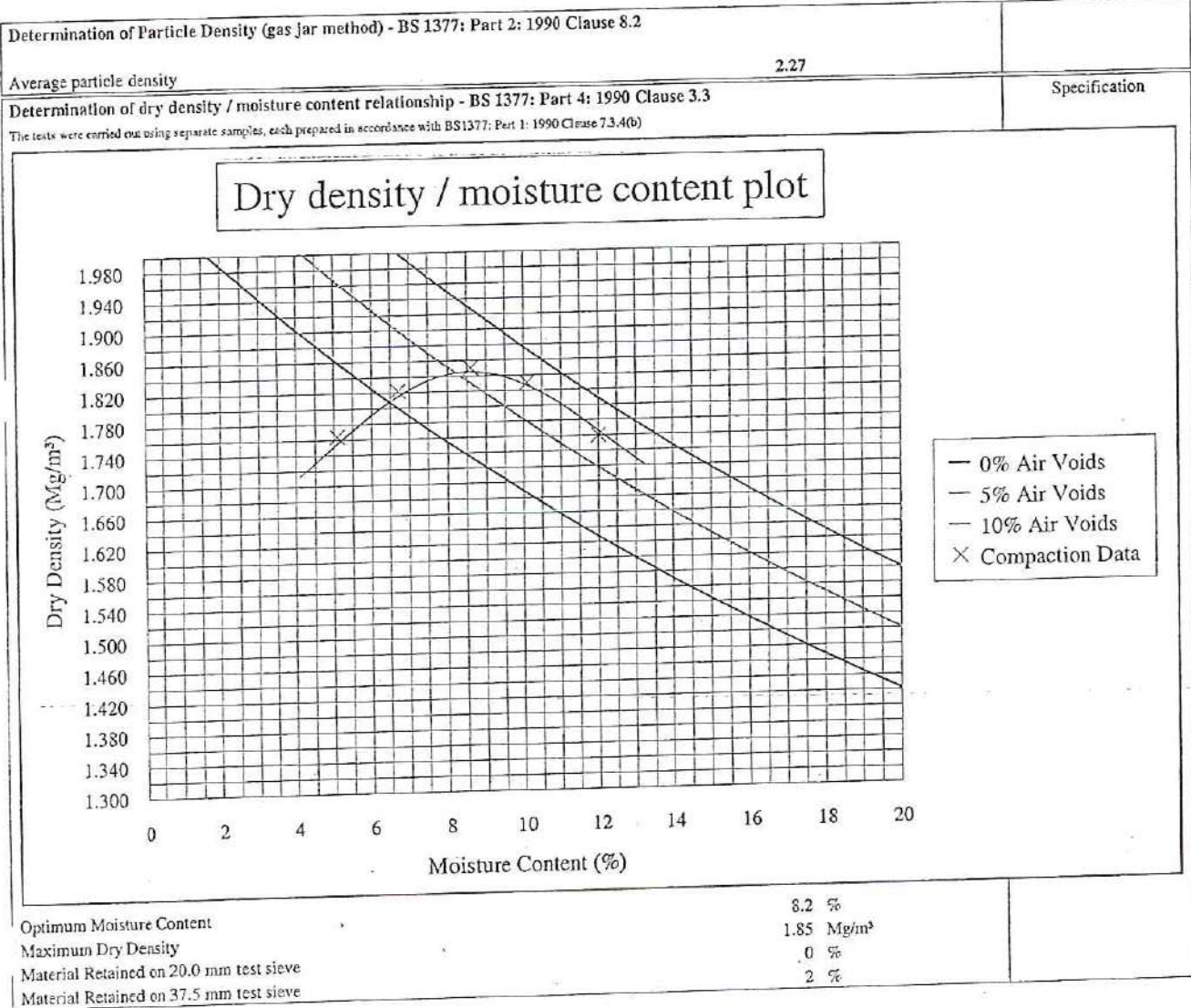
Material Description 1 Part MRF - 2 Parts Colliery Shale (Processed)  
Source Kellingley Colliery  
Supplier UK Coal

Client Ref  
Location Capping Layer 2  
SE 37395E 11787N

The results below represent tests conducted on a sample of the above material which was taken from the site by L J Church Laboratory Services Ltd\*.  
The sample was received with an accompanying certificate of sampling.  
The tests were carried out on a bulk sample in accordance with the appropriate standards.

|                                                                                                                                                                                                                                                                                  |       |               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------|
| <b>Determination of moisture content - BS 1377: Part 2: 1990 Clause 3</b><br><small>Sample prepared in accordance with BS 1377: Part 1: 1990 Clause 7.3.4(a)</small>                                                                                                             |       |               |
| Moisture Content                                                                                                                                                                                                                                                                 | 9.9 % |               |
| <b>Determination of particle size distribution (wet sieving method) - BS 1377: Part 2: 1990 Clause 9.2</b><br><small>Sample prepared in accordance with BS 1377: Part 1: 1990 clause 7.3.4(a)</small>                                                                            |       | Specification |
| BS Sieve Size                                                                                                                                                                                                                                                                    |       |               |
| 50 mm                                                                                                                                                                                                                                                                            | 100 % |               |
| 37.5 mm                                                                                                                                                                                                                                                                          | 98 %  |               |
| 28 mm                                                                                                                                                                                                                                                                            | 95 %  |               |
| 20 mm                                                                                                                                                                                                                                                                            | 94 %  |               |
| 14 mm                                                                                                                                                                                                                                                                            | 85 %  |               |
| 10 mm                                                                                                                                                                                                                                                                            | 83 %  |               |
| 6.3 mm                                                                                                                                                                                                                                                                           | 75 %  |               |
| 5 mm                                                                                                                                                                                                                                                                             | 71 %  |               |
| 3.35 mm                                                                                                                                                                                                                                                                          | 63 %  |               |
| 2 mm                                                                                                                                                                                                                                                                             | 52 %  |               |
| 1.18 mm                                                                                                                                                                                                                                                                          | 42 %  |               |
| 600 µm                                                                                                                                                                                                                                                                           | 35 %  |               |
| 425 µm                                                                                                                                                                                                                                                                           | 33 %  |               |
| 300 µm                                                                                                                                                                                                                                                                           | 31 %  |               |
| 150 µm                                                                                                                                                                                                                                                                           | 28 %  |               |
| 63 µm                                                                                                                                                                                                                                                                            | 26 %  |               |
| <b>Determination of particle size distribution (Hydrometer Method) - BS 1377: Part 2: 1990 Clause 9.5</b><br><small>Sample prepared in accordance with BS 1377: Part 1: 1990 clause 7.3.4(a)</small><br>Pretreatment for organic matter with hydrogen peroxide was not required. |       |               |
| 20 µm                                                                                                                                                                                                                                                                            | 21 %  |               |
| 6 µm                                                                                                                                                                                                                                                                             | 12 %  |               |
| 2 µm                                                                                                                                                                                                                                                                             | 9 %   |               |
| <b>Determination of Plastic Limit, Liquid Limit and Plasticity Index - BS 1377: Part 2: 1990</b><br><small>The sample was prepared from a natural soil specimen and in accordance with BS1377: Part 1: 1990: Clause 7.3.4(b)</small>                                             |       |               |
| Liquid Limit (BS 1377: Part 2: 1990 Clause 4.4)                                                                                                                                                                                                                                  | 36 %  |               |
| Plastic Limit (BS 1377: Part 2: 1990 Clause 5.3)                                                                                                                                                                                                                                 | 21 %  |               |
| Plasticity Index (BS 1377: Part 2: 1990 Clause 5.4)                                                                                                                                                                                                                              | 15 %  |               |
| Material Passing 425 µm test sieve                                                                                                                                                                                                                                               | 33 %  |               |

SA/03/7578 Continued



\* denotes not UKAS Accredited. Tests marked "not UKAS Accredited" in this report are not included in the United Kingdom Accreditation Schedule for our laboratory

*A. J. Church*  
pp L.J Church Laboratory Services Ltd

**UK COAL**  
**REMEDIATION OF LAND CONTAMINATION AT FORMER GAS PURIFICATION PLANT**  
**MONCKTON WORKS, ROYSTON - CAPPING WORKS**

Laboratory Report SA/03/7653  
Sample Number SA/03/7653  
Date 19/01/04

Date Sampled 04/11/03  
Date Received 04/11/03  
Date Completed 18/11/03

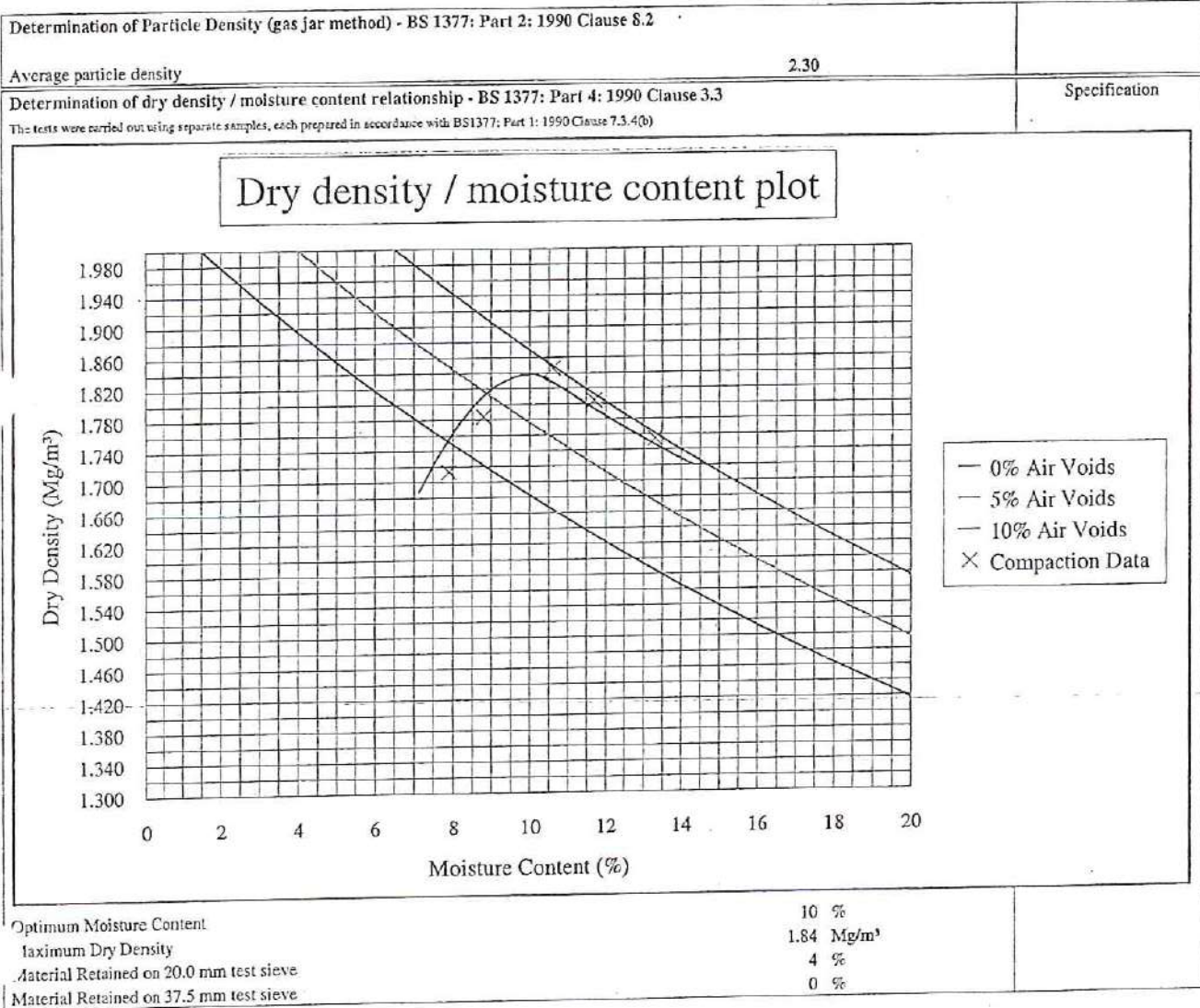
Material Description 1 Part MRF - 2 Parts Colliery Shale (Processed)  
Source Kellingley Colliery  
Supplier UK Coal

Client Ref  
Location Capping Layer 2  
SE 37349E 11751N

The results below represent tests conducted on a sample of the above material which was taken from the site by L.J Church Laboratory Services Ltd\*.  
The sample was received with an accompanying certificate of sampling.  
The tests were carried out on a bulk sample in accordance with the appropriate standards.

|                                                                                                                                                                                                                                                                                  |       |               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------|
| <b>Determination of moisture content - BS 1377: Part 2: 1990 Clause 3</b><br><small>Sample prepared in accordance with BS 1377: Part 1: 1990 Clause 7.3.4(a)</small>                                                                                                             |       |               |
| Moisture Content                                                                                                                                                                                                                                                                 | 10 %  |               |
| <b>Determination of particle size distribution (wet sieving method) - BS 1377: Part 2: 1990 Clause 9.2</b><br><small>Sample prepared in accordance with BS 1377: Part 1: 1990 clause 7.3.4(a)</small>                                                                            |       | Specification |
| BS Sieve Size                                                                                                                                                                                                                                                                    | 100 % |               |
| 50 mm                                                                                                                                                                                                                                                                            | 100 % |               |
| 37.5 mm                                                                                                                                                                                                                                                                          | 98 %  |               |
| 28 mm                                                                                                                                                                                                                                                                            | 96 %  |               |
| 20 mm                                                                                                                                                                                                                                                                            | 87 %  |               |
| 14 mm                                                                                                                                                                                                                                                                            | 81 %  |               |
| 10 mm                                                                                                                                                                                                                                                                            | 72 %  |               |
| 6.3 mm                                                                                                                                                                                                                                                                           | 68 %  |               |
| 5 mm                                                                                                                                                                                                                                                                             | 61 %  |               |
| 3.35 mm                                                                                                                                                                                                                                                                          | 54 %  |               |
| 2 mm                                                                                                                                                                                                                                                                             | 46 %  |               |
| 1.18 mm                                                                                                                                                                                                                                                                          | 41 %  |               |
| 600 µm                                                                                                                                                                                                                                                                           | 39 %  |               |
| 425 µm                                                                                                                                                                                                                                                                           | 37 %  |               |
| 300 µm                                                                                                                                                                                                                                                                           | 35 %  |               |
| 150 µm                                                                                                                                                                                                                                                                           | 32 %  |               |
| 63 µm                                                                                                                                                                                                                                                                            |       |               |
| <b>Determination of particle size distribution (Hydrometer Method) - BS 1377: Part 2: 1990 Clause 9.5</b><br><small>Sample prepared in accordance with BS 1377: Part 1: 1990 clause 7.3.4(a)</small><br>Pretreatment for organic matter with hydrogen peroxide was not required. |       |               |
| 20 µm                                                                                                                                                                                                                                                                            | 28 %  |               |
| 6 µm                                                                                                                                                                                                                                                                             | 21 %  |               |
| 2 µm                                                                                                                                                                                                                                                                             | 13 %  |               |
| <b>Determination of Plastic Limit, Liquid Limit and Plasticity Index - BS 1377: Part 2: 1990</b><br><small>The sample was prepared from a natural soil specimen and in accordance with BS1377: Part 1: 1990: Clause 7.3.4(b)</small>                                             |       |               |
| Liquid Limit (BS 1377: Part 2: 1990 Clause 4.4)                                                                                                                                                                                                                                  | 35 %  |               |
| Plastic Limit (BS 1377: Part 2: 1990 Clause 5.3)                                                                                                                                                                                                                                 | 26 %  |               |
| Plasticity Index (BS 1377: Part 2: 1990 Clause 5.4)                                                                                                                                                                                                                              | 9 %   |               |
| Material Passing 425 µm test sieve                                                                                                                                                                                                                                               | 39 %  |               |

SA/03/7653 Continued



\* denotes not UKAS Accredited. Tests marked "not UKAS Accredited" in this report are not included in the United Kingdom Accreditation Schedule for our laboratory

**UK COAL**  
**REMEDATION OF LAND CONTAMINATION AT FORMER GAS PURIFICATION PLANT**  
**MONCKTON WORKS, ROYSTON - CAPPING WORKS**

Laboratory Report SA/03/7736  
Sample Number SA/03/7736  
Date 19/01/04

Date Sampled 06/11/03  
Date Received 06/11/03  
Date Completed 13/11/03

Material Description 1 Part MRF - 2 Parts Colliery Shale (Processed)  
Source Kellingley Colliery  
Supplier UK Coal

Client Ref  
Location Capping Layer 1  
SE 37355E 11738N

The results below represent tests conducted on a sample of the above material which was taken from the site by L.J Church Laboratory Services Ltd\*.  
The sample was received with an accompanying certificate of sampling.  
The tests were carried out on a bulk sample in accordance with the appropriate standards.

|                                                                                                                   |       |               |
|-------------------------------------------------------------------------------------------------------------------|-------|---------------|
| Determination of moisture content - BS 1377: Part 2: 1990 Clause 3                                                |       |               |
| Sample prepared in accordance with BS 1377: Part 1: 1990 clause 7.3.4(a)                                          |       |               |
| Moisture Content                                                                                                  | 9.8 % |               |
| Determination of particle size distribution (wet sieving method) - BS 1377: Part 2: 1990 Clause 9.2               |       | Specification |
| Sample prepared in accordance with BS 1377: Part 1: 1990 clause 7.3.4(a)                                          |       |               |
| BS Sieve Size                                                                                                     |       |               |
| 50 mm                                                                                                             | 100 % |               |
| 37.5 mm                                                                                                           | 100 % |               |
| 28 mm                                                                                                             | 97 %  |               |
| 20 mm                                                                                                             | 93 %  |               |
| 14 mm                                                                                                             | 91 %  |               |
| 10 mm                                                                                                             | 86 %  |               |
| 6.3 mm                                                                                                            | 76 %  |               |
| 5 mm                                                                                                              | 71 %  |               |
| 3.35 mm                                                                                                           | 63 %  |               |
| 2 mm                                                                                                              | 52 %  |               |
| 1.18 mm                                                                                                           | 43 %  |               |
| 600 µm                                                                                                            | 35 %  |               |
| 425 µm                                                                                                            | 33 %  |               |
| 300 µm                                                                                                            | 30 %  |               |
| 150 µm                                                                                                            | 26 %  |               |
| 63 µm                                                                                                             | 24 %  |               |
| Determination of particle size distribution (Hydrometer Method) - BS 1377: Part 2: 1990 Clause 9.5                |       |               |
| Sample prepared in accordance with BS 1377: Part 1: 1990 clause 7.3.4(a)                                          |       |               |
| Pretreatment for organic matter with hydrogen peroxide was not required.                                          |       |               |
| 20 µm                                                                                                             | 21 %  |               |
| 6 µm                                                                                                              | 18 %  |               |
| 2 µm                                                                                                              | 9 %   |               |
| Determination of Plastic Limit, Liquid Limit and Plasticity Index - BS 1377: Part 2: 1990                         |       |               |
| The sample was prepared from a natural soil specimen and in accordance with BS1377: Part 1: 1990: Clause 7.3.4(b) |       |               |
| Liquid Limit (BS 1377: Part 2: 1990 Clause 4.4)                                                                   | 37 %  |               |
| Plastic Limit (BS 1377: Part 2: 1990 Clause 5.3)                                                                  | 20 %  |               |
| Plasticity Index (BS 1377: Part 2: 1990 Clause 5.4)                                                               | 17 %  |               |
| Material Passing 425 µm test sieve                                                                                | 33 %  |               |

SA/03/7736 Continued

Determination of Particle Density (gas jar method) - BS 1377: Part 2: 1990 Clause 8.2

Average particle density

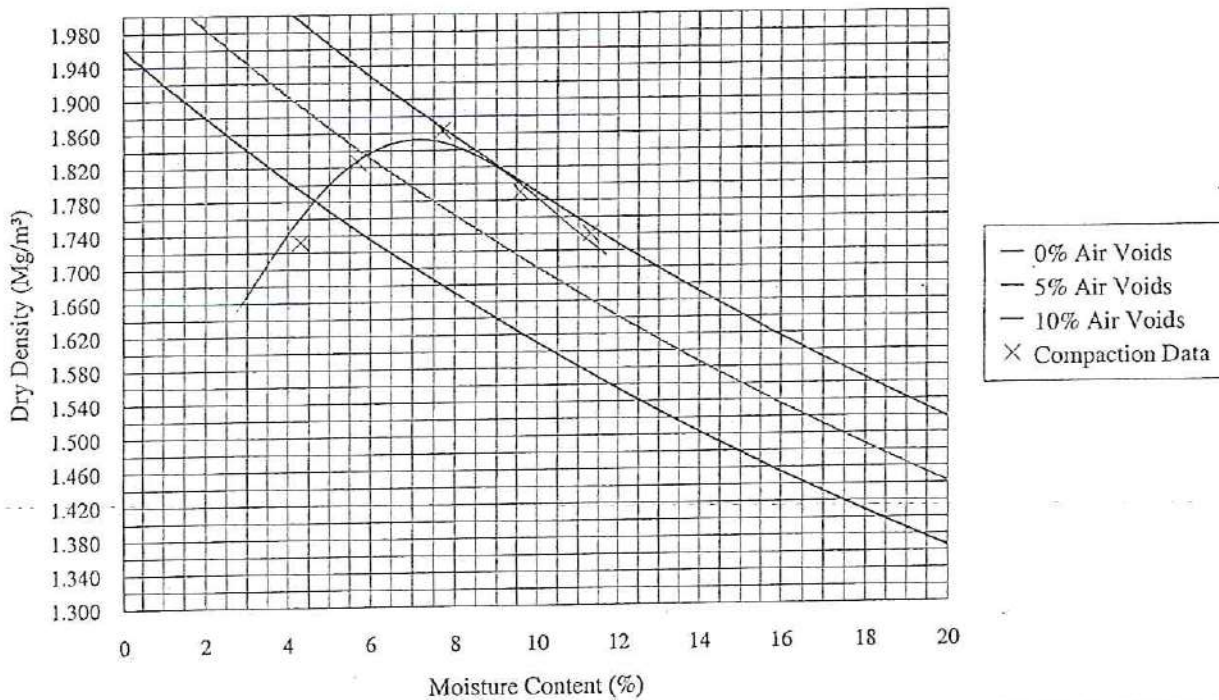
2.18

Determination of dry density / moisture content relationship - BS 1377: Part 4: 1990 Clause 3.3

Specification

The tests were carried out using separate samples, each prepared in accordance with BS1377: Part 1: 1990 Clause 7.3.4(b)

### Dry density / moisture content plot



Optimum Moisture Content

7.5 %

Maximum Dry Density

1.86 Mg/m³

Material Retained on 20.0 mm test sieve

7 %

Material Retained on 37.5 mm test sieve

0 %

\* denotes not UKAS Accredited. Tests marked "not UKAS Accredited" in this report are not included in the United Kingdom Accreditation Schedule for our laboratory

*Amel*  
pp L.J Church Laboratory Services Ltd

## **Appendix G**

### **Site Photographs**



20/10/03



20/10/03



22/10/03



23/10/03



24/10/03



27/10/03



28/10/03



29/10/03



30/10/03



31/10/03



03/11/03



04/11/03



05/11/03

## **Appendix H**

As Built Drawing



# Legend

- Approximate Line of Property Boundary
- Contract Boundary
- Approximate Extent of Capping Layer
- Amenity Grassland
- Shrub Areas (SA, SB1, SB2)
- Woodland
- Woodland Edge Mix
- Existing Contours
- Proposed Restoration Contours
- Existing Fences
- Proposed Fences
- Approximate Line of Blurry Trench Cut-off Wall

Based on Drawing 80052A  
Supplied by D10000

**UK COAL MINING LTD**  
HARROGATE BRICK, BATH ROAD, HARROGATE  
SIO-CH-000, SOUTH YORKSHIRE, ENGLAND

**MONCKTON COKE & CHEMICAL Co.**

**Restoration Plan For Former Gas Purification Plant**

| DATE       | BY  | FOR | REVISION |
|------------|-----|-----|----------|
| 15.01.2010 | ... | ... | 1        |
| 15.01.2010 | ... | ... | 2        |
| 15.01.2010 | ... | ... | 3        |
| 15.01.2010 | ... | ... | 4        |
| 15.01.2010 | ... | ... | 5        |
| 15.01.2010 | ... | ... | 6        |
| 15.01.2010 | ... | ... | 7        |
| 15.01.2010 | ... | ... | 8        |
| 15.01.2010 | ... | ... | 9        |
| 15.01.2010 | ... | ... | 10       |

## **Appendix J**

UKAS Accreditation Schedule for CQA Laboratory

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# United Kingdom Accreditation Service

## ACCREDITATION CERTIFICATE



TESTING LABORATORY  
No. 1342

L J Church Laboratory Services Ltd  
Lumley Street  
Castleford  
West Yorkshire  
WF10 5LB

is accredited to undertake tests as detailed in the schedule bearing the above accreditation number. From time to time this schedule may be revised and reissued by the United Kingdom Accreditation Service.

Accredited laboratories comply with the requirements of International Standard BS EN ISO/IEC 17025, which replaces ISO/IEC Guide 25 and EN45001. Testing and calibration laboratories that comply with the requirements of this International Standard operate a quality system for their testing and calibration activities that also meets the requirements of ISO 9001 when they engage in the design/development of new methods, and/or develop test programmes combining standard and non-standard test and calibration methods, and ISO 9002 when they only use standard methods.

This Accreditation shall remain in force until the expiry date printed below, subject to continuing compliance with United Kingdom Accreditation Service requirements.

Initial Accreditation 28 June 1995

  
Accreditation Manager, United Kingdom Accreditation Service

This certificate issued on 26 March 2003

Expiry date 31 May 2007

The Department of Trade and Industry (DTI) has entered into a memorandum of understanding with the United Kingdom Accreditation Service (UKAS) through which UKAS is recognised as the national body responsible for assessing and accrediting the competence of organisations in the fields of calibration, testing, inspection and certification of systems, products and personnel.

# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

|                                                                                           |                                                                     |                                                                                                                                                      |
|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>1342 | <b>L J Church Laboratory Services Limited</b>                       |                                                                                                                                                      |
|                                                                                           | Issue No: 015      Issue date: 18 December 2002                     |                                                                                                                                                      |
|                                                                                           | <p>Lumley Street<br/>Castleford<br/>West Yorkshire<br/>WF10 5LB</p> | <p>Contact: Mr L J Church<br/>Tel: +44 (0)1977-518908<br/>Fax: +44 (0)1977-553612<br/>E-Mail: lab@ljchurch.co.uk<br/>Website: www.ljchurch.co.uk</p> |
| Testing performed at permanent laboratory premises                                        |                                                                     |                                                                                                                                                      |

### SUMMARY OF ACCREDITATION

#### CONSTRUCTION

##### Aggregates

- Aggregate crushing value
- Aggregate impact value
- Elongation Index
- Flakiness
- Moisture content/ Water content
- Particle density, water absorption
- Particle size distribution
- Soundness
- Ten per cent fines

##### Asphalt, bitumen, tar, pitch & bituminous materials

- Binder content & grading
- Percentage refusal density

##### Concrete, grout & mortar - hardened

- Chemical analysis
- Compressive strength
- Density

##### Soils & stabilised soils

- California bearing ratio
- Chemical analysis
- Density tests
- Dry density/ moisture content relationship
- Liquid & plastic limits
- Moisture condition value
- Moisture content
- Particle density
- Particle size distribution
- Permeability
- Shear strength
- Shrinkage
- Topsoil

##### Environmental samples

- Workplace & ambient atmospheric pollutants
- Airborne organic compounds
- Metals



1342

## Schedule of Accreditation

issued by

United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

L J Church Laboratory Services Limited

Issue No: 015 Issue date: 18 December 2002

Testing performed at permanent laboratory premises

### DETAIL OF ACCREDITATION

| Materials/Products tested | Type of test/Properties measured/Range of measurement                                               | Standard specifications/ Equipment/Techniques used |
|---------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------|
| AGGREGATES                | <u>Mechanical Tests</u>                                                                             |                                                    |
|                           | Aggregate crushing value<br>- particle size 10mm and greater<br>(loads from 10 to 2500kN)           | BS 812:Part 110:1990                               |
|                           | Aggregate crushing value<br>- particle size smaller than 10mm<br>(loads from 10 to 2500kN)          | BS 812:Part 110:1990                               |
|                           | Ten per cent fines value - dry<br>- particle size 10mm and greater<br>(loads from 10 to 2500kN)     | BS 812:Part 111:1990                               |
|                           | Ten per cent fines value - soaked<br>- particle size 10mm and greater<br>(loads from 10 to 2500kN)  | BS 812:Part 111:1990                               |
|                           | Ten per cent fines value - dry<br>- particle size smaller than 10mm<br>(loads from 10 to 2500kN)    | BS 812:Part 111:1990                               |
|                           | Ten per cent fines value - soaked<br>- particle size smaller than 10mm<br>(loads from 10 to 2500kN) | BS 812:Part 111:1990                               |
|                           | <u>Physical Tests</u>                                                                               |                                                    |
|                           | Particle density and water absorption for aggregate between 40mm and 5mm                            | BS 812:Part 2:1995                                 |
|                           | Particle size distribution<br>- washing and sieving                                                 | BS 812:Part 103 Section 103.1:1985                 |
|                           | Particle size distribution<br>- dry sieving                                                         | BS 812:Part 103 Section 103.1:1985                 |
|                           | Flakiness index                                                                                     | BS 812:Part 105 Section 105.1:1989                 |
|                           | Elongation index                                                                                    | BS 812:Part 105 Section 105.2:1990                 |



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| Materials/Products tested | Type of test/Properties measured/Range of measurement                                                                                                                                                                                                                                                                         | Standard specifications/ Equipment/Techniques used                                                                                 |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| AGGREGATES                | <u>Physical Tests</u><br><br>Moisture content<br>- oven drying method<br><br>Aggregate impact value - dry<br><br>Aggregate impact value - soaked<br><br>Soundness                                                                                                                                                             | BS 812:Part 109:1990<br><br>BS 812:Part 112:1990<br><br>BS 812:Part 112:1990<br><br>BS 812:Part 121:1989                           |
| BITUMINOUS MIXTURES       | <u>Physical Tests</u><br><br>Binder content and grading of mineral aggregate<br>- extraction bottle method:<br>binder determination by difference<br><br>Binder content and grading of mineral aggregate - extraction bottle method: binder directly determined, filler by difference<br><br>Percentage refusal density (PRD) | BS 598:Part 102:1996<br><br>BS 598:Part 102:1996<br><br>BS 598:Part 104:1989                                                       |
| CONCRETE - hardened       | <u>Chemical Tests</u><br><br>Cement content<br><br><u>Mechanical Tests</u><br><br>Compressive strength of cubes<br>- including curing<br>(loads from 10 to 2500kN)<br><br><u>Physical Tests</u><br><br>Density                                                                                                                | Documented In-House Method<br>Test Procedure 47<br><br>BS 1881:Part 116:1983<br>BS 1881:Part 111:1983<br><br>BS 1881:Part 114:1983 |
|                           |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                    |



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L J Church Laboratory Services Limited

Issue No: 015 Issue date: 18 December 2002

Testing performed at permanent laboratory premises

| Materials/Products tested                                                                                                                              | Type of test/Properties measured/Range of measurement                                                                                                          | Standard specifications/ Equipment/Techniques used                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| AIR FILTERS used in air monitoring                                                                                                                     | <u>Chemical Tests</u><br>Metals:<br>Aluminium<br>Arsenic<br>Cadmium<br>Chromium<br>Cobalt<br>Copper<br>Iron<br>Lead<br>Manganese<br>Nickel<br>Thallium<br>Zinc | Documented In-House Method Test Procedure No 49 based on NIOSH 7300 (Aug 1994) using inductively coupled plasma- atomic emission spectrometry          |
| MORTARS, SCREEDS and PLASTERS                                                                                                                          | <u>Chemical Tests</u><br>Cement content                                                                                                                        | Documented In-House Method Test Procedure 47                                                                                                           |
| POLLUTANTS AND EFFLUENTS:<br>ATMOSPHERIC Diffuse pollutants from workplace atmospheres<br><br>Activated charcoal tubes<br><br>Activated charcoal tubes | <u>Chemical Tests</u><br><br>Determination of airborne organic compounds collected on activated charcoal<br><br>Determination of total volatile organic carbon | Documented In-House Method 61 using capillary column gas chromatography<br><br>Documented in-House Method 60 using capillary column gas chromatography |
| SOILS for civil engineering purposes                                                                                                                   | <u>Chemical Tests</u><br>Organic matter content<br>Carbonate content - rapid titration method<br>Water-soluble chloride content<br>pH value                    | BS 1377:Part 3:1990<br>BS 1377:Part 3:1990<br>BS 1377:Part 3:1990<br>BS 1377:Part 3:1990                                                               |



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21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

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Issue No: 015 Issue date: 18 December 2002

Testing performed at permanent laboratory premises

| Materials/Products tested            | Type of test/Properties measured/Range of measurement                                                                | Standard specifications/Equipment/Techniques used |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| SOILS for civil engineering purposes | <u>Chemical Tests (Cont'd)</u>                                                                                       |                                                   |
|                                      | Sulphate content of soil and ground water - turbidimetric method                                                     | Documented In-House Method Test Procedure 42      |
|                                      | Total sulphate content of soil                                                                                       | Documented In-House Method Test Procedure 48      |
|                                      | <u>Mechanical Tests</u>                                                                                              |                                                   |
|                                      | California Bearing Ratio (CBR)<br>(loads from 0.1 to 50 kN)                                                          | BS 1377:Part 4:1990                               |
|                                      | Shear strength - small shearbox<br>(loads from 0.4 to 2 kN)                                                          | BS 1377:Part 7:1990                               |
|                                      | Undrained shear strength<br>- triaxial compression without measurement of pore pressure<br>(loads from 0.1 to 20 kN) | BS 1377:Part 7:1990                               |
|                                      | <u>Physical Tests</u>                                                                                                |                                                   |
|                                      | Moisture content<br>- oven drying method                                                                             | BS 1377:Part 2:1990                               |
|                                      | Liquid limit<br>- cone penetrometer                                                                                  | BS 1377:Part 2:1990                               |
|                                      | Liquid limit<br>- cone penetrometer<br>- one point                                                                   | BS 1377:Part 2:1990                               |
|                                      | Plastic limit                                                                                                        | BS 1377:Part 2:1990                               |
|                                      | Plasticity index and liquidity index                                                                                 | BS 1377:Part 2:1990                               |
|                                      | Linear shrinkage                                                                                                     | BS 1377:Part 2:1990                               |
|                                      | Density - linear measurement                                                                                         | BS 1377:Part 2:1990                               |
|                                      | Particle density<br>- gas jar                                                                                        | BS 1377:Part 2:1990                               |
|                                      | Particle size distribution<br>- wet sieving                                                                          | BS 1377:Part 2:1990                               |



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21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

L J Church Laboratory Services Limited

Issue No: 015 Issue date: 18 December 2002

Testing performed at permanent laboratory premises

| Materials/Products tested            | Type of test/Properties measured/Range of measurement                | Standard specifications/ Equipment/Techniques used |
|--------------------------------------|----------------------------------------------------------------------|----------------------------------------------------|
| SOILS for civil engineering purposes | <u>Physical Tests</u> (Cont'd)                                       |                                                    |
|                                      | Particle size distribution<br>- sedimentation<br>- hydrometer method | BS 1377:Part 2:1990                                |
|                                      | Dry density / moisture content relationship (2.5 kg rammer)          | BS 1377:Part 4:1990                                |
|                                      | Dry density / moisture content relationship (4.5 kg rammer)          | BS 1377:Part 4:1990                                |
|                                      | Dry density / moisture content relationship (vibrating hammer)       | BS 1377:Part 4:1990                                |
|                                      | Moisture condition value (MCV)                                       | BS 1377:Part 4:1990                                |
|                                      | Permeability by constant-head method                                 | BS 1377:Part 5:1990                                |
|                                      | Permeability in a triaxial cell                                      | BS 1377:Part 6:1990                                |
| TOPSOIL                              | <u>Chemical Tests</u>                                                |                                                    |
|                                      | Exchangeable cations                                                 | BS 3882:1994                                       |
|                                      | Extractable phosphate content                                        | BS 3882:1994                                       |
|                                      | Nitrogen content                                                     | BS 3882:1994                                       |
|                                      | <u>Physical Tests</u>                                                |                                                    |
|                                      | Bulk density                                                         | BS 3882:1994                                       |
|                                      | <u>Sampling</u>                                                      |                                                    |
|                                      | Sample preparation                                                   | BS 3882:1994                                       |
|                                      | END                                                                  |                                                    |

# Schedule of Accreditation

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## United Kingdom Accreditation Service

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|                                                                                           |                                                           |                                                                                                                                           |
|-------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <br>1342 | <b>L J Church Laboratory Services Limited</b>             |                                                                                                                                           |
|                                                                                           | Issue No: 008                                             | Issue date: 18 December 2002                                                                                                              |
|                                                                                           | Lumley Street<br>Castleford<br>West Yorkshire<br>WF10 5LB | Contact: Mr L J Church<br>Tel: +44 (0)1977-518908<br>Fax: +44 (0)1977-553612<br>E-Mail: lab@ljchurch.co.uk<br>Website: www.ljchurch.co.uk |
| Testing performed away from the permanent laboratory                                      |                                                           |                                                                                                                                           |

### SUMMARY OF ACCREDITATION

#### CONSTRUCTION

Aggregates

Sampling

Asphalt, bitumen, tar, pitch & bituminous materials

Sampling

Temperature

Concrete & mortar - fresh

Sampling

Slump

Test cubes - making

Road pavement surfaces

Texture depth

Soils & stabilised soils

California bearing ratio

Density tests

Plate bearing test



1342

## Schedule of Accreditation

issued by

United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

L J Church Laboratory Services Limited

Issue No: 008 Issue date: 18 December 2002

Testing performed away from the permanent laboratory

### DETAIL OF ACCREDITATION

| Materials/Products tested                              | Type of test/Properties measured/Range of measurement                                                                                                                                                                                                                                                                                                                               | Standard specifications/ Equipment/Techniques used                                                                       |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| AGGREGATES                                             | <u>Sampling</u><br><br>Sampling coarse, fine and all-in aggregates<br>- from heaps<br>- from a lorry load<br>- from laid material<br>- from conveyor belts<br><br>Sampling coarse aggregates<br>- from stationary conveyor belts<br>- at belt and chute discharge points<br>- in bucket conveyors, bucket loaders, or grabs<br>- from a silo<br>- from stockpiles<br>- from lorries | BS 812:Part 102:1989<br><br><br><br><br><br><br><br><br><br>BS EN 932-1:1997                                             |
| BITUMINOUS MIXTURES<br>for roads and other paved areas | <u>Physical Tests</u><br><br>Temperature of bituminous mixtures<br>- in a lorry<br>- in the hopper of a paver<br>- in laid-but-not-rolled material<br><br><u>Sampling</u><br><br>Sampling from<br>- a lorry-load<br>- around the augers of the paver                                                                                                                                | BS 598:Part 109:1990<br><br><br><br><br><br><br><br><br><br>BS 598:Part 100:1987                                         |
| CONCRETE - fresh                                       | <u>Physical Tests</u><br><br>Slump<br><br><u>Sampling</u><br><br>Sampling fresh concrete on site<br><br>Sampling from initial discharge (slump test)<br><br>Making test cubes                                                                                                                                                                                                       | BS 1881:Part 102:1983<br><br><br><br><br>BS 1881:Part 101:1983<br><br>BS 1881:Part 102:1983<br><br>BS 1881:Part 108:1983 |



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## Schedule of Accreditation

issued by

United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

L J Church Laboratory Services Limited

Issue No: 008 Issue date: 18 December 2002

Testing performed away from the permanent laboratory.

| Materials/Products tested            | Type of test/Properties measured/Range of measurement                                                                                                                                                                                                                                                            | Standard specifications/ Equipment/Techniques used                                                                                                   |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| SOILS for civil engineering purposes | <u>Mechanical Tests</u><br><br>In-situ California Bearing Ratio (CBR)<br><i>(loads from 0.5 to 28 kN)</i><br><br><u>Physical Tests</u><br><br>In-situ density<br>- sand replacement method<br><br>In-situ density<br>- core cutter method<br><br>Modulus of sub-grade reaction<br><i>(loads from 3 to 60 kN)</i> | BS 1377:Part 9:1990<br><br><br><br><br><br>BS 1377:Part 9:1990<br><br><br>BS 1377:Part 9:1990<br><br>Documented In-House Method<br>Test Procedure 52 |
| SOILS for civil engineering purposes | <u>Physical Tests</u><br><br>In-situ density<br>- nuclear method<br><br>In-situ moisture density<br>- nuclear method                                                                                                                                                                                             | BS 1377:Part 9:1990<br><br><br>BS 1377:Part 9:1990                                                                                                   |
| ROAD PAVEMENT SURFACES               | <u>Physical Tests</u><br><br>Measurement of texture depth by the<br>sand-patch method                                                                                                                                                                                                                            | BS 598-105:2000                                                                                                                                      |
|                                      | END                                                                                                                                                                                                                                                                                                              |                                                                                                                                                      |