





|   |     |     |                                    |    |                                       |   |                       |   |  |                        |                  |
|---|-----|-----|------------------------------------|----|---------------------------------------|---|-----------------------|---|--|------------------------|------------------|
|  <b>British Geological Survey</b><br>NATURAL ENVIRONMENT RESEARCH COUNCIL    |     |     |                                    |    |                                       | Site<br>Nottinghamshire/ Derbyshire COA NMCS2 Upgrade |                       | Borehole Number<br><b>M47A</b>  |  |                        |                  |
| Machine:<br>Flush :<br>Core Dia: mm<br>Method :   |     |     | Casing Diameter                    |    |                                       | Ground Level (mOD)<br>168.70                          |                       | Client<br>Highways Agency   |  | Job Number<br>F11451   |                  |
|   |     |     | Location<br>444974.9 E 359794.49 N |    |                                       | Dates<br>19/09/1999                                   |                       | Engineer<br>WSP Environmental Ltd   |  | Sheet<br>1/2           |                  |
| Depth (m)   | TCR | SCR | RQD                                | FI | Field Records                         | Level (mOD)   | Depth (m) (Thickness) | Description   |  | Legend                 | Water            |
| 0.00-0.30   |     |     |                                    |    | D01 0 blows                           |   | (0.30)                | TOPSOIL.  |  |                        |                  |
| 0.30-0.40   |     |     |                                    |    | D02 0 blows                           | 168.40  | 0.30                  |   |  |                        |                  |
| 0.40-0.80   | 26  | 0   | 0                                  | 98 | D03 0 blows                           | 168.30  | 0.40                  | MADE GROUND: Brown sandy clay with some fine to coarse angular gravel sized fragments of limestone, sandstone and quartz.   |  |                        |                  |
| 0.80-1.00   |     |     |                                    |    | D04 0 blows                           | 167.90  | 0.80                  | MADE GROUND: Light grey slightly sandy medium and coarse angular gravel sized fragments of limestone.   |  |                        |                  |
| 1.00  |     |     |                                    |    |                                       |   | (1.20)                | MADE GROUND: Brown very sandy clay with much fine to coarse angular and subangular gravel sized fragments of sandstone, siltstone, quartz, mudstone and coal.   |  |                        |                  |
| 2.00-2.45   | 33  | 0   | 0                                  | 98 | 8,9/8,9,9,8<br>SPT N=34               | 166.70  | 2.00                  | MADE GROUND: Brown very clayey very sandy fine to coarse subangular to rounded gravel sized fragments of sandstone, quartz and siltstone.   |  |                        |                  |
| 2.45  |     |     |                                    |    |                                       |   | (1.00)                |   |  |                        |                  |
| 3.00-3.45   | 73  | 0   | 0                                  | 98 | 6,8/8,8,9,8<br>SPT N=33               | 165.70  | 3.00                  | MADE GROUND: Brown very sandy clay with much fine to coarse angular gravel sized fragments of sandstone, mudstone, siltstone, quartz and coal.  |  |                        |                  |
| 3.45  | 60  | 0   | 0                                  | 99 |                                       |   | (1.00)                |   |  |                        |                  |
| 4.00  | 92  | 26  | 0                                  | 99 | Seepage(1) at 4.00m, sealed at 7.80m. | 164.70  | 4.00                  | Light grey and orange thinly and very thinly bedded subhorizontal moderately weathered fine and medium grained SANDSTONE, moderately weak and moderately strong with very closely and closely spaced subhorizontal fractures open rough planar iron stained. (Coal Measures) ---from 4.00m to 5.35m non intact recovered as clayey gravel |  |                        | V1               |
| 5.00  |     |     | 0                                  | 13 |                                       |   |                       |   |  |                        |                  |
| 5.35  |     |     | 0                                  | 25 |                                       |   | (3.50)                |   |  |                        |                  |
| 6.00  | 27  | 3   | 0                                  | 25 |                                       |   |                       | ---from 6.00m becomes slightly weathered with extremely closely spaced random fractures open and tight rough planar and irregular   |  |                        |                  |
| 6.30  |     |     | 0                                  | 13 |                                       |   |                       |   |  |                        |                  |
| 7.50  | 83  | 17  | 0                                  | 0  |                                       | 161.20  | 7.50                  | Light grey and brown very thinly and thinly bedded subhorizontal slightly weathered fine and medium grained SANDSTONE, moderately weak and moderately strong with very closely and closely spaced subhorizontal fractures open rough planar and medium spaced subvertical fractures open rough planar. (Coal Measures)                    |  |                        |                  |
| 7.80  |     |     | 0                                  | 99 |                                       |   | (1.50)                |   |  |                        |                  |
| 8.90  | 100 | 0   | 0                                  | 1  |                                       |   |                       |   |  |                        |                  |
| 8.95  |     |     | 0                                  |    |                                       |   |                       |   |  |                        |                  |
| 9.00  | 95  | 13  | 0                                  | 99 |                                       | 159.70  | 9.00                  | Grey thinly and thickly laminated subhorizontal moderately to highly weathered MUDSTONE, weak and very weak with extremely and very closely spaced random fractures open smooth planar clay smeared. (Coal Measures)  |  |                        |                  |
| 9.30  |     |     | 0                                  | 25 |                                       |   |                       |   |  |                        |                  |
| 9.40  |     |     | 0                                  | 25 |                                       |   |                       |   |  |                        |                  |
| Remarks<br>1. Inspection pit excavated to 1.00m. 2. Borehole complete at 16.00m. 3. 50mm slotted standpipe installed at 16.00m. 4. Marker Post Ref 221/4-30S. |     |     |                                    |    |                                       |   |                       |   |  | Scale (approx)<br>1:50 | Logged By<br>NBR |
|   |     |     |                                    |    |                                       |   |                       |   |  | Figure No.             |                  |



|  |     |                                    |     |                              |  |   |                       |   |                                |       |
|--|-----|------------------------------------|-----|------------------------------|--|---|-----------------------|---|--------------------------------|-------|
|  <b>British Geological Survey</b><br>NATURAL ENVIRONMENT RESEARCH COUNCIL |     |                                    |     |                              |  | Site<br>Nottinghamshire/ Derbyshire COA NMCS2 Upgrade |                       |   | Borehole Number<br><b>M47A</b> |       |
| Machine:<br>Flush :<br>Core Dia: mm<br>Method :  |     | Casing Diameter                    |     | Ground Level (mOD)<br>168.70 |  | Client<br>Highways Agency                             |                       |   | Job Number<br>F11451           |       |
|  |     | Location<br>444974.9 E 359794.49 N |     | Dates<br>19/09/1999          |  | Engineer<br>WSP Environmental Ltd                     |                       |   | Sheet<br>2/2                   |       |
| Depth (m)  | TCR | SCR                                | RQD | FI                           | Field Records                            | Level (mOD)   | Depth (m) (Thickness) | Description   | Legend                         | Water |
| 10.40  |     |                                    |     |                              |  |   | (2.00)                |   |                                |       |
| 10.80-10.90  | 100 | 0                                  | 0   | 98                           | 12,13/0,0,0,0<br>SPT(C) 25/95            | 157.70  | 11.00                 | Very soft light grey CLAY with much fine to coarse angular and subangular gravel and occasional cobbles of mudstone. (Workings?) (Coal Measures)  |                                |       |
| 10.89  | 100 | 0                                  | 0   | 98                           |  |   | (1.43)                |   |                                |       |
| 11.15  | 76  | 44                                 | 22  | 98                           |  |   | 12.43                 | Light grey thinly laminated subhorizontal thinly and medium bedded subhorizontal slightly weathered fine and medium grained SANDSTONE, moderately strong with closely and medium spaced subhorizontal and subvertical fractures open rough planar and irregular iron stained. (Coal Measures) |                                |       |
| 12.20  |     |                                    | 0   | 99                           | Slow(2) at 12.20m, sealed at 100000.00m. | 156.27  |                       |   |                                |       |
| 12.40  |     |                                    | 0   | 2                            |  |   |                       |   |                                |       |
| 13.25  |     |                                    | 0   | 99                           |  |   |                       |   |                                |       |
| 13.40  | 100 | 87                                 | 43  | 0                            |  |   |                       |   |                                |       |
| 13.70  |     |                                    | 0   | 7                            |  |   |                       |   |                                |       |
| 13.80  | 97  | 66                                 | 0   | 99                           |  |   | (3.57)                |   |                                |       |
| 14.60  |     |                                    | 0   | 25                           |  |   |                       | ---from 14.80m to 15.80m fractures become very closely and closely spaced   |                                |       |
| 14.80  |     |                                    | 0   | 25                           |  |   |                       |   |                                |       |
| 15.80  |     |                                    |     |                              | 19/09/1999:13.00m                        | 152.70  | 16.00                 | ---from 15.80m becomes highly weathered very weak locally weak and moderately weak with extremely closely spaced random fractures tight smooth irregular clay smeared<br>Complete at 16.00m   |                                |       |
| Remarks  |     |                                    |     |                              |  |   |                       | Scale (approx)<br>1:50  | Logged By<br>NBR               |       |
|  |     |                                    |     |                              |  |   |                       | Figure No.  |                                |       |